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Federal Communications Commission
Washington, D. C. 20554

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FOR FCC USE ONLY

SEP 28 2015

Federal Communications Commission
Office of the Secretary

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE BMML-20150928AGK

SECTION I - APPLICANT FEE INFORMATION

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

Gois Broadcasting of Connecticut, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
135 Burnside Ave

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
East Hartford	CT	06108

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
5087912111	WLAT	1911

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	$690.00	

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
	0001	$	

	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.	$	

SECTION II - APPLICANT INFORMATION

1. NAME OF APPLICANT
Gois Broadcasting of Connnecticut, LLC

MAILING ADDRESS
135 Burnside Ave

CITY	STATE	ZIP CODE
East Hartford	CT	06108

2. This application is for:

☐ Commercial ☐ Noncommercial

☑ AM Directional ☐ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
WLAT	New Britain, CT	N/A	N/A	N/A

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

If No, explain in an Exhibit. Exhibit No. See Exhibit 1

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

If No, state exceptions in an Exhibit. Exhibit No. N/A

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

If Yes, explain in an Exhibit. Exhibit No.

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

If No, explain in an Exhibit. Exhibit No.

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

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

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

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

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

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

CERTIFICATION

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

☑ Yes ☐ No

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

Name	Signature
Ivon Gois	
Title	**Date** / **Telephone Number**
President	9/28/2015 / 508-791-2111 x203

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

GOIS BROADCASTING OF CONNECTICUT, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ Station License ☐ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (If applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
WLAT	BP-20120730AKP	910	UNLIMITED	2.8	5.0

2. Station location

State	City or Town
CONNECTICUT	NEW BRITAIN

3. Transmitter location

State	County	City or Town	Street address (or other identification)
CT	HARTFORD	FARMINGTON	130 Birdseye Road

4. Main studio location

State	County	City or Town	Street address (or other identification)
CT	HARTFORD	EAST HARTFORD	135 Burnside Ave.

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

State	County	City or Town	Street address (or other identification)
CT	HARTFORD	EAST HARTFORD	135 Burnside Ave.

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. ENG.

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
7.78	9.94
Measured antenna or common point resistance (in ohms) at operating frequency	**Measured antenna or common point reactance (in ohms) at operating frequency**
Night: 50.0 Day: 43.0	Night: -5.0 Day: 55.5

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(SE)	-141.4		.528			
2(C)	0.0		1.000			
3(NW)	138.5		.595			

Manufacturer and type of antenna monitor: Potomac Instruments AM-19D(210)

SECTION III - Page 2

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Guyed Tower	82.3	83.6	84.5	Exhibit No. N/A

Excitation ☑ Series ☐ Shunt

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

North Latitude	41 °	42 '	58 "	West Longitude	72 °	48 '	37 "

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. ENG.

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

ND-Day Operation moved to center tower

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

New Construction

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

Name (Please Print or Type)	Signature (check appropriate box below)
Kurt Gorman	
Address (include ZIP Code)	Date
Phasetek Inc. 550 California Rd., Unit 11 Quakertown, PA 18951	September 24, 2015
	Telephone No. (Include Area Code) 215-536-6648

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

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August 1995

ENGINEERING STATEMENT CONCERNING

APPLICATION FOR LICENSE INFORMATION

EMPLOYING MOMENT METHOD MODELING

WLAT, 910 KHZ, DA-N

NEW BRITAIN, CONNECTICUT

SEPTEMBER, 2015

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING
APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WLAT, 910 KHZ, DA-N
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SEPTEMBER, 2015

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ENGINEERING STATEMENT CONCERNING
APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WLAT, 910 KHZ, DA-N
NEW BRITAIN, CONNECTICUT
SEPTEMBER, 2015

SUMMARY

Adjustment of the Antenna System and a Proof of Performance employing Moment Method Modeling were performed on Radio Station WLAT, 910 KHz, New Britain, Connecticut, after replacement of Antenna Phasing equipment and dismantling of previous tower #4 night. New transmission lines were installed. WLAT holds Construction Permit Number: BP-20120730AKP to change the night radiation pattern. The Day (ND) radiation pattern remains as licensed. This report was prepared on behalf of Gois Broadcasting of Connecticut, LLC, licensee of Radio Station WLAT.

SITE MODIFICATIONS

The WLAT Transmitter site is that as currently licensed. The Antenna Phasing and Branching equipment has been replaced. Previous Tower #4 for Night has been removed. Daytime ND operation has been moved from separate tower to center tower of the Night array. A cellular Monopole antenna is located at the edge of the site. The ASR for this is: 1018374. This structure has a (3) wire skirt and is detuned for 910 kHz. A License Application employing Moment Method Modeling as set forth in Section 73.151(C) has been done to cover the Radio Station WLAT Construction Permit and license under the new rules.

REFERENCE POINTS

Reference Points were measured at pattern minima and maxima for the Directional Night mode of operation. These Points and their measured field intensity are shown in Figure 12.

SPECIAL OPERATING CONDITION #3

As specified in Construction Permit, former tower #4 of the Nighttime array has been removed.

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WLAT, 910 KHZ, DA-N NEW BRITAIN, CONNECTICUT SEPTEMBER, 2015

METHOD OF MOMENTS DETAIL

All Moment Method Modeling was done with Expert MININEC Broadcast Professional, Version 23. One wire was used to represent each Tower. Towers were driven individually to verify the Model compared to measured impedance data. Once the Model was verified, the Night Directional Antenna System was computed. For the Directional mode, the complex voltage values for sources located at ground level were computed. These sources produce current moment sums for each Tower that, when normalized, equate to the Theoretical Field Parameters for each respective Tower.

MEASURING EQUIPMENT AND PERSONNEL

All Tower Resistance and Reactance measurements were made with a Delta Electronics OIB-3 Operating Impedance Bridge. Before use, tests of known impedances were made to verify operation. All Field Intensity Measurements were made with two Potomac Instruments Field Intensity Meters: An FIM-41, Serial Number 2181, calibrated on October 9, 2009 and another FIM-41, Serial Number 643, calibrated July 3, 2003. Both meters were calibrated by Potomac Instruments, Silver Spring, Maryland. Both meters were also compared to a Potomac Instruments FIM-21, serial number 901, calibrated August 29, 2012 by Potomac Instruments and agreed within tolerance. All measurements were taken by Phasetek Inc. personnel supervised by Kurt Gorman of Phasetek Inc.

DAY (ND) OPERATION

The WLAT non-directional Day operation has been moved from a separate tower on the property to the center tower of the Night array (tower #2). This tower is the same electrical height (90°) as currently licensed. The input power for Day remains at 4.25kW to maintain restricted RMS of 282.12 mV/m/kW at 1kM. The unused tower is included in the open circuit impedance model and is detuned.

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING
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EMPLOYING MOMENT METHOD MODELING
WLAT, 910 KHZ, DA-N
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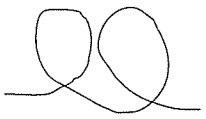
CONCLUSION

It is believed that the WLAT Antenna System has been constructed and adjusted in accordance with all applicable Commission rules and regulations. The foregoing was prepared on behalf of Gois Broadcasting of Connecticut, LLC, under the immediate supervision of Kurt Gorman, Phasetek Inc., Quakertown, Pennsylvania, whose qualifications are a matter of record with the Federal Communications Commission. The statements herein are true and correct of his knowledge, except such statements made on information and belief, and as to these statements he believes them to be true and correct.



Kurt Gorman, President
Phasetek Inc.
Quakertown, Pennsylvania

FIGURE 1

ANTENNA SYSTEM AS ADJUSTED

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WLAT, 910 KHZ, DA-N
NEW BRITAIN, CONNECTICUT
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ANTENNA SYSTEM DESCRIPTION

1. The Antenna System consists of four (4), uniform, guyed, vertical steel transmitting Towers. All Towers stand 82.3M (90.0°) above their Base Insulators. The Towers are arranged with Tower 1 as a reference; Tower 2 is spaced 90.0° on a bearing of 313.0°T. Tower 3 is spaced 180.0° on a bearing of 313.0°T. Tower 4 is spaced 120.0° on a bearing of 350.3°T. Tower 4 supports a four bay FM antenna. The feed for this is disconnected at the base. Tower 4 is not used and is detuned. All towers have aviation obstruction lighting. The lighting circuits are isolated at the base with a choke for each tower.

2. The Ground System for each Tower consists of (120) buried copper Radials, 82.3M in length, except where they intersect with copper transverse straps between Towers or property boundaries. Copper strap connects all Towers to the main Transmitter grounding point.

3. The Sampling System consists of three (3), Phasetek Inc. model number P600-203, 1.0 V/A Toroidal Current Transformers. All TCT's are at the Output of each Antenna Tuning Unit. These TCT's are connected to a Potomac Instruments AM-19D(210) Antenna Monitor via three (3) equal lengths of Andrew, LDF2-50, 3/8" phase stabilized foam coaxial cable.

4. Tower registration numbers:
   Tower 1: 1055558
   Tower 2: 1055559
   Tower 3: 1055560
   Tower 4: 1239619

FIGURE 1
ANTENNA SYSTEM AS ADJUSTED

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
CONTINUED
WLAT, 910 KHZ, DA-N
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ANTENNA SYSTEM DESCRIPTION – Continued

NON-DIRECTIONAL OPERATION (DAY)

TOWER #2 BASE

Impedance = 43.0 + j 55.5 Ohms
Current = 9.94 Amperes
Power = 4,250 Watts

DIRECTIONAL OPERATION (NIGHT)

COMMON POINT

Impedance = 50.0 – j 5.0 Ohms
Current = 7.78 Amperes
Power = 3,024 Watts

Directional Antenna Monitor indications are within ±5% and ±3° of the modeled TCT values.

FIGURE 2
WRSO SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
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NEW BRITAIN, CONNECTICUT
SEPTEMBER, 2015

SAMPLING SYSTEM DESCRIPTION

The Sampling System consists of Phasetek Inc. model number P600-203 Toroidal Sampling Transformers (1.0 volt/amp) mounted at the base of each Tower. The sampling devices are connected to the Antenna Monitor with equal lengths of Andrew LDF2-50. The Antenna Monitor is a Potomac Instruments Model AM-19D(210), Serial Number 1009.

SAMPLE LINE MEASUREMENTS

Impedance measurements were made of the Antenna Sampling Lines using an Array Solutions 2180 Vector Network Analyzer (VNA). Measurements were done with the lines open circuited and then connected to the TCT's.

The table below shows the frequencies above and below the carrier frequency where resonance, defined as zero reactance corresponding with low resistance, was found. 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.

SAMPLE LINE MEASUREMENTS

	Resonant Frequency (KHz) below 910 KHz	Resonant Frequency (KHz) above 910 KHz	Calculated Electrical Length (deg) at 910 KHz	Measured Impedance (ohms) Connected to TCT @ 910 KHz
Tower 1	715.568	1194.502	343.4	47.28 +j 1.68
Tower 2	715.727	1197.882	343.3	47.88 +j 2.10
Tower 3	716.907	1199.561	342.7	47.43 +j 1.97

FIGURE 2
SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
CONTINUED
WLAT, 910 KHZ, DA-N
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SAMPLE LINE MEASUREMENTS (CONTINUED)

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 R1 +j X1 and R2 +j X2 are the measured impedances at the +45 and -45 degree offset frequencies, respectively:

$$Z_0 = ((R_1^2 + X_1^2)^{1/2} \bullet (R_2^2 + X_2^2)^{1/2})^{1/2}$$

Tower	+ 45 Degree Offset Frequency (kHz)	+ 45 Degree Measured Impedance (Ohms)	- 45 Degree Offset Frequency (kHz)	- 45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
1	834.9	9.9 +j 48.6	596.3	9.2 –j 48.4	49.43
2	835.0	9.9 +j 48.5	596.4	9.1 –j 48.4	49.37
3	836.4	9.8 +j 48.6	597.4	9.2 –j 48.5	49.47

SAMPLING TCT MEASUREMENTS

Measurements of the Phasetek Inc. Model P600-203, 1.0 V/A Toroidal Current Transformers were performed by a Hewlett Packard 8752A, Network Analyzer. Measurements are normalized to Tower #2 (reference) and are within the manufacturer's rating of ± 1.5% and ± 2.0°.

FIGURE 2
SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

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CONTINUED
WLAT, 910 KHZ, DA-N
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SAMPLING TCT MEASUREMENTS CONT'D

TOWER	TCT SERIAL #	MAGNITUDE	PHASE
1	301	1.000	-0.3°
2	302	1.000	0.0°
3	303	1.005	-0.1°

ANTENNA MONITOR MEASUREMENT

Measurement of the Potomac Instruments Model AM-19D(210) Antenna Monitor was performed to verify calibration. A single RF Voltage was applied to the Reference Input (Tower #2) and each other Input by use of a "T" divider and equal electrical length coaxial cables. This yields the following:

Tower	Ratio	Phase
1	1.000	0.1°
2	1.000	0.0°
3	1.001	0.1°

The above is within the manufacturer's rating of $\pm$ 1.0% and $\pm$ 1.0°.

FIGURE 3
TOWER IMPEDANCE MEASUREMENTS COMPARED TO METHOD OF MOMENTS MODEL
WLAT, 910 KHZ, DA-N
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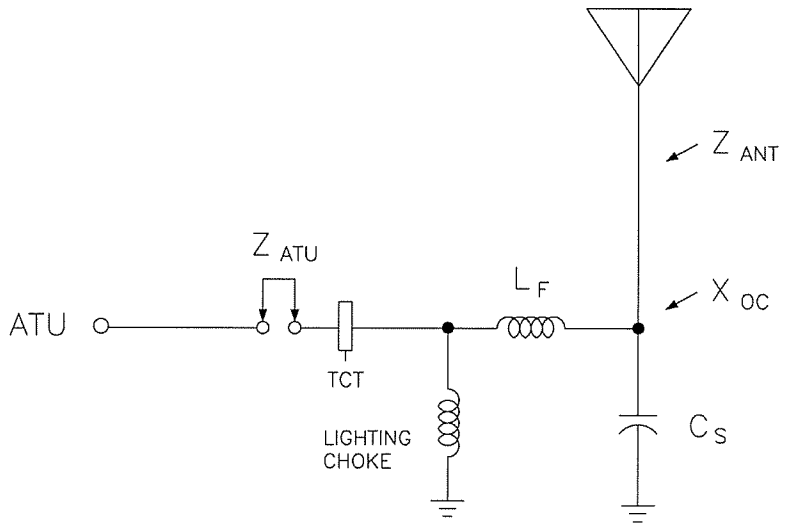

TOWER	Specified Cs (pf)	Measured L_F (µH)	Measured X_F (Ω)	Modeled Z_{ANT} (Ω)	Modeled Z_{ATU} (Ω)	Measured Z_{ATU} (Ω)
1	15	3.15	+j18.0	45.3 +j 40.8	44.3 +j 58.4	44.0 +j 59.2
2	15	2.01	+j11.5	44.6 +j 44.4	43.8 +j 55.7	43.0 +j 55.5
3	15	3.41	+j19.5	45.0 +j 40.6	44.1 +j 59.7	44.0 +j 60.5
4	15	5.07	+j29.0	43.7 +j 40.4	42.6 +j 68.7	42.0 +j 70.1

Tower	Calculated X_{OC} (Ω)
1	+j 6,608.8
2	+j 6,592.8
3	+j 6,612.5
4	+j 6,635.8

$L = \frac{j\omega L}{4200 = 2(\pi) 910\times10^3 (L)}$
$5,717,03.8$

FIGURE 4
MOMENT MODEL PARAMETERS

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Tower #	Wire #	# of Segments	Base Node
1	1	12	1
2	2	12	13
3	3	12	25
4	4	12	37

Tower #	Physical Height Degrees	Modeled Height Degrees	Modeled Radius Meters	% of Equivalent Radius
1	90.0	93.5	.20	86.8
2	90.0	94.5	.20	86.8
3	90.0	93.5	.20	86.8
4	90.0	93.5	.19	87.0

All Towers are uniform cross section, guyed with Base Insulator. Towers 1, 2, and 3 are three (3) sided, angle leg with 19" face width. Tower 4 is three (3) sided, round leg with 18" face width.

All Base Insulators are manufactured by Austin Insulators, with an assumed capacity of 15pf (-j11,659.7 ohms @ 910 kHz).

All Towers have custom inductor lighting choke. These measure +j4,200 ohms @ 910 kHz.

FIGURE 5
MOMENT SUMMARY FOR INDIVIDUAL TOWERS

APPLICATION FOR LICENSE INFORMATION
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WLAT TOWER 1 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2	12
		0	0	93.5		
2	none	90.	313.	0	.2	12
		90.	313.	94.5		
3	none	180.	313.	0	.2	12
		180.	313.	93.5		
4	none	120.	350.3	0	.19	12
		120.	350.3	93.5		

Number of wires = 4
current nodes = 48

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.79167	2	7.875
radius	4	.19	1	.2

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.91	0	1	.0216435	.021875

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	13	0	6,592.8	0	0	0
2	25	0	6,612.5	0	0	0
3	37	0	6,635.8	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.91	45.281	40.765	60.928	42.	2.3111	-8.0466	-.74069

WLAT TOWER 2 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2	12
		0	0	93.5		
2	none	90.	313.	0	.2	12
		90.	313.	94.5		
3	none	180.	313.	0	.2	12
		180.	313.	93.5		
4	none	120.	350.3	0	.19	12
		120.	350.3	93.5		

Number of wires = 4
current nodes = 48

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.79167	2	7.875
radius	4	.19	1	.2

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.91	0	1	.0216435	.021875

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	6,608.8	0	0	0
2	25	0	6,612.5	0	0	0
3	37	0	6,635.8	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 13, sector 1							
.91	44.603	44.421	62.949	44.9	2.4974	-7.368	-.87946

WLAT TOWER 3 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2	12
		0	0	93.5		
2	none	90.	313.	0	.2	12
		90.	313.	94.5		
3	none	180.	313.	0	.2	12
		180.	313.	93.5		
4	none	120.	350.3	0	.19	12
		120.	350.3	93.5		

Number of wires = 4
current nodes = 48

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.79167	2	7.875
radius	4	.19	1	.2

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.91	0	1	.0216435	.021875

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	6,608.8	0	0	0
2	13	0	6,592.8	0	0	0
3	37	0	6,635.8	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 25, sector 1							
.91	45.043	40.596	60.638	42.	2.3097	-8.0523	-.73962

WLAT TOWER 4 (OTHERS OPEN)

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2	12
		0	0	93.5		
2	none	90.	313.	0	.2	12
		90.	313.	94.5		
3	none	180.	313.	0	.2	12
		180.	313.	93.5		
4	none	120.	350.3	0	.19	12
		120.	350.3	93.5		

Number of wires = 4
current nodes = 48

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.79167	2	7.875
radius	4	.19	1	.2

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.91	0	1	.0216435	.021875

Sources

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

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	6,608.8	0	0	0
2	13	0	6,592.8	0	0	0
3	25	0	6,612.5	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 37, sector 1							
.91	43.741	40.401	59.544	42.7	2.3362	-7.9476	-.75934

FIGURE 6
MOMENT MODEL ARRAY SYNTHESIS
(DIRECTIONAL – NIGHT)

APPLICATION FOR LICENSE INFORMATION
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WLAT NIGHT
MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = .91 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	1.808	140.1
3	1.	280.2
4	0	0

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	527.55	84.2	4.79485	1.1
13	644.213	209.9	9.17518	142.6
25	151.374	356.	5.46509	281.
37	188.485	164.9	.334965	257.

Sum of square of source currents = 274.308
Total power = 2,800. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00891446	-.00874593
Y(1, 2)	.00258591	.00517037
Y(1, 3)	.000147494	-.000203587
Y(1, 4)	.00208728	.00259012
Y(2, 1)	.002586	.00517032
Y(2, 2)	.00282263	-.00947651
Y(2, 3)	.00238629	.00495569
Y(2, 4)	.000989672	.00670991
Y(3, 1)	.000147494	-.000203587
Y(3, 2)	.0023862	.00495574
Y(3, 3)	.00862265	-.00884808
Y(3, 4)	.00211517	.00315556
Y(4, 1)	.00208728	.00259011
Y(4, 2)	.000989562	.00670996
Y(4, 3)	.00211516	.00315555
Y(4, 4)	.00682625	-.00943242

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	45.1467	40.8555
Z(1, 2)	21.9068	-20.6545
Z(1, 3)	-13.239	-17.1723
Z(1, 4)	8.63562	-24.7887
Z(2, 1)	21.9072	-20.6542
Z(2, 2)	44.1902	44.3197
Z(2, 3)	21.8519	-20.8425
Z(2, 4)	28.4978	-16.1243
Z(3, 1)	-13.239	-17.1723

z(3, 2)	21.8515	-20.8428
z(3, 3)	44.8813	40.6715
z(3, 4)	12.4294	-24.3584
z(4, 1)	8.63564	-24.7886
z(4, 2)	28.4974	-16.1249
z(4, 3)	12.4294	-24.3584
z(4, 4)	43.4447	40.4619

FIGURE 7
MOMENT MODEL SUMMARY FOR
DIRECTIONAL NIGHT MODE
APPLICATION FOR LICENSE INFORMATION
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WLAT NIGHT

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2	12
		0	0	93.5		
2	none	90.	313.	0	.2	12
		90.	313.	94.5		
3	none	180.	313.	0	.2	12
		180.	313.	93.5		
4	none	120.	350.3	0	.19	12
		120.	350.3	93.5		

Number of wires = 4
current nodes = 48

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.79167	2	7.875
radius	4	.19	1	.2

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.91	0	1	.0216435	.021875

Sources

source	node	sector	magnitude	phase	type
1	1	1	746.068	84.2	voltage
2	13	1	911.055	209.9	voltage
3	25	1	214.076	356.	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	37	0	562.31	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.91	13.159	109.2	109.99	83.1	22.141	-.78515	-7.815
source = 2; node 13, sector 1							
.91	27.159	64.806	70.267	67.3	5.2878	-3.3253	-2.7166
source = 3; node 25, sector 1							
.91	7.163	26.733	27.676	75.	9.008	-1.9365	-4.4401

CURRENT rms
Frequency = .91 MHz
Input power = 2,800. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	4.79666	1.1	4.79582	.0896884
2	0	0	7.79167	5.09923	.6	5.09894	.0543526
3	0	0	15.5833	5.19997	.3	5.19988	.0305278
4	0	0	23.375	5.16549	.1	5.16548	.0116177
5	0	0	31.1667	5.00735	360.	5.00735	-3.25E-03
6	0	0	38.9583	4.73277	359.8	4.73275	-.014386
7	0	0	46.75	4.34847	359.7	4.34841	-.0219771
8	0	0	54.5417	3.86157	359.6	3.86148	-.0261733
9	0	0	62.3333	3.2796	359.5	3.27948	-.027137
10	0	0	70.125	2.60971	359.5	2.60959	-.0250372
11	0	0	77.9167	1.85675	359.4	1.85665	-.0200146
12	0	0	85.7083	1.01675	359.3	1.01668	-.0120748
END	0	0	93.5	0	0	0	0
GND	61.3799	65.8218	0	9.16838	142.6	-7.28715	5.56387
14	61.3799	65.8218	7.875	9.48537	141.7	-7.43876	5.88533
15	61.3799	65.8218	15.75	9.51322	141.	-7.39605	5.98329
16	61.3799	65.8218	23.625	9.32842	140.5	-7.20159	5.9293
17	61.3799	65.8218	31.5	8.9463	140.1	-6.86542	5.73605
18	61.3799	65.8218	39.375	8.37815	139.8	-6.39579	5.41177
19	61.3799	65.8218	47.25	7.63552	139.4	-5.80153	4.9642
20	61.3799	65.8218	55.125	6.73107	139.2	-5.09245	4.40163
21	61.3799	65.8218	63.	5.67828	138.9	-4.27893	3.73278
22	61.3799	65.8218	70.875	4.49008	138.7	-3.37096	2.96605
23	61.3799	65.8218	78.75	3.17545	138.4	-2.37555	2.10719
24	61.3799	65.8218	86.625	1.72856	138.2	-1.28869	1.15204
END	61.3799	65.8218	94.5	0	0	0	0
GND	122.76	131.644	0	5.4697	281.	1.04366	-5.36921
26	122.76	131.644	7.79167	5.52072	280.7	1.02805	-5.42415
27	122.76	131.644	15.5833	5.449	280.6	.997685	-5.35689
28	122.76	131.644	23.375	5.27474	280.4	.951728	-5.18817
29	122.76	131.644	31.1667	5.00378	280.3	.890788	-4.92385
30	122.76	131.644	38.9583	4.64168	280.1	.815882	-4.56942
31	122.76	131.644	46.75	4.19469	280.	.728291	-4.13098
32	122.76	131.644	54.5417	3.66979	279.9	.629477	-3.6154
33	122.76	131.644	62.3333	3.07439	279.8	.521016	-3.02992
34	122.76	131.644	70.125	2.41556	279.6	.404425	-2.38146
35	122.76	131.644	77.9167	1.69819	279.5	.280851	-1.67481
36	122.76	131.644	85.7083	.919318	279.4	.150141	-.906974
END	122.76	131.644	93.5	0	0	0	0
GND	118.284	20.2188	0	.336042	255.2	-.0857327	-.324922
38	118.284	20.2188	7.79167	.211932	255.1	-.0544673	-.204814
39	118.284	20.2188	15.5833	.126189	254.5	-.033755	-.12159
40	118.284	20.2188	23.375	.0563779	251.6	-.0177599	-.0535075
41	118.284	20.2188	31.1667	5.99E-03	159.7	-5.61E-03	2.08E-03
42	118.284	20.2188	38.9583	.0459251	86.1	3.11E-03	.04582
43	118.284	20.2188	46.75	.0782557	83.6	8.75E-03	.0777655
44	118.284	20.2188	54.5417	.0984292	83.2	.0116711	.0977348
45	118.284	20.2188	62.3333	.106186	83.4	.0122953	.105471
46	118.284	20.2188	70.125	.101284	83.7	.0110661	.100677
47	118.284	20.2188	77.9167	.0833691	84.2	8.43E-03	.0829417
48	118.284	20.2188	85.7083	.0516009	84.7	4.77E-03	.0513799
END	118.284	20.2188	93.5	0	0	0	0

FIGURE 8
DERIVED DIRECTIONAL PARAMETERS

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NEW BRITAIN, CONNECTICUT
SEPTEMBER, 2015

NIGHT:

	Theoretical		Base Network Input Current		Normalized TCT	
Tower	**Field**	**Phase**	**Amplitude**	**Phase**	**Amplitude**	**Phase**
1 (SE)	1.000	0.0°	4.90	0.96°	.528	-141.4°
2 (C)	1.808	140.1°	9.28	142.40°	1.000	0.0°
3 (NW)	1.000	280.2°	5.52	-79.06°	.595	138.5°
4 (NE)			DETUNED			

FIGURE 9
TOWER BASE CIRCUIT ANALYSIS DESCRIPTION

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NEW BRITAIN, CONNECTICUT
SEPTEMBER, 2015

CIRCUIT ANALYSIS

Circuit Analysis was performed on each Tower of the WLAT model. "Phasetek" nodal Circuit Analysis program was used to compute base model Input/Output voltages and currents. For the Directional modes, the calculated Mininec Tower Base Drive Voltage was used to determine the Base Network Input Current. This point is the location of the Sampling TCT. "Z_1" represents the ATU Shunt impedance, "Z_2" represents the Tower Feed impedance, and "Z_3" represents the Tower Base Shunt impedance.

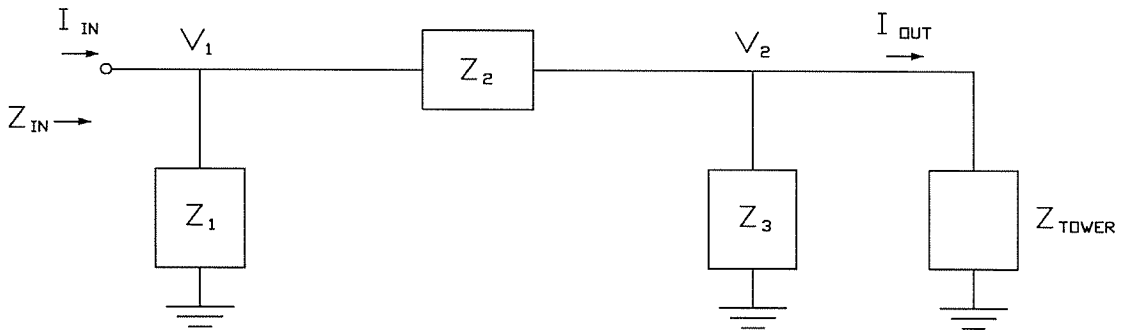


FIGURE 10
WLAT CIRCUIT ANALYSIS FOR INDIVIDUAL TOWERS

CUSTOMER : WLAT
NETWORK ID : TOWER 1 (OTHERS OPEN)

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 18.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 45.28, 40.76 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	4200.00
2	GROUND	45.60	40.73
1	2	0.00	18.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	82.23	-10.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	44.34	58.40	73.32	52.79
INPUT CURRENT (AMPS) :	0.82	-1.09	1.36	-52.79
OUTPUT CURRENT (AMPS) :	0.82	-1.07	1.35	-52.40

INPUT/OUTPUT CURRENT RATIO = 1.0105
INPUT/OUTPUT PHASE = -0.39 DEGREES

CUSTOMER : WLAT
NETWORK ID : TOWER 2 (OTHERS OPEN)

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 11.50 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 44.60, 44.42 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	4200.00
2		GROUND	44.94	44.42
1		2	0.00	11.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	88.08	-6.55

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	43.77	55.65	70.79	51.81
INPUT CURRENT (AMPS) :	0.87	-1.11	1.41	-51.81
OUTPUT CURRENT (AMPS) :	0.87	-1.09	1.40	-51.43

INPUT/OUTPUT CURRENT RATIO = 1.0095
INPUT/OUTPUT PHASE = -0.39 DEGREES

CUSTOMER : WLAT
NETWORK ID : TOWER 3 (OTHERS OPEN)

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 19.50 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 45.04, 40.60 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	4200.00
2	GROUND	45.36	40.56
1	2	0.00	19.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	80.85	-11.14

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	44.08	59.68	74.20	53.55
INPUT CURRENT (AMPS) :	0.80	-1.08	1.35	-53.55
OUTPUT CURRENT (AMPS) :	0.80	-1.07	1.33	-53.16

INPUT/OUTPUT CURRENT RATIO = 1.0108
INPUT/OUTPUT PHASE = -0.39 DEGREES

CUSTOMER : WLAT
NETWORK ID : TOWER 4 (OTHERS OPEN)

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 29.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 43.74, 40.40 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	4200.00
2	GROUND	44.05	40.38
1	2	0.00	29.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	72.71	-15.08

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	42.62	68.69	80.84	58.18
INPUT CURRENT (AMPS) :	0.65	-1.05	1.24	-58.18
OUTPUT CURRENT (AMPS) :	0.65	-1.03	1.22	-57.81

INPUT/OUTPUT CURRENT RATIO = 1.0131
INPUT/OUTPUT PHASE = -0.38 DEGREES

FIGURE 11
WLAT CIRCUIT ANALYSIS FOR DIRECTIONAL NIGHT MODE

CUSTOMER : WLAT
NETWORK ID : TOWER 1 NIGHT

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 18.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 13.16, 109.20 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	4200.00
2		GROUND	13.41	110.22
1		2	0.00	18.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	612.54	85.17
2	527.55	84.20

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	12.63	124.46	125.10	84.21
INPUT CURRENT (AMPS) :	4.90	0.08	4.90	0.96
OUTPUT CURRENT (AMPS) :	4.80	0.09	4.80	1.07

INPUT/OUTPUT CURRENT RATIO = 1.0209
INPUT/OUTPUT PHASE = -0.11 DEGREES

CUSTOMER : WLAT
NETWORK ID : TOWER 2 NIGHT

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 11.50 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 27.16, 64.81 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	4200.00
2	GROUND	27.46	65.10
1	2	0.00	11.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	741.94	-146.95
2	644.21	209.90

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	26.49	75.40	79.92	70.64
INPUT CURRENT (AMPS) :	-7.36	5.66	9.28	142.40
OUTPUT CURRENT (AMPS) :	-7.29	5.56	9.17	142.64

INPUT/OUTPUT CURRENT RATIO = 1.0126
INPUT/OUTPUT PHASE = -0.23 DEGREES

CUSTOMER : WLAT
NETWORK ID : TOWER 3 NIGHT

FREQUENCY : 910.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 4200.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 19.50 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-11659.70 OHMS
TOWER IMPEDANCE (R,X) : 7.16, 26.73 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	4200.00
2		GROUND	7.20	26.79
1		2	0.00	19.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	255.64	2.20
2	151.37	356.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	7.04	45.80	46.34	81.26
INPUT CURRENT (AMPS) :	1.05	-5.42	5.52	-79.06
OUTPUT CURRENT (AMPS) :	1.04	-5.37	5.47	-79.00

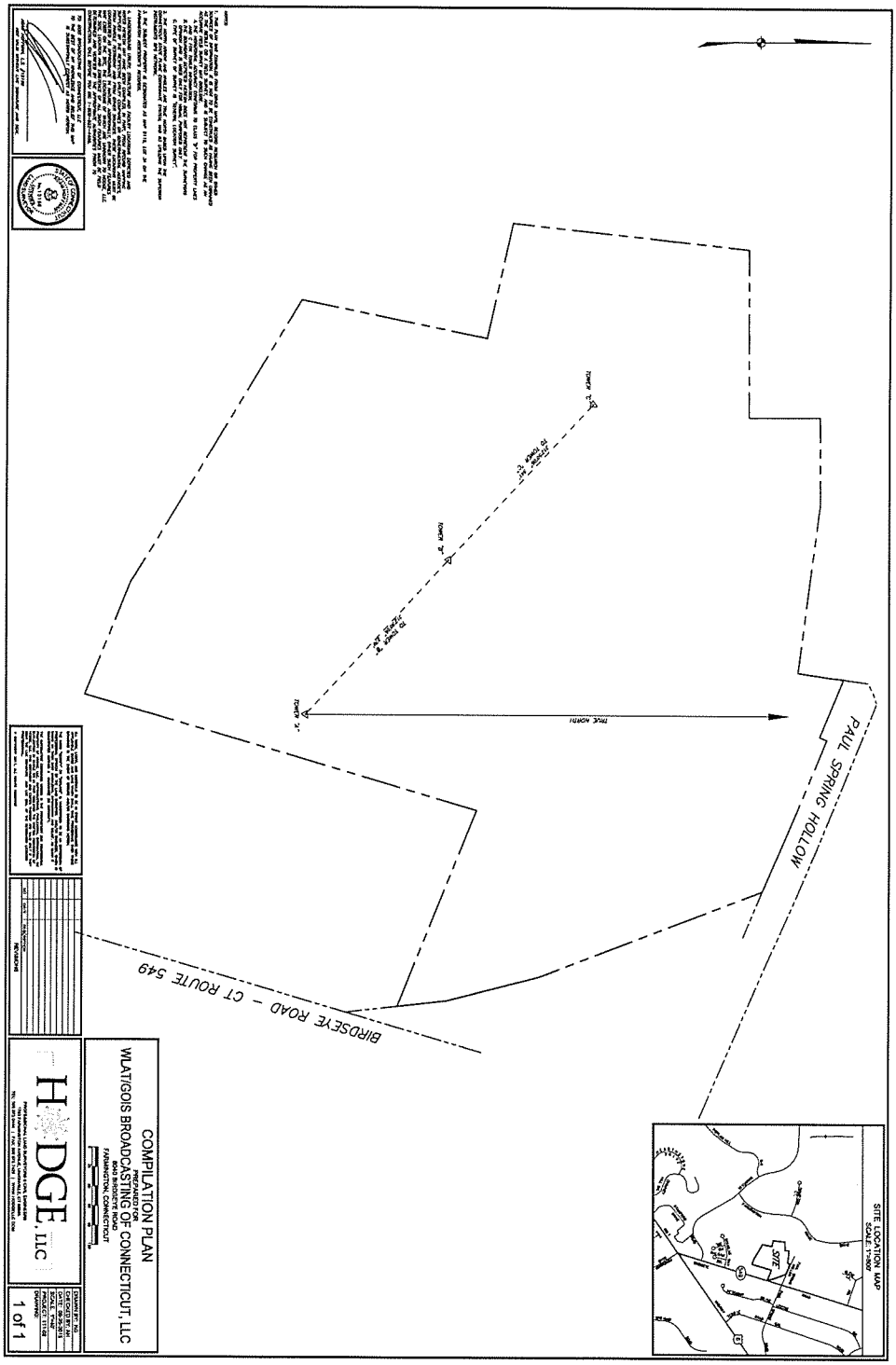
INPUT/OUTPUT CURRENT RATIO = 1.0087
INPUT/OUTPUT PHASE = -0.06 DEGREES

FIGURE 12

WLAT NIGHT REFERENCE POINTS 2015 Sep 11

Radial		Dist km	mV/m	Time	CO-ORD NAD27	deg	min	sec	Description
N 33.5 E	**1**	2.95	11.0	1707	N	41	44	16.9	Pkg lot 195 rt 4 (east of Talcott Notch Rd intersection)
					W	72	47	28.9	
	2	3.49	10.0	1722	N	41	44	32.0	Oakland Gardens fire station pkg lot
					W	72	47	17.7	
	3	3.73	7.3	1719	N	41	44	38.0	MBs 36/39/41 Crescent Dr
					W	72	47	11.4	
N 133 E	1	1.30	520.0	1536	N	41	42	28.5	opp sign #20 Batterson Park Rd
					W	72	47	57.7	
	2	1.84	680.0	1543	N	41	42	16.6	Alexander Rd 50' west of MB 400
					W	72	47	40.8	
	3	2.02	211.0	1545	N	41	42	12.4	Susan Rd opp FH @ #11
					W	72	47	35.3	
N 232.5 E	1	1.72	10.0	1559	N	41	42	23.3	US 6 north side @ top of incline
					W	72	49	38.1	
	2	3.60	2.08	1606	N	41	41	44.8	Cooke Rd opp MBs 501/505
					W	72	50	41.6	
	3	4.04	2.25	1610	N	41	41	36.2	rt 10 / FH @ pkg lot #503
					W	72	50	56.5	
N 269.5 E	1	1.67	11.1	1635	N	41	42	56.5	Colton St @ FH
					W	72	49	51.3	
	2	1.84	8.1	1632	N	41	42	55.9	corner of Hatters + Dorset lanes
					W	72	49	58.8	
	3	4.30	2.7	1622	N	41	42	58.3	pkg lot 1451 New Britain Ave
					W	72	51	45.2	
N 356.5 E	1	2.29	5.5	1646	N	41	44	10.7	Mountain Springs Rd opp MB 111
					W	72	48	47.3	
	2	3.24	3.2	1701	N	41	44	41.8	Talcott Notch Rd @ drwy east of curve
					W	72	48	45.0	
	3	4.60	2.3	1654	N	41	45	25.3	Old Mountain Rd @ drwy
					W	72	48	53.8	

FIGURE 13 CERTIFIED ARRAY GEOMETRY



Based upon above, spacing/bearing relative to tower #1:

Tower #2: 89.87°, 312.84°T

Tower #3: 180.07°, 312.84°T