

***PRELIMINARY SPECIFICATION FOR
ANDREW VHF BROADBAND HORIZONTALLY
POLARIZED 90 DEGREE DOUBLE DIPOLE PANEL
ARRAY ANTENNA***

*Prepared For
KEMV-DT Channel 13 Mountain View, AR
September 25, 2001*

ANTENNA TYPE:
ADDP4V4-HSWC-13

SPECIFICATION NO.:
AG092501-1002



Andrew Corporation
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

AG092501-1002 -1-

PRELIMINARY SPECIFICATION FOR ANDREW VHF BROADBAND HORIZONTALLY POLARIZED 90 DEGREE DOUBLE DIPOLE PANEL ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL:	13
FREQUENCY RANGE:	210 to 216 MHz
AZIMUTH PATTERN NUMBER:	CH13AZ-H-BID-WC
ELEVATION PATTERN NUMBER [†] :	ADDP4V7H-13
AZIMUTH DIRECTIVITY:	1.83 (2.62 dB)
ELEVATION DIRECTIVITY:	4.40 (6.43 dBd)
PEAK POWER GAIN:	8.05 (9.06 dBd)
GAIN AT HORIZONTAL:	7.64 (8.83 dBd)
ELECTRICAL BEAM TILT:	1.75 Degrees
POWER HANDLING:	10.0 kW Average Power
INPUT TYPE:	1-5/8 inch EIA, 50 ohm
VSWR (MAXIMUM):	1.10 Over 6 MHz Channel

†Elevation Pattern Exhibit is shown at 60 degrees azimuth. Null fill will vary slightly do to antenna configuration.



PRELIMINARY SPECIFICATION FOR ANDREW VHF BROADBAND HORIZONTALLY POLARIZED 90 DEGREE DOUBLE DIPOLE PANEL ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION: Side Mount*
***(Tower Interface supplied and installed by others.)** Panel arrangement four panels on three faces and one panel on one face.

HEIGHT OF ANTENNA: 19.0 feet

HEIGHT OF CENTER OF PRESSURE (B): 9.5 feet

HEIGHT OF CENTER OF RADIATION: 19.0 feet

OVERALL HEIGHT (A): 19.0 feet

DEICING: Nonpressurized Radome Enclosure

RADOME COLOR: Not Applicable

CLIMBING DEVICE: Not Applicable

CALCULATED WEIGHT^α 1,500 lbs.

ANTENNA AREA: $C_A A_A$: 61.6 square feet

This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.

1 Calculated weight is based on the **PRELIMINARY** design of the antenna. The actual weight of the antenna will be within " 10% of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

NOTE: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.



Broadcast Antenna System

Power Analysis

KEMV-DT Channel 13
Mountain View, AR
Type: ADDP4V7-HSWC-13

ANTENNA PARAMETERS:

Azimuth Directivity:
Hor Pol: 1.83 (2.62 dBd)

Elevation Directivity:
Hor Pol: 4.40 (6.43 dBd)

TRANSMISSION LINE:

VERTICAL RUN:

Type: HJ7-50A 1-5/8" 50 Ohm HELIAX®

Length: 886 ft.

Attenuation: 0.3010 dB/100 ft.

HORIZONTAL RUN:

Type: HJ7-50A 1-5/8" 50 Ohm HELIAX®

Length: 105 ft.

Attenuation: 0.3010 dB/100 ft.

Efficiency: 50.32%

ERP:

kW: 20.00

dBk: 13.01

POWER GAIN:

Ratio: 8.05

dBd: 9.06

ANTENNA INPUT:

kW: 2.484

dBk: 3.951

LINE LOSS:

kW: 2.45

dB: 2.983

TRANSMITTER POWER:

kW: 4.94

dBk: 6.93



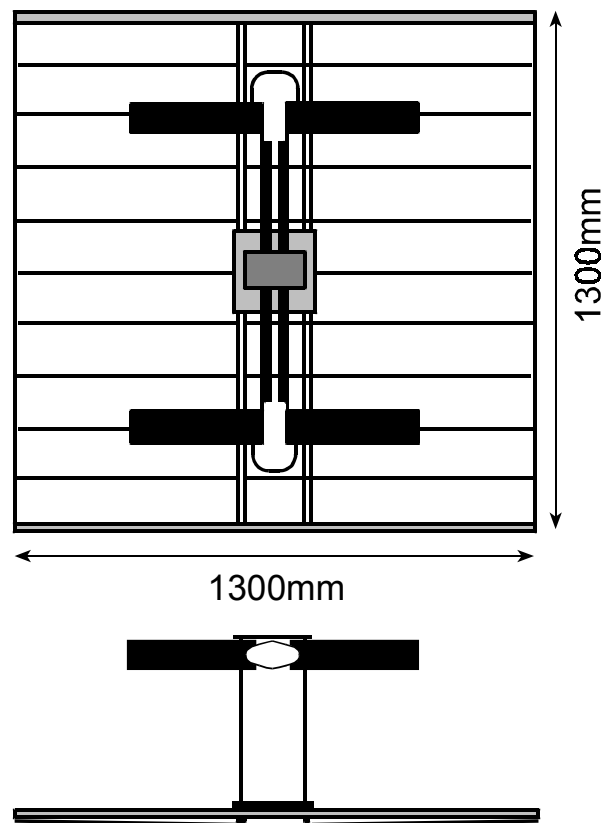
Andrew Corporation
10500 W. 153rd Street
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AG092501-1002 -4-

TYPICAL DOUBLE DIPOLE PANEL

Band 3 (High Band) H90, V90 Double Dipole Panel

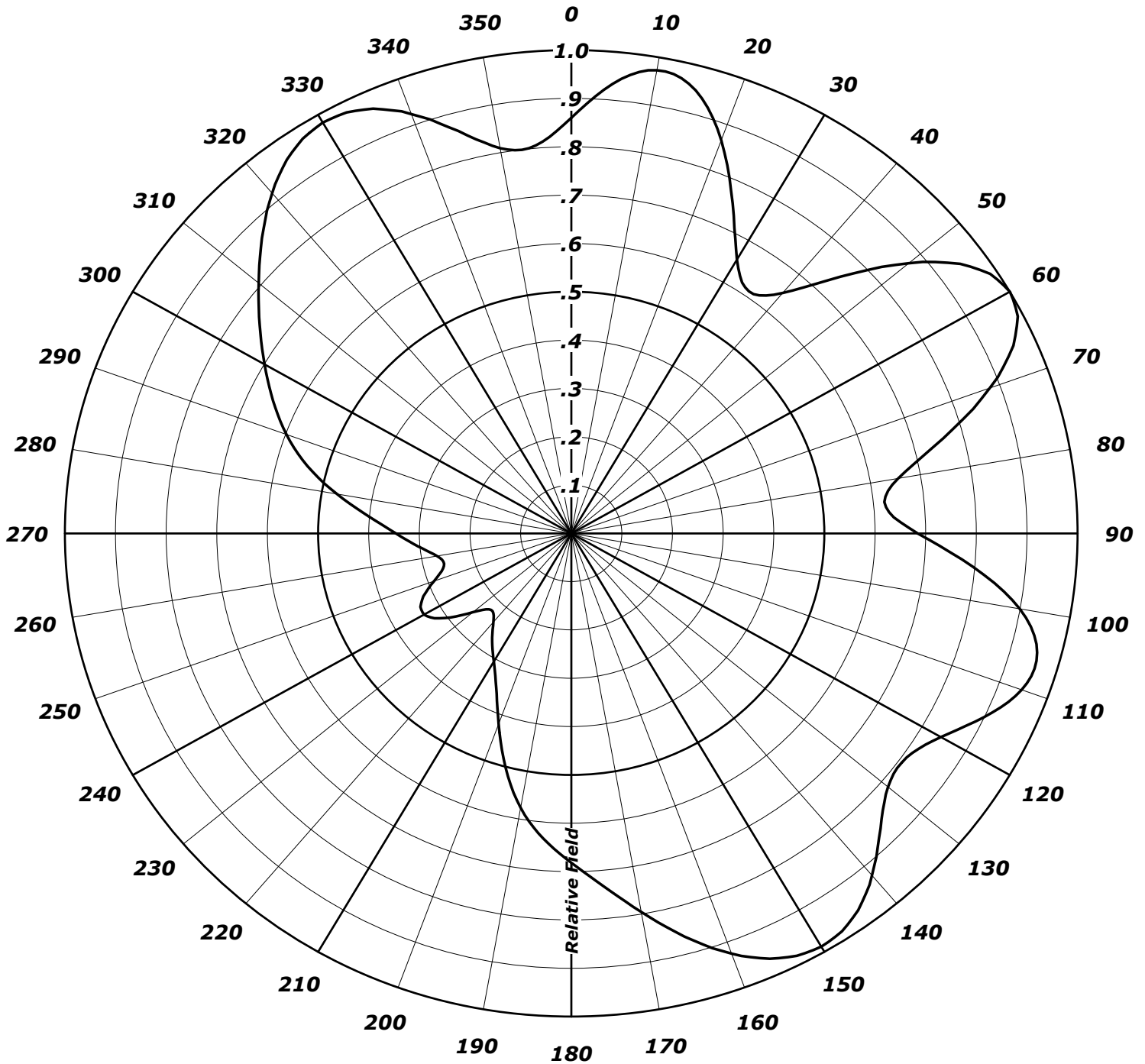
- Horizontally or vertically polarized panel designed primarily for 4 sided, square configurations.
- Omnidirectional or directional patterns.
- Generally configured between 1 and 6 bays.
- Mean power gain approximately 1.2 per bay.
- Center to center bay spacing one wavelength (5ft.)
- Single panel input rating 5kW peak synch for 7/8 EIA input
- Array rating depending on distribution harness.
- Capable of multi-channel operation.



ANDREW
AZIMUTH PATTERN

Type: CH13AZ-H-BID-WC

	Numeric	dBd
Directivity:	<u>1.83</u>	<u>(2.62)</u>
Peak(s) At:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>13</u>	
Location:	<u>Mountain View, AR</u>	



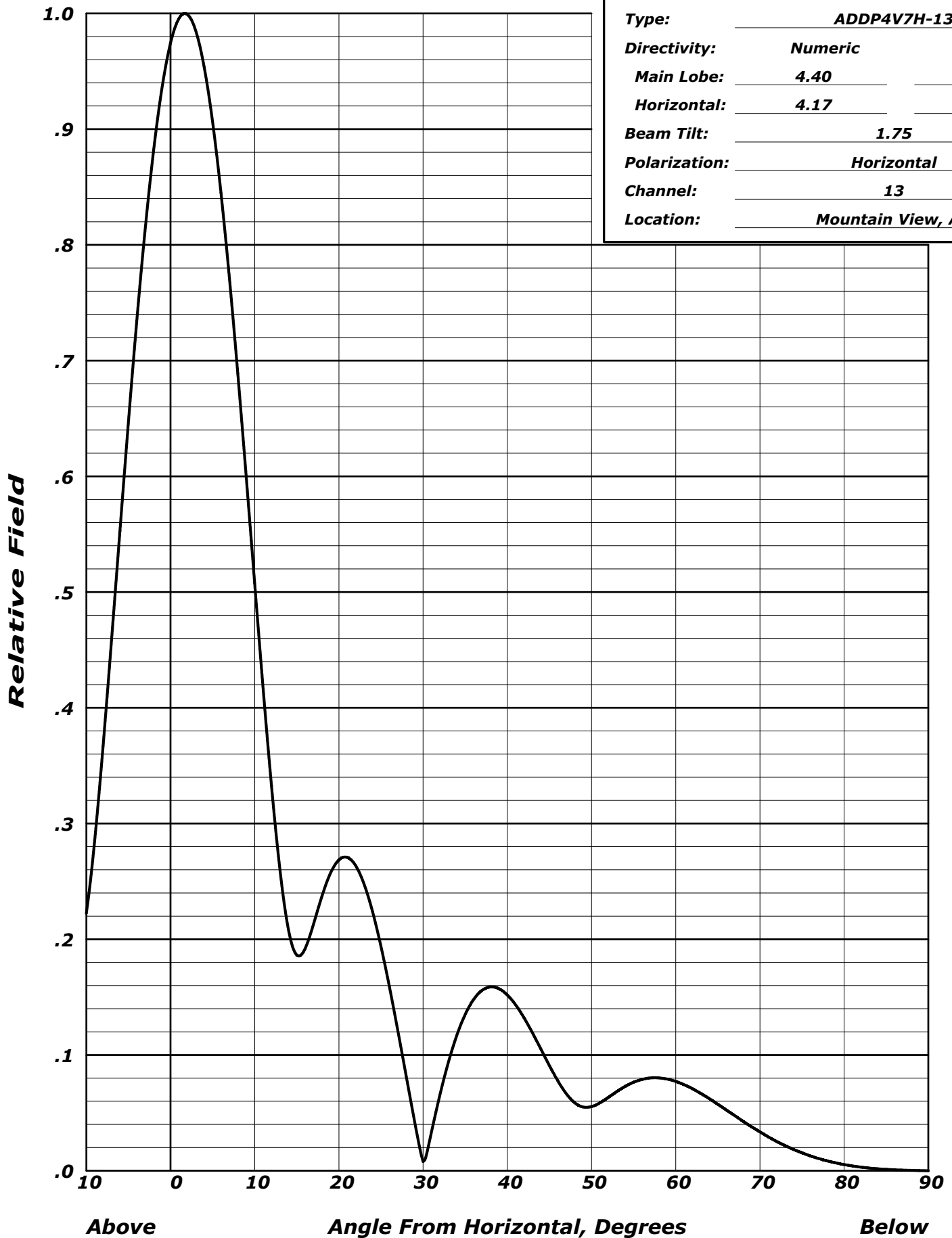


TABULATED DATA FOR AZIMUTH PATTERN
TYPE : CH13AZ-H-BID-WC

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.860	-1.31	110	0.946	-0.48	220	0.239	-12.42	330	0.982	-0.16
2	0.890	-1.01	112	0.931	-0.62	222	0.229	-12.81	332	0.979	-0.18
4	0.920	-0.72	114	0.910	-0.82	224	0.224	-13.00	334	0.973	-0.24
6	0.946	-0.48	116	0.888	-1.04	226	0.226	-12.91	336	0.962	-0.34
8	0.964	-0.32	118	0.864	-1.27	228	0.236	-12.53	338	0.944	-0.50
10	0.973	-0.24	120	0.843	-1.49	230	0.254	-11.92	340	0.923	-0.69
12	0.972	-0.25	122	0.825	-1.67	232	0.274	-11.24	342	0.900	-0.91
14	0.959	-0.36	124	0.812	-1.81	234	0.296	-10.57	344	0.874	-1.17
16	0.936	-0.57	126	0.807	-1.87	236	0.314	-10.06	346	0.849	-1.42
18	0.904	-0.88	128	0.807	-1.86	238	0.328	-9.69	348	0.827	-1.65
20	0.866	-1.25	130	0.816	-1.77	240	0.336	-9.48	350	0.809	-1.84
22	0.822	-1.70	132	0.832	-1.60	242	0.336	-9.48	352	0.801	-1.93
24	0.776	-2.21	134	0.851	-1.40	244	0.330	-9.63	354	0.802	-1.92
26	0.731	-2.72	136	0.875	-1.16	246	0.320	-9.90	356	0.813	-1.80
28	0.690	-3.23	138	0.900	-0.91	248	0.304	-10.33	358	0.833	-1.59
30	0.654	-3.69	140	0.923	-0.69	250	0.289	-10.80	360	0.860	-1.31
32	0.629	-4.03	142	0.945	-0.49	252	0.274	-11.23			
34	0.614	-4.24	144	0.964	-0.32	254	0.264	-11.58			
36	0.612	-4.26	146	0.976	-0.21	256	0.259	-11.73			
38	0.625	-4.09	148	0.984	-0.14	258	0.261	-11.67			
40	0.649	-3.75	150	0.987	-0.11	260	0.269	-11.40			
42	0.685	-3.28	152	0.983	-0.15	262	0.282	-11.00			
44	0.728	-2.76	154	0.975	-0.22	264	0.296	-10.57			
46	0.775	-2.22	156	0.963	-0.32	266	0.312	-10.11			
48	0.824	-1.68	158	0.946	-0.49	268	0.329	-9.66			
50	0.870	-1.21	160	0.925	-0.68	270	0.346	-9.21			
52	0.912	-0.80	162	0.902	-0.89	272	0.366	-8.72			
54	0.949	-0.45	164	0.876	-1.15	274	0.389	-8.21			
56	0.975	-0.22	166	0.850	-1.42	276	0.414	-7.66			
58	0.992	-0.07	168	0.823	-1.70	278	0.441	-7.10			
60	1.000	0.00	170	0.795	-1.99	280	0.470	-6.56			
62	0.994	-0.05	172	0.769	-2.28	282	0.499	-6.04			
64	0.979	-0.19	174	0.745	-2.56	284	0.526	-5.58			
66	0.956	-0.40	176	0.722	-2.83	286	0.552	-5.16			
68	0.920	-0.72	178	0.701	-3.09	288	0.576	-4.79			
70	0.879	-1.12	180	0.681	-3.33	290	0.599	-4.46			
72	0.834	-1.57	182	0.663	-3.57	292	0.620	-4.16			
74	0.784	-2.11	184	0.644	-3.83	294	0.640	-3.88			
76	0.736	-2.67	186	0.624	-4.10	296	0.660	-3.61			
78	0.692	-3.20	188	0.601	-4.42	298	0.680	-3.35			
80	0.655	-3.67	190	0.576	-4.79	300	0.699	-3.10			
82	0.631	-3.99	192	0.549	-5.21	302	0.720	-2.85			
84	0.622	-4.13	194	0.518	-5.72	304	0.741	-2.61			
86	0.629	-4.03	196	0.485	-6.28	306	0.762	-2.36			
88	0.651	-3.73	198	0.452	-6.90	308	0.784	-2.12			
90	0.684	-3.30	200	0.420	-7.54	310	0.806	-1.87			
92	0.727	-2.77	202	0.390	-8.19	312	0.829	-1.63			
94	0.773	-2.23	204	0.363	-8.81	314	0.852	-1.39			
96	0.819	-1.73	206	0.341	-9.35	316	0.875	-1.16			
98	0.862	-1.28	208	0.322	-9.84	318	0.898	-0.93			
100	0.899	-0.92	210	0.306	-10.28	320	0.919	-0.73			
102	0.928	-0.65	212	0.292	-10.68	322	0.939	-0.55			
104	0.947	-0.48	214	0.279	-11.08	324	0.956	-0.39			
106	0.956	-0.40	216	0.266	-11.51	326	0.968	-0.28			
108	0.955	-0.40	218	0.252	-11.96	328	0.977	-0.20			

ANDREW
ELEVATION PATTERN

Type:	ADDP4V7H-13	
Directivity:	Numeric	dBd
Main Lobe:	4.40	(6.43)
Horizontal:	4.17	(6.20)
Beam Tilt:	1.75	
Polarization:	Horizontal	
Channel:	13	
Location:	Mountain View, AR	





TABULATED DATA FOR ELEVATION PATTERN
TYPE : ADDP4V7H-13

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5 To 10			10 To 90								
In 0.25 Increments			In 0.5 Increments								
-5.00	0.647	-3.78	8.75	0.621	-4.13	35.00	0.135	-17.39	62.50	0.069	-23.25
-4.75	0.670	-3.48	9.00	0.599	-4.46	35.50	0.142	-16.94	63.00	0.067	-23.52
-4.50	0.692	-3.20	9.25	0.576	-4.79	36.00	0.148	-16.59	63.50	0.065	-23.81
-4.25	0.714	-2.93	9.50	0.553	-5.15	36.50	0.153	-16.33	64.00	0.062	-24.12
-4.00	0.735	-2.67	9.75	0.530	-5.52	37.00	0.156	-16.14	64.50	0.060	-24.45
-3.75	0.756	-2.43	10.00	0.507	-5.90	37.50	0.158	-16.03	65.00	0.057	-24.82
-3.50	0.776	-2.20	10.50	0.461	-6.72	38.00	0.159	-15.98	65.50	0.055	-25.19
-3.25	0.795	-1.99	11.00	0.416	-7.61	38.50	0.159	-15.99	66.00	0.053	-25.60
-3.00	0.814	-1.78	11.50	0.373	-8.57	39.00	0.157	-16.07	66.50	0.050	-26.00
-2.75	0.832	-1.59	12.00	0.332	-9.58	39.50	0.155	-16.19	67.00	0.048	-26.43
-2.50	0.850	-1.41	12.50	0.294	-10.64	40.00	0.152	-16.37	67.50	0.045	-26.90
-2.25	0.866	-1.25	13.00	0.260	-11.71	40.50	0.148	-16.60	68.00	0.043	-27.39
-2.00	0.882	-1.09	13.50	0.231	-12.74	41.00	0.143	-16.88	68.50	0.040	-27.89
-1.75	0.897	-0.94	14.00	0.208	-13.63	41.50	0.138	-17.21	69.00	0.038	-28.40
-1.50	0.911	-0.81	14.50	0.193	-14.28	42.00	0.132	-17.59	69.50	0.036	-28.92
-1.25	0.924	-0.69	15.00	0.186	-14.60	42.50	0.126	-18.02	70.00	0.034	-29.47
-1.00	0.936	-0.57	15.50	0.186	-14.60	43.00	0.119	-18.49	70.50	0.031	-30.06
-0.75	0.947	-0.47	16.00	0.192	-14.33	43.50	0.112	-19.02	71.00	0.029	-30.69
-0.50	0.957	-0.38	16.50	0.202	-13.90	44.00	0.105	-19.58	71.50	0.027	-31.31
-0.25	0.966	-0.30	17.00	0.214	-13.41	44.50	0.098	-20.19	72.00	0.025	-31.97
0.00	0.974	-0.22	17.50	0.226	-12.93	45.00	0.091	-20.84	72.50	0.023	-32.62
0.25	0.981	-0.16	18.00	0.238	-12.48	45.50	0.084	-21.50	73.00	0.022	-33.27
0.50	0.987	-0.11	18.50	0.248	-12.10	46.00	0.078	-22.19	73.50	0.020	-33.98
0.75	0.992	-0.07	19.00	0.257	-11.79	46.50	0.072	-22.88	74.00	0.018	-34.70
1.00	0.996	-0.04	19.50	0.264	-11.57	47.00	0.067	-23.53	74.50	0.017	-35.44
1.25	0.998	-0.02	20.00	0.269	-11.42	47.50	0.062	-24.12	75.00	0.015	-36.25
1.50	1.000	-0.00	20.50	0.271	-11.34	48.00	0.059	-24.63	75.50	0.014	-37.02
1.75	1.000	-0.00	21.00	0.271	-11.35	48.50	0.056	-24.99	76.00	0.013	-37.86
2.00	0.999	-0.01	21.50	0.268	-11.43	49.00	0.055	-25.19	76.50	0.012	-38.71
2.25	0.997	-0.02	22.00	0.264	-11.58	49.50	0.055	-25.22	77.00	0.010	-39.58
2.50	0.994	-0.05	22.50	0.257	-11.82	50.00	0.055	-25.13	77.50	0.009	-40.54
2.75	0.990	-0.09	23.00	0.247	-12.13	50.50	0.057	-24.93	78.00	0.008	-41.41
3.00	0.985	-0.13	23.50	0.236	-12.53	51.00	0.059	-24.63	78.50	0.008	-42.38
3.25	0.979	-0.19	24.00	0.224	-13.01	51.50	0.061	-24.31	79.00	0.007	-43.35
3.50	0.971	-0.25	24.50	0.209	-13.58	52.00	0.063	-23.96	79.50	0.006	-44.44
3.75	0.963	-0.33	25.00	0.194	-14.26	52.50	0.066	-23.62	80.00	0.005	-45.51
4.00	0.953	-0.41	25.50	0.177	-15.06	53.00	0.068	-23.30	80.50	0.005	-46.56
4.25	0.943	-0.51	26.00	0.159	-15.98	53.50	0.071	-23.01	81.00	0.004	-47.74
4.50	0.932	-0.61	26.50	0.140	-17.07	54.00	0.073	-22.75	81.50	0.004	-48.87
4.75	0.919	-0.73	27.00	0.121	-18.36	54.50	0.075	-22.52	82.00	0.003	-50.17
5.00	0.906	-0.86	27.50	0.101	-19.90	55.00	0.077	-22.33	82.50	0.003	-51.37
5.25	0.892	-0.99	28.00	0.081	-21.80	55.50	0.078	-22.18	83.00	0.002	-52.77
5.50	0.877	-1.14	28.50	0.062	-24.22	56.00	0.079	-22.06	83.50	0.002	-53.98
5.75	0.861	-1.30	29.00	0.042	-27.54	56.50	0.080	-21.97	84.00	0.002	-55.39
6.00	0.844	-1.47	29.50	0.023	-32.73	57.00	0.080	-21.92	84.50	0.001	-57.08
6.25	0.827	-1.65	30.00	0.008	-42.05	57.50	0.080	-21.91	85.00	0.001	-58.42
6.50	0.809	-1.84	30.50	0.017	-35.39	58.00	0.080	-21.92	85.50	0.001	-60.00
6.75	0.790	-2.05	31.00	0.034	-29.45	58.50	0.080	-21.96	86.00	0.001	-60.00
7.00	0.771	-2.26	31.50	0.050	-26.00	59.00	0.079	-22.03	86.50	0.001	-60.00
7.25	0.751	-2.49	32.00	0.066	-23.65	59.50	0.078	-22.12	87.00	0.001	-60.00
7.50	0.730	-2.73	32.50	0.080	-21.91	60.00	0.077	-22.25	87.50	0.001	-60.00
7.75	0.709	-2.98	33.00	0.094	-20.57	60.50	0.076	-22.41	88.00	0.001	-60.00
8.00	0.688	-3.25	33.50	0.106	-19.50	61.00	0.074	-22.58	88.50	0.001	-60.00
8.25	0.666	-3.53	34.00	0.117	-18.64	61.50	0.073	-22.77	89.00	0.001	-60.00
8.50	0.644	-3.82	34.50	0.127	-17.94	62.00	0.071	-23.00	89.50	0.001	-60.00