

Description of Antenna System

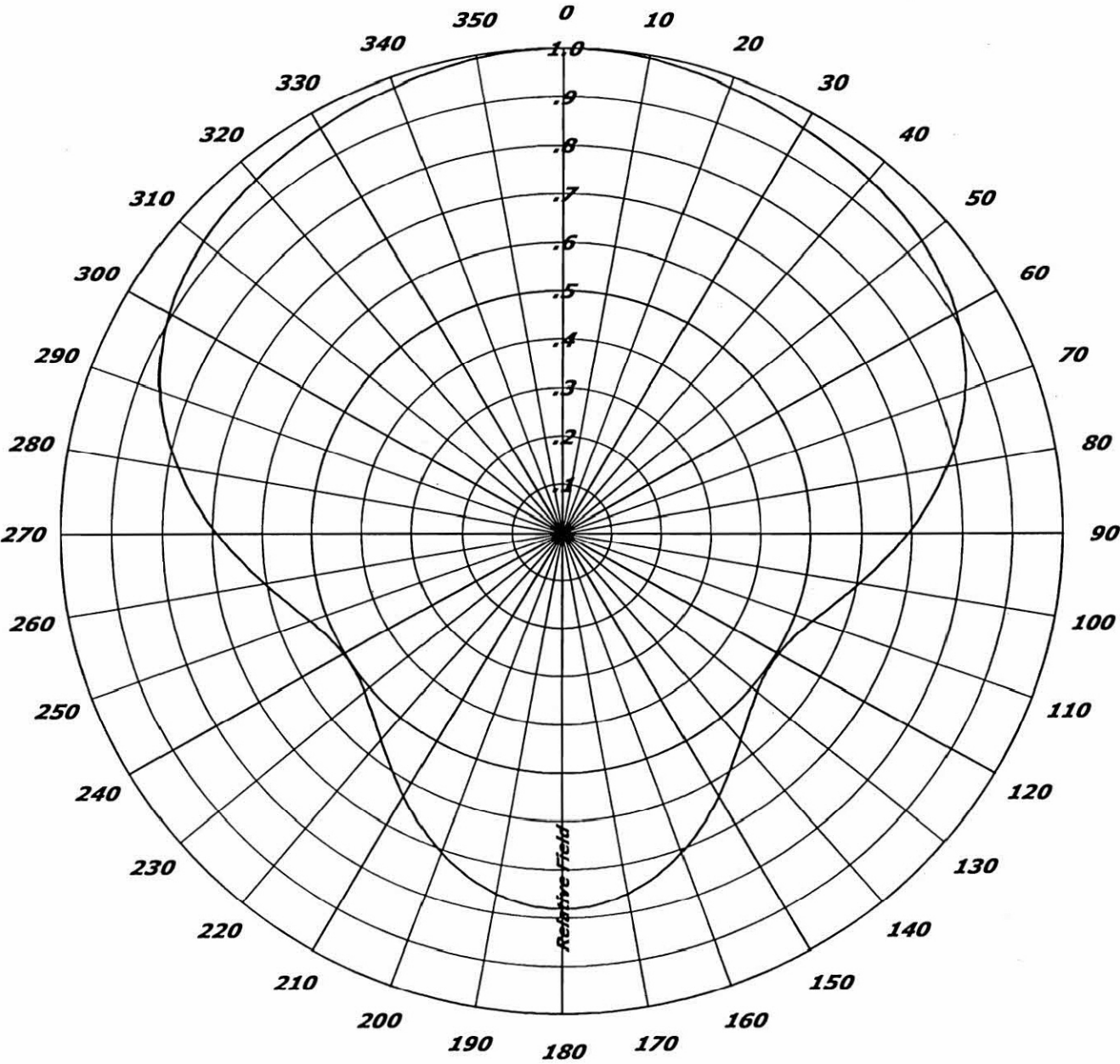
The directional Andrew ATW20H3-HTOC-32H antenna currently installed for analog operations at WNCN will be re-used with no structural changes to the existing antenna mounting height, transmission line, or the supporting tower.

Page 2-5 of this exhibit detail the antenna's horizontal and vertical pattern as supplied from the manufacturer.

Page 6 Shows the resulting pattern and ERP values with the antenna rotated 60 degrees true north as specified in the body of the application.

ANDREW
AZIMUTH PATTERN

Type:	CH32AZ-H-BID-OC	
	Numeric	dBd
Directivity:	1.63	(2.12)
Peak(s) At:		
Polarization:	Horizontal	
Channel:	32	
Location:	Montgomery, AL	





TABULATED DATA FOR AZIMUTH PATTERN

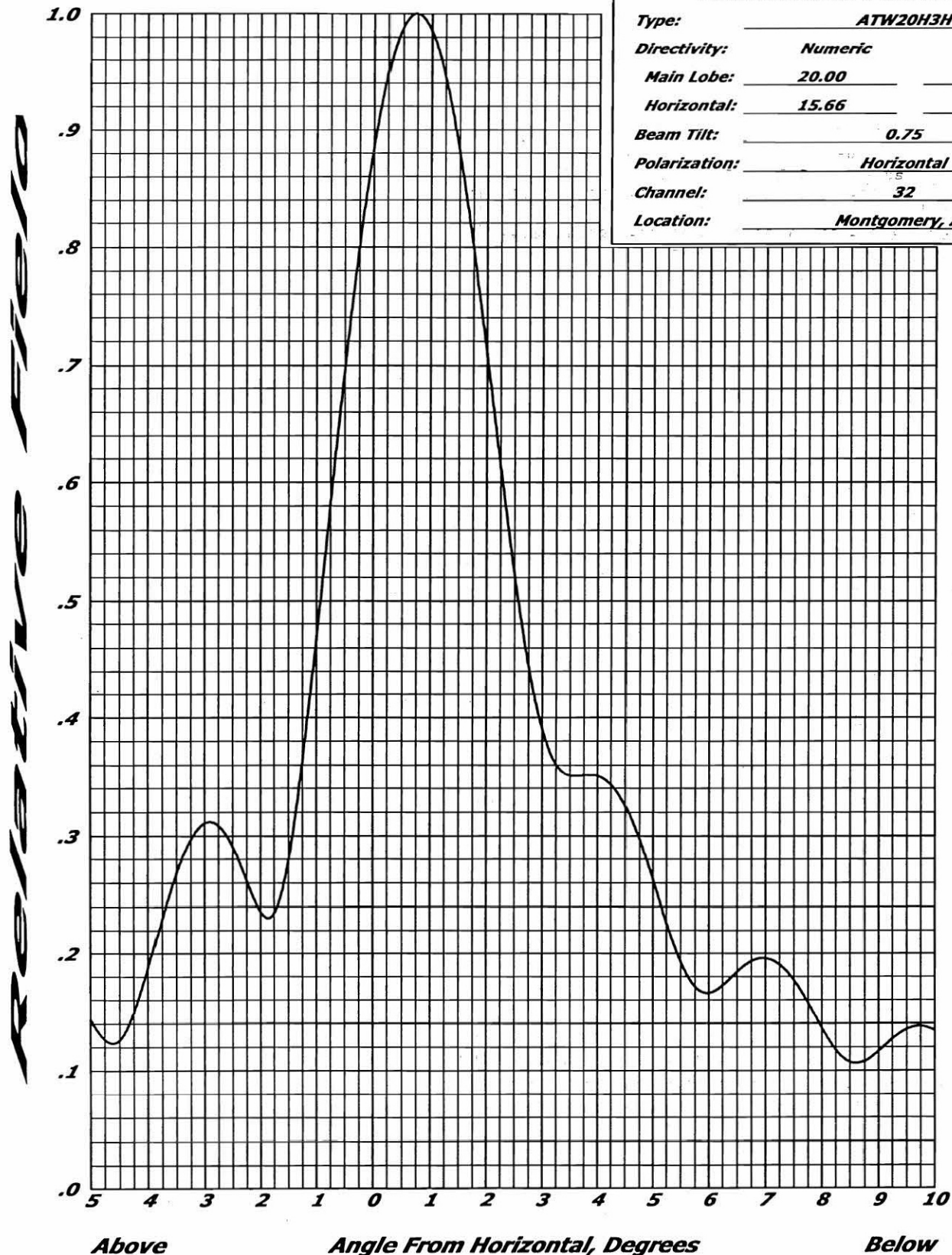
TYPE : CH32AZ-H-BID-OC

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	1.000	0.00	110	0.535	-5.43	220	0.560	-5.04	330	0.965	-0.31
2	1.000	0.00	112	0.526	-5.58	222	0.548	-5.22	332	0.967	-0.29
4	0.999	-0.01	114	0.517	-5.73	224	0.538	-5.38	334	0.970	-0.26
6	0.998	-0.02	116	0.511	-5.83	226	0.528	-5.55	336	0.973	-0.24
8	0.996	-0.03	118	0.506	-5.92	228	0.520	-5.68	338	0.976	-0.21
10	0.994	-0.05	120	0.503	-5.97	230	0.513	-5.80	340	0.979	-0.18
12	0.991	-0.08	122	0.501	-6.00	232	0.507	-5.90	342	0.983	-0.15
14	0.989	-0.10	124	0.502	-5.99	234	0.504	-5.95	344	0.986	-0.12
16	0.986	-0.12	126	0.504	-5.95	236	0.502	-5.99	346	0.989	-0.10
18	0.983	-0.15	128	0.507	-5.90	238	0.501	-6.00	348	0.991	-0.08
20	0.979	-0.18	130	0.513	-5.80	240	0.503	-5.97	350	0.994	-0.05
22	0.976	-0.21	132	0.520	-5.68	242	0.506	-5.92	352	0.996	-0.03
24	0.973	-0.24	134	0.528	-5.55	244	0.511	-5.83	354	0.998	-0.02
26	0.970	-0.26	136	0.538	-5.38	246	0.517	-5.73	356	0.999	-0.01
28	0.967	-0.29	138	0.548	-5.22	248	0.526	-5.58	358	1.000	0.00
30	0.965	-0.31	140	0.560	-5.04	250	0.535	-5.43	360	1.000	0.00
32	0.962	-0.34	142	0.573	-4.84	252	0.547	-5.24			
34	0.959	-0.36	144	0.587	-4.63	254	0.559	-5.05			
36	0.957	-0.38	146	0.601	-4.42	256	0.573	-4.84			
38	0.955	-0.40	148	0.616	-4.21	258	0.588	-4.61			
40	0.952	-0.43	150	0.631	-4.00	260	0.604	-4.38			
42	0.950	-0.45	152	0.646	-3.80	262	0.620	-4.15			
44	0.947	-0.47	154	0.662	-3.58	264	0.637	-3.92			
46	0.944	-0.50	156	0.676	-3.40	266	0.655	-3.68			
48	0.941	-0.53	158	0.691	-3.21	268	0.673	-3.44			
50	0.937	-0.57	160	0.705	-3.04	270	0.691	-3.21			
52	0.932	-0.61	162	0.718	-2.88	272	0.710	-2.97			
54	0.927	-0.66	164	0.730	-2.73	274	0.728	-2.76			
56	0.921	-0.71	166	0.741	-2.60	276	0.746	-2.55			
58	0.915	-0.77	168	0.751	-2.49	278	0.763	-2.35			
60	0.907	-0.85	170	0.760	-2.38	280	0.780	-2.16			
62	0.899	-0.92	172	0.767	-2.30	282	0.797	-1.97			
64	0.889	-1.02	174	0.772	-2.25	284	0.813	-1.80			
66	0.879	-1.12	176	0.777	-2.19	286	0.828	-1.64			
68	0.868	-1.23	178	0.779	-2.17	288	0.842	-1.49			
70	0.855	-1.36	180	0.780	-2.16	290	0.855	-1.36			
72	0.842	-1.49	182	0.779	-2.17	292	0.868	-1.23			
74	0.828	-1.64	184	0.777	-2.19	294	0.879	-1.12			
76	0.813	-1.80	186	0.772	-2.25	296	0.889	-1.02			
78	0.797	-1.97	188	0.767	-2.30	298	0.899	-0.92			
80	0.780	-2.16	190	0.760	-2.38	300	0.907	-0.85			
82	0.763	-2.35	192	0.751	-2.49	302	0.915	-0.77			
84	0.746	-2.55	194	0.741	-2.60	304	0.921	-0.71			
86	0.728	-2.76	196	0.730	-2.73	306	0.927	-0.66			
88	0.710	-2.97	198	0.718	-2.88	308	0.932	-0.61			
90	0.691	-3.21	200	0.705	-3.04	310	0.937	-0.57			
92	0.673	-3.44	202	0.691	-3.21	312	0.941	-0.53			
94	0.655	-3.68	204	0.676	-3.40	314	0.944	-0.50			
96	0.637	-3.92	206	0.662	-3.58	316	0.947	-0.47			
98	0.620	-4.15	208	0.646	-3.80	318	0.950	-0.45			
100	0.604	-4.38	210	0.631	-4.00	320	0.952	-0.43			
102	0.588	-4.61	212	0.616	-4.21	322	0.955	-0.40			
104	0.573	-4.84	214	0.601	-4.42	324	0.957	-0.38			
106	0.559	-5.05	216	0.587	-4.63	326	0.959	-0.36			
108	0.547	-5.24	218	0.573	-4.84	328	0.962	-0.34			



ANDREW **ELEVATION PATTERN**

Type:	ATW20H3H	
Directivity:	Numeric	dBd
Main Lobe:	20.00	(13.01)
Horizontal:	15.66	(11.95)
Beam Tilt:	0.75	
Polarization:	Horizontal	
Channel:	32	
Location:	Montgomery, AL	

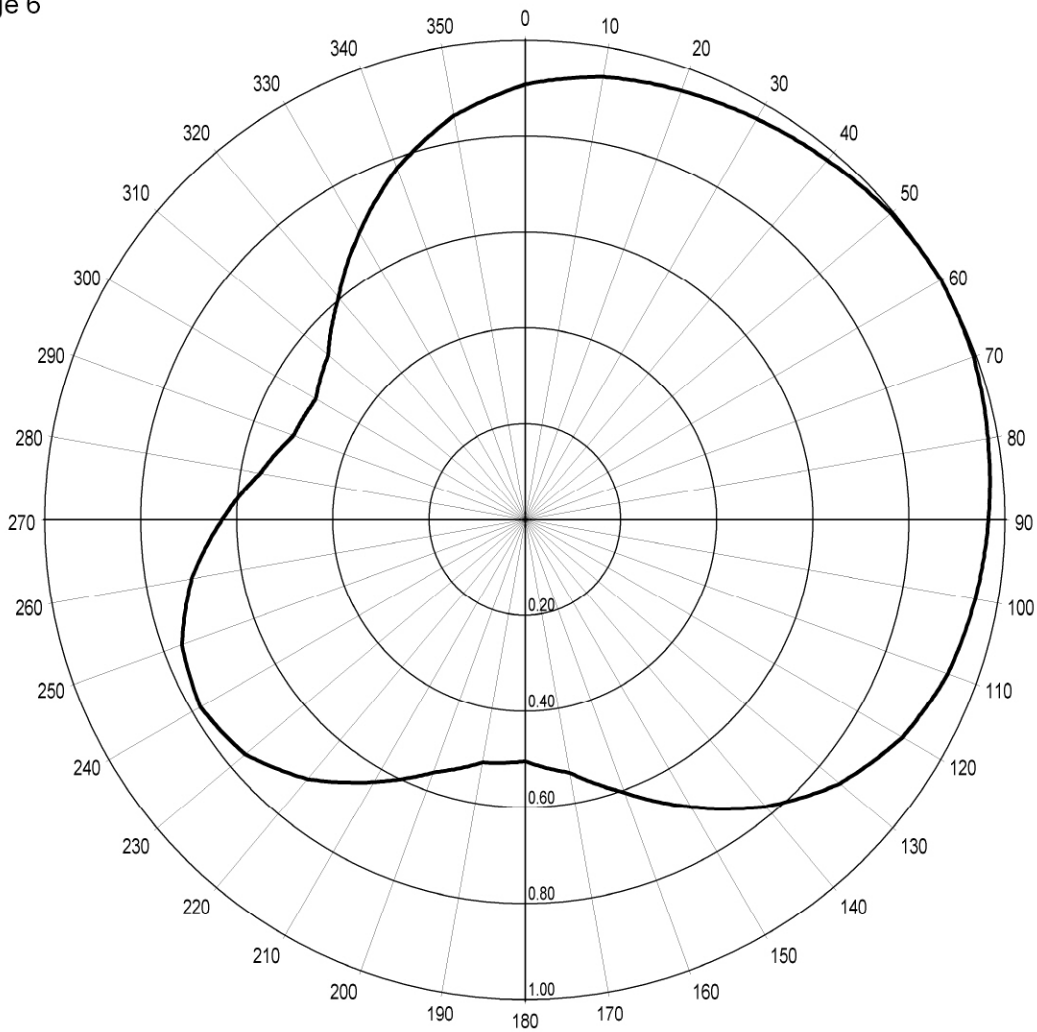




TABULATED DATA FOR ELEVATION PATTERN

TYPE : ATW20H3H

Angle Field dB -5 To 10 In 0.25 Increments	Angle Field dB 10 To 90 In 0.5 Increments	Angle Field dB	Angle Field dB
-5.00 0.143 -16.89	8.75 0.108 -19.32	35.00 0.039 -28.19	62.50 0.027 -31.21
-4.75 0.126 -17.96	9.00 0.117 -18.66	35.50 0.047 -26.54	63.00 0.029 -30.76
-4.50 0.126 -17.98	9.25 0.127 -17.90	36.00 0.049 -26.11	63.50 0.036 -28.98
-4.25 0.149 -16.54	9.50 0.135 -17.38	36.50 0.045 -26.97	64.00 0.044 -27.16
-4.00 0.187 -14.55	9.75 0.138 -17.21	37.00 0.036 -28.95	64.50 0.051 -25.78
-3.75 0.230 -12.77	10.00 0.134 -17.44	37.50 0.029 -30.76	65.00 0.057 -24.88
-3.50 0.268 -11.42	10.50 0.111 -19.08	38.00 0.032 -29.81	65.50 0.060 -24.42
-3.25 0.297 -10.55	11.00 0.084 -21.50	38.50 0.041 -27.70	66.00 0.060 -24.37
-3.00 0.311 -10.15	11.50 0.082 -21.75	39.00 0.048 -26.46	66.50 0.058 -24.71
-2.75 0.308 -10.22	12.00 0.099 -20.10	39.50 0.048 -26.42	67.00 0.053 -25.44
-2.50 0.291 -10.74	12.50 0.107 -19.40	40.00 0.042 -27.57	67.50 0.047 -26.57
-2.25 0.262 -11.63	13.00 0.097 -20.30	40.50 0.033 -29.69	68.00 0.039 -28.10
-2.00 0.236 -12.55	13.50 0.075 -22.55	41.00 0.028 -31.17	68.50 0.032 -29.88
-1.75 0.235 -12.57	14.00 0.063 -24.00	41.50 0.032 -29.84	69.00 0.027 -31.37
-1.50 0.279 -11.08	14.50 0.074 -22.59	42.00 0.041 -27.75	69.50 0.026 -31.56
-1.25 0.363 -8.80	15.00 0.087 -21.20	42.50 0.047 -26.56	70.00 0.031 -30.30
-1.00 0.469 -6.57	15.50 0.086 -21.30	43.00 0.047 -26.48	70.50 0.037 -28.57
-0.75 0.584 -4.67	16.00 0.071 -22.99	43.50 0.042 -27.49	71.00 0.045 -27.00
-0.50 0.697 -3.14	16.50 0.055 -25.26	44.00 0.034 -29.43	71.50 0.052 -25.75
-0.25 0.799 -1.95	17.00 0.056 -24.98	44.50 0.028 -31.14	72.00 0.057 -24.82
0.00 0.885 -1.06	17.50 0.070 -23.08	45.00 0.030 -30.32	72.50 0.062 -24.17
0.25 0.949 -0.45	18.00 0.077 -22.29	45.50 0.039 -28.21	73.00 0.065 -23.77
0.50 0.988 -0.10	18.50 0.070 -23.09	46.00 0.046 -26.69	73.50 0.066 -23.59
0.75 1.000 0.00	19.00 0.055 -25.26	46.50 0.049 -26.16	74.00 0.066 -23.61
1.00 0.985 -0.13	19.50 0.046 -26.80	47.00 0.047 -26.61	74.50 0.064 -23.81
1.25 0.944 -0.50	20.00 0.054 -25.35	47.50 0.040 -28.01	75.00 0.062 -24.19
1.50 0.881 -1.10	20.50 0.065 -23.71	48.00 0.031 -30.04	75.50 0.058 -24.73
1.75 0.801 -1.93	21.00 0.067 -23.50	48.50 0.028 -31.19	76.00 0.054 -25.43
2.00 0.709 -2.99	21.50 0.057 -24.85	49.00 0.032 -29.89	76.50 0.048 -26.29
2.25 0.613 -4.25	22.00 0.044 -27.17	49.50 0.040 -27.87	77.00 0.043 -27.31
2.50 0.522 -5.65	22.50 0.042 -27.62	50.00 0.047 -26.51	77.50 0.038 -28.48
2.75 0.445 -7.03	23.00 0.052 -25.66	50.50 0.050 -26.02	78.00 0.032 -29.78
3.00 0.390 -8.17	23.50 0.061 -24.36	51.00 0.048 -26.39	78.50 0.028 -31.16
3.25 0.361 -8.86	24.00 0.059 -24.56	51.50 0.042 -27.61	79.00 0.024 -32.48
3.50 0.351 -9.09	24.50 0.049 -26.25	52.00 0.033 -29.54	79.50 0.021 -33.57
3.75 0.351 -9.09	25.00 0.038 -28.46	52.50 0.028 -31.21	80.00 0.020 -34.19
4.00 0.351 -9.10	25.50 0.039 -28.11	53.00 0.029 -30.72	80.50 0.019 -34.27
4.25 0.343 -9.29	26.00 0.050 -26.06	53.50 0.037 -28.72	81.00 0.020 -33.94
4.50 0.325 -9.75	26.50 0.056 -24.98	54.00 0.045 -26.96	81.50 0.021 -33.42
4.75 0.298 -10.53	27.00 0.054 -25.39	54.50 0.050 -25.94	82.00 0.023 -32.89
5.00 0.263 -11.61	27.50 0.044 -27.18	55.00 0.052 -25.67	82.50 0.024 -32.45
5.25 0.226 -12.93	28.00 0.035 -29.22	55.50 0.049 -26.12	83.00 0.025 -32.13
5.50 0.193 -14.29	28.50 0.037 -28.56	56.00 0.043 -27.30	83.50 0.025 -31.95
5.75 0.172 -15.30	29.00 0.047 -26.52	56.50 0.035 -29.10	84.00 0.025 -31.92
6.00 0.166 -15.60	29.50 0.053 -25.49	57.00 0.028 -30.91	84.50 0.025 -32.04
6.25 0.173 -15.25	30.00 0.051 -25.88	57.50 0.028 -31.09	85.00 0.024 -32.32
6.50 0.184 -14.69	30.50 0.042 -27.63	58.00 0.034 -29.38	85.50 0.023 -32.76
6.75 0.193 -14.27	31.00 0.033 -29.75	58.50 0.042 -27.45	86.00 0.021 -33.38
7.00 0.196 -14.16	31.50 0.034 -29.35	59.00 0.050 -26.06	86.50 0.020 -34.19
7.25 0.190 -14.41	32.00 0.043 -27.26	59.50 0.054 -25.29	87.00 0.017 -35.23
7.50 0.177 -15.04	32.50 0.050 -26.01	60.00 0.056 -25.11	87.50 0.015 -36.58
7.75 0.158 -16.04	33.00 0.049 -26.12	60.50 0.053 -25.50	88.00 0.012 -38.33
8.00 0.136 -17.30	33.50 0.042 -27.55	61.00 0.048 -26.46	88.50 0.009 -40.68
8.25 0.118 -18.57	34.00 0.033 -29.73	61.50 0.040 -27.98	89.00 0.006 -44.10
8.50 0.108 -19.36	34.50 0.031 -30.16	62.00 0.032 -29.85	89.50 0.003 -50.06



Azim	Rel.FS ERP [kW]		dBk
0.0	0.907	28.793	14.593
5.0	0.922	29.753	14.735
10.0	0.937	30.729	14.875
15.0	0.944	31.190	14.940
20.0	0.952	31.721	15.013
25.0	0.958	32.122	15.068
30.0	0.965	32.593	15.131
35.0	0.972	33.067	15.194
40.0	0.979	33.545	15.256
45.0	0.986	34.027	15.318
50.0	0.994	34.581	15.388
55.0	0.997	34.790	15.415
60.0	1.000	35.000	15.441
65.0	0.997	34.790	15.415
70.0	0.994	34.581	15.388
75.0	0.986	34.027	15.318
80.0	0.979	33.545	15.256
85.0	0.972	33.067	15.194

Azim	Rel.FS ERP [kW]		dBk
90.0	0.965	32.593	15.131
95.0	0.958	32.122	15.068
100.0	0.952	31.721	15.013
105.0	0.944	31.190	14.940
110.0	0.937	30.729	14.875
115.0	0.922	29.753	14.735
120.0	0.907	28.793	14.593
125.0	0.881	27.166	14.340
130.0	0.855	25.586	14.080
135.0	0.817	23.362	13.685
140.0	0.780	21.294	13.283
145.0	0.735	18.908	12.766
150.0	0.691	16.712	12.230
155.0	0.647	14.651	11.659
160.0	0.604	12.769	11.061
165.0	0.569	11.332	10.543
170.0	0.535	10.018	10.008
175.0	0.519	9.428	9.744

Azim	Rel.FS ERP [kW]		dBk
180.0	0.503	8.855	9.472
185.0	0.508	9.032	9.558
190.0	0.513	9.211	9.643
195.0	0.536	10.055	10.024
200.0	0.560	10.976	10.404
205.0	0.595	12.391	10.931
210.0	0.631	13.936	11.441
215.0	0.668	15.618	11.936
220.0	0.705	17.396	12.404
225.0	0.732	18.754	12.731
230.0	0.760	20.216	13.057
235.0	0.770	20.752	13.170
240.0	0.780	21.294	13.283
245.0	0.770	20.752	13.170
250.0	0.760	20.216	13.057
255.0	0.732	18.754	12.731
260.0	0.705	17.396	12.404
265.0	0.668	15.618	11.936

Azim	Rel.FS ERP [kW]		dBk
270.0	0.631	13.936	11.441
275.0	0.595	12.391	10.931
280.0	0.560	10.976	10.404
285.0	0.536	10.055	10.024
290.0	0.513	9.211	9.643
295.0	0.508	9.032	9.558
300.0	0.503	8.855	9.472
305.0	0.519	9.428	9.744
310.0	0.535	10.018	10.008
315.0	0.569	11.332	10.543
320.0	0.604	12.769	11.061
325.0	0.647	14.651	11.659
330.0	0.691	16.712	12.230
335.0	0.735	18.908	12.766
340.0	0.780	21.294	13.283
345.0	0.817	23.362	13.685
350.0	0.855	25.586	14.080
355.0	0.881	27.166	14.340

Note - Includes Rotation to 60 Degrees True North.