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March 21, 2017

Mark Lipp
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VIA MESSENGER

Marlene H. Dortch, Esq.
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Attention: Media Bureau

Re: **Application for License on FCC Form 302-AM Using Method Moment Modeling for Return to Direct Measurement**
Multicultural Radio Broadcasting Licensee, LLC
Station KSJX(AM), San Jose, California
Facility Identifier Number 4118

Dear Ms. Dortch:

Transmitted herewith on behalf of Multicultural Radio Broadcasting Licensee, LLC ("MRBL"), the licensee of Station KSJX(AM) identified above, are an original and two copies of its application to operate with new parameters as determined by a new Method of Moments model. This follows the addition of Station KLOK(AM) to the existing KSJX antenna system which includes KZSF(AM). This Form 302-AM is being filed concurrently with applications for KLOK and KZSF and reflects the final measured parameters following installation of the KLOK filters and modification of the KSJX and KZSF filters and phasing equipment.

Please note that, since this is a return to direct measurement of power, no filing fee is required.

If there are any questions about this Application, please contact undersigned counsel for Multicultural Radio Broadcasting Licensee, LLC.

Sincerely,

Mark Lipp

Mark Lipp

Enclosures

cc: Mr. Jerome Manarchuck, AM Branch, Media Bureau, FCC

Accepted / Filed

Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

MAR 21 2017

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. BZ-20170321ABS

SECTION I - APPLICANT FEE INFORMATION

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

MAILING ADDRESS (Line 1) (Maximum 35 characters)

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)

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: RETURN TO DIRECT MEASURMENT

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

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

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

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

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

00102158l2

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT MULTICULTURAL RADIO BROADCASTING LICENSEE, LLC		
MAILING ADDRESS 27 WILLIAM STREET, 11TH FLOOR		
CITY NEW YORK	STATE NY	ZIP CODE 10005

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
KSJX	SAN JOSE	N/A	N/A	N/A

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

☐ Yes ☐ No

If No, explain in an Exhibit.

Exhibit No. N/A

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

☐ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No. N/A

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

☐ Yes ☐ No

If Yes, explain in an Exhibit.

Exhibit No. N/A

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

☐ Yes ☐ No

☑ Does not apply

If No, explain in an Exhibit.

Exhibit No.

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

☐ Yes ☑ No

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

Exhibit No.

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

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

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	
Sean Kim		
Title	Date	Telephone Number
CFO/COO, Multicultural Broadcasting Group	3/17/2017	(212) 966-1059

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

MULTICULTURAL RADIO BROADCASTING LICENSEE, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☐ Station License ☑ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
KSJX	N/A	1500	UNL	5	10

2. Station location

State	City or Town
CALIFORNIA	SAN JOSE

3. Transmitter location

State	County	City or Town	Street address (or other identification)
CA	SANTA CLARA	SAN JOSE	501 WOOSTER AVE

4. Main studio location

State	County	City or Town	Street address (or other identification)
CA	SANTA CLARA	SAN JOSE	1172 MURPHY AVE

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

State	County	City or Town	Street address (or other identification)
CA	SANTA CLARA	SAN JOSE	1172 MURPHY AVE

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

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

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

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
10.39	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
1 C	0	0	1.0	1.0	N/A	N/A
2 E	56.6	101.2	0.402	0.333	-	-
3 N	NOT USED	70.4	NOT USED	1.225	-	-
4 W	-61.4	NOT USED	0.609	NOT USED	-	-

Manufacturer and type of antenna monitor: POTOMAC INSTRUMENTS AM-1901

SECTION III - Page 2

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
UNIFORM CROSS SECTION GUYED	59.4	60	60	Exhibit No. N/A

Excitation ☑ Series ☐ Shunt

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

North Latitude	West Longitude
37 ° 21 ' 28 "	121 ° 52 ' 17 "

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. A

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

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

NO CHANGE FROM EXISTING LICENSE

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

MODIFICATIONS TO SYSTEM ALLOWING ADDITION OF KLOK(AM) TO ARRAY

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)
BERT GOLDMAN	
Address (include ZIP Code) 560 PERKINS WAY AUBURN, CA 95603	Date 3/17/2017
	Telephone No. (Include Area Code) (214) 395-5067

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

ENGINEERING STATEMENT
IN SUPPORT OF 302-AM

APPLICATION FOR LICENSE EMPLOYING
MOMENT METHOD MODELING

KSJX, 1500kHz

Return to Direct Measurement

Following KLOK Construction

10,000 Watt DA-D

5,000 Watt DA-N

San Jose, Ca.

March, 2017

ENGINEERING STATEMENT IN SUPPORT OF 302-AM
APPLICATION FOR DIRECT MEASUREMENT

KSJX, 1500kHz

March, 2017

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SUMMARY

The following engineering statement has been prepared on behalf of Multicultural Radio Broadcasting Licensee, LLC (MRBI), licensee of standard broadcast station KSJX, FCC ID 4118, 1500kHz, San Jose, CA in support of an application to operate pursuant to new parameters as determined by a new Method of Moments model. following the addition of KLOK (AM) to the existing antenna system which includes KSJX and KZSF. This application is being filed concurrently with the 302 applications for KLOK and KZSF reflecting the final measured parameters following the installation of the KLOK filters and modification of the KSJX and KZSF filters and phasing equipment.

The KLOK phasor was installed in a new building constructed by KLOK, the KLOK filters were adjusted and inserted in series with the feed from the KSJX and KZSF (existing stations') filters. The feed to each existing tower was re-worked and braised to the towers (a 4-5 turn loop was removed from the feeds to the towers). The existing sample lines for KSJX were measured and verified within one degree, all sampling toroids were measured and determined to be accurate, the KSJX antenna monitor was checked and verified within manufacturer specifications and the operating impedance bridges in each station's common point were verified to be accurate.

The antenna system has been adjusted to produce monitoring system parameters which are within ± 5% in field ratio and ± 3° in phase of the modeled values as required by 73.151(c)(2)(ii).

FCC 302-AM Form Exhibits

EXHIBIT A- There is a 4ft diameter open grid 950MHz microwave dish attached to tower 2 at approximately 100ft AGL. The antenna is not connected across the base insulator.

Ground System- The ground system is existing and has been in use by KSJX and KZSF. A description is attached below in Exhibit 1.

Exhibit 1 – Station Operation

DESCRIPTION OF KSJX TRANSMISSION FACILITIES AS CONSTRUCTED

RF Power Day, nominal 10kW

RF Power night, nominal 5kW

RF Common Point DAY 14.51a, 50Ω common point resistance (10.5kW input[1])

RF Common Point NIGHT 10.39a, 50Ω common point resistance (5.4kW input)

TOWERS[2] Electrical , four towers 107.1° length. Towers 1 and 2, 24" face, towers 3 and 4, 18" face triangular uniform cross-section, guyed.

Physical, four towers, each 60m length

Antenna Struct .Reg. 1215674
1215676
1215678
1215679

GROUND SYSTEM[3] Ground system consists of 120 equally spaced buried copper radials plus 7.32m by 7.32m ground screen about the base of each tower. Each radial is 60.96 m in length except where limited by property boundary. Overlapping radials shortened and bonded to copper straps.

DAY MoM OPERATING PARAMETERS

TOWER	#1	#2	#3	#4
Phasing	0.0°	101.2°	70.4°	n/a[4]
Field Ratio	1.0	0.333	1.225	n/a

[1] Per FCC 73.51(b)(2), For stations with nominal powers in excess of 5 kW, the authorized antenna input power to directional antennas shall exceed the nominal power by 5.3 percent.

[2] Note that there was no survey of the property or towers taken as there has been no change in the physical locations of the towers from the currently licensed facility.

[3] From KSJX license BMML-20121003ACV. Note that the ground system was replaced in October of 2016.

[4] Tower not used for this configuration and detuned to j336.3 ohms.

NIGHT MoM OPERATING PARAMETERS

TOWER	**#1**	**#2**	**#3**	**#4**
Phasing	0.0°	56.6°	n/a[5]	-61.4°
Field Ratio	1.0	0.402	n/a	0.609

Exhibit 2 – Description of sampling system

Description of Sampling System as Constructed

Samples for the antenna monitor are obtained from Delta TCT-1 (0.5V/A) toroidal current transformers mounted at the outputs of the antenna coupling units.

The TCT's were measured with a HP 8753ES Network Analyzer with a Tunwall directional coupler and have the following measured characteristics:

Tower Number	Serial No.	Magnitude	Phase
1	1334	1.005	+0.15°
2	939	1.008	+0.53°
3	947	1.010	+0.60°
4	940	1.000	0.0°

The above measurements certify compliance within 1 percent ratio and one degree phase accuracy.

Samples are returned to the antenna monitor using equal lengths of Andrew LDF4-50A, ½" foam coaxial cable with solid copper outer shield.

All sample lines were tested and verified to be within 1° electrical length and with characteristic impedance to be within FCC guidelines. Verification of the sample lines is included below.

[5] Tower not used for this configuration and detuned to j340.7 ohms

The phase monitor is a Potomac Instruments AM-1901 -4 antenna monitor. Phase monitor accuracy was confirmed by feeding two tower inputs at a time through a splitter and equal length jumpers to confirm equal magnitude and phase on each tower within .001 current ratio and 0.1 degrees phase.

Antenna Monitor Verification

DAY. NIGHT (Reference #1)

Tower Number	Value	Phase
1	1.000	0.0°
2	0.999	-0.1°
3	1.001	0.0°
4	1.000	0.1°

Impedance measurements were made of the antenna sampling system using an HP 8753ES Network Analyzer with a Tunwall directional coupler. The measurements were made looking into the antenna monitor ends of the sample lines with the tower ends open-circuited. All connectors were installed on the sample lines and readings were normalized to include the test leads. All sample lines were equally cut prior to installation and trimmed to achieve identical electrical length and phase stability.

The table in Exhibit 1 shows the frequencies above and below the carrier frequency where resonance, defined as zero reactance corresponding with low resistance, was found. As the length of distortionless transmission line is 180 electrical degrees at the difference frequency between adjacent frequencies of resonance, and frequencies of resonance occur at odd multiples of 90 degrees electrical length, the sample line length at the resonant frequency below carrier frequency, which is the closest one to the carrier frequency, was found to be 270 electrical degrees. The electrical length at carrier frequency appearing below was calculated by ratioing the frequencies.

EXHIBIT 2 (cont'd) SAMPLE SYSTEM MEASUREMENTS

KSJX Tower Sample Measurements

	Resonance Below 1500Khz	Resonance Above 1500Khz	Calculated Electrical Length@1500kHz	Impedance into TCT @1500kHz
Tower 1	1146.94	1916.19	353.11°	47.7 -j0.7
Tower 2	1146.77	1916.87	353.17°	48.1 -j0.38
Tower 3	1146.43	1916.36	353.27°	47.9 -j0.26
Tower 4	1145.07	1913.13	353.69°	47.2 -j0.66
			Delta 0.58 deg	Delta 0.9Ω

Based upon the measurements shown above, the sample lines are within the one electrical degree requirement.

To determine the characteristic impedance values of the sample lines, open-circuited measurements were made with frequencies offset to produce ± 45 degrees of electrical length from resonance

The characteristic impedance was calculated using the following formula, where R1 +j X1 and R2 +j X2 are the measured impedances at the +45 and -45 degree offset frequencies, respectively:

$$ZO = ((R1^2 + X1^2)^{½} \times (R2^2 + X2^2)^{½})^{½}$$

KSJX Sample Line Characteristic Impedance Measurements

	+45 Degree Offset Frequency (KHz)	+45 Degree Measured Impedance (Ohms)	-45 Degree Offset Frequency (KHz)	-45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
Tower 1	1338.1	7.77 +j49.48	0.9557	5.20 –j49.82	50.09 50.08
Tower 2	1337.9	7.86 +j49.45	0.9556	5.21 –j49.63	49.99 ✓
Tower 3	1337.5	7.82 +j49.69	0.9553	5.22 –j49.68	50.13 ✓
Tower 4	1336.0	7.78 +j49.57	0.9542	5.22 –j49.56	50.01 ✓

MAX Impedance	50.13
MIN Impedance	49.99

As shown above, the sample lines measured characteristic impedances meet the requirement that they be equal to 50 Ohms within +-2 ohms.

The sampling system for KSJX is type approved under 47CFR 73.68 of the FCC rules.

Exhibit 3 – Tower details and isolation circuits

The following isolation circuits are attached to the KSJX towers and have been included in the MoM analysis:

All Towers: Uniform Cross Section (no lighting). Towers 1 and 2= 24" face, Towers 3 and 4, 18" face.

Insulators:	Towers 1 and 2	Lapp Model 9012
	Towers 3 and 4	Utility insulator

Direct Measurement of Power

The common point current was measured using a Delta TCA 20/40 RF current meter permanently installed in the phasing cabinet. Common point resistance was set to 50Ω –j2. The transmitter was adjusted to yield the correct current as reflected on the 302-AM attached.

CONCLUSION

All adjustments and measurements were conducted jointly by Bertram Goldman and Kurt Gorman. Method of Moments analysis was conducted by Kurt Gorman. Both Gorman's and Goldman's qualifications are a matter of record with the Federal Communications Commission.

This application was prepared on behalf of Multicultural Radio Broadcasting Licensee, LLC by Bert Goldman of Goldman Engineering Management. All statements herein are true and correct to the best of his

knowledge.

Bertram S. Goldman
560 Perkins Way
Auburn, CA 95603
214-395-5067
bert@bgoldman.net

Exhibit 4 – Method of Moments Computations

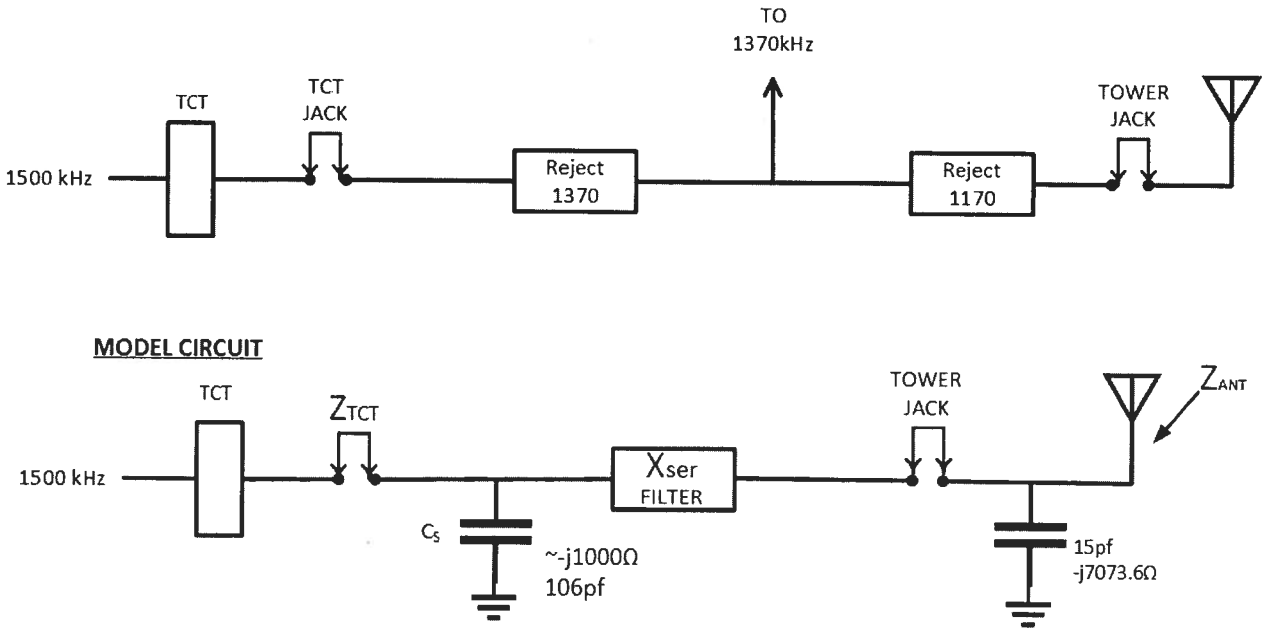
Exhibit 4A - Tower Base Impedance Measurements

The impedance of each tower was measured at the J plug at the output of the T matching network and at the TCT at the base of each tower. All impedance measurements were obtained using a HP 8753ES Network Analyzer with an external power amplifier operating on 1500kHz. The measurements were taken via remote calibration of the new sample lines after being disconnected from the Delta TCT's. All measurements were taken for each tower with all other towers open-circuited.

The following exhibit describes the measurement conditions and assumptions used in the MoM analysis:

Tower Impedance Measurements Compared to

Method of Moments Model



TOWER	X_{SER} Series filter	Z_{TCT} Measured	Z_{TCT} Modeled	Z_{ANT} Modeled
1	-j137	204.2 +j96.7	202.8 +j98.1	151.4 +j250.8
2	-j49	252.9 +j138.8	256.4 +j131.4	179.6 +j208
3	-j95	240.0 +j107.9	228.9 +j113.5	165.9 +j229.9
4	-j130	203.7 +j73.9	198.1 +j73.9	155.8 +j225.8

Exhibit 4B - Circuit Analysis for Towers Driven Individually

CUSTOMER : KSJX
NETWORK ID : TOWER 1 (AT TCT) (OTHERS OPEN)

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS 774.47
TOWER FEED IMPEDANCE (R,X) : 0.00, -137.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS 15pF
TOWER IMPEDANCE (R,X) : 151.40, 250.80 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	162.66	256.41
1		2	0.00	-137.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	150.48	21.33

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	202.84	98.14	225.33	25.82
INPUT CURRENT (AMPS) :	0.40	-0.19	0.44	-25.82
OUTPUT CURRENT (AMPS) :	0.41	-0.31	0.51	-37.55

INPUT/OUTPUT CURRENT RATIO = 0.8639
INPUT/OUTPUT PHASE = 11.74 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 2 (AT TCT)(OTHERS OPEN)

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -50.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 179.60, 208.00 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	190.52	209.32
1		2	0.00	-50.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	113.97	7.79

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	256.40	131.40	288.11	27.13
INPUT CURRENT (AMPS) :	0.31	-0.16	0.35	-27.13
OUTPUT CURRENT (AMPS) :	0.31	-0.27	0.41	-41.40

INPUT/OUTPUT CURRENT RATIO = 0.8369
INPUT/OUTPUT PHASE = 14.27 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 3 (AT TCT, OTHERS OPEN)

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -95.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 165.90, 229.90 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	177.13	233.33
1		2	0.00	-95.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	130.35	14.81

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	228.89	113.48	255.48	26.37
INPUT CURRENT (AMPS) :	0.35	-0.17	0.39	-26.37
OUTPUT CURRENT (AMPS) :	0.36	-0.29	0.46	-39.38

INPUT/OUTPUT CURRENT RATIO = 0.8513
INPUT/OUTPUT PHASE = 13.00 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 4 (AT TCT, OTHERS OPEN)

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -130.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 155.80, 225.80 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	166.16	229.47
1		2	0.00	-130.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	146.30	23.19

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	198.14	73.89	211.47	20.45
INPUT CURRENT (AMPS) :	0.44	-0.17	0.47	-20.45
OUTPUT CURRENT (AMPS) :	0.45	-0.28	0.53	-32.21

INPUT/OUTPUT CURRENT RATIO = 0.8867
INPUT/OUTPUT PHASE = 11.76 DEGREES

Exhibit 4C - MoM Model Parameters

Tower	Wire No.	No. Segments	Base Node	Radius	Model Length (degrees)	Physical Length (degrees)
1	1	15	1	.300	124.0	107.1
2	2	15	16	.380	122.3	107.1
3	3	15	31	.320	122.2	107.1
4	4	15	46	.320	122.6	107.1

Insulators: Towers 1 and 2 Lapp Model 9012

Towers 3 and 4 Utility insulator

Towers 1,2 – 24" Face width. Equivalent Radius = 0.291 meters

Towers 3,4 - 18" face width. Equivalent radius =0 .218 meters

Exhibit 4D - KSJX Derived and Measured Operating Parameters

KSJX Calculated Daytime Operating Parameters

TOWER	Input to Base Network	TCT Value Ratio/ Phase[1]
1	4.36/+50.22°	1.000/0.0°
2	1.45/-151.46°	.333/+101.2°
3	5.34/+120.62°	1.225/+70.4°
4	Detuned (+j336.31Ω)	n/a

KSJX Calculated Nighttime Operating Parameters

TOWER	Input to Base Network	TCT Value Ratio/ Phase[1]
1	4.01/+25.38°	1.000/ 0.0°
2	1.61/+81.94°	.402/+56.6°
3	Detuned (j336.31Ω)	n/a
4	2.44/-36.0°	.609/-61.4°

[1]These numbers are submitted as final operating parameters on FCC 302-AM application.

Exhibit 4E - KSJX MoM Analysis

INDIVIDUAL TOWER ANALYSIS

KSJX TOWER 1 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	16	0	-7,073.6	0	0	0
2	31	0	-7,073.6	0	0	0
3	46	0	-7,073.6	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.5	151.43	250.81	292.98	58.9	11.581	-1.5038	-5.3361

KSJX TOWER 2 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

source	node	sector	magnitude	phase	type
1	16	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-7,073.6	0	0	0
2	31	0	-7,073.6	0	0	0
3	46	0	-7,073.6	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 16, sector 1							
1.5	179.61	208.04	274.84	49.2	8.5732	-2.0355	-4.2691

KSJX TOWER 3 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

source	node	sector	magnitude	phase	type
1	31	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-7,073.6	0	0	0
2	16	0	-7,073.6	0	0	0
3	46	0	-7,073.6	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 31, sector 1							
1.5	165.85	229.85	283.43	54.2	9.8881	-1.7629	-4.7673

KSJX TOWER 4 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

source	node	sector	magnitude	phase	type
1	46	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-7,073.6	0	0	0
2	16	0	-7,073.6	0	0	0
3	31	0	-7,073.6	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 46, sector 1							
1.5	155.84	225.8	274.36	55.4	9.8796	-1.7644	-4.7643

DAY ANALYSIS (Incl Detuning)

KSJX

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

source	node	sector	magnitude	phase	type
1	1	1	3,164.62	70.6	voltage
2	16	1	1,195.83	260.4	voltage
3	31	1	1,210.72	177.4	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	46	0	336.31	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.5	309.	310.94	438.37	45.2	12.52	-1.3905	-5.6229
source = 2; node 16, sector 1							
1.5	-73.136	364.22	371.49	101.4	****	****	****
source = 3; node 31, sector 1							
1.5	71.586	133.5	151.48	61.8	6.9655	-2.5113	-3.5741

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CURRENT rms
Frequency = 1.5 MHz
Input power = 10,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	5.11505	25.4	4.61982	2.19567
2	0	0	8.26667	6.75585	12.6	6.59211	1.47837
3	0	0	16.5333	7.79191	7.5	7.72602	1.01121
4	0	0	24.8	8.55424	4.1	8.53206	.615598
5	0	0	33.0667	9.06532	1.7	9.06113	.275582
6	0	0	41.3333	9.33322	359.9	9.33321	-.0132539
7	0	0	49.6	9.3623	358.5	9.35893	-.251363
8	0	0	57.8667	9.1577	357.3	9.14721	-.438029
9	0	0	66.1333	8.7265	356.2	8.70771	-.572395
10	0	0	74.4	8.07846	355.4	8.05195	-.653925
11	0	0	82.6667	7.22565	354.6	7.19334	-.682567
12	0	0	90.9333	6.1818	353.9	6.1466	-.658746
13	0	0	99.2	4.96009	353.2	4.9257	-.583117
14	0	0	107.467	3.56882	352.7	3.53959	-.455849
15	0	0	115.733	1.99891	352.1	1.97995	-.274628
END	0	0	124.	0	0	0	0
GND	65.4493	-118.074	0	2.28078	159.	-2.12995	.815646
17	65.4493	-118.074	8.15333	3.13667	162.2	-2.98671	.958283
18	65.4493	-118.074	16.3067	3.60594	163.4	-3.45548	1.03075
19	65.4493	-118.074	24.46	3.93473	164.1	-3.78498	1.07519
20	65.4493	-118.074	32.6133	4.14423	164.7	-3.99686	1.09534
21	65.4493	-118.074	40.7667	4.24348	165.1	-4.10033	1.09291
22	65.4493	-118.074	48.92	4.23715	165.4	-4.10012	1.06886
23	65.4493	-118.074	57.0733	4.12902	165.6	-4.00002	1.02402
24	65.4493	-118.074	65.2267	3.92312	165.8	-3.80402	.959317
25	65.4493	-118.074	73.38	3.62415	166.	-3.51675	.875773
26	65.4493	-118.074	81.5333	3.23749	166.2	-3.14348	.774543
27	65.4493	-118.074	89.6867	2.7689	166.3	-2.68987	.656825
28	65.4493	-118.074	97.84	2.2237	166.4	-2.16115	.523687
29	65.4493	-118.074	105.993	1.6046	166.5	-1.56003	.375555
30	65.4493	-118.074	114.147	.906686	166.5	-.881774	.211078
END	65.4493	-118.074	122.3	0	0	0	0
GND	85.0967	29.3011	0	5.66318	115.6	-2.44717	5.10715
32	85.0967	29.3011	8.14667	6.3708	112.1	-2.39606	5.90305
33	85.0967	29.3011	16.2933	6.72749	110.3	-2.33281	6.31008
34	85.0967	29.3011	24.44	6.92267	108.9	-2.248	6.54751
35	85.0967	29.3011	32.5867	6.97459	107.9	-2.14147	6.6377
36	85.0967	29.3011	40.7333	6.89181	107.	-2.01403	6.59096
37	85.0967	29.3011	48.88	6.68023	106.2	-1.86707	6.41401
38	85.0967	29.3011	57.0267	6.34583	105.6	-1.70239	6.11322
39	85.0967	29.3011	65.1733	5.89548	105.	-1.52218	5.69558
40	85.0967	29.3011	73.32	5.33719	104.4	-1.32897	5.16908
41	85.0967	29.3011	81.4667	4.67992	103.9	-1.12546	4.54257
42	85.0967	29.3011	89.6133	3.93312	103.4	-.91441	3.82534
43	85.0967	29.3011	97.76	3.10555	103.	-.698411	3.026
44	85.0967	29.3011	105.907	2.20257	102.6	-.479229	2.1498
45	85.0967	29.3011	114.053	1.21898	102.1	-.256448	1.1917
END	85.0967	29.3011	122.2	0	0	0	0
GND	-32.5568	94.5519	0	1.8823	78.3	.381827	1.84317
47	-32.5568	94.5519	8.17333	1.26067	78.3	.254782	1.23466
48	-32.5568	94.5519	16.3467	.86195	78.5	.171146	.844788
49	-32.5568	94.5519	24.52	.525655	79.2	.0986164	.516321
50	-32.5568	94.5519	32.6933	.237925	81.6	.0347307	.235376

51	-32.5568	94.5519	40.8667	.0209957	186.3	-.0208686	-2.31E-03
52	-32.5568	94.5519	49.04	.208883	251.1	-.067773	-.197583
53	-32.5568	94.5519	57.2133	.36576	253.3	-.105342	-.350262
54	-32.5568	94.5519	65.3867	.478797	253.9	-.132923	-.459976
55	-32.5568	94.5519	73.56	.547486	254.1	-.149953	-.52655
56	-32.5568	94.5519	81.7333	.571835	254.2	-.156009	-.550142
57	-32.5568	94.5519	89.9067	.552229	254.2	-.150801	-.53124
58	-32.5568	94.5519	98.08	.489216	254.1	-.134104	-.470477
59	-32.5568	94.5519	106.253	.382902	254.	-.105579	-.368059
60	-32.5568	94.5519	114.427	.231318	253.9	-.0642771	-.222208
END	-32.5568	94.5519	122.6	0	0	0	0

NIGHT ANALYSIS (incl Detuning)

KSJX NIGHT

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.3	15
		0	0	124.		
2	none	135.	61.	0	.38	15
		135.	61.	122.3		
3	none	90.	341.	0	.32	15
		90.	341.	122.2		
4	none	100.	251.	0	.32	15
		100.	251.	122.6		

Number of wires = 4
current nodes = 60

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	8.14667	1	8.26667
radius	1	.3	2	.38

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.5	0	1	.0226296	.022963

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,419.57	67.6	voltage
2	16	1	441.29	144.1	voltage
3	46	1	1,410.71	323.7	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	31	0	340.67	0	0	0

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.5	142.98	185.89	234.52	52.4	7.9167	-2.2061	-3.998
source = 2; node 16, sector 1							
1.5	65.764	155.81	169.12	67.1	9.3516	-1.8648	-4.5707
source = 3; node 46, sector 1							
1.5	378.67	177.58	418.24	25.1	9.263	-1.8827	-4.5374

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CURRENT rms
Frequency = 1.5 MHz
Input power = 5,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	4.28138	15.2	4.13228	1.12003
2	0	0	8.26667	5.04232	8.6	4.98595	.751878
3	0	0	16.5333	5.47186	5.4	5.44777	.512876
4	0	0	24.8	5.75075	3.1	5.74233	.311162
5	0	0	33.0667	5.89444	1.3	5.89281	.138374
6	0	0	41.3333	5.90921	359.9	5.90921	-7.96E-03
7	0	0	49.6	5.7991	358.7	5.79768	-.128262
8	0	0	57.8667	5.56836	357.7	5.56391	-.222359
9	0	0	66.1333	5.2223	356.8	5.21424	-.289951
10	0	0	74.4	4.76749	356.	4.756	-.330856
11	0	0	82.6667	4.21164	355.3	4.19747	-.345093
12	0	0	90.9333	3.56308	354.6	3.5475	-.332882
13	0	0	99.2	2.8298	354.	2.81443	-.294543
14	0	0	107.467	2.01683	353.4	2.00365	-.230152
15	0	0	115.733	1.11948	352.9	1.11087	-.138567
END	0	0	124.	0	0	0	0
GND	65.4493	-118.074	0	1.84557	77.	.415679	1.79815
17	65.4493	-118.074	8.15333	2.13772	73.6	.603682	2.05072
18	65.4493	-118.074	16.3067	2.28476	72.	.707311	2.17252
19	65.4493	-118.074	24.46	2.37147	70.8	.781032	2.23916
20	65.4493	-118.074	32.6133	2.40533	69.8	.829581	2.25774
21	65.4493	-118.074	40.7667	2.38992	69.	.854931	2.23178
22	65.4493	-118.074	48.92	2.32757	68.4	.858092	2.16362
23	65.4493	-118.074	57.0733	2.22047	67.8	.83983	2.05552
24	65.4493	-118.074	65.2267	2.07102	67.2	.800936	1.90988
25	65.4493	-118.074	73.38	1.88201	66.8	.742357	1.72941
26	65.4493	-118.074	81.5333	1.65649	66.3	.665139	1.51709
27	65.4493	-118.074	89.6867	1.39767	65.9	.570429	1.27597
28	65.4493	-118.074	97.84	1.10845	65.5	.459276	1.00882
29	65.4493	-118.074	105.993	.790436	65.1	.332196	.717241
30	65.4493	-118.074	114.147	.441549	64.8	.188132	.399464
END	65.4493	-118.074	122.3	0	0	0	0
GND	85.0967	29.3011	0	.752743	41.2	.566229	.495991
32	85.0967	29.3011	8.14667	.50159	41.3	.377084	.330757
33	85.0967	29.3011	16.2933	.341023	41.4	.255662	.225685
34	85.0967	29.3011	24.44	.206035	42.	.153131	.137844
35	85.0967	29.3011	32.5867	.0909734	44.1	.065308	.0633327
36	85.0967	29.3011	40.7333	9.02E-03	174.7	-8.99E-03	8.33E-04
37	85.0967	29.3011	48.88	.0859569	215.6	-.0698755	-.0500601
38	85.0967	29.3011	57.0267	.147445	217.4	-.117194	-.0894737
39	85.0967	29.3011	65.1733	.191138	217.9	-.150771	-.117482
40	85.0967	29.3011	73.32	.217019	218.2	-.170554	-.134196
41	85.0967	29.3011	81.4667	.225286	218.4	-.17666	-.139803
42	85.0967	29.3011	89.6133	.216311	218.5	-.169363	-.13456
43	85.0967	29.3011	97.76	.190553	218.6	-.149023	-.118755
44	85.0967	29.3011	105.907	.148312	218.6	-.115884	-.0925604
45	85.0967	29.3011	114.053	.089099	218.7	-.069573	-.0556618
END	85.0967	29.3011	122.2	0	0	0	0
GND	-32.5568	94.5519	0	2.38569	298.6	1.14111	-2.09508
47	-32.5568	94.5519	8.17333	2.91348	281.2	.564343	-2.8583
48	-32.5568	94.5519	16.3467	3.29212	273.5	.202135	-3.28591
49	-32.5568	94.5519	24.52	3.58442	268.5	-.0953797	-3.58315

50	-32.5568	94.5519	32.6933	3.78556	264.8	-.341492	-3.77013
51	-32.5568	94.5519	40.8667	3.89288	262.	-.540375	-3.85519
52	-32.5568	94.5519	49.04	3.90502	259.8	-.693031	-3.84303
53	-32.5568	94.5519	57.2133	3.82217	257.9	-.799556	-3.7376
54	-32.5568	94.5519	65.3867	3.64605	256.4	-.859981	-3.54317
55	-32.5568	94.5519	73.56	3.37981	255.	-.874615	-3.26468
56	-32.5568	94.5519	81.7333	3.02778	253.8	-.844173	-2.90772
57	-32.5568	94.5519	89.9067	2.59504	252.7	-.769716	-2.47825
58	-32.5568	94.5519	98.08	2.08657	251.8	-.652425	-1.98195
59	-32.5568	94.5519	106.253	1.50527	250.9	-.492853	-1.4223
60	-32.5568	94.5519	114.427	.846726	250.	-.289003	-.795879
END	-32.5568	94.5519	122.6	0	0	0	0

Exhibit 4F - KSJX- DA Medium Wave Array Synthesis From Field Ratios

DAY

Frequency = 1.5 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	.45	165.
3	.73	107.
4	0	0

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	2,237.73	70.6	5.11163	25.5
16	845.577	260.4	2.27459	159.1
31	856.109	177.4	5.65387	115.6
46	634.469	348.8	1.8862	77.7

Sum of square of source currents = 133.653
Total power = 10,000. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.0024655	-.00177435
Y(1, 2)	.00142624	-.000280037
Y(1, 3)	.0017312	.000738929
Y(1, 4)	.00150724	.000345457
Y(2, 1)	.00142626	-.000280008
Y(2, 2)	.00304582	-.00274841
Y(2, 3)	.00120567	-.000453763
Y(2, 4)	2.1549E-05	-.000434082
Y(3, 1)	.0017312	.000738964
Y(3, 2)	.00120566	-.000453769
Y(3, 3)	.0027786	-.0023159
Y(3, 4)	.00111294	-.000179671
Y(4, 1)	.00150725	.000345479
Y(4, 2)	2.1547E-05	-.000434082
Y(4, 3)	.00111294	-.000179675
Y(4, 4)	.00260496	-.00243277

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	153.081	248.23
Z(1, 2)	-20.8851	-76.0454
Z(1, 3)	52.5508	-80.4044
Z(1, 4)	32.3564	-98.5869
Z(2, 1)	-20.8865	-76.0442
Z(2, 2)	179.073	206.988
Z(2, 3)	-43.6396	-66.9831
Z(2, 4)	-55.8554	48.3423
Z(3, 1)	52.549	-80.4047
Z(3, 2)	-43.6392	-66.9838
Z(3, 3)	165.288	228.076
Z(3, 4)	-35.3629	-86.2318
Z(4, 1)	32.3548	-98.5863
Z(4, 2)	-55.8559	48.3421
Z(4, 3)	-35.3626	-86.2321
Z(4, 4)	156.622	223.716

KSJX- DA Medium Wave Array Synthesis From Field Ratios

NIGHT

Frequency = 1.5 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	.4	69.
3	0	0
4	.65	262.

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	1,003.79	67.6	4.28193	15.2
16	312.039	144.1	1.84627	76.9
31	256.973	311.6	.754261	40.8
46	997.52	323.7	2.38402	298.5

Sum of square of source currents = 55.9922
Total power = 5,000. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.0024655	-.00177435
Y(1, 2)	.00142624	-.000280037
Y(1, 3)	.0017312	.000738929
Y(1, 4)	.00150724	.000345457
Y(2, 1)	.00142626	-.000280008
Y(2, 2)	.00304582	-.00274841
Y(2, 3)	.00120567	-.000453763
Y(2, 4)	2.1549E-05	-.000434082
Y(3, 1)	.0017312	.000738964
Y(3, 2)	.00120566	-.000453769
Y(3, 3)	.0027786	-.0023159
Y(3, 4)	.00111294	-.000179671
Y(4, 1)	.00150725	.000345479
Y(4, 2)	2.1547E-05	-.000434082
Y(4, 3)	.00111294	-.000179675
Y(4, 4)	.00260496	-.00243277

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	153.081	248.23
Z(1, 2)	-20.8851	-76.0454
Z(1, 3)	52.5508	-80.4044
Z(1, 4)	32.3564	-98.5869
Z(2, 1)	-20.8865	-76.0442
Z(2, 2)	179.073	206.988
Z(2, 3)	-43.6396	-66.9831
Z(2, 4)	-55.8554	48.3423
Z(3, 1)	52.549	-80.4047
Z(3, 2)	-43.6392	-66.9838
Z(3, 3)	165.288	228.076
Z(3, 4)	-35.3629	-86.2318
Z(4, 1)	32.3548	-98.5863
Z(4, 2)	-55.8559	48.3421
Z(4, 3)	-35.3626	-86.2321
Z(4, 4)	156.622	223.716

Exhibit 4G - Tower Base Circuit Analysis Model

CIRCUIT ANALYSIS

Circuit analysis was performed on each tower of the KSJX model. The "Phasetek" Nodal Circuit Analysis program was used to compute base model Input/ Output voltages and currents. For directional modes of operation, the calculated Mininec Tower Base Drive Voltage was used to determine the Base Network Input Current. This point is the location of the sampling TCT. "Z_1" represents the ATU/Filter Shunt impedance, "Z_2" represents the Tower Feed and series filter impedance, and "Z_3" represents the Tower Base Shunt impedance.

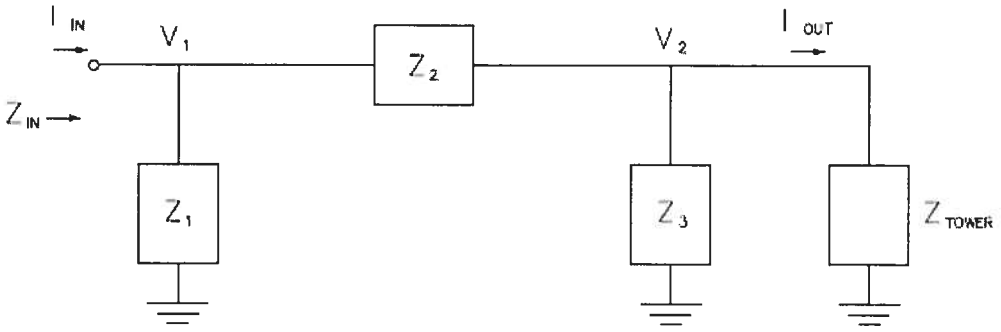

Exhibit 4H - Base Network Computation

TOWER ANALYSIS- DAY

CUSTOMER : KSJX
NETWORK ID : TOWER 1 DAY

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -137.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 309.00, 310.94 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	337.36	309.82
1		2	0.00	-137.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	1851.83	55.16
2	2237.73	70.60

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	422.74	36.51	424.32	4.94
INPUT CURRENT (AMPS) :	2.79	3.35	4.36	50.22
OUTPUT CURRENT (AMPS) :	4.61	2.19	5.10	25.42

INPUT/OUTPUT CURRENT RATIO = 0.8550
INPUT/OUTPUT PHASE = 24.80 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 2 DAY

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -49.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : -73.14, 364.22 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	-81.28	383.11
1		2	0.00	-49.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	742.41	-97.91
2	845.58	260.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	-180.62	479.69	512.57	110.63
INPUT CURRENT (AMPS) :	-1.27	0.69	1.45	151.46
OUTPUT CURRENT (AMPS) :	-2.13	0.81	2.28	159.05

INPUT/OUTPUT CURRENT RATIO = 0.6363
INPUT/OUTPUT PHASE = -7.58 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 3 DAY

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -95.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 71.59, 133.50 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	74.36	135.30
1		2	0.00	-95.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	469.00	144.65
2	856.11	177.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	80.25	35.78	87.87	24.03
INPUT CURRENT (AMPS) :	-2.72	4.59	5.34	120.62
OUTPUT CURRENT (AMPS) :	-2.44	5.10	5.65	115.60

INPUT/OUTPUT CURRENT RATIO = 0.9445
INPUT/OUTPUT PHASE = 5.02 DEGREES

Base Network Computation

TOWER ANALYSIS- NIGHT

CUSTOMER : KSJX
NETWORK ID : TOWER 1 NIGHT

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -137.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 142.98, 185.89 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	150.74	187.78
1		2	0.00	-137.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	663.06	34.97
2	1003.79	67.60

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	163.18	27.58	165.49	9.59
INPUT CURRENT (AMPS) :	3.62	1.72	4.01	25.38
OUTPUT CURRENT (AMPS) :	4.13	1.12	4.28	15.17

INPUT/OUTPUT CURRENT RATIO = 0.9361
INPUT/OUTPUT PHASE = 10.21 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 2 NIGHT

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -49.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 65.76, 155.81 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	68.75	158.67
1		2	0.00	-49.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	233.57	135.44
2	312.04	144.10

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	86.22	116.52	144.95	53.50
INPUT CURRENT (AMPS) :	0.23	1.60	1.61	81.94
OUTPUT CURRENT (AMPS) :	0.42	1.80	1.85	76.98

INPUT/OUTPUT CURRENT RATIO = 0.8734
INPUT/OUTPUT PHASE = 4.96 DEGREES

CUSTOMER : KSJX
NETWORK ID : TOWER 4 NIGHT

FREQUENCY : 1500.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -1000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -130.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -7073.60 OHMS
TOWER IMPEDANCE (R,X) : 378.67, 177.58 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-1000.00
2		GROUND	397.23	160.34
1		2	0.00	-130.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	927.70	-53.91
2	997.52	323.70

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	361.76	-116.91	380.18	-17.91
INPUT CURRENT (AMPS) :	1.97	-1.43	2.44	-36.00
OUTPUT CURRENT (AMPS) :	1.14	-2.09	2.39	-61.42

INPUT/OUTPUT CURRENT RATIO = 1.0231
INPUT/OUTPUT PHASE = 25.42 DEGREES

EXHIBIT 6 – Spurious Radiation Measurements

KLOK (1170 KHZ), 50.0 KW DAY (DA) MODE
KZSF (1370 KHZ), 5.0 KW DAY (DA) MODE
KSJX (1500 KHZ), 10.0 KW DAY (DA) MODE

Frequency (kHz)	Field Intensity (mV/M)	Attenuation (dB) relative to KLOK	KZSF	KSJX
1170	2270	--	--	--
1370	935	--	--	--
1500	871	--	--	--
510	.016	103.0	95.3	94.7
600	.012	105.5	97.8	97.2
660	.028	98.2	90.5	89.9
770	<.01	>107.1	>99.4	>98.8
840	.065	90.9	83.2	82.5
970	.076	89.5	81.8	81.2
990	<.01	>107.1	>99.4	>98.8
1110	.029	97.9	90.2	89.6
1240	.049	93.3	85.6	85.0
1570	.057	92.0	84.3	83.7
1630	.036	96.0	88.3	87.7
1760	.011	106.3	98.6	98.0
1770	.011	106.3	98.6	98.0
1830	.050	93.1	85.4	84.8
2010	.014	104.2	96.5	95.9
2140	.012	105.5	97.8	97.2
2160	.010	107.1	99.4	98.8
2340	.044	94.3	86.5	85.9
2540	.039	95.3	87.6	87.0
2610	<.01	>107.1	>99.4	>98.8
2670	.079	89.2	81.5	80.8
2740	.016	103.0	95.3	94.7
2870	.040	95.1	87.4	86.8
2940	<.01	>107.1	>99.4	>98.8
3000	.075	89.6	81.9	81.3
3130	<.01	>107.1	>99.4	>98.8
3330	<.01	>107.1	>99.4	>98.8

SPURIOUS RADIATION MEASUREMENTS (CONTINUED)

KLOK (1170 KHZ), 50.0 KW DAY (DA) MODE
KZSF (1370 KHZ), 5.0 KW DAY (DA) MODE
KSJX (1500 KHZ), 10.0 KW DAY (DA) MODE

Frequency (kHz)	Field Intensity (mV/M)	Attenuation (dB) relative to KLOK	KZSF	KSJX
3510	.052	92.8	85.1	84.5
3710	.077	89.4	81.7	81.1
3840	.070	90.2	82.5	81.9
3910	.048	93.5	85.8	85.2
4110	.029	97.9	90.2	89.6
4170	.025	99.2	91.5	90.8
4240	.011	106.3	98.6	98.0
4370	.018	102.0	94.3	93.7
4500	.057	92.0	84.3	83.7
4880	.012	105.5	97.8	97.2

Above taken with Potomac Instruments, PI 4100, 1.17 kM from the Antenna on a bearing of 235°T. Point coordinates
(NAD 27): N37° 21' 6.0", W121° 52' 56.0".

Above readings meet required attenuation of 80.0dB.

EXHIBIT 7 - Reference Field Strength Measurements- KSJX

Reference field strength measurements were made using a Potomac Instruments FIM-41 which was compared in calibration to a Potomac Instruments PI4100 Serial Number 249, calibrated 1/21/2016 at three locations along radials at the azimuths as determined by pattern minima and lobes coinciding with the previous MoM proof on 2013.

The measured field strengths, descriptions, and GPS coordinates for the reference measurement points are shown on the following pages. All locations indicated are listed using NAD 83 datum. All measurements were taken on March 10th and 13th, 2017 between the hours of 9:00am and 5:30pm.

DAY REFERENCE POINTS

6.5° Radial

Point No	Dist. Km.	N Latitude	W. Longitude	Field mV/m	Comments
1	1.51	37° 22' 16.3"	121° 52' 14.1"	240	NE Corner Commodore & Cape Canaveral
2	1.67	37° 22' 21.5"	121° 52' 13.0"	240	1773 Cape Coral
3	1.92	37° 22' 29.5"	121° 52' 11.6"	180	1775 Penwood

28.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	1.53	37° 22' 29.5"	121° 52' 11.6"	240	1870 Pine Hollow Cir
2	2.28	37° 22' 32.3"	121° 51' 37.0"	125	824 Jackson
3	2.52	37° 22' 39.4"	121° 51' 32.0"	110	Southgrove & Beaver Crk Way

105.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	1.4	37° 21' 15.6"	121° 51' 25.9"	530	87 King Rd
2	1.71	37° 21' 12.8"	121° 51' 13.5"	470	NE Corner SJ City parking lot
3	2.0	37° 21' 10.8"	121° 51' 02.5"	390	McCreary & Stowe

138° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.633	37° 21' 12.4"	121° 52' 04.0"	1100	At "no truck over 30ft "sign
2	0.821	37° 21' 08.1"	121° 51' 58.2"	1050	On St. James at "Customer Parking" sign
3	1.1	37° 21' 01.5"	121° 51' 50.8"	650	At Taube Humanities building

207° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.985	37° 20' 59.4"	121° 52' 39.3"	820	360 N 18th St
2	1.23	37° 20' 52.1"	121° 52' 44.0"	570	749 Julian
3	1.54	37° 20' 43.4"	121° 52' 49.8"	490	220 N 13th St.

325.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.714	37° 21' 46.9"	121° 52' 37.2"	320	1155 Mabury
2	0.969	37° 21' 53.8"	121° 52' 43.0"	210	At Fire hydrant across from dump
3	1.33	37° 22' 03.5"	121° 52' 51.5"	160	At "Berryessa Transit Ctr" sign

NIGHT REFERENCE POINTS

54.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	1.05	37° 21' 48"	121° 51' 46"	56	On corner
2	1.28	37° 21' 52"	121° 51' 38"	75	End of cul de sac
3	1.58	37° 21' 58"	121° 51' 28"	52	In parking lot, E side of road

102° Radial

Point No	Dist. Km.	Latitude	Longitude	Field mV/m	Comments
1	1.09	37° 21' 20.5"	121° 51' 37"	110	E. St. James just past MeDonald Ave
2	1.3	37° 21' 19"	121° 51' 29"	67	W side of King, just North of Wilshire
3	1.65	37° 21' 17"	121° 51' 15"	32	Beverly Blvd & Magellan

115.5° Radial

Point No	Dist. Km.	Latitude	Longitude	Field mV/m	Comments
1	.935	37° 21' 14.9"	121° 51' 46.5"	140	E St. James just west of N 33rd st.
2	1.09	37° 21' 12.4"	121° 51' 40.9"	98	N 33rd St. Middle of block
3	1.30	37° 21' 9.5"	121° 51' 33.3"	75	Corner Perry Ct & Eastwood Ct.

203° Radial

Point No	Dist. Km.	Latitude	Longitude	Field mV/m	Comments
1	.671	37° 21' 7.9"	121° 52' 31.4"	1100	Just North of Julian on 18th St.
2	1.18	37° 20' 53"	121° 52' 39.5"	340	SW Corner, Julian & 17th St.
3	1.27	37° 20' 49.8"	121° 51' 33.3"	290	16th St. just South of Julian

243.5° Radial

Point No	Dist. Km.	Latitude	Longitude	Field mV/m	Comments
1	1.03	37° 21' 13.1"	121° 52' 58.5"	550	15th St. just North of E. Empire
2	1.32	37° 21' 08.5"	121° 53' 08.8"	520	13th St across from park just So of Jackson
3	1.41	37° 21' 07.4"	121° 53' 12.5"	500	12th St. just south of Jackson

290° Radial

Point No	Dist. Km.	Latitude	Longitude	Field mV/m	Comments
1	.823	37° 21' 41.9"	121° 53' 9.1"	1200	21st & Marianelio
2	.926	37° 21' 38.3"	121° 52' 56.2"	1100	Mission just West of 21st
3	1.26	37° 21' 36.8"	121° 52' 52.6"	1000	In small cul de sac South of Bayshore Rd

EXHIBIT 8 – Site Survey

Because this is an existing site in use by KSJX and KZSF, a survey is not necessary, however, a survey for KLOK as a new tenant at this site was conducted and verified that the towers are placed as specified in this analysis.