iHeart MEDIA
2625 S Memorial Drive
Suite A
Tulsa, OK 74129
o 918.664.4581
f 918.664.3066
www.iHeartMedia.com
www.iHeartRadio.com
#iheartradio

April 26, 2017

COURIER DELIVERY

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

RE: Clear Channel Broadcasting Licenses, Inc. (FRN No. 0001587971)
Application (Form 302-AM) for New License
WIOD (AM), 610 kHz, Miami, FL; Facility ID No. 14242

Dear Ms. Dortch:

Clear Channel Broadcasting Licenses, Inc., the licensee of the above-referenced station, hereby submits an original and four copies of an application for a new license, submitted on FCC Form 302-AM.

Also enclosed is Form 159, Remittance Advice, with credit card payment of the $1,505.00 filing fee.

Please stamp and return the additional copy of this submission in the enclosed Federal Express envelope. Please direct communications concerning this application to the undersigned.

Respectfully submitted,

iHeartMedia, Inc.

By: __________________________
Stephen G. Davis
Senior Vice President, Real Estate, Facilities & Corporate Development

cc: WIOD (AM) Public Inspection File

Accepted / Filed

APR 26 2017

Federal Communications Commission
Office of the Secretary

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. BZ-20170426ACK

SECTION I - APPLICANT FEE INFORMATION

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

Clear Channel Broadcasting Licenses, Inc.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
2625 S MEMORIAL DRIVE

MAILING ADDRESS (Line 2) (Maximum 35 characters)
SUITE A

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
TULSA	OK	74129

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
918-664-4581	WIOD	14242

2. A. Is a fee submitted with this application? ☑ Yes ☐ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☐ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

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

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
M M R	0 0 0 1	$ 700.00	

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

(A)	(B)	(C)	FOR FCC USE ONLY
M O R	0 0 0 1	$ 805.00	

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
$ 1,505.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Clear Channel Broadcasting Licenses, Inc.		
MAILING ADDRESS 2625 S MEMORIAL DRIVE, SUITE A		
CITY TULSA	STATE OK	ZIP CODE 74129

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
WIOD	Miami, FL			

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620? ☐ Yes ☐ No

If No, explain in an Exhibit. Exhibit No.

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met? ☐ Yes ☐ No

If No, state exceptions in an Exhibit. Exhibit No.

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect? ☐ Yes ☐ No

If Yes, explain in an Exhibit. Exhibit No.

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)? ☑ Yes ☐ No ☐ Does not apply

If No, explain in an Exhibit. Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination? ☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter. Exhibit No.

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

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature	
Stephen G. Davis	[signature]	
Title	Date	Telephone Number
Senior Vice President, RE, Facilities & Corp Development	4/26/17	918-664-4581

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
Clear Channel Broadcasting Licenses, Inc.

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	Power in kilowatts Day
WIOD	NA	610	Unlimited	10	10

2. Station location

State	City or Town
Florida	Miami

3. Transmitter location

State	County	City or Town	Street address (or other identification)
FL	Dade	Miami	1401 N. Bay Causeway

4. Main studio location

State	County	City or Town	Street address (or other identification)
FL	Broward	Miramar	7601 Riviera Blvd.

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

State	County	City or Town	Street address (or other identification)
FL	Broward	Miramar	7601 Riviera Blvd.

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. Engineering

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system: 14.5

RF common point or antenna current (in amperes) without modulation for day system: 14.5

Measured antenna or common point resistance (in ohms) at operating frequency: Night 50, Day 50

Measured antenna or common point reactance (in ohms) at operating frequency: Night -j5, Day -j5

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 (SW) ASR 1040071	0	0	1.00	1.00		
2 (NW) ASR 1040072	+130.4	+176.7	1.495	1.450		

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.
Tapered, Self-Supported, Steel	91.5	T1: 94.8, T2:93.9	T1: 95.5, T2: 94.8	Exhibit No.

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 25 ° 50 ' 57 "	West Longitude 80 ° 9 ' 19 "

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 - Ground system remains as described in previous filings.

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

To relicense the existing operation pursuant to sections of 47 CFR 73.151 allowing performance verification by computer modeling and sample system verification.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
Randall L. Mullinax	[signature]
Address (include ZIP Code) 2859 Cascade Dr. Gainesville, GA 30504 e-mail randymullinax@iheartmedia.com	Date 4/24/2017 Telephone No. (Include Area Code) 770-534-1065

☑ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☐ Technical Consultant

☐ Other (specify)

ENGINEERING EXHIBIT
APPLICATION FOR DIRECT POWER MEASUREMENT
CLEAR CHANNEL BROADCASTING LICENSES, INC.
RADIO STATION WIOD
MIAMI, FLORIDA

April 24, 2017

610 KHz   10 KW   DA-2

Table of Contents

Engineering Statement

This application is being filed to relicense the existing operation of WIOD Miami, FL pursuant to sections of 47 CFR 73.151 which allow performance verification by computer modeling and sample system verification. WIOD operates on 610 kHz with power of 10 kW, utilizing different two-tower directional antenna patterns during daytime and nighttime hours, pursuant to an FCC special temporary authorization ("STA") that allows WIOD to recover some of the coverage that is lost to interference origination in Cuba. The ground system and radiators remain as previously described. All antenna system and Reference Point field measurements included in this application were made by the undersigned from February 13-15, 2017.

Analysis of this antenna system was performed using a combination of a method of moments model and a circuit model. The method of moments model was produced using the computer program Expert MININEC Broadcast Professional version 14.5 by EM Scientific Inc. The circuit model was produced using the nodal analysis program WCAP Pro version 1.1 by Westberg Consulting. The method of moments models and the circuit models for each radiator were adjusted to produce the same matrix impedances as those measured by varying the electrical height of the radiators and by adding shunt capacitive loads and series inductance using the circuit model.

Once the models were adjusted to match the measured matrix impedances, the array synthesis module of the program was used to calculate the proper base drive voltages to generate the fields necessary to form the required patterns for daytime and nighttime operation. The current distribution was calculated for each radiator and given that the sampling system utilizes base current sampling devices the operating parameters calculated from the resulting currents at each base node and the associated circuit model.

Randall L. Mullinax
April 24, 2017

Description of Radiators

The WIOD radiators are three-sided self supporting structures that taper in side width from the base as the height above ground increases. Tower 1(SW) has a face width of 609.6 cm at the base decreasing to 76.2 cm at the top. Tower 2(NE) have a face width of 627.9 cm at the base decreasing to 61 cm at the top. While the towers differ slightly in cross sectional area the electrical height of both towers is 67° at 610 kHz.

Each radiator was modeled using 4, 2-segment wires for a total of 8 segments per tower with all radii remaining within the required 80 to 150% of a circle radius having a circumference equal to the sum of the widths of the tower sides at the bottom and top of each individual segment. The total modeled height and the modeled height of all segments for both radiators are also well within the 75 to 125% requirement, relative to the appropriate physical heights.

The "Problem Definition Evaluation" function of the MINIMEC program shows no errors for either radiator, and the current moment sums are equal to the theoretical array parameters when normalized to the reference tower for both patterns as shown on Pages 15 and 21 of this report.

Tower #	ASRN	Electrical Height
1	1040071	67.0°
2	1040072	67.0°

Description of Model

The overall model of the antenna system consists of two components: the method of moments model and the circuit model. The method of moments model was adjusted by varying the electrical height of the radiators to produce an impedance at the base node such that when combined with the circuit model produced an impedance within +/- 2Ω and +/- 4% of the measured matrix resistance and reactance at the sample point. The modeled electrical heights used fall within the range of 70-125% of the physical height. The effective radii used fall within the range of 80-150% of the radius of a circle with a circumference equal to the sum of the widths of the tower sides. The circuit model consists of a lumped series inductive reactance and a lumped shunt capacitive reactance combined with the calculated base impedance produced by the method of moments model.

Description of Ground System

No changes were made to the ground system which remains as described in previous filings.

Description of Sampling System

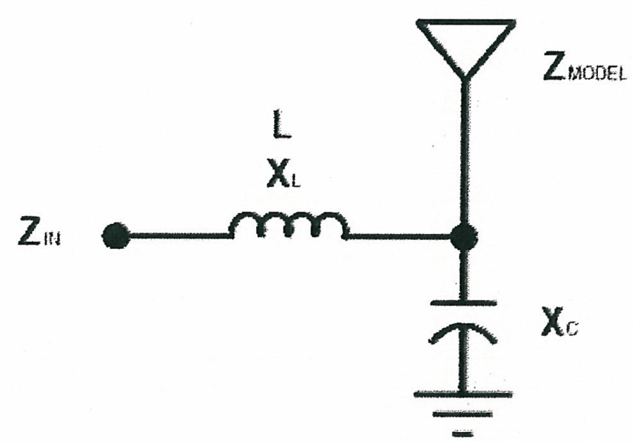
The sampling system consists of equal lengths of ½" solid outer jacket coaxial cable connected to Delta Electronics model TCT-1 toroidal current transformers near the base of each tower. The sample lines are buried over their entire length. The antenna monitor is a Potomac Instruments Model 1901. An Agilent Technologies Model 8753ES vector network analyzer was utilized to field-verify that the antenna monitor is operating within the manufacturer's specified tolerance.

Measured Matrix Impedances and WCAP Corrections

Tower 1 driven with Tower 2 floated 12.7 –j56.3Ω

Tower 2 driven with Tower 1 floated 13.4 -j65.7Ω

TOWER	Z_{MODEL}	Z_{IN} (MODEL)	Z_{IN} (MEASURED)	L(µH)	X_L	X_C
1	13.8 -j86.1	12.7 -j56.3	12.7 -j56.3	6.88	+j26.37	-j2007
2	14.6 -j81.5	13.4 -j65.7	13.4 -j65.7	3.33	+j12.76	-j2007



All measurements were made with an Agilent Technologies Model 8753ES vector network analyzer in a calibrated measurement system.

MoM Calculated Impedances and WCAP Calculations

MoM Calculated Impedance Tower 1 Driven with Tower 2 Floated

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	2.32	2
		0	0	18.		
2	none	0	0	18.	1.16	2
		0	0	36.2		
3	none	0	0	36.2	.58	2
		0	0	54.2		
4	none	0	0	54.2	.36	2
		0	0	71.6		
5	none	75.	35.	0	2.4	2
		75.	35.	18.7		
6	none	75.	35.	18.7	1.2	2
		75.	35.	37.5		
7	none	75.	35.	37.5	.6	2
		75.	35.	56.2		
8	none	75.	35.	56.2	.3	2
		75.	35.	73.5		

Number of wires = 8
current nodes = 16

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	8	8.65	6	9.4
radius	8	.3	5	2.4

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.61	0	1	.0240278	.0261111

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	9	0	-2,007.	0	0	0

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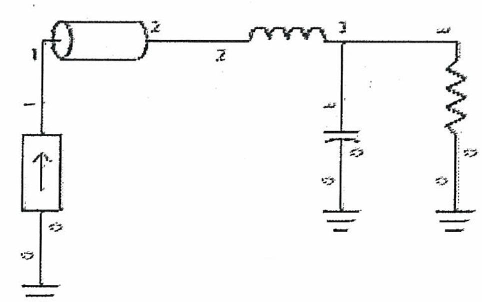
IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.61	**13.836**	**-86.102**	87.206	279.1	14.538	-1.1968	-6.1822

WCAP Calculations - Tower 1 Driven with Tower 2 Floated



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES

Node:	1	57.6947 ∡ -77.2628° V
Node:	2	57.6947 ∡ -77.2628° V
Node:	3	83.6174 ∡ -81.2497° V

WCAP PART		CURRENT IN	CURRENT OUT
TL 1→2	50.00000000	1.00 ∡ -0.001° A	1.00 ∡ -0.001° A

WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L 2→3	6.88000000	26.37 ∡ 90.000° V	1.00 ∡ -0.001° A
C 3→0	0.00013000	83.62 ∡ -81.250° V	0.04 ∡ 8.750° A
R 3→0	13.83600000	83.62 ∡ -81.250° V	0.96 ∡ -0.379° A

WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
TL 1→2	50.00000000	12.72 - j 56.275	**12.72 - j 56.275**
L 2→3	6.88000000	12.72 - j 56.275	12.72 - j 82.644
C 3→0	0.00013000	-0.00 - j 2006.998	0.00 + j 0.000
R 3→0	13.83600000	**13.84 - j 86.102**	0.00 + j 0.000

WCAP PART		VSWR
TL 1→2	50.00000000	9.0537

WCAP INPUT DATA:

	0.6100	0.00000000	0			
I	1.00000000	0	1	0.00000000		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	6.88000000	2	3	0.00000000		
C	0.00013000	3	0			
R	13.83600000	3	0	-86.10200000		

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

MoM Calculated Impedance Tower 2 Driven with Tower 1 Floated

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WIOD Test

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	2.32	2
		0	0	18.		
2	none	0	0	18.	1.16	2
		0	0	36.2		
3	none	0	0	36.2	.58	2
		0	0	54.2		
4	none	0	0	54.2	.36	2
		0	0	71.6		
5	none	75.	35.	0	2.4	2
		75.	35.	18.7		
6	none	75.	35.	18.7	1.2	2
		75.	35.	37.5		
7	none	75.	35.	37.5	.6	2
		75.	35.	56.2		
8	none	75.	35.	56.2	.3	2
		75.	35.	73.5		

Number of wires = 8
current nodes = 16

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	8	8.65	6	9.4
radius	8	.3	5	2.4

ELECTRICAL DESCRIPTION
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	.61	0	1	.0240278	.0261111

Sources

source	node	sector	magnitude	phase	type
1	9	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-2,007.	0	0	0

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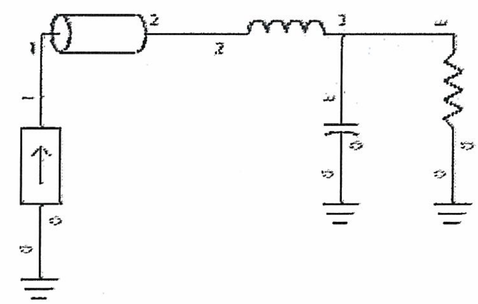
IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 9, sector 1							
.61	**14.55**	**-81.516**	82.804	280.1	12.783	-1.3618	-5.6999

WCAP Calculations - Tower 2 Driven with Tower 1 Floated



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES

Node: 1 67.0254 ∡ -78.4363° V
Node: 2 67.0254 ∡ -78.4363° V
Node: 3 79.5705 ∡ -80.2789° V

WCAP PART		CURRENT IN	CURRENT OUT
TL 1→2	50.00000000	1.00 ∡ -0.000° A	1.00 ∡ -0.001° A

WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L 2→3	3.33000000	12.76 ∡ 90.000° V	1.00 ∡ -0.001° A
C 3→0	0.00013000	79.57 ∡ -80.279° V	0.04 ∡ 9.721° A
R 3→0	14.55000000	79.57 ∡ -80.279° V	0.96 ∡ -0.399° A

WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
TL 1→2	50.00000000	13.44 - j 65.665	**13.44 - j 65.665**
L 2→3	3.33000000	13.44 - j 65.665	13.44 - j 78.428
C 3→0	0.00013000	0.00 - j 2006.998	0.00 + j 0.000
R 3→0	14.55000000	**14.55 - j 81.516**	0.00 + j 0.000

WCAP PART		VSWR
TL 1→2	50.00000000	10.3117

WCAP INPUT DATA:

	0.6100	0.00000000	0			
I	1.00000000	0	1	0.00000000		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	3.33000000	2	3	0.00000000		
C	0.00013000	3	0			
R	14.55000000	3	0	-81.51600000		

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

Daytime Directional Operating Parameters Derived from Modeled Currents

TOWER	Model Current Pulse	Model Current Magnitude (amperes)	Model Current Phase (degrees)	Model Drive Impedance (ohms)	Model Drive Power (watts)
1	1	24.12	0.1	0.77 -j76.4	448
2	9	34.94	176.6	7.83 -j77.7	9559

TOWER	Drive Impedance At Toroid (ohms)	Current Magnitude At Toroid (amperes)	Current Phase At Toroid (degrees)	Antenna Monitor Ratio	Antenna Monitor Phase (degrees)
1	0.71 -j47.2	25.03	0.1	1.000	0
2	7.26 -j62.1	36.29	176.8	1.450	+176.7

Daytime Directional MoM Calculated Voltages and Currents

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18:32:58

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency =   .61 MHz

       field ratio
tower  magnitude     phase (deg)
 1     1.            0
 2     1.46          175.

VOLTAGES AND CURRENTS - rms
source voltage                current
node   magnitude     phase (deg)  magnitude     phase (deg)
 1     1,841.28      270.7        24.1092       .1
 9     2,727.66      92.3         34.9372       176.6
Sum of square of source currents = 3,603.72
Total power = 10,000. watts

TOWER ADMITTANCE MATRIX
admittance    real (mhos)       imaginary (mhos)
Y(1, 1)       .0016263          .0113342
Y(1, 2)       .000975499        -.00121517
Y(2, 1)       .000975507        -.00121529
Y(2, 2)       .00191948         .0119054

TOWER IMPEDANCE MATRIX
impedance     real (ohms)       imaginary (ohms)
Z(1, 1)       13.892            -86.0777
Z(1, 2)       9.45841           -6.12347
Z(2, 1)       9.45808           -6.12266
Z(2, 2)       14.6057           -81.4907
```

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	2.32	2
		0	0	18.		
2	none	0	0	18.	1.16	2
		0	0	36.2		
3	none	0	0	36.2	.58	2
		0	0	54.2		
4	none	0	0	54.2	.36	2
		0	0	71.6		
5	none	75.	35.	0	2.4	2
		75.	35.	18.7		
6	none	75.	35.	18.7	1.2	2
		75.	35.	37.5		
7	none	75.	35.	37.5	.6	2
		75.	35.	56.2		
8	none	75.	35.	56.2	.3	2
		75.	35.	73.5		

Number of wires = 8
current nodes = 16

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	8	8.65	6	9.4
radius	8	.3	5	2.4

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.61	0	1	.0240278	.0261111

Sources

source	node	sector	magnitude	phase	type
1	1	1	2,603.97	270.7	voltage
2	9	1	3,857.49	92.3	voltage

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.61	.76525	-76.369	76.373	270.6	217.78	-8.E-02	-17.399
source = 2; node 9, sector 1							
.61	7.8282	-77.68	78.073	275.8	21.914	-.79326	-7.7743

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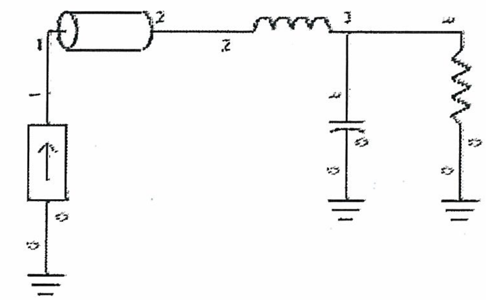
CURRENT rms
Frequency = .61 MHz
Input power = 10,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	**24.1092**	**.1**	24.1092	.0587465
2	0	0	9.	20.3755	.1	20.3755	.0178993
END	0	0	18.	17.4967	0.0	17.4967	5.38E-04
2J1	0	0	18.	17.4967	0.0	17.4967	5.38E-04
4	0	0	27.1	15.1413	360.	15.1413	-7.26E-03
END	0	0	36.2	12.1225	359.9	12.1225	-.0117192
2J2	0	0	36.2	12.1225	359.9	12.1225	-.0117192
6	0	0	45.2	9.51646	359.9	9.51645	-.0122987
END	0	0	54.2	6.4154	359.9	6.41539	-.0102802
2J3	0	0	54.2	6.4154	359.9	6.41539	-.0102802
8	0	0	62.9	3.53804	359.9	3.53804	-6.53E-03
END	0	0	71.6	0	0	0	0
GND	61.4364	-43.0182	0	**34.9372**	**176.6**	-34.8746	2.09063
10	61.4364	-43.0182	9.35	29.2608	175.6	-29.1749	2.24088
END	61.4364	-43.0182	18.7	24.9357	175.1	-24.8428	2.15098
2J5	61.4364	-43.0182	18.7	24.9357	175.1	-24.8428	2.15098
12	61.4364	-43.0182	28.1	21.4435	174.7	-21.3517	1.98214
END	61.4364	-43.0182	37.5	16.99	174.3	-16.9069	1.67855
2J6	61.4364	-43.0182	37.5	16.99	174.3	-16.9069	1.67855
14	61.4364	-43.0182	46.85	13.1334	174.1	-13.0629	1.35865
END	61.4364	-43.0182	56.2	8.52447	173.8	-8.47432	.923333
2J7	61.4364	-43.0182	56.2	8.52447	173.8	-8.47432	.923333
16	61.4364	-43.0182	64.85	4.69534	173.6	-4.66581	.525774
END	61.4364	-43.0182	73.5	0	0	0	0

Daytime WCAP Calculations

Tower 1



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES

Node:	1	1181.4079 ∡ -89.0173° V
Node:	2	1181.4080 ∡ -89.0173° V
Node:	3	1841.2959 ∡ -89.3261° V

WCAP PART			CURRENT IN	CURRENT OUT
TL	1→2	50.00000000	**25.03 ∡ 0.121° A**	25.03 ∡ 0.121° A

WCAP PART			BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	6.88000000	659.94 ∡ 90.121° V	25.03 ∡ 0.121° A
C	3→0	0.00013000	1841.30 ∡ -89.326° V	0.92 ∡ 0.674° A
R	3→0	0.76500000	1841.30 ∡ -89.326° V	**24.11 ∡ 0.100° A**

WCAP PART			FROM IMPEDANCE	TO IMPEDANCE
TL	1→2	50.00000000	0.71 - j 47.201	0.71 - j 47.201
L	2→3	6.88000000	0.71 - j 47.201	0.71 - j 73.570
C	3→0	0.00013000	0.00 - j 2006.998	0.00 + j 0.000
R	3→0	0.76500000	0.77 - j 76.369	0.00 + j 0.000

WCAP PART			VSWR
TL	1→2	50.00000000	133.1974

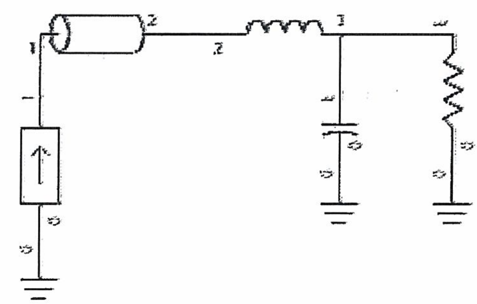
WCAP INPUT DATA:

	0.6100	0.00000000	0			
I*	**25.02670000**	**0**	**1**	**0.12100000**		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	6.88000000	2	3	0.00000000		
C	0.00013000	3	0			
R	0.76500000	3	0	-76.36900000		

***current required to produce the current predicted by MoM model at base of radiator**

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

Tower 2



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES

Node: 1	2267.1049 ∡ 93.4842° V	
Node: 2	2267.1050 ∡ 93.4842° V	
Node: 3	2727.6679 ∡ 92.3543° V	

WCAP PART		CURRENT IN	CURRENT OUT
TL 1→2	50.00000000	**36.29 ∡ 176.815° A**	36.29 ∡ 176.815° A

WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
L 2→3	3.33000000	463.17 ∡ -93.185° V	36.29 ∡ 176.815° A
C 3→0	0.00013000	2727.67 ∡ 92.354° V	1.36 ∡ -177.646° A
R 3→0	7.82800000	2727.67 ∡ 92.354° V	**34.94 ∡ 176.600° A**

WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
TL 1→2	50.00000000	7.26 - j 62.050	7.26 - j 62.050
L 2→3	3.33000000	7.26 - j 62.050	7.26 - j 74.813
C 3→0	0.00013000	0.00 - j 2006.998	0.00 + j 0.000
R 3→0	7.82800000	7.83 - j 77.680	0.00 + j 0.000

WCAP PART		VSWR
TL 1→2	50.00000000	17.5929

WCAP INPUT DATA:

	0.6100	0.00000000	0			
I*	**36.28970000**	**0**	**1**	**176.81500000**		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	3.33000000	2	3	0.00000000		
C	0.00013000	3	0			
R	7.82800000	3	0	-77.68000000		

***current required to produce the current predicted by MoM model at base of radiator**

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

Daytime Calculated Current Moments

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CURRENT MOMENTS(amp-degrees) rms

Frequency = .61 MHz
Input power = 10,000. watts

			vertical current moment	
wire	magnitude	phase (deg)	magnitude	phase (deg)
1	715.528	.1	715.528	.1
2	526.219	360.	526.219	360.
3	326.421	359.9	326.421	359.9
4	113.309	359.9	113.309	359.9
5	1,068.58	175.8	1,068.58	175.8
6	769.608	174.7	769.608	174.7
7	467.376	174.1	467.376	174.1
8	149.596	173.7	149.596	173.7

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	1,681.48	360.
2	2,454.96	175.

Normalized to Tower 1

tower	magnitude	phase (deg)
1	1.000	0.0
2	1.460	175.

Nighttime Directional Operating Parameters Derived from Modeled Currents

TOWER	Model Current Pulse	Model Current Magnitude (amperes)	Model Current Phase (degrees)	Model Drive Impedance (ohms)	Model Drive Power (watts)
1	1	18.94	2.1	11.7 -j69.5	4197
2	9	28.14	132.6	7.34 -j83.7	5812

TOWER	Drive Impedance At Toroid (ohms)	Current Magnitude At Toroid (amperes)	Current Phase At Toroid (degrees)	Antenna Monitor Ratio	Antenna Monitor Phase (degrees)
1	10.9 -j40.9	19.60	2.4	1.000	0
2	6.76 -j67.6	29.31	132.8	1.495	+130.4

Nighttime Directional MoM Calculated Voltages and Currents

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MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency =   .61 MHz

       field ratio
tower  magnitude     phase (deg)
 1     1.            0
 2     1.431         131.

VOLTAGES AND CURRENTS - rms
source voltage                     current
node   magnitude     phase (deg)   magnitude     phase (deg)
 1     1,334.72      281.6         18.9424       2.1
 9     2,363.02      47.6          28.1395       132.6
Sum of square of source currents = 2,301.3
Total power = 10,000. watts

TOWER ADMITTANCE MATRIX
admittance    real (mhos)      imaginary (mhos)
Y(1, 1)       .0016263         .0113342
Y(1, 2)       .000975499       -.00121517
Y(2, 1)       .000975507       -.00121529
Y(2, 2)       .00191948        .0119054

TOWER IMPEDANCE MATRIX
impedance     real (ohms)      imaginary (ohms)
Z(1, 1)       13.892           -86.0777
Z(1, 2)       9.45841          -6.12347
Z(2, 1)       9.45808          -6.12266
Z(2, 2)       14.6057          -81.4907
```

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	2.32	2
		0	0	18.		
2	none	0	0	18.	1.16	2
		0	0	36.2		
3	none	0	0	36.2	.58	2
		0	0	54.2		
4	none	0	0	54.2	.36	2
		0	0	71.6		
5	none	75.	35.	0	2.4	2
		75.	35.	18.7		
6	none	75.	35.	18.7	1.2	2
		75.	35.	37.5		
7	none	75.	35.	37.5	.6	2
		75.	35.	56.2		
8	none	75.	35.	56.2	.3	2
		75.	35.	73.5		

Number of wires = 8
current nodes = 16

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	8	8.65	6	9.4
radius	8	.3	5	2.4

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.61	0	1	.0240278	.0261111

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,887.59	281.6	voltage
2	9	1	3,341.81	47.6	voltage

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IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.61	**11.681**	**-69.487**	70.462	279.5	12.703	-1.3704	-5.6766
source = 2; node 9, sector 1							
.61	**7.3359**	**-83.654**	**83.975**	275.	26.003	-.6684	-8.4574

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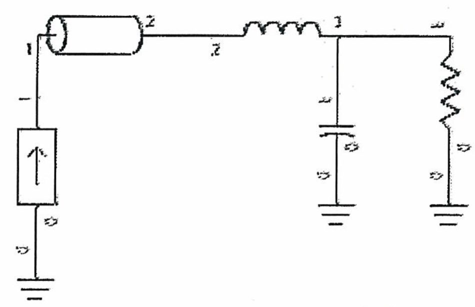
CURRENT rms
Frequency = .61 MHz
Input power = 10,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	**18.9425**	**2.1**	18.9302	.680478
2	0	0	9.	16.2411	.7	16.2398	.203414
END	0	0	18.	14.067	0.0	14.067	3.06E-03
2J1	0	0	18.	14.067	0.0	14.067	3.06E-03
4	0	0	27.1	12.243	359.6	12.2427	-.0856618
END	0	0	36.2	9.86139	359.2	9.86047	-.134973
2J2	0	0	36.2	9.86139	359.2	9.86047	-.134973
6	0	0	45.2	7.7764	359.	7.77514	-.140119
END	0	0	54.2	5.26727	358.7	5.266	-.115869
2J3	0	0	54.2	5.26727	358.7	5.266	-.115869
8	0	0	62.9	2.91649	358.6	2.91559	-.072796
END	0	0	71.6	0	0	0	0
GND	61.4364	-43.0182	0	**28.1396**	**132.6**	-19.0353	20.7243
10	61.4364	-43.0182	9.35	23.2672	131.6	-15.4623	17.3861
END	61.4364	-43.0182	18.7	19.6845	131.1	-12.9362	14.8369
2J5	61.4364	-43.0182	18.7	19.6845	131.1	-12.9362	14.8369
12	61.4364	-43.0182	28.1	16.8518	130.7	-10.9907	12.7745
END	61.4364	-43.0182	37.5	13.2925	130.3	-8.59722	10.138
2J6	61.4364	-43.0182	37.5	13.2925	130.3	-8.59722	10.138
14	61.4364	-43.0182	46.85	10.2433	130.	-6.58223	7.84853
END	61.4364	-43.0182	56.2	6.62785	129.6	-4.22866	5.10361
2J7	61.4364	-43.0182	56.2	6.62785	129.6	-4.22866	5.10361
16	61.4364	-43.0182	64.85	3.64243	129.4	-2.31093	2.81548
END	61.4364	-43.0182	73.5	0	0	0	0

Nighttime WCAP Calculations

Tower 1



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES
Node: 1 828.7504 ∡ -72.6235° V
Node: 2 828.7504 ∡ -72.6235° V
Node: 3 1334.7296 ∡ -78.3579° V

WCAP PART			CURRENT IN	CURRENT OUT
TL	1→2	50.00000000	**19.60 ∡ 2.422° A**	19.60 ∡ 2.422° A

WCAP PART			BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	6.88000000	516.80 ∡ 92.422° V	19.60 ∡ 2.422° A
C	3→0	0.00013000	1334.73 ∡ -78.358° V	0.67 ∡ 11.642° A
R	3→0	11.68100000	1334.73 ∡ -78.358° V	**18.94 ∡ 2.100° A**

WCAP PART			FROM IMPEDANCE	TO IMPEDANCE
TL	1→2	50.00000000	10.91 - j 40.854	10.91 - j 40.854
L	2→3	6.88000000	10.91 - j 40.854	10.91 - j 67.223
C	3→0	0.00013000	0.01 - j 2006.998	0.00 + j 0.000
R	3→0	11.68100000	11.68 - j 69.487	0.00 + j 0.000

WCAP PART			VSWR
TL	1→2	50.00000000	7.7301

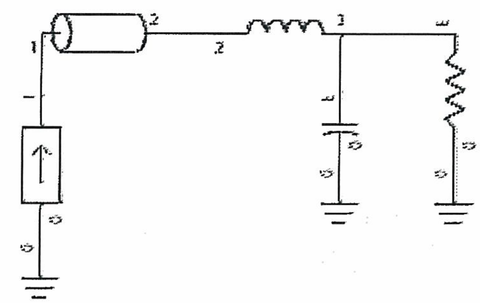
WCAP INPUT DATA:

	0.6100	0.00000000	0			
I*	**19.59870000**	**0**	**1**	**2.42200000**		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	6.88000000	2	3	0.00000000		
C	0.00013000	3	0			
R	11.68100000	3	0	-69.48700000		

***current required to produce the current predicted by MoM model at base of radiator**

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

Tower 2



WCAP OUTPUT AT FREQUENCY: 0.610 MHz

NODE VOLTAGES

Node: 1 1990.4319 ∡ 48.5148° V
Node: 2 1990.4319 ∡ 48.5148° V
Node: 3 2362.9781 ∡ 47.6117° V

WCAP PART			CURRENT IN	CURRENT OUT
TL	1→2	50.00000000	**29.31 ∡ 132.801° A**	29.31 ∡ 132.801° A

WCAP PART			BRANCH VOLTAGE	BRANCH CURRENT
L	2→3	3.33000000	374.11 ∡ -137.199° V	29.31 ∡ 132.801° A
C	3→0	0.00013000	2362.98 ∡ 47.612° V	1.18 ∡ 137.612° A
R	3→0	7.33600000	2362.98 ∡ 47.612° V	**28.14 ∡ 132.600° A**

WCAP PART			FROM IMPEDANCE	TO IMPEDANCE
TL	1→2	50.00000000	6.76 - j 67.567	6.76 - j 67.567
L	2→3	3.33000000	6.76 - j 67.567	6.76 - j 80.330
C	3→0	0.00013000	0.00 - j 2006.998	0.00 + j 0.000
R	3→0	7.33600000	7.34 - j 83.654	0.00 + j 0.000

WCAP PART			VSWR
TL	1→2	50.00000000	20.9892

WCAP INPUT DATA:

	0.6100	0.00000000	0			
I *	**29.31210000**	**0**	**1**	**132.80100000**		
TL	50.00000000	1	2	100.00000000	0.00001000	0.00000000
L	3.33000000	2	3	0.00000000		
C	0.00013000	3	0			
R	7.33600000	3	0	-83.65400000		

***current required to produce the current predicted by MoM model at base of radiator**

Note: A mathematically insignificant length of transmission line was inserted into the circuit model at the sampling point to allow the program to calculate the impedance.

Nighttime Calculated Current Moments

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CURRENT MOMENTS(amp-degrees) rms

Frequency = .61 MHz
Input power = 10,000. watts

			vertical current moment	
wire	magnitude	phase (deg)	magnitude	phase (deg)
1	568.952	1.	568.952	1.
2	425.3	359.6	425.3	359.6
3	266.564	359.	266.564	359.
4	93.2258	358.7	93.2258	358.7
5	851.642	131.8	851.642	131.8
6	605.071	130.7	605.071	130.7
7	364.711	130.	364.711	130.
8	116.175	129.5	116.175	129.5

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	1,353.89	360.
2	1,937.42	131.

Normalized to Tower 1

tower	magnitude	phase (deg)
1	1.000	0.0
2	1.431	131.

Measured and Calculated Sampling Line Characteristics

Measured open circuit resonant frequency at odd multiple of ¼ wavelength nearest the carrier frequency:

Tower 1	1529.19 kHz	3/4 λ(270°)
Tower 2	1524.98 kHz	3/4 λ(270°)

Measured impedance 1/8 wavelength above and below open circuit resonant frequency:

Tower 1	1784.06 kHz	4.80 +j50.05 Ω	+1/8 λ
	1274.33 kHz	3.17 –j48.30 Ω	-1/8 λ
Tower 2	1779.14 kHz	5.20 +j51.15 Ω	+1/8 λ
	1270.83 kHz	3.26 –j49.54 Ω	-1/8 λ

Calculated characteristic impedance using formula $Z_o = ((R_1^2 + X_1^2)^{1/2} * (R_2^2 + X_2^2)^{1/2})^{1/2}$:

Tower 1	49.33 Ω
Tower 2	50.52 Ω

Calculated electrical length at f carrier :

Tower 1	L = (f carrier / f resonant) * 270° = (610 kHz / 1529.19 kHz) * 270° = 107.70°
Tower 2	L = (f carrier / f resonant) * 270° = (610 kHz / 1524.98 kHz) * 270° = 108.00°

Measured impedance at f carrier at the input of the sampling line with the sampling device connected:

Tower 1	50.7 –j2.9Ω
Tower 2	51.4 –j2.1Ω

All measurements above made with an Agilent Model 8753ES vector network analyzer in a calibrated measurement system.

Sampling Transformer Calibration

Calibration of the Delta Electronics model TCT-1 toroidal current transformers was confirmed using an Agilent Model 8753ES vector network analyzer.

The signal from the generator output of the vector network analyzer was connected to a conductor running through the transformers which was then terminated with a 50Ω load. The network analyzer was set to measure in "transmission" mode and the output of the Tower 1 reference toroidal current transformer was connected to the network analyzer "B" receiver input. A "response" calibration was performed, calibrating the network analyzer for the amplitude and phase characteristics of the reference transformer. The output of the remaining Tower 2 toroidal current transformer was then connected in turn to the input of the "B" receiver of the analyzer and the amplitude and phase characteristics were recorded.

	Indicated Phase	Indicated Radio
T1	0°	1.000
T2	-0.19°	1.011

The manufacturer specifies these devices to be accurate to within +/- 2% absolute magnitude and +/- 2° absolute phase.

Direct Measurement of Power

The common point networks for both patterns were adjusted to provide an operating resistance of 50 ohms and a reactance of 0 (zero) ohms to the transmitter output. In order to compensate for hookup inductance between the power measurement point and the transmitter the common point reactance was set for a value of –j5 ohms at the measurement point. The common point impedance measurements were made with an Agilent Model 8753ES vector network analyzer in a calibrated measurement system. Both the daytime and nighttime operating powers were calculated by adding 5.3% to the normal operating power of 10.0 kW. The common point currents were then calculated as indicated below.

Pattern	Nominal Power (kW)	Operating Power (kW)	Operating Common Point Current (Amps)
Daytime	10.0	10.53	14.5
Nighttime	10.0	10.53	14.5

Environmental Statement

The WIOD radiators are surrounded by a secured fence restricting access by unauthorized personnel and signs are posted in the vicinity of the radiators, warning of potential radio frequency hazards at the site. Based on the charts and graphs supplied in Supplement A, Edition 97-01 to OET bulletin 65, Edition 97-01 the applicant certifies that the distance to the fences from the radiators complies with FCC OET65 regarding human exposure to non-ionizing electromagnetic radiation.

Daytime Reference Points Data

Field Meter Model	Serial Number	Calibration Date
FIM-41	2111	February 1, 2016

Azimuth	Description	Distance	Coordinates NAD 83	Measurement	Date
35°T	Center of drive at 1001 91st Street	4.33 km	N25°52'55.0" W80°07'49.1"	185 mV/m	2/15/17
	Center of striped walkway to 9270 East Bay Harbor Drive	4.57 km	N25°53'01.1" W80°07'44.0"	178 mV/m	2/15/17
	End of 95th Street at Stop Sign	4.80 km	N25°53'06.3" W80°07'38.1"	218 mV/m	2/15/17
	End of Carlyle Ave on sidewalk beside Palm tree	5.01 km	N25°53'12.1" W80°07'34.3"	208 mV/m	2/15/17
121°T	5736 North Bay Road	2.73 km	N25°50'12.5" W80°07'54.2"	136 mV/m	2/14/17
	Center of drive at sidewalk, 5114 Pinetree Dr.	3.57 km	N25°50'00.6" W80°07'26.9"	118 mV/m	2/14/17
	5313 Collins Ave. center of parking space 111	3.90 km	N25°49'53.9" W80°07'17.9"	183 mV/m	2/14/17
215°T	34th Street on south sidewalk opposite entrance to Hamilton Rental Community	5.60 km	N25°48'31.0" W80°11'12.6"	150 mV/m	2/14/17
	West entrance to 105 25th Street at center of drive	6.67 km	N25°48'02.9" W80°11'35.0"	78 mV/m	2/14/17
	West of 845 7th Street on sidewalk at Stop sign	9.39 km	N25°46'49.7" W80°12'31.6"	128 mV/m	2/14/17
309°T	1201 96th Street at Fire Plug	2.49 km	N25°51'51.3" W80°10'26.5"	152 mV/m	2/14/17
	At Fire Plug, 100th Street NE at 9th Ave NE	3.12 km	N25°52'02.9" W80°10'45.2"	130 mV/m	2/14/17
	Center of northern most Handicapped Parking Space behind Redeemer Lutheran Church	4.97 km	N25°52'40.3" W80°11'36.3"	88 mV/m	2/14/17

Nighttime Reference Points Data

Field Meter Model	Serial Number	Calibration Date
FIM-41	2111	February 1, 2016

Azimuth	Description	Distance	Coordinates NAD 83	Measurement	Date
35°T	Center of drive at 1001 91st Street	4.33 km	N25°52'55.0" W80°07'49.1"	96 mV/m	2/15/17
	Center of stripped walkway to 9270 East Bay Harbor Drive	4.57 km	N25°53'01.1" W80°07'44.0"	90 mV/m	2/15/17
	End of 95th Street at Stop Sign	4.80 km	N25°53'06.3" W80°07'38.1"	106 mV/m	2/15/17
	End of Carlyle Ave on sidewalk beside Palm tree	5.01 km	N25°53'12.1" W80°07'34.3"	100 mV/m	2/15/17
84°T	1552 Biarritz Dr.	1.92 km	N25°51'05.3" W80°08'06.8"	133 mV/m	2/15/17
	End of Rue Notre Dame at sea wall on sidewalk	2.35 km	N25°51'07.7" W80°07'53.2"	112 mV/m	2/15/17
	6830 Harding Ave on sidewalk at No Parking sign	3.36 km	N25°51'10.8" W80°07'17.0"	62 mV/m	2/15/17
215°T	34th Street on south sidewalk opposite entrance to Hamilton Rental Community	5.60 km	N25°48'31.0" W80°11'12.6"	180 mV/m	2/15/17
	West entrance to 105 25th Street at center of drive	6.67 km	N25°48'02.9" W80°11'35.0"	72 mV/m	2/15/17
	West of 845 7th Street on sidewalk at Stop sign	9.39 km	N25°46'49.7" W80°12'31.6"	113 mV/m	2/15/17
346°T	1536 131st Road	5.48 km	N25°53'51.3" W80°10'05.5"	91 mV/m	2/15/17
	1440 14th Street	6.26 km	N25°54'16.7" W80°10'11.5"	73 mV/m	2/15/17
	1335 151st Street	7.39 km	N25°54'52.2" W80°10'22.1"	77 mV/m	2/15/17