

**PRELIMINARY SPECIFICATION FOR
ERI CARINA™ HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA**

*Prepared For
WVOZ- DT
International Broadcasting Corporation
Ponce, PR
March 12, 2007*

ANTENNA TYPE:
ALP16L2-HSP-47

SPECIFICATION NO:
JEH031207-03B



Electronics Research, Inc.
7777 Gardner Road
Gandier, Indiana U.S.A 47610

JEH031207-03B -1-

3.12.07

PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL:	47
FREQUENCY RANGE:	668.00 - 674.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol: ALP-P
ELEVATION PATTERN NUMBER:	Hor Pol: ALP16L2
AZIMUTH DIRECTIVITY:	Hor Pol: 1.88 (2.74 dB)
ELEVATION DIRECTIVITY:	Hor Pol: 16.59 (12.20 dBd)
PEAK POWER GAIN:	Hor Pol: 31.19 (14.94 dBd)
GAIN AT HORIZONTAL:	Hor Pol: 27.85 (14.45 dBd)
ELECTRICAL BEAM TILT:	-0.50 Degrees
INPUT POWER REQUIRED:	1.603 kW Average Power, 8VSB Digital
MAXIMUM INPUT POWER:	3.00 kW Average Power
INPUT TYPE:	1-5/8" EIA
ANTENNA VSWR (MAXIMUM):	DTV: 1.10 Over 6 MHz of Channel



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -2-

3.12.07

PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION:
**(Tower Interface supplied and
installed by others.)*

Side Mount

HEIGHT OF ANTENNA:

32.8 feet

**HEIGHT OF CENTER OF
RADIATION:**

16.4 feet

OVERALL HEIGHT (A):

32.8 feet

DEICING:

Unpressurized Slot Cover Radome Enclosure

RADOME DIAMETER (C):

CONTACT ERI

RADOME COLOR:

GRAY

CLIMBING DEVICE:

NOT APPLICABLE

CALCULATED WEIGHT¹:

220 lbs.

ANTENNA AREA³:

FRONT AREA:

C_AA_C: 32.5 square feet

A_C: 27.1 square feet

SIDE AREA:

C_AA_C: 17.1 square feet

A_C: 14.3 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 $\pm 10\%$ of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna.

³ Antenna Area is calculated per EIA/TIA-RS222-F.

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



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

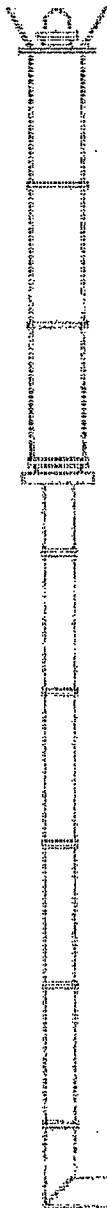
JEH031207-03B -3-

3.12.07

Broadcast Antenna System

Power Analysis

Type: ALP16L2-HSP-47



Transmission Line:

Type:

HJ8-50B

3" Air HELIAX

Vert. Length: 100 ft.

Horz. Length: 30 ft.

Attenuation:

0.435 dB/100 ft.

Efficiency: 87.78 %

ERP: Hor Pol:

kW: 50.00

dBk: 16.99

Power Gain:

Ratio: 31.19

dBd: 14.94

Antenna Input:

kW: 1.60

dBk: 2.05

Line Loss:

kW: 0.22

dB: 0.57

Transmitter Power

kW: 1.83

dBk: 2.62



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -4-

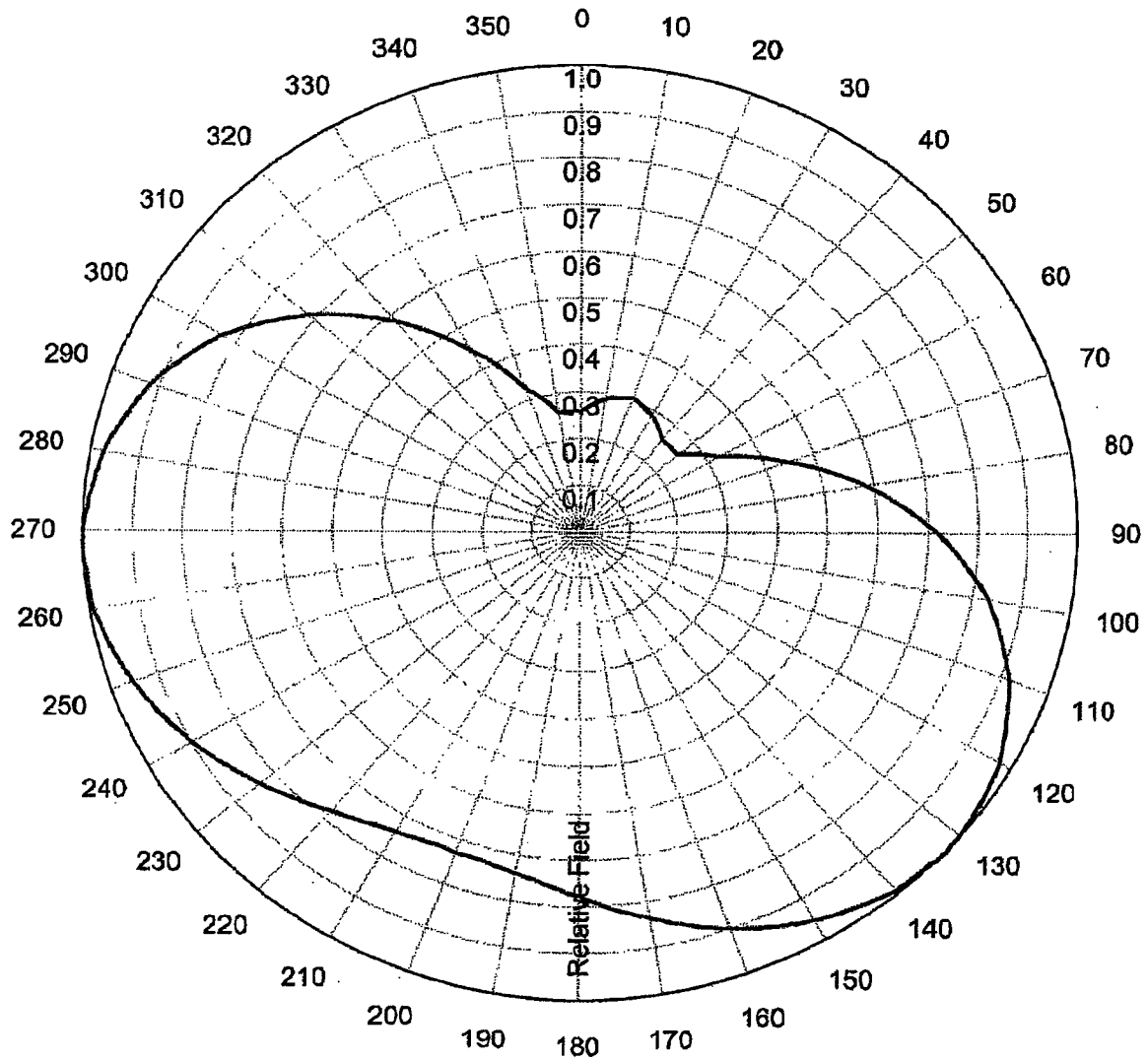
3.12.07



AZIMUTH PATTERN

Type: ALP-P

	Numeric	dBd
Directivity:	<u>1.88</u>	<u>2.74</u>
Peak(s) at:		
Polarization:	<u>Horizontal</u>	
Channel:	<u>47</u>	
Location:	<u>San Juan, PR</u>	
Note:		



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -5-

3.12.07



AZIMUTH TABULATED DATA

Type: ALP-P

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.259	-11.73	92	0.740	-2.62	184	0.760	-2.38	276	0.984	-0.14
2	0.265	-11.54	94	0.763	-2.35	186	0.752	-2.48	278	0.979	-0.18
4	0.271	-11.34	96	0.786	-2.09	188	0.745	-2.56	280	0.974	-0.23
6	0.277	-11.15	98	0.810	-1.83	190	0.739	-2.63	282	0.963	-0.33
8	0.283	-10.96	100	0.833	-1.59	192	0.735	-2.67	284	0.952	-0.43
10	0.289	-10.78	102	0.850	-1.41	194	0.732	-2.71	286	0.941	-0.53
12	0.292	-10.69	104	0.867	-1.24	196	0.728	-2.76	288	0.930	-0.63
14	0.296	-10.57	106	0.884	-1.07	198	0.727	-2.77	290	0.919	-0.73
16	0.299	-10.49	108	0.902	-0.90	200	0.729	-2.75	292	0.902	-0.90
18	0.302	-10.40	110	0.919	-0.73	202	0.727	-2.77	294	0.884	-1.07
20	0.305	-10.31	112	0.930	-0.63	204	0.728	-2.76	296	0.867	-1.24
22	0.302	-10.40	114	0.941	-0.53	206	0.732	-2.71	298	0.850	-1.41
24	0.299	-10.49	116	0.952	-0.43	208	0.735	-2.67	300	0.833	-1.59
26	0.296	-10.57	118	0.963	-0.33	210	0.739	-2.63	302	0.810	-1.83
28	0.292	-10.69	120	0.974	-0.23	212	0.745	-2.56	304	0.786	-2.09
30	0.289	-10.78	122	0.979	-0.18	214	0.752	-2.48	306	0.763	-2.35
32	0.283	-10.96	124	0.984	-0.14	216	0.760	-2.38	308	0.740	-2.62
34	0.277	-11.15	126	0.990	-0.09	218	0.769	-2.28	310	0.717	-2.89
36	0.271	-11.34	128	0.995	-0.04	220	0.778	-2.18	312	0.690	-3.22
38	0.265	-11.54	130	0.999	-0.01	222	0.789	-2.06	314	0.664	-3.56
40	0.259	-11.73	132	1.000	0.00	224	0.801	-1.93	316	0.637	-3.92
42	0.259	-11.73	134	1.000	0.00	226	0.813	-1.80	318	0.611	-4.28
44	0.259	-11.73	136	0.996	-0.03	228	0.824	-1.68	320	0.585	-4.66
46	0.259	-11.73	138	0.994	-0.05	230	0.836	-1.56	322	0.557	-5.08
48	0.259	-11.73	140	0.993	-0.06	232	0.848	-1.43	324	0.529	-5.53
50	0.259	-11.73	142	0.985	-0.13	234	0.861	-1.30	326	0.502	-5.99
52	0.273	-11.28	144	0.978	-0.19	236	0.874	-1.17	328	0.474	-6.48
54	0.286	-10.87	146	0.970	-0.26	238	0.886	-1.05	330	0.446	-7.01
56	0.299	-10.49	148	0.963	-0.33	240	0.899	-0.92	332	0.422	-7.49
58	0.313	-10.09	150	0.955	-0.40	242	0.910	-0.82	334	0.398	-8.00
60	0.326	-9.74	152	0.944	-0.50	244	0.921	-0.71	336	0.374	-8.54
62	0.350	-9.12	154	0.933	-0.60	246	0.933	-0.60	338	0.350	-9.12
64	0.374	-8.54	156	0.921	-0.71	248	0.944	-0.50	340	0.326	-9.74
66	0.398	-8.00	158	0.910	-0.82	250	0.955	-0.40	342	0.313	-10.09
68	0.422	-7.49	160	0.899	-0.92	252	0.963	-0.33	344	0.299	-10.49
70	0.446	-7.01	162	0.886	-1.05	254	0.970	-0.26	346	0.286	-10.87
72	0.474	-6.48	164	0.874	-1.17	256	0.978	-0.19	348	0.273	-11.28
74	0.502	-5.99	166	0.861	-1.30	258	0.985	-0.13	350	0.259	-11.73
76	0.529	-5.53	168	0.848	-1.43	260	0.993	-0.06	352	0.259	-11.73
78	0.557	-5.08	170	0.836	-1.56	262	0.994	-0.05	354	0.259	-11.73
80	0.585	-4.66	172	0.824	-1.68	264	0.996	-0.03	356	0.259	-11.73
82	0.611	-4.28	174	0.813	-1.80	266	1.000	0.00	358	0.259	-11.73
84	0.637	-3.92	176	0.801	-1.93	268	1.000	0.00	360	0.259	-11.73
86	0.664	-3.56	178	0.789	-2.06	270	0.999	-0.01			
88	0.690	-3.22	180	0.778	-2.18	272	0.995	-0.04			
90	0.717	-2.89	182	0.769	-2.28	274	0.990	-0.09			



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -6-



**AZIMUTH PATTERN
FCC FILING FORMAT**

Type: ALP-P

Polarization: Horizontal

Angle	Field	ERP (kW)	ERP (dBk)
0	0.259	3.354	5.256
10	0.289	4.176	6.208
20	0.305	4.651	6.676
30	0.289	4.176	6.208
40	0.259	3.354	5.256
50	0.259	3.354	5.256
60	0.326	5.314	7.254
70	0.446	9.946	9.976
80	0.585	17.111	12.333
90	0.717	25.704	14.100
100	0.833	34.694	15.403
110	0.919	42.228	16.256
120	0.974	47.434	16.761
130	0.999	49.900	16.981
140	0.993	49.302	16.929
150	0.955	45.601	16.590
160	0.899	40.410	16.065
170	0.836	34.945	15.434
180	0.778	30.264	14.809
190	0.739	27.306	14.363
200	0.729	26.572	14.244
210	0.739	27.306	14.363
220	0.778	30.264	14.809
230	0.836	34.945	15.434
240	0.899	40.410	16.065
250	0.955	45.601	16.590
260	0.993	49.302	16.929
270	0.999	49.900	16.981
280	0.974	47.434	16.761
290	0.919	42.228	16.256
300	0.833	34.694	15.403
310	0.717	25.704	14.100
320	0.585	17.111	12.333
330	0.446	9.946	9.976
340	0.326	5.314	7.254
350	0.259	3.354	5.256



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

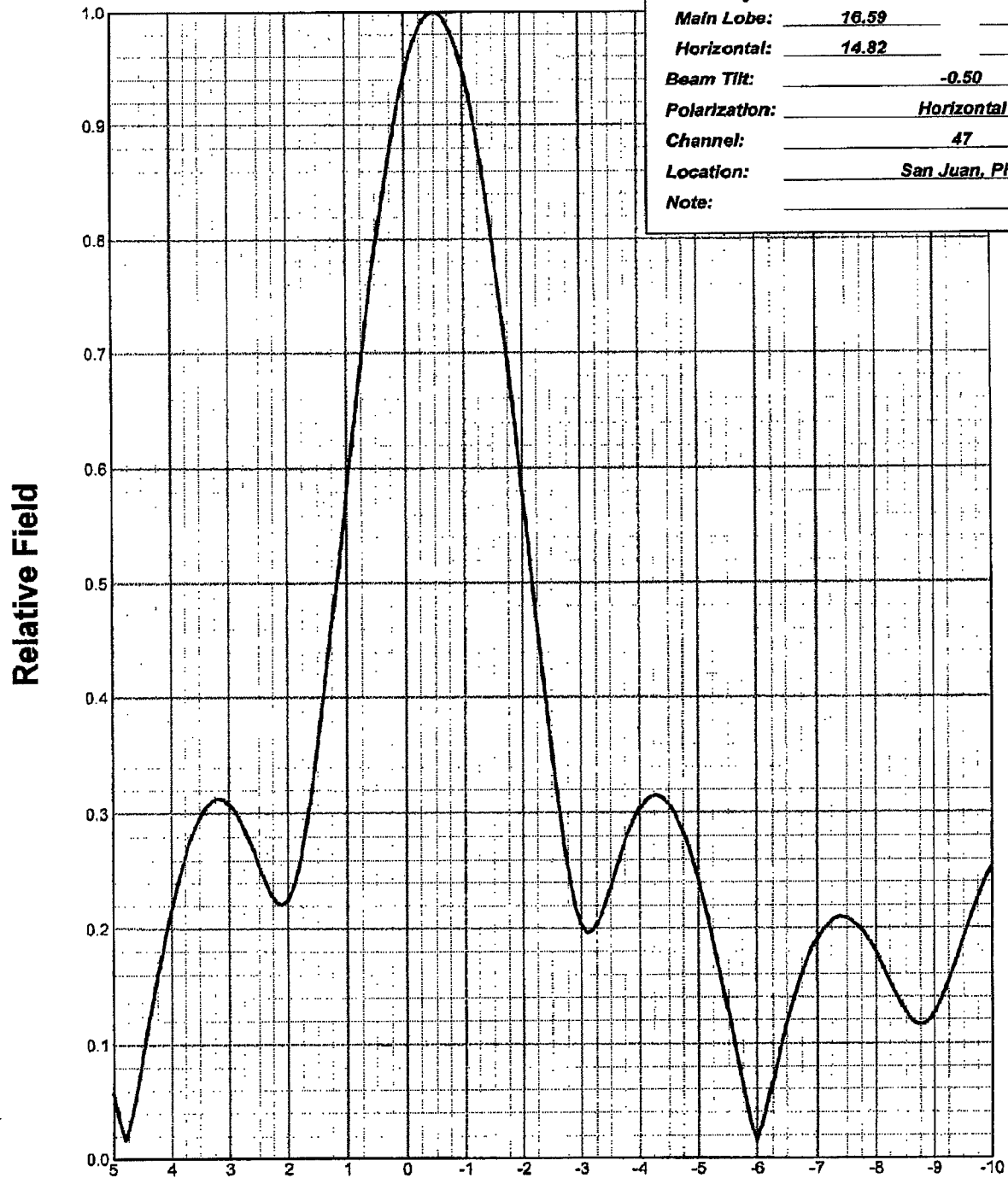
JEH031207-03B -7-

3.12.07



ELEVATION PATTERN

Type:	ALP16L2	
Directivity:	Numeric	dBd
Main Lobe:	16.59	12.20
Horizontal:	14.82	11.71
Beam Tilt:	-0.50	
Polarization:	Horizontal	
Channel:	47	
Location:	San Juan, PR	
Note:		



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -8-



ELEVATION TABULATED DATA

Type: ALP16L2
Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
5.00	0.058	-24.73	-6.50	0.118	-18.56	-42.00	0.004	-47.96	-88.00	0.007	-43.10
4.75	0.026	-31.70	-6.75	0.160	-15.92	-43.00	0.035	-29.12	-89.00	0.003	-50.46
4.50	0.089	-21.01	-7.00	0.190	-14.42	-44.00	0.042	-27.54	-90.00	0.000	-40.00
4.25	0.156	-18.14	-7.25	0.206	-13.72	-45.00	0.029	-30.75			
4.00	0.217	-13.27	-7.50	0.209	-13.60	-46.00	0.018	-34.89			
3.75	0.265	-11.55	-7.75	0.199	-14.02	-47.00	0.023	-32.77			
3.50	0.297	-10.54	-8.00	0.179	-14.94	-48.00	0.014	-37.08			
3.25	0.312	-10.12	-8.25	0.152	-16.33	-49.00	0.012	-38.42			
3.00	0.308	-10.23	-8.50	0.127	-17.92	-50.00	0.041	-27.74			
2.75	0.287	-10.84	-8.75	0.116	-18.71	-51.00	0.059	-24.58			
2.50	0.255	-11.87	-9.00	0.126	-17.99	-52.00	0.057	-24.88			
2.25	0.227	-12.88	-9.25	0.155	-16.19	-53.00	0.039	-28.18			
2.00	0.226	-12.92	-9.50	0.191	-14.38	-54.00	0.033	-29.63			
1.75	0.274	-11.24	-9.75	0.226	-12.94	-55.00	0.056	-25.04			
1.50	0.359	-8.90	-10.00	0.255	-11.87	-56.00	0.071	-22.97			
1.25	0.467	-6.62	-11.00	0.284	-10.93	-57.00	0.065	-23.74			
1.00	0.580	-4.73	-12.00	0.186	-14.61	-58.00	0.039	-28.18			
0.75	0.693	-3.19	-13.00	0.063	-24.01	-59.00	0.005	-46.02			
0.50	0.794	-2.00	-14.00	0.007	-43.10	-60.00	0.044	-27.13			
0.25	0.880	-1.11	-15.00	0.013	-37.72	-61.00	0.076	-22.38			
0.00	0.945	-0.49	-16.00	0.029	-30.75	-62.00	0.091	-20.82			
-0.25	0.986	-0.13	-17.00	0.003	-50.48	-63.00	0.086	-21.31			
-0.50	1.000	0.00	-18.00	0.053	-25.51	-64.00	0.070	-23.10			
-0.75	0.986	-0.12	-19.00	0.071	-22.97	-65.00	0.066	-23.61			
-1.00	0.946	-0.48	-20.00	0.057	-24.88	-66.00	0.095	-20.45			
-1.25	0.881	-1.10	-21.00	0.141	-17.02	-67.00	0.140	-17.08			
-1.50	0.796	-1.98	-22.00	0.224	-13.00	-68.00	0.183	-14.75			
-1.75	0.693	-3.19	-23.00	0.227	-12.88	-69.00	0.218	-13.31			
-2.00	0.579	-4.75	-24.00	0.150	-16.48	-70.00	0.236	-12.54			
-2.25	0.462	-6.71	-25.00	0.056	-25.04	-71.00	0.241	-12.36			
-2.50	0.350	-9.12	-26.00	0.042	-27.54	-72.00	0.234	-12.62			
-2.75	0.258	-11.78	-27.00	0.043	-27.33	-73.00	0.217	-13.27			
-3.00	0.203	-13.85	-28.00	0.017	-35.39	-74.00	0.193	-14.29			
-3.25	0.204	-13.83	-29.00	0.003	-50.46	-75.00	0.166	-15.60			
-3.50	0.236	-12.54	-30.00	0.000	-40.00	-76.00	0.138	-17.20			
-3.75	0.275	-11.21	-31.00	0.012	-38.42	-77.00	0.110	-19.17			
-4.00	0.304	-10.34	-32.00	0.017	-35.39	-78.00	0.086	-21.31			
-4.25	0.315	-10.05	-33.00	0.055	-25.19	-79.00	0.065	-23.74			
-4.50	0.308	-10.23	-34.00	0.115	-18.79	-80.00	0.048	-26.38			
-4.75	0.282	-10.98	-35.00	0.156	-16.14	-81.00	0.036	-28.87			
-5.00	0.242	-12.32	-36.00	0.149	-16.54	-82.00	0.027	-31.37			
-5.25	0.190	-14.45	-37.00	0.098	-20.18	-83.00	0.021	-33.56			
-5.50	0.129	-17.79	-38.00	0.043	-27.33	-84.00	0.017	-35.39			
-5.75	0.065	-23.74	-39.00	0.058	-24.73	-85.00	0.015	-36.48			
-6.00	0.016	-35.92	-40.00	0.058	-23.35	-86.00	0.012	-38.42			
-6.25	0.065	-23.74	-41.00	0.042	-27.54	-87.00	0.009	-40.82			



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

JEH031207-03B -9-