

**WTMO-CD License Modification - Antenna Pattern Data****December 13, 2023**AZIMUTH PATTERN: Dielectric TLP-12W/VP-R

Main Beam Axis of Symmetry: 135° Electrical Beam Tilt: 2.00° Mech. Tilt: 1.4° @ 315°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.603 2.05 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW 11.76 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW 8.75 dBk

**Tabulation of Main Beam Azimuth Pattern (Horizontal polarization)**

Angle	RF	dBk	ERP kW
0	0.424	4.31	2.697
10	0.553	6.62	4.587
20	0.680	8.41	6.936
30	0.792	9.74	9.409
40	0.883	10.68	11.695
50	0.946	11.28	13.424
60	0.983	11.61	14.494
70	0.999	11.75	14.970
80	0.999	11.75	14.970
90	0.991	11.68	14.731
100	0.982	11.60	14.465
110	0.976	11.55	14.289
120	0.973	11.52	14.201
130	0.972	11.51	14.172
140	0.972	11.51	14.172
150	0.973	11.52	14.201
160	0.976	11.55	14.289
170	0.982	11.60	14.465
180	0.991	11.68	14.731
190	0.999	11.75	14.970
200	0.999	11.75	14.970
210	0.983	11.61	14.494
220	0.946	11.28	13.424
230	0.883	10.68	11.695
240	0.792	9.74	9.409
250	0.680	8.41	6.936
260	0.553	6.62	4.587
270	0.424	4.31	2.697
280	0.312	1.64	1.460
290	0.235	-0.82	0.828
300	0.203	-2.09	0.618
310	0.199	-2.26	0.594
320	0.199	-2.26	0.594
330	0.203	-2.09	0.618
340	0.235	-0.82	0.828
350	0.312	1.64	1.460

**Maximum**

Angle	RF	dBk	ERP kW
75	1.000	11.76	15.00
195	1.000	11.76	15.00

**Minimum**

Angle	RF	dBk	ERP kW
135	0.972	11.51	14.17
315	0.199	-2.26	0.59

## WTMO-CD License Modification - Antenna Pattern Data

December 13, 2023

### AZIMUTH PATTERN: Dielectric TLP-12W/VP-R

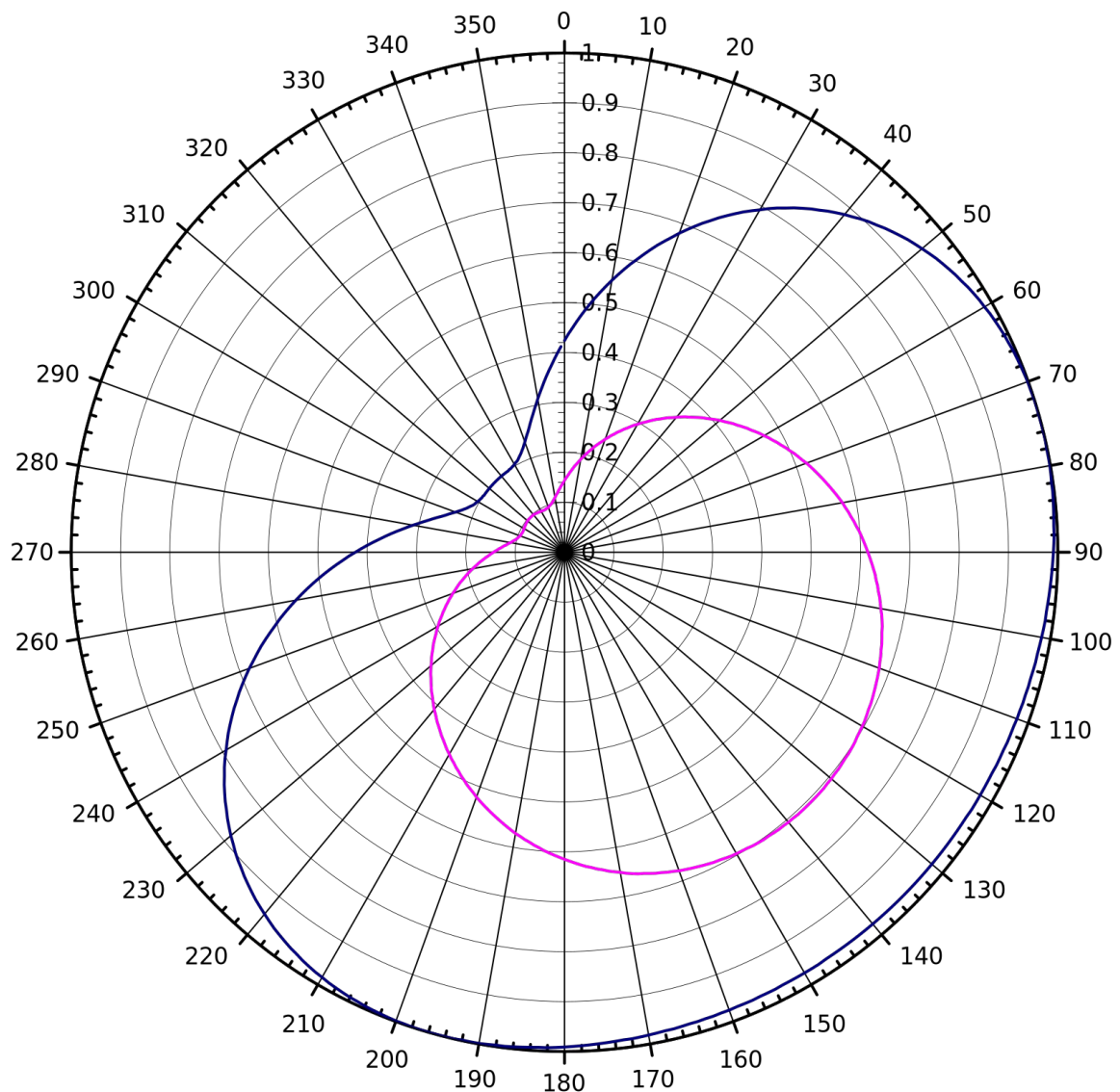
Main Beam Axis of Symmetry: 135° Electrical Beam Tilt: 2.00° Mech. Tilt: 1.4° @ 315°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.603 2.05 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW 11.76 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW 8.75 dBk

### MAIN BEAM AZIMUTH PATTERN RELATIVE FIELD



Blue plot shows azimuth pattern relative field at horizontal polarization

Magenta plot shows azimuth pattern relative field at vertical polarization

## WTMO-CD License Modification - Antenna Pattern Data

December 13, 2023

### AZIMUTH PATTERN: Dielectric TLP-12W/VP-R

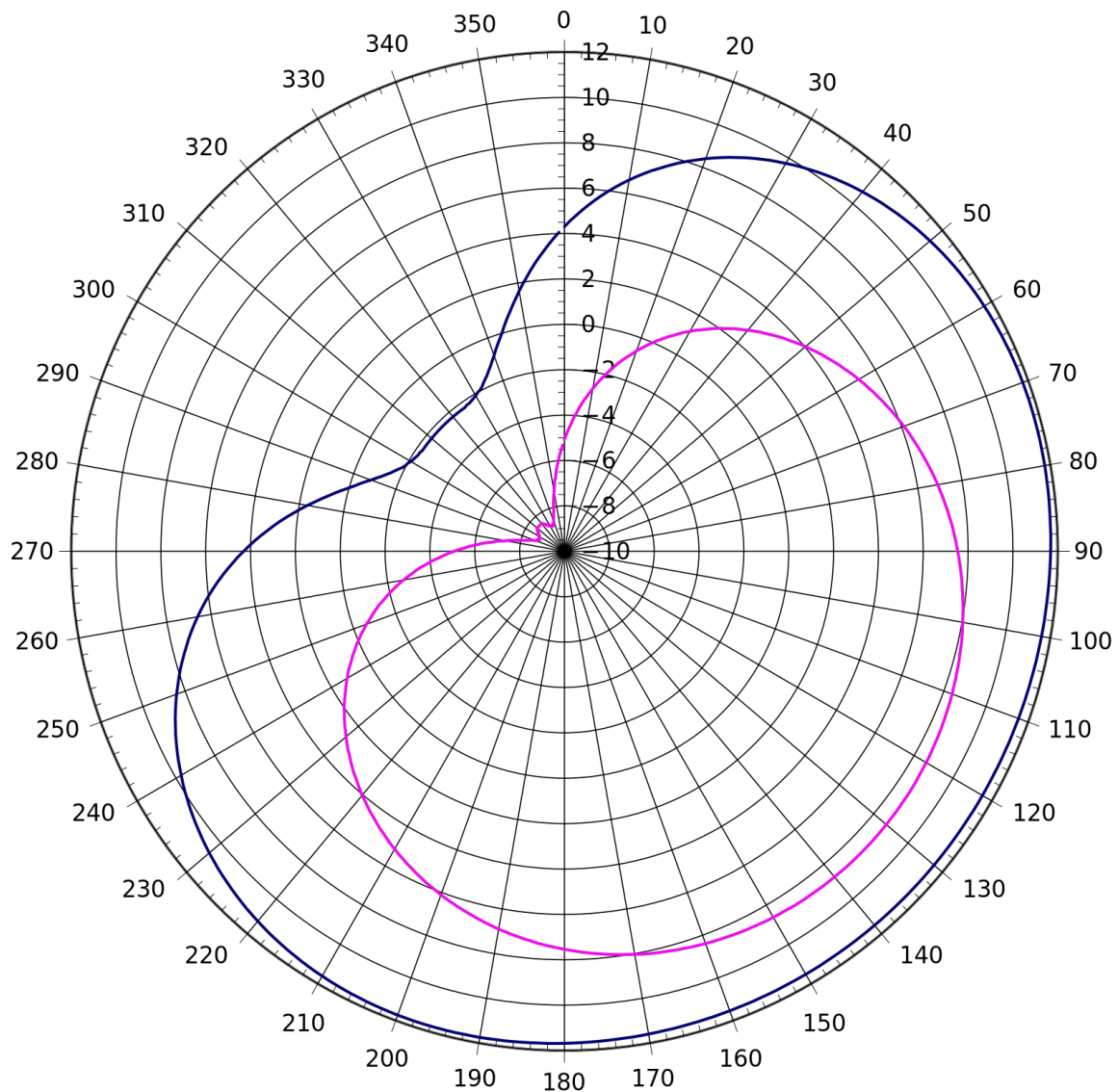
Main Beam Axis of Symmetry: 135° Electrical Beam Tilt: 2.00° Mech. Tilt: 1.4° @ 315°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.603 2.05 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW 11.76 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW 8.75 dBk

### MAIN BEAM AZIMUTH PATTERN ERP (dBk)



Blue plot shows effective radiated power (dBk) at horizontal polarization  
Magenta plot shows effective radiated power (dBk) at vertical polarization

## WTMO-CD License Modification - Antenna Pattern Data

December 13, 2023

### ELEVATION PATTERN Dielectric TLP-12W/VP-R

Main Beam Axis of Symmetry: 135° Electrical Beam Tilt: 2.00° Mech. Tilt: 1.4° @ 315°

Calculated Maximum Elevation Gain : 11.86 10.74 dBd

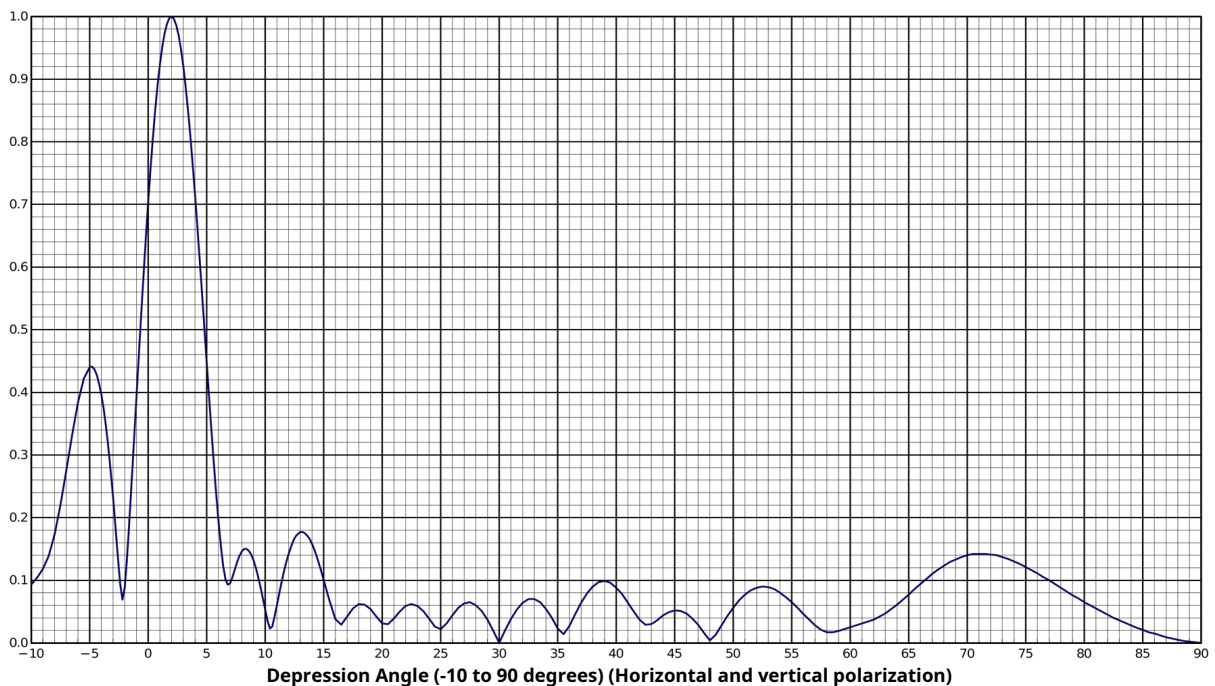
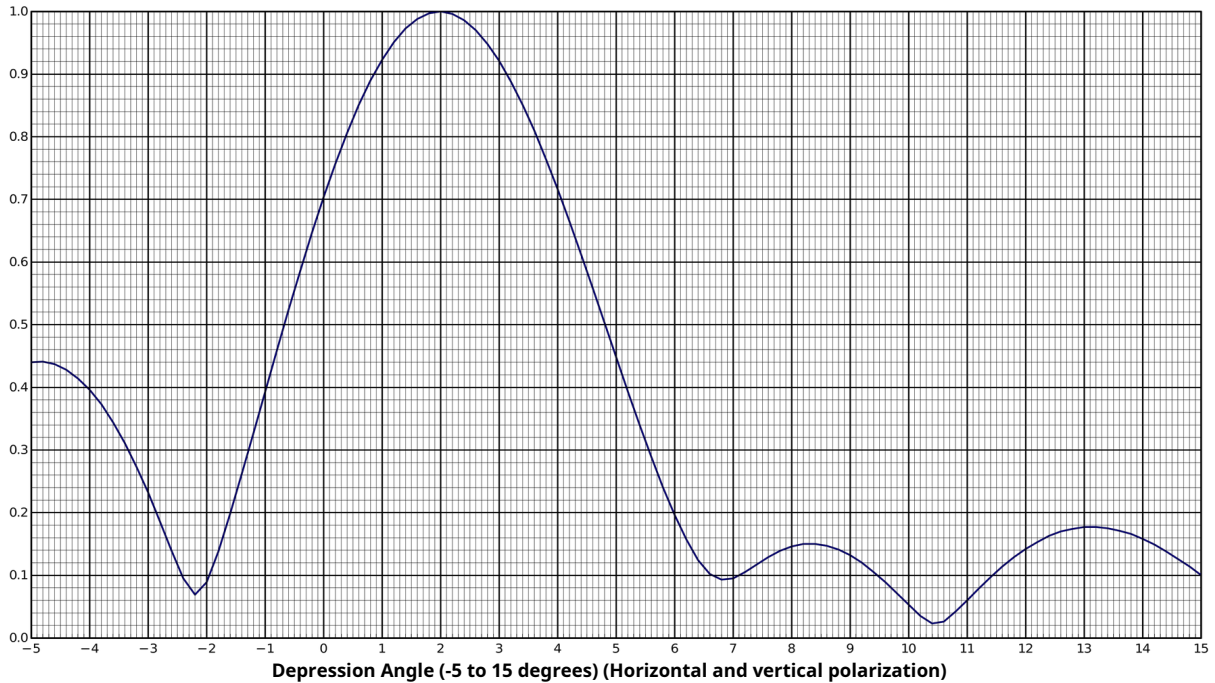
RMS Directivity at Horizontal: 5.90 7.71 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW 11.76 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW 8.75 dBk

1.

### Relative Field



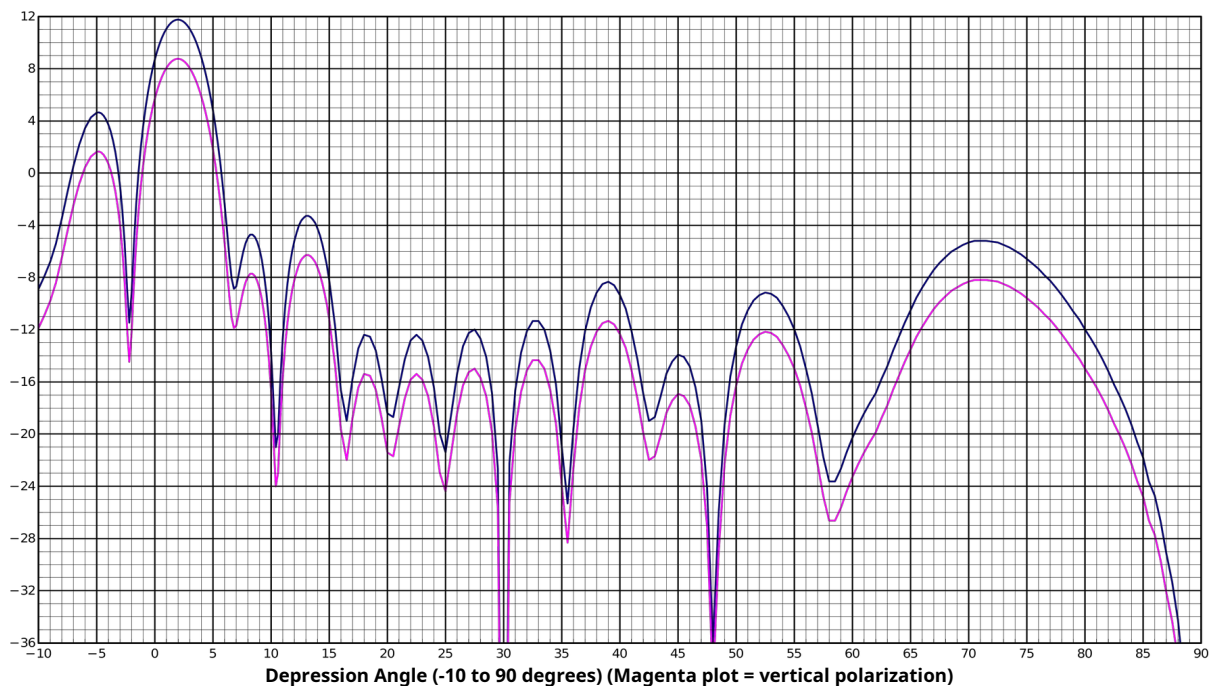
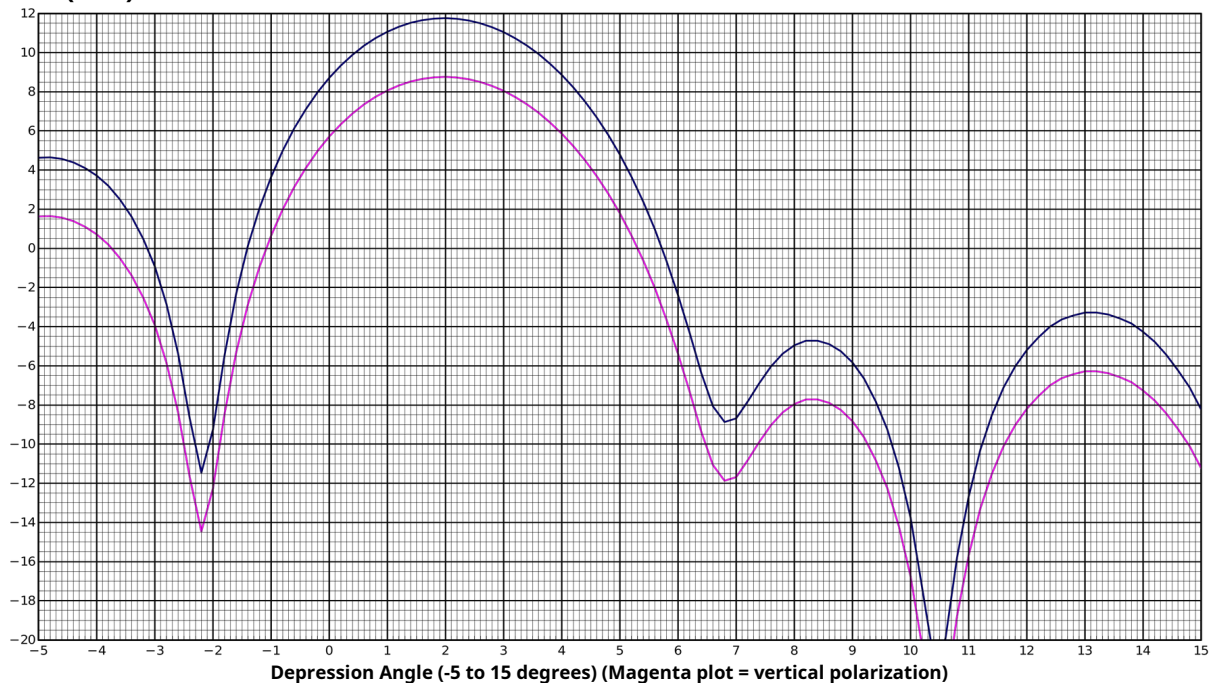
## WTMO-CD License Modification - Antenna Pattern Data

December 13, 2023

### ELEVATION PATTERN Dielectric TLP-12W/VP-R

Main Beam Axis of Symmetry: 135°    Electrical Beam Tilt: 2.00°    Mech. Tilt: 1.4° @ 315°  
Calculated Maximum Elevation Gain :                      11.86           10.74 dBd  
RMS Directivity at Horizontal:                              5.90           7.71 dBd  
Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW    11.76 dBk  
Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW    8.75 dBk

### ERP (dBk):



**WTMO-CD License Modification - Antenna Pattern Data****December 13, 2023**ELEVATION PATTERN Dielectric TLP-12W/VP-R

Main Beam Axis of Symmetry: 135° Electrical Beam Tilt: 2.00° Mech. Tilt: 1.4° @ 315°

Calculated Maximum Elevation Gain : 11.86 10.74 dBd

RMS Directivity at Horizontal: 5.90 7.71 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 15.00 kW 11.76 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 7.50 kW 8.75 dBk

**Tabulated Elevation Pattern**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.093	0.00	0.704	7.0	0.095	14.0	0.158	30.0	0.000	47.5	0.016	65.0	0.077
-9.5	0.104	0.20	0.757	7.2	0.105	14.2	0.149	30.5	0.020	48.0	0.004	65.5	0.086
-9.0	0.118	0.40	0.806	7.4	0.117	14.4	0.138	31.0	0.038	48.5	0.013	66.0	0.094
-8.5	0.139	0.60	0.851	7.6	0.129	14.6	0.126	31.5	0.053	49.0	0.028	66.5	0.102
-8.0	0.173	0.80	0.890	7.8	0.139	14.8	0.114	32.0	0.064	49.5	0.043	67.0	0.110
-7.5	0.220	1.00	0.923	8.0	0.146	15.0	0.100	32.5	0.070	50.0	0.056	67.5	0.117
-7.0	0.275	1.20	0.951	8.2	0.150	15.5	0.067	33.0	0.070	50.5	0.068	68.0	0.123
-6.5	0.332	1.40	0.973	8.4	0.150	16.0	0.038	33.5	0.065	51.0	0.077	68.5	0.129
-6.0	0.384	1.60	0.988	8.6	0.147	16.5	0.029	34.0	0.054	51.5	0.084	69.0	0.133
-5.5	0.422	1.80	0.997	8.8	0.141	17.0	0.042	34.5	0.040	52.0	0.088	69.5	0.137
-5.0	0.440	<b>2.00</b>	<b>1.000</b>	9.0	0.132	17.5	0.055	35.0	0.023	52.5	0.090	70.0	0.140
-4.8	0.441	2.20	0.996	9.2	0.120	18.0	0.062	35.5	0.014	53.0	0.089	70.5	0.142
-4.6	0.437	2.40	0.986	9.4	0.105	18.5	0.061	36.0	0.027	53.5	0.086	71.0	0.142
-4.4	0.428	2.60	0.970	9.6	0.089	19.0	0.054	36.5	0.046	54.0	0.080	71.5	0.142
-4.2	0.414	2.80	0.948	9.8	0.071	19.5	0.042	37.0	0.064	54.5	0.073	72.0	0.141
-4.00	0.396	3.00	0.921	10.0	0.053	20.0	0.031	37.5	0.079	55.0	0.065	72.5	0.140
-3.80	0.373	3.20	0.888	10.2	0.035	20.5	0.030	38.0	0.090	55.5	0.056	73.0	0.137
-3.60	0.344	3.40	0.851	10.4	0.023	21.0	0.039	38.5	0.097	56.0	0.046	73.5	0.134
-3.40	0.311	3.60	0.810	10.6	0.026	21.5	0.050	39.0	0.099	56.5	0.037	74.0	0.130
-3.20	0.273	3.80	0.764	10.8	0.042	22.0	0.059	39.5	0.096	57.0	0.028	75.0	0.121
-3.00	0.232	4.00	0.716	11.0	0.060	22.5	0.062	40.0	0.088	57.5	0.021	76.0	0.111
-2.80	0.186	4.20	0.665	11.2	0.079	23.0	0.059	40.5	0.078	58.0	0.017	77.0	0.100
-2.60	0.139	4.40	0.612	11.4	0.097	23.5	0.051	41.0	0.064	58.5	0.017	78.0	0.088
-2.40	0.095	4.60	0.558	11.6	0.114	24.0	0.039	41.5	0.050	59.0	0.019	79.0	0.076
-2.20	0.069	4.80	0.503	11.8	0.129	24.5	0.026	42.0	0.037	59.5	0.022	80.0	0.065
-2.00	0.089	5.00	0.448	12.0	0.142	25.0	0.022	42.5	0.029	60.0	0.025	81.0	0.055
-1.80	0.138	5.20	0.393	12.2	0.153	25.5	0.031	43.0	0.030	60.5	0.028	82.0	0.045
-1.6	0.198	5.40	0.340	12.4	0.163	26.0	0.044	43.5	0.036	61.0	0.031	83.0	0.036
-1.4	0.262	5.60	0.289	12.6	0.170	26.5	0.056	44.0	0.044	61.5	0.034	84.0	0.028
-1.2	0.327	5.80	0.240	12.8	0.174	27.0	0.063	44.5	0.049	62.0	0.037	85.0	0.021
-1.0	0.393	6.00	0.196	13.0	0.177	27.5	0.065	45.0	0.052	62.5	0.042	86.0	0.015
-0.8	0.459	6.20	0.157	13.2	0.177	28.0	0.060	45.5	0.051	63.0	0.047	87.0	0.009
-0.6	0.524	6.40	0.124	13.4	0.175	28.5	0.051	46.0	0.047	63.5	0.054	88.0	0.005
-0.4	0.586	6.60	0.102	13.6	0.171	29.0	0.037	46.5	0.039	64.0	0.061	89.0	0.002
-0.2	0.647	6.80	0.093	13.8	0.166	29.5	0.019	47.0	0.029	64.5	0.069	90.0	0.000