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. BAML-20140617ABT

SECTION I - APPLICANT FEE INFORMATION

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

Lotus Communications Corp.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
3301 Barham Boulevard

MAILING ADDRESS (Line 2) (Maximum 35 characters)
Suite 200

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Los Angeles	California	90068

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
323-312-2225	KDPP	160999

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
M M R	0 0 0 1	$ 690.00	

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
M O R	0 0 0 1	$ 790.00	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$ 1,480.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Lotus Communications Corp.		
MAILING ADDRESS 3301 Barham Boulevard		
CITY Los Angeles	STATE California	ZIP CODE 90068

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
KDPP	Olivehurst	BNP-20071221ADK	BMP-20121114AFG	June 7, 2014

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. 1

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.

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.

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	
Jerry Roy		
Title	Date	Telephone Number
Senior Vice President	June 3, 2014	323-512-2225

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: Lotus Communications Corp.

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
KDPP	BMP-20121114AFG	890	Unlimited	0.48	10

2. Station location

State	City or Town
California	Olivehurst

3. Transmitter location

State	County	City or Town	Street address (or other identification)
CA	Day: Yolo Night: Yuba	Day: West Sacramento Night: Marysville	Day: 5008 Jefferson Ave Night: 1605 Simpson Lane

4. Main studio location

State	County	City or Town	Street address
CA	Sacramento	Sacramento	1442 Ethan Way

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

State	County	City or Town	Street address
CA	Sacramento	Sacramento	1442 Ethan Way

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. EE

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
3.22	14.51

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	50	j0	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
Day: 1, ASRN 1015841	-	-147.2	-	0.521		
Day: 2, ASRN 1015842	-	0	-	1.000		
Day: 3, ASRN 1015843	-	141.0	-	0.588		
Night: 1, ASRN 1237280	157.3	-	0.955	-		
Night: 2, ASRN 1026754	36.4	-	0.806	-		
Night: 3, ASRN 1237279	0	-	1.000	-		

Manufacturer and type of antenna monitor: Day: Gorman-Redlich CMR s/n 1046-B, Night: Potomac Instruments AM19D(210) s/n 471

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.
Vertical steel uniform cross section triangular insulated guyed steel towers.	Day: 89.3 Night: 53.2	Day: 90.2 Night: 54.9	Day: 91.1 Night: 55.8	Exhibit No. n/a

Excitation ☑ Series ☐ Shunt

This is a Method of Moments Antenna Proof.

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				
Day: 38	o	30	'	29 "	Day: 121	o	34	'	46 "
Night: 39		08		18	Night: 121		33		15

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. n/a

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

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

Night site ground system uses 3" copper strap instead of 4".

Day tower line changed from 40 degrees to 220 degrees to correspond with host station tower numbering.

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

(new station)

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)
Mark A. Mueller	Mark A. Mueller
Address (include ZIP Code) Mueller Broadcast Design 613 S. La Grange Rd. La Grange, IL 60525	Date May 28, 2014 Telephone No. (Include Area Code) (708) 352-2166

mark@muellerbroadcastdesign.com

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

Exhibit 1

Pursuant to the Construction Permit and 47 CFR 73.1620(a)(4), the Applicant is awaiting permission from the Commission to conduct Program Tests.

Mueller Broadcast Design
613 S. La Grange Road
La Grange, Illinois 60525
(708) 352-2166

KDPP, OLIVEHURST, CALIFORNIA
DIRECTIONAL ANTENNA
PROOF OF PERFORMANCE
May 2014

Exhibit EE
ENGINEERING EXHIBIT
TABLE OF CONTENTS

Mueller Broadcast Design
613 S. La Grange Road
La Grange, Illinois 60525
(708) 352-2166

State of Illinois)
)ss
County of Cook)

Mark Alan Mueller, first being duly sworn, deposes and says that he is a Broadcast Technical Consultant and owner of Mueller Broadcast Design, which has been retained by Lotus Communications Corp., permittee of KDPP (AM), Olivehurst, California to prepare the following engineering exhibit. He is a licensed first-class radiotelephone operator, license number P1-18-44514 (renewed: PG-18-21512) and has been engaged in radio broadcast engineering work for a period of over 37 years. During this time he has been responsible for the preparation of many engineering exhibits and reports for submission to the Federal Communications Commission. He was awarded the Bachelor of Science degree from the University of Illinois at Urbana-Champaign.

The following exhibits were prepared by him and they are true and correct to the best of his knowledge and belief.

May 28, 2014

Mark A. Mueller, Affiant

Mueller Broadcast Design
613 S. La Grange Road
La Grange, Illinois 60525
(708) 352-2166

Engineering Report For Lotus Communications Corp. K D P P (A M) Olivehurst, California May 2014

This engineering report documents the Directional Antenna Performance Verification measurements for new station KDPP (AM), FCC facility ID number 160999, Olivehurst, California. KDPP is authorized to operate on 890 KHz with 10 KW daytime using a three tower directional antenna daytime and a separate 0.48 KW three tower directional antenna system nighttime. This Verification is for the new facilities authorized by BMP-20121114AFG and documents the required "model proof" in order to grant the covering license. All measurements were made personally by the writer in accordance with the FCC rules at 47 CFR 73.151(c).

Eligibility for 73.151(c) Processing

Each of the KDPP antenna systems consists of three conventional insulated uniform cross-section triangular 18" face steel guyed towers, series-fed with no top loading. They are 95.4° (day) and 56.8° (night) tall at the KDPP frequency (890 KHz) and are sampled at the base using Delta TCT-2 (day) and TCT-1 (night) toroidal current transformers. The daytime ground system is of standard design, consisting of 120 equally-spaced buried bare copper wire radials around each tower 54.3 meters long (58.04°) except for those which intersect where four inch copper straps terminate the radial intersections. A 4" strap interconnects the towers to each other and to the phasor and transmitter. The nighttime ground system is also of standard design, consisting of 120 equally-spaced buried bare copper wire radials around each tower 53.2 meters long (56.81°) except for those which intersect where four inch copper straps terminate the radial intersections. A 3" strap interconnects the towers to each other and to the phasor and transmitter. No physical changes were made to the towers or ground systems.

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The antenna current sample elements are Delta Electronics toroidal current transformers which are located at the output of the filter networks on the lead to the towers. There are no shunt elements between the sample element and the tower except for a static drain (night) or tower lighting choke (day) which presents a very high impedance (more than 10 times the tower impedance) at 890 KHz. Equal lengths of Andrew LDF4-50A ½" foam dielectric coaxial cable are used as sample lines at each site. A Gorman Redlich CMR (day) and Potomac Instruments AM-19D (210) (night) antenna monitor is used to keep tabs on the arrays.

Measurements

The day and night KDPP antenna systems were modeled using Westberg Consulting's Phasor Professional 2.1.1 which calculates the tower matrix values as well as the proper operating parameters. The towers and sample lines were measured and documented using an Array Solutions PowerAIM-120 network analyzer serial number 1019 operated in accordance with the manufacturer's instructions. This analyzer has been used in many similar projects and exhibits excellent stability and field performance and since it operates "floating" via battery power and a Bluetooth radio connection to the associated computer no RF ground loop issues arise.

The three towers at each KDPP site are base sampled using toroidal current transformers located at the output of the diplex filter networks, facing the tower. Each tower was disconnected from its ATU at the sample transformer using the jack provided for this purpose and was measured at that point. The other towers were shorted and/or left floating for each measurement as required, plus additional measurements with the subject tower base insulator shorted to measure the feedline impedance and electrical length from the ATU to the tower as well as at the tower itself with the ATU disconnected. These measurements are documented below and show good agreement with the Westberg theoretical numbers. These were also checked and verified separately using NEC2. In any case the model and measured figures agree within 4% +/- 2 ohms.

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Model Data:

DAY SITE TOWER MODEL INFORMATION

TOWER INFORMATION						
	Tower Height (°)	Spacing (°)	Orientation	Face Width (in.)	Radius (in.)	Velocity Factor
Tower 1	95.4000	0.0000	0.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.970000
Tower 2	95.4000	58.0000	220.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.935000
Tower 3	95.4000	116.1000	220.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.970000

(note: tower line changed to 220° true to correspond with host station numbering)

DAY SITE MATRIX INFORMATION [47 CFR 73.151(c)(1)]

MATRIX INFORMATION		
	Calculated Impedance (other towers open)	Measured Impedance (other towers open)
Tower 1	53.64 + j68.30	51.40 + j66.81
Tower 2	61.80 + j87.14	62.44 + j84.42
Tower 3	53.63 + j68.30	50.56 + j64.01

NIGHT SITE TOWER MODEL INFORMATION

TOWER INFORMATION						
	Tower Height (°)	Spacing (°)	Orientation	Face Width (in.)	Radius (in.)	Velocity Factor
Tower 1	56.8000	0.0000	0.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.910000
Tower 2	56.8000	56.8000	177.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.910000
Tower 3	56.8000	44.2000	257.0000	18.0000 / 18.0000	8.3138 / 8.3138	0.895000

NIGHT SITE MATRIX INFORMATION [47 CFR 73.151(c)(1)]

MATRIX INFORMATION		
	Calculated Impedance (other towers open)	Measured Impedance (other towers open)
Tower 1	13.84 - j135.34	14.96 - j129.41
Tower 2	13.78 - j135.26	15.24 - j134.85
Tower 3	14.42 - j129.22	16.16 - j123.34

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The Westberg Phasor Professional method-of-moments model fully complies with all FCC requirements for tower radius, height, segment length, and calculation references points. No shunt capacitance was used. Towers were adjusted by varying the propagation velocity and effective diameter as shown above. The measured impedances agree with the model within +/- 2 ohms +/- 4%. Westberg's Phasor Professional uses a single wire of the desired effective radius divided into segments of no more than 10° electrical length each to model the tower. The average series reactance from the tower to the sample element location was measured at +j30 ohms or 5.36 μH with the highest being +j41 ohms (7.33 μH), less than the allowable 10 μH. Calculations using WCAP showed no variation in the operating parameters with or without this series reactance in circuit.

United States of America

FEDERAL COMMUNICATIONS COMMISSION

AM BROADCAST STATION CONSTRUCTION PERMIT

Authorizing Official:

Official Mailing Address:

LOTUS COMMUNICATIONS CORP.
3301 BARHAM BOULEVARD
SUITE 200
LOS ANGELES CA 90068

Son Nguyen
Supervisory Engineer
Audio Division
Media Bureau

Grant Date: February 19, 2013

The authority granted herein has no effect on the expiration date of the underlying construction permit.

Facility Id: 160999

Call Sign: KDPP

Permit File Number: BMP-20121114AFG

This permit modifies permit no.: BNP-20071221ADK

Proposes two sites operation for day and night.

Subject to the provisions of the Communications Act of 1934, as amended, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this permit, the permittee is hereby authorized to construct the radio transmitting apparatus herein described. Installation and adjustment of equipment not specifically set forth herein shall be in accordance with representations contained in the permittee's application for construction permit except for such modifications as are presently permitted, without application, by the Commission's Rules.

Commission rules which became effective on February 16, 1999, have a bearing on this construction permit. See Report & Order, Streamlining of Mass Media Applications, MM Docket No. 98-43, 13 FCC RCD 23056, Para. 77-90 (November 25, 1998); 63 Fed. Reg. 70039 (December 18, 1998). Pursuant to these rules, this construction permit will be subject to automatic forfeiture unless construction is complete and an application for license to cover is filed prior to expiration. See Section 73.3598.

Equipment and program tests shall be conducted only pursuant to Sections 73.1610 and 73.1620 of the Commission's Rules.

Hours of Operation: Unlimited

Average hours of sunrise and sunset:
Local Standard Time (Non-Advanced)

Jan.	7:30 AM	5:15 PM	Jul.	5:00 AM	7:30 PM
Feb.	7:00 AM	5:45 PM	Aug.	5:15 AM	7:00 PM
Mar.	6:15 AM	6:15 PM	Sep.	5:45 AM	6:15 PM
Apr.	5:30 AM	6:45 PM	Oct.	6:15 AM	5:30 PM
May	5:00 AM	7:15 PM	Nov.	6:45 AM	5:00 PM

Callsign: KDPP Permit No.: BMP-20121114AFG

Jun. 4:45 AM 7:30 PM Dec. 7:15 AM 4:45 PM

Name of Permittee: LOTUS COMMUNICATIONS CORP.

Station Location: OLIVEHURST, CA

Frequency (kHz): 890

Station Class: B

Antenna Coordinates:

	Day					
Latitude:	N	38	Deg	30	Min	29 Sec
Longitude:	W	121	Deg	34	Min	46 Sec

	Night					
Latitude:	N	39	Deg	08	Min	18 Sec
Longitude:	W	121	Deg	33	Min	15 Sec

Transmitter(s): Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Nominal Power (kW): Day: 10.0 Night: 0.48

Antenna Mode: Day: DA Night: DA

(DA=Directional Antenna, ND=Non-directional Antenna; CH=Critical Hours)

Antenna Registration Number(s):

Day:

Tower No.	ASRN	Overall Height (m)
1	1015843	
2	1015842	
3	1015841	

Night:

Tower No.	ASRN	
1	None	54.1
2	None	54.1
3	None	54.1

Callsign: KDPP Permit No.: BMP-20121114AFG

DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

Theoretical RMS (mV/m/km): Day: 1023.32 Night: 195.98

Standard RMS (mV/m/km): Day: 1076.05 Night: 206.04

Augmented RMS (mV/m/km):

Q Factor: Day: Night:

Theoretical Parameters:

Day Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	0.5100	142.000	0.0000	0.000	0	95.4
2	1.0000	0.000	58.0000	40.000	0	95.4
3	0.5100	-142.000	116.1000	40.000	0	95.4

* Tower Reference Switch
0 = Spacing and orientation from reference tower
1 = Spacing and orientation from previous tower

Theoretical Parameters:

Night Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	0.9100	159.000	0.0000	0.000	0	56.8
2	0.7800	36.000	56.8000	177.000	0	56.8
3	1.0000	0.000	44.2000	257.000	0	56.8

* Tower Reference Switch
0 = Spacing and orientation from reference tower
1 = Spacing and orientation from previous tower

Inverse Distance Field Strength:
The inverse distance field strength at a distance of one kilometer from the above antenna in the directions specified shall not exceed the following values:

Day:

Azimuth:	Radiation:	
157.5	58	mV/m
188.5	58	mV/m
251.5	58	mV/m
282.5	58	mV/m

Night:

Azimuth:	Radiation:	
97	91.1	mV/m

Special operating conditions or restrictions:

1 Permittee shall install a type accepted transmitter, or submit application (FCC Form 301) along with data prescribed in Section 73.1660(b) should non-type accepted transmitter be proposed.

2 The permittee must submit a proof of performance as set forth in either Section 73.151(a) or 73.151(c) of the rules before program tests are authorized.
A proof of performance based on field strength measurements, per Section 73.151(a), shall include a complete nondirectional proof of performance, in addition to a complete proof on the (day) and (night) directional antenna system. The nondirectional and directional field strength measurements must be made under similar environmental conditions. The proof(s) of performance submitted to the Commission must contain all of the data specified in Section 73.186 of the rules.
Permittees who elect to submit a moment method proof of performance, as set forth in Section 73.151(c), must use series-fed radiators. In addition, the sampling system must be constructed as described in Section 73.151(c) (2) (i).

Special operating conditions or restrictions:

3 Before program tests are authorized, sufficient data shall be submitted to show that adequate filters, traps and other equipment has been installed and adjusted to prevent interaction, intermodulation and/or generation of spurious radiation products which may be caused by common usage of the same antenna system by Stations KDPP(AM), Facility ID: 160999,
and KTKZ(AM), Facility ID: 59599 for day; Stations KDPP(AM), Facility ID: 160999, and KMYC(AM), Facility ID: 40633 for night, and there shall be filed with the
license application copies of a firm agreement entered into by the three stations involved clearly fixing the responsibility of each with regard to the installation and maintenance of such equipment. In addition, field observations shall be made to determine whether spurious emissions exist and any objectionable problems resulting therefrom shall be eliminated. Following construction, and prior to authorization of program test under this grant, Stations Stations KDPP(AM), Facility ID: 160999, and KTKZ(AM), Facility ID: 59599 for day; Stations KDPP(AM), Facility ID: 160999, and KMYC(AM), Facility ID: 40633 for night shall each measure antenna or common point resistance and submit FCC Form 302 as application notifying the return to direct measurement of power.

4 Daytime ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 54.3 meters in length except where terminated by property boundaries or where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers. Another 4 inch copper strap interconnects the tower bases.

5 Nighttime ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 53.2 meters in length except where terminated by property boundaries or where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers. Another 4 inch copper strap interconnects the tower bases.

*** END OF AUTHORIZATION ***

Mueller Broadcast Design
613 S. La Grange Road
La Grange, Illinois 60525
(708) 352-2166

DAY SITE TOWER CURRENTS from Westberg Phasor Professional

DETUNED TOWER CURRENTS
Tower 1
0.000000 > 0.000000 - 95.40° above ground
0.163027 > -95.074330 - 85.86° above ground
0.255059 > -96.535292 - 76.32° above ground
0.297006 > -98.021294 - 66.78° above ground
0.288829 > -99.595535 - 57.24° above ground
0.229743 > -101.539881 - 47.70° above ground
0.119037 > -105.808631 - 38.16° above ground
0.047992 > 97.054758 - 28.62° above ground
0.265800 > 82.478040 - 19.08° above ground
0.546735 > 80.415549 - 9.54° above ground
0.985273 > 79.296568 - -0.00° above ground
Tower 2
0.000000 > 0.000000 - 95.40° above ground
0.173252 > -91.555102 - 85.86° above ground
0.271190 > -93.175062 - 76.32° above ground
0.315641 > -94.968724 - 66.78° above ground
0.306719 > -97.022776 - 57.24° above ground
0.243815 > -99.744956 - 47.70° above ground
0.126606 > -105.989771 - 38.16° above ground
0.054096 > 106.417248 - 28.62° above ground
0.283125 > 85.963461 - 19.08° above ground
0.580494 > 82.751129 - 9.54° above ground
1.042586 > 80.858632 - -0.00° above ground
Tower 3
0.000000 > 0.000000 - 95.40° above ground
0.114705 > -152.709051 - 85.86° above ground
0.180558 > -152.580669 - 76.32° above ground
0.211434 > -152.428111 - 66.78° above ground
0.206736 > -152.219307 - 57.24° above ground
0.165450 > -151.879688 - 47.70° above ground
0.086605 > -150.982367 - 38.16° above ground
0.030924 > 23.616114 - 28.62° above ground
0.188694 > 27.297898 - 19.08° above ground
0.391525 > 27.878646 - 9.54° above ground
0.708832 > 28.286199 - -0.00° above ground

DAYTIME TOWER CURRENTS
Tower 1
0.000000 > 0.000000 - 95.40° above ground
3.078852 > -141.869973 - 85.86° above ground
5.574107 > -142.251597 - 76.32° above ground
7.783071 > -142.629088 - 66.78° above ground
9.680418 > -143.013993 - 57.24° above ground
11.227574 > -143.418192 - 47.70° above ground
12.384670 > -143.859168 - 38.16° above ground
13.116066 > -144.363377 - 28.62° above ground
13.389722 > -144.974097 - 19.08° above ground
13.171724 > -145.769416 - 9.54° above ground
12.204487 > -147.194305 - -0.00° above ground
Tower 2
0.000000 > 0.000000 - 95.40° above ground
5.710452 > -3.668438 - 85.86° above ground
10.387219 > -3.455189 - 76.32° above ground
14.559746 > -3.232514 - 66.78° above ground
18.172463 > -2.991877 - 57.24° above ground
21.145317 > -2.724930 - 47.70° above ground
23.396383 > -2.420180 - 38.16° above ground
24.852407 > -2.060336 - 28.62° above ground
25.448288 > -1.616444 - 19.08° above ground
25.117406 > -1.034710 - 9.54° above ground
23.398136 > 0.000000 - -0.00° above ground
Tower 3
0.000000 > 0.000000 - 95.40° above ground
2.812178 > 138.480788 - 85.86° above ground
5.158987 > 138.759264 - 76.32° above ground
7.302640 > 139.017866 - 66.78° above ground
9.216927 > 139.262364 - 57.24° above ground
10.863324 > 139.497644 - 47.70° above ground
12.201961 > 139.730725 - 38.16° above ground
13.197229 > 139.971471 - 28.62° above ground
13.818984 > 140.234457 - 19.08° above ground
14.040909 > 140.543074 - 9.54° above ground
13.749596 > 141.031971 - -0.00° above ground

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La Grange, Illinois 60525
(708) 352-2166

DAY SITE MATRIX CALCULATIONS from Westberg Phasor Professional

ZMatrix		
53.64 + j68.30	44.07 - j14.80	11.61 - j33.33
44.07 - j14.80	61.80 + j87.14	44.02 - j14.86
11.61 - j33.33	44.02 - j14.86	53.63 + j68.30

YMatrix		
0.005026 - j0.007930	0.002281 + j0.003679	0.001553 + j0.000474
0.002281 + j0.003679	0.001780 - j0.006656	0.002281 + j0.003673
0.001553 + j0.000474	0.002281 + j0.003673	0.005030 - j0.007927

HMatrix - [I] = [H] X [F]		
0.014727 + j0.001370	0.000089 + j0.001087	0.000657 + j0.000436
0.000077 + j0.001157	0.013624 + j0.001442	0.000079 + j0.001156
0.000657 + j0.000436	0.000090 + j0.001086	0.014727 + j0.001371

HMatrix-inverse - [F] = $[H]^{-1}$ X [I]		
67.102167 - j5.937381	-1.498554 - j4.855421	-3.657390 - j1.239601
-1.518504 - j5.188032	71.819673 - j7.291365	-1.526516 - j5.181886
-3.657467 - j1.239716	-1.505887 - j4.849740	67.103200 - j5.936640

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613 S. La Grange Road
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(708) 352-2166

NIGHT SITE TOWER CURRENTS from Westberg Phasor Professional

DETUNED TOWER CURRENTS
Tower 1
0.000000 > 0.000000 - 56.80° above ground
0.024395 > -91.591472 - 47.33° above ground
0.031499 > -97.541363 - 37.87° above ground
0.025190 > -105.832100 - 28.40° above ground
0.006312 > -150.291399 - 18.93° above ground
0.033348 > 84.206888 - 9.47° above ground
0.103348 > 74.510547 - -0.00° above ground
Tower 2
0.000000 > 0.000000 - 56.80° above ground
0.024524 > -91.700717 - 47.33° above ground
0.031653 > -97.605432 - 37.87° above ground
0.025261 > -105.835480 - 28.40° above ground
0.006244 > -150.734933 - 18.93° above ground
0.033545 > 84.114598 - 9.47° above ground
0.103505 > 74.514901 - -0.00° above ground
Tower 3
0.000000 > 0.000000 - 56.80° above ground
0.028574 > -74.522647 - 47.33° above ground
0.035416 > -83.834848 - 37.87° above ground
0.027512 > -98.061169 - 28.40° above ground
0.009719 > -159.595553 - 18.93° above ground
0.037946 > 99.100060 - 9.47° above ground
0.112833 > 82.319597 - -0.00° above ground

NIGHTTIME TOWER CURRENTS
Tower 1
0.000000 > 0.000000 - 56.80° above ground
1.079334 > 158.143181 - 47.33° above ground
1.988707 > 158.174472 - 37.87° above ground
2.822968 > 158.132141 - 28.40° above ground
3.573002 > 158.002061 - 18.93° above ground
4.232938 > 157.768592 - 9.47° above ground
4.918372 > 157.336404 - -0.00° above ground
Tower 2
0.000000 > 0.000000 - 56.80° above ground
0.951789 > 33.409626 - 47.33° above ground
1.733474 > 33.813792 - 37.87° above ground
2.436245 > 34.268482 - 28.40° above ground
3.057484 > 34.800575 - 18.93° above ground
3.596394 > 35.440472 - 9.47° above ground
4.148435 > 36.395820 - -0.00° above ground
Tower 3
0.000000 > 0.000000 - 56.80° above ground
1.211063 > -2.019569 - 47.33° above ground
2.204948 > -1.819787 - 37.87° above ground
3.092250 > -1.558135 - 28.40° above ground
3.864641 > -1.210369 - 18.93° above ground
4.515791 > -0.747871 - 9.47° above ground
5.146882 > 0.000000 - -0.00° above ground

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(708) 352-2166

NIGHT SITE MATRIX CALCULATIONS from Westberg Phasor Professional

ZMatrix		
13.84 - j135.34	11.13 - j5.17	12.44 - j5.18
11.13 - j5.17	13.78 - j135.26	10.51 - j5.57
12.44 - j5.18	10.51 - j5.57	14.42 - j129.22

YMatrix		
0.000629 + j0.007265	0.000475 - j0.000404	0.000572 - j0.000437
0.000475 - j0.000404	0.000637 + j0.007287	0.000457 - j0.000446
0.000572 - j0.000437	0.000457 - j0.000446	0.000727 + j0.007602

HMatrix - [I] = [H] X [F]		
0.030795 + j0.000637	0.000132 + j0.000517	0.000072 + j0.000562
0.000132 + j0.000517	0.030796 + j0.000638	0.000171 + j0.000479
0.000066 + j0.000578	0.000173 + j0.000492	0.030118 + j0.000655

HMatrix-inverse - $[F] = [H]^{-1} X [I]$		
32.439480 - j0.662701	-0.169765 - j0.532634	-0.110554 - j0.595549
-0.170034 - j0.533499	32.443418 - j0.660833	-0.215283 - j0.503421
-0.104785 - j0.613197	-0.218545 - j0.517385	33.169305 - j0.711171

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TOWER DRIVE INFORMATION – DAY

	Field Ratios	Field Phase	Drive Imped. (Ω)	Current	Antenna Monitor*	Power (W)
Tower 1	0.5100	-142.0000	-33.59 + j113.75	12.20 ∠ -147.19°	0.521 ∠ -147.2°	-5003.4759
Tower 2	1.0000	0.0000	23.67 + j104.23	23.40 ∠ 0.00°	1.000 ∠ 0.0°	12960.6415
Tower 3	0.5100	142.0000	10.81 + j41.39	13.75 ∠ 141.03°	0.588 ∠ 141.0°	2042.8343

(note: tower line is 220° true to correspond with host station numbering)

TOWER DRIVE INFORMATION – NIGHT

	Field Ratios	Field Phase	Drive Imped. (Ω)	Current	Antenna Monitor*	Power (W)
Tower 1	0.9100	159.000	-8.83 - j141.17	4.92 ∠ 157.34	0.955 ∠ 157.3°	-213.7043
Tower 2	0.7800	36.0000	18.64 - j134.09	4.15 ∠ 36.40	0.806 ∠ 36.4°	320.7159
Tower 3	1.0000	0.0000	14.84 - j118.65	5.15 ∠ 0.00	1.000 ∠ 0.0°	392.9884

*** = These are the pattern parameters used to tune the array and are on the Form 302.**

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La Grange, Illinois 60525
(708) 352-2166

Day Site Sample System Verification [47 CFR 73.151(c)(2)]

Sample Lines: Andrew 1/2" LDF4-50A foam dielectric coaxial cable

89% velocity factor, 50 +/-1 ohm nominal impedance

Lines were cut to equal electrical length and terminated with proper connectors.

Sample Element Type: Delta Electronics TCT-2 Toroidal Current Transformers.

Location: At output of antenna diplexing filters on lead to tower.

Operating Potential: Grounded

Antenna Monitor: Gorman-Redlich CMR s/n 1046-B

TCT-2 Serial Numbers & Z at 890 KHz:

Tower 1 (N):	18243	49.541 -j0.340 ohms
Tower 2 (C):	18242	49.529 +j0.760 ohms
Tower 3 (S):	18244	49.616 -j0.177 ohms

(Current Transformers are matched within 0.087 ohms resistance and j1.1 ohms reactance)

Antenna Monitor Calibration Check

This monitor was purchased new in March 2014 and was calibrated at the factory. Prior to tuning the array, the monitor calibration was checked by the writer using the built-in calibration circuit. Feeding two channels at once from the same source verified that each channel indicated properly (equal ratio and phase).

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Day Site TCT-2 Phase and Ratio Test (Tower 2 is reference):

Tower 1: 1.002/ +0.1°

Tower 3: 1.000/ -0.3°

Current Transformers are matched within 0.2% ratio and 0.4° phase and are well within the manufacturer's rated accuracy of +/-2% and +/- 2°. The phase and ratio calibration test was done by reading the RF current through the #2 TCT and the immediately adjacent subject unit at each tower at 1000 watts input to the array. Two 10 foot RG-58 cables cut to the exact same electrical length were used to connect the TCTs to the monitor. These cables are maintained by the writer for this purpose.

Sample Line Electrical Length Test (see graph data which follows):

Physical length uses 89% velocity factor.

Tower 1 Closest Odd ¼ wave Resonant Frequency: 0.774268 MHz (282.77 feet)
90.00° at 774.268 KHz
103.45° at 890 KHz

Tower 2 Closest Odd ¼ wave Resonant Frequency: 0.772423 MHz (283.45 feet)
90.00° at 772.423 KHz
103.70° at 890 KHz

Tower 3 Closest Odd ¼ wave Resonant Frequency: 0.775947 MHz (282.16 feet)
90.00° at 775.947 KHz
103.23° at 890 KHz

Maximum Difference in Electrical Length: 0.47° at 890 KHz

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(708) 352-2166

Day Site Sample line characteristic impedance test (see graph data which follows):

Tower 1 (N) Sample Line Impedance:	51.396 ohms
Tower 2 (C) Sample Line Impedance:	51.430 ohms
Tower 3 (S) Sample Line Impedance:	51.486 ohms

Maximum Variation in Sample Line Impedance: 0.0905 ohms
Manufacturer's Specification: +/- 1 ohm

Sample impedance from monitor end with sample element connected, see graph data:

Tower 1 (N) Sample Impedance:	51.584 -j1.912 ohms
Tower 2 (C) Sample Impedance:	51.766 -j1.643 ohms
Tower 3 (S) Sample Impedance:	51.719 -j1.962 ohms

Maximum Variation in Sample Impedance as seen from monitor:
+/- 0.091 ohms resistance and +/- j0.160 ohms reactance.

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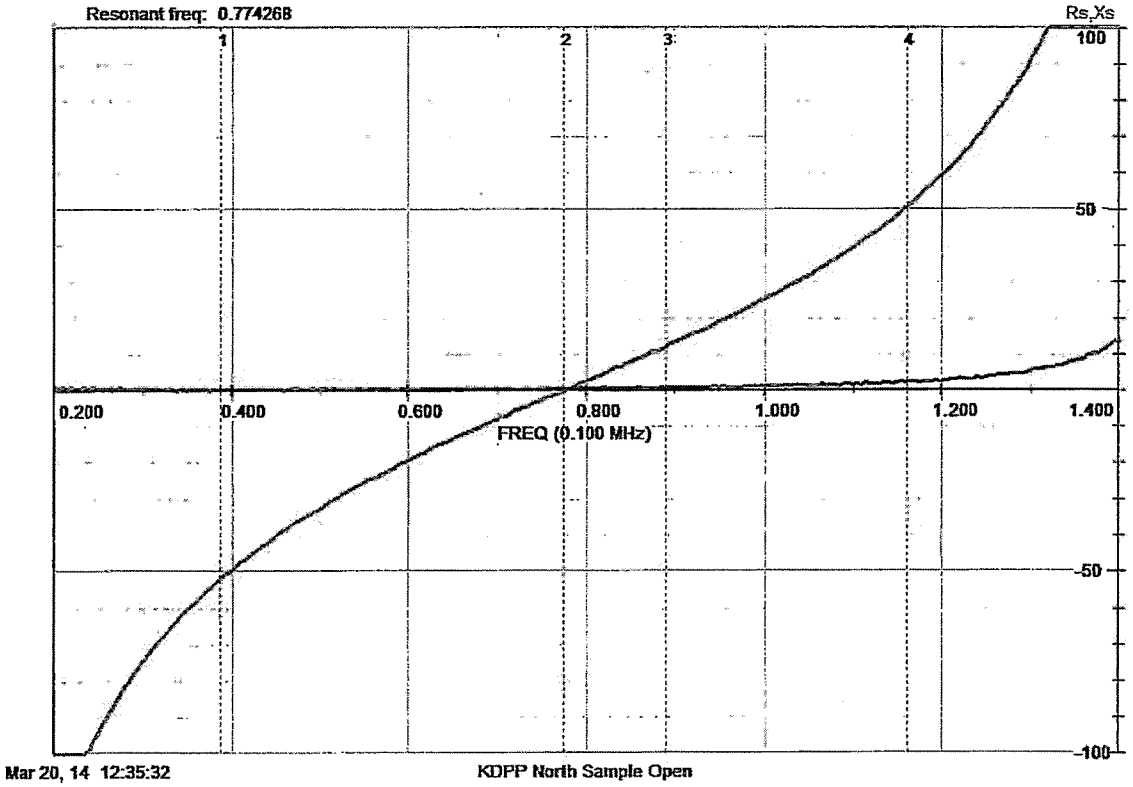
Day Site Tower 1 (N) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.387119	0.333	-51.968	51.969
[2]	0.774268	0.620	0.000	
[3]	0.890000	0.699	12.057	
[4]	1.161357	2.188	50.782	50.829

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 1 Sample Line Characteristic Impedance: 51.396 ohms

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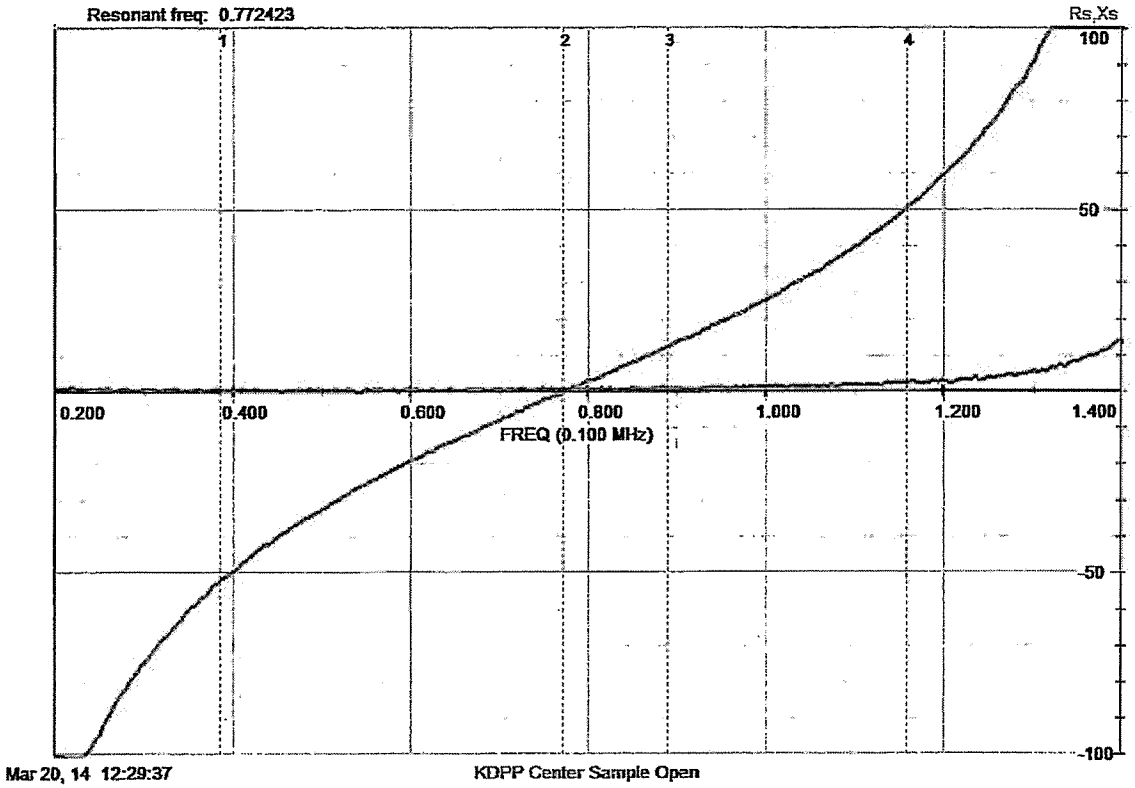
(708) 352-2166

Day Site Tower 2 (C) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.386212	0.506	-52.172	52.175
[2]	0.772423	0.749	0.000	
[3]	0.890000	0.636	12.253	
[4]	1.158635	2.570	50.631	50.696

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 2 Sample Line Characteristic Impedance: 51.430 ohms

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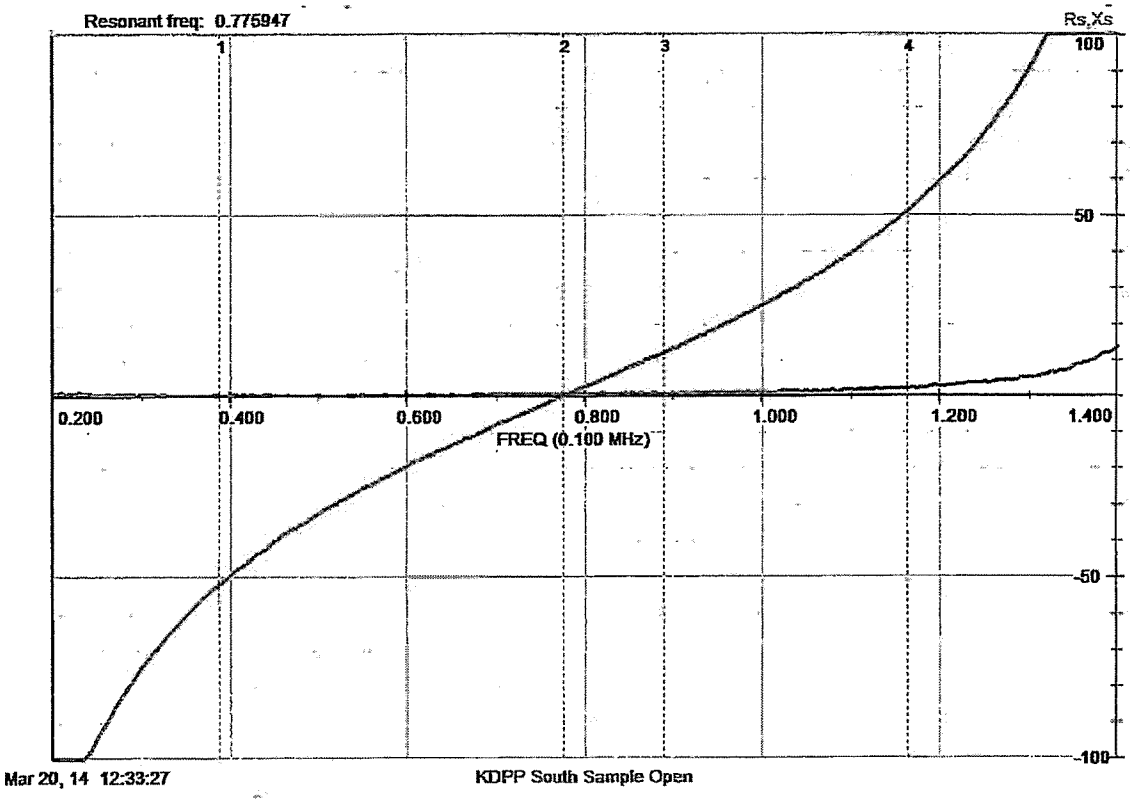
(708) 352-2166

Day Site Tower 3 (S) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.387974	0.334	-51.814	51.815
[2]	0.775947	0.645	0.000	
[3]	0.890000	0.673	12.187	
[4]	1.163921	2.188	51.114	51.160

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 3 Sample Line Characteristic Impedance: 51.486 ohms

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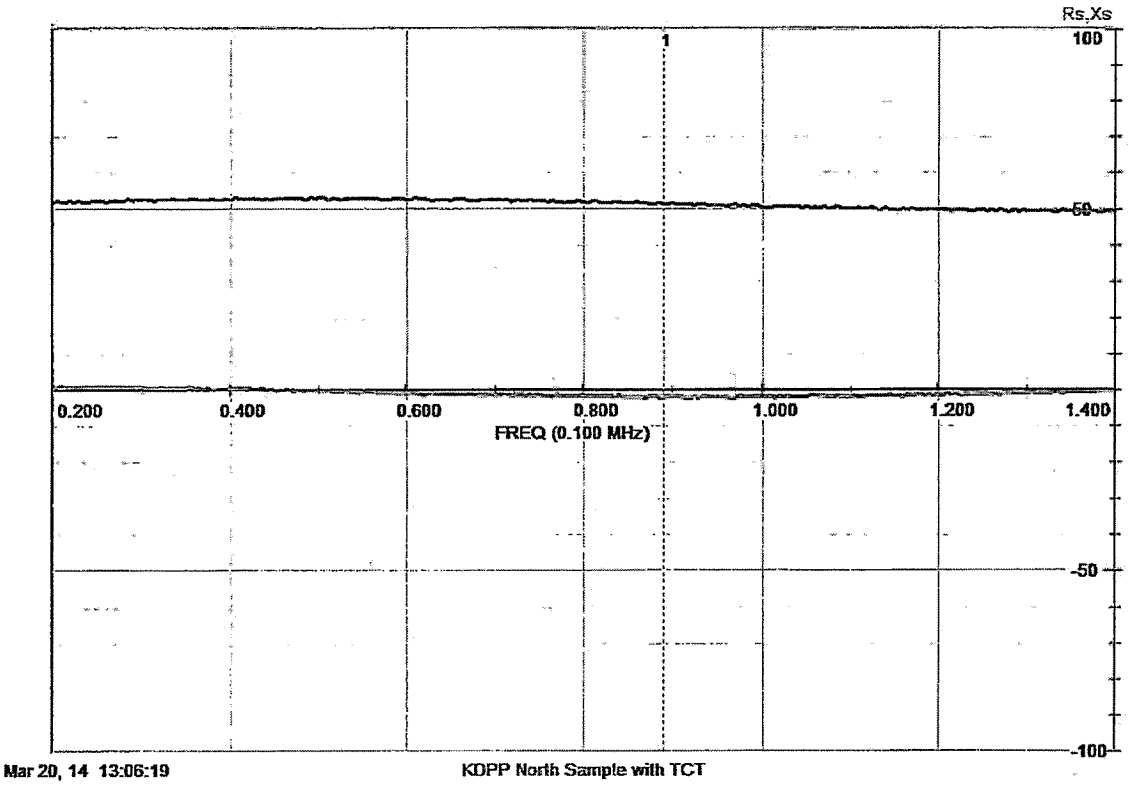
Sample lines from antenna monitor end with TCT-2s connected at towers as normal:

Day Site Tower 1 (N)



Markers: [1] = operating frequency

Impedance of Tower 1 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

51.584 -j1.912 ohms

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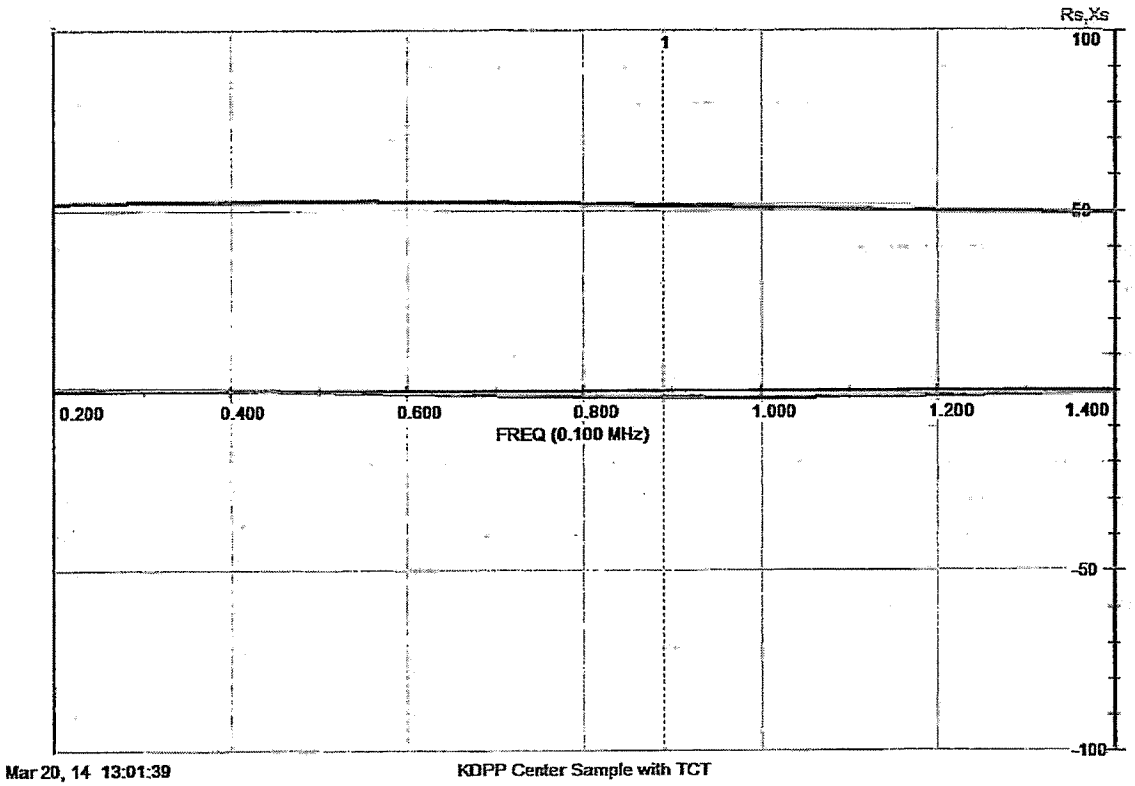
La Grange, Illinois 60525
(708) 352-2166

Day Site Tower 2 (C)



Markers: [1] = operating frequency

Impedance of Tower 2 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

51.766 -j1.643 ohms

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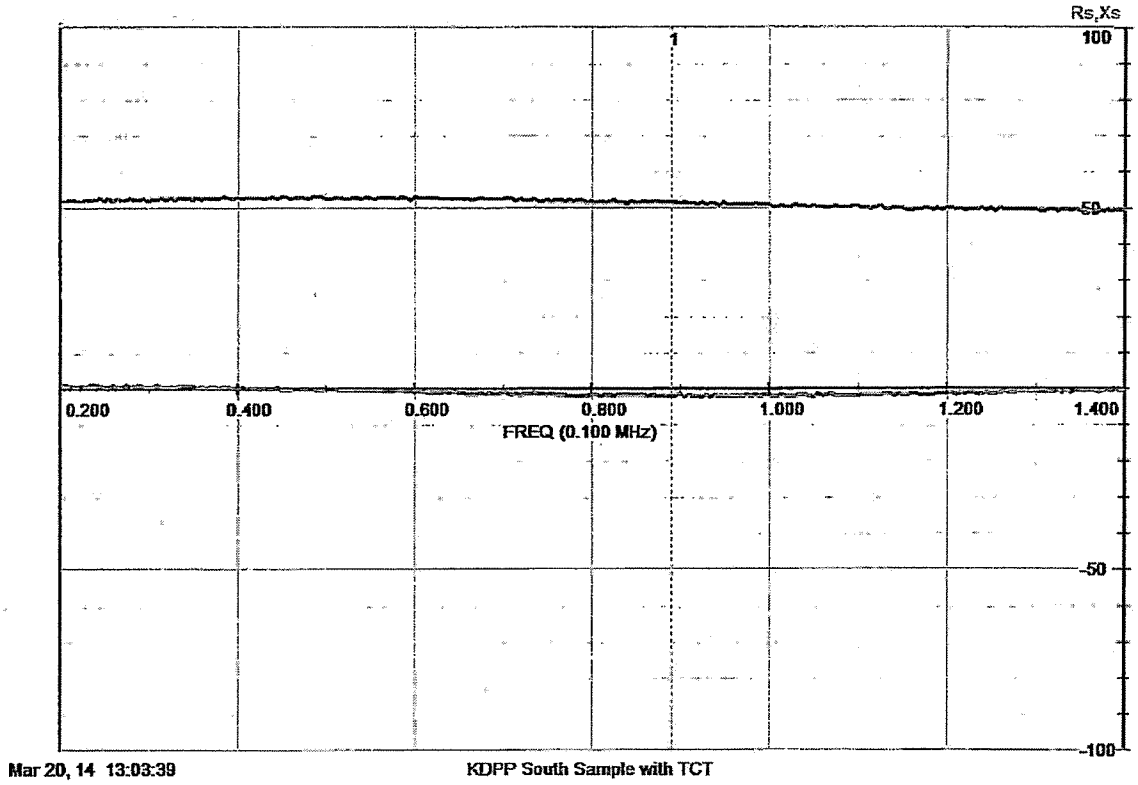
(708) 352-2166

Day Site Tower 3 (S)



Markers: [1] = operating frequency

Impedance of Tower 3 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

51.719 -j1.962 ohms

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613 S. La Grange Road
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(708) 352-2166

Night Site Sample System Verification [47 CFR 73.151(c)(2)]

Sample Lines: Andrew 1/2" LDF4-50A foam dielectric coaxial cable

89% velocity factor, 50 +/-1 ohm nominal impedance

Lines were cut to equal electrical length and terminated with proper connectors.

Sample Element Type: Delta Electronics TCT-1 Toroidal Current Transformers.

Location: At output of antenna diplexing filters on lead to tower.

Operating Potential: Grounded

Antenna Monitor: Potomac Instruments AM-19D (210) s/n 471

TCT-1 Serial Numbers & Z at 890 KHz:

Tower 1 (N):	1285	49.273 +j2.186 ohms
Tower 2 (S):	782	50.291 +j2.380 ohms
Tower 3 (W):	473	48.883 +j2.190 ohms

(Current Transformers are matched within 1.408 ohms resistance and j0.19 ohms reactance)

Antenna Monitor Calibration Check

Prior to tuning the array, the monitor calibration was checked by the writer, with both zero degree and 180 degree phase indications verified as showing 0° and 180° as appropriate using the built-in calibration circuit. Feeding two channels at once from the same source verified that each channel indicated properly (equal ratio and phase) and a 90° delay inserted in each sample line in turn with the same source connected to the reference was used to verify proper mid-scale readings at both +90° and -90°. Finally, the ratio indications were verified using a field intensity meter to read the RF voltage on the sample lines while connected to the monitor, and manual calculations of the ratio confirmed proper operation.

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(708) 352-2166

Night Site TCT-1 Phase and Ratio Test (Tower 3 is reference):

Tower 1: 1.000/ +0.0°

Tower 2: 0.998/ -0.3°

Current Transformers are matched within 0.2% ratio and 0.3° phase and are well within the manufacturer's rated accuracy of +/-2% and +/- 2°. The phase and ratio calibration test was done by reading the RF current through the #3 TCT and the immediately adjacent subject unit at the phasor jack for tower 3 at 500 watts input to the array. Two 10 foot RG-58 cables cut to the exact same electrical length were used to connect the TCTs to the monitor. These cables are maintained by the writer for this purpose.

Sample Line Electrical Length Test (see graph data which follows):

Physical length uses 89% velocity factor.

Tower 1 Closest Odd ¼ wave Resonant Frequency: 0.861112 MHz (254.25 feet)
90.00° at 861.112 KHz
93.02° at 890 KHz

Tower 2 Closest Odd ¼ wave Resonant Frequency: 0.862447 MHz (253.86 feet)
90.00° at 862.447 KHz
92.88° at 890 KHz

Tower 3 Closest Odd ¼ wave Resonant Frequency: 0.860968 MHz (254.38 feet)
90.00° at 860.968 KHz
93.05° at 890 KHz

Maximum Difference in Electrical Length: 0.17° at 890 KHz

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(708) 352-2166

Night Site Sample line characteristic impedance test (see graph data which follows):

Tower 1 (N) Sample Line Impedance:	51.489 ohms
Tower 2 (S) Sample Line Impedance:	51.482 ohms
Tower 3 (W) Sample Line Impedance:	51.418 ohms

Maximum Variation in Sample Line Impedance: 0.071 ohm
Manufacturer's Specification: +/- 1 ohm

Sample impedance from monitor end with sample element connected, see graph data:

Tower 1 (N) Sample Impedance:	50.426 -j2.166 ohms
Tower 2 (S) Sample Impedance:	49.403 -j2.126 ohms
Tower 3 (W) Sample Impedance:	51.665 -j2.473 ohms

Maximum Variation in Sample Impedance as seen from monitor:
+/- 1.131 ohms resistance and +/- 0.154 ohms reactance.

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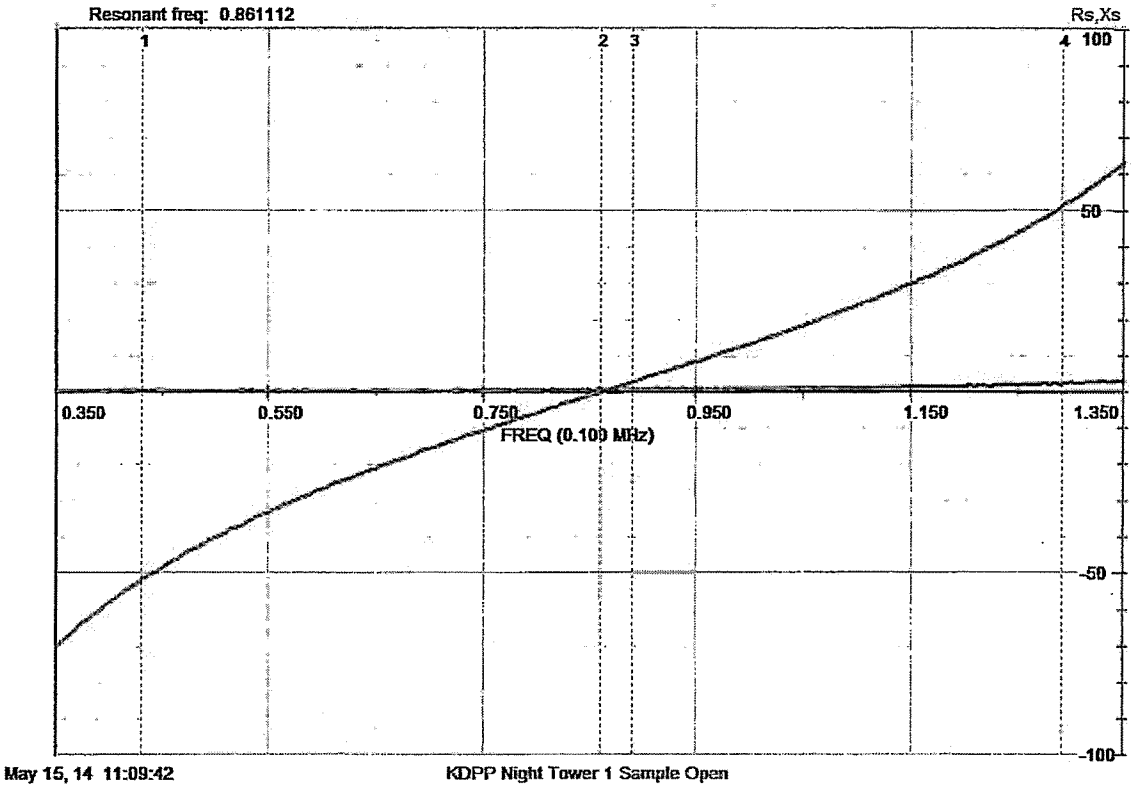
Night Site Tower 1 (N) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.430556	0.226	-51.703	51.704
[2]	0.861112	0.779	0.000	
[3]	0.890000	0.600	2.775	
[4]	1.291668	2.349	51.220	51.274

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 1 Sample Line Characteristic Impedance: 51.489 ohms

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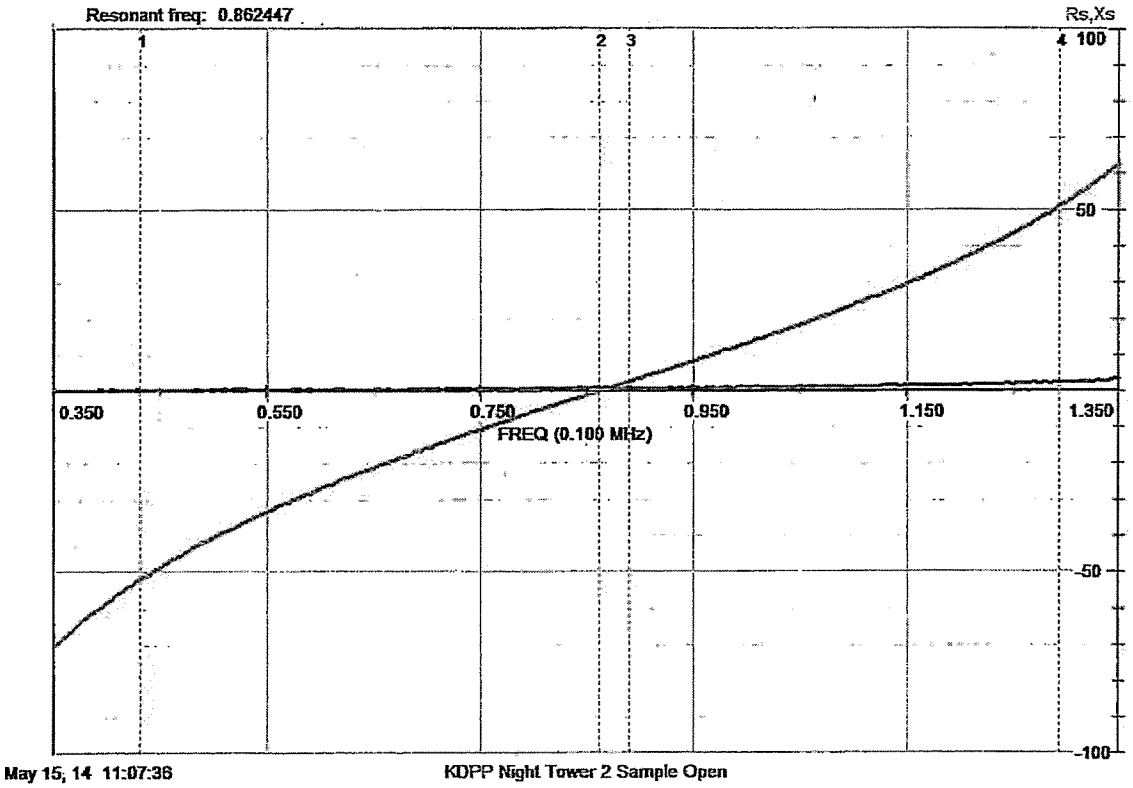
(708) 352-2166

Night Site Tower 2 (S) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.431224	0.489	-51.723	51.725
[2]	0.862447	0.781	0.000	
[3]	0.890000	0.900	2.625	
[4]	1.293671	2.372	51.187	51.241

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 2 Sample Line Characteristic Impedance: 51.482 ohms

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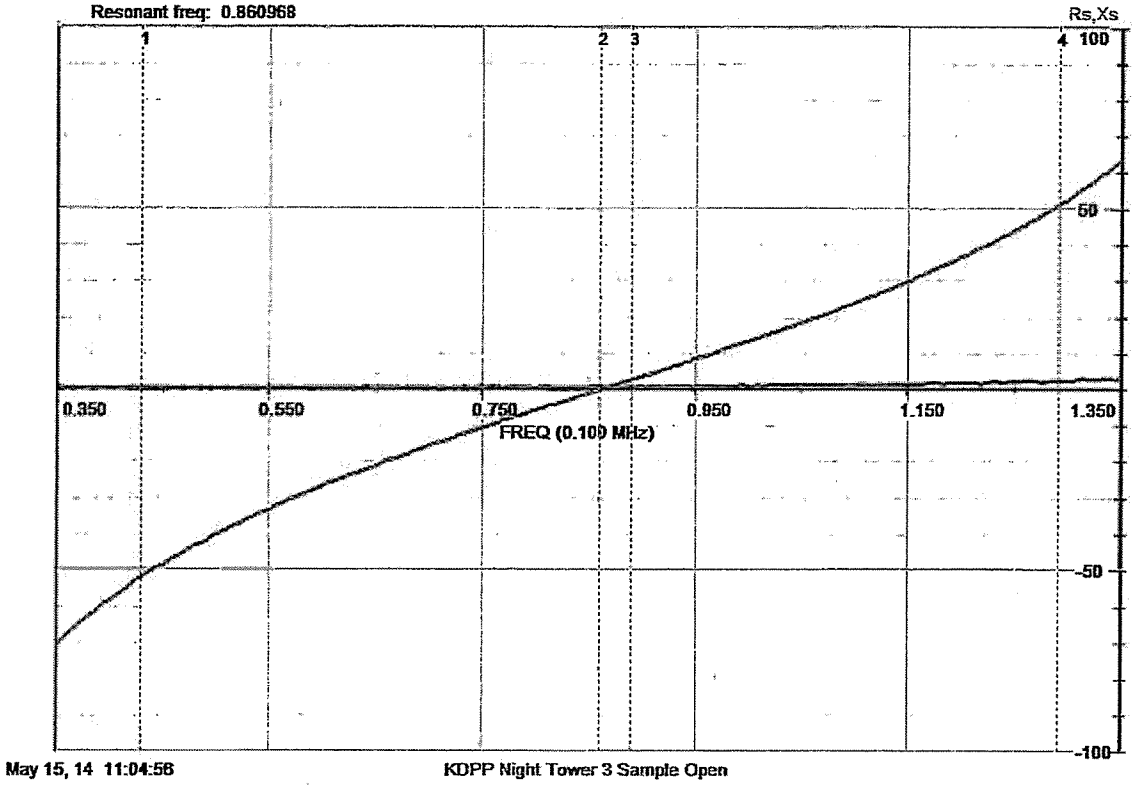
Night Site Tower 3 (W) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	0.430484	0.533	-51.793	51.796
[2]	0.860968	0.896	0.000	
[3]	0.890000	0.620	2.687	
[4]	1.291452	2.383	51.043	51.043

Markers: [1] = closest odd quarter wave minus 1/8 wavelength
[2] = closest odd quarter wave (1/4 wavelength)
[3] = operating frequency
[4] = closest odd quarter wave plus 1/8 wavelength

Mean Tower 3 Sample Line Characteristic Impedance: 51.418 ohms

51.445

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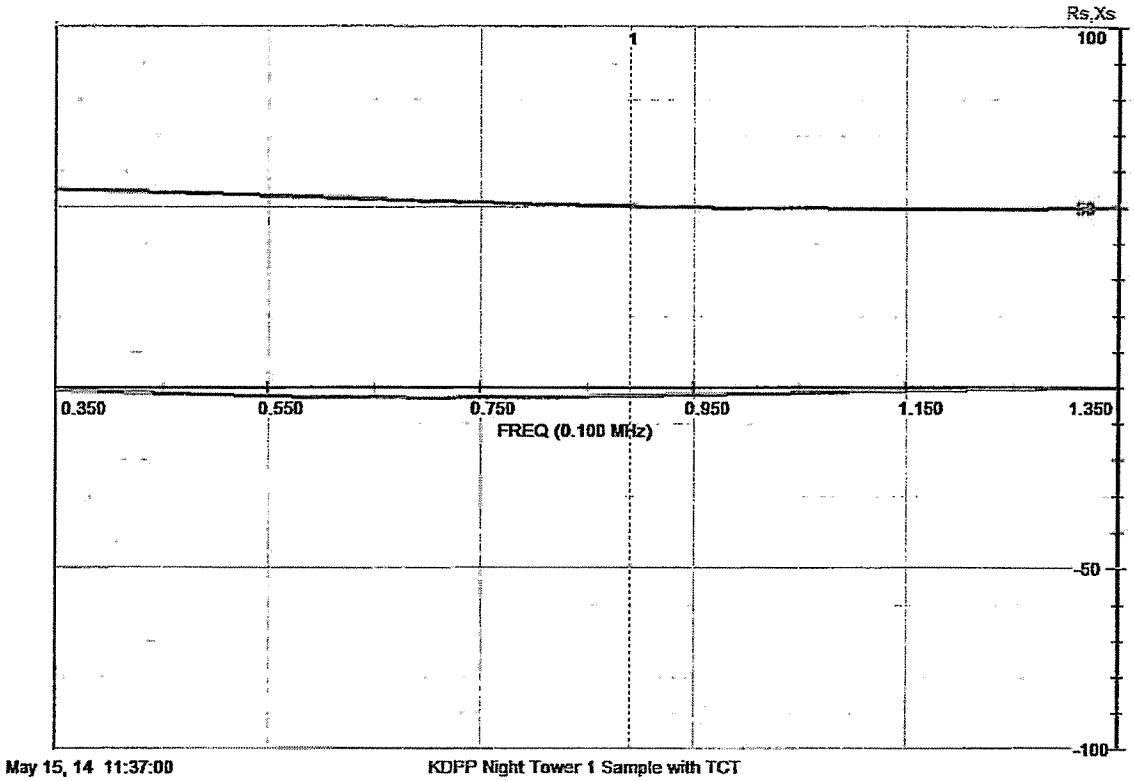
Sample lines from antenna monitor end with TCT-1s connected at towers as normal:

Night Site Tower 1 (N)



Markers: [1] = operating frequency

Impedance of Tower 1 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

50.426 -j2.166 ohms

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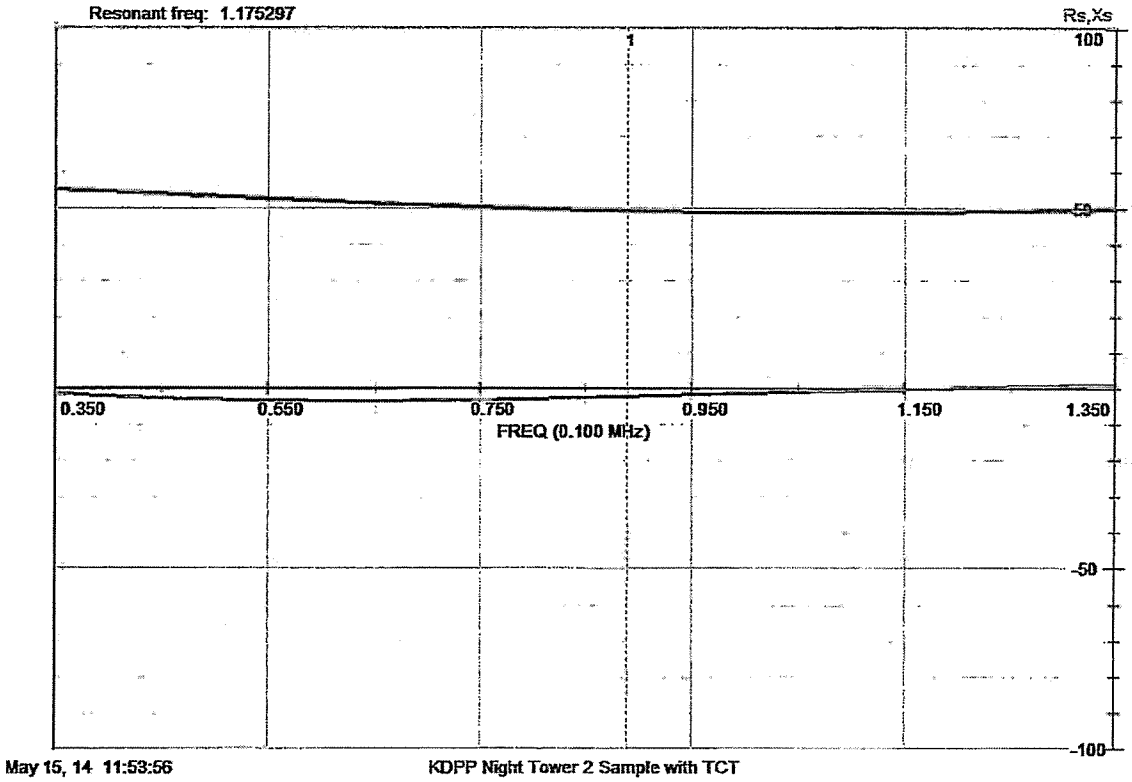
Night Site Tower 2 (S)



Markers: [1] = operating frequency

Impedance of Tower 2 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

49.403 -j2.126 ohms

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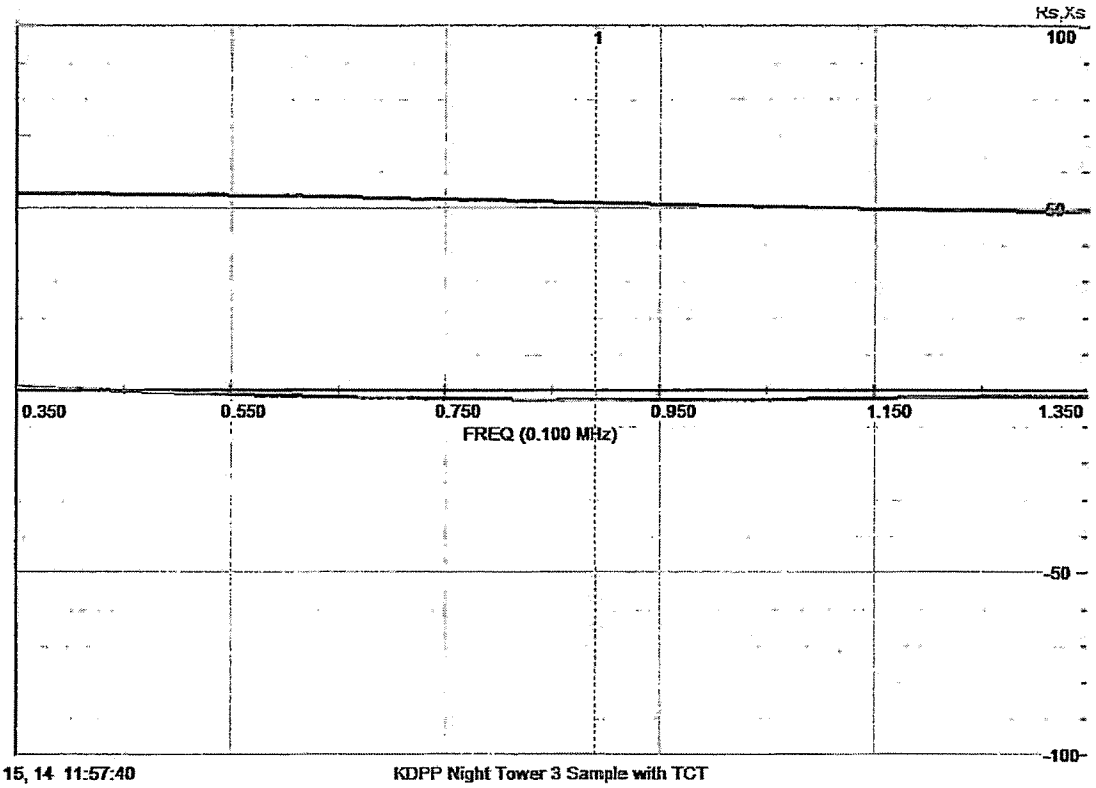
Night Site Tower 3 (W)



Markers: [1] = operating frequency

Impedance of Tower 3 sample line at 890 KHz seen from the antenna monitor end with sample transformer connected at the tower end:

51.665 +j2.473 ohms

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KDPP Daytime Reference Field Strength Measurements

[47 CFR 73.151(c)(3)]

Point	Distance	mV/m	Coordinates (NAD 83)		Description
40° True (Maxima, Major lobe)					
1	2.28	680	38.5235198	-121.5637012	Bevan Rd.
2	3.32	520	38.5307299	-121.5559980	Gregory Ave. 50 feet north of Miller Ct.
3	3.56	360	38.5323628	-121.5542787	2840 Davis Ave.
157.5° True (Minima, monitor point radial)					
1	4.23	13.6	38.4726069	-121.5619256	51110 Babel Slough Rd.
2	9.17	5.4	38.4314902	-121.5402828	Pump House Road at sign stake
3	9.83	5.0	38.4259961	-121.5373968	Willow Point Road at steel gate
188.5° True (Minima, monitor point radial)					
1	8.81	9.4	38.4293466	-121.5953861	Willow Point Road at curve sign
2	10.44	10.8	38.4148124	-121.5981542	Clarksburg Road at field entry to north
3	11.26	12.4	38.4075357	-121.5995167	Gaffney Road at phone pedestal
251.5° True (Minima, monitor point radial)					
1	7.20	12.0	38.4872116	-121.6587426	CR 36 at CR 105
2	8.84	11.0	38.4825335	-121.6764988	On CR 105
3	10.42	7.4	38.4779879	-121.6936864	On CR 104 at field drive to east
282.5° True (Minima, monitor point radial)					
1	10.20	7.8	38.5276537	-121.6946627	28221 Mace Blvd.
2	11.89	8.8	38.5309263	-121.7135777	Drummond Lane at field access to east
3	14.28	3.9	38.5355549	-121.7403461	Chiles at end near I-80

Distances in kilometers.

Daytime pattern measurements taken May 20, 2014 by the writer using his Potomac Instruments FIM-41 s/n 1655, last calibrated by the manufacturer on June 26, 2013.

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KDPP Nighttime Reference Field Strength Measurements

[47 CFR 73.151(c)(3)]

Point	Distance	mv/m	Coordinates (NAD 83)		Description
97° True (Minima, monitor point radial)					
1	1.68	94.0	39.1366020	-121.5360275	Center of cul de sac
2	1.93	76.0	39.1363221	-121.5331146	6285 Dantoni Road at well
3	2.75	44.0	39.1354197	-121.5237269	6249 Griffith Ave
235° True (Maxima)					
1	2.40	46.0	39.1260389	-121.5780255	1034 Beale Rd at Comfort Suites lot
2	2.71	34.0	39.1244302	-121.5809760	5861 Garden Ave
3	2.98	24.0	39.1230440	-121.5835133	Cedar Lane at bus entrance

Distances in kilometers.

Nighttime pattern measurements taken May 21, 2014 by the writer using his Potomac Instruments FIM-41 s/n 1655, last calibrated by the manufacturer on June 26, 2013.

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Tower Survey [47 CFR 73.151(c)(1)(ix)]

The three towers at each of the KDPP sites were surveyed on May 18, 2014 by Brendan Williams, a licensed Professional Land Surveyor in the state of California (license number 9049), and were found to be as follows:

Day Site:

Tower 1 (N) to 2 (C): 178.3 feet (58.06°) at 219.96° True (theo. = 58.0° at 220.0° T)

Tower 1 (N) to 3 (S): 356.0 feet (115.92°) at 220.07° True (theo. = 116.1° at 220.0° T)

This corresponds to a maximum spacing error of 0.18° and bearing error of 0.07°, well within the allowed tolerance of +/- 1.5°.

Night Site:

Tower 1 (N) to 2 (S): 174.8 feet (56.92°) at 177.17° True (theo. = 56.8° at 177.0° T)

Tower 1 (N) to 3 (W): 136.7 feet (44.51°) at 256.75° True (theo. = 44.2° at 257.0° T)

This corresponds to a maximum spacing error of 0.31° and bearing error of 0.25°, well within the allowed tolerance of +/- 1.5°.

A copy of the survey report is attached.

Northern California Geomatics

Mark Mueller
Mueller Broadcast Design
613 S. La Grange Rd.
La Grange, IL 60525

Project number: 1132014 - Mueller Broadcast Design Tower Survey – West Sacramento Site

TOWER LOCATIONS		
	LATITUDE	LONGITUDE
TOWER #1	N38°30'29.52"	W121°34'48.32"
TOWER #2	N38°30'28.17"	W121°34'49.76"
TOWER #3	N38°30'26.83"	W121°34'51.20"

GEODETIC AZIMUTH (FROM TRUE NORTH) & DISTANCE BETWEEN TOWERS		
	AZIMUTH	DISTANCE
TOWER #1 TO TOWER #2	219°58'03"	178.3 feet
TOWER #1 TO TOWER #3	220°04'21"	356.0 feet

Latitude's and Longitude's are based on NAD 83(2011) Epoch 2010.00 as determined locally by a calibration between National Geodetic Survey (NGS) Stations HPGN D CA 03 BG and PALA having geodetic values published on May 16, 2014.

This survey was conducted utilizing GNSS surveying methods using a Trimble R8, model 3, GNSS Receiver running Trimble Access software. The California Surveying Virtual Survey Network provided the real-time GNSS reference station network. The towers were located with four reference points, each shot lasting 180 epochs. The site was then calibrated to the NGS Stations referenced above. The points were then intersected to find the center of each tower.

I, Brendan Williams, hereby certify that the latitude's and longitude's and distance between towers are accurate to one US Survey foot or per FGDC standards more precisely classifies as 2-Decimeters at the 95% confidence level.

05-18-2014
Brendan Williams, PLS 9049
Land Surveyor

LICENSED LAND SURVEYOR
BRENDAN R. WILLIAMS
NO. 9049
STATE OF CALIFORNIA

1044 Diamante Robles Ct., Diamond Springs, CA 95619 Tel: (530) 957-0293
www.northerncaliforniageomatics.com
Email: info@northerncaliforniageomatics.com

PROVIDING LAND SURVEYING SERVICES THROUGHOUT CALIFORNIA

Northern California Geomatics

Mark Mueller
Mueller Broadcast Design
613 S. La Grange Rd.
La Grange, IL 60525

Project number: 1132014 - Mueller Broadcast Design Tower Survey – Marysville Site

TOWER LOCATIONS		
	LATITUDE	LONGITUDE
TOWER #1	N39°08'19.07"	W121°33'18.63"
TOWER #2	N39°08'17.34"	W121°33'18.52"
TOWER #3	N39°08'18.76"	W121°33'20.32"

GEODETIC AZIMUTH (FROM TRUE NORTH) & DISTANCE BETWEEN TOWERS		
	AZIMUTH	DISTANCE
TOWER #1 TO TOWER #2	177°09'55"	174.8 feet
TOWER #1 TO TOWER #3	256°44'46"	136.7 feet

Latitude's and Longitude's are based on NAD 83(2011) Epoch 2010.00 as determined locally by a calibration between National Geodetic Survey (NGS) Stations HPGN D CA 03 GH and POWERLINE having geodetic values published on May 16, 2014.

This survey was conducted utilizing GNSS surveying methods using a Trimble R8, model 3, GNSS Receiver running Trimble Access software. The California Surveying Virtual Survey Network provided the real-time GNSS reference station network. The towers were located with four reference points, each shot lasting 180 epochs. The site was then calibrated to the NGS Stations referenced above. The points were then intersected to find the center of each tower.

I, Brendan Williams, hereby certify that the latitude's and longitude's and distance between towers are accurate to one US Survey foot or per FGDC standards more precisely classifies as 2-Decimeters at the 95% confidence level.

05-18-2014

Brendan Williams, PLS 9049
Land Surveyor

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Construction Permit Conditions:

The KDPP construction permit contains five conditions, all of which are met:

1 Permittee shall install a type accepted transmitter, or submit application (FCC Form 301) along with data prescribed in Section 73.1660(b) should non-type accepted transmitter be proposed.

KDPP has installed a Nautel XR-12 at the daytime site and a Nautel J-1000 at the night site, both of which the transmitter manufacturer states are type accepted for the power levels and intended service.

2 The permittee must submit a proof of performance as set forth in either Section 73.151(a) or 73.151(c) of the rules before program tests are authorized.

A proof of performance based on field strength measurements, per Section 73.151(a), shall include a complete nondirectional proof of performance, in addition to a complete proof on the (day) and (night) directional antenna system. The nondirectional and directional field strength measurements must be made under similar environmental conditions. The proof(s) of performance submitted to the Commission must contain all of the data specified in Section 73.186 of the rules.

Permittees who elect to submit a moment method proof of performance, as set forth in Section 73.151(c), must use series-fed radiators. In addition, the sampling system must be constructed as described in Section 73.151(c)(2)(i).

The KDPP antenna systems were verified using the "model proof" rules at 47 CFR 73.151(c). The towers are series-fed and the sample system meets the requirements of 47 CFR 73.151(c)(2)(1). This is the required report and filing.

3 Before program tests are authorized, sufficient data shall be submitted to show that adequate filters, traps and other equipment has been installed and adjusted to prevent interaction, intermodulation and/or generation of spurious radiation products which may be caused by common usage of the same antenna system by Stations KDPP(AM), Facility ID: 160999, and KTKZ(AM), Facility ID: 59599 for day; Stations KDPP(AM), Facility ID: 160999, and KMYC(AM), Facility ID: 40633 for night, and there shall be filed with the license application copies of a firm agreement entered into by the three stations involved clearly fixing the responsibility of each with regard to the installation and maintenance of such equipment. In addition, field observations shall be made to determine whether spurious emissions exist and any objectionable problems resulting therefrom shall be eliminated. Following construction, and prior to authorization of program test under this grant, Stations KDPP(AM), Facility ID: 160999, and KTKZ(AM), Facility ID: 59599 for day; Stations KDPP(AM), Facility ID: 160999, and KMYC(AM), Facility ID: 40633 for night shall each measure antenna or common point resistance and submit FCC Form 302 as application notifying the return to direct measurement of power.

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The KTKZ and KMYC antenna patterns were checked before and after the KDPP system components were added, and no difference was noted in the antenna monitor readings. KTKZ upgraded its sample and transmission lines as part of this project and its daytime operating parameters changed slightly due to the new sample lines. The Form 302 direct power measurement applications for each host station are being filed by the respective licensee under separate cover. The diplexing filters and spurious emission measurements are documented in the next section. The lease agreements between KDPP and the two host stations spell out responsibility for maintaining the diplexing filters as shown below.

4 Daytime ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 54.3 meters in length except where terminated by property boundaries or where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers. Another 4 inch copper strap interconnects the tower bases.

5 Nighttime ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 53.2 meters in length except where terminated by property boundaries or where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers. Another 4 inch copper strap interconnects the tower bases.

Ground systems are as described except that the night system uses a 3" strap to interconnect tower bases.

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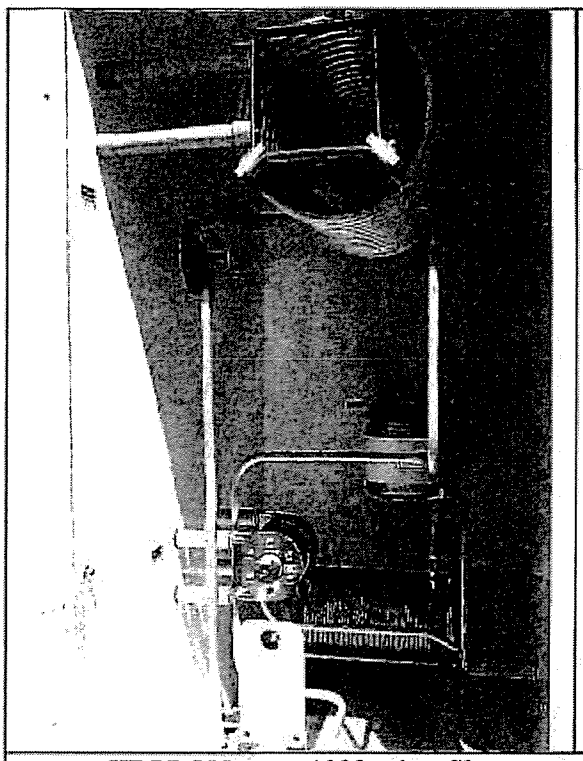
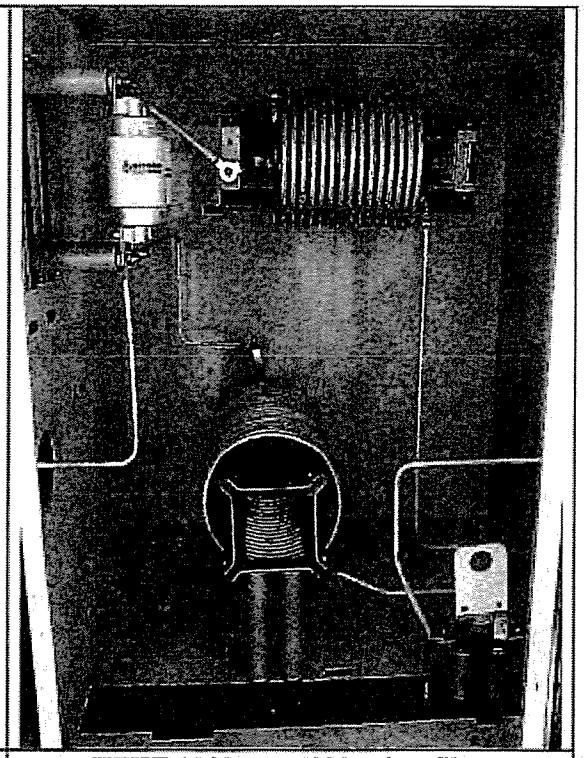
Diplexing Filters and Spurious Emission Measurements-Daytime

The daytime KDPP - KTKZ antenna system uses standard design series pass-reject traps at the output of each station's antenna tuning networks to prevent the signal from one getting to the transmitter of the other, and were installed new as part of this project. The equipment was designed and manufactured by Kintronic Labs. Representative samples of the filters (these are at tower 2) are shown below. Components at the other two towers are similar.



KDPP 890-pass, 1380-reject filter



KTKZ 1380-pass, 890-reject filter

Spurious and harmonic emissions measurements from 540 KHz through 5 MHz were made on May 22, 2014 approximately 1.2 kilometers northeast from the center of the array, with each station operating at full power. These measurements, taken with the writer's Potomac Instruments FIM-41 field intensity meter show that there is excellent isolation between the transmitters:

Carrier levels:

KDPP (10 KW, 890 KHz):	1400 mv/m	(122.92 dBu)
KTKZ (5 KW, 1380 KHz):	1200 mv/m	(121.58 dBu)

Observed signals:

2760 KHz (2 x 1380):	0.070 mv/m	(36.90 dBu)

(-84.67 from KTKZ, second harmonic not related to shared site)

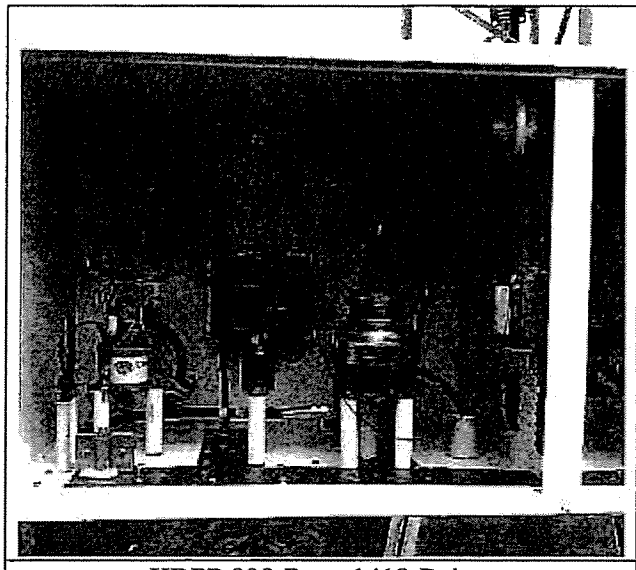
4140 KHz (3 x 1380):	0.060 mv/m	(35.56 dBu)

(-86.17 from KTKZ, third harmonic not related to shared site)

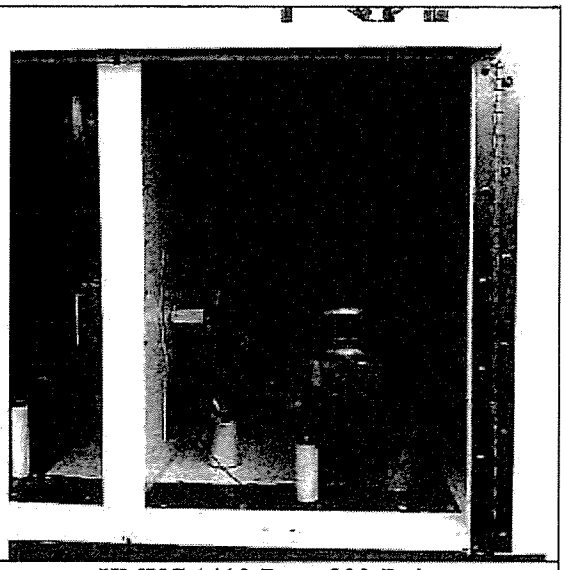
No other signals traceable to the combined site were present.

Diplexing Filters and Spurious Emission Measurements-Nighttime

The nighttime KDPP - KMYC antenna system uses standard design series pass-reject traps at the output of each station's antenna tuning networks to prevent the signal from one getting to the transmitter of the other, and were installed new as part of this project. Samples of the filters (these are at tower 3) are shown below. Components at the other two towers are similar.



KDPP 890-Pass, 1410-Reject



KMYC 1410-Pass, 890-Reject

Spurious and harmonic emissions measurements from 540 KHz through 5 MHz were made on May 22, 2014 in the parking lot 80 meters southwest of the center of the array with each station operating at full nighttime power. These measurements, taken with the writer's Potomac Instruments FIM-41 field intensity meter show that there is excellent isolation between the transmitters:

Carrier levels:

KDPP (0.48 KW, 890 KHz): 1100 mv/m (120.83 dBu)

KMYC (1 KW, 1410 KHz): 1440 mv/m (123.17 dBu)

Observed signals:

2670 KHz (3 x 890): 0.070 mv/m (36.90 dBu)

(-83.93 dB from KDPP, third harmonic not related to shared site)

3190 KHz ((2 x 890) + 1410): 0.080 mv/m (38.06 dBu)

(-82.77 dB from KDPP, -85.11 dB from KMYC)

3710 KHz ((890 + (1410 x 2)): 0.100 mv/m (40.00 dBu)

(-80.83 dB from KDPP, -83.17 dB from KMYC)

4230 KHz (3 x 1410): 0.090 mv/m (39.08 dBu)

(-84.09 dB from KMYC, third harmonic not related to shared site)

No other signals traceable to the combined site were present.

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Maintenance Agreements from Site Leases Per Condition 3:

West Sacramento (day) site:

12.1 **Facilities.** Lotus, at its own risk and expense, will maintain and repair, including replacement, if necessary (collectively referred to as "Maintenance") to a standard reasonably required by the FCC rules and regulations, good engineering practices, the provisions of this Agreement and Lessor, the Facilities and any items or things placed on the Property by Lotus pursuant to this Agreement. All Maintenance shall be performed in a manner suitable to Lessor so as not to conflict with the use of the Property by Lessor, KTKZ or any other lessee of Lessor. All Maintenance shall be provided by qualified technicians, authorized to enter the Property pursuant to Article VIII.

Marysville (night) site:

Section 7.2 **Maintenance and Repair.** Lotus, at its own risk and expense, will maintain and repair Equipment and Tuning Houses, including replacement, if necessary (collectively referred to as "Maintenance"), to a standard reasonably required by the FCC rules and regulations and good engineering practices. If Lotus fails to make the Maintenance required hereby within Ten (10) days of written notice by Lessor (or, if required, such longer period of time if Lotus notifies Lessor that such maintenance has commenced within Ten (10) days and Lotus diligently attempts to complete such Maintenance), Lessor will have the right to make such Maintenance, and Lotus will reimburse Lessor for any reasonable expense, charge or cost Lessor incurs in connection therewith. Except as otherwise provided herein and except for repairs occasioned by the negligence of Lotus or its employees or representatives, Lotus will not be responsible for repairs or maintenance of the Property.

Preparer's Certification

This engineering report was prepared by me from data personally collected on site using equipment owned and maintained by me for this purpose. It is true and correct to the best of my knowledge and belief. The KDPP antenna system is properly constructed and adjusted and program test authority is hereby requested.

May 28, 2014

Mark A. Mueller