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FRANK R. JAZZO
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January 11, 2018

VIA HAND DELIVERY
Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th St, SW
Washington, DC 20554

Attn: Audio Division, Media Bureau

Re: Salem Media of New York, LLC
WNYM, Hackensack, NJ (Facility ID No. 58635)
Method of Moments License Application (FCC 302-AM)

Dear Ms. Dortch:

Submitted herewith, in triplicate, is a Method of Moments license application (FCC 302-AM) filed on behalf of Salem Media of New York, LLC, licensee of WNYM, Hackensack, NJ (Facility ID No. 58635). A Form 159 is also attached, demonstrating payment of the $1,505.00 filing fee.

Please contact the undersigned if you have any questions or if any issues arise.

Sincerely,

Frank R. Jazzo
Mark C. DeSantis
Counsel for Salem Media of New York, LLC

Agency Tracking ID:PGC3044969 Authorization Number:070947
Successful Authorization -- Date Paid: 1/11/18
FILE COPY ONLY!!

READ INSTRUCTIONS CAREFULLY BEFORE PROCEEDING (1) LOCKBOX #979089	FEDERAL COMMUNICATIONS COMMISSION **REMITTANCE ADVICE** **FORM 159** PAGE NO 1 OF 1	APPROVED BY OMB 3060-059 SPECIAL USE FCC USE ONLY

SECTION A - Payer Information

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)	(3) TOTAL AMOUNT PAID (dollars and cents)
Salem Media of New York, LLC	**$1505.00**

(4) STREET ADDRESS LINE NO. 1
4880 Santa Rosa Road

(5) STREET ADDRESS LINE NO. 2

(6) CITY	(7) STATE	(8) ZIP CODE
Camarillo	**CA**	**93012-0958**

(9) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE)	(10) COUNTRY CODE (IF NOT IN U.S.A.)
805-3844502	**US**

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(11) PAYER (FRN)	(12) FCC USE ONLY
0004315677	

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

(13) APPLICANT NAME
Salem Media of New York, LLC

(14) STREET ADDRESS LINE NO. 1
4880 Santa Rosa Road

(15) STREET ADDRESS LINE NO. 2

(16) CITY	(17) STATE	(18) ZIP CODE
Camarillo	**CA**	**93012-0958**

(19) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE)	(20) COUNTRY CODE (IF NOT IN U.S.A.)
805-3844502	**US**

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(21) APPLICANT (FRN)	(22) FCC USE ONLY
0004315677	

COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEET

(23A) FCC Call Sign/Other ID	(24A) Payment Type Code(PTC)	(25A) Quantity
WNYM	**MMR**	**1**
(26A) Fee Due for (PTC)	(27A) Total Fee	FCC Use Only
$700.00	**$700.00**	
(28A) FCC CODE 1	(29A) FCC CODE 2	
1	**1**	

(23B) FCC Call Sign/Other ID	(24B) Payment Type Code(PTC)	(25B) Quantity
WNYM	**MOL**	**1**
(26B) Fee Due for (PTC)	(27B) Total Fee	FCC Use Only
$805.00	**$805.00**	
(28B) FCC CODE 1	(29B) FCC CODE 2	
1	**1**	

ACCEPTED/FILED

Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

JAN 11 2018

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 NO BMML-20180111AES

SECTION I - APPLICANT FEE INFORMATION

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

Salem Media of New York, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
4880 Santa Rosa Road, Suite 300

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Camarillo	CA	93012

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
(805) 987-0400	WNYM	

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	$ 700.00	

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

(A)	(B)	(C)	FOR FCC USE ONLY
MOR	0001	$ 805.00	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$ 1,505.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Salem Media of New York, LLC		
MAILING ADDRESS 4880 Santa Rosa Road, Suite 300		
CITY Camarillo	STATE CA	ZIP CODE 93012

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
WNYM	Hackensack, NJ	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. 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. N/A

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. N/A

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	
Christopher J. Henderson		
Title	Date	Telephone Number
Sr. Vice President and Secretary	1/10/2018	(805) 987-0400

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: Salem Media of New York, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ Station License BMML - ☐ 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
WNYM	N/A	970	Unlimited	5	50

2. Station location

State	City or Town
New Jersey	Hackensack

3. Transmitter location

State	County	City or Town	Street address (or other identification)
NJ	Bergen	Hackensack	133 Commerce Way

4. Main studio location

State	County	City or Town	Street address (or other identification)
NY	New York	New York	111 Broadway

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

State	County	City or Town	Street address (or other identification)
NY	New York	New York	111 Broadway

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. On File

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
10.39	32.45

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	50	-j5	-j5

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1 (NW)	+135.4	+134.6	0.553	0.769	------	------
2 (C)	0.0	0.0	1.000	1.000	------	------
3 (SE)	-144.8	-156.3	0.505	0.758	------	------

Manufacturer and type of antenna monitor: Potomac Instruments, Model 1901-3

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.
Uniform, cross-secton, guyed steel	76.4	77.6	78.3	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	40 °	54 '	40 "	West Longitude	74 °	01 '	42 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. N/A

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

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

N/A

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)	Signature (check appropriate box below)
James D. Sadler	
Address (include ZIP Code) Carl T. Jones Corporation 7901 Yarnwood Court Springfield, VA 22153	Date January 8, 2018 Telephone No. (Include Area Code) (703) 569-7704

☐ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☑ Technical Consultant

☐ Other (specify)

Exhibit 1

This application is for a superseding license to reflect new MoM model derived daytime and nighttime operating parameters, not a license to cover application. Therefore, program testing is not required.

Consulting Engineers
CTJC
CARL T. JONES CORPORATION

ENGINEERING STATEMENT OF JAMES D. SADLER
IN SUPPORT OF AN
APPLICATION FOR STATION LICENSE
STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N U, DA-2
FACILITY ID: 58635

Applicant: Salem Media of New York, LLC

I am a Technical Consultant, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission.

1.0 GENERAL

This office has been authorized by Salem Media of New York, LLC ("Salem"), licensee of AM Station WNYM, to prepare this engineering statement, FCC Form 302-AM, Section III, and the associated figures and appendices in support of an Application for License. Station WNYM is licensed for operation on 970 kilohertz at a power of 50 kilowatts during daytime hours and 5 kilowatt during nighttime hours. The station operates with a different directional antenna pattern day and night (DA-2). The transmitter site was formerly shared with Station WWRV, Patterson, New Jersey. The diplexing filters have been removed and the performance of the WNYM daytime and nighttime directional antenna system has been verified using computer modeling and

7901 Yarnwood Court
Springfield, VA 22153-2899
tel: (703) 569-7704
fax: (703) 569-6417
email: info@ctjc.com
www.ctjc.com

sample system verification techniques, as described in Section 47 CFR 73.151(c) of the Commission's Rules and Regulations. The specific measurement and modeling techniques used in performing the proof of performance on the WNYM directional pattern are described in detail in this engineering statement. Impedance measurement data, sample system verification measurement data and model derived operating parameters are tabulated in the figures attached to this engineering statement. Finally, all pertinent computer model input and output files are contained in the attached Appendices A, B, and C.

2.0 IMPEDANCE MEASUREMENTS, COMPUTER MODELING AND SAMPLE SYSTEM VERIFICATION

The proof of performance contained herein is based on the computer modeling and sample system verification procedures described in Section 47 CFR 73.151(c) of the FCC's Rules and Regulations. The WNYM antenna array consists of three identical, uniform cross-section, guyed, base insulated, steel, series-fed towers. All towers have an electrical height of 89 degrees (76.4 meters) and have an 18-inch face width. The sampling system employs identical toroidal current transformers located at the output of the antenna matching network and prior to the series capacitors located at the base of each tower.

A detailed description of the impedance measurements, the computer models employed, and the sample system verification measurements, is contained below.

2.1 INDIVIDUAL TOWER IMPEDANCE MEASUREMENTS

Impedance measurements were performed at the base of each tower, by the undersigned, at the J-Plug located in the output branch of the antenna matching network. This measurement location is immediately adjacent to the location of the sampling system toroidal current transformer. The diplexing system had series capacitors installed in a common box between the diplex filters and the tower to improve the bandwidth of the two stations. These series capacitors were left in place when the diplex filters were removed due to the constraints of the WNYM matching network. The capacitance of the capacitors was measured at each tower and the measured values were included separately in the model. The impedance measurements were performed using a Hewlett-Packard Model 8753C network analyzer; an ENI, Model 240L, power amplifier; and a Tunwall Radio directional coupler. The impedance of each tower was measured with the other two towers open-circuited at the same antenna matching network J-Plug location that was used to perform the impedance measurement. The measured impedances are tabulated in Figure 2.

2.2 INDIVIDUAL TOWER COMPUTER MODELS

A Method of Moments ("MoM") computer model was developed to model each element in the array using Expert MiniNEC Broadcast Professional (Version 23.0). A wire model was developed for each tower in the array that is comprised of 18 segments. To replicate the individual measured base impedances to within FCC specified tolerances, each tower's physical height was adjusted in the MiniNEC model and

measured series capacitance and lumped series inductances were employed in a separate circuit model. The actual equivalent physical radius was used in all computer models contained in this application. Details of the modeled individual tower adjusted heights are contained in Figure 1.

The values of the measured series capacitances and lumped series inductances used in the circuit model are contained in the table of Figure 2. A comparison of the measured individual tower impedances, the modeled individual tower impedances, and the adjusted modeled (circuit model) individual tower impedances is also contained in the table of Figure 2. The percentage difference between the adjusted modeled tower height and the actual physical tower height and the magnitude of the lumped series inductances that were used in the circuit models are all within the tolerances set forth in the Rules.

As demonstrated by the data contained in Figure 2, the adjusted modeled individual tower resistance and reactance for each tower is well within ± 2 ohms and ± 4 percent tolerance of the corresponding measured individual tower resistance and reactance. The text files containing all pertinent input and output data associated with the individual tower models are contained in Appendix A.

2.3 DIRECTIONAL ANTENNA COMPUTER MODEL AND ANTENNA MONITOR PARAMETERS

The theoretical daytime and nighttime directional field parameters and the licensed tower spacings and orientations were used in combination with the adjusted

individual tower models to produce the daytime and nighttime directional antenna computer models. From the directional computer models, tower currents were derived for each wire segment of each antenna. Each segment current was multiplied by the segment length and numerically integrated and normalized to the appropriate reference tower to verify that the modeled current moments are essentially identical to the authorized relative theoretical directional field parameters.

The new daytime and nighttime directional array operating parameters were determined from the modeled base currents and are tabulated in Figure 3. The text files containing all pertinent input and output data associated with the daytime and nighttime directional antenna computer models are contained in Appendix B and C.

2.4 SAMPLE SYSTEM DESCRIPTION AND VERIFICATION MEASUREMENTS

The WNYM antenna sampling system utilizes identical Delta Electronics, Model TCT-1, toroidal current transformers mounted in an identical manner in the output branch of each tower's impedance matching network. The transformers are connected to a Potomac Instruments, Model 1901-3, antenna monitor with equal lengths of Andrew, Type LDF4-50A, phase stabilized, foam dielectric, ½ inch coaxial cable and an 8 foot jumper cable of Andrew, 1/2-inch, superflexible, foam dielectric, coaxial cable, between the end of the Type LDF4-50A coaxial cable and the antenna monitor. The sample cables, including excess lengths of cable, are buried such that each cable is subjected to the same environmental conditions.

The sample lines, including the jumper cables, were verified to be equal in length by measuring the open-circuit series resonate frequency closest to the carrier frequency. The characteristic impedance was verified by measuring the impedance at frequencies corresponding to odd multiples of 1/8 wavelength immediately above and below the open circuit series resonant frequency closest to the carrier frequency, while the line was open-circuited at the sample element end of the line. The characteristic impedance was calculated by the following formula:

$$Z = \sqrt{\sqrt{R_1^2 + X_1^2} \times \sqrt{R_2^2 + X_2^2}}$$

where:

Z = *Characteristic impedance and*

$R_1 + jX_1$ *and* $R_2 + jX_2$ *are the measured impedances at* $\pm$ *45 degrees offset frequencies.*

A tabulation of the measured sample line lengths and the characteristic impedance of each line is contained in Figure 4. All sample line verification measurements were performed by the undersigned using a Hewlett-Packard, Model 8753C, network analyzer; an ENI, Model 240L, power amplifier; and a Tunwall Radio directional coupler. As demonstrated by the measured values in Figure 4, the measured sample line lengths are within 1 electrical degree with respect to each other and the measured characteristic impedances are well within 2 ohms of each other, as required by Section 47 CFR 73.151(c)(2)(i) of the FCC Rules and Regulations.

An impedance measurement was performed at the input to each sample line, at the antenna monitor end of the line, with the toroidal current transformer connected. The measurement was performed at the WNYM operating frequency of 970 kilohertz. The measured sample line impedances with the current transformers connected are tabulated in Figure 4 under the heading "Reference Impedance Sample Transformer Connected." The performance of the toroidal current transformers was verified by driving a common reference current through all three transformers and comparing the relative outputs as observed on the network analyzer. The test confirmed that the performance of all three of the WNYM current transformers is well within the manufacturer's stated accuracy. A tabulation of the toroidal current transformer measurement data and the serial number of each toroidal current transformer is contained in Figure 5.

The antenna monitor that is employed by WNYM is a Potomac Instruments, Model 1901-3, Serial Number 426. The performance of the monitor was verified to be within the manufacturer's stated accuracy. The verification was performed by comparison of the measured relative directional operating parameters, as observed on the antenna monitor, with those measured using the Hewlett-Packard, Model 8753C, network analyzer when the phasing and coupling system was powered with the transmitter and the samples were fed into the network analyzer.

3.0 COMMON POINT IMPEDANCE AND COMMON POINT CURRENT

The networks associated with the daytime and nighttime directional antenna system were adjusted for proper impedance transformation and the common point impedance matching network was set for Z = 50 -j 5 Ohms. The transmitter output power level was adjusted for a daytime common point current of 32.45 amperes and a nighttime common point current of 10.39 amperes, corresponding to daytime and nighttime input powers of 52,650 Watts and 5,400 Watts, respectively.

4.0 REFERENCE FIELD STRENGTH MEASUREMENTS

Reference field strength measurements were performed on the daytime and nighttime antenna patterns on the 146° radial bearing, corresponding to the major lobe of the two patterns. In addition, reference field strength measurements were performed on the 65°, 227°, 305°, and 347° radial bearings, corresponding to the daytime directional pattern minima and on the 12°, 45°, 247°, and 280° radial bearings, corresponding to the nighttime directional pattern minima. Three reference field strength measurements were performed on each of the selected radial bearings.

The measurements were performed by Mr. Stu Engelke, Chief Engineer of Station WNYM, accompanied by the undersigned using a Potomac Instruments, Model PI 4100, Serial Number 352, last calibrated by the manufacturer in March, 2016. The measured field strength value for each established reference point location is tabulated in Figure 6, Sheets 1 through 5. The tabulations contained in Figure 6 also include for

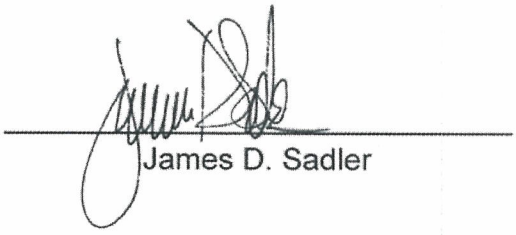
each reference location; GPS coordinates (NAD83), distance from the WNYM array center, and a description of measurement location.

SUMMARY

It is submitted that the performance of the WNYM daytime and nighttime directional antenna patterns has been verified using computer modeling and sample system verification procedures in accordance with Section 47 CFR 73.151(c) of the Commission's Rules and Regulations. It is believed that the daytime and nighttime directional antenna systems, as adjusted, fully comply with the terms of the station's FCC Authorization and all applicable FCC Rules and Regulations. It is requested that a superseding license be issued to Salem reflecting the new MoM model derived daytime and nighttime operating parameters as contained herein.

This engineering statement, FCC Form 302-AM, Section III, and the attached figures and appendices were prepared by the undersigned or under the direct supervision of the undersigned and are believed to be true and correct.

Dated: January 8, 2018



James D. Sadler

Figure 1

TOWER MODEL HEIGHT AND RADIUS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

Tower	Physical Height (degrees)	Modeled Height (degrees)	Percent of Physical Height	Modeled Radius (degrees)	Percent of Equivalent Radius
1	89.0	94.5	106.2	0.2183	100.0
2	89.0	92.5	103.9	0.2183	100.0
3	89.0	92.0	103.4	0.2183	100.0

MEASURED AND MODELED IMPEDANCES

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW DAY, 5 kW NIGHT, DA-2
JANUARY, 2018

Tower	Measured Tower Base Impedance[1]	Modeled Tower Base Impedance	Shunt Capacitance (pF)	Measured Series Capacitance[2] (pF)	Lumped Series Inductance (uH)	Total Adjusted Tower Base Impedance
1	48.7 +j 29.4	48.5 +j 46.7	0.0	2571.0	7.6	48.5 +j 29.3
2	42.7 -j 8.9	42.5 +j 34.6	0.0	2193.0	5.1	42.5 -j 9.2
3	44.1 -j 35.2	44.1 +j 32.4	0.0	1335.0	9.1	44.1 -j 35.1

[1] Measured at output of matching network with other towers open-circuited
[2] Series capacitors located between the matching network and tower (See engineering statement for detailed explanation)

Figure 2

ANTENNA MONITOR PARAMETERS AND COMMON POINT DATA

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

DAYTIME		
	Modeled Parameters	
Tower	**Ratio**	**Phase (deg)**
1	0.769	134.6
2	1.000	0.0
3	0.758	-156.3
Common Point Impedance = 50 -j 5 ohms Common Point Current = 32.45 amperes Antenna Input Power = 52,650 Watts		

NIGHTTIME		
	Modeled Parameters	
Tower	**Ratio**	**Phase (deg)**
1	0.553	135.4
2	1.000	0.0
3	0.505	-144.8
Common Point Impedance = 50 -j 5 ohms Common Point Current = 10.39 amperes Antenna Input Power = 5,400 Watts		

SAMPLE LINE VERIFICATION MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

Tower	Open Circuit Series Resonant Frequency[1] (kHz)	Open Circuit Measured Line Length[2] (degrees)	Resonant Frequency -45 degree Offset Frequency (kHz)	Resonant Frequency -45 degree Offset Impedance (Ohms)	Resonant Frequency +45 degree Offset Frequency (kHz)	Resonant Frequency +45 degree Offset Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)	Reference Impedance Sample Toroid Connected[2] (Ohms)
1	1209.68	216.5	1008.1	3.67 -j 50.78	1411.3	5.35 +j 50.48	50.84	52.60 +j 0.34
2	1210.09	216.4	1008.4	3.66 -j 50.75	1411.8	5.37 +j 50.46	50.81	52.60 +j 0.24
3	1210.05	216.4	1008.4	3.67 -j 50.76	1411.7	5.34 +j 50.49	50.83	52.60 +j 0.29

[1] At this frequency, the sample line electrical length is equal to 270°.
[2] At carrier frequency (970 kHz)

Figure 4

SAMPLE DEVICE VERIFICATION MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

Reference Sample Toroid Number	Measured Sample Toroid Number	Measured	
		Field Ratio	Phase (degrees)
1	2	0.993	-0.2
1	3	0.994	-0.3
2	3	0.994	-0.3

Sample Toroid Number	Type	Serial Number
1	Delta Electronics, TCT-1	17718
2	Delta Electronics, TCT-1	17719
3	Delta Electronics, TCT-1	17717

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

12 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	1.43	- - -	41.4	40° 55' 24.90"	74° 01' 25.79"	The point is located on the sidewalk at the center of the driveway for #222 Reichelt Rd, New Milford.
2	2.11	- - -	23.2	40° 55' 46.60"	74° 01' 20.61"	The point is located on the sidewalk adjacent to the fire hydrant on the NW corner of Graphic Blvd and Berkley St, New Milford.
3	2.82	- - -	27.6	40° 56' 09.09"	74° 01' 13.69"	The point is located on the curb on the NW side of Cedar Rd opposite center of Asbury St, New Milford.

45 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	1.65	- - -	2.52	40° 55' 16.70"	74° 00' 48.30"	The point is located atop the manhole cover on the west side of the guard rail at the west end of Spring Ave, west of #128, Bergenfield.
2	2.37	- - -	2.8	40° 55' 33.49"	74° 00' 27.00"	The point is located on the sidewalk at the center of the driveway for #107 Vineland Ave, Bergenfield.
3	2.87	- - -	1.8	40° 55' 44.99"	74° 00' 11.81"	The point is located on the sidewalk at the entrance to Old South Church, #150 W Church St, Bergenfield.

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

65 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	1.59	139	- - -	40° 55' 00.70"	74° 00' 37.40"	The point is located on the sidewalk in front of steps to #59 John Place, Bergenfield.
2	2.37	44.8	- - -	40° 55' 11.70"	74° 00' 07.19"	The point is located on the sidewalk at the center of driveway for #194 Roosevelt Ave, Bergenfield.
3	3.07	30.9	- - -	40° 55' 21.61"	73° 59' 40.09"	The point is located on the sidewalk at the center of driveway for #46 Murray Hill Ter, Bergenfield.

146 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	1.55	2020	603	40° 53' 58.39"	74° 01' 01.90"	The point is located on the edge of Forest Ave at the center of driveway for #470, Teaneck Township.
2	2.06	1770	503	40° 53' 45.00"	74° 00' 49.11"	The point is located on the sidewalk at the center of the driveway for #1112 Windsor Rd, Teaneck Township.
3	2.76	939	291	40° 53' 25.79"	74° 00' 32.41"	The point is located on the sidewalk in line with front door of School opposite #128 Cranford Pl, Teaneck Township.

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

227 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	1.67	299	- - -	40° 54' 02.59"	74° 02' 31.20"	The point is located on the sidewalk in line with the front door of #34 Fairmount Ave, Hackensack.
2	2.32	120	- - -	40° 53' 47.61"	74° 02' 50.89"	The point is located on the manhole cover at the east corner of Clarendon Pl and Anderson St, Hackensack.
3	2.97	175	- - -	40° 53' 33.99"	74° 03' 12.27"	The point is located on the center of the driveway apron for #300 Prospect Ave, SE of intersection with Golf Pl, Hackensack.

247 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	2.15	- - -	29.6	40° 54' 11.71"	74° 03' 04.11"	The point is located on the sidewalk opposite fire hydrant on NE side of Ross Ave, NW of #308, Hackensack.
2	2.71	- - -	16.7	40° 54' 04.70"	74° 03' 26.09"	The point is located on the sidewalk in line with front door entrance of Kingdom Hall of Jehovah's Witnesses, #506 E Pleasant Ave, Maywood.
3	3.66	- - -	9.7	40° 53' 53.18"	74° 04' 03.50"	The point is located on the sidewalk at the center of the driveway for #82 W Central Ave, Maywood.

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

280 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	2.42	- - -	32.5	40° 54' 53.39"	74° 03' 21.48"	The point is located on the sidewalk directly behind the sign for the "Outlets at Bergen Town Center", SW corner of Forest Ave and Bergen Town Center Dr, Paramus.
2	3.17	- - -	12.5	40° 54' 57.70"	74° 03' 53.20"	The point is located on the sidewalk in line with front door of #904 Briarcliff Ave, Maywood.
3	4.55	- - -	22.7	40° 55' 05.20"	74° 04' 51.68"	The point is located on the edge of the road at the center of the driveway for #151 Arcola Ave, Paramus.

305 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Daytime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	2.07	240	- - -	40° 55' 17.69"	74° 02' 52.71"	The point is located on the sidewalk at the center of the driveway for #291 Valley Rd, River Edge.
2	2.75	147	- - -	40° 55' 31.00"	74° 03' 15.91"	The point is located at the curb in the center of the driveway for #128 Village Cir W, Paramus.
3	4.18	70.8	- - -	40° 55' 57.30"	74° 04' 05.90"	The point is located on the sidewalk next to the fire hydrant, NE corner of Middlesex Ave and Harmon Dr near #27 Middlesex Ave, Paramus.

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WNYM - HACKENSACK, NEW JERSEY
970 kHz - 50 kW-D, 5 kW-N, U, DA-2
JANUARY, 2018

347 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Nighttime Field (mV/m)	Geographic Coordinates (NAD83)		Description
				Latitude	Longitude	
1	2.41	157	- - -	40° 55' 55.80"	74° 02' 02.79"	The point is located on the sidewalk along Tenney Ave in line with the front entrance of River Edge Police Station and 911 WTC Memorial Beam, #705 Kinderkamack Rd, River Edge.
2	3.21	96.9	- - -	40° 56' 21.09"	74° 02' 10.19"	The point is located on the sidewalk in front of #218 Woodland Ave, River Edge.
3	4.19	76.8	- - -	40° 56' 51.80"	74° 02' 20.21"	The point is located on the sidewalk at the center of the driveway for #720 Schaefer Ave, Oradell.

APPENDIX A

INDIVIDUAL TOWER MODELING

IMPEDANCE - TOWER 1
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.97	48.47	46.745	67.338	44.	2.5031	-7.3493	-.88367

GEOMETRY - TOWER 1
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2183	18
		0	0	94.5		
2	none	90.	146.	0	.2183	18
		90.	146.	92.5		
3	none	180.	146.	0	.2183	18
		180.	146.	92.		

Number of wires = 3
current nodes = 54

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	3	5.11111	1	5.25
radius	1	.2183	1	.2183

ELECTRICAL DESCRIPTION - TOWER 1
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.97	0	1	.0141975	.0145833

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	1	.01	0	0	0	0
2	19	.01	-10,000.	0	0	0
3	37	.01	-10,000.	0	0	0

IMPEDANCE - TOWER 2
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 19, sector 1							
.97	42.524	34.56	54.796	39.1	2.1153	-8.9222	-.59567

GEOMETRY - TOWER 2
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2183	18
		0	0	94.5		
2	none	90.	146.	0	.2183	18
		90.	146.	92.5		
3	none	180.	146.	0	.2183	18
		180.	146.	92.		

Number of wires = 3
current nodes = 54

Individual wires	minimum wire	minimum value	maximum wire	maximum value
segment length	3	5.11111	1	5.25
radius	1	.2183	1	.2183

ELECTRICAL DESCRIPTION - TOWER 2
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	.97	0	1	.0141975	.0145833

Sources

source	node	sector	magnitude	phase	type
1	19	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	.01	-10,000.	0	0	0
2	19	.01	0	0	0	0
3	37	.01	-10,000.	0	0	0

IMPEDANCE - TOWER 3
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 37, sector 1							
.97	44.091	32.366	54.695	36.3	1.988	-9.6126	-.50283

GEOMETRY - TOWER 3
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2183	18
		0	0	94.5		
2	none	90.	146.	0	.2183	18
		90.	146.	92.5		
3	none	180.	146.	0	.2183	18
		180.	146.	92.		

Number of wires = 3
current nodes = 54

Individual wires	minimum wire	minimum value	maximum wire	maximum value
segment length	3	5.11111	1	5.25
radius	1	.2183	1	.2183

ELECTRICAL DESCRIPTION - TOWER 3
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	.97	0	1	.0141975	.0145833

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	.01	-10,000.	0	0	0
2	19	.01	-10,000.	0	0	0
3	37	.01	0	0	0	0

APPENDIX B

DAYTIME DIRECTIONAL ARRAY MODEL

IMPEDANCE - DAYTIME
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.97	20.153	26.541	33.325	52.8	3.2782	-5.4734	-1.4482
source = 2; node 19, sector 1							
.97	20.376	65.477	68.574	72.7	6.9252	-2.5262	-3.5553
source = 3; node 37, sector 1							
.97	6.3839	73.379	73.656	85.	24.789	-.70118	-8.2654

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2183	18
		0	0	94.5		
2	none	90.	146.	0	.2183	18
		90.	146.	92.5		
3	none	180.	146.	0	.2183	18
		180.	146.	92.		

Number of wires = 3
current nodes = 54

	minimum wire	minimum value	maximum wire	maximum value
Individual wires				
segment length	3	5.11111	1	5.25
radius	1	.2183	1	.2183

ELECTRICAL DESCRIPTION - DAYTIME
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	.97	0	1	.0141975	.0145833

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,351.17	189.3	voltage
2	19	1	3,616.19	74.6	voltage
3	37	1	2,945.33	290.6	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	.01	0	0	0	0
2	19	.01	0	0	0	0
3	37	.01	0	0	0	0

PEAK CURRENTS - DAYTIME
Frequency = .97 MHz
Input power = 50,000. watts
Efficiency = 99.94 %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	40.545	136.5	-29.4296	27.8891
2	0	0	5.25	40.9764	135.9	-29.4403	28.5016
3	0	0	10.5	40.9105	135.5	-29.1965	28.6572
4	0	0	15.75	40.4831	135.2	-28.7277	28.5237
5	0	0	21.	39.7159	134.9	-28.0414	28.1254
6	0	0	26.25	38.6224	134.7	-27.1441	27.4753
7	0	0	31.5	37.2147	134.4	-26.0435	26.5834
8	0	0	36.75	35.5053	134.2	-24.7481	25.4591
9	0	0	42.	33.5076	134.	-23.2673	24.1122
10	0	0	47.25	31.2363	133.8	-21.6117	22.5531
11	0	0	52.5	28.7072	133.6	-19.7929	20.7928
12	0	0	57.75	25.9367	133.4	-17.8226	18.8431
13	0	0	63.	22.9411	133.2	-15.7127	16.7153
14	0	0	68.25	19.736	133.1	-13.4744	14.4204
15	0	0	73.5	16.3339	132.9	-11.1168	11.9671
16	0	0	78.75	12.7405	132.7	-8.64443	9.35915
17	0	0	84.	8.94423	132.6	-6.05014	6.58749
18	0	0	89.25	4.88638	132.4	-3.29516	3.60814
END	0	0	94.5	0	0	0	0
GND	-74.6134	-50.3274	0	52.7345	1.9	52.7044	1.78077
20	-74.6134	-50.3274	5.13889	54.3693	1.3	54.3544	1.27007
21	-74.6134	-50.3274	10.2778	54.968	1.	54.9601	.930222
22	-74.6134	-50.3274	15.4167	54.9606	.7	54.9568	.64306
23	-74.6134	-50.3274	20.5556	54.4066	.4	54.4052	.393951
24	-74.6134	-50.3274	25.6944	53.336	.2	53.3357	.177281
25	-74.6134	-50.3274	30.8333	51.77	360.	51.77	-9.34E-03
26	-74.6134	-50.3274	35.9722	49.7274	359.8	49.7271	-.166986
27	-74.6134	-50.3274	41.1111	47.2274	359.6	47.2265	-.296162
28	-74.6134	-50.3274	46.25	44.2902	359.5	44.2884	-.397085
29	-74.6134	-50.3274	51.3889	40.9367	359.3	40.934	-.469871
30	-74.6134	-50.3274	56.5278	37.1888	359.2	37.1853	-.514602
31	-74.6134	-50.3274	61.6667	33.0687	359.1	33.0645	-.531353
32	-74.6134	-50.3274	66.8056	28.5965	359.	28.5918	-.520181
33	-74.6134	-50.3274	71.9444	23.7883	358.8	23.7835	-.481049
34	-74.6134	-50.3274	77.0833	18.6496	358.7	18.645	-.413653
35	-74.6134	-50.3274	82.2222	13.1604	358.6	13.1566	-.31694
36	-74.6134	-50.3274	87.3611	7.22986	358.5	7.22743	-.187707
END	-74.6134	-50.3274	92.5	0	0	0	0
GND	-149.227	-100.655	0	39.9875	205.6	-36.0672	-17.2673
38	-149.227	-100.655	5.11111	41.3869	205.4	-37.387	-17.7508
39	-149.227	-100.655	10.2222	41.9412	205.3	-37.9231	-17.9137
40	-149.227	-100.655	15.3333	42.0156	205.2	-38.0188	-17.8852
41	-149.227	-100.655	20.4444	41.6603	205.1	-37.7211	-17.6834
42	-149.227	-100.655	25.5556	40.9003	205.1	-37.0531	-17.3177
43	-149.227	-100.655	30.6667	39.7524	205.	-36.0305	-16.7946
44	-149.227	-100.655	35.7778	38.2314	204.9	-34.6667	-16.1201
45	-149.227	-100.655	40.8889	36.3517	204.9	-32.9751	-15.3001
46	-149.227	-100.655	46.	34.1289	204.8	-30.9696	-14.3411
47	-149.227	-100.655	51.1111	31.5789	204.8	-28.6648	-13.2497
48	-149.227	-100.655	56.2222	28.718	204.8	-26.0757	-12.0326
49	-149.227	-100.655	61.3333	25.5628	204.7	-23.2172	-10.6968
50	-149.227	-100.655	66.4444	22.1286	204.7	-20.1032	-9.24848
51	-149.227	-100.655	71.5556	18.4269	204.7	-16.7444	-7.69257
52	-149.227	-100.655	76.6667	14.4616	204.6	-13.1442	-6.03057
53	-149.227	-100.655	81.7778	10.2163	204.6	-9.28768	-4.25573
54	-149.227	-100.655	86.8889	5.61921	204.6	-5.10958	-2.33832
END	-149.227	-100.655	92.	0	0	0	0

APPENDIX C

NIGHTTIME DIRECTIONAL ARRAY MODEL

IMPEDANCE - NIGHTTIME
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.97	6.3941	30.089	30.761	78.	10.686	-1.6305	-5.0445
source = 2; node 19, sector 1							
.97	26.902	53.486	59.87	63.3	4.2904	-4.1248	-2.1242
source = 3; node 37, sector 1							
.97	9.2346	99.621	100.05	84.7	27.056	-.64236	-8.6173

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2183	18
		0	0	94.5		
2	none	90.	146.	0	.2183	18
		90.	146.	92.5		
3	none	180.	146.	0	.2183	18
		180.	146.	92.		

Number of wires = 3
current nodes = 54

	minimum wire	minimum value	maximum wire	maximum value
Individual wires				
segment length	3	5.11111	1	5.25
radius	1	.2183	1	.2183

ELECTRICAL DESCRIPTION - NIGHTTIME
Frequencies (MHz)

no.	frequency lowest	step	no. of steps	segment length (wavelengths) minimum	maximum
1	.97	0	1	.0141975	.0145833

Sources

source	node	sector	magnitude	phase	type
1	1	1	304.487	216.	voltage
2	19	1	1,071.56	65.9	voltage
3	37	1	905.107	302.5	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	.01	0	0	0	0
2	19	.01	0	0	0	0
3	37	.01	0	0	0	0

PEAK CURRENTS - NIGHTTIME
Frequency = .97 MHz
Input power = 5,000. watts
Efficiency = 99.95 %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	9.89856	138.	-7.35033	6.6298
2	0	0	5.25	10.0221	137.8	-7.41919	6.73777
3	0	0	10.5	10.0168	137.6	-7.40024	6.75081
4	0	0	15.75	9.92063	137.5	-7.31631	6.70005
5	0	0	21.	9.73939	137.4	-7.17119	6.59014
6	0	0	26.25	9.47677	137.3	-6.96738	6.42377
7	0	0	31.5	9.13585	137.2	-6.70715	6.20305
8	0	0	36.75	8.71982	137.2	-6.39286	5.93014
9	0	0	42.	8.2321	137.1	-6.02712	5.60725
10	0	0	47.25	7.67638	137.	-5.61275	5.23678
11	0	0	52.5	7.05661	136.9	-5.15274	4.8213
12	0	0	57.75	6.37689	136.8	-4.65025	4.36347
13	0	0	63.	5.64135	136.7	-4.10842	3.86597
14	0	0	68.25	4.85386	136.7	-3.53022	3.3313
15	0	0	73.5	4.01759	136.6	-2.91809	2.76149
16	0	0	78.75	3.13399	136.5	-2.27324	2.15739
17	0	0	84.	2.2003	136.4	-1.59381	1.51693
18	0	0	89.25	1.20212	136.3	-.869555	.830036
END	0	0	94.5	0	0	0	0
GND	-74.6134	-50.3274	0	17.8981	2.6	17.8795	.814789
20	-74.6134	-50.3274	5.13889	18.3408	1.8	18.3315	.58138
21	-74.6134	-50.3274	10.2778	18.4738	1.3	18.4688	.426015
22	-74.6134	-50.3274	15.4167	18.4162	.9	18.4138	.29469
23	-74.6134	-50.3274	20.5556	18.1848	.6	18.1839	.180717
24	-74.6134	-50.3274	25.6944	17.7882	.3	17.788	.0815423
25	-74.6134	-50.3274	30.8333	17.2328	360.	17.2328	-3.92E-03
26	-74.6134	-50.3274	35.9722	16.5247	359.7	16.5245	-.0761669
27	-74.6134	-50.3274	41.1111	15.6699	359.5	15.6693	-.135402
28	-74.6134	-50.3274	46.25	14.6749	359.3	14.6737	-.181721
29	-74.6134	-50.3274	51.3889	13.5464	359.1	13.5447	-.215165
30	-74.6134	-50.3274	56.5278	12.2919	358.9	12.2896	-.235755
31	-74.6134	-50.3274	61.6667	10.9183	358.7	10.9156	-.243516
32	-74.6134	-50.3274	66.8056	9.43231	358.6	9.42929	-.23846
33	-74.6134	-50.3274	71.9444	7.83901	358.4	7.83591	-.220565
34	-74.6134	-50.3274	77.0833	6.14024	358.2	6.13731	-.189683
35	-74.6134	-50.3274	82.2222	4.32938	358.1	4.32694	-.145337
36	-74.6134	-50.3274	87.3611	2.37648	357.9	2.37493	-.086068
END	-74.6134	-50.3274	92.5	0	0	0	0
GND	-149.227	-100.655	0	9.04672	217.8	-7.14968	-5.54304
38	-149.227	-100.655	5.11111	9.48798	217.5	-7.52512	-5.77879
39	-149.227	-100.655	10.2222	9.69244	217.4	-7.70343	-5.88222
40	-149.227	-100.655	15.3333	9.77202	217.2	-7.77943	-5.91379
41	-149.227	-100.655	20.4444	9.74181	217.1	-7.76585	-5.8817
42	-149.227	-100.655	25.5556	9.60889	217.1	-7.66865	-5.78986
43	-149.227	-100.655	30.6667	9.3778	217.	-7.49159	-5.64085
44	-149.227	-100.655	35.7778	9.05233	216.9	-7.23779	-5.43683
45	-149.227	-100.655	40.8889	8.63608	216.9	-6.91018	-5.1799
46	-149.227	-100.655	46.	8.13274	216.8	-6.51177	-4.87221
47	-149.227	-100.655	51.1111	7.54619	216.8	-6.0457	-4.51602
48	-149.227	-100.655	56.2222	6.88037	216.7	-5.5152	-4.11364
49	-149.227	-100.655	61.3333	6.13926	216.7	-4.92349	-3.66739
50	-149.227	-100.655	66.4444	5.32652	216.6	-4.27355	-3.1794
51	-149.227	-100.655	71.5556	4.44499	216.6	-3.5677	-2.65131
52	-149.227	-100.655	76.6667	3.49553	216.6	-2.80666	-2.08361
53	-149.227	-100.655	81.7778	2.47417	216.6	-1.98727	-1.47387
54	-149.227	-100.655	86.8889	1.36342	216.5	-1.09547	-.811703
END	-149.227	-100.655	92.	0	0	0	0