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MEMBER, DISTRICT OF COLUMBIA BAR ONLY;
PRACTICE LIMITED TO FEDERAL COURTS AND AGENCIES

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April 30, 2014

Honorable Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
Washington, DC 20554

Attention: Audio Division, Media Bureau

RE: KIHM(AM), Reno, Nevada
FCC Facility ID #53707
IHR Educational Broadcasting
FRN: 0008-0922-72
FCC Form 302-AM Application for Covering License

Dear Madame Secretary:

On behalf of our client IHR Educational Broadcasting, the licensee of AM Broadcast Station KIHM, Reno, Nevada, there is transmitted herewith in triplicate an application on FCC Form 302-AM for a license to cover the facilities constructed pursuant to File No. BP-20130514ADB granted on November 21, 2013.

IHR hereby respectfully requests that program test authority pursuant to Section 73.1620 of the FCC's Rules be gratned.

This application is filed by a non-commercial AM station licensee and is therefore non-feeable.

Should additional information be desired in connection with the above matter, kindly communicate with this office.

Very truly yours,

Dennis J. Kelly

Accepted/Filed

APR 30 2014

FCC Office of the Secretary

Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE NO. BMML-20140430ACZ

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

IHR EDUCATIONAL BROADCASTING FRN: 0008-0922-72

MAILING ADDRESS (Line 1) (Maximum 35 characters)
3256 Penryn Road, Suite 100

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Loomis	CA	95650-8052

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
916-535-0500	KIHM	53707

2. A. Is a fee submitted with this application? ☐ Yes ☑ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☑ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
	0001	$	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
	0001	$	

ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
	$	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT IHR Educational Broadcasting		
MAILING ADDRESS 3256 Penryn Road, Suite 100		
CITY Loomis	STATE CA	ZIP CODE 95650-8052

2. This application is for:

☐ Commercial ☑ Noncommercial

☑ AM Directional ☐ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
KIHM	Reno, NV	BP-20130514ADB	n/a	11/21/2016

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☐ Yes ☑ No

If No, explain in an Exhibit.

Exhibit No. E

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met? not applicable

☑ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No.

5. Apart from the changes already reported, has any cause or circumstance 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?

☑ Yes ☐ No

If Yes, explain in an Exhibit. not applicable

Exhibit No.

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

☐ Yes ☐ No

☑ Does not apply

If No, explain in an Exhibit.

Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

Exhibit No.

8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☒ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☒ Yes ☐ No

2. 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.

Name	Signature	
Douglas M. Sherman		
Title	Date	Telephone Number
President	4/30/2014	916-535-0500

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

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

IHR Educational Broadcasting

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

[X] Station License [ ] Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
KIHM	BP-20130514ADB	920	UNLIMITED	.85	4.8

2. Station location

State	City or Town
Nevada	Reno

3. Transmitter location

State	County	City or Town	Street address (or other identification)
NV	Washoe	Sparks	8370 Clean Water Way

4. Main studio location

State	County	City or Town	Street address (or other identification)
CA	Placer	Loomis	3256 Penryn Rd #100

5. Remote control point location (specify only if authorized directional antenna)

State	County	City or Town	Street address (or other identification)
CA	Placer	Loomis	3256 Penryn Rd #100

6. Has type-approved stereo generating equipment been installed? [ ] Yes [X] No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? [X] Yes [ ] No [ ] Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. Eng Rpt

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
4.28	9.8*
Measured antenna or common point resistance (in ohms) at operating frequency	**Measured antenna or common point reactance (in ohms) at operating frequency**
Night: 50 Day: 50*	Night: j0 Day: j0

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1 (E)	0		1.0			
2 (W)	-157.8		.845			

Manufacturer and type of antenna monitor: Potomac Instruments AM-1901

* Daytime power measured at common point ammeter
Daytime non-directional operation uses tower #1 (east)

SECTION III - Page 2

9. Description of antenna system ((f directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Uniform Cross-section guyed towers	73.2	76.6	77.1	Exhibit No.

Excitation [X] Series [ ] Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude				West Longitude			
	39 °	30 '	50 "		119 °	42 '	52 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. None

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. As specified in BP-20130514ADB Exhibit No.

10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

None

11. Give reasons for the change in antenna or common point resistance.

New antenna system

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
Thomas S. Gorton	
Address (include ZIP Code)	Date
Hatfield & Dawson Consulting Engineers 9500 Greenwood Ave N Seattle, WA 98103-3012	April 1, 2014
	Telephone No. (Include Area Code) 206-783-91151

[ ] Technical Director

[X] Registered Professional Engineer

[ ] Chief Operator

[ ] Technical Consultant

[ ] Other (specify)

BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE
MICHAEL H. MEHIGAN, PE

HATFIELD & DAWSON
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9500 GREENWOOD AVE. N.
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JAMES B. HATFIELD, PE
CONSULTANT

MAURY L. HATFIELD, PE
(1942-2009)
PAUL W. LEONARD, PE
(1925-2011)

Method of Moments Proof of Performance
and
Application for License

KIHM (AM)

Reno, Nevada

Facility ID 53707

920 kHz

4.8 kW Day, .85 kW Night DA-N

IHR Educational Broadcasting

March 2014

APPLICATION FOR LICENSE
RADIO STATION KIHM-AM Reno, NV
920 kHz, 4.8 kW Day, .85 kW Night DA-N

Purpose of Application

Item 1	Analysis of Tower Impedance Measurements to Verify Method of Moments Model
Item 2	Method of Moments Model Details for Towers Driven Individually
Item 3	Method of Moments Model Details for Directional Antenna Pattern
Item 4	Derivation of Operating Parameters for Directional Antenna
Item 5	Post Construction Array Geometry Statement & Survey
Item 6	Sampling System Measurements
Item 7	Antenna Monitor and Sampling System
Item 8	Reference Field Strength Measurements
Item 9	Direct Measurement of Power
Item 10	Spurious Emissions Measurements

Appendix A	FCC Form 302-AM

Purpose of Application

This engineering exhibit supports an application for license to cover Construction Permit No. BP-20130514ADP which authorizes construction of a new two-tower directional antenna array for KIHM-AM, Reno, Nevada. Construction is complete, and the array has been adjusted to the parameters determined by the Method of Moments proof of performance contained in this report.

Program Test Authority is respectfully requested. KIHM is currently operating under §73.1615.

KIHM will be operating with Dynamic Carrier Control, using the ACC method. A Nautel DCC exciter has been installed.

Information is provided herein demonstrating that the directional antenna parameters for the patterns authorized by the station license have been determined in accordance with the requirements of section §73.151(c) of the FCC Rules. The system has been adjusted to produce antenna monitor parameters within +/- 5 percent in ratio and +/- 3 degrees in phase of the modeled values, as required by the Rules.

All measurements used in this report were made by the undersigned.

Item 1

Analysis of Tower Impedance Measurements to Verify Method of Moments Model - KIHM

Tower base impedance measurements were made at the locations of the sample system current transformers using a Hewlett Packard 8751A network analyzer in a calibrated measurement system. The other towers were open circuited at the same point where impedance measurements were made (the "reference points") for each of the measurements.

KIHM Measured "Reference Point" Impedances

Tower	Measured R	Measured X
1	38.1	23.3
2	40.1	21.5

Circuit calculations were performed to relate the method of moments modeled impedances at the tower base feed points to those at the measurement locations as shown in the diagram titled *Analysis of Tower Impedance Measurements to Verify Method of Moments Model*. The series/parallel equivalent impedance of X_{OC}, X_L, X_{LC} and X_F was used in the moment method model as a load at ground level (lumped load) for the open circuited tower. In all cases, the modeled impedance at the reference point is within two ohms of the measured reference point impedance.

Item 2

Method of Moments Model Details for Towers Driven Individually - KIHM

The array of towers was modeled using Expert MININEC Broadcast Professional Ver 14.0. One wire was used to represent each tower. The top and bottom wire end points were specified using electrical degrees in the geographic coordinate system, using the theoretical directional antenna specifications for tower spacing and orientation. Each tower was modeled using 19 wire segments. As the towers in the KIHM array are physically 80.8 electrical degrees in height, the maximum segment length is 4.25 electrical degrees.

Each tower's modeled height relative to its physical height falls within the required range of 75 to 125 percent and each modeled radius falls within the required range of 80 percent to 150 percent of the radius of a circle having a circumference equal to the sum of the widths of the tower faces. The array consists of identical, uniform cross section towers having face widths of 18 inches. Tower #2 is also used by KSGG-AM, 1230 kHz, Reno.

KIHM Tower Dimensions - Physical and Modeled

Tower	Physical Height (degrees)	Modeled Height (degrees)	Modeled Percentage of Height	Modeled Radius (meters)	Percentage of Equivalent Radius
1	80.8	88.5	109.5	.22	100
2	80.8	89.0	110.1	.22	100

KIHM MININEC Model Node and Wire Numbering

Tower	Wire	Base Node
1	1	1
2	2	20

The following pages show the details of the method of moments model.

KIHM Tower 1 Driven Tower 2 Open Circuit at Current Transformer Location

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KIHM

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.22	19
		0	0	88.5		
2	none	80.	267.7	0	.22	19
		80.	267.7	89.		

Number of wires = 2
current nodes = 38

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	4.65789	2	4.68421
radius	1	.22	1	.22

ELECTRICAL DESCRIPTION
Frequencies (KHz)

frequency			no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	920.	0	1	.0129386	.0130117

Sources

source	node	sector	magnitude	phase	type
1	1	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	20	0	2,508.	0	0	0

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IMPEDANCE
normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
920.	**38.372**	**12.182**	40.26	17.6	1.4654	-14.481	-.15759

KIHM Tower 2 Driven Tower 1 Open Circuit at Current Transformer Location

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KIHM

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.22	19
		0	0	88.5		
2	none	80.	267.7	0	.22	19
		80.	267.7	89.		

Number of wires = 2
current nodes = 38

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	4.65789	2	4.68421
radius	1	.22	1	.22

ELECTRICAL DESCRIPTION
Frequencies (KHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	920.	0	1	.0129386	.0130117

Sources

source	node	sector	magnitude	phase	type
1	20	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	2,515.	0	0	0

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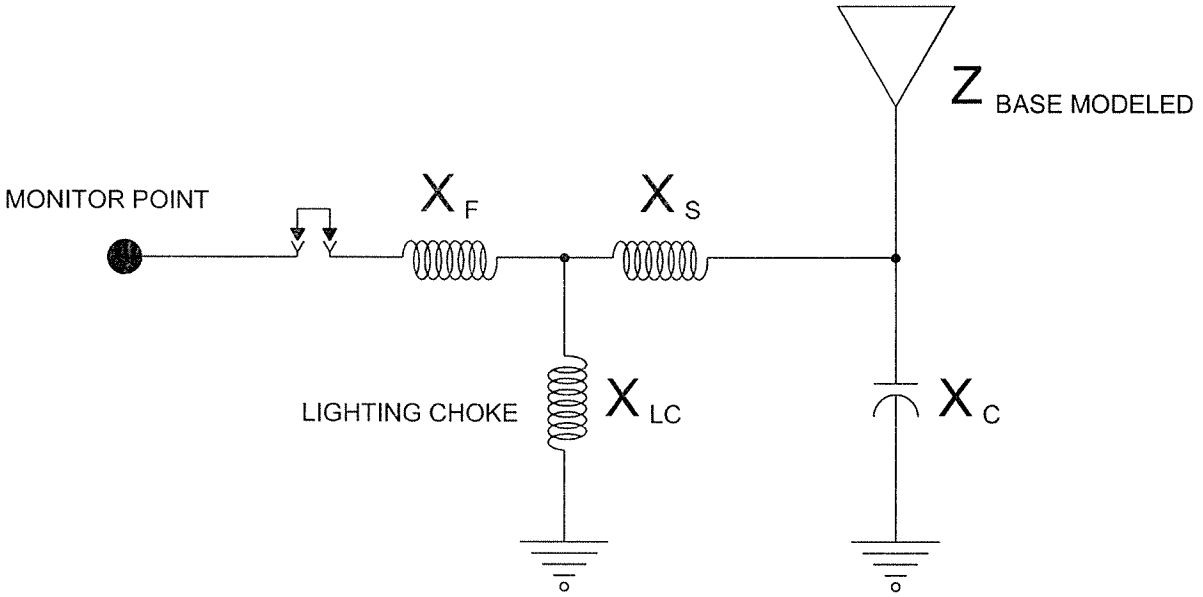
IMPEDANCE
normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 20, sector 1							
920.	**39.127**	**14.992**	41.901	21.	1.5154	-13.769	-.1863



TOWER	X_F (Ω)	X_{LC} (Ω)	X_S (Ω)	X_C (Ω)	$Z_{BASE\ MODELED}$ (Ω)	$Z_{MP\ MODELED}$ (Ω)	$Z_{MP\ MEASURED}$ (Ω)
#1	+j2	+j2k	+j9	-j10k	38.4 +j12.2	37.7 +j23.6	38.1 +j23.3
#2	+j2	+j2k	+j5	-j10k	39.1 +j15.0	38.4 +j22.4	40.1 +j21.5

Bob Allen, H&D 3/21/2014 4:26 PM KIHM MOM TABLE.dwg

HATFIELD & DAWSON
CONSULTING ENGINEERS

ANALYSIS OF TOWER IMPEDANCE MEASUREMENTS TO VERIFY METHOD OF MOMENTS MODEL

RADIO STATION KIHM 920 kHz RENO, NV 03/2014

Item 3

Method of Moments Model Details for Directional Antenna- KIHM

The array of towers was modeled using MININEC with the individual tower characteristics that were verified by the individual tower impedance measurements. Calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna patterns. The following pages contain details of the method of moments models of the directional antenna patterns.

KIHM Driven Array - Night

```
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KIHM

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire  caps Distance     Angle        Z            radius      segs
 1    none 0            0            0            .22          19
           0            0            88.5
 2    none 80.          267.7        0            .22          19
           80.          267.7        89.

Number of wires          =  2
          current nodes  =  38

                         minimum                   maximum
Individual wires      wire    value             wire  value
segment length         1      4.65789            2    4.68421
radius                 1      .22                1    .22


ELECTRICAL DESCRIPTION
Frequencies (KHz)
     frequency                 no. of  segment length (wavelengths)
 no. lowest       step          steps   minimum        maximum
 1   920.         0              1      .0129386       .0130117

Sources
source node    sector  magnitude      phase          type
 1      1       1      172.06         50.3           voltage
 2      20      1      305.941        268.9          voltage

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IMPEDANCE
   normalization = 50.
freq     resist   react    imped    phase    VSWR    S11      S12
(KHz)    (ohms)   (ohms)   (ohms)   (deg)            dB       dB
source =  1; node 1, sector 1
920.     14.758   16.865   22.41    48.8     3.8058  -4.6741  -1.8103

source =  2; node 20, sector 1
920.     20.062   43.126   47.564   65.1     4.5266  -3.902   -2.2708

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CURRENT MOMENTS(amp-degrees) rms

Frequency =  920 KHz
Input power = 850. watts
                                 vertical current moment
wire   magnitude    phase (deg)  magnitude    phase (deg)
 1     414.728      0.0          414.728      0.0
 2     364.961      202.         364.961      202.
```

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CURRENT rms
Frequency = 920 KHz
Input power = 850. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	**5.429**	**1.5**	5.42716	.141433
2	0	0	4.65789	5.45675	1.1	5.45578	.103028
3	0	0	9.31579	5.43423	.8	5.43368	.0774926
4	0	0	13.9737	5.37242	.6	5.37213	.0557427
5	0	0	18.6316	5.27312	.4	5.27299	.0366611
6	0	0	23.2895	5.1375	.2	5.13746	.0198148
7	0	0	27.9474	4.96668	.1	4.96668	5.02E-03
8	0	0	32.6053	4.76178	359.9	4.76178	-7.79E-03
9	0	0	37.2632	4.52407	359.8	4.52403	-.0186553
10	0	0	41.921	4.25487	359.6	4.25478	-.0275633
11	0	0	46.5789	3.95566	359.5	3.95551	-.0345019
12	0	0	51.2368	3.62793	359.4	3.62771	-.0394492
13	0	0	55.8947	3.27323	359.3	3.27296	-.0423802
14	0	0	60.5526	2.89303	359.1	2.89271	-.0432679
15	0	0	65.2105	2.48863	359.	2.48827	-.0420818
16	0	0	69.8684	2.06087	358.9	2.0605	-.0387823
17	0	0	74.5263	1.60965	358.8	1.6093	-.0333066
18	0	0	79.1842	1.13263	358.7	1.13234	-.0255309
19	0	0	83.8421	.621319	358.6	.621134	-.0151573
END	0	0	88.5	0	0	0	0
GND	-3.21052	79.9356	0	**4.54824**	**203.9**	-4.15915	-1.84064
21	-3.21052	79.9356	4.68421	4.63012	203.3	-4.25189	-1.83286
22	-3.21052	79.9356	9.36842	4.64841	203.	-4.27973	-1.81428
23	-3.21052	79.9356	14.0526	4.6263	202.7	-4.26827	-1.78452
24	-3.21052	79.9356	18.7368	4.56703	202.4	-4.22106	-1.74367
25	-3.21052	79.9356	23.4211	4.47234	202.2	-4.13995	-1.69194
26	-3.21052	79.9356	28.1053	4.3435	202.	-4.02621	-1.62962
27	-3.21052	79.9356	32.7895	4.18169	201.9	-3.88101	-1.55701
28	-3.21052	79.9356	37.4737	3.98808	201.7	-3.70547	-1.47454
29	-3.21052	79.9356	42.1579	3.76395	201.6	-3.50082	-1.38261
30	-3.21052	79.9356	46.8421	3.51062	201.4	-3.26829	-1.2817
31	-3.21052	79.9356	51.5263	3.2295	201.3	-3.00921	-1.17231
32	-3.21052	79.9356	56.2105	2.92196	201.2	-2.72488	-1.05494
33	-3.21052	79.9356	60.8947	2.58939	201.1	-2.41659	-.930065
34	-3.21052	79.9356	65.579	2.23295	200.9	-2.08545	-.798105
35	-3.21052	79.9356	70.2632	1.85346	200.8	-1.73221	-.659352
36	-3.21052	79.9356	74.9474	1.45084	200.7	-1.35683	-.513784
37	-3.21052	79.9356	79.6316	1.023	200.6	-.95731	-.360675
38	-3.21052	79.9356	84.3158	.562259	200.6	-.526479	-.197369
END	-3.21052	79.9356	89.	0	0	0	0

Comparison of Current Moments with Theoretical Antenna Field Parameters - Night Pattern

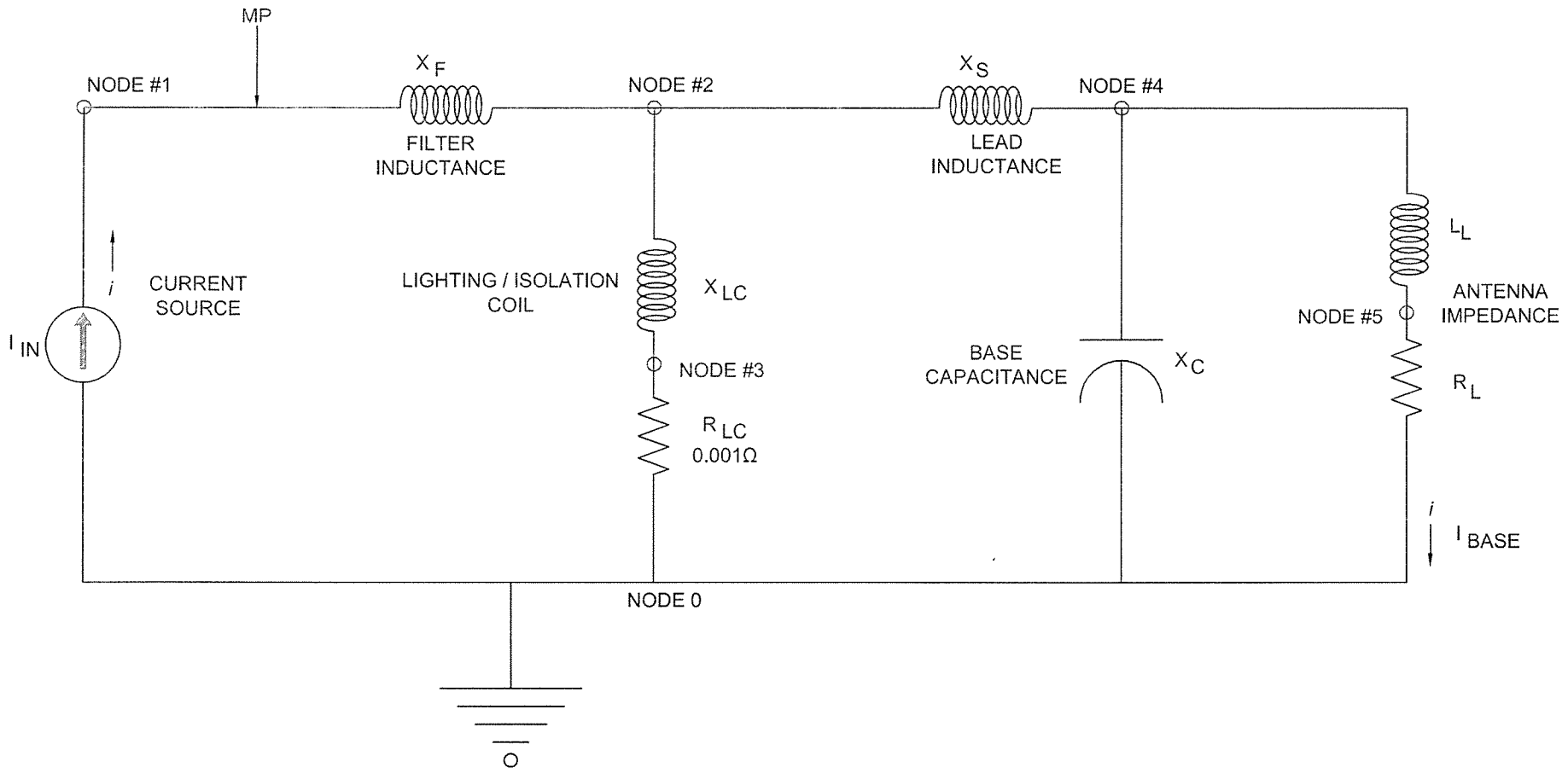
Tower	Current Moment Magnitude	Current Moment Phase	Normalized Magnitude	Normalized Phase	Standard Pattern Ratio	Standard Pattern Phase
1	414.728	0.0	1.0	0	1.0	0
2	364.961	202.0	.880	-158.0	.880	–158.0

As shown in the tables above, the base currents used in the Method of Moments computer model produce current moments in each of the towers that are identical to the field ratios and phases of the theoretical antenna parameters specified in the KIHM Construction Permit.

Item 4

Derivation of Operating Parameters for Directional Antennas - KIHM

The currents at the tower reference points have been calculated by using the computer circuit simulation program pspice. A pspice model has been made for each tower using the antenna base currents and base impedances calculated by MININEC and shown above, and the reactances listed previously in the table *Analysis of Tower Impedance Measurements to Verify Method of Moments Model*. The magnitude and phase of the current source in the pspice model was adjusted such that the current calculated in the output branch of the pspice model (the current through resistor R_L) was the same as the base current for the tower calculated by MININEC. The current at the reference point is the current source in the pspice model. These calculated currents are then normalized to the reference tower to obtain the antenna monitor phase and ratio readings, as shown in the tables labeled Antenna Monitor Parameters, which follow the pspice data below.



Bob Allen, H&D 4/1/2014 3:02 PM KIHM TOWER CIRCUITS.dwg

HATFIELD & DAWSON CONSULTING ENGINEERS	KIHM (AM) PSPICE MODEL KIHM(AM) 920kHz RENO, NV 03/2014	REVISIONS:

```
## KIHM TOWER 1 NIGHT BASE MODEL

 ****     CIRCUIT DESCRIPTION

*******************************************************************************


.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 920kHz 920kHz

IIN             0                       1               AC 5.49 1.165
LXf             1                       2               .346uH
LXlc            2                       3               346uH
Rlc             3                       0               .001ohms
LXs             2                       4               1.56uH
CXc             4                       0               17.3pF

LL              4                       5               2.924uH
RL              5                       0               14.8ohms


.PRINT AC IM(RL) IP(RL)

##.PROBE
.END


 ****     ELEMENT NODE TABLE


0               RL          CXc         IIN         Rlc

1               IIN         LXf

2               LXf         LXl         LXs

3               LXl         Rlc

4               LL          CXc         LXs

5               LL          RL


 ****     CIRCUIT ELEMENT SUMMARY
```

**** RESISTORS

NAME	NODES		MODEL	VALUE	TC1	TC2	TCE
Rlc	3	0		1.00E-03			
RL	5	0		1.48E+01			

**** CAPACITORS

NAME	NODES		MODEL	VALUE	In. Cond.	TC1	TC2
CXc	4	0		1.73E-11			

**** INDUCTORS

NAME	NODES		MODEL	VALUE	In. Cond.	TC1	TC2
LXf	1	2		3.46E-07			
LXl	2	3		3.46E-04			
LXs	2	4		1.56E-06			
LL	4	5		2.92E-06			

**** INDEPENDENT SOURCES

NAME	NODES		DC VALUE	AC VALUE	AC PHASE	
IIN	0	1	0.00E+00	5.49E+00	1.17E+00	degrees

**** AC ANALYSIS TEMPERATURE = 27.000 DEG C

FREQ	IM(RL)	IP(RL)
9.200E+05	**5.429E+00**	**1.500E+00**

```
 ## KIHM TOWER 2 NIGHT BASE MODEL

 ****     CIRCUIT DESCRIPTION

********************************************************************************


.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 920kHz 920kHz

IIN             0                       1               AC 4.638 -156.6
LXf             1                       2               .346uH
LXlc            2                       3               346uH
Rlc             3                       0               .001ohms
LXs             2                       4               .867uH
CXc             4                       0               17.3pF

LL              4                       5               7.456uH
RL              5                       0               20.1ohms


.PRINT AC IM(RL) IP(RL)

##.PROBE
.END


 ****     ELEMENT NODE TABLE


0               RL          CXc         IIN         Rlc

1               IIN         LXf

2               LXf         LXl         LXs

3               LXl         Rlc

4               LL          CXc         LXs

5               LL          RL


 ****     CIRCUIT ELEMENT SUMMARY
```

**** RESISTORS

NAME	NODES		MODEL	VALUE	TC1	TC2	TCE
Rlc	3	0		1.00E-03			
RL	5	0		2.01E+01			

**** CAPACITORS

NAME	NODES		MODEL	VALUE	In. Cond.	TC1	TC2
CXc	4	0		1.73E-11			

**** INDUCTORS

NAME	NODES		MODEL	VALUE	In. Cond.	TC1	TC2
LXf	1	2		3.46E-07			
LXl	2	3		3.46E-04			
LXs	2	4		8.67E-07			
LL	4	5		7.46E-06			

**** INDEPENDENT SOURCES

NAME	NODES		DC VALUE	AC VALUE	AC PHASE	
IIN	0	1	0.00E+00	4.64E+00	-1.57E+02	degrees

**** AC ANALYSIS TEMPERATURE = 27.000 DEG C

FREQ	IM(RL)	IP(RL)
9.200E+05	**4.548E+00**	**-1.561E+02**

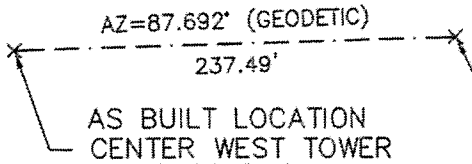
Antenna Monitor Parameters - Night Pattern - KIHM

Tower	Ref Point Current Magnitude	Ref Point Current Phase	Normalized Magnitude	Normalized Phase
1	5.490	1.165	1.0	0
2	4.638	-156.6	.845	-157.8

Item 5

Post Construction Array Geometry Statement & Survey - KIHM

The KIHM Construction Permit specifies that the towers be spaced at a distance of 80.0 electrical degrees, at a bearing of 267.7 degrees. The post-construction survey on the following page states that the actual distance is 237.49 feet (79.97 degrees) at a bearing of 87.692 degrees (267.692 degrees). Thus the actual location of Tower #2 differs from that specified in the Construction Permit by .032 degrees.



AS BUILT LOCATION
CENTER WEST TOWER
N: 14862610.19
E: 2305598.34
LATITUDE:
39-30-49.3090787
LONGITUDE:
119-42-57.3657818
GROUND EL=4387.4

AS BUILT LOCATION
CENTER EAST TOWER
N: 14862616.77
E: 2305835.73
LATITUDE:
39-30-49.4035976
LONGITUDE:
119-42-54.3386334
GROUND EL=4387.6

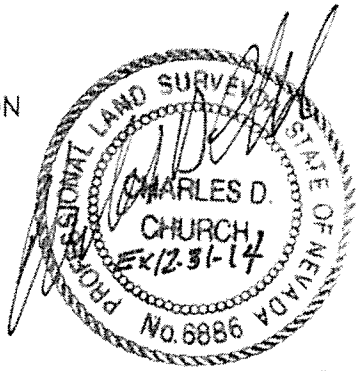
DISTANCE BETWEEN THE TWO POINTS:
237.49'
AZMUTH: 87°41'30" = 87.692°
(GEODETIC)

NORTHINGS AND EASTINGS
BASED ON WASHOE COUNTY NAD 83/94
CONTROL (NEVADA WEST ZONE).

BEARING CONVERTED TO GEODETIC NORTH
USING A CONVERGENCE ANGLE OF
-0°43'13"

ELEVATIONS BASED ON CITY OF SPARKS
BENCHMARK: #2631, HAVING AN ELEVATION
OF 4403.81 NAVD88.

SCALE: 1"=100'



1-03-2014

EXHIBIT "A"
FOR KSGG AND KIHM
ANTENNA SITE

DATE:	PROJECT NO.
01-03-14	2001384

SIERRA SURVEYING, INC.
555 HOLCOMB AVENUE
RENO, NEVADA 89502-1875
TELEPHONE: (775) 828-5004
FAX: (775) 337-0313
SIERRASURVEYING@SBCGLOBAL.NET

Item 6

Sampling System Measurements - KIHM

Impedance measurements were made of the antenna monitor sampling system using a Hewlett Packard 8751A network analyzer in a calibrated measurement system. The measurements were made looking into the antenna monitor ends of the sampling lines for two conditions – with and without the sampling lines connected to the sampling transformers at the antenna tuning units.

The following table shows the frequency closest to the carrier frequency where series resonance – zero reactance corresponding with low resistance – was found. As frequencies of resonance occur at odd multiples of 90 degrees electrical length, the sampling line length at the resonant frequency above carrier frequency – which is the closest one to the carrier frequency – was found to be 270 electrical degrees. The electrical length at carrier frequency appearing in the table below was calculated by ratioing the carrier frequency to the resonant frequency.

KIHM Sample Line Measurements

Tower	Sample Line Open-Circuited Resonant Frequency (kHz)	Sample Line Electrical Length in Degrees at 920 kHz	Measured Impedance at 920 kHz with Sample TCT Connected
1	1035.050	239.99	53.2 -j1.2
2	1034.292	240.16	52.9 -j1.3

The sample line lengths meet the requirement that they be equal in length to within 1 electrical degree.

In order to determine the characteristic impedance values of the sampling lines, open-circuited measurements were made with frequencies offset to produce +/- 45 degrees of electrical length from resonance. The characteristic impedance was calculated using the following formula, where R1 +j X1 and R2 +j X2 are the measured impedances at the +45 and –45 degree offset frequencies, respectively:

$$Zo = ((R_1^2 + X_1^2)^{1/2} \times (R_2^2 + X_2^2)^{1/2})^{1/2}$$

KIHM Sample Line Characteristic Impedance Calculations

Tower	-45° Offset Frequency (KHz)	-45° Measured Impedance (Ohms)	+45° Offset Frequency (kHz)	+45° Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
1	862.542	6.4 -j49.8	1207.558	5.1 +j49.1	49.8
2	861.910	6.6 -j50.0	1206.674	5.1 +j49.2	49.9

The sample line measured characteristic impedances meet the requirement that they be equal within 2 ohms.

Item 7

Antenna Monitor and Sampling System - KIHM

The antenna monitor is a Potomac Instruments model AM-1901. The antenna monitor is new, the factory calibration certificate is included in this report.

The sample transformers are connected through equal lengths of Andrew LDF4-50A Heliax solid outer conductor transmission lines to the antenna monitor. The sample lines are routed to the towers such that they are subject to similar environmental conditions. The sample current transformers were tested by feeding their outputs to the "A" and "B" inputs of the network analyzer, while feeding the amplified output of the network analyzer through the sample transformers into a resistive load. The transformers were found to be in agreement to within 0.1° of phase and 0.1% of ratio.

Potomac Instruments, inc.
7309 Grove Rd Unit D Frederick, MD 21704 Phone 301-696-5550 Fax 301-696-5553

Certificate of Calibration

For

Medium Wave Directional Antenna Monitor

Model: 1901-2

Serial Number: 898

Performed for: Immaculate Heart Radio

Address: 2277 Glendale Ave.
Sparks, NV 89431

Calibration Frequency: 920 kHz

Termination Impedance: 50 Ω

Temperature: 73° F

Relative Humidity: 42%

Equipment Modifications from Standard: None

This document certifies that the above instrument has been tested and calibrated in accordance with factory calibration procedures under the conditions noted using standards that are traceable to the National Institute of Standards and Technology (NIST).

Approved By: _____
Zachary Babendreier

Calibration Date: 09/09/2013

Next Recommended Calibration: September 2016

PI Potomac Instruments, Inc.

1900 Series Antenna Monitor Factory Configuration

Rev A

General Information

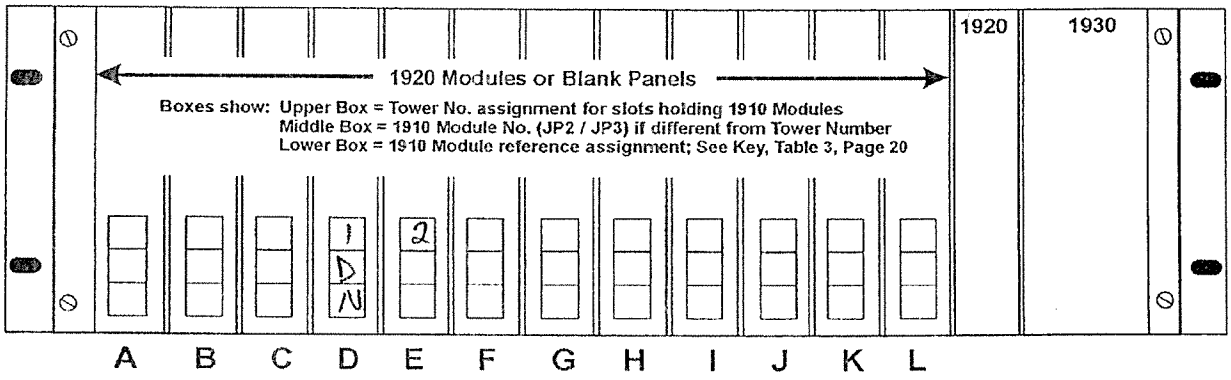
Customer / Order Number: Immaculate Heart Radio 7001	Date: 9/5/13
Model Number: ☒ 1901 ☐ 1903 ☐ 1902 Included	Chassis Serial Number: 898
Number of Towers	☒2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12
Number of Patterns	☐ 1 ☒2 ☐ 3
Non-Directional Patterns	☐ Yes ☒ No
Reference Tower for each Pattern	☒ Day Twr # 1 ☒ Night Twr # 1 ☐ 3RD Twr # ____
Common Point	☒ N/A Slot ____
Operating Frequency (kHz)	920
Reject Filter Frequencies (kHz)	N/A
Sampling Line Impedance	☒ 50 Ohms ☐ 75 Ohms ☐ Hi Z
Input Connector Type	☐ UHF ☒ Type N
AC Power	☒ 117 VAC (3/4 Ampere Fuse) ☐ 230 VAC (3/8 Ampere Fuse)
Power Supply Serial Number	1612 08083
Notes:	

Display Board Configuration

Decimal Point Selection (JP1)	☐ 2 ☒ 3 ☐ 4

Control Board Configuration

Serial Number	4512 08056
Tower Output Resistor Values (if different than shown on schematic)	R82 ____ R83 ____ R85 ____ R86 ____ R87 ____ R88 ____ R89 ____ R90 ____ R91 ____ R92 ____ R93 ____
JP1	☒ 1 ☐ 2 ☐ 3 ☐ None
JP2	☐ D (Day) ☐ N (Night) ☐ C (3RD)
JP3	☐ 0 ☒ 1
JP4	☒ 0 ☐ 1
JP5	☒ 0 ☐ 1
JP6	☒ 0 ☐ 1
JP7	☒2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11 ☐12
JP8	☐ 1 ☐ 2 ☒ 3 ☐ None
JP9	☐ D (Day) ☐ N (Night)



Potomac Instruments, Inc.

1910 Metering Module Configurations

Rev A

1910 Slot A	Serial Number 1313 3141			
JP1	REF☒DAY ☑NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☑1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☒SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☒SHORTED		
JP7	☒2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☒2 - 3 (TWR)		
R101	☒50	☐75	☐High Z	
Filter	☒N/A	A10468 -		
Notes				

1910 Slot B	Serial Number 1313 3142			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☒2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☒OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☒OPEN	☐SHORTED		
JP7	☒2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☒2 - 3 (TWR)		
R101	☒50	☐75	☐High Z	
Filter	☒N/A	A10468 -		
Notes				

1910 Slot C	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot D	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot E	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot F	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot G	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot H	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot I	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot J	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot K	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

1910 Slot L	Serial Number			
JP1	REF☐DAY ☐NIT	☐3RD		
	Non-D	☐DAY	☐NIT	☐3RD
JP2 JP3	☐1	☐2	☐3	☐4
	☐5 ☐6	☐7	☐8	
	☐9 ☐10	☐11	☐12	
JP4	☐OPEN	☐SHORTED		
JP5	☒OPEN	(Test Only)		
JP6	☐OPEN	☐SHORTED		
JP7	☐2 to 6 Towers	☐7 to 12 Towers		
JP8	☐1 - 2 and 3 - 4 (CP)	☐2 - 3 (TWR)		
R101	☐50	☐75	☐High Z	
Filter	☐N/A	A10468 -		
Notes				

Item 8

Reference Field Strength Measurements - KIHM

Reference field strength measurements were made along radials at the azimuths with radiation limits specified on the construction permit and, additionally, on the radial of the line of the towers in the maximum. The transmitter power was adjusted to .92 kW

Measurements were made using a Potomac Instruments field strength meter, model FIM-41, Serial # 1597. This meter was last calibrated in May 2013.

The measured field strengths and descriptions and GPS coordinates for the reference measurement points are shown on the following pages.

Reference Points
KIHM-AM 920 kHz
Reno, NV

Radial	Distance (Km)	Field Strength (MV/m)	NAD83 Coordinates	Description
13.5°	4.32	13	39 33 5.3 119 42 13.7	Storm drain in front of 2154 San Remo Drive
13.5°	4.79	10	39 33 19.7 119 42 7.9	North end of cul-de-sac in front of 2695 Bertini Court
13.5°	4.98	11	39 33 26.1 119 33 6.9	Mailboxes across from 2172 Signa Drive
161.5°	2.54	26	39 29 31.2 119 42 23.3	Mailboxes across from 7460 Rough Rock Drive
267°	2.86	130	39 30 43.8 119 44 55.4	Behind 5400 Mill St. SE corner of parking lot near dumpster
267°	4.01	95	39 30 45.4 119 45 43.9	Fire hydrant northwest of 280 S. Rock Blvd.
267°	5.40	76	39 30 40.2 119 46 41.9	Parking lot just east of 1310 Airmotive Way

The 161.5° radial from KIHM crosses extremely rough and undeveloped terrain. Only one accessible reference point could be found.

All measurements were made with a Potomac Instruments FIM-41, Serial # 1597, last calibrated in May 2013.

Hatfield & Dawson Consulting Engineers

Item 9

Direct Measurement of Power - KIHM

Common point impedance measurements were made using a Hewlett Packard 8751A network analyzer in a calibrated measurement system. The measurements were made at the phasor cabinet input jack adjacent to the common point current meter that is used to determine operating power. The impedance measured at this point was adjusted to a value of 50 +/- j0 Ohms. Power for the daytime non-directional operation of KIHM is also measured at the common point ammeter. The measured impedance at this location in non-directional mode is also 50 +/- j0 Ohms.

Item 10

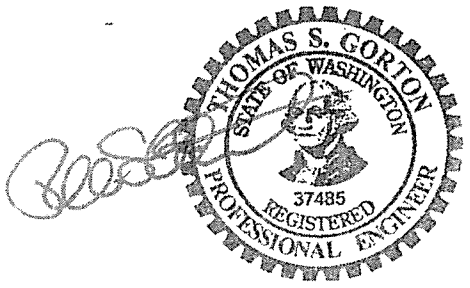
Spurious Emissions Measurements

Following the construction of the new common antenna system used by KSGG-AM and KIHM-AM, both licensed to Reno, NV. the required filters and traps necessary for the diplexed operation of the two stations were adjusted to provide the minimum insertion loss and maximum suppression at 920 and 1230 kHz, the respective frequencies of KIHM and KSGG. All filters provide between 42 and 54 dB of suppression at the appropriate reject frequency. Following demolition of the old KIHM/KSGG antenna towers, measurements were made to demonstrate the lack of spurious or otherwise undesired intermodulation products. These measurements were made in an open field, approximately 0.5 km north of the KIHM/KSGG antenna, using a Tektronix model 2710 spectrum analyzer and a Potomac Instruments FIM-41 field intensity meter. Both stations were operating at the power specified in their respective construction permits. No harmonics or intermodulation products that exceed the limits specified in §73.44 were observed.

Certification

This Engineering Report has been prepared personally by the undersigned or under my immediate supervision, and all representations are true and correct to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission, I am an engineer in the firm of Hatfield & Dawson Consulting Engineers, LLC, and I am Registered as a Professional Engineer in the States of Washington and Oregon.

April 1, 2014



Thomas S. Gorton P.E.

APPENDIX A: FCC Form 302-AM

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Method of Moments Analysis

of the

Effect of KIHM & KSGG Antenna Array

on the

Directional Operation of KFOY-AM

IHR Educational Broadcasting

&

Americom Las Vegas Limited Partnership

March 2014

This Engineering Report has been prepared on behalf of Americom Las Vegas Limited Partnership ("Americom"), licensee of KSGG-AM, Fac ID 202, Reno, NV and IHR Educational Broadcasting ("IHR"), licensee of KIHM-AM, fac ID 53707, Reno, NV. Americom and IHR both hold construction permits (File Nos. BP-20130515AAL and BP-20130514ADB respectively) which authorize construction of a new two tower antenna array for the diplexed operation of KIHM and KSGG. Both permits contains a condition (Special Operating Condition #5) which requires a partial proof of performance be conducted on the directional operation[1] of KFOY-AM. This Engineering Report contains a method of moments analysis of the potential effect of modifications to the new antenna array on the directional operation of KFOY, as specified in §1.30002(b) of the Commission's rules..

A model of the KFOY antenna array has been made using Expert Mininec Broadcast Professional Ver 14.0, assuming a lossless environment. The tower heights, spacing and bearing for the KFOY array contained in the CDBS were used in the model. The bases of the KFOY towers were then driven with voltages chosen such that the current moments for the towers generated by the model are related to each other by the same ratio and phase as the theoretical field parameters listed in the CDBS.

Based on the geographic coordinates for KFOY and the KIHM Construction Permit obtained from the CDBS, the center of the new KIHM array is located 2.17 km from the center of the KFOY array, at a bearing of 51.2°. The KIHM towers were added to the Mininec model at this location. The new towers are 93.1° tall at KFOY's frequency, and the model includes lumped loads at the bases of the new towers. These lumped loads are the same as those used in the KIHM Method of Moments Proof of Performance, adjusted to KFOY's frequency.

The models were then used to calculate the field strength of KFOY at a distance of 1 km, both with and without the affects of the new towers. These values are tabulated in columns 2 and 3 of the chart titled "KFOY MOM Analysis". The ratio of these two values is then multiplied by the FCC Theoretical IDF for each radial under study. If these values do not exceed the IDF values of the Standard pattern, (if the values in the column labeled "Margin" are all positive), then it is determined that the new towers do not negatively affect the operation of KFOY.

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[1]KFOY operates with the same directional antenna pattern day and night, with reduced nighttime power.

Mininec Model - KFOY

KFOY Study

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.23	19
		0	0	117.4		
2	none	192.7	86.	0	.23	19
		192.7	86.	117.4		
3	none	2,715.2	50.46	0	.23	19
		2,715.2	50.46	93.1		
4	none	2,809.53	51.91	0	.23	19
		2,809.53	51.91	93.1		

Number of wires = 4
current nodes = 76

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	4.9	1	6.17895
radius	1	.23	1	.23

ELECTRICAL DESCRIPTION
Frequencies (KHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1,060.	0	1	.0136111	.0171637

Sources

source	node	sector	magnitude	phase	type
1	1	1	2,700.35	67.4	voltage
2	20	1	1,288.1	235.9	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	40	0	2,890.	0	0	0
2	60	0	2,900.	0	0	0

CURRENT MOMENTS(amp-degrees) rms

Frequency = 1060 KHz
Input power = 10,000. watts

			vertical current moment	
wire	magnitude	phase (deg)	magnitude	phase (deg)
1	967.021	0.0	967.021	0.0
2	335.911	168.	335.911	168.

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
0	594.58	596.52	1.003	563.21	592.30	565.05	27.25
1	596.12	596.52	1.001	564.67	593.83	565.05	28.78
2	599.29	597.94	0.998	567.67	596.98	566.40	30.58
3	604.05	601.49	0.996	572.18	601.71	569.76	31.95
4	610.33	607.61	0.996	578.13	607.95	575.55	32.40
5	618.06	616.26	0.997	585.45	615.62	583.74	31.88
6	627.14	626.97	1.000	594.05	624.64	593.89	30.75
7	637.46	639.01	1.002	603.83	634.89	605.29	29.60
8	648.92	651.65	1.004	614.69	646.28	617.27	29.01
9	661.41	664.39	1.005	626.52	658.68	629.34	29.34
10	674.81	677.07	1.003	639.21	671.99	641.35	30.64
11	689.01	689.84	1.001	652.66	686.10	653.44	32.65
12	703.89	703.04	0.999	666.76	700.88	665.95	34.94
13	719.36	717.06	0.997	681.40	716.24	679.23	37.01
14	735.29	732.19	0.996	696.50	732.08	693.56	38.52
15	751.61	748.51	0.996	711.96	748.29	709.02	39.27
16	768.21	765.88	0.997	727.69	764.79	725.48	39.31
17	785.02	784.00	0.999	743.61	781.49	742.64	38.86
18	801.95	802.45	1.001	759.64	798.32	760.12	38.20
19	818.93	820.84	1.002	775.73	815.19	777.53	37.66
20	835.90	838.82	1.003	791.80	832.06	794.56	37.49
21	852.79	856.17	1.004	807.80	848.84	811.00	37.84
22	869.55	872.79	1.004	823.67	865.49	826.75	38.74
23	886.12	888.72	1.003	839.37	881.96	841.83	40.13
24	902.46	904.03	1.002	854.85	898.21	856.34	41.87
25	918.54	918.88	1.000	870.03	914.19	870.40	43.79
26	934.30	933.40	0.999	885.01	929.86	884.15	45.70
27	949.73	947.72	0.998	899.63	945.19	897.72	47.47
28	964.79	961.94	0.997	913.89	960.16	911.19	48.97
29	979.46	976.08	0.997	927.79	974.74	924.58	50.16
30	993.72	990.14	0.996	941.29	988.91	937.90	51.01
31	1007.50	1004.08	0.997	954.38	1002.65	951.14	51.51
32	1020.90	1017.34	0.997	967.05	1015.95	964.15	51.79
33	1033.80	1031.33	0.998	979.29	1028.79	976.95	51.84
34	1046.20	1044.49	0.998	991.07	1041.16	989.45	51.70
35	1058.20	1057.22	0.999	1002.41	1053.05	1001.48	51.57
36	1069.70	1069.49	1.000	1013.29	1064.47	1013.09	51.38
37	1080.70	1081.23	1.000	1023.71	1075.40	1024.21	51.20
38	1091.20	1092.41	1.001	1033.66	1085.65	1034.81	51.04
39	1101.20	1103.03	1.002	1043.16	1095.82	1044.89	50.93
40	1110.80	1113.06	1.002	1052.20	1105.31	1054.34	50.97
41	1119.80	1122.53	1.002	1060.79	1114.32	1063.37	50.95
42	1128.40	1131.44	1.003	1068.93	1122.86	1071.81	51.06
43	1136.50	1139.80	1.003	1076.62	1130.94	1079.75	51.19
44	1144.20	1147.64	1.003	1083.89	1138.57	1087.15	51.42
45	1151.40	1154.98	1.003	1090.73	1145.74	1094.12	51.63
46	1158.20	1161.84	1.003	1097.15	1152.49	1100.60	51.89
47	1164.60	1168.25	1.003	1103.17	1158.80	1106.63	52.18
48	1170.50	1174.22	1.003	1108.80	1164.71	1112.32	52.39
49	1176.00	1179.77	1.003	1114.04	1170.21	1117.61	52.60
50	1181.20	1184.92	1.003	1118.92	1175.33	1122.44	52.89
51	1186.00	1189.70	1.003	1123.44	1180.08	1126.95	53.13

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
52	1190.40	1194.11	1.003	1127.62	1184.47	1131.14	53.33
53	1194.40	1198.16	1.003	1131.48	1188.52	1135.04	53.48
54	1198.20	1201.88	1.003	1135.02	1192.23	1138.50	53.73
55	1201.60	1205.26	1.003	1138.26	1195.64	1141.73	53.91
56	1204.70	1208.30	1.003	1141.22	1198.74	1144.63	54.11
57	1207.60	1211.03	1.003	1143.91	1201.57	1147.16	54.40
58	1210.10	1213.44	1.003	1146.35	1204.12	1149.51	54.61
59	1212.50	1215.53	1.002	1148.55	1206.43	1151.42	55.01
60	1214.50	1217.31	1.002	1150.52	1208.50	1153.18	55.32
61	1216.40	1218.77	1.002	1152.28	1210.35	1154.52	55.82
62	1218.10	1219.94	1.002	1153.84	1211.99	1155.58	56.40
63	1219.50	1220.83	1.001	1155.22	1213.44	1156.48	56.96
64	1220.80	1221.44	1.001	1156.44	1214.71	1157.04	57.67
65	1221.90	1221.82	1.000	1157.50	1215.82	1157.42	58.40
66	1222.90	1222.01	0.999	1158.41	1216.79	1157.57	59.22
67	1223.70	1222.05	0.999	1159.20	1217.61	1157.63	59.98
68	1224.40	1222.03	0.998	1159.87	1218.31	1157.62	60.69
69	1225.00	1222.00	0.998	1160.43	1218.90	1157.59	61.31
70	1225.50	1222.06	0.997	1160.90	1219.40	1157.64	61.76
71	1225.90	1222.28	0.997	1161.28	1219.80	1157.85	61.95
72	1226.20	1222.72	0.997	1161.59	1220.12	1158.30	61.83
73	1226.50	1223.43	0.997	1161.84	1220.38	1158.93	61.45
74	1226.70	1224.42	0.998	1162.03	1220.58	1159.87	60.71
75	1226.90	1225.65	0.999	1162.17	1220.73	1160.99	59.74
76	1227.00	1227.01	1.000	1162.28	1220.85	1162.29	58.56
77	1227.00	1228.39	1.001	1162.35	1220.92	1163.67	57.25
78	1227.10	1229.60	1.002	1162.40	1220.97	1164.77	56.20
79	1227.10	1230.47	1.003	1162.43	1221.00	1165.62	55.38
80	1227.10	1230.83	1.003	1162.44	1221.02	1165.98	55.04
81	1227.10	1230.58	1.003	1162.45	1221.02	1165.74	55.28
82	1227.10	1229.73	1.002	1162.45	1221.02	1164.94	56.08
83	1227.10	1228.38	1.001	1162.44	1221.01	1163.65	57.36
84	1227.10	1226.75	1.000	1162.44	1221.01	1162.10	58.90
85	1227.10	1225.17	0.998	1162.43	1221.01	1160.60	60.40
86	1227.10	1223.99	0.997	1162.43	1221.00	1159.48	61.52
87	1227.10	1223.51	0.997	1162.43	1221.01	1159.03	61.97
88	1227.10	1223.91	0.997	1162.44	1221.01	1159.41	61.59
89	1227.10	1225.13	0.998	1162.44	1221.01	1160.57	60.44
90	1227.10	1226.91	1.000	1162.45	1221.02	1162.27	58.75
91	1227.10	1228.79	1.001	1162.45	1221.02	1164.05	56.97
92	1227.10	1230.25	1.003	1162.44	1221.02	1165.43	55.59
93	1227.10	1230.81	1.003	1162.43	1221.00	1165.94	55.06
94	1227.10	1230.26	1.003	1162.40	1220.97	1165.39	55.58
95	1227.00	1228.68	1.001	1162.35	1220.92	1163.94	56.98
96	1227.00	1226.52	1.000	1162.28	1220.85	1161.82	59.02
97	1226.90	1224.46	0.998	1162.17	1220.73	1159.86	60.87
98	1226.70	1223.18	0.997	1162.03	1220.58	1158.70	61.89
99	1226.50	1223.13	0.997	1161.84	1220.38	1158.65	61.74
100	1226.20	1224.31	0.998	1161.59	1220.12	1159.80	60.32
101	1225.90	1226.19	1.000	1161.28	1219.80	1161.56	58.24
102	1225.50	1227.93	1.002	1160.90	1219.40	1163.20	56.20
103	1225.00	1228.64	1.003	1160.43	1218.90	1163.88	55.02
104	1224.40	1227.77	1.003	1159.87	1218.31	1163.06	55.25

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
105	1223.70	1225.36	1.001	1159.20	1217.61	1160.77	56.84
106	1222.90	1222.10	0.999	1158.41	1216.79	1157.65	59.13
107	1221.90	1219.04	0.998	1157.50	1215.82	1154.79	61.04
108	1220.80	1217.15	0.997	1156.44	1214.71	1152.98	61.73
109	1219.50	1216.82	0.998	1155.22	1213.44	1152.69	60.75
110	1218.10	1217.64	1.000	1153.84	1211.99	1153.41	58.58
111	1216.40	1218.50	1.002	1152.28	1210.35	1154.27	56.08
112	1214.50	1218.16	1.003	1150.52	1208.50	1153.98	54.51
113	1212.50	1215.80	1.003	1148.55	1206.43	1151.67	54.76
114	1210.10	1211.50	1.001	1146.35	1204.12	1147.67	56.45
115	1207.30	1206.23	0.999	1143.91	1201.57	1142.61	58.95
116	1204.70	1201.41	0.997	1141.22	1198.74	1138.10	60.64
117	1201.60	1198.12	0.997	1138.26	1195.64	1134.97	60.67
118	1198.20	1196.48	0.999	1135.02	1192.23	1133.39	58.84
119	1194.40	1195.50	1.001	1131.48	1188.52	1132.52	56.00
120	1190.40	1193.64	1.003	1127.62	1184.47	1130.69	53.78
121	1186.00	1189.60	1.003	1123.44	1180.08	1126.85	53.23
122	1181.20	1183.12	1.002	1118.92	1175.33	1120.74	54.60
123	1176.00	1175.15	0.999	1114.04	1170.21	1113.24	56.98
124	1170.50	1167.32	0.997	1108.80	1164.71	1105.78	58.93
125	1164.60	1161.02	0.997	1103.17	1158.80	1099.78	59.03
126	1158.20	1156.47	0.999	1097.15	1152.49	1095.51	56.97
127	1151.40	1152.59	1.001	1090.73	1145.74	1091.85	53.89
128	1144.20	1147.58	1.003	1083.89	1138.57	1087.09	51.48
129	1136.50	1140.06	1.003	1076.62	1130.94	1080.00	50.95
130	1128.40	1129.92	1.001	1068.93	1122.86	1070.37	52.50
131	1119.80	1118.39	0.999	1060.79	1114.32	1059.45	54.87
132	1110.80	1107.31	0.997	1052.20	1105.31	1048.90	56.41
133	1101.20	1097.98	0.997	1043.16	1095.82	1040.11	55.71
134	1091.20	1090.26	0.999	1033.66	1085.85	1032.77	53.08
135	1080.70	1082.67	1.002	1023.71	1075.40	1025.57	49.83
136	1069.70	1073.33	1.003	1013.29	1064.47	1016.72	47.74
137	1058.20	1061.17	1.003	1002.41	1053.05	1005.22	47.83
138	1046.20	1046.63	1.000	991.07	1041.16	991.48	49.68
139	1033.80	1031.38	0.998	979.29	1028.79	976.99	51.79
140	1020.90	1017.26	0.996	967.05	1015.95	963.60	52.34
141	1007.50	1005.08	0.998	954.33	1002.65	952.09	50.56
142	993.72	994.04	1.000	941.29	988.91	941.60	47.31
143	979.43	982.34	1.003	927.79	974.74	930.51	44.23
144	964.79	968.32	1.004	913.89	960.16	917.24	42.93
145	949.73	951.61	1.002	899.63	945.19	901.41	43.78
146	934.30	933.33	0.999	885.01	929.86	884.09	45.77
147	918.54	915.36	0.997	870.03	914.19	867.07	47.12
148	902.46	899.17	0.996	854.85	898.21	851.73	46.47
149	886.12	884.85	0.999	839.37	881.96	838.17	43.79
150	869.55	871.10	1.002	823.67	865.49	825.14	40.35
151	852.79	856.12	1.004	807.80	848.84	810.96	37.88
152	835.90	838.86	1.004	791.80	832.06	794.60	37.45
153	818.94	819.64	1.001	775.73	815.19	776.40	38.80
154	801.95	799.99	0.998	759.64	798.32	757.78	40.54
155	785.02	781.67	0.996	743.61	781.49	740.43	41.06
156	768.21	765.62	0.997	727.69	764.79	725.23	39.56
157	751.61	751.39	1.000	711.95	748.29	711.75	36.55

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
158	735.29	737.53	1.003	696.50	732.08	698.62	33.46
159	719.36	722.62	1.005	681.40	716.24	684.50	31.74
160	703.89	706.17	1.003	666.76	700.88	668.92	31.97
161	689.01	688.93	1.000	652.66	686.10	652.58	33.51
162	674.81	672.48	0.997	639.21	671.99	637.00	34.99
163	661.41	658.28	0.995	626.52	658.68	623.55	35.13
164	648.92	646.89	0.997	614.69	646.28	612.76	33.52
165	637.46	637.69	1.000	603.83	634.89	604.05	30.84
166	627.14	629.44	1.004	594.05	624.64	596.23	28.40
167	618.03	621.05	1.005	585.45	615.62	588.28	27.34
168	610.33	612.29	1.003	578.13	607.95	579.99	27.96
169	604.03	603.91	1.000	572.18	601.71	572.04	29.66
170	599.29	597.19	0.997	567.67	596.98	565.69	31.29
171	596.12	593.28	0.995	564.67	593.83	561.98	31.85
172	594.58	592.58	0.997	563.21	592.30	561.29	31.01
173	594.69	594.52	1.000	563.32	592.41	563.16	29.26
174	596.47	598.16	1.003	565.00	594.18	566.60	27.58
175	599.89	602.52	1.004	568.24	597.58	570.73	26.85
176	604.92	607.15	1.004	573.01	602.57	575.12	27.46
177	611.50	612.28	1.001	579.24	609.11	579.98	29.13
178	619.55	618.59	0.998	586.86	617.10	585.95	31.15
179	628.99	626.80	0.997	595.80	626.47	593.73	32.74
180	639.71	637.33	0.996	605.96	637.12	603.70	33.42
181	651.61	650.06	0.998	617.24	648.95	615.76	33.19
182	664.53	664.45	1.000	629.52	661.83	629.39	32.44
183	678.51	679.76	1.002	642.71	675.67	643.90	31.77
184	693.27	695.35	1.003	656.70	690.33	658.67	31.67
185	708.77	710.85	1.003	671.37	705.72	673.35	32.37
186	724.87	726.23	1.002	686.63	721.73	687.91	33.81
187	741.49	741.70	1.000	702.37	738.24	702.57	35.67
188	758.52	757.59	0.999	718.50	755.16	717.62	37.54
189	775.87	774.17	0.998	734.94	772.40	733.32	39.07
190	793.44	791.53	0.998	751.58	789.86	749.77	40.09
191	811.16	809.60	0.998	768.37	807.47	766.89	40.57
192	828.95	828.14	0.999	785.21	825.14	784.44	40.70
193	846.73	846.81	1.000	802.05	842.81	802.14	40.68
194	864.44	865.32	1.001	818.83	860.41	819.67	40.75
195	882.01	883.42	1.002	835.48	877.88	836.81	41.07
196	899.40	900.97	1.002	851.95	895.17	853.44	41.73
197	916.56	917.94	1.002	868.20	912.22	869.52	42.70
198	933.43	934.38	1.001	884.19	928.99	885.08	43.91
199	949.98	950.35	1.000	899.86	945.44	900.21	45.22
200	966.16	965.95	1.000	915.19	961.52	914.99	46.53
201	981.95	981.26	0.999	930.15	977.22	929.49	47.73
202	997.32	996.29	0.999	944.71	992.50	943.73	48.77
203	1012.20	1011.06	0.999	958.84	1007.33	957.76	49.57
204	1026.60	1025.53	0.999	972.52	1021.69	971.51	50.18
205	1040.60	1039.65	0.999	985.74	1035.56	984.84	50.72
206	1054.00	1053.34	0.999	998.48	1048.93	997.85	51.07
207	1067.00	1066.66	1.000	1010.73	1061.78	1010.31	51.47
208	1079.40	1079.25	1.000	1022.47	1074.11	1022.33	51.78
209	1091.20	1091.37	1.000	1033.70	1085.90	1033.86	52.03
210	1102.60	1102.80	1.000	1044.42	1097.15	1044.80	52.35

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
211	1113.30	1113.83	1.000	1054.62	1107.85	1055.12	52.73
212	1123.50	1124.16	1.001	1064.30	1118.01	1064.93	53.08
213	1133.20	1133.88	1.001	1073.46	1127.62	1074.11	53.52
214	1142.30	1143.03	1.001	1082.11	1136.70	1082.80	53.90
215	1150.90	1151.60	1.001	1090.24	1145.23	1090.90	54.33
216	1159.00	1159.63	1.001	1097.86	1153.23	1098.46	54.77
217	1166.50	1167.11	1.001	1104.99	1160.71	1105.57	55.15
218	1173.50	1174.07	1.000	1111.62	1167.68	1112.16	55.51
219	1180.00	1180.54	1.000	1117.78	1174.14	1118.29	55.85
220	1186.00	1186.50	1.000	1123.46	1180.10	1123.94	56.17
221	1191.50	1191.99	1.000	1128.69	1185.59	1129.16	56.43
222	1196.50	1197.02	1.000	1133.47	1190.61	1133.87	56.74
223	1201.10	1201.60	1.000	1137.82	1195.18	1138.30	56.88
224	1205.30	1205.75	1.000	1141.76	1199.30	1142.18	57.12
225	1209.00	1209.48	1.000	1145.29	1203.01	1145.74	57.27
226	1212.40	1212.82	1.000	1148.44	1206.31	1148.83	57.48
227	1215.30	1215.76	1.000	1151.21	1209.23	1151.65	57.58
228	1217.80	1218.34	1.000	1153.64	1211.77	1154.15	57.63
229	1220.00	1220.57	1.000	1155.72	1213.96	1156.26	57.70
230	1221.90	1222.46	1.000	1157.49	1215.82	1158.02	57.80
231	1223.50	1224.04	1.000	1158.96	1217.36	1159.47	57.89
232	1224.70	1225.33	1.001	1160.15	1218.61	1160.74	57.86
233	1225.70	1226.33	1.001	1161.07	1219.57	1161.66	57.91
234	1226.40	1227.07	1.001	1161.74	1220.28	1162.37	57.90
235	1226.90	1227.58	1.001	1162.18	1220.74	1162.80	57.94
236	1227.10	1227.83	1.001	1162.41	1220.98	1163.10	57.88
237	1227.10	1227.87	1.001	1162.44	1221.01	1163.17	57.84
238	1227.00	1227.71	1.001	1162.29	1220.86	1162.96	57.89
239	1226.70	1227.37	1.001	1161.98	1220.54	1162.62	57.92
240	1226.20	1226.85	1.001	1161.53	1220.06	1162.15	57.91
241	1225.60	1226.16	1.000	1160.95	1219.45	1161.48	57.97
242	1224.80	1225.33	1.000	1160.26	1218.72	1160.76	57.96
243	1224.00	1224.37	1.000	1159.47	1217.90	1159.82	58.08
244	1223.10	1223.28	1.000	1158.60	1216.98	1158.77	58.21
245	1222.10	1222.10	1.000	1157.65	1215.99	1157.66	58.34
246	1221.00	1220.84	1.000	1156.66	1214.95	1156.51	58.44
247	1219.80	1219.54	1.000	1155.63	1213.87	1155.29	58.58
248	1218.60	1218.21	1.000	1154.57	1212.75	1154.01	58.74
249	1217.70	1216.90	0.999	1153.49	1211.62	1152.74	58.89
250	1216.60	1215.63	0.999	1152.42	1210.49	1151.50	59.00
251	1215.40	1214.45	0.999	1151.35	1209.37	1150.45	58.92
252	1214.30	1213.38	0.999	1150.30	1208.27	1149.42	58.84
253	1213.20	1212.43	0.999	1149.27	1207.19	1148.54	58.65
254	1212.20	1211.63	1.000	1148.29	1206.16	1147.75	58.41
255	1211.20	1210.96	1.000	1147.35	1205.18	1147.13	58.05
256	1210.30	1210.41	1.000	1146.47	1204.25	1146.57	57.68
257	1209.40	1209.93	1.000	1145.65	1203.39	1146.15	57.24
258	1208.60	1209.47	1.001	1144.90	1202.60	1145.72	56.88
259	1207.80	1208.99	1.001	1144.22	1201.89	1145.25	56.64
260	1207.50	1208.42	1.001	1143.62	1201.26	1144.68	56.58
261	1206.70	1207.76	1.001	1143.11	1200.72	1144.11	56.61
262	1206.30	1207.01	1.001	1142.68	1200.28	1143.36	56.92
263	1205.90	1206.22	1.000	1142.35	1199.93	1142.65	57.27

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
264	1205.70	1205.45	1.000	1142.11	1199.67	1141.87	57.80
265	1205.50	1204.82	0.999	1141.96	1199.52	1141.32	58.20
266	1205.50	1204.45	0.999	1141.92	1199.47	1140.92	58.55
267	1205.50	1204.41	0.999	1141.96	1199.52	1140.93	58.59
268	1205.70	1204.75	0.999	1142.11	1199.67	1141.21	58.46
269	1205.90	1205.43	1.000	1142.35	1199.93	1141.90	58.02
270	1206.30	1206.36	1.000	1142.68	1200.28	1142.74	57.54
271	1206.70	1207.38	1.001	1143.11	1200.72	1143.75	56.97
272	1207.30	1208.33	1.001	1143.62	1201.26	1144.60	56.66
273	1207.90	1209.07	1.001	1144.22	1201.89	1145.33	56.56
274	1208.30	1209.65	1.001	1144.90	1202.60	1145.80	56.80
275	1208.40	1208.83	1.000	1145.65	1203.39	1146.06	57.33
276	1210.30	1210.05	1.000	1146.47	1204.25	1146.23	58.02
277	1211.20	1210.43	0.999	1147.35	1205.18	1146.62	58.55
278	1212.20	1211.15	0.999	1148.29	1206.16	1147.30	58.87
279	1213.20	1212.30	0.999	1149.27	1207.19	1148.42	58.77
280	1214.30	1213.85	1.000	1150.30	1208.27	1149.87	58.40
281	1215.40	1215.61	1.000	1151.35	1209.37	1151.55	57.82
282	1216.60	1217.33	1.001	1152.42	1210.49	1153.11	57.39
283	1217.70	1218.75	1.001	1153.49	1211.62	1154.49	57.14
284	1218.80	1219.75	1.001	1154.57	1212.75	1155.47	57.28
285	1219.90	1220.38	1.000	1155.63	1213.87	1156.08	57.78
286	1221.00	1220.81	1.000	1156.66	1214.95	1156.48	58.47
287	1222.10	1221.54	0.999	1157.66	1215.99	1156.94	59.06
288	1223.10	1222.17	0.999	1158.60	1216.98	1157.72	59.26
289	1224.00	1223.33	0.999	1159.47	1217.90	1158.85	59.04
290	1224.80	1224.75	1.000	1160.26	1218.72	1160.21	58.51
291	1225.60	1226.08	1.000	1160.95	1219.45	1161.41	58.05
292	1226.20	1227.04	1.001	1161.53	1220.06	1162.33	57.73
293	1226.70	1227.46	1.001	1161.98	1220.54	1162.70	57.83
294	1227.00	1227.36	1.000	1162.29	1220.86	1162.63	58.22
295	1227.10	1226.95	1.000	1162.44	1221.01	1162.29	58.72
296	1227.10	1226.48	0.999	1162.41	1220.98	1161.82	59.16
297	1226.90	1226.15	0.999	1162.18	1220.74	1161.47	59.27
298	1226.40	1225.98	1.000	1161.74	1220.28	1161.34	58.94
299	1225.70	1225.77	1.000	1161.07	1219.57	1161.13	58.44
300	1224.70	1225.24	1.000	1160.15	1218.61	1160.66	57.95
301	1223.50	1224.15	1.001	1158.96	1217.36	1159.58	57.79
302	1221.90	1222.43	1.000	1157.49	1215.82	1158.00	57.83
303	1220.00	1220.15	1.000	1155.72	1213.96	1155.87	58.10
304	1217.80	1217.53	1.000	1153.64	1211.77	1153.38	58.39
305	1215.30	1214.76	1.000	1151.21	1209.23	1150.70	58.53
306	1212.40	1211.91	1.000	1148.44	1206.31	1147.97	58.34
307	1209.00	1208.90	1.000	1145.29	1203.01	1145.19	57.82
308	1205.30	1205.55	1.000	1141.76	1199.30	1141.99	57.31
309	1201.10	1201.65	1.000	1137.82	1195.18	1138.34	56.83
310	1196.60	1197.07	1.000	1133.47	1190.61	1133.92	56.69
311	1191.50	1191.80	1.000	1128.69	1185.59	1128.98	56.61
312	1186.00	1185.93	1.000	1123.46	1180.10	1123.40	56.71
313	1180.00	1179.63	1.000	1117.78	1174.14	1117.43	56.71
314	1173.50	1173.02	1.000	1111.62	1167.68	1111.17	56.51
315	1166.50	1166.16	1.000	1104.99	1160.71	1104.67	56.05
316	1159.00	1158.98	1.000	1097.85	1153.23	1097.84	55.39

KFOY MOM Analysis

Azimuth	Mininec KFOY IDF W/O KIHM (mv/m@1km)	Mininec KFOY IDF WITH KIHM (mv/m@1km)	Ratio W to W/O	FCC KFOY Theo IDF (mv/m@1km)	FCC KFOY Std Pat (mv/m@1km)	KFOY Theo x Ratio (mv/m@1km)	Margin Std - Theo x Ratio
317	1150.90	1151.32	1.000	1090.24	1145.23	1090.63	54.60
318	1142.30	1142.95	1.001	1082.11	1136.70	1082.72	53.97
319	1133.20	1133.72	1.000	1073.46	1127.62	1073.95	53.67
320	1123.50	1123.66	1.000	1064.30	1118.01	1064.45	53.56
321	1113.30	1112.95	1.000	1054.62	1107.85	1054.29	53.56
322	1102.50	1101.87	0.999	1044.42	1097.15	1043.82	53.32
323	1091.20	1090.65	0.999	1033.70	1085.90	1033.18	52.71
324	1079.40	1079.28	1.000	1022.47	1074.11	1022.36	51.75
325	1067.00	1067.50	1.000	1010.73	1061.78	1011.20	50.58
326	1054.00	1054.96	1.001	998.48	1048.93	999.39	49.54
327	1040.30	1041.38	1.001	985.74	1035.56	986.48	49.08
328	1026.00	1026.80	1.000	972.52	1021.69	972.71	48.98
329	1012.20	1011.59	0.999	958.84	1007.33	958.26	49.07
330	997.32	996.24	0.999	944.71	992.50	943.68	48.82
331	981.95	981.03	0.999	930.15	977.22	929.32	47.90
332	966.16	966.06	1.000	915.19	961.52	915.10	46.43
333	949.98	950.78	1.001	899.86	945.44	900.62	44.81
334	933.43	934.70	1.001	884.19	928.99	885.39	43.60
335	916.56	917.53	1.001	868.20	912.22	869.13	43.09
336	899.40	899.44	1.000	851.95	895.17	851.99	43.18
337	882.01	881.00	0.999	835.43	877.88	834.52	43.36
338	864.44	862.93	0.998	818.83	860.41	817.40	43.01
339	846.73	845.61	0.999	802.05	842.81	801.00	41.81
340	828.95	828.93	1.000	786.21	825.14	785.19	39.95
341	811.13	812.32	1.001	768.37	807.47	769.46	38.00
342	793.44	795.15	1.002	751.53	789.86	753.20	36.66
343	775.87	777.14	1.002	734.94	772.40	736.14	36.26
344	758.52	758.57	1.000	718.50	755.16	718.55	36.61
345	741.49	740.21	0.998	702.37	738.24	701.16	37.08
346	724.87	722.94	0.997	686.63	721.73	684.79	36.93
347	708.77	707.25	0.998	671.37	705.72	669.94	35.79
348	693.27	693.06	1.000	656.70	690.33	656.49	33.84
349	678.51	679.78	1.002	642.71	675.67	643.91	31.75
350	664.59	666.70	1.003	629.52	661.83	631.52	30.31
351	651.61	653.45	1.003	617.24	648.95	618.97	29.97
352	639.71	640.27	1.001	605.96	637.12	606.49	30.64
353	628.99	627.91	0.998	595.80	626.47	594.73	31.69
354	619.56	617.34	0.996	586.86	617.10	584.77	32.33
355	611.50	609.26	0.996	579.24	609.11	577.12	31.99
356	604.92	603.79	0.998	573.01	602.57	571.93	30.64
357	599.89	600.47	1.001	568.24	597.58	568.79	28.79
358	596.47	598.52	1.003	565.00	594.18	566.94	27.24
359	594.69	597.26	1.004	563.32	592.41	565.77	26.64