

Minnesota Public Radio

Grand Rapids 209

REFERENCE CH# 209C3 - 89.7 MHz, Pwr= 9.7 kW, HAAT= 143.5 M, COR= 548 M
47 16 39.2 N.
93 26 58.3 W.

DISPLAY DATES
DATA 09-11-07
SEARCH 09-11-07

CH CITY	CALL	TYPE	ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
209A Bemidji	KBSB	LIC	_HN MN	282.6 101.5	109.99 BLED19790913AB	47 29 00.0 94 52 27.0	0.120 38	23.2 460	6.9 Bemidji State College	48.45	0.51
211A Hi bbi ng	KADU	LIC	_CX MN	69.0 249.3	39.25 BLED20070629AAJ	47 24 10.0 92 57 50.0	1.500 103	1.8 540	20.4 Heartland Christian Broadc	1.93	15.38
06+2C Superior	KBRTV	LI	_HY WI	117.7 298.7	115.11 BLCT20000517AEX	46 47 21.0 92 06 51.0	100.000 302	604	91.0 Kbjr License, Inc.	110.5R	4.6M
209A International Falls	AP7622	APP	_CX MN	3.7 183.8	133.24 BNPED20000119ABW	48 28 24.0 93 20 00.0	6.000 47	74.6 397	19.3 Minnesota Public Radio	22.09	13.53
208C1 Duluth	WJRF	APP	DVX MN	117.8 298.8	114.78 BPED20070906AEZ	46 47 21.0 92 07 09.0	100.000 154	59.1 461	31.0 Refuge Media Group	17.65	27.00
209C2 Princeton	KPCS	CP	DVN MN	182.5 2.4	186.84 BPED19990518MB	45 35 54.0 93 33 18.0	50.000 32	115.0 334	26.5 Pensacola Christian Colleg	34.19	58.62
208C3 Duluth	WJRF	LIC	_VX MN	117.8 298.8	114.78 BMLED20050204ABB	46 47 21.0 92 07 09.0	2.850 156	19.3 463	13.1 Refuge Media Group	57.47	44.91
210C2 Brule	WHSB	LIC	_CN WI	121.5 302.9	169.60 BLED1040	46 27 59.0 91 33 56.0	38.000 168	77.2 525	52.2 State Of Wisconsin - Educa	54.06	60.29
207C1 Sebek	KOPJ	LIC	_C_ MN	229.0 48.1	121.97 BLED20051005AAI	46 33 08.0 94 39 03.0	100.000 143	6.3 560	53.6 Lifetalk Radio, Inc.	77.03	64.51
206B Fort Frances	CKSB9F	OPE	_CN ON	352.5 172.3	152.74	48 38 22.0 93 43 14.0	50.000 142	7.0 493	64.5 97.48		82.93
263C1 Cloquet	WSCN	LIC	_CN MN	117.7 298.7	115.11 BLED19900717KA	46 47 21.0 92 06 51.0	97.000 267	0.0 572	0.0 Minnesota Public Radio	23.5R	91.6M
206C3 Hi nckley2 Hi nckley		LIC	_MN	166.6 347.0	142.75	46 01 39.2 93 01 20.3	11.000 109	3.0 432	30.4 101.43		108.61
209C3 Grand Marais	WLSN	LIC	_CX MN	75.7 258.0	239.98 BLED20020411AAL	47 46 04.0 90 20 47.0	6.000 194	88.9 537	30.0 Minnesota Public Radio	114.88	110.01
209A Fergus Falls	KCMF	LIC	_CX MN	243.1 61.1	228.11 BLED20030610ACR	46 19 12.0 96 05 32.0	2.700 66	52.2 439	13.1 Minnesota Public Radio	137.35	112.15

Terrain database is USGS 03 SEC

ERP and HAAT are on direct line to and from reference station.

Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)

"<" = Station meets FCC minimum distance spacing for its class.

Reference station has protected zone issue: Canada

HOW TO READ THE FM COMPUTER PRINT-OUT

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, while the 40, 54, 80 and 100 dBu contours are interference contours derived from the Commission's F(50-10) table. Contour distances are in kilometers and are predicted using spline interpolation from data points identical to those published in Report No. RS 76-01 by Gary C. Kalagian. Critical contour distances are determined 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.

The column listed "*** IN ***" is the sum of the reference station's 60 dBu protected contour and the data file station's interference contour subtracted from the distance between the stations. (All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90.) Therefore, the column is a measure of incoming interference. Negative distances in this column indicate the presence of interference. Listed antenna heights are the average heights of eight standard radials as found in the Commission's records unless otherwise noted, in which case the specific antenna heights and the DA power, if applicable, along the straight line azimuths between the reference station and the database station are used and visa versa. The column labeled "*** OUT ***" shows the distance in kilometers of overlap or clearance between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing overlap interference.

Under the "AZIMUTH" column, the first row of numbers indicate the bearings from True North of the data base stations in relationship with the reference station, while the numbers in the second row indicate the reverse bearings from the database station to the reference station.

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

For I.F. relationships the "IN" and "OUT" columns change their significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column follows 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".

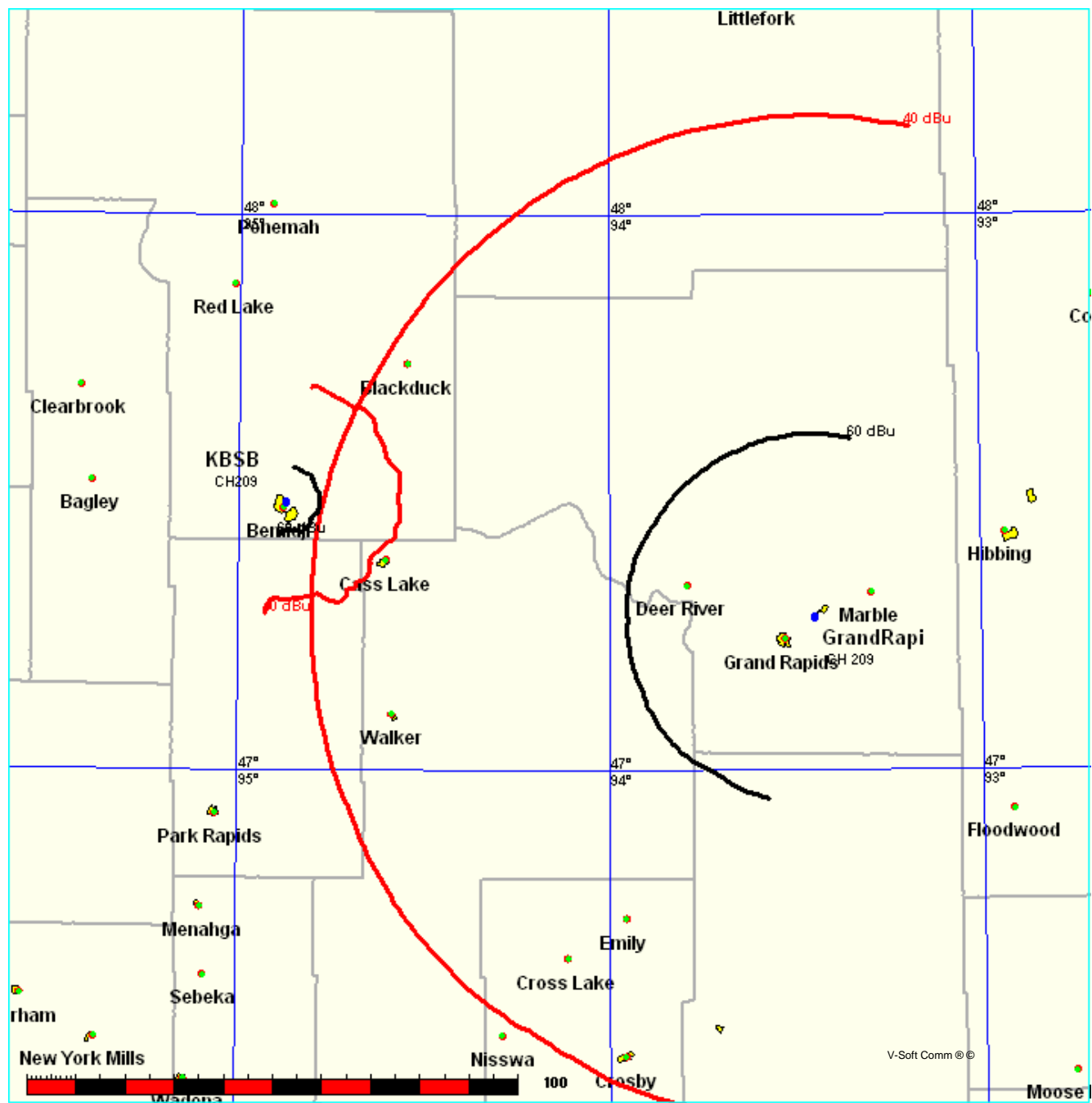
The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" if the facility is directional. "Z" indicates a 73.215 directional. An "N" indicates it is a 73.215 station that operates omni. The fifth letter will be an E, H or V depending 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".

Minnesota Public Radio
Grand Rapids 209 v KBSB

FMCommander Single Allocation Study
09-14-2007

GrandRapi CH 209 C3
9.7 kW 548 M COR
Prot. = 60 dBu
Intef. = 40 dBu

KBSB CH 209 A BLED19790913AB
0.12 kW, 460 M COR
Prot. = 60 dBu
Intef. = 40 dBu



09-14-2007

USGS 03 SEC Terrain Data

FMOver Analysis

GrandRapi

KBSB

BLED19790913AB

Channel = 209C3

Channel = 209A

Max ERP = 9.7 kW

Max ERP = 0.12 kW

RCAMSL = 548 M

RCAMSL = 460 M

N. Lat. 47 16 39.2

N. Lat. 47 29 00.0

W. Lng. 93 26 58.3

W. Lng. 94 52 27.0

Protected

Interfering

60 dBu

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
223.0	009.7000	0154.5	038.5	121.8	000.1200	0033.8	096.2	17.71
224.0	009.7000	0154.9	038.6	121.7	000.1200	0033.8	095.6	17.84
225.0	009.7000	0155.1	038.6	121.6	000.1200	0033.8	094.9	17.98
226.0	009.7000	0154.8	038.6	121.5	000.1200	0033.8	094.2	18.11
227.0	009.7000	0154.8	038.6	121.4	000.1200	0033.9	093.6	18.25
228.0	009.7000	0155.2	038.6	121.3	000.1200	0033.9	092.9	18.38
229.0	009.7000	0155.4	038.6	121.2	000.1200	0033.9	092.3	18.52
230.0	009.7000	0155.4	038.6	121.1	000.1200	0033.9	091.6	18.66
231.0	009.7000	0155.8	038.7	121.0	000.1200	0033.9	091.0	18.80
232.0	009.7000	0156.4	038.8	120.9	000.1200	0034.0	090.3	18.94
233.0	009.7000	0156.6	038.8	120.7	000.1200	0034.0	089.7	19.08
234.0	009.7000	0156.9	038.8	120.6	000.1200	0034.1	089.0	19.22
235.0	009.7000	0157.1	038.8	120.4	000.1200	0034.2	088.4	19.36
236.0	009.7000	0156.8	038.8	120.2	000.1200	0034.3	087.8	19.50
237.0	009.7000	0155.7	038.7	120.0	000.1200	0034.4	087.2	19.62
238.0	009.7000	0155.2	038.6	119.7	000.1200	0034.6	086.6	19.75
239.0	009.7000	0155.0	038.6	119.5	000.1200	0034.7	086.1	19.89
240.0	009.7000	0154.9	038.6	119.3	000.1200	0034.8	085.5	20.02
241.0	009.7000	0155.1	038.6	119.1	000.1200	0035.0	084.9	20.15
242.0	009.7000	0155.0	038.6	118.8	000.1200	0035.1	084.3	20.29
243.0	009.7000	0154.6	038.5	118.5	000.1200	0035.3	083.8	20.41
244.0	009.7000	0154.0	038.5	118.2	000.1200	0035.5	083.3	20.54
245.0	009.7000	0152.9	038.3	117.9	000.1200	0035.7	082.8	20.65
246.0	009.7000	0151.5	038.2	117.5	000.1200	0036.0	082.4	20.76
247.0	009.7000	0151.6	038.2	117.2	000.1200	0036.3	081.8	20.89
248.0	009.7000	0152.1	038.3	117.0	000.1200	0036.5	081.3	21.02
249.0	009.7000	0152.4	038.3	116.7	000.1200	0036.7	080.7	21.15
250.0	009.7000	0152.9	038.3	116.4	000.1200	0036.9	080.2	21.28
251.0	009.7000	0153.3	038.4	116.1	000.1200	0037.1	079.7	21.40
252.0	009.7000	0153.4	038.4	115.7	000.1200	0037.2	079.2	21.51
253.0	009.7000	0153.2	038.4	115.4	000.1200	0037.4	078.8	21.62
254.0	009.7000	0153.0	038.4	115.0	000.1200	0037.5	078.3	21.72
255.0	009.7000	0152.8	038.3	114.6	000.1200	0037.6	077.9	21.81
256.0	009.7000	0152.5	038.3	114.2	000.1200	0037.7	077.5	21.90
257.0	009.7000	0152.5	038.3	113.8	000.1200	0037.8	077.1	21.99
258.0	009.7000	0152.7	038.3	113.5	000.1200	0037.8	076.7	22.09
259.0	009.7000	0152.8	038.3	113.0	000.1200	0037.9	076.3	22.18

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
260.0	009.7000	0152.7	038.3	112.6	000.1200	0038.2	075.9	22.28
261.0	009.7000	0152.6	038.3	112.2	000.1200	0038.7	075.5	22.39
262.0	009.7000	0152.1	038.3	111.7	000.1200	0039.2	075.2	22.48
263.0	009.7000	0152.1	038.2	111.3	000.1200	0039.6	074.9	22.59
264.0	009.7000	0152.4	038.3	110.9	000.1200	0040.1	074.6	22.69
265.0	009.7000	0152.2	038.3	110.4	000.1200	0040.4	074.3	22.78
266.0	009.7000	0151.6	038.2	109.9	000.1200	0040.9	074.1	22.87
267.0	009.7000	0151.1	038.1	109.4	000.1200	0041.7	073.8	22.98
268.0	009.7000	0150.6	038.1	108.9	000.1200	0042.3	073.6	23.06
269.0	009.7000	0150.4	038.0	108.4	000.1200	0042.4	073.4	23.12
270.0	009.7000	0150.7	038.1	107.9	000.1200	0042.3	073.2	23.17
271.0	009.7000	0151.1	038.1	107.4	000.1200	0042.2	072.9	23.21
272.0	009.7000	0151.5	038.2	107.0	000.1200	0042.1	072.7	23.25
273.0	009.7000	0151.8	038.2	106.5	000.1200	0041.8	072.5	23.28
274.0	009.7000	0152.3	038.3	105.9	000.1200	0041.3	072.3	23.29
275.0	009.7000	0152.2	038.3	105.4	000.1200	0041.0	072.1	23.29
276.0	009.7000	0152.5	038.3	104.9	000.1200	0040.9	072.0	23.31
277.0	009.7000	0152.8	038.3	104.4	000.1200	0041.0	071.8	23.35
278.0	009.7000	0152.3	038.3	103.8	000.1200	0041.2	071.8	23.37
279.0	009.7000	0152.3	038.3	103.3	000.1200	0041.5	071.7	23.41
280.0	009.7000	0153.0	038.4	102.8	000.1200	0041.9	071.6	23.47
281.0	009.7000	0153.2	038.4	102.3	000.1200	0041.9	071.6	23.49
282.0	009.7000	0152.9	038.3	101.7	000.1200	0042.0	071.6	23.49
283.0	009.7000	0152.5	038.3	101.2	000.1200	0042.2	071.6	23.49
284.0	009.7000	0152.1	038.3	100.6	000.1200	0042.3	071.7	23.49
285.0	009.7000	0151.7	038.2	100.1	000.1200	0042.6	071.8	23.50
286.0	009.7000	0151.7	038.2	099.6	000.1200	0042.9	071.8	23.51
287.0	009.7000	0151.8	038.2	099.1	000.1200	0043.0	071.9	23.50
288.0	009.7000	0151.5	038.2	098.5	000.1200	0042.9	072.0	23.47
289.0	009.7000	0151.0	038.1	098.0	000.1200	0042.7	072.2	23.42
290.0	009.7000	0150.3	038.0	097.5	000.1200	0042.5	072.4	23.35
291.0	009.7000	0149.8	038.0	097.0	000.1200	0042.3	072.6	23.29
292.0	009.7000	0149.9	038.0	096.5	000.1200	0042.0	072.7	23.24
293.0	009.7000	0149.7	038.0	096.0	000.1200	0042.1	072.9	23.20
294.0	009.7000	0149.3	037.9	095.5	000.1200	0042.1	073.2	23.16
295.0	009.7000	0149.3	037.9	095.0	000.1200	0042.1	073.4	23.11
296.0	009.7000	0147.6	037.7	094.6	000.1200	0042.0	073.8	23.01
297.0	009.7000	0146.5	037.6	094.1	000.1200	0042.0	074.2	22.93
298.0	009.7000	0146.0	037.5	093.7	000.1200	0042.0	074.5	22.86
299.0	009.7000	0145.3	037.4	093.3	000.1200	0041.9	074.8	22.78
300.0	009.7000	0144.9	037.4	092.8	000.1200	0041.8	075.1	22.71
301.0	009.7000	0144.7	037.4	092.4	000.1200	0041.6	075.5	22.62
302.0	009.7000	0144.5	037.4	092.0	000.1200	0041.4	075.8	22.54
303.0	009.7000	0144.5	037.3	091.5	000.1200	0041.3	076.1	22.45
304.0	009.7000	0144.5	037.3	091.1	000.1200	0041.1	076.5	22.37
305.0	009.7000	0144.4	037.3	090.7	000.1200	0041.0	076.8	22.29
306.0	009.7000	0144.4	037.3	090.3	000.1200	0041.0	077.2	22.20
307.0	009.7000	0144.4	037.3	089.9	000.1200	0040.9	077.6	22.11
308.0	009.7000	0144.5	037.3	089.5	000.1200	0040.9	077.9	22.03
309.0	009.7000	0144.5	037.3	089.2	000.1200	0040.9	078.4	21.94
310.0	009.7000	0144.5	037.3	088.8	000.1200	0040.9	078.8	21.86

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
311.0	009.7000	0144.4	037.3	088.4	000.1200	0040.9	079.2	21.76
312.0	009.7000	0144.1	037.3	088.1	000.1200	0040.9	079.7	21.66
313.0	009.7000	0143.9	037.3	087.8	000.1200	0040.9	080.1	21.56
314.0	009.7000	0143.4	037.2	087.5	000.1200	0040.9	080.6	21.45
315.0	009.7000	0143.0	037.2	087.2	000.1200	0041.0	081.1	21.34
316.0	009.7000	0142.7	037.1	086.9	000.1200	0041.1	081.6	21.24
317.0	009.7000	0142.3	037.1	086.6	000.1200	0041.2	082.2	21.13
318.0	009.7000	0142.0	037.0	086.4	000.1200	0041.4	082.7	21.03
319.0	009.7000	0141.7	037.0	086.1	000.1200	0041.6	083.2	20.92
320.0	009.7000	0141.4	037.0	085.9	000.1200	0041.7	083.7	20.81
321.0	009.7000	0141.1	036.9	085.6	000.1200	0041.8	084.3	20.69
322.0	009.7000	0140.9	036.9	085.4	000.1200	0041.9	084.8	20.57
323.0	009.7000	0140.9	036.9	085.1	000.1200	0042.0	085.4	20.45
324.0	009.7000	0140.9	036.9	084.9	000.1200	0042.0	085.9	20.33
325.0	009.7000	0141.0	036.9	084.7	000.1200	0042.0	086.4	20.21
326.0	009.7000	0141.2	037.0	084.4	000.1200	0042.1	087.0	20.09
327.0	009.7000	0141.2	036.9	084.2	000.1200	0042.1	087.6	19.96
328.0	009.7000	0141.0	036.9	084.1	000.1200	0042.1	088.1	19.83
329.0	009.7000	0140.8	036.9	083.9	000.1200	0042.1	088.7	19.70
330.0	009.7000	0140.5	036.9	083.7	000.1200	0042.2	089.3	19.56
331.0	009.7000	0140.2	036.8	083.6	000.1200	0042.2	089.9	19.43
332.0	009.7000	0139.7	036.8	083.5	000.1200	0042.2	090.5	19.29
333.0	009.7000	0139.2	036.7	083.3	000.1200	0042.2	091.2	19.16
334.0	009.7000	0139.0	036.7	083.2	000.1200	0042.2	091.8	19.02
335.0	009.7000	0138.9	036.7	083.1	000.1200	0042.2	092.4	18.89
336.0	009.7000	0138.9	036.7	083.0	000.1200	0042.2	093.0	18.76
337.0	009.7000	0138.9	036.7	082.8	000.1200	0042.2	093.6	18.63
338.0	009.7000	0139.0	036.7	082.7	000.1200	0042.2	094.2	18.49
339.0	009.7000	0138.9	036.7	082.6	000.1200	0042.3	094.8	18.36
340.0	009.7000	0139.0	036.7	082.5	000.1200	0042.3	095.4	18.23
341.0	009.7000	0139.0	036.7	082.4	000.1200	0042.3	096.1	18.10
342.0	009.7000	0138.8	036.7	082.4	000.1200	0042.3	096.7	17.98
343.0	009.7000	0139.1	036.7	082.3	000.1200	0042.3	097.3	17.85

09-14-2007 USGS 03 SEC Terrain Data

KBSB BLED19790913AB
 Channel = 209A
 Max ERP = 0.12 kW
 RCAMSL = 460 M
 N. Lat. 47 29 00.0
 W. Lng. 94 52 27.0
 Protected
 60 dBu

GrandRapi
 Channel = 209C3
 Max ERP = 9.7 kW
 RCAMSL = 548 M
 N. Lat. 47 16 39.2
 W. Lng. 93 26 58.3
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
042.0	000.1200	0046.5	007.3	286.0	009.7000	0151.6	106.5	39.04
043.0	000.1200	0046.6	007.3	285.9	009.7000	0151.6	106.4	39.06
044.0	000.1200	0046.5	007.3	285.9	009.7000	0151.6	106.3	39.09
045.0	000.1200	0046.4	007.3	285.9	009.7000	0151.6	106.1	39.11
046.0	000.1200	0046.3	007.3	285.8	009.7000	0151.6	106.0	39.14
047.0	000.1200	0045.9	007.3	285.8	009.7000	0151.6	106.0	39.16
048.0	000.1200	0045.2	007.2	285.7	009.7000	0151.6	105.9	39.17
049.0	000.1200	0044.8	007.2	285.6	009.7000	0151.7	105.8	39.19
050.0	000.1200	0044.3	007.1	285.6	009.7000	0151.7	105.7	39.21
051.0	000.1200	0043.2	007.0	285.5	009.7000	0151.7	105.7	39.22
052.0	000.1200	0042.3	006.9	285.4	009.7000	0151.7	105.6	39.23
053.0	000.1200	0041.7	006.9	285.4	009.7000	0151.7	105.6	39.25
054.0	000.1200	0041.4	006.9	285.3	009.7000	0151.7	105.5	39.27
055.0	000.1200	0041.3	006.9	285.3	009.7000	0151.7	105.4	39.29
056.0	000.1200	0041.5	006.9	285.2	009.7000	0151.7	105.3	39.31
057.0	000.1200	0041.3	006.9	285.2	009.7000	0151.7	105.2	39.33
058.0	000.1200	0041.2	006.8	285.1	009.7000	0151.7	105.1	39.35
059.0	000.1200	0041.2	006.8	285.1	009.7000	0151.7	105.1	39.37
060.0	000.1200	0041.1	006.8	285.0	009.7000	0151.7	105.0	39.39
061.0	000.1200	0040.8	006.8	285.0	009.7000	0151.7	104.9	39.40
062.0	000.1200	0040.5	006.8	284.9	009.7000	0151.7	104.9	39.42
063.0	000.1200	0040.0	006.7	284.9	009.7000	0151.7	104.8	39.43
064.0	000.1200	0039.7	006.7	284.8	009.7000	0151.8	104.7	39.44
065.0	000.1200	0039.5	006.7	284.8	009.7000	0151.8	104.7	39.46
066.0	000.1200	0039.3	006.7	284.7	009.7000	0151.8	104.6	39.47
067.0	000.1200	0039.4	006.7	284.6	009.7000	0151.8	104.6	39.49
068.0	000.1200	0039.6	006.7	284.6	009.7000	0151.8	104.5	39.51
069.0	000.1200	0039.9	006.7	284.6	009.7000	0151.9	104.4	39.53
070.0	000.1200	0040.4	006.8	284.5	009.7000	0151.9	104.3	39.56
071.0	000.1200	0041.1	006.8	284.5	009.7000	0151.9	104.2	39.58
072.0	000.1200	0041.9	006.9	284.4	009.7000	0151.9	104.0	39.61
073.0	000.1200	0042.6	007.0	284.4	009.7000	0151.9	103.9	39.64
074.0	000.1200	0043.1	007.0	284.4	009.7000	0151.9	103.8	39.66
075.0	000.1200	0043.5	007.0	284.3	009.7000	0152.0	103.7	39.69

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
076.0	000.1200	0043.8	007.1	284.3	009.7000	0152.0	103.7	39.71
077.0	000.1200	0044.0	007.1	284.2	009.7000	0152.0	103.6	39.72
078.0	000.1200	0044.1	007.1	284.1	009.7000	0152.1	103.5	39.74
079.0	000.1200	0043.8	007.1	284.1	009.7000	0152.1	103.5	39.75
080.0	000.1200	0043.2	007.0	284.0	009.7000	0152.1	103.5	39.75
081.0	000.1200	0042.7	007.0	283.9	009.7000	0152.2	103.5	39.75
082.0	000.1200	0042.3	006.9	283.9	009.7000	0152.2	103.5	39.76
083.0	000.1200	0042.2	006.9	283.8	009.7000	0152.3	103.4	39.77
084.0	000.1200	0042.1	006.9	283.7	009.7000	0152.3	103.4	39.78
085.0	000.1200	0042.0	006.9	283.7	009.7000	0152.3	103.4	39.78
086.0	000.1200	0041.7	006.9	283.6	009.7000	0152.3	103.4	39.79
087.0	000.1200	0041.0	006.8	283.5	009.7000	0152.4	103.4	39.78
088.0	000.1200	0040.9	006.8	283.4	009.7000	0152.4	103.4	39.79
089.0	000.1200	0040.9	006.8	283.4	009.7000	0152.4	103.4	39.80
090.0	000.1200	0040.9	006.8	283.3	009.7000	0152.4	103.3	39.80
091.0	000.1200	0041.1	006.8	283.3	009.7000	0152.5	103.3	39.81
092.0	000.1200	0041.4	006.9	283.2	009.7000	0152.5	103.2	39.83
093.0	000.1200	0041.9	006.9	283.1	009.7000	0152.5	103.2	39.84
094.0	000.1200	0042.0	006.9	283.1	009.7000	0152.5	103.1	39.85
095.0	000.1200	0042.1	006.9	283.0	009.7000	0152.5	103.1	39.86
096.0	000.1200	0042.1	006.9	282.9	009.7000	0152.5	103.1	39.86
097.0	000.1200	0042.3	006.9	282.9	009.7000	0152.6	103.1	39.87
098.0	000.1200	0042.7	007.0	282.8	009.7000	0152.6	103.0	39.88
099.0	000.1200	0043.0	007.0	282.7	009.7000	0152.6	103.0	39.89
100.0	000.1200	0042.7	007.0	282.7	009.7000	0152.6	103.0	39.88
101.0	000.1200	0042.2	006.9	282.6	009.7000	0152.7	103.1	39.87
102.0	000.1200	0042.0	006.9	282.5	009.7000	0152.7	103.1	39.87
103.0	000.1200	0041.8	006.9	282.5	009.7000	0152.7	103.1	39.87
104.0	000.1200	0041.1	006.8	282.4	009.7000	0152.8	103.2	39.85
105.0	000.1200	0040.9	006.8	282.3	009.7000	0152.8	103.2	39.85
106.0	000.1200	0041.4	006.9	282.3	009.7000	0152.8	103.2	39.86
107.0	000.1200	0042.1	006.9	282.2	009.7000	0152.8	103.1	39.87
108.0	000.1200	0042.3	006.9	282.1	009.7000	0152.9	103.1	39.87
109.0	000.1200	0042.2	006.9	282.1	009.7000	0152.9	103.1	39.87
110.0	000.1200	0040.8	006.8	282.0	009.7000	0152.9	103.3	39.84
111.0	000.1200	0039.9	006.7	281.9	009.7000	0152.9	103.4	39.81
112.0	000.1200	0038.9	006.7	281.9	009.7000	0152.9	103.5	39.79
113.0	000.1200	0038.0	006.6	281.8	009.7000	0153.0	103.6	39.76
114.0	000.1200	0037.7	006.6	281.8	009.7000	0153.0	103.6	39.75
115.0	000.1200	0037.5	006.5	281.7	009.7000	0153.0	103.7	39.74
116.0	000.1200	0037.1	006.5	281.7	009.7000	0153.0	103.7	39.73
117.0	000.1200	0036.4	006.4	281.6	009.7000	0153.0	103.8	39.71
118.0	000.1200	0035.6	006.4	281.6	009.7000	0153.0	103.9	39.69
119.0	000.1200	0035.0	006.3	281.5	009.7000	0153.0	104.0	39.67
120.0	000.1200	0034.4	006.3	281.5	009.7000	0153.1	104.1	39.65
121.0	000.1200	0033.9	006.2	281.4	009.7000	0153.1	104.1	39.63
122.0	000.1200	0033.8	006.2	281.4	009.7000	0153.1	104.2	39.62
123.0	000.1200	0033.8	006.2	281.3	009.7000	0153.1	104.2	39.61
124.0	000.1200	0033.9	006.2	281.3	009.7000	0153.1	104.3	39.60
125.0	000.1200	0034.4	006.3	281.2	009.7000	0153.1	104.3	39.60
126.0	000.1200	0035.5	006.4	281.1	009.7000	0153.2	104.2	39.61

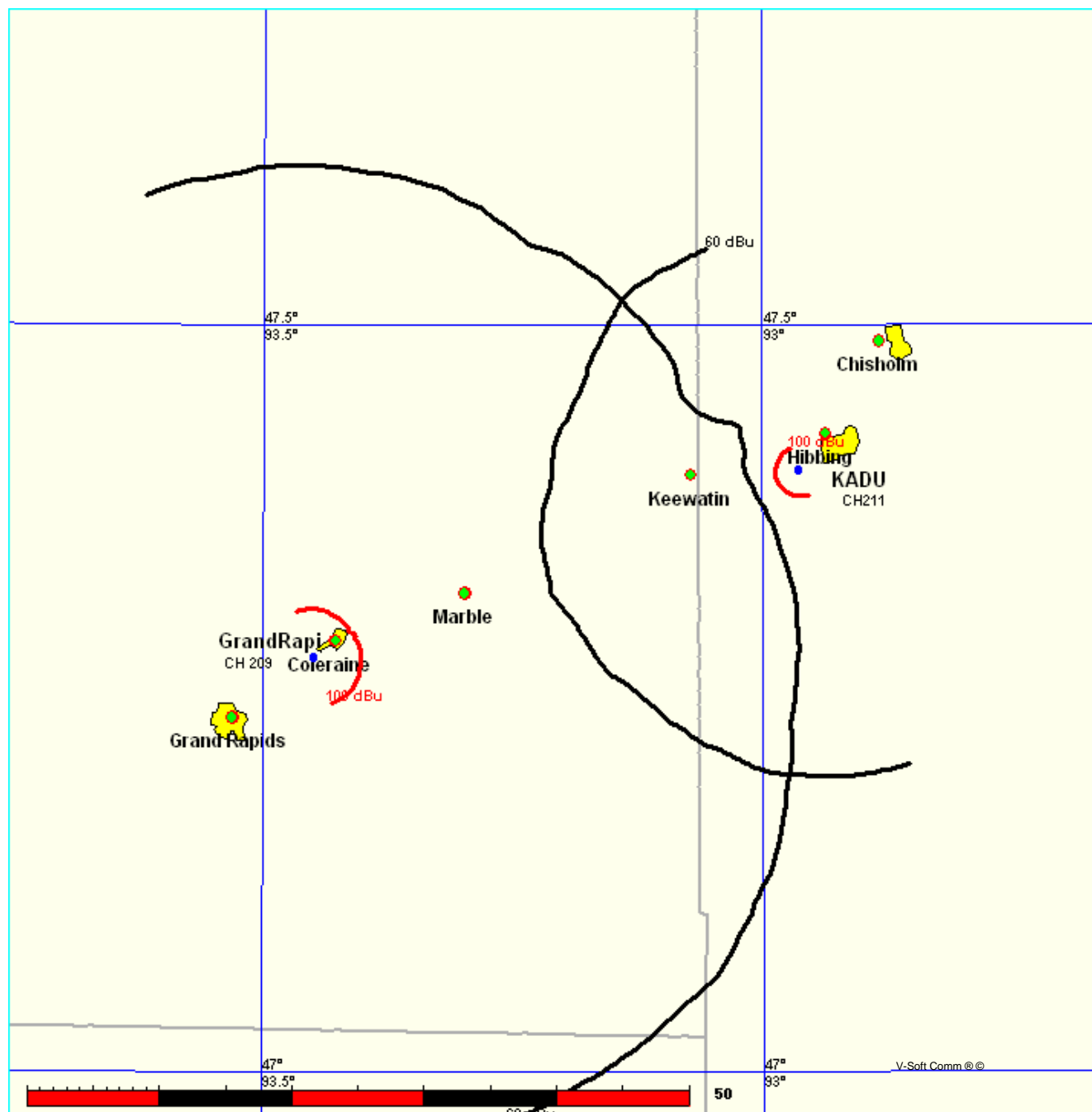
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
127.0	000.1200	0036.1	006.4	281.0	009.7000	0153.2	104.2	39.61
128.0	000.1200	0036.8	006.5	281.0	009.7000	0153.2	104.2	39.61
129.0	000.1200	0037.3	006.5	280.9	009.7000	0153.2	104.3	39.61
130.0	000.1200	0038.0	006.6	280.8	009.7000	0153.2	104.3	39.61
131.0	000.1200	0038.7	006.6	280.8	009.7000	0153.2	104.3	39.60
132.0	000.1200	0039.0	006.7	280.7	009.7000	0153.2	104.3	39.60
133.0	000.1200	0039.2	006.7	280.6	009.7000	0153.2	104.4	39.58
134.0	000.1200	0039.1	006.7	280.6	009.7000	0153.2	104.4	39.57
135.0	000.1200	0039.0	006.7	280.5	009.7000	0153.2	104.5	39.55
136.0	000.1200	0038.2	006.6	280.5	009.7000	0153.2	104.6	39.52
137.0	000.1200	0036.8	006.5	280.5	009.7000	0153.2	104.8	39.48
138.0	000.1200	0037.0	006.5	280.4	009.7000	0153.2	104.9	39.47
139.0	000.1200	0037.5	006.5	280.4	009.7000	0153.2	104.9	39.46
140.0	000.1200	0038.5	006.6	280.3	009.7000	0153.2	104.9	39.45
141.0	000.1200	0039.0	006.7	280.2	009.7000	0153.1	104.9	39.44
142.0	000.1200	0038.5	006.6	280.2	009.7000	0153.1	105.1	39.42
143.0	000.1200	0037.6	006.5	280.2	009.7000	0153.1	105.2	39.39
144.0	000.1200	0037.2	006.5	280.2	009.7000	0153.1	105.3	39.36
145.0	000.1200	0037.2	006.5	280.1	009.7000	0153.1	105.4	39.34
146.0	000.1200	0038.6	006.6	280.0	009.7000	0153.0	105.4	39.34
147.0	000.1200	0040.2	006.8	279.9	009.7000	0153.0	105.4	39.34
148.0	000.1200	0040.5	006.8	279.9	009.7000	0152.9	105.4	39.32
149.0	000.1200	0040.9	006.8	279.8	009.7000	0152.9	105.5	39.30
150.0	000.1200	0041.2	006.9	279.8	009.7000	0152.9	105.6	39.29
151.0	000.1200	0041.2	006.8	279.7	009.7000	0152.8	105.7	39.26
152.0	000.1200	0040.6	006.8	279.7	009.7000	0152.8	105.8	39.23
153.0	000.1200	0039.9	006.7	279.7	009.7000	0152.8	105.9	39.20
154.0	000.1200	0039.2	006.7	279.7	009.7000	0152.8	106.1	39.17
155.0	000.1200	0038.2	006.6	279.7	009.7000	0152.8	106.2	39.14
156.0	000.1200	0037.3	006.5	279.7	009.7000	0152.8	106.3	39.11
157.0	000.1200	0036.2	006.4	279.7	009.7000	0152.8	106.5	39.08
158.0	000.1200	0034.3	006.3	279.7	009.7000	0152.9	106.7	39.04
159.0	000.1200	0032.6	006.1	279.8	009.7000	0152.9	106.8	39.00
160.0	000.1200	0030.9	006.0	279.8	009.7000	0152.9	107.0	38.96
161.0	000.1200	0029.7	005.9	279.8	009.7000	0152.9	107.1	38.94
162.0	000.1200	0028.8	005.9	279.8	009.7000	0152.9	107.2	38.92

Minnesota Public Radio
Grand Rapids 209 v KADU

FMCommander Single Allocation Study
09-14-2007

GrandRapi CH 209 C3
9.7 kW 548 M COR
Prot. = 60 dBu
Intef. = 100 dBu

KADU CH 211 A BLED20070629AAJ
1.5 kW, 540 M COR
Prot. = 60 dBu
Intef. = 100 dBu



09-14-2007

USGS 03 SEC Terrain Data

FMOver Analysis

GrandRapi

KADU

BLED20070629AAJ

Channel = 209C3

Channel = 211A

Max ERP = 9.7 kW

Max ERP = 1.5 kW

RCAMSL = 548 M

RCAMSL = 540 M

N. Lat. 47 16 39.2

N. Lat. 47 24 10.0

W. Lng. 93 26 58.3

W. Lng. 92 57 50.0

Protected

Interfering

60 dBu

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
009.0	009.7000	0136.2	036.4	305.6	001.5000	0076.8	037.9	48.15
010.0	009.7000	0136.1	036.3	306.1	001.5000	0077.0	037.4	48.42
011.0	009.7000	0136.2	036.4	306.5	001.5000	0077.2	036.8	48.68
012.0	009.7000	0136.0	036.3	306.9	001.5000	0077.4	036.2	48.95
013.0	009.7000	0135.7	036.3	307.3	001.5000	0077.5	035.6	49.22
014.0	009.7000	0135.5	036.3	307.6	001.5000	0077.7	035.0	49.50
015.0	009.7000	0135.1	036.2	308.0	001.5000	0077.9	034.4	49.78
016.0	009.7000	0134.5	036.1	308.2	001.5000	0078.0	033.8	50.07
017.0	009.7000	0133.5	036.0	308.4	001.5000	0078.1	033.2	50.36
018.0	009.7000	0132.3	035.9	308.6	001.5000	0078.1	032.5	50.65
019.0	009.7000	0131.7	035.8	308.9	001.5000	0078.2	031.9	50.95
020.0	009.7000	0131.6	035.8	309.2	001.5000	0078.4	031.3	51.25
021.0	009.7000	0131.0	035.7	309.5	001.5000	0078.5	030.7	51.57
022.0	009.7000	0129.6	035.6	309.5	001.5000	0078.5	030.1	51.91
023.0	009.7000	0128.1	035.4	309.5	001.5000	0078.5	029.4	52.27
024.0	009.7000	0127.4	035.3	309.7	001.5000	0078.6	028.8	52.63
025.0	009.7000	0126.3	035.2	309.8	001.5000	0078.6	028.2	53.01
026.0	009.7000	0125.2	035.1	309.8	001.5000	0078.6	027.6	53.40
027.0	009.7000	0124.0	034.9	309.8	001.5000	0078.6	026.9	53.80
028.0	009.7000	0123.4	034.9	310.0	001.5000	0078.7	026.3	54.21
029.0	009.7000	0124.0	034.9	310.4	001.5000	0078.9	025.8	54.63
030.0	009.7000	0125.3	035.1	311.0	001.5000	0079.2	025.2	55.06
031.0	009.7000	0126.7	035.2	311.6	001.5000	0079.6	024.6	55.51
032.0	009.7000	0128.0	035.4	312.2	001.5000	0080.0	024.0	55.97
033.0	009.7000	0128.3	035.4	312.5	001.5000	0080.1	023.4	56.43
034.0	009.7000	0128.4	035.4	312.8	001.5000	0080.2	022.8	56.90
035.0	009.7000	0128.6	035.5	313.1	001.5000	0080.4	022.2	57.38
036.0	009.7000	0128.8	035.5	313.3	001.5000	0080.6	021.6	57.88
037.0	009.7000	0128.9	035.5	313.5	001.5000	0080.7	021.0	58.38
038.0	009.7000	0128.6	035.5	313.6	001.5000	0080.8	020.4	58.88
039.0	009.7000	0128.3	035.4	313.7	001.5000	0080.8	019.8	59.38
040.0	009.7000	0128.2	035.4	313.8	001.5000	0080.9	019.1	59.89
041.0	009.7000	0127.7	035.3	313.7	001.5000	0080.8	018.5	60.40
042.0	009.7000	0127.4	035.3	313.6	001.5000	0080.8	017.9	60.92
043.0	009.7000	0127.2	035.3	313.6	001.5000	0080.8	017.3	61.43
044.0	009.7000	0127.1	035.3	313.5	001.5000	0080.7	016.7	61.95
045.0	009.7000	0127.0	035.3	313.5	001.5000	0080.7	016.1	62.47

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
046.0	009.7000	0126.6	035.2	313.2	001.5000	0080.5	015.4	62.99
047.0	009.7000	0125.8	035.1	312.7	001.5000	0080.2	014.8	63.34
048.0	009.7000	0125.5	035.1	312.3	001.5000	0080.0	014.2	64.03
049.0	009.7000	0125.4	035.1	312.0	001.5000	0079.9	013.6	64.78
050.0	009.7000	0125.2	035.1	311.5	001.5000	0079.6	013.0	65.57
051.0	009.7000	0124.3	035.0	310.6	001.5000	0079.0	012.4	66.35
052.0	009.7000	0122.8	034.8	309.2	001.5000	0078.4	011.9	67.12
053.0	009.7000	0119.8	034.4	306.8	001.5000	0077.3	011.4	67.79
054.0	009.7000	0117.1	034.1	304.2	001.5000	0076.3	010.9	68.43
055.0	009.7000	0116.3	034.0	302.5	001.5000	0075.8	010.4	69.23
056.0	009.7000	0116.5	034.0	301.3	001.5000	0075.6	009.9	70.18
057.0	009.7000	0117.6	034.2	300.5	001.5000	0075.5	009.3	71.24
058.0	009.7000	0119.4	034.4	299.9	001.5000	0075.5	008.6	72.39
059.0	009.7000	0122.3	034.7	300.0	001.5000	0075.5	007.9	73.72
060.0	009.7000	0126.9	035.3	301.3	001.5000	0075.6	007.2	75.53
061.0	009.7000	0134.4	036.1	305.7	001.5000	0076.8	006.2	78.28
062.0	009.7000	0137.6	036.5	306.4	001.5000	0077.1	005.5	80.61
063.0	009.7000	0134.7	036.2	299.6	001.5000	0075.4	005.1	81.66
064.0	009.7000	0134.4	036.1	294.9	001.5000	0074.5	004.6	83.25
065.0	009.7000	0133.3	036.0	288.0	001.5000	0074.3	004.2	84.64
066.0	009.7000	0129.2	035.5	277.2	001.5000	0081.1	004.2	85.32
067.0	009.7000	0127.8	035.4	268.5	001.5000	0082.8	004.1	85.97
068.0	009.7000	0128.3	035.4	260.3	001.5000	0091.1	003.9	87.74
069.0	009.7000	0128.8	035.5	251.1	001.5000	0097.1	003.7	88.88
070.0	009.7000	0129.6	035.6	241.5	001.5000	0100.8	003.7	89.40
071.0	009.7000	0130.9	035.7	231.5	001.5000	0098.8	003.7	89.26
072.0	009.7000	0132.0	035.9	222.0	001.5000	0101.5	003.8	88.84
073.0	009.7000	0132.8	036.0	213.8	001.5000	0100.7	004.1	87.65
074.0	009.7000	0133.6	036.0	206.8	001.5000	0105.6	004.5	86.67
075.0	009.7000	0134.7	036.2	200.7	001.5000	0109.2	004.9	85.56
076.0	009.7000	0134.9	036.2	196.7	001.5000	0111.1	005.4	84.08
077.0	009.7000	0135.0	036.2	193.6	001.5000	0112.9	005.9	82.55
078.0	009.7000	0135.8	036.3	190.3	001.5000	0117.2	006.5	81.34
079.0	009.7000	0136.2	036.4	188.0	001.5000	0119.6	007.1	79.96
080.0	009.7000	0137.0	036.5	185.9	001.5000	0121.5	007.6	78.65
081.0	009.7000	0137.8	036.5	184.1	001.5000	0122.6	008.2	77.43
082.0	009.7000	0138.4	036.6	182.7	001.5000	0122.8	008.8	76.23
083.0	009.7000	0139.1	036.7	181.6	001.5000	0123.0	009.5	75.06
084.0	009.7000	0139.2	036.7	181.0	001.5000	0123.1	010.1	73.91
085.0	009.7000	0139.1	036.7	180.7	001.5000	0123.1	010.7	72.81
086.0	009.7000	0138.7	036.7	180.6	001.5000	0123.1	011.4	71.76
087.0	009.7000	0138.6	036.6	180.5	001.5000	0123.1	012.0	70.77
088.0	009.7000	0139.1	036.7	180.1	001.5000	0123.3	012.6	69.86
089.0	009.7000	0139.2	036.7	180.0	001.5000	0123.3	013.3	68.99
090.0	009.7000	0138.7	036.7	180.2	001.5000	0123.2	013.9	68.17
091.0	009.7000	0138.1	036.6	180.5	001.5000	0123.1	014.6	67.41
092.0	009.7000	0137.8	036.5	180.7	001.5000	0123.1	015.2	66.89
093.0	009.7000	0137.8	036.5	180.8	001.5000	0123.1	015.8	66.35
094.0	009.7000	0137.8	036.5	180.9	001.5000	0123.1	016.5	65.82
095.0	009.7000	0137.7	036.5	181.1	001.5000	0123.0	017.1	65.29
096.0	009.7000	0137.3	036.5	181.4	001.5000	0123.0	017.7	64.77

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
097.0	009.7000	0136.6	036.4	181.8	001.5000	0123.0	018.4	64.26
098.0	009.7000	0136.9	036.4	181.9	001.5000	0123.0	019.0	63.74
099.0	009.7000	0138.0	036.6	181.7	001.5000	0123.0	019.7	63.23
100.0	009.7000	0139.5	036.7	181.5	001.5000	0123.0	020.3	62.71
101.0	009.7000	0140.4	036.9	181.5	001.5000	0123.0	021.0	62.19
102.0	009.7000	0141.1	036.9	181.6	001.5000	0123.0	021.6	61.69
103.0	009.7000	0141.4	037.0	181.8	001.5000	0123.0	022.3	61.20
104.0	009.7000	0141.8	037.0	182.0	001.5000	0123.0	022.9	60.72
105.0	009.7000	0142.2	037.1	182.2	001.5000	0122.9	023.5	60.24
106.0	009.7000	0143.0	037.2	182.4	001.5000	0122.9	024.2	59.76
107.0	009.7000	0144.1	037.3	182.4	001.5000	0122.9	024.9	59.29
108.0	009.7000	0145.2	037.4	182.6	001.5000	0122.9	025.5	58.82
109.0	009.7000	0146.1	037.5	182.7	001.5000	0122.8	026.2	58.37
110.0	009.7000	0147.0	037.6	182.9	001.5000	0122.8	026.8	57.93
111.0	009.7000	0147.9	037.8	183.1	001.5000	0122.8	027.5	57.50
112.0	009.7000	0148.8	037.9	183.3	001.5000	0122.7	028.2	57.08
113.0	009.7000	0149.6	037.9	183.6	001.5000	0122.6	028.8	56.67
114.0	009.7000	0150.2	038.0	183.9	001.5000	0122.6	029.5	56.28
115.0	009.7000	0150.8	038.1	184.2	001.5000	0122.5	030.1	55.91
116.0	009.7000	0150.6	038.1	184.7	001.5000	0122.3	030.7	55.55
117.0	009.7000	0150.5	038.1	185.2	001.5000	0121.9	031.3	55.20
118.0	009.7000	0150.5	038.1	185.7	001.5000	0121.6	031.9	54.86
119.0	009.7000	0150.7	038.1	186.1	001.5000	0121.4	032.6	54.54
120.0	009.7000	0152.0	038.2	186.3	001.5000	0121.4	033.2	54.21
121.0	009.7000	0152.7	038.3	186.6	001.5000	0121.1	033.9	53.88
122.0	009.7000	0152.7	038.3	187.1	001.5000	0120.7	034.5	53.56
123.0	009.7000	0152.9	038.3	187.5	001.5000	0120.2	035.1	53.23
124.0	009.7000	0153.6	038.4	187.9	001.5000	0119.8	035.7	52.90
125.0	009.7000	0154.4	038.5	188.2	001.5000	0119.4	036.4	52.58
126.0	009.7000	0155.3	038.6	188.6	001.5000	0119.0	037.0	52.26
127.0	009.7000	0155.8	038.7	189.0	001.5000	0118.6	037.7	51.94
128.0	009.7000	0155.8	038.7	189.5	001.5000	0118.1	038.3	51.64
129.0	009.7000	0155.0	038.6	190.1	001.5000	0117.4	038.8	51.35

09-14-2007 USGS 03 SEC Terrain Data

KADU BLED20070629AAJ
Channel = 211A
Max ERP = 1.5 kW
RCAMSL = 540 M
N. Lat. 47 24 10.0
W. Lng. 92 57 50.0
Protected
60 dBu

GrandRapi
Channel = 209C3
Max ERP = 9.7 kW
RCAMSL = 548 M
N. Lat. 47 16 39.2
W. Lng. 93 26 58.3
Interfering
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
189.0	001.5000	0118.6	022.4	103.7	009.7000	0141.6	034.3	63.08
190.0	001.5000	0117.5	022.3	103.6	009.7000	0141.6	033.9	63.27
191.0	001.5000	0116.4	022.2	103.4	009.7000	0141.5	033.5	63.46
192.0	001.5000	0115.1	022.1	103.3	009.7000	0141.5	033.1	63.65
193.0	001.5000	0113.7	021.9	103.1	009.7000	0141.4	032.7	63.85
194.0	001.5000	0112.5	021.8	102.9	009.7000	0141.4	032.3	64.04
195.0	001.5000	0112.0	021.8	102.8	009.7000	0141.4	031.9	64.23
196.0	001.5000	0111.5	021.7	102.7	009.7000	0141.3	031.6	64.43
197.0	001.5000	0110.9	021.7	102.5	009.7000	0141.3	031.2	64.62
198.0	001.5000	0110.9	021.7	102.5	009.7000	0141.3	030.8	64.83
199.0	001.5000	0110.6	021.7	102.3	009.7000	0141.2	030.4	65.03
200.0	001.5000	0109.9	021.6	102.1	009.7000	0141.1	030.1	65.24
201.0	001.5000	0108.9	021.5	101.8	009.7000	0141.0	029.7	65.44
202.0	001.5000	0108.2	021.4	101.6	009.7000	0140.8	029.3	65.64
203.0	001.5000	0107.3	021.3	101.3	009.7000	0140.6	029.0	65.84
204.0	001.5000	0106.1	021.2	100.9	009.7000	0140.4	028.7	66.03
205.0	001.5000	0105.5	021.2	100.6	009.7000	0140.1	028.3	66.23
206.0	001.5000	0105.5	021.2	100.4	009.7000	0140.0	028.0	66.44
207.0	001.5000	0105.7	021.2	100.2	009.7000	0139.8	027.6	66.66
208.0	001.5000	0105.3	021.1	099.9	009.7000	0139.4	027.3	66.86
209.0	001.5000	0103.5	021.0	099.3	009.7000	0138.5	027.0	66.99
210.0	001.5000	0102.0	020.8	098.7	009.7000	0137.6	026.7	67.12
211.0	001.5000	0101.5	020.8	098.3	009.7000	0137.2	026.4	67.30
212.0	001.5000	0101.1	020.7	097.9	009.7000	0136.9	026.0	67.50
213.0	001.5000	0100.8	020.7	097.6	009.7000	0136.7	025.7	67.70
214.0	001.5000	0100.7	020.7	097.2	009.7000	0136.5	025.4	67.91
215.0	001.5000	0100.4	020.6	096.7	009.7000	0136.7	025.1	68.14
216.0	001.5000	0100.1	020.6	096.3	009.7000	0137.1	024.8	68.37
217.0	001.5000	0100.0	020.6	095.8	009.7000	0137.4	024.5	68.61
218.0	001.5000	0100.0	020.6	095.4	009.7000	0137.6	024.2	68.85
219.0	001.5000	0100.1	020.6	094.9	009.7000	0137.7	023.9	69.08
220.0	001.5000	0100.4	020.6	094.5	009.7000	0137.7	023.6	69.31
221.0	001.5000	0100.9	020.7	094.1	009.7000	0137.8	023.2	69.55
222.0	001.5000	0101.5	020.8	093.7	009.7000	0137.8	022.9	69.79

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
223.0	001.5000	0102.5	020.9	093.3	009.7000	0137.8	022.6	70.05
224.0	001.5000	0102.4	020.8	092.7	009.7000	0137.8	022.3	70.26
225.0	001.5000	0101.9	020.8	091.9	009.7000	0137.8	022.1	70.44
226.0	001.5000	0101.5	020.8	091.2	009.7000	0138.0	021.8	70.63
227.0	001.5000	0101.1	020.7	090.4	009.7000	0138.4	021.6	70.83
228.0	001.5000	0100.7	020.7	089.6	009.7000	0139.0	021.4	71.04
229.0	001.5000	0100.1	020.6	088.8	009.7000	0139.2	021.2	71.20
230.0	001.5000	0099.6	020.6	088.0	009.7000	0139.1	021.0	71.33
231.0	001.5000	0099.1	020.5	087.1	009.7000	0138.6	020.8	71.44
232.0	001.5000	0098.8	020.5	086.2	009.7000	0138.6	020.7	71.58
233.0	001.5000	0098.9	020.5	085.4	009.7000	0139.0	020.5	71.77
234.0	001.5000	0098.6	020.4	084.5	009.7000	0139.1	020.3	71.90
235.0	001.5000	0098.3	020.4	083.6	009.7000	0139.3	020.1	72.03
236.0	001.5000	0098.2	020.4	082.7	009.7000	0138.8	020.0	72.12
237.0	001.5000	0098.2	020.4	081.7	009.7000	0138.2	019.8	72.21
238.0	001.5000	0098.4	020.4	080.8	009.7000	0137.6	019.7	72.30
239.0	001.5000	0099.0	020.5	079.9	009.7000	0136.9	019.5	72.41
240.0	001.5000	0099.8	020.6	079.0	009.7000	0136.2	019.3	72.53
241.0	001.5000	0100.4	020.6	078.0	009.7000	0135.9	019.1	72.64
242.0	001.5000	0101.3	020.7	077.1	009.7000	0135.0	018.9	72.73
243.0	001.5000	0102.2	020.8	076.1	009.7000	0134.9	018.7	72.88
244.0	001.5000	0102.5	020.9	075.0	009.7000	0134.7	018.6	72.95
245.0	001.5000	0101.2	020.7	073.8	009.7000	0133.4	018.7	72.81
246.0	001.5000	0099.4	020.5	072.6	009.7000	0132.6	018.8	72.65
247.0	001.5000	0098.7	020.5	071.5	009.7000	0131.6	018.8	72.55
248.0	001.5000	0098.3	020.4	070.4	009.7000	0130.1	018.9	72.44
249.0	001.5000	0098.1	020.4	069.4	009.7000	0129.0	018.9	72.35
250.0	001.5000	0097.7	020.4	068.3	009.7000	0128.4	018.9	72.27
251.0	001.5000	0097.2	020.3	067.2	009.7000	0127.9	019.0	72.18
252.0	001.5000	0096.7	020.2	066.2	009.7000	0128.7	019.1	72.18
253.0	001.5000	0096.6	020.2	065.1	009.7000	0133.0	019.1	72.42
254.0	001.5000	0096.4	020.2	064.1	009.7000	0134.5	019.2	72.46
255.0	001.5000	0095.9	020.2	063.1	009.7000	0134.6	019.3	72.37
256.0	001.5000	0095.3	020.1	062.1	009.7000	0137.3	019.5	72.44
257.0	001.5000	0094.2	020.0	061.2	009.7000	0135.7	019.7	72.17
258.0	001.5000	0093.0	019.8	060.3	009.7000	0129.3	019.9	71.56
259.0	001.5000	0092.0	019.7	059.5	009.7000	0123.7	020.1	71.02
260.0	001.5000	0091.3	019.6	058.7	009.7000	0121.1	020.3	70.69
261.0	001.5000	0090.5	019.5	057.9	009.7000	0119.1	020.5	70.38
262.0	001.5000	0089.2	019.4	057.2	009.7000	0117.9	020.8	70.08
263.0	001.5000	0087.9	019.2	056.5	009.7000	0116.9	021.1	69.79
264.0	001.5000	0086.7	019.1	055.9	009.7000	0116.5	021.3	69.55
265.0	001.5000	0085.3	018.9	055.3	009.7000	0116.3	021.7	69.30
266.0	001.5000	0084.2	018.8	054.7	009.7000	0116.3	021.9	69.09
267.0	001.5000	0083.5	018.7	054.1	009.7000	0116.9	022.2	68.95
268.0	001.5000	0083.0	018.7	053.5	009.7000	0118.3	022.4	68.88
269.0	001.5000	0082.6	018.6	052.9	009.7000	0120.1	022.6	68.83
270.0	001.5000	0082.6	018.6	052.2	009.7000	0122.1	022.8	68.82
271.0	001.5000	0082.7	018.6	051.6	009.7000	0123.6	023.0	68.77
272.0	001.5000	0082.5	018.6	051.0	009.7000	0124.3	023.2	68.66
273.0	001.5000	0082.1	018.6	050.5	009.7000	0125.0	023.5	68.52

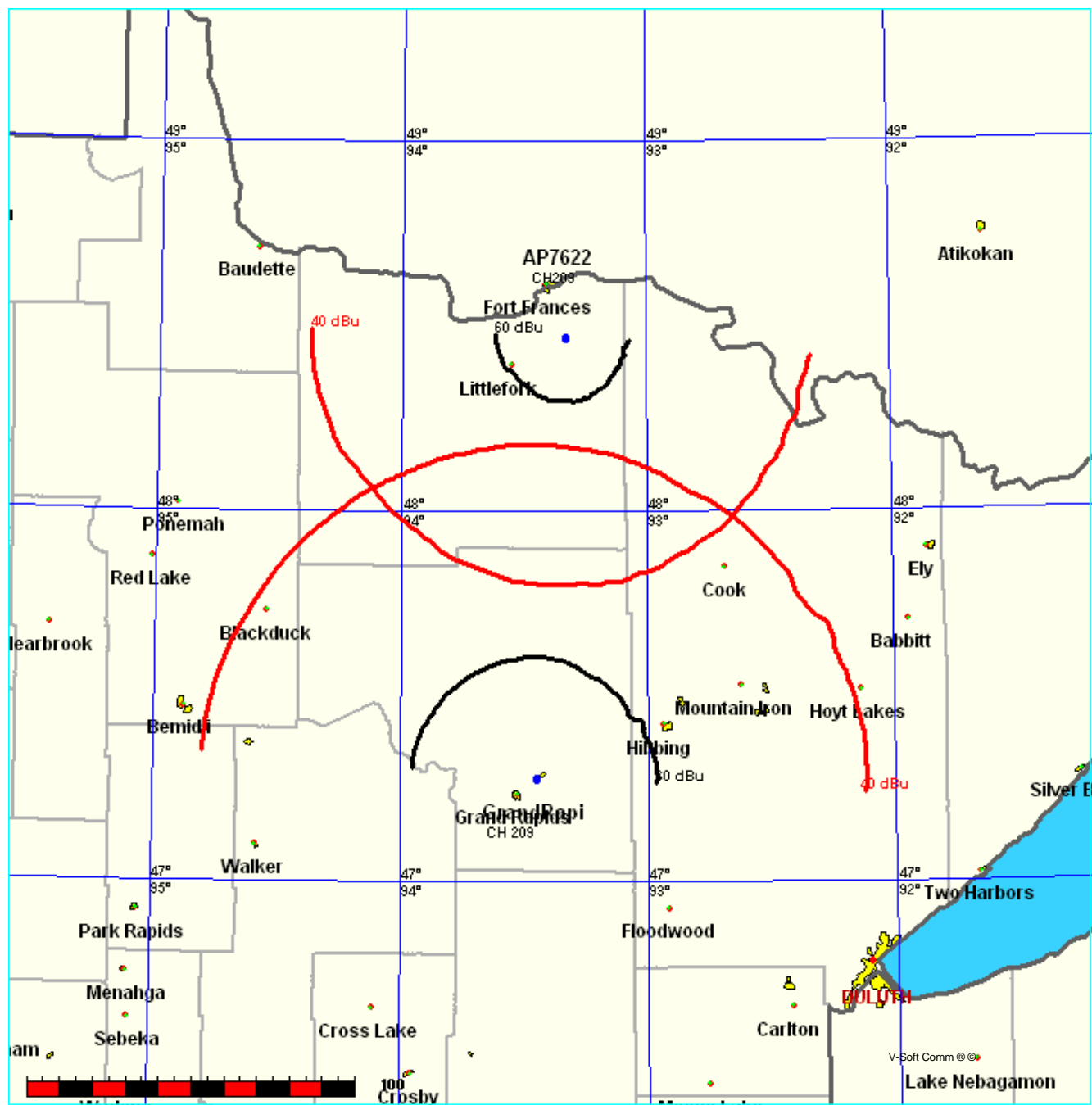
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
274.0	001.5000	0082.2	018.6	049.9	009.7000	0125.2	023.7	68.38
275.0	001.5000	0082.0	018.5	049.4	009.7000	0125.3	023.9	68.20
276.0	001.5000	0081.6	018.5	048.9	009.7000	0125.4	024.2	68.01
277.0	001.5000	0081.2	018.4	048.5	009.7000	0125.4	024.5	67.82
278.0	001.5000	0080.8	018.4	048.1	009.7000	0125.5	024.8	67.63
279.0	001.5000	0080.2	018.3	047.8	009.7000	0125.5	025.1	67.42
280.0	001.5000	0079.3	018.2	047.5	009.7000	0125.5	025.4	67.20
281.0	001.5000	0078.2	018.1	047.3	009.7000	0125.6	025.7	66.98
282.0	001.5000	0077.0	017.9	047.2	009.7000	0125.6	026.0	66.75
283.0	001.5000	0076.2	017.8	046.9	009.7000	0125.8	026.4	66.55
284.0	001.5000	0075.9	017.8	046.6	009.7000	0126.2	026.6	66.39
285.0	001.5000	0075.5	017.7	046.4	009.7000	0126.4	026.9	66.21
286.0	001.5000	0075.0	017.7	046.2	009.7000	0126.6	027.2	66.03
287.0	001.5000	0074.7	017.6	045.9	009.7000	0126.7	027.5	65.85
288.0	001.5000	0074.3	017.6	045.7	009.7000	0126.8	027.8	65.67
289.0	001.5000	0074.0	017.5	045.5	009.7000	0126.9	028.1	65.50
290.0	001.5000	0073.8	017.5	045.3	009.7000	0127.0	028.4	65.32
291.0	001.5000	0073.6	017.5	045.0	009.7000	0127.0	028.7	65.15
292.0	001.5000	0073.6	017.5	044.8	009.7000	0127.0	028.9	64.98
293.0	001.5000	0073.7	017.5	044.5	009.7000	0127.0	029.2	64.81
294.0	001.5000	0074.0	017.5	044.2	009.7000	0127.0	029.5	64.66
295.0	001.5000	0074.6	017.6	043.9	009.7000	0127.1	029.8	64.51
296.0	001.5000	0074.9	017.7	043.6	009.7000	0127.2	030.0	64.35
297.0	001.5000	0075.1	017.7	043.4	009.7000	0127.2	030.3	64.19
298.0	001.5000	0075.1	017.7	043.3	009.7000	0127.2	030.6	64.03
299.0	001.5000	0075.3	017.7	043.1	009.7000	0127.2	030.9	63.87
300.0	001.5000	0075.5	017.7	042.9	009.7000	0127.2	031.2	63.71
301.0	001.5000	0075.6	017.7	042.7	009.7000	0127.2	031.5	63.55
302.0	001.5000	0075.7	017.8	042.6	009.7000	0127.3	031.8	63.40
303.0	001.5000	0075.8	017.8	042.5	009.7000	0127.3	032.1	63.25
304.0	001.5000	0076.2	017.8	042.3	009.7000	0127.4	032.4	63.11
305.0	001.5000	0076.6	017.9	042.1	009.7000	0127.4	032.7	62.96
306.0	001.5000	0077.0	017.9	042.0	009.7000	0127.4	033.0	62.81
307.0	001.5000	0077.4	018.0	041.8	009.7000	0127.5	033.3	62.67
308.0	001.5000	0077.9	018.0	041.7	009.7000	0127.5	033.6	62.52
309.0	001.5000	0078.3	018.1	041.6	009.7000	0127.6	033.9	62.37

Minnesota Public Radio
Grand Rapids 209 v AP7622

FMCommander Single Allocation Study
09-14-2007

GrandRapi CH 209 C3
9.7 kW 548 M COR
Prot. = 60 dBu
Intef. = 40 dBu

AP7622 CH 209 A BNPED20000119ABW
6.0 kW, 397 M COR
Prot. = 60 dBu
Intef. = 40 dBu



09-14-2007

USGS 03 SEC Terrain Data

FMOver Analysis

GrandRapi

AP7622

BNPED20000119ABW

Channel = 209C3

Channel = 209A

Max ERP = 9.7 kW

Max ERP = 6 kW

RCAMSL = 548 M

RCAMSL = 397 M

N. Lat. 47 16 39.2

N. Lat. 48 28 24.0

W. Lng. 93 26 58.3

W. Lng. 93 20 00.0

Protected

Interfering

60 dBu

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
304.0	009.7000	0144.5	037.3	199.6	006.0000	0044.1	118.9	30.82
305.0	009.7000	0144.4	037.3	199.5	006.0000	0044.0	118.2	30.93
306.0	009.7000	0144.4	037.3	199.4	006.0000	0044.0	117.6	31.04
307.0	009.7000	0144.4	037.3	199.3	006.0000	0044.0	117.0	31.16
308.0	009.7000	0144.5	037.3	199.2	006.0000	0044.0	116.4	31.27
309.0	009.7000	0144.5	037.3	199.1	006.0000	0044.0	115.8	31.39
310.0	009.7000	0144.5	037.3	199.0	006.0000	0044.0	115.2	31.50
311.0	009.7000	0144.4	037.3	198.9	006.0000	0044.0	114.6	31.61
312.0	009.7000	0144.1	037.3	198.8	006.0000	0044.0	114.0	31.72
313.0	009.7000	0143.9	037.3	198.6	006.0000	0044.0	113.4	31.83
314.0	009.7000	0143.4	037.2	198.4	006.0000	0044.0	112.8	31.94
315.0	009.7000	0143.0	037.2	198.3	006.0000	0044.0	112.3	32.04
316.0	009.7000	0142.7	037.1	198.1	006.0000	0044.1	111.7	32.15
317.0	009.7000	0142.3	037.1	197.9	006.0000	0044.1	111.2	32.25
318.0	009.7000	0142.0	037.0	197.7	006.0000	0044.1	110.6	32.36
319.0	009.7000	0141.7	037.0	197.5	006.0000	0044.3	110.1	32.46
320.0	009.7000	0141.4	037.0	197.3	006.0000	0044.4	109.5	32.57
321.0	009.7000	0141.1	036.9	197.1	006.0000	0044.6	109.0	32.67
322.0	009.7000	0140.9	036.9	196.9	006.0000	0044.7	108.5	32.77
323.0	009.7000	0140.9	036.9	196.7	006.0000	0044.8	108.0	32.88
324.0	009.7000	0140.9	036.9	196.5	006.0000	0044.9	107.5	32.98
325.0	009.7000	0141.0	036.9	196.3	006.0000	0045.0	107.0	33.08
326.0	009.7000	0141.2	037.0	196.1	006.0000	0045.1	106.4	33.18
327.0	009.7000	0141.2	036.9	195.9	006.0000	0045.2	106.0	33.28
328.0	009.7000	0141.0	036.9	195.6	006.0000	0045.4	105.5	33.37
329.0	009.7000	0140.8	036.9	195.4	006.0000	0045.4	105.0	33.46
330.0	009.7000	0140.5	036.9	195.1	006.0000	0045.5	104.6	33.55
331.0	009.7000	0140.2	036.8	194.8	006.0000	0045.6	104.2	33.63
332.0	009.7000	0139.7	036.8	194.6	006.0000	0045.7	103.8	33.71
333.0	009.7000	0139.2	036.7	194.3	006.0000	0045.8	103.4	33.78
334.0	009.7000	0139.0	036.7	194.0	006.0000	0045.8	103.0	33.86
335.0	009.7000	0138.9	036.7	193.7	006.0000	0045.9	102.6	33.94
336.0	009.7000	0138.9	036.7	193.4	006.0000	0045.9	102.2	34.02
337.0	009.7000	0138.9	036.7	193.1	006.0000	0045.9	101.8	34.09
338.0	009.7000	0139.0	036.7	192.8	006.0000	0045.9	101.5	34.17
339.0	009.7000	0138.9	036.7	192.5	006.0000	0045.9	101.1	34.23
340.0	009.7000	0139.0	036.7	192.2	006.0000	0045.9	100.7	34.30

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
341.0	009.7000	0139.0	036.7	191.9	006.0000	0045.8	100.4	34.36
342.0	009.7000	0138.8	036.7	191.6	006.0000	0045.7	100.1	34.42
343.0	009.7000	0139.1	036.7	191.3	006.0000	0045.6	099.8	34.48
344.0	009.7000	0139.0	036.7	190.9	006.0000	0045.5	099.5	34.54
345.0	009.7000	0139.5	036.7	190.6	006.0000	0045.5	099.1	34.60
346.0	009.7000	0139.0	036.7	190.3	006.0000	0045.3	098.9	34.64
347.0	009.7000	0138.1	036.6	189.9	006.0000	0045.2	098.8	34.67
348.0	009.7000	0137.9	036.6	189.6	006.0000	0045.1	098.6	34.71
349.0	009.7000	0137.8	036.5	189.2	006.0000	0045.1	098.3	34.75
350.0	009.7000	0137.7	036.5	188.8	006.0000	0045.0	098.1	34.79
351.0	009.7000	0137.9	036.6	188.5	006.0000	0045.0	097.9	34.83
352.0	009.7000	0138.2	036.6	188.1	006.0000	0044.9	097.7	34.87
353.0	009.7000	0138.8	036.7	187.8	006.0000	0044.9	097.5	34.92
354.0	009.7000	0139.1	036.7	187.4	006.0000	0044.9	097.3	34.96
355.0	009.7000	0139.2	036.7	187.1	006.0000	0044.8	097.1	34.99
356.0	009.7000	0139.2	036.7	186.7	006.0000	0044.8	097.0	35.01
357.0	009.7000	0138.9	036.7	186.3	006.0000	0044.7	096.9	35.02
358.0	009.7000	0138.6	036.6	185.9	006.0000	0044.7	096.9	35.03
359.0	009.7000	0138.7	036.7	185.5	006.0000	0044.6	096.8	35.05
000.0	009.7000	0138.9	036.7	185.2	006.0000	0044.5	096.7	35.06
001.0	009.7000	0138.5	036.6	184.8	006.0000	0044.4	096.7	35.06
002.0	009.7000	0138.3	036.6	184.4	006.0000	0044.3	096.7	35.06
003.0	009.7000	0138.3	036.6	184.0	006.0000	0044.3	096.6	35.06
004.0	009.7000	0137.9	036.6	183.6	006.0000	0044.2	096.7	35.04
005.0	009.7000	0137.4	036.5	183.3	006.0000	0044.1	096.8	35.03
006.0	009.7000	0136.9	036.4	182.9	006.0000	0044.0	096.8	35.01
007.0	009.7000	0136.5	036.4	182.5	006.0000	0043.9	096.9	34.98
008.0	009.7000	0136.3	036.4	182.1	006.0000	0043.9	097.0	34.96
009.0	009.7000	0136.2	036.4	181.8	006.0000	0043.8	097.1	34.94
010.0	009.7000	0136.1	036.3	181.4	006.0000	0043.7	097.2	34.92
011.0	009.7000	0136.2	036.4	181.0	006.0000	0043.7	097.3	34.90
012.0	009.7000	0136.0	036.3	180.7	006.0000	0043.6	097.4	34.87
013.0	009.7000	0135.7	036.3	180.3	006.0000	0043.6	097.6	34.84
014.0	009.7000	0135.5	036.3	179.9	006.0000	0044.0	097.8	34.82
015.0	009.7000	0135.1	036.2	179.6	006.0000	0044.3	098.0	34.79
016.0	009.7000	0134.5	036.1	179.2	006.0000	0044.3	098.2	34.74
017.0	009.7000	0133.5	036.0	178.9	006.0000	0044.3	098.5	34.68
018.0	009.7000	0132.3	035.9	178.6	006.0000	0044.2	098.8	34.61
019.0	009.7000	0131.7	035.8	178.3	006.0000	0044.2	099.1	34.55
020.0	009.7000	0131.6	035.8	177.9	006.0000	0044.2	099.4	34.50
021.0	009.7000	0131.0	035.7	177.6	006.0000	0044.1	099.7	34.44
022.0	009.7000	0129.6	035.6	177.3	006.0000	0043.8	100.1	34.35
023.0	009.7000	0128.1	035.4	177.0	006.0000	0043.6	100.5	34.25
024.0	009.7000	0127.4	035.3	176.7	006.0000	0043.4	100.9	34.18
025.0	009.7000	0126.3	035.2	176.5	006.0000	0043.3	101.3	34.10
026.0	009.7000	0125.2	035.1	176.2	006.0000	0043.2	101.7	34.01
027.0	009.7000	0124.0	034.9	175.9	006.0000	0043.1	102.1	33.92
028.0	009.7000	0123.4	034.9	175.7	006.0000	0043.1	102.5	33.85
029.0	009.7000	0124.0	034.9	175.4	006.0000	0043.4	102.8	33.81
030.0	009.7000	0125.3	035.1	175.0	006.0000	0043.7	103.0	33.78
031.0	009.7000	0126.7	035.2	174.7	006.0000	0044.3	103.2	33.76

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
032.0	009.7000	0128.0	035.4	174.4	006.0000	0044.9	103.4	33.74
033.0	009.7000	0128.3	035.4	174.1	006.0000	0045.3	103.8	33.69
034.0	009.7000	0128.4	035.4	173.8	006.0000	0045.7	104.2	33.63
035.0	009.7000	0128.6	035.5	173.6	006.0000	0046.0	104.6	33.57
036.0	009.7000	0128.8	035.5	173.3	006.0000	0046.2	105.0	33.50
037.0	009.7000	0128.9	035.5	173.0	006.0000	0046.4	105.4	33.44
038.0	009.7000	0128.6	035.5	172.8	006.0000	0046.5	105.8	33.35
039.0	009.7000	0128.3	035.4	172.6	006.0000	0046.5	106.3	33.27
040.0	009.7000	0128.2	035.4	172.4	006.0000	0046.5	106.8	33.18
041.0	009.7000	0127.7	035.3	172.2	006.0000	0046.5	107.3	33.09
042.0	009.7000	0127.4	035.3	172.0	006.0000	0046.3	107.8	32.99
043.0	009.7000	0127.2	035.3	171.8	006.0000	0046.1	108.3	32.88
044.0	009.7000	0127.1	035.3	171.6	006.0000	0045.7	108.7	32.78
045.0	009.7000	0127.0	035.3	171.4	006.0000	0045.4	109.2	32.67
046.0	009.7000	0126.6	035.2	171.2	006.0000	0045.3	109.8	32.57
047.0	009.7000	0125.8	035.1	171.1	006.0000	0045.3	110.3	32.46
048.0	009.7000	0125.5	035.1	170.9	006.0000	0045.3	110.9	32.36
049.0	009.7000	0125.4	035.1	170.7	006.0000	0045.3	111.4	32.27
050.0	009.7000	0125.2	035.1	170.6	006.0000	0045.3	111.9	32.17
051.0	009.7000	0124.3	035.0	170.5	006.0000	0045.3	112.5	32.06
052.0	009.7000	0122.8	034.8	170.4	006.0000	0045.2	113.1	31.94
053.0	009.7000	0119.8	034.4	170.4	006.0000	0045.2	113.8	31.81
054.0	009.7000	0117.1	034.1	170.4	006.0000	0045.2	114.5	31.69
055.0	009.7000	0116.3	034.0	170.3	006.0000	0045.2	115.1	31.58
056.0	009.7000	0116.5	034.0	170.2	006.0000	0045.2	115.6	31.48
057.0	009.7000	0117.6	034.2	170.0	006.0000	0045.2	116.1	31.39
058.0	009.7000	0119.4	034.4	169.8	006.0000	0045.2	116.6	31.30
059.0	009.7000	0122.3	034.7	169.5	006.0000	0045.2	117.0	31.22
060.0	009.7000	0126.9	035.3	169.2	006.0000	0045.3	117.4	31.15
061.0	009.7000	0134.4	036.1	168.7	006.0000	0045.4	117.7	31.10
062.0	009.7000	0137.6	036.5	168.4	006.0000	0045.6	118.2	31.02
063.0	009.7000	0134.7	036.2	168.5	006.0000	0045.6	118.9	30.89
064.0	009.7000	0134.4	036.1	168.4	006.0000	0045.6	119.5	30.78

09-14-2007 USGS 03 SEC Terrain Data

AP7622 BNPED20000119ABW
 Channel = 209A
 Max ERP = 6 kW
 RCAMSL = 397 M
 N. Lat. 48 28 24.0
 W. Lng. 93 20 00.0
 Protected
 60 dBu

GrandRapi
 Channel = 209C3
 Max ERP = 9.7 kW
 RCAMSL = 548 M
 N. Lat. 47 16 39.2
 W. Lng. 93 26 58.3
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
124.0	006.0000	0039.9	018.2	010.8	009.7000	0136.2	125.0	34.95
125.0	006.0000	0039.8	018.2	010.8	009.7000	0136.2	124.8	35.00
126.0	006.0000	0040.1	018.3	010.7	009.7000	0136.2	124.4	35.06
127.0	006.0000	0040.5	018.4	010.7	009.7000	0136.2	124.1	35.12
128.0	006.0000	0041.1	018.5	010.7	009.7000	0136.2	123.8	35.19
129.0	006.0000	0041.2	018.6	010.7	009.7000	0136.2	123.5	35.24
130.0	006.0000	0041.0	018.5	010.6	009.7000	0136.2	123.2	35.29
131.0	006.0000	0041.1	018.5	010.5	009.7000	0136.2	122.9	35.34
132.0	006.0000	0041.1	018.5	010.4	009.7000	0136.2	122.6	35.39
133.0	006.0000	0041.1	018.5	010.3	009.7000	0136.2	122.4	35.44
134.0	006.0000	0041.4	018.6	010.3	009.7000	0136.2	122.0	35.50
135.0	006.0000	0041.8	018.7	010.2	009.7000	0136.2	121.7	35.56
136.0	006.0000	0042.3	018.8	010.2	009.7000	0136.2	121.4	35.62
137.0	006.0000	0042.9	019.0	010.2	009.7000	0136.2	121.0	35.68
138.0	006.0000	0043.4	019.1	010.1	009.7000	0136.2	120.7	35.74
139.0	006.0000	0043.7	019.2	010.0	009.7000	0136.2	120.4	35.80
140.0	006.0000	0043.8	019.2	010.0	009.7000	0136.1	120.1	35.84
141.0	006.0000	0043.4	019.1	009.8	009.7000	0136.1	119.9	35.88
142.0	006.0000	0043.1	019.0	009.7	009.7000	0136.1	119.7	35.92
143.0	006.0000	0042.9	019.0	009.6	009.7000	0136.1	119.5	35.96
144.0	006.0000	0042.7	018.9	009.4	009.7000	0136.1	119.3	35.99
145.0	006.0000	0042.5	018.9	009.3	009.7000	0136.2	119.1	36.03
146.0	006.0000	0042.5	018.9	009.2	009.7000	0136.2	118.9	36.07
147.0	006.0000	0042.8	018.9	009.1	009.7000	0136.2	118.6	36.12
148.0	006.0000	0043.0	019.0	009.0	009.7000	0136.2	118.3	36.17
149.0	006.0000	0043.3	019.1	008.9	009.7000	0136.2	118.1	36.22
150.0	006.0000	0043.4	019.1	008.8	009.7000	0136.2	117.8	36.26
151.0	006.0000	0043.1	019.0	008.6	009.7000	0136.2	117.7	36.29
152.0	006.0000	0042.7	018.9	008.5	009.7000	0136.2	117.6	36.31
153.0	006.0000	0042.6	018.9	008.4	009.7000	0136.3	117.4	36.34
154.0	006.0000	0042.6	018.9	008.2	009.7000	0136.3	117.2	36.38
155.0	006.0000	0043.1	019.0	008.1	009.7000	0136.3	116.9	36.43
156.0	006.0000	0044.0	019.2	008.0	009.7000	0136.3	116.6	36.50
157.0	006.0000	0044.7	019.4	007.9	009.7000	0136.3	116.2	36.56

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
158.0	006.0000	0045.2	019.5	007.8	009.7000	0136.3	116.0	36.61
159.0	006.0000	0045.6	019.6	007.7	009.7000	0136.3	115.7	36.65
160.0	006.0000	0045.8	019.6	007.6	009.7000	0136.3	115.5	36.69
161.0	006.0000	0045.4	019.6	007.4	009.7000	0136.4	115.4	36.71
162.0	006.0000	0044.5	019.3	007.2	009.7000	0136.4	115.5	36.70
163.0	006.0000	0044.0	019.2	007.0	009.7000	0136.5	115.5	36.71
164.0	006.0000	0045.1	019.5	006.9	009.7000	0136.5	115.1	36.78
165.0	006.0000	0046.3	019.8	006.8	009.7000	0136.6	114.7	36.85
166.0	006.0000	0046.8	019.9	006.7	009.7000	0136.6	114.5	36.90
167.0	006.0000	0046.7	019.8	006.5	009.7000	0136.7	114.4	36.92
168.0	006.0000	0046.1	019.7	006.3	009.7000	0136.7	114.4	36.92
169.0	006.0000	0045.3	019.5	006.2	009.7000	0136.8	114.5	36.91
170.0	006.0000	0045.2	019.5	006.0	009.7000	0136.9	114.4	36.92
171.0	006.0000	0045.3	019.5	005.8	009.7000	0136.9	114.3	36.94
172.0	006.0000	0046.3	019.8	005.7	009.7000	0137.0	113.9	37.01
173.0	006.0000	0046.4	019.8	005.5	009.7000	0137.1	113.9	37.03
174.0	006.0000	0045.4	019.6	005.3	009.7000	0137.2	114.0	37.00
175.0	006.0000	0043.8	019.2	005.1	009.7000	0137.3	114.3	36.95
176.0	006.0000	0043.1	019.0	005.0	009.7000	0137.4	114.4	36.94
177.0	006.0000	0043.6	019.1	004.8	009.7000	0137.5	114.3	36.96
178.0	006.0000	0044.2	019.3	004.7	009.7000	0137.5	114.1	37.00
179.0	006.0000	0044.3	019.3	004.5	009.7000	0137.6	114.0	37.02
180.0	006.0000	0043.9	019.2	004.3	009.7000	0137.7	114.1	37.01
181.0	006.0000	0043.7	019.2	004.2	009.7000	0137.7	114.1	37.00
182.0	006.0000	0043.8	019.2	004.0	009.7000	0137.9	114.1	37.02
183.0	006.0000	0044.0	019.2	003.8	009.7000	0138.0	114.0	37.03
184.0	006.0000	0044.3	019.3	003.7	009.7000	0138.1	113.9	37.04
185.0	006.0000	0044.5	019.3	003.5	009.7000	0138.2	113.9	37.06
186.0	006.0000	0044.7	019.4	003.3	009.7000	0138.2	113.9	37.07
187.0	006.0000	0044.8	019.4	003.2	009.7000	0138.3	113.9	37.07
188.0	006.0000	0044.9	019.5	003.0	009.7000	0138.3	113.8	37.07
189.0	006.0000	0045.1	019.5	002.8	009.7000	0138.3	113.9	37.07
190.0	006.0000	0045.3	019.5	002.6	009.7000	0138.3	113.8	37.07
191.0	006.0000	0045.5	019.6	002.5	009.7000	0138.3	113.8	37.07
192.0	006.0000	0045.8	019.6	002.3	009.7000	0138.3	113.8	37.07
193.0	006.0000	0045.9	019.7	002.1	009.7000	0138.3	113.9	37.07
194.0	006.0000	0045.8	019.7	002.0	009.7000	0138.3	113.9	37.05
195.0	006.0000	0045.6	019.6	001.8	009.7000	0138.3	114.1	37.02
196.0	006.0000	0045.2	019.5	001.6	009.7000	0138.3	114.2	36.99
197.0	006.0000	0044.6	019.4	001.5	009.7000	0138.3	114.5	36.96
198.0	006.0000	0044.1	019.2	001.4	009.7000	0138.4	114.7	36.92
199.0	006.0000	0044.0	019.2	001.2	009.7000	0138.4	114.8	36.90
200.0	006.0000	0044.1	019.3	001.0	009.7000	0138.5	114.9	36.88
201.0	006.0000	0044.2	019.3	000.9	009.7000	0138.5	115.0	36.86
202.0	006.0000	0044.3	019.3	000.7	009.7000	0138.6	115.1	36.85
203.0	006.0000	0044.5	019.4	000.6	009.7000	0138.7	115.1	36.84
204.0	006.0000	0044.6	019.4	000.4	009.7000	0138.9	115.2	36.82
205.0	006.0000	0044.9	019.5	000.2	009.7000	0138.9	115.3	36.81
206.0	006.0000	0045.2	019.5	000.1	009.7000	0138.9	115.4	36.79
207.0	006.0000	0045.1	019.5	359.9	009.7000	0138.9	115.6	36.76
208.0	006.0000	0045.0	019.5	359.8	009.7000	0138.8	115.8	36.73

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
209.0	006.0000	0044.8	019.4	359.7	009.7000	0138.8	116.0	36.69
210.0	006.0000	0044.6	019.4	359.5	009.7000	0138.8	116.2	36.65
211.0	006.0000	0044.4	019.3	359.4	009.7000	0138.8	116.4	36.61
212.0	006.0000	0043.7	019.2	359.3	009.7000	0138.8	116.7	36.55
213.0	006.0000	0042.7	018.9	359.2	009.7000	0138.7	117.1	36.48
214.0	006.0000	0042.4	018.8	359.1	009.7000	0138.7	117.3	36.43
215.0	006.0000	0042.2	018.8	359.0	009.7000	0138.7	117.6	36.39
216.0	006.0000	0042.1	018.8	358.9	009.7000	0138.7	117.8	36.35
217.0	006.0000	0042.1	018.8	358.8	009.7000	0138.6	118.0	36.31
218.0	006.0000	0042.0	018.8	358.6	009.7000	0138.6	118.2	36.27
219.0	006.0000	0042.1	018.8	358.5	009.7000	0138.6	118.4	36.23
220.0	006.0000	0042.2	018.8	358.4	009.7000	0138.6	118.6	36.19
221.0	006.0000	0042.3	018.8	358.3	009.7000	0138.6	118.8	36.16
222.0	006.0000	0042.5	018.9	358.1	009.7000	0138.6	119.0	36.12
223.0	006.0000	0042.7	018.9	358.0	009.7000	0138.6	119.2	36.09
224.0	006.0000	0042.9	019.0	357.9	009.7000	0138.6	119.4	36.05
225.0	006.0000	0043.0	019.0	357.8	009.7000	0138.6	119.6	36.01
226.0	006.0000	0043.1	019.0	357.7	009.7000	0138.7	119.8	35.97
227.0	006.0000	0043.1	019.0	357.5	009.7000	0138.7	120.1	35.93
228.0	006.0000	0043.2	019.1	357.4	009.7000	0138.7	120.3	35.88
229.0	006.0000	0043.3	019.1	357.3	009.7000	0138.8	120.6	35.84
230.0	006.0000	0043.3	019.1	357.2	009.7000	0138.8	120.8	35.79
231.0	006.0000	0043.2	019.0	357.2	009.7000	0138.8	121.1	35.74
232.0	006.0000	0043.1	019.0	357.1	009.7000	0138.8	121.4	35.69
233.0	006.0000	0043.3	019.1	357.0	009.7000	0138.9	121.7	35.65
234.0	006.0000	0043.6	019.1	356.9	009.7000	0138.9	121.9	35.60
235.0	006.0000	0043.8	019.2	356.7	009.7000	0138.9	122.1	35.56
236.0	006.0000	0044.1	019.3	356.6	009.7000	0139.0	122.4	35.51
237.0	006.0000	0044.3	019.3	356.5	009.7000	0139.0	122.7	35.47
238.0	006.0000	0044.6	019.4	356.4	009.7000	0139.1	122.9	35.42
239.0	006.0000	0045.1	019.5	356.3	009.7000	0139.1	123.2	35.37
240.0	006.0000	0045.8	019.7	356.2	009.7000	0139.1	123.4	35.33
241.0	006.0000	0047.1	019.9	356.0	009.7000	0139.2	123.6	35.30
242.0	006.0000	0048.1	020.2	355.8	009.7000	0139.2	123.8	35.26
243.0	006.0000	0048.9	020.3	355.7	009.7000	0139.2	124.1	35.21
244.0	006.0000	0049.6	020.5	355.6	009.7000	0139.2	124.3	35.16