

Azimuth Pattern

Scale: Linear

Unit: Relative Field

Antenna Concepts Inc.

CLIENT: *Wrap Around Panel Array at Ch-14*

Date: 11/17/2005

ANTENNA TYPE: AT512X4 Wrap Around Spanner Panel Array run @ Ch-14

FREQUENCY: 473

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.7486 / 2.4271dB

PATTERN RMS: 0.756

Relative Field Tabulation(Azimuth)

Azimuth Heading	Relative Field(dB)	Azimuth Heading	Relative Field(dB)
0	.21 (-13.49)	180	.97 (-0.22)
5	.22 (-13.24)	185	1.00 (0.01)
10	.22 (-13.3)	190	1.00 (-0.01)
15	.22 (-13.24)	195	1.00 (0.01)
20	.21 (-13.49)	200	.97 (-0.22)
25	.20 (-13.82)	205	.94 (-0.51)
30	.19 (-14.16)	210	.92 (-0.73)
35	.21 (-13.68)	215	.92 (-0.71)
40	.25 (-11.92)	220	.93 (-0.63)
45	.31 (-10.16)	225	.95 (-0.44)
50	.37 (-8.59)	230	.97 (-0.24)
55	.43 (-7.37)	235	.97 (-0.24)
60	.48 (-6.28)	240	.95 (-0.46)
65	.54 (-5.33)	245	.92 (-0.74)
70	.59 (-4.51)	250	.89 (-1.04)
75	.66 (-3.64)	255	.87 (-1.23)
80	.72 (-2.82)	260	.86 (-1.26)
85	.78 (-2.13)	265	.89 (-1)
90	.83 (-1.58)	270	.91 (-0.79)
95	.88 (-1.15)	275	.91 (-0.79)
100	.90 (-0.89)	280	.90 (-0.89)
105	.91 (-0.79)	285	.88 (-1.15)
110	.91 (-0.79)	290	.83 (-1.58)
115	.89 (-1)	295	.78 (-2.13)
120	.86 (-1.26)	300	.72 (-2.82)
125	.87 (-1.23)	305	.66 (-3.64)
130	.89 (-1.04)	310	.59 (-4.51)
135	.92 (-0.74)	315	.54 (-5.33)
140	.95 (-0.46)	320	.48 (-6.28)
145	.97 (-0.24)	325	.43 (-7.37)
150	.97 (-0.24)	330	.37 (-8.59)
155	.95 (-0.44)	335	.31 (-10.16)
160	.93 (-0.63)	340	.25 (-11.92)
165	.92 (-0.71)	345	.21 (-13.68)
170	.92 (-0.73)	350	.19 (-14.16)
175	.94 (-0.51)	355	.20 (-13.82)

Antenna Concepts Inc.

CLIENT: *Wrap Around Panel Array at Ch-14*

Date: 11/17/2005

ANTENNA TYPE: ATS12X4 Wrap Around Spanner Panel Array run @ Ch-14

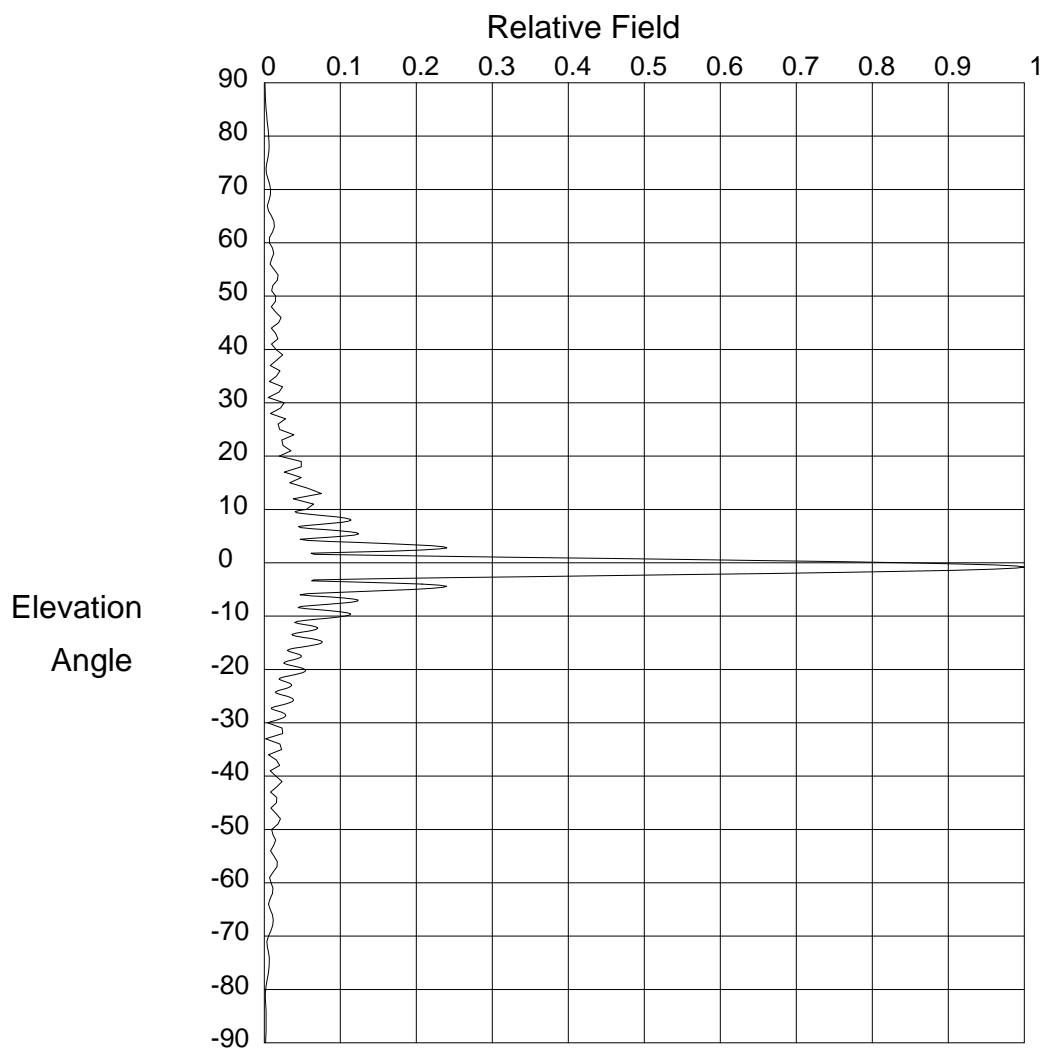
FREQUENCY: 473

PATTERN POL.: Horizontal

CIRCULARITY(+/-dB):

AZ. DIRECTIVITY: 1.7486 / 2.4271dB

PATTERN RMS: 0.756



Elevation Pattern

Scale: Linear

Units: Field, Relative

Antenna Concepts Inc.

CLIENT: *NLEC / Jim Barnes*

Date: 11/17/2005

ANTENNA TYPE: *ATS12X4 plot run @ Ch-14*

FREQUENCY: *473*

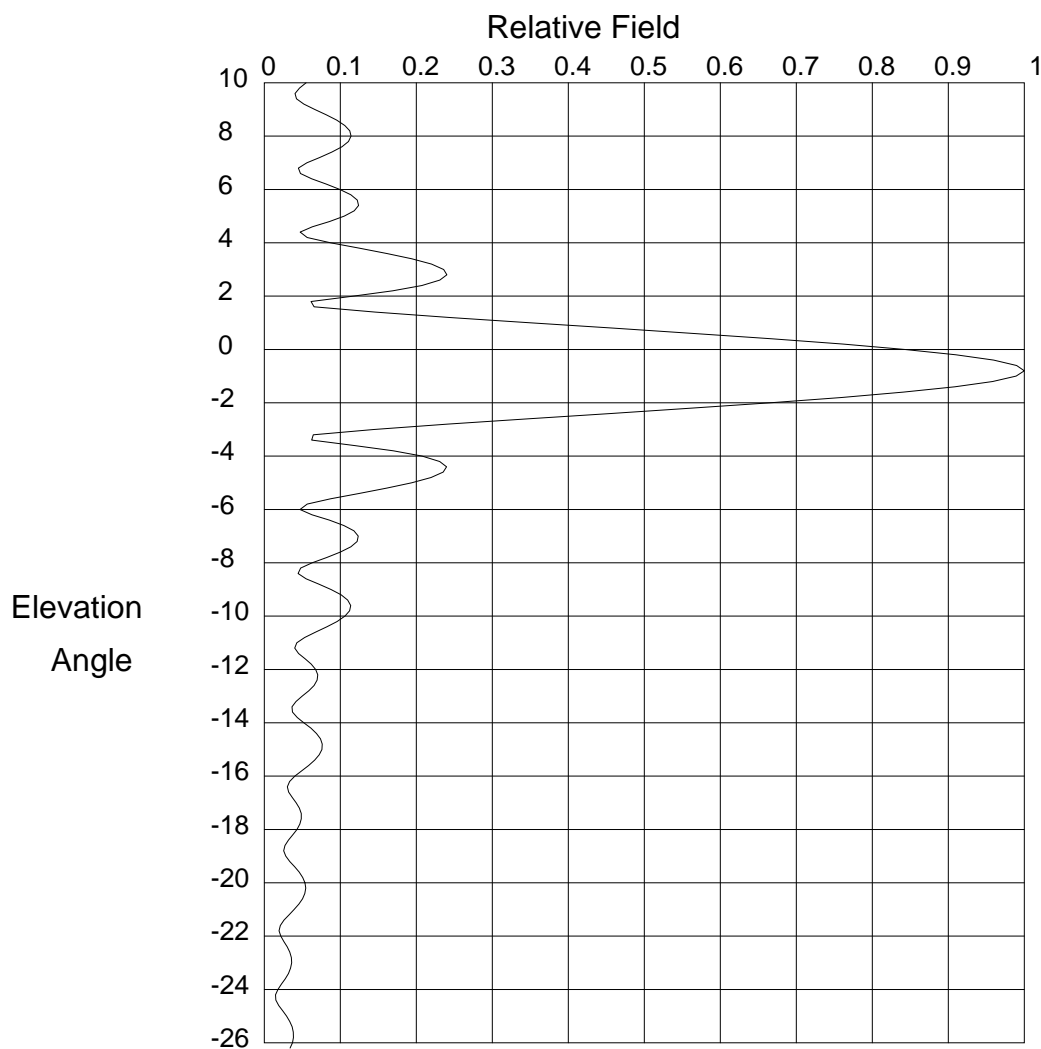
PATTERN POL.: *Horizontal*

DIRECTIVITY(Peak): *26.989/14.312 dBd*

Beam Tilt (Deg.) : *-.75*

DIRECTIVITY(Horiz): *19.204/12.834 dBd*

Null Fill(s)(%) : *5, 0, 0*



Elevation Pattern

Scale: Linear

Units: Field, Relative

Antenna Concepts Inc.

CLIENT: *NLEC / Jim Barnes*

Date: 11/17/2005

ANTENNA TYPE: ATS12X4 plot run @ Ch-14

FREQUENCY: 473

PATTERN POL.: Horizontal

DIRECTIVITY(Peak): 26.989/14.312 dBd

Beam Tilt (Deg.) : -0.75

DIRECTIVITY(Horiz): 19.204/12.834 dBd

Null Fill(s)(%) : 5, 0, 0

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
3.2	.22 (-13.151)	-4.4	.24 (-12.4)	-12.0	.068 (-23.378)
3.0	.236 (-12.541)	-4.6	.236 (-12.558)	-12.2	.07 (-23.044)
2.8	.24 (-12.387)	-4.8	.22 (-13.17)	-12.4	.07 (-23.148)
2.6	.231 (-12.726)	-5.0	.194 (-14.248)	-12.6	.065 (-23.681)
2.4	.207 (-13.661)	-5.2	.161 (-15.852)	-12.8	.059 (-24.643)
2.2	.169 (-15.429)	-5.4	.124 (-18.104)	-13.0	.05 (-26)
2.0	.118 (-18.577)	-5.6	.087 (-21.183)	-13.2	.042 (-27.569)
1.8	.062 (-24.212)	-5.8	.057 (-24.947)	-13.4	.037 (-28.735)
1.6	.065 (-23.676)	-6.0	.047 (-26.55)	-13.6	.037 (-28.599)
1.4	.146 (-16.722)	-6.2	.063 (-24.029)	-13.8	.043 (-27.266)
1.2	.244 (-12.242)	-6.4	.085 (-21.367)	-14.0	.052 (-25.646)
1.0	.35 (-9.116)	-6.6	.105 (-19.592)	-14.2	.061 (-24.261)
.8	.459 (-6.771)	-6.8	.118 (-18.568)	-14.4	.069 (-23.247)
.6	.566 (-4.945)	-7.0	.124 (-18.148)	-14.6	.074 (-22.61)
.4	.668 (-3.502)	-7.2	.122 (-18.256)	-14.8	.076 (-22.331)
.2	.762 (-2.362)	-7.4	.114 (-18.866)	-15.0	.076 (-22.397)
.0	.844 (-1.478)	-7.6	.10 (-20.001)	-15.2	.072 (-22.803)
-.2	.91 (-0.816)	-7.8	.082 (-21.711)	-15.4	.066 (-23.556)
-.4	.96 (-0.357)	-8.0	.063 (-24.002)	-15.6	.058 (-24.668)
-.6	.99 (-0.087)	-8.2	.048 (-26.393)	-15.8	.049 (-26.136)
-.8	1.00 (0)	-8.4	.045 (-27.006)	-16.0	.04 (-27.873)
-1.0	.989 (-0.093)	-8.6	.055 (-25.161)	-16.2	.033 (-29.523)
-1.2	.959 (-0.367)	-8.8	.072 (-22.896)	-16.4	.03 (-30.324)
-1.4	.909 (-0.832)	-9.0	.088 (-21.121)	-16.6	.032 (-29.833)
-1.6	.841 (-1.499)	-9.2	.101 (-19.905)	-16.8	.037 (-28.661)
-1.8	.759 (-2.39)	-9.4	.11 (-19.181)	-17.0	.042 (-27.517)
-2.0	.666 (-3.535)	-9.6	.114 (-18.887)	-17.2	.046 (-26.692)
-2.2	.563 (-4.986)	-9.8	.112 (-18.989)	-17.4	.049 (-26.256)
-2.4	.456 (-6.821)	-10.0	.106 (-19.477)	-17.6	.049 (-26.217)
-2.6	.348 (-9.178)	-10.2	.096 (-20.36)	-17.8	.047 (-26.575)
-2.8	.242 (-12.321)	-10.4	.083 (-21.661)	-18.0	.043 (-27.331)
-3.0	.144 (-16.833)	-10.6	.068 (-23.394)	-18.2	.038 (-28.475)
-3.2	.064 (-23.821)	-10.8	.053 (-25.466)	-18.4	.032 (-29.915)
-3.4	.062 (-24.115)	-11.0	.043 (-27.36)	-18.6	.027 (-31.288)
-3.6	.118 (-18.526)	-11.2	.04 (-27.927)	-18.8	.026 (-31.8)
-3.8	.17 (-15.409)	-11.4	.045 (-26.895)	-19.0	.028 (-30.982)
-4.0	.208 (-13.658)	-11.6	.054 (-25.397)	-19.2	.034 (-29.459)
-4.2	.231 (-12.732)	-11.8	.062 (-24.165)	-19.4	.04 (-27.955)

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CLIENT: *NLEC / Jim Barnes*

Date: 11/17/2005

ANTENNA TYPE: ATS12X4 plot run @ Ch-14

FREQUENCY: 473

PATTERN POL.: Horizontal

DIRECTIVITY(Peak): 26.989/14.312 dBd

Beam Tilt (Deg.) : -.75

DIRECTIVITY(Horiz): 19.204/12.834 dBd

Null Fill(s)(%) : 5, 0, 0

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
-19.6	.046 (-26.751)	-27.2	.009 (-40.524)	-54.0	.008 (-41.589)
-19.8	.051 (-25.907)	-27.4	.01 (-40.328)	-55.0	.013 (-37.897)
-20.0	.054 (-25.416)	-27.6	.013 (-37.4)	-56.0	.017 (-35.231)
-20.2	.055 (-25.263)	-27.8	.018 (-34.82)	-57.0	.017 (-35.551)
-20.4	.053 (-25.443)	-28.0	.022 (-33.011)	-58.0	.012 (-38.678)
-20.6	.05 (-25.96)	-28.2	.026 (-31.835)	-59.0	.007 (-43.008)
-20.8	.046 (-26.831)	-28.4	.028 (-31.171)	-60.0	.009 (-40.944)
-21.0	.039 (-28.083)	-28.6	.028 (-30.951)	-61.0	.011 (-38.826)
-21.2	.033 (-29.731)	-28.8	.028 (-31.151)	-62.0	.011 (-39.374)
-21.4	.026 (-31.695)	-29.0	.026 (-31.784)	-63.0	.008 (-42.442)
-21.6	.021 (-33.525)	-29.2	.023 (-32.907)	-64.0	.005 (-45.208)
-21.8	.02 (-34.178)	-29.4	.019 (-34.651)	-65.0	.008 (-41.972)
-22.0	.022 (-33.252)	-29.6	.014 (-37.284)	-66.0	.011 (-39.227)
-22.2	.026 (-31.736)	-29.8	.009 (-41.376)	-67.0	.012 (-38.375)
-22.4	.03 (-30.403)	-30.0	.005 (-46.881)	-68.0	.011 (-39.098)
-22.6	.034 (-29.472)	-31.0	.024 (-32.528)	-69.0	.009 (-41.33)
-22.8	.036 (-28.966)	-32.0	.024 (-32.322)	-70.0	.005 (-45.199)
-23.0	.036 (-28.874)	-33.0	.002 (-54.751)	-71.0	.003 (-49.208)
-23.2	.035 (-29.193)	-34.0	.021 (-33.667)	-72.0	.004 (-47.613)
-23.4	.032 (-29.939)	-35.0	.023 (-32.805)	-73.0	.006 (-44.872)
-23.6	.028 (-31.147)	-36.0	.006 (-44.903)	-74.0	.007 (-43.531)
-23.8	.023 (-32.846)	-37.0	.016 (-35.85)	-75.0	.007 (-43.341)
-24.0	.018 (-34.918)	-38.0	.02 (-33.827)	-76.0	.006 (-44.053)
-24.2	.015 (-36.589)	-39.0	.008 (-41.913)	-77.0	.005 (-45.555)
-24.4	.015 (-36.316)	-40.0	.015 (-36.256)	-78.0	.004 (-47.826)
-24.6	.019 (-34.39)	-41.0	.024 (-32.534)	-79.0	.003 (-50.871)
-24.8	.024 (-32.32)	-42.0	.017 (-35.649)	-80.0	.002 (-54.374)
-25.0	.029 (-30.665)	-43.0	.008 (-41.645)	-81.0	.002 (-56.464)
-25.2	.034 (-29.477)	-44.0	.017 (-35.598)	-82.0	.002 (-55.557)
-25.4	.037 (-28.711)	-45.0	.016 (-35.849)	-83.0	.002 (-53.911)
-25.6	.038 (-28.327)	-46.0	.009 (-40.992)	-84.0	.002 (-52.763)
-25.8	.038 (-28.3)	-47.0	.015 (-36.228)	-85.0	.002 (-52.184)
-26.0	.037 (-28.628)	-48.0	.022 (-33.348)	-86.0	.002 (-52.067)
-26.2	.034 (-29.331)	-49.0	.018 (-34.919)	-87.0	.002 (-52.324)
-26.4	.03 (-30.455)	-50.0	.01 (-40.155)	-88.0	.002 (-52.904)
-26.6	.025 (-32.086)	-51.0	.011 (-38.814)	-89.0	.002 (-53.785)
-26.8	.019 (-34.362)	-52.0	.015 (-36.415)	-90.0	.002 (-54.981)
-27.0	.013 (-37.405)	-53.0	.012 (-38.143)	90.0	.00 (-50)

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PATTERN POL.: Horizontal

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Beam Tilt (Deg.) : -.75

DIRECTIVITY(Horiz): 19.204/12.834 dBd

Null Fill(s)(%) : 5, 0, 0