Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE NO. BAML-20120914AET

SECTION I - APPLICANT FEE INFORMATION

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

Capstar TX LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
2625 S. Memorial

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	WJBO	Facility ID 4054

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
MMR	0001	$ 635.00	

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
MOR	0001	$ 730.00	

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
	$ 1365.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Capstar TX LLC		
MAILING ADDRESS 2625 S. Memorial Ste 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
WJBO	Baton Rouge, LA	BP-20100518ADW		

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		
Title	Date	Telephone Number
Senior Vice President, Engineering		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

CAPSTAR TX 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
WJBO	BP-20100518ADW	1150	Unlimited	5.0	15.0

2. Station location

State	City or Town
Louisiana	Baton Rouge

3. Transmitter location

State	County	City or Town	Street address (or other identification)
LA	West Baton Rouge	Port Allen	4510 Rebelle Lane

4. Main studio location

State	County	City or Town	Street address (or other identification)
LA	East Baton Rouge	Baton Rouge	5555 Hilton, Suite 500

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

State	County	City or Town	Street address (or other identification)
LA	East Baton Rouge	Baton Rouge	5555 Hilton, Suite 500

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. 1

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
10.39	17.77

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50.0	50.0	-7	-7

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	-141.4	+27.7	.827	1.034		
2	0.00	-80.1	1.000	.326		
3	-108.3	+79.6	.864	.340		
4	-	0.00	-	1.000		

Manufacturer and type of antenna monitor: Potomac Instruments Model 1901

CLEAR ALL PAGES

SECTION III - Page 2

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Series, Guyed	1, 3- 68.1 2-141.7 467.1	1,3- 69.5 2- 143.3 4- 69.2	1,3-69.5 2-144.2 4-69.2	Exhibit No. NA

Excitation ☑ Series ☐ Shunt

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

North Latitude	West Longitude
30 ° 27 ' 47 "	91 ° 16 ' 10 "

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. 1

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. 1

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.

NA

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)
Allan B. Brace	
Address (include ZIP Code)	Date
2625 S. Memorial Drive Suite A Tulsa, OK 74129	9/12/12
	Telephone No. (Include Area Code) 918-664-4581

☑ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☐ Technical Consultant

☐ Other (specify)

APPLICATION FOR LICENSE INFORMATION

RADIO STATION WJBO

CAPSTAR TX LLC

BATON ROUGE, LOUISIANA

FID 4054

1150 KHZ 15KW D, 5KW N, DA2

September 1, 2012

APPLICATION FOR LICENSE INFORMATION
RADIO STATION WJBO
BATON ROUGE, LOUISIANA

1150 KHZ 15KW D, 5 KW N, DA2

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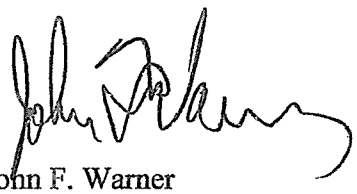
EXECUTIVE SUMMARY

This engineering exhibit has been prepared in support of an application for license for the modified daytime directional antenna system for radio station WJBO in Baton Rouge, Louisiana. The directional antenna system was constructed as authorized by FCC construction permit number BP20100518ADW which was granted on May 18, 2011. The nighttime array continues to operate as previously licensed, however, measurements are included to relicense the nighttime operation under Rule Section 73.151c.

The towers and ground system were constructed in accordance with the terms of the construction permit and the specifications provided in application for construction permit. Specifically, a tower designated "Tower #4", was added to make up a four tower directional array for daytime operation. The nighttime array remains as currently licensed. The fourth tower is detuned during nighttime operation. The information that is provided in this report demonstrates that the directional antenna parameters for both the daytime and nighttime patterns authorized by the construction permit have been determined to be in compliance with the requirements of section 73.151(c) of the FCC rules. The system has been adjusted to produce antenna parameters within+/-5% in ratio and +/-3 degrees in phase of the modeled values as prescribed in the Rules.
Please refer any questions regarding this report to:



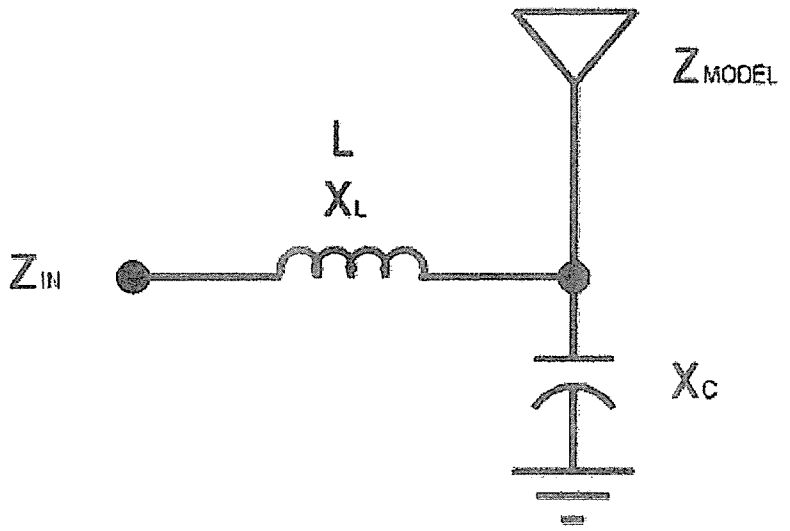
John F. Warner
johnwarner@clearchannel.com
443-255-5299

Analysis of Tower Impedance Measurements to Verify Method of Moments Model

Impedance measurements were made of the individual towers with the other tower bases shorted. The shorts consisted of low inductance copper straps applied directly across the base insulators of the towers. Measurements were made using a Hewlett-Packard 4396A network analyzer and a Tunwall Radio directional coupler in a calibrated measurement system. Measurements were made immediately adjacent to the torroidal antenna sampling transformers, inside the antenna coupling units. These measured values were related to the modeled values obtained using Expert MININEC Broadcast Professional V14.6. Heights of the towers were adjusted as permitted by Rule Section 73.151(c)(1). The tower radii were modeled at their actual values. The towers were segmented so that each segment is less than ten (10) degrees in length.

Tower	Actual Height Degrees	Model Height Degrees	Model Percent of Height	Model Equivalent Radius Meters	Model Percent Of Radius
1	94.0	101.9	108.4	.2182	100
2	195.6	202.0	103.3	.3637	100
3	94.0	101.6	108.1	.2182	100
4	92.0	96.3	104.7	.2182	100

The model was verified by comparison of modeled to measured tower impedances. The tower resistance and reactance were measured immediately adjacent to the torroidal base sampling transformers, inside the antenna tuning unit cabinets. The measured and modeled impedances were correlated using the Westberg Consulting WCAP Pro software program. WCAP is based on the SPICE nodal analysis program. The shunt capacitive reactance of the tower base insulator is represented in the drawing below as Xc. The series inductive reactance of the tower feed conductor is represented as Xl. Z model represents the modeled impedance of the tower and Zin represents the impedance measured at the sampling point. In the following WCAP tabulations, the modeled impedance is represented between nodes 3-0. The measured impedance is represented between nodes 1-3. Node 0 represents ground. The calculated reference point impedances appear under the "TO NODE IMPEDANCE" columns of the WCAP calculations, 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.



Tower	L (uh)	Xl (+j)	Xc (-j)	Z Modeled	Z in Modeled	Z in Measured
1	1.2456	9	-5535	63.5 +j75.6	65.3 +j84.9	64.7 +j84.9
2	4.6501	33.6	-5535	116.6 +j341.4	103.4 -j290	104.0 –j290
3	1.8268	13.2	-5535	56.9 +j82.1	58.6 +j95.9	58.6 +j95.9
4	3.0309	21.9	-5535	54.8 +j53.1	55.9 +j75	55.5 +j75

WCAP – **Tower 1 Driven, others shorted**

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 10768.7502 ∡ 52.0252° V

Node: 2 10707.5089 ∡ 52.4470° V

Node: 3 10009.0192 ∡ 49.3052° V

WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	1→2	1.00000000	100.00 ∡ 0.000° V	100.00 ∡ 0.000° A	
L	2→3	1.24560000	900.03 ∡ 90.000° V	100.00 ∡ 0.000° A	
C	3→0	0.00002500	10009.02 ∡ 49.305° V	1.81 ∡ 139.305° A	
R	3→0	63.50000000	10009.02 ∡ 49.305° V	101.38 ∡ -0.666° A	

WCAP PART		FROM IMPEDANCE		TO IMPEDANCE	
R	1→3	1.00000000	66.26 + j 84.888	65.26 + j	84.888
L	2→3	1.24560000	65.26 + j 84.888	65.26 + j	75.888
C	3→0	0.00002500	0.00 - j 5535.824	0.00 + j	0.000
R	3→0	63.50000000	63.50 + j 75.600	0.00 + j	0.000

WCAP INPUT DATA:

1.1500 0.00000000 0

I 100.00000000 0 1 0.00000000

R 1.00000000 1 2 0.00000000

L 1.24560000 2 3 0.00000000

C 0.00002500 3 0

R 63.50000000 3 0 75.60000000

WCAP – **Tower 2 Driven, others shorted**

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 30824.0663 ∠ -70.2013° V

Node: 2 33973.9360 ∠ -72.2797° V

Node: 3 30790.3383 ∠ -70.3763° V

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	1→3	1.00000000	100.00 ∠ 0.000° V	100.00 ∠ 0.000° A
L	3→2	4.65010000	3360.01 ∠ 90.000° V	100.00 ∠ 0.000° A
C	2→0	0.00002500	33973.94 ∠ -72.280° V	6.14 ∠ 17.720° A
R	2→0	116.60000000	33973.94 ∠ -72.280° V	94.17 ∠ -1.137° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	1→3	1.00000000	104.41 - j 290.020	**103.41 - j 290.020**
L	3→2	4.65010000	103.41 - j 290.020	103.41 - j 323.620
C	2→0	0.00002500	0.00 - j 5535.824	0.00 + j 0.000
R	2→0	116.60000000	116.60 - j 341.400	0.00 + j 0.000

WCAP INPUT DATA:

```
    1.1500     0.00000000  0
I   100.00000000  0  1     0.00000000
R     1.00000000  1  3     0.00000000
L     4.65010000  3  2     0.00000000
C     0.00002500  2  0
R   116.60000000  2  0  -341.40000000
```

WCAP – **Tower 3 Driven, others shorted**

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 11294.2244 ∠ 58.1379° V

Node: 2 10138.8260 ∠ 54.6781° V

Node: 3 11241.7575 ∠ 58.5707° V

	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	1→3	1.00000000	100.00 ∠	0.000° V	100.00 ∠	0.000° A
L	3→2	1.82680000	1319.98 ∠	90.000° V	100.00 ∠	0.000° A
C	2→0	0.00002500	10138.83 ∠	54.678° V	1.83 ∠	144.678° A
R	2→0	56.90000000	10138.83 ∠	54.678° V	101.50 ∠	-0.598° A

	WCAP PART		FROM IMPEDANCE		TO IMPEDANCE	
R	1→3	1.00000000	59.62 + j	95.924	**58.62 + j**	**95.924**
L	3→2	1.82680000	58.62 + j	95.924	58.62 + j	82.724
C	2→0	0.00002500	0.00 - j	5535.824	0.00 + j	0.000
R	2→0	56.90000000	56.90 + j	82.100	0.00 + j	0.000

WCAP INPUT DATA:

```
    1.1500     0.00000000  0
I   100.00000000  0  1     0.00000000
R     1.00000000  1  3     0.00000000
L     1.82680000  3  2     0.00000000
C     0.00002500  2  0
R    56.90000000  2  0     82.10000000
```

WCAP – **Tower 4 Driven, others shorted**

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 9408.2990 ∠ 52.8164° V

Node: 2 7704.1466 ∠ 43.5247° V

Node: 3 9348.2014 ∠ 53.3047° V

	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	1→3	1.00000000	100.00 ∠	0.000° V	100.00 ∠	0.000° A
L	3→2	3.03090000	2190.03 ∠	90.000° V	100.00 ∠	0.000° A
C	2→0	0.00002500	7704.15 ∠	43.525° V	1.39 ∠	133.525° A
R	2→0	54.80000000	7704.15 ∠	43.525° V	100.96 ∠	-0.573° A

	WCAP PART		FROM IMPEDANCE		TO IMPEDANCE	
R	1→3	1.00000000	56.86 + j	74.956	55.86 + j	74.956
L	3→2	3.03090000	55.86 + j	74.956	55.86 + j	53.056
C	2→0	0.00002500	0.00 - j	5535.824	0.00 + j	0.000
R	2→0	54.80000000	54.80 + j	53.100	0.00 + j	0.000

WCAP INPUT DATA:

```
    1.1500     0.00000000  0
I   100.00000000  0  1     0.00000000
R     1.00000000  1  3     0.00000000
L     3.03090000  3  2     0.00000000
C     0.00002500  2  0
R    54.80000000  2  0     53.10000000
```

Tower 1 Driven, others shorted

IMPEDANCE
normalization = 50.

Freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.15	63.477	75.622	98.732	50.	3.5797	-4.9854	-1.6577

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

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

Tower 2 Driven, others shorted

IMPEDANCE
normalization = 50.

Freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 12, sector 1							
1.15	116.59	-341.4	360.76	288.9	22.71	-.76543	-7.9159

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

source	node	sector	magnitude	phase	type
1	12	1	1.	0	voltage

Tower 3 Driven, others shorted

IMPEDANCE
normalization = 50.

Freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 33, sector 1							
1.15	56.935	82.094	99.905	55.3	4.1429	-4.2775	-2.0305

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

source	node	sector	magnitude	phase	type
1	33	1	1.	0	voltage

Tower 4 Driven, others shorted

IMPEDANCE
normalization = 50.

Freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 44, sector 1							
1.15	54.784	53.078	76.28	44.1	2.6611	-6.8644	-1.001

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

source	node	sector	magnitude	phase	type
1	44	1	1.	0	voltage

CURRENT NODES

wire	coordinates (degrees) X	Y	Z	connections end1	end2	node no.
1	0	0	0	GND	1	**1**
1	0	0	9.26364	1	1	2
1	0	0	18.5273	1	1	3
1	0	0	27.7909	1	1	4
1	0	0	37.0546	1	1	5
1	0	0	46.3182	1	1	6
1	0	0	55.5818	1	1	7
1	0	0	64.8455	1	1	8
1	0	0	74.1091	1	1	9
1	0	0	83.3727	1	1	10
1	0	0	92.6364	1	END	11
2	183.621	-22.5458	0	GND	2	**12**
2	183.621	-22.5458	9.61905	2	2	13
2	183.621	-22.5458	19.2381	2	2	14
2	183.621	-22.5458	28.8572	2	2	15
2	183.621	-22.5458	38.4762	2	2	16
2	183.621	-22.5458	48.0952	2	2	17
2	183.621	-22.5458	57.7143	2	2	18
2	183.621	-22.5458	67.3333	2	2	19
2	183.621	-22.5458	76.9524	2	2	20
2	183.621	-22.5458	86.5714	2	2	21
2	183.621	-22.5458	96.1905	2	2	22
2	183.621	-22.5458	105.81	2	2	23
2	183.621	-22.5458	115.429	2	2	24
2	183.621	-22.5458	125.048	2	2	25
2	183.621	-22.5458	134.667	2	2	26
2	183.621	-22.5458	144.286	2	2	27
2	183.621	-22.5458	153.905	2	2	28
2	183.621	-22.5458	163.524	2	2	29
2	183.621	-22.5458	173.143	2	2	30
2	183.621	-22.5458	182.762	2	2	31
2	183.621	-22.5458	192.381	2	END	32
3	367.242	-45.0916	0	GND	3	**33**
3	367.242	-45.0916	9.23636	3	3	34
3	367.242	-45.0916	18.4727	3	3	35
3	367.242	-45.0916	27.7091	3	3	36
3	367.242	-45.0916	36.9455	3	3	37
3	367.242	-45.0916	46.1818	3	3	38
3	367.242	-45.0916	55.4182	3	3	39
3	367.242	-45.0916	64.6545	3	3	40
3	367.242	-45.0916	73.8909	3	3	41
3	367.242	-45.0916	83.1273	3	3	42
3	367.242	-45.0916	92.3636	3	END	43
4	145.09	-94.2225	0	GND	4	**44**
4	145.09	-94.2225	9.63	4	4	45
4	145.09	-94.2225	19.26	4	4	46
4	145.09	-94.2225	28.89	4	4	47
4	145.09	-94.2225	38.52	4	4	48
4	145.09	-94.2225	48.15	4	4	49
4	145.09	-94.2225	57.78	4	4	50
4	145.09	-94.2225	67.41	4	4	51
4	145.09	-94.2225	77.04	4	4	52
4	145.09	-94.2225	86.67	4	END	53

Derivation of Operating Parameters for Daytime Antenna Array

Following verification of the moment method model of the individual array elements, by comparison of the measured and modeled base impedances, directional antenna array base parameters were calculated. Calculations were made to determine the complex voltage sources which when applied to the base of each array element produce current moment sums which when normalized, equate to the theoretical field parameters of the authorized directional pattern. Using these voltages, the tower currents were calculated. The currents at the ATU sampling points were related to those of the moment method model by using the WCAP Pro nodal analysis program from Westberg Consulting. The assumptions that were used for the single tower calculations were used in the directional array case as well. In the following WCAP calculations node 1 represents the reference point, node 2 represents the tower feedpoint, and node 0 represents ground. The tower operating impedance is represented from node 2 to ground ((R 2-0). The current magnitude and phases at the sample point are represented across the phantom one (1) ohm resistor which was added to facilitate calculation. The value shown at R 1-3 has been rounded by the program. The actual current values shown as "I" in the "WCAP INPUT DATA" represent the values before rounding and were used in the calculation of antenna monitor amplitude and phase indications to yield greater accuracy.

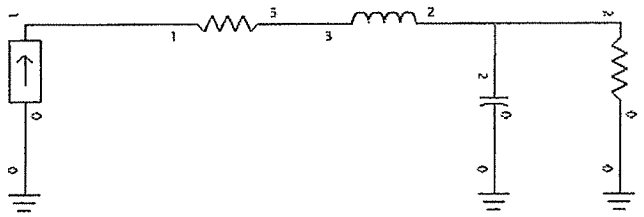
In so much as the sample lines are equal in length and the sample torroids responses are identical, the antenna monitor currents and phases have been calculated directly from the reference point currents and phases. The antenna monitor reference is Tower #4.

Tower	Model Pulse	Model Current Magnitude at Torroid, Amps	Model Current Phase at Torroid Degrees	Modeled Antenna Monitor Ratio	Modeled Antenna Monitor Phase
1	1	11.3245	5.723	1.034	+27.7
2	12	3.5722	-102.1	.326	-80.1
3	33	3.7287	57.625	.340	+79.6
4	44	10.9552	-21.96	1.00	0.0

Center Frequency: 1.15 MHz

Frequency Range: +0 kHz

Frequency Step: 0 kHz



WCAP - base model Tower 1, Day Array

WCAP - Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 979.9485 ∠ 58.7461° V

Node: 2 893.2423 ∠ 55.3920° V

Node: 3 973.1790 ∠ 59.2787° V

	WCAP PART		CURRENT IN		CURRENT OUT	
	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	2→0	49.95400000	893.24 ∠	55.392° V	11.45 ∠	5.200° A
L	3→2	1.24560000	101.92 ∠	95.723° V	11.32 ∠	5.723° A
R	1→3	1.00000000	11.32 ∠	5.723° V	**11.32 ∠**	**5.723° A**
C	2→0	0.00002500	893.24 ∠	55.392° V	0.16 ∠	145.392° A

	WCAP PART		FROM IMPEDANCE		TO IMPEDANCE	
R	2→0	49.95400000	49.95 + j	59.939	0.00 + j	0.000
L	3→2	1.24560000	51.05 + j	69.130	51.05 + j	60.129
R	1→3	1.00000000	52.05 + j	69.130	51.05 + j	69.130
C	2→0	0.00002500	0.00 - j	5535.824	0.00 + j	0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
R	49.95400000	2	0	59.93900000
L	1.24560000	3	2	0.00000000
R	1.00000000	1	3	0.00000000
I	**11.32450000**	**0**	**1**	**5.72300000**
C	0.00002500	2	0	

WCAP - base model, Tower 2 Day Array

WCAP - Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 1666.5760 ∠ 168.5765° V

Node: 2 1786.5586 ∠ 168.4165° V

Node: 3 1666.5377 ∠ 168.4537° V

	WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→0	5.44870000	1786.56 ∠ 168.417° V	3.25 ∠ -102.151° A
L	3→2	4.65010000	120.03 ∠ -12.100° V	3.57 ∠ -102.100° A
R	1→3	1.00000000	3.57 ∠ -102.100° V	**3.57 ∠ -102.100° A**
C	2→0	0.00002500	1786.56 ∠ 168.417° V	0.32 ∠ -101.583° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→0	5.44870000	5.45 - j 549.770	0.00 + j 0.000
L	3→2	4.65010000	4.51 - j 466.508	4.51 - j 500.108
R	1→3	1.00000000	5.51 - j 466.508	4.51 - j 466.508
C	2→0	0.00002500	0.00 - j 5535.824	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
R	5.44870000	2	0	-549.77000000
L	4.65010000	3	2	0.00000000
R	1.00000000	1	3	0.00000000
I	**3.57220000**	**0**	**1**	**257.90000000**
C	0.00002500	2	0	

WCAP - base model Tower 3 Day Array

WCAP - Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node: 1 465.5645 ∠ 117.6082° V

Node: 2 421.6253 ∠ 114.6998° V

Node: 3 463.7105 ∠ 118.0071° V

WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→0	59.40000000	421.63 ∠ 114.700° V	3.79 ∠ 57.000° A
L	3→2	1.82680000	49.22 ∠ 147.625° V	3.73 ∠ 57.625° A
R	1→3	1.00000000	3.73 ∠ 57.625° V	**3.73 ∠ 57.625° A**
C	2→0	0.00002500	421.63 ∠ 114.700° V	0.08 ∠ -155.300° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→0	59.40000000	59.40 + j 93.962	0.00 + j 0.000
L	3→2	1.82680000	61.46 + j 108.113	61.46 + j 94.914
R	1→3	1.00000000	62.46 + j 108.113	61.46 + j 108.113
C	2→0	0.00002500	0.00 - j 5535.824	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

1.1500 0.00000000 0

R	59.40000000	2	0	93.96200000
L	1.82680000	3	2	0.00000000
R	1.00000000	1	3	0.00000000
I	**3.72870000**	**0**	**1**	**57.62500000**
C	0.00002500	2	0	

WCAP - base model Tower 4, Day Array

WCAP - Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node:	1	1009.4999 ∠	24.1878° V
Node:	2	843.8793 ∠	13.3746° V
Node:	3	1001.9413 ∠	24.6396° V

	WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→0	61.83300000	843.88 ∠ 13.375° V	11.04 ∠ -22.605° A
L	3→2	3.03090000	239.92 ∠ 68.040° V	10.96 ∠ -21.960° A
R	1→3	1.00000000	10.96 ∠ -21.960° V	**10.96 ∠ -21.960° A**
C	2→0	0.00002500	843.88 ∠ 13.375° V	0.15 ∠ 103.375° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→0	61.83300000	61.83 + j 44.891	0.00 + j 0.000
L	3→2	3.03090000	62.84 + j 66.451	62.84 + j 44.550
R	1→3	1.00000000	63.84 + j 66.451	62.84 + j 66.451
C	2→0	0.00002500	0.00 - j 5535.824	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
R	61.83300000	2	0	44.89100000
L	3.03090000	3	2	0.00000000
R	1.00000000	1	3	0.00000000
I	**10.95520000**	**0**	**1**	**338.04000000**
C	0.00002500	2	0	

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MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1.15 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	1.04	74.
3	.35	51.
4	.89	-29.

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	893.235	55.4	11.4479	5.2
12	1,786.43	168.3	3.24942	257.8
33	418.341	114.4	3.79209	57.
44	843.868	13.4	11.0439	337.4

Sum of square of source currents = 555.921
Total power = 15,000. watts

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

Current Nodes

wire	coordinates (degrees) X	Y	Z	connections end1	end2	node no.
1	0	0	0	GND	1	1
1	0	0	9.26364	1	1	2
1	0	0	18.5273	1	1	3
1	0	0	27.7909	1	1	4
1	0	0	37.0546	1	1	5
1	0	0	46.3182	1	1	6
1	0	0	55.5818	1	1	7
1	0	0	64.8455	1	1	8
1	0	0	74.1091	1	1	9
1	0	0	83.3727	1	1	10
1	0	0	92.6364	1	END	11
2	183.621	-22.5458	0	GND	2	12
2	183.621	-22.5458	9.61905	2	2	13
2	183.621	-22.5458	19.2381	2	2	14
2	183.621	-22.5458	28.8572	2	2	15
2	183.621	-22.5458	38.4762	2	2	16
2	183.621	-22.5458	48.0952	2	2	17
2	183.621	-22.5458	57.7143	2	2	18
2	183.621	-22.5458	67.3333	2	2	19
2	183.621	-22.5458	76.9524	2	2	20
2	183.621	-22.5458	86.5714	2	2	21
2	183.621	-22.5458	96.1905	2	2	22
2	183.621	-22.5458	105.81	2	2	23
2	183.621	-22.5458	115.429	2	2	24
2	183.621	-22.5458	125.048	2	2	25
2	183.621	-22.5458	134.667	2	2	26
2	183.621	-22.5458	144.286	2	2	27
2	183.621	-22.5458	153.905	2	2	28
2	183.621	-22.5458	163.524	2	2	29
2	183.621	-22.5458	173.143	2	2	30
2	183.621	-22.5458	182.762	2	2	31
2	183.621	-22.5458	192.381	2	END	32
3	367.242	-45.0916	0	GND	3	33
3	367.242	-45.0916	9.23636	3	3	34
3	367.242	-45.0916	18.4727	3	3	35
3	367.242	-45.0916	27.7091	3	3	36
3	367.242	-45.0916	36.9455	3	3	37
3	367.242	-45.0916	46.1818	3	3	38
3	367.242	-45.0916	55.4182	3	3	39
3	367.242	-45.0916	64.6545	3	3	40
3	367.242	-45.0916	73.8909	3	3	41
3	367.242	-45.0916	83.1273	3	3	42
3	367.242	-45.0916	92.3636	3	END	43
4	145.09	-94.2225	0	GND	4	44
4	145.09	-94.2225	9.63	4	4	45
4	145.09	-94.2225	19.26	4	4	46
4	145.09	-94.2225	28.89	4	4	47
4	145.09	-94.2225	38.52	4	4	48
4	145.09	-94.2225	48.15	4	4	49
4	145.09	-94.2225	57.78	4	4	50
4	145.09	-94.2225	67.41	4	4	51
4	145.09	-94.2225	77.04	4	4	52
4	145.09	-94.2225	86.67	4	END	53

ELECTRICAL DESCRIPTION
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,263.23	55.4	voltage
2	12	1	2,526.4	168.3	voltage
3	33	1	591.624	114.4	voltage
4	44	1	1,193.41	13.4	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							
1.15	49.954	59.939	78.026	50.2	3.1176	-5.7759	-1.3341
source = 2; node 12, sector 1							
1.15	5.4487	-549.74	549.77	270.6	1,118.6	-1.6E-02	-24.474
source = 3; node 33, sector 1							
1.15	59.4	92.962	110.32	57.4	4.728	-3.7305	-2.3927
source = 4; node 44, sector 1							
1.15	61.833	44.891	76.411	36.	2.2533	-8.2852	-.69772

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CURRENT rms
Frequency = 1.15 MHz
Input power = 15,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	11.4479	5.2	11.3999	1.04747
2	0	0	9.26364	11.8983	3.	11.8818	.627231
3	0	0	18.5273	11.9174	1.6	11.9124	.343096
4	0	0	27.7909	11.6162	.6	11.6156	.115597
5	0	0	37.0546	11.017	359.7	11.0168	-.0635719
6	0	0	46.3182	10.1389	358.9	10.137	-.196231
7	0	0	55.5818	9.00322	358.2	8.99878	-.282555
8	0	0	64.8455	7.6336	357.6	7.62678	-.322506
9	0	0	74.1091	6.05497	357.	6.0467	-.316241
10	0	0	83.3727	4.28849	356.5	4.28036	-.263939
11	0	0	92.6364	2.3367	356.	2.3309	-.164585
END	0	0	101.9	0	0	0	0
GND	183.621	-22.5458	0	3.24942	257.8	-.688757	-3.17559
13	183.621	-22.5458	9.61905	1.36548	257.3	-.299078	-1.33232
14	183.621	-22.5458	19.2381	.0144842	68.3	5.35E-03	.0134594
15	183.621	-22.5458	28.8572	1.29148	76.4	.304398	1.25509
16	183.621	-22.5458	38.4762	2.49213	76.	.601188	2.41852
17	183.621	-22.5458	48.0952	3.61074	75.7	.891704	3.49891
18	183.621	-22.5458	57.7143	4.63109	75.4	1.16913	4.48109
19	183.621	-22.5458	67.3333	5.53365	75.1	1.42556	5.34687
20	183.621	-22.5458	76.9524	6.29873	74.8	1.6528	6.07801
21	183.621	-22.5458	86.5714	6.90825	74.5	1.84302	6.65787
22	183.621	-22.5458	96.1905	7.34683	74.3	1.98922	7.07241
23	183.621	-22.5458	105.81	7.60251	74.1	2.0856	7.31085
24	183.621	-22.5458	115.429	7.66711	73.9	2.12782	7.36593
25	183.621	-22.5458	125.048	7.53686	73.7	2.11317	7.23455
26	183.621	-22.5458	134.667	7.21214	73.6	2.04057	6.91745
27	183.621	-22.5458	144.286	6.69773	73.4	1.9105	6.41947
28	183.621	-22.5458	153.905	6.00221	73.3	1.7248	5.74905
29	183.621	-22.5458	163.524	5.1373	73.2	1.48639	4.91757
30	183.621	-22.5458	173.143	4.11625	73.1	1.19868	3.93786
31	183.621	-22.5458	182.762	2.95002	73.	.864438	2.82052
32	183.621	-22.5458	192.381	1.63667	72.9	.4826	1.5639
END	183.621	-22.5458	202.	0	0	0	0
GND	367.242	-45.0916	0	3.79209	57.	2.06501	3.18052
34	367.242	-45.0916	9.23636	4.04276	54.4	2.35211	3.28809
35	367.242	-45.0916	18.4727	4.1119	52.9	2.48133	3.27883
36	367.242	-45.0916	27.7091	4.05565	51.7	2.51418	3.18233
37	367.242	-45.0916	36.9455	3.8837	50.7	2.45983	3.00539
38	367.242	-45.0916	46.1818	3.60331	49.8	2.32361	2.75403
39	367.242	-45.0916	55.4182	3.22214	49.1	2.1104	2.43483
40	367.242	-45.0916	64.6545	2.74881	48.4	1.82552	2.05511
41	367.242	-45.0916	73.8909	2.19236	47.7	1.47449	1.62244
42	367.242	-45.0916	83.1273	1.56052	47.1	1.06198	1.14343
43	367.242	-45.0916	92.3636	.854251	46.5	.587936	.619739
END	367.242	-45.0916	101.6	0	0	0	0

GND	145.09	-94.2225	0	11.0439	337.4	10.1987	-4.23721
45	145.09	-94.2225	9.63	11.3382	334.6	10.2409	-4.86608
46	145.09	-94.2225	19.26	11.2243	332.8	9.98314	-5.13053
47	145.09	-94.2225	28.89	10.7823	331.4	9.46512	-5.16431
48	145.09	-94.2225	38.52	10.0317	330.2	8.70406	-4.98751
49	145.09	-94.2225	48.15	8.99241	329.1	7.71955	-4.61215
50	145.09	-94.2225	57.78	7.68708	328.2	6.53384	-4.04971
51	145.09	-94.2225	67.41	6.14076	327.4	5.17082	-3.31234
52	145.09	-94.2225	77.04	4.37564	326.6	3.65158	-2.41084
53	145.09	-94.2225	86.67	2.39573	325.8	1.98186	-1.346
END	145.09	-94.2225	96.3	0	0	0	0

Derivation of Operating Parameters for Nightime Antenna Array

Following verification of the moment method model of the individual array elements, by comparison of the measured and modeled base impedances, directional antenna array base parameters were calculated. Calculations were made to determine the complex voltage sources which when applied to the base of each array element produce current moment sums which when normalized, equate to the theoretical field parameters of the authorized directional pattern. Using these voltages, the tower currents were calculated. The currents at the ATU sampling points were related to those of the moment method model by using the WCAP Pro nodal analysis program from Westberg Consulting. The assumptions that were used for the single tower calculations were used in the directional array case as well. In the following WCAP calculations node 1 represents the reference point, node 2 represents the tower feedpoint, and node 0 represents ground. The tower operating impedance is represented from node 2 to ground ((R 2-0). The current magnitude and phases at the sample point are represented across the phantom one (1) ohm resistor which was added to facilitate calculation. The value shown at R 1-3 has been rounded by the program. The actual current values shown as "I" in the "WCAP INPUT DATA" represent the values before rounding and were used in the calculation of antenna monitor amplitude and phase indications to yield greater accuracy.

In so much as the sample lines are equal in length and the sample torroids responses are identical, the antenna monitor amplitudes and phases have been calculated directly from the reference point currents and phases.

The antenna monitor reference is Tower #2. Tower #4 has been detuned in the night array.

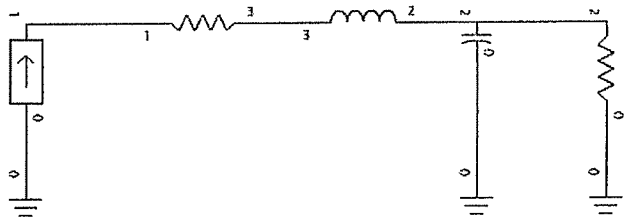
Tower	Model Pulse	Model Current Magnitude At Torroid, Amps	Model Current Phase at Torroid, Degrees	Modeled Antenna Monitor Ratio	Modeled Antenna Monitor Phase, Degrees
1	1	4.1618	+3.427	.827	-141.4
2	12	5.0349	144.869	1.000	0.00
3	33	4.3517	+36.539	.864	-108.3

WCAP Circuit Diagram

Center Frequency: 1.15 MHz

Frequency Range: +0 kHz

Frequency Step: 0 kHz



Base Model Tower #1, Night Array

WCAP Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node:	1	345.4466 ∠	70.6781° V
Node:	2	309.4769 ∠	68.7066° V
Node:	3	343.8587 ∠	71.3176° V

	WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→0	30.35100000	309.48 ∠ 68.707° V	4.21 ∠ 3.109° A
R	1→3	1.00000000	4.16 ∠ 3.427° V	**4.16 ∠ 3.427° A**
L	3→2	1.24560000	37.46 ∠ 93.427° V	4.16 ∠ 3.427° A
C	2→0	0.00002500	309.48 ∠ 68.707° V	0.06 ∠ 158.707° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→0	30.35100000	30.35 + j 66.901	0.00 + j 0.000
R	1→3	1.00000000	32.10 + j 76.547	31.10 + j 76.547
L	3→2	1.24560000	31.10 + j 76.547	31.10 + j 67.547
C	2→0	0.00002500	-0.00 - j 5535.824	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
I	**4.16180000**	**0**	**1**	**3.42700000**
R	30.35100000	2	0	66.90100000
R	1.00000000	1	3	0.00000000
L	1.24560000	3	2	0.00000000
C	0.00002500	2	0	

WCAP Base model Tower #2, Night Array

WCAP Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node:	1	1799.0991 ∠	80.1337° V
Node:	2	1951.4511 ∠	77.8795° V
Node:	3	1796.9560 ∠	79.9885° V

	WCAP PART		CURRENT IN		CURRENT OUT	
	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	2→0	172.95000000	1951.45 ∠	77.880° V	4.71 ∠	143.193° A
R	1→3	1.00000000	5.03 ∠	144.869° V	**5.03 ∠**	**144.869° A**
L	3→2	4.65010000	169.17 ∠	-125.131° V	5.03 ∠	144.869° A
C	2→0	0.00002500	1951.45 ∠	77.880° V	0.35 ∠	167.880° A

	WCAP PART		FROM IMPEDANCE		TO IMPEDANCE	
R	2→0	172.95000000	172.95 - j	376.260	0.00 + j	0.000
R	1→3	1.00000000	152.51 - j	323.146	151.51 - j	323.146
L	3→2	4.65010000	151.51 - j	323.146	151.51 - j	356.746
C	2→0	0.00002500	0.00 - j	5535.824	0.00 + j	0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
I	**5.03490000**	**0**	**1**	**144.86900000**
R	172.95000000	2	0	-376.26000000
R	1.00000000	1	3	0.00000000
L	4.65010000	3	2	0.00000000
C	0.00002500	2	0	

Base model Tower #3, Night Array

WCAP Base Region Calculations

WCAP OUTPUT AT FREQUENCY: 1.150 MHz

NODE VOLTAGES

Node:	1	434.3682 ∠ 107.1320° V
Node:	2	379.0405 ∠ 104.8667° V
Node:	3	432.9417 ∠ 107.6752° V

	WCAP PART		CURRENT IN	CURRENT OUT
	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→0	31.24500000	379.04 ∠ 104.867° V	4.42 ∠ 36.211° A
R	1→3	1.00000000	4.35 ∠ 36.539° V	**4.35 ∠ 36.539° A**
L	3→2	1.82680000	57.44 ∠ 126.539° V	4.35 ∠ 36.539° A
C	2→0	0.00002500	379.04 ∠ 104.867° V	0.07 ∠ -165.133° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→0	31.24500000	31.25 + j 79.957	0.00 + j 0.000
R	1→3	1.00000000	33.17 + j 94.144	32.17 + j 94.144
L	3→2	1.82680000	32.17 + j 94.144	32.17 + j 80.945
C	2→0	0.00002500	0.00 - j 5535.824	0.00 + j 0.000

	WCAP PART	VSWR

WCAP INPUT DATA:

	1.1500	0.00000000	0	
I	**4.35170000**	**0**	**1**	**36.53900000**
R	31.24500000	2	0	79.95700000
R	1.00000000	1	3	0.00000000
L	1.82680000	3	2	0.00000000
C	0.00002500	2	0	

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MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1.15 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	2.73	2.2
3	1.07	33.1
4	1.E-07	0

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	309.901	68.7	4.21843	3.1
12	1,951.53	78.	4.71263	143.4
33	379.511	104.8	4.42089	36.2
44	287.38	308.6	.585703	35.9

Sum of square of source currents = 119.783
Total power = 5,000. watts

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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	.2182	11
		0	0	101.9		
2	none	185.	7.	0	.3637	21
		185.	7.	202.		
3	none	370.	7.	0	.2182	11
		370.	7.	101.6		
4	none	173.	33.	0	.2182	10
		173.	33.	96.3		

Number of wires = 4
current nodes = 53

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	9.23636	4	9.63
radius	1	.2182	2	.3637

ELECTRICAL DESCRIPTION
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	1.15	0	1	.0256566	.02675

Sources

source	node	sector	magnitude	phase	type
1	1	1	438.266	68.7	voltage
2	12	1	2,759.88	78.	voltage
3	33	1	536.71	104.8	voltage
4	44	1	406.417	308.6	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							
1.15	30.351	66.901	73.464	65.6	5.0039	-3.519	-2.555
source = 2; node 12, sector 1							
1.15	172.95	-376.26	414.11	294.7	20.069	-.8663	-7.4271
source = 3; node 33, sector 1							
1.15	31.245	79.957	85.845	68.7	6.1548	-2.8477	-3.1792
source = 4; node 44, sector 1							
1.15	23.783	-490.08	490.66	272.8	204.55	-8.5E-02	-17.13

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CURRENT rms
Frequency = 1.15 MHz
Input power = 5,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	4.21843	3.1	4.21226	.227962
2	0	0	9.26364	4.40574	1.8	4.40368	.134825
3	0	0	18.5273	4.42313	.9	4.42254	.0723986
4	0	0	27.7909	4.3174	.3	4.31734	.0229563
5	0	0	37.0546	4.09807	359.8	4.09804	-.0154598
6	0	0	46.3182	3.77296	359.3	3.77271	-.043405
7	0	0	55.5818	3.35055	359.	3.35	-.0611003
8	0	0	64.8455	2.84027	358.6	2.83944	-.068745
9	0	0	74.1091	2.25192	358.3	2.25093	-.0666021
10	0	0	83.3727	1.59391	358.	1.59296	-.0549602
11	0	0	92.6364	.867738	357.8	.867076	-.0338843
END	0	0	101.9	0	0	0	0
GND	183.621	-22.5458	0	4.71264	143.4	-3.78159	2.81221
13	183.621	-22.5458	9.61905	2.9641	126.7	-1.77123	2.37669
14	183.621	-22.5458	19.2381	2.05953	98.5	-.306051	2.03666
15	183.621	-22.5458	28.8572	1.99622	58.5	1.04339	1.70183
16	183.621	-22.5458	38.4762	2.68054	30.7	2.30572	1.36709
17	183.621	-22.5458	48.0952	3.6268	16.6	3.47604	1.03481
18	183.621	-22.5458	57.7143	4.59345	8.9	4.53823	.710105
19	183.621	-22.5458	67.3333	5.48741	4.2	5.47287	.399117
20	183.621	-22.5458	76.9524	6.26149	1.	6.26056	.108275
21	183.621	-22.5458	86.5714	6.88551	358.7	6.88374	-.156157
22	183.621	-22.5458	96.1905	7.33818	357.	7.32789	-.388379
23	183.621	-22.5458	105.81	7.6045	355.6	7.5821	-.583283
24	183.621	-22.5458	115.429	7.67537	354.5	7.63994	-.736636
25	183.621	-22.5458	125.048	7.54663	353.6	7.49915	-.845205
26	183.621	-22.5458	134.667	7.21947	352.8	7.16229	-.906829
27	183.621	-22.5458	144.286	6.69961	352.1	6.63608	-.920476
28	183.621	-22.5458	153.905	5.99715	351.5	5.93132	-.886175
29	183.621	-22.5458	163.524	5.12543	351.	5.06184	-.804893
30	183.621	-22.5458	173.143	4.0994	350.5	4.0429	-.678264
31	183.621	-22.5458	182.762	2.93179	350.	2.88747	-.50782
32	183.621	-22.5458	192.381	1.62262	349.6	1.59596	-.292943
END	183.621	-22.5458	202.	0	0	0	0

GND	367.242	-45.0916	0	4.42089	36.2	3.56824	2.60997
34	367.242	-45.0916	9.23636	4.66347	34.8	3.8286	2.66266
35	367.242	-45.0916	18.4727	4.7105	34.	3.90498	2.63438
36	367.242	-45.0916	27.7091	4.62007	33.4	3.8578	2.54213
37	367.242	-45.0916	36.9455	4.40316	32.9	3.69782	2.39039
38	367.242	-45.0916	46.1818	4.06827	32.5	3.43275	2.18336
39	367.242	-45.0916	55.4182	3.6244	32.1	3.07044	1.92579
40	367.242	-45.0916	64.6545	3.08153	31.8	2.61953	1.62294
41	367.242	-45.0916	73.8909	2.45006	31.5	2.08899	1.28019
42	367.242	-45.0916	83.1273	1.73884	31.3	1.48655	.902078
43	367.242	-45.0916	92.3636	.949198	31.	.813435	.489184
END	367.242	-45.0916	101.6	0	0	0	0
GND	145.09	-94.2225	0	.585705	35.9	.474691	.343102
45	145.09	-94.2225	9.63	.340871	34.2	.281981	.191521
46	145.09	-94.2225	19.26	.174232	31.7	.148205	.0916071
47	145.09	-94.2225	28.89	.0416256	20.8	.0389121	.0147831
48	145.09	-94.2225	38.52	.0639544	221.3	-.0480315	-.0422272
49	145.09	-94.2225	48.15	.13757	215.8	-.111569	-.080485
50	145.09	-94.2225	57.78	.18043	213.9	-.149824	-.100537
51	145.09	-94.2225	67.41	.190933	212.6	-.160862	-.102854
52	145.09	-94.2225	77.04	.167686	211.6	-.142826	-.0878595
53	145.09	-94.2225	86.67	.108603	210.7	-.0933346	-.0555271
END	145.09	-94.2225	96.3	0	0	0	0

The following calculations confirm that the sample system as installed complies with Rule Section 73.151(c)(2)(1) in all respects. The sample torroids are Delta model TCT3 and their outputs are in agreement within the manufacturers specification of +/-2% and +/-2°. The antenna monitor is a Potomac Instruments model 1901 that was purchased new for the project and was calibrated by the manufacturer prior to shipment. The sample lines are equal in length and constructed of ½" Andrew LDF4-50A coaxial cable that has a solid outer conductor and foam dielectric. The cables are equal in length within 1° as required. The cables have all been buried so as to be exposed to the same environmental conditions. The length of the cables was confirmed by measuring the impedance, looking into the line with the far end opened. The lines were found to be ¾ wavelength long at the frequencies listed. These frequencies were used to calculate the electrical lengths of the lines at the operating frequency of 1150 kHz. Frequencies were calculated at which the lines were +/- 45° the length of the resonate frequency. The impedance was then calculated using the following formula:

$$Zo = ((R1^2+X1^2)^{1/2} * (R2^2+X2^2)^{1/2})^{1/2}$$

Sample Line Length Calculation

Tower	Resonate Frequency At 270°, kHz	Electrical Length At 1150 kHz
1	1116.75	278°
2	1117.0	278°
3	1117.0	278°
4	1116.25	278.2°

Sample Line Impedance Calculation

Tower	270° Resonant Frequency kHz	45° Above Resonant Frequency kHz	Resistance Ohms	Reactance Ohms	45° Below Resonant Frequency kHz	Resistance Ohms	Reactance Ohms	Characteristic Impedance Ohms
1	1116.75	1302.88	5.30	-51.60	930.63	3.95	51.97	52.00
2	1117.00	1303.17	5.31	-51.75	930.83	3.98	51.89	52.03
3	1117.00	1303.17	5.34	-52.08	930.83	3.94	51.63	52.06
4	1116.25	1302.29	5.3	-51.39	930.21	3.95	51.51	51.67

The sample torroid calibration was confirmed by passing a common conductor through the torroids. The common conductor was driven by a Hewlett-Packard 4396A vector network analyzer that was properly calibrated for response measurement. The output from the tower 4 torroid was fed to the reference receiver of the analyzer and the other outputs were alternately fed to the B input. The output of the towers 1 – 3 torroids was compared to that of the tower 4 torroid and the results noted in the chart below. The tower 4 torroid was selected as the reference for the verification as tower 4 is the reference tower of the daytime array.

Sample Torroid Calibration Verification

Tower	Serial Number	Indicated Ratio	Indicated Phase
1	18001	.9968	-0.45°
2	18007	.9987	+0.35°
3	18006	.9976	-0.53°
4	18008	1.000	0.00°

Sample Lines Terminated By Torroids

Tower	Serial Number	Impedance at Input to Sample Line with Torroid Connected
1	18001	48.9 –j 0.4
2	18007	49.4 –j 0.2
3	18006	49.0 –j 0.4
4	18008	48.8 –j 0.5

Item 6

Direct Measurement of Power

The common point networks in both the daytime and nighttime phasors were adjusted to provide the proper 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 –j7 at the measurement point. The daytime and nighttime operating powers were calculated by adding +5.3% to the daytime and +8.0% to the nighttime nominal operating powers of 15kW and 5kW respectively. The common point currents were then calculated as indicated below.

Pattern	Nominal Power Watts	Operating Power Watts	Operating Common Point Current, Amps
Daytime	15000	15795	17.77
Nightime	5000	5400	10.39

Reference Field Strength Measurements

Reference field strength measurements were made on radials having maximum radiation limits specified in the construction permit in both the daytime and nighttime directional patterns as well as the major lobes as follows:

Daytime

Radial Degrees, True	Distance Km	Date	Time	Field Strength Mv/m	Point Description
41	2.81	1/04/12	1006	4.9	30° 28' 55.7" N 91° 15' 00.8"W Access road, E of LA415, 15m N of Plantation Rd, E side
"	6.13	"	1017	11.1	30° 30' 16.8" N 91° 13' 38.8"W US190 Eastbound 25mE of Malco Bend Rd, S side, 3 m off pavement
"	7.58	"	1022	12.3	30° 30' 52.2"N 91°13' 03.0"W North River Road in front of OMI Environmental Services
100	4.48	"	1047	341.0	30° 27' 21.8" N 91° 13' 24.1"W E side of Key Biscane, in line with corner of house #566
"	5.73	"	1058	337.0	30° 27' 14.8"N 91°12' 38.1"W LA1 frontage road, W side, in front of UHaul
"	6.39	"	1104	206	30° 27' 11.2"N 91° 12' 13.6W Atchafalaya St. 10m south of Magnolia, W side
210	1.22	"	1246	259	30° 27' 13.0"N 91° 16' 33.3"W I10 Westbound, N shoulder, across from Vaughn Roofing sign
"	1.30	"	1317	228	30° 27' 10.6"N 91° 27' 10.6"W I10 S frontage road, 10m E of Thorn Rd, S side
"	7.91	"	1343	7.91	30° 23' 30.7"N 91° 19' 05.3"W CR969-1, 50m W of marine service turnoff, N side
298	1.26	"	1119	365.0	30° 28' 06.4"N 91° 16' 51.6"W SR76, W of fire station, in front of gas pipeline station, N side
"	14.89	"	1149	25.3	30° 31' 37.2"N 91° 24' 22.4"W 40m N of oak on Poydras Bayou, W side
"	15.76	"	1155	21.9	30° 31' 50.9"N 91° 24' 50.7"W GPS location, cypress of dead end

Nightime

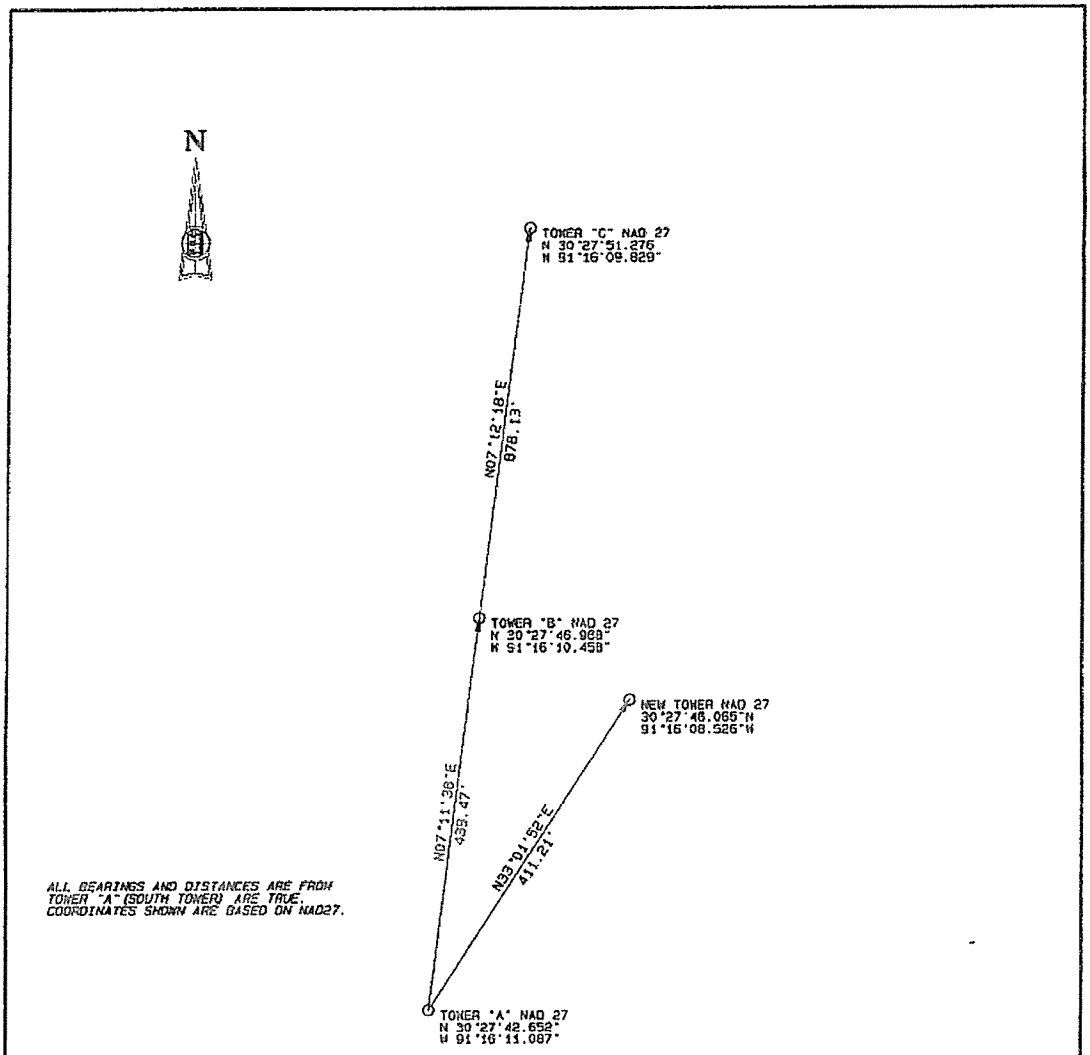
Radial Degrees, True	Distance Km	Date	Time	Field Strength Mv/m	Directions
010	2.21	01/03/12	1106	121	30° 28' 57.7" N 91° 15' 57.7"W Cherrywood, E end of cul-de-sac
"	3.03	"	1113	80.8	30° 29' 23.6"N 91° 15' 50.3"W US190W Eastbound, S side 200m W of LA415 split
"	16.91	"	1216	3.48	30° 36' 46.6"N 91° 14' 19.8"W Irene Rd. 100m W of PD/SO Firearms Training Facility, N side
035	2.56	"	1126	46.0	30° 28' 54.9"N 91° 15' 14.9"W mailbox 3357 Kahns Rd.
"	2.93	"	1135	35.6	30° 29' 04.8"N 91° 15' 06.8"W 20m S of mailbox 1204 Plantion, E side
"	3.12	"	1149	62.6	30° 29' 09.9"N 91° 15' 02.7"W LA415 northbound, 20m N of mailbox 2746
110	3.83	"	1319	274.0	30°27' 04.6"N 91° 13' 54.7"W CR76, 20m W of mailbox 2217, N side
"	5.53	"	1326	184.0	30° 26' 45.7"N 91° 12' 54.7"W NW corner Ave G & Eucalptus
"	6.00	"	1330	195.0	30° 26' 40.6"N 91° 12' 38.0"W 25m S of Commercial on Lablank, E side
185	1.14	"	1343	235.0	30° 27' 10.1"N 91° 16' 13.7"W I10 S frontage road 2m E of centerline on culvert, S side
"	6.80	"	1408	13.9	30° 24' 07.7"N 91° 24' 07.7" Mailbox 3803 Live Oak Lane
"	12.87	"	1424	8.00	30° 20' 51.6"N 91° 16' 52.2"W mailbox 5332 Myrtle
270	5.15	"	1006	150.0	30° 27' 47.1"N 91° 19' 23.7" Devin Lane, W side 50m N of Radio Tower driveway
"	13.98	"	1018	34.6	30° 27' 46.9"N 91° 24' 55.5"W Rosedale Rd, E side 100m N Park Exploration Dupont 98 #1
"	20.59	"	1031	20.5	30° 27' 45.2"N 91° 29' 04.1W SR411 across from mailbox 13515

RFR Compliance

Operation of WJBO at 15 kW daytime and 5 kW nighttime will not result in exposure of workers or the general public to rf radiation in excess of levels specified in 47CFR 1.1310. Fences have been installed around all tower bases to comply with the minimum distance of 3.5 meters which exceeds the distances specified in OET Bulletin 65 for this frequency, calculated power levels in the towers and tower height to prevent electric and magnetic exposure greater than permissible levels. These fences limit access by the general public. If it becomes necessary for workers to enter the tower base areas for maintenance, the station will either reduce power or cease operation to provide RFR safety for the workers.

Survey Verification

The locations of the towers were verified by a field survey by a conducted by Larry E. Porterfield, PLS who is licensed in the State of Louisiana. The survey confirms the locations of the towers agrees with the array design locations within 1.5° as required.



ALL BEARINGS AND DISTANCES ARE FROM TOWER "A" (SOUTH TOWER) ARE TRUE. COORDINATES SHOWN ARE BASED ON NAD27.

SURVEY SHOWING THE SURVEY OF TRANSMITTER TOWERS LOCATED ON REBELLE LANE, WEST BATON PARISH, LA FOR WJBO

LARRY E. PORTERFIELD, PLS#4554

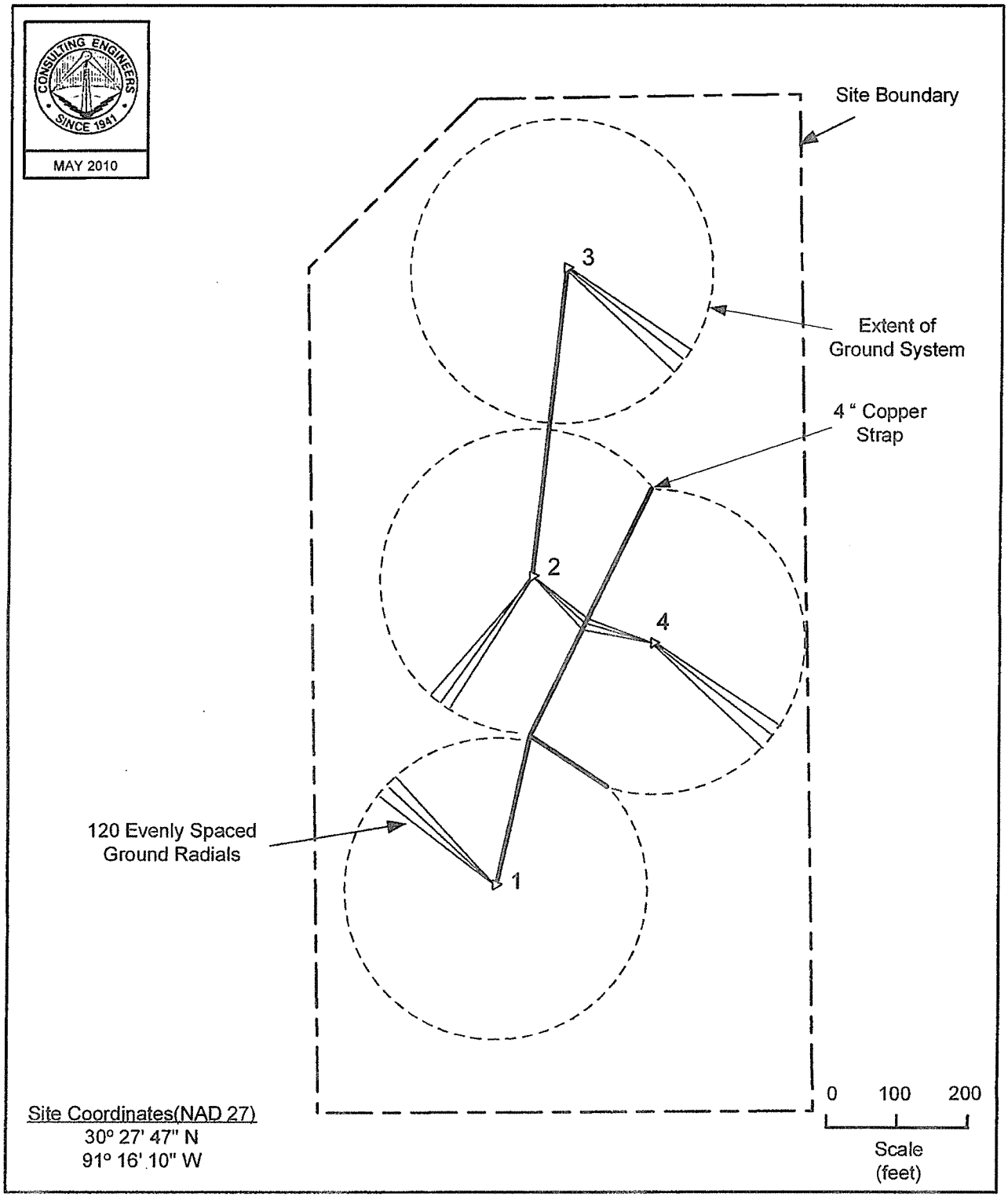
M. J. DEFIELD AND ASSOCIATES, INC.
SURVEYING AND MAPPING
BATON ROUGE, LOUISIANA
(225) 445-2921

SURVEY DATE OCTOBER 11, 2011

Ground System Detail

The ground system was modified to encompass the addition of tower. One hundred twenty (120) radials, each 65.1 meters in length were added around the base of the newly constructed tower #4. Where these additional radials intersected existing radials from towers #1 and #2, transverse copper straps were installed midway between the towers. The construction was accomplished as proposed in the application for construction permit. A copy of the ground system depiction follows.

Figure 1



ANTENNA SITE PLAT

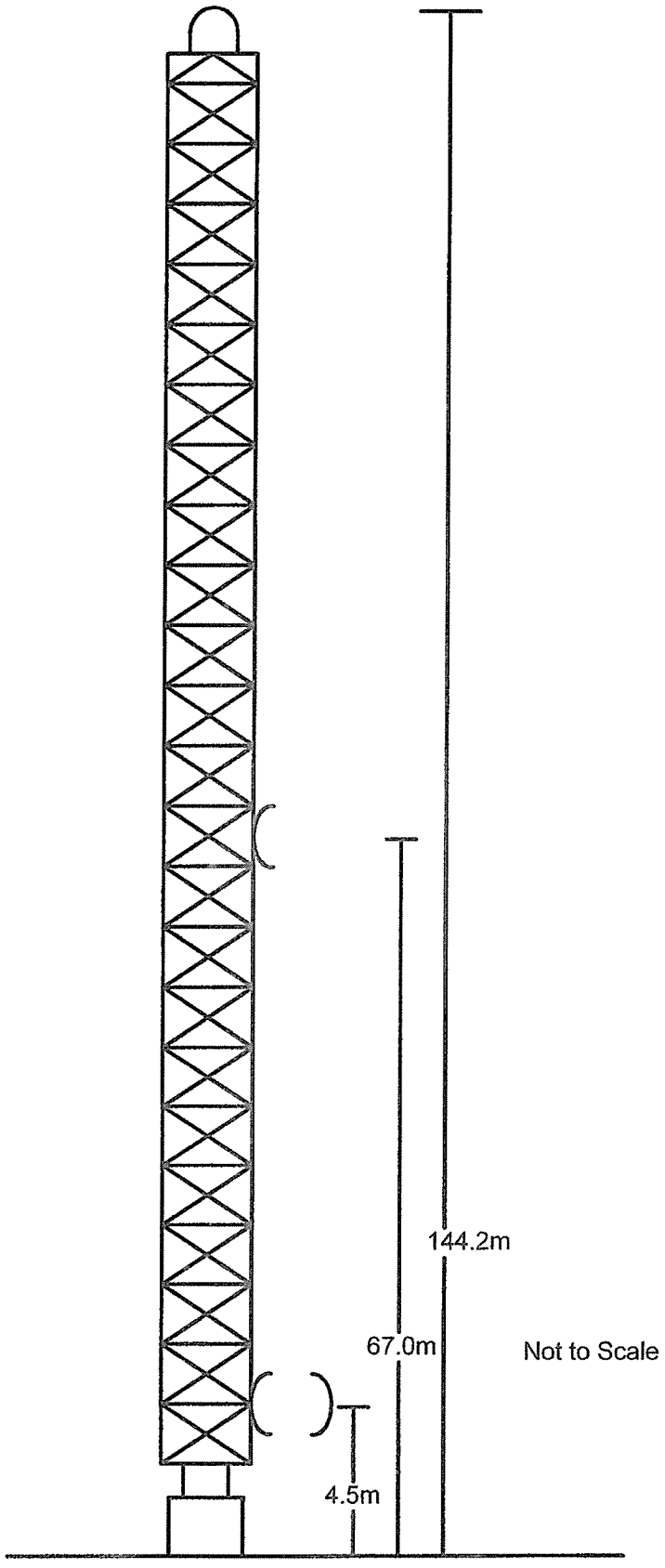
RADIO STATION WJBO
BATON ROUGE, LOUISIANA
1150 KHZ 15 KW-D 5 KW-N U DA-2

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

STL Antenna Mounting on Tower #2

A 1.8 meter diameter STL parabolic STL receive antenna is mounted at 67 meters above ground on tower #2. The antenna is connected via coaxial cable to a like dish on the tower, 4.5 meters above ground. Both antennae are at tower potential. The coaxial outer conductor is electrically bonded to the tower at each antenna and at 15 meter intervals between the towers. The top dish is oriented in azimuth toward the studio and the lower dish is oriented toward another like grounded dish, adjacent but not touching. The combination of the two lower dishes serve as an isolation device. This method is used as opposed to a traditional isocoupler device due to frequent severe lighting occurrences in the area. This installation predated the modifications authorized by the construction permit and has not been changed.

A depiction of the antennae follows.


144.2m
67.0m
4.5m
Not to Scale

United States of America

FEDERAL COMMUNICATIONS COMMISSION

AM BROADCAST STATION CONSTRUCTION PERMIT

Official Mailing Address:

CAPSTAR TX LLC
2625 S. MEMORIAL DRIVE
SUITE A
TULSA OK 74129

Authorizing Official:

Son Nguyen
Supervisory Engineer
Audio Division
Media Bureau

Grant Date: May 18, 2011

This permit expires 3:00 a.m. local time, 36 months after the grant date specified above.

Facility Id: 4054

Call Sign: WJBO

Permit File Number: BP-20100518ADW

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

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

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

Hours of Operation: Unlimited

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

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

Callsign: WJBO Permit No.: BP-20100518ADW

Name of Permittee: CAPSTAR TX LLC

Station Location: BATON ROUGE, LA

Frequency (kHz): 1150

Station Class: B

Antenna Coordinates:

	Day			
Latitude:	N	30 Deg	27 Min	47 Sec
Longitude:	W	91 Deg	16 Min	10 Sec

	Night			
Latitude:	N	30 Deg	27 Min	47 Sec
Longitude:	W	91 Deg	16 Min	10 Sec

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

Nominal Power (kW): Day: 15.0 Night: 5.0

Antenna Mode: Day: DA Night: DA

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

Antenna Registration Number(s):

Day:

Tower No.	ASRN	Overall Height (m)
1	1045606	
2	1020970	
3	1045605	
4	1254637	

Night:

Tower No.	ASRN	Overall Height (m)
1	1045606	
2	1020970	
3	1045605	

Callsign: WJBO Permit No.: BP-20100518ADW

DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

Theoretical RMS (mV/m/km): Day: 1221 Night: 791.8

Standard RMS (mV/m/km): Day: 1283

Augmented RMS (mV/m/km): Night: 832.7

Q Factor: Day: Night:

Theoretical Parameters:

Day Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	1.0000	0.000	0.0000	0.000	0	94.0
2	1.0400	74.000	185.0000	7.000	0	195.6
3	0.3500	51.000	370.0000	7.000	0	94.0
4	0.8900	-29.000	173.0000	33.000	0	92.6

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

Theoretical Parameters:

Night Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	1.0000	0.000	0.0000	0.000	0	94.0
2	2.7300	2.200	185.0000	7.000	0	195.6
3	1.0700	33.100	370.0000	7.000	0	94.0

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

Augmentation Parameters:

Aug No.	Central Azimuth (Deg. T)	Span (Deg.)	Radiation at Central Azimuth (mV/m @ 1 km)
1	300.0	60.0	901.23

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

Day:

Azimuth:	Radiation:	
41	222.7	mV/m
210.5	376	mV/m
298.5	445	mV/m

Special operating conditions or restrictions:

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

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

3 Ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 65.1 meters in length except where terminated by property boundaries or where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers.

*** END OF AUTHORIZATION ***