

SECOND ADJACENT CHANNEL WAIVER REQUEST

The following engineering statement and attached exhibits have been prepared as a request for waiver of the spacing requirements of Section 73.807 with regard to second adjacent stations in the vicinity of the proposed facility. The technical data contained within this waiver request will demonstrate that the proposed LPFM facility would not cause interference to any facility on a second adjacent channel to which the spacing requirements of Section 73.807 are not fully met.

The proposed facility would be short-spaced to WFNK(FM) at Lewistown, Maine. The Facility ID for that full-power facility is 65675. The transmitter site for WFNK(FM) is located at a distance of 40.3 kilometers from the proposed LPFM transmitter site.

Exhibit W-1 depicts the proposed LPFM site along with the 74.24 dBu service contour of WFNK(FM). As this map demonstrates, this contour intersects the proposed LPFM site. Since the LPFM facility would operate as a second adjacent to WFNK(FM), interference to that full-power facility would potentially exist in regions where the LPFM field strength is at least 40 dB greater than the field strength of WFNK(FM). Specifically in this case, potential interference may exist when the LPFM field strength is at least 114.24 dBu.

The power density at the interfering field strength is determined by the following equation:

$$S = \frac{E^2}{Z_0}$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, and Z_0 is the characteristic impedance of free space of 377 ohms.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

11.13.2013

The power density is also given by:

$$S = \frac{P}{4\pi R^2}$$

Where S is the same units, P is the power in Watts, and R is the distance from the antenna at which this field strength occurs.¹ Rearranging the terms in the equation, it can be solved for the distance to the desired power density as follows:

$$R^2 = \frac{P}{4\pi S}$$

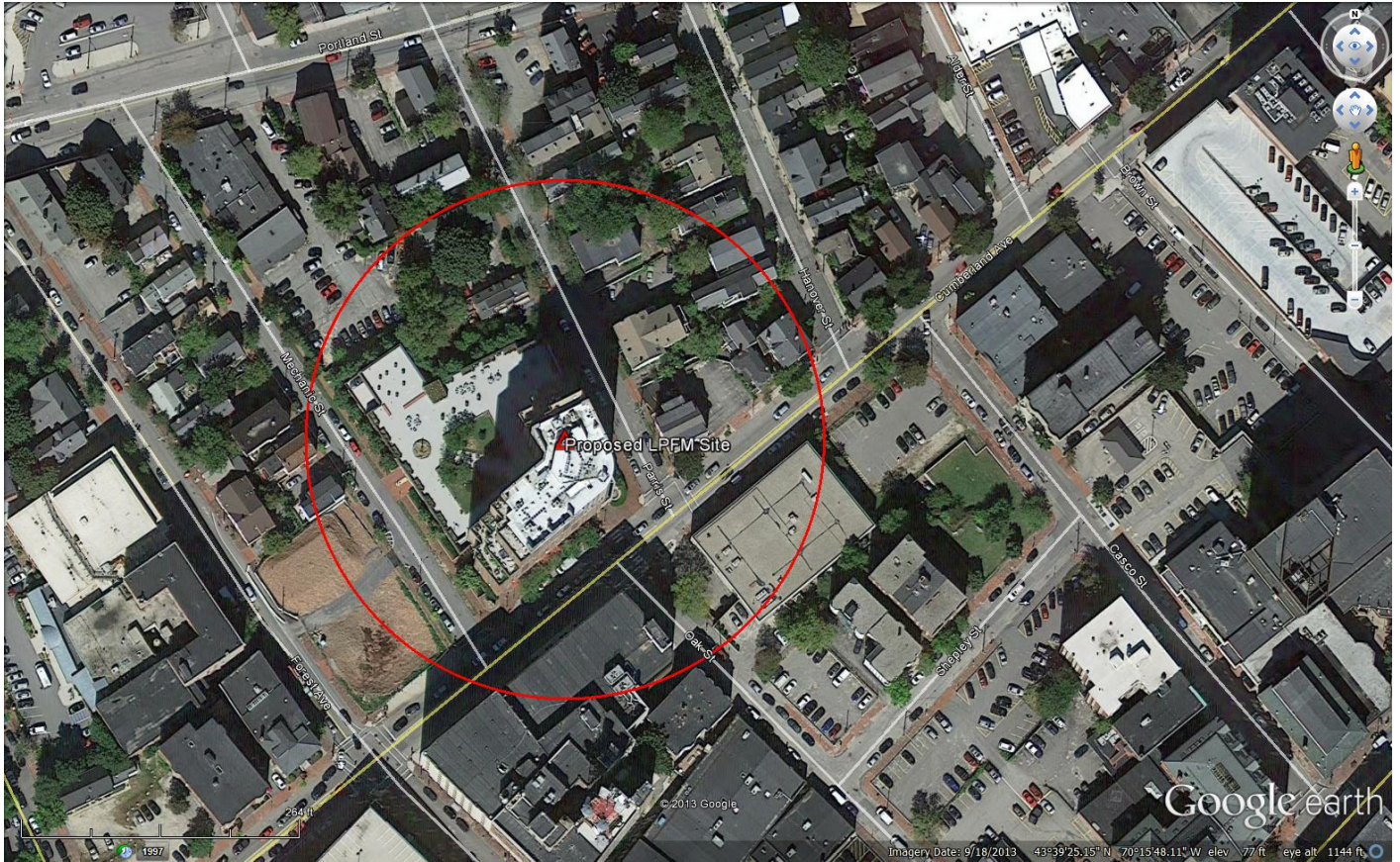
The results of these calculations for depression angles of 0 to 90 degrees are tabulated in Exhibit W-2, including the relevant variables from the above equations. The relative field values are from manufacturer data for the proposed antenna, which is a Shively 6812-2-SS model. This particular antenna has two bays, or sections, spaced one-half wavelength apart. This tabulation demonstrates that the maximum distance to the potential interference region at any depression angle would be approximately 60 meters. Given the urban nature of the site location, and additional safety margin for the facility has been included. The following satellite image illustrates the proposed site location along with a 75 meter radius centered on those coordinates.

¹ It should be noted that this distance is the distance from the antenna, which will not necessarily be equivalent to the distance from the supporting structure.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com



This image illustrates that the potential interference region would impact several structures in the immediate vicinity of the proposed antenna location. The building that would be utilized for the support structure for the antenna has a rooftop height of 43 meters, or 141 feet, above ground level. The elevation at the base of this building is 70 feet, or 21.3 meters AMSL. Therefore, the potential interference region based on the tabulation in Exhibit W-2 would be confined to elevations greater than 25 meters AGL, or 46.3 meters AMSL. The building on which the proposed antenna would be located is depicted in the following street level image.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

11.13.2013



Since the potential interference region would exist at least 25 meters, or 82 feet, above ground level, any potential interference would be confined to regions of at least seven building stories above the elevation at the base of the building. This corresponds to regions of at least 152 feet, or 46.3 meters AMSL. The building to the south of the supporting building, indicated on the right side in the above photograph, is of insufficient height to penetrate this three-dimensional surface. As a result, it would be unaffected.

The next building under consideration is located to the east of the proposed site location. This structure is across the street from the building discussed in the previous paragraph, and is depicted in the following street level image.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

11.13.2013



This structure, as depicted in the photograph, occupies only two stories vertically. As a result, it would similarly not penetrate the interference region, and would therefore be unaffected.

From the first image it can be seen that the remaining structures within the maximum interference zone are all residential houses. These structures have a ground elevation below that at the base of the supporting structure, and all occupy fewer than three stories. As a result, they are similarly unaffected.

The final area of consideration is to the tenants within the building on which the antenna would be located. These occupied spaces all exist at very high depression angles. As a result, minimal field strength is radiated in their direction. In addition, the roof construction of the building is of reinforced concrete, which will further attenuate the field strength radiated from the proposed

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

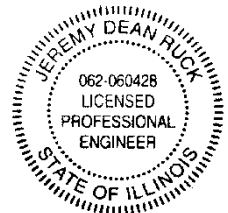
Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

11.13.2013

LPFM facility. As a result, interference to the reception of WFNK within the building supporting the proposed LPFM antenna is not predicted to occur.

Since no population would lie within the interference region, zero population would potentially be affected. A waiver of Section 73.807 of the Commission's Rules is therefore respectfully requested.

This waiver request and associated exhibits have been prepared by me at the request of the representative of the applicant. The waiver request text and related exhibits are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2015

Jeremy D. Ruck, PE
November 13, 2013

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

11.13.2013

WJZP-LP.X

BLL20050222ABZ
Latitude: 43-39-24.80 N
Longitude: 070-15-51.70 W
ERP: 0.031 kW
Channel: 300
Frequency: 107.9 MHz
AMSL Height: 70.4 m
Horiz. Pattern: Omni

WFNK

BLH20050310AAL
Latitude: 44-00-12 N
Longitude: 070-25-24 W
ERP: 100.00 kW
Channel: 298
Frequency: 107.5 MHz
AMSL Height: 408.0 m
Horiz. Pattern: Omni

Jeremy Ruck & Associates, Inc.

WFNK 74.24 dBu
Service Contour

FCC F(50-50) 74.24 dBu (FCC HAAT)

Proposed WJZP-LP
Site Transmitter Site

Exhibit W-1
Service Contour Illustration
WJZP-LP - Portland, ME
November, 2013

Scale 1:100,000

0 1 2 3 km

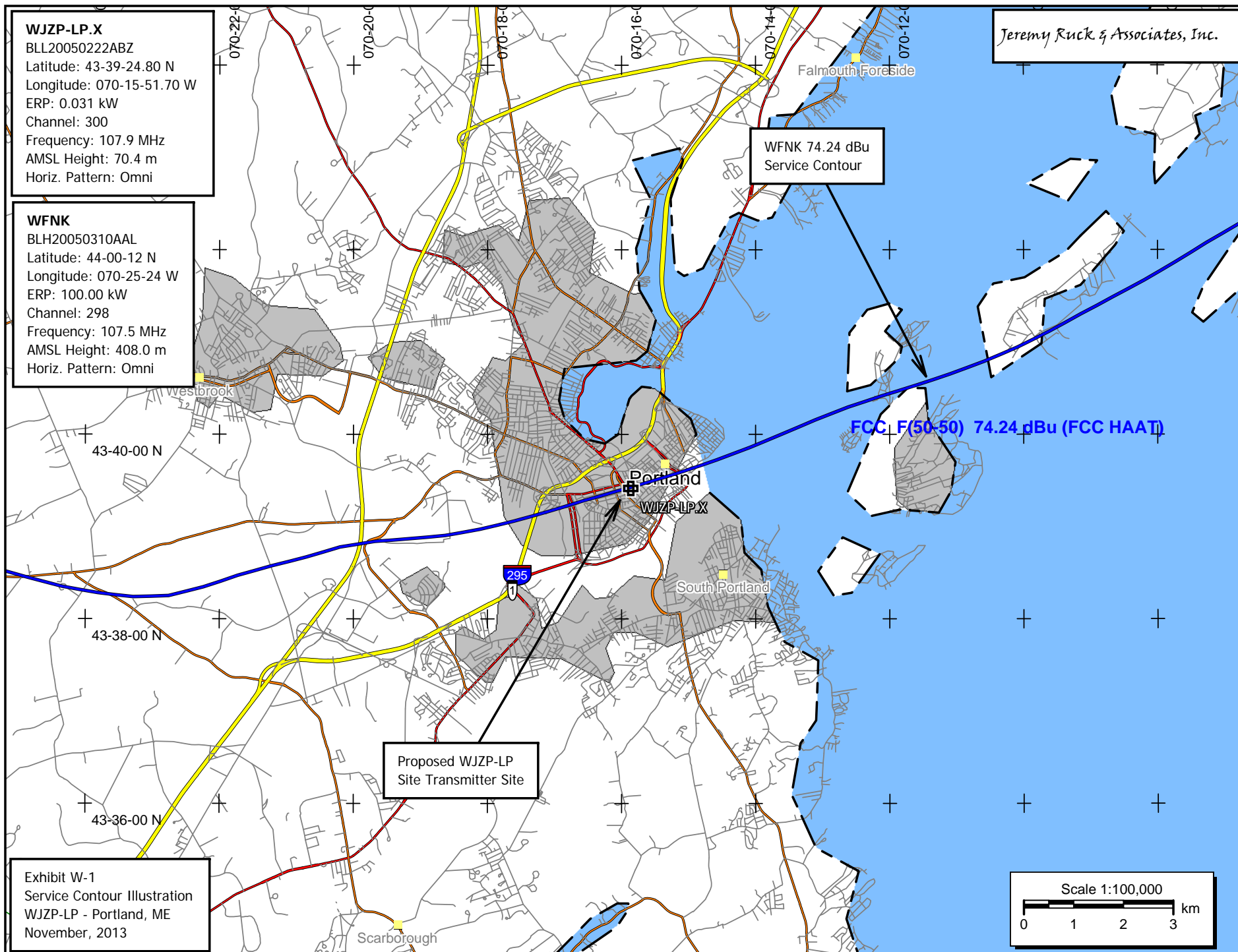
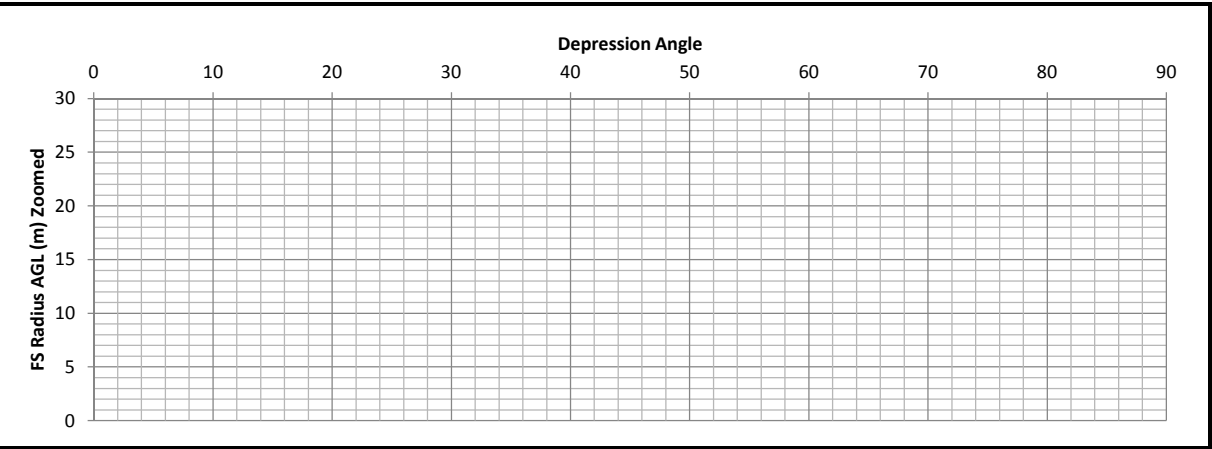
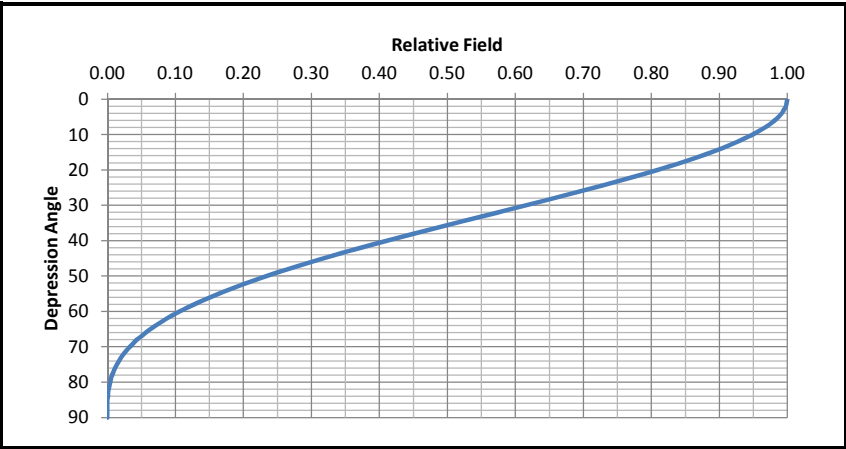


Exhibit W-2

Proximity Interference Analysis

NEW - Proposed LPFM Facility

Antenna No:	71	<div><div></div><div></div><div></div></div>	Center of Radiation:	49.1 m AGL
Manufacturer:	Shively	<div><div></div><div></div><div></div></div>	Effective Radiated Power:	31 Watts
Model:	6812-2-SS		FS Contour:	114.24 dBu
Number of Bays:	2		E Field Strength:	0.51523 V/m
Bay Spacing:	Half		Z0 (Ohms):	377 Ohms
			Power Density:	0.000704139 W/m^2



Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	31.00	59.19	59.19	0.00	49.10
1	0.9990	0.9980	30.94	59.13	59.12	1.03	48.07
2	0.9980	0.9960	30.88	59.07	59.04	2.06	47.04
3	0.9950	0.9900	30.69	58.89	58.81	3.08	46.02
4	0.9920	0.9841	30.51	58.72	58.57	4.10	45.00
5	0.9870	0.9742	30.20	58.42	58.20	5.09	44.01
6	0.9810	0.9624	29.83	58.07	57.75	6.07	43.03
7	0.9750	0.9506	29.47	57.71	57.28	7.03	42.07
8	0.9670	0.9351	28.99	57.24	56.68	7.97	41.13
9	0.9580	0.9178	28.45	56.70	56.01	8.87	40.23
10	0.9490	0.9006	27.92	56.17	55.32	9.75	39.35
11	0.9380	0.8798	27.28	55.52	54.50	10.59	38.51
12	0.9270	0.8593	26.64	54.87	53.67	11.41	37.69
13	0.9150	0.8372	25.95	54.16	52.77	12.18	36.92
14	0.9020	0.8136	25.22	53.39	51.80	12.92	36.18
15	0.8880	0.7885	24.44	52.56	50.77	13.60	35.50
16	0.8740	0.7639	23.68	51.73	49.73	14.26	34.84
17	0.8580	0.7362	22.82	50.78	48.57	14.85	34.25
18	0.8430	0.7106	22.03	49.90	47.45	15.42	33.68
19	0.8260	0.6823	21.15	48.89	46.23	15.92	33.18
20	0.8090	0.6545	20.29	47.88	45.00	16.38	32.72
21	0.7910	0.6257	19.40	46.82	43.71	16.78	32.32
22	0.7730	0.5975	18.52	45.75	42.42	17.14	31.96
23	0.7540	0.5685	17.62	44.63	41.08	17.44	31.66
24	0.7350	0.5402	16.75	43.50	39.74	17.69	31.41
25	0.7160	0.5127	15.89	42.38	38.41	17.91	31.19
26	0.6960	0.4844	15.02	41.20	37.03	18.06	31.04
27	0.6760	0.4570	14.17	40.01	35.65	18.17	30.93
28	0.6560	0.4303	13.34	38.83	34.28	18.23	30.87
29	0.6360	0.4045	12.54	37.64	32.92	18.25	30.85
30	0.6150	0.3782	11.72	36.40	31.52	18.20	30.90
31	0.5940	0.3528	10.94	35.16	30.14	18.11	30.99
32	0.5740	0.3295	10.21	33.97	28.81	18.00	31.10
33	0.5530	0.3058	9.48	32.73	27.45	17.83	31.27
34	0.5320	0.2830	8.77	31.49	26.11	17.61	31.49
35	0.5120	0.2621	8.13	30.31	24.82	17.38	31.72
36	0.4910	0.2411	7.47	29.06	23.51	17.08	32.02
37	0.4710	0.2218	6.88	27.88	22.26	16.78	32.32
38	0.4510	0.2034	6.31	26.69	21.04	16.43	32.67
39	0.4310	0.1858	5.76	25.51	19.83	16.05	33.05
40	0.4110	0.1689	5.24	24.33	18.64	15.64	33.46
41	0.3910	0.1529	4.74	23.14	17.47	15.18	33.92
42	0.3720	0.1384	4.29	22.02	16.36	14.73	34.37
43	0.3530	0.1246	3.86	20.89	15.28	14.25	34.85
44	0.3350	0.1122	3.48	19.83	14.26	13.77	35.33
45	0.3170	0.1005	3.12	18.76	13.27	13.27	35.83

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.3170	0.1005	3.12	18.76	13.27	13.27	35.83
46	0.3000	0.0900	2.79	17.76	12.33	12.77	36.33
47	0.2820	0.0795	2.47	16.69	11.38	12.21	36.89
48	0.2660	0.0708	2.19	15.74	10.54	11.70	37.40
49	0.2490	0.0620	1.92	14.74	9.67	11.12	37.98
50	0.2340	0.0548	1.70	13.85	8.90	10.61	38.49
51	0.2190	0.0480	1.49	12.96	8.16	10.07	39.03
52	0.2040	0.0416	1.29	12.07	7.43	9.52	39.58
53	0.1900	0.0361	1.12	11.25	6.77	8.98	40.12
54	0.1760	0.0310	0.96	10.42	6.12	8.43	40.67
55	0.1630	0.0266	0.82	9.65	5.53	7.90	41.20
56	0.1510	0.0228	0.71	8.94	5.00	7.41	41.69
57	0.1390	0.0193	0.60	8.23	4.48	6.90	42.20
58	0.1270	0.0161	0.50	7.52	3.98	6.37	42.73
59	0.1160	0.0135	0.42	6.87	3.54	5.89	43.21
60	0.1060	0.0112	0.35	6.27	3.14	5.43	43.67
61	0.0960	0.0092	0.29	5.68	2.75	4.97	44.13
62	0.0870	0.0076	0.23	5.15	2.42	4.55	44.55
63	0.0790	0.0062	0.19	4.68	2.12	4.17	44.93
64	0.0710	0.0050	0.16	4.20	1.84	3.78	45.32
65	0.0630	0.0040	0.12	3.73	1.58	3.38	45.72
66	0.0560	0.0031	0.10	3.31	1.35	3.03	46.07
67	0.0500	0.0025	0.08	2.96	1.16	2.72	46.38
68	0.0430	0.0018	0.06	2.55	0.95	2.36	46.74
69	0.0380	0.0014	0.04	2.25	0.81	2.10	47.00
70	0.0330	0.0011	0.03	1.95	0.67	1.84	47.26
71	0.0280	0.0008	0.02	1.66	0.54	1.57	47.53
72	0.0240	0.0006	0.02	1.42	0.44	1.35	47.75
73	0.0200	0.0004	0.01	1.18	0.35	1.13	47.97
74	0.0170	0.0003	0.01	1.01	0.28	0.97	48.13
75	0.0140	0.0002	0.01	0.83	0.21	0.80	48.30
76	0.0110	0.0001	0.00	0.65	0.16	0.63	48.47
77	0.0090	0.0001	0.00	0.53	0.12	0.52	48.58
78	0.0070	0.0000	0.00	0.41	0.09	0.41	48.69
79	0.0050	0.0000	0.00	0.30	0.06	0.29	48.81
80	0.0040	0.0000	0.00	0.24	0.04	0.23	48.87
81	0.0030	0.0000	0.00	0.18	0.03	0.18	48.92
82	0.0020	0.0000	0.00	0.12	0.02	0.12	48.98
83	0.0010	0.0000	0.00	0.06	0.01	0.06	49.04
84	0.0010	0.0000	0.00	0.06	0.01	0.06	49.04
85	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10
86	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10
87	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10
88	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10
89	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10
90	0.0000	0.0000	0.00	0.00	0.00	0.00	49.10

