

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.**

**SECTION I - APPLICANT FEE INFORMATION**

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

**Sunrise Broadcasting Corporation**

MAILING ADDRESS (Line 1) (Maximum 35 characters)

**661 Little Britain Road**

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY

**New Windsor**

STATE OR COUNTRY (if foreign address)

**NY**

ZIP CODE

**12553**

TELEPHONE NUMBER (include area code)

**845-561-2131**

CALL LETTERS

**WGNV(AM)**

OTHER FCC IDENTIFIER (If applicable)

**File No. BMML-20090603ADH**

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): **AMENDMENT**

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			
0	0	0	1

(C)

FEE DUE FOR FEE TYPE CODE IN COLUMN (A)
\$

FOR FCC USE ONLY

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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)

0	0	0	1
---	---	---	---

(C)

\$
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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

\$

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SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Sunrise Broadcasting Corporation		
MAILING ADDRESS 661 Little Britain Road		
CITY New Windsor	STATE NY	ZIP CODE 12553

2. This application is for:

- ☒ Commercial
 ☐ Noncommercial  
☒ AM Directional
 ☐ AM Non-Directional

Call letters WGNY(AM)	Community of License Newburgh, NY	Construction Permit File No. BP-20080919ACV	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit 2/25/2012
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3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☒ Yes ☐ No

Exhibit No.

If No, explain in an Exhibit.

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

☒ Yes ☐ No

Exhibit No.

If No, state exceptions in an Exhibit.

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

Exhibit No.

If Yes, explain in an Exhibit.

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

Exhibit No.

If No, explain in an Exhibit.

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

Exhibit 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.

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).

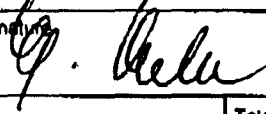
The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

### 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 Joerg G. Klebe	Signature 	
Title President	Date 1/12/2010	Telephone Number 845-561-2131

**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

**Sunrise Broadcasting Corporation**

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	
<b>WGNY</b>	<b>BP-20080919ACV</b>	<b>1220</b>	<b>Unlimited</b>	Night <b>0.18</b>	Day <b>10.0</b>

**2. Station location**

State <b>New York</b>	City or Town <b>Newburgh</b>
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**3. Transmitter location**

State <b>NY</b>	County <b>Orange</b>	City or Town <b>Newburgh</b>	Street address (or other identification) <b>2,900' E-NE of intersection of Rock Cut &amp; 17K</b>
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**4. Main studio location**

State <b>NY</b>	County <b>Orange</b>	City or Town <b>New Windsor</b>	Street address (or other identification) <b>661 Little Britain Road</b>
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**5. Remote control point location (specify only if authorized directional antenna)**

State <b>NY</b>	County <b>Orange</b>	City or Town <b>New Windsor</b>	Street address (or other identification) <b>661 Little Britain Road</b>
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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.  
**See Engineering**
**8. Operating constants:**

RF common point or antenna current (in amperes) without modulation for night system <b>1.97</b>	RF common point or antenna current (in amperes) without modulation for day system <b>14.5</b>
Measured antenna or common point resistance (in ohms) at operating frequency Night <b>50</b> Day <b>50</b>	Measured antenna or common point reactance (in ohms) at operating frequency Night <b>+J0</b> Day <b>+J0</b>

**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
<b>1 West</b>	<b>+158.6</b>	<b>-120.8</b>	<b>0.577</b>	<b>0.541</b>	<b>-----</b>	<b>-----</b>
<b>2 Center</b>	<b>0</b>	<b>0</b>	<b>1.0</b>	<b>1.0</b>	<b>-----</b>	<b>-----</b>
<b>3 East</b>	<b>-151.9</b>	<b>+166.9</b>	<b>0.861</b>	<b>0.602</b>	<b>-----</b>	<b>-----</b>

Manufacturer and type of antenna monitor:

**Potomac Instruments 1901 Serial #715**

**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  Uniform cross section guyed	Overall height in meters of radiator above base insulator, or above base, if grounded.  51.8	Overall height in meters above ground (without obstruction lighting)  52.7	Overall height in meters above ground (include obstruction lighting)  53.0	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.  Exhibit No. See Eng.
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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	41 °	31 '	53 "	West Longitude	74 °	06 '	48.0 "
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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.  
See Eng.

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

Exhibit No.  
See Eng.

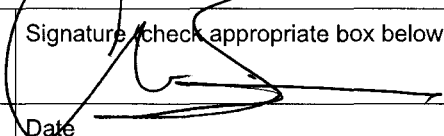
10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

None.

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

N/A

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) Clarence M. Beverage	Signature (check appropriate box below) 
Address (include ZIP Code) Communications Technologies, Inc. P. O. Box 1130 Marlton, NJ 08053	Date 1/11/2010
	Telephone No. (Include Area Code) 856-985-0077

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☐ Technical Consultant

☒ Other (specify) Broadcast Engineering Consultant

**ENGINEERING STATEMENT IN  
SUPPORT OF AMENDMENT TO 302-AM  
APPLICATION FOR LICENSE EMPLOYING MOMENT  
METHOD MODELING  
WGNY 1220 kHz BMML-20090603AHD  
0.18/10 kW LS DA-2 U  
NEWBURGH, NEW YORK**

**JANUARY 2010**

**ENGINEERING STATEMENT IN  
SUPPORT OF AMENDMENT TO 302-AM  
APPLICATION FOR LICENSE  
EMPLOYING MOMENT METHOD MODELING  
WGNY 1220 kHz BMML-20090603AHD  
0.18/10 kW LS DA-2 U  
NEWBURGH, NEW YORK**

**JANUARY 2010**

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**ENGINEERING STATEMENT**

**FORMS:** FCC FORM 302-AM (AMENDED)

**EXHIBITS:**

- I. MoM detail for towers driven individually.
- II. Derivation of daytime operating parameters.
- III. Derivation of nighttime operating parameters.

- FIGURES:**
- 1. Circuit Model for Tower #1 Base – other towers floating.
  - 2. Circuit Model for Tower #2 Base – other towers floating.
  - 3. Circuit Model for Tower #3 Base – other towers floating.
  - 4. Circuit Model for Tower #1 Base – DA-D.
  - 5. Circuit Model for Tower #2 Base – DA-D.
  - 6. Circuit Model for Tower #3 Base – DA-D.
  - 7. Circuit Model for Tower #1 Base – DA-N.
  - 8. Circuit Model for Tower #2 Base – DA-N.
  - 9. Circuit Model for Tower #3 Base – DA-N.

**APPENDIX:**

- 1. Westberg Consulting Phasor Professional 2.1.1.12 Analysis

**ENGINEERING STATEMENT IN  
SUPPORT OF AMENDMENT TO 302-AM  
APPLICATION FOR LICENSE  
EMPLOYING MOMENT METHOD MODELING  
WGNY 1220 kHz BMML-20090603AHD  
0.18/10 kW LS DA-2 U  
NEWBURGH, NEW YORK**

**SUMMARY**

The following engineering statement has been prepared on behalf of Sunrise Broadcasting Corporation, licensee of standard broadcast station WGNY, FCC ID 63942, 1220 kHz, Newburgh, New York. WGNY holds construction permit BP-20080919ACV which authorizes an increase in daytime power from the licensed 5 kW to 10 kW. A license application covering both the 10 kW daytime construction permit facilities and the licensed 0.18 kW nighttime facilities has been filed and assigned file number BMML-20090603AHD. This amendment is filed in response to an Audio division staff letter dated September 1, 2009. The staff letter specifies that the day and night directional antenna parameters must be set to the operating parameters determined by the moment method with no deviation. That operation has been completed and Form 302-AM is submitted herein employing the as adjusted operating parameters. Given the need to file an amendment the computer model runs have been updated to show closer correlation with measured self impedance data employing the most recent revision to the software, ACSModel 1.013. No other changes to the engineering data currently on file are associated with this amendment.

**METHOD OF MOMENTS MODEL – SELF IMPEDANCE ANALYSIS**

As stated in the original filing, to model the antenna system as accurately as possible, detailed mechanical data was obtained and is summarized below:

Each tower is 170' steel, uniform cross section, 18" face mounted on a 30" diameter sonotube form filled with concrete with 4" strap in an X configuration.

Base Insulators are Austin A-4197L with manufacturer specified capacitance of 20 pf.

Each tower is guy wire top loaded with a top loading measured length of 22' 10", or 10.2 degrees.

Tower #1 supports a 950 MHz STL antenna, 7/8" heliax and has a KTL model FMC 0.2 isocoupler with 65 pf capacitance across the base.



The choice of calculating engine and software implementation chosen for this filing is the ACS Model written by Au Contraire Software, Ltd. employing MININEC3. This software implementation has demonstrated a high level of agreement with results obtained for this array employing both Westberg Consulting, Phasor Professional, 2.1.1.12 and MININEC Broadcast Professional. The model for all three towers is based on a radius of 0.2183 meters which is 100% of the equivalent radius. The model for tower #1 (wire 1) has a height of  $Z = 49.83697$  meters, tower #2 (wire 5)  $Z = 49.88134$  meters and tower #3 (wire 9)  $Z = 47.33181$  meter compared to the full physical height of 51.8166 meters (170'). Thus, tower #1 is modeled at 96.18% of its height, tower #2 96.27% of its height and tower #3 91.34% of its height.

The tower measured base self impedances, with all other towers floating, as measured at the J plug, are listed above. The modeled self impedance measurements, with all other towers floating, are listed in Exhibit I, page 4 for Tower #1, page 10 for Tower #2 and page 16 for Tower #3. A circuit model has been constructed for each tower to account for shunt and series reactances across the tower base. All calculations have been made employing WCAP Professional version 1.1.02 as seen in Figures 1 – 3 for self impedance and Figures 4 – 9 for daytime directional and nighttime directional operation. The measured and calculated self impedance values are well within the tolerance specified in 73.151(c)(2)(ii) as seen below:

#### Tower #1

Measured self impedance at ATU:	26.58 +J 7.374
Modeled self impedance at base:	26.584 –J 33.85
Shunt capacitance:	20 pf in parallel with 65 pf
Series inductance:	+J 41.218, 5.377 uh
Modeled self impedance at ATU:	25.44 +J 7.667

#### Tower #2

Measured self impedance at ATU:	25.937 +J 4.442
Modeled self impedance at base:	25.948 –J 33.753
Shunt capacitance:	20 pf
Series inductance:	+J 38.113, 4.972 uh
Modeled self impedance at ATU:	25.68 +J 4.432

Tower #3

Measured self impedance at ATU:	22.969 +J 3.045
Modeled self impedance at base:	22.975 -J 52.678
Shunt capacitance:	20 pf
Series inductance:	+J 55.421, 7.23 uh
Modeled self impedance at ATU:	22.61 +J 3.086

**METHOD OF MOMENTS MODEL – BASE OPERATING PARAMETERS**

The modeled tower array was employed, as constructed for the derivation of self impedance, for the determination of daytime and nighttime operating parameters. The FCC theoretical values were converted to base excitation values. The base excitation values for the daytime array may be found at the end of Exhibit II, page 25 and the base driving point impedances on pp 22. The base excitation values for the nighttime array may be found at the end of Exhibit III, page 32 and the base driving point impedances on pp 29.

The calculated base operating parameters and the phase monitor parameters as adjusted and reflected on Form 302-AM, attached, are as follows:

DAYTIME:

<u>Tower</u>	<u>Figures 4 – 6 Circuit Model Ratio and Phase</u>		<u>Correction to Modeled Values to Derive Antenna Monitor Values</u>	
#1	1.00	-0.755°	1.00	-0.644°
#2	1.00	-0.091°	1.00	0°
#3	0.99	-0.044°	0.99	+0.047

<u>Tower</u>	<u>MoM Modeled Current &amp; Phase</u>		<u>Antenna Monitor Current &amp; Phase</u>	
#1	0.541	-120.2	0.541	-120.8
#2	1.0	0	1.0	0
#3	0.608	+166.9	0.602	+166.9

NIGHTTIME:

<u>Tower</u>	<u>Figures 7 – 9 Circuit Model Ratio and Phase</u>		<u>Correction to Modeled Values to Derive Antenna Monitor Values</u>	
#1	0.98	-0.112°	0.98	-0.056
#2	1.0	-0.056°	1.0	0
#3	0.99	-0.072°	0.99	-0.016

<u>Tower</u>	<u>MoM Modeled Current &amp; Phase</u>		<u>Antenna Monitor Current &amp; Phase</u>	
#1	0.589	+158.7	0.577	+158.6
#2	1.0	0	1.0	0
#3	0.870	-151.9	0.861	-151.9

The adjusted patterns have phase monitor values which are equal to the modeled phase and ratio corrected for circuit model amplitude and phase. The daytime and nighttime directional patterns have been adjusted to the values above and as shown on the attached form 302-AM.

Appendix 1 is submitted as independent confirmation of the ACS Model calculated results via Westberg Consulting Phasor Professional 2.1.1.12. Phasor Professional does not allow for implementation of top loading so the ACS model physical tower heights were employed plus a 4 meter extension to allow for the affect of the top loading wires. The resistive component of the self impedance for towers 1 and 2 agree to within 1% of the ACS model values. The resistive component for tower # 3 agrees to within 1.3% of the ACS model value. The daytime base operating parameters depicted on page 4 are the same as computed by the ACS Model.

#### **DIRECT MEASUREMENT OF POWER**

Common point impedance was measured with a Delta CPB-1A, SN 1153, permanently installed in the phasing cabinet. Common point current was measured with a Delta TCA 10/20 EXR permanently installed in the phasing cabinet with the toroidal sample immediately adjacent to the impedance bridge. Common point resistance was set to 50 +J0 and the transmitter power adjusted to yield the correct current for a power level of 10,530 watts as found on FCC Form 302-AM attached.

#### **CONCLUSION**

All adjustments, measurements and field work were undertaken by William P. Weeks whose qualifications are a matter of record with the Federal Communications Commission.

The foregoing was prepared on behalf of **Sunrise Broadcasting Corporation** by Clarence M. Beverage of *Communications Technologies, Inc.*, Marlton, New Jersey, whose qualifications are a matter of record with the Federal Communications Commission. The statements herein are true and correct of his own knowledge, except such statements made on information and belief, and as to these statements he believes them to be true and correct.

/s/ Clarence M. Beverage  
*for* Communications Technologies, Inc.  
Marlton, New Jersey

January 11, 2010

**EXHIBIT I**  
**METHOD OF MOMENTS ANALYSIS**  
**#1 WEST TOWER - OTHERS FLOATING**

\*\*\*\*\*  
 ACSModel  
 (MININEC 3.1 Core)  
 10-30-2009 14:07:15  
 \*\*\*\*\*

WGNY  
 Tower 1 Driven  
 Towers 2 & 3 Floated

Frequency = 1.220 MHz      Wavelength = 245.73770 Meters

No. of Wires: 12

Wire No. 1 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	0		-1	
0	0	49.83697	0.2183	0	15
Wire No. 2 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 3 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
-3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 4 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
0	-3.914481	44.24487	0.0125	0	2
Wire No. 5 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	61.43443	0		-5	
0	61.43443	49.88134	0.2183	0	15

Wire No. 6	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 7	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
-3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 8	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
0	57.51994	44.28924	0.0125	0		2
Wire No. 9	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	0		-9		
0	122.8689	47.33181	0.2183	0		15
Wire No. 10	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 11	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
-3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 12	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
0	118.9544	41.73971	0.0125	0		2

\*\*\*\* ANTENNA GEOMETRY \*\*\*\*

Wire No.	1	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	0		0.2183	-1	1	1	
0	0	3.322465		0.2183	1	1	2	
0	0	6.644929		0.2183	1	1	3	
0	0	9.967394		0.2183	1	1	4	
0	0	13.28986		0.2183	1	1	5	
0	0	16.61232		0.2183	1	1	6	
0	0	19.93479		0.2183	1	1	7	
0	0	23.25725		0.2183	1	1	8	
0	0	26.57972		0.2183	1	1	9	
0	0	29.90218		0.2183	1	1	10	
0	0	33.22465		0.2183	1	1	11	
0	0	36.54711		0.2183	1	1	12	
0	0	39.86958		0.2183	1	1	13	
0	0	43.19204		0.2183	1	1	14	
0	0	46.51451		0.2183	1	0	15	

Wire No.	2	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	2	16	
1.69502	0.9786202	47.04092		0.0125	2	0	17	

Wire No.	3	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	3	18	
-1.69502	0.9786202	47.04092		0.0125	3	0	19	

Wire No.	4	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	4	20	
0	-1.95724	47.04092		0.0125	4	0	21	

Wire No.	5	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	61.43443	0		0.2183	-5	5	22	
0	61.43443	3.325423		0.2183	5	5	23	
0	61.43443	6.650846		0.2183	5	5	24	
0	61.43443	9.976268		0.2183	5	5	25	
0	61.43443	13.30169		0.2183	5	5	26	
0	61.43443	16.62711		0.2183	5	5	27	
0	61.43443	19.95254		0.2183	5	5	28	
0	61.43443	23.27796		0.2183	5	5	29	
0	61.43443	26.60338		0.2183	5	5	30	
0	61.43443	29.9288		0.2183	5	5	31	
0	61.43443	33.25423		0.2183	5	5	32	
0	61.43443	36.57965		0.2183	5	5	33	
0	61.43443	39.90507		0.2183	5	5	34	
0	61.43443	43.23049		0.2183	5	5	35	
0	61.43443	46.55592		0.2183	5	0	36	

Wire No.	6	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 6	37
1.69502		62.41305	47.08529	0.0125	6 0	38

Wire No.	7	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 7	39
-1.69502		62.41305	47.08529	0.0125	7 0	40

Wire No.	8	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 8	41
0		59.47718	47.08529	0.0125	8 0	42

Wire No.	9	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	0	0.2183	-9 9	43
0		122.8689	3.155454	0.2183	9 9	44
0		122.8689	6.310908	0.2183	9 9	45
0		122.8689	9.466361	0.2183	9 9	46
0		122.8689	12.62182	0.2183	9 9	47
0		122.8689	15.77727	0.2183	9 9	48
0		122.8689	18.93272	0.2183	9 9	49
0		122.8689	22.08818	0.2183	9 9	50
0		122.8689	25.24363	0.2183	9 9	51
0		122.8689	28.39909	0.2183	9 9	52
0		122.8689	31.55454	0.2183	9 9	53
0		122.8689	34.71	0.2183	9 9	54
0		122.8689	37.86544	0.2183	9 9	55
0		122.8689	41.0209	0.2183	9 9	56
0		122.8689	44.17635	0.2183	9 0	57

Wire No.	10	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 10	58
1.69502		123.8475	44.53576	0.0125	10 0	59

Wire No.	11	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 11	60
-1.69502		123.8475	44.53576	0.0125	11 0	61

Wire No.	12	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 12	62
0		120.9116	44.53576	0.0125	12 0	63



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

Number of Loads: 2  
Pulse No., Resistance, Reactance: 22 , 0 ,-10000  
Pulse No., Resistance, Reactance: 43 , 0 ,-10000

\*\*\*\*\* SOURCE DATA \*\*\*\*\*  
Pulse 1 Voltage = (1.0, 0.0j)  
Current = (0.0144, 0.0183j)  
Impedance = (26.584, -33.85j)  
Power = 0.007175 Watts

\*\*\*\*\* CURRENT DATA \*\*\*\*\*  
Wire No. 1 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	0.0144	0.0183	0.0232	51.8554
2	0.0143	0.0176	0.0227	50.9976
3	0.0141	0.0171	0.0222	50.4479
4	0.0138	0.0165	0.0215	49.9822
5	0.0134	0.0158	0.0207	49.5708
6	0.0129	0.015	0.0198	49.1989
7	0.0123	0.0141	0.0187	48.8584
8	0.0116	0.0131	0.0175	48.5438
9	0.0108	0.0121	0.0162	48.2515
10	0.0099	0.0109	0.0147	47.9794
11	0.0088	0.0097	0.0132	47.7264
12	0.0078	0.0085	0.0115	47.4933
13	0.0066	0.0072	0.0098	47.2844
14	0.0054	0.0059	0.008	47.113
15	0.0044	0.0047	0.0064	47.0206
J	0.0034	0.0037	0.005	47.0838

Wire No. 2 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.0859
17	0.0007	0.0007	0.001	47.3196
E	0.0	0.0	0.0	0.0

Wire No. 3 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.0859
19	0.0007	0.0007	0.001	47.3196
E	0.0	0.0	0.0	0.0

Wire No. 4 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.0797
21	0.0007	0.0007	0.001	47.312
E	0.0	0.0	0.0	0.0

Wire No. 5 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
22	0.0	0.0	0.0	-79.052
23	0.0001	-0.0003	0.0003	-78.981
24	0.0001	-0.0004	0.0004	-78.866
25	0.0001	-0.0005	0.0005	-78.7269
26	0.0001	-0.0006	0.0006	-78.5686
27	0.0001	-0.0007	0.0007	-78.394
28	0.0001	-0.0007	0.0007	-78.2054
29	0.0001	-0.0007	0.0007	-78.0048
30	0.0002	-0.0007	0.0007	-77.7946
31	0.0002	-0.0007	0.0007	-77.5773
32	0.0001	-0.0006	0.0007	-77.3564
33	0.0001	-0.0006	0.0006	-77.1367
34	0.0001	-0.0005	0.0005	-76.9267
35	0.0001	-0.0004	0.0005	-76.7451
36	0.0001	-0.0004	0.0004	-76.644
J	0.0001	-0.0003	0.0003	-76.7315

Wire No. 6 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-73.5163
38	0.0	-0.0001	0.0001	-72.7231
E	0.0	0.0	0.0	0.0

Wire No. 7 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-73.5163
40	0.0	-0.0001	0.0001	-72.7231
E	0.0	0.0	0.0	0.0

Wire No. 8 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-82.8056
42	0.0	-0.0001	0.0001	-85.01
E	0.0	0.0	0.0	0.0

Wire No. 9 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
43	0.0	0.0	0.0	-157.2659
44	-0.0002	-0.0001	0.0002	-157.2927
45	-0.0002	-0.0001	0.0003	-157.3363
46	-0.0003	-0.0001	0.0003	-157.3893
47	-0.0003	-0.0001	0.0004	-157.4499
48	-0.0004	-0.0002	0.0004	-157.5171
49	-0.0004	-0.0002	0.0004	-157.5903
50	-0.0004	-0.0002	0.0004	-157.669
51	-0.0004	-0.0002	0.0004	-157.7527
52	-0.0004	-0.0002	0.0004	-157.8407
53	-0.0004	-0.0002	0.0004	-157.9321
54	-0.0004	-0.0001	0.0004	-158.0254
55	-0.0003	-0.0001	0.0003	-158.1173
56	-0.0003	-0.0001	0.0003	-158.1992
57	-0.0002	-0.0001	0.0002	-158.2471
J	-0.0002	-0.0001	0.0002	-158.2095

Wire No. 10 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.0001	0.0	0.0001	-156.9622
59	0.0	0.0	0.0	-156.3296
E	0.0	0.0	0.0	0.0

Wire No. 11 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.0001	0.0	0.0001	-156.9622
61	0.0	0.0	0.0	-156.3296
E	0.0	0.0	0.0	0.0

Wire No. 12 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.0001	0.0	0.0001	-160.5661
63	0.0	0.0	0.0	-161.245
E	0.0	0.0	0.0	0.0

\*\*\*\*\* BASE OPERATING PARAMETERS \*\*\*\*\*

Twr.	Ratio	Phase
1	1.000	0.0
2	0.002	-130.9
3	0.001	-209.1

**EXHIBIT I**  
**METHOD OF MOMENTS ANALYSIS**  
**#2 CENTER TOWER - OTHERS FLOATING**

\*\*\*\*\*  
 ACSModel  
 (MININEC 3.1 Core)  
 10-30-2009 14:13:32  
 \*\*\*\*\*

WGNY  
 Tower 2 Driven  
 Towers 1 & 3 Floated

Frequency = 1.220 MHz      Wavelength = 245.73770 Meters

No. of Wires: 12

Wire No. 1 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	0		-1	
0	0	49.83697	0.2183	0	15
Wire No. 2 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 3 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
-3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 4 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
0	-3.914481	44.24487	0.0125	0	2
Wire No. 5 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	61.43443	0		-5	
0	61.43443	49.88134	0.2183	0	15

Wire No. 6	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 7	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
-3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 8	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
0	57.51994	44.28924	0.0125	0		2
Wire No. 9	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	0		-9		
0	122.8689	47.33864	0.2183	0		15
Wire No. 10	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33864		9		
3.39004	124.8261	41.74654	0.0125	0		2
Wire No. 11	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33864		9		
-3.39004	124.8261	41.74654	0.0125	0		2
Wire No. 12	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33864		9		
0	118.9544	41.74654	0.0125	0		2

\*\*\*\* ANTENNA GEOMETRY \*\*\*\*

Wire No.	1	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	0		0.2183	-1	1	1	
0	0	3.322465		0.2183	1	1	2	
0	0	6.644929		0.2183	1	1	3	
0	0	9.967394		0.2183	1	1	4	
0	0	13.28986		0.2183	1	1	5	
0	0	16.61232		0.2183	1	1	6	
0	0	19.93479		0.2183	1	1	7	
0	0	23.25725		0.2183	1	1	8	
0	0	26.57972		0.2183	1	1	9	
0	0	29.90218		0.2183	1	1	10	
0	0	33.22465		0.2183	1	1	11	
0	0	36.54711		0.2183	1	1	12	
0	0	39.86958		0.2183	1	1	13	
0	0	43.19204		0.2183	1	1	14	
0	0	46.51451		0.2183	1	0	15	

Wire No.	2	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	2	16	
1.69502	0.9786202	47.04092		0.0125	2	0	17	

Wire No.	3	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	3	18	
-1.69502	0.9786202	47.04092		0.0125	3	0	19	

Wire No.	4	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	4	20	
0	-1.95724	47.04092		0.0125	4	0	21	

Wire No.	5	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	61.43443	0		0.2183	-5	5	22	
0	61.43443	3.325423		0.2183	5	5	23	
0	61.43443	6.650846		0.2183	5	5	24	
0	61.43443	9.976268		0.2183	5	5	25	
0	61.43443	13.30169		0.2183	5	5	26	
0	61.43443	16.62711		0.2183	5	5	27	
0	61.43443	19.95254		0.2183	5	5	28	
0	61.43443	23.27796		0.2183	5	5	29	
0	61.43443	26.60338		0.2183	5	5	30	
0	61.43443	29.9288		0.2183	5	5	31	
0	61.43443	33.25423		0.2183	5	5	32	
0	61.43443	36.57965		0.2183	5	5	33	
0	61.43443	39.90507		0.2183	5	5	34	
0	61.43443	43.23049		0.2183	5	5	35	
0	61.43443	46.55592		0.2183	5	0	36	

Wire No.	6	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 6	37
1.69502		62.41305	47.08529	0.0125	6 0	38

Wire No.	7	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 7	39
-1.69502		62.41305	47.08529	0.0125	7 0	40

Wire No.	8	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 8	41
0		59.47718	47.08529	0.0125	8 0	42

Wire No.	9	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	0	0.2183	-9 9	43
0		122.8689	3.155909	0.2183	9 9	44
0		122.8689	6.311819	0.2183	9 9	45
0		122.8689	9.467728	0.2183	9 9	46
0		122.8689	12.62364	0.2183	9 9	47
0		122.8689	15.77955	0.2183	9 9	48
0		122.8689	18.93546	0.2183	9 9	49
0		122.8689	22.09137	0.2183	9 9	50
0		122.8689	25.24727	0.2183	9 9	51
0		122.8689	28.40318	0.2183	9 9	52
0		122.8689	31.55909	0.2183	9 9	53
0		122.8689	34.715	0.2183	9 9	54
0		122.8689	37.87091	0.2183	9 9	55
0		122.8689	41.02682	0.2183	9 9	56
0		122.8689	44.18273	0.2183	9 0	57

Wire No.	10	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33864	0.0125	9 10	58
1.69502		123.8475	44.54259	0.0125	10 0	59

Wire No.	11	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33864	0.0125	9 11	60
-1.69502		123.8475	44.54259	0.0125	11 0	61

Wire No.	12	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33864	0.0125	9 12	62
0		120.9116	44.54259	0.0125	12 0	63

Sources: 1  
Pulse No., Voltage Magnitude, Phase (Degrees): 22, 1.0, 0.0

Number of Loads: 2  
Pulse No., Resistance, Reactance: 1 , 0 ,-10000  
Pulse No., Resistance, Reactance: 43 , 0 ,-10000

\*\*\*\*\* SOURCE DATA \*\*\*\*\*  
Pulse 22 Voltage = (1.0, 0.0j)  
Current = (0.0143, 0.0186j)  
Impedance = (25.948, -33.753j)  
Power = 0.007158 Watts

\*\*\*\*\* CURRENT DATA \*\*\*\*\*  
Wire No. 1 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	0.0	0.0	0.0	-78.4619
2	0.0001	-0.0003	0.0003	-78.3902
3	0.0001	-0.0004	0.0004	-78.2741
4	0.0001	-0.0005	0.0005	-78.1336
5	0.0001	-0.0006	0.0006	-77.9735
6	0.0001	-0.0007	0.0007	-77.7969
7	0.0002	-0.0007	0.0007	-77.6058
8	0.0002	-0.0007	0.0007	-77.4024
9	0.0002	-0.0007	0.0007	-77.1889
10	0.0002	-0.0007	0.0007	-76.9679
11	0.0002	-0.0007	0.0007	-76.7428
12	0.0001	-0.0006	0.0006	-76.5185
13	0.0001	-0.0005	0.0005	-76.3036
14	0.0001	-0.0004	0.0005	-76.1172
15	0.0001	-0.0004	0.0004	-76.012
J	0.0001	-0.0003	0.0003	-76.0993

Wire No. 2 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-78.9884
17	0.0	-0.0001	0.0001	-80.194
E	0.0	0.0	0.0	0.0

Wire No. 3 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-78.9884
19	0.0	-0.0001	0.0001	-80.194
E	0.0	0.0	0.0	0.0

Wire No. 4 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-70.0377
21	0.0	0.0	0.0001	-68.3337
E	0.0	0.0	0.0	0.0



Wire No. 5 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
22	0.0143	0.0186	0.0235	52.4491
23	0.0143	0.018	0.023	51.6115
24	0.0141	0.0174	0.0224	51.0746
25	0.0138	0.0168	0.0217	50.6197
26	0.0134	0.0161	0.0209	50.2178
27	0.0129	0.0153	0.02	49.8545
28	0.0123	0.0144	0.0189	49.5218
29	0.0116	0.0134	0.0177	49.2144
30	0.0107	0.0123	0.0163	48.9287
31	0.0098	0.0112	0.0149	48.6626
32	0.0088	0.0099	0.0133	48.4152
33	0.0077	0.0087	0.0116	48.1872
34	0.0066	0.0073	0.0099	47.9828
35	0.0054	0.006	0.0081	47.8149
36	0.0044	0.0048	0.0065	47.7243
J	0.0034	0.0037	0.005	47.7862

Wire No. 6 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.7856
38	0.0007	0.0007	0.001	48.0136
E	0.0	0.0	0.0	0.0

Wire No. 7 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.7856
40	0.0007	0.0007	0.001	48.0136
E	0.0	0.0	0.0	0.0

Wire No. 8 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0011	0.0012	0.0017	47.7873
42	0.0007	0.0007	0.001	48.0158
E	0.0	0.0	0.0	0.0

Wire No. 9 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
43	0.0	0.0	0.0	-78.2414
44	0.0001	-0.0002	0.0003	-78.1751
45	0.0001	-0.0004	0.0004	-78.0667
46	0.0001	-0.0005	0.0005	-77.9352
47	0.0001	-0.0005	0.0005	-77.7851
48	0.0001	-0.0006	0.0006	-77.6189
49	0.0001	-0.0006	0.0006	-77.4388
50	0.0001	-0.0006	0.0007	-77.2466
51	0.0001	-0.0006	0.0007	-77.0444
52	0.0001	-0.0006	0.0006	-76.8346
53	0.0001	-0.0006	0.0006	-76.6203
54	0.0001	-0.0005	0.0006	-76.4066
55	0.0001	-0.0005	0.0005	-76.202
56	0.0001	-0.0004	0.0004	-76.0265
57	0.0001	-0.0003	0.0003	-75.9325
J	0.0001	-0.0003	0.0003	-76.0258

Wire No. 10 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-72.7007
59	0.0	0.0	0.0	-71.8695
E	0.0	0.0	0.0	0.0

Wire No. 11 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-72.7007
61	0.0	0.0	0.0	-71.8695
E	0.0	0.0	0.0	0.0

Wire No. 12 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-82.2742
63	0.0	-0.0001	0.0001	-84.5824
E	0.0	0.0	0.0	0.0

\*\*\*\*\*

# BASE OPERATING PARAMETERS

\*\*\*\*\*

Twr.	Ratio	Phase
1	0.002	-130.9
2	1.000	0.0
3	0.002	-130.7

**EXHIBIT I**  
**METHOD OF MOMENTS ANALYSIS**  
**#3 EAST TOWER - OTHERS FLOATING**

\*\*\*\*\*  
 ACSModel  
 (MININEC 3.1 Core)  
 10-30-2009 14:17:35  
 \*\*\*\*\*

WGNV  
 Tower 3 Driven  
 Towers 1 & 2 Floated

Frequency = 1.220 MHz      Wavelength = 245.73770 Meters

No. of Wires: 12

Wire No. 1 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	0		-1	
0	0	49.83697	0.2183	0	15
Wire No. 2 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 3 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
-3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 4 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
0	-3.914481	44.24487	0.0125	0	2
Wire No. 5 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	61.43443	0		-5	
0	61.43443	49.88134	0.2183	0	15

Wire No. 6	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 7	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
-3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 8	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
0	57.51994	44.28924	0.0125	0		2
Wire No. 9	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	0		-9		
0	122.8689	47.33181	0.2183	0		15
Wire No. 10	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 11	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
-3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 12	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
0	118.9544	41.73971	0.0125	0		2

\*\*\*\* ANTENNA GEOMETRY \*\*\*\*

Wire No.	1	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	0		0.2183	-1	1	1	
0	0	3.322465		0.2183	1	1	2	
0	0	6.644929		0.2183	1	1	3	
0	0	9.967394		0.2183	1	1	4	
0	0	13.28986		0.2183	1	1	5	
0	0	16.61232		0.2183	1	1	6	
0	0	19.93479		0.2183	1	1	7	
0	0	23.25725		0.2183	1	1	8	
0	0	26.57972		0.2183	1	1	9	
0	0	29.90218		0.2183	1	1	10	
0	0	33.22465		0.2183	1	1	11	
0	0	36.54711		0.2183	1	1	12	
0	0	39.86958		0.2183	1	1	13	
0	0	43.19204		0.2183	1	1	14	
0	0	46.51451		0.2183	1	0	15	

Wire No.	2	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	2	16	
1.69502	0.9786202	47.04092		0.0125	2	0	17	

Wire No.	3	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	3	18	
-1.69502	0.9786202	47.04092		0.0125	3	0	19	

Wire No.	4	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	4	20	
0	-1.95724	47.04092		0.0125	4	0	21	

Wire No.	5	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	61.43443	0		0.2183	-5	5	22	
0	61.43443	3.325423		0.2183	5	5	23	
0	61.43443	6.650846		0.2183	5	5	24	
0	61.43443	9.976268		0.2183	5	5	25	
0	61.43443	13.30169		0.2183	5	5	26	
0	61.43443	16.62711		0.2183	5	5	27	
0	61.43443	19.95254		0.2183	5	5	28	
0	61.43443	23.27796		0.2183	5	5	29	
0	61.43443	26.60338		0.2183	5	5	30	
0	61.43443	29.9288		0.2183	5	5	31	
0	61.43443	33.25423		0.2183	5	5	32	
0	61.43443	36.57965		0.2183	5	5	33	
0	61.43443	39.90507		0.2183	5	5	34	
0	61.43443	43.23049		0.2183	5	5	35	
0	61.43443	46.55592		0.2183	5	0	36	

Wire No.	6	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 6	37
1.69502		62.41305	47.08529	0.0125	6 0	38

Wire No.	7	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 7	39
-1.69502		62.41305	47.08529	0.0125	7 0	40

Wire No.	8	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		61.43443	49.88134	0.0125	5 8	41
0		59.47718	47.08529	0.0125	8 0	42

Wire No.	9	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	0	0.2183	-9 9	43
0		122.8689	3.155454	0.2183	9 9	44
0		122.8689	6.310908	0.2183	9 9	45
0		122.8689	9.466361	0.2183	9 9	46
0		122.8689	12.62182	0.2183	9 9	47
0		122.8689	15.77727	0.2183	9 9	48
0		122.8689	18.93272	0.2183	9 9	49
0		122.8689	22.08818	0.2183	9 9	50
0		122.8689	25.24363	0.2183	9 9	51
0		122.8689	28.39909	0.2183	9 9	52
0		122.8689	31.55454	0.2183	9 9	53
0		122.8689	34.71	0.2183	9 9	54
0		122.8689	37.86544	0.2183	9 9	55
0		122.8689	41.0209	0.2183	9 9	56
0		122.8689	44.17635	0.2183	9 0	57

Wire No.	10	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 10	58
1.69502		123.8475	44.53576	0.0125	10 0	59

Wire No.	11	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 11	60
-1.69502		123.8475	44.53576	0.0125	11 0	61

Wire No.	12	Coordinates			Connection	Pulse
X		Y	Z	Radius	End1 End2	No.
0		122.8689	47.33181	0.0125	9 12	62
0		120.9116	44.53576	0.0125	12 0	63

Sources: 1  
Pulse No., Voltage Magnitude, Phase (Degrees): 43, 1.0, 0.0

Number of Loads: 2  
Pulse No., Resistance, Reactance: 1, 0, -10000  
Pulse No., Resistance, Reactance: 22, 0, -10000

\*\*\*\*\* SOURCE DATA \*\*\*\*\*  
Pulse 43 Voltage = (1.0, 0.0j)  
Current = (0.007, 0.0159j)  
Impedance = (22.975, -52.678j)  
Power = 0.003478 Watts

\*\*\*\*\* CURRENT DATA \*\*\*\*\*  
Wire No. 1 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	0.0	0.0	0.0	-142.7068
2	-0.0001	-0.0001	0.0001	-142.7368
3	-0.0002	-0.0001	0.0002	-142.7853
4	-0.0002	-0.0001	0.0002	-142.844
5	-0.0002	-0.0002	0.0003	-142.911
6	-0.0003	-0.0002	0.0003	-142.9852
7	-0.0003	-0.0002	0.0003	-143.066
8	-0.0003	-0.0002	0.0003	-143.1528
9	-0.0003	-0.0002	0.0003	-143.2451
10	-0.0003	-0.0002	0.0003	-143.3422
11	-0.0003	-0.0002	0.0003	-143.4432
12	-0.0002	-0.0002	0.0003	-143.5467
13	-0.0002	-0.0002	0.0003	-143.6492
14	-0.0002	-0.0001	0.0002	-143.7422
15	-0.0001	-0.0001	0.0002	-143.7997
J	-0.0001	-0.0001	0.0001	-143.7643

Wire No. 2 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	0.0	0.0	-144.9099
17	0.0	0.0	0.0	-145.1491
E	0.0	0.0	0.0	0.0

Wire No. 3 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	0.0	0.0	-144.9099
19	0.0	0.0	0.0	-145.1491
E	0.0	0.0	0.0	0.0

Wire No. 4 :  

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	0.0	0.0	-141.348
21	0.0	0.0	0.0	-140.2796
E	0.0	0.0	0.0	0.0

Wire No. 5 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
22	0.0	0.0	0.0	-64.2725
23	0.0001	-0.0002	0.0002	-64.1901
24	0.0001	-0.0003	0.0003	-64.0566
25	0.0002	-0.0003	0.0004	-63.8953
26	0.0002	-0.0004	0.0004	-63.712
27	0.0002	-0.0004	0.0005	-63.5101
28	0.0002	-0.0004	0.0005	-63.2926
29	0.0002	-0.0004	0.0005	-63.0619
30	0.0002	-0.0004	0.0005	-62.8209
31	0.0002	-0.0004	0.0005	-62.5728
32	0.0002	-0.0004	0.0005	-62.3214
33	0.0002	-0.0004	0.0004	-62.0725
34	0.0002	-0.0003	0.0004	-61.8354
35	0.0001	-0.0003	0.0003	-61.6309
36	0.0001	-0.0002	0.0003	-61.5161
J	0.0001	-0.0002	0.0002	-61.6099

Wire No. 6 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-64.6585
38	0.0	0.0	0.0	-65.9373
E	0.0	0.0	0.0	0.0

Wire No. 7 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-64.6585
40	0.0	0.0	0.0	-65.9373
E	0.0	0.0	0.0	0.0

Wire No. 8 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0	-0.0001	0.0001	-55.209
42	0.0	0.0	0.0	-53.4189
E	0.0	0.0	0.0	0.0



Wire No. 9 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
43	0.007	0.0159	0.0174	66.4356
44	0.0069	0.0154	0.0168	65.7093
45	0.0068	0.0148	0.0163	65.2409
46	0.0067	0.0143	0.0158	64.8405
47	0.0065	0.0137	0.0151	64.4841
48	0.0063	0.013	0.0144	64.16
49	0.006	0.0122	0.0136	63.8616
50	0.0056	0.0114	0.0127	63.5845
51	0.0053	0.0105	0.0117	63.3262
52	0.0048	0.0095	0.0106	63.0849
53	0.0043	0.0085	0.0095	62.8603
54	0.0038	0.0074	0.0083	62.6533
55	0.0033	0.0063	0.0071	62.4686
56	0.0027	0.0052	0.0058	62.3192
57	0.0022	0.0042	0.0047	62.2429
J	0.0017	0.0033	0.0037	62.3052

Wire No. 10 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0006	0.0011	0.0012	62.3033
59	0.0003	0.0007	0.0007	62.5242
E	0.0	0.0	0.0	0.0

Wire No. 11 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0006	0.0011	0.0012	62.3033
61	0.0003	0.0007	0.0007	62.5242
E	0.0	0.0	0.0	0.0

Wire No. 12 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	0.0006	0.0011	0.0012	62.3091
63	0.0003	0.0007	0.0007	62.5313
E	0.0	0.0	0.0	0.0

\*\*\*\*\*

BASE OPERATING PARAMETERS

\*\*\*\*\*

Twr.	Ratio	Phase
1	0.673	-78.4
2	1.000	0.0
3	585.507	130.7

**EXHIBIT II**  
**METHOD OF MOMENTS ANALYSIS**  
**DERIVATION OF WGNY DAYTIME BASE DRIVES**

\*\*\*\*\*  
 ACSModel  
 (MININEC 3.1 Core)  
 10-30-2009 14:21:16  
 \*\*\*\*\*

WGNY  
 Daytime Directional Antenna

Frequency = 1.220 MHz      Wavelength = 245.73770 Meters

No. of Wires: 12

Wire No. 1 of	Coordinates				End	No.
X	Y	Z	Radius	Connection		
Segments						
0	0	0		-1		
0	0	49.83697	0.2183	0		15
Wire No. 2 of	Coordinates				End	No.
X	Y	Z	Radius	Connection		
Segments						
0	0	49.83697		1		
3.39004	1.95724	44.24487	0.0125	0		2
Wire No. 3 of	Coordinates				End	No.
X	Y	Z	Radius	Connection		
Segments						
0	0	49.83697		1		
-3.39004	1.95724	44.24487	0.0125	0		2
Wire No. 4 of	Coordinates				End	No.
X	Y	Z	Radius	Connection		
Segments						
0	0	49.83697		1		
0	-3.914481	44.24487	0.0125	0		2
Wire No. 5 of	Coordinates				End	No.
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	0		-5		
0	61.43443	49.88134	0.2183	0		15

Wire No. 6	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 7	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
-3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 8	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
0	57.51994	44.28924	0.0125	0		2
Wire No. 9	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	0		-9		
0	122.8689	47.33181	0.2183	0		15
Wire No. 10	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 11	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
-3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 12	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
0	118.9544	41.73971	0.0125	0		2

\*\*\*\* ANTENNA GEOMETRY \*\*\*\*

Wire No.	1	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	0		0.2183	-1	1	1	
0	0	3.322465		0.2183	1	1	2	
0	0	6.644929		0.2183	1	1	3	
0	0	9.967394		0.2183	1	1	4	
0	0	13.28986		0.2183	1	1	5	
0	0	16.61232		0.2183	1	1	6	
0	0	19.93479		0.2183	1	1	7	
0	0	23.25725		0.2183	1	1	8	
0	0	26.57972		0.2183	1	1	9	
0	0	29.90218		0.2183	1	1	10	
0	0	33.22465		0.2183	1	1	11	
0	0	36.54711		0.2183	1	1	12	
0	0	39.86958		0.2183	1	1	13	
0	0	43.19204		0.2183	1	1	14	
0	0	46.51451		0.2183	1	0	15	

Wire No.	2	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	2	16	
1.69502	0.9786202	47.04092		0.0125	2	0	17	

Wire No.	3	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	3	18	
-1.69502	0.9786202	47.04092		0.0125	3	0	19	

Wire No.	4	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	4	20	
0	-1.95724	47.04092		0.0125	4	0	21	

Wire No.	5	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	61.43443	0		0.2183	-5	5	22	
0	61.43443	3.325423		0.2183	5	5	23	
0	61.43443	6.650846		0.2183	5	5	24	
0	61.43443	9.976268		0.2183	5	5	25	
0	61.43443	13.30169		0.2183	5	5	26	
0	61.43443	16.62711		0.2183	5	5	27	
0	61.43443	19.95254		0.2183	5	5	28	
0	61.43443	23.27796		0.2183	5	5	29	
0	61.43443	26.60338		0.2183	5	5	30	
0	61.43443	29.9288		0.2183	5	5	31	
0	61.43443	33.25423		0.2183	5	5	32	
0	61.43443	36.57965		0.2183	5	5	33	
0	61.43443	39.90507		0.2183	5	5	34	
0	61.43443	43.23049		0.2183	5	5	35	
0	61.43443	46.55592		0.2183	5	0	36	

Wire No.	6	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	6	37	
1.69502		62.41305	47.08529	0.0125	6	0	38	

Wire No.	7	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	7	39	
-1.69502		62.41305	47.08529	0.0125	7	0	40	

Wire No.	8	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	8	41	
0		59.47718	47.08529	0.0125	8	0	42	

Wire No.	9	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	0	0.2183	-9	9	43	
0		122.8689	3.155454	0.2183	9	9	44	
0		122.8689	6.310908	0.2183	9	9	45	
0		122.8689	9.466361	0.2183	9	9	46	
0		122.8689	12.62182	0.2183	9	9	47	
0		122.8689	15.77727	0.2183	9	9	48	
0		122.8689	18.93272	0.2183	9	9	49	
0		122.8689	22.08818	0.2183	9	9	50	
0		122.8689	25.24363	0.2183	9	9	51	
0		122.8689	28.39909	0.2183	9	9	52	
0		122.8689	31.55454	0.2183	9	9	53	
0		122.8689	34.71	0.2183	9	9	54	
0		122.8689	37.86544	0.2183	9	9	55	
0		122.8689	41.0209	0.2183	9	9	56	
0		122.8689	44.17635	0.2183	9	0	57	

Wire No.	10	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	10	58	
1.69502		123.8475	44.53576	0.0125	10	0	59	

Wire No.	11	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	11	60	
-1.69502		123.8475	44.53576	0.0125	11	0	61	

Wire No.	12	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	12	62	
0		120.9116	44.53576	0.0125	12	0	63	

Sources: 3

Pulse No., Voltage Magnitude, Phase (Degrees): 1, 364.7, -112.7

Pulse No., Voltage Magnitude, Phase (Degrees): 22, 1008.6, -68.9

Pulse No., Voltage Magnitude, Phase (Degrees): 43, 953.2, 84.1

Number of Loads: 0

\*\*\*\*\* SOURCE DATA \*\*\*\*\*

Pulse 1 Voltage = (-140.8044, -336.4122j)  
Current = (-8.7455, -15.669j)  
Impedance = (20.195, 2.285j)  
Power = 3251.31 Watts

Pulse 22 Voltage = (362.4399, -941.229j)  
Current = (33.149, 0.6121j)  
Impedance = (10.406, -28.586j)  
Power = 5719.23 Watts

Pulse 43 Voltage = (98.4731, 948.07j)  
Current = (-19.7002, 4.2179j)  
Impedance = (5.073, -47.039j)  
Power = 1029.46 Watts

Total Power = 10000.000 Watts

\*\*\*\*\* CURRENT DATA \*\*\*\*\*

Wire No. 1 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	-8.7455	-15.669	17.9443	-119.1676
2	-8.8947	-15.5283	17.8954	-119.8045
3	-8.8988	-15.2925	17.6932	-120.1955
4	-8.807	-14.9424	17.3447	-120.5151
5	-8.6261	-14.4776	16.8526	-120.7876
6	-8.3601	-13.8997	16.2201	-121.0252
7	-8.0123	-13.2116	15.4514	-121.2352
8	-7.5861	-12.4172	14.5511	-121.4221
9	-7.0847	-11.5209	13.5249	-121.5893
10	-6.5123	-10.5281	12.3794	-121.7393
11	-5.8731	-9.4453	11.1224	-121.8734
12	-5.1732	-8.2812	9.7642	-121.9925
13	-4.4225	-7.0513	8.3234	-122.0954
14	-3.6483	-5.7986	6.8509	-122.177
15	-2.9246	-4.6407	5.4854	-122.2198
J	-2.2742	-3.6126	4.2688	-122.1918

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.765	-1.2033	1.4259	-122.447
17	-0.4518	-0.7116	0.8429	-122.4111
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.765	-1.2033	1.4259	-122.447
19	-0.4518	-0.7116	0.8429	-122.4111
E	0.0	0.0	0.0	0.0

Wire No. 4 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	-0.7442	-1.206	1.4171	-121.6781
21	-0.4361	-0.7137	0.8364	-121.4276
E	0.0	0.0	0.0	0.0

Wire No. 5 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
22	33.149	0.6121	33.1547	1.0578
23	32.4964	0.4097	32.499	0.7223
24	31.7824	0.2813	31.7836	0.5071
25	30.8736	0.1746	30.8741	0.3241
26	29.7586	0.0839	29.7587	0.1614
27	28.4368	0.0066	28.4368	0.0134
28	26.9123	-0.058	26.9124	-0.1234
29	25.1922	-0.1104	25.1924	-0.2511
30	23.2855	-0.1508	23.286	-0.3709
31	21.2033	-0.1791	21.2041	-0.4839
32	18.959	-0.1953	18.96	-0.5901
33	16.5705	-0.1993	16.5717	-0.6891
34	14.0692	-0.1913	14.0705	-0.779
35	11.5417	-0.172	11.543	-0.8536
36	9.2237	-0.144	9.2248	-0.8943
J	7.1849	-0.1086	7.1858	-0.8662

Wire No. 6 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	2.3954	-0.0413	2.3957	-0.9884
38	1.4215	-0.0228	1.4217	-0.9185
E	0.0	0.0	0.0	0.0

Wire No. 7 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	2.3954	-0.0413	2.3957	-0.9884
40	1.4215	-0.0228	1.4217	-0.9185
E	0.0	0.0	0.0	0.0

Wire No. 8 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	2.3942	-0.026	2.3943	-0.6215
42	1.4208	-0.0112	1.4208	-0.4507
E	0.0	0.0	0.0	0.0

Wire No. 9 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
43	-19.7002	4.2179	20.1467	167.9152
44	-19.1158	4.1487	19.5608	167.755
45	-18.5799	4.0676	19.02	167.6513
46	-17.9581	3.9608	18.3897	167.5621
47	-17.2372	3.8271	17.657	167.482
48	-16.4139	3.6665	16.8184	167.4082
49	-15.4888	3.4793	15.8747	167.3394
50	-14.4648	3.2665	14.8291	167.2747
51	-13.3464	3.029	13.6858	167.2134
52	-12.1391	2.7679	12.4507	167.1552
53	-10.85	2.485	11.1309	167.1001
54	-9.4893	2.1823	9.737	167.0485
55	-8.076	1.8642	8.2884	167.0018
56	-6.6637	1.5429	6.84	166.9634
57	-5.3787	1.2474	5.5214	166.9435
J	-4.245	0.9832	4.3573	166.9599

Wire No. 10 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-1.4089	0.3258	1.4461	166.9808
59	-0.8352	0.1921	0.857	167.0457
E	0.0	0.0	0.0	0.0

Wire No. 11 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-1.4089	0.3258	1.4461	166.9808
61	-0.8352	0.1921	0.857	167.0457
E	0.0	0.0	0.0	0.0

Wire No. 12 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-1.4271	0.3316	1.4651	166.9187
63	-0.8489	0.1966	0.8714	166.9641
E	0.0	0.0	0.0	0.0

\*\*\*\*\*

# BASE OPERATING PARAMETERS

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Twr.	Ratio	Phase
1	0.541	-120.2
2	1.000	0.0
3	0.608	166.9



**EXHIBIT III**  
**METHOD OF MOMENTS ANALYSIS**  
**DERIVATION OF WGNY NIGHTTIME BASE DRIVES**

\*\*\*\*\*  
 ACSModel  
 (MININEC 3.1 Core)  
 10-30-2009 14:23:56  
 \*\*\*\*\*

WGNY  
 Night Directional Antenna

Frequency = 1.220 MHz      Wavelength = 245.73770 Meters

No. of Wires: 12

Wire No. 1 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	0		-1	
0	0	49.83697	0.2183	0	15
Wire No. 2 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 3 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
-3.39004	1.95724	44.24487	0.0125	0	2
Wire No. 4 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	0	49.83697		1	
0	-3.914481	44.24487	0.0125	0	2
Wire No. 5 of	Coordinates			End	No.
X	Y	Z	Radius	Connection	
Segments					
0	61.43443	0		-5	
0	61.43443	49.88134	0.2183	0	15

Wire No. 6	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 7	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
-3.39004	63.39167	44.28924	0.0125	0		2
Wire No. 8	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	61.43443	49.88134		5		
0	57.51994	44.28924	0.0125	0		2
Wire No. 9	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	0		-9		
0	122.8689	47.33181	0.2183	0		15
Wire No. 10	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 11	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
-3.39004	124.8261	41.73971	0.0125	0		2
Wire No. 12	Coordinates				End	No.
of						
X	Y	Z	Radius	Connection		
Segments						
0	122.8689	47.33181		9		
0	118.9544	41.73971	0.0125	0		2

\*\*\*\* ANTENNA GEOMETRY \*\*\*\*

Wire No.	1	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	0		0.2183	-1	1	1	
0	0	3.322465		0.2183	1	1	2	
0	0	6.644929		0.2183	1	1	3	
0	0	9.967394		0.2183	1	1	4	
0	0	13.28986		0.2183	1	1	5	
0	0	16.61232		0.2183	1	1	6	
0	0	19.93479		0.2183	1	1	7	
0	0	23.25725		0.2183	1	1	8	
0	0	26.57972		0.2183	1	1	9	
0	0	29.90218		0.2183	1	1	10	
0	0	33.22465		0.2183	1	1	11	
0	0	36.54711		0.2183	1	1	12	
0	0	39.86958		0.2183	1	1	13	
0	0	43.19204		0.2183	1	1	14	
0	0	46.51451		0.2183	1	0	15	

Wire No.	2	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	2	16	
1.69502	0.9786202	47.04092		0.0125	2	0	17	

Wire No.	3	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	3	18	
-1.69502	0.9786202	47.04092		0.0125	3	0	19	

Wire No.	4	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	0	49.83697		0.0125	1	4	20	
0	-1.95724	47.04092		0.0125	4	0	21	

Wire No.	5	Coordinates			Radius	Connection		Pulse
X	Y	Z			End1	End2	No.	
0	61.43443	0		0.2183	-5	5	22	
0	61.43443	3.325423		0.2183	5	5	23	
0	61.43443	6.650846		0.2183	5	5	24	
0	61.43443	9.976268		0.2183	5	5	25	
0	61.43443	13.30169		0.2183	5	5	26	
0	61.43443	16.62711		0.2183	5	5	27	
0	61.43443	19.95254		0.2183	5	5	28	
0	61.43443	23.27796		0.2183	5	5	29	
0	61.43443	26.60338		0.2183	5	5	30	
0	61.43443	29.9288		0.2183	5	5	31	
0	61.43443	33.25423		0.2183	5	5	32	
0	61.43443	36.57965		0.2183	5	5	33	
0	61.43443	39.90507		0.2183	5	5	34	
0	61.43443	43.23049		0.2183	5	5	35	
0	61.43443	46.55592		0.2183	5	0	36	

Wire No.	6	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	6	37	
1.69502		62.41305	47.08529	0.0125	6	0	38	

Wire No.	7	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	7	39	
-1.69502		62.41305	47.08529	0.0125	7	0	40	

Wire No.	8	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		61.43443	49.88134	0.0125	5	8	41	
0		59.47718	47.08529	0.0125	8	0	42	

Wire No.	9	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	0	0.2183	-9	9	43	
0		122.8689	3.155454	0.2183	9	9	44	
0		122.8689	6.310908	0.2183	9	9	45	
0		122.8689	9.466361	0.2183	9	9	46	
0		122.8689	12.62182	0.2183	9	9	47	
0		122.8689	15.77727	0.2183	9	9	48	
0		122.8689	18.93272	0.2183	9	9	49	
0		122.8689	22.08818	0.2183	9	9	50	
0		122.8689	25.24363	0.2183	9	9	51	
0		122.8689	28.39909	0.2183	9	9	52	
0		122.8689	31.55454	0.2183	9	9	53	
0		122.8689	34.71	0.2183	9	9	54	
0		122.8689	37.86544	0.2183	9	9	55	
0		122.8689	41.0209	0.2183	9	9	56	
0		122.8689	44.17635	0.2183	9	0	57	

Wire No.	10	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	10	58	
1.69502		123.8475	44.53576	0.0125	10	0	59	

Wire No.	11	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	11	60	
-1.69502		123.8475	44.53576	0.0125	11	0	61	

Wire No.	12	Coordinates			Radius	Connection		Pulse
X		Y	Z		End1	End2	No.	
0		122.8689	47.33181	0.0125	9	12	62	
0		120.9116	44.53576	0.0125	12	0	63	

Sources: 3

Pulse No., Voltage Magnitude, Phase (Degrees): 1, 119.5, 58.8

Pulse No., Voltage Magnitude, Phase (Degrees): 22, 112.4, -87.5

Pulse No., Voltage Magnitude, Phase (Degrees): 43, 164.6, 116.6

Number of Loads: 0

\*\*\*\*\* SOURCE DATA \*\*\*\*\*

Pulse 1 Voltage = (61.9012, 102.2154j)  
Current = (-2.461, 1.766j)  
Impedance = (3.071, -39.331j)  
Power = 14.09 Watts

Pulse 22 Voltage = (4.9889, -112.3003j)  
Current = (4.9805, -1.2748j)  
Impedance = (6.357, -20.921j)  
Power = 84.01 Watts

Pulse 43 Voltage = (-73.7719, 147.1034j)  
Current = (-4.3427, -1.0643j)  
Impedance = (8.194, -35.882j)  
Power = 81.9 Watts

Total Power = 180.000 Watts

\*\*\*\*\* CURRENT DATA \*\*\*\*\*

Wire No. 1 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	-2.461	1.766	3.0291	144.3361
2	-2.3947	1.7248	2.9512	144.2361
3	-2.3308	1.6829	2.8749	144.1704
4	-2.2549	1.6315	2.7832	144.113
5	-2.1654	1.5697	2.6745	144.0607
6	-2.0622	1.4976	2.5486	144.0116
7	-1.9454	1.4152	2.4057	143.965
8	-1.8156	1.323	2.2465	143.9203
9	-1.6734	1.2213	2.0717	143.8771
10	-1.5196	1.1108	1.8823	143.8353
11	-1.3553	0.9921	1.6796	143.7951
12	-1.1817	0.8662	1.4652	143.7567
13	-1.0011	0.7348	1.2419	143.7212
14	-0.8198	0.6024	1.0174	143.6913
15	-0.6546	0.4813	0.8125	143.6748
J	-0.5104	0.3751	0.6334	143.6866

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.171	0.1254	0.212	143.7379
17	-0.1018	0.0746	0.1262	143.7924
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.171	0.1254	0.212	143.7379
19	-0.1018	0.0746	0.1262	143.7924
E	0.0	0.0	0.0	0.0

Wire No. 4 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	-0.1685	0.1243	0.2094	143.5826
21	-0.1	0.0737	0.1242	143.5987
E	0.0	0.0	0.0	0.0

Wire No. 5 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
22	4.9805	-1.2748	5.1411	-14.3574
23	4.8984	-1.2724	5.061	-14.5615
24	4.8006	-1.2587	4.9629	-14.6918
25	4.6713	-1.2344	4.8316	-14.8024
26	4.5092	-1.1998	4.6661	-14.9005
27	4.3144	-1.1552	4.4664	-14.9899
28	4.0878	-1.1009	4.2334	-15.0724
29	3.8304	-1.0371	3.9683	-15.1495
30	3.5437	-0.9643	3.6726	-15.222
31	3.2295	-0.8829	3.348	-15.2904
32	2.8898	-0.7935	2.9968	-15.3549
33	2.5273	-0.6969	2.6217	-15.4152
34	2.147	-0.5942	2.2278	-15.47
35	1.7621	-0.4892	1.8288	-15.5157
36	1.4085	-0.3917	1.462	-15.5407
J	1.097	-0.3047	1.1386	-15.5236

Wire No. 6 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	0.3662	-0.1011	0.3799	-15.4317
38	0.2173	-0.0596	0.2253	-15.3439
E	0.0	0.0	0.0	0.0

Wire No. 7 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	0.3662	-0.1011	0.3799	-15.4317
40	0.2173	-0.0596	0.2253	-15.3439
E	0.0	0.0	0.0	0.0

Wire No. 8 :				
Pulse	Real	Imaginary	Magnitude	Phase
No.	(Amps)	(Amps)	(Amps)	(Degrees)
J	0.3646	-0.1025	0.3787	-15.7081
42	0.2161	-0.0607	0.2244	-15.6934
E	0.0	0.0	0.0	0.0

Wire No. 9 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
43	-4.3427	-1.0643	4.4712	-166.2297
44	-4.247	-1.0207	4.3679	-166.4859
45	-4.1487	-0.9847	4.264	-166.6476
46	-4.0272	-0.9458	4.1367	-166.7832
47	-3.8804	-0.9029	3.984	-166.9015
48	-3.708	-0.8556	3.8054	-167.007
49	-3.5104	-0.8039	3.6013	-167.1023
50	-3.2884	-0.7478	3.3723	-167.1888
51	-3.0428	-0.6875	3.1196	-167.2678
52	-2.7751	-0.6234	2.8443	-167.34
53	-2.4868	-0.5556	2.5481	-167.4057
54	-2.1801	-0.4847	2.2333	-167.465
55	-1.8594	-0.4116	1.9044	-167.5168
56	-1.5369	-0.3391	1.5739	-167.558
57	-1.2417	-0.2735	1.2715	-167.5786
J	-0.9792	-0.216	1.0028	-167.5622

Wire No. 10 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.3253	-0.0724	0.3333	-167.4494
59	-0.1924	-0.0432	0.1971	-167.3567
E	0.0	0.0	0.0	0.0

Wire No. 11 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.3253	-0.0724	0.3333	-167.4494
61	-0.1924	-0.0432	0.1971	-167.3567
E	0.0	0.0	0.0	0.0

Wire No. 12 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
J	-0.3286	-0.0711	0.3362	-167.7856
63	-0.1949	-0.0422	0.1994	-167.792
E	0.0	0.0	0.0	0.0

\*\*\*\*\*

BASE OPERATING PARAMETERS

\*\*\*\*\*

Twr.	Ratio	Phase
1	0.589	158.7
2	1.000	0.0
3	0.870	-151.9

**Figure 1**  
**WGNV TOWER #1**

WCAP - WGNV-1

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node:	1	27.5307 $\angle$	16.1692° V
Node:	2	26.5718 $\angle$	16.7697° V
Node:	3	42.1062 $\angle$	-52.8267° V

WCAP PART			CURRENT IN		CURRENT OUT	
WCAP PART			BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$	0.000° A
L	2>3	5.37700000	41.22 $\angle$	90.000° V	1.00 $\angle$	0.000° A
C	3>0	0.00008500	42.11 $\angle$	-52.827° V	0.03 $\angle$	37.173° A
R	3>0	26.58400000	42.11 $\angle$	-52.827° V	0.98 $\angle$	-0.971° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	26.44 + j	7.667	25.44 + j	7.667
L	2>3	5.37700000	25.44 + j	7.667	25.44 - j	33.551
C	3>0	0.00008500	0.00 - j	1534.763	0.00 + j	0.000
R	3>0	26.58400000	26.58 - j	33.850	0.00 + j	0.000

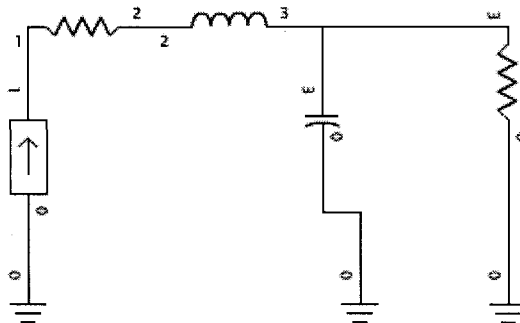
**WCAP INPUT DATA:**

	1.2200	0.00500000	1	
I	1.00000000	0	1	0.00000000
R	1.00000000	1	2	0.00000000
L	5.37700000	2	3	0.00000000
C	0.00008500	3	0	
R	26.58400000	3	0	-33.85000000

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz





**Figure 2**  
**WGNV TOWER #2**

WCAP - WGNV-2

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node:	1	27.0467 $\angle$	9.4311° V
Node:	2	26.0607 $\angle$	9.7914° V
Node:	3	42.3547 $\angle$	-52.6751° V

WCAP PART			CURRENT IN		CURRENT OUT	
	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$	0.000° A
L	2>3	4.97200000	38.11 $\angle$	90.000° V	1.00 $\angle$	0.000° A
C	3>0	0.00002000	42.35 $\angle$	-52.675° V	0.01 $\angle$	37.325° A
R	3>0	25.94800000	42.35 $\angle$	-52.675° V	0.99 $\angle$	-0.227° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	26.68 + j	4.432	25.68 + j	4.432
L	2>3	4.97200000	25.68 + j	4.432	25.68 - j	33.681
C	3>0	0.00002000	0.00 - j	6522.744	0.00 + j	0.000
R	3>0	25.94800000	25.95 - j	33.753	0.00 + j	0.000

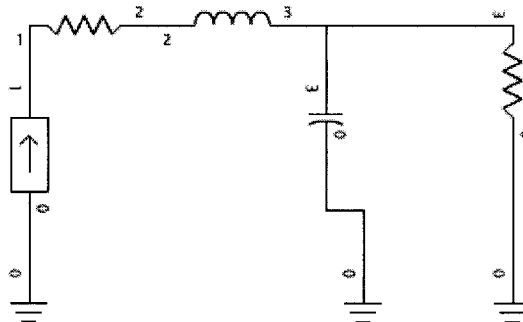
**WCAP INPUT DATA:**

	1.2200	0.00500000	1	
I	1.00000000	0	1	0.00000000
R	1.00000000	1	2	0.00000000
L	4.97200000	2	3	0.00000000
C	0.00002000	3	0	
R	25.94800000	3	0	-33.75300000

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz



**Figure 3**  
**WGNV TOWER #3**

WCAP - WGNV-3

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node: 1 23.8090  $\angle$  7.4485° V  
Node: 2 22.8178  $\angle$  7.7741° V  
Node: 3 57.0094  $\angle$  -66.6362° V

**WCAP PART**

**CURRENT IN**

**CURRENT OUT**

WCAP PART			BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$	0.000° A
L	2>3	7.23000000	55.42 $\angle$	90.000° V	1.00 $\angle$	0.000° A
C	3>0	0.00002000	57.01 $\angle$	-66.636° V	0.01 $\angle$	23.364° A
R	3>0	22.97500000	57.01 $\angle$	-66.636° V	0.99 $\angle$	-0.200° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	23.61 + j	3.086	22.61 + j	3.086
L	2>3	7.23000000	22.61 + j	3.086	22.61 - j	52.335
C	3>0	0.00002000	0.00 - j	6522.744	0.00 + j	0.000
R	3>0	22.97500000	22.98 - j	52.678	0.00 + j	0.000

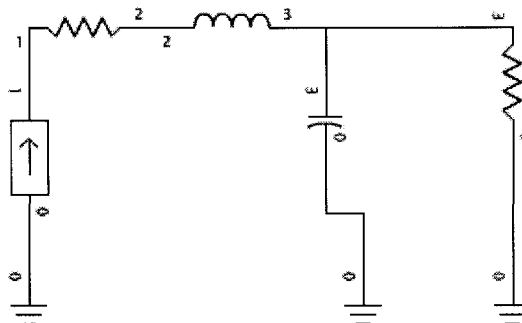
**WCAP INPUT DATA:**

1.2200		0.00500000		1	
I	1.00000000	0	1	0.00000000	
R	1.00000000	1	2	0.00000000	
L	7.23000000	2	3	0.00000000	
C	0.00002000	3	0		
R	22.97500000	3	0	-52.67800000	

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz



**Figure 4**

**WGNV TOWER #1 DAY**

WCAP - WGNV-1 DAY DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node: 1 48.1792  $\angle$  63.8260° V  
 Node: 2 47.7465  $\angle$  64.9030° V  
 Node: 3 20.3524  $\angle$  5.7004° V

**WCAP PART**

**CURRENT IN**

**CURRENT OUT**

WCAP PART			BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$	0.000° A
L	2>3	5.37700000	41.22 $\angle$	90.000° V	1.00 $\angle$	0.000° A
C	3>0	0.00008500	20.35 $\angle$	5.700° V	0.01 $\angle$	95.700° A
R	3>0	20.19500000	20.35 $\angle$	5.700° V	1.00 $\angle$	-0.755° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	21.25 + j	43.239	20.25 + j	43.239
L	2>3	5.37700000	20.25 + j	43.239	20.25 + j	2.022
C	3>0	0.00008500	0.00 - j	1534.763	0.00 + j	0.000
R	3>0	20.19500000	20.20 + j	2.285	0.00 + j	0.000

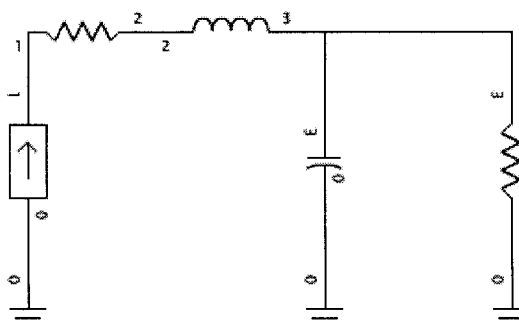
**WCAP INPUT DATA:**

1.2200		0.00500000		1	
I	1.00000000	0	1	0.00000000	
R	1.00000000	1	2	0.00000000	
L	5.37700000	2	3	0.00000000	
C	0.00008500	3	0		
R	20.19500000	3	0	2.28500000	

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz



**Figure 5**

**WGNV TOWER #2 DAY**

WCAP - WGNV-2 DAY DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node: 1 14.8618  $\angle$  40.4147° V  
 Node: 2 14.1153  $\angle$  43.0472° V  
 Node: 3 30.2883  $\angle$  -70.0883° V

**WCAP PART**

**CURRENT IN**

**CURRENT OUT**

WCAP PART	BRANCH VOLTAGE	BRANCH CURRENT
R 1>2 1.00000000	1.00 $\angle$ 0.000° V	1.00 $\angle$ 0.000° A
L 2>3 4.97200000	38.11 $\angle$ 90.000° V	1.00 $\angle$ 0.000° A
C 3>0 0.00002000	30.29 $\angle$ -70.088° V	0.00 $\angle$ 19.912° A
R 3>0 10.40600000	30.29 $\angle$ -70.088° V	1.00 $\angle$ -0.091° A

WCAP PART	FROM IMPEDANCE	TO IMPEDANCE
R 1>2 1.00000000	11.32 + j 9.635	10.32 + j 9.635
L 2>3 4.97200000	10.32 + j 9.635	10.32 - j 28.478
C 3>0 0.00002000	0.00 - j 6522.744	0.00 + j 0.000
R 3>0 10.40600000	10.41 - j 28.586	0.00 + j 0.000

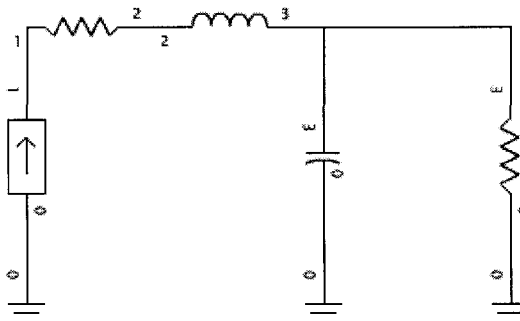
**WCAP INPUT DATA:**

	1.2200	0.00500000	1
I	1.00000000	0	1
R	1.00000000	1	2
L	4.97200000	2	3
C	0.00002000	3	0
R	10.40600000	3	0

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz



**Figure 6**

**WGNV TOWER #3 DAY**

WCAP - WGNV-3 DAY DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node:	1	10.5814	4	55.4523°	V
Node:	2	10.0481	4	60.1542°	V
Node:	3	46.9730	4	-83.8889°	V

WCAP PART			CURRENT IN		CURRENT OUT	
WCAP PART			BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00	4 0.000°	V	1.00 4 0.000°
L	2>3	7.23000000	55.42	4 90.000°	V	1.00 4 0.000°
C	3>0	0.00002000	46.97	4 -83.889°	V	0.01 4 6.111°
R	3>0	5.07300000	46.97	4 -83.889°	V	0.99 4 -0.044°

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	6.00 + j	8.715	5.00 + j	8.715
L	2>3	7.23000000	5.00 + j	8.715	5.00 - j	46.706
C	3>0	0.00002000	-0.00 - j	6522.744	0.00 + j	0.000
R	3>0	5.07300000	5.07 - j	47.039	0.00 + j	0.000

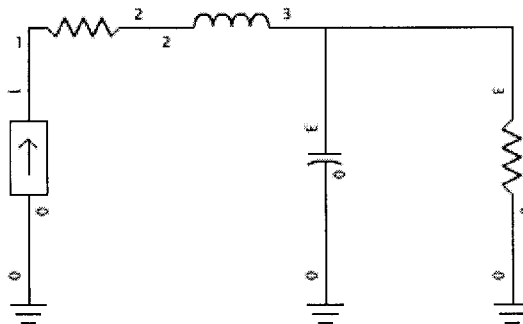
**WCAP INPUT DATA:**

	1.2200	0.00500000	1
I	1.00000000	0	1 0.00000000
R	1.00000000	1	2 0.00000000
L	7.23000000	2	3 0.00000000
C	0.00002000	3	0
R	5.07300000	3	0 -47.03900000

Center Frequency: 1.22 MHz

Frequency Range: ±0 kHz

Frequency Step: 5 kHz



**Figure 7**

**WGNY TOWER #1 NIGHT**

WCAP - WGNY-1 NIGHT DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

**NODE VOLTAGES**

Node:	1	4.8540 $\angle$	36.1502° V
Node:	2	4.0893 $\angle$	44.4444° V
Node:	3	38.4649 $\angle$	-85.6471° V

**WCAP PART**

**CURRENT IN**

**CURRENT OUT**

	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$ 0.000° A
L	2>3	5.37700000	41.22 $\angle$	90.000° V	1.00 $\angle$ 0.000° A
C	3>0	0.00008500	38.46 $\angle$	-85.647° V	0.03 $\angle$ 4.353° A
R	3>0	3.07100000	38.46 $\angle$	-85.647° V	0.98 $\angle$ -0.112° A

**WCAP PART**

**FROM IMPEDANCE**

**TO IMPEDANCE**

R	1>2	1.00000000	3.92 + j	2.863	2.92 + j	2.863
L	2>3	5.37700000	2.92 + j	2.863	2.92 - j	38.354
C	3>0	0.00008500	0.00 - j	1534.763	0.00 + j	0.000
R	3>0	3.07100000	3.07 - j	39.331	0.00 + j	0.000

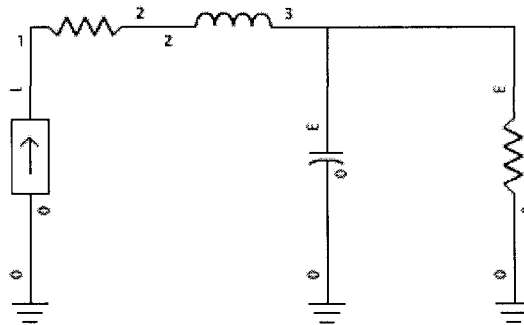
**WCAP INPUT DATA:**

	1.2200	0.00500000	1
I	1.00000000	0	1 0.00000000
R	1.00000000	1	2 0.00000000
L	5.37700000	2	3 0.00000000
C	0.00008500	3	0
R	3.07100000	3	0 -39.33100000

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz



# Figure 8

## WGNV TOWER #2 NIGHT

WCAP - WGNV-2 NIGHT DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

### NODE VOLTAGES

Node: 1 18.7398  $\angle$  67.0193° V  
Node: 2 18.3725  $\angle$  69.8916° V  
Node: 3 21.7956  $\angle$  -73.1539° V

WCAP PART			CURRENT IN		CURRENT OUT	
WCAP PART			BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00 $\angle$	0.000° V	1.00 $\angle$	0.000° A
L	2>3	4.97200000	38.11 $\angle$	90.000° V	1.00 $\angle$	0.000° A
C	3>0	0.00002000	21.80 $\angle$	-73.154° V	0.00 $\angle$	16.846° A
R	3>0	6.35700000	21.80 $\angle$	-73.154° V	1.00 $\angle$	-0.056° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	7.32 + j	17.253	6.32 + j	17.253
L	2>3	4.97200000	6.32 + j	17.253	6.32 - j	20.860
C	3>0	0.00002000	0.00 - j	6522.744	0.00 + j	0.000
R	3>0	6.35700000	6.36 - j	20.921	0.00 + j	0.000

### WCAP INPUT DATA:

1.2200 0.00500000 1  
I 1.00000000 0 1 0.00000000  
R 1.00000000 1 2 0.00000000  
L 4.97200000 2 3 0.00000000  
C 0.00002000 3 0  
R 6.35700000 3 0 -20.92100000

Center Frequency: 1.22 MHz

Frequency Range:  $\pm 0$  kHz

Frequency Step: 5 kHz

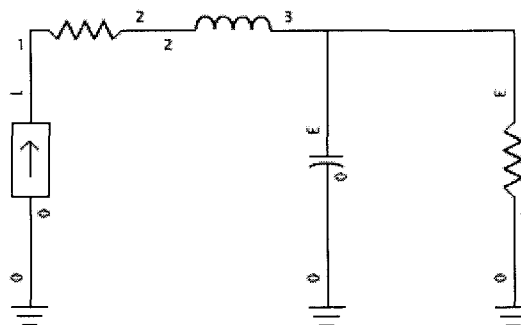


Figure 9

# WGNV TOWER #3 NIGHT

WCAP - WGNV-3 NIGHT DA

WCAP OUTPUT AT FREQUENCY: 1.220 MHz

## NODE VOLTAGES

Node:	1	21.7254	65.2238° V
Node:	2	21.3257	67.6640° V
Node:	3	36.6043	-77.2081° V

WCAP PART			CURRENT IN		CURRENT OUT	
	WCAP PART		BRANCH VOLTAGE		BRANCH CURRENT	
R	1>2	1.00000000	1.00	0.000° V	1.00	0.000° A
L	2>3	7.23000000	55.42	90.000° V	1.00	0.000° A
C	3>0	0.00002000	36.60	-77.208° V	0.01	12.792° A
R	3>0	8.19400000	36.60	-77.208° V	0.99	-0.072° A

WCAP PART			FROM IMPEDANCE		TO IMPEDANCE	
R	1>2	1.00000000	9.10 + j	19.726	8.10 + j	19.726
L	2>3	7.23000000	8.10 + j	19.726	8.10 - j	35.696
C	3>0	0.00002000	0.00 - j	6522.744	0.00 + j	0.000
R	3>0	8.19400000	8.19 - j	35.882	0.00 + j	0.000

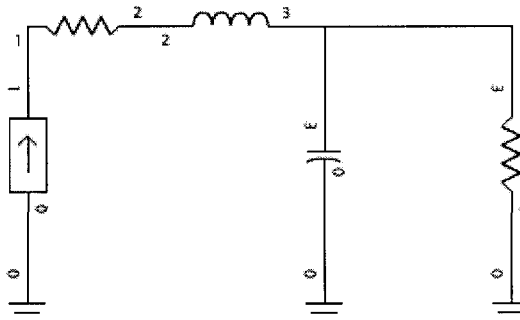
## WCAP INPUT DATA:

	1.2200	0.00500000	1
I	1.00000000	0	1 0.00000000
R	1.00000000	1	2 0.00000000
L	7.23000000	2	3 0.00000000
C	0.00002000	3	0
R	8.19400000	3	0 -35.88200000

Center Frequency: 1.22 MHz

Frequency Range: ±0 kHz

Frequency Step: 5 kHz





## APPENDIX 1

### SUPPLEMENTAL METHOD OF MOMENTS ANALYSIS

#### WGNY-AM DAYTIME ANTENNA SYSTEM

#### EMPLOYING Westberg Consulting Phasor Professional 2.1.1.12

OCTOBER 30, 2009

The following computations are offered as a supplemental to the ACS Model calculations in Exhibit II to demonstrate the extremely close agreement between the methodologies. Phasor Professional does not allow for implementation of top loading so the ACS model physical tower heights were employed plus a 4 meter extension to allow for the top loading wires. The resistive component of the self impedance for towers 1 and 2 agree to within 1% of the ACS model values. The resistive component for tower # 3 agrees to within 1.3% of the ACS model value. The daytime base operating parameters depicted on page 4 are the same as computed by the ACS Model.

STATION INFORMATION		
Call Letters	No. Towers	Frequency
WGNY	3	1.2200

TOWER INFORMATION						
	Tower Height (°)	Spacing (°)	Orientation	Face Width (in.)	Radius (in.)	Velocity Factor
Tower 1	79.0100	0.0000	0.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000
Tower 2	79.0800	90.0000	90.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000
Tower 3	75.3400	180.0000	90.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000

MATRIX INFORMATION		
	Impedance (other towers open)	Impedance (other towers shorted)
Tower 1	26.77 - j37.58	22.41 - j36.74
Tower 2	26.17 - j37.46	15.67 - j35.17
Tower 3	23.27 - j56.38	19.91 - j57.68

DETUNED TOWER CURRENTS	
Tower 1	
0.000000	> 0.000000 - 79.01° above ground
0.121106	> -123.696510 - 69.13° above ground
0.177776	> -124.609493 - 59.26° above ground

0.187346 > -125.653109 - 49.38° above ground
0.148464 > -127.093937 - 39.51° above ground
0.059119 > -131.568872 - 29.63° above ground
0.085052 > 57.933419 - 19.75° above ground
0.288496 > 54.319092 - 9.88° above ground
0.640118 > 52.980151 - 0.00° above ground

#### Tower 2

0.000000 > 0.000000 - 79.08° above ground
0.121266 > -123.630844 - 69.19° above ground
0.178024 > -124.555878 - 59.31° above ground
0.187620 > -125.616757 - 49.42° above ground
0.148696 > -127.085589 - 39.54° above ground
0.059237 > -131.653050 - 29.66° above ground
0.085171 > 58.047940 - 19.77° above ground
0.288925 > 54.353453 - 9.89° above ground
0.641073 > 52.982404 - 0.00° above ground

#### Tower 3

0.000000 > 0.000000 - 75.34° above ground
0.076551 > 153.124401 - 65.92° above ground
0.110809 > 153.638793 - 56.50° above ground
0.115138 > 154.177523 - 47.09° above ground
0.089578 > 154.892015 - 37.67° above ground
0.033633 > 157.223238 - 28.25° above ground
0.054287 > -27.467178 - 18.83° above ground
0.177084 > -25.836674 - 9.42° above ground
0.388596 > -25.215824 - -0.00° above ground

#### ZMatrix

26.77 - j37.58	14.04 - j12.05	-5.63 - j10.16
14.04 - j12.05	26.17 - j37.46	13.13 - j11.19
-5.63 - j10.16	13.13 - j11.19	23.27 - j56.38

#### YMatrix

0.012099 + j0.019839	-0.000587 - j0.009148	-0.005424 + j0.001825
-0.000587 - j0.009148	0.010566 + j0.023725	0.001833 - j0.006338
-0.005424 + j0.001825	0.001833 - j0.006338	0.005348 + j0.015490
<b>HMatrix - [I] = [H] X [F]</b>		
0.029874 + j0.001440	0.000547 + j0.000804	0.000591 - j0.000245
0.000548 + j0.000805	0.029831 + j0.001442	0.000552 + j0.000808
0.000545 - j0.000225	0.000513 + j0.000745	0.032186 + j0.001337
<b>HMatrix-inverse - [F] = [H]<sup>-1</sup> X [I]</b>		
33.396150 - j1.586769	-0.676828 - j0.828918	-0.596404 + j0.339600
-0.678006 - j0.829984	33.428428 - j1.553835	-0.625656 - j0.776546
-0.550293 + j0.312601	-0.581016 - j0.715067	31.016347 - j1.271137

<b>TOWER CURRENTS</b>
<b>Mode 1</b>
<b>Tower 1</b>
0.000000 > 0.000000 - 79.01° above ground
3.126791 > -123.454614 - 69.13° above ground
5.586058 > -123.228654 - 59.26° above ground
7.733606 > -122.971812 - 49.38° above ground
9.551251 > -122.668633 - 39.51° above ground
11.009591 > -122.302040 - 29.63° above ground
12.078341 > -121.846035 - 19.75° above ground
12.733595 > -121.258415 - 9.88° above ground
12.964229 > -120.239360 - 0.00° above ground
<b>Tower 2</b>
0.000000 > 0.000000 - 79.08° above ground
5.227961 > -2.133492 - 69.19° above ground
9.425926 > -1.915028 - 59.31° above ground
13.177137 > -1.690980 - 49.42° above ground
16.449014 > -1.452814 - 39.54° above ground
19.190718 > -1.192765 - 29.66° above ground
21.352349 > -0.898806 - 19.77° above ground
22.900060 > -0.551557 - 9.89° above ground
23.978742 > 0.000000 - 0.00° above ground

<b>Tower 3</b>
0.000000 > 0.000000 - 75.34° above ground
3.033548 > 165.766912 - 65.92° above ground
5.473794 > 165.884519 - 56.50° above ground
7.671557 > 166.003528 - 47.09° above ground
9.612734 > 166.128084 - 37.67° above ground
11.272524 > 166.261665 - 28.25° above ground
12.626811 > 166.409682 - 18.83° above ground
13.661806 > 166.580671 - 9.42° above ground
14.525493 > 166.846240 - -0.00° above ground

<b>FIELD INFORMATION - DAY</b>		
	<b>Field Ratio</b>	<b>Field Phase</b>
<b>Tower 1</b>	0.5700	-121.0000
<b>Tower 2</b>	1.0000	0.0000
<b>Tower 3</b>	0.5620	167.4000

<b>TOWER DRIVE INFORMATION - DAY</b>					
	<b>Field Ratios</b>	<b>Field Phase</b>	<b>Drive Imped. (<math>\Omega</math>)</b>	<b>Current</b>	<b>Power (W)</b>
<b>Tower 1</b>	0.5700	-121.0000	20.21 - j1.23	<b>12.96 <math>\angle</math> -120.24 (0.541)</b>	3396.9572
<b>Tower 2</b>	1.0000	0.0000	10.52 - j32.33	<b>23.98 <math>\angle</math> 0.00 (1.0)</b>	6048.1279
<b>Tower 3</b>	0.5620	167.4000	5.14 - j50.79	<b>14.53 <math>\angle</math> 166.85 (0.606)</b>	1084.9149

**APPENDIX 1 CONTINUED**

**SUPPLEMENTAL METHOD OF MOMENTS ANALYSIS**  
**WGNY-AM NIGHTTIME ANTENNA SYSTEM**  
**EMPLOYING Westberg Consulting Phasor Professional 2.1.1.12**

**OCTOBER 30, 2009**

The following computations are offered as a supplemental to the ACS Model calculations in Exhibit II to demonstrate the extremely close agreement between the methodologies. Phasor Professional does not allow for implementation of top loading so the ACS model physical tower heights were employed plus a 4 meter extension to allow for the top loading wires. The resistive component of the self impedance for towers 1 and 2 agree to within 1% of the ACS model values. The resistive component for tower # 3 agrees to within 1.3% of the ACS model value. The nighttime base operating parameters depicted on page 8 are the same as computed by the ACS Model.

STATION INFORMATION						
Call Letters		No. Towers	Frequency			
WGNY		3	1.2200			
TOWER INFORMATION						
	Tower Height (°)	Spacing (°)	Orientation	Face Width (in.)	Radius (in.)	Velocity Factor
Tower 1	79.0100	0.0000	0.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000
Tower 2	79.0800	90.0000	90.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000
Tower 3	75.3400	180.0000	90.0000	18.0000 / 18.0000	8.3138 / 8.3138	1.000000
MATRIX INFORMATION						
	Impedance (other towers open)		Impedance (other towers shorted)			
Tower 1	26.77 - j37.58		22.41 - j36.74			
Tower 2	26.17 - j37.46		15.67 - j35.17			
Tower 3	23.27 - j56.38		19.91 - j57.68			
DETUNED TOWER CURRENTS						
Tower 1						
0.000000 > 0.000000 - 79.01° above ground						
0.016480 > -123.696510 - 69.13° above ground						
0.024192 > -124.609493 - 59.26° above ground						

0.025495 > -125.653109 - 49.38° above ground
0.020203 > -127.093937 - 39.51° above ground
0.008045 > -131.568872 - 29.63° above ground
0.011574 > 57.933419 - 19.75° above ground
0.039259 > 54.319092 - 9.88° above ground
0.087109 > 52.980151 - 0.00° above ground

#### Tower 2

0.000000 > 0.000000 - 79.08° above ground
0.016502 > -123.630844 - 69.19° above ground
0.024226 > -124.555878 - 59.31° above ground
0.025532 > -125.616757 - 49.42° above ground
0.020235 > -127.085589 - 39.54° above ground
0.008061 > -131.653050 - 29.66° above ground
0.011590 > 58.047940 - 19.77° above ground
0.039318 > 54.353453 - 9.89° above ground
0.087239 > 52.982404 - 0.00° above ground

#### Tower 3

0.000000 > 0.000000 - 75.34° above ground
0.010417 > 153.124401 - 65.92° above ground
0.015079 > 153.638793 - 56.50° above ground
0.015668 > 154.177523 - 47.09° above ground
0.012190 > 154.892015 - 37.67° above ground
0.004577 > 157.223238 - 28.25° above ground
0.007388 > -27.467178 - 18.83° above ground
0.024098 > -25.836674 - 9.42° above ground
0.052881 > -25.215824 - -0.00° above ground

#### ZMatrix

26.77 - j37.58	14.04 - j12.05	-5.63 - j10.16
14.04 - j12.05	26.17 - j37.46	13.13 - j11.19
-5.63 - j10.16	13.13 - j11.19	23.27 - j56.38

#### YMatrix

0.012099 + j0.019839	-0.000587 - j0.009148	-0.005424 + j0.001825
-0.000587 - j0.009148	0.010566 + j0.023725	0.001833 - j0.006338
-0.005424 + j0.001825	0.001833 - j0.006338	0.005348 + j0.015490

#### HMatrix - [I] = [H] X [F]

0.029874 + j0.001440	0.000547 + j0.000804	0.000591 - j0.000245
0.000548 + j0.000805	0.029831 + j0.001442	0.000552 + j0.000808
0.000545 - j0.000225	0.000513 + j0.000745	0.032186 + j0.001337

#### HMatrix-inverse - [F] = [H]<sup>-1</sup> X [I]

33.396150 - j1.586769	-0.676828 - j0.828918	-0.596404 + j0.339600
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-0.678006 - j0.829984	33.428428 - j1.553835	-0.625656 - j0.776546
-0.550293 + j0.312601	-0.581016 - j0.715067	31.016347 - j1.271137

TOWER CURRENTS		
Mode 1		
Tower 1		
0.000000	> 0.000000	- 79.01° above ground
0.465487	> 157.951197	- 69.13° above ground
0.842989	> 158.039728	- 59.26° above ground
1.183767	> 158.127692	- 49.38° above ground
1.484639	> 158.217242	- 39.51° above ground
1.740823	> 158.310101	- 29.63° above ground
1.947732	> 158.409354	- 19.75° above ground
2.102441	> 158.520312	- 9.88° above ground
2.223672	> 158.687304	- 0.00° above ground
Tower 2		
0.000000	> 0.000000	- 79.08° above ground
0.841508	> -1.296265	- 69.19° above ground
1.514508	> -1.162239	- 59.31° above ground
2.113012	> -1.025511	- 49.42° above ground
2.631608	> -0.880805	- 39.54° above ground
3.061913	> -0.723338	- 29.66° above ground
3.395600	> -0.545654	- 19.77° above ground
3.626718	> -0.335589	- 9.89° above ground
3.771410	> 0.000000	- 0.00° above ground
Tower 3		
0.000000	> 0.000000	- 75.34° above ground
0.711103	> -153.328857	- 65.92° above ground
1.277412	> -153.208519	- 56.50° above ground
1.782246	> -153.076935	- 47.09° above ground
2.222699	> -152.927793	- 37.67° above ground
2.593298	> -152.754852	- 28.25° above ground
2.888533	> -152.548782	- 18.83° above ground
3.104938	> -152.295140	- 9.42° above ground
3.267697	> -151.878066	- -0.00° above ground

FIELD INFORMATION - NIT		
	Field Ratio	Field Phase
Tower 1	0.5700	144.0000
Tower 2	1.0000	-15.0000
Tower 3	0.8100	-167.0000

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TOWER DRIVE INFORMATION - NIT					
	Field Ratios	Field Phase	Drive Imped. ( $\Omega$ )	Current	Power (W)
<b>Tower 1</b>	0.5700	144.0000	3.12 - j43.19	<b>2.22 <math>\angle</math> 158.69 (0.589)</b>	15.4421
<b>Tower 2</b>	1.0000	-15.0000	6.44 - j24.65	<b>3.77 <math>\angle</math> 0.00 (1.00)</b>	91.5452
<b>Tower 3</b>	0.8100	-167.0000	8.24 - j39.43	<b>3.27 <math>\angle</math> -151.88 (0.87)</b>	88.0127