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 BMML-20100608AKA

SECTION I - APPLICANT FEE INFORMATION

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

Kimtron, Inc. FRN: 0003-4129-62

Copy notices and communications to:

MAILING ADDRESS (Line 1) (Maximum 35 characters)
P.O. Box 3003

Miller and Neely, PC
6900 Wisconsin Ave, Suite 704

MAILING ADDRESS (Line 2) (Maximum 35 characters)

Bethesda, MD 20815

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Blue Bell	PA	19422

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
(215) 628-3500	WXJC	

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	$ 615.00	

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	$ 705.00	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$ 1,320.00	

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. N/A

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	
Donald B. Crawford		
Title	Date	Telephone Number
President	6/2/10	(215) 628-3500

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
Kimtron, 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	Day
WXJC	N/A	850	Unlimited	1.0	50.0

2. Station location

State	City or Town
Alabama	Birmingham

3. Transmitter location

State	County	City or Town	Street address (or other identification)
AL	Jefferson	Tarrant	2451 Pawnee Village Road

4. Main studio location

State	County	City or Town	Street address (or other identification)
AL	Jefferson	Homewood	120 Summit Parkway

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

State	County	City or Town	Street address (or other identification)
AL	Jefferson	Homewood	120 Summit Parkway

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. E-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
4.65	32.44
Measured antenna or common point resistance (in ohms) at operating frequency	**Measured antenna or common point reactance (in ohms) at operating frequency**
Night: 50 Day: 50	Night: 0 Day: 0

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1	0.0	+143.7	1.000	0.113	---	---
2	+26.3	---	0.990	---	---	---
3	+93.7	-75.4	0.989	0.388	---	---
4	+67.5	-143.3	0.989	0.279		
5	---	0.0	---	1.000		

Manufacturer and type of antenna monitor: Potomac Instruments Type 1901

EXHIBIT E-1

APPLICATION FOR LICENSE INFORMATION
RADIO STATION WXJC
BIRMINGHAM, AL

Kimtron, Inc.

May 27, 2010

850 kHz 50 kW-D/1 kW-N DA-2

CRAWFORD
BROADCASTING
COMPANY

EXECUTIVE SUMMARY

This engineering exhibit supports an application for license to cover changes in the daytime and nighttime sampling systems for radio station WXJC, Birmingham, Alabama (FCC FID No. 74245).

WXJC has since September of 2008 been operating pursuant to Special Temporary Authority (BSTA-20080214AIK, BESTA-20081219AFV and 20091230AAJ). STA was initially requested for parameters at variance as a result of copper theft at the antenna site. The ground system was repaired and the day and night operating parameters were restored to their licensed values. While the heavily-filled daytime pattern returned to normal as evidenced by normal monitor point field intensities, continued operation of the nighttime facility with parameters at variance was required to maintain the night monitoring point field intensities below the licensed maximums. The cause is believed to be several reradiating structures close in to the array that affect the field at the night monitor points.

While it might be possible to select new monitor points and conduct partial proof-of-performance measurements to show that the night array is in proper adjustment, we believe that the ongoing development in the vicinity of the transmitter site will continue to result in variances in the monitor points. The WXJC night pattern has theoretical zero nulls and has been heavily augmented. Should we continue with a conventionally-licensed night facility, we see a future of continued difficulties maintaining monitor point field intensities below the licensed maximums and Special Temporary Authorities for parameters at variance. We wish to avoid this, and our best option is relicensing the night facility pursuant to the moment-method modeling rules contained in 47 C.F.R. §73.151(c).

Both day and night facilities are currently licensed with base sampling systems in place; both have now been replaced with loop sampling systems, which will provide for more stable monitoring of the pattern parameters.

Towers 1, 2, 3 and 4 are used in the night array; towers 1, 3, 4 and 5 are used in the day array. Towers 1 through 4 are rectangular towers, each with a 20-inch face width; tower 5 is a triangular tower with a 20-inch face width. Because tower 5 differs from the other towers in the daytime array in cross-sectional structure, including both leg and cross member characteristics, the day array is not eligible for licensing using moment-method modeling pursuant to 47 C.F.R. §73.151(c). All four night towers are identical, so the night array is eligible for licensing using moment-method modeling.

WXJC is currently licensed on 850 kHz with 50 kW day and 1 kW night using different directional parameters day and night (DA-2). No changes were made to either pattern, but new operating parameters were determined by field adjustment and partial directional proof-of-performance measurements for the day pattern in accordance with 47 C.F.R. §73.154, and by moment-method model in accordance with 47 C.F.R. §73.151(c) for the night pattern. It is desired to license these new operating parameters for both the day and night facilities. The day partial proof-of-performance measurements and new monitor point descriptions and photos are contained in Appendix B herein.

Information is provided herein showing that the directional antenna parameters for the day and night patterns authorized by the FCC have been determined in accordance with the requirements

of 47 C.F.R. §73.154 and §73.151(c), respectively. The system has been adjusted to produce antenna monitor parameters within ±5 percent in ratio and ±3 degrees in phase of the determined values, as required by the Rules. A modified station license is requested herewith specifying the new operating parameters.

As authorized by BSTA-20100303AAF, the WXJC nighttime facility is presently operating using the moment-method determined nighttime loop operating parameters. The daytime facility is operating with parameters at variance from the licensed values with all the monitor point field strengths below the licensed maxima.

Analysis of Tower Impedance Measurements to Verify Method of Moments Model

Tower base impedance measurements were made at the final J-plugs within the Antenna Tuning Units (ATUs) using a General Radio 1606B impedance bridge. The tower bases are a fed from this point with a short length of large-diameter copper tubing. Because the tubing contains the electrical wiring for the tower lights and is brazed to the towers, measurement at the actual tower bases would require cutting the tubing and electrical wiring. As such, the measurements were made at the ATU outputs, which are electrically close to the tower bases.

For each tower base impedance measurement, the other towers were all open-circuited at the same points where the impedance measurements were made for them. This arrangement left only the short feed tubing between the ATU outputs and the tower base in series in the impedance measurements. Static drain chokes are situated upstream of the output J-plug and as such were not a factor in the base impedance measurements. The parallel-resonated sample line isocoils, which are electrically connected across each tower base insulator, were in place for the base impedance measurements. The parallel resonance of each isocoil was carefully adjusted for a deep null in the 850 kHz RF current flowing in the sample line above the isocoil.

ACSModel (MININEC 3.1 core) was used to model the WXJC daytime array.

A lumped load with a reactance of –j10,000, simulating an assumed base insulator capacitance of 19 pF, was modeled at the base of the other towers.

The tower heights and radii were adjusted in the model in order to achieve calibration of the model with the measured base impedances. All modeled tower heights were within 75 to 125 percent of the physical tower height as required by the FCC Rules, and all modeled radii were within 80 to 150% of the physical radii, each of which were determined as the radius of a circle with a circumference equal to the sum of the widths of the tower sides. Again, towers 1 through 4 in the WXJC array are rectangular towers, each with a face width of 20 inches (r = 0.3235 meters). Tower 5 is a triangular tower with a 20-inch face (r = 0.2426 meters).

The modeled and measured impedances at the ATU output J-plugs with the other towers open-circuited at their ATU output J-plugs agree within ±2 ohms and ±4 percent as required by the FCC rules.

Table 1 – Analysis of Tower Impedance Measurements to Verify Moment Method Model

Twr.	Z_{BASE} (Modeled)	Z_{BASE} (Measured)	Phys. Height (m)	Model Height (m)	% Phys. Height	Phys. Radius (m)	Model Radius (m)	% Phys. Radius
1	145.0 +j217.7	145.0 +j217.6	106.8	116.5	109.1	0.3235	0.3350	103.6
2	141.0 +j230.8	141.0 +j230.5	106.8	118.0	110.5	0.3235	0.2700	83.5
3	140.0 +j224.0	140.0 +j222.3	106.8	117.4	109.9	0.3235	0.3880	119.9
4	148.1 +j221.3	148.0 +j221.1	106.8	117.6	110.1	0.3235	0.3800	117.5
5	140.1 +j224.6	140.0 +j224.7	106.8	116.7	109.3	0.2426	0.2750	113.4

****
ACSModel
(MININEC 3.1 Core)
03-09-2010 10:21:34
****

WXJC
Model Calibration
Tower 1 Driven, All Others Open

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16

0	0	93.23192	0.335	1	1	17
0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67

87.56098	-70.90549	41.14902	0.38	4	4	68
87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates

X	Y	Z	Radius	Connection End1	End2	Pulse No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

```
Sources:  1
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 1.0, 0.0

Number of Loads:  4
Pulse No., Resistance, Reactance:  21 , 0 ,-10000
Pulse No., Resistance, Reactance:  41 , 0 ,-10000
Pulse No., Resistance, Reactance:  61 , 0 ,-10000
Pulse No., Resistance, Reactance:  81 , 0 ,-10000

********************    SOURCE DATA     ********************
Pulse  1      Voltage = (1.0, 0.0j)
              Current = (0.0021, -0.0032j)
              Impedance = (145.035, 217.685j)
              Power = 0.001060 Watts
```

****
ACSModel
(MININEC 3.1 Core)
03-09-2010 10:22:12
****

WXJC
Model Calibration
Tower 2 Driven, All Others Open

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16

0	0	93.23192	0.335	1	1	17
0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67

87.56098	-70.90549	41.14902	0.38	4	4	68
87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates

X	Y	Z	Radius	Connection End1	End2	Pulse No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

Sources: 1
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 1.0, 0.0

Number of Loads: 4
Pulse No., Resistance, Reactance: 1 , 0 ,-10000
Pulse No., Resistance, Reactance: 41 , 0 ,-10000
Pulse No., Resistance, Reactance: 61 , 0 ,-10000
Pulse No., Resistance, Reactance: 81 , 0 ,-10000

********** SOURCE DATA **********
Pulse 21 Voltage = (1.0, 0.0j)
Current = (0.0019, -0.0032j)
Impedance = (141.036, 230.758j)
Power = 0.000964 Watts

****
ACSModel
(MININEC 3.1 Core)
03-09-2010 10:22:41
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WXJC
Model Calibration
Tower 3 Driven, All Others Open

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16
0	0	93.23192	0.335	1	1	17

0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67
87.56098	-70.90549	41.14902	0.38	4	4	68

87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates

X	Y	Z	Radius	Connection End1	End2	Pulse No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

Sources: 1
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 1.0, 0.0

Number of Loads: 4
Pulse No., Resistance, Reactance: 1 , 0 ,-10000
Pulse No., Resistance, Reactance: 21 , 0 ,-10000
Pulse No., Resistance, Reactance: 61 , 0 ,-10000
Pulse No., Resistance, Reactance: 81 , 0 ,-10000

********** SOURCE DATA **********
Pulse 41 Voltage = (1.0, 0.0j)
Current = (0.002, -0.0032j)
Impedance = (140.0, 224.025j)
Power = 0.001003 Watts

****
ACSModel
(MININEC 3.1 Core)
03-09-2010 10:23:09
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WXJC
Model Calibration
Tower 4 Driven, All Others Open

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16
0	0	93.23192	0.335	1	1	17

0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67
87.56098	-70.90549	41.14902	0.38	4	4	68

87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates

X	Y	Z	Radius	Connection End1	End2	Pulse No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

```
Sources:  1
Pulse No., Voltage Magnitude, Phase (Degrees): 61, 1.0, 0.0

Number of Loads:  4
Pulse No., Resistance, Reactance:  1 , 0 ,-10000
Pulse No., Resistance, Reactance:  21 , 0 ,-10000
Pulse No., Resistance, Reactance:  41 , 0 ,-10000
Pulse No., Resistance, Reactance:  81 , 0 ,-10000

********************    SOURCE DATA     ********************
Pulse  61     Voltage = (1.0, 0.0j)
              Current = (0.0021, -0.0031j)
              Impedance = (148.074, 221.303j)
              Power = 0.001044 Watts
```

****
ACSModel
(MININEC 3.1 Core)
05-27-2010 08:19:25
****

WXJC
Model Calibration
Tower 5 Driven, All Others Open

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16
0	0	93.23192	0.335	1	1	17

0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67
87.56098	-70.90549	41.14902	0.38	4	4	68

87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates

				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

Sources: 1
Pulse No., Voltage Magnitude, Phase (Degrees): 81, 1.0, 0.0

Number of Loads: 4
Pulse No., Resistance, Reactance: 1 , 0 ,-10000
Pulse No., Resistance, Reactance: 21 , 0 ,-10000
Pulse No., Resistance, Reactance: 41 , 0 ,-10000
Pulse No., Resistance, Reactance: 61 , 0 ,-10000

********** SOURCE DATA **********
Pulse 81 Voltage = (1.0, 0.0j)
Current = (0.002, -0.0032j)
Impedance = (140.081, 224.639j)
Power = 0.000999 Watts

Derivation of Operating Parameters for Night Directional Antenna

Once calibrated against the measured individual open-circuited base impedances, the moment method model was utilized for night directional antenna calculations. These calculations were made to determine the complex voltage source values to be applied at ground level for each tower of the array to produce the current moment sums for the towers which, when normalized to the reference tower, equate to the theoretical field parameters of the authorized directional pattern. These voltage sources were then applied in the model and the tower currents were calculated.

Sample Loop Elevation Determination

Twenty (20) segments were used in the model for each tower. A model was constructed for each tower to determine in which segment the current would be at a minimum if the tower were detuned in the horizontal plane. In each case, the detuned tower current minimum occurred in segment 8. The elevation for segment 8 was then divided by the calibrated model tower height, then multiplied by 106.8 meters to determine the physical elevation of the sample loop for each tower. This elevation was determined in every case to be 37.377 meters.

Night Antenna Model

Tower 5 is not used in the night array, so a field ratio of zero was used for that tower. The model was run and the pulse 81 source impedance was noted. The reactive component thereof was determined to be –j424.4. The model was then modified to eliminate the voltage source for tower 5, and a +j424.4 load was inserted at pulse 81 to detune tower 5. The model was then run to determine the nighttime operating parameters of the array.

The current magnitude and phase for segment 8 in each driven tower was normalized to the current magnitude and phase in segment 8 of tower 1 to determine the proper operating parameters for the array as indicated by the antenna monitor.

Twr.	Node	Current Magnitude (amperes)	Current Phase (degrees)	Antenna Monitor Ratio	Antenna Monitor Phase (degrees)
1	8	2.8695	-0.6	1.000	0.0
2	28	2.8407	+25.7	0.990	+26.3
3	48	2.8391	+93.1	0.989	+93.7
4	68	2.8371	+66.9	0.989	+67.5

****
ACSModel
(MININEC 3.1 Core)
03-09-2010 10:32:43
****

WXJC
Night Directional Antenna
Tower 5 Terminated With +j424.4 Load

Frequency = 0.850 MHz Wavelength = 352.70587 Meters

No. of Wires: 5

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	116.5399	0.335	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-21.50622	204.618	0		-2	
-21.50622	204.618	118.0095	0.27	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
66.05574	133.7124	0		-3	
66.05574	133.7124	117.4021	0.388	0	20

Wire No. 4	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
87.56098	-70.90549	0		-4	
87.56098	-70.90549	117.5686	0.38	0	20

Wire No. 5	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
153.8826	62.1726	0		-5	
153.8826	62.1726	116.7163	0.275	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.335	-1	1	1
0	0	5.826995	0.335	1	1	2
0	0	11.65399	0.335	1	1	3
0	0	17.48098	0.335	1	1	4
0	0	23.30798	0.335	1	1	5
0	0	29.13498	0.335	1	1	6
0	0	34.96197	0.335	1	1	7
0	0	40.78896	0.335	1	1	8
0	0	46.61596	0.335	1	1	9
0	0	52.44296	0.335	1	1	10
0	0	58.26995	0.335	1	1	11
0	0	64.09695	0.335	1	1	12
0	0	69.92393	0.335	1	1	13
0	0	75.75093	0.335	1	1	14
0	0	81.57793	0.335	1	1	15
0	0	87.40492	0.335	1	1	16
0	0	93.23192	0.335	1	1	17
0	0	99.05891	0.335	1	1	18
0	0	104.8859	0.335	1	1	19
0	0	110.7129	0.335	1	0	20

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-21.50622	204.618	0	0.27	-2	2	21
-21.50622	204.618	5.900476	0.27	2	2	22
-21.50622	204.618	11.80095	0.27	2	2	23
-21.50622	204.618	17.70143	0.27	2	2	24
-21.50622	204.618	23.6019	0.27	2	2	25
-21.50622	204.618	29.50238	0.27	2	2	26
-21.50622	204.618	35.40285	0.27	2	2	27
-21.50622	204.618	41.30333	0.27	2	2	28
-21.50622	204.618	47.2038	0.27	2	2	29
-21.50622	204.618	53.10428	0.27	2	2	30
-21.50622	204.618	59.00475	0.27	2	2	31
-21.50622	204.618	64.90523	0.27	2	2	32
-21.50622	204.618	70.8057	0.27	2	2	33
-21.50622	204.618	76.70618	0.27	2	2	34
-21.50622	204.618	82.60665	0.27	2	2	35
-21.50622	204.618	88.50713	0.27	2	2	36
-21.50622	204.618	94.40761	0.27	2	2	37
-21.50622	204.618	100.3081	0.27	2	2	38
-21.50622	204.618	106.2086	0.27	2	2	39
-21.50622	204.618	112.109	0.27	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
66.05574	133.7124	0	0.388	-3	3	41
66.05574	133.7124	5.870103	0.388	3	3	42
66.05574	133.7124	11.74021	0.388	3	3	43
66.05574	133.7124	17.61031	0.388	3	3	44
66.05574	133.7124	23.48041	0.388	3	3	45
66.05574	133.7124	29.35052	0.388	3	3	46
66.05574	133.7124	35.22062	0.388	3	3	47
66.05574	133.7124	41.09072	0.388	3	3	48
66.05574	133.7124	46.96083	0.388	3	3	49
66.05574	133.7124	52.83093	0.388	3	3	50
66.05574	133.7124	58.70104	0.388	3	3	51
66.05574	133.7124	64.57114	0.388	3	3	52
66.05574	133.7124	70.44124	0.388	3	3	53
66.05574	133.7124	76.31135	0.388	3	3	54
66.05574	133.7124	82.18144	0.388	3	3	55
66.05574	133.7124	88.05155	0.388	3	3	56
66.05574	133.7124	93.92165	0.388	3	3	57
66.05574	133.7124	99.79176	0.388	3	3	58
66.05574	133.7124	105.6619	0.388	3	3	59
66.05574	133.7124	111.532	0.388	3	0	60

Wire No. 4 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
87.56098	-70.90549	0	0.38	-4	4	61
87.56098	-70.90549	5.878431	0.38	4	4	62
87.56098	-70.90549	11.75686	0.38	4	4	63
87.56098	-70.90549	17.63529	0.38	4	4	64
87.56098	-70.90549	23.51373	0.38	4	4	65
87.56098	-70.90549	29.39216	0.38	4	4	66
87.56098	-70.90549	35.27059	0.38	4	4	67
87.56098	-70.90549	41.14902	0.38	4	4	68
87.56098	-70.90549	47.02745	0.38	4	4	69
87.56098	-70.90549	52.90588	0.38	4	4	70
87.56098	-70.90549	58.78431	0.38	4	4	71
87.56098	-70.90549	64.66274	0.38	4	4	72
87.56098	-70.90549	70.54118	0.38	4	4	73
87.56098	-70.90549	76.4196	0.38	4	4	74
87.56098	-70.90549	82.29804	0.38	4	4	75
87.56098	-70.90549	88.17647	0.38	4	4	76
87.56098	-70.90549	94.0549	0.38	4	4	77
87.56098	-70.90549	99.93333	0.38	4	4	78
87.56098	-70.90549	105.8118	0.38	4	4	79
87.56098	-70.90549	111.6902	0.38	4	0	80

Wire No. 5 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
153.8826	62.1726	0	0.275	-5	5	81
153.8826	62.1726	5.835813	0.275	5	5	82
153.8826	62.1726	11.67163	0.275	5	5	83
153.8826	62.1726	17.50744	0.275	5	5	84
153.8826	62.1726	23.34325	0.275	5	5	85
153.8826	62.1726	29.17907	0.275	5	5	86
153.8826	62.1726	35.01488	0.275	5	5	87
153.8826	62.1726	40.85069	0.275	5	5	88
153.8826	62.1726	46.6865	0.275	5	5	89
153.8826	62.1726	52.52232	0.275	5	5	90
153.8826	62.1726	58.35813	0.275	5	5	91
153.8826	62.1726	64.19394	0.275	5	5	92
153.8826	62.1726	70.02975	0.275	5	5	93
153.8826	62.1726	75.86556	0.275	5	5	94
153.8826	62.1726	81.70138	0.275	5	5	95
153.8826	62.1726	87.53719	0.275	5	5	96
153.8826	62.1726	93.373	0.275	5	5	97
153.8826	62.1726	99.20882	0.275	5	5	98
153.8826	62.1726	105.0446	0.275	5	5	99
153.8826	62.1726	110.8804	0.275	5	0	100

Sources: 4
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 585.2, 51.6
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 570.8, 98.5
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 386.2, -171.7
Pulse No., Voltage Magnitude, Phase (Degrees): 61, 401.7, 142.4

Number of Loads: 1
Pulse No., Resistance, Reactance: 81 , 0 , 424.4

********** SOURCE DATA **********

Pulse 1
Voltage = (363.6983, 458.4903j)
Current = (2.1981, 0.9108j)
Impedance = (214.983, 119.503j)
Power = 608.52 Watts

Pulse 21
Voltage = (-84.5308, 564.5451j)
Current = (1.6173, 1.2446j)
Impedance = (135.889, 244.497j)
Power = 282.96 Watts

Pulse 41
Voltage = (-382.1209, -56.0786j)
Current = (-0.0262, 2.2967j)
Impedance = (-22.518, 166.636j)
Power = -59.397290 Watts

Pulse 61
Voltage = (-318.198, 245.144j)
Current = (0.6487, 2.212j)
Impedance = (63.202, 162.388j)
Power = 167.92 Watts

Total Power = 1000.000 Watts

********** CURRENT DATA **********

Wire No. 1 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	2.1981	0.9108	2.3793	22.5082
2	2.4863	0.6736	2.5759	15.1592
3	2.6535	0.5152	2.703	10.9867
4	2.7718	0.3786	2.7975	7.7779
5	2.8497	0.2575	2.8613	5.164
6	2.8907	0.1496	2.8946	2.9632
7	2.8968	0.0541	2.8973	1.0694
8	**2.8693**	**-0.0294**	**2.8695**	**-0.5872**
9	2.8094	-0.1008	2.8112	-2.0553
10	2.7181	-0.1601	2.7228	-3.3707
11	2.5969	-0.2071	2.6051	-4.5603
12	2.4471	-0.2419	2.459	-5.6452
13	2.2703	-0.2644	2.2856	-6.642
14	2.0682	-0.2746	2.0863	-7.5643
15	1.8425	-0.2728	1.8626	-8.4232
16	1.595	-0.2591	1.6159	-9.228
17	1.3272	-0.2337	1.3477	-9.987
18	1.0402	-0.1967	1.0587	-10.7074
19	0.7336	-0.1479	0.7484	-11.397
20	0.4032	-0.0862	0.4124	-12.0689
E	0.0	0.0	0.0	0.0

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
21	1.6173	1.2446	2.0407	37.5806
22	1.9499	1.2912	2.3386	33.5118
23	2.157	1.3126	2.525	31.3216
24	2.3136	1.3201	2.6637	29.7083
25	2.4292	1.3153	2.7625	28.4331
26	2.5076	1.2989	2.824	27.3839
27	2.5505	1.2715	2.8498	26.4973
28	**2.559**	**1.2334**	**2.8407**	**25.7336**
29	2.534	1.1852	2.7975	25.0654
30	2.4766	1.1273	2.721	24.4737
31	2.3876	1.0603	2.6124	23.9442
32	2.2684	0.9847	2.4729	23.4662
33	2.1202	0.9014	2.3039	23.0312
34	1.9446	0.8108	2.1069	22.6326
35	1.7432	0.7137	1.8836	22.265
36	1.5174	0.6107	1.6357	21.9239
37	1.2689	0.5025	1.3648	21.6055
38	0.9985	0.3894	1.0718	21.3064
39	0.7061	0.2714	0.7565	21.0232
40	0.3877	0.1469	0.4146	20.751
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
41	-0.0262	2.2967	2.2968	90.6529
42	-0.0647	2.552	2.5528	91.4514
43	-0.0886	2.6945	2.696	91.8842
44	-0.108	2.7921	2.7942	92.216
45	-0.1239	2.8524	2.8551	92.4877
46	-0.1367	2.8786	2.8818	92.7188
47	-0.1465	2.8724	2.8761	92.9203
48	**-0.1535**	**2.835**	**2.8391**	**93.0992**
49	-0.1576	2.7675	2.772	93.2602
50	-0.159	2.671	2.6757	93.4069
51	-0.1576	2.5466	2.5515	93.5417
52	-0.1535	2.3958	2.4007	93.6668
53	-0.1468	2.2198	2.2246	93.7838
54	-0.1375	2.0202	2.0249	93.894
55	-0.1257	1.7986	1.803	93.9985
56	-0.1115	1.5566	1.5606	94.0985
57	-0.095	1.2955	1.299	94.1949
58	-0.0762	1.0161	1.019	94.2886
59	-0.055	0.7178	0.7199	94.3807
60	-0.031	0.3963	0.3975	94.4732
E	0.0	0.0	0.0	0.0

Wire No. 4 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
61	0.6487	2.212	2.3051	73.655
62	0.8138	2.4218	2.5549	71.427
63	0.9125	2.5369	2.6961	70.2165
64	0.9877	2.6128	2.7932	69.2925
65	1.044	2.6557	2.8536	68.54
66	1.0833	2.6685	2.88	67.9042
67	1.1066	2.6526	2.8742	67.3541
68	**1.1145**	**2.609**	**2.8371**	**66.8696**
69	1.1073	2.5389	2.7699	66.437
70	1.0854	2.4433	2.6735	66.0464
71	1.0494	2.3232	2.5492	65.6903
72	0.9997	2.1799	2.3982	65.3629
73	0.9369	2.0147	2.2219	65.0597
74	0.8617	1.8292	2.022	64.7771
75	0.7746	1.6248	1.8	64.5119
76	0.6763	1.4029	1.5574	64.2616
77	0.5675	1.1649	1.2958	64.0242
78	0.4486	0.9115	1.0159	63.7977
79	0.3191	0.6424	0.7173	63.58
80	0.1773	0.3536	0.3956	63.367
E	0.0	0.0	0.0	0.0

Wire No. 5 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
81	0.2444	0.2426	0.3444	44.7959
82	0.1815	0.1804	0.2559	44.8244
83	0.1383	0.138	0.1953	44.9437
84	0.1008	0.1016	0.1431	45.2435
85	0.0673	0.0696	0.0968	45.9492
86	0.0374	0.0413	0.0557	47.8507
87	0.0107	0.0165	0.0197	56.9419
88	-0.0127	-0.0049	0.0136	-158.7318
89	-0.0327	-0.023	0.04	-144.9247
90	-0.0495	-0.0377	0.0622	-142.6726
91	-0.0628	-0.0492	0.0798	-141.9382
92	-0.0727	-0.0574	0.0927	-141.7044
93	-0.0792	-0.0625	0.1009	-141.703
94	-0.0821	-0.0645	0.1044	-141.8329
95	-0.0815	-0.0636	0.1034	-142.0477
96	-0.0775	-0.0598	0.0979	-142.3232
97	-0.0699	-0.0534	0.088	-142.6459
98	-0.0589	-0.0444	0.0738	-143.0079
99	-0.0443	-0.0329	0.0552	-143.4053
100	-0.0258	-0.0188	0.0319	-143.8406
E	0.0	0.0	0.0	0.0

Current Moments (amp-meters) Peak

Frequency: 850 kHz
Input Power: 1,000 Watts

Wire	Real	Imag	Vert. Current Moment Magnitude	Phase
1	246.8832	0.0535	246.8832	0.01
2	222.0273	108.3885	247.0713	26.02
3	-13.1589	246.7038	247.0545	93.05
4	96.3520	227.4523	247.0188	67.04
5	-0.5342	0.5627	0.7759	133.51

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

Tower	Real	Imag	Magnitude	Phase
1	246.8832	0.0535	246.8832	0.01
2	222.0273	108.3885	247.0713	26.02
3	-13.1589	246.7038	247.0545	93.05
4	96.3520	227.4523	247.0188	67.04
5	-0.5342	0.5627	0.7759	133.51

Summary of Post Construction Certified Array Geometry

With respect to Question 9, Section III, Page 2 of the attached Form 302-AM, the tower information is as follows:

Tower No.	ASRN	Height above base insulator (meters)	Height above ground w/o obst. lighting (meters)	Overall height above ground (meters)
1	1053113	106.8	107.4	108.2
2	1053114	106.8	107.4	108.2
3	1053115	106.8	107.4	108.2
4	1053116	106.8	107.4	108.2
5	1053117	106.8	107.4	108.2

All towers are uniform cross-section, steel, guyed vertical radiators.

Because WXJC is an existing licensed facility, in accordance with the Public Notice, Media Bureau Clarifies Procedures for AM Directional Antenna Performance Verification Using Moment Method Modeling (FCC DA 09-2340) dated October 29, 2009 it is exempt from the requirement to submit a surveyor's certification.

Sampling System

The sampling system consists of steel, insulated one-turn sample loops installed at an elevation of 37.377 meters above the base insulator on each tower. Samples from the loops are fed to the antenna monitor via equal lengths of 3/8-inch foam-dielectric coaxial transmission lines. A parallel-resonated sample line isocoil is located at the base of each tower to isolate the tower RF potential sample line on the tower from the ground potential sample line runs to the transmitter building. The antenna monitor is a Potomac Instruments Type 1901.

Impedance measurements were made of the antenna sampling system using an Agilent E5061A network analyzer. The measurements were made looking into the antenna monitor ends of the sample lines with the tower ends of the sample lines open-circuited at the loops.

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

Twr.	Sample Line Open-Circuited Resonance Below 850 kHz (kHz)	Sample Line Open-Circuited Resonance Above 850 kHz (kHz)	Sample Line Calculated Electrical Length At 850 kHz (deg.)
1	729.444	1221.894	314.6
2	729.444	1221.894	314.6
3	729.444	1221.894	314.6
4	729.444	1221.894	314.6
5	729.444	1221.894	314.6

Because the electrical lengths were determined to be identical to within the nearest 0.1 degree, the sample lines meet the requirement in the Rules that they be equal in length within one electrical degree.

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

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

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

Twr.	+ 45 Deg. Offset Frequency (kHz)	+45 Deg. Measured Impedance (ohms)	- 45 Deg. Offset Frequency (kHz)	-45 Deg. Measured Impedance (ohms)	Calculated Characteristic Impedance (ohms)
1	851.018	50.899	607.870	50.407	50.652
2	851.018	51.319	607.870	49.727	50.516
3	851.018	51.543	607.870	50.582	51.060
4	851.018	51.299	607.870	50.024	50.657
5	851.018	50.924	607.870	50.391	50.657

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

The impedance of each of the sample lines was measured with the sample loops attached. These impedances are tabulated below:

Twr.	R (ohms)	X (ohms)
1	7.5	-41.5
2	7.3	-40.9
3	7.5	-41.7
4	7.7	-41.0
5	7.5	-41.9

Direct Measurement of Power

Common point impedance measurements of both the day and night patterns were made using a Delta CPB-1A common point bridge installed in the common point bus of the phasing and coupling system. The resistance value was adjusted to 50 ohms and the reactance value was adjusted to zero for each pattern.

Appendix A

Night Reference Field Strength Measurements

Reference field strength measurements were made on May 24-25, 2010 using a Potomac Instruments FIM-41 S/N 460 at three locations along radials at the pattern minima and maxima radials. The measured field strengths and descriptions and NAD-83 GPS coordinates for the reference measurement points are shown in the following tables.

Nighttime

Radial 22.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.11	33-39-01	86-44-04	05/25/10	10:43	46	651 Carson Rd.
2	4.70	33-39-49	86-43-40	05/25/10	10:28	26	5424 Red Hollow Rd.
3	9.53	33-42-13	86-42-28	05/25/10	10:10	4.5	100' N of Turkey Crk. Water Plant on Narrows Rd.

Radial 50.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.48	33-38-41	86-43-07	05/24/10	12:55	3.1	1326 Sunhill Rd. NW
2	5.10	33-39-14	86-42-17	05/24/10	12:27	2.4	691 26th Ave. NW
3	8.86	33-40-31	86-40-24	05/24/10	12:37	1.1	3192 Cobblestone Dr.

Radial 95.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.88	33-37-18	86-42-19	05/24/10	13:05	39	721 Carson Rd.
2	5.46	33-37-13	86-41-18	05/24/10	13:12	18	1305 Huffman Rd.
3	7.06	33-37-07	86-40-16	05/24/10	13:21	13	1366 Springville Rd.

Radial 139.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.77	33-35-56	86-43-13	05/24/10	11:21	4	505 Lawson Rd.
2	4.76	33-35-32	86-42-48	05/24/10	11:11	2.25	59 Roebuck Rd.
3	5.87	33-35-05	86-42-19	05/24/10	11:02	1.25	9059 Parkway E.

Radial 195.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.44	33-35-40	86-45-24	05/24/10	13:48	95	2487 Valley View Dr.
2	4.71	33-35-01	86-45-37	05/24/10	10:15	64	1499 Bethel Ave.
3	6.43	33-34-07	86-45-54	05/24/10	10:34	36.5	4764 Inglenook Ln.

Radial 261.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	4.03	33-32-07	86-47-24	05/25/10	11:15	2.6	1825 Carson Rd.
2	6.72	33-36-54	86-49-08	05/25/10	11:31	1.7	2028 Hickory Ln.
3	9.84	33-36-37	86-51-07	05/25/10	11:47	0.24	3525 Shady Grove Rd.

Radial 299.0°

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	3.32	33-38-19	86-46-43	05/25/10	11:06	4.6	New Castle Rd. 0.16 mi. W. of Cypress St.
2	6.64	33-39-12	86-48-36	05/24/10	15:12	0.95	102 Gardendale Dr.
3	9.40	33-39-56	86-50-09	05/25/10	12:05	0.42	5391 Brewer Rd.

Radial 336.0°
(05/25/2010)

Point No.	Dist. km	Latitude	Longitude	Date	Time	Field mV/m	Description
1	2.21	33-38-33	86-45-24	05/25/10	13:31	4.9	1324 Carson Rd.
2	3.60	33-39-15	86-45-46	05/25/10	10:50	4.4	4268 New Castle Rd.
3	14.5	33-44-35	86-48-40	05/25/10	12:28	0.02	8211 Miller Pl.

Appendix B

Day Partial Proof of Performance

Crawford
Broadcasting
Company
Corporate Engineering 2150 W. 29th Ave., Suite 300 Denver, CO 80211 Tel. (303) 433-0104 Fax (303) 433-0905

WXJC Daytime Directional Partial Proof of Performance

Summary

Radial Deg.	Avg. Log Ratio	Ref. IDF	DA-D IDF	Max IDF	% Max IDF
139.0	1.1593	997.6	1156.5	1826.8	63.3
290.0	1.1458	1005.6	1152.2	1452.1	79.3
310.0	0.6511	1005.6	654.8	1287.5	50.9
347.0	0.5061	1013.7	513.0	965.6	53.1

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WXJC Daytime Directional Proof of Performance

139 Degree Radial

Point Number	Distance (km)	Ref. ND (mV/m)	1970.0 Date	DA-D (mV/m)	DA-D Date	DA-D Time	Log Ratio
12(MP)	4.54	93.0	10/29	150.00	05/12/10	13:30	0.2076
14	5.79	94.0	10/29	112.00	05/12/10	13:35	0.0761
16	6.65	88.0	10/29	110.00	05/12/10	13:43	0.0969
17	6.90	87.0	10/29	105.00	05/12/10	13:45	0.0817
18	7.08	76.0	10/29	79.80	05/12/10	13:50	0.0212
20	8.93	42.0	10/29	39.95	05/12/10	14:00	-0.0217
22	11.82	21.5	10/29	21.00	05/12/10	15:40	-0.0102
24	13.47	13.0	10/29	15.00	05/12/10	16:01	0.0621
						Log Avg.	1.1593

ND IDF IDF (mV/m)	DA-D IDF (mV/m)	Maximum IDF (mV/m)	% Max.
997.6	1156.5	1826.8	63.3

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WXJC Daytime Directional Proof of Performance

290 Degree Radial

Point Number	Distance (km)	Ref. ND (mV/m)	1970.0 Date	DA-D (mV/m)	DA-D Date	DA-D Time	Log Ratio
10	3.67	87.0	10/31	145.0	05/12/10	10:40	0.2218
11	4.02	110.0	10/31	177.0	05/12/10	11:00	0.2066
12	4.88	86.0	10/31	122.0	05/12/10	11:05	0.1519
13(MP)	5.47	80.0	10/31	71.0	05/12/10	11:25	-0.0518
15	7.00	69.0	10/31	60.0	05/12/10	11:35	-0.0607
17	9.01	35.0	10/31	47.5	05/12/10	11:44	0.1326
18	10.38	39.0	10/31	34.0	05/12/10	12:50	-0.0596
20	13.19	13.8	10/31	11.8	05/12/10	13:00	-0.0680
						Log Avg.	1.1458

ND IDF (mV/m)	DA-D IDF (mV/m)	Maximum IDF (mV/m)	% Max.
1005.6	1152.2	1452.1	79.3

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WXJC Daytime Directional Proof of Performance

310 Degree Radial

Point Number	Distance (km)	Ref. ND (mV/m)	1970.0 Date	DA-D (mV/m)	DA-D Date	DA-D Time	Log Ratio
8(MP)	3.22	160.0	10/31	150.0	05/12/10	9:38	-0.0280
10	3.62	110.0	10/31	115.0	05/12/10	9:42	0.0193
11	5.15	74.0	10/31	44.0	05/12/10	11:16	-0.2258
12	7.61	36.0	10/31	16.0	05/12/10	12:00	-0.3522
14	8.77	20.0	10/31	15.5	05/12/10	12:04	-0.1107
15	9.57	21.5	10/31	14.0	05/12/10	12:40	-0.1863
16	10.41	22.5	10/31	12.8	05/12/10	12:20	-0.2450
17	10.97	16.8	10/31	7.3	05/12/10	12:30	-0.3620
						Log Avg.	0.6511

ND IDF IDF (mV/m)	DA-D IDF (mV/m)	Maximum IDF (mV/m)	% Max.
1005.6	654.8	1287.5	50.9

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Company

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WXJC Daytime Directional Proof of Performance

347 Degree Radial

Point Number	Distance (km)	Ref. ND (mV/m)	1970.0 Date	DA-D (mV/m)	DA-D Date	DA-D Time	Log Ratio
11(MP)	4.99	64.0	10/31	34.5	05/12/10	11:32	-0.2684
12	6.68	45.0	10/31	32.0	05/12/10	11:40	-0.1481
13	8.05	36.5	10/31	19.0	05/12/10	11:43	-0.2835
14	11.67	18.0	10/31	6.6	05/13/10	9:33	-0.4357
15	12.31	17.7	10/31	6.5	05/13/10	9:28	-0.4351
16	13.11	12.0	10/31	6.2	05/13/10	9:25	-0.2868
17	14.64	11.4	10/31	5.6	05/13/10	9:14	-0.3087
18	16.81	8.4	10/31	5.3	05/13/10	9:08	-0.2000
						Log Avg.	0.5061

ND IDF IDF (mV/m)	DA-D IDF (mV/m)	Maximum IDF (mV/m)	% Max.
1013.7	513.0	965.6	53.1

Monitor Point Description
Day 139° True

Nearest Address: 60 Roebuck Drive, Birmingham, AL 35215. Go into the Church parking lot, then proceed south on the small access road approximately 120 feet.

NAD83 GPS Coordinates: N33° 35' 33"/ W86° 42' 48"

This is point number 12 on the 139-degree radial and it is 4.54 km from the site. The measured field at this point was 150 mV/m, the measured IDF on the radial is 1156.5 mV/m, and the standard pattern IDF is 1826.8 mV/m. The limit should thus be 150 x 1826.8 / 1156.5 = 236.9 mV/m.

Monitor Point Description
Day 290° True

Nearest Address: 705 Peterson Road, Gardendale, AL 35071. Go into the grassy lot just to the south of the house.

NAD83 GPS Coordinates: N33° 38' 30" / W86° 48' 09"

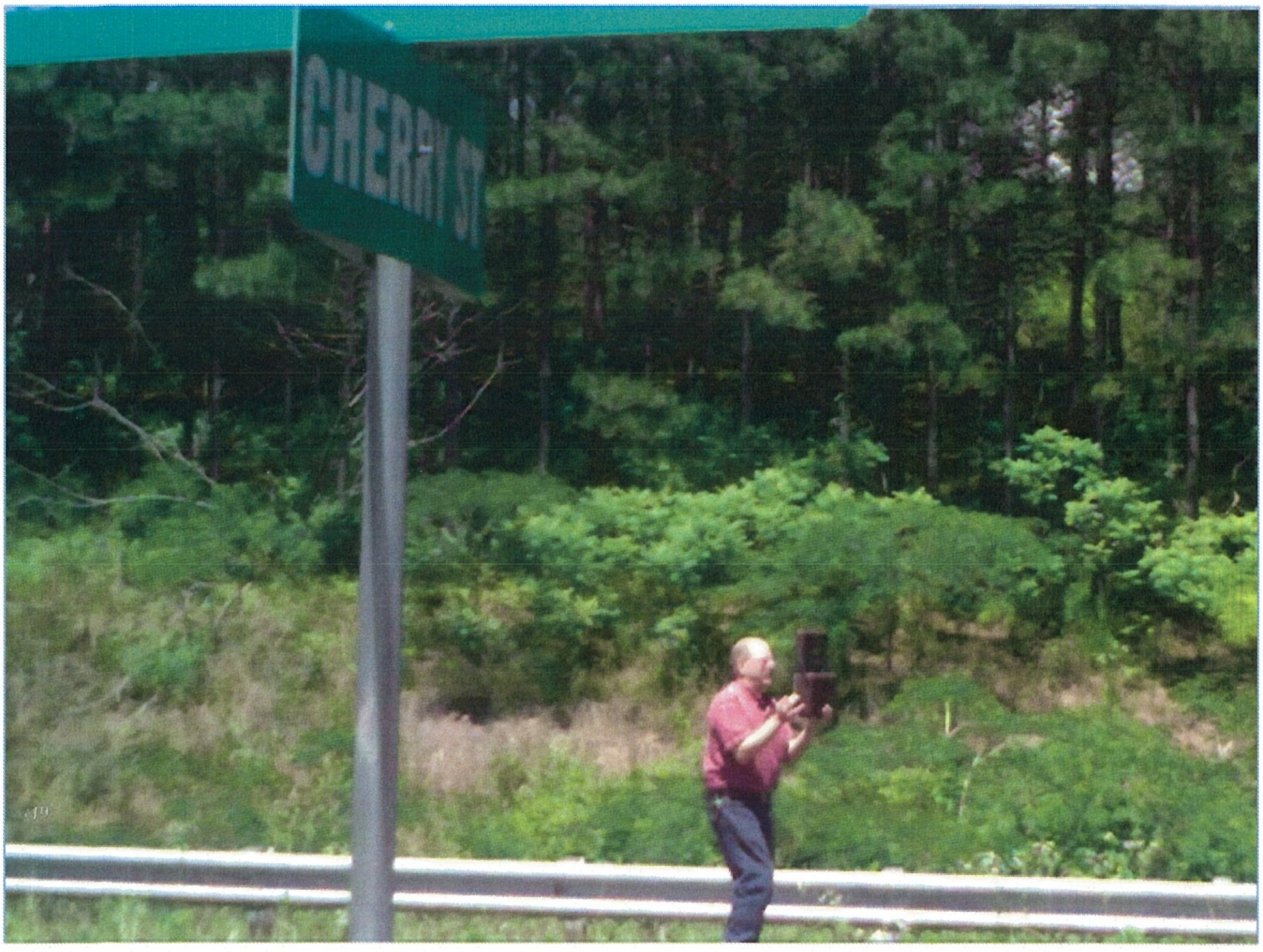
This is point number 13 on the 290-degree radial and it is 5.47 km from the site. The measured field at this point was 71 mV/m, the measured IDF on the radial is 1152.2 mV/m, and the standard pattern IDF is 1452.1 mV/m. The limit should thus be 71 x 1452.1 / 1152.2 = 89.5 mV/m.

Monitor Point Description
Day 310° True

Intersection of New Castle Road and Cherry Street. Walk north across New Castle, away from Cherry Street.

NAD83 GPS Coordinates: N33° 38' 35" / W86° 46' 23"

This is point number 8 on the 310-degree radial and it is 3.22 km from the site. The measured field at this point was 150 mV/m, the measured IDF on the radial is 654.8 mV/m, and the standard pattern IDF is 1287.5 mV/m. The limit should thus be 150 x 1287.5 / 654.8 = 294.9 mV/m.



Monitor Point Description
Day 347° True

Near intersection of New Castle Road and Paradise Valley Road. Walk west approximately 100 feet from intersection.

NAD83 GPS Coordinates: N33° 40' 04" / W86° 45' 30"

This is point number 11 on the 347-degree radial and it is 4.99 km from the site. The field at this point measured 34.5 mV/m, the measured IDF on the radial is 513 mV/m, and the standard pattern IDF is 965.6 mV/m. The limit should thus be 34.5 x 965.6 / 513.0 = 64.9 mV/m.

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June 4, 2010

Secretary
Federal Communications Commission
Washington, DC 20554

ATTN: Audio Division (AM)

RE: **Form 302-AM (Moment Method Modeling)**
WXJC(AM) Birmingham, Alabama
FAC: 74245

Dear Madam Secretary:

Transmitted herewith in triplicate on behalf of Kimtron, Inc., licensee of the above-referenced station is FCC Form 302-AM, an application for moment method modeling.

A $1,320 filing fee is remitted with this application. The filing fee codes are MOR and MMR. Any questions concerning this matter should be addressed to the undersigned.

Sincerely,

John S. Neely

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