

Federal Communications Commission Washington, D.C. 20554	Approved by OMB 3060-0506 (June 2002)	FOR FCC USE ONLY
FCC 302-FM		
APPLICATION FOR FM BROADCAST STATION LICENSE		FOR COMMISSION USE ONLY FILE NO. - 20131030AFJ
Read INSTRUCTIONS Before Filling Out Form		

Section I - General Information

1.	Legal Name of the Applicant	KSER FOUNDATION		
	Mailing Address	2623 WETMORE AVENUE		
	City	State or Country (if foreign address)	ZIP Code	
	EVERETT	WA	98201 -	
	Telephone Number (include area code)	E-Mail Address (if available)		
	4253039070			
	FCC Registration Number:	Call Sign	Facility Identifier	
	0001569359	KXIR	173833	
2.	Contact Representative (if other than Applicant)	Firm or Company Name		
	JOHN CRIGLER, ESQ.	GARVEY SCHUBERT BARER		
	Telephone Number (include area code)	E-Mail Address (if available)		
	2029657880	JCRIGLER@GSBLAW.COM		
3.	If this application has been submitted without a fee, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114): <input type="radio"/> Governmental Entity <input checked="" type="radio"/> Noncommercial Educational Licensee/Permittee <input type="radio"/> Other <input type="radio"/> N/A (Fee Required)			
4.	Facility Information:			
	a. <input type="radio"/> Commercial	<input checked="" type="radio"/> Noncommercial		
	b. <input checked="" type="radio"/> Directional	<input type="radio"/> Nondirectional		
	c. Community of License:			
	City: FREELAND	State: WA		
5.	Program Test Authority:			
	<input checked="" type="radio"/> Requesting program test authority.			
	<input type="radio"/> Station operating pursuant to automatic program test authority (47 C.F.R. Section 73.1620(a)(1)).			
6.	Purpose of Application:			
	<input checked="" type="radio"/> Cover construction permit (list most recent construction permit file number -- starts with the prefix BPH, BNPH, BMPH, BPED, BMPED, or BMPED):	BMPED-20130918AIV		
	<input type="radio"/> Modify an authorized license (list license file number -- starts with the prefix BLH, BMLH, BLED, or BMLD):	-		
	<input type="radio"/> Amend a pending application If an amendment, submit as an Exhibit a listing by Section and Question Number the portions of the pending application that are being revised.	[Exhibit 1]		

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

Section II - Legal and Financial

1.	Certification. Applicant certifies that it has answered each question in this application based on its review of the application instructions and worksheets. Applicant further certifies that where it has made an affirmative certification below, this certification constitutes its representation that the application satisfies each of the pertinent standards and criteria set forth in the application instructions and worksheets.	<input checked="" type="radio"/> Yes <input type="radio"/> No
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2. Licensee/Permittee certifies that all terms, conditions, and obligations set forth in the underlying construction permit have been fully met.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 2]
3. Licensee/Permittee certifies that, apart from changes already reported, no cause or circumstance has arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 3]
4. Character Issues. Applicant certifies that neither licensee/permittee nor any party to the application has or has had any interest in, or connection with: a. any broadcast application in any proceeding where character issues were left unresolved or were resolved adversely against the applicant or party to the application; or b. any pending broadcast application in which character issues have been raised.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 4]
5. Adverse Findings. Applicant certifies that, with respect to the applicant and any party to the application, no adverse finding has been made, nor has an adverse final action been taken related to the following: any felony; mass media-related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 5]
6. Anti-Drug Abuse Act Certification. Applicant certifies that neither licensee/permittee nor any party to the application is subject to denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862.	<input checked="" type="radio"/> Yes <input type="radio"/> No

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith. I acknowledge that all certifications and attached Exhibits are considered material representations. I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

Typed or Printed Name of Person Signing BRENDA MANN HARRISON	Typed or Printed Title of Person Signing PRESIDENT
Signature	Date 10/29/2013

SECTION III - PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name GRAY FRIERSON HAERTIG	Relationship to Applicant (e.g., Consulting Engineer) ENGINEERING COUNSEL	
Signature	Date 10/27/2013	
Mailing Address 4646 S.W. COUNCIL CREST DRIVE		
City PORTLAND	State or Country (if foreign address) OR	Zip Code 97239 -
Telephone Number (include area code) 5032822989	E-Mail Address (if available) GFH@HAERTIG.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Section III - Engineering
TECHNICAL SPECIFICATIONS Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All

Items must be completed. The response "on file" is not acceptable.

TECH BOX

1.	Channel: 210		
2.	a. Effective Radiated Power:	1.8 kW(H) 1.8 kW(V)	
	b. Maximum Effective Radiated Power: (Beam-Tilt Antenna ONLY) <input checked="" type="checkbox"/> Not Applicable	kW(H) kW(V)	
3.	Transmitter Power Output: 0.764 kW		
4.	Antenna Data		
	Manufacturer	Model	Number of Sections
	SHI	6810-3R	3
			Spacing Between Sections (wavelength)
			1

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

CERTIFICATION

All applicants must complete this section.

5.	Main Studio Location. The main studio location complies with 47 C.F.R. Section 73.1125.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 6]
6.	Transmitter Power Output. The operating transmitter power output produces the authorized effective radiated power.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 7]

APPLICATIONS FILED TO COVER A CONSTRUCTION PERMIT.

Only applicants filing this application to cover a construction permit must complete the following section.

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

7.	Constructed Facility. The facility was constructed as authorized in the underlying construction permit or complies with 47 C.F.R. Section 73.1690.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 8]
8.	Special Operating Conditions. The facility was constructed in compliance with all special operating conditions, terms, and obligations described in the construction permit.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 9]
	An exhibit may be required. Review the underlying construction permit.	[Exhibit 10]

APPLICATIONS FILED PURSUANT TO 47 C.F.R. SECTIONS 73.1675(c) or 73.1690(c).

Only applicants filing this application pursuant to 47 C.F.R. Sections 73.1675(c) or 73.1690(c) must complete the following section.

9.	Changing transmitter power output. Is this application being filed to authorize a change in transmitter power output caused by the replacement of omnidirectional antenna with another omnidirectional antenna or an alteration of the transmission line system? See 47 C.F.R. Sections 73.1690(c)(1) and (c)(10).	<input type="radio"/> Yes <input type="radio"/> No
10.	Increasing effective radiated power. Is this application being filed to authorize an increase in ERP for a station operating in the nonreserved band (Channels 221-300)? See 47 C.F.R. Sections 73.1690(c)(4), (c)(5) and (c)(7). If "Yes" to the above, the applicant certifies the following:	<input type="radio"/> Yes <input type="radio"/> No
	a. Spacing Requirements. The increase in ERP was authorized pursuant to MM Docket 88-375 (Class A stations) OR the facility complies with the spacing requirements of 47 C.F.R. Section 73.207.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 11]
	b. International Coordination. The transmitter site is greater than 320 km from the Canadian or Mexican borders OR coordination for the station's international class is complete.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in

		[Exhibit 12]
	c. Interference. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied OR are not applicable.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 13]
	Exhibit required. If the proposed facility must be notified to the entities set forth in 47 C.F.R. Section 73.1030, the applicant must provide a copy of the written approval for the ERP increase from the affected entity.	[Exhibit 14]
	d. Multiple Ownership Showing. The increase in ERP will not require the consideration of a multiple ownership showing pursuant to 47 C.F.R. Section 73.3555.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 15]
	e. Environmental Protection Act. The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an Exhibit is required.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 16]
	By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	
11.	Increasing vertically polarized effective radiated power. Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(4) to authorize an increase in the vertically polarized ERP for a station operating in the reserved band (Channels 200-220)?	<input type="radio"/> Yes <input type="radio"/> No
	If "Yes" to the above, the applicant certifies the following:	
	a. TV Channel 6 Protection Requirements. The facility complies with the spacing requirements of 47 C.F.R. Section 73.525(a)(1).	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 17]
	b. Environmental Protection Act. The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an Exhibit is required.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 18]
	By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	
12.	Decreasing effective radiated power (non-reserved channel). Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(8) to authorize a decrease in the ERP for a station operating in the nonreserved band (Channels 221-300)?	<input type="radio"/> Yes <input type="radio"/> No
	If "Yes" to the above, the applicant certifies the following:	
	a. Community Coverage. The proposed facility complies with the community coverage requirements of 47 C.F.R. Section 73.315 where the distance to the 3.16 mV/m contour is predicted using the standard prediction method in 47 C.F.R. Section 73.313.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 19]
	b. Auxiliary Facilities. The authorized or pending auxiliary facilities for this station comply with 47 C.F.R. Section 73.1675(a).	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 20]
	c. Multiple Ownership Showing. The decrease in ERP is not requested or required to establish compliance with 47 C.F.R. Section 73.3555.	<input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 21]

13.	<p>Decreasing effective radiated power (reserved channel). Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(8) to authorize a decrease in the ERP for a station operating in the reserved band (Channels 200-220)?</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>
<p>If "Yes" to the above, the applicant certifies the following:</p>		
<p>a. Community Coverage . The proposed facility complies with the community coverage requirements of 47 C.F.R. Section 73.1690(c)(8)(i) where the distance to the 1 mV/m contour is predicted using the standard prediction method in 47 C.F.R. Section 73.313.</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 22]</p>
<p>b. Auxiliary Facilities. The authorized or pending auxiliary facilities for this station comply with 47 C.F.R. Section 73.1675(a).</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 23]</p>
14.	<p>Replacing a directional antenna. Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(2) to replace a directional antenna with another directional antenna?</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>
<p>If "Yes" to the above, the applicant certifies the following:</p>		
<p>a. Measurement of Directional Antenna. The composite measured pattern and measurement procedures comply with 47 C.F.R. Section 73.1690(c)(2). Exhibit required.</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 24] [Exhibit 25]</p>
<p>b. Installation of Directional Antenna. The installation of the directional antenna complies with 47 C.F.R. Section 73.1690(c)(2). Exhibit required.</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 26] [Exhibit 27]</p>
15.	<p>Deleting contour protection status. Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(6) to delete contour protection status (47 C.F.R. Section 73.215) for a station operating in the nonreserved band (Channels 221-300)?</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>
<p>If "Yes" to the above, the applicant certifies that the facility complies with the spacing requirements of 47 C.F.R. Section 73.207.</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 28]</p>
16.	<p>Use a formerly licensed main facility as an auxiliary facility. Is this application being filed pursuant to 47 C.F.R. Section 73.1675(c)(1) to request authorization to use a formerly licensed main facility as an auxiliary facility and/or change the ERP of the proposed auxiliary facility?</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>
<p>If "Yes" to the above, the applicant certifies the following:</p>		
<p>a. Auxiliary antenna service area. The proposed auxiliary facility complies with 47 C.F.R. Section 73.1675(a).</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 29]</p>
<p>b. Environmental Protection Act. The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1 306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an Exhibit is required.</p>		<p><input type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 30]</p>
<p>By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.</p>		
17.	<p>Change the license status. Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(9) to change the license status from commercial to noncommercial or from noncommercial to commercial?</p>	<p><input type="radio"/> Yes <input type="radio"/> No</p>

If "Yes" to the above, submit an exhibit providing full particulars. For applications changing license status from commercial to noncommercial, include Section II of FCC Form 340 as an exhibit to this application.	[Exhibit 31]
PREPARERS CERIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.	

Exhibits

Exhibit 9

Description: SPECIAL OPERATING CONDITIONS

SPECIAL OPERATING CONDITION 4 REQUIRES THE SUBMISSION OF A COMPLETE DIRECTIONAL ANTENNA PROOF OF PERFORMANCE. SUCH IS ATTACHED.

SPECIAL OPERATING CONDITION 5 REQUIRES THE SUBMISSION OF A CERTIFICATION MADE BY A LICENSED LAND SURVEYOR THAT THE DIRECTIONAL ANTENNA HAS BEEN INSTALLED AT THE CORRECT AZIMUTH. SUCH IS ATTACHED.

SPECIAL OPERATING CONDITION 6 REQUIRES THE SUBMISSION OF A CERTIFICATION MADE BY A QUALIFIED ENGINEER THAT THE DIRECTIONAL ANTENNA HAS BEEN INSTALLED PER THE MANUFACTURERS INSTRUCTIONS. SUCH IS ATTACHED.

SPECIAL OPERATING CONDITION 6 REQUIRES THE SUBMISSION OF AN EXHIBIT DEMONSTRATING THAT THE STATION, AS-BUILT, CONTINUES TO PROVIDE COVERAGE TO THE COMMUNITY OF LICENSE. SUCH IS ATTACHED.

Attachment 9

Description
<u>Directional Antenna Proof of Performance</u>
<u>Licensed Surveyor's Certification</u>
<u>Installation Engineer's Certification</u>
<u>Coverage of Community of License</u>

S.O. 31120
Report of Test 6810-3R-DA
for
KSER Foundation
KXIR 89.9 MHz Freeland, WA

OBJECTIVE:

The objective of this test was to demonstrate the directional characteristics of a 6810-3R-DA to meet the needs of KXIR and to comply with the requirements of the FCC construction permit, file number BMPED-20130918AIV. This test characterizes only the radiation characteristics of the antenna when mounted on the tower as described. It does not represent or imply any guarantee of specific coverage which can be influenced by factors beyond the scope of this test.

RESULTS:

The following Figures are the results of the measurements from our pattern range:

- Figure 1A - Measured Azimuth Pattern with the FCC Composite
- Figure 1B - Measured Composite Azimuth Pattern with the FCC Composite
- Figure 1C - Tabulation of the Horizontal Polarization for the Measured Azimuth Pattern
- Figure 1D - Tabulation of the Vertical Polarization for the Measured Azimuth Pattern
- Figure 1E - Tabulation of the Measured Composite Azimuth Pattern
- Figure 1F - Tabulation of the FCC Composite

The calculated elevation pattern of the antenna is shown in Figure 3.

Construction permit file number BMPED-20130918AIV indicates that the Horizontal radiation component shall not exceed 1.80 kW at any azimuth and is restricted to the following values at the azimuths specified:

10 Degrees True: 0.29 kilowatts

MEMBER:



From Figure 1A, the maximum radiation of the Horizontal component occurs at 105 Degrees True to 110 Degrees True and 210 Degrees True to 205 Degrees True. At the restricted azimuth of 10 Degrees True the Horizontal component is 8.427 dB down from the maximum of 1.80 kW, or 0.258 kW.

The R.M.S. of the Horizontal component is 0.774. The total Horizontal power gain is 2.681. The R.M.S. of the Vertical component is 0.747. The total Vertical power gain is 2.455. See Figure 4 for calculations. The R.M.S. of the FCC composite pattern is 0.897. The R.M.S. of the measured composite pattern is 0.785. Eighty-five percent (85%) of the original authorized FCC composite pattern is 0.762. Therefore this pattern complies with the FCC requirement of 73.316(c)(2)(ix)(A).

METHOD OF DIRECTIONALIZATION:

One bay of the 6810-3R-DA was mounted on a tower of precise scale to the Magnum 24" SSV tower at the KXIR site. The spacing of the antenna to the tower was varied and vertical parasitic elements were added to achieve the vertical pattern shown in Figure 1A. A horizontal parasitic element was placed directly under the bay. The position of this horizontal parasitic element was changed until the horizontal pattern shown in Figure 1A was achieved. See Figure 2 for mechanical details.

METHOD OF MEASUREMENT:

As allowed by the construction permit, file number BMPED-20130918AIV, a single level of the 6810-3R-DA was set up on the Shively Labs scale model antenna pattern measuring range. A scale of 4.5:1 was used.

SUPERVISION:

Mr. Surette was graduated from Lowell Technological Institute, Lowell, Massachusetts in 1973 with the degree of Bachelor of Science in Electrical Engineering. He has been directly involved with design and development of broadcast antennas, filter systems and RF transmission components since 1974. As an RF Engineer for six years with the original Shively Labs in Raymond, ME and for a short period of time with Dielectric Communications. He is currently an Associate Member of the AFCCE and a Senior Member of IEEE.

Test Report 6810-3R-DA

KXIR

Page Three

He has authored a chapter on filters and combining systems for the latest edition of the CRC Electronics Handbook and for the 9th and 10th Editions of the NAB Handbook.

EQUIPMENT:

The scale model pattern range consists of a wooden rotating pedestal equipped with a position indicator. The scale model bay is placed on the top of this pedestal and is used in the transmission mode at approximately 20 feet above ground level. The receiving corner reflector is spaced 50 feet away from the rotating pedestal at the same level above ground as the transmitting model. The transmitting and receiving signals are carried to a control building by means of RG-9/U double shielded coax cable.

The control building is equipped with:

Hewlett Packard Model 8753 Network Analyzer

PC Based Controller

Hewlett Packard 7550A Graphics Plotter

All testing is carried out in strict accordance with approved procedures under our ISO9001:2008.

TEST PROCEDURES:

The receiving antenna system is mounted so that the horizontal and vertical azimuth patterns are measured independently. The network analyzer was set to 404.55 MHz Calibrated pads are used to check the linearity of the measuring system. For example, 6 dB padding yields a scale reading of 50 from an unpadding reading of 100 in voltage. From the recorded patterns, the R.M.S. values are calculated and recorded as shown in Figure 1A.

Respectfully submitted by:

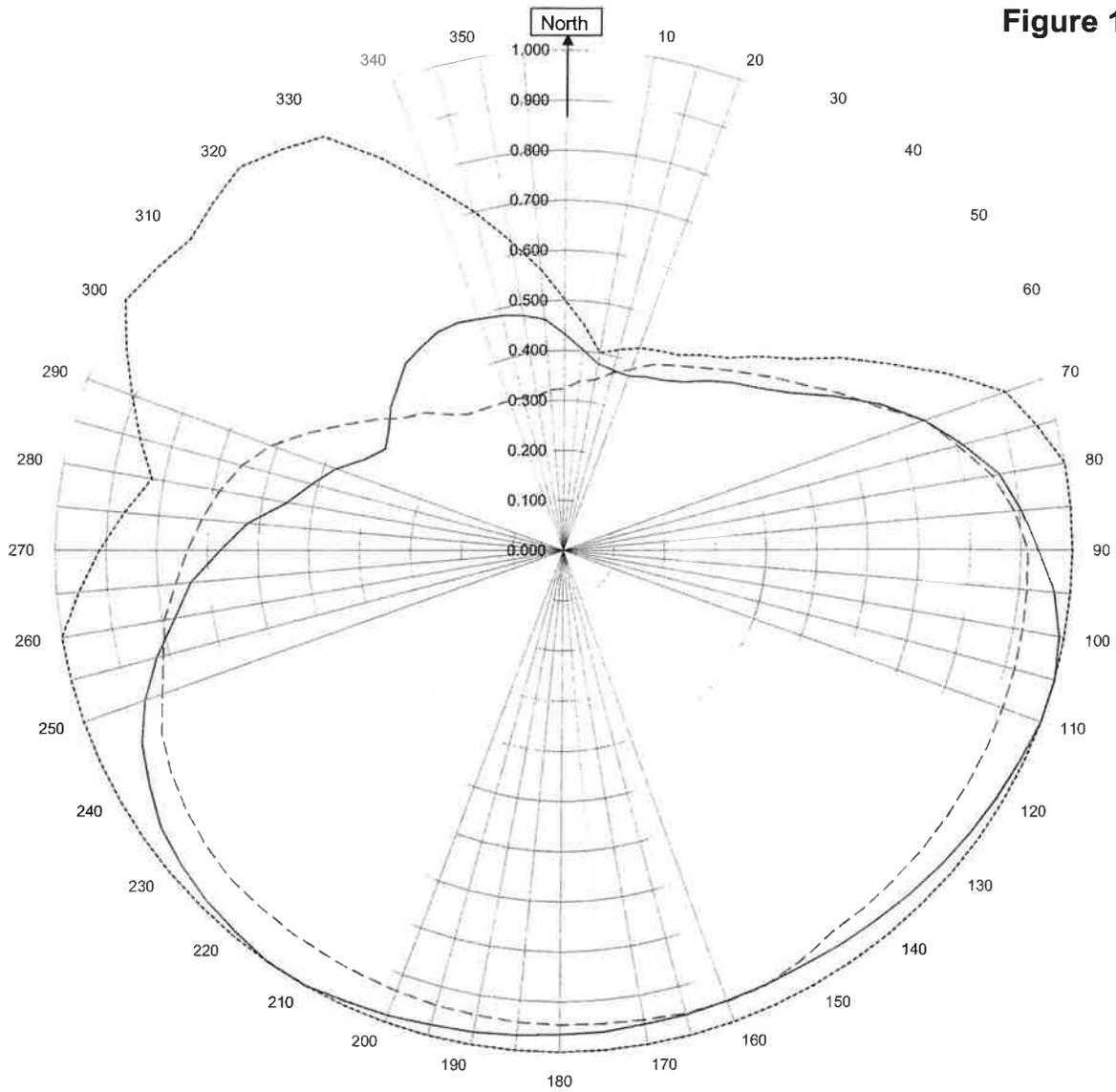


Robert A. Surette
Director of Sales Engineering
S/O 31120
October 25, 2013

Shively Labs

Shively Labs, a division of Howell Laboratories, Inc. Bridgton, ME (207)647-3327

Figure 1A



KXIR

FREELAND, WA.

31120
October 25, 2013

Horizontal RMS	0.774
Vertical RMS	0.747
H/V Composite RMS	0.785
FCC Composite RMS	0.897

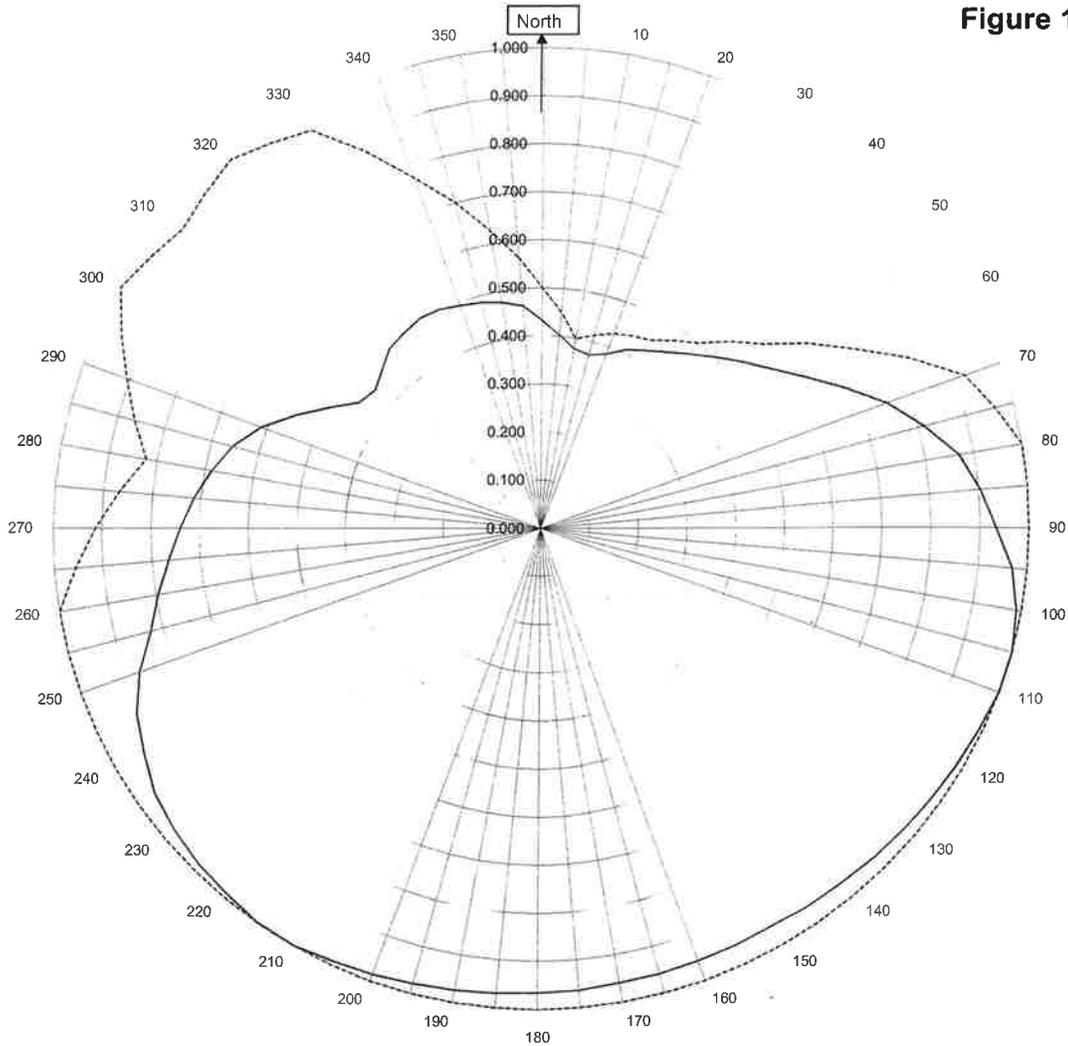
Frequency	89.9 / 404.55 mHz
Plot	Relative Field
Scale	4.5 : 1
	See Figure 2 for Mechanical Details

Antenna Model	6810-3R-DA
Pattern Type	Directional Azimuth

Shively Labs

Shively Labs, a division of Howell Laboratories, Inc. Bridgton, ME (207)647-3327

Figure 1B



KXIR FREELAND, WA.

31120
October 25, 2013

_____ H/V Composite RMS	0.785
..... FCC Composite RMS	0.897

Frequency	89.9 / 404.55 MHz
Plot	Relative Field
Scale	4.5 : 1
See Figure 2 for Mechanical Details	

Antenna Model	6810-3R-DA
Pattern Type	Directional H/V Composite

Figure 1C

Tabulation of Horizontal Azimuth Pattern
KXIR FREELAND, WA.

Azimuth	Rel Field	Azimuth	Rel Field
0	0.432	180	0.965
10	0.379	190	0.974
20	0.370	200	0.986
30	0.392	210	1.000
40	0.442	220	0.991
45	0.473	225	0.985
50	0.503	230	0.974
60	0.613	240	0.935
70	0.754	250	0.873
80	0.869	260	0.775
90	0.933	270	0.675
100	0.990	280	0.552
110	1.000	290	0.476
120	0.986	300	0.406
130	0.975	310	0.446
135	0.970	315	0.464
140	0.964	320	0.488
150	0.955	330	0.504
160	0.956	340	0.493
170	0.959	350	0.476

Figure 1D

Tabulation of Vertical Azimuth Pattern
KXIR FREELAND, WA.

Azimuth	Rel Field	Azimuth	Rel Field
0	0.324	180	0.946
10	0.346	190	0.940
20	0.385	200	0.935
30	0.426	210	0.927
40	0.472	220	0.921
45	0.501	225	0.919
50	0.536	230	0.910
60	0.626	240	0.885
70	0.755	250	0.836
80	0.855	260	0.796
90	0.912	270	0.740
100	0.917	280	0.687
110	0.920	290	0.612
120	0.922	300	0.501
130	0.926	310	0.412
135	0.927	315	0.389
140	0.928	320	0.355
150	0.945	330	0.325
160	0.957	340	0.318
170	0.950	350	0.312

Figure 1E

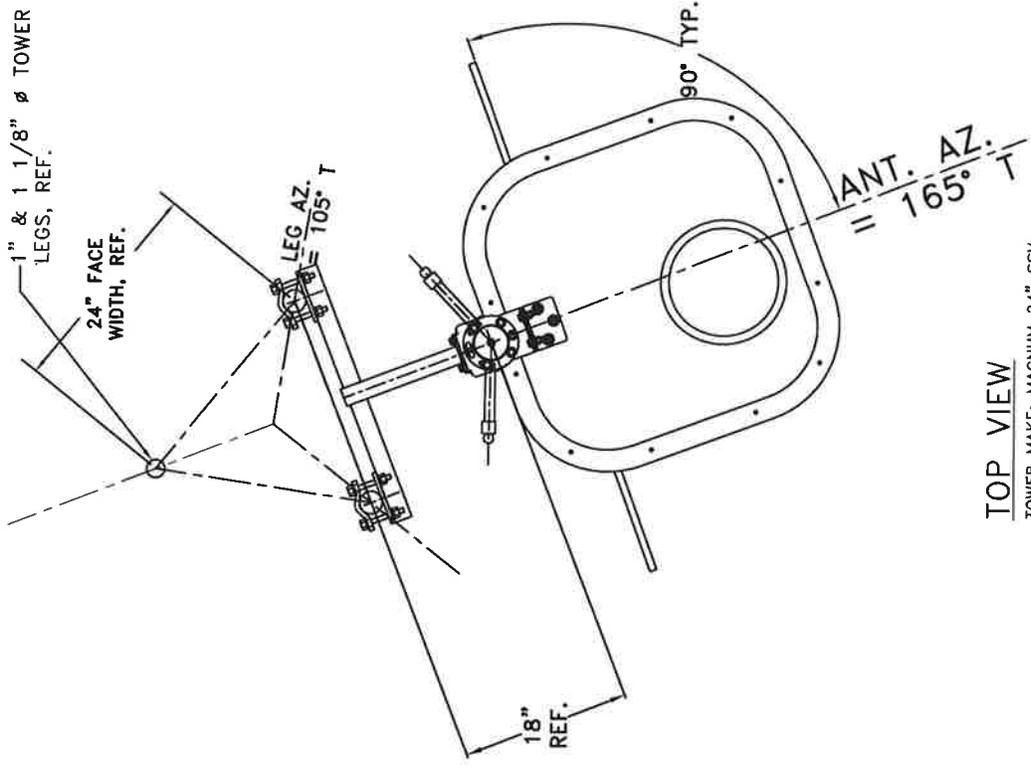
Tabulation of Composite Azimuth Pattern
KXIR FREELAND, WA.

Azimuth	Rel Field	Azimuth	Rel Field
0	0.432	180	0.965
10	0.379	190	0.974
20	0.385	200	0.986
30	0.426	210	1.000
40	0.472	220	0.991
45	0.501	225	0.985
50	0.536	230	0.974
60	0.626	240	0.935
70	0.755	250	0.873
80	0.869	260	0.796
90	0.933	270	0.740
100	0.990	280	0.687
110	1.000	290	0.612
120	0.986	300	0.501
130	0.975	310	0.446
135	0.970	315	0.464
140	0.964	320	0.488
150	0.955	330	0.504
160	0.957	340	0.493
170	0.959	350	0.476

Figure 1F

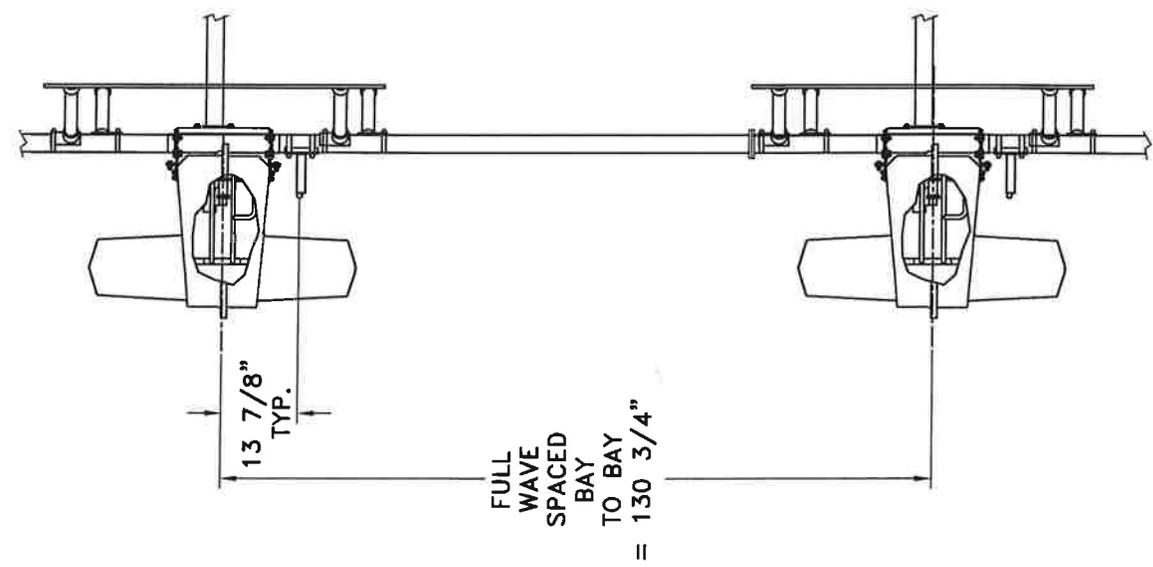
Tabulation of FCC Directional Composite
KXIR FREELAND, WA.

Azimuth	Rel Field	Azimuth	Rel Field
0	0.500	180	1.000
10	0.400	190	1.000
20	0.430	200	1.000
30	0.450	210	1.000
40	0.501	220	1.000
50	0.593	230	1.000
60	0.741	240	1.000
70	0.923	250	1.000
80	1.000	260	1.000
90	1.000	270	0.913
100	1.000	280	0.823
110	1.000	290	0.906
120	1.000	300	1.000
130	1.000	310	0.966
140	1.000	320	1.000
150	1.000	330	0.955
160	1.000	340	0.775
170	1.000	350	0.628
188	0.980		
193	0.950		
194	0.950		



TOP VIEW

TOWER MAKE: MAGNUM 24" SSV



SIDE VIEW

ANTENNA HEADING 165° TRUE NORTH

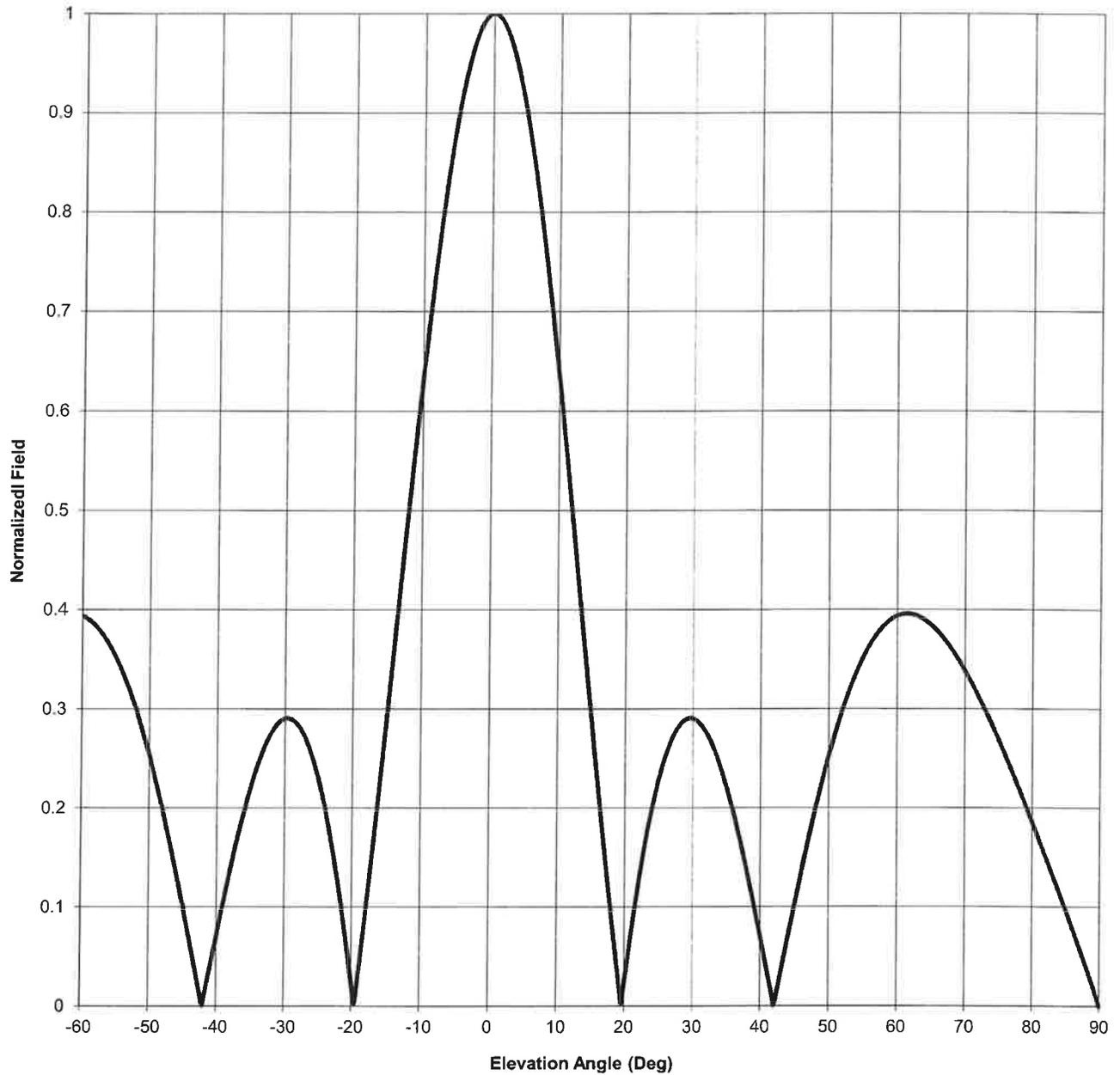
SHIVELY LABS	
A DIVISION OF HOWELL LABORATORIES INC., BRIDGTON, MAINE	
REV. ORDER NO.	SCALE
31120	ASP
OLD: 23379	N.T.S.
TITLE	PROJECTED BY
MODEL-6810-3R-DIRECTIONAL ANTENNA	DAB
DATE	
9-16-13	

FIGURE 2

Antenna Mfg.: Shively Labs
Antenna Type: 6810-3R-DA
Station: KXIR
Frequency: 89.9
Channel #: 210
Figure: Figure 3

Date: 10/25/2013

Beam Tilt	0	
Gain (Max)	2.681	4.283 dB
Gain (Horizon)	2.681	4.283 dB



Antenna Mfg.: Shively Labs
 Antenna Type: 6810-3R-DA

Date: 10/25/2013

Station: KXIR
 Frequency: 89.9
 Channel #: 210

Beam Tilt 0
 Gain (Max) 2.681
 Gain (Horizon) 2.681

4.283 dB
 4.283 dB

Figure: Figure 3

Angle of Depression (Deg)	Relative Field						
-90	0.000	-44	0.069	0	1.000	46	0.136
-89	0.021	-43	0.034	1	0.996	47	0.168
-88	0.040	-42	0.001	2	0.984	48	0.198
-87	0.059	-41	0.036	3	0.963	49	0.227
-86	0.078	-40	0.071	4	0.935	50	0.253
-85	0.096	-39	0.104	5	0.900	51	0.278
-84	0.114	-38	0.137	6	0.858	52	0.300
-83	0.132	-37	0.167	7	0.810	53	0.320
-82	0.150	-36	0.196	8	0.756	54	0.337
-81	0.168	-35	0.221	9	0.697	55	0.353
-80	0.185	-34	0.243	10	0.634	56	0.365
-79	0.203	-33	0.262	11	0.568	57	0.376
-78	0.219	-32	0.276	12	0.500	58	0.384
-77	0.236	-31	0.286	13	0.431	59	0.390
-76	0.252	-30	0.290	14	0.361	60	0.394
-75	0.268	-29	0.290	15	0.291	61	0.396
-74	0.283	-28	0.284	16	0.222	62	0.396
-73	0.298	-27	0.272	17	0.156	63	0.394
-72	0.312	-26	0.254	18	0.092	64	0.390
-71	0.325	-25	0.230	19	0.032	65	0.384
-70	0.338	-24	0.200	20	0.025	66	0.378
-69	0.350	-23	0.164	21	0.076	67	0.370
-68	0.360	-22	0.123	22	0.123	68	0.360
-67	0.370	-21	0.076	23	0.164	69	0.350
-66	0.378	-20	0.025	24	0.200	70	0.338
-65	0.384	-19	0.032	25	0.230	71	0.325
-64	0.390	-18	0.092	26	0.254	72	0.312
-63	0.394	-17	0.156	27	0.272	73	0.298
-62	0.396	-16	0.222	28	0.284	74	0.283
-61	0.396	-15	0.291	29	0.290	75	0.268
-60	0.394	-14	0.361	30	0.290	76	0.252
-59	0.390	-13	0.431	31	0.286	77	0.236
-58	0.384	-12	0.500	32	0.276	78	0.219
-57	0.376	-11	0.568	33	0.262	79	0.203
-56	0.365	-10	0.634	34	0.243	80	0.185
-55	0.353	-9	0.697	35	0.221	81	0.168
-54	0.337	-8	0.756	36	0.196	82	0.150
-53	0.320	-7	0.810	37	0.167	83	0.132
-52	0.300	-6	0.858	38	0.137	84	0.114
-51	0.278	-5	0.900	39	0.104	85	0.096
-50	0.253	-4	0.935	40	0.071	86	0.078
-49	0.227	-3	0.963	41	0.036	87	0.059
-48	0.198	-2	0.984	42	0.001	88	0.040
-47	0.168	-1	0.996	43	0.034	89	0.021
-46	0.136	0	1.000	44	0.069	90	0.000
-45	0.103			45	0.103		

VALIDATION OF TOTAL POWER GAIN CALCULATION

KXIR FREELAND, WA.

MODEL 6810-3R-DA

Elevation Gain of Antenna

1.55

Horizontal RMS value divided by the Vertical RMS value equals the Horiz. - Vert. Ratio

H RMS 0.773973 V RMS 0.747051 H/V Ratio 1.036

Elevation Gain of Horizontal Component 1.606

Elevation Gain of Vertical Component 1.496

Horizontal Azimuth Gain equals $1/(\text{RMS})^2$. 1.669Vertical Azimuth Gain equals $1/(\text{RMS}/\text{Max Vert})^2$. 1.641

Max. Vertical

0.957

***Total Horizontal Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Horizontal Power Gain = 2.681

***Total Vertical Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Vertical Power Gain = 2.455

ERP divided by Horizontal Power Gain equals Antenna Input Power

1.80 kW ERP Divided by H Gain 2.681 equals 0.671 kW H Antenna Input Power

Antenna Input Power times Vertical Power Gain equals Vertical ERP

0.671 kW Times V Gain 2.455 equals 1.649 kW V ERP

Maximum Value of the Vertical Component squared times the Maximum ERP equals the Vertical ERP

 $(0.957)^2$ Times 1.80 Equals 1.649 kW Vertical ERP

NOTE: Calculating the ERP of the Vertical Component by two methods validates the total power gain calculations



TMI Land Surveying, Inc.

P.O. Box 1011
5571 Lotto Ave. Suite B
Freeland, WA 98249
360-331-7393 Fax: 360-331-7394
survey@whidbey.com

RE: FCC Broadcast Permit File Number BNPED-20130918AIV, Affidavit of Azimuth

To Whom it May Concern:

On September 12, 2013, TMI Land Surveying, Inc. provided directional control at the site of the transmitting antenna for KSER Foundation, licensee of station KXIR, Freeland, Washington, construction permit BNPED-20130918AIV, which is located near Freeland, Island County, Washington.

An azimuth mark was set at 165°, True North, on the ground 40 feet and 50 feet from the centerline of the point of rotation on which the antenna is clamped and aimed, per the antenna manufacturer's drawings.

An antenna technician manually aimed the antenna to the azimuth mark. The survey crew on October 21, 2013 checked the sighting and aiming of the antenna via an optical survey instrument set at the azimuth mark, sighting the antenna's rotation point through the centerline of the antenna to confirm that it was oriented at the proper azimuth with an accuracy better than +/- 0.5 degrees.

I, Jerry G. Morrison, hereby certify that I am a Licensed Professional Land Surveyor licensed in the state of Washington, and have held this qualification since April 2011.



Jerry G. Morrison, 48382



Julian Adamaitis
Sound Engineering
4913 Woodland Park North
Seattle, WA 98103
(206) 633-0845

Certification of Supervisory Engineer
KXIR, Freeland, WA
BMPED-20130918AIV

October 27, 2013

I, Julian Adamaitis, supervised the installation of Shively Labs 6810-3 directional antenna SN 31120-1 for KXIR, Freeland, WA, FCC construction permit BMPED-20130918AIV.

I certify the antenna was installed pursuant to the manufacturer's instructions.

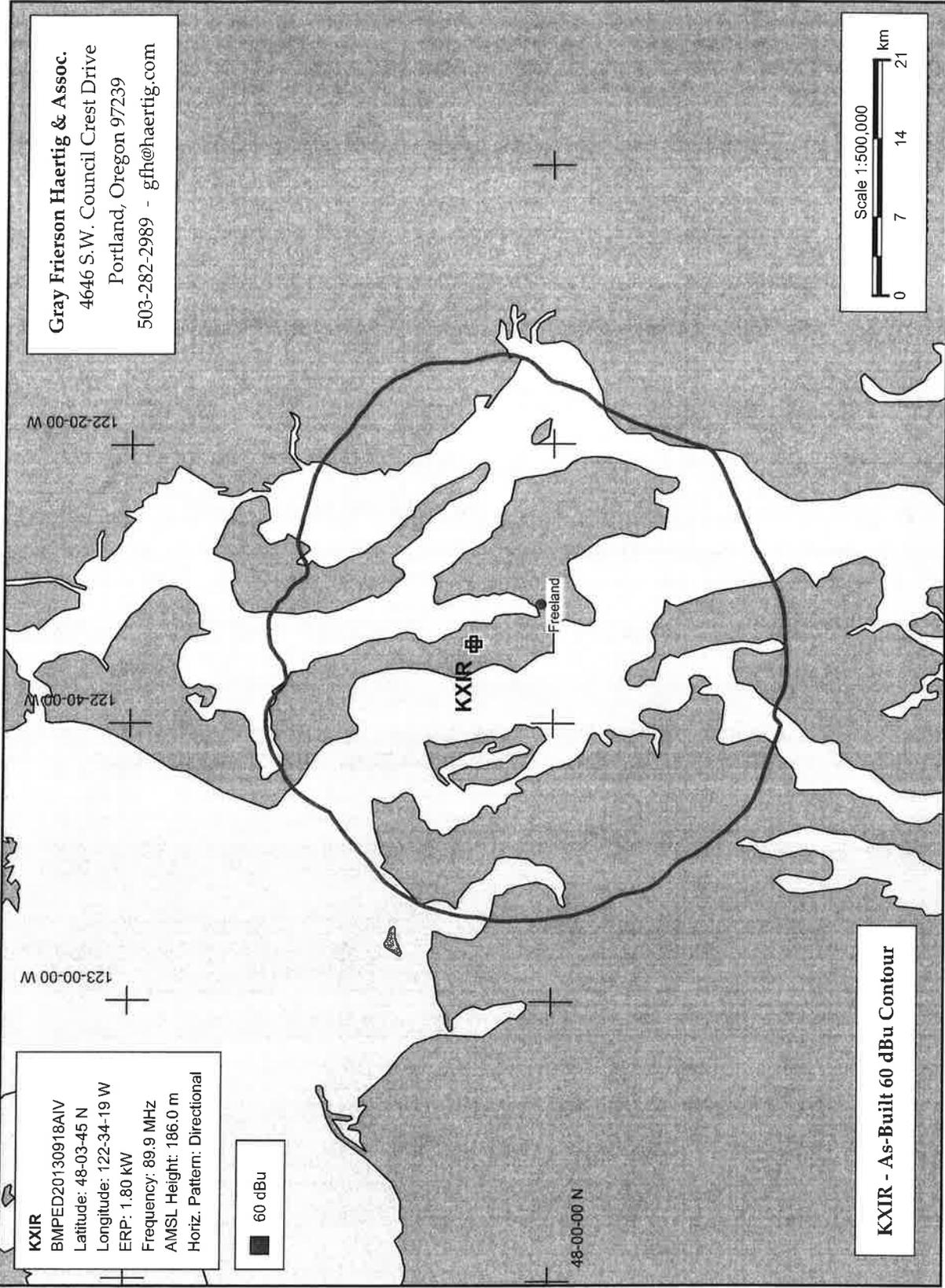
I have over 20 years broadcast engineering experience and was issued FCC First Class Radio Telephone Operator License P1-13-13114 in 1980. I have supervised the construction of several FM broadcast facilities.

Sincerely,



Julian Adamaitis
Sole Proprietor,
Sound Engineering
4913 Woodland Park Ave N
Seattle, WA 98103

Gray Frierson Haertig & Assoc.
4646 S.W. Council Crest Drive
Portland, Oregon 97239
503-282-2989 - gfh@haertig.com



KXIR
BMPED20130918AIV
Latitude: 48-03-45 N
Longitude: 122-34-19 W
ERP: 1.80 kW
Frequency: 89.9 MHz
AMSL Height: 186.0 m
Horiz. Pattern: Directional

■ 60 dBu

Scale 1:500,000
0 7 14 21 km

KXIR - As-Built 60 dBu Contour

Federal Communications Commission

FCC MB - CDBS Electronic Filing
Account number: 592693

Description: KXIR-LICENSE TO COVER BMPED-20130918AIV
Application Reference Number: 20131030AFJ
Successfully filed at Oct 30 2013 2:27PM

Based on the information supplied, no fee is required.

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