Wiley Rein LLP

1776 K STREET NW
WASHINGTON, DC 20006
PHONE   202.719.7000
FAX   202.719.7049

7925 JONES BRANCH DRIVE
McLEAN, VA 22102
PHONE   703.905.2800
FAX   703.905.2820

www.wileyrein.com

#586159

July 19, 2013

Mark Lipp
202.719.7503
mlipp@wileyrein.com

BY HAND DELIVERY

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

Re: **Application for Direct Measurement of Power**
      Multicultural Radio Broadcasting Licensee, LLC
      Station KBLA(AM), Santa Monica, California
      <u>Facility Identifier Number 34385</u>

0010215812

Dear Ms. Dortch:

Transmitted herewith in triplicate on behalf of Multicultural Radio Broadcasting Licensee, LLC ("Multicultural"), the licensee of Station KBLA(AM), is its application for direct measurement of power on FCC Form 302-AM. This filing is necessary given the new directional antenna operating parameters that were established following installation of new equipment to allow two other stations to operate from this transmitter site, KHJ(AM) on 930 kHz and co-owned KYPA(AM) on 1230 kHz. All of the technical details are provided within by Multicultural's consulting engineer, Ronald D. Rackley, P.E.

Please note that a fee is not required for a request to determine power by the direct method.

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

Sincerely,

Mark Lipp
Enclosure

13444057.1

SON

Federal Communications Commission
Washington, D. C. 20554

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

FOR
FCC
USE
ONLY

FCC 302-AM

APPLICATION FOR AM

BROADCAST STATION LICENSE

(Please read instructions before filling out form.)

FOR COMMISSION USE ONLY

FILE NO. *Bmmh20130719CZK*

SNC
7/25/13

SECTION I - APPLICANT FEE INFORMATION

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

Multicultural Radio Broadcadting Licensee, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
27 William Street, 11th Floor

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY New York	STATE OR COUNTRY (if foreign address) New York	ZIP CODE 10005
TELEPHONE NUMBER (include area code) 212.431.4300	CALL LETTERS KBLA(AM)	OTHER FCC IDENTIFIER (If applicable) 34385

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: **Direct Measurement Application**

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
	0 0 0 1	$	

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
	0 0 0 1	$	

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

FCC 302-AM
August 1995

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Multicultural Radio Broadcasting Licensee, LLC		
MAILING ADDRESS 27 William Street, 11th Floor		
CITY New York	STATE New York	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
KBLA(AM)	Santa Monica, CA	N/A	N/A	N/A

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

If No, explain in an Exhibit.

[ ] Yes [ ] No

Exhibit No.
N/A

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

If No, state exceptions in an Exhibit.

[ ] Yes [ ] No

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?

If Yes, explain in an Exhibit.

[ ] Yes [ ] No

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)?

If No, explain in an Exhibit.

[ ] Yes [ ] No

[✓] Does not apply

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 Arthur S. Liu	Signature
Title President	Date 07. 16.2013	Telephone Number 212.431.4300

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

APPLICATION FOR DIRECT MEASUREMENT OF POWER
INFORMATION
RADIO STATION KBLA
SANTA MONICA, CALIFORNIA

July 8, 2013

1580 KHZ   50 KW   DA-2

APPLICATION FOR DIRECT MEASUREMENT OF POWER
INFORMATION

RADIO STATION KBLA
SANTA MONICA, CALIFORNIA

1580 KHZ   50 KW   DA-2

Table of Contents

This engineering exhibit supports an application for direct measurement of power for radio station KBLA in Santa Monica, California. KBLA is licensed to operate fulltime on 1580 kilohertz with 50 kilowatts, employing different directional antenna patterns in the daytime and at night. Direct measurement of power is requested with the new directional antenna operating parameters that were established following installation of new equipment to allow two other stations to operate from the transmitter site, KHJ on 930 kilohertz and KYPA on 1230 kilohertz.

Filters are employed at the tower bases to isolate the ATU outputs of each station from those of the others and at the phasor inputs to isolate the transmitters and avoid development of excessive spurious intermodulation products. KBLA uses four of the six towers in the daytime and all six of them at night. Towers that are not in use by KBLA are detuned at 1580 kilohertz. Proof of performance information on KHJ and KYPA following installation of the new equipment to add them at the transmitter site is being simultaneously filed with the FCC in separate applications for license for both.

The towers and ground system remain unchanged. The KBLA directional antenna phasing and coupling equipment has been adjusted to produce the authorized directional antenna patterns.

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

Information regarding direct measurement of power for both the daytime and nighttime directional antenna patterns and radiofrequency radiation protection measures at the site is also included herein.

Ronald D. Rackley, P.E.
July 8, 2013

<u>Analysis of Tower Impedance Measurements to Verify Method of Moments Model – KBLA</u>

Tower base impedance measurements were made at the final J-plugs within the filter units using a Hewlett-Packard 8751A vector network analyzer and a Tunwall Radio directional coupler in a calibrated measurement system. The other towers were all open circuited at the same points where impedance measurements were made for them (the "reference points") for each of the measurements. There were no conductive paths to ground at any of the tower bases; the sampling line isolation coils were all temporarily disconnected for the measurements, as were the tower light isolation chokes at towers 1, 3, 4 and 6.

The reference point at each tower is adjacent to where the feedline exits the filter unit at the output of its enclosure. The current passes directly from that point over conductors through the enclosure insulator and on to the tower above the base insulator. An assumed value for the sum of the base insulator and base region stray capacitances across the ATU output was employed in the base circuit calculations for each tower. Circuit calculations were performed to relate the method of moments modeled impedances of the tower feedpoints to the filter unit output measurement (reference) points as shown on the following pages. The Xoc shown for each tower, which was calculated for the assumed base conditions, was used in the method of moments model as a load at ground level for the open circuited case.

In addition to the page showing the schematic of the assumed circuit and tabulation of calculated values, pages showing the results of calculations using the WCAP network analysis program from Westberg Consulting are provided. WCAP performs such calculations using nodal analysis, as do other modern circuit analysis programs such as the commonly available ones based on SPICE software.

In each of the WCAP tabulations, node 2 represents the filter unit output reference point and node 3 represents the tower feedpoint. Node 0 represents ground potential. The numerals in the file names shown on the tabulations correspond to the tower numbers. It should be noted that the calculated reference point impedances appear under the "TO NODE IMPEDANCE" columns of the WCAP tabulations, following the phantom 1.0 ohm resistors (R 1 - 2) that were included in series with the drive current sources (I 0 -1)) to provide calculation points for the impedances. The tower base impedances from the method of moments model are represented by complex loads from node 3 to ground (R 3 - 0). The shunt capacitances shown for the towers on the schematic were used for the calculations, although they only appear to the nearest 0.0001 microfarad on the WCAP printout due to rounding.

The modeled and measured base impedances at the reference points with the other towers open circuited at their filter unit output jacks agree within +/- 2 ohms and +/- 4 percent for resistance and reactance, as required by the FCC Rules.

L (uH)   Z Base

Z Reference   ⊙———⌒⌒⌒———————• ← X_OC

Tower 1   93 pF   -j 1083   Stray
Tower 2   93 pF   -j 1083   Capacitance
Tower 3   98 pF   -j 1028
Tower 4   91 pF   -j 1107
Tower 5   94 pF   -j 1072
Tower 6   93 pF   -j 1083

TOWER	L (uH)	X_L	X_{OC}	Z Base (Modeled)	Z Reference (Modeled)	Z Reference (Measured)
1	1.30	+ j 12.9	- j 1083	124.62 +j221.35	192.83 +j 263.23	188.4 +j 253.5
2	0.80	+ j 7.9	- j 1083	94.96 +j231.26	151.63 +j 285.08	159.9 +j 272.9
3	0.90	+ j 8.9	- j 1028	128.13 +j221.37	203.00 +j 258.82	208.5 +j 248.0
4	1.30	+ j 12.9	- j 1107	124.91 +j220.14	190.84 +j 260.81	199.0 +j 265.0
5	1.30	+ j 12.9	- j 1072	97.41 +j233.35	157.08 +j 292.96	155.0 +j285.4
6	1.30	+j 12.9	- j 1083	120.28 +j217.29	184.66 +j 259.07	186.8 +j267.3

ANALYSIS OF TOWER IMPEDANCE MEASUREMENTS TO
VERIFY METHOD OF MOMENTS MODEL

RADIO STATION KBLA
SANTA MONICA, CALIFORNIA
1580 KHZ   50 KW   U   DA-2

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Tower 1 Individually Driven Base Circuit Analysis

```
WESTBERG CIRCUIT ANALYSIS PROGRAM


FILE NAME = KBLA1OC.TXT

I      1.0000    0    1    0.0000    0.0000    0.0000
R      1.0000    1    2    0.0000    0.0000    0.0000
L      1.3000    2    3    0.0000    0.0000    0.0000
C      0.0001    3    0    0.0000    0.0000    0.0000
R    124.6200    3    0  221.3500    0.0000    0.0000
EX     0.0000    0    0    0.0000    0.0000    0.0000


FREQ = 1.580
```

NODE	VOLT MAG	VOLT PHASE					FROM NODE IMPEDANCE		TO NODE IMPEDANCE	
1	326.8895	53.6338								
2	326.2975	53.7752								
3	315.9785	52.3921		BRANCH VOLTAGE		BRANCH CURRENT					
				MAG	PHASE	MAG	PHASE	RESISTANCE	REACTANCE	RESISTANCE REACTANCE
R	1- 2	1.000		1.00	0.000	1.00	0.000	193.83	263.23	192.83 263.23
L	2- 3	1.300		12.91	90.000	1.00	0.000	192.83	263.23	192.83 250.32
C	3- 0	0.000		315.98	52.392	0.29	142.392	0.00	-1083.13	0.00 -1083.13
R	3- 0	124.620		315.98	52.392	1.24	-8.228	124.62	221.35	124.62 221.35

Tower 2 Individually Driven Base Circuit Analysis

```
WESTBERG CIRCUIT ANALYSIS PROGRAM


FILE NAME = KBLA2OC.TXT

I      1.0000    0    1    0.0000    0.0000    0.0000
R      1.0000    1    2    0.0000    0.0000    0.0000
L      0.8000    2    3    0.0000    0.0000    0.0000
C      0.0001    3    0    0.0000    0.0000    0.0000
R     94.9560    3    0  231.2600    0.0000    0.0000
EX     0.0000    0    0    0.0000    0.0000    0.0000


FREQ = 1.580
```

NODE	VOLT MAG	VOLT PHASE					FROM NODE IMPEDANCE		TO NODE IMPEDANCE	
1	323.3668	61.8364								
2	322.8960	61.9929								
3	315.9061	61.3165		BRANCH VOLTAGE		BRANCH CURRENT					
				MAG	PHASE	MAG	PHASE	RESISTANCE	REACTANCE	RESISTANCE REACTANCE
R	1- 2	1.000		1.00	0.000	1.00	0.000	152.63	285.08	151.63 285.08
L	2- 3	0.800		7.94	90.000	1.00	0.000	151.63	285.08	151.63 277.14
C	3- 0	0.000		315.91	61.316	0.29	151.316	0.00	-1083.13	0.00 -1083.13
R	3- 0	94.956		315.91	61.316	1.26	-6.360	94.96	231.26	94.96 231.26

Tower 3 Individually Driven Base Circuit Analysis

```
WESTBERG CIRCUIT ANALYSIS PROGRAM


FILE NAME = KBLA3OC.TXT

   I     1.0000    0   1    0.0000    0.0000    0.0000
   R     1.0000    1   2    0.0000    0.0000    0.0000
   L     0.9000    2   3    0.0000    0.0000    0.0000
   C     0.0001    3   0    0.0000    0.0000    0.0000
   R   128.1300    3   0  221.3700    0.0000    0.0000
   EX    0.0000    0   0    0.0000    0.0000    0.0000


   FREQ = 1.580

     NODE        VOLT MAG      VOLT PHASE
       1         329.5472       51.7548
       2         328.9291       51.8916
       3         321.9461       50.9103
                              BRANCH VOLTAGE      BRANCH CURRENT  FROM NODE IMPEDANCE  TO NODE IMPEDANCE
                              MAG      PHASE      MAG      PHASE   RESISTANCE REACTANCE RESISTANCE REACTANCE
   R    1- 2      1.000       1.00     0.000      1.00     0.000    204.00    258.82    203.00    258.82
   L    2- 3      0.900       8.93    90.000      1.00     0.000    203.00    258.82    203.00    249.88
   C    3- 0      0.000     321.95    50.910      0.31   140.910      0.00  -1027.87      0.00  -1027.87
   R    3- 0    128.130     321.95    50.910      1.26    -9.027    128.13    221.37    128.13    221.37
```

Tower 4 Individually Driven Base Circuit Analysis

```
WESTBERG CIRCUIT ANALYSIS PROGRAM


FILE NAME = KBLA4OC.TXT

   I     1.0000    0   1    0.0000    0.0000    0.0000
   R     1.0000    1   2    0.0000    0.0000    0.0000
   L     1.3000    2   3    0.0000    0.0000    0.0000
   C     0.0001    3   0    0.0000    0.0000    0.0000
   R   124.9100    3   0  220.1400    0.0000    0.0000
   EX    0.0000    0   0    0.0000    0.0000    0.0000


   FREQ = 1.580

     NODE        VOLT MAG      VOLT PHASE
       1         323.7671       53.6642
       2         323.1755       53.8070
       3         312.8531       52.4112
                              BRANCH VOLTAGE      BRANCH CURRENT  FROM NODE IMPEDANCE  TO NODE IMPEDANCE
                              MAG      PHASE      MAG      PHASE   RESISTANCE REACTANCE RESISTANCE REACTANCE
   R    1- 2      1.000       1.00     0.000      1.00     0.000    191.84    260.81    190.84    260.81
   L    2- 3      1.300      12.91    90.000      1.00     0.000    190.84    260.81    190.84    247.91
   C    3- 0      0.000     312.85    52.411      0.28   142.411      0.00  -1106.93      0.00  -1106.93
   R    3- 0    124.910     312.85    52.411      1.24    -8.018    124.91    220.14    124.91    220.14
```

Tower 5 Individually Driven Base Circuit Analysis

WESTBERG CIRCUIT ANALYSIS PROGRAM

FILE NAME = KBLA5OC.TXT

```
I    1.0000   0   1    0.0000    0.0000    0.0000
R    1.0000   1   2    0.0000    0.0000    0.0000
L    1.3000   2   3    0.0000    0.0000    0.0000
C    0.0001   3   0    0.0000    0.0000    0.0000
R   97.4130   3   0  233.3500    0.0000    0.0000
EX   0.0000   0   0    0.0000    0.0000    0.0000
```

FREQ = 1.580

NODE	VOLT MAG	VOLT PHASE								
1	332.8873	61.6497								
2	332.4136	61.8014								
3	321.0975	60.7131								
			BRANCH VOLTAGE		BRANCH CURRENT		FROM NODE IMPEDANCE		TO NODE IMPEDANCE	
			MAG	PHASE	MAG	PHASE	RESISTANCE	REACTANCE	RESISTANCE	REACTANCE
R	1- 2	1.000	1.00	0.000	1.00	0.000	158.08	292.96	157.08	292.96
L	2- 3	1.300	12.91	90.000	1.00	0.000	157.08	292.96	157.08	280.06
C	3- 0	0.000	321.10	60.713	0.30	150.713	0.00	-1071.61	0.00	-1071.61
R	3- 0	97.413	321.10	60.713	1.27	-6.629	97.41	233.35	97.41	233.35

Tower 6 Individually Driven Base Circuit Analysis

WESTBERG CIRCUIT ANALYSIS PROGRAM

FILE NAME = KBLA6OC.TXT

```
I    1.0000   0   1    0.0000    0.0000    0.0000
R    1.0000   1   2    0.0000    0.0000    0.0000
L    1.3000   2   3    0.0000    0.0000    0.0000
C    0.0001   3   0    0.0000    0.0000    0.0000
R  120.2800   3   0  217.2900    0.0000    0.0000
EX   0.0000   0   0    0.0000    0.0000    0.0000
```

FREQ = 1.580

NODE	VOLT MAG	VOLT PHASE								
1	318.7317	54.3731								
2	318.1502	54.5195								
3	307.7322	53.1246								
			BRANCH VOLTAGE		BRANCH CURRENT		FROM NODE IMPEDANCE		TO NODE IMPEDANCE	
			MAG	PHASE	MAG	PHASE	RESISTANCE	REACTANCE	RESISTANCE	REACTANCE
R	1- 2	1.000	1.00	0.000	1.00	0.000	185.66	259.07	184.66	259.07
L	2- 3	1.300	12.91	90.000	1.00	0.000	184.66	259.07	184.66	246.17
C	3- 0	0.000	307.73	53.125	0.28	143.125	0.00	-1083.13	0.00	-1083.13
R	3- 0	120.280	307.73	53.125	1.24	-7.909	120.28	217.29	120.28	217.29

Derivation of Operating Parameters for Daytime Directional Antenna - KBLA

The method of moments model of the array, following verification with the measured individual open circuited base impedances, was utilized for directional antenna calculations. Calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna pattern. With these voltage sources, the tower currents were calculated. Twelve segments were used for each tower, so that the modeled current pulse between the fourth and fifth segments above ground level corresponds to the sampling loop location on each tower – at 1/3 of the total tower height above the base insulator. As the tower structures, sampling loops and sampling lines are identical, the antenna monitor ratios and phases corresponding to the theoretical parameters were calculated directly from the modeled tower currents.

Tower	Modeled Current Pulse	Modeled Current Magnitude (amperes)	Modeled Current Phase (degrees)	Modeled Antenna Monitor Ratio	Modeled Antenna Monitor Phase (degrees)
1	5	0.0372	215.1	Nulled	--
2	17	20.078	359.9	1.290	-50.4
3	29	21.957	166.1	1.410	+115.8
4	41	13.891	244.4	0.892	-165.9
5	53	15.570	50.3	1.000	0.0
6	65	0.0333	346.5	Nulled	--

Derivation of Operating Parameters for Nighttime Directional Antenna - KBLA

The method of moments model of the array, following verification with the measured individual open circuited base impedances, was utilized for directional antenna calculations. Calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna pattern. With these voltage sources, the tower currents were calculated. Twelve segments were used for each tower, so that the modeled current pulse between the fourth and fifth segments above ground level corresponds to the sampling loop location on each tower – at 1/3 of the total tower height above the base insulator. As the tower structures, sampling loops and sampling lines are identical, the antenna monitor ratios and phases corresponding to the theoretical parameters were calculated directly from the modeled tower currents.

Tower	Modeled Current Pulse	Modeled Current Magnitude (amperes)	Modeled Current Phase (degrees)	Modeled Antenna Monitor Ratio	Modeled Antenna Monitor Phase (degrees)
1	5	12.440	0.1	0.585	-110.5
2	17	21.268	110.6	1.000	0.0
3	29	8.894	221.4	0.418	+110.8
4	41	11.860	99.9	0.558	-10.7
5	53	20.348	210.7	0.957	+100.1
6	65	8.655	321.6	0.407	-149.0

Method of Moments Model Details for Towers Driven Individually – KBLA

The array of towers was modeled using Expert MININEC Broadcast Professional Version 14.5. One wire was used to represent each tower. The tower geometry was specified using the geographic coordinate system. Each tower was modeled using 12 wire segments. The towers are all physically 115.6 degrees in electrical height and their segment length is 9.6 electrical degrees.

The individual tower characteristics were adjusted to provide a match of their modeled impedances, when presented to a circuit model which included branches representing the shunt capacitances and feedline hookup inductances, with the base impedances that were measured at the output jacks of the filter units while the other towers of the array were open circuited. All towers were completely open circuited, with their sampling line isolation coils and lighting chokes disconnected. The method of moments model assumed loads at ground level having the reactances that were calculated for them using the base circuit models for the open circuited towers of the array.

Each tower's modeled height relative to its physical height falls within the required range of 75 to 125 percent and each modeled radius falls within the required range of 80 percent to 150 percent of the radius of a circle having a circumference equal to the sum of the widths of the tower sides. The array consists of triangular uniform cross section towers having a face width of 19 nches.

TOWER	Physical Height (meters)	Modeled Height (meters)	Modeled Percent of Height	Modeled Radius (meters)	Percent Equivalent Radius
1	61.0	64.5	105.7	0.240	104.2
2	61.0	64.0	104.9	0.240	104.2
3	61.0	65.0	106.6	0.240	104.2
4	61.0	64.9	106.4	0.240	104.2
5	61.0	64.1	105.1	0.240	104.2
6	61.0	64.2	105.2	0.240	104.2

The following pages show the details of the method of moments models for the individually driven towers. The numerals in the file names shown on the tabulations correspond to the tower numbers.

Tower 1 Driven Individually

```
E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC1   06-19-2013   10:03:12

IMPEDANCE
    normalization = 50.
freq       resist   react    imped    phase    VSWR     S11      S12
(KHz)      (ohms)   (ohms)   (ohms)   (deg)             dB       dB
source =  1; node 1, sector 1
1,580.    124.62   221.35   254.02    60.6     10.663   -1.634   -5.0368


GEOMETRY
Dimensions in meters
Environment: perfect ground

wire  caps Distance      Angle         Z            radius        segs
1     none 0             0             0            .24           12
           0             0             64.5
2     none 42.16         20.           0            .24           12
           42.16         20.           64.
3     none 84.33         20.           0            .24           12
           84.33         20.           65.
4     none 42.16         127.          0            .24           12
           42.16         127.          64.9
5     none 50.18         73.5          0            .24           12
           50.18         73.5          64.1
6     none 82.54         49.3          0            .24           12
           82.54         49.3          64.2


Number of wires         =   6
         current nodes  =  72


                      minimum              maximum
Individual wires      wire   value         wire   value
segment length        2      5.33333       3      5.41667
segment/radius ratio  2      22.2222       3      22.5694
radius                1      .24           1      .24


ELECTRICAL DESCRIPTION
Frequencies (KHz)
       frequency              no. of  segment length (wavelengths)
no. lowest       step         steps   minimum       maximum
1   1,580.       0            1       .0281076      .0285468

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

Lumped loads
              resistance   reactance    inductance  capacitance passive
load  node    (ohms)       (ohms)       (mH)        (uF)        circuit
1     13      0            -1,083.      0           0           0
2     25      0            -1,028.      0           0           0
3     37      0            -1,107.      0           0           0
4     49      0            -1,072.      0           0           0
5     61      0            -1,083.      0           0           0
```

Tower 2 Driven Individually

E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC2   06-19-2013   10:07:23

IMPEDANCE
    normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 13, sector 1							
1,580.	94.956	231.26	250.0	67.7	13.617	-1.278	-5.9358

GEOMETRY
Dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.24	12
		0	0	64.5		
2	none	42.16	20.	0	.24	12
		42.16	20.	64.		
3	none	84.33	20.	0	.24	12
		84.33	20.	65.		
4	none	42.16	127.	0	.24	12
		42.16	127.	64.9		
5	none	50.18	73.5	0	.24	12
		50.18	73.5	64.1		
6	none	82.54	49.3	0	.24	12
		82.54	49.3	64.2		

Number of wires   = 6
        current nodes = 72

Individual wires	minimum wire	value	maximum wire	value
segment length	2	5.33333	3	5.41667
segment/radius ratio	2	22.2222	3	22.5694
radius	1	.24	1	.24

ELECTRICAL DESCRIPTION
Frequencies (KHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	1,580.	0	1	.0281076	.0285468

Sources

source	node	sector	magnitude	phase	type
1	13	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,083.	0	0	0
2	25	0	-1,028.	0	0	0
3	37	0	-1,107.	0	0	0
4	49	0	-1,072.	0	0	0
5	61	0	-1,083.	0	0	0

Tower 3 Driven Individually

```
E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC3   06-19-2013    10:10:02

IMPEDANCE
    normalization = 50.
freq       resist   react    imped    phase   VSWR    S11      S12
(KHz)      (ohms)   (ohms)   (ohms)   (deg)           dB       dB
source =  1; node 25, sector 1
1,580.     128.13   221.37   255.78   59.9    10.507  -1.6584   -4.9837


GEOMETRY
Dimensions in meters
Environment: perfect ground

wire  caps Distance     Angle        Z            radius      segs
 1    none 0            0            0            .24         12
           0            0            64.5
 2    none 42.16        20.          0            .24         12
           42.16        20.          64.
 3    none 84.33        20.          0            .24         12
           84.33        20.          65.
 4    none 42.16        127.         0            .24         12
           42.16        127.         64.9
 5    none 50.18        73.5         0            .24         12
           50.18        73.5         64.1
 6    none 82.54        49.3         0            .24         12
           82.54        49.3         64.2

Number of wires       =   6
         current nodes  =  72


                         minimum              maximum
Individual wires    wire    value        wire    value
segment length       2      5.33333       3      5.41667
segment/radius ratio 2      22.2222       3      22.5694
radius               1      .24           1      .24


ELECTRICAL DESCRIPTION
Frequencies (KHz)
     frequency              no. of  segment length (wavelengths)
no. lowest      step        steps   minimum        maximum
 1  1,580.      0           1       .0281076       .0285468

Sources
source node    sector  magnitude     phase         type
 1     25      1       1.            0             voltage

Lumped loads
              resistance   reactance   inductance  capacitance passive
load  node    (ohms)       (ohms)      (mH)        (uF)        circuit
 1    1       0            -1,083.     0           0           0
 2    13      0            -1,083.     0           0           0
 3    37      0            -1,107.     0           0           0
 4    49      0            -1,072.     0           0           0
 5    61      0            -1,083.     0           0           0
```

Tower 4 Driven Individually

```
E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC4   06-19-2013    10:12:17

IMPEDANCE
    normalization = 50.
freq        resist     react     imped     phase     VSWR     S11       S12
(KHz)       (ohms)     (ohms)    (ohms)    (deg)               dB        dB
source =  1; node 37, sector 1
1,580.      124.91     220.14    253.11    60.4      10.563   -1.6495   -5.0031


GEOMETRY
Dimensions in meters
Environment: perfect ground

wire  caps Distance     Angle        Z           radius      segs
 1    none 0            0            0           .24         12
           0            0            64.5
 2    none 42.16        20.          0           .24         12
           42.16        20.          64.
 3    none 84.33        20.          0           .24         12
           84.33        20.          65.
 4    none 42.16        127.         0           .24         12
           42.16        127.         64.9
 5    none 50.18        73.5         0           .24         12
           50.18        73.5         64.1
 6    none 82.54        49.3         0           .24         12
           82.54        49.3         64.2

Number of wires         =   6
        current nodes   =  72


                        minimum                 maximum
Individual wires        wire    value           wire    value
segment length          2       5.33333         3       5.41667
segment/radius ratio    2       22.2222         3       22.5694
radius                  1       .24             1       .24


ELECTRICAL DESCRIPTION
Frequencies (KHz)
       frequency                no. of  segment length (wavelengths)
no. lowest        step          steps   minimum         maximum
1   1,580.        0             1       .0281076        .0285468

Sources
source node    sector  magnitude       phase           type
1      37      1       1.              0               voltage

Lumped loads
               resistance   reactance     inductance   capacitance passive
load  node     (ohms)       (ohms)        (mH)         (uF)        circuit
1     1        0            -1,083.       0            0           0
2     13       0            -1,083.       0            0           0
3     25       0            -1,028.       0            0           0
4     49       0            -1,072.       0            0           0
5     61       0            -1,083.       0            0           0
```

Tower 5 Driven Individually

E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC5 06-19-2013   10:13:53

IMPEDANCE
    normalization = 50.

freq	resist	react	imped	phase	VSWR	S11	S12
(KHz)	(ohms)	(ohms)	(ohms)	(deg)		dB	dB
source = 1; node 49, sector 1							
1,580.	97.413	233.35	252.87	67.3	13.568	-1.2827	-5.9221

GEOMETRY
Dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.24	12
		0	0	64.5		
2	none	42.16	20.	0	.24	12
		42.16	20.	64.		
3	none	84.33	20.	0	.24	12
		84.33	20.	65.		
4	none	42.16	127.	0	.24	12
		42.16	127.	64.9		
5	none	50.18	73.5	0	.24	12
		50.18	73.5	64.1		
6	none	82.54	49.3	0	.24	12
		82.54	49.3	64.2		

Number of wires   =   6
          current nodes = 72

		minimum			maximum	
Individual wires		wire	value		wire	value
segment length		2	5.33333		3	5.41667
segment/radius ratio		2	22.2222		3	22.5694
radius		1	.24		1	.24

ELECTRICAL DESCRIPTION
Frequencies (KHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1,580.	0	1	.0281076	.0285468

Sources

source	node	sector	magnitude	phase	type
1	49	1	1.	0	voltage

Lumped loads

		resistance	reactance	inductance	capacitance	passive
load	node	(ohms)	(ohms)	(mH)	(uF)	circuit
1	1	0	-1,083.	0	0	0
2	13	0	-1,083.	0	0	0
3	25	0	-1,028.	0	0	0
4	37	0	-1,107.	0	0	0
5	61	0	-1,083.	0	0	0

Tower 6 Driven Individually

```
E:\KHJ MBPRO 14.5 FILES(MWF)\KBLAOC6   06-19-2013    10:15:37

IMPEDANCE
   normalization = 50.
freq      resist   react    imped    phase   VSWR    S11       S12
(KHz)     (ohms)   (ohms)   (ohms)   (deg)           dB        dB
source = 1; node 61, sector 1
1,580.    120.28   217.29   248.36   61.     10.578  -1.6472   -5.008


GEOMETRY
Dimensions in meters
Environment: perfect ground

wire  caps Distance    Angle       Z           radius    segs
1     none 0           0           0           .24       12
           0           0           64.5
2     none 42.16       20.         0           .24       12
           42.16       20.         64.
3     none 84.33       20.         0           .24       12
           84.33       20.         65.
4     none 42.16       127.        0           .24       12
           42.16       127.        64.9
5     none 50.18       73.5        0           .24       12
           50.18       73.5        64.1
6     none 82.54       49.3        0           .24       12
           82.54       49.3        64.2


Number of wires       =  6
          current nodes =  72


                        minimum                  maximum
Individual wires    wire    value        wire    value
segment length      2       5.33333      3       5.41667
segment/radius ratio 2      22.2222      3       22.5694
radius              1       .24          1       .24


ELECTRICAL DESCRIPTION
Frequencies (KHz)
      frequency                no. of  segment length (wavelengths)
no.  lowest       step         steps   minimum       maximum
1    1,580.       0            1       .0281076      .0285468

Sources
source node    sector  magnitude    phase        type
1      61      1       1.           0            voltage

Lumped loads
           resistance    reactance    inductance  capacitance passive
load  node  (ohms)       (ohms)       (mH)        (uF)        circuit
1     1     0            -1,083.      0           0           0
2     13    0            -1,083.      0           0           0
3     25    0            -1,028.      0           0           0
4     37    0            -1,107.      0           0           0
5     49    0            -1,072.      0           0           0
```

Method of Moments Model Details for Daytime Directional Antenna- KBLA

The array of towers was modeled using Expert MININEC Broadcast Professional Version 14.5 with the individual towers characteristics that were verified by the individual tower impedance measurements. Calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna pattern. The following pages contain details of the method of moments model of the directional antenna pattern.

Tower	Wire	Base Node
1	1	1
2	2	13
3	3	25
4	4	37
5	5	49
6	6	61

It should be noted that voltages and currents shown on the tabulations that are not specified as "rms" values are the corresponding peak values.

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1580 KHz

```
          field ratio
tower  magnitude      phase (deg)
  1    .001           0
  2    1.             0
  3    1.111          166.1
  4    .7             -115.7
  5    .778           50.4
  6    .001           0
```

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	1,299.23	1.7	3.52592	90.6
13	4,497.84	81.2	11.334	9.5
25	3,780.33	252.5	15.0533	168.7
37	3,799.94	329.6	5.74081	253.8
49	2,779.77	113.7	11.7889	67.
61	717.801	78.5	1.9218	168.6

Sum of square of source currents = 1,086.24
Total power = 50,000. watts

NOTE: The array synthesis calculations (above) were performed to solve for the base voltage drives required to produce the specified field parameters, including the detuned condition for towers 1 and 6, which are unused in the daytime. A field ratio of 1/10th of a percent was used to represent the vanishingly small, and negligible, residual field contribution of each detuned tower in the array synthesis calculations. The base impedances were calculated and the model was revised to have voltage drives only for the towers of the daytime directional antenna pattern, towers 2, 3, 4 and 5, and detuning reactances to ground for the remaining towers. The detuning reactances are equal in magnitude and opposite in sign to the reactive component of the operating impedances that were determined using the voltage sources from the array synthesis calculations. The final model does not include voltage sources for the detuned towers because their base voltages are developed across the detuning reactances. The specified detuning reactances represent how the towers were detuned for normal operation. The following information is from the final model.

```
GEOMETRY
Dimensions in meters
Environment: perfect ground

wire  caps Distance      Angle        Z            radius      segs
 1    none 0            0            0            .24         12
           0            0            64.5
 2    none 42.16        20.          0            .24         12
           42.16        20.          64.
 3    none 84.33        20.          0            .24         12
           84.33        20.          65.
 4    none 42.16        127.         0            .24         12
           42.16        127.         64.9
 5    none 50.18        73.5         0            .24         12
           50.18        73.5         64.1
 6    none 82.54        49.3         0            .24         12
           82.54        49.3         64.2


Number of wires        =   6
         current nodes =  72


                        minimum                 maximum
Individual wires      wire    value           wire    value
segment length        2       5.33333         3       5.41667
segment/radius ratio  2       22.2222         3       22.5694
radius                1       .24             1       .24


ELECTRICAL DESCRIPTION
Frequencies (KHz)
     frequency                  no. of  segment length (wavelengths)
no. lowest        step          steps   minimum        maximum
 1   1,580.       0             1       .0281076       .0285468


Sources
source node      sector  magnitude     phase        type
 1      13       1       6,360.9       81.2         voltage
 2      25       1       5,346.19      252.5        voltage
 3      37       1       5,373.92      329.6        voltage
 4      49       1       3,931.19      113.7        voltage


Lumped loads
               resistance     reactance     inductance  capacitance
passive
load  node    (ohms)         (ohms)         (mH)        (uF)
circuit
 1     1      0              368.5          0           0            0
 2     61     0              373.5          0           0            0
```

IMPEDANCE
    normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 13, sector 1							
1,580.	123.72	377.	396.78	71.8	25.817	-.67322	-8.4285
source = 2; node 25, sector 1							
1,580.	27.04	249.56	251.02	83.8	48.434	-.35872	-11.008
source = 3; node 37, sector 1							
1,580.	163.14	639.62	660.1	75.7	53.704	-.32351	-11.44
source = 4; node 49, sector 1							
1,580.	161.74	171.9	236.03	46.7	7.0563	-2.4786	-3.6163

CURRENT rms
Frequency   = 1580 KHz
Input power = 50,000. watts
Efficiency   = 100. %
coordinates in meters

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	3.51796	91.2	-.0722626	3.51722
2	0	0	5.375	2.19228	91.2	-.0475729	2.19177
3	0	0	10.75	1.30287	91.6	-.0363821	1.30236
4	0	0	16.125	.573847	93.1	-.0315273	.57298
5	0	0	21.5	.0371885	215.1	-.0304245	-.0213854
6	0	0	26.875	.486705	266.4	-.0307928	-.48573
7	0	0	32.25	.820324	267.8	-.0307899	-.819746
8	0	0	37.625	1.02279	268.4	-.0292273	-1.02237
9	0	0	43.	1.09357	268.7	-.0256708	-1.09326
10	0	0	48.375	1.0333	268.9	-.0203705	-1.0331
11	0	0	53.75	.842795	269.	-.0140155	-.842679
12	0	0	59.125	.519172	269.2	-7.33E-03	-.519121
END	0	0	64.5	0	0	0	0
GND	39.6174	-14.4196	0	11.3505	9.4	11.1991	1.84749
14	39.6174	-14.4196	5.33333	15.5647	4.2	15.5224	1.14591
15	39.6174	-14.4196	10.6667	17.9592	2.2	17.9466	.674546
16	39.6174	-14.4196	16.	19.432	.8	19.4299	.287493
17	39.6174	-14.4196	21.3333	20.0778	359.9	20.0778	-.0276811
18	39.6174	-14.4196	26.6667	19.9381	359.2	19.9362	-.272863
19	39.6174	-14.4196	32.	19.0471	358.7	19.0419	-.447457
20	39.6174	-14.4196	37.3333	17.4458	358.2	17.4371	-.550948
21	39.6174	-14.4196	42.6667	15.1847	357.8	15.1734	-.583744
22	39.6174	-14.4196	48.	12.3209	357.5	12.3088	-.547238
23	39.6174	-14.4196	53.3333	8.90766	357.1	8.89663	-.443143
24	39.6174	-14.4196	58.6667	4.96086	356.9	4.95344	-.271248
END	39.6174	-14.4196	64.	0	0	0	0
GND	79.2443	-28.8426	0	15.0793	168.7	-14.7861	2.95886
26	79.2443	-28.8426	5.41667	18.73	167.4	-18.281	4.0768
27	79.2443	-28.8426	10.8333	20.6724	166.8	-20.1293	4.70728
28	79.2443	-28.8426	16.25	21.7176	166.4	-21.1114	5.09518
29	79.2443	-28.8426	21.6667	21.9572	166.1	-21.3162	5.2666
30	79.2443	-28.8426	27.0833	21.4346	165.9	-20.7862	5.23221
31	79.2443	-28.8426	32.5	20.189	165.7	-19.5599	5.00055
32	79.2443	-28.8426	37.9167	18.2675	165.5	-17.6835	4.58188
33	79.2443	-28.8426	43.3333	15.7274	165.3	-15.2131	3.98909
34	79.2443	-28.8426	48.75	12.6334	165.2	-12.2117	3.23709
35	79.2443	-28.8426	54.1667	9.04646	165.	-8.7386	2.33995

36	79.2443	-28.8426	59.5833	4.99014	164.9	-4.81719	1.30236
END	79.2443	-28.8426	65.	0	0	0	0
GND	-25.3725	-33.6705	0	5.76413	253.9	-1.5976	-5.53831
38	-25.3725	-33.6705	5.40833	9.45881	248.2	-3.51909	-8.77981
39	-25.3725	-33.6705	10.8167	11.6423	246.3	-4.68031	-10.6601
40	-25.3725	-33.6705	16.225	13.0931	245.2	-5.49241	-11.8854
41	-25.3725	-33.6705	21.6333	13.891	244.4	-5.99472	-12.5309
42	-25.3725	-33.6705	27.0417	14.0669	243.9	-6.19921	-12.6273
43	-25.3725	-33.6705	32.45	13.644	243.4	-6.11301	-12.1979
44	-25.3725	-33.6705	37.8583	12.6502	243.	-5.74553	-11.2702
45	-25.3725	-33.6705	43.2667	11.1216	242.6	-5.1103	-9.87796
46	-25.3725	-33.6705	48.675	9.1002	242.3	-4.22435	-8.06031
47	-25.3725	-33.6705	54.0833	6.62627	242.1	-3.10429	-5.85412
48	-25.3725	-33.6705	59.4917	3.71271	241.8	-1.7543	-3.27211
END	-25.3725	-33.6705	64.9	0	0	0	0
GND	14.2519	-48.1136	0	11.7925	67.	4.61617	10.8515
50	14.2519	-48.1136	5.34167	13.835	59.1	7.10929	11.8687
51	14.2519	-48.1136	10.6833	14.9501	55.1	8.54396	12.2681
52	14.2519	-48.1136	16.025	15.5181	52.4	9.46893	12.2943
53	14.2519	-48.1136	21.3667	15.5699	50.3	9.94416	11.9806
54	14.2519	-48.1136	26.7083	15.122	48.6	9.99471	11.3481
55	14.2519	-48.1136	32.05	14.1941	47.2	9.63935	10.419
56	14.2519	-48.1136	37.3917	12.8141	46.	8.89904	9.21999
57	14.2519	-48.1136	42.7333	11.0175	44.9	7.79898	7.78213
58	14.2519	-48.1136	48.075	8.84508	44.	6.36727	6.1395
59	14.2519	-48.1136	53.4167	6.33437	43.	4.62954	4.32337
60	14.2519	-48.1136	58.7583	3.49703	42.2	2.59211	2.34739
END	14.2519	-48.1136	64.1	0	0	0	0
GND	53.8242	-62.5764	0	1.92626	168.7	-1.88869	.378589
62	53.8242	-62.5764	5.35	1.19246	168.7	-1.16926	.234094
63	53.8242	-62.5764	10.7	.699848	168.7	-.68638	.136639
64	53.8242	-62.5764	16.05	.295726	168.9	-.290241	.0566909
65	53.8242	-62.5764	21.4	.033265	346.5	.0323407	-7.79E-03
66	53.8242	-62.5764	26.75	.289318	348.7	.28369	-.0567884
67	53.8242	-62.5764	32.1	.472047	349.	.46337	-.0900949
68	53.8242	-62.5764	37.45	.580835	349.3	.570723	-.10791
69	53.8242	-62.5764	42.8	.615807	349.6	.605713	-.11104
70	53.8242	-62.5764	48.15	.577949	350.	.569082	-.100848
71	53.8242	-62.5764	53.5	.468542	350.3	.46184	-.0789676
72	53.8242	-62.5764	58.85	.286989	350.6	.283162	-.046707
END	53.8242	-62.5764	64.2	0	0	0	0
0	0	0					

Method of Moments Model Details for Nighttime Directional Antenna- KBLA

The array of towers was modeled using Expert MININEC Broadcast Professional Version 14.5 with the individual towers characteristics that were verified by the individual tower impedance measurements. Calculations were made to determine the complex voltage values for sources located at ground level under each tower of the array to produce current moment sums for the towers that, when normalized, equated to the theoretical field parameters of the authorized directional antenna pattern. The following pages contain details of the method of moments model of the directional antenna pattern.

Tower	Wire	Base Node
1	1	1
2	2	13
3	3	25
4	4	37
5	5	49
6	6	61

It should be noted that voltages and currents shown on the tabulations that are not specified as "rms" values are the corresponding peak values.

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1580 KHz

```
        field ratio
tower  magnitude      phase (deg)
  1    1.             0
  2    1.7            110.7
  3    .723           221.4
  4    .96            100.
  5    1.632          210.7
  6    .694           321.4
```

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	3,873.92	93.3	3.87818	352.1
13	4,324.47	187.1	13.5404	122.3
25	1,167.56	292.5	7.34657	229.6
37	2,374.95	163.1	8.48964	120.1
49	2,907.12	291.6	15.8192	215.2
61	1,229.11	58.5	6.7345	318.2

Sum of square of source currents = 1,240.06
Total power = 50,000. watts

GEOMETRY
Dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.24	12
		0	0	64.5		
2	none	42.16	20.	0	.24	12
		42.16	20.	64.		
3	none	84.33	20.	0	.24	12
		84.33	20.	65.		
4	none	42.16	127.	0	.24	12
		42.16	127.	64.9		
5	none	50.18	73.5	0	.24	12
		50.18	73.5	64.1		
6	none	82.54	49.3	0	.24	12
		82.54	49.3	64.2		

Number of wires   = 6
        current nodes = 72

Individual wires	minimum wire	value	maximum wire	value
segment length	2	5.33333	3	5.41667
segment/radius ratio	2	22.2222	3	22.5694
radius	1	.24	1	.24

```
ELECTRICAL DESCRIPTION
Frequencies (KHz)
      frequency                no. of  segment length (wavelengths)
  no. lowest      step         steps   minimum        maximum
  1  1,580.       0             1       .0281076       .0285468

Sources
source node     sector  magnitude       phase         type
  1      1        1      5,478.55        93.3          voltage
  2     13        1      6,115.72        187.1         voltage
  3     25        1      1,651.17        292.5         voltage
  4     37        1      3,358.69        163.1         voltage
  5     49        1      4,111.29        291.6         voltage
  6     61        1      1,738.22        58.5          voltage

IMPEDANCE
    normalization = 50.
freq      resist   react    imped    phase    VSWR     S11      S12
(KHz)     (ohms)   (ohms)   (ohms)   (deg)             dB       dB
source =  1; node 1, sector 1
1,580.    -195.21  979.64   998.9    101.3    ****     ****     ****

source =  2; node 13, sector 1
1,580.    135.86   289.04   319.38   64.8     15.318   -1.1357  -6.3807

source =  3; node 25, sector 1
1,580.    72.415   141.47   158.93   62.9     7.5335   -2.3196  -3.832

source =  4; node 37, sector 1
1,580.    204.62   190.76   279.75   43.      7.7647   -2.2498  -3.9329

source =  5; node 49, sector 1
1,580.    43.316   178.59   183.77   76.4     16.688   -1.0422  -6.7089

source =  6; node 61, sector 1
1,580.    -32.397  179.61   182.51   100.2    ****     ****     ****
```

```
CURRENT rms
Frequency   = 1580 KHz
Input power = 50,000. watts
Efficiency  = 100. %
coordinates in meters
current                                      mag      phase   real       imaginary
no.    X           Y           Z            (amps)   (deg)   (amps)     (amps)
GND    0           0           0            3.87819  352.1   3.84109    -.53511
 2     0           0           5.375        7.67751  357.7   7.67128    -.309337
 3     0           0           10.75        9.95384  359.    9.95241    -.168439
 4     0           0           16.125       11.5139  359.7   11.5138    -.0618975
 5     0           0           21.5         12.4402  .1      12.4402    .0180927
 6     0           0           26.875       12.7628  .3      12.7625    .0760835
 7     0           0           32.25        12.5024  .5      12.5019    .115253
 8     0           0           37.625       11.6842  .7      11.6834    .137709
 9     0           0           43.          10.3406  .8      10.3396    .144525
10     0           0           48.375       8.50972  .9      8.50864    .13584
11     0           0           53.75        6.22805  1.      6.22706    .111037
12     0           0           59.125       3.50638  1.1     3.5057     .0687386
END    0           0           64.5         0        0       0          0
GND    39.6174     -14.4196    0            13.5404  122.3   -7.23535   11.4452
14     39.6174     -14.4196    5.33333      17.4049  116.3   -7.70402   15.607
15     39.6174     -14.4196    10.6667      19.5645  113.6   -7.84035   17.9248
16     39.6174     -14.4196    16.          20.8243  111.9   -7.76342   19.3231
17     39.6174     -14.4196    21.3333      21.2677  110.6   -7.4916    19.9045
18     39.6174     -14.4196    26.6667      20.9334  109.6   -7.03845   19.7146
19     39.6174     -14.4196    32.          19.8563  108.9   -6.4181    18.7904
20     39.6174     -14.4196    37.3333      18.0794  108.2   -5.64704   17.1749
21     39.6174     -14.4196    42.6667      15.656   107.6   -4.74385   14.92
22     39.6174     -14.4196    48.          12.6461  107.1   -3.72807   12.0841
23     39.6174     -14.4196    53.3333      9.10527  106.7   -2.61709   8.72105
24     39.6174     -14.4196    58.6667      5.05153  106.3   -1.41741   4.84859
END    39.6174     -14.4196    64.          0        0       0          0
GND    79.2443     -28.8426    0            7.34658  229.6   -4.76399   -5.59256
26     79.2443     -28.8426    5.41667      8.34279  225.9   -5.80549   -5.99154
27     79.2443     -28.8426    10.8333      8.81953  224.    -6.34908   -6.12155
28     79.2443     -28.8426    16.25        8.99493  222.5   -6.62842   -6.08054
29     79.2443     -28.8426    21.6667      8.89374  221.4   -6.67064   -5.88229
30     79.2443     -28.8426    27.0833      8.52997  220.5   -6.48914   -5.53638
31     79.2443     -28.8426    32.5         7.91819  219.7   -6.09585   -5.05355
32     79.2443     -28.8426    37.9167      7.0767   218.9   -5.5048    -4.44713
33     79.2443     -28.8426    43.3333      6.02779  218.3   -4.73274   -3.73302
34     79.2443     -28.8426    48.75        4.79623  217.6   -3.79823   -2.9287
35     79.2443     -28.8426    54.1667      3.40502  217.    -2.71837   -2.05051
36     79.2443     -28.8426    59.5833      1.86327  216.4   -1.49916   -1.10648
END    79.2443     -28.8426    65.          0        0       0          0
GND    -25.3725    -33.6705    0            8.48964  120.1   -4.25523   7.34622
38     -25.3725    -33.6705    5.40833      10.187   110.2   -3.524     9.55806
39     -25.3725    -33.6705    10.8167      11.1695  105.5   -2.98408   10.7635
40     -25.3725    -33.6705    16.225       11.7212  102.3   -2.48981   11.4537
41     -25.3725    -33.6705    21.6333      11.8599  99.9    -2.03048   11.6848
42     -25.3725    -33.6705    27.0417      11.5952  98.     -1.60687   11.4833
43     -25.3725    -33.6705    32.45        10.9408  96.4    -1.22316   10.8722
44     -25.3725    -33.6705    37.8583      9.91781  95.1    -.884282   9.87831
45     -25.3725    -33.6705    43.2667      8.55473  94.     -.594926   8.53402
46     -25.3725    -33.6705    48.675       6.8846   93.     -.359044   6.87523
47     -25.3725    -33.6705    54.0833      4.93896  92.1    -.179695   4.93569
48     -25.3725    -33.6705    59.4917      2.72944  91.2    -.0591229  2.7288
END    -25.3725    -33.6705    64.9         0        0       0          0
GND    14.2519     -48.1136    0            15.8192  215.2   -12.924    -9.12227
50     14.2519     -48.1136    5.34167      18.5038  213.1   -15.4998   -10.1068
51     14.2519     -48.1136    10.6833      19.8386  212.    -16.8167   -10.5247
52     14.2519     -48.1136    16.025       20.4297  211.3   -17.4594   -10.6087
```

53	14.2519	-48.1136	21.3667	20.3484	210.7	-17.497	-10.3881
54	14.2519	-48.1136	26.7083	19.6319	210.2	-16.9642	-9.88057
55	14.2519	-48.1136	32.05	18.3157	209.8	-15.8925	-9.10466
56	14.2519	-48.1136	37.3917	16.4422	209.4	-14.3185	-8.0826
57	14.2519	-48.1136	42.7333	14.0624	209.1	-12.2859	-6.84159
58	14.2519	-48.1136	48.075	11.2328	208.8	-9.84338	-5.41138
59	14.2519	-48.1136	53.4167	8.00504	208.5	-7.03491	-3.81978
60	14.2519	-48.1136	58.7583	4.39809	208.2	-3.87577	-2.07884
END	14.2519	-48.1136	64.1	0	0	0	0
GND	53.8242	-62.5764	0	6.73451	318.2	5.02422	-4.48451
62	53.8242	-62.5764	5.35	7.88217	319.8	6.02238	-5.08522
63	53.8242	-62.5764	10.7	8.44928	320.6	6.52982	-5.36207
64	53.8242	-62.5764	16.05	8.69661	321.2	6.77303	-5.45502
65	53.8242	-62.5764	21.4	8.65522	321.6	6.77854	-5.38184
66	53.8242	-62.5764	26.75	8.34173	321.9	6.56011	-5.15261
67	53.8242	-62.5764	32.1	7.77217	322.1	6.13087	-4.77694
68	53.8242	-62.5764	37.45	6.96595	322.2	5.50686	-4.26602
69	53.8242	-62.5764	42.8	5.9464	322.3	4.70767	-3.63284
70	53.8242	-62.5764	48.15	4.73943	322.4	3.75525	-2.89142
71	53.8242	-62.5764	53.5	3.3692	322.4	2.6704	-2.05438
72	53.8242	-62.5764	58.85	1.84596	322.4	1.46294	-1.12577
END	53.8242	-62.5764	64.2	0	0	0	0

Sampling System Measurements – KBLA

Impedance measurements were made of the antenna monitor sampling system using a Hewlett-Packard 8751A network analyzer and a Tunwall Radio directional coupler in a calibrated measurement system. The measurements were made looking into the antenna monitor ends of the sampling lines for two conditions – with and without them connected to the sampling loops on the towers. The measurements were made where the sampling lines connect to the filtered antenna monitor system, at the location of the KBLA antenna monitor. The entire runs, including the sampling line isolation coils at the tower bases and the sections on the towers, were measured.

The following table shows two adjacent frequencies where resonance – zero reactance corresponding with low resistance – was found with the open circuited measurements. As the length of a 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 sampling line length at the resonant frequency below carrier frequency was found to be 270 electrical degrees and the length at the resonant frequency above carrier frequency was found to be 450 electrical degrees. As the resonant frequencies above carrier frequency are the closest to carrier frequency, in terms of their ratios to carrier frequency, the electrical lengths at carrier frequency appearing in the table below were calculated by ratioing them to carrier frequency.

Tower	Sampling Line Open-Circuited Resonance Below 1580 kHz (kHz)	Sampling Line Open-Circuited Resonance Above 1580 kHz (kHz)	Sampling Line Calculated Electrical Length at 1580 kHz (degrees)	1580 KHz Measured Impedance with Sampling Loop Connected (Ohms)
1	1067.88	1786.63	398.0	7.1 + j 55.4
2	1067.88	1787.75	397.7	7.0 + j 54.8
3	1067.88	1787.75	397.7	7.0 + j 54.6
4	1067.88	1787.75	397.7	6.9 + j 54.8
5	1067.31	1786.63	398.0	7.1 + j 55.2
6	1067.31	1786.63	398.0	6.9 + j 54.5

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

The characteristic impedance was calculated using the following formula, where $R_1 + j X_1$ and $R_2 + j X_2$ are the measured impedances at the +45 and –45 degree offset frequencies, respectively:

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

The impedances for the characteristic impedance calculations were measured at frequencies offset from the resonant frequency that is above the carrier frequency, as it is the closest to carrier frequency in terms of ratio, to give the 45 degree length differences.

Tower	-45 Degree Offset Frequency (kHz)	-45 Degree Measured Impedance (Ohms)	+45 Degree Offset Frequency (kHz)	+45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
1	1607.96	5.19 –j 49.91	1965.29	7.10 +j 49.91	50.3
2	1608.98	5.13 –j 49.75	1966.53	7.07 +j 49.85	50.2
3	1608.98	5.16 –j 49.76	1966.53	7.08 +j 49.99	50.3
4	1608.98	5.11 –j 49.51	1966.53	7.11 +j 50.10	50.2
5	1607.96	5.19 –j 49.68	1965.29	7.16 +j 50.07	50.3
6	1607.96	5.18 –j 49.74	1965.29	7.08 +j 49.85	50.2

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

Reference Field Strength Measurements – KBLA

Reference field strength measurements were made at three locations along each radial at an azimuth specified for monitoring by the KBLA license for the daytime pattern at 45, 73, 95, and 295 degrees true and for the nighttime pattern at 15, 55, 73, 95, 115 and 350 degrees true. Major lobe radial measurements were made at 195 degrees true for the daytime pattern and 240 degrees true for the nighttime pattern. The measured field strengths, descriptions and GPS coordinates for the reference measurement points are shown on the following page.

KBLA 1580 KHz. Los Angeles, CA - 50 KW DA-2
Reference Field Strength Measurements - Day Antenna

Radial	Point	Distance (km)	Field (mv/m)	Coordinates (NAD 83)		Description
45°	1	2.74	115	34 06 11.4	118 14 12.1	SW Side Cypress Ave at tree opposite beauty salon.
	2	3.21	45	34 06 22.3	118 13 58.9	On Cazador Dr at curb marker 2221.
	3	3.64	28	34 06 32.2	118 13 46.9	N Side Moss Ave @ Torkshire Dr sign.
73°	1	2.83	248	34 05 35.3	118 13 42.5	On sidewalk in driveway at 2620 Roseview Ave.
	2	3.08	210	34 05 37.8	118 13 32.8	NE Corner of Cypress Ave and Loosemore St.
	3	3.47	120	34 05 41.3	118 13 18.4	On sidewalk in driveway at 918 Isabel St.
95°	1	3.18	20.5	34 04 59.8	118 13 23.8	On sidewalk W side Figueroa at south end of IHOP.
	2	3.57	38	34 04 58.6	118 13 08.4	On sidewalk in driveway at 3201 Lacy St.
	3	3.86	70	34 04 57.8	118 12 57.5	Opposite 3208 Humboldt at Fire Hydrant.
195°	1	2.75	1300	34 03 42.6	118 15 55.7	NE Corner Crown Hill Ave @ Union Pl on storm grate.
	2	3.61	1200	34 03 15.8	118 16 04.4	N Side Wilshire E of Valencia at uncovered bus bench.
	3	3.97	480	34 03 04.1	118 16 08.2	In Street on sewer cover at 1329 Linwood Ave.
295°	1	2.94	115	34 05 48.9	118 17 12.2	E Side Virgil Pl on sidewalk approx 50 ft N of DeLonapre Ave.
	2	3.46	120	34 05 55.9	118 17 30.3	E Side Vermont Ave on sidewalk in front of Robeks Juice.
	3	3.91	72	34 06 02.0	118 17 46.2	On sidewalk in driveway at 1603 Edgemont.

Measurements were made June 15, 2013 by George D Butch using
Potomac Instruments FIM-41, SN 1432, factory calibrated July 29, 1998.
Accuracy was field checked June 14, 2013 against FIM-41, SN 1924, calibrated May 21, 2012.

KBLA 1580 KHz. Los Angeles, CA - 50 KW DA-2
Reference Field Strength Measurements - Night Antenna

Radial	Point	Distance (km)	Field (mv/m)	Coordinates (NAD 83)		Description
15°	1	1.16	245	34 05 45.0	118 15 16.1	E side Allesandro Way opp Silver Ridge on storm drain.
	2	2.00	155	34 06 11.2	118 15 07.6	SW Corner Riverside Dr at Gleneden St.
	3	2.80	60	34 06 36.3	118 14 59.5	SE side Carillon St. opp garage at # 2121.
55°	1	2.86	94	34 06 01.7	118 13 56.4	NW Corner Fredrick St and Isabel St at Stop sign.
	2	3.13	34	34 06 06.8	118 13 47.4	Curb marker at 1712 Kilbourn St.
	3	3.67	52	34 06 16.7	118 13 30.4	Curb marker at 1900 Alder Dr.
73°	1	2.83	42	34 05 35.3	118 13 42.5	On sidewalk in driveway at 2620 Roseview Ave.
	2	3.08	56	34 05 37.8	118 13 32.8	NE Corner of Cypress Ave and Loosemore St.
	3	3.47	52	34 05 41.3	118 13 18.4	On sidewalk in driveway at 918 Isabel St.
95°	1	3.18	22	34 04 59.8	118 13 23.8	On sidewalk W side Figueroa at south end of IHOP.
	2	3.57	21	34 04 58.6	118 13 08.4	On sidewalk in driveway at 3201 Lacy St.
	3	3.86	66	34 04 57.8	118 12 57.5	Opposite 3208 Humboldt at Fire Hydrant.
115°	1	1.51	185	34 04 48.5	118 14 35.6	W side Academy Rd at Power Pole.
	2	2.45	50	34 04 35.2	118 14 01.2	SW Corner Jarvis St and Amador St.
	3	2.56	35	34 04 33.6	118 13 57.1	E side Solano Ave at Water meter.
240°	1	2.17	1800	34 04 33.5	118 16 41.3	At driveway W of apartments on E-W section of N Reno St.
	2	3.09	1700	34 04 18.6	118 17 12.6	Curb marker at 157 S Virgil Ave.
	3	3.88	850	34 04 05.9	118 17 39.1	333 S Berendo St on water meter.
350°	1	1.19	56	34 05 46.6	118 15 35.9	Curb marker at 2414 Earl St.
	2	1.85	165	34 06 07.5	118 15 40.4	E side of Ivanhoe Dr at mailbox 2410.
	3	2.18	105	34 06 18.1	118 15 42.7	Curb marker at 2611 Ivanhoe Dr.

Measurements were made June 16, 2013 by George D Butch using
Potomac Instruments FIM-41, SN 1432, factory calibrated July 29, 1998.
Accuracy was field checked June 14, 2013 against FIM-41, SN 1924, calibrated May 21, 2012.

Direct Measurement of Power - KBLA

Common point impedance measurements were made using the permanently installed Delta Electronics CPB-1A Common Point Bridge. The bridge is located in the circuit adjacent to the common point current meter that is used to determine operating power. The bridge readings were confirmed by comparison with those made by a calibrated network analyzer measurement system employing a Hewlett-Packard 8751A vector network analyzer and a Tunwall Radio directional coupler. The common point impedance was adjusted to 50.0 – j 10.0 ohms for both directional patterns. The reactance was set to – j 10.0 to compensate for series inductance in the circuit between the transmitter and the common point in the phasor cabinet, including the main-auxiliary transmitter switching contactor, in order to provide a non-reactive load for the transmitter's output port at carrier frequency – as evidenced by an indication of zero reflected power on the main transmitter's monitoring panel.

Section 73.51(b)(2) of the FCC Rules specifies that the authorized antenna input power of a directional antenna for over five kilowatts nominal power shall be increased by 5.3 percent above the nominal power.   For both the day and night 50,000 watt patterns, the common point current was calculated for 52,560 watts antenna input power.

Antenna Monitor and Sampling System - KBLA

The antenna monitor is a Potomac Instruments model AM-1901 with factory-installed filters to select the KBLA carrier frequency (1580 KHz) and reject the KHJ (930 KHz) and KYPA (1230 KHz) carrier frequencies. Single turn, unshielded sampling loops are installed at 67 feet above the base insulator on each of the 200 foot tall towers of the array to serve the antenna monitors of all three stations. The loops are connected through equal length ½ inch foam heliax sampling lines to the antenna monitor system at the location of the KBLA antenna monitor. Additional equal length sections of sampling line extend from there to the KHJ and KYPA antenna monitors and finally to a panel containing terminating resistors. All three of the antenna monitors have high impedance bridging inputs that appear across the sampling lines where they are connected and the terminating resistor panel provides matching for the transmission lines coming from the sampling loops in one place.

The complete antenna monitor system, including the three antenna monitors, interconnecting cables and terminating resistor panel, was factory calibrated by Potomac Instruments in February of 2013. Immediately thereafter, it was shipped to the transmitter site and installed.

RFR Protection - KBLA

The operation of KBLA at the site shared with KHJ and KYPA will not result in the exposure of workers or the general public to levels of radio frequency radiation in excess of the limits specified in 47 CFR 1.1310. Metal fences are in place about the tower bases to restrict access to distances beyond those necessary to prevent electric and magnetic field exposure above their required maximum levels. Equipment enclosures within the transmitter building provide effective shielding to contain the radiofrequency fields within them. The effectiveness of both have been verified by measurement.

The fences restrict access to areas with fields that exceed the requirements of the Rules with both stations operating normally at full power. If it is necessary for workers to be inside the restricted areas of the tower base area fences for extended periods of time, the stations may switch to nondirectional operation with KHJ using either tower 4 or tower 5, KYPA using either tower 2 or tower 6, and KBLA using either tower 1 or tower 5 to de-energize other towers, as needed.

Measurements were made to verify that the protection requirements are met with a Holiday Industries model HI-3002 broadband survey meter, using a model STE-02 probe for the electric field component and a model LFH-02 probe for the magnetic field component. The manufacturer's specified probe factors were applied to the meter readings. Observations were made at distances 20 centimeters or more from nearby conducting objects, following the procedures outlined in the FCC's "OET Bulletin 65, Edition 97-01."

At the KHJ and KYPA carrier frequencies, 930 kHz and 1230 KHz, the specified maximum electric and magnetic field values are 614 V/m and 1.63 A/m, respectively. At the KBLA carrier frequency, 1580 KHz, the specified maximum values are 521 V/m and 1.39 A/m. For worst-case analysis, the 1580 KHz maximum specified values were used for comparison with the measured field levels with both stations operating to determine compliance since they are lower than the values for the other two frequencies.

Measurements were made with all three stations operating at their full power levels into their authorized directional antenna systems for both daytime and nighttime modes. No field levels in excess of, or even approaching, the worst-case analysis values were found in any unrestricted areas of the transmitter site. No spatially-averaged measurements were necessary. The following were the highest observed field levels between ground and two meters above ground outside the tower base fences:

Daytime Mode RFR Measurement Results		
Tower	Maximum Measured Electric Field (V/m)	Maximum Measured Magnetic Field (A/m)
1	173	NIL
2	212	0.548
3	332	0.883
4	346	0.424
5	235	0.883
6	134	NIL

Nighttime Mode RFR Measurement Results		
Tower	Maximum Measured Electric Field (V/m)	Maximum Measured Magnetic Field (A/m)
1	387	0.548
2	360	0.735
3	292	0.548
4	255	0.379
5	265	0.812
6	141	0.346

KBLA Intermodulation Product Observations Involving KHJ and KYPA

The KBLA transmitter site is shared with stations KHJ and KYPA. Filters are employed at the tower bases to isolate the antenna system equipment of the three stations from interaction and also at the antenna system inputs to isolate the transmitters from each other's signals. The most critical purpose of the filters is to avoid the production of spurious emissions through the development of intermodulation products of the three stations' frequencies.

Upon completion of final tuning of the KHJ (930 KHz) antenna system, with both KYPA (1230 KHz) and KBLA (1580 KHz) also operating at full power with their authorized daytime antennas, a field strength meter was utilized to search for intermodulation products of the three stations operating at the transmitter site. The observations were made approximately 0.75 kilometer from the transmitter site at an azimuth of approximately 218 degrees true, a direction within the major lobes of both the KYPA and KBLA directional antenna patterns. The location is near the center of the front parking lot of the Rite Aid Pharmacy located at 1433 N Alvarado Boulevard, Los Angeles, California. It is clear of overhead wires and as clear of nearby reradiating objects as possible in the area.

Observations were made at the three stations' carrier frequencies and at all second and third order intermodulation product frequencies involving KBLA and falling within the frequency range of the field strength meter. Signals that were found to be intermodulation products that may be generated in the transmitting equipment, coming from the direction of the transmitter site and carrying the modulation of one or more of the stations, were analyzed relative to the field strengths at their component carrier frequencies. The following tabulation shows the results of the intermodulation product observations.

KBLA INTERMODULATION PRODUCT OBSERVATIONS					
Frequency (KHz)	Product of Frequencies (KHz)	Field Strength (mV/m)	Relative to KHJ (dB)	Relative to KYPA (dB)	Relative to KBLA (dB)
580	930 + 1230 - 1580	N/O	--	--	--
650	930 - 1580	N/O	--	--	--
880	2 X 1230 - 1580	N/O	--	--	--
930	KHJ Carrier	1,280	0.0	N/P	N/P
1230	KYPA Carrier	670	N/P	0.0	N/P
1280	930 – 1230 + 1580	N/O	--	--	--
1580	KBLA Carrier	7,300	N/P	N/P	0.0
1880	930 – 1230 - 1580	N/O	--	--	--
1930	1230 - 2 X 1580	0.105	N/P	-76.1	-96.8
2230	930 - 2 X 1580	0.075	-84.6	N/P	-99.8
2510	930 + 1580	0.110	-81.3	N/P	-96.4
2810	1230 + 1580	0.035	N/P	-85.6	-106.4
3440	2 X 930 + 1580	0.052	-87.8	N/P	-102.9
3740	930 + 1230 + 1580	0.022	-95.3	-89.7	-110.4
4040	2 X 1230 + 1580	N/O	--	--	--
4090	930 + 2 X 1580	0.120	-80.6	N/P	-95.7
4390	1230 + 2 X 1580	0.028	N/P	-87.6	-108.3
N/O – None Observed					
N/P – Station frequency is not involved in this product.					

The field strength measurements were made with a Potomac Instruments FIM-41 field strength meter, serial number 1205. It was most recently calibrated by its manufacturer on May 21, 2012.

Section 73.44(b) of the FCC Rules specifies that emissions more than 75 KHz from carrier frequency must be at least 80 dB below the radiation pattern RMS carrier level of 5 kilowatt station KHJ, 73 dB below the radiation pattern RMS carrier level of 1.0 kilowatt station KYPA and 80 dB below the radiation pattern RMS carrier level of 50 kilowatt station KBLA.

As KHJ employs a nondirectional daytime antenna, it has no gain to be considered in analyzing the spurious emission observations. There is a margin of 0.6 dB with reference to the highest spurious signal that was observed at a product frequency involving KHJ with KYPA and/or KBLA, at 4090 KHz, relative to the KHJ signal.

The standard unattenuated field of the 1.0 kilowatt KYPA directional antenna pattern at 218 degrees true is 425 mV/m, while the standard unattenuated RMS of the directional antenna pattern is 333 mV/m, making the KYPA directional antenna pattern gain at 218 degrees true 2.1 dB. Following the procedure outlined in Section 73.44(d)(2) of the FCC Rules to account for directional antenna pattern gain, there is a margin of 1.0 dB with reference to the highest spurious signal that was observed at a product frequency involving KHJ and KYPA, at 1930 KHz, relative to the KYPA signal.

The standard unattenuated field of the 50 kilowatt KBLA directional antenna pattern at 218 degrees true is 5059 mV/m, while the standard unattenuated RMS of the directional antenna pattern is 2873 mV/m, making the KBLA directional antenna pattern gain at 218 degrees true 4.9 dB. Following the procedure outlined in Section 73.44(d)(2) of the FCC Rules to account for directional antenna pattern gain, there is a margin of 10.8 dB with reference to the highest spurious signal that was observed at a product frequency involving KHJ and KBLA, at 4090 KHz, relative to the KBLA signal.

The measurements indicate that the filtering equipment employed is functioning satisfactorily.

Derivation of Inverted Daytime Directional Antenna Parameters - KBLA

The KBLA daytime directional antenna pattern, which remains unchanged, has historically operated with licensed antenna monitor parameters based on an inversion of the theoretical pattern parameters. As the array employs equal height towers, the embedded design pairs can be inverted (having their field ratios changed to their inverse values) in any combination to achieve different base impedance, power division and pattern bandwidth characteristics.[1] By mathematical analysis, the daytime pattern parameters of the four towers were found to be from multiplication of one of the two tower pairs that define null locations of the resulting pattern shape. These parameters continue to be used and the analysis herein is based on them.

To demonstrate the equivalence of the pattern shape for the field parameters to which the daytime directional antenna system was adjusted - as shown in the analysis contained herein - to the pattern shape calculated for the parameters shown on the station license, tabulations for both appear on the following pages. For sake of comparison, the patterns corresponding to both sets of parameters were calculated using the present-day standard one-ohm loss assumption with no augmentations (the modified standard pattern of the FCC database remains unchanged). For direct comparison, the towers are numbered as they appear in the FCC database, 1 through 4, although they are numbered 2 through 5 in the KBLA array as explained by Item 14 of this report.

It can be seen that the patterns are identical within the range allowed by rounding of the normalized field ratios and phases, with no difference in standard field approaching two percent at any azimuth. As the accuracy required by 47 CFR 73.1215 for the indicating instruments used to determine the power of broadcast stations is two percent of their full scale value, there is no significant difference between the inverted daytime directional antenna pattern and the licensed pattern.

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[1] Rackley, Ronald D. *AM Antenna Systems*, chapter 4.3 of NAB Engineering Handbook, 10th ed., ed. Edmund Williams, National Association of Broadcasters (Washington, 2007), pp.721-722.

CALCULATION USING INVERTED PARAMETERS

AM BROADCAST STATION KBLA
SANTA MONICA, CALIFORNIA

1580 kHz   50 kW   U   DA-2

DAYTIME STANDARD RADIATION PATTERN DATA
(Radiation Values at One Kilometer)

TOWER Number	Field Ratio	Phase (deg)	Spacing (deg)	Bearing (deg)	Height (deg)
1	1.000	+0.0	0.0	0.0	115.6
2	1.111	+166.1	80.0	20.0	115.6
3	0.700	-115.7	128.6	163.5	115.6
4	0.778	+50.4	80.0	127.0	115.6

Input Power (kW)	Loop Loss (ohms)	Theoretical RMS (mV/m)	RSS (mV/m)	Q Factor (mV/m)	Standard RMS (mV/m)
50.0	1.00	2451.	3307.	82.7	2575.

Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)
0	1805.	90	688.	180	4787.	270	722.
5	1767.	95	459.	185	4882.	275	481.
10	1684.	100	327.	190	4947.	280	324.
15	1560.	105	508.	195	4978.	285	245.
20	1399.	110	854.	200	4969.	290	203.
25	1208.	115	1246.	205	4916.	295	162.
30	1002.	120	1648.	210	4814.	300	139.
35	804.	125	2045.	215	4658.	305	211.
40	654.	130	2425.	220	4448.	310	362.
45	604.	135	2782.	225	4184.	315	553.
50	671.	140	3112.	230	3867.	320	761.
55	803.	145	3414.	235	3504.	325	973.
60	942.	150	3687.	240	3104.	330	1177.
65	1051.	155	3932.	245	2679.	335	1364.
70	1109.	160	4152.	250	2242.	340	1526.
75	1104.	165	4346.	255	1812.	345	1655.
80	1030.	170	4517.	260	1403.	350	1747.
85	888.	175	4665.	265	1035.	355	1798.

CALCULATION USING LICENSED PARAMETERS

AM BROADCAST STATION KBLA
SANTA MONICA, CALIFORNIA

1580 kHz   50 kW   U   DA-2

DAYTIME STANDARD RADIATION PATTERN DATA
(Radiation Values at One Kilometer)

TOWER Number	Field Ratio	Phase (deg)	Spacing (deg)	Bearing (deg)	Height (deg)
1	1.000	+0.0	0.0	0.0	115.6
2	0.900	+166.1	80.0	20.0	115.6
3	0.700	-115.7	128.6	163.5	115.6
4	0.630	+50.4	80.0	127.0	115.6

Input Power (kW)	Loop Loss (ohms)	Theoretical RMS (mV/m)	RSS (mV/m)	Q Factor (mV/m)	Standard RMS (mV/m)
50.0	1.00	2451.	3307.	82.7	2575.

Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)	Azimuth (deg)	Field (mV/m)
0	1804.	90	688.	180	4787.	270	722.
5	1766.	95	459.	185	4883.	275	481.
10	1684.	100	327.	190	4948.	280	324.
15	1560.	105	508.	195	4978.	285	245.
20	1398.	110	854.	200	4969.	290	204.
25	1208.	115	1246.	205	4916.	295	162.
30	1002.	120	1648.	210	4814.	300	139.
35	804.	125	2045.	215	4658.	305	210.
40	654.	130	2425.	220	4448.	310	362.
45	605.	135	2782.	225	4184.	315	552.
50	672.	140	3112.	230	3867.	320	761.
55	804.	145	3414.	235	3504.	325	973.
60	942.	150	3687.	240	3104.	330	1177.
65	1052.	155	3933.	245	2678.	335	1364.
70	1110.	160	4152.	250	2242.	340	1525.
75	1105.	165	4347.	255	1811.	345	1655.
80	1031.	170	4518.	260	1403.	350	1747.
85	889.	175	4665.	265	1034.	355	1797.

Tower Numbering - KBLA

There is confusion with regard to the numbering scheme for the towers of the KBLA directional antenna system in the FCC records. The standard pattern in the FCC's engineering database shows theoretical parameters specified with the towers numbered from 1 to 4 for the daytime directional antenna pattern and from 1 to 6 for the nighttime directional antenna pattern – with towers 1, 2, 3 and 4 of the daytime pattern referring to the towers that are designated 2, 3, 4 and 5 in the nighttime pattern, respectively. Towers 1 and 6 of the array are not used in the daytime. All references to tower numbering at the site – including the antenna monitor and the nomenclature of the phasing and coupling equipment – follow the scheme of the nighttime pattern specifications.

To eliminate this confusion, it is requested that the new license have the numbering scheme that is in use at the site, with operating parameters specified for towers 2 through 5 in the daytime and towers 1 through 6 night. All tower numbering herein adheres to that scheme. The antenna monitor parameters provided herein and on the associated FCC Form 302 technical section correspond to the towers numbered accordingly.

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
KBLA	N/A	1580	UNLIIMITED	50.0	50.0

2. Station location	
State	City or Town
CA	LOS ANGELES

3. Transmitter location			
State	County	City or Town	Street address (or other identification)
CA	LOS ANGELES	LOS ANGELES	1700 N. ALVARADO BLVD.

4. Main studio location			
State	County	City or Town	Street address (or other identification)
CA	LOS ANGELES	PASADENA	747 E. Green Street

5. Remote control point location (specify only if authorized directional antenna)			
State	County	City or Town	Street address (or other identification)
CA	LOS ANGELES	PASADENA	747 E. Green Street

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.
TECH EXHIBIT

8. Operating constants:	
RF common point or antenna current (in amperes) without modulation for night system 32.4	RF common point or antenna current (in amperes) without modulation for day system 32.4
Measured antenna or common point resistance (in ohms) at operating frequency Night 50.0 Day 50.0	Measured antenna or common point reactance (in ohms) at operating frequency Night -j 10.0 Day -j 10.0

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	-110.5	N/A	0.585	N/A	N/A	N/A
2	0.0	-50.4	1.000	1.290	N/A	N/A
3	+110.8	+115.8	0.418	1.410	N/A	N/A
4	-10.7	-165.9	0.558	0.892	N/A	N/A
5	+100.1	0.0	0.857	1.000	N/A	N/A
6	-149.0	N/A	0.407	N/A	N/A -	N/A

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

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
UNIFORM CROSS-SECTION, GUYED	61.0	61.5	1,3,4&6: 62.0; 2&5: 61.5	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 34 ° 05 ' 08 "	West Longitude 118 ° 15 ' 24 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits.

Exhibit No. N/A

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system.

Exhibit No. N/A
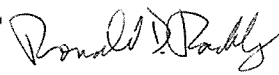
10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

NONE

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

NEW CONSTRUCTION TO ADD KHJ AND KYPA USING KBLA TOWERS

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) RONALD D. RACKLEY, P.E.	Signature (
Address (include ZIP Code) DUTREIL, LUNDIN & RACKLEY, INC. 201 FLETCHER AVENUE SARASOTA, FL 34237	Date JULY 08, 2013
	Telephone No. (Include Area Code) 941-329-6000

☐ Technical Director   ☑ Registered Professional Engineer

☐ Chief Operator   ☐ Technical Consultant

☐ Other (specify)

MULTIPLEX AGREEMENT

THIS MULTIPLEX AGREEMENT (this "Agreement") is made as of _April 2_, 2012 between Multicultural Radio Broadcasting, Inc. ("MRBI") and Liberman Broadcasting of California LLC ("LBI").

Recitals

A.   MRBI has an interest in the real property (the "Property") located at Alvarado and Effie Streets, Los Angeles, California which is more particularly described on *Exhibit A* attached hereto, and owns or operates the AM transmission towers listed on *Exhibit A* attached hereto (collectively, the "Towers") and a transmitter building (the "Building") located on the Property. The Towers, Building and all other improvements of MRBI on the Property are collectively referred to herein as the "Site." MRBI uses the Site as the transmitter site for its radio broadcast stations KBLA(AM), 1580 kHz, Santa Monica, California ("KBLA") and KYPA(AM), 1230 kHz Los Angeles, California ("KYPA"), which currently operate with a shared multi-frequency AM antenna system.

B.   LBI owns radio broadcast station KHJ(AM), 930 kHz Los Angeles, California ("KHJ"), and desires to lease space at the Property for the purpose of housing, installing and operating the LBI Facilities (defined below), also utilizing a multi-frequency AM antenna system, in conjunction with KBLA and KYPA.
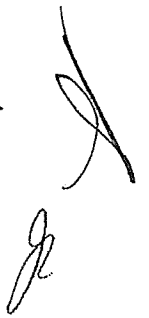
Agreement

NOW, THEREFORE, in consideration of the foregoing, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, hereby agree as follows:

1.   Premises.

        (a)   MRBI hereby leases to LBI use of the Towers and, at LBI's option, sufficient space in the Building for the purpose of installing, maintaining, repairing, replacing and operating the LBI Facilities necessary to transmit KHJ's signal on a multiplexed basis, *i.e.* utilizing a multi-frequency AM antenna system in conjunction with KBLA and KYPA, from the Property.

        (b)   MRBI hereby authorizes LBI to: (i) construct LBI Facilities on the Property including without limitation installing, maintaining, repairing, replacing and connecting the transmitters, transmission lines, filters, electric generators and other communications equipment related to the operation of KHJ in accordance with this Agreement, (ii) construct, at LBI's option, a transmitter building (the "LBI Building") on the Property, (iii) install necessary filters, shielding enclosures, and related multiplexer equipment on the Property for the transmission of KHJ's signal (the "KHJ Multiplex Equipment"), and (iv) pass through portions of the Property for ingress to and egress from the Building and the Towers. All of the foregoing shall be collectively referred to herein as the "Premises." All site preparation work for the use of the Premises by LBI shall be performed by LBI at its expense.

(c)   As used in this Agreement, the term "LBI Facilities" shall mean the LBI Building and KHJ Multiplex Equipment and any other buildings, cables, transmitter, filters and broadcast equipment of LBI located on the Property, as may be more particularly described on *Exhibit B* attached hereto, and any replacement or additions to such equipment and facilities.

(d)   If LBI does not elect to construct the LBI Building, then the LBI Facilities shall include sufficient space in the Building for LBI's transmitter and related equipment, and prior to or concurrent with the installation of the LBI Facilities, LBI shall, at its expense: (i) install a new roof on the Building, (ii) upgrade the Building's HVAC system as necessary for the LBI Facilities, (iii) upgrade the Building's electrical system as necessary for the LBI Facilities, including installation of a separate meter and (iv) upgrade the Building's interior facilities as reasonably necessary for the LBI Facilities.

2.   Term. The term (the "Term") of this Agreement shall commence on the date that LBI commences installation and construction of the LBI Facilities on the Premises (the "Commencement Date") and shall end on the date ten (10) years after the Rent Commencement Date (as defined in Section 3), subject to any earlier termination or extension of this Agreement. The Term shall be automatically extended for three (3) additional periods of five (5) years each, unless LBI gives MRBI written notice of non-renewal at least ninety (90) days prior to the expiration of the then-current Term.

3.   Rent. LBI shall pay MRBI rent in the amount of _____ ("Rent") for use of the Premises, payable monthly in advance on the first day of each calendar month during the Term; provided, however that such obligation to pay Rent shall not begin until the date LBI begins broadcasting KHJ's signal from the Property (the "Rent Commencement Date"). Rent for any partial month shall be prorated. _____

_____ Rent shall be paid to MRBI at the address for notices provided in Section 29 below, or at such other place as MRBI may designate in a written notice to LBI.

4.   Governmental Approvals.

(a)   LBI shall be responsible for obtaining at its expense all necessary approvals of the Federal Communications Commission ("FCC") and any other applicable state or local governmental authorities for the installation and operation of the LBI Facilities at the Property and for demonstrating compliance with the FCC's rules, including without limitation that KBLA's and KYPA's current directional antenna patterns are not materially impaired and that no undesirable intermodulation or spurious emissions are generated by the operation of the LBI Facilities at the Site. Upon LBI's request, MRBI shall assist LBI in obtaining any FCC or other governmental approvals related to this Agreement. Upon request, LBI shall provide MRBI with copies of all applications filed with the FCC related thereto and all permits and licenses issued to KHJ by the FCC or other applicable governmental authorities. LBI shall comply with any conditions which the FCC or other applicable governmental authority may impose with respect to the installation or operation of the LBI Facilities and shall pay for all legal and engineering expenses related thereto; provided, however that MRBI shall pay for all fees and expenses related to all matters existing prior to installation of LBI Facilities.

- 2 -

(b)   LBI shall be responsible for

_____

_____

_____   ; provided, however that
MRBI shall pay for all fees and expenses related to all matters existing prior to installation of
LBI Facilities. In addition, LBI shall pay for _____

_____

_____ provided, however that MRBI shall pay for all fees and expenses related to all matters
existing prior to installation of LBI Facilities.

5.   Use of Premises. LBI shall use the Premises for the installation, removal,
operation, repair, replacement and maintenance of the LBI Facilities and for operation of KHJ,
utilizing the shared multi-frequency AM antenna system to be installed pursuant to this
Agreement. Operation of the LBI Facilities shall be conducted in accordance with this
Agreement and the rules and regulations of the FCC and any other governmental body having
jurisdiction over the installation, repair, alteration, operation or replacement of the LBI Facilities
or any activities of LBI on the Premises. LBI and MRBI shall each comply with all laws and
regulations of the federal, state, county and municipal authorities applicable to the Property.

5.1   Non-Exclusive Use. LBI's use of the Property is non-exclusive, and
MRBI reserves the right to lease the Site (or any portion thereof) to others so long as such other
uses are compatible with and do not interfere with or impair LBI's use of the Premises pursuant
to this Agreement or cause Interference (defined below) or any other material impairment to
KHJ's operation or to the sound quality or coverage area of KHJ's signal.

5.2   Interference.

(a)   Interference. LBI and MRBI shall use commercially reasonable
efforts to avoid Interference with their respective operations from the Property and to resolve any
Interference that arises in connection with such operation. Neither party shall make changes or
installations at the Property that will impair or Interfere with the other party's signals or
broadcast operations from the Property. In the event Interference to such signals or operations
does occur, the interfering party shall notify the other party in writing and take all commercially
reasonable steps to correct such Interference in all material respects within 7 days. MRBI shall
ensure that any and all tenants other than LBI who install radio communications systems or other
equipment on the Property after the date hereof shall not cause Interference to the operations of
LBI and, in the event of such Interference, MRBI shall eliminate such Interference without any
further cost or expense to LBI.

(b)   Interference Definition. As used herein, "Interference" with a
transmitting activity means (i) a condition existing that constitutes "interference" within the
meaning of the provisions of the then-current recommended practices of the Electronics Industry
Association or under the rules, regulations, technical bulletins and orders of the FCC then in
effect (for purposes of clarification, pre-existing interference or signal issues shall not constitute
Interference under this Agreement) or (ii) a material impairment of the quality of the sound
signals of a broadcasting activity from the Site in a material portion of the broadcast service area

of such activity, as compared to that which existed prior to the commencement of (or alteration to) the operations of the most recent use on the Property, provided that, Interference will not be deemed to exist with respect to the multiplexed operations of KBLA, KYPA, and KHJ so long as such stations remain able to transmit with acceptable signal quality for reception of analog AM receivers available for consumer use as of the date of this Agreement, without noticeable degradation and consistent with FCC requirements with respect to suppression of spurious emissions.

5.3   Quiet Enjoyment. Each of LBI and MRBI shall conduct its operations at the Property in such a manner so as not to unreasonably interfere with the other's operations from the Property, provided that nothing stated herein is intended to preclude LBI's quiet enjoyment of the Premises afforded herein.

5.4   Cooperation. In the event it is necessary for LBI or MRBI to reduce, limit or temporarily cease use of its equipment located at the Property so that the other party may install, maintain, repair, remove or otherwise work upon its broadcast equipment at the Property, the non-requesting party shall cooperate in a commercially reasonable manner. If necessary, the non-requesting party shall temporarily reduce, limit or cease use of its equipment located at the Property, provided that the requesting party takes all reasonable steps to minimize the amount of time the non-requesting party shall so operate and that the requesting party takes all reasonable steps to schedule such installation, maintenance, repairs, removal or work at a time convenient to the non-requesting party. In the event LBI's use of the Premises is reduced so as to have a material adverse effect on KHJ, then LBI may terminate this Agreement on thirty (30) days written notice to MRBI and may remove its equipment in accordance with Section 20, with no further liability other than the payment of amounts due through the date LBI vacates the Property and other surviving provisions of this Agreement.

6.   Access.

6.1   Prior to Commencement Date. Prior to the Commencement Date, LBI shall have access to the Property as needed in connection with securing permits and authorizations necessary for its operations from the Property. LBI shall contact MRBI prior to accessing the Premises for such purpose and shall give MRBI the opportunity to have its employees or agents accompany LBI on all such visits to the Property. Thereafter, LBI shall have access to the Property for the purpose of installing, maintaining, operating and repairing the LBI Facilities.

6.2   Authorized Personnel. During the Term, LBI shall have access to the ground portions of the Premises, including the LBI Building (if any) and the Building (if used by LBI) twenty-four hours a day, seven days a week. In the event that LBI wishes to access the Towers, LBI shall provide notice to MRBI, and MRBI shall arrange to have a representative available at a mutually agreeable time.

6.3   LBI's Contractors. All contractors and subcontractors (collectively referred to herein as "Contractor") of LBI who perform any service for LBI on the Premises shall hold licenses or governmental authorizations appropriate to and necessary for the work being performed. Any such Contractor shall carry insurance issued by companies licensed in the state

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of California. In addition, if requested by MRBI, Contractor shall provide MRBI with certificates or other proof of insurance which shall name MRBI as an "additional insured" on all such policies and such other documentation as MRBI may reasonably request showing Contractor's compliance with this Section 6.3.

7.   Utilities. LBI shall at it sole cost and expense initiate, contract for, obtain and pay for any electrical, telephone or other utility services used by LBI at the Premises. Each of LBI and MRBI shall cooperate with the other's reasonable requests regarding the manner and timing of the installation of LBI's utilities. Without limiting the foregoing, MRBI shall permit LBI to install a sub-panel from the existing service with a private meter for billing purposes and shall also permit LBI to connect to any existing emergency generator system. If MRBI does not have a satisfactory emergency generator at the Premises available for LBI's use, then MRBI shall provide space for and permit LBI to install a generator for LBI's use at the Premises.

8.   Taxes. MRBI shall pay all real property taxes assessed against the Premises and the Property, and LBI shall reimburse MRBI upon invoice for a pro rata share (being 1/3) of such real property taxes. LBI shall pay when due any taxes levied against the LBI Facilities and any other personal property of LBI located on the Premises. Where possible, LBI shall cause the LBI Facilities or other personal property to be assessed and billed separately from the Property.

9.   Maintenance.

(a)   MRBI shall maintain the Property, Towers and Building at its expense in good operating condition (ordinary wear and tear excepted). MRBI shall maintain all required Site records and shall file any required notification concerning any failure of, repairs to, and correction of the Site in compliance with the rules and regulations of the Federal Aviation Administration, the FCC and any other applicable governmental authorities.

(b)   LBI shall maintain the LBI Facilities at its expense in good operating condition (ordinary wear and tear excepted).

(c)   Each of LBI and MRBI shall pay its pro rata share of other maintenance costs related to the proposed multiplex operation. LBI shall reimburse MRBI upon invoice for a pro rata share (being one-third) of the reasonable out-of-pocket expenses incurred by MRBI in the ordinary course of business for maintenance of the Towers (including for lighting, painting and tensioning), landscaping of the Property, security of the Towers and compliance with Los Angeles County mandated graffiti control. MRBI shall be responsible for all expenses related to the Property, Towers or Building that are outside of the ordinary course of business and for all expenses that relate solely to KBLA or KYPA.

10.   Insurance. Each of LBI and MRBI shall all times during the Term maintain, at a minimum, the policies of insurance set forth below issued by companies licensed in the state of California, with respect to its operations from the Property. Prior to commencement of work at the Premises, LBI shall provide MRBI with certificates or other proof of insurance which shall name MRBI as an "additional insured" on all such policies.

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10.1   Commercial General Liability Insurance. Commercial General Liability Insurance for bodily injury and property damage, written on an "occurrence" basis, with limits no less than _____ and no less than _____

10.2   Workers' Compensation Insurance. Workers' Compensation Insurance affording coverage under the workers' compensation laws of California, having minimum limits

10.3   Umbrella Liability Insurance. Umbrella Liability Insurance _____ _____providing excess coverage over all limits and coverages noted in Sections 10.1 and 10.2 above, written on an "occurrence" basis.

11.   LBI Construction.

11.1   Installation of LBI Facilities. Prior to and in connection with the installation and operation of the LBI Facilities (the "Work"), LBI shall comply with the following:

(a)   the Work shall comply in all material respects with standards of good engineering practice, the installation standards provided in this Agreement and any standards imposed by the FCC and any other applicable governmental authority;

(b)   the Work shall not commence until satisfactory documentation detailing the plans and specifications of the Work have been provided to and approved by MRBI, whose approval shall not be unreasonably withheld, delayed or conditioned, and until after the FCC has granted LBI a construction permit for the installation of the LBI Facilities; and

(c)   LBI shall pay for all engineering studies associated with the Work.

11.2   Proofs of Performance.

(a)   Prior to commencement of any installation of LBI Facilities, and immediately after completion of the installation of LBI Facilities, LBI shall engage a qualified engineer (subject to MRBI's reasonable approval) to conduct any measurements required by the FCC and make any FCC required filings. LBI shall be responsible for all legal and consulting engineering fees and expenses and FCC filing fees in connection with such measurements and FCC filings. All stations will be licensed utilizing "Method of Moments" or "MoM" computer modeling in lieu of field strength measurements to the extent feasible and consistent with FCC requirements.

(b)   MRBI acknowledges that MRBI may be required to operate at reduced power or cease broadcasts for a period of time during the installation of LBI Facilities. LBI shall take all steps reasonably necessary to minimize unreasonable disruptions to MRBI's normal operations. LBI shall schedule all such installation work that may cause such disruptions to KBLA or KYPA at such times as shall be agreed to in advance by MRBI's general manager for KBLA, such consent of MRBI not to be unreasonably withheld, delayed or conditioned.

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11.3   Obligation to Restore. Notwithstanding anything in this Agreement to the contrary, if in the performance of any Work LBI disturbs the property, equipment, broadcast pattern or services of MRBI as would require MRBI to perform a partial or full proof of performance of its broadcast pattern, LBI will restore such property, equipment or broadcast pattern to its former condition in all material respects including, without limitation, conducting and performing such partial or full proof of performance as may be required by the FCC, at LBI's expense. If LBI does not promptly restore such property, equipment or broadcasting pattern that was disturbed by LBI in performing the Work, MRBI may restore such property to its former condition in all material respects at LBI's sole expense.

11.4   Improvements, Modifications, Alterations. During the Term, LBI, at LBI's expense, shall have the right to substitute, modify, change or replace any or all of the LBI Facilities, provided that, prior to commencement of installation of any material part of the LBI Facilities, LBI submits to MRBI, for review and written approval, copies of LBI's construction and installation plans for the modifications. MRBI's approval of such plans shall be timely and shall not be unreasonably withheld, conditioned or delayed. Title to LBI Facilities shall be held by LBI, and all equipment or other property attached to or otherwise brought onto the Premises by LBI, including the equipment cabinets, LBI Building and the KHJ Multiplex Equipment, shall at all times be considered personal property of LBI and not fixtures. LBI shall not demolish, remove or modify any permanent installations, additions, fixtures, structures or other improvements now or hereafter affixed to the Site or any structure thereon, without the prior written consent of MRBI, which consent shall not be unreasonably withheld, delayed or conditioned.

11.5   Other Approvals. Prior to the initiation by LBI of the delivery, installation, replacement or removal of the LBI Building and LBI Facilities, LBI shall obtain the prior written approval of MRBI to LBI's proposed scheduling of work and LBI's choice of vendors and contractors (which approval shall not be unreasonably withheld, delayed or conditioned). LBI shall construct the LBI Building and deliver and install LBI Facilities in conformity in all material respects with the specifications, schedules and choice of vendors and contractors approved by MRBI.

11.6   Liens. LBI has no authority or power to cause or permit any lien or encumbrance of any kind whatsoever, whether created by the actions of LBI, or the operation of law or otherwise, to attach to or be placed upon MRBI's title or interest in the Property, Building, Towers or Premises, any and all liens and encumbrances created by LBI shall attach to LBI's interest only. LBI agrees not to permit any lien of mechanics, suppliers, materialmen or others to be placed against the Building, Towers or Property, and LBI agrees that within thirty (30) days after written notice by any entity of the filing of any such lien, LBI shall cause it to be released and removed of record.

12.   Indemnification. MRBI shall indemnify, defend and hold LBI harmless from and against any and all loss, liability, cost and expense (including reasonable attorneys' fees) arising from MRBI's use of the Property, Towers and Building or from MRBI's default under this Agreement. LBI shall indemnify, defend and hold MRBI harmless from and against any and all loss, liability, cost and expense (including reasonable attorneys' fees) arising from LBI's use of the Premises, except for any claims or damages that may arise from or be caused by the

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negligence of MRBI or its agents, or from LBI's default under this Agreement. The obligations under this Section shall survive any termination of this Agreement.

13. Damage and Destruction. In the event that any of the Towers is fully or partially destroyed or damaged by fire, lightning, windstorm, explosion, collapse, vandalism, civil disturbance, aircraft or other vehicle damage or other casualty so as to be unfit for LBI's occupancy and intended use hereunder and the Towers cannot be restored or rebuilt by MRBI within 180 days, then LBI may elect to terminate this Agreement by written notice to MRBI. If any of the Towers is in need of such repair or is so damaged by fire, lightning, windstorm, explosion, vandalism, aircraft or other vehicle damage, collapse or other casualty that reconstruction or repair cannot reasonably be undertaken without dismantling the LBI Facilities, then MRBI may request that LBI remove such LBI Facilities or interrupt LBI's operations, thereafter replacing the equipment as soon as reasonably possible (and MRBI shall be responsible for repairing or replacing any related damage to LBI Facilities to the same or better condition as existed prior to the damage). LBI shall be entitled to a pro rata abatement of its Rent for such time as it is unable to conduct its normal operations as a result of such total or partial destruction or damage or need of repair. Notwithstanding anything herein to the contrary, in the event LBI's use of the Premises is reduced so as to have a material adverse effect on KHJ, then LBI may terminate this Agreement on thirty (30) days written notice to MRBI and may remove its equipment in accordance with Section 20, with no further liability other than the payment of amounts due through the date LBI vacates the Property and other surviving provisions of this Agreement.

14. Hazardous Materials.

14.1 Each of MRBI and LBI shall: (a) comply with all environmental laws applicable to its operations from the Property, (b) not bring any hazardous materials on the Property except in compliance with applicable law, (c) not take any action that would subject the Property to permit requirements for storage, treatment or disposal of hazardous materials, (d) not dispose of hazardous materials on the Property, (e) not discharge hazardous materials into drains or sewers in violation of any environmental laws, (f) not suffer, cause or allow the release of any hazardous materials on, to or from the Property in violation of any environmental laws or in quantities requiring a permit, and (g) at its own cost arrange for the lawful transportation and off-site disposal of all hazardous materials that it generates.

14.2 Each of LBI and MRBI shall promptly upon receipt thereof provide the other party with copies of all summons, citations, directives, information inquiries or requests, notices of potential responsibility, notices of violation or deficiency, orders or decrees, claims, complaints, investigations, judgments, letters, notices of environmental liens or response actions in progress and other communications, written or oral, actual or threatened, from the United States Environmental Protection Agency, Occupational Safety and Health Administration or other federal, state or local agency or authority or any other entity or individual, concerning any release of a hazardous material on, to or from the Property or any alleged violation of or responsibility under environmental laws.

14.3 MRBI agrees that LBI is not responsible for any hazardous materials located on the Property prior to the Commencement Date or for any hazardous materials

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subsequently brought to the Property by MRBI or any third party. MRBI will make all reasonable efforts to make sure that no hazardous materials are present on the Property prior to commencement of construction by LBI.

15. **MRBI Title**. MRBI's title to the Property (if owned by MRBI), Building, Towers and Premises is and always shall be paramount to the interest of LBI and nothing herein contained shall empower LBI to do any act or to omit any act which would encumber MRBI's title.

16. **Force Majeure**. MRBI shall not be liable to LBI for failure to furnish space under this Agreement if prevented by war, fires, strikes or other labor troubles, acts of God, or other causes beyond its reasonable control. LBI shall be entitled to a pro rata abatement of its Rent for such time as it is unable to conduct its normal operations as a result of a force majeure event. Notwithstanding anything herein to the contrary, in the event LBI's use of the Premises is reduced so as to have a material adverse effect on KHJ, then LBI may terminate this Agreement on thirty (30) days written notice to MRBI and may remove its equipment in accordance with Section 20, with no further liability other than the payment of amounts due through the date LBI vacates the Property and other surviving provisions of this Agreement.

17. **Eminent Domain**. If the land on which MRBI's Towers, foundation, guy wire anchors or Building is located, or the Premises are acquired or condemned under the power of eminent domain whether by public authority, public utility, or otherwise, then this Agreement shall terminate as of the date title shall have vested in such public authority. MRBI shall be entitled to the entire amount of any condemnation award, except LBI shall be entitled to make a claim for and retain a condemnation award based on and attributed to the value of the LBI Facilities and the expense of removing and relocating the LBI Facilities.

18. **Assignment**.

(a) **By MRBI**. MRBI shall have the right to assign this Agreement in connection with a transfer of the Property, provided that such assignee agrees in writing to assume all obligations of MRBI under this Agreement arising on or after the date of assignment.

(b) **By LBI**. LBI shall not assign or sublease this Agreement without the prior written consent of MRBI, which shall not be unreasonably withheld, delayed or conditioned. Notwithstanding the foregoing, LBI may assign its rights and obligations under this Agreement, without the consent of MRBI, to an entity that is controlled by or under common control with LBI or to any party acquiring KHJ's FCC authorizations pursuant to FCC approval, provided that such acquiring party agrees in writing to assume this Agreement.

(c) No assignment shall relieve a party of any obligation or liability under this Agreement. This Agreement shall inure to the benefit of and be binding upon the parties and their successors and assigns.

19. **Termination**.

19.1 **LBI Default**. In the event LBI shall:

; or (ii) default in the performance of any other covenants under this Agreement and such default continues for thirty (30) days after LBI's receipt of written notice thereof from MRBI (provided, however if LBI is using commercially reasonable efforts to cure such default, then LBI shall have an additional thirty (30) days to cure), then MRBI may:

        (a)   terminate this Agreement by written notice to LBI and retake possession of the Premises;

        (b)   cure any such default and invoice LBI for the costs and expenses of the same, which invoice shall be payable within ten (10) business days of its receipt by LBI; and

        (c)   exercise any other remedy available at law or in equity.

If LBI remains in default beyond any applicable cure period, whether or not MRBI shall have terminated this Agreement, MRBI may, at MRBI's option, (i) demand immediate removal by LBI of the LBI Facilities from the Premises, and if LBI fails to do so within thirty (30) days of MRBI's demand, MRBI may remove and store the LBI Facilities at LBI's sole cost or (ii) notwithstanding anything in this Agreement to the contrary, take possession of the LBI Facilities, at which time the LBI Facilities shall become the property of MRBI and MRBI may dispose of the LBI Facilities in any manner, including, but not limited to, the use or sale by MRBI of such LBI Facilities. In such event, MRBI shall not be liable to LBI for damage to LBI Facilities in the course of such removal, and LBI shall reimburse MRBI for any damages to the Premises caused by such removal.

        19.2   MRBI Default. In the event MRBI shall default in the performance of any covenants under this Agreement and such default continues for thirty (30) days after MRBI's receipt of written notice thereof from LBI (provided, however if MRBI is using commercially reasonable efforts to cure such default, then MRBI shall have an additional thirty (30) days to cure), then LBI may terminate this Agreement by written notice to MRBI.

        19.3   Other LBI Termination Rights. LBI may terminate this Agreement by written notice to MRBI if, prior to installation of the LBI Facilities, (i) LBI determines in its sole discretion that the contemplated multiplex arrangement or operation of KHJ from the Property is not reasonably feasible or if any FCC or other governmental approval necessary for the construction or operation of the LBI Facilities or operation of KHJ from the Property cannot be obtained within a reasonable period of time after the date hereof, or (ii) LBI determines in its sole discretion not to proceed with the multiplex arrangement contemplated hereunder for any reason. In addition to the foregoing, this Agreement may be terminated by LBI upon thirty (30) days written notice to MRBI if: (i) LBI is unable to obtain or maintain any license, permit or other governmental approval necessary for the construction or operation of the LBI Facilities or operation of KHJ from the Property, (ii) the Premises is or becomes unacceptable for technological reasons including without limitation Interference or defects in design or engineering specifications of the LBI Facilities or (iii) the FCC licenses for KHJ are revoked, suspended, terminated, adversely modified or denied renewal by the FCC. Termination under

this Section 19.3 shall not limit any other rights of LBI pursuant to any other provisions hereof or available at law or equity.

20. **Removal of LBI Facilities.** Subject to the provisions of Section 19.1 above, upon expiration or termination of this Agreement, LBI shall have the right to dismantle, disconnect and remove, at LBI's sole expense, any and all equipment owned by LBI which may be installed in or connected to the Towers, Building, Property or Premises; provided, however, that LBI shall take no such action that will unreasonably disrupt or otherwise materially adversely affect the signal of KBLA or KYPA. If such disruption occurs, LBI shall be responsible for all commercially reasonable costs and expenses reasonably necessary to restore in all material respects the signal of KBLA or KYPA to its strength and coverage prior to commencement of removal of LBI Facilities. For avoidance of doubt, the KHJ Multiplex Equipment and LBI Building are the property of LBI and may be removed by LBI upon termination in accordance with this Section.

21. **Attornment.** In the event of the sale or transfer of MRBI's interest in the Property, or in the event of any proceedings brought for the foreclosure of any mortgage covering the Property, or in the event of any other transfer of the Property by MRBI, LBI shall attorn to MRBI's successor in interest and recognize such successor as MRBI under this Agreement.

22. **Remedies Cumulative.** The remedies provided herein shall be cumulative and shall not preclude the assertion by any party hereto of any other rights or the seeking of and other remedies against the other party hereto.

23. **No Waiver.** Should either party permit a continuing default of the other party's performance of the terms of this Agreement, its obligations hereunder shall continue and such permissive default shall not be construed as a waiver of any rights or obligations hereunder.

24. **Relationship of Parties.** Nothing herein contained shall be deemed or construed as creating the relationship of principal and agent or of partnership or of joint venture between the parties hereto, it being understood and agreed that neither the provisions contained herein, nor any acts of the parties, shall be deemed to create any relationship between the parties hereto other than the relationship of landlord and tenant.

25. **Broker.** LBI warrants that is has dealt with no broker, commission agent, finder or other person or entity with respect to this Agreement, and MRBI warrants that it has dealt with no broker, commission agent, finder or other person or entity with respect to this Agreement. Each party shall indemnify and hold harmless the other party from any and all claims, actions, damages, costs, expenses, and liability whatsoever, including reasonable attorney's fees, that may arise from any claims for commission or finder's fees in connection with this Agreement, the Property or Premises.

26. **Applicable Law.** This Agreement shall be construed and governed in accordance with the internal laws of the State of California without regard to the conflict of laws provisions thereof.

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27.   Entire Agreement. This Agreement contains the entire understanding of the parties with respect to the subject matter hereof. There are no restrictions, leases, promises, warranties, covenants or undertakings other than expressly set forth herein. This Agreement supersedes all prior leases and understandings between the parties with respect to the subject matter hereof. No modification of this Agreement shall be effective unless contained in writing signed by the authorized representative of both parties.

28.   Headings. The section and paragraph headings contained in this Agreement are for reference purpose only and shall not affect in any way the meaning or interpretation of this Agreement.

29.   Notices. Any notice pursuant to this Agreement shall be in writing and shall be deemed delivered on the date of personal delivery or confirmed facsimile transmission or confirmed delivery by a nationally recognized overnight courier service, and shall be addressed as follows (or to such other address as any party may request by written notice):

if to MRBI: Multicultural Radio Broadcasting, Inc.
                          27 William Street, 11th Floor
                          New York, NY 10005
                          Attention: Jim Glogowski
                          Facsimile: 212 - 431 - 5802

if to LBI: Liberman Broadcasting of California LLC
                          1845 Empire Avenue
                          Burbank, California 91504
                          Attention: Lenard Liberman
                          Facsimile: (818) 558-4244

30.   Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Any faxed or PDF signature page hereof shall be considered an original signature page and be effective for all purposes to evidence such party's execution hereof.

31.   Severability. If any term or provision of this Agreement shall to any extent be invalid or unenforceable, then so long as no party is deprived of the benefits of this Agreement in any material respect, the remainder of this Agreement shall not be affected thereby, and each other term and provision of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

32.   Representations. LBI and MRBI each represent and warrant to the other that it has the power and authority to enter into this Agreement, it is in good standing in the jurisdiction of its organization and is qualified to do business in the state of California, it has duly authorized this Agreement, and this Agreement is binding upon it, and the execution, delivery, and performance by it of this Agreement does not conflict with any other agreement to which it is a party.
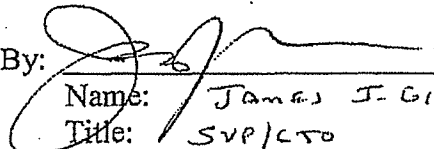
[SIGNATURE PAGE FOLLOWS]

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SIGNATURE PAGE TO MULTIPLEX AGREEMENT

IN WITNESS WHEREOF, this Agreement has been duly executed and delivered by MRBI and LBI as of the date first set forth above.

MRBI: MULTICULTURAL RADIO BROADCASTING, INC.

By: _____

Name: James J. Glogowsue

Title: SVP/CTO

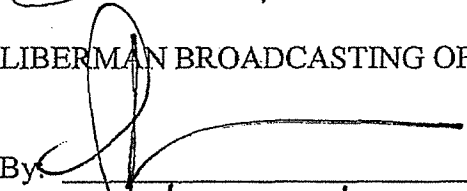LBI: LIBERMAN BROADCASTING OF CALIFORNIA LLC

By: _____

Name: Lenard Liberman

Title: President/CEO

EXHIBIT A
DESCRIPTION OF PROPERTY

KBLA(AM), (1580 kHz), Santa Monica, CA -- 50 kW DA, Day (4T)/Night (6T)
        Tower registrations: 1014851, 1014852, 1014853, 1014854, 1014855, 1014856

KYPA(AM), (1230 kHz), Los Angeles, CA -- 1 kW DA, Day (2T)/Night (2T)
        Tower registrations: 1014852, 1014856

Coordinates of the Property are:

        35 degrees, 5 minutes, 8 seconds N. Latitude
        118 degrees, 15 minutes, 24 seconds W. Longitude

[insert legal description if available]

EXHIBIT B
LBI FACILITIES

LBI shall deliver to MRBI a list of the LBI Facilities prior to the Commencement Date, and such list, as may be revised, amended or supplemented, shall constitute *Exhibit B.*