

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of EMMIS RADIO LICENSE, LLC, licensee of FM radio station KPWR, Channel 290B in Los Angeles, California, in support of its application for modification of License BLH-19930311KA. The purpose of this filing is to authorize the substitution of an ERI two-bay, circularly-polarized, directional antenna for the presently licensed Harris model. No change in site location, antenna height, directional pattern or effective radiated power is proposed herein.

The pattern of the new ERI 1182-1CP-DA antenna is completely contained within that authorized to KPWR(FM). Antenna range test data, patterns (azimuth and elevation) and mounting specifications are provided in Exhibit B. Exhibit C is a tabulation of proposed operating parameters for the newly constructed facility. It concludes that a transmitter power output of 17.3 kW is required in order to achieve the authorized effective radiated power of 25.0 kW. A drawing of the installed antenna, completed and certified by a licensed surveyor, appears as Exhibit D.

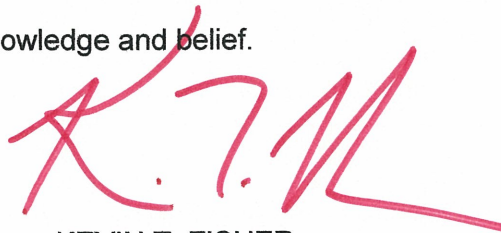
Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, and since the new ERI antenna has a different elevation pattern than the licensed Harris antenna, we have studied the matter with respect to the new KPWR facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 25.0 kw (H,V), an antenna radiation center 70 meters above ground, and the specific elevation pattern of the new ERI 1182-1CP-DA antenna, maximum power density two meters above ground of 0.107 mw/cm^2 is calculated to occur 53 meters southwest

EXHIBIT A

of the base of the tower. Since this is only 53.5 percent of the 0.2 mw/cm^2 reference for uncontrolled environments (areas with public access) surrounding a facility operating in the FM band, a grant of this proposal may be considered a minor environmental action with respect to public exposure to nonionizing electromagnetic radiation. However, due to the extremely complex RF environment on Mount Wilson, the KPWR transmitter site, the licensee will conduct power density measurements in the vicinity of the tower on which its antenna is mounted, in order to ensure that it does not contribute more than five percent of the FCC's maximum permissible exposure requirement to the composite RF value in any area where the combination of all RF sources exceeds the allowable value for the corresponding type of environment (controlled or uncontrolled).

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive nonionizing radiation.

I declare, under penalty of perjury, that the foregoing statements and attached exhibits are true and correct to the best of my knowledge and belief.



KEVIN T. FISHER

December 7, 2010

EXHIBIT B

ANTENNA SPECIFICATIONS
KPWR(FM) LICENSE MODIFICATION
CHANNEL 290B – LOS ANGELES, CALIFORNIA

***Directional Antenna System
for
KPWR, Los Angeles, California***

October 22, 2010

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 KPWR.

The antenna is the ERI model 1182-1CP-DA configuration. The circular polarized system consists of one bay using two driven circular polarized radiating elements in an iris enclosure. The antenna was mounted on the North 165 degrees East tower leg with bracketry to provide an antenna orientation of North 106 degrees East. The antenna was tested on a tapered tower, which is the structure the station plans to use to support the array. All tests were performed on a frequency of 105.9 megahertz, which is the center of the FM broadcast channel assigned to KPWR.

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.



Directional Antenna System Proposed For KPWR, Los Angeles, California

(Continued)

DESCRIPTION OF THE TEST PROCEDURE

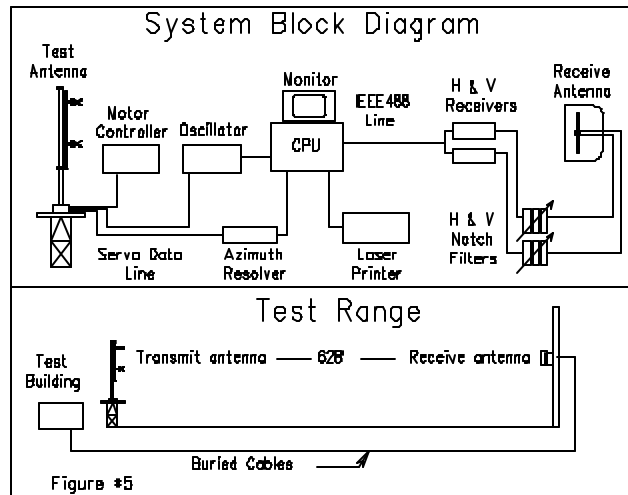
The test antenna consisted of a full-scale model of the complete circular polarized system. The lines were properly grounded during all tests.

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 self support 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 a US Digital angle position indicator. The resolution of this angle position indicator is one-hundredth of a degree.

The antenna under test was operated in the transmitting mode and fed from a HP8657D signal generator. The frequency of the signal source was set at 105.9 MHz and was constantly monitored by a Rohde & Schwarz ESVD measuring receiver.



Directional Antenna System
Proposed For
KPWR, Los Angeles, California

(Continued)

A broadband 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 Heliac cables to a Rohde & Schwarz measuring receiver. This data was interfaced to a laser jet printer by means of a 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 coordinated graph paper in a clockwise direction. Both horizontal and vertical components were recorded separately.

CONCLUSIONS

The circular polarized system consists of one bay using one driven circular polarized radiating element. 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 1182-1CP-DA array is to be mounted on the North 165 degrees East tower leg of the tapered tower at a bearing of North 106 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 25.000 kilowatts (13.979 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
Proposed For
KPWR, Los Angeles, California

(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 than 85% of the filed composite pattern.

The clear vertical length of the structure required to support the antenna is 20 feet.

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.

A handwritten signature in black ink, appearing to read "Tom Schaefer". The signature is fluid and cursive, with a large initial "T" and a long, sweeping underline.

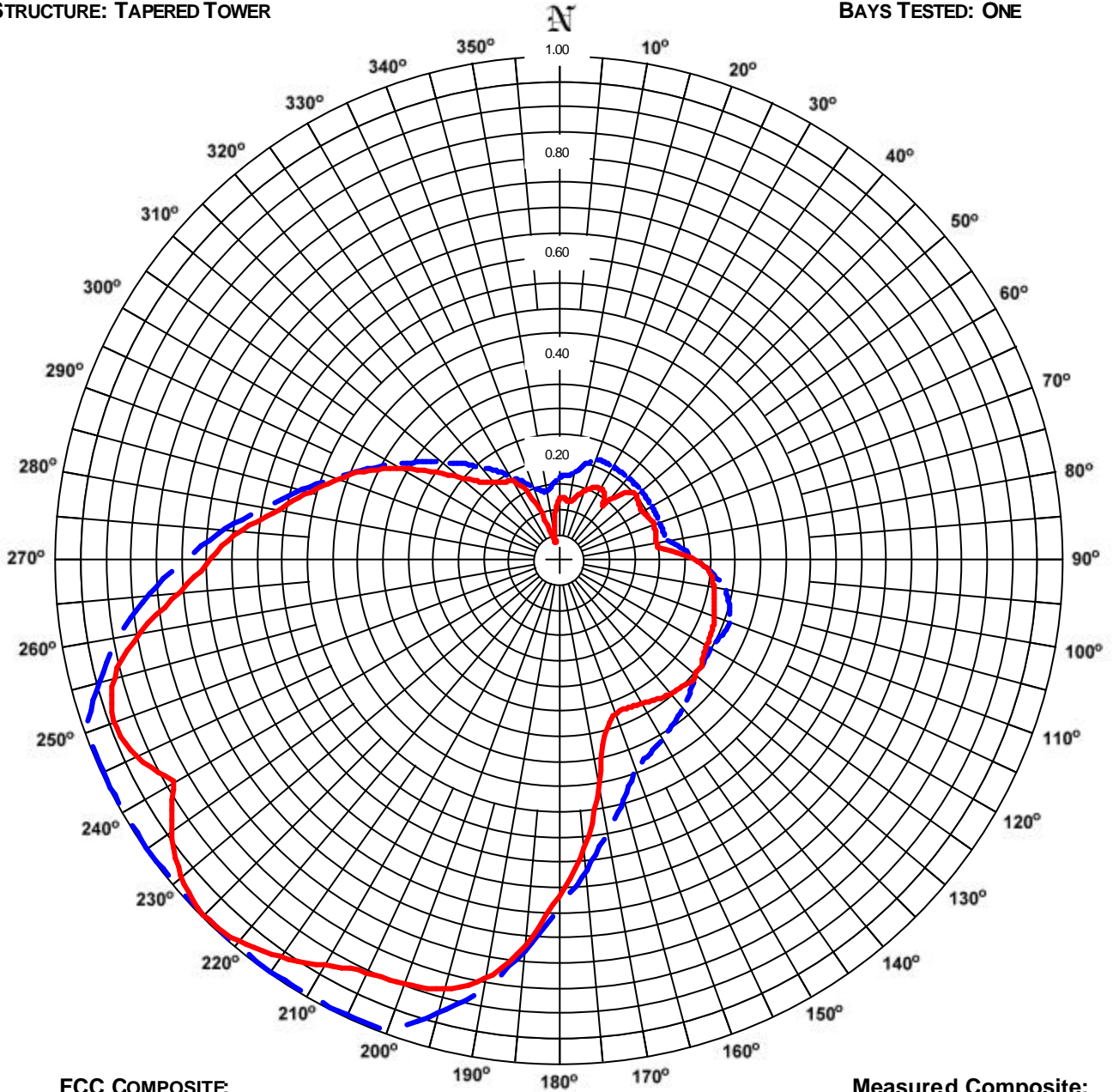
The Microsoft Word document on file electronically at Electronic Research, Inc. governs the specifications, scope, and configuration of the product described. All other representations whether verbal, printed, or electronic are subordinate to the master copy of this document on file at ERI.

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: 1
STATION: KPWR
LOCATION: LOS ANGELES, CA
ANTENNA: 1182-1CP-DA-2
STRUCTURE: TAPERED TOWER

DATE: 9/27/2010
FREQUENCY: 105.9 MHz
ORIENTATION: 106° TRUE
MOUNTING: CUSTOM
BAYS TESTED: ONE



FCC COMPOSITE
RMS: 0.558
MAXIMUM: 1.000 @ 200° TRUE
MINIMUM: 0.132 @ 350° TRUE

Measured Composite:
RMS: 0.522
Maximum: 1.000 @ 224° True
Minimum: 0.031 @ 347° True

COMMENTS: COMPOSITE PATTERN: THIS PATTERN SHOWS THE MAXIMUM OF EITHER THE H OR V AZIMUTH VALUES. THIS PATTERN IS GREATER THAN 85% OF THE FCC FILED COMPOSITE PATTERN BLH-19930311KA.

ERI[®] *Horizontal Plane Relative Field List*

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Station: KPWR

Location: Los Angeles, CA

Frequency: 105.9 MHz

Antenna: 1182-1CP-DA-2

Orientation: 106° True

Tower: Tapered Tower

Figure: 1

Date: 9/27/2010

Reference: kpwr1m.fig

Angle	Envelope			Polarization	Angle	Envelope			Polarization
	Field	kW	dBk			Field	kW	dBk	
0°	0.118	0.35	-4.59	Horizontal	180°	0.671	11.25	10.51	Horizontal
5°	0.120	0.36	-4.44	Horizontal	185°	0.772	14.92	11.74	Horizontal
10°	0.115	0.33	-4.82	Horizontal	190°	0.848	17.96	12.54	Horizontal
15°	0.125	0.39	-4.09	Horizontal	195°	0.886	19.64	12.93	Horizontal
20°	0.142	0.50	-2.99	Horizontal	200°	0.899	20.22	13.06	Horizontal
25°	0.154	0.59	-2.27	Horizontal	205°	0.908	20.59	13.14	Horizontal
30°	0.161	0.64	-1.91	Horizontal	210°	0.933	21.75	13.38	Vertical
35°	0.156	0.61	-2.18	Horizontal	215°	0.965	23.30	13.67	Vertical
40°	0.143	0.51	-2.90	Vertical	220°	0.992	24.60	13.91	Horizontal
45°	0.184	0.85	-0.71	Vertical	225°	0.999	24.95	13.97	Horizontal
50°	0.198	0.98	-0.10	Vertical	230°	0.980	24.01	13.80	Horizontal
55°	0.193	0.93	-0.32	Vertical	235°	0.939	22.07	13.44	Horizontal
60°	0.190	0.90	-0.46	Vertical	240°	0.886	19.62	12.93	Vertical
65°	0.195	0.95	-0.24	Vertical	245°	0.927	21.48	13.32	Vertical
70°	0.199	0.99	-0.04	Vertical	250°	0.941	22.13	13.45	Vertical
75°	0.198	0.98	-0.10	Vertical	255°	0.914	20.89	13.20	Vertical
80°	0.195	0.96	-0.20	Vertical	260°	0.845	17.83	12.51	Vertical
85°	0.210	1.10	0.42	Horizontal	265°	0.756	14.28	11.55	Vertical
90°	0.265	1.75	2.43	Horizontal	270°	0.692	11.97	10.78	Horizontal
95°	0.299	2.23	3.49	Horizontal	275°	0.633	10.01	10.00	Horizontal
100°	0.311	2.42	3.84	Horizontal	280°	0.563	7.92	8.99	Vertical
105°	0.318	2.53	4.03	Horizontal	285°	0.511	6.52	8.14	Vertical
110°	0.328	2.69	4.29	Horizontal	290°	0.463	5.37	7.30	Vertical
115°	0.336	2.82	4.50	Horizontal	295°	0.414	4.28	6.32	Vertical
120°	0.340	2.89	4.60	Horizontal	300°	0.355	3.15	4.99	Vertical
125°	0.349	3.04	4.83	Horizontal	305°	0.297	2.21	3.44	Vertical
130°	0.355	3.15	4.98	Horizontal	310°	0.247	1.53	1.84	Vertical
135°	0.355	3.15	4.99	Horizontal	315°	0.215	1.16	0.63	Horizontal
140°	0.349	3.04	4.83	Vertical	320°	0.197	0.97	-0.14	Horizontal
145°	0.341	2.91	4.64	Vertical	325°	0.186	0.86	-0.65	Horizontal
150°	0.333	2.77	4.42	Vertical	330°	0.175	0.77	-1.15	Horizontal
155°	0.327	2.67	4.27	Vertical	335°	0.139	0.48	-3.15	Horizontal
160°	0.329	2.70	4.32	Vertical	340°	0.082	0.17	-7.69	Horizontal
165°	0.356	3.17	5.01	Vertical	345°	0.034	0.03	-15.51	Vertical
170°	0.455	5.19	7.15	Horizontal	350°	0.049	0.06	-12.30	Horizontal
175°	0.578	8.34	9.21	Horizontal	355°	0.090	0.20	-6.98	Horizontal

Polarization:

Maximum Field:

Minimum Field:

RMS:

Maximum ERP:

Maximum Power Gain:

Envelope

1.000 @ 224° True

0.031 @ 347° True

0.522

25.000 kW

1.732 (2.386 dB)

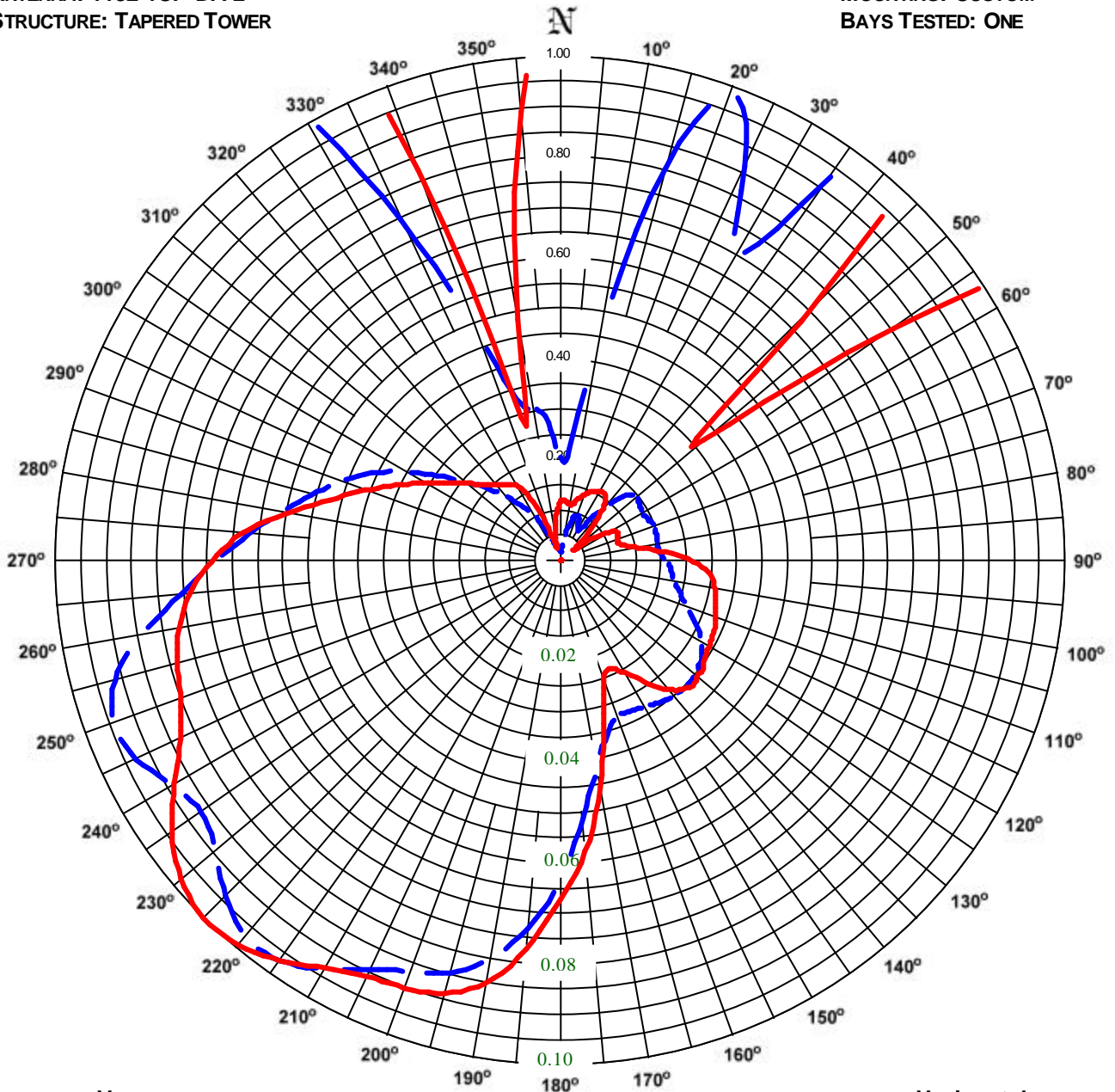
Total Input Power: 14.433 kW

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: KPWR
LOCATION: LOS ANGELES, CA
ANTENNA: 1182-1CP-DA-2
STRUCTURE: TAPERED TOWER

DATE: 9/27/2010
FREQUENCY: 105.9 MHz
ORIENTATION: 106° TRUE
MOUNTING: CUSTOM
BAYS TESTED: ONE



VERTICAL

RMS: 0.503
MAXIMUM: 0.973 @ 218° TRUE
MINIMUM: 0.020 @ 2° TRUE

10X Scale

Horizontal

RMS: 0.503
Maximum: 1.000 @ 224° True
Minimum: 0.028 @ 346° True

COMMENTS: MEASURED PATTERNS OF THE HORIZONTAL AND VERTICAL COMPONENTS.

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: KPWR

Location: Los Angeles, CA

Frequency: 105.9 MHz

Antenna: 1182-1CP-DA-2

Orientation: 106° True

Tower: Tapered Tower

Figure: 2

Date: 9/27/2010

Reference: kpwr1m.fig

Angle	Horizontal			Vertical			Angle	Horizontal			Vertical		
	Field	kW	dBk	Field	kW	dBk		Field	kW	dBk	Field	kW	dBk
0°	0.118	0.35	-4.59	0.021	0.01	-19.72	180°	0.671	11.25	10.51	0.632	9.97	9.99
5°	0.120	0.36	-4.44	0.023	0.01	-18.98	185°	0.772	14.92	11.74	0.731	13.34	11.25
10°	0.115	0.33	-4.82	0.047	0.05	-12.67	190°	0.848	17.96	12.54	0.800	15.98	12.04
15°	0.125	0.39	-4.09	0.081	0.16	-7.89	195°	0.886	19.64	12.93	0.844	17.79	12.50
20°	0.142	0.50	-2.99	0.098	0.24	-6.15	200°	0.899	20.22	13.06	0.866	18.73	12.73
25°	0.154	0.59	-2.27	0.087	0.19	-7.28	205°	0.908	20.59	13.14	0.893	19.94	13.00
30°	0.161	0.64	-1.91	0.070	0.12	-9.07	210°	0.931	21.68	13.36	0.933	21.75	13.38
35°	0.156	0.61	-2.18	0.093	0.22	-6.63	215°	0.965	23.30	13.67	0.965	23.30	13.67
40°	0.126	0.40	-4.01	0.143	0.51	-2.90	220°	0.992	24.60	13.91	0.970	23.51	13.71
45°	0.068	0.11	-9.43	0.184	0.85	-0.71	225°	0.999	24.95	13.97	0.938	22.01	13.43
50°	0.037	0.03	-14.60	0.198	0.98	-0.10	230°	0.980	24.01	13.80	0.892	19.87	12.98
55°	0.081	0.16	-7.88	0.193	0.93	-0.32	235°	0.939	22.07	13.44	0.868	18.82	12.75
60°	0.119	0.35	-4.52	0.190	0.90	-0.46	240°	0.882	19.47	12.89	0.886	19.62	12.93
65°	0.127	0.40	-3.94	0.195	0.95	-0.24	245°	0.832	17.29	12.38	0.927	21.48	13.32
70°	0.120	0.36	-4.41	0.199	0.99	-0.04	250°	0.800	15.98	12.04	0.941	22.13	13.45
75°	0.127	0.40	-3.94	0.198	0.98	-0.10	255°	0.786	15.44	11.89	0.914	20.89	13.20
80°	0.157	0.61	-2.11	0.195	0.96	-0.20	260°	0.768	14.75	11.69	0.845	17.83	12.51
85°	0.210	1.10	0.42	0.199	0.99	-0.03	265°	0.738	13.60	11.34	0.756	14.28	11.55
90°	0.265	1.75	2.43	0.212	1.12	0.49	270°	0.692	11.97	10.78	0.684	11.69	10.68
95°	0.299	2.23	3.49	0.222	1.23	0.90	275°	0.633	10.01	10.00	0.620	9.62	9.83
100°	0.311	2.42	3.84	0.231	1.33	1.25	280°	0.552	7.62	8.82	0.563	7.92	8.99
105°	0.318	2.53	4.03	0.247	1.52	1.82	285°	0.472	5.58	7.46	0.511	6.52	8.14
110°	0.328	2.69	4.29	0.270	1.83	2.62	290°	0.412	4.24	6.27	0.463	5.37	7.30
115°	0.336	2.82	4.50	0.299	2.24	3.50	295°	0.358	3.21	5.07	0.414	4.28	6.32
120°	0.340	2.89	4.60	0.324	2.62	4.19	300°	0.312	2.43	3.86	0.355	3.15	4.99
125°	0.349	3.04	4.83	0.341	2.91	4.63	305°	0.273	1.86	2.69	0.297	2.21	3.44
130°	0.355	3.15	4.98	0.348	3.03	4.82	310°	0.240	1.44	1.60	0.247	1.53	1.84
135°	0.355	3.15	4.99	0.352	3.10	4.91	315°	0.215	1.16	0.63	0.206	1.06	0.27
140°	0.332	2.75	4.39	0.349	3.04	4.83	320°	0.197	0.97	-0.14	0.171	0.73	-1.38
145°	0.291	2.12	3.26	0.341	2.91	4.64	325°	0.186	0.86	-0.65	0.137	0.47	-3.31
150°	0.254	1.62	2.08	0.333	2.77	4.42	330°	0.175	0.77	-1.15	0.105	0.27	-5.61
155°	0.235	1.38	1.40	0.327	2.67	4.27	335°	0.139	0.48	-3.15	0.075	0.14	-8.55
160°	0.252	1.58	2.00	0.329	2.70	4.32	340°	0.082	0.17	-7.69	0.049	0.06	-12.30
165°	0.333	2.77	4.43	0.356	3.17	5.01	345°	0.030	0.02	-16.60	0.034	0.03	-15.51
170°	0.455	5.19	7.15	0.416	4.33	6.37	350°	0.049	0.06	-12.30	0.031	0.02	-16.28
175°	0.578	8.34	9.21	0.510	6.50	8.13	355°	0.090	0.20	-6.98	0.028	0.02	-17.16

Polarization:

Maximum Field:

Minimum Field:

RMS:

Maximum ERP:

Maximum Power Gain:

Horizontal

1.000 @ 224° True

0.028 @ 346° True

0.503

25.000 kW

1.732 (2.386 dB)

Vertical

0.973 @ 218° True

0.020 @ 2° True

0.503

23.664 kW

1.640 (2.147 dB)

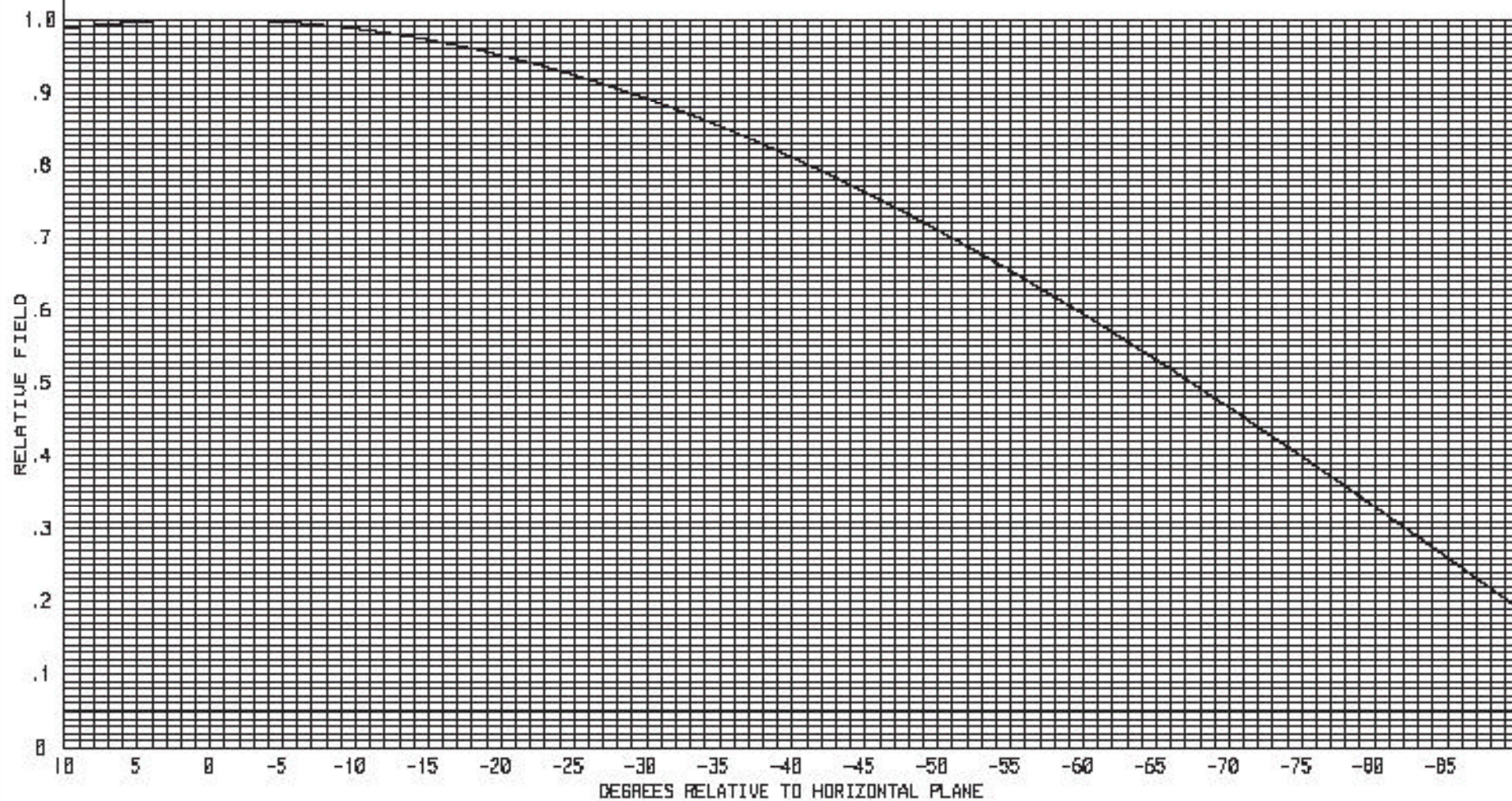
Total Input Power: 14.433 kW

ELECTRONICS RESEARCH, INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610

FIGURE 3

---THEORETICAL---
VERTICAL PLANE RELATIVE FIELD

ERI TYPE 1182-ICP-DA BROADCAST ANTENNA



Directional Antenna System for KPWR, Los Angeles, California

(Continued)

ANTENNA SPECIFICATIONS

Antenna Type:	1182-1CP-DA
Frequency:	105.9 MHz
Number of Bays:	One

MECHANICAL SPECIFICATIONS

Mounting:	Custom
System length:	6 ft
Aperture length required:	20 ft
Orientation:	106° true

Input flange to the antenna 3 1/8" female.

ELECTRICAL SPECIFICATIONS (For directional use)

Maximum horizontal ERP:	25.000 kW (13.979 dBk)
Horizontal maximum power gain:	1.732 (2.386 dB)
Maximum vertical ERP:	23.664 kW (13.741 dBk)
Vertical maximum power gain:	1.640 (2.147 dB)
Total input power:	14.433 kW (11.594 dBk)

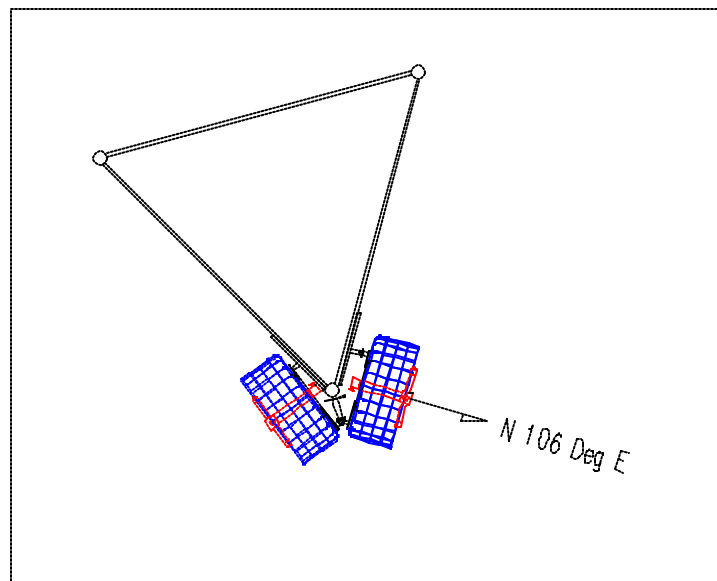


EXHIBIT C

OPERATING PARAMETERS
KPWR(FM) LICENSE MODIFICATION
CHANNEL 290B – LOS ANGELES, CALIFORNIA

KPWR Mt. Wilson FCC 302 TPO Calculations

Description	Length	Unit	Gain/Loss	Unit	Calculated	Unit		
Myat 3 1/8" 50 Ohm Rigid Coax	35.7	ft	-0.0957	dB/100 ft @ 105.9 MHz	-0.0342	dB		
Dielectric A60000 Coax Switch			-0.1	dB	-0.1	dB		
Bird 4610 Rigid Line Section			-0.05	dB	-0.05	dB		
Bird RF Monitor Line Section			-0.05	dB	-0.05	dB		
Andrew HJ8-50B 3" Heliax	370	ft	-0.149	dB/100 ft @ 105.9 MHz	-0.5513	dB		
ERI 1182-1CP-DA-2 Antenna			1.732	Power Gain	2.3855	dB		
				SYSTEM GAIN/LOSS	1.6000	dB	1.445	Power Gain
							25	kW ERP
							17.30	kW TPO
							14.434	kW Antenna Input

EXHIBIT D

SURVEYOR'S CERTIFICATION
KPWR(FM) LICENSE MODIFICATION
CHANNEL 290B – LOS ANGELES, CALIFORNIA

FIELD SURVEY

SURVEY OF MOUNT WILSON REVISED ANTENNA
AZIMUTHS KPWR

JOB NO. _____ PAGE 1 OF 1 CREW LEE/JESSE DATE 11/28/10

