ERI® Electronics Research, Inc.
Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 http://www.eriinc.com/

Directional Antenna System for WBZO, Bay Shore, New York

August 21, 2002

Electronics Research Inc. is providing a custom fabricated antenna system that is specially designed to meet the FCC requirements and the general needs of radio station WBZO.

The antenna is the ERI model LP-2E-DA-HW configuration. The circular polarized system consists of two half-wavelength spaced bays using one driven circular polarized radiating element per bay, one horizontal parasitic element per bay and one vertical parasitic element interleaved between the bays. The antenna was mounted on the North 181 degrees East tower face with bracketry to provide an antenna orientation of North 197 degrees East. The antenna was tested on a 55 3/4" Rohn tower, which is the structure the station plans to use to support the array. All tests were performed on a frequency of 103.1 megahertz, which is the center of the FM broadcast channel assigned to WBZO.

Pattern measurements were made on a sixty-acre antenna pattern range that is owned and operated by Electronics Research, Inc. The tests were performed under the direction of Thomas B. Silliman, president of Electronics Research, Inc. Mr. Silliman has the Bachelor of Electrical Engineering and the Master of Electrical Engineering degrees from Cornell University and is a registered professional engineer in the states of Indiana, Maryland and Minnesota.

EXHIBIT B1
APPLICATION FOR STATION LICENSE/
REQUEST FOR PROGRAM TEST AUTHORITY
MID-ISLAND BROADCASTING LTD PARTNERSHIP
WBZO (FM) RADIO STATION
CH 276A - 103.1 MHZ - 1.55 KW (DA)
BAYSHORE, NEW YORK
October 2002

Directional Antenna System
For
WBZO, Bay Shore, New York

(Continued)

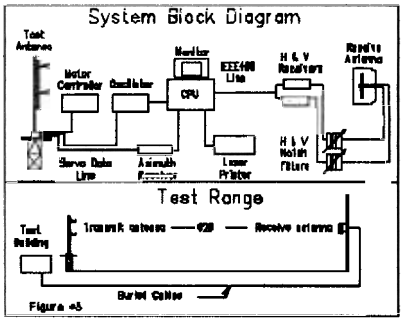
DESCRIPTION OF THE TEST PROCEDURE

The test antenna consisted of a full scale model of the complete circular polarized system with the associated horizontal and vertical parasitic elements. The elements and brackets that were used in this test are electrically equivalent to those that will be supplied with the antenna. A section of 1 5/8 inch o.d. rigid coaxial line was used to feed the test antenna, and a section of 1 5/8 inch o.d. rigid outer conductor only was attached above the test antenna. The lines were properly grounded during all tests.

The power distribution and phase relationship to the antenna elements was adjusted in order to achieve the directional radiation patterns for both horizontal and vertical polarization components.

The proof-of-performance was accomplished using a 55 3/4" Rohn tower with identical dimension and configuration including all braces, ladders, conduits, coaxial lines and other appurtenances that are included in the actual aperture at which the antenna will be installed. The structure was erected vertically on a turntable mounted on a non-metallic building with the antenna centered vertically on the structure, making the center of radiation of the test approximately 30 feet above ground. The turntable is equipped with a motor drive and azimuth indicating mechanism, resolution of this azimuth measuring device is one-tenth of a degree.

The antenna under test was operated in the transmitting mode and fed from a Wavetek Model 3000 signal generator. The frequency of the signal source was set at 103.1 MHz and was constantly monitored by an Anritsu Model ML521B measuring receiver.



A broad-band horizontal and vertical dipole system, located approximately 628 feet from the test antenna, was used to receive the emitted test signals. The dipole system was mounted at the same height above terrain as the center of the antenna under test. The signals received by the dipole system were fed to the test building by way of two buried Heliax cables to an Anritsu Model ML521B measuring receiver.

This data was interfaced to a Hewlett-Packard Laser Jet 4P printer by means of a Pentium computer system. Relative field strength was plotted as a function of azimuth.

The measurements were performed by rotating the test antenna in a counter-clockwise direction and plotting the received signal on polar co-ordinated graph paper in a clockwise direction. Both horizontal and vertical components were recorded separately.

CONCLUSIONS

The circular polarized system consists of two half-wavelength spaced bays using one driven circular polarized radiating element per bay, one horizontal parasitic element per bay and one vertical parasitic element interleaved between the bays. The power distribution and phase relationship will be fixed when antenna is manufactured. Proper maintenance of the elements should be all that is required to maintain the pattern in adjustment.

The LP-2E-DA-HW array is to be mounted on the North 181 degrees East tower face of the 55 3/4" Rohn tower at a bearing of North 197 degrees East. Blue prints provided with the antenna will show the proper antenna orientation alignment. The antenna alignment procedure should be directed by a licensed surveyor as prescribed by the FCC.

Figure #1 represents the maximum value of either the horizontal or vertical component at any azimuth. The measured horizontal plane relative field pattern, for both the horizontal and vertical polarization components, is shown on Figure #2 attached. The actual measured pattern does not exceed the authorized FCC composite pattern at any azimuth. A calculated vertical plane relative field pattern is shown on Figure #3 attached. The power in the maximum will reach 1.55 kilowatts (1.903 dBk).

The power at North 0 degrees East does not exceed 0.13 kilowatts (-8.861 dBk).

The power at North 30 degrees East does not exceed 0.13 kilowatts (-8.861 dBk).

The RMS of the vertically polarized horizontal plane component does not exceed the RMS of the horizontally polarized horizontal plane component.

Directional Antenna System
For
WBZO, Bay Shore, New York

(Continued)

The composite horizontal and vertical maximum relative field pattern obtained from the measured data as shown on Figure #1 has an RMS that is greater that 85% of the filed composite pattern.

The clear vertical length of the structure required to support the antenna is 20 feet if the antenna is to be top mounted.

The directional antenna should not be mounted on the top of an antenna tower that includes a top-mounted platform larger than the cross-sectional area of the tower in the horizontal plane. No obstructions other than those that are specified by the blue prints supplied with the antenna are to be mounted within 75 ft. horizontally of the system. The vertical distance to the nearest obstruction should be a minimum of 10 ft. from the directional antenna. Metallic guy wires should be a minimum distance of forty feet horizontally from the antenna.

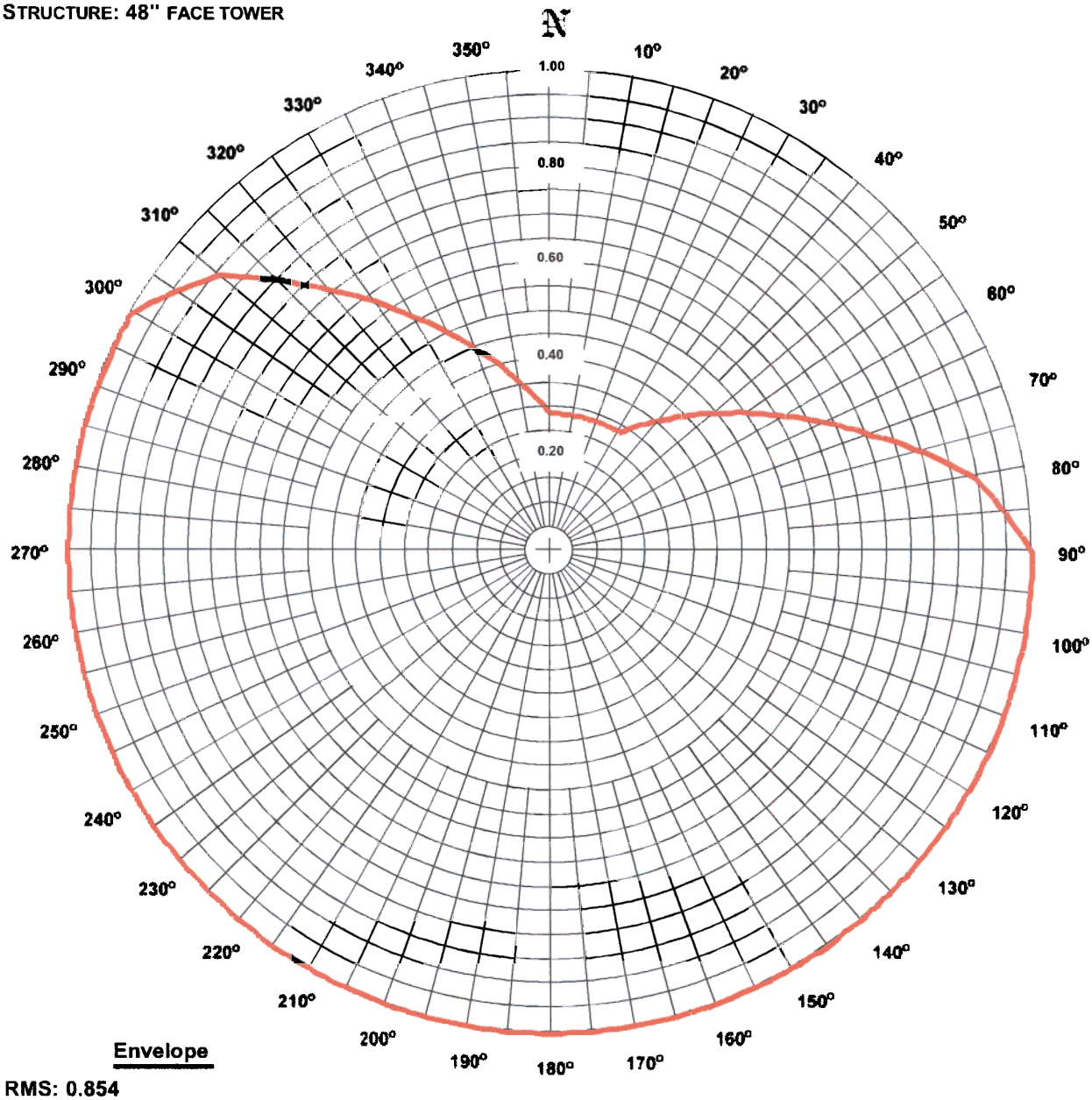
ELECTRONICS RESEARCH, INC.

ERI® Horizontal Plane Relative Field Pattern

Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 http://www.eriinc.com/

FIGURE: 1
STATION: WBZO
LOCATION: BAY SHORE, NY
ANTENNA TYPE: LP-2E-DA-HW
STRUCTURE: 48" FACE TOWER

DATE: 8/21/02
FREQUENCY: 103.1 MHz
ORIENTATION: 190° TRUE
MOUNTING: STANDARD



Envelope

RMS: 0.854
Maximum: 1.000 @ 90° True
Minimum: 0.290 @ 0° True

COMMENTS: COMPOSITE PATTERN: THIS PATTERN SHOWS THE MAXIMUM OF EITHER THE H OR V AZIMUTH VALUES. THIS PATTERN DOES NOT EXCEED THE FCC FILED COMPOSITE PATTERN AT ANY AZIMUTH. THE RMS OF THIS PATTERN IS GREATER THAN 85% OF THE FILED FCC COMPOSITE PATTERN BPH-200010611AEU.

ERI® Horizontal Plane Relative Field List

Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 http://www.eriinc.com/

Station: WBZO
Location: Bay Shore, NY
Frequency: 103.1 MHz

Antenna: LP-2E-DA-HW
Orientation: 197° True
Tower: 55 3/4" face Rohn tower

Figure: 1
Date: 8/21/02
Reference: wbzo1m.fig

Angle	Envelope			Polarization	Angle	Envelope			Polarization
	Field	kW	dBk			Field	kW	dBk	
0°	0.279	0.12	-9.17	Horizontal	180°	0.931	1.34	1.28	Horizontal
5°	0.283	0.12	-9.05	Horizontal	185°	0.908	1.28	1.06	Horizontal
10°	0.266	0.11	-9.59	Horizontal	190°	0.873	1.18	0.72	Horizontal
15°	0.228	0.08	-10.94	Horizontal	195°	0.832	1.07	0.31	Horizontal
20°	0.176	0.05	-13.20	Horizontal	200°	0.802	1.00	-0.02	Horizontal
25°	0.145	0.03	-14.90	Vertical	205°	0.783	0.95	-0.22	Horizontal
30°	0.140	0.03	-15.16	Vertical	210°	0.776	0.93	-0.30	Horizontal
35°	0.147	0.03	-14.76	Horizontal	215°	0.784	0.95	-0.22	Horizontal
40°	0.195	0.06	-12.31	Horizontal	220°	0.803	1.00	0.00	Horizontal
45°	0.272	0.12	-9.39	Horizontal	225°	0.834	1.08	0.33	Horizontal
50°	0.349	0.19	-7.23	Horizontal	230°	0.878	1.19	0.77	Horizontal
55°	0.425	0.28	-5.52	Horizontal	235°	0.926	1.33	1.23	Horizontal
60°	0.486	0.37	-4.36	Horizontal	240°	0.962	1.44	1.57	Horizontal
65°	0.543	0.46	-3.40	Horizontal	245°	0.986	1.51	1.78	Horizontal
70°	0.599	0.56	-2.55	Horizontal	250°	0.999	1.55	1.89	Horizontal
75°	0.649	0.65	-1.85	Vertical	255°	1.000	1.55	1.90	Horizontal
80°	0.714	0.79	-1.02	Vertical	260°	0.999	1.55	1.89	Horizontal
85°	0.764	0.90	-0.43	Vertical	265°	0.992	1.53	1.83	Horizontal
90°	0.807	1.01	0.04	Vertical	270°	0.998	1.55	1.89	Vertical
95°	0.862	1.15	0.61	Horizontal	275°	1.000	1.55	1.90	Vertical
100°	0.901	1.26	1.00	Horizontal	280°	1.000	1.55	1.90	Vertical
105°	0.920	1.31	1.18	Horizontal	285°	0.999	1.55	1.90	Vertical
110°	0.927	1.33	1.25	Vertical	290°	0.988	1.51	1.80	Vertical
115°	0.945	1.38	1.41	Vertical	295°	0.963	1.44	1.57	Vertical
120°	0.957	1.42	1.52	Vertical	300°	0.923	1.32	1.21	Vertical
125°	0.964	1.44	1.58	Vertical	305°	0.869	1.17	0.68	Vertical
130°	0.966	1.45	1.60	Vertical	310°	0.803	1.00	-0.01	Vertical
135°	0.966	1.45	1.60	Vertical	315°	0.740	0.85	-0.71	Vertical
140°	0.960	1.43	1.55	Vertical	320°	0.679	0.71	-1.46	Vertical
145°	0.944	1.38	1.40	Vertical	325°	0.610	0.58	-2.40	Vertical
150°	0.917	1.30	1.15	Vertical	330°	0.543	0.46	-3.40	Vertical
155°	0.881	1.20	0.80	Vertical	335°	0.474	0.35	-4.57	Vertical
160°	0.878	1.20	0.78	Horizontal	340°	0.412	0.26	-5.80	Vertical
165°	0.918	1.31	1.16	Horizontal	345°	0.351	0.19	-7.20	Vertical
170°	0.940	1.37	1.36	Horizontal	350°	0.301	0.14	-8.54	Vertical
175°	0.943	1.38	1.39	Horizontal	355°	0.263	0.11	-9.69	Vertical

Polarization: Envelope
Maximum Field: 1.000 @ 252° True
Minimum Field: 0.140 @ 32° True
RMS: 0.777
Maximum ERP: 1.550 kW
Maximum Power Gain: 1.268 (1.032 dB)

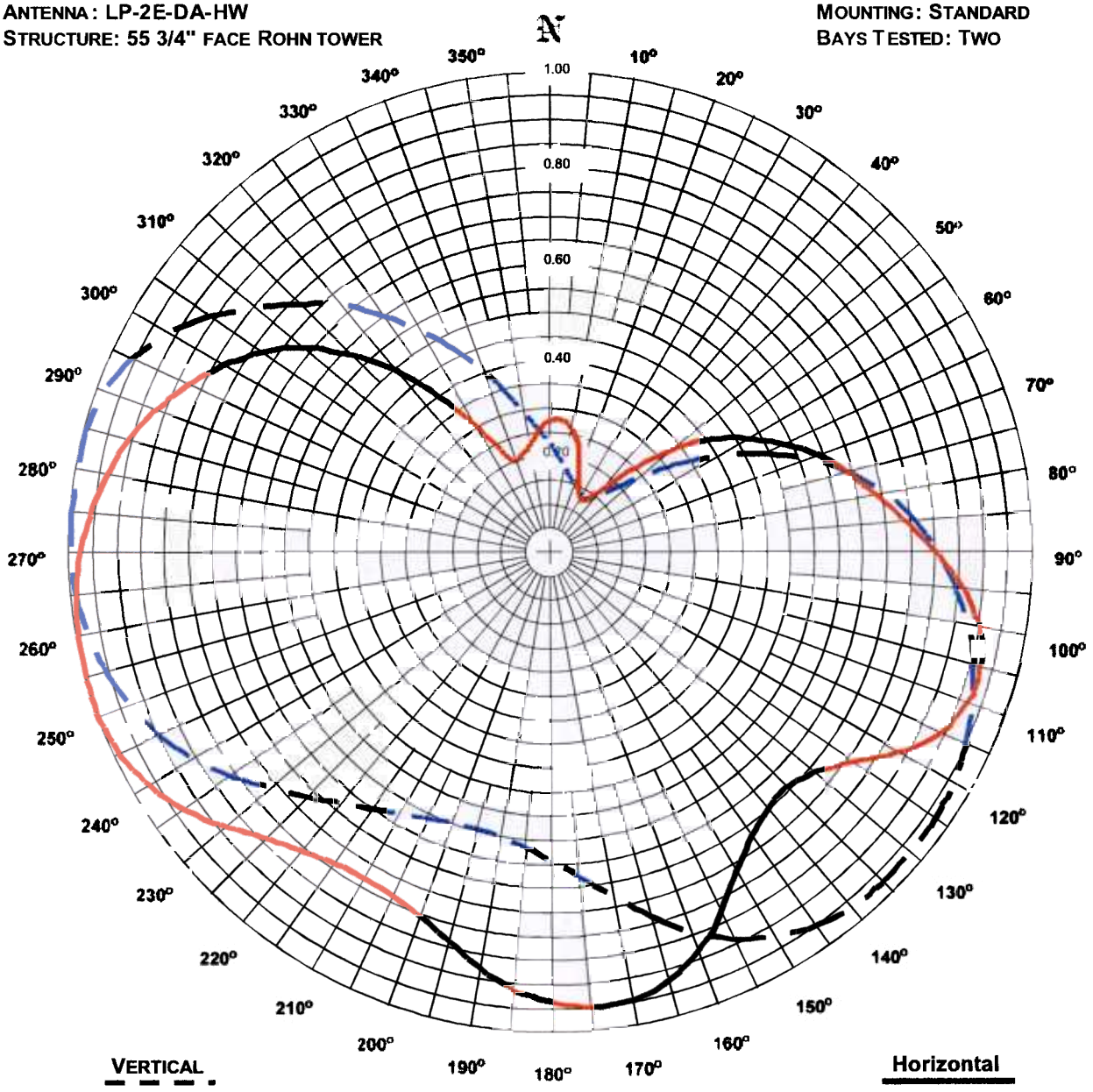
Total Input Power: 1.222 kW

ERI® Horizontal Plane Relative Field Pattern

Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 http://www.eriinc.com/

FIGURE NO: 2
STATION: WBZO
LOCATION: BAY SHORE, NY
ANTENNA: LP-2E-DA-HW
STRUCTURE: 55 3/4" FACE ROHN TOWER

DATE: 8/21/02
FREQUENCY: 103.1 MHz
ORIENTATION: 197° TRUE
MOUNTING: STANDARD
BAYS TESTED: TWO



VERTICAL
RMS: 0.725
MAXIMUM: 1.000 @ 273° TRUE
MINIMUM: 0.140 @ 32° TRUE

Horizontal
RMS: 0.726
Maximum: 1.000 @ 252° True
Minimum: 0.129 @ 30° True

COMMENTS: MEASURED PATTERN OF THE HORIZONTASL AND VERTICAL COMPONETS.

ERI® Horizontal Plane Relative Field List

Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 http://www.eriinc.com/

Station: WBZO
Location: Bay Shore, NY
Frequency: 103.1 MHz

Antenna: LP-2E-DA-HW
Orientation: 197° True
Tower: 55 3/4" face Rohn tower

Figure: 2
Date: 8/21/02
Reference: wbzo1m.fig

Angle	Horizontal			Vertical			Angle	Horizontal			Vertical		
	Field	kW	dBk	Field	kW	dBk		Field	kW	dBk	Field	kW	dBk
0°	0.279	0.12	-9.17	0.233	0.08	-10.77	180°	0.931	1.34	1.28	0.638	0.63	-2.01
5°	0.283	0.12	-9.05	0.206	0.07	-11.81	185°	0.908	1.28	1.06	0.611	0.58	-2.37
10°	0.266	0.11	-9.59	0.184	0.05	-12.79	190°	0.873	1.18	0.72	0.595	0.55	-2.61
15°	0.228	0.08	-10.94	0.167	0.04	-13.67	195°	0.832	1.07	0.31	0.589	0.54	-2.70
20°	0.176	0.05	-13.20	0.153	0.04	-14.38	200°	0.802	1.00	-0.02	0.593	0.54	-2.64
25°	0.142	0.03	-15.07	0.145	0.03	-14.90	205°	0.783	0.95	-0.22	0.603	0.56	-2.49
30°	0.129	0.03	-15.90	0.140	0.03	-15.16	210°	0.776	0.93	-0.30	0.620	0.60	-2.24
35°	0.147	0.03	-14.76	0.144	0.03	-14.94	215°	0.784	0.95	-0.22	0.644	0.64	-1.92
40°	0.195	0.06	-12.31	0.165	0.04	-13.74	220°	0.803	1.00	0.00	0.675	0.71	-1.52
45°	0.272	0.12	-9.39	0.204	0.06	-11.91	225°	0.834	1.08	0.33	0.711	0.78	-1.05
50°	0.349	0.19	-7.23	0.260	0.11	-9.78	230°	0.878	1.19	0.77	0.755	0.88	-0.54
55°	0.425	0.28	-5.52	0.335	0.17	-7.60	235°	0.926	1.33	1.23	0.805	1.00	0.02
60°	0.486	0.37	-4.36	0.423	0.28	-5.56	240°	0.962	1.44	1.57	0.852	1.13	0.51
65°	0.543	0.46	-3.40	0.501	0.39	-4.10	245°	0.986	1.51	1.78	0.893	1.24	0.92
70°	0.599	0.56	-2.55	0.582	0.52	-2.80	250°	0.999	1.55	1.89	0.927	1.33	1.25
75°	0.646	0.65	-1.90	0.649	0.65	-1.85	255°	1.000	1.55	1.90	0.955	1.41	1.50
80°	0.692	0.74	-1.30	0.714	0.79	-1.02	260°	0.999	1.55	1.89	0.976	1.48	1.69
85°	0.746	0.86	-0.65	0.764	0.90	-0.43	265°	0.992	1.53	1.83	0.991	1.52	1.82
90°	0.804	1.00	0.01	0.807	1.01	0.04	270°	0.980	1.49	1.73	0.998	1.55	1.89
95°	0.862	1.15	0.61	0.845	1.11	0.44	275°	0.962	1.43	1.57	1.000	1.55	1.90
100°	0.901	1.26	1.00	0.877	1.19	0.77	280°	0.939	1.37	1.36	1.000	1.55	1.90
105°	0.920	1.31	1.18	0.905	1.27	1.03	285°	0.910	1.28	1.08	0.999	1.55	1.90
110°	0.916	1.30	1.14	0.927	1.33	1.25	290°	0.876	1.19	0.75	0.988	1.51	1.80
115°	0.884	1.21	0.84	0.945	1.38	1.41	295°	0.836	1.08	0.35	0.963	1.44	1.57
120°	0.826	1.06	0.24	0.957	1.42	1.52	300°	0.790	0.97	-0.14	0.923	1.32	1.21
125°	0.754	0.88	-0.55	0.964	1.44	1.58	305°	0.739	0.85	-0.72	0.869	1.17	0.68
130°	0.706	0.77	-1.12	0.966	1.45	1.60	310°	0.676	0.71	-1.50	0.803	1.00	-0.01
135°	0.685	0.73	-1.38	0.966	1.45	1.60	315°	0.595	0.55	-2.61	0.740	0.85	-0.71
140°	0.691	0.74	-1.31	0.960	1.43	1.55	320°	0.508	0.40	-3.98	0.679	0.71	-1.46
145°	0.716	0.80	-0.99	0.944	1.38	1.40	325°	0.405	0.25	-5.94	0.610	0.58	-2.40
150°	0.760	0.89	-0.48	0.917	1.30	1.15	330°	0.317	0.16	-8.07	0.543	0.46	-3.40
155°	0.821	1.04	0.19	0.881	1.20	0.80	335°	0.241	0.09	-10.45	0.474	0.35	-4.57
160°	0.878	1.20	0.78	0.834	1.08	0.33	340°	0.209	0.07	-11.70	0.412	0.26	-5.80
165°	0.918	1.31	1.16	0.777	0.94	-0.28	345°	0.216	0.07	-11.40	0.351	0.19	-7.20
170°	0.940	1.37	1.36	0.721	0.81	-0.94	350°	0.236	0.09	-10.66	0.301	0.14	-8.54
175°	0.943	1.38	1.39	0.674	0.70	-1.[illegible]							

Polarization:	**Horizontal**	**Vertical**
Maximum Field:	**1.000 @ 252° True**	**1.000 @ 273° True**
Minimum Field:	**0.129 @ 30° True**	**0.140 @ 32° True**
RMS:	**0.726**	**0.725**
Maximum ERP:	**1.550 kW**	**1.550 kW**
Maximum Power Gain:	**1.268 (1.032 dB)**	**1.268 (1.032 dB)**

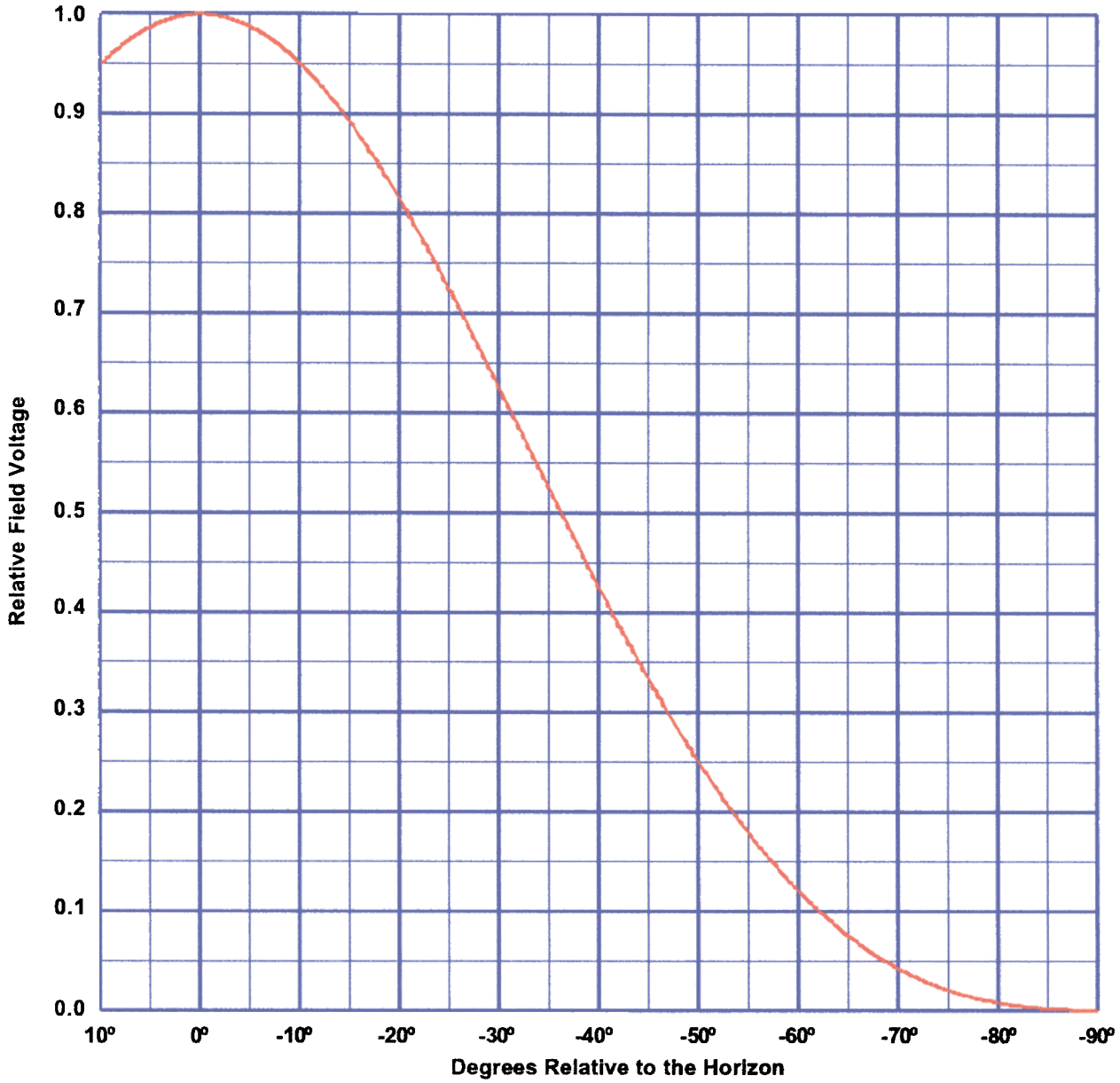
Total Input Power: 1.222 kW

ERI® Vertical Plane Relative Field Pattern

WBZO, Bay Shore, NY, 103.1 MHz

Figure#: 3 **Date: 8/21/02**

A 2 level, .5 wave-length spaced LP-2E-DA-HW directional antenna with 0° beam tilt, 0% null fill and a H/V maximum power ratio of 1.000



Vertical Polarization Gain:	Horizontal Polarization Gain:
Maximum: 1.268 (1.032 dB) Horizontal Plane: 1.268 (1.032 dB)	Maximum: 1.268 (1.032 dB) Horizontal Plane: 1.268 (1.032 dB)

Electronics Research, Inc. 7777 Gardner Rd. Chandler, IN 47601 Phone: (812) 925-6000 Fax: (812) 925-4030 http://www.eriinc.com/

Directional Antenna System
for
WBZO, Bay Shore, New York

(Continued)

ANTENNA SPECIFICATIONS

Antenna Type:	LP-2E-DA-HW
Frequency:	103.1 MHz
Number of Bays:	2

MECHANICAL SPECIFICATIONS

Mounting:	Custom
System length:	13 ft 3 in
Aperture length required:	20 ft.
Orientation:	197 true

Input flange to the antenna 1 5/8 inch female

ELECTRICAL SPECIFICATIONS
(For directional use)

Maximum horizontal ERP:	1.55 kW (1.903 dBk)
Horizontal maximum power gain:	1.268 (1.032 dB)
Maximum vertical ERP:	1.55 kW (1.903 dBk)
Vertical maximum power gain:	1.268 (1.032 dB)
Total input power:	1.222 kW (0.873 dBk)

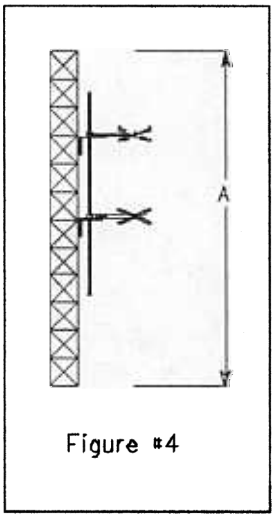


Figure #4

October 3, 2002

To Whom It May Concern:

I Michael R. Glaser, Chief Engineer of WBZO was present during the assembly and installation of the new WBZO antenna. The installation and assembly was performed by a crew from Allen Tower of Franklin Lake, New Jersey. All work was done according to the instructions provided with the antenna by the manufacturer ERI.

I have been Chief Engineer of WBZO for the past four years, and have been in the broadcast engineering field for 25 years. I am the past holder of a First Class Radio Telephone Operator License and currently hold a General Radio Telephone Operator License.

Michael R. Glaser
Chief Engineer – WBZO

MRG:mc

EXHIBIT B2
APPLICATION FOR STATION LICENSE/
REQUEST FOR PROGRAM TEST AUTHORITY
MID-ISLAND BROADCASTING LTD PARTNERSHIP
WBZO (FM) RADIO STATION
CH 276A - 103.1 MHZ - 1.55 KW (DA)
BAYSHORE, NEW YORK
October 2002

D'Amaro Engineering and Surveying, P.C.

P.O. BOX 1783
WEST BABYLON, N.Y. 11704

TEL: (631) 321-4488
FAX: (631) 321-4497

October 7, 2002

Att: John Bennett
Barnstable Broadcasting
2 Newton Executive Park
Newton, MA 02462

RE: *Transmitter Site Tower No. 2*
180 Freeman Avenue. Islip. New York
Our Job. S02072
As-built antenna orientation

Dear Mr. Bennett:

This certifies that the antenna installed for WBZO-FM on top of the above-referenced tower had a measured orientation toward True North Azimuth 197 degrees.

Instrument readings were made at a point approximately 3500 feet (1100 m) from the tower in-line with the antenna. I estimate the error in instrument position to be plus or minus 20 feet (6 m) based on personal observation of the antenna-mounting rod.

Four (4) measurements were made to the trailing edge of the Moon by 3-second theodolite, timepiece was calibrated to US Naval Observatory UTC-1 atomic clock through the Internet and handheld GPS receiver estimated latitude/longitude. The measurement range computed within 24 seconds of arc.

Please contact the undersigned if you have any questions.

Very truly yours,

Jerome T. D'Amaro
Professional Engineer & Land Surveyor

EXHIBIT B3
APPLICATION FOR STATION LICENSE/
REQUEST FOR PROGRAM TEST AUTHORITY
MID-ISLAND BROADCASTING LTD PARTNERSHIP
WBZO (FM) RADIO STATION
CH 276A - 103.1 MHZ - 1.55 KW (DA)
BAYSHORE, NEW YORK
October 2002