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August 29, 2017

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
455 12th Street, S.W.
Washington, D.C. 20554

RE: Amendment to FCC File No. BMML-20161222ABW
FCC 302-AM Application for Modified Broadcast License
Utilizing Moment Method Modeling
KDIA(AM), Vallejo, CA (FCC Facility ID #87108)

Dear Ms. Dortch:

Submitted herewith on behalf of Baybridge Communications, Inc., is an amendment to FCC File No. BMML-20161222ABW, the FCC Form 302-AM application, for modification of the KDIA(AM) license to utilize moment method modeling.

This amendment is submitted to address the deficiencies outlined in the attached March 30, 2017 letter from Son Nguyen, Supervisory Engineer, Audio Division, Media Bureau.

Should any questions arise, please contact the undersigned.

Sincerely,

John F. Garziglia

Enclosures

bcc: Mr. Paul Benton
Mr. Andy Santamaria

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.

SECTION I - APPLICANT FEE INFORMATION

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

Baybridge Communications, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
ATTN: MELISSA SANTAMARIA LANDEROS

MAILING ADDRESS (Line 2) (Maximum 35 characters)
3260 BLUME DRIVE, SUITE 520

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Richmond	CA	94806

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
(510) 222-4242	KDIA	87108

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: This is an Amendment of FCC File No. BMML-20161222ABW

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	$ Amendment	

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 Baybridge Communications, LLC		
MAILING ADDRESS 3260 BLUME DRIVE, SUITE 520		
CITY Richmond	STATE CA	ZIP CODE 94806

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
KDIA	Vallejo, CA	n/a	n/a	n/a

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. n/a

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met?

☐ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No. n/a

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.

Exhibit No. n/a

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.
KDYA

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	
Paul Benton		
Title	Date	Telephone Number
Managing Director	8/28/2017	(510) 243-9483

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: Baybridge Communications, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ 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
KDIA	N/A	1640	unlimited	10	10

2. Station location	
State	City or Town
California	Vallejo

3. Transmitter location			
State	County	City or Town	Street address (or other identification)
CA	Sonoma	rural	5400 Sears Point Road

4. Main studio location			
State	County	City or Town	Street address (or other identification)
CA	Contra Costa	Richmond	3260 Blume Drive

5. Remote control point location (specify only if authorized directional antenna)			
State	County	City or Town	Street address (or other identification)
CA	Contra Costa	Richmond	3260 Blume Drive

6. Has type-approved stereo generating equipment been installed? ☐ Yes ☑ No

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

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

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
14.5	15.4
Measured antenna or common point resistance (in ohms) at operating frequency	**Measured antenna or common point reactance (in ohms) at operating frequency**
Night: 50 ohms Day: 42 ohms	Night: 0 ohms Day: 0 ohms

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	+107.8°		0.924			
2	0°		1.000			
3	+87.7°		0.620			
4	-4.6°		0.573			

Manufacturer and type of antenna monitor: Potomac AM-1901

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.
self-supporting	50.8	52.7	52.7	Exhibit No. N/A

Excitation ☑ 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	38°	08'	03"	West Longitude	122°	25'	32"

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. Eng.

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. Eng.

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

N/A

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

N/A

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)
William F. Hammett, P.E.	William F. Hammett
Address (include ZIP Code) Hammett & Edison, Inc. Consulting Engineers 470 Third Street West Sonoma, CA 95476-6509	Date August 24, 2017
	Telephone No. (Include Area Code) 707/996-5200

☐ Technical Director ☑ Registered Professional Engineer

☐ Chief Operator ☐ Technical Consultant

☐ Other (specify)

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Baybridge Communications, LLC, licensee of Radio Station KDIA, 1640 kHz, Vallejo, California, to prepare the engineering portion of an application for modification of license of its nighttime operation.

Background

This Application for License is being filed to update the license for the nighttime directional operation of Radio Station KDIA using Method-of-Moments ("MOM") analysis procedures. This nighttime-only facility was newly constructed in 2008. At that time, the FCC required a full proof of performance; it was duly filed with the FCC and was the basis for the license, FCC File No. BL-20080429ACG, issued on September 26, 2008. MOM licensing was subsequently allowed by the FCC Rules (CFR 47 §73.151, as amended on October 30, 2008), and the instant application is being submitted to license the KDIA nighttime operation on that basis.

Description of Sample System

The KDIA sample system consists of a Potomac Instruments Model AM-1901 Antenna Monitor (Serial No. 742) fed with four Delta Electronics Model TCT-2 Toroidal Current Transformers (Serial Nos. 1730–1733) installed at the output of the antenna coupling and matching equipment at each tower, in conformance with §73.151(c)(2)(ii) for towers that are base-fed with their actual electrical height less than 120°. A field evaluation of the antenna monitor was conducted using a "tee" connector and two equal-length cables to confirm that it was within the manufacturer's specifications for amplitude (measured ±0.2% vs ±1%) and phase (measured ±0.5° vs ±1°) accuracy:

Tower	Ratio	Phase
1	1.001	+0.9°
2	1.000	0.0
3	1.004	+0.7
4	1.003	+1.0

The evaluated antenna monitor was then used to confirm that each TCT-2 current transformer was within the manufacturer's accuracy specifications for amplitude (measured ±0.3% vs ±2%) and phase (measured ±0.45° vs ±2°) using the antenna monitor, equal-length test cables, and an RF sample taken from a point in the bus lines of the station's phasor.

Serial	Ratio	Phase
17730	1.000	0.0°
17731	1.006	-0.9
17732	1.006	-0.3
17733	1.005	0.0

The four sample lines consist of Andrew Type LDF4-50A ½-inch foam coaxial cables with short lengths of Andrew FSJ-50B flexible jumpers. The electrical length of the sample lines was calculated from measurement of the frequencies below and above 1640 kHz at which resonance was found (F_L and F_H, respectively); the line length at the operating frequency of 1640 kHz is calculated from the formula: length = $1640 / (F_H - F_L) \times 180°$

Tower	Resonance Frequencies		Calculated Length
	below 1640 kHz	*above 1640 kHz*	
1	572.2 kHz	1727.5 kHz	255.5°
2	571.4	1726.2	255.6°
3	570.8	1723.0	256.2°
4	570.2	1722.0	256.3°

The maximum variation in line length is ±0.4°, meeting the 1° limit of §73.151(c)(2)(i).

The characteristic impedance of the sample lines was calculated from measurement of the impedance of each line at frequencies offset to produce ±45° electrical length from resonance; the characteristic impedance is calculated from the formula: $Z_0 = \text{sqrt}(\text{sqrt}(R_{-45}^2 + X_{-45}^2) \times \text{sqrt}(R_{+45}^2 + X_{+45}^2))$

Tower	-45° Frequency & Impedance		+45° Frequency & Impedance		Characteristic Impedance
1	1439.6 kHz	3.0-j49.9 ohm	2015.4 kHz	4.2+j48.9 ohm	49.53 ohms
2	1438.5	2.9-j49.3	2013.9	4.3+j49.5	49.54
3	1435.8	2.9-j49.4	2010.2	4.3+j49.0	49.34
4	1435.0	3.0-j49.4	2009.0	4.3+j49.4	49.54

The maximum variation in characteristic impedance is ±0.1 ohm, meeting the 2-ohm limit of §73.151(c)(2)(i).

Finally, the actual impedance of the sample lines was measured with the sample transformers attached, to provide baseline information for periodic recertification.

Tower	Measured Impedance
1	50.23–j0.80 ohms
2	50.03–j0.75
3	49.97–j0.61
4	50.19–j0.67

MOM Modeling Assumptions

A MOM model was carefully constructed in accordance with FCC Rules §73.151(c), as summarized below, and shown in the several output files from the "Expert MININEC" software (v12.8):

- The four-tower KDIA nighttime array consists only of series-fed elements, arranged as shown on the attached Figure 1 (from the 2008 proof-of-performance).
- The lattice towers are tapered, with their faces 4.5 feet across at the base and 1.5 feet at the top. The radius of a circle whose circumference is equal to the sum of the tower faces is 0.655 meters at the base and 0.218 meters at the top. Their arithmetic average (0.437 meters) is the wire radius used in the model.
- The 50.8-meter towers are electrically 100.0° tall at the 1640 kHz frequency of operation. Each tower is represented by 13 wire segments, so at the start of the MOM model calibration, described below, each segment is 7.7° tall, below the 10° maximum allowed.
- Base calculations were made for a reference point at ground level.

These assumptions are reflected in the GEOMETRY and ELECTRICAL DESCRIPTION output files from the MOM software, copied below:

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

wire  caps Distance     Angle        Z            radius      segs
 1    none 0            0           0            .437         13
           0            0           111.1
 2    none 82.9         227.5       0            .437         13
           82.9         227.5       111.0
 3    none 207.7        110.1       0            .437         13
           207.7        110.1       109.7
 4    none 202.8        132.        0            .437         13
           202.8        132.        109.9

Number of wires          =  4
          current nodes  =  52

                         minimum                  maximum
Individual wires      wire    value            wire  value
segment length         3      8.43846           1    8.54615
radius                 1      .437              1    .437
```

```
ELECTRICAL DESCRIPTION
Frequencies (MHz)
     frequency                 no. of  segment length (wavelengths)
 no. lowest       step          steps   minimum        maximum
 1   1.64         0              1      .0234402       .0237393

Sources
source node    sector  magnitude      phase          type
 1      1       1       1,111.75       88.4           voltage
 2      14      1       2,098.99       310.9          voltage
 3      27      1       570.491        45.4           voltage
 4      40      1       1,109.09       292.9          voltage

Lumped loads
              resistance    reactance     inductance  capacitance passive
load  node    (ohms)        (ohms)        (mH)        (uF)        circuit
 1     1      0             0             0           .011         0
 2     14     0             0             0           .0115        0
 3     27     0             0             0           .0105        0
 4     40     0             0             0           .013         0

Resistivity (ohm-meter)   =  0.000002
```

Measured Tower Self-Impedances

Using a Delta Electronics OIB-1 Operating Impedance Bridge (Serial No. 624), a Potomac Instruments FIM-41 Field Strength Meter (Serial No. 411), and a Tektronix AFG 5101/02 Arbitrary Function Generator (Serial No. IL11422), measurements were made of the self-impedance of each tower in turn at 1640 kHz, with the other three towers floating, with the following results:

Tower	Measured Impedance
1	91.0+j108.2 ohms
2	82.5+j110.7
3	80.0+j100.0
4	84.0+j100.0

Calibration of MOM Model

In accordance with engineering practice, adjustments were made to certain aspects of the MOM model of the 1640 kHz array in order to bring the modeled self-impedance of all four towers into alignment with their measured values. For the KDIA nighttime array, adjustments were limited to a) increasing the tower heights and b) adding small amounts of shunt capacitance. The GEOMETRY and ELECTRICAL DESCRIPTION output files shown above from the MOM software summarize these adjustments. The maximum height increase was 11.1%, at Tower 1, and for that height one of the 13 segments is 8.55° tall, still below the 10° limit of §73.151(c)(1)(iii). The maximum capacitance added was 13 pF, well below the 250 pF limit in §73.151(c)(1)(viii).

Four IMPEDANCE output files from the MOM software are shown below. These were generated one at a time by modeling a voltage source at the base of each tower in turn (current nodes 1, 14, 27, and 40) and modeling a large capacitance at the base of the other towers, to "float" them as was done when the actual self-impedance values were measured. (Figure 2 attached is the CURRENT NODES output file from the MOM software, showing the node numbering for all 13 nodes on each tower.

```
IMPEDANCE
   normalization = 50.
freq      resist    react     imped     phase     VSWR     S11       S12
(MHz)     (ohms)    (ohms)    (ohms)    (deg)              dB        dB
source =  1; node 1, sector 1
1.64      91.136    108.03    141.34    49.8      4.7205   -3.7366   -2.3882


IMPEDANCE
   normalization = 50.
freq      resist    react     imped     phase     VSWR     S11       S12
(MHz)     (ohms)    (ohms)    (ohms)    (deg)              dB        dB
source =  1; node 14, sector 1
1.64      82.381    110.79    138.06    53.4      5.0358   -3.4961   -2.5734


IMPEDANCE
   normalization = 50.
freq      resist    react     imped     phase     VSWR     S11       S12
(MHz)     (ohms)    (ohms)    (ohms)    (deg)              dB        dB
source =  1; node 27, sector 1
1.64      80.073    100.      128.11    51.3      4.5014   -3.9246   -2.2554


IMPEDANCE
   normalization = 50.
freq      resist    react     imped     phase     VSWR     S11       S12
(MHz)     (ohms)    (ohms)    (ohms)    (deg)              dB        dB
source =  1; node 40, sector 1
1.64      83.94     100.04    130.59    50.       4.4333   -3.987    -2.2134
```

As summarized in the table below, the modeled impedances match the measured impedances within 0.1 ohm in resistance and 0.2 ohms in reactance, meeting the requirements of §73.151(c)(2)(ii):

Tower	Measured Impedance	Modeled Height	Shunt Capacitance	Modeled Impedance
1	91.0+j108.2 ohms	111.1°	11.0 pF	91.1+j108.0 ohms
2	82.5+j110.7	111.0	11.5	82.4+j110.8
3	80.0+j100.0	109.7	10.5	80.1+j100.0
4	84.0+j100.0	109.9	13.0	83.9+j100.0

Derivation of Operating Parameters

Once the MOM model has been calibrated, the next step is to determine the individual source voltages and phases that will create the appropriate currents in the tower, to form the desired directional radiation pattern. The ARRAY SYNTHESIS output file from the MOM software attached as Figure 3. It shows the theoretical operating parameters ("field ratio") from the station's license and gives the calculated source voltage magnitudes and phases, based on the Tower Impedance Matrix of coupling between all the tower pairs. When these sources values are then put in at the driving point of the corresponding tower, the MOM software then calculates the current flow in each wire segment on each tower. The CURRENT RMS output file is attached as Figure 4, and from it is extracted the magnitude and phase of the current flowing into the base of each tower. These are the operating parameters to which the feed system of the array is to be adjusted.

From the base current data in Figure 4, the operating parameters for the antenna monitor are:

Tower	from Figure 4	Normalized to Reference Tower
1	7.455/ +0.6°	0.924/ +107.8°
2	8.070/ +252.8	1.000/ 0.0
3	5.000/ +340.5	0.620/ +87.7
4	4.632/ +248.2	0.573/ –4.6

Reference Point Measurements

The array has been adjusted to these values, and the reference point measurements required by FCC Rules §73.151(c)(3) were conducted on August 14, 2017, in the directions shown on Figure 5, and are summarized for later reference in Figure 6.

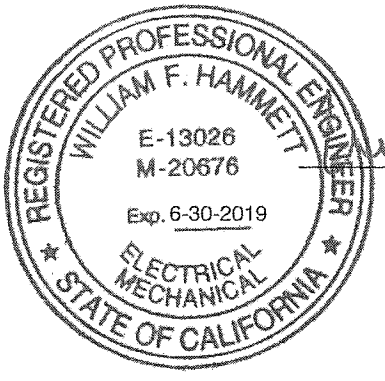
Conclusion

The KDIA nighttime operation has been modeled in full accord with the Commission's Method of Moments licensing rules and the station is operating at the modeled parameters. The licensee requests that its license be reissued accordingly.

ListofFigure s

In carrying out these engineering studies, the following attached figures have been prepared under my direct supervision:

1. Sketch of antenna system (from 2008 license application)
2. Output File: Current Nodes
3. Output File: Array Synthesis
4. Output File: Current RMS
5. Plot of KDIA nighttime standard pattern
6. Tabulation of reference measurements, for future use.

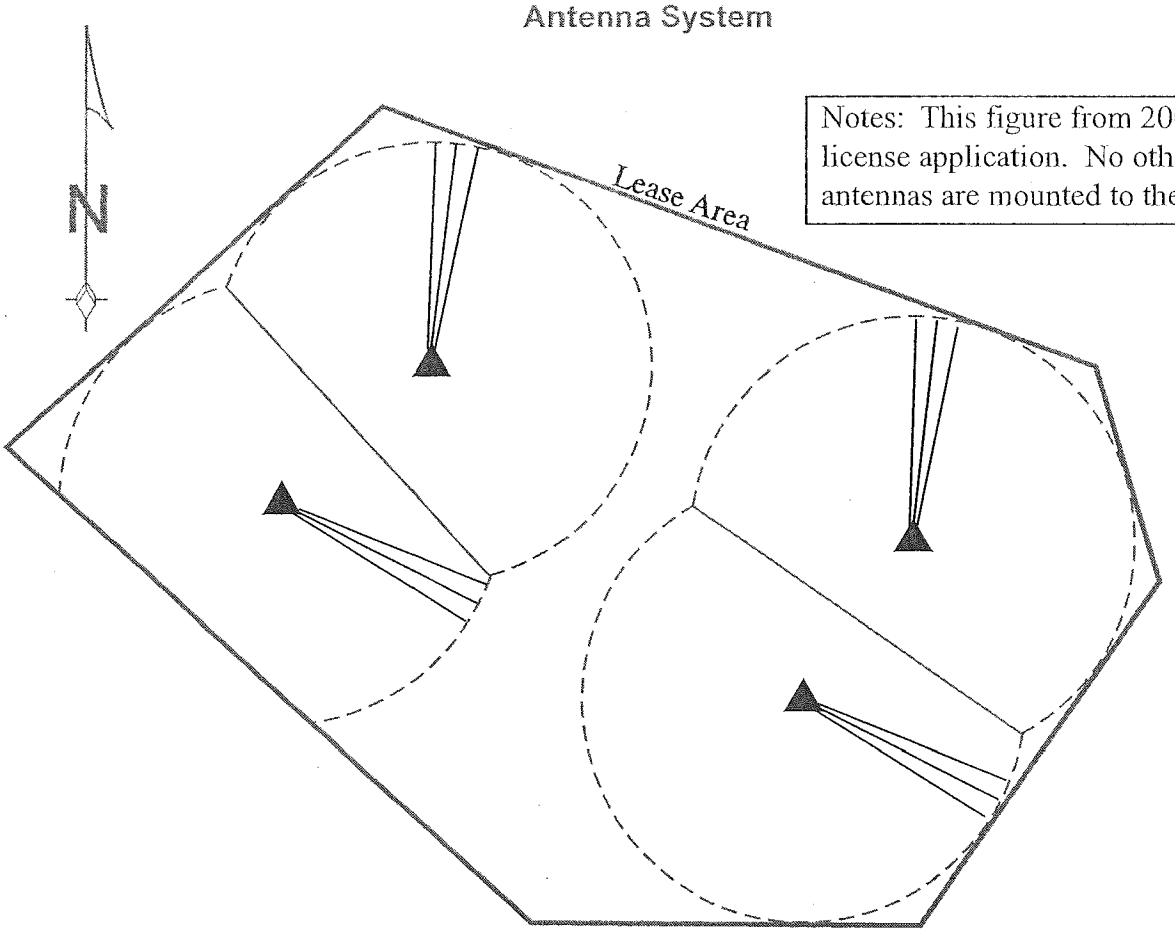


William F. Hammett, P.E.

August 24, 2017

Radio Station KDIA • 1640 kHz, 10 kW, DA-N • Vallejo, California

Antenna System



Notes: This figure from 2008 license application. No other antennas are mounted to the towers.

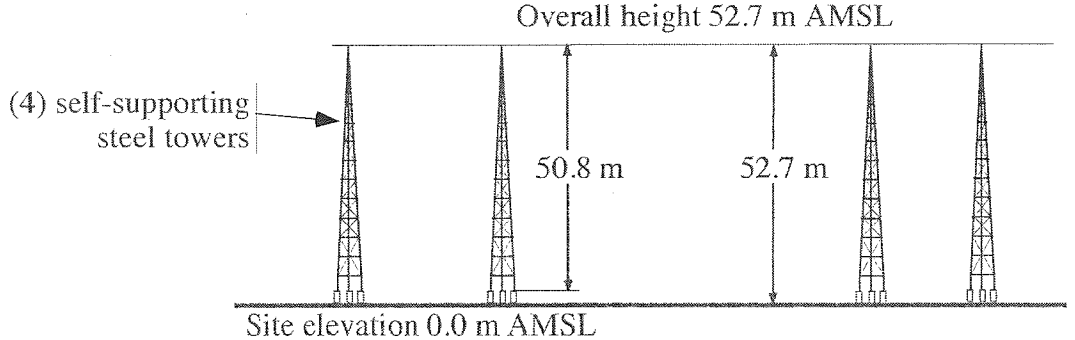
120 copper radials per tower, 51 m long or terminating at transverse copper strap.

25' x 25', 2-inch mesh copper screen, surrounding each tower base

Plan View

Tower Positions

Twr	Height	Bearing	Dist.
1	100.0°	0.0°T	0.0°
2	100.0	227.5	82.9
3	100.0	110.1	207.7
4	100.0	132.0	202.8



Elevation View

Center of Array Geographic Coordinates (NAD 27): 38° 08' 03" N, 122° 25' 32" W

Output File: CURRENT NODES

CURRENT NODES

wire	coordinates (degrees) X	Y	Z	connections end1	end2	node no.
1	0	0	0	GND	1	1
1	0	0	8.54615	1	1	2
1	0	0	17.0923	1	1	3
1	0	0	25.6385	1	1	4
1	0	0	34.1846	1	1	5
1	0	0	42.7308	1	1	6
1	0	0	51.2769	1	1	7
1	0	0	59.8231	1	1	8
1	0	0	68.3692	1	1	9
1	0	0	76.9154	1	1	10
1	0	0	85.4615	1	1	11
1	0	0	94.0077	1	1	12
1	0	0	102.554	1	END	13
2	-56.0064	61.1203	0	GND	2	14
2	-56.0064	61.1203	8.53846	2	2	15
2	-56.0064	61.1203	17.0769	2	2	16
2	-56.0064	61.1203	25.6154	2	2	17
2	-56.0064	61.1203	34.1538	2	2	18
2	-56.0064	61.1203	42.6923	2	2	19
2	-56.0064	61.1203	51.2308	2	2	20
2	-56.0064	61.1203	59.7692	2	2	21
2	-56.0064	61.1203	68.3077	2	2	22
2	-56.0064	61.1203	76.8462	2	2	23
2	-56.0064	61.1203	85.3846	2	2	24
2	-56.0064	61.1203	93.9231	2	2	25
2	-56.0064	61.1203	102.462	2	END	26
3	-71.3781	-195.05	0	GND	3	27
3	-71.3781	-195.05	8.43846	3	3	28
3	-71.3781	-195.05	16.8769	3	3	29
3	-71.3781	-195.05	25.3154	3	3	30
3	-71.3781	-195.05	33.7538	3	3	31
3	-71.3781	-195.05	42.1923	3	3	32
3	-71.3781	-195.05	50.6308	3	3	33
3	-71.3781	-195.05	59.0692	3	3	34
3	-71.3781	-195.05	67.5077	3	3	35
3	-71.3781	-195.05	75.9462	3	3	36
3	-71.3781	-195.05	84.3846	3	3	37
3	-71.3781	-195.05	92.8231	3	3	38
3	-71.3781	-195.05	101.262	3	END	39
4	-135.7	-150.71	0	GND	4	40
4	-135.7	-150.71	8.45385	4	4	41
4	-135.7	-150.71	16.9077	4	4	42
4	-135.7	-150.71	25.3615	4	4	43
4	-135.7	-150.71	33.8154	4	4	44
4	-135.7	-150.71	42.2692	4	4	45
4	-135.7	-150.71	50.7231	4	4	46
4	-135.7	-150.71	59.1769	4	4	47
4	-135.7	-150.71	67.6308	4	4	48
4	-135.7	-150.71	76.0846	4	4	49
4	-135.7	-150.71	84.5385	4	4	50
4	-135.7	-150.71	92.9923	4	4	51
4	-135.7	-150.71	101.446	4	END	52

Output File: ARRAY SYNTHESIS

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1.64 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	1.224	-118.2
3	.617	-24.3
4	.65	-126.3

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	1.18696	88.1	.0140094	1.
14	2.45598	307.9	.0143063	260.8
27	.609123	40.2	.00970522	343.2
40	1.32285	288.6	.00858146	257.9

Sum of square of source currents = .00113753
Total power = .037712 watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00602982	-.00392254
Y(1, 2)	.00315182	.00187372
Y(1, 3)	.00182495	-.00157327
Y(1, 4)	.0023082	-.00136487
Y(2, 1)	.00315181	.00187373
Y(2, 2)	.00521326	-.00366858
Y(2, 3)	.000426614	-.000858711
Y(2, 4)	.00112104	-.00156022
Y(3, 1)	.00182496	-.00157326
Y(3, 2)	.000426617	-.000858708
Y(3, 3)	.00545583	-.0039657
Y(3, 4)	.00325044	.00231388
Y(4, 1)	.00230821	-.00136486
Y(4, 2)	.00112105	-.00156022
Y(4, 3)	.00325045	.00231387
Y(4, 4)	.00570938	-.00413669

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	95.7445	76.4585
Z(1, 2)	28.8457	-74.401
Z(1, 3)	-27.6017	2.14789
Z(1, 4)	-28.4831	3.79516
Z(2, 1)	28.8455	-74.4011
Z(2, 2)	86.8369	81.0859
Z(2, 3)	-12.0797	33.0978
Z(2, 4)	-23.0407	14.1422
Z(3, 1)	-27.6016	2.14804
Z(3, 2)	-12.0796	33.0977
Z(3, 3)	84.3087	73.7242
Z(3, 4)	35.1027	-67.9739
Z(4, 1)	-28.483	3.79527
Z(4, 2)	-23.0406	14.1423
Z(4, 3)	35.1029	-67.9737
Z(4, 4)	87.722	70.614

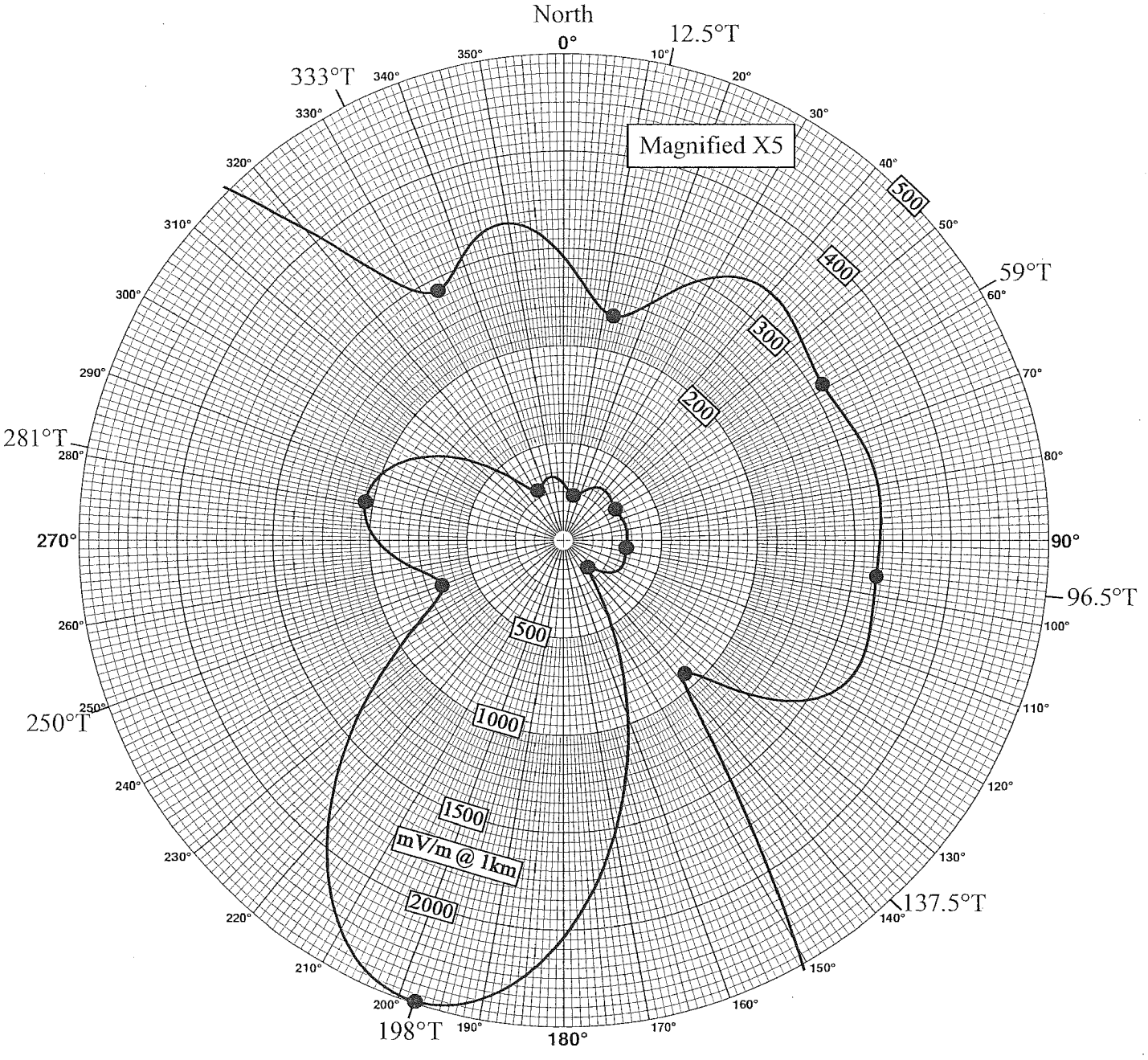
Output File: CURRENT RMS

CURRENT rms
Frequency = 1.64 MHz
Input power = 10,000. watts
Efficiency = 99.77 %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	7.45538	.6	7.45494	.0809946
2	0	0	8.54615	8.36238	.4	8.36219	.0561897
3	0	0	17.0923	8.75475	.3	8.75466	.0394596
4	0	0	25.6385	8.89327	.2	8.89324	.0245441
5	0	0	34.1846	8.81052	.1	8.81052	.0107855
6	0	0	42.7308	8.52276	360.	8.52276	-1.91E-03
7	0	0	51.2769	8.0422	359.9	8.04219	-.0133516
8	0	0	59.8231	7.3813	359.8	7.38127	-.0231387
9	0	0	68.3692	6.55333	359.7	6.55326	-.0306835
10	0	0	76.9154	5.57223	359.6	5.57212	-.0352404
11	0	0	85.4615	4.45116	359.5	4.45101	-.0359362
12	0	0	94.0077	3.19797	359.4	3.19781	-.0317745
13	0	0	102.554	1.80694	359.3	1.80681	-.0215809
END	0	0	111.1	0	0	0	0
GND	-56.0064	61.1203	0	8.06954	252.8	-2.38271	-7.70975
15	-56.0064	61.1203	8.53846	9.54686	247.5	-3.64869	-8.82211
16	-56.0064	61.1203	17.0769	10.2854	245.1	-4.33592	-9.32686
17	-56.0064	61.1203	25.6154	10.6741	243.4	-4.78689	-9.54052
18	-56.0064	61.1203	34.1538	10.757	242.1	-5.04148	-9.50248
19	-56.0064	61.1203	42.6923	10.5547	241.	-5.11571	-9.23205
20	-56.0064	61.1203	51.2308	10.0813	240.1	-5.01889	-8.74321
21	-56.0064	61.1203	59.7692	9.35138	239.4	-4.75917	-8.04976
22	-56.0064	61.1203	68.3077	8.38089	238.8	-4.34511	-7.16654
23	-56.0064	61.1203	76.8462	7.18691	238.2	-3.78596	-6.10886
24	-56.0064	61.1203	85.3846	5.78569	237.7	-3.09066	-4.89101
25	-56.0064	61.1203	93.9231	4.1868	237.3	-2.26456	-3.52151
26	-56.0064	61.1203	102.462	2.38202	236.8	-1.30327	-1.99387
END	-56.0064	61.1203	111.	0	0	0	0
GND	-71.3781	-195.05	0	5.00034	340.5	4.71426	-1.66707
28	-71.3781	-195.05	8.43846	5.42988	338.5	5.05227	-1.98952
29	-71.3781	-195.05	16.8769	5.59246	337.4	5.16411	-2.14653
30	-71.3781	-195.05	25.3154	5.61431	336.6	5.15301	-2.22866
31	-71.3781	-195.05	33.7538	5.51124	335.9	5.03245	-2.24683
32	-71.3781	-195.05	42.1923	5.29175	335.4	4.81006	-2.2059
33	-71.3781	-195.05	50.6308	4.96279	334.9	4.49234	-2.10906
34	-71.3781	-195.05	59.0692	4.53151	334.4	4.08608	-1.95922
35	-71.3781	-195.05	67.5077	4.0057	333.9	3.59865	-1.75935
36	-71.3781	-195.05	75.9462	3.39346	333.5	3.03776	-1.51247
37	-71.3781	-195.05	84.3846	2.70232	333.1	2.4106	-1.22129
38	-71.3781	-195.05	92.8231	1.93654	332.7	1.72146	-.886984
39	-71.3781	-195.05	101.262	1.09218	332.3	.967422	-.506908
END	-71.3781	-195.05	109.7	0	0	0	0
GND	-135.7	-150.71	0	4.63159	248.2	-1.71687	-4.30163
41	-135.7	-150.71	8.45385	5.29089	241.5	-2.5257	-4.64912
42	-135.7	-150.71	16.9077	5.61632	238.2	-2.95968	-4.77319
43	-135.7	-150.71	25.3615	5.77278	235.9	-3.23933	-4.77826
44	-135.7	-150.71	33.8154	5.77768	234.1	-3.39061	-4.67818
45	-135.7	-150.71	42.2692	5.63932	232.6	-3.42417	-4.48074
46	-135.7	-150.71	50.7231	5.36418	231.4	-3.34645	-4.19234
47	-135.7	-150.71	59.1769	4.95921	230.4	-3.16307	-3.81952
48	-135.7	-150.71	67.6308	4.43235	229.5	-2.87995	-3.36922
49	-135.7	-150.71	76.0846	3.79226	228.7	-2.50339	-2.84856
50	-135.7	-150.71	84.5385	3.04715	228.	-2.03941	-2.26406
51	-135.7	-150.71	92.9923	2.20172	227.4	-1.49165	-1.61943
52	-135.7	-150.71	101.446	1.25135	226.8	-.857303	-.911546
END	-135.7	-150.71	109.9	0	0	0	0

Radio Station KDIA • 1640 kHz, 10 kW, DA-N • Vallejo, California

Nighttime Standard Pattern Showing Reference Point Radials



Dots indicate measured radials.

Radio Station KDIA • 1640 kHz, 10 kW, DA-N • Vallejo, California

Reference Point Measurements

Distance *kilometers*	Field *mV/m*	Coordinates *NAD83*	Description
Radial 12.5°T			
2.36	120	38° 09' 17.4" N 122° 25' 14.8" W	On Highway 37 east of Noble Road
10.3	28.5	38° 13' 28.8" N 122° 24' 03.9" W	At first big post east of metal gate on Ramal Road
13.6	21.0	38° 15' 13.2" N 122° 23' 34.4" W	At turnoff to Napa Road from Highway 12, east of Stornetta's
Radial 59.0°T			
3.30	98	38° 08' 57.6" N 122° 23' 39.6" W	Just before call box SO 37 12 on Highway 37 east
4.67	89	38° 09' 20.4" N 122° 22' 51.3" W	Just north of "State Wildlife Area" sign
17.7	17	38° 12' 57.0" N 122° 15' 11.5" W	At "No Parking" sign on west side of road north of Fagan Creek
Radial 96.5°T			
13.3	27	38° 07' 13.7" N 122° 16' 3.34" W	Directly across from stop sign on Wilson Avenue
13.8	27	38° 07' 11.9" N 122° 16' 13.0" W	Across from Daniels Street/Hill Drive, at "neighborhood watch" sign
15.1	24.5	38° 07' 07.0" N 122° 15' 20.0" W	On median across from first power pole south of Vallejo Nissan entrance
Radial 137.5°T			
17.8	11.0	38° 00' 57.6" N 122° 17' 21.8" W	At Railroad Avenue 2021 & 2015 mailbox
18.5	10.5	38° 00' 40.9" N 122° 17' 02.4" W	At "Speed Limit 25" sign on Titan Way
19.5	5.7	38° 00' 17.0" N 122° 16' 34.7" W	At light pole 110279909 next to 139 & 145 Cinnabar Way

Note: Measurements taken with Potomac FIM-41, S/N 411 during daylight hours on August 14, 2017.

Radio Station KDIA • 1640 kHz, 10 kW, DA-N • Vallejo, California

Reference Point Measurements

Distance *kilometers*	Field *mV/m*	Coordinates *NAD83*	Description
Radial 198.0°T			
18.6	39.0	37° 58' 29.1" N 122° 29' 32.3" W	Across from Point San Pedro Road and Bellevue Avenue sign on north side of Point San Pedro Road at no parking bike lane sign.
19.5	36.0	37° 58' 01.4" N 122° 29' 43.7" W	At crosswalk sign in center of road on Spinnaker Point Drive by Portsmouth Cove
20.8	62.0	37° 57' 21.3" N 122° 30' 00.2" W	"Right Turn Only" sign on Francisco Boulevard
Radial 250.0°T			
7.41	91.0	38° 06' 40.7" N 122° 30' 21.9" W	Underneath "Havenwood" sign (MP)
9.09	40.0	38° 06' 22.1" N 122° 31' 26.7" W	At stop sign Atherton Avenue & Atherton Oaks Drive
10.5	30.0	38° 06' 06.5" N 122° 32' 21.1" W	At water trough just inside fence at Deer Creek Open Space Preserve
Radial 281.0°T			
3.49	291	38° 08' 24.2" N 122° 27' 56.6" W	On Highway 37 east before Napa/Sonoma sign
5.02	178	38° 08' 33.6" N 122° 28' 58.3" W	7th guard rail post north of mile marker 10.70 at north end of Lakeville Highway southbound
6.60	158	38° 08' 43.3" N 122° 30' 02.0" W	Sleepy Hollow Vineyards 7689 Lakeville Highway
Radial 333.0°T			
5.15	54	38° 10' 31.51" N 122° 27' 11.51" W	On South side of Highway 121 at geographic coordinates
5.77	47	38° 10' 49.55" N 122° 27' 22.46" W	At first tree on North side of road just past gate Mangel Ranch Road
14.2	4.6	38° 14' 51.93" N 122° 30' 00.43" W	Just east of guardrail on Highway 116 south "No Spray" sign South side, East.

Note: Measurements taken with Potomac FIM-41, S/N 411 during daylight hours on August 14, 2017.

FEDERAL COMMUNICATIONS COMMISSION
445 12th STREET SW
WASHINGTON DC 20554

MEDIA BUREAU
AUDIO DIVISION
APPLICATION STATUS: (202) 418-2730
HOME PAGE: www.fcc.gov/media/radio/audio-division

PROCESSING ENGINEER: Edward Lubetzky
TELEPHONE: (202) 418-2700
FACSIMILE: (202) 418-1410/11
MAIL STOP: 1800B2-EAL
INTERNET ADDRESS: Edward.Lubetzky@fcc.gov

MAR 30 2017

Baybridge Communications, LLC
3260 Blume Drive
Suite 520
Richmond, CA 94806

Re: Baybridge Communications, LLC
KDIA(AM), Vallejo, California
Facility ID Number: 87108
File Number: BMML-20161222ABW

Dear Applicant:

This is in reference to the above-captioned application to re-license KDIA(AM) under the method of moment rules.

A preliminary engineering study of the application reveals the following deficiencies:

1. The assumed average radius for the tapered antenna structure should be 0.437 meters (0.218 meter (top radius of tower) + 0.655 meter (base radius of tower)/2) for the entire tower when using the method of moments model. You incorrectly modeled the tower with a wire radius of 1.2 meters citing Section 73.151(c)(1)(i). Section 73.151(c)(1)(i) is not applicable since it refers to tolerance from the actual radius of the tower, not an assumed radius.
2. The values of the base capacitance of the circuit model of each tower were not provided.
3. The circuit model used to calculate the self- impedances and operating parameters was not provided
4. We were unable to confirm the self- impedance values of each tower from your summary page. Please provide a detailed analysis which includes the detuning elements.
5. We were unable to confirm the nighttime operating parameters from your summary page. Please provide a detailed analysis which includes the array synthesis, the drive impedances and the currents on the tower.
6. Please show that the current moments produce the theoretical parameters.
7. Measurements were not provided to show that the sample current transformers agree with the manufacturer's definition of accuracy.
8. Please show how the sample line lengths were derived including the open-circuit resonant frequency closest to the 1640 kHz and the 90° multiple where the impedance zero occurs.
9. The method used to establish the way the characteristic impedances were derived was not shown. Please include the frequencies and the impedances measured on those

frequencies and your calculations for calculating the impedances.

10. The daytime coordinates, the daytime current and daytime resistance must be specified on the FCC Form 302.

Further action on the subject application will be withheld for thirty (30) days from the date of this letter in order to provide you an opportunity to file a curative amendment. The amendment must be submitted in the same manner as the original application. Failure to respond or file an amendment within this time period will result in the dismissal of the application pursuant to Section 73.3568 of the rules. If you have further questions, please contact the processing engineer.

Sincerely,

Son Nguyen
Supervisory Engineer
Audio Division
Media Bureau

cc: John F. Garziglia, Esq.
William F. Hammett, P.E.