FILED/ACCEPTED

Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

MAR 20 2013

Federal Communications Commission
Office of the Secretary

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)

CRC MEDIA WEST, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
8145 EAST EVANS ROAD, SUITE 8

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
SCOTTSDALE	AZ	85260

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
602-241-1510	KPSF	161373

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:

AMENDMENT TO BMML-20120312ADG

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

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

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

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

	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.	$	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT CRC MEDIA WEST, LLC		
MAILING ADDRESS 8145 East Evans Road, Suite 8		
CITY Scottsdale	STATE AZ	ZIP CODE 85260

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
KPSF	CATHEDRAL CITY, CA	BNP-20051031AGQ	BMP-20120430AER	03/11/2012

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	
RONALD E. COHEN	Ronald E Cohen	
Title	Date	Telephone Number
MANAGING MEMBER	3-19-2013	602-241-1510

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
CRC Media West LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ Station License ☐ Direct Measurement of Power

This is a Method of Moments Antenna Proof of Performance

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
KPSF	BMP-20120430AER	1200	Unlimited	1.3	5.0

2. Station location

State	City or Town
California	Cathedral City

3. Transmitter location

State	County	City or Town	Street address (or other identification)
CA	Riverside	Thousand Palms	70205 Varner Rd.

4. Main studio location

State	County	City or Town	Street address (or other identification)
CA	Riverside	Palm Desert	75-135 Merle Drive, Suite D

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

State	County	City or Town	Street address (or other identification)
CA	Riverside	Palm Desert	75-135 Merle Drive, Suite D

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
5.30	10.39

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	j 0	j 0

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 (S, ASRN 1212835)	-102.4°	+61.6°	31.5%	33.1%	dna	dna
2 (SC, ASRN 1212836)	0°	0°	100.0%	100.0%	dna	dna
3 (NC, ASRN 1212837)	+114.6°	detuned, not used	81.9%	detuned, not used	dna	dna
4 (N, ASRN 1212838)	-124.5°	detuned, not used	44.5%	detuned, not used	dna	dna
5 (W, ASRN 1212839)	+17.7°	+83.4°	22.4%	15.2%	dna	dna

Manufacturer and type of antenna monitor: Potomac Instruments AM-19D (210) s/n 2217

SECTION III - Page 2

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Uniform triangular cross section insulated guyed steel towers	74.3	75.8	75.8	Exhibit No. DNA

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	West Longitude
33 ° 50 ' 35 "	116 ° 25 ' 39 "

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. DNA

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

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

none

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

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)
Mark A. Mueller	Mark A. Mueller
Address (include ZIP Code) Mueller Broadcast Design 613 S. La Grange Rd. La Grange, IL 60525	Date March 10, 2013 Telephone No. (Include Area Code) (708) 352-2166

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

KPSF (AM) – Form 302-AM
AMENDMENT TO BMML-20120312ADG
Section II- Question 3

EXHIBIT 1

REQUEST FOR FULL PROGRAM TEST AUTHORITY

KPSF (AM) is operating pursuant to limited program test authority (pursuant to a letter dated April 13, 2012) because of the conditions contained in BMP-20120430AER, Special Operating Condition #3. Pursuant to same, the permittee must submit a proof of performance before full program testing is authorized. Enclosed with this Form 302-AM Amendment is said proof of performance.

In addition, Special Operating Condition #3 required filing of a 302-AM application to return to direct measurement for diplexed facility KXPS (AM), with a proof of performance for KXPS (AM). Filed together with this Amendment to BMML-20120312ADG is a separate 302-AM for direct measurement for KXPS, in triplicate, with such proof of performance

ACCORDINGLY, Permittee requests full Program Test Authority be granted to KPSF (AM) as it has fulfilled the requirements of the Special Operating Conditions of BMP-20120430AER.

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Engineering Report For
CRC Media West LLC
K P S F (A M)
Cathedral City, California
March 2013

This engineering report documents the Directional Antenna Performance Verification measurements for KPSF (AM), FCC facility ID number 161373, Cathedral City, California. KPSF is authorized to operate on 1200KHz with 5 KW using a three tower directional antenna daytime and 1.3 KW nighttime using a five tower directional antenna. This Verification is for the new facility authorized by BMP-20120430AER 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

The KPSF antenna system consists of five conventional uniform cross-section insulated steel radiators, series-fed with no top loading. They are 106.9° tall at the KPSF frequency (1200 KHz) and are sampled at the base using Delta TCT-3 toroidal current transformers. The ground system is of standard design, consisting of 120 equally-spaced buried bare copper wire radials around each tower 74.25 meters long (106.9°) except for those which intersect, with 4" copper straps terminating the radial intersections and interconnecting the towers. A 4" strap interconnects the towers to each other and to the phasor and transmitter

Background

The KPSF antenna system shares towers with KXPS (facility ID 22342), licensed to Thousand Palms, California. There was no change in the physical configuration of the towers or ground system from that licensed for KXPS. The implementation of the construction permit did not require any additional construction except for the installation of the proper equipment. No changes were made to the towers or ground system. The filters used to isolate each station are of

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a standard design and are documented later in this report. The antenna current sample elements are Delta Electronics TCT-3 current transformers and are located at the input to the series filters. There are no shunt elements between the filter and the tower except for the static drain or tower lighting choke which presents a very high impedance (more than 10 times the tower impedance) at 1200 KHz. Equal lengths of RFS 3/8" LCF38-50J Cellflex foam coaxial cable are used as sample lines. A Potomac Instruments AM-19D (210) antenna monitor is used to keep tabs on the array. The monitor was refurbished, recalibrated and checked for proper operation in accordance with the manufacturer's instructions. A statement of calibration is attached.

Measurements

The KPSF system was 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 several recent 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 five KPSF towers are identical and are base sampled using toroidal current transformers. Each tower was disconnected from its ATU at the sample transformer using the jack installed for this purpose and was measured at that point. The other towers were individually 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.

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Theoretical Data:

TOWER MODEL INFORMATION

TOWER INFORMATION						
	Tower Height (°)	Spacing (°)	Orientation	Face Width (in.)	Radius (in.)	Velocity Factor
Tower 1	106.9300	0.0000	0.0000	14.0000 / 14.0000	6.4663 / 6.4663	0.940000
Tower 2	106.9300	142.6000	28.0000	14.0000 / 14.0000	6.4663 / 6.4663	0.958000
Tower 3	106.9300	285.2000	28.0000	14.0000 / 14.0000	6.4663 / 6.4663	0.945000
Tower 4	106.9300	427.8000	28.0000	14.0000 / 14.0000	6.4663 / 6.4663	0.950000
Tower 5	106.9300	237.6000	321.3000	14.0000 / 14.0000	6.4663 / 6.4663	0.950000

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

	Calculated Impedance (other towers open)	Measured Impedance (other towers open)
Tower 1	103.66 + j176.25	103.76 +j175.61
Tower 2	96.35 + j165.91	94.90 +j170.10
Tower 3	100.45 + j179.22	99.12+j177.72
Tower 4	99.37 + j168.45	99.29 +j172.88
Tower 5	100.14 + j161.62	100.85 +j163.06

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 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 or no more than 10° electrical length each to model the tower.

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TOWER CURRENTS from Westberg Phasor Professional

DETUNED TOWER CURRENTS
Tower 1
0.000000 > 0.000000 - 106.93° above ground
0.092504 > 178.009757 - 97.21° above ground
0.148739 > 178.497495 - 87.49° above ground
0.179415 > 178.972608 - 77.77° above ground
0.184050 > 179.471119 - 68.05° above ground
0.162020 > -179.938158 - 58.33° above ground
0.112968 > -179.001556 - 48.60° above ground
0.036993 > -174.896507 - 38.88° above ground
0.066201 > -3.291234 - 29.16° above ground
0.196245 > -0.935641 - 19.44° above ground
0.355941 > -0.199164 - 9.72° above ground
0.596275 > 0.316729 - 0.00° above ground
Tower 2
0.000000 > 0.000000 - 106.93° above ground
0.089922 > 177.439437 - 97.21° above ground
0.144335 > 177.902156 - 87.49° above ground
0.173887 > 178.352792 - 77.77° above ground
0.178209 > 178.825503 - 68.05° above ground
0.156764 > 179.385469 - 58.33° above ground
0.109239 > -179.726802 - 48.60° above ground
0.035723 > -175.830734 - 38.88° above ground
0.064068 > -3.790777 - 29.16° above ground
0.189937 > -1.561210 - 19.44° above ground
0.344691 > -0.864690 - 9.72° above ground
0.578476 > -0.376996 - 0.00° above ground

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Tower 3
0.000000 > 0.000000 - 106.93° above ground
0.060527 > 42.494607 - 97.21° above ground
0.096156 > 43.242727 - 87.49° above ground
0.114594 > 43.985693 - 77.77° above ground
0.116039 > 44.781077 - 68.05° above ground
0.100564 > 45.746245 - 58.33° above ground
0.068385 > 47.334017 - 48.60° above ground
0.020075 > 55.299700 - 38.88° above ground
0.044841 > -139.330318 - 29.16° above ground
0.125019 > -135.863401 - 19.44° above ground
0.222375 > -134.692757 - 9.72° above ground
0.367554 > -133.848010 - 0.00° above ground
Tower 4
0.000000 > 0.000000 - 106.93° above ground
0.043776 > -94.196235 - 97.21° above ground
0.069165 > -93.551037 - 87.49° above ground
0.081994 > -92.911537 - 77.77° above ground
0.082571 > -92.226760 - 68.05° above ground
0.071090 > -91.392634 - 58.33° above ground
0.047824 > -90.003562 - 48.60° above ground
0.013258 > -82.556134 - 38.88° above ground
0.032725 > 84.352459 - 29.16° above ground
0.089323 > 87.220969 - 19.44° above ground
0.157729 > 88.214004 - 9.72° above ground
0.259426 > 88.937090 - 0.00° above ground

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Tower 5
0.000000 > 0.000000 - 106.93° above ground
0.067903 > 87.768641 - 97.21° above ground
0.108188 > 88.511614 - 87.49° above ground
0.129339 > 89.247933 - 77.77° above ground
0.131439 > 90.033450 - 68.05° above ground
0.114432 > 90.981100 - 58.33° above ground
0.078423 > 92.522782 - 48.60° above ground
0.023903 > 99.911750 - 38.88° above ground
0.049721 > -94.117084 - 29.16° above ground
0.141136 > -90.604563 - 19.44° above ground
0.252620 > -89.445402 - 9.72° above ground
0.419620 > -88.616788 - 0.00° above ground

MATRIX CALCULATIONS from Westberg Phasor Professional

ZMatrix				
103.66 + j176.25	-4.17 - j54.83	-23.28 + j29.56	25.66 - j6.75	-35.44 + j4.17
-4.17 - j54.83	96.35 + j165.91	-4.67 - j56.68	-21.81 + j29.73	-31.86 - j5.96
-23.28 + j29.56	-4.67 - j56.68	100.45 + j179.22	-4.03 - j52.30	-18.00 + j24.78
25.66 - j6.75	-21.81 + j29.73	-4.03 - j52.30	99.37 + j168.45	22.89 + j5.68
-35.44 + j4.17	-31.86 - j5.96	-18.00 + j24.78	22.89 + j5.68	100.14 + j161.62

YMatrix				
0.002608 - j0.004191	0.000902 - j0.000944	-0.000639 - j0.000049	0.000196 + j0.000353	-0.000536 - j0.000915
0.000902 - j0.000944	0.003118 - j0.004745	0.000853 - j0.000852	-0.000509 - j0.000071	-0.000456 - j0.001279
-0.000639 - j0.000049	0.000853 - j0.000852	0.003130 - j0.004197	0.001157 - j0.000874	-0.000912 - j0.000134
0.000196 + j0.000353	-0.000509 - j0.000071	0.001157 - j0.000874	0.002908 - j0.004426	-0.000068 + j0.000577
-0.000536 - j0.000915	-0.000456 - j0.001279	-0.000912 - j0.000134	-0.000068 + j0.000577	0.002350 - j0.004455

HMatrix - [I] = [H] X [F]				
0.014062 + j0.002343	0.001180 + j0.000189	-0.000419 - j0.000612	-0.000077 + j0.000523	0.000160 - j0.000839
0.001140 + j0.000182	0.014790 + j0.002281	0.001140 + j0.000182	-0.000403 - j0.000592	0.000354 - j0.000791
-0.000414 - j0.000605	0.001169 + j0.000186	0.014267 + j0.002328	0.001169 + j0.000188	-0.000457 - j0.000566
-0.000076 + j0.000512	-0.000409 - j0.000602	0.001158 + j0.000187	0.014467 + j0.002308	-0.000330 + j0.000443
0.000158 - j0.000822	0.000360 - j0.000802	-0.000453 - j0.000560	-0.000330 + j0.000443	0.014465 + j0.002305

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HMatrix-inverse - [F] = [H]$^{-1}$ X [I]				
69.364355 - j11.305233	-5.956411 + j0.517951	3.304269 + j2.523510	-0.783456 - j2.843728	0.525760 + j3.894360
-5.755315 + j0.500976	66.814912 - j10.158846	-5.951259 + j0.556685	3.205377 + j2.277241	-0.570139 + j3.391589
3.270392 + j2.496277	-6.099342 + j0.571973	69.279648 - j10.858417	-5.621862 + j0.495061	2.746018 + j1.926735
-0.767130 - j2.788052	3.257339 + j2.316757	-5.570482 + j0.488647	67.709494 - j10.633371	0.591225 - j2.504071
0.513742 + j3.818260	-0.581852 + j3.441582	2.718495 + j1.909618	0.587647 - j2.505481	66.975091 - j10.707952

Tower Currents

Mode 1-Daytime
Tower 1
0.000000 > 0.000000 - 106.93° above ground
0.563837 > 71.668931 - 97.21° above ground
1.028328 > 71.167369 - 87.49° above ground
1.446995 > 70.643281 - 77.77° above ground
1.815181 > 70.077970 - 68.05° above ground
2.125783 > 69.455482 - 58.33° above ground
2.371379 > 68.755743 - 48.60° above ground
2.545324 > 67.950811 - 38.88° above ground
2.642049 > 66.998285 - 29.16° above ground
2.656658 > 65.826022 - 19.44° above ground
2.583769 > 64.297350 - 9.72° above ground
2.371534 > 61.579855 - 0.00° above ground

Mode 2-Nighttime
Tower 1
0.000000 > 0.000000 - 106.93° above ground
0.289969 > -152.636879 - 97.21° above ground
0.516196 > -151.018307 - 87.49° above ground
0.707507 > -149.267194 - 77.77° above ground
0.861948 > -147.299812 - 68.05° above ground
0.976700 > -145.025316 - 58.33° above ground
1.049330 > -142.313656 - 48.60° above ground
1.078536 > -138.963718 - 38.88° above ground
1.064626 > -134.641587 - 29.16° above ground
1.010072 > -128.739530 - 19.44° above ground
0.921422 > -120.051199 - 9.72° above ground
0.798868 > -102.431086 - 0.00° above ground

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Tower 2
0.000000 > 0.000000 - 106.93° above ground
1.871019 > -16.585950 - 97.21° above ground
3.395116 > -15.858103 - 87.49° above ground
4.752821 > -15.083574 - 77.77° above ground
5.929013 > -14.234015 - 68.05° above ground
6.900797 > -13.283146 - 58.33° above ground
7.644597 > -12.196137 - 48.60° above ground
8.139840 > -10.922642 - 38.88° above ground
8.369963 > -9.384088 - 29.16° above ground
8.321018 > -7.443975 - 19.44° above ground
7.978189 > -4.838532 - 9.72° above ground
7.155967 > 0.000000 - 0.00° above ground
Tower 3
0.000000 > 0.000000 - 106.93° above ground
0.107770 > 163.640299 - 97.21° above ground
0.172919 > 164.293746 - 87.49° above ground
0.208171 > 164.935003 - 77.77° above ground
0.213125 > 165.611921 - 68.05° above ground
0.187196 > 166.418137 - 58.33° above ground
0.130098 > 167.703260 - 48.60° above ground
0.042132 > 173.418626 - 38.88° above ground
0.077484 > -18.106930 - 29.16° above ground
0.227545 > -14.939455 - 19.44° above ground
0.411664 > -13.937780 - 9.72° above ground
0.688710 > -13.233373 - 0.00° above ground

Tower 2
0.000000 > 0.000000 - 106.93° above ground
0.737297 > -17.988039 - 97.21° above ground
1.331923 > -17.246478 - 87.49° above ground
1.855682 > -16.457433 - 77.77° above ground
2.302763 > -15.590315 - 68.05° above ground
2.664364 > -14.615859 - 58.33° above ground
2.931503 > -13.494577 - 48.60° above ground
3.096461 > -12.168324 - 38.88° above ground
3.153134 > -10.544485 - 29.16° above ground
3.096342 > -8.458596 - 19.44° above ground
2.920288 > -5.583302 - 9.72° above ground
2.542403 > 0.000000 - 0.00° above ground
Tower 3
0.000000 > 0.000000 - 106.93° above ground
0.628374 > 105.044514 - 97.21° above ground
1.135839 > 105.440737 - 87.49° above ground
1.582693 > 105.859940 - 77.77° above ground
1.963514 > 106.318059 - 68.05° above ground
2.270318 > 106.830282 - 58.33° above ground
2.494954 > 107.417241 - 48.60° above ground
2.630287 > 108.109599 - 38.88° above ground
2.670398 > 108.956782 - 29.16° above ground
2.609744 > 110.047890 - 19.44° above ground
2.441122 > 111.564634 - 9.72° above ground
2.080868 > 114.578995 - 0.00° above ground

Tower 4
0.000000 > 0.000000 - 106.93° above ground
0.073657 > 31.143610 - 97.21° above ground
0.116818 > 31.917997 - 87.49° above ground
0.139011 > 32.687882 - 77.77° above ground
0.140561 > 33.513322 - 68.05° above ground
0.121625 > 34.517034 - 58.33° above ground
0.082516 > 36.173835 - 48.60° above ground
0.023986 > 44.589729 - 38.88° above ground
0.054629 > -150.731743 - 29.16° above ground
0.151559 > -147.156665 - 19.44° above ground
0.269202 > -145.941848 - 9.72° above ground
0.444693 > -145.062910 - 0.00° above ground
Tower 5
0.000000 > 0.000000 - 106.93° above ground
0.478934 > 84.648144 - 97.21° above ground
0.853555 > 84.720449 - 87.49° above ground
1.171941 > 84.772619 - 77.77° above ground
1.430831 > 84.805098 - 68.05° above ground
1.625068 > 84.815833 - 58.33° above ground
1.749438 > 84.800848 - 48.60° above ground
1.799499 > 84.753187 - 38.88° above ground
1.771589 > 84.660354 - 29.16° above ground
1.661802 > 84.497598 - 19.44° above ground
1.463707 > 84.208207 - 9.72° above ground
1.092054 > 83.444839 - 0.00° above ground

Tower 4
0.000000 > 0.000000 - 106.93° above ground
0.289887 > -124.577705 - 97.21° above ground
0.527731 > -124.601812 - 87.49° above ground
0.741028 > -124.619362 - 77.77° above ground
0.927184 > -124.631611 - 68.05° above ground
1.082356 > -124.639078 - 58.33° above ground
1.202539 > -124.641931 - 48.60° above ground
1.284124 > -124.639987 - 38.88° above ground
1.324015 > -124.632601 - 29.16° above ground
1.319323 > -124.618351 - 19.44° above ground
1.266554 > -124.594249 - 9.72° above ground
1.132547 > -124.542612 - 0.00° above ground
Tower 5
0.000000 > 0.000000 - 106.93° above ground
0.138931 > 39.035812 - 97.21° above ground
0.251871 > 37.920096 - 87.49° above ground
0.352536 > 36.763832 - 77.77° above ground
0.440082 > 35.528341 - 68.05° above ground
0.513062 > 34.181344 - 58.33° above ground
0.569960 > 32.681773 - 48.60° above ground
0.609472 > 30.971957 - 38.88° above ground
0.630594 > 28.964138 - 29.16° above ground
0.632575 > 26.509447 - 19.44° above ground
0.614764 > 23.328652 - 9.72° above ground
0.566868 > 17.725090 - 0.00° above ground

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TOWER DRIVE INFORMATION - DAY

	Field Ratios	Field Phase	Drive Imped. (Ω)	Current	Antenna Monitor*	Power (W)
Tower 1	0.3200	78.0000	-60.91 + j116.33	2.37 ∠ 61.58	33.1% ∠ 61.6°	-342.5956
Tower 2	1.0000	0.0000	112.51 + j145.17	7.16 ∠ 0.00	100.0% ∠ 0.0°	5761.2889
Tower 3	0.0000	0.0000	9.72 – j464.29	0.69 ∠ -13.23	(detuned)	4.6090
Tower 4	0.0000	0.0000	12.31 – j455.93	0.44 ∠ -145.06	(detuned)	2.4341
Tower 5	0.2200	95.0000	-21.58 + j416.51	1.09 ∠ 83.44	15.2% ∠ 83.4°	-25.7363

Towers 3 and 4 are detuned daytime using the appropriate series reactance.

TOWER DRIVE INFORMATION – NIGHT

	Field Ratios	Field Phase	Drive Imped. (Ω)	Current	Antenna Monitor*	Power (W)
Tower 1	0.3500	-126.0000	411.87 + j130.09	0.80 ∠ -99.58	31.5% ∠ -102.4°	262.8500
Tower 2	1.0000	0.0000	133.64 + j183.79	2.54 ∠ 0.00	100.0% ∠ 0.0°	863.8244
Tower 3	0.8600	120.0000	73.00 + j215.55	2.08 ∠ 114.88	81.9% ∠ 114.6°	316.0907
Tower 4	0.4200	-113.0000	1.24 + j1523.12	1.13 ∠ -120.63	44.5% ∠ -124.5°	1.5875
Tower 5	0.2000	42.0000	-125.58 + j106.50	0.57 ∠ 14.85	22.4% ∠ 17.7°	-40.3525

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

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

Sample Lines: RFS 3/8" LCF38-50J foam dielectric Cellflex coaxial cable

88% velocity factor, 50 +/-1 ohms

Lines were cut to equal electrical length and terminated with proper connectors. An additional short (five foot) Times Microwave LMR-400 flexible cable connects the 3/8" Cellflex to the antenna monitor. The LMR-400 cable has very similar electrical characteristics to the LCF38-50J and "looks" like part of the Cellflex cable. These jumpers are identical and are accounted for in the data which follows.

Sample Element Type: Delta Electronics TCT-3 Toroidal Current Transformers

Location: At output of antenna tuning network and diplex filter.

Operating Potential: Grounded

Antenna Monitor: Potomac Instruments AM-19D (210) s/n 2217

TCT-3 Serial Numbers & Z at 1200 KHz:

Tower 1 (S):	1034	50.8 +j0.92 ohms
Tower 2 (SC):	2016	50.7 +j0.62 ohms
Tower 3 (NC):	807	50.2 +j0.91 ohms
Tower 4 (N):	806	50.8 +j1.04 ohms
Tower 5 (W):	1577	50.1 +j0.83 ohms

(Current Transformers are matched +/- 0.4 ohm resistance and +/- j0.21 ohms reactance)

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TCT-3 Phase and Ratio Test (Tower 2 is reference):

Tower 1:	1.002/ +0.1°
Tower 3:	1.003/ +0.3°
Tower 4:	0.997/ -0.4°
Tower 5:	1.001/ +0.1°

(Current Transformers are matched within +/-0.30% ratio and +/-0.35° phase)

The phase and ratio calibration test was done with transformers removed from the ACUs and configured in pairs with the #2 transformer adjacent to each other reading RF current to tower #2 in day pattern at 500 watts. The cables used to connect the TCTs to the monitor are identical in electrical length and characteristic impedance and are normally used as flexible jumpers from the sample line to the antenna monitor.

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

Tower 1 Closest Odd ¼ wave Resonant Frequency: 1.583528 MHz (683.54 feet)
341.01° at 1200 KHz

Tower 2 Closest Odd ¼ wave Resonant Frequency: 1.585070 MHz (682.87 feet)
340.68° at 1200 KHz

Tower 3 Closest Odd ¼ wave Resonant Frequency: 1.587060 MHz (682.02 feet)
340.25° at 1200 KHz

Tower 4 Closest Odd ¼ wave Resonant Frequency: 1.582924 MHz (683.80 feet)
341.14° at 1200 KHz

Tower 5 Closest Odd ¼ wave Resonant Frequency: 1.586245 MHz (682.37 feet)
340.43° at 1200 KHz

Maximum Difference in Electrical Length: 1.78 feet, 0.89° at 1200 KHz

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Sample Line Impedance Test (see graph data which follows):

Tower 1 (South) Sample Line Mean Zmag:	50.123 ohms
Tower 2 (South Center) Sample Line Mean Zmag:	50.168 ohms
Tower 3 (North Center) Sample Line Mean Zmag:	49.838 ohms
Tower 4 (North) Sample Line Mean Zmag:	50.479 ohms
Tower 5 (West) Sample Line Mean Zmag:	50.319 ohms

Maximum Variation in Sample Line Impedance: 0.481 ohms

Sample Impedance From Monitor End (with sample element connected, see graph data):

Tower 1 (South) Sample Impedance:	50.511 -j0.060 ohms
Tower 2 (South Center) Sample Impedance:	49.361 +j0.230 ohms
Tower 3 (North Center) Sample Impedance:	50.120 +j0.472 ohms
Tower 4 (North) Sample Impedance:	49.501 +j1.433 ohms
Tower 5 (West) Sample Impedance:	50.002 -j0.028 ohms

Maximum Variation in Sample Resistance: 1.15 ohms
Maximum Variation in Sample Reactance: j1.493 ohms

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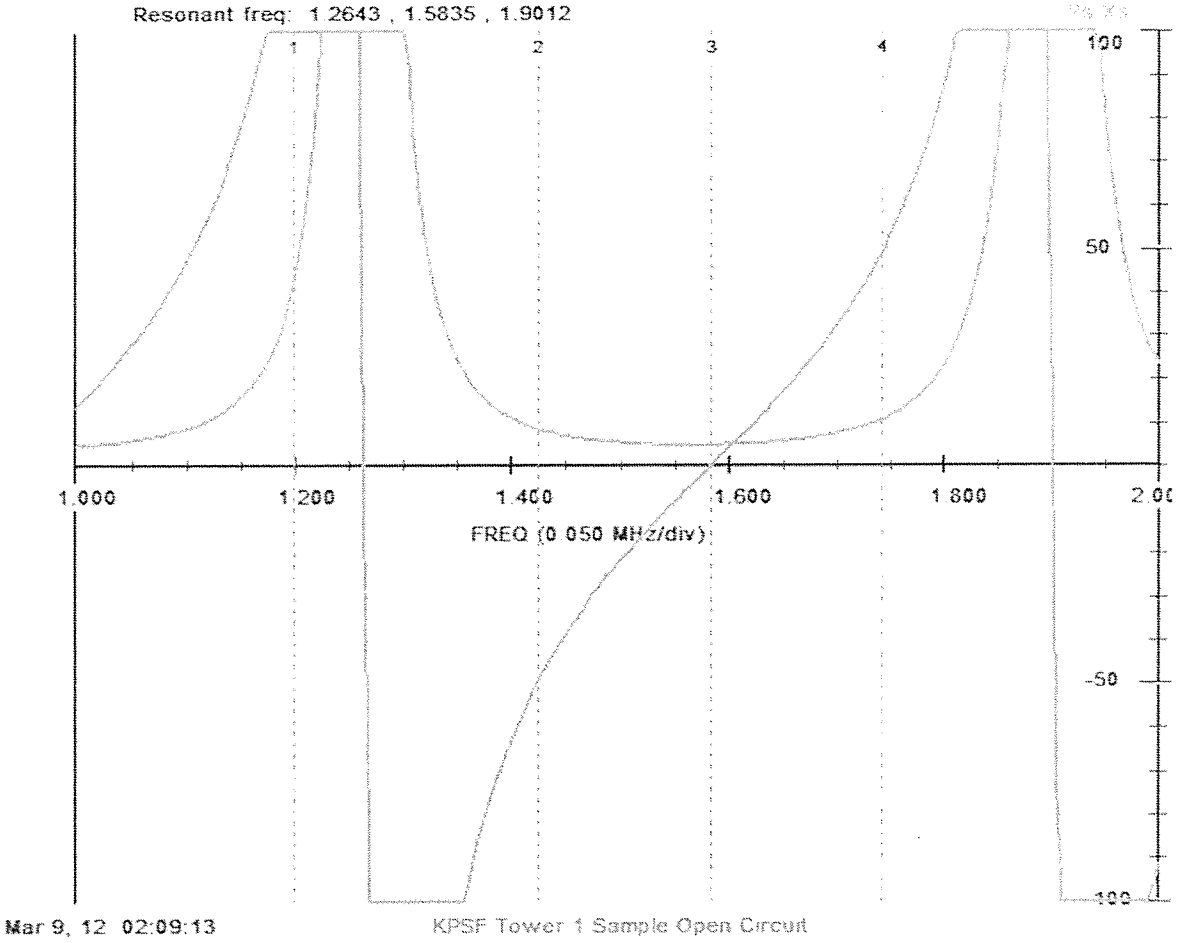
Tower 1 (South) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	1.200000	43.012	+142.134	148.500
[2]	1.425175	8.448	-49.171	49.891
[3]	1.583528	4.909	-0.000	4.909
[4]	1.741881	10.739	49.195	50.354

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

Mean Tower 1 Sample Line Zmag: 50.123 ohms

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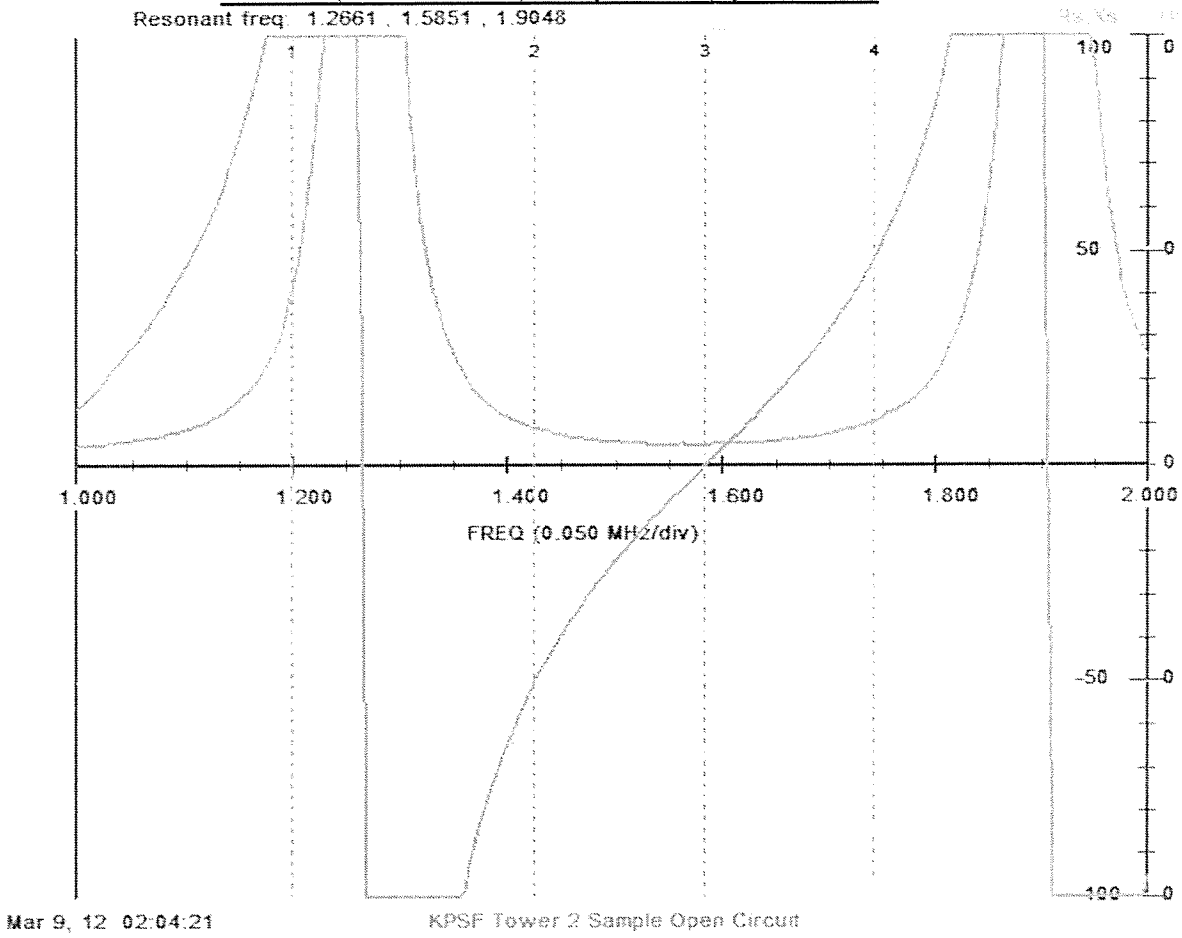
Tower 2 (South Center) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	1.200000	40.528	137.746	143.585
[2]	1.426563	8.602	-49.571	50.312
[3]	1.585070	4.808	-0.082	4.808
[4]	1.743577	10.705	48.865	50.024

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

Mean Tower 2 Sample Line Zmag: 50.168 ohms

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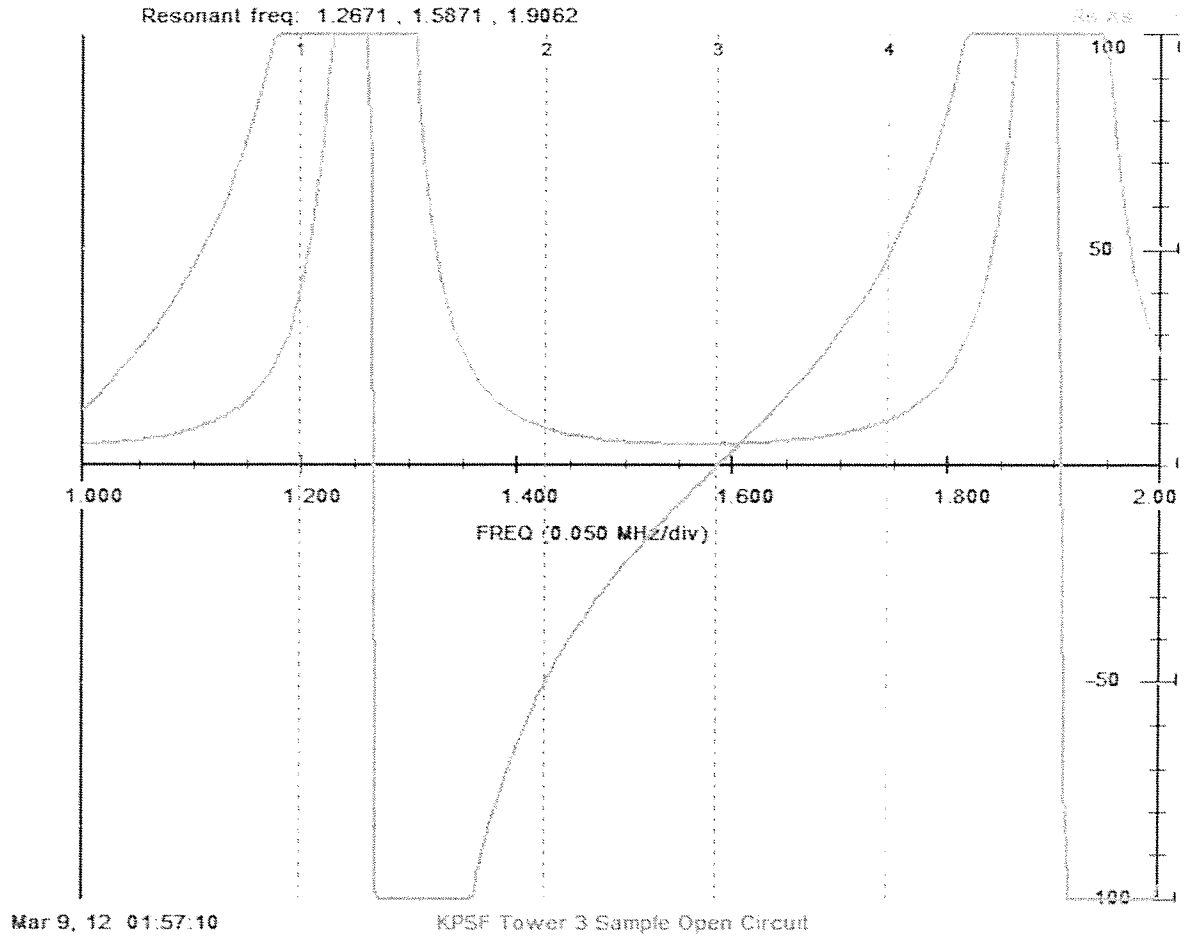
Tower 3 (North Center) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	1.200000	39.774	136.960	142.619
[2]	1.428354	8.283	-48.913	49.609
[3]	1.585060	4.677	-0.056	4.677
[4]	1.745766	10.611	48.930	50.067

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

Mean Tower 3 Sample Line Zmag: 49.838 ohms

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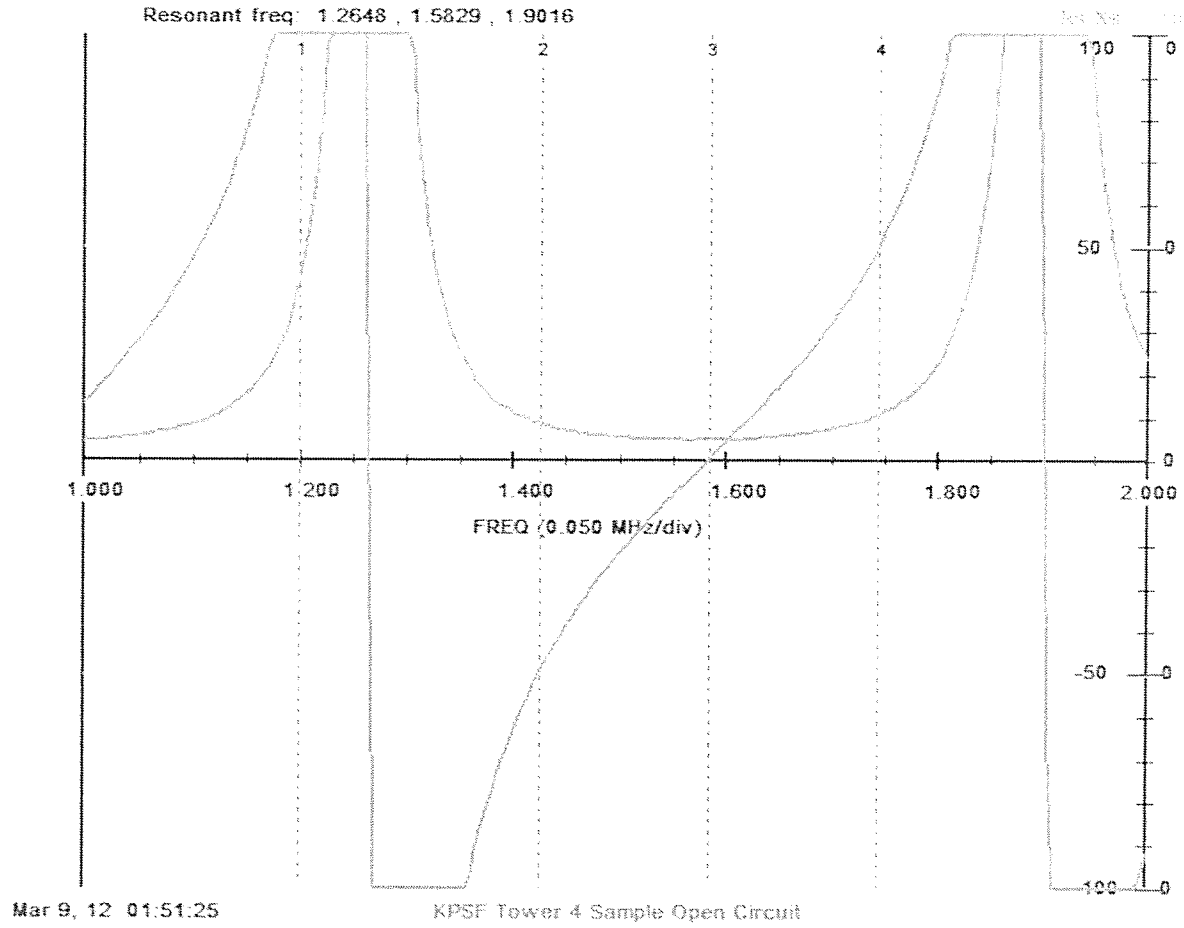
Tower 4 (North) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	1.200000	42.724	142.401	148.672
[2]	1.424632	8.760	-49.872	50.635
[3]	1.582924	4.985	0.000	4.985
[4]	1.741216	10.658	49.182	50.323

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

Mean Tower 4 Sample Line Zmag: 50.479 ohms

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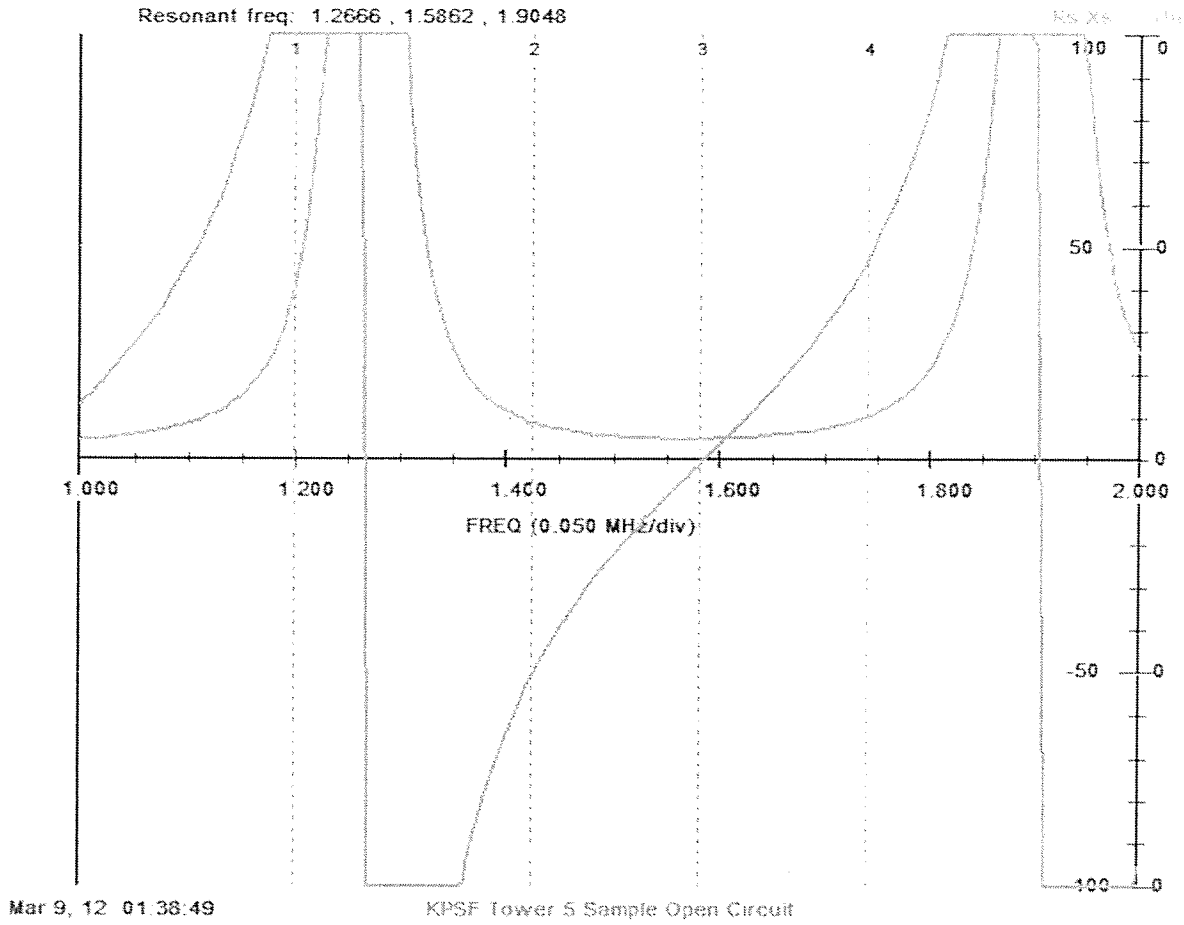
Tower 5 (West) Sample Line (open circuit)



Marker	Freq	Rs	Xs	Zmag
[1]	1.200000	40.380	138.068	143.851
[2]	1.427620	8.493	-49.532	50.255
[3]	1.586245	4.848	0.019	4.848
[4]	1.744870	10.941	49.182	50.384

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

Mean Tower 5 (West) Sample Line Zmag:50.319 ohms

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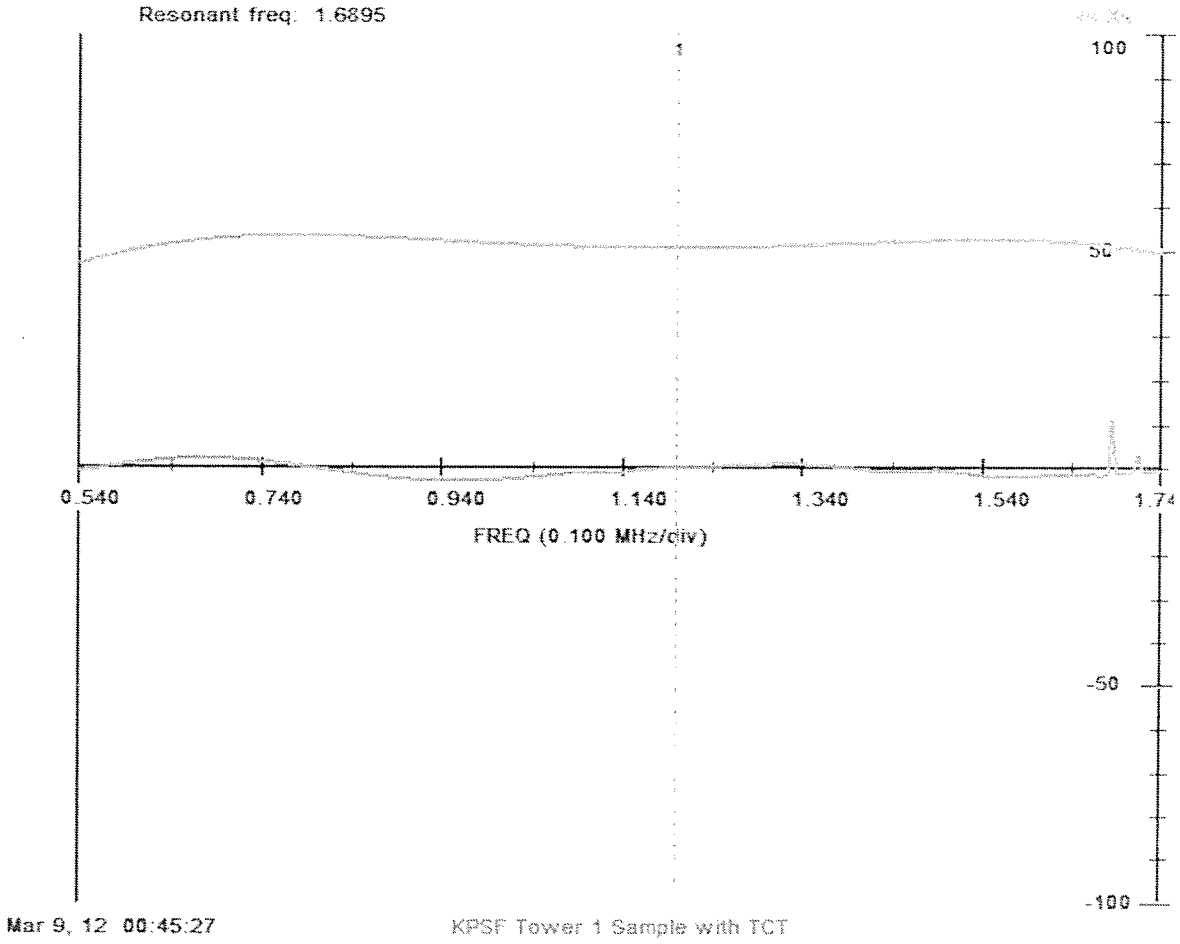
Sample lines from antenna monitor end with TCT-3s connected at towers as normal:

Tower 1 (South)



Impedance of Tower 1 line at 1200 KHz, monitor end with transformer connected at other end:

50.511 -j0.06 ohms

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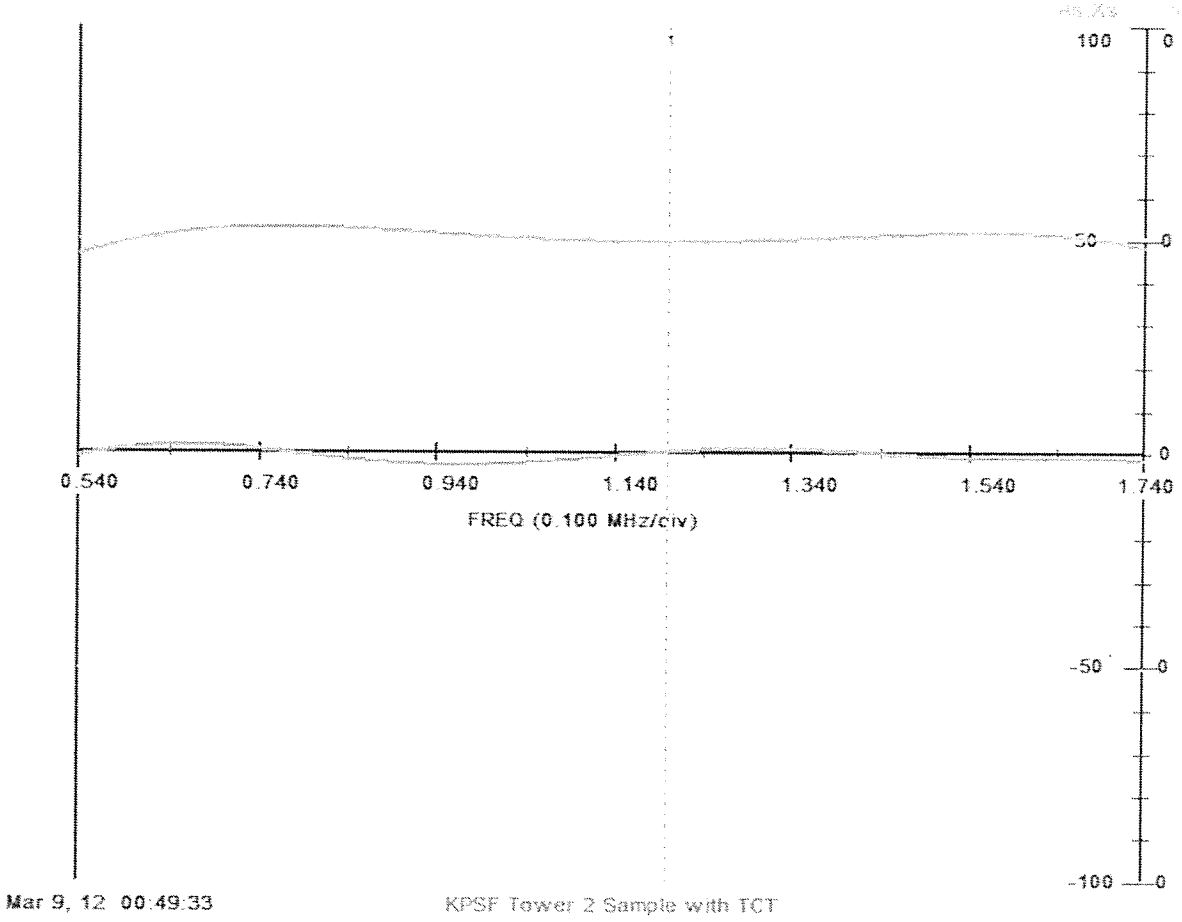
Tower 2 (South Center)



Impedance of Tower 2 line at 1200 KHz, monitor end with transformer connected at other end:

49.361 +j0.23 ohms

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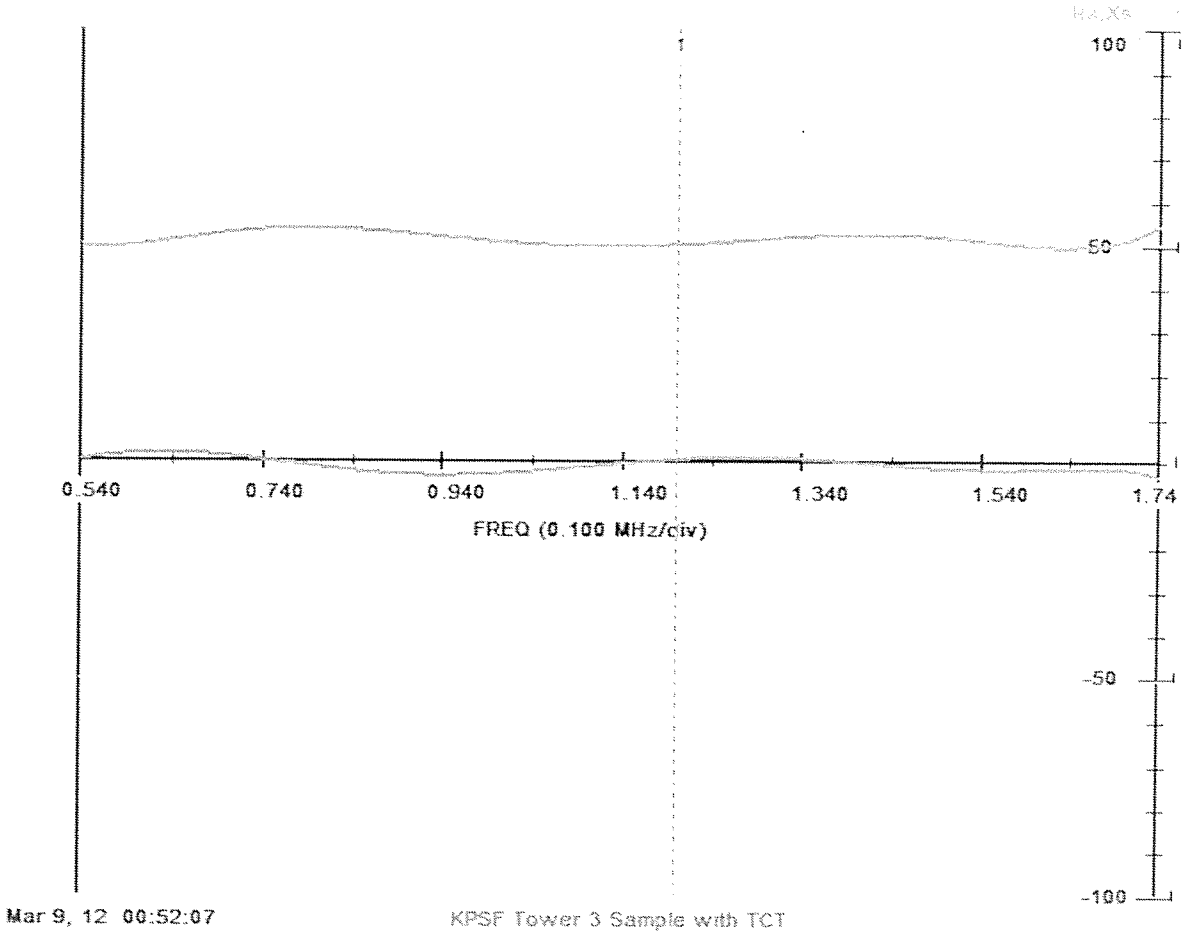
Tower 3 (North Center)



Impedance of Tower 3 line at 1200 KHz, monitor end with transformer connected at other end:

50.120 +j0.472 ohms

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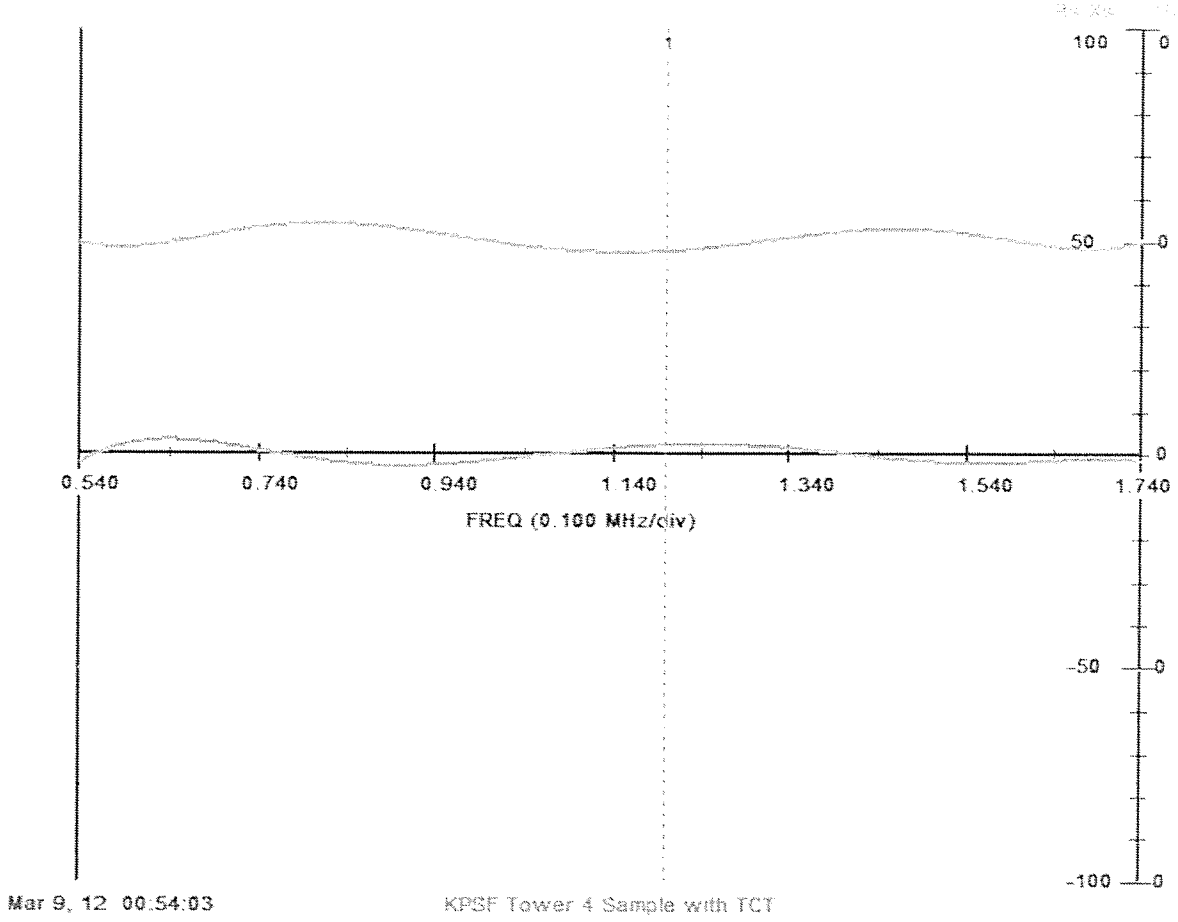
Tower 4 (North)



Impedance of Tower 4 line at 1200 KHz, monitor end with transformer connected at other end:

49.501 +j1.433 ohms

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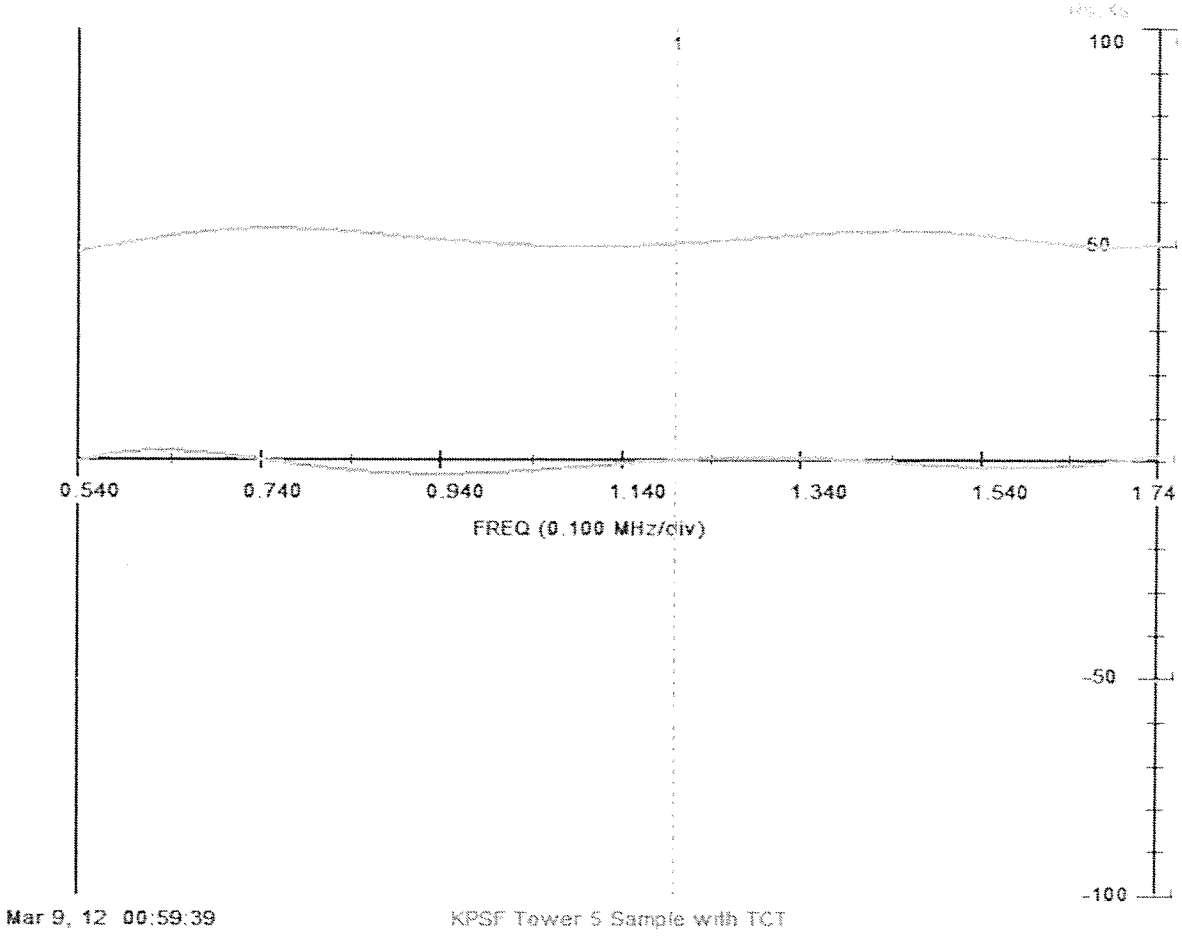
Tower 5 (West)



Impedance of Tower 5 line at 1200 KHz, monitor end with transformer connected at other end:

50.002 +j0.028 ohms

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BATON ROUGE, LA 70809
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Mark Mueller
Mueller Broadcast Design
613 S. La Grange Rd.
La Grange, IL 60525

March 3, 2012

re: sample system component certification statement for KPSF

Dear Mark:

This letter will serve to confirm that the equipment you purchased from us has been tested on our calibration workbench and found to be within its respective manufacturers' tolerances.

You bought 5 Delta Electronics TCT-3 toroidal sample transformers from us, serial numbers 806, 807, 1034, 2016, & 1577. I hereby certify that all of these units were found to produce identical outputs, within 1% of amplitude and 1° of phase, when simultaneously driven from one RF source.

You also bought a Potomac Instruments AM-19D(210) digital antenna monitor, serial number 2217, from us. We refurbished this unit, returning it to factory condition and specifications. Its design was not modified in any way. I hereby certify that it met its factory specifications in all respects when it left my shop.

We offer a 90-day warranty on the operation and calibration of all of these units. Please let me know if you have any questions, and thank you for your business.

Regards,

G. Michael Patton, owner

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KPSF Daytime Reference Field Strength Measurements

[47 CFR 73.151(c)(3)]

Point	Distance	mv/m	Coordinates (NAD 83)	Description
0° True (Minima, monitor point radial)				
1:	7.51	21.3	33.910572,-116.428313	south road in trailer park
2:	7.70	20.0	33.912308,-116.428337	18555 Wagner (trailer park)
3:	9.12	14.4	33.925056,-116.428345	Dillon Rd.
50° True (Maxima)				
1:	9.33 km	19.5	33.896929,-116.350857	Pole Rd. @ path to north
2:	9.51	17.0	33.897902,-116.349364	Dillon Rd. @ Smith Rd.
3:	10.0	16.5	33.901059,-116.344992	Sun Valley Dr. @ drive to east
142° True (Minima, monitor point radial)				
1:	5.40	30.0	33.804781,-116.392357	Arizona tile parking (shopping ctr)
2:	5.70	28.5	33.802668,-116.390355	Shoppers Lane, Santana's parking
3:	6.08	24.8	33.799998,-116.387881	34-340 Monterey (El Pollo Loco)
170° True (Maxima)				
1:	3.04	87.0	33.816175,-116.422584	Ramon Rd. E of Los Alamos Rd.
2:	4.67	41.0	33.801729,-116.419541	Dinah Shore @ Westin Hills entrance
3:	6.32	24.5	33.787103,-116.416490	Gerald Ford Drive in right turn lane to San Juan Drive
214.5° True (Minima, monitor point radial)				
1:	3.66	40.0	33.815980,-116.450750	69510 Ramon Rd.
2:	4.88	23.2	33.806902,-116.458297	Eytel Rd. @ Date Palm
3:	5.13	21.9	33.805043,-116.459823	68905A Ortega Rd.
315° True (Maxima)				
1:	4.19	78.0	33.869755,-116.460397	Varner Rd.
2:	6.94	30.3	33.887136,-116.481591	Varner Rd.
3:	9.55	16.8	33.903755,-116.501490	Palm Dr. north of 20th Ave. at bushes

Daytime pattern measurements taken March 7-8, 2013.

Field intensity measurements were taken using a Potomac Instruments FIM-21 s/n 691 last calibrated November 27, 2000. It was compared to the writer's FIM-41 s/n 1690, last calibrated January 13, 2013 and agreed within 2% across all ranges.

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KPSF Nighttime Reference Field Strength Measurements

[47 CFR 73.151(c)(3)]

Point	Distance	mv/m	Coordinates (NAD 83)	Description
32° True (Maxima, minor lobe)				
1:	7.97 km	9.0	33.903795,-116.382560	73292 20th Ave.
2:	8.49	7.9	33.907840,-116.379661	19405 Dowell Lane gate
3:	9.09	6.8	33.912338,-116.376174	18910 Dillon Rd., east fence line
72.5° True (Minima, monitor point radial)				
1:	11.87	0.42	33.875113,-116.305790	Off road on unnamed path
2:	12.17	0.38	33.875958,-116.302616	Dillon Rd.
3:	12.58	0.33	33.877064,-116.298433	Thousand Palms Canyon Rd.
100.5° True (Minima, monitor point radial)				
1:	3.77	1.9	33.836802,-116.388258	north of power line, Sierra Del Sol
2:	4.57	1.46	33.835562,-116.379714	Burr Oak @ Desert Moon
3:	5.16	0.88	33.834586,-116.373475	North of tank on Las Palmas
115° True (Minima, monitor point radial)				
1:	3.69	2.1	33.829046,-116.392142	30281 Monte Vista Way
2:	4.27	1.6	33.826873,-116.386476	73080 Del Norte Way
3:	4.97	1.05	33.824138,-116.379647	30940 Desert Moon Dr.
182° True (Maxima, major lobe)				
1:	3.00	135	33.816151,-116.429454	Ramon Rd.
2:	4.49	78	33.802693,-116.430035	Mission Hills @ Dinah Shore turn ln
3:	6.23	43	33.787083,-116.430737	Gerald Ford Dr. at median pavers
222° True (Mimima, monitor point radial)				
1:	1.88	195	33.830552,-116.442028	La Paloma Dr. at 30th Ave.
2:	2.40	138	33.827055,-116.445696	59746 Cypress Ave.
3:	2.97	91.5	33.823214,-116.449881	69475 McCallum Way
240° True (Maxima, minor lobe)				
1:	2.79	105	33.830528,-116.454502	30th Ave. at SCHOOL XING sign
2:	3.36	71.6	33.827966,-116.459878	30355 Avenida Los Ninos
3:	3.59	70	33.826947,-116.462009	30495 Avenida Del Yerma
297.5° True (Minima, monitor point radial)				
1:	1.22	30.0	33.848129,-116.440115	Varner Road
2:	3.11	8.27	33.855918,-116.458234	Date Palm Drive
3:	8.03	1.75	33.876343,-116.505504	Gene Autry Trail near Salvia Rd.

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Point	Distance	mv/m	Coordinates (NAD 83)	Description
326° True (Minima, monitor point radial)				
1:	4.66	1.35	33.877882,-116.456484	Edom Hill Road
2:	7.79	0.48	33.901164,-116.475526	Mountain View Rd.
3:	8.91	0.31	33.909549,-116.482197	Club House Dr. at VFW entrance
354.5 True (Minima, monitor point radial)				
1:	8.48	0.75	33.918934,-116.437138	7th St. near Quail Valley (private)
2:	8.77	0.81	33.921535,-116.437446	70201 Aurora Rd.
3:	9.17	0.66	33.925183,-116.437882	70200 Dillon Rd., end of sidewalk

Nighttime pattern measurements taken October 28-29, 2012.

Field intensity measurements were taken using a Potomac Instruments FIM-41 s/n 1690, last calibrated January 13, 2013.

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

The three KPSF towers were surveyed on February 2, 2012 by Phillip K. Fomotor, a licensed Professional Land Surveyor in the state of California (license number 7070) of Fomotor Engineering, Palm Springs, California and were found to be as follows:

Tower 1 (S) to 2 (SC): 324.5 feet (142.46°) at 28.07° True (theo. = 142.6° at 28° T)

Tower 1 (S) to 3 (NC): 648.9 feet (284.88°) at 28.11° True (theo. =285.2° at 28° T)

Tower 1 (S) to 4 (N): 973.6 feet (427.43°) at 28.12° True (theo. = 427.8° at 28° T)

Tower 1 (S) to 5 (W): 541.2 feet (237.60°) at 321.21° True (theo. = 237.6° at 321.3° T)

A copy of the survey report is attached. This corresponds to a maximum relative spacing error of 0.4° and absolute bearing error of 0.12° (see below) for towers 2, 3 and 4. The theoretical tower spacings and orientation were used in the model.

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225 S. Civic Drive, Suite 1-5
Palm Springs, CA 92262
Office (760) 323-1842 Fax (760) 323-1742

Civil Engineering | Land Surveying | Land Planning

Geodetic Coordinate Certification

KXPS-AM and KPSF-AM Towers
Varner Road, Riverside County

	NORTHING (Y)	EASTING (X)
TOWER 1 (SOUTHERLY TOWER)	2250056.6	6507461.3
TOWER 2	2250342.9	6507614.0
TOWER 3	2250629.0	6507767.0
TOWER 4 (NORTHERLY TOWER)	2250915.2	6507920.2
TOWER 5 (WESTERLY TOWER)	2250478.4	6507122.3

ALL NORHINGS AND EASTING ARE CA STATE PLANE, ZONE 6 COORDINATES
DATUM: NAD83-2007

	BEARING FROM TOWER 1	DISTANCE FROM TOWER 1
TOWER 2	N 28°4'10" E	324.5'
TOWER 3	N 28°6'22" E	648.9'
TOWER 4 (NORTHERLY TOWER)	N 28°7'17" E	973.6'
TOWER 5 (WESTERLY TOWER)	N 38°47'8" W	541.2'

ALL BEARINGS USE GRID NORTH PER SPC CA 6

PER THE FIELD SURVEY COMPLETED ON 2/2/2012 I HEREBY CERTIFY THAT THE STATE PLANE COORDINATES SHOWN HEREON ARE ACCURATE TO PLUS OR MINUS THREE (3) FEET HORIZONTALLY AND THAT RELATIVE TOWER BEARINGS AND DISTANCES ARE PLUS OR MINUS THREE (3) MINUTES AND PLUS OR MINUS 0.5 FEET RESPECTIVELY.

PHILLIP K. FOMOTOR, P.L.S.
EXP. 12/31/12

LICENSED LAND SURVEYOR
PHILLIP K. FOMOTOR
No. 7070
EXP. 12/31/12
STATE OF CALIFORNIA

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Construction Permit Conditions:

1 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 KPSF antenna system was 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.

2 Ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 74.3 meters in length except where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers.

The ground system is as described

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 KPSF and KXPS (ID#22342) and there shall be filed with the license application copies of a firm agreement entered into by the TWO 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, BOTH stations shall each measure antenna or common point resistance and submit FCC Form 302 as application notifying the return to direct measurement of power.

KPSF has installed pass-reject traps at all five towers as shown below. Each is of standard design and sufficiently isolates the two stations to prevent both interaction and spurious emissions. Even though the two stations are under common ownership a formal maintenance agreement is attached. Field observations indicate -84 dB or better suppression of all harmonics and mix products. Spurious and harmonic emissions measurements from 540 KHz through 5 MHz were

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made March 8, 2012 outside the transmitter building, which is approximately at the center of the array, with each station operating at full daytime power. These measurements, taken with the writer's Potomac Instruments FIM-41 field intensity meter show that there is excellent isolation between the transmitters:

Spurious Emissions Measurements:

Carrier levels:

KXPS (3.6 KW, 1010 KHz):	4100 mv/m	(132.26 dBu)
KPSF (5 KW, 1200 KHz):	8800 mv/m	(138.89 dBu)

Measured signals:

2020 KHz	(2 x 1010):	0.250 mv/m	(47.96 dBu)
	(-84.30 dB from KXPS, -90.93 dB from KPSF)		
2210 KHz	(1010 + 1200):	0.016 mv/m	(24.08 dBu)
	(-108.18 dB from KXPS, -114.81 dB from KPSF)		
3220 KHz	((2 x 1010) + 1200):	0.230 mv/m	(47.23 dBu)
	(-85.03 dB from KXPS, -91.66 dB from KPSF)		
3410 KHz	(1010 + (2 x 1200)):	0.240 mv/m	(47.60 dBu)
	(-84.66 dB from KXPS, -91.29 dB from KPSF)		

No other signals traceable to the combined site were present.

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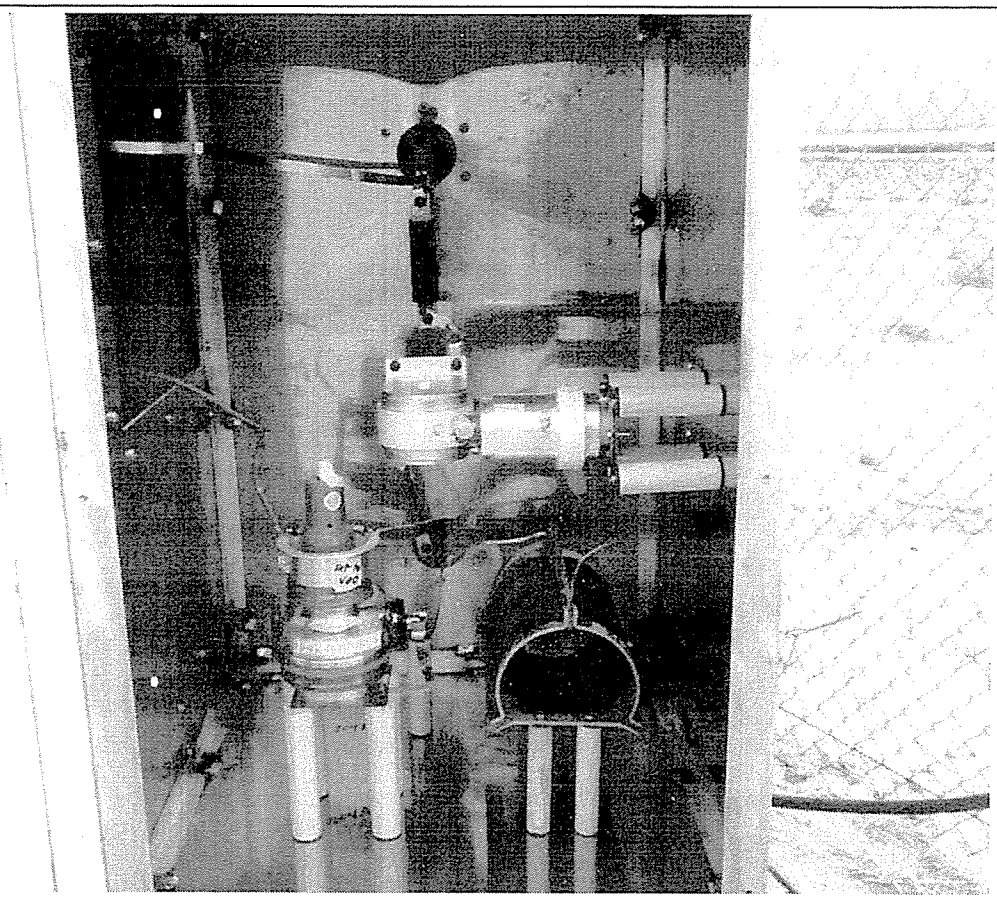
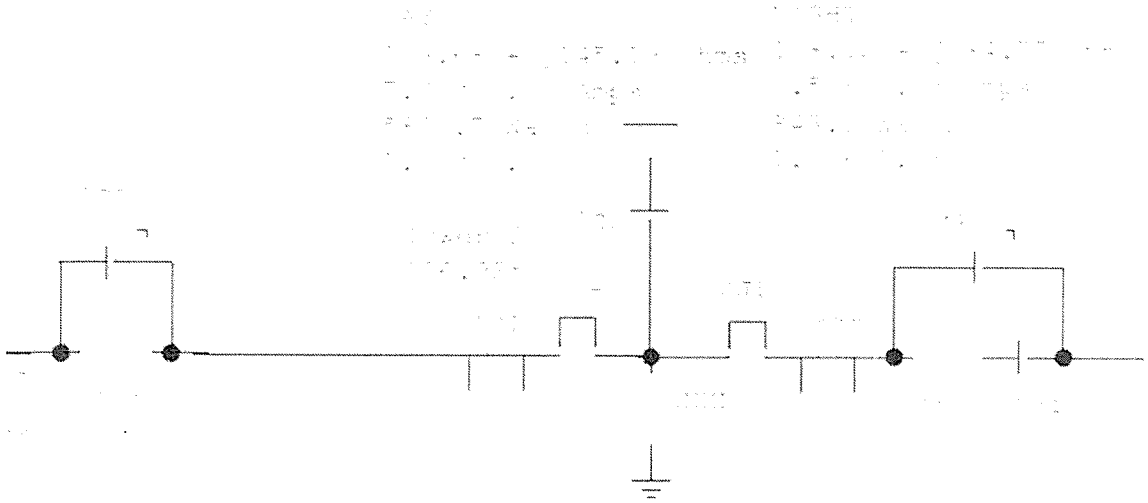


1200-reject filter added to KXPS tower 2 ATU. 1010-reject filter is in KPSF ATU



Tower 2 filter Schematic. Other towers have similar filters.

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KXPS is filing a Form 302 for Direct Power Measurement and new license under the Method of Moments procedures, under separate cover.

4 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.

KPSF has installed a new Nautel XR-6 which the transmitter manufacturer states is type accepted for the power levels and intended service.

5 Licensee shall be responsible for satisfying all reasonable complaints of blanketing interference within the 1 V/m contour as required by Section 73.88 of the Commission's rules.

The transmitter site is in an undeveloped desert area with zero population inside the 1 V/m contour so no blanketing interference complaints are expected.

Construction Permit Correction

The outstanding construction permit BMP-20120430AER contains an error for the IDF at 297.5° nighttime. The CP specifies 5.96 mv/m/km as the radiation limit at this azimuth, which should be 56.0 mv/m/km for the night pattern.

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 KPSF antenna system is properly constructed and adjusted and full power program test authority is hereby requested.

March 15, 2013

Mark A. Mueller