



## **Comprehensive Engineering Statement – May 23, 2023**

### **University of Wyoming, KUWI**

This proposal is for a minor modification to the KUWI facilities to change tower location, antenna height, class, and effective radiated power.

Geographic Coordinates: N. Lat. 41-40-52.6, W. Long. 107-14-13.26 (NAD 83)

Channel number: 210, 89.9 Mhz., Class C1, ERP: 15.0 kW, circularly polarized.

Proposed Antenna C.O.R: 2,487.1m AMSL, HAAT: 321.6m (8 cardinal radials, GLOBE 30 m terrain data.)

Antenna COR: 20.1 m A.G., 5-bay, full-wave, ERI MP-5E, EPA type 3.

Base elevation at the site: 2,467 m.

Total structure height above ground: 25 m.

Exhibit #1 is a contour-to-contour channel study using our V-Soft Communications, FMCommander program that is in wide use throughout the industry. This study shows that, per section 73.509 of the Commission's rules, the proposed facility will neither cause nor receive contour overlap with any station in the Commission's FM database.

Exhibit #2, (pages #1 - #13) compose the allocations study that shows the proposed facility will protect, the second adjacent C.P., 762750, Jefferson City, WY, and third adjacent, KHCO, Hayden. CP. This study provides a contour-to-contour map for each of these stations and an FMOver terrain heights, azimuths, and signal calculations table. The GLOBE 30 arc-second terrain database was employed for all exhibits.

Exhibit #3 is a coverage map of the 60 dBu city service contour. As shown on the map, the proposed city of license, Rawlins, WY is covered 100 percent by the principal city contour.

Exhibit #4 is a distance-to-contour and HAAT table for the eight cardinal radials.

Exhibit #5 is an RF hazard graph with a table that shows that the proposed, full-wave, 5-bay ERI MP-5E, type 3, antenna, produces a power density below the Commission's maximum for the area.

Exhibit #6 is an exhibit stating the qualifications of the preparer.

Doug Vernier

Doug Vernier, Telecommunications Consultants LLC  
Study Using FMCommander Software

## Contour-to-Contour Channel Study

University Of Wyoming

REFERENCE  
41 40 52.60 N.  
107 14 13.26 W.

CH# 210C1 - 89.9 MHz, Pwr= 15 kW, HAAT= 321.6 M, COR= 2487.1 M  
Average Protected F(50-50)= 55.27 km  
Omni-directional

DISPLAY DATES  
DATA 05-17-23  
SEARCH 05-17-23

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
210C3 KUWI Rawlins		LIC _CN WY		160.9 340.9	0.22 BLED20091016AEL	41 40 45.80 107 14 10.10	2.000 301		---Reference---		
208C1 762750 Jeffrey City		CP _CN WY		338.5 158.3	75.46 0000167733	42 18 44.10 107 34 24.80	8.000 652	5.6 2823	69.3 University Of Wyoming	13.9	0.2
211C2 KHCO Hayden		LIC _VN CO		163.3 343.6	142.66 0000203516	40 27 04.80 106 45 06.00	1.800 522	76.9 3140	46.0 Educational Media Foundati	13.3	10.3
209A KRYJ Craig		LIC _CN CO		194.3 14.1	127.98 0000201149	40 33 55.00 107 36 42.00	0.100 273	23.1 2291	15.1 San Tan Educational Medi a	52.1	34.5
209C0 KXGR Loveland		LIC _EN CO		125.9 307.1	198.79 BLED20081218AEY	40 37 02.90 105 19 41.90	80.000 372	114.1 2561	74.5 Calvary Chapel Aurora	36.5	47.2
210C3 KUDA Bonnevill e		CP _CN WY		342.5 162.0	204.98 0000167827	43 26 15.00 107 59 57.00	0.160 595	94.8 2510	33.3 Cedar Cove Broadcasting, I	53.7	37.7
212C KCSP-FM Casper		LIC _CN WY		32.7 213.4	140.42 BLED20140923ABP	42 44 23.90 106 18 25.10	100.000 593	13.2 2554	89.8 Western Inspirational Broa	66.8	43.3
212C KCSP-FM Casper		APP _CN WY		32.7 213.3	140.46 0000214417	42 44 25.90 106 18 26.00	100.000 593	13.2 2554	89.8 Western Inspirational Broa	66.9	43.4
211A 768283 Lander		CP _CN WY		309.8 128.8	157.36 0000167669	42 34 42.00 108 42 48.00	0.160 393	32.7 2760	21.8 Hi-Line Radio Fellowship,	68.4	50.3
211A KUWL Laramie		LIC _CN WY		105.0 286.1	154.00 BLED20080303AI Z	41 18 35.90 105 27 18.90	0.110 295	35.0 2699	22.7 University Of Wyoming	66.4	55.2

Terrain database is GLOBE 30 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= - ZN2, Co to 3rd adjacent.  
All separation margins (if shown) include rounding.  
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.

KUWI vs 762759 (CP)  
University of Wyoming

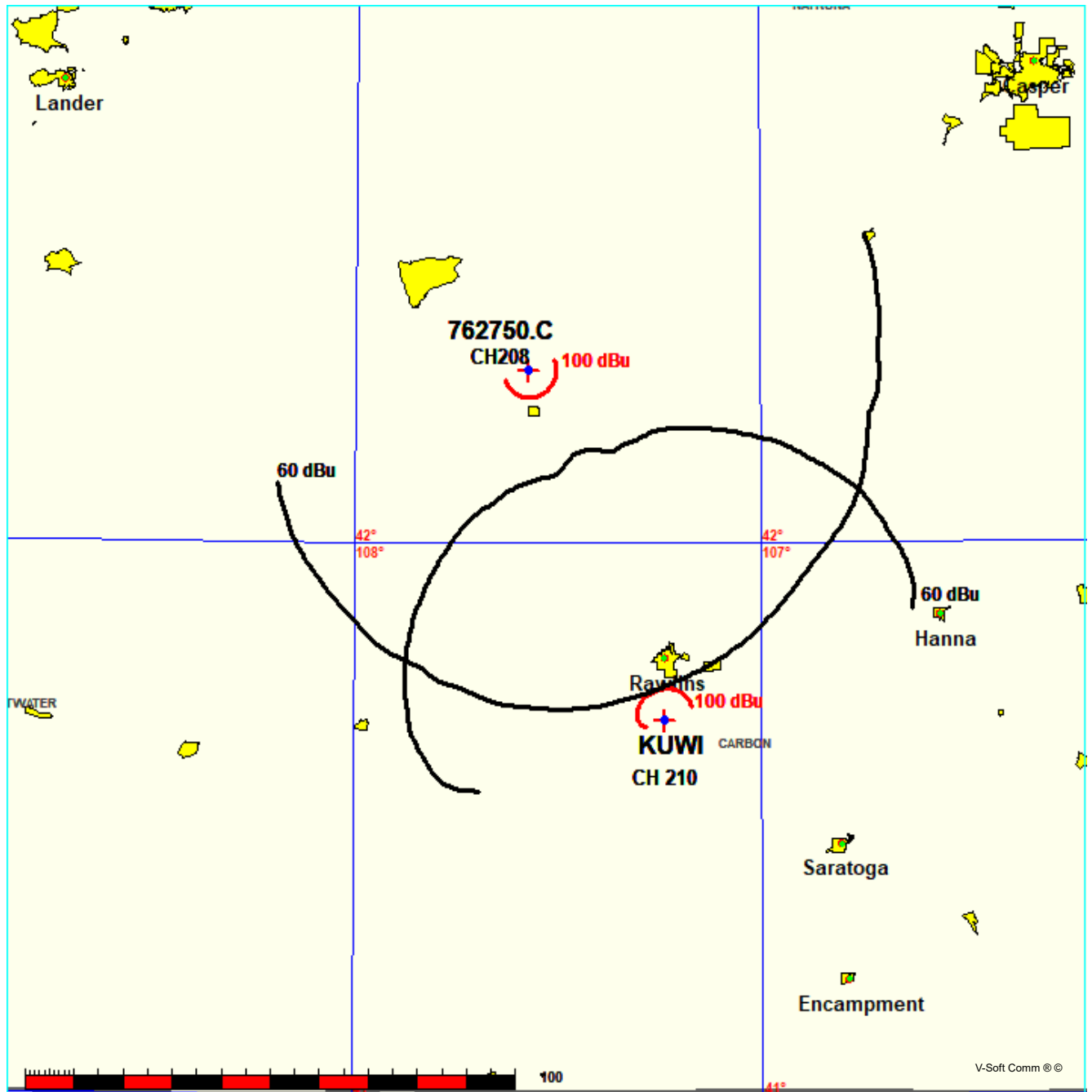
FMCommander Single Allocation Study - 05-22-2023 - GLOBE 30 Sec  
KUWI's Overlaps (In= 13.87 km, Out= 0.18 km)

KUWI CH 210 C1

Lat= 41 40 52.60, Lng= 107 14 13.26  
15.0 kW 321.6 m HAAT, 2487.1 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

762750 CH 208 C1 0000167733

Lat= 42 18 44.10, Lng= 107 34 24.80  
8.0 kW 652.3 m HAAT, 2822.7 m COR  
Prot.= 60 dBu, Intef.= 100 dBu



05-22-2023

Terrain Data: GLOBE 30 Sec

FMOver Analysis

KUWI

762750 0000167733

Channel = 210C1

Max ERP = 15 kW

RCAMSL = 2487.1 m

N. Lat. 41 40 52.60

W. Lng. 107 14 13.26

Protected

60 dBu

Channel = 208C1

Max ERP = 8 kW

RCAMSL = 2822.7 m

N. Lat. 42 18 44.10

W. Lng. 107 34 24.80

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
278.0	015.0000	0294.2	053.4	201.7	008.0000	0561.3	067.7	62.48	
279.0	015.0000	0296.7	053.6	202.0	008.0000	0560.8	066.8	62.77	
280.0	015.0000	0299.1	053.8	202.3	008.0000	0560.3	065.9	63.06	
281.0	015.0000	0301.2	053.9	202.6	008.0000	0560.0	065.0	63.36	
282.0	015.0000	0303.2	054.0	202.9	008.0000	0559.7	064.1	63.66	
283.0	015.0000	0305.4	054.2	203.2	008.0000	0559.6	063.2	63.97	
284.0	015.0000	0307.2	054.3	203.5	008.0000	0559.6	062.3	64.28	
285.0	015.0000	0308.7	054.4	203.7	008.0000	0559.6	061.4	64.59	
286.0	015.0000	0310.1	054.5	203.9	008.0000	0559.6	060.5	64.91	
287.0	015.0000	0311.5	054.6	204.1	008.0000	0559.6	059.5	65.23	
288.0	015.0000	0312.4	054.7	204.3	008.0000	0559.6	058.6	65.55	
289.0	015.0000	0313.6	054.7	204.5	008.0000	0559.5	057.7	65.88	
290.0	015.0000	0315.0	054.8	204.7	008.0000	0559.5	056.7	66.20	
291.0	015.0000	0316.9	055.0	204.9	008.0000	0559.4	055.8	66.52	
292.0	015.0000	0318.4	055.1	205.0	008.0000	0559.2	054.8	66.85	
293.0	015.0000	0319.2	055.1	205.1	008.0000	0559.2	053.9	67.18	
294.0	015.0000	0319.9	055.2	205.2	008.0000	0559.1	052.9	67.51	
295.0	015.0000	0320.4	055.2	205.3	008.0000	0559.0	051.9	67.85	
296.0	015.0000	0321.1	055.2	205.3	008.0000	0559.0	051.0	68.18	
297.0	015.0000	0322.0	055.3	205.4	008.0000	0558.9	050.0	68.52	
298.0	015.0000	0323.3	055.4	205.4	008.0000	0558.9	049.0	68.86	
299.0	015.0000	0324.9	055.5	205.5	008.0000	0558.8	048.1	69.20	
300.0	015.0000	0326.1	055.6	205.5	008.0000	0558.8	047.1	69.54	
301.0	015.0000	0327.1	055.6	205.5	008.0000	0558.8	046.1	69.90	
302.0	015.0000	0328.2	055.7	205.5	008.0000	0558.9	045.1	70.26	
303.0	015.0000	0329.5	055.8	205.4	008.0000	0558.9	044.2	70.63	
304.0	015.0000	0330.5	055.9	205.3	008.0000	0559.0	043.2	71.01	
305.0	015.0000	0331.0	055.9	205.2	008.0000	0559.1	042.2	71.39	
306.0	015.0000	0331.7	055.9	205.0	008.0000	0559.2	041.3	71.78	
307.0	015.0000	0332.6	056.0	204.8	008.0000	0559.4	040.3	72.18	
308.0	015.0000	0333.4	056.1	204.6	008.0000	0559.5	039.3	72.58	
309.0	015.0000	0334.7	056.1	204.4	008.0000	0559.6	038.4	72.99	
310.0	015.0000	0335.6	056.2	204.1	008.0000	0559.6	037.4	73.40	
311.0	015.0000	0336.4	056.3	203.7	008.0000	0559.6	036.4	73.81	
312.0	015.0000	0336.9	056.3	203.3	008.0000	0559.6	035.5	74.23	
313.0	015.0000	0337.1	056.3	202.8	008.0000	0559.8	034.6	74.64	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
314.0	015.0000	0337.2	056.3	202.2	008.0000	0560.5	033.6	75.07
315.0	015.0000	0337.2	056.3	201.6	008.0000	0561.6	032.7	75.50
316.0	015.0000	0337.4	056.3	200.9	008.0000	0563.4	031.8	75.95
317.0	015.0000	0337.5	056.3	200.1	008.0000	0566.4	030.9	76.44
318.0	015.0000	0336.8	056.3	199.2	008.0000	0573.0	030.1	77.00
319.0	015.0000	0334.2	056.1	197.9	008.0000	0585.1	029.3	77.64
320.0	015.0000	0330.6	055.9	196.5	008.0000	0596.1	028.6	78.24
321.0	015.0000	0327.9	055.7	195.1	008.0000	0601.3	027.9	78.75
322.0	015.0000	0326.6	055.6	193.7	008.0000	0604.0	027.2	79.23
323.0	015.0000	0326.9	055.6	192.5	008.0000	0604.4	026.4	79.71
324.0	015.0000	0328.3	055.7	191.2	008.0000	0610.1	025.6	80.32
325.0	015.0000	0329.1	055.8	189.8	008.0000	0619.3	024.9	80.96
326.0	015.0000	0328.7	055.7	188.1	008.0000	0633.2	024.2	81.61
327.0	015.0000	0326.9	055.6	186.1	008.0000	0647.4	023.7	82.19
328.0	015.0000	0323.8	055.4	184.0	008.0000	0658.4	023.3	82.64
329.0	015.0000	0319.7	055.1	181.6	008.0000	0665.1	022.9	82.96
330.0	015.0000	0315.8	054.9	179.2	008.0000	0670.3	022.7	83.21
331.0	015.0000	0312.7	054.7	176.8	008.0000	0679.2	022.4	83.51
332.0	015.0000	0310.2	054.5	174.4	008.0000	0687.6	022.2	83.78
333.0	015.0000	0307.8	054.4	171.9	008.0000	0693.8	022.0	83.99
334.0	015.0000	0304.0	054.1	169.4	008.0000	0701.9	021.9	84.11
335.0	015.0000	0301.2	053.9	166.9	008.0000	0704.8	021.9	84.18
336.0	015.0000	0301.1	053.9	164.5	008.0000	0703.3	021.7	84.28
337.0	015.0000	0304.6	054.1	162.0	008.0000	0708.2	021.4	84.57
338.0	015.0000	0311.9	054.6	159.5	008.0000	0709.6	020.8	84.96
339.0	015.0000	0321.5	055.3	156.9	008.0000	0710.6	020.2	85.43
340.0	015.0000	0330.1	055.8	154.0	008.0000	0714.8	019.7	85.84
341.0	015.0000	0335.6	056.2	151.0	008.0000	0718.6	019.5	86.04
342.0	015.0000	0338.3	056.4	148.1	008.0000	0721.8	019.5	86.05
343.0	015.0000	0339.6	056.5	145.2	008.0000	0726.1	019.7	85.97
344.0	015.0000	0338.6	056.4	142.6	008.0000	0728.9	020.1	85.72
345.0	015.0000	0334.1	056.1	140.4	008.0000	0730.9	020.7	85.28
346.0	015.0000	0327.5	055.7	138.5	008.0000	0731.2	021.5	84.71
347.0	015.0000	0321.2	055.2	136.8	008.0000	0728.7	022.4	84.12
348.0	015.0000	0316.8	055.0	135.1	008.0000	0725.4	023.1	83.58
349.0	015.0000	0316.7	054.9	133.2	008.0000	0722.0	023.7	83.18
350.0	015.0000	0320.8	055.2	131.0	008.0000	0719.0	024.0	82.91
351.0	015.0000	0326.8	055.6	128.6	008.0000	0717.4	024.3	82.68
352.0	015.0000	0331.4	055.9	126.5	008.0000	0719.4	024.8	82.41
353.0	015.0000	0334.2	056.1	124.6	008.0000	0721.4	025.4	82.07
354.0	015.0000	0338.8	056.4	122.7	008.0000	0724.3	025.9	81.76
355.0	015.0000	0344.4	056.8	120.7	008.0000	0731.0	026.5	81.49
356.0	015.0000	0350.1	057.2	118.9	008.0000	0742.5	027.1	81.26
357.0	015.0000	0355.6	057.5	117.2	008.0000	0752.1	027.8	80.97
358.0	015.0000	0360.1	057.8	115.7	008.0000	0757.0	028.5	80.61
359.0	015.0000	0364.4	058.1	114.3	008.0000	0761.2	029.3	80.22
000.0	015.0000	0367.7	058.3	113.1	008.0000	0765.3	030.1	79.82
001.0	015.0000	0369.5	058.4	112.2	008.0000	0768.5	031.0	79.39
002.0	015.0000	0371.3	058.5	111.4	008.0000	0771.0	032.0	78.97
003.0	015.0000	0373.0	058.6	110.6	008.0000	0772.9	032.9	78.55
004.0	015.0000	0374.2	058.7	110.0	008.0000	0773.9	033.8	78.12

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
005.0	015.0000	0376.0	058.8	109.4	008.0000	0774.2	034.8	77.68
006.0	015.0000	0377.7	058.9	108.8	008.0000	0773.6	035.8	77.23
007.0	015.0000	0379.2	059.0	108.3	008.0000	0772.5	036.8	76.77
008.0	015.0000	0381.0	059.1	107.9	008.0000	0771.0	037.8	76.31
009.0	015.0000	0382.3	059.1	107.5	008.0000	0769.4	038.8	75.85
010.0	015.0000	0383.5	059.2	107.2	008.0000	0767.9	039.8	75.39
011.0	015.0000	0384.5	059.3	106.9	008.0000	0766.6	040.8	74.94
012.0	015.0000	0385.6	059.3	106.7	008.0000	0765.4	041.8	74.49
013.0	015.0000	0386.8	059.4	106.5	008.0000	0764.3	042.8	74.05
014.0	015.0000	0388.4	059.5	106.3	008.0000	0763.4	043.9	73.62
015.0	015.0000	0390.0	059.6	106.1	008.0000	0762.6	044.9	73.20
016.0	015.0000	0391.5	059.7	106.0	008.0000	0762.0	045.9	72.79
017.0	015.0000	0393.4	059.8	105.9	008.0000	0761.3	047.0	72.38
018.0	015.0000	0395.3	059.9	105.8	008.0000	0760.8	048.0	71.99
019.0	015.0000	0396.6	060.0	105.7	008.0000	0760.6	049.1	71.61
020.0	015.0000	0397.7	060.0	105.7	008.0000	0760.7	050.1	71.23
021.0	015.0000	0399.4	060.1	105.7	008.0000	0760.6	051.2	70.84
022.0	015.0000	0401.6	060.3	105.7	008.0000	0760.4	052.2	70.45
023.0	015.0000	0403.4	060.4	105.7	008.0000	0760.5	053.3	70.06
024.0	015.0000	0403.6	060.4	105.8	008.0000	0761.2	054.4	69.69
025.0	015.0000	0402.8	060.3	106.1	008.0000	0762.2	055.4	69.32
026.0	015.0000	0401.6	060.3	106.3	008.0000	0763.4	056.4	68.96
027.0	015.0000	0400.8	060.2	106.5	008.0000	0764.5	057.4	68.61
028.0	015.0000	0400.3	060.2	106.7	008.0000	0765.6	058.5	68.26
029.0	015.0000	0400.4	060.2	106.9	008.0000	0766.7	059.5	67.91
030.0	015.0000	0401.0	060.2	107.1	008.0000	0767.6	060.5	67.56
031.0	015.0000	0402.3	060.3	107.3	008.0000	0768.4	061.6	67.21
032.0	015.0000	0404.2	060.4	107.4	008.0000	0769.1	062.6	66.87
033.0	015.0000	0405.5	060.5	107.6	008.0000	0769.9	063.7	66.54
034.0	015.0000	0405.7	060.5	107.8	008.0000	0770.9	064.7	66.23
035.0	015.0000	0405.3	060.5	108.1	008.0000	0771.9	065.7	65.92
036.0	015.0000	0405.4	060.5	108.4	008.0000	0772.7	066.7	65.62
037.0	015.0000	0406.7	060.6	108.6	008.0000	0773.2	067.7	65.31

05-22-2023

Terrain Data: GLOBE 30 Sec

FMOver Analysis

762750 0000167733

KUWI

Channel = 208C1

Max ERP = 8 kW

RCAMSL = 2822.7 m

N. Lat. 42 18 44.10

W. Lng. 107 34 24.80

Protected

60 dBu

Channel = 210C1

Max ERP = 15 kW

RCAMSL = 2487.1 m

N. Lat. 41 40 52.60

W. Lng. 107 14 13.26

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
098.0	008.0000	0728.4	070.0	034.6	015.0000	0405.4	073.2	59.39	
099.0	008.0000	0730.5	070.0	035.1	015.0000	0405.2	072.1	59.75	
100.0	008.0000	0733.0	070.1	035.6	015.0000	0405.2	071.0	60.11	
101.0	008.0000	0737.1	070.3	036.1	015.0000	0405.5	070.0	60.47	
102.0	008.0000	0743.0	070.5	036.7	015.0000	0406.2	068.9	60.85	
103.0	008.0000	0749.0	070.7	037.3	015.0000	0407.2	067.9	61.23	
104.0	008.0000	0752.8	070.8	037.8	015.0000	0408.3	066.8	61.63	
105.0	008.0000	0757.2	070.9	038.3	015.0000	0409.5	065.7	62.03	
106.0	008.0000	0761.9	071.1	038.9	015.0000	0410.6	064.7	62.44	
107.0	008.0000	0767.0	071.3	039.4	015.0000	0411.6	063.6	62.84	
108.0	008.0000	0771.6	071.4	040.0	015.0000	0412.0	062.5	63.24	
109.0	008.0000	0773.9	071.5	040.5	015.0000	0412.0	061.3	63.65	
110.0	008.0000	0773.9	071.5	040.9	015.0000	0411.8	060.2	64.07	
111.0	008.0000	0771.9	071.4	041.3	015.0000	0411.4	059.0	64.50	
112.0	008.0000	0769.2	071.3	041.6	015.0000	0411.0	057.8	64.94	
113.0	008.0000	0765.8	071.2	041.9	015.0000	0410.5	056.6	65.38	
114.0	008.0000	0762.1	071.1	042.2	015.0000	0410.0	055.4	65.83	
115.0	008.0000	0758.9	071.0	042.5	015.0000	0409.5	054.1	66.28	
116.0	008.0000	0756.0	070.9	042.7	015.0000	0409.0	052.9	66.73	
117.0	008.0000	0752.7	070.8	043.0	015.0000	0408.4	051.7	67.18	
118.0	008.0000	0748.0	070.6	043.2	015.0000	0407.9	050.5	67.63	
119.0	008.0000	0741.7	070.4	043.3	015.0000	0407.6	049.2	68.10	
120.0	008.0000	0735.2	070.2	043.4	015.0000	0407.4	048.0	68.56	
121.0	008.0000	0729.7	070.0	043.5	015.0000	0407.1	046.8	69.03	
122.0	008.0000	0726.0	069.9	043.7	015.0000	0406.6	045.5	69.50	
123.0	008.0000	0723.7	069.8	043.9	015.0000	0405.9	044.3	69.97	
124.0	008.0000	0722.3	069.8	044.1	015.0000	0405.2	043.1	70.45	
125.0	008.0000	0721.0	069.7	044.3	015.0000	0404.4	041.9	70.94	
126.0	008.0000	0719.9	069.7	044.5	015.0000	0403.7	040.7	71.43	
127.0	008.0000	0718.8	069.6	044.7	015.0000	0403.1	039.5	71.95	
128.0	008.0000	0717.7	069.6	044.9	015.0000	0402.5	038.3	72.47	
129.0	008.0000	0717.4	069.6	045.1	015.0000	0401.9	037.1	73.00	
130.0	008.0000	0717.9	069.6	045.3	015.0000	0401.1	035.9	73.54	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
131.0	008.0000	0719.0	069.7	045.5	015.0000	0400.2	034.7	74.08
132.0	008.0000	0720.3	069.7	045.7	015.0000	0399.4	033.5	74.63
133.0	008.0000	0721.7	069.7	045.9	015.0000	0398.6	032.2	75.19
134.0	008.0000	0723.3	069.8	046.1	015.0000	0397.8	031.0	75.78
135.0	008.0000	0725.1	069.9	046.3	015.0000	0397.1	029.8	76.43
136.0	008.0000	0727.0	069.9	046.4	015.0000	0396.5	028.6	77.12
137.0	008.0000	0729.0	070.0	046.5	015.0000	0396.0	027.4	77.87
138.0	008.0000	0730.6	070.0	046.6	015.0000	0395.8	026.1	78.66
139.0	008.0000	0731.4	070.1	046.6	015.0000	0396.0	024.9	79.50
140.0	008.0000	0731.1	070.1	046.4	015.0000	0396.7	023.7	80.38
141.0	008.0000	0730.4	070.0	046.1	015.0000	0397.8	022.5	81.31
142.0	008.0000	0729.5	070.0	045.7	015.0000	0399.5	021.3	82.26
143.0	008.0000	0728.5	070.0	045.1	015.0000	0401.5	020.1	83.25
144.0	008.0000	0727.5	069.9	044.5	015.0000	0403.9	018.9	84.26
145.0	008.0000	0726.3	069.9	043.7	015.0000	0406.7	017.7	85.29
146.0	008.0000	0724.9	069.9	042.6	015.0000	0409.3	016.5	86.32
147.0	008.0000	0723.4	069.8	041.3	015.0000	0411.4	015.3	87.33
148.0	008.0000	0721.9	069.8	039.7	015.0000	0411.9	014.2	88.47
149.0	008.0000	0720.6	069.7	037.8	015.0000	0408.2	013.1	89.84
150.0	008.0000	0719.5	069.7	035.4	015.0000	0405.2	011.9	91.30
151.0	008.0000	0718.6	069.6	032.5	015.0000	0405.1	010.9	92.84
152.0	008.0000	0717.6	069.6	028.9	015.0000	0400.3	009.9	94.27
153.0	008.0000	0716.4	069.6	024.3	015.0000	0403.4	008.9	95.76
154.0	008.0000	0714.8	069.5	018.5	015.0000	0396.1	008.0	96.96
155.0	008.0000	0712.9	069.4	011.3	015.0000	0384.8	007.3	97.99
156.0	008.0000	0711.4	069.4	002.6	015.0000	0372.3	006.7	98.88
157.0	008.0000	0710.5	069.4	352.5	015.0000	0332.8	006.3	99.20
158.0	008.0000	0709.9	069.3	341.5	015.0000	0337.2	006.1	99.61
159.0	008.0000	0709.6	069.3	330.2	015.0000	0315.0	006.2	99.18
160.0	008.0000	0709.6	069.3	319.7	015.0000	0331.7	006.5	98.78
161.0	008.0000	0709.4	069.3	310.5	015.0000	0335.9	007.0	97.83
162.0	008.0000	0708.2	069.3	303.0	015.0000	0329.5	007.8	96.42
163.0	008.0000	0705.9	069.2	297.2	015.0000	0322.2	008.7	94.77
164.0	008.0000	0703.7	069.1	292.6	015.0000	0318.9	009.6	93.07
165.0	008.0000	0703.4	069.1	288.6	015.0000	0313.1	010.6	91.32
166.0	008.0000	0704.1	069.1	285.3	015.0000	0309.1	011.6	89.62
167.0	008.0000	0704.9	069.2	282.6	015.0000	0304.5	012.7	87.93
168.0	008.0000	0704.3	069.1	280.5	015.0000	0300.3	013.8	86.29
169.0	008.0000	0702.9	069.1	279.0	015.0000	0296.7	014.9	84.77
170.0	008.0000	0700.0	069.0	277.9	015.0000	0294.0	016.1	83.76
171.0	008.0000	0696.6	068.9	277.1	015.0000	0292.2	017.3	82.72
172.0	008.0000	0693.6	068.8	276.5	015.0000	0291.2	018.5	81.71
173.0	008.0000	0691.4	068.7	275.9	015.0000	0290.5	019.7	80.72
174.0	008.0000	0688.7	068.6	275.4	015.0000	0289.8	020.9	79.75
175.0	008.0000	0685.8	068.5	275.1	015.0000	0289.2	022.1	78.80
176.0	008.0000	0682.5	068.4	274.9	015.0000	0288.8	023.3	77.88
177.0	008.0000	0678.3	068.2	274.9	015.0000	0288.6	024.5	76.99
178.0	008.0000	0674.2	068.1	274.9	015.0000	0288.6	025.7	76.14
179.0	008.0000	0670.8	067.9	274.9	015.0000	0288.6	026.8	75.32
180.0	008.0000	0668.6	067.9	274.8	015.0000	0288.5	028.0	74.55
181.0	008.0000	0666.4	067.8	274.8	015.0000	0288.5	029.2	73.81



Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
182.0	008.0000	0664.3	067.7	274.8	015.0000	0288.5	030.4	73.13
183.0	008.0000	0661.7	067.6	274.9	015.0000	0288.7	031.6	72.49
184.0	008.0000	0658.3	067.5	275.1	015.0000	0289.1	032.8	71.91
185.0	008.0000	0653.4	067.3	275.4	015.0000	0289.7	033.9	71.35
186.0	008.0000	0648.1	067.1	275.7	015.0000	0290.3	035.1	70.80
187.0	008.0000	0642.5	066.9	276.1	015.0000	0290.8	036.3	70.25
188.0	008.0000	0633.9	066.6	276.6	015.0000	0291.4	037.4	69.73
189.0	008.0000	0624.6	066.2	277.2	015.0000	0292.3	038.6	69.22
190.0	008.0000	0617.8	066.0	277.6	015.0000	0293.3	039.7	68.73
191.0	008.0000	0611.3	065.7	278.1	015.0000	0294.3	040.9	68.25
192.0	008.0000	0605.6	065.5	278.5	015.0000	0295.3	042.0	67.78
193.0	008.0000	0604.3	065.5	278.6	015.0000	0295.8	043.1	67.30
194.0	008.0000	0603.8	065.4	278.8	015.0000	0296.2	044.3	66.83
195.0	008.0000	0601.6	065.4	279.1	015.0000	0296.8	045.4	66.38
196.0	008.0000	0598.3	065.2	279.4	015.0000	0297.6	046.5	65.94
197.0	008.0000	0593.2	065.0	279.8	015.0000	0298.6	047.6	65.53
198.0	008.0000	0584.5	064.7	280.4	015.0000	0300.0	048.7	65.15
199.0	008.0000	0574.6	064.2	281.1	015.0000	0301.4	049.7	64.78
200.0	008.0000	0567.0	063.9	281.7	015.0000	0302.5	050.8	64.39
201.0	008.0000	0563.0	063.7	282.1	015.0000	0303.3	051.9	64.00
202.0	008.0000	0560.8	063.6	282.4	015.0000	0304.0	052.9	63.60
203.0	008.0000	0559.7	063.5	282.6	015.0000	0304.7	054.0	63.19
204.0	008.0000	0559.6	063.5	282.9	015.0000	0305.1	055.1	62.78
205.0	008.0000	0559.3	063.5	283.1	015.0000	0305.6	056.2	62.37
206.0	008.0000	0558.5	063.5	283.4	015.0000	0306.1	057.3	61.97
207.0	008.0000	0557.7	063.4	283.7	015.0000	0306.7	058.3	61.58
208.0	008.0000	0555.9	063.3	284.0	015.0000	0307.2	059.4	61.19
209.0	008.0000	0552.4	063.1	284.5	015.0000	0308.0	060.4	60.83
210.0	008.0000	0548.0	062.9	285.0	015.0000	0308.7	061.4	60.48
211.0	008.0000	0543.8	062.7	285.4	015.0000	0309.3	062.4	60.13
212.0	008.0000	0539.9	062.4	285.9	015.0000	0310.0	063.4	59.79
213.0	008.0000	0535.9	062.2	286.4	015.0000	0310.7	064.4	59.46
214.0	008.0000	0531.3	061.9	286.9	015.0000	0311.4	065.3	59.14
215.0	008.0000	0526.5	061.6	287.5	015.0000	0311.9	066.3	58.82
216.0	008.0000	0522.7	061.4	287.9	015.0000	0312.3	067.2	58.50
217.0	008.0000	0520.1	061.2	288.4	015.0000	0312.8	068.2	58.17

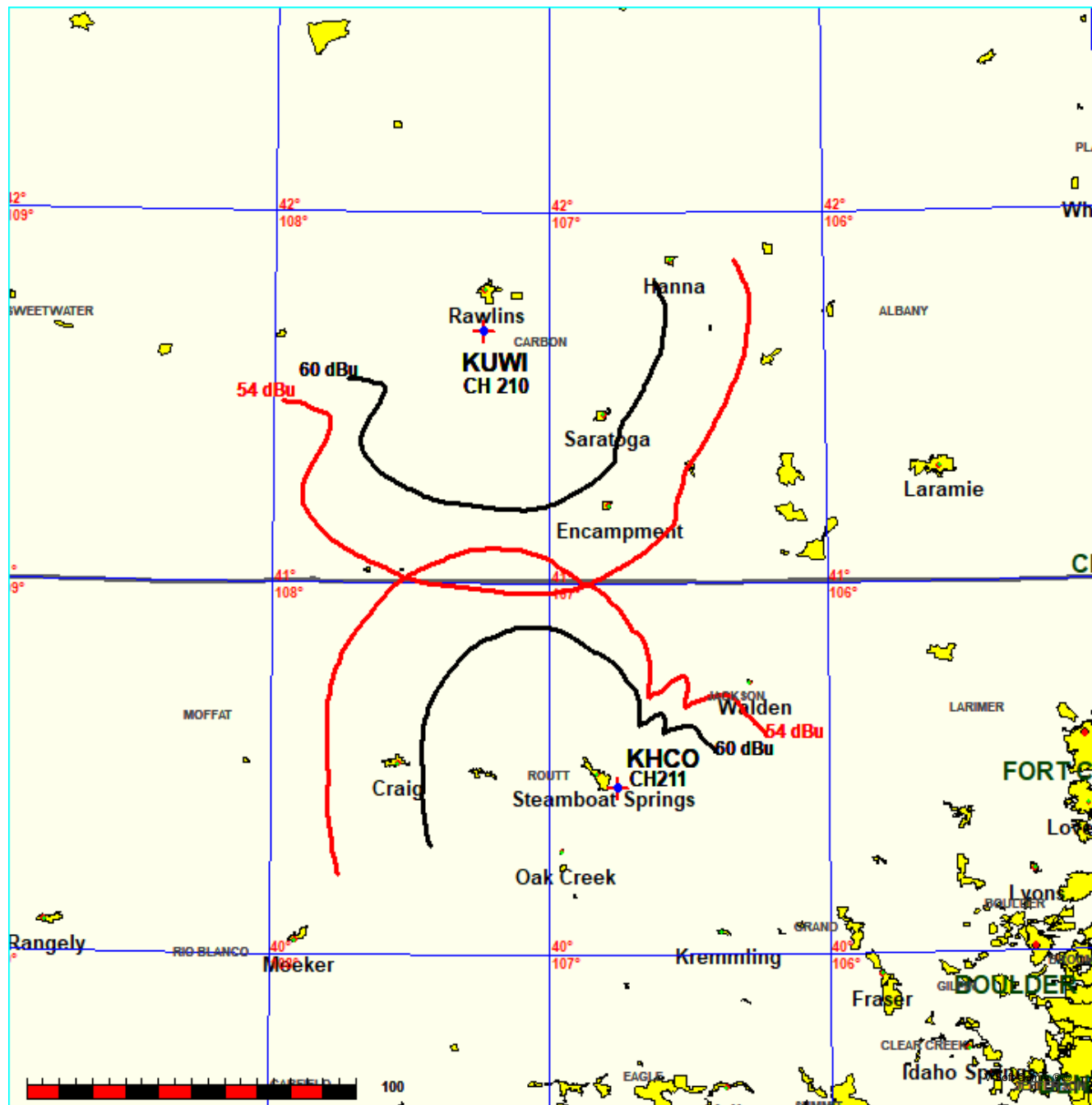
FMCommander Single Allocation Study - 05-22-2023 - GLOBE 30 Sec  
KUWI's Overlaps (In= 13.31 km, Out= 10.26 km)

KUWI CH 210 C1

Lat= 41 40 52.60, Lng= 107 14 13.26  
15.0 kW 321.6 m HAAT, 2487.1 m COR  
Prot.= 60 dBu, Intef.= 54 dBu

KHCO CH 211 C2 0000203516

Lat= 40 27 04.80, Lng= 106 45 06.00  
1.8 kW 522 m HAAT, 3140 m COR  
Prot.= 60 dBu, Intef.= 54 dBu



05-22-2023

Terrain Data: GLOBE 30 Sec

FMOver Analysis

KUWI

KHCO 0000203516

Channel = 210C1

Max ERP = 15 kW

RCAMSL = 2487.1 m

N. Lat. 41 40 52.60

W. Lng. 107 14 13.26

Protected

60 dBu

Channel = 211C2

Max ERP = 1.8 kW

RCAMSL = 3140 m

N. Lat. 40 27 04.80

W. Lng. 106 45 06.00

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
103.0	015.0000	0273.3	052.0	004.7	001.8000	0229.3	125.3	29.90	
104.0	015.0000	0270.8	051.8	004.6	001.8000	0230.8	124.4	30.10	
105.0	015.0000	0269.5	051.7	004.4	001.8000	0232.1	123.6	30.31	
106.0	015.0000	0267.9	051.6	004.3	001.8000	0233.8	122.7	30.52	
107.0	015.0000	0265.8	051.5	004.2	001.8000	0236.1	121.9	30.75	
108.0	015.0000	0263.7	051.3	004.0	001.8000	0238.8	121.0	30.99	
109.0	015.0000	0262.2	051.2	003.8	001.8000	0241.3	120.2	31.22	
110.0	015.0000	0260.5	051.1	003.7	001.8000	0244.1	119.4	31.46	
111.0	015.0000	0258.4	050.9	003.5	001.8000	0247.2	118.6	31.71	
112.0	015.0000	0256.5	050.8	003.3	001.8000	0250.1	117.8	31.96	
113.0	015.0000	0255.5	050.7	003.1	001.8000	0252.7	116.9	32.20	
114.0	015.0000	0255.2	050.7	002.9	001.8000	0254.9	116.1	32.44	
115.0	015.0000	0254.8	050.7	002.7	001.8000	0257.4	115.3	32.69	
116.0	015.0000	0253.6	050.6	002.5	001.8000	0260.4	114.5	32.94	
117.0	015.0000	0252.6	050.5	002.3	001.8000	0263.4	113.8	33.20	
118.0	015.0000	0251.5	050.4	002.1	001.8000	0266.6	113.0	33.47	
119.0	015.0000	0250.5	050.4	001.8	001.8000	0270.0	112.3	33.74	
120.0	015.0000	0248.9	050.3	001.6	001.8000	0273.9	111.5	34.02	
121.0	015.0000	0247.4	050.1	001.3	001.8000	0277.8	110.8	34.31	
122.0	015.0000	0246.2	050.1	001.0	001.8000	0281.7	110.1	34.60	
123.0	015.0000	0245.9	050.0	000.8	001.8000	0285.3	109.4	34.90	
124.0	015.0000	0246.6	050.1	000.6	001.8000	0288.6	108.6	35.20	
125.0	015.0000	0249.7	050.3	000.4	001.8000	0291.0	107.8	35.50	
126.0	015.0000	0255.2	050.7	000.3	001.8000	0292.5	106.8	35.82	
127.0	015.0000	0262.0	051.2	000.2	001.8000	0293.6	105.8	36.14	
128.0	015.0000	0267.6	051.6	000.1	001.8000	0295.5	104.9	36.48	
129.0	015.0000	0271.7	051.9	359.9	001.8000	0298.2	104.0	36.83	
130.0	015.0000	0276.3	052.2	359.7	001.8000	0300.8	103.1	37.19	
131.0	015.0000	0283.2	052.7	359.6	001.8000	0302.8	102.1	37.56	
132.0	015.0000	0293.2	053.4	359.5	001.8000	0303.7	100.9	37.95	
133.0	015.0000	0305.6	054.2	359.5	001.8000	0304.0	099.7	38.35	
134.0	015.0000	0317.4	055.0	359.4	001.8000	0304.9	098.4	38.77	
135.0	015.0000	0325.2	055.5	359.3	001.8000	0307.6	097.4	39.18	
136.0	015.0000	0328.8	055.8	358.9	001.8000	0311.3	096.6	39.56	
137.0	015.0000	0330.2	055.8	358.5	001.8000	0315.3	095.8	39.91	
138.0	015.0000	0330.9	055.9	358.1	001.8000	0319.7	095.2	40.25	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
139.0	015.0000	0331.7	055.9	357.7	001.8000	0324.7	094.5	40.61
140.0	015.0000	0332.3	056.0	357.2	001.8000	0330.3	093.9	40.98
141.0	015.0000	0332.7	056.0	356.7	001.8000	0335.6	093.3	41.33
142.0	015.0000	0333.0	056.0	356.3	001.8000	0341.9	092.7	41.70
143.0	015.0000	0333.1	056.0	355.8	001.8000	0347.0	092.2	42.02
144.0	015.0000	0332.8	056.0	355.2	001.8000	0351.8	091.7	42.33
145.0	015.0000	0332.2	056.0	354.7	001.8000	0358.0	091.2	42.66
146.0	015.0000	0331.7	055.9	354.1	001.8000	0364.2	090.8	42.99
147.0	015.0000	0331.5	055.9	353.6	001.8000	0370.7	090.3	43.33
148.0	015.0000	0331.4	055.9	353.0	001.8000	0378.6	089.9	43.71
149.0	015.0000	0331.2	055.9	352.4	001.8000	0385.7	089.5	44.05
150.0	015.0000	0330.9	055.9	351.9	001.8000	0391.1	089.2	44.34
151.0	015.0000	0330.8	055.9	351.3	001.8000	0395.1	088.9	44.58
152.0	015.0000	0331.2	055.9	350.7	001.8000	0398.6	088.5	44.81
153.0	015.0000	0331.7	055.9	350.1	001.8000	0402.4	088.2	45.04
154.0	015.0000	0332.3	056.0	349.5	001.8000	0408.5	087.9	45.34
155.0	015.0000	0333.0	056.0	348.9	001.8000	0416.2	087.6	45.68
156.0	015.0000	0333.7	056.1	348.3	001.8000	0425.4	087.3	46.06
157.0	015.0000	0334.1	056.1	347.6	001.8000	0436.2	087.1	46.47
158.0	015.0000	0334.0	056.1	347.0	001.8000	0446.8	087.0	46.85
159.0	015.0000	0333.4	056.1	346.3	001.8000	0456.6	086.9	47.17
160.0	015.0000	0332.4	056.0	345.7	001.8000	0468.2	086.8	47.51
161.0	015.0000	0330.9	055.9	345.1	001.8000	0480.9	086.8	47.82
162.0	015.0000	0329.4	055.8	344.4	001.8000	0493.7	086.9	48.09
163.0	015.0000	0328.2	055.7	343.8	001.8000	0506.6	087.0	48.35
164.0	015.0000	0326.8	055.6	343.1	001.8000	0518.7	087.1	48.57
165.0	015.0000	0324.8	055.5	342.5	001.8000	0529.8	087.2	48.75
166.0	015.0000	0322.8	055.4	341.9	001.8000	0541.3	087.4	48.95
167.0	015.0000	0320.6	055.2	341.2	001.8000	0553.8	087.6	49.15
168.0	015.0000	0317.3	055.0	340.6	001.8000	0566.0	088.0	49.31
169.0	015.0000	0313.6	054.7	340.0	001.8000	0577.6	088.4	49.43
170.0	015.0000	0310.2	054.5	339.5	001.8000	0589.0	088.8	49.54
171.0	015.0000	0307.6	054.3	338.9	001.8000	0599.8	089.1	49.63
172.0	015.0000	0305.5	054.2	338.3	001.8000	0610.1	089.5	49.70
173.0	015.0000	0303.6	054.1	337.8	001.8000	0619.9	089.8	49.75
174.0	015.0000	0301.9	054.0	337.2	001.8000	0629.1	090.2	49.78
175.0	015.0000	0299.4	053.8	336.7	001.8000	0637.3	090.7	49.77
176.0	015.0000	0295.7	053.5	336.2	001.8000	0644.7	091.2	49.72
177.0	015.0000	0292.1	053.3	335.7	001.8000	0651.7	091.8	49.66
178.0	015.0000	0290.2	053.2	335.2	001.8000	0659.3	092.2	49.63
179.0	015.0000	0288.8	053.1	334.7	001.8000	0667.1	092.7	49.60
180.0	015.0000	0287.4	053.0	334.2	001.8000	0675.1	093.2	49.57
181.0	015.0000	0285.5	052.8	333.7	001.8000	0683.1	093.7	49.53
182.0	015.0000	0284.1	052.7	333.2	001.8000	0691.3	094.2	49.49
183.0	015.0000	0282.6	052.6	332.8	001.8000	0699.5	094.8	49.45
184.0	015.0000	0281.7	052.6	332.3	001.8000	0707.6	095.3	49.40
185.0	015.0000	0280.9	052.5	331.9	001.8000	0715.1	095.9	49.35
186.0	015.0000	0280.4	052.5	331.4	001.8000	0722.3	096.4	49.29
187.0	015.0000	0280.1	052.5	331.0	001.8000	0729.0	097.0	49.22
188.0	015.0000	0280.6	052.5	330.6	001.8000	0735.3	097.5	49.15
189.0	015.0000	0281.7	052.6	330.1	001.8000	0741.9	098.0	49.09

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
190.0	015.0000	0283.5	052.7	329.7	001.8000	0748.9	098.5	49.03
191.0	015.0000	0284.7	052.8	329.2	001.8000	0756.1	099.0	48.97
192.0	015.0000	0285.3	052.8	328.8	001.8000	0763.2	099.6	48.88
193.0	015.0000	0285.9	052.9	328.4	001.8000	0770.1	100.2	48.79
194.0	015.0000	0286.5	052.9	328.0	001.8000	0777.0	100.9	48.69
195.0	015.0000	0287.1	053.0	327.7	001.8000	0783.6	101.5	48.58
196.0	015.0000	0287.5	053.0	327.3	001.8000	0789.3	102.2	48.45
197.0	015.0000	0287.6	053.0	327.0	001.8000	0794.5	102.9	48.31
198.0	015.0000	0287.4	053.0	326.7	001.8000	0799.2	103.6	48.15
199.0	015.0000	0286.8	052.9	326.4	001.8000	0803.2	104.4	47.97
200.0	015.0000	0285.6	052.9	326.1	001.8000	0806.6	105.2	47.78
201.0	015.0000	0284.1	052.7	325.9	001.8000	0809.6	106.0	47.57
202.0	015.0000	0282.4	052.6	325.6	001.8000	0812.1	106.8	47.36
203.0	015.0000	0281.7	052.6	325.4	001.8000	0814.7	107.6	47.16
204.0	015.0000	0282.1	052.6	325.1	001.8000	0817.6	108.4	46.97
205.0	015.0000	0282.9	052.7	324.9	001.8000	0820.7	109.1	46.78
206.0	015.0000	0283.1	052.7	324.6	001.8000	0823.3	109.9	46.59
207.0	015.0000	0282.8	052.7	324.4	001.8000	0825.4	110.8	46.38
208.0	015.0000	0283.2	052.7	324.2	001.8000	0827.6	111.6	46.18
209.0	015.0000	0284.1	052.8	323.9	001.8000	0829.9	112.4	45.98
210.0	015.0000	0284.9	052.8	323.7	001.8000	0831.9	113.2	45.78
211.0	015.0000	0285.5	052.8	323.5	001.8000	0833.9	114.0	45.57
212.0	015.0000	0286.2	052.9	323.3	001.8000	0835.9	114.9	45.37
213.0	015.0000	0286.7	052.9	323.2	001.8000	0837.8	115.7	45.16
214.0	015.0000	0286.9	052.9	323.0	001.8000	0839.3	116.6	44.94
215.0	015.0000	0287.1	053.0	322.9	001.8000	0840.6	117.5	44.71
216.0	015.0000	0287.2	053.0	322.7	001.8000	0841.8	118.4	44.49
217.0	015.0000	0286.5	052.9	322.6	001.8000	0842.7	119.3	44.26
218.0	015.0000	0284.9	052.8	322.6	001.8000	0843.3	120.2	44.01
219.0	015.0000	0283.3	052.7	322.5	001.8000	0843.8	121.1	43.77
220.0	015.0000	0282.0	052.6	322.5	001.8000	0844.3	122.0	43.53
221.0	015.0000	0280.7	052.5	322.4	001.8000	0844.8	122.9	43.29
222.0	015.0000	0279.1	052.4	322.4	001.8000	0845.0	123.8	43.04

05-22-2023

Terrain Data: GLOBE 30 Sec

FMOver Analysis

KHCO 0000203516

KUWI

Channel = 211C2

Max ERP = 1.8 kW

RCAMSL = 3140 m

N. Lat. 40 27 04.80

W. Lng. 106 45 06.00

Protected

60 dBu

Channel = 210C1

Max ERP = 15 kW

RCAMSL = 2487.1 m

N. Lat. 41 40 52.60

W. Lng. 107 14 13.26

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
284.0	001.8000	1008.0	061.5	188.7	015.0000	0281.3	123.5	40.71	
285.0	001.8000	1016.9	061.7	188.7	015.0000	0281.4	122.4	40.94	
286.0	001.8000	1023.6	061.8	188.7	015.0000	0281.4	121.3	41.17	
287.0	001.8000	1029.8	061.9	188.7	015.0000	0281.4	120.2	41.40	
288.0	001.8000	1036.1	062.1	188.7	015.0000	0281.3	119.2	41.64	
289.0	001.8000	1041.4	062.2	188.7	015.0000	0281.3	118.1	41.88	
290.0	001.8000	1045.5	062.2	188.6	015.0000	0281.2	117.0	42.12	
291.0	001.8000	1049.1	062.3	188.5	015.0000	0281.1	115.9	42.36	
292.0	001.8000	1052.6	062.4	188.5	015.0000	0281.0	114.8	42.61	
293.0	001.8000	1056.6	062.4	188.4	015.0000	0280.9	113.8	42.87	
294.0	001.8000	1060.6	062.5	188.3	015.0000	0280.9	112.7	43.12	
295.0	001.8000	1063.2	062.6	188.1	015.0000	0280.8	111.6	43.39	
296.0	001.8000	1064.3	062.6	188.0	015.0000	0280.6	110.6	43.66	
297.0	001.8000	1063.2	062.6	187.8	015.0000	0280.5	109.5	43.93	
298.0	001.8000	1059.1	062.5	187.6	015.0000	0280.3	108.5	44.20	
299.0	001.8000	1052.9	062.4	187.3	015.0000	0280.2	107.6	44.47	
300.0	001.8000	1045.8	062.2	187.0	015.0000	0280.1	106.6	44.74	
301.0	001.8000	1039.1	062.1	186.7	015.0000	0280.1	105.7	45.01	
302.0	001.8000	1032.6	062.0	186.4	015.0000	0280.2	104.7	45.29	
303.0	001.8000	1025.5	061.9	186.1	015.0000	0280.4	103.8	45.56	
304.0	001.8000	1018.4	061.7	185.7	015.0000	0280.5	102.9	45.84	
305.0	001.8000	1012.3	061.6	185.4	015.0000	0280.6	102.0	46.11	
306.0	001.8000	1009.2	061.5	185.1	015.0000	0280.9	101.1	46.39	
307.0	001.8000	1008.0	061.5	184.7	015.0000	0281.2	100.2	46.68	
308.0	001.8000	1007.7	061.5	184.4	015.0000	0281.4	099.3	46.97	
309.0	001.8000	1007.1	061.5	184.0	015.0000	0281.6	098.4	47.25	
310.0	001.8000	1005.6	061.5	183.7	015.0000	0281.9	097.6	47.53	
311.0	001.8000	1002.3	061.4	183.3	015.0000	0282.3	096.8	47.80	
312.0	001.8000	0996.7	061.3	182.8	015.0000	0282.9	096.0	48.06	
313.0	001.8000	0988.0	061.1	182.3	015.0000	0283.6	095.3	48.30	
314.0	001.8000	0977.1	060.9	181.8	015.0000	0284.3	094.6	48.53	
315.0	001.8000	0964.0	060.6	181.3	015.0000	0285.1	094.0	48.74	
316.0	001.8000	0948.8	060.3	180.7	015.0000	0285.9	093.5	48.94	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
317.0	001.8000	0931.7	060.0	180.1	015.0000	0287.4	093.0	49.13
318.0	001.8000	0913.0	059.6	179.4	015.0000	0288.3	092.6	49.29
319.0	001.8000	0893.7	059.2	178.8	015.0000	0289.2	092.2	49.44
320.0	001.8000	0875.8	058.8	178.1	015.0000	0290.1	091.9	49.57
321.0	001.8000	0860.6	058.4	177.5	015.0000	0291.0	091.5	49.70
322.0	001.8000	0849.3	058.2	176.9	015.0000	0292.6	091.1	49.87
323.0	001.8000	0839.4	057.9	176.2	015.0000	0294.8	090.8	50.05
324.0	001.8000	0829.4	057.6	175.6	015.0000	0297.1	090.4	50.23
325.0	001.8000	0819.1	057.4	175.0	015.0000	0299.4	090.2	50.39
326.0	001.8000	0807.9	057.1	174.3	015.0000	0301.2	089.9	50.52
327.0	001.8000	0794.1	056.7	173.7	015.0000	0302.5	089.8	50.60
328.0	001.8000	0777.7	056.2	173.0	015.0000	0303.6	089.8	50.64
329.0	001.8000	0760.1	055.7	172.3	015.0000	0305.0	089.9	50.66
330.0	001.8000	0743.8	055.2	171.6	015.0000	0306.3	089.9	50.68
331.0	001.8000	0729.2	054.8	170.9	015.0000	0307.8	090.0	50.70
332.0	001.8000	0713.3	054.3	170.2	015.0000	0309.6	090.2	50.71
333.0	001.8000	0695.6	053.7	169.5	015.0000	0311.6	090.4	50.69
334.0	001.8000	0678.0	053.1	168.9	015.0000	0314.1	090.7	50.67
335.0	001.8000	0661.8	052.6	168.2	015.0000	0316.5	091.0	50.65
336.0	001.8000	0646.9	052.0	167.6	015.0000	0318.8	091.4	50.62
337.0	001.8000	0632.2	051.5	167.0	015.0000	0320.7	091.7	50.57
338.0	001.8000	0615.7	050.9	166.4	015.0000	0322.1	092.1	50.48
339.0	001.8000	0597.7	050.2	165.8	015.0000	0323.3	092.7	50.34
340.0	001.8000	0578.5	049.4	165.2	015.0000	0324.4	093.4	50.17
341.0	001.8000	0558.7	048.6	164.6	015.0000	0325.6	094.2	49.95
342.0	001.8000	0538.8	047.6	164.1	015.0000	0326.7	095.1	49.69
343.0	001.8000	0520.9	046.6	163.6	015.0000	0327.6	096.1	49.43
344.0	001.8000	0501.8	045.6	163.1	015.0000	0328.1	097.1	49.14
345.0	001.8000	0481.9	044.6	162.6	015.0000	0328.6	098.1	48.84
346.0	001.8000	0462.6	043.6	162.2	015.0000	0329.1	099.1	48.55
347.0	001.8000	0446.6	042.9	161.8	015.0000	0329.6	099.9	48.32
348.0	001.8000	0429.7	042.1	161.4	015.0000	0330.2	100.8	48.07
349.0	001.8000	0414.5	041.4	161.1	015.0000	0330.8	101.5	47.85
350.0	001.8000	0403.2	040.9	160.7	015.0000	0331.4	102.2	47.69
351.0	001.8000	0396.7	040.6	160.3	015.0000	0331.9	102.6	47.59
352.0	001.8000	0389.9	040.3	160.0	015.0000	0332.4	103.0	47.47
353.0	001.8000	0378.9	039.8	159.7	015.0000	0332.8	103.6	47.30
354.0	001.8000	0365.6	039.2	159.4	015.0000	0333.1	104.3	47.09
355.0	001.8000	0354.1	038.6	159.1	015.0000	0333.3	105.1	46.88
356.0	001.8000	0344.6	038.2	158.8	015.0000	0333.5	105.7	46.70
357.0	001.8000	0332.8	037.5	158.6	015.0000	0333.6	106.5	46.47
358.0	001.8000	0320.9	036.9	158.4	015.0000	0333.8	107.3	46.25
359.0	001.8000	0310.5	036.3	158.1	015.0000	0333.9	108.1	46.04
000.0	001.8000	0296.8	035.6	158.0	015.0000	0334.0	109.0	45.78
001.0	001.8000	0282.3	034.8	157.8	015.0000	0334.0	110.0	45.51
002.0	001.8000	0267.6	033.9	157.7	015.0000	0334.0	111.0	45.24
003.0	001.8000	0253.7	033.1	157.6	015.0000	0334.1	112.0	44.97
004.0	001.8000	0238.5	032.1	157.6	015.0000	0334.1	113.1	44.68
005.0	001.8000	0226.5	031.3	157.5	015.0000	0334.1	114.1	44.43
006.0	001.8000	0222.0	031.0	157.4	015.0000	0334.1	114.7	44.29
007.0	001.8000	0219.3	030.8	157.2	015.0000	0334.1	115.1	44.19

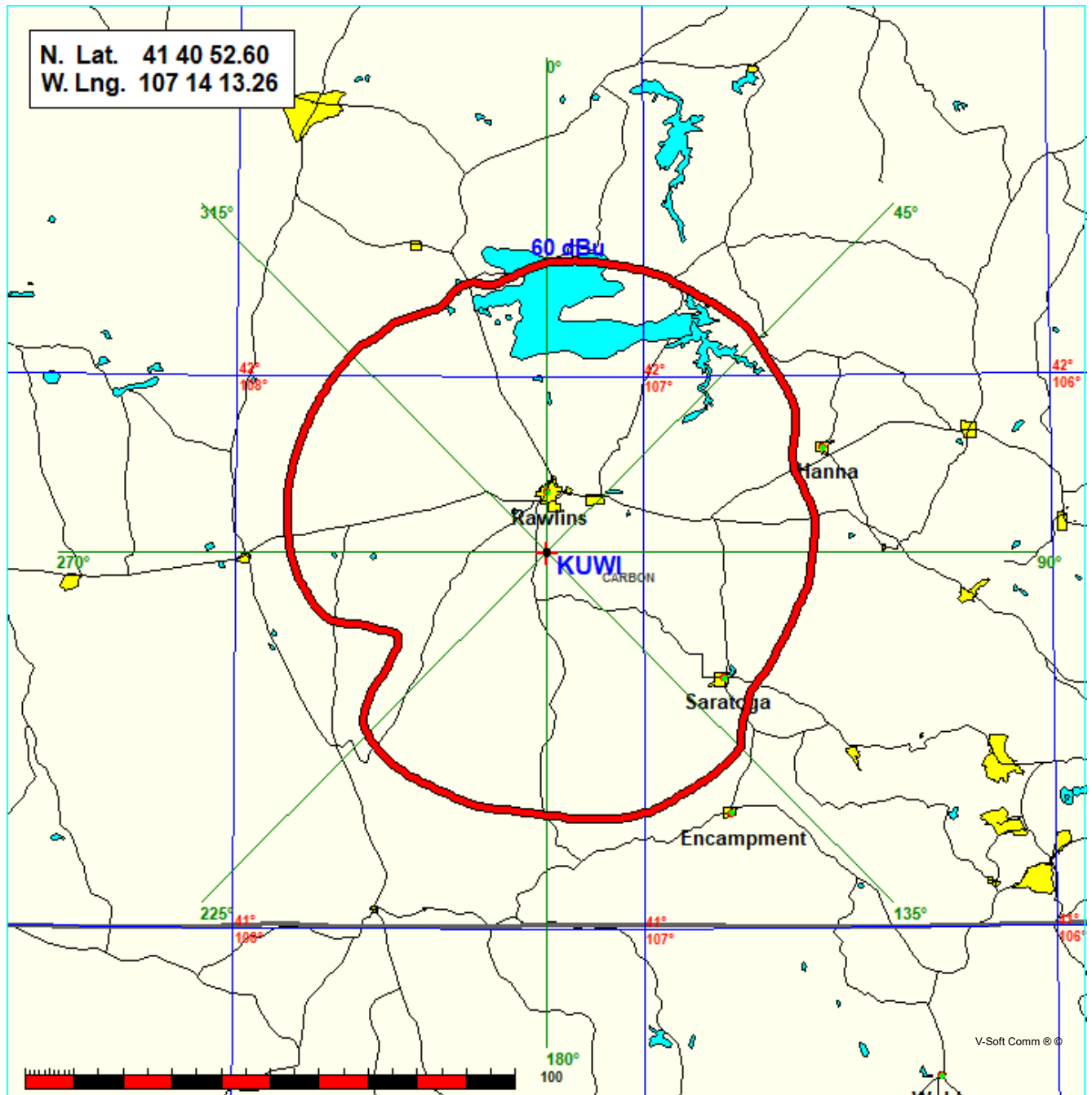
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
008.0	001.8000	0214.0	030.4	157.0	015.0000	0334.1	115.7	44.04
009.0	001.8000	0208.4	030.0	156.9	015.0000	0334.1	116.3	43.88
010.0	001.8000	0199.8	029.3	156.9	015.0000	0334.1	117.1	43.69
011.0	001.8000	0189.5	028.6	156.9	015.0000	0334.0	118.0	43.48
012.0	001.8000	0175.7	027.7	156.9	015.0000	0334.1	119.1	43.23
013.0	001.8000	0158.9	026.4	157.1	015.0000	0334.1	120.3	42.93
014.0	001.8000	0143.2	025.3	157.2	015.0000	0334.1	121.6	42.65
015.0	001.8000	0127.2	024.0	157.4	015.0000	0334.1	122.8	42.36
016.0	001.8000	0109.3	022.5	157.7	015.0000	0334.1	124.3	42.02
017.0	001.8000	0091.2	020.5	158.1	015.0000	0333.9	126.0	41.61
018.0	001.8000	0080.9	019.3	158.4	015.0000	0333.8	127.2	41.34
019.0	001.8000	0079.9	019.2	158.3	015.0000	0333.8	127.5	41.27
020.0	001.8000	0084.5	019.7	158.0	015.0000	0334.0	127.3	41.32
021.0	001.8000	0088.8	020.3	157.7	015.0000	0334.1	127.2	41.36
022.0	001.8000	0090.6	020.5	157.5	015.0000	0334.1	127.3	41.34
023.0	001.8000	0092.4	020.7	157.4	015.0000	0334.1	127.4	41.32
024.0	001.8000	0097.0	021.2	157.1	015.0000	0334.1	127.3	41.34
025.0	001.8000	0104.4	022.0	156.7	015.0000	0334.0	127.0	41.40
026.0	001.8000	0113.5	022.9	156.3	015.0000	0333.8	126.7	41.46
027.0	001.8000	0122.7	023.7	155.9	015.0000	0333.6	126.5	41.49
028.0	001.8000	0130.6	024.3	155.6	015.0000	0333.4	126.5	41.50
029.0	001.8000	0137.2	024.8	155.3	015.0000	0333.2	126.5	41.48
030.0	001.8000	0143.0	025.2	155.0	015.0000	0333.0	126.6	41.45
031.0	001.8000	0146.5	025.5	154.8	015.0000	0332.8	126.8	41.40
032.0	001.8000	0146.7	025.5	154.6	015.0000	0332.7	127.2	41.32
033.0	001.8000	0142.5	025.2	154.7	015.0000	0332.7	127.7	41.19
034.0	001.8000	0136.3	024.7	154.7	015.0000	0332.8	128.3	41.05
035.0	001.8000	0130.1	024.2	154.8	015.0000	0332.9	129.0	40.92
036.0	001.8000	0122.9	023.7	155.0	015.0000	0332.9	129.6	40.77
037.0	001.8000	0113.9	022.9	155.2	015.0000	0333.1	130.3	40.61
038.0	001.8000	0104.9	022.0	155.4	015.0000	0333.3	131.1	40.45
039.0	001.8000	0097.7	021.3	155.6	015.0000	0333.4	131.8	40.30
040.0	001.8000	0095.2	021.0	155.7	015.0000	0333.4	132.2	40.20
041.0	001.8000	0100.2	021.5	155.4	015.0000	0333.3	132.3	40.17
042.0	001.8000	0110.2	022.6	154.9	015.0000	0332.9	132.3	40.17
043.0	001.8000	0120.9	023.5	154.5	015.0000	0332.6	132.3	40.16



60 dBu Coverage Map, with 100% coverage to C.O.L. Rawlins - University of Wyoming

Coverage Study - GLOBE 30 Sec  
05-23-2023

KUWI CH210 C1, 15.0 kW, 321.6m HAAT, 2487.1m COR AMSL  
Service Contour = 60 dBu.



N. Lat. = 41 40 52.6 W. Lng. = 107 14 13.3  
 HAAT and Distance to Contour,  
 FCC, FM 2-10 Mi, 51 pts Method - GLOBE 30 SEC

University of Wyoming, KUWI - Distance to Contour

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	2119.4	367.7	15.0000	11.76	1.000	58.27
045	2085.0	402.1	15.0000	11.76	1.000	60.28
090	2182.2	304.9	15.0000	11.76	1.000	54.16
135	2161.9	325.2	15.0000	11.76	1.000	55.51
180	2199.7	287.4	15.0000	11.76	1.000	52.98
225	2216.7	270.4	15.0000	11.76	1.000	51.78
270	2208.9	278.2	15.0000	11.76	1.000	52.33
315	2149.9	337.2	15.0000	11.76	1.000	56.31

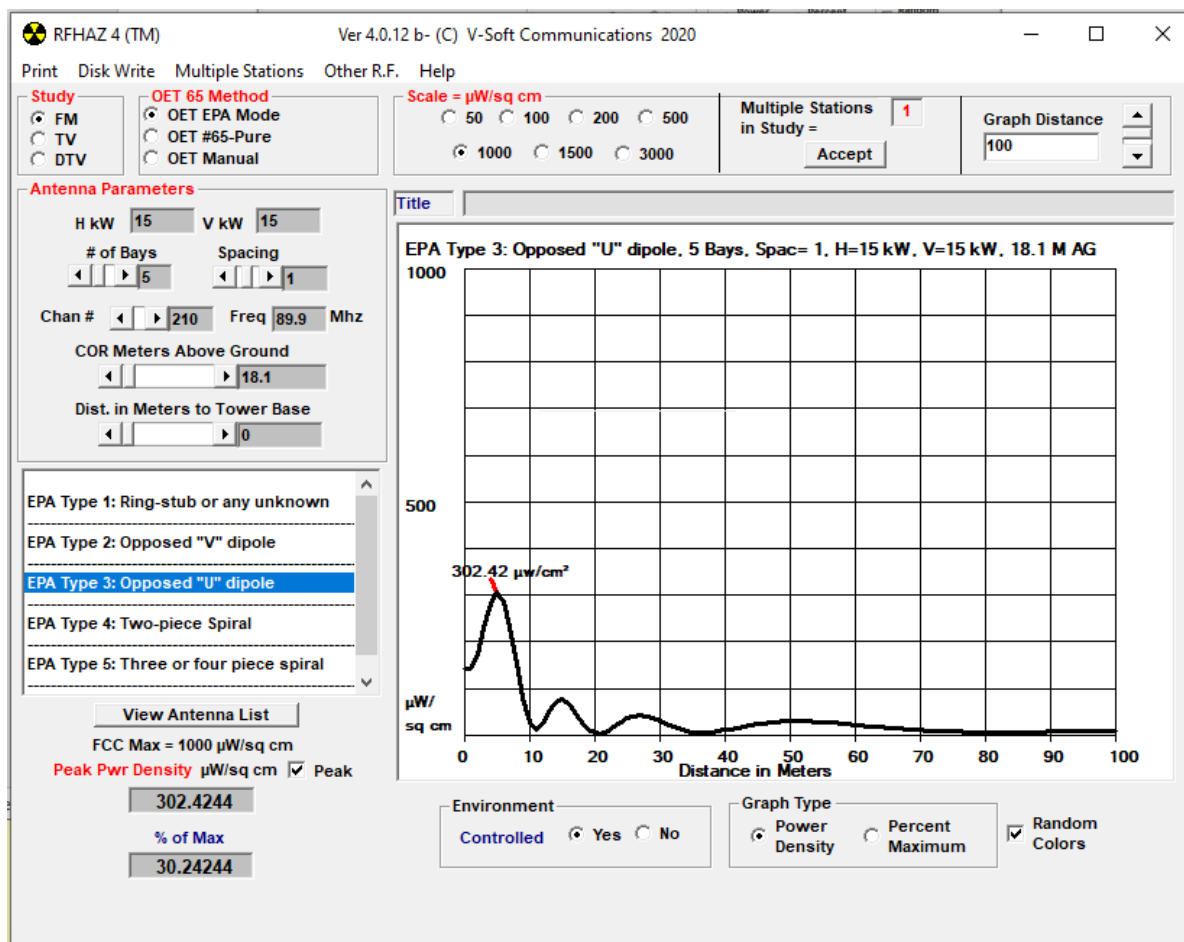
Ave El= 2165.47 M HAAT= 321.63 M AMSL= 2487.1



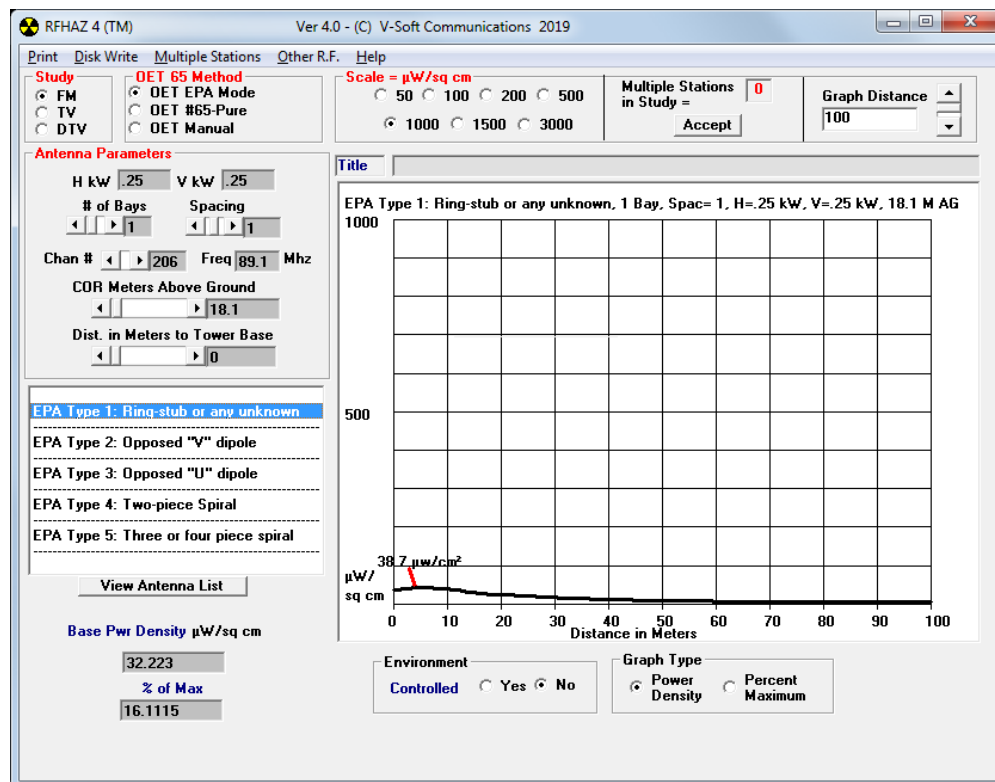
## RF Emissions Exhibit.

The proposed facility is within an established communication site atop Chokecherry Knob located ~ 200 meters from the two other stations in the study. For practical considerations we have assumed that the sites are combined at the top of the mountain. The site location is considered controlled because the roads accessing the site are gated and locked. These gates are also used to secure a close-by wind turbine farm. All non-authorized access to this wind farm is prohibited. Access to this site would require one to travel through the locked gates of the wind farm. The site is in a very rugged location, requiring a 40 ft climb up a cliff. There are no hiking paths anywhere near the site.

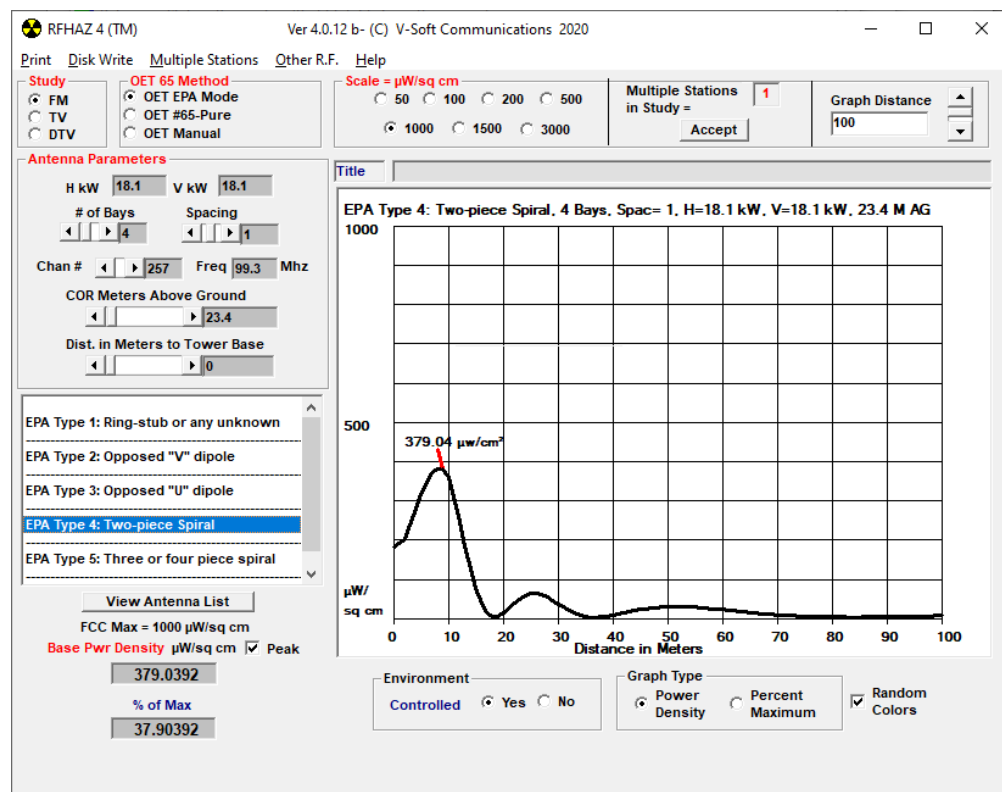
Proposed KUWI, ERI – MP-5E Antenna, Type #3



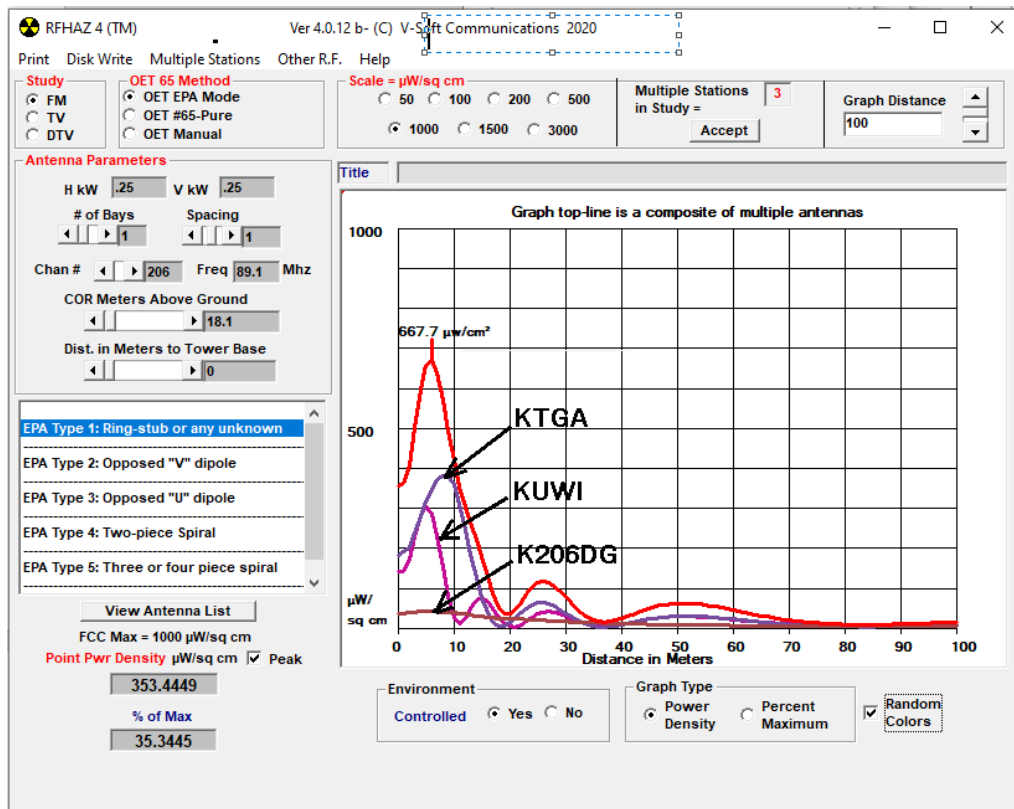
K206DG, Type #1 antenna, Ring-Stub or Unknown, Located at a distance of 200 meters.



KTGA, FMA-737-4E antenna, Type #4, Located at a distance of 200 meters.



Combination of the three stations: Total is  $667.7 \mu\text{W}/\text{cm}^2 = 66.8\%$  of FCC Maximum



Based on the Commission's recently revised FMModel procedure for the analysis of EPA studied antennas, we find the combination of peak emissions to be  $667.6 \mu\text{W}/\text{cm}^2$  at a point some eight meters from the tower base. The antennas on this tower are owned by the applicant. The applicant will reduce power or terminate transmissions to protect workers. Consequently, the applicant is confident that it will comply with all FCC rules protecting the public or workers from excessive non-ionizing radio frequency emissions.

On behalf of the University of Wyoming...

**Declaration and  
Statement of Qualifications**

I, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 40 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;

That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Life-time Certification received in 2010);

That, my qualifications are a matter of record with the Federal Communications Commission;

That, I have been retained by the University of Wyoming to prepare the engineering showing appended hereto;

That, I have prepared this broadcast engineering showing, the technical information contained in same and the facts stated within are true of my knowledge;

That, under penalty of perjury, I declare that the foregoing is correct.

Douglas L. Vernier

A handwritten signature in blue ink, appearing to read "Doug Vernier", with a large, stylized initial "D" and a horizontal line extending to the right.

Executed on May 23, 2023