ENGINEERING EXHIBIT E-3

APPLICATION FOR STATION LICENSE
CONSTRUCTION PERMIT BP-20100119ACG
(METHOD OF MOMENTS PROOF)
WVIE(AM) - PIKESVILLE, MD

M-10 Broadcasting, Inc.
Pikesville, MD

May 19, 2011

Prepared For: M-10 Broadcasting, Inc.
1205 York Road
Suite 39C
Lutherville, MD 21093

CARL E. SMITH CONSULTING ENGINEERS

2324 N. CLEVE-MASS RD., BOX 807 330/659-4440 FAX: 330/659-9234 BATH, OHIO 44210-0807

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SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

M-10 Broadcasting, Inc.

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

[X] 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
WVIE	BP-20100119ACG	1370	U	24.0	50.0

2. Station location

State	City or Town
MD	Pikesville

3. Transmitter location

State	County	City or Town	Street address (or other identification)
MD	Baltimore	Owings Mills	11 Music Fair Road

4. Main studio location

State	County	City or Town	Street address (or other identification)
MD	Baltimore	Pikesville	1726 Reisterstown Road

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

State	County	City or Town	Street address (or other identification)
MD	Baltimore	Pikesville	1726 Reisterstown Road

6. Has type-approved stereo generating equipment been installed? [ ] Yes [X] No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? [X] Yes [ ] No [ ] Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. E-3

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
22.5A	-
Measured antenna or common point resistance (in ohms) at operating frequency Night 50.0 Day -	Measured antenna or common point reactance (in ohms) at operating frequency Night -j 15.1 Day -

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	-10.7		0.813			
2	-150.4		1.272		NOT	
3	86.6		0.698		REQUIRED	
4	0.0		1.000			
5	-135.9		0.678			
6	46.1		0.063			

Manufacturer and type of antenna monitor: Potomac Instruments 1901 (4188) S/N 517

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 section guyed and base insulated	59.3 m	#1 - 60.8 #2,#3,#4,#5 - 60.5 #6 - 60.9	#1 - 60.8 #2,#3,#4,#5 - 60.5 #6 - 60.9	Exhibit No. N/A

Excitation [X] Series [ ] Shunt

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

North Latitude	°	'	"	West Longitude	°	'	"
	39	24	29		76	46	32

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?

None

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

N/A

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

Name (Please Print or Type)	Signature (check appropriate box below)
Derek R. Gorman	
Address (include ZIP Code) 2324 N. Cleveland-Massillon Road P.O. Box 807 Bath, OH 44210-0807	Date 5/19/2011
	Telephone No. (Include Area Code) 330/659-4440

[ ] Technical Director

[ ] Registered Professional Engineer

[ ] Chief Operator

[X] Technical Consultant

[ ] Other (specify)

ENGINEERING AFFIDAVIT

State of Ohio)
) ss:
County of Summit)

Roy P. Stype, III, being duly sworn, deposes and states that he is a graduate Electrical Engineer, a qualified and experienced Communications Consulting Engineer whose works are a matter of record with the Federal Communications Commission and that he is a member of the Firm of "Carl E. Smith Consulting Engineers" located at 2324 North Cleveland-Massillon Road in the Township of Bath, County of Summit, State of Ohio, and that the Firm has been retained by M-10 Broadcasting, Inc. to prepare the attached "Engineering Exhibit E-3."

The deponent states that the Exhibit was prepared by him or under his direction and is true of his own knowledge, except as to statements made on information and belief and as to such statements, he believes them to be true.

Roy P. Stype, III

Subscribed and sworn to before me on **May 19, 2011.**

Notary Public

/SEAL/

Nancy A. Adams, Notary Public
Residence - Cuyahoga County
State Wide Jurisdiction, Ohio
My Commission Expires Sept. 20, 2015

ENGINEERING AFFIDAVIT

State of Ohio)
) ss:
County of Summit)

Derek R. Gorman, being duly sworn, deposes and states that he is a qualified and experienced Communications Consulting Engineer whose works are a matter of record with the Federal Communications Commission and that he is a member of the Firm of "Carl E. Smith Consulting Engineers" located at 2324 North Cleveland-Massillon Road in the Township of Bath, County of Summit, State of Ohio, and that the Firm has been retained by M-10 Broadcasting, Inc. to prepare the attached "Engineering Exhibit E-3."

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Derek R. Gorman

Subscribed and sworn to before me on **May 19, 2011**

Nancy A. Adams
Notary Public

Nancy A. Adams, Notary Public
Residence - Cuyahoga County
State Wide Jurisdiction, Ohio
My Commission Expires Sept. 20, 2015

/SEAL/

ENGINEERING STATEMENT

1.0 GENERAL

This engineering exhibit is prepared on behalf of M-10 Broadcasting, Inc., licensee of Radio Station WVIE(AM) - Pikesville, Maryland and permittee of construction permit BP-20100119ACG to increase WVIE's nighttime power to 24 kilowatts and modify its authorized nighttime directional pattern. It supports an application for a station license to cover this construction permit utilizing the computer modeling method of moments (MoM) technique outlined in Section 73.151(c) of the FCC rules. WVIE's nighttime directional antenna system is eligible to use this proof methodology since it employs a standard ground system and all the elements of this antenna system are series fed.

WVIE operates full time on 1370 kHz with separate daytime and nighttime antenna systems located at totally different transmitter sites. The data contained in this engineering exhibit pertains to the nighttime antenna system only. No changes were made to the daytime antenna system, and as a result, all technical information on the daytime antenna system on file remains unchanged and is not being resubmitted as part of this application.

All modifications to the WVIE nighttime antenna system were completed per the terms of this construction permit. It should be noted that no physical construction to the towers, ground system, or sample system was necessary to implement the 24 kilowatt nighttime facilities authorized by this construction permit. It was only necessary to modify the feeder system to implement this increase in input power.

The ground system for the WVIE nighttime directional antenna system consists of 120 equally spaced #10 AWG copper radials, each 54.6 meters in length, buried

approximately 10 cm deep about each tower. These radials are truncated where they intersect a transverse copper strap running between adjacent towers or the property boundary. In addition, antennas for Aural STL Station WPXZ-997 and Remote Pickup Station WPYH-525 are installed on Tower #3 of the nighttime directional antenna system and a communications antenna is installed near the top of Tower #6 of this antenna system. The transmission lines for these antennas are isolated across the tower base by the use of isocouplers. The ground system description, and the STL, RPU, and communications antennas, remain unchanged from what is currently on file, and is provided only for clarity purposes.

The data contained in this exhibit shows that the WVIE nighttime directional pattern is in full compliance with the construction permit (BP-20100119ACG). Thus, it is respectfully requested that WVIE be authorized to commence program tests with the modified facilities authorized by this construction permit.

2.0 SAMPLE SYSTEM

The sample system for the WVIE nighttime directional antenna system is in full compliance with Section 73.151(c)(2)(i) of the FCC rules with regard to sample systems for directional antenna systems utilizing the computer modeling method of moments technique. The sample system consists of current transformers used as the sample elements, equal lengths of sample line, and a Potomac Instruments antenna monitor.

The sample elements utilized in the WVIE nighttime sample system are Delta TCT-3 toroidal current transformers mounted adjacent to the feed at each tower. Each sample element was field verified to be within the manufacturers specifications of ±2% ratio and ±3 degree phase accuracy by placing them in series with a common reference signal and using the antenna monitor to compare the phase and ratio of the output sample from the sample element from Tower #4 to the output sample from each of the other sample elements. The results of this field verification are tabulated in Table 2.0 and confirms that the phase and ratio of the outputs of all of these sample elements are well within the manufacturer's specifications.

The sample lines utilized in the WVIE nighttime sample system consist of six equal length runs (700'/213.4m each) of Cablewave FLC12-50J phase stabilized foam Flexwell coaxial cable with a 3' (0.91m) Cablewave SCF12-50 Superflexible jumper at the antenna monitor end, and a 6' (1.8m) Cablewave SCF12-50 Superflexible jumper at the tower end. The runs from the towers to the transmitter building, including all excess cable lengths, are buried. Impedance measurements were conducted on this sample system as required by Section 73.153(c)(2)(i) of the FCC Rules using an Agilent Technologies model 8753ES Vector Network Analyzer (VNA), S/N US39175348, an Electronic Navigation Industries (ENI) model 310L linear amplifier, S/N 654, and a

Tunwall Radio directional coupler, S/N DC11, as a calibrated measurement system. These measurements were conducted both with the sample lines open circuited and with them connected to the TCT-3 sample elements.

The frequencies above and below the carrier frequency where resonance, defined as zero reactance corresponding with low resistance, were found and are listed in Table 2.1. These frequencies of resonance occur at odd multiples of 90 degrees electrical length, and the sample line length at the resonant frequency above the carrier frequency, which is the closest one to the carrier frequency, was found to be 450 electrical degrees. The electrical lengths of these sample lines at the carrier frequency are tabulated in Table 2.1 and were calculated utilizing the ratio between the frequencies.

To determine the characteristic impedance values of the sample lines, open circuit measurements were conducted on frequencies offset to result in electrical lengths $\pm$ 45 degrees from the electrical length at this resonant frequency. The characteristic impedance was calculated using the following formula, where $R_1 + jX_1$ and $R_2 + jX_2$ are the measured impedances at the +45 and -45 degree offset frequencies, respectively:

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

These measured offset frequencies, along with the calculated characteristic impedance of each sample line, are also tabulated in Table 2.1. These measured values comply with the requirement that the measured characteristic impedance of each sample line be within two ohms of the measured characteristic impedance of every other sample line in the antenna system.

The antenna monitor utilized with WVIE's nighttime antenna system is a type accepted Potomac Instruments 1901(4188), S/N 517. This antenna monitor was field

verified to be within the manufacturers specifications of ±1% ratio accuracy and ±1 degree phase accuracy.

TABLE 2.0

WVIE NIGHTTIME
SAMPLE ELEMENT MEASUREMENTS
M-10 Broadcasting, Inc.
Pikesville, MD

Tower	Sample Element Model	Sample Element Serial Number	Measured Ratio	Measured Phase (degrees)
1	Delta TCT-3	17574	1.000	-0.4
2	Delta TCT-3	17570	0.999	-0.1
3	Delta TCT-3	17573	1.000	-0.1
4	Delta TCT-3	17572	1.000	0.0
5	Delta TCT-3	17575	0.999	-0.1
6	Delta TCT-3	17571	1.001	0.0

TABLE 2.1

WVIE NIGHTTIME
SAMPLE LINE MEASUREMENTS
M-10 Broadcasting, Inc.
Pikesville, MD

Tower	Resonant Frequency (kHz) Below 1370 kHz	Resonant Frequency (kHz) Above 1370 kHz	Calculated Electrical Length At 1370 kHz (degrees)	Measured Impedance Connected To TCT-3 At 1370 kHz (ohms)
1	905.5	1509.8	408.3	51.0-j0.7
2	905.5	1510.8	408.1	51.3-j0.8
3	905.5	1510.3	408.2	51.1-j0.7
4	905.3	1510.0	408.3	51.3-j0.7
5	905.3	1510.0	408.3	51.3-j1.0
6	905.3	1510.3	408.2	51.1-j1.0

Tower	-45 Degree Offset Frequency (kHz)	-45 Degree Offset Impedance (ohms)	+45 Degree Offset Frequency (kHz)	+45 Degree Offset Impedance (ohms)	Calculated Characteristic Impedance (ohms)
1	1358.8	4.5-j49.6	1660.8	6.7+j49.5	49.9
2	1359.7	4.6-j49.7	1661.9	6.7+j49.4	49.9
3	1359.3	4.6-j49.6	1661.3	6.7+j49.4	49.8
4	1359.0	4.6-j49.6	1661.0	6.7+j49.4	49.8
5	1359.0	4.6-j49.5	1661.0	6.7+j49.5	49.8
6	1359.3	4.6-j49.4	1661.3	6.7+j49.5	49.8

3.0 ANTENNA SYSTEM MODELING

The WVIE nighttime antenna system was modeled using Expert MININEC Broadcast Professional Version 23. One wire was used to represent each tower, and each wire was modeled using 15 wire segments. The top and bottom end points of each wire were specified in electrical degrees at 1370 kHz. The tower heights of all towers in the nighttime antenna system are 97.5 electrical degrees, which equates to a segment length of 6.5 electrical degrees. This meets the requirement that wire segments may be no longer than 10 electrical degrees in length.

All towers in the nighttime antenna system are identical and have a uniform triangular cross section with a face width of 24" (0.61m). Each tower's modeled height, relative to its physical height, falls within the required range of 75 to 125 percent of its physical height. Each tower's modeled radius, relative to the radius of a circle having a circumference equal to the sum of the widths of the physical tower sides, falls within the required range of 80 to 150 percent of its physical radius. Table 3.0 details the characteristics of each tower in the MoM model of the antenna system.

The individual characteristics of each tower were adjusted to provide a match of its modeled impedance with its measured impedance, when presented to a circuit model that includes base region stray capacity, a tower feed, and a static drain choke, at the antenna tuning unit (ATU) output jack. Each tower in the array was driven individually with all towers in the MoM model and all non-driven towers loaded with their open circuit impedance computed from the circuit model. Each tower has a specified base region stray capacity of 250 pF or less and a tower feed inductance of 10uH or less, as required by the rules.

TABLE 3.0
WVIE NIGHTTIME
INDIVIDUAL TOWER
MoM MODEL DETAILS
M-10 Broadcasting, Inc.
Pikesville, MD

Tower	Physical Height (degrees)	Modeled Height (degrees)	Modeled Percent Of Height (%)	Modeled Radius (meters)	Percent Equivalent Radius (%)
1	97.5	104.5	107.2	0.29	100.0
2	97.5	107.0	109.7	0.29	100.0
3	97.5	109.5	112.3	0.29	100.0
4	97.5	106.5	109.2	0.29	100.0
5	97.5	106.0	108.7	0.29	100.0
6	97.5	110.5	113.3	0.29	100.0

Tower	Wire Number	Number Of Segments	Base Segment Number
1	1	15	1
2	2	15	16
3	3	15	31
4	4	15	46
5	5	15	61
6	6	15	76

TABLE 3.1
WVIE NIGHTTIME INDIVIDUAL
TOWER IMPEDANCE MEASUREMENTS
TO VERIFY MoM MODEL
M-10 Broadcasting, Inc.
Pikesville, MD

Tower	Measured X_{SD} (ohms)	Specified X_F (ohms)	Specified L_F (uH)	Specified X_S (ohms)	Specified C_S (pF)	Modeled X_{OC} (ohms)
1	-j20,800	j64.8	7.53	-j1,161.7	100.0	-j1,100.1
2	-j20,800	j43.5	5.05	-j5,808.6	20.0	-j4,538.5
3	-j20,800	j41.0	4.76	-j1,936.2	60.0	-j1,771.0
4	j12,800	j56.3	6.54	-j1,659.6	70.0	-j1,905.6
5	-j20,800	j50.5	5.87	-j1,452.1	80.0	-j1,357.1
6	-j20,800	j40.0	4.65	-j3,872.4	30.0	-j3,263.6

Tower	Measured Z_{ATU} (ohms)	Modeled Z_{ATU} (ohms)	Modeled Z_{ANT} (ohms)
1	91.0+j161.7	89.8+j161.6	75.1+j93.9
2	73.0+j157.6	73.6+j157.5	69.7+j111.8
3	112.5+j175.4	112.5+j175.4	96.5+j130.0
4	92.0+j167.8	91.5+j167.5	82.1+j109.9
5	77.0+j161.0	77.1+j160.7	65.5+j104.7
6	104.0+j178.1	105.2+j178.3	96.4+j135.1

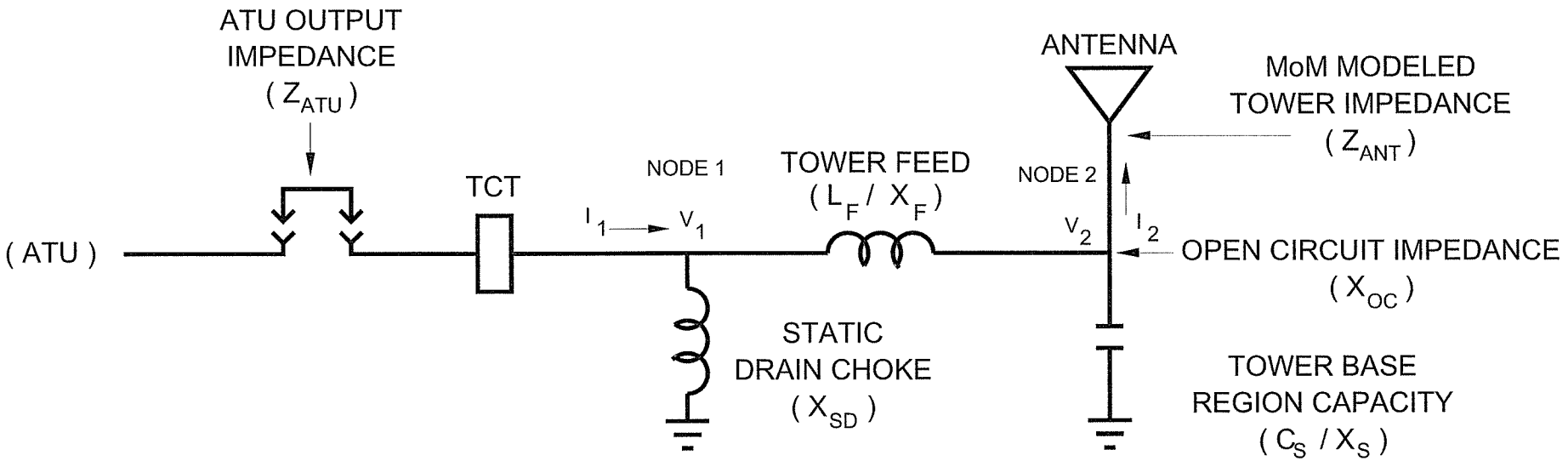


FIG. 3.1

WVIE NIGHTTIME
TOWER BASE CIRCUIT DIAGRAM
USED TO VERIFY IMPEDANCES

M-10 BROADCASTING, INC.
PIKESVILLE, MD

CARL E. SMITH CONSULTING ENGINEERS
2324 N. CLEVE-MASS RD., BOX 807
BATH, OHIO 44210-0807
(330) 659-4440

TABLE 3.2

WVIE NIGHTTIME
TOWER 1 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

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	16	0	-4,538.5	0	0	0
2	31	0	-1,771.	0	0	0
3	46	0	-1,905.6	0	0	0
4	61	0	-1,357.1	0	0	0
5	76	0	-3,263.6	0	0	0

TABLE 3.2 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.37	75.109	93.855	120.21	51.3	4.2798	-4.1354	-2.1175

CURRENT rms
Frequency = 1.37 MHz
Input power = .00259891 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	5.88E-03	308.7	3.68E-03	-4.59E-03
2	0	0	6.96667	6.31E-03	305.4	3.66E-03	-5.14E-03
3	0	0	13.9333	6.5E-03	303.6	3.6E-03	-5.41E-03
4	0	0	20.9	6.56E-03	302.2	3.5E-03	-5.55E-03
5	0	0	27.8667	6.52E-03	301.1	3.37E-03	-5.58E-03
6	0	0	34.8333	6.37E-03	300.1	3.2E-03	-5.5E-03
7	0	0	41.8	6.12E-03	299.3	2.99E-03	-5.33E-03
8	0	0	48.7667	5.77E-03	298.6	2.76E-03	-5.07E-03
9	0	0	55.7333	5.34E-03	297.9	2.5E-03	-4.72E-03
10	0	0	62.7	4.82E-03	297.3	2.21E-03	-4.28E-03
11	0	0	69.6667	4.22E-03	296.7	1.9E-03	-3.77E-03
12	0	0	76.6333	3.55E-03	296.2	1.56E-03	-3.18E-03
13	0	0	83.6	2.81E-03	295.7	1.21E-03	-2.53E-03
14	0	0	90.5667	2.E-03	295.2	8.49E-04	-1.81E-03
15	0	0	97.5333	1.11E-03	294.7	4.64E-04	-1.01E-03
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	7.48E-05	188.2	-7.4E-05	-1.07E-05
17	-48.6064	-55.1332	7.13333	3.53E-04	188.2	-3.49E-04	-5.04E-05
18	-48.6064	-55.1332	14.2667	5.18E-04	188.3	-5.13E-04	-7.44E-05
19	-48.6064	-55.1332	21.4	6.43E-04	188.3	-6.36E-04	-9.3E-05
20	-48.6064	-55.1332	28.5333	7.35E-04	188.4	-7.28E-04	-1.07E-04
21	-48.6064	-55.1332	35.6667	7.98E-04	188.5	-7.9E-04	-1.18E-04
22	-48.6064	-55.1332	42.8	8.33E-04	188.6	-8.24E-04	-1.24E-04
23	-48.6064	-55.1332	49.9333	8.41E-04	188.7	-8.31E-04	-1.27E-04
24	-48.6064	-55.1332	57.0667	8.22E-04	188.9	-8.12E-04	-1.27E-04
25	-48.6064	-55.1332	64.2	7.78E-04	189.	-7.69E-04	-1.22E-04
26	-48.6064	-55.1332	71.3333	7.1E-04	189.2	-7.01E-04	-1.14E-04
27	-48.6064	-55.1332	78.4667	6.19E-04	189.4	-6.11E-04	-1.01E-04
28	-48.6064	-55.1332	85.6	5.06E-04	189.6	-4.99E-04	-8.47E-05
29	-48.6064	-55.1332	92.7333	3.71E-04	189.9	-3.65E-04	-6.35E-05
30	-48.6064	-55.1332	99.8667	2.12E-04	190.1	-2.08E-04	-3.71E-05
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	1.53E-04	74.5	4.08E-05	1.47E-04
32	-116.746	-137.662	7.3	3.77E-04	74.5	1.01E-04	3.64E-04
33	-116.746	-137.662	14.6	5.11E-04	74.4	1.37E-04	4.92E-04
34	-116.746	-137.662	21.9	6.11E-04	74.3	1.65E-04	5.88E-04
35	-116.746	-137.662	29.2	6.84E-04	74.2	1.86E-04	6.59E-04
36	-116.746	-137.662	36.5	7.33E-04	74.1	2.E-04	7.05E-04
37	-116.746	-137.662	43.8	7.58E-04	74.	2.09E-04	7.29E-04
38	-116.746	-137.662	51.1	7.6E-04	73.9	2.11E-04	7.3E-04
39	-116.746	-137.662	58.4	7.4E-04	73.8	2.07E-04	7.1E-04
40	-116.746	-137.662	65.7	6.98E-04	73.7	1.96E-04	6.7E-04
41	-116.746	-137.662	73.	6.35E-04	73.5	1.8E-04	6.09E-04
42	-116.746	-137.662	80.3	5.53E-04	73.4	1.58E-04	5.3E-04
43	-116.746	-137.662	87.6	4.51E-04	73.2	1.3E-04	4.32E-04

TABLE 3.2 (cont'd)

44	-116.746	-137.662	94.9	3.3E-04	73.1	9.61E-05	3.16E-04
45	-116.746	-137.662	102.2	1.88E-04	72.9	5.53E-05	1.8E-04
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	7.85E-05	262.8	-9.81E-06	-7.79E-05
47	-216.653	-287.509	7.1	2.01E-04	262.8	-2.52E-05	-1.99E-04
48	-216.653	-287.509	14.2	2.73E-04	262.8	-3.45E-05	-2.71E-04
49	-216.653	-287.509	21.3	3.28E-04	262.7	-4.17E-05	-3.25E-04
50	-216.653	-287.509	28.4	3.68E-04	262.6	-4.72E-05	-3.65E-04
51	-216.653	-287.509	35.5	3.95E-04	262.6	-5.12E-05	-3.92E-04
52	-216.653	-287.509	42.6	4.1E-04	262.5	-5.37E-05	-4.06E-04
53	-216.653	-287.509	49.7	4.12E-04	262.4	-5.47E-05	-4.08E-04
54	-216.653	-287.509	56.8	4.02E-04	262.3	-5.42E-05	-3.99E-04
55	-216.653	-287.509	63.9	3.81E-04	262.1	-5.21E-05	-3.77E-04
56	-216.653	-287.509	71.	3.48E-04	262.	-4.84E-05	-3.44E-04
57	-216.653	-287.509	78.1	3.04E-04	261.8	-4.31E-05	-3.01E-04
58	-216.653	-287.509	85.2	2.49E-04	261.7	-3.6E-05	-2.46E-04
59	-216.653	-287.509	92.3	1.83E-04	261.5	-2.7E-05	-1.81E-04
60	-216.653	-287.509	99.4	1.05E-04	261.3	-1.58E-05	-1.04E-04
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	9.83E-05	177.5	-9.82E-05	4.27E-06
62	-268.951	-356.91	7.06667	2.07E-04	177.5	-2.07E-04	9.05E-06
63	-268.951	-356.91	14.1333	2.71E-04	177.5	-2.71E-04	1.2E-05
64	-268.951	-356.91	21.2	3.19E-04	177.4	-3.18E-04	1.44E-05
65	-268.951	-356.91	28.2667	3.54E-04	177.4	-3.53E-04	1.63E-05
66	-268.951	-356.91	35.3333	3.76E-04	177.3	-3.76E-04	1.77E-05
67	-268.951	-356.91	42.4	3.88E-04	177.2	-3.87E-04	1.87E-05
68	-268.951	-356.91	49.4667	3.88E-04	177.2	-3.88E-04	1.92E-05
69	-268.951	-356.91	56.5333	3.77E-04	177.1	-3.77E-04	1.92E-05
70	-268.951	-356.91	63.6	3.56E-04	177.	-3.56E-04	1.86E-05
71	-268.951	-356.91	70.6667	3.24E-04	176.9	-3.24E-04	1.75E-05
72	-268.951	-356.91	77.7333	2.83E-04	176.8	-2.82E-04	1.57E-05
73	-268.951	-356.91	84.8	2.31E-04	176.7	-2.31E-04	1.33E-05
74	-268.951	-356.91	91.8667	1.7E-04	176.6	-1.69E-04	1.01E-05
75	-268.951	-356.91	98.9333	9.71E-05	176.5	-9.7E-05	5.98E-06
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	4.31E-05	77.1	9.62E-06	4.2E-05
77	-324.98	-431.263	7.36667	1.61E-04	77.1	3.6E-05	1.57E-04
78	-324.98	-431.263	14.7333	2.31E-04	77.	5.19E-05	2.26E-04
79	-324.98	-431.263	22.1	2.86E-04	77.	6.42E-05	2.78E-04
80	-324.98	-431.263	29.4667	3.26E-04	77.	7.36E-05	3.18E-04
81	-324.98	-431.263	36.8333	3.54E-04	76.9	8.02E-05	3.45E-04
82	-324.98	-431.263	44.2	3.7E-04	76.9	8.41E-05	3.6E-04
83	-324.98	-431.263	51.5667	3.74E-04	76.8	8.54E-05	3.65E-04
84	-324.98	-431.263	58.9333	3.67E-04	76.8	8.41E-05	3.58E-04
85	-324.98	-431.263	66.3	3.49E-04	76.7	8.02E-05	3.4E-04
86	-324.98	-431.263	73.6667	3.2E-04	76.7	7.38E-05	3.11E-04
87	-324.98	-431.263	81.0333	2.8E-04	76.6	6.49E-05	2.72E-04
88	-324.98	-431.263	88.4	2.29E-04	76.5	5.34E-05	2.23E-04
89	-324.98	-431.263	95.7667	1.69E-04	76.5	3.95E-05	1.64E-04
90	-324.98	-431.263	103.133	9.67E-05	76.4	2.28E-05	9.4E-05
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.3

WVIE NIGHTTIME
TOWER 1 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 64.80 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1161.70 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 75.11, 93.86 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-20800.00
2		GROUND	88.46	95.89
1		2	0.00	64.80

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.406	13.86
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.518E-02	-0.557E-02	0.761E-02	312.94
OUTPUT CURRENT I2 (AMPS):	0.520E-02	-0.649E-02	0.832E-02	308.67
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	89.84	161.55	184.85	60.92

TABLE 3.4

WVIE NIGHTTIME
TOWER 2 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	16	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,100.1	0	0	0
2	31	0	-1,771.	0	0	0
3	46	0	-1,905.6	0	0	0
4	61	0	-1,357.1	0	0	0
5	76	0	-3,263.6	0	0	0

TABLE 3.4 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 16, sector 1							
1.37	69.713	111.75	131.71	58.	5.5129	-3.1864	-2.8411

CURRENT rms
Frequency = 1.37 MHz
Input power = .00200922 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	2.99E-04	178.1	-2.99E-04	9.87E-06
2	0	0	6.96667	5.65E-04	178.1	-5.64E-04	1.86E-05
3	0	0	13.9333	7.18E-04	178.1	-7.18E-04	2.35E-05
4	0	0	20.9	8.31E-04	178.1	-8.31E-04	2.69E-05
5	0	0	27.8667	9.11E-04	178.2	-9.11E-04	2.9E-05
6	0	0	34.8333	9.61E-04	178.2	-9.6E-04	2.99E-05
7	0	0	41.8	9.81E-04	178.3	-9.81E-04	2.97E-05
8	0	0	48.7667	9.74E-04	178.3	-9.74E-04	2.82E-05
9	0	0	55.7333	9.4E-04	178.4	-9.4E-04	2.58E-05
10	0	0	62.7	8.81E-04	178.5	-8.81E-04	2.26E-05
11	0	0	69.6667	7.97E-04	178.7	-7.97E-04	1.87E-05
12	0	0	76.6333	6.9E-04	178.8	-6.9E-04	1.45E-05
13	0	0	83.6	5.61E-04	179.	-5.61E-04	1.02E-05
14	0	0	90.5667	4.09E-04	179.1	-4.09E-04	6.22E-06
15	0	0	97.5333	2.32E-04	179.3	-2.32E-04	2.79E-06
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	5.37E-03	302.	2.84E-03	-4.55E-03
17	-48.6064	-55.1332	7.13333	5.84E-03	298.9	2.83E-03	-5.11E-03
18	-48.6064	-55.1332	14.2667	6.06E-03	297.3	2.78E-03	-5.39E-03
19	-48.6064	-55.1332	21.4	6.16E-03	296.1	2.7E-03	-5.53E-03
20	-48.6064	-55.1332	28.5333	6.14E-03	295.	2.6E-03	-5.56E-03
21	-48.6064	-55.1332	35.6667	6.02E-03	294.2	2.47E-03	-5.49E-03
22	-48.6064	-55.1332	42.8	5.8E-03	293.4	2.31E-03	-5.32E-03
23	-48.6064	-55.1332	49.9333	5.49E-03	292.8	2.13E-03	-5.06E-03
24	-48.6064	-55.1332	57.0667	5.09E-03	292.2	1.92E-03	-4.71E-03
25	-48.6064	-55.1332	64.2	4.6E-03	291.7	1.7E-03	-4.27E-03
26	-48.6064	-55.1332	71.3333	4.03E-03	291.2	1.46E-03	-3.76E-03
27	-48.6064	-55.1332	78.4667	3.39E-03	290.7	1.2E-03	-3.17E-03
28	-48.6064	-55.1332	85.6	2.68E-03	290.3	9.29E-04	-2.52E-03
29	-48.6064	-55.1332	92.7333	1.91E-03	289.8	6.48E-04	-1.8E-03
30	-48.6064	-55.1332	99.8667	1.06E-03	289.4	3.53E-04	-1.E-03
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	1.59E-04	141.8	-1.25E-04	9.85E-05
32	-116.746	-137.662	7.3	3.94E-04	141.8	-3.1E-04	2.43E-04
33	-116.746	-137.662	14.6	5.32E-04	141.8	-4.18E-04	3.29E-04
34	-116.746	-137.662	21.9	6.36E-04	141.8	-5.E-04	3.93E-04
35	-116.746	-137.662	29.2	7.11E-04	141.8	-5.59E-04	4.4E-04
36	-116.746	-137.662	36.5	7.61E-04	141.8	-5.97E-04	4.71E-04
37	-116.746	-137.662	43.8	7.85E-04	141.7	-6.16E-04	4.86E-04
38	-116.746	-137.662	51.1	7.86E-04	141.7	-6.16E-04	4.87E-04
39	-116.746	-137.662	58.4	7.63E-04	141.7	-5.99E-04	4.73E-04
40	-116.746	-137.662	65.7	7.18E-04	141.6	-5.63E-04	4.46E-04
41	-116.746	-137.662	73.	6.52E-04	141.6	-5.11E-04	4.05E-04
42	-116.746	-137.662	80.3	5.66E-04	141.6	-4.43E-04	3.52E-04
43	-116.746	-137.662	87.6	4.6E-04	141.6	-3.61E-04	2.86E-04

TABLE 3.4 (cont'd)

44	-116.746	-137.662	94.9	3.36E-04	141.5	-2.63E-04	2.09E-04
45	-116.746	-137.662	102.2	1.91E-04	141.5	-1.49E-04	1.19E-04
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	7.25E-05	332.1	6.41E-05	-3.39E-05
47	-216.653	-287.509	7.1	1.86E-04	332.1	1.64E-04	-8.69E-05
48	-216.653	-287.509	14.2	2.52E-04	332.	2.23E-04	-1.18E-04
49	-216.653	-287.509	21.3	3.03E-04	332.	2.67E-04	-1.42E-04
50	-216.653	-287.509	28.4	3.4E-04	331.9	3.E-04	-1.6E-04
51	-216.653	-287.509	35.5	3.65E-04	331.8	3.21E-04	-1.72E-04
52	-216.653	-287.509	42.6	3.78E-04	331.7	3.33E-04	-1.79E-04
53	-216.653	-287.509	49.7	3.8E-04	331.6	3.34E-04	-1.81E-04
54	-216.653	-287.509	56.8	3.7E-04	331.4	3.25E-04	-1.77E-04
55	-216.653	-287.509	63.9	3.5E-04	331.3	3.07E-04	-1.68E-04
56	-216.653	-287.509	71.	3.2E-04	331.1	2.8E-04	-1.54E-04
57	-216.653	-287.509	78.1	2.79E-04	330.9	2.44E-04	-1.36E-04
58	-216.653	-287.509	85.2	2.28E-04	330.8	1.99E-04	-1.12E-04
59	-216.653	-287.509	92.3	1.68E-04	330.6	1.46E-04	-8.25E-05
60	-216.653	-287.509	99.4	9.61E-05	330.3	8.35E-05	-4.76E-05
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	8.82E-05	247.	-3.45E-05	-8.12E-05
62	-268.951	-356.91	7.06667	1.86E-04	247.	-7.26E-05	-1.71E-04
63	-268.951	-356.91	14.1333	2.43E-04	246.9	-9.52E-05	-2.24E-04
64	-268.951	-356.91	21.2	2.86E-04	246.9	-1.12E-04	-2.63E-04
65	-268.951	-356.91	28.2667	3.17E-04	246.8	-1.25E-04	-2.91E-04
66	-268.951	-356.91	35.3333	3.37E-04	246.7	-1.33E-04	-3.1E-04
67	-268.951	-356.91	42.4	3.48E-04	246.7	-1.38E-04	-3.19E-04
68	-268.951	-356.91	49.4667	3.48E-04	246.6	-1.38E-04	-3.19E-04
69	-268.951	-356.91	56.5333	3.38E-04	246.5	-1.35E-04	-3.1E-04
70	-268.951	-356.91	63.6	3.19E-04	246.4	-1.28E-04	-2.92E-04
71	-268.951	-356.91	70.6667	2.9E-04	246.3	-1.17E-04	-2.66E-04
72	-268.951	-356.91	77.7333	2.53E-04	246.2	-1.02E-04	-2.31E-04
73	-268.951	-356.91	84.8	2.07E-04	246.	-8.4E-05	-1.89E-04
74	-268.951	-356.91	91.8667	1.52E-04	245.9	-6.2E-05	-1.39E-04
75	-268.951	-356.91	98.9333	8.68E-05	245.7	-3.57E-05	-7.92E-05
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	3.77E-05	146.8	-3.16E-05	2.06E-04
77	-324.98	-431.263	7.36667	1.41E-04	146.8	-1.18E-04	7.71E-05
78	-324.98	-431.263	14.7333	2.03E-04	146.8	-1.7E-04	1.11E-04
79	-324.98	-431.263	22.1	2.5E-04	146.7	-2.09E-04	1.37E-04
80	-324.98	-431.263	29.4667	2.86E-04	146.7	-2.39E-04	1.57E-04
81	-324.98	-431.263	36.8333	3.1E-04	146.6	-2.59E-04	1.71E-04
82	-324.98	-431.263	44.2	3.24E-04	146.6	-2.71E-04	1.79E-04
83	-324.98	-431.263	51.5667	3.28E-04	146.5	-2.74E-04	1.81E-04
84	-324.98	-431.263	58.9333	3.22E-04	146.5	-2.68E-04	1.78E-04
85	-324.98	-431.263	66.3	3.06E-04	146.4	-2.54E-04	1.69E-04
86	-324.98	-431.263	73.6667	2.8E-04	146.3	-2.33E-04	1.55E-04
87	-324.98	-431.263	81.0333	2.45E-04	146.2	-2.04E-04	1.36E-04
88	-324.98	-431.263	88.4	2.01E-04	146.2	-1.67E-04	1.12E-04
89	-324.98	-431.263	95.7667	1.48E-04	146.1	-1.23E-04	8.24E-05
90	-324.98	-431.263	103.133	8.46E-05	146.	-7.01E-05	4.73E-05
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.5

WVIE NIGHTTIME
TOWER 2 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 43.50 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -5808.60 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 69.71, 111.75 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-20800.00
2	GROUND	72.46	113.06
1	2	0.00	43.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.285	7.82
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.401E-02	-0.621E-02	0.739E-02	302.86
OUTPUT CURRENT I2 (AMPS):	0.402E-02	-0.644E-02	0.759E-02	301.96
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	73.56	157.48	173.82	64.96

TABLE 3.6

WVIE NIGHTTIME
TOWER 3 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	31	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,100.1	0	0	0
2	16	0	-4,538.5	0	0	0
3	46	0	-1,905.6	0	0	0
4	61	0	-1,357.1	0	0	0
5	76	0	-3,263.6	0	0	0

TABLE 3.6 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 31, sector 1							
1.37	96.514	130.03	161.93	53.4	5.7789	-3.0366	-2.9841

CURRENT rms
Frequency = 1.37 MHz
Input power = .0018403 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	1.85E-04	71.5	5.86E-05	1.75E-04
2	0	0	6.96667	3.48E-04	71.5	1.11E-04	3.3E-04
3	0	0	13.9333	4.44E-04	71.4	1.41E-04	4.21E-04
4	0	0	20.9	5.14E-04	71.3	1.65E-04	4.87E-04
5	0	0	27.8667	5.64E-04	71.2	1.81E-04	5.34E-04
6	0	0	34.8333	5.96E-04	71.1	1.93E-04	5.64E-04
7	0	0	41.8	6.1E-04	71.	1.98E-04	5.76E-04
8	0	0	48.7667	6.06E-04	70.9	1.98E-04	5.73E-04
9	0	0	55.7333	5.87E-04	70.8	1.93E-04	5.54E-04
10	0	0	62.7	5.51E-04	70.7	1.82E-04	5.2E-04
11	0	0	69.6667	5.E-04	70.5	1.67E-04	4.71E-04
12	0	0	76.6333	4.34E-04	70.4	1.45E-04	4.09E-04
13	0	0	83.6	3.54E-04	70.3	1.19E-04	3.33E-04
14	0	0	90.5667	2.59E-04	70.2	8.77E-05	2.43E-04
15	0	0	97.5333	1.47E-04	70.	5.04E-05	1.39E-04
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	4.81E-05	148.9	-4.12E-05	2.48E-05
17	-48.6064	-55.1332	7.13333	2.27E-04	148.9	-1.95E-04	1.17E-04
18	-48.6064	-55.1332	14.2667	3.34E-04	148.9	-2.86E-04	1.72E-04
19	-48.6064	-55.1332	21.4	4.15E-04	148.9	-3.55E-04	2.14E-04
20	-48.6064	-55.1332	28.5333	4.74E-04	148.9	-4.06E-04	2.45E-04
21	-48.6064	-55.1332	35.6667	5.15E-04	148.8	-4.41E-04	2.67E-04
22	-48.6064	-55.1332	42.8	5.38E-04	148.8	-4.6E-04	2.79E-04
23	-48.6064	-55.1332	49.9333	5.43E-04	148.8	-4.64E-04	2.82E-04
24	-48.6064	-55.1332	57.0667	5.32E-04	148.7	-4.54E-04	2.76E-04
25	-48.6064	-55.1332	64.2	5.04E-04	148.7	-4.3E-04	2.62E-04
26	-48.6064	-55.1332	71.3333	4.6E-04	148.6	-3.93E-04	2.4E-04
27	-48.6064	-55.1332	78.4667	4.01E-04	148.5	-3.42E-04	2.09E-04
28	-48.6064	-55.1332	85.6	3.28E-04	148.5	-2.8E-04	1.72E-04
29	-48.6064	-55.1332	92.7333	2.4E-04	148.4	-2.05E-04	1.26E-04
30	-48.6064	-55.1332	99.8667	1.37E-04	148.3	-1.17E-04	7.22E-05
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	4.37E-03	306.6	2.6E-03	-3.51E-03
32	-116.746	-137.662	7.3	4.83E-03	302.4	2.59E-03	-4.08E-03
33	-116.746	-137.662	14.6	5.06E-03	300.2	2.55E-03	-4.37E-03
34	-116.746	-137.662	21.9	5.18E-03	298.5	2.47E-03	-4.55E-03
35	-116.746	-137.662	29.2	5.2E-03	297.2	2.38E-03	-4.63E-03
36	-116.746	-137.662	36.5	5.13E-03	296.1	2.25E-03	-4.61E-03
37	-116.746	-137.662	43.8	4.96E-03	295.1	2.11E-03	-4.49E-03
38	-116.746	-137.662	51.1	4.71E-03	294.3	1.94E-03	-4.3E-03
39	-116.746	-137.662	58.4	4.38E-03	293.5	1.75E-03	-4.02E-03
40	-116.746	-137.662	65.7	3.97E-03	292.8	1.54E-03	-3.66E-03
41	-116.746	-137.662	73.	3.49E-03	292.2	1.32E-03	-3.23E-03
42	-116.746	-137.662	80.3	2.94E-03	291.6	1.09E-03	-2.74E-03
43	-116.746	-137.662	87.6	2.33E-03	291.1	8.4E-04	-2.18E-03

TABLE 3.6 (cont'd)

44	-116.746	-137.662	94.9	1.66E-03	290.6	5.85E-04	-1.56E-03
45	-116.746	-137.662	102.2	9.24E-04	290.1	3.17E-04	-8.68E-04
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	9.28E-05	83.	1.13E-05	9.22E-05
47	-216.653	-287.509	7.1	2.37E-04	83.	2.91E-05	2.36E-04
48	-216.653	-287.509	14.2	3.23E-04	82.9	3.99E-05	3.2E-04
49	-216.653	-287.509	21.3	3.87E-04	82.8	4.83E-05	3.84E-04
50	-216.653	-287.509	28.4	4.34E-04	82.7	5.48E-05	4.3E-04
51	-216.653	-287.509	35.5	4.65E-04	82.6	5.96E-05	4.61E-04
52	-216.653	-287.509	42.6	4.81E-04	82.5	6.26E-05	4.77E-04
53	-216.653	-287.509	49.7	4.83E-04	82.4	6.38E-05	4.79E-04
54	-216.653	-287.509	56.8	4.7E-04	82.3	6.33E-05	4.66E-04
55	-216.653	-287.509	63.9	4.44E-04	82.1	6.09E-05	4.4E-04
56	-216.653	-287.509	71.	4.05E-04	82.	5.66E-05	4.01E-04
57	-216.653	-287.509	78.1	3.53E-04	81.8	5.04E-05	3.49E-04
58	-216.653	-287.509	85.2	2.88E-04	81.6	4.21E-05	2.85E-04
59	-216.653	-287.509	92.3	2.11E-04	81.4	3.16E-05	2.09E-04
60	-216.653	-287.509	99.4	1.21E-04	81.2	1.85E-05	1.19E-04
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	1.07E-04	358.5	1.07E-04	-2.83E-06
62	-268.951	-356.91	7.06667	2.26E-04	358.5	2.26E-04	-6.06E-06
63	-268.951	-356.91	14.1333	2.95E-04	358.4	2.95E-04	-8.19E-06
64	-268.951	-356.91	21.2	3.47E-04	358.3	3.47E-04	-1.E-05
65	-268.951	-356.91	28.2667	3.85E-04	358.3	3.85E-04	-1.17E-05
66	-268.951	-356.91	35.3333	4.1E-04	358.2	4.09E-04	-1.31E-05
67	-268.951	-356.91	42.4	4.22E-04	358.1	4.21E-04	-1.42E-05
68	-268.951	-356.91	49.4667	4.22E-04	358.	4.21E-04	-1.49E-05
69	-268.951	-356.91	56.5333	4.1E-04	357.9	4.09E-04	-1.53E-05
70	-268.951	-356.91	63.6	3.86E-04	357.7	3.86E-04	-1.53E-05
71	-268.951	-356.91	70.6667	3.51E-04	357.6	3.51E-04	-1.47E-05
72	-268.951	-356.91	77.7333	3.06E-04	357.5	3.06E-04	-1.36E-05
73	-268.951	-356.91	84.8	2.5E-04	357.3	2.5E-04	-1.17E-05
74	-268.951	-356.91	91.8667	1.83E-04	357.1	1.83E-04	-9.11E-06
75	-268.951	-356.91	98.9333	1.05E-04	357.	1.05E-04	-5.53E-06
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	4.41E-05	258.9	-8.51E-06	-4.33E-05
77	-324.98	-431.263	7.36667	1.65E-04	258.9	-3.19E-05	-1.62E-04
78	-324.98	-431.263	14.7333	2.37E-04	258.8	-4.61E-05	-2.33E-04
79	-324.98	-431.263	22.1	2.93E-04	258.7	-5.71E-05	-2.87E-04
80	-324.98	-431.263	29.4667	3.34E-04	258.7	-6.55E-05	-3.27E-04
81	-324.98	-431.263	36.8333	3.63E-04	258.6	-7.16E-05	-3.55E-04
82	-324.98	-431.263	44.2	3.79E-04	258.5	-7.53E-05	-3.71E-04
83	-324.98	-431.263	51.5667	3.83E-04	258.5	-7.67E-05	-3.75E-04
84	-324.98	-431.263	58.9333	3.76E-04	258.4	-7.58E-05	-3.68E-04
85	-324.98	-431.263	66.3	3.57E-04	258.3	-7.25E-05	-3.49E-04
86	-324.98	-431.263	73.6667	3.27E-04	258.2	-6.69E-05	-3.2E-04
87	-324.98	-431.263	81.0333	2.86E-04	258.1	-5.9E-05	-2.8E-04
88	-324.98	-431.263	88.4	2.34E-04	258.	-4.88E-05	-2.29E-04
89	-324.98	-431.263	95.7667	1.72E-04	257.9	-3.62E-05	-1.68E-04
90	-324.98	-431.263	103.133	9.86E-05	257.7	-2.09E-05	-9.64E-05
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.7

WVIE NIGHTTIME
TOWER 3 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 41.00 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1936.20 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 96.51, 130.03 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-20800.00
2	GROUND	110.59	133.48
1	2	0.00	41.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.192	7.27
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.367E-02	-0.439E-02	0.572E-02	309.95
OUTPUT CURRENT I2 (AMPS):	0.368E-02	-0.496E-02	0.618E-02	306.58
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	112.47	175.35	208.32	57.33

TABLE 3.8

WVIE NIGHTTIME
TOWER 4 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	46	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,100.1	0	0	0
2	16	0	-4,538.5	0	0	0
3	31	0	-1,771.	0	0	0
4	61	0	-1,357.1	0	0	0
5	76	0	-3,263.6	0	0	0

TABLE 3.8 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 46, sector 1							
1.37	82.101	109.93	137.21	53.2	4.9948	-3.5256	-2.5497

CURRENT rms
Frequency = 1.37 MHz
Input power = .00218053 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	1.23E-04	259.3	-2.28E-05	-1.2E-04
2	0	0	6.96667	2.31E-04	259.2	-4.32E-05	-2.27E-04
3	0	0	13.9333	2.95E-04	259.2	-5.53E-05	-2.89E-04
4	0	0	20.9	3.42E-04	259.1	-6.45E-05	-3.36E-04
5	0	0	27.8667	3.75E-04	259.1	-7.13E-05	-3.68E-04
6	0	0	34.8333	3.97E-04	259.	-7.59E-05	-3.89E-04
7	0	0	41.8	4.07E-04	258.9	-7.83E-05	-3.99E-04
8	0	0	48.7667	4.05E-04	258.8	-7.86E-05	-3.97E-04
9	0	0	55.7333	3.93E-04	258.7	-7.67E-05	-3.85E-04
10	0	0	62.7	3.69E-04	258.6	-7.27E-05	-3.62E-04
11	0	0	69.6667	3.36E-04	258.6	-6.66E-05	-3.29E-04
12	0	0	76.6333	2.92E-04	258.5	-5.84E-05	-2.86E-04
13	0	0	83.6	2.38E-04	258.4	-4.8E-05	-2.33E-04
14	0	0	90.5667	1.75E-04	258.3	-3.55E-05	-1.71E-04
15	0	0	97.5333	9.99E-05	258.2	-2.05E-05	-9.78E-05
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	2.83E-05	338.6	2.63E-05	-1.03E-05
17	-48.6064	-55.1332	7.13333	1.34E-04	338.6	1.24E-04	-4.88E-05
18	-48.6064	-55.1332	14.2667	1.97E-04	338.5	1.83E-04	-7.2E-05
19	-48.6064	-55.1332	21.4	2.45E-04	338.5	2.28E-04	-8.98E-05
20	-48.6064	-55.1332	28.5333	2.81E-04	338.4	2.61E-04	-1.03E-04
21	-48.6064	-55.1332	35.6667	3.06E-04	338.3	2.84E-04	-1.13E-04
22	-48.6064	-55.1332	42.8	3.21E-04	338.2	2.98E-04	-1.19E-04
23	-48.6064	-55.1332	49.9333	3.25E-04	338.	3.01E-04	-1.21E-04
24	-48.6064	-55.1332	57.0667	3.19E-04	337.9	2.96E-04	-1.2E-04
25	-48.6064	-55.1332	64.2	3.04E-04	337.7	2.81E-04	-1.15E-04
26	-48.6064	-55.1332	71.3333	2.79E-04	337.6	2.58E-04	-1.06E-04
27	-48.6064	-55.1332	78.4667	2.44E-04	337.4	2.25E-04	-9.39E-05
28	-48.6064	-55.1332	85.6	2.01E-04	337.2	1.85E-04	-7.79E-05
29	-48.6064	-55.1332	92.7333	1.48E-04	336.9	1.36E-04	-5.79E-05
30	-48.6064	-55.1332	99.8667	8.49E-05	336.7	7.8E-05	-3.36E-05
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	1.2E-04	82.4	1.58E-05	1.19E-04
32	-116.746	-137.662	7.3	2.96E-04	82.4	3.93E-05	2.93E-04
33	-116.746	-137.662	14.6	4.01E-04	82.3	5.36E-05	3.97E-04
34	-116.746	-137.662	21.9	4.79E-04	82.2	6.48E-05	4.75E-04
35	-116.746	-137.662	29.2	5.37E-04	82.1	7.34E-05	5.32E-04
36	-116.746	-137.662	36.5	5.75E-04	82.	7.96E-05	5.69E-04
37	-116.746	-137.662	43.8	5.94E-04	81.9	8.34E-05	5.88E-04
38	-116.746	-137.662	51.1	5.96E-04	81.8	8.49E-05	5.9E-04
39	-116.746	-137.662	58.4	5.8E-04	81.7	8.39E-05	5.74E-04
40	-116.746	-137.662	65.7	5.47E-04	81.5	8.05E-05	5.41E-04
41	-116.746	-137.662	73.	4.98E-04	81.4	7.46E-05	4.92E-04
42	-116.746	-137.662	80.3	4.33E-04	81.2	6.62E-05	4.28E-04
43	-116.746	-137.662	87.6	3.53E-04	81.	5.5E-05	3.49E-04

TABLE 3.8 (cont'd)

44	-116.746	-137.662	94.9	2.58E-04	80.8	4.11E-05	2.55E-04
45	-116.746	-137.662	102.2	1.47E-04	80.6	2.4E-05	1.45E-04
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	5.15E-03	306.8	3.08E-03	-4.13E-03
47	-216.653	-287.509	7.1	5.6E-03	303.2	3.07E-03	-4.69E-03
48	-216.653	-287.509	14.2	5.81E-03	301.3	3.02E-03	-4.97E-03
49	-216.653	-287.509	21.3	5.9E-03	299.8	2.93E-03	-5.12E-03
50	-216.653	-287.509	28.4	5.89E-03	298.6	2.82E-03	-5.17E-03
51	-216.653	-287.509	35.5	5.78E-03	297.6	2.68E-03	-5.12E-03
52	-216.653	-287.509	42.6	5.57E-03	296.7	2.51E-03	-4.97E-03
53	-216.653	-287.509	49.7	5.27E-03	296.	2.31E-03	-4.74E-03
54	-216.653	-287.509	56.8	4.88E-03	295.3	2.08E-03	-4.42E-03
55	-216.653	-287.509	63.9	4.42E-03	294.6	1.84E-03	-4.02E-03
56	-216.653	-287.509	71.	3.87E-03	294.	1.58E-03	-3.54E-03
57	-216.653	-287.509	78.1	3.26E-03	293.5	1.3E-03	-2.99E-03
58	-216.653	-287.509	85.2	2.58E-03	293.	1.01E-03	-2.38E-03
59	-216.653	-287.509	92.3	1.84E-03	292.5	7.04E-04	-1.7E-03
60	-216.653	-287.509	99.4	1.02E-03	292.	3.84E-04	-9.48E-04
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	2.23E-04	169.1	-2.19E-04	4.22E-05
62	-268.951	-356.91	7.06667	4.7E-04	169.1	-4.61E-04	8.88E-05
63	-268.951	-356.91	14.1333	6.14E-04	169.1	-6.03E-04	1.16E-04
64	-268.951	-356.91	21.2	7.21E-04	169.1	-7.08E-04	1.36E-04
65	-268.951	-356.91	28.2667	7.97E-04	169.1	-7.83E-04	1.5E-04
66	-268.951	-356.91	35.3333	8.46E-04	169.2	-8.3E-04	1.59E-04
67	-268.951	-356.91	42.4	8.68E-04	169.2	-8.52E-04	1.63E-04
68	-268.951	-356.91	49.4667	8.65E-04	169.2	-8.5E-04	1.62E-04
69	-268.951	-356.91	56.5333	8.37E-04	169.3	-8.23E-04	1.56E-04
70	-268.951	-356.91	63.6	7.86E-04	169.3	-7.73E-04	1.46E-04
71	-268.951	-356.91	70.6667	7.13E-04	169.3	-7.01E-04	1.32E-04
72	-268.951	-356.91	77.7333	6.18E-04	169.4	-6.07E-04	1.14E-04
73	-268.951	-356.91	84.8	5.02E-04	169.4	-4.94E-04	9.21E-05
74	-268.951	-356.91	91.8667	3.66E-04	169.5	-3.6E-04	6.68E-05
75	-268.951	-356.91	98.9333	2.08E-04	169.5	-2.05E-04	3.78E-05
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	7.85E-05	72.7	2.33E-05	7.49E-05
77	-324.98	-431.263	7.36667	2.93E-04	72.7	8.72E-05	2.8E-04
78	-324.98	-431.263	14.7333	4.21E-04	72.6	1.26E-04	4.02E-04
79	-324.98	-431.263	22.1	5.19E-04	72.5	1.56E-04	4.95E-04
80	-324.98	-431.263	29.4667	5.91E-04	72.4	1.78E-04	5.64E-04
81	-324.98	-431.263	36.8333	6.41E-04	72.3	1.95E-04	6.11E-04
82	-324.98	-431.263	44.2	6.69E-04	72.2	2.04E-04	6.37E-04
83	-324.98	-431.263	51.5667	6.75E-04	72.1	2.07E-04	6.43E-04
84	-324.98	-431.263	58.9333	6.61E-04	72.	2.04E-04	6.29E-04
85	-324.98	-431.263	66.3	6.26E-04	71.9	1.95E-04	5.95E-04
86	-324.98	-431.263	73.6667	5.72E-04	71.7	1.8E-04	5.44E-04
87	-324.98	-431.263	81.0333	5.E-04	71.6	1.58E-04	4.74E-04
88	-324.98	-431.263	88.4	4.09E-04	71.4	1.3E-04	3.87E-04
89	-324.98	-431.263	95.7667	3.E-04	71.3	9.62E-05	2.84E-04
90	-324.98	-431.263	103.133	1.71E-04	71.1	5.54E-05	1.62E-04
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.9

WVIE NIGHTTIME
TOWER 4 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00, 12800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 56.30 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1659.60 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 82.10, 109.93 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	12800.00
2	GROUND	93.90	112.75
1	2	0.00	56.30

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.318	10.74
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.438E-02	-0.534E-02	0.691E-02	309.37
OUTPUT CURRENT I2 (AMPS):	0.436E-02	-0.584E-02	0.729E-02	306.75
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	91.46	167.51	190.85	61.37

TABLE 3.10

WVIE NIGHTTIME
TOWER 5 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	61	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,100.1	0	0	0
2	16	0	-4,538.5	0	0	0
3	31	0	-1,771.	0	0	0
4	46	0	-1,905.6	0	0	0
5	76	0	-3,263.6	0	0	0

TABLE 3.10 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 61, sector 1							
1.37	65.481	104.74	123.53	58.	5.2331	-3.3609	-2.6859

CURRENT rms
Frequency = 1.37 MHz
Input power = .00214562 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	1.19E-04	169.6	-1.17E-04	2.15E-05
2	0	0	6.96667	2.24E-04	169.6	-2.21E-04	4.07E-05
3	0	0	13.9333	2.86E-04	169.5	-2.81E-04	5.2E-05
4	0	0	20.9	3.32E-04	169.5	-3.26E-04	6.06E-05
5	0	0	27.8667	3.64E-04	169.4	-3.58E-04	6.69E-05
6	0	0	34.8333	3.85E-04	169.3	-3.78E-04	7.12E-05
7	0	0	41.8	3.95E-04	169.3	-3.88E-04	7.34E-05
8	0	0	48.7667	3.93E-04	169.2	-3.86E-04	7.36E-05
9	0	0	55.7333	3.81E-04	169.1	-3.74E-04	7.18E-05
10	0	0	62.7	3.59E-04	169.1	-3.52E-04	6.8E-05
11	0	0	69.6667	3.26E-04	169.	-3.2E-04	6.22E-05
12	0	0	76.6333	2.84E-04	168.9	-2.78E-04	5.44E-05
13	0	0	83.6	2.32E-04	168.9	-2.27E-04	4.47E-05
14	0	0	90.5667	1.7E-04	168.8	-1.67E-04	3.3E-05
15	0	0	97.5333	9.71E-05	168.7	-9.53E-05	1.9E-05
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	2.66E-05	249.1	-9.48E-06	-2.49E-05
17	-48.6064	-55.1332	7.13333	1.26E-04	249.1	-4.49E-05	-1.18E-04
18	-48.6064	-55.1332	14.2667	1.85E-04	249.1	-6.62E-05	-1.73E-04
19	-48.6064	-55.1332	21.4	2.31E-04	249.	-8.26E-05	-2.16E-04
20	-48.6064	-55.1332	28.5333	2.65E-04	249.	-9.51E-05	-2.47E-04
21	-48.6064	-55.1332	35.6667	2.89E-04	248.9	-1.04E-04	-2.69E-04
22	-48.6064	-55.1332	42.8	3.03E-04	248.8	-1.09E-04	-2.82E-04
23	-48.6064	-55.1332	49.9333	3.07E-04	248.7	-1.12E-04	-2.86E-04
24	-48.6064	-55.1332	57.0667	3.02E-04	248.6	-1.1E-04	-2.81E-04
25	-48.6064	-55.1332	64.2	2.87E-04	248.4	-1.06E-04	-2.67E-04
26	-48.6064	-55.1332	71.3333	2.64E-04	248.3	-9.75E-05	-2.45E-04
27	-48.6064	-55.1332	78.4667	2.31E-04	248.1	-8.61E-05	-2.15E-04
28	-48.6064	-55.1332	85.6	1.9E-04	248.	-7.14E-05	-1.76E-04
29	-48.6064	-55.1332	92.7333	1.4E-04	247.8	-5.31E-05	-1.3E-04
30	-48.6064	-55.1332	99.8667	8.07E-05	247.6	-3.08E-05	-7.46E-05
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	1.07E-04	353.5	1.07E-04	-1.21E-05
32	-116.746	-137.662	7.3	2.65E-04	353.5	2.63E-04	-2.99E-05
33	-116.746	-137.662	14.6	3.59E-04	353.5	3.57E-04	-4.09E-05
34	-116.746	-137.662	21.9	4.3E-04	353.4	4.27E-04	-4.95E-05
35	-116.746	-137.662	29.2	4.82E-04	353.3	4.78E-04	-5.62E-05
36	-116.746	-137.662	36.5	5.16E-04	353.2	5.13E-04	-6.11E-05
37	-116.746	-137.662	43.8	5.34E-04	353.1	5.3E-04	-6.42E-05
38	-116.746	-137.662	51.1	5.36E-04	353.	5.32E-04	-6.55E-05
39	-116.746	-137.662	58.4	5.23E-04	352.9	5.19E-04	-6.5E-05
40	-116.746	-137.662	65.7	4.94E-04	352.7	4.9E-04	-6.26E-05
41	-116.746	-137.662	73.	4.5E-04	352.6	4.46E-04	-5.82E-05
42	-116.746	-137.662	80.3	3.92E-04	352.4	3.89E-04	-5.18E-05
43	-116.746	-137.662	87.6	3.2E-04	352.2	3.17E-04	-4.33E-05

TABLE 3.10 (cont'd)

44	-116.746	-137.662	94.9	2.35E-04	352.1	2.32E-04	-3.24E-05
45	-116.746	-137.662	102.2	1.34E-04	351.8	1.33E-04	-1.9E-05
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	1.73E-04	164.7	-1.67E-04	4.56E-05
47	-216.653	-287.509	7.1	4.42E-04	164.7	-4.27E-04	1.16E-04
48	-216.653	-287.509	14.2	6.01E-04	164.7	-5.8E-04	1.58E-04
49	-216.653	-287.509	21.3	7.19E-04	164.8	-6.94E-04	1.89E-04
50	-216.653	-287.509	28.4	8.05E-04	164.8	-7.77E-04	2.11E-04
51	-216.653	-287.509	35.5	8.62E-04	164.8	-8.31E-04	2.26E-04
52	-216.653	-287.509	42.6	8.9E-04	164.8	-8.59E-04	2.33E-04
53	-216.653	-287.509	49.7	8.91E-04	164.9	-8.6E-04	2.32E-04
54	-216.653	-287.509	56.8	8.66E-04	164.9	-8.36E-04	2.25E-04
55	-216.653	-287.509	63.9	8.16E-04	165.	-7.88E-04	2.11E-04
56	-216.653	-287.509	71.	7.41E-04	165.	-7.16E-04	1.91E-04
57	-216.653	-287.509	78.1	6.44E-04	165.1	-6.22E-04	1.66E-04
58	-216.653	-287.509	85.2	5.24E-04	165.2	-5.07E-04	1.34E-04
59	-216.653	-287.509	92.3	3.83E-04	165.2	-3.7E-04	9.76E-05
60	-216.653	-287.509	99.4	2.18E-04	165.3	-2.11E-04	5.53E-05
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	5.72E-03	302.	3.03E-03	-4.85E-03
62	-268.951	-356.91	7.06667	6.19E-03	299.2	3.02E-03	-5.41E-03
63	-268.951	-356.91	14.1333	6.4E-03	297.6	2.97E-03	-5.67E-03
64	-268.951	-356.91	21.2	6.49E-03	296.4	2.89E-03	-5.81E-03
65	-268.951	-356.91	28.2667	6.46E-03	295.5	2.78E-03	-5.83E-03
66	-268.951	-356.91	35.3333	6.32E-03	294.7	2.64E-03	-5.74E-03
67	-268.951	-356.91	42.4	6.08E-03	293.9	2.47E-03	-5.56E-03
68	-268.951	-356.91	49.4667	5.75E-03	293.3	2.27E-03	-5.28E-03
69	-268.951	-356.91	56.5333	5.32E-03	292.7	2.06E-03	-4.9E-03
70	-268.951	-356.91	63.6	4.8E-03	292.2	1.82E-03	-4.45E-03
71	-268.951	-356.91	70.6667	4.21E-03	291.7	1.56E-03	-3.91E-03
72	-268.951	-356.91	77.7333	3.54E-03	291.3	1.29E-03	-3.3E-03
73	-268.951	-356.91	84.8	2.8E-03	290.9	9.98E-04	-2.62E-03
74	-268.951	-356.91	91.8667	1.99E-03	290.5	6.97E-04	-1.87E-03
75	-268.951	-356.91	98.9333	1.11E-03	290.1	3.8E-04	-1.04E-03
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	9.25E-05	159.7	-8.68E-05	3.2E-05
77	-324.98	-431.263	7.36667	3.45E-04	159.8	-3.24E-04	1.19E-04
78	-324.98	-431.263	14.7333	4.95E-04	159.8	-4.65E-04	1.71E-04
79	-324.98	-431.263	22.1	6.09E-04	159.8	-5.72E-04	2.11E-04
80	-324.98	-431.263	29.4667	6.93E-04	159.8	-6.5E-04	2.39E-04
81	-324.98	-431.263	36.8333	7.49E-04	159.8	-7.03E-04	2.58E-04
82	-324.98	-431.263	44.2	7.8E-04	159.9	-7.32E-04	2.68E-04
83	-324.98	-431.263	51.5667	7.85E-04	159.9	-7.37E-04	2.7E-04
84	-324.98	-431.263	58.9333	7.66E-04	159.9	-7.19E-04	2.63E-04
85	-324.98	-431.263	66.3	7.24E-04	160.	-6.8E-04	2.48E-04
86	-324.98	-431.263	73.6667	6.59E-04	160.1	-6.19E-04	2.25E-04
87	-324.98	-431.263	81.0333	5.73E-04	160.1	-5.39E-04	1.95E-04
88	-324.98	-431.263	88.4	4.67E-04	160.2	-4.39E-04	1.58E-04
89	-324.98	-431.263	95.7667	3.41E-04	160.2	-3.21E-04	1.15E-04
90	-324.98	-431.263	103.133	1.94E-04	160.3	-1.83E-04	6.54E-05
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.11

WVIE NIGHTTIME
TOWER 5 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 50.50 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1452.10 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 65.48, 104.74 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-20800.00
2	GROUND	75.88	109.19
1	2	0.00	50.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.330	9.38
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.428E-02	-0.611E-02	0.746E-02	305.01
OUTPUT CURRENT I2 (AMPS):	0.429E-02	-0.686E-02	0.810E-02	302.01
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	77.05	160.65	178.17	64.38

TABLE 3.12

WVIE NIGHTTIME
TOWER 6 MoM SUMMARY
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	76	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-1,100.1	0	0	0
2	16	0	-4,538.5	0	0	0
3	31	0	-1,771.	0	0	0
4	46	0	-1,905.6	0	0	0
5	61	0	-1,357.1	0	0	0

TABLE 3.12 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 76, sector 1							
1.37	96.383	135.09	165.95	54.5	6.0683	-2.8891	-3.135

CURRENT rms
Frequency = 1.37 MHz
Input power = .00175 watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	9.68E-05	71.4	3.08E-05	9.17E-05
2	0	0	6.96667	1.83E-04	71.4	5.82E-05	1.73E-04
3	0	0	13.9333	2.33E-04	71.4	7.43E-05	2.21E-04
4	0	0	20.9	2.7E-04	71.3	8.64E-05	2.56E-04
5	0	0	27.8667	2.97E-04	71.3	9.52E-05	2.81E-04
6	0	0	34.8333	3.14E-04	71.2	1.01E-04	2.97E-04
7	0	0	41.8	3.21E-04	71.2	1.04E-04	3.04E-04
8	0	0	48.7667	3.2E-04	71.1	1.04E-04	3.03E-04
9	0	0	55.7333	3.1E-04	71.1	1.01E-04	2.94E-04
10	0	0	62.7	2.92E-04	71.	9.51E-05	2.76E-04
11	0	0	69.6667	2.66E-04	71.	8.67E-05	2.51E-04
12	0	0	76.6333	2.31E-04	70.9	7.56E-05	2.18E-04
13	0	0	83.6	1.89E-04	70.9	6.19E-05	1.78E-04
14	0	0	90.5667	1.38E-04	70.8	4.55E-05	1.31E-04
15	0	0	97.5333	7.92E-05	70.7	2.61E-05	7.48E-05
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	2.12E-05	151.3	-1.86E-05	1.02E-05
17	-48.6064	-55.1332	7.13333	1.E-04	151.2	-8.78E-05	4.82E-05
18	-48.6064	-55.1332	14.2667	1.47E-04	151.2	-1.29E-04	7.1E-05
19	-48.6064	-55.1332	21.4	1.84E-04	151.2	-1.61E-04	8.85E-05
20	-48.6064	-55.1332	28.5333	2.11E-04	151.1	-1.85E-04	1.02E-04
21	-48.6064	-55.1332	35.6667	2.3E-04	151.1	-2.01E-04	1.11E-04
22	-48.6064	-55.1332	42.8	2.41E-04	151.	-2.11E-04	1.17E-04
23	-48.6064	-55.1332	49.9333	2.44E-04	150.9	-2.14E-04	1.19E-04
24	-48.6064	-55.1332	57.0667	2.4E-04	150.8	-2.1E-04	1.17E-04
25	-48.6064	-55.1332	64.2	2.29E-04	150.7	-2.E-04	1.12E-04
26	-48.6064	-55.1332	71.3333	2.1E-04	150.6	-1.83E-04	1.03E-04
27	-48.6064	-55.1332	78.4667	1.85E-04	150.5	-1.61E-04	9.09E-05
28	-48.6064	-55.1332	85.6	1.52E-04	150.3	-1.32E-04	7.51E-05
29	-48.6064	-55.1332	92.7333	1.12E-04	150.2	-9.72E-05	5.57E-05
30	-48.6064	-55.1332	99.8667	6.44E-05	150.	-5.58E-05	3.22E-05
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	8.2E-05	256.2	-1.96E-05	-7.96E-05
32	-116.746	-137.662	7.3	2.03E-04	256.2	-4.84E-05	-1.97E-04
33	-116.746	-137.662	14.6	2.75E-04	256.1	-6.58E-05	-2.67E-04
34	-116.746	-137.662	21.9	3.29E-04	256.1	-7.91E-05	-3.19E-04
35	-116.746	-137.662	29.2	3.69E-04	256.	-8.91E-05	-3.58E-04
36	-116.746	-137.662	36.5	3.96E-04	255.9	-9.61E-05	-3.84E-04
37	-116.746	-137.662	43.8	4.1E-04	255.9	-1.E-04	-3.97E-04
38	-116.746	-137.662	51.1	4.12E-04	255.8	-1.01E-04	-3.99E-04
39	-116.746	-137.662	58.4	4.01E-04	255.7	-9.94E-05	-3.89E-04
40	-116.746	-137.662	65.7	3.79E-04	255.5	-9.47E-05	-3.67E-04
41	-116.746	-137.662	73.	3.46E-04	255.4	-8.71E-05	-3.35E-04
42	-116.746	-137.662	80.3	3.02E-04	255.3	-7.66E-05	-2.92E-04
43	-116.746	-137.662	87.6	2.47E-04	255.2	-6.32E-05	-2.39E-04

TABLE 3.12 (cont'd)

44	-116.746	-137.662	94.9	1.81E-04	255.	-4.68E-05	-1.75E-04
45	-116.746	-137.662	102.2	1.03E-04	254.8	-2.71E-05	-9.98E-05
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	1.13E-04	70.6	3.75E-05	1.07E-04
47	-216.653	-287.509	7.1	2.89E-04	70.6	9.6E-05	2.73E-04
48	-216.653	-287.509	14.2	3.93E-04	70.5	1.31E-04	3.7E-04
49	-216.653	-287.509	21.3	4.71E-04	70.5	1.58E-04	4.44E-04
50	-216.653	-287.509	28.4	5.28E-04	70.4	1.77E-04	4.97E-04
51	-216.653	-287.509	35.5	5.66E-04	70.3	1.91E-04	5.33E-04
52	-216.653	-287.509	42.6	5.86E-04	70.2	1.99E-04	5.51E-04
53	-216.653	-287.509	49.7	5.88E-04	70.1	2.E-04	5.53E-04
54	-216.653	-287.509	56.8	5.73E-04	70.	1.96E-04	5.38E-04
55	-216.653	-287.509	63.9	5.41E-04	69.8	1.86E-04	5.08E-04
56	-216.653	-287.509	71.	4.93E-04	69.7	1.71E-04	4.63E-04
57	-216.653	-287.509	78.1	4.3E-04	69.6	1.5E-04	4.03E-04
58	-216.653	-287.509	85.2	3.51E-04	69.5	1.23E-04	3.29E-04
59	-216.653	-287.509	92.3	2.57E-04	69.3	9.09E-05	2.41E-04
60	-216.653	-287.509	99.4	1.47E-04	69.2	5.23E-05	1.37E-04
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	1.72E-04	162.	-1.64E-04	5.31E-05
62	-268.951	-356.91	7.06667	3.62E-04	162.	-3.44E-04	1.12E-04
63	-268.951	-356.91	14.1333	4.72E-04	162.	-4.49E-04	1.46E-04
64	-268.951	-356.91	21.2	5.55E-04	162.	-5.28E-04	1.71E-04
65	-268.951	-356.91	28.2667	6.13E-04	162.	-5.83E-04	1.89E-04
66	-268.951	-356.91	35.3333	6.51E-04	162.	-6.19E-04	2.01E-04
67	-268.951	-356.91	42.4	6.68E-04	162.	-6.35E-04	2.06E-04
68	-268.951	-356.91	49.4667	6.66E-04	162.	-6.33E-04	2.06E-04
69	-268.951	-356.91	56.5333	6.45E-04	162.	-6.13E-04	1.99E-04
70	-268.951	-356.91	63.6	6.05E-04	162.	-5.76E-04	1.87E-04
71	-268.951	-356.91	70.6667	5.49E-04	162.	-5.22E-04	1.69E-04
72	-268.951	-356.91	77.7333	4.76E-04	162.1	-4.53E-04	1.47E-04
73	-268.951	-356.91	84.8	3.87E-04	162.1	-3.68E-04	1.19E-04
74	-268.951	-356.91	91.8667	2.82E-04	162.1	-2.69E-04	8.68E-05
75	-268.951	-356.91	98.9333	1.6E-04	162.1	-1.53E-04	4.93E-05
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	4.26E-03	305.5	2.47E-03	-3.47E-03
77	-324.98	-431.263	7.36667	4.73E-03	301.3	2.46E-03	-4.04E-03
78	-324.98	-431.263	14.7333	4.97E-03	299.1	2.42E-03	-4.34E-03
79	-324.98	-431.263	22.1	5.1E-03	297.5	2.35E-03	-4.52E-03
80	-324.98	-431.263	29.4667	5.13E-03	296.2	2.26E-03	-4.6E-03
81	-324.98	-431.263	36.8333	5.06E-03	295.1	2.14E-03	-4.58E-03
82	-324.98	-431.263	44.2	4.9E-03	294.1	2.E-03	-4.47E-03
83	-324.98	-431.263	51.5667	4.66E-03	293.3	1.84E-03	-4.28E-03
84	-324.98	-431.263	58.9333	4.33E-03	292.5	1.66E-03	-4.E-03
85	-324.98	-431.263	66.3	3.93E-03	291.9	1.46E-03	-3.65E-03
86	-324.98	-431.263	73.6667	3.45E-03	291.2	1.25E-03	-3.22E-03
87	-324.98	-431.263	81.0333	2.91E-03	290.7	1.03E-03	-2.73E-03
88	-324.98	-431.263	88.4	2.31E-03	290.1	7.95E-04	-2.17E-03
89	-324.98	-431.263	95.7667	1.64E-03	289.6	5.53E-04	-1.55E-03
90	-324.98	-431.263	103.133	9.14E-04	289.2	3.E-04	-8.63E-04
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.13

WVIE NIGHTTIME
TOWER 6 BASE CIRCUIT ANALYSIS
DRIVEN INDIVIDUALLY
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 40.00 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -3872.40 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 96.38, 135.09 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-20800.00
2	GROUND	103.40	137.31
1	2	0.00	40.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	1.194	6.73
2	1.000	0.00

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.349E-02	-0.459E-02	0.577E-02	307.27
OUTPUT CURRENT I2 (AMPS):	0.350E-02	-0.491E-02	0.603E-02	305.51
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	105.19	178.30	207.02	59.46

TABLE 3.14

WVIE NIGHTTIME
DIRECTIONAL ARRAY MoM SUMMARY
M-10 Broadcasting, Inc.
Pikesville, MD

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.291	15
		0	0	104.5		
2	none	73.5	131.4	0	.291	15
		73.5	131.4	107.		
3	none	180.5	130.3	0	.291	15
		180.5	130.3	109.5		
4	none	360.	127.	0	.291	15
		360.	127.	106.5		
5	none	446.9	127.	0	.291	15
		446.9	127.	106.		
6	none	540.	127.	0	.291	15
		540.	127.	110.5		

Number of wires = 6
current nodes = 90

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	6.96667	6	7.36667
radius	1	.291	1	.291

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.37	0	1	.0193519	.020463

Sources

source	node	sector	magnitude	phase	type
1	1	1	759.864	78.2	voltage
2	16	1	2,409.1	297.9	voltage
3	31	1	2,513.95	168.4	voltage
4	46	1	1,757.37	49.3	voltage
5	61	1	2,475.17	294.8	voltage
6	76	1	1,747.44	186.2	voltage

TABLE 3.14 (cont'd)

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.37	17.169	69.327	71.421	76.1	8.74	-1.9964	-4.3355
source = 2; node 16, sector 1							
1.37	38.822	144.5	149.62	75.	12.742	-1.3661	-5.6881
source = 3; node 31, sector 1							
1.37	82.733	240.69	254.51	71.	16.202	-1.0736	-6.5952
source = 4; node 46, sector 1							
1.37	107.53	86.501	138.	38.8	3.7399	-4.7607	-1.7662
source = 5; node 61, sector 1							
1.37	115.28	222.05	250.2	62.6	11.204	-1.5546	-5.2158
source = 6; node 76, sector 1							
1.37	-516.62	1,306.	1,404.5	111.6	****	****	****

CURRENT rms
Frequency = 1.37 MHz
Input power = 24,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	7.52307	2.2	7.51775	.282864
2	0	0	6.96667	7.90617	1.4	7.90383	.19237
3	0	0	13.9333	8.03824	1.	8.03712	.13423
4	0	0	20.9	8.03262	.6	8.03217	.0849921
5	0	0	27.8667	7.90281	.3	7.9027	.0423632
6	0	0	34.8333	7.65656	0.0	7.65655	5.57E-03
7	0	0	41.8	7.29986	359.8	7.29982	-.0255826
8	0	0	48.7667	6.839	359.6	6.83881	-.0510091
9	0	0	55.7333	6.28057	359.4	6.28017	-.0704987
10	0	0	62.7	5.63185	359.1	5.63122	-.0837504
11	0	0	69.6667	4.90046	358.9	4.89963	-.0904029
12	0	0	76.6333	4.09391	358.7	4.09292	-.0900458
13	0	0	83.6	3.21838	358.5	3.21733	-.082209
14	0	0	90.5667	2.27598	358.3	2.27501	-.0662807
15	0	0	97.5333	1.25732	358.1	1.25664	-.0412314
END	0	0	104.5	0	0	0	0
GND	-48.6064	-55.1332	0	11.3854	223.	-8.33205	-7.75908
17	-48.6064	-55.1332	7.13333	12.681	221.3	-9.52402	-8.37257
18	-48.6064	-55.1332	14.2667	13.313	220.5	-10.1293	-8.63908
19	-48.6064	-55.1332	21.4	13.6359	219.8	-10.4735	-8.73178
20	-48.6064	-55.1332	28.5333	13.6887	219.3	-10.5923	-8.6709
21	-48.6064	-55.1332	35.6667	13.4905	218.9	-10.5027	-8.46683
22	-48.6064	-55.1332	42.8	13.0539	218.5	-10.2152	-8.12734
23	-48.6064	-55.1332	49.9333	12.3907	218.2	-9.73948	-7.65974
24	-48.6064	-55.1332	57.0667	11.5129	217.9	-9.08498	-7.07178
25	-48.6064	-55.1332	64.2	10.4338	217.6	-8.26233	-6.37173
26	-48.6064	-55.1332	71.3333	9.16745	217.4	-7.28249	-5.56842
27	-48.6064	-55.1332	78.4667	7.72749	217.2	-6.1564	-4.67042
28	-48.6064	-55.1332	85.6	6.12557	217.	-4.89329	-3.68488
29	-48.6064	-55.1332	92.7333	4.36537	216.8	-3.49601	-2.61427

TABLE 3.14 (cont'd)

30	-48.6064	-55.1332	99.8667	2.42833	216.6	-1.94946	-1.44789
END	-48.6064	-55.1332	107.	0	0	0	0
GND	-116.746	-137.662	0	6.98446	97.4	-.896647	6.92666
32	-116.746	-137.662	7.3	8.36129	94.1	-.593722	8.34018
33	-116.746	-137.662	14.6	9.10901	92.5	-.399197	9.10025
34	-116.746	-137.662	21.9	9.58654	91.4	-.236319	9.58363
35	-116.746	-137.662	29.2	9.8316	90.6	-.0976288	9.83112
36	-116.746	-137.662	36.5	9.86077	89.9	.0193304	9.86075
37	-116.746	-137.662	43.8	9.68409	89.3	.115224	9.6834
38	-116.746	-137.662	51.1	9.31001	88.8	.190104	9.30807
39	-116.746	-137.662	58.4	8.74741	88.4	.243843	8.74401
40	-116.746	-137.662	65.7	8.00604	88.	.27632	8.00127
41	-116.746	-137.662	73.	7.09648	87.7	.287496	7.09066
42	-116.746	-137.662	80.3	6.02922	87.4	.277401	6.02284
43	-116.746	-137.662	87.6	4.81347	87.1	.246039	4.80717
44	-116.746	-137.662	94.9	3.45226	86.8	.193073	3.44686
45	-116.746	-137.662	102.2	1.93094	86.5	.116975	1.92739
END	-116.746	-137.662	109.5	0	0	0	0
GND	-216.653	-287.509	0	9.00456	10.5	8.85368	1.64143
47	-216.653	-287.509	7.1	9.62677	5.8	9.57797	.968058
48	-216.653	-287.509	14.2	9.91092	3.1	9.89603	.543018
49	-216.653	-287.509	21.3	10.0141	1.1	10.0123	.192499
50	-216.653	-287.509	28.4	9.95092	359.4	9.95041	-.100592
51	-216.653	-287.509	35.5	9.72867	358.	9.72265	-.34224
52	-216.653	-287.509	42.6	9.35312	356.7	9.33784	-.534398
53	-216.653	-287.509	49.7	8.83043	355.6	8.8044	-.677583
54	-216.653	-287.509	56.8	8.16793	354.6	8.13138	-.771835
55	-216.653	-287.509	63.9	7.37387	353.6	7.32846	-.817133
56	-216.653	-287.509	71.	6.45714	352.8	6.40569	-.813527
57	-216.653	-287.509	78.1	5.42688	351.9	5.37324	-.761137
58	-216.653	-287.509	85.2	4.29061	351.2	4.23956	-.659934
59	-216.653	-287.509	92.3	3.05052	350.4	3.00776	-.508961
60	-216.653	-287.509	99.4	1.69337	349.6	1.66582	-.304237
END	-216.653	-287.509	106.5	0	0	0	0
GND	-268.951	-356.91	0	6.99535	232.2	-4.28472	-5.52956
62	-268.951	-356.91	7.06667	8.25361	227.6	-5.56069	-6.09924
63	-268.951	-356.91	14.1333	8.93501	225.4	-6.2683	-6.36731
64	-268.951	-356.91	21.2	9.36579	223.9	-6.74999	-6.49275
65	-268.951	-356.91	28.2667	9.57886	222.7	-7.04187	-6.49359
66	-268.951	-356.91	35.3333	9.58884	221.7	-7.15939	-6.3788
67	-268.951	-356.91	42.4	9.40461	220.9	-7.11109	-6.1546
68	-268.951	-356.91	49.4667	9.03366	220.2	-6.90338	-5.82669
69	-268.951	-356.91	56.5333	8.48401	219.5	-6.5427	-5.40105
70	-268.951	-356.91	63.6	7.7643	219.	-6.03576	-4.88406
71	-268.951	-356.91	70.6667	6.88391	218.5	-5.38971	-4.28243
72	-268.951	-356.91	77.7333	5.85213	218.	-4.61167	-3.60277
73	-268.951	-356.91	84.8	4.67661	217.6	-3.70738	-2.85062
74	-268.951	-356.91	91.8667	3.35894	217.1	-2.67772	-2.02788
75	-268.951	-356.91	98.9333	1.88327	216.7	-1.50941	-1.12623
END	-268.951	-356.91	106.	0	0	0	0
GND	-324.98	-431.263	0	.87979	74.7	.232881	.848408
77	-324.98	-431.263	7.36667	1.87763	86.3	.119631	1.87382
78	-324.98	-431.263	14.7333	2.48276	88.9	.0494011	2.48226
79	-324.98	-431.263	22.1	2.93877	90.1	-6.82E-03	2.93876
80	-324.98	-431.263	29.4667	3.27091	90.9	-.0520746	3.2705
81	-324.98	-431.263	36.8333	3.48904	91.4	-.0876176	3.48794
82	-324.98	-431.263	44.2	3.59768	91.8	-.114061	3.59587
83	-324.98	-431.263	51.5667	3.59987	92.1	-.131823	3.59746
84	-324.98	-431.263	58.9333	3.49843	92.3	-.141263	3.49558
85	-324.98	-431.263	66.3	3.29651	92.5	-.142747	3.29342
86	-324.98	-431.263	73.6667	2.99771	92.6	-.136665	2.9946

TABLE 3.14 (cont'd)

87	-324.98	-431.263	81.0333	2.6058	92.7	-.12344	2.60287
88	-324.98	-431.263	88.4	2.12394	92.8	-.1035	2.12141
89	-324.98	-431.263	95.7667	1.55263	92.8	-.0771949	1.55071
90	-324.98	-431.263	103.133	.884079	92.9	-.0445269	.882957
END	-324.98	-431.263	110.5	0	0	0	0

TABLE 3.15

WVIE NIGHTTIME
DIRECTIONAL ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1.37 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	1.801	-141.1
3	1.345	89.9
4	1.293	-2.
5	1.268	-138.3
6	.48	91.3

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	537.305	78.2	7.5231	2.2
16	1,703.49	297.9	11.3853	223.
31	1,777.63	168.4	6.98446	97.4
46	1,242.65	49.3	9.00457	10.5
61	1,750.21	294.8	6.99535	232.2
76	1,235.63	186.2	.879789	74.7

Sum of square of source currents = 731.594
Total power = 24,000. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00427625	-.00569265
Y(1, 2)	.00269266	.00197387
Y(1, 3)	.000578655	-.000589201
Y(1, 4)	-.000382216	.000304682
Y(1, 5)	.000156846	.000222205
Y(1, 6)	.000102151	-9.3946E-05
Y(2, 1)	.00269269	.00197379
Y(2, 2)	.00354477	-.00413366
Y(2, 3)	.00231525	.000525493
Y(2, 4)	-.000869587	-.000644218
Y(2, 5)	-.000374133	.000399846
Y(2, 6)	.000210776	.000153922
Y(3, 1)	.000578658	-.000589219
Y(3, 2)	.00231525	.000525457
Y(3, 3)	.00412657	-.00492025
Y(3, 4)	.00106686	-.00196982
Y(3, 5)	-.000703134	-.000635654
Y(3, 6)	-.000231487	.000310322
Y(4, 1)	-.000382222	.000304681
Y(4, 2)	-.000869583	-.000644228
Y(4, 3)	.00106689	-.00196981
Y(4, 4)	.00440004	-.00540255
Y(4, 5)	.00258042	.00126643
Y(4, 6)	.000500496	-.000545817
Y(5, 1)	.000156842	.000222212

TABLE 3.15 (cont'd)

Y(5, 2)	-.000374146	.00039984
Y(5, 3)	-.000703128	-.000635668
Y(5, 4)	.00258042	.00126645
Y(5, 5)	.00383822	-.00423822
Y(5, 6)	.00249133	.001049
Y(6, 1)	.000102156	-9.3943E-05
Y(6, 2)	.000210772	.000153932
Y(6, 3)	-.000231498	.000310322
Y(6, 4)	.000500495	-.00054583
Y(6, 5)	.00249134	.0010489
Y(6, 6)	.0035498	-.00428059

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	74.5318	94.544
Z(1, 2)	48.1573	-28.9939
Z(1, 3)	-32.214	-27.1326
Z(1, 4)	15.6851	17.6848
Z(1, 5)	16.3487	-11.5239
Z(1, 6)	-14.9923	-14.9717
Z(2, 1)	48.1587	-28.993
Z(2, 2)	73.6744	111.814
Z(2, 3)	19.6462	-46.9791
Z(2, 4)	-13.8768	21.2102
Z(2, 5)	15.9959	13.3542
Z(2, 6)	10.8821	-18.6069
Z(3, 1)	-32.2134	-27.1336
Z(3, 2)	19.6473	-46.9789
Z(3, 3)	94.7728	130.247
Z(3, 4)	-25.1592	-29.0388
Z(3, 5)	-25.0097	16.3752
Z(3, 6)	19.7972	22.0706
Z(4, 1)	15.685	17.685
Z(4, 2)	-13.8768	21.2103
Z(4, 3)	-25.1596	-29.0384
Z(4, 4)	82.4362	109.859
Z(4, 5)	38.3031	-37.8347
Z(4, 6)	-34.3803	-29.482
Z(5, 1)	16.3489	-11.5239
Z(5, 2)	15.996	13.3543
Z(5, 3)	-25.0095	16.3755
Z(5, 4)	38.303	-37.8348
Z(5, 5)	68.771	104.766
Z(5, 6)	32.1718	-41.2972
Z(6, 1)	-14.9922	-14.972
Z(6, 2)	10.8823	-18.6069
Z(6, 3)	19.7972	22.0707
Z(6, 4)	-34.3799	-29.4828
Z(6, 5)	32.1739	-41.2965
Z(6, 6)	96.2963	134.843

TABLE 3.16

WVIE NIGHTTIME
TOWER 1 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 64.80 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1161.70 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 17.17, 69.33 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-20800.00
2	GROUND	19.54	73.39
1	2	0.00	64.80

NODE	VOLTAGE MAGNITUDE	PHASE
1	987.417	85.06
2	537.310	78.20

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	7.017	0.387	7.028	3.16
OUTPUT CURRENT I2 (AMPS):	7.517	0.289	7.523	2.20
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	19.80	139.09	140.50	81.90

TABLE 3.17

WVIE NIGHTTIME
TOWER 2 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 43.50 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -5808.60 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 38.82, 144.50 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-20800.00
2		GROUND	40.99	147.86
1		2	0.00	43.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	2172.714	301.30
2	1703.490	297.90

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	-7.978	-7.573	11.000	223.51
OUTPUT CURRENT I2 (AMPS):	-8.326	-7.765	11.385	223.00
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	41.75	193.06	197.52	77.80

TABLE 3.18

WVIE NIGHTTIME
TOWER 3 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 41.00 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1936.20 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 82.73, 240.69 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-20800.00
2		GROUND	107.78	269.51
1		2	0.00	41.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	2012.931	171.05
2	1777.630	168.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	-1.099	5.932	6.033	100.50
OUTPUT CURRENT I2 (AMPS):	-0.900	6.927	6.985	97.40
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	111.07	314.63	333.66	70.56

TABLE 3.19

WVIE NIGHTTIME
TOWER 4 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00, 12800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 56.30 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1659.60 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 107.53, 86.50 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	12800.00
2	GROUND	119.14	83.08
1	2	0.00	56.30

NODE	VOLTAGE MAGNITUDE	PHASE
1	1568.725	63.89
2	1242.650	49.30

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	8.396	2.075	8.649	13.88
OUTPUT CURRENT I2 (AMPS):	8.854	1.641	9.005	10.50
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	116.58	138.95	181.38	50.00

TABLE 3.20

WVIE NIGHTTIME
TOWER 5 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 50.50 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -1452.10 OHMS
MoM MODELED TOWER IMPEDANCE (R,X): 115.28, 222.05 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-20800.00
2		GROUND	159.09	247.35
1		2	0.00	50.50

NODE	VOLTAGE MAGNITUDE	PHASE
1	2009.566	299.44
2	1750.210	294.80

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	-3.109	-4.974	5.866	237.99
OUTPUT CURRENT I2 (AMPS):	-4.288	-5.527	6.995	232.20
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	163.73	300.91	342.57	61.45

TABLE 3.21

WVIE NIGHTTIME
TOWER 6 BASE CIRCUIT ANALYSIS
DRIVEN FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

FREQUENCY: 1370 kHz

STATIC DRAIN CHOKE IMPEDANCE (R,X): 0.00,-20800.00 OHMS
TOWER FEED IMPEDANCE (R,X): 0.00, 40.00 OHMS
TOWER BASE REGION IMPEDANCE (R,X): 0.00, -3872.40 OHMS
MoM MODELED TOWER IMPEDANCE (R,X):-516.62, 1306.00 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	-20800.00
2		GROUND	-1127.19	1746.10
1		2	0.00	40.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	1255.676	185.61
2	1235.630	186.20

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT CURRENT I1 (AMPS):	0.273	0.471	0.544	59.96
OUTPUT CURRENT I2 (AMPS):	0.232	0.849	0.880	74.70
MODELED ATU OUTPUT IMPEDANCE V1/I1 (OHMS):	-1344.18	1874.20	2306.39	125.65

TABLE 3.22
WVIE NIGHTTIME
ANTENNA MONITOR PARAMETERS
RESULTING FROM ARRAY SYNTHESIS
M-10 Broadcasting, Inc.
Pikesville, MD

	TCT Current Transformer		Antenna Monitor	
Tower	Magnitude (amps)	Phase (degrees)	Ratio	Phase (degrees)
1	7.028	3.2	0.813	-10.7
2	11.000	223.5	1.272	-150.4
3	6.033	100.5	0.698	86.6
4	8.649	13.9	1.000	0.0
5	5.866	238.0	0.678	-135.9
6	0.544	60.0	0.063	46.1

4.0 REFERENCE FIELD STRENGTH MEASUREMENTS

Reference field strength measurements, measured on the pattern minima and maxima radial bearings, were made on the WVIE nighttime pattern. Three measurements were made on each radial bearing and the measurement values, along with GPS coordinates and point description, are listed in Table 4.0. All field strength measurements were made by Derek Gorman using a Potomac Instruments FIM-41, S/N 870. This meter was last calibrated on September 2, 2010.

TABLE 4.0

WVIE NIGHTTIME REFERENCE
FIELD STRENGTH MEASUREMENTS
M-10 Broadcasting, Inc.
Pikesville, MD

Azimuth (Degrees)	Point	Distance (km)	Field Strength (mV/m)	Date	Time (EST)	GPS Coordinates (NAD 27)	Description
20.5	1	4.32	15.5	2/1/11	1452	N39-26-40.1 W76-45-27.7	Center of the cul de sac at the East end of Huntersworth Court
20.5	2	5.31	5.1	2/1/11	1442	N39-27-10.4 W76-45-12.7	Opposite 11950 Park Heights Avenue
20.5	3	6.16	5.2	2/2/11	1123	N39-27-36.1 W76-45-00.4	Opposite the driveway to 2933 Walnut Avenue by the mailbox
37	1	4.86	5.4	2/1/11	1511	N39-26-34.3 W76-44-28.1	Center of Park Heights Avenue, 0.9 km NW of Caves Road
37	2	6.71	4.0	2/2/11	1134	N39-27-23.4 W76-43-41.9	Intersection of Breeds Road and Green Spring Avenue
37	3	7.04	1.75	2/2/11	1151	N39-27-31.5 W76-43-33.5	Intersection of Ridge Road and Ridge Valley Drive
42.5	1	4.87	13.5	2/1/11	1518	N39-26-25.4 W76-44-13.6	Center of Park Heights Avenue, 0.45 km NW of Caves Road
42.5	2	5.97	13.5	2/1/11	1555	N39-26-52.0 W76-43-42.3	Center of cul de sac Pinewood Farm Court
42.5	3	6.73	10.0	2/1/11	1603	N39-27-09.9 W76-43-20.7	Center of the Road at the North Driveway to 2307 Hidden Glen Drive

TABLE 4.0 (cont'd)

Azimuth (Degrees)	Point	Distance (km)	Field Strength (mV/m)	Date	Time (EST)	GPS Coordinates (NAD 27)	Description
50	1	3.47	18.5	2/1/11	1615	N39-25-41.4 W76-44-39.3	Center of the road at the Driveway to 44 Caveswood Lane
50	2	4.97	6.8	2/1/11	1525	N39-26-12.4 W76-43-52.1	Center of the intersection of Logan Road and Park Heights Avenue
50	3	5.79	6.7	2/1/11	1541	N39-26-29.5 W76-43-26.6	Center of Road at Driveway to 2210 Millridge Road
136	1	3.05	460	2/3/11	1545	N39-23-17.5 W76-45-02.1	North edge of Mount Wilson Lane by fire hydrant 0.1 kilometers west of the entrance to Woodholme Elementary School
136	2	4.05	280	2/3/11	1600	N39-22-54.5 W76-44-33.3	Woodholme Avenue by the tennis court at the south edge of the road to 1 Woodholme Village Court
136	3	5.19	210	2/3/11	1615	N39-22-28.0 W76-44-00.0	Center of the road at the driveway to 1307 St. Albans Road
199	1	3.36	68.0	2/3/11	1529	N39-22-45.9 W76-47-16.8	Center of the road at the driveway to 8909 Lesan Road
199	2	4.37	42.0	2/3/11	1520	N39-22-15.3 W76-47-31.4	Center of road at the driveway to 8924 Allenswood Road
199	3	5.77	19.0	2/3/11	1509	N39-21-32.1 W76-47-50.1	Center of the cul de sac at the northwest end of Glen Hannah Court
208.5	1	3.09	36.0	2/3/11	1432	N39-23-00.9 W76-47-32.4	Center of road at the driveway to 9105 Amber Oaks Way
208.5	2	4.07	30.5	2/3/11	1442	N39-22-32.8 W76-47-51.4	Center of road at the driveway to 3732 Offutt Road

TABLE 4.0 (cont'd)

Azimuth (Degrees)	Point	Distance (km)	Field Strength (mV/m)	Date	Time (EST)	GPS Coordinates (NAD 27)	Description
208.5	3	5.71	11.5	2/3/11	1452	N39-21-46.3 W76-48-24.4	Center of road at the driveway to 3207 Offutt Road
230.5	1	3.22	40.0	2/2/11	1529	N39-23-22.1 W76-48-13.9	Center of road at the driveway to 9418 Lyonswood Drive
230.5	2	4.16	24.5	2/2/11	1555	N39-23-03.1 W76-48-44.7	Branchleigh Road by the fire hydrant between Paran Road and Hanwell Road
230.5	3	5.78	12.0	2/2/11	1614	N39-22-29.6 W76-49-37.0	Center of road at the driveway to 9825 Marriottsville Road
234.5	1	3.37	31.0	2/2/11	1517	N39-23-25.2 W76-48-25.2	Center of road at the driveway to 9507 Lyonswood Drive
234.5	2	4.16	24.5	2/2/11	1547	N39-23-10.5 W76-48-52.2	Center of the cul de sac at the east end of Highbury Court
234.5	3	5.38	16.0	2/2/11	1606	N39-22-47.0 W76-49-32.7	Center of the intersection of Cedarhill Road and Braewood Road
247.5	1	3.59	10.5	2/2/11	1428	N39-23-43.4 W76-48-48.6	East side of Runny Meade Road at the intersection of Winterset Way
247.5	2	4.39	13.0	2/2/11	1436	N39-23-34.5 W76-49-20.5	Center of road at the driveway to 4412 Marriottsville Road
247.5	3	5.77	7.7	2/2/11	1445	N39-23-18.4 W76-50-14.0	Northeast side of the road at the entrance to Mount Paran Presbyterian Church at 10308 Liberty Road
265	1	3.25	25.5	2/2/11	1416	N39-24-19.8 W76-48-45.1	Center of the intersection of Lakeside Boulevard and New Town Boulevard

TABLE 4.0 (cont'd)

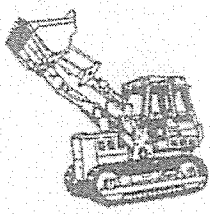
Azimuth (Degrees)	Point	Distance (km)	Field Strength (mV/m)	Date	Time (EST)	GPS Coordinates (NAD 27)	Description
265	2	3.71	20.5	2/2/11	1408	N39-24-19.0 W76-49-05.4	Center of Dolfield Road, 0.25 kilometers southwest of Lakeside Boulevard
265	3	4.92	11.5	2/2/11	1400	N39-24-14.7 W76-49-55.6	West edge of road at the driveway to 4830 Deer Park Road
290.5	1	3.13	24.0	2/2/11	1324	N39-25-04.0 W76-48-33.8	Parking lot opposite the sign of St. John Properties at 11155 Dolfield Boulevard
290.5	2	4.88	10.5	2/2/11	1340	N39-25-23.1 W76-49-42.7	Center of the intersection of Sunny King Drive And Sunbrook Road
290.5	3	6.16	8.7	2/2/11	1349	N39-25-37.2 W76-50-32.8	Entrance to Deer Park Garden Center by Gate at 1141 Berrymans Lane
317.5	1	2.99	22.5	2/2/11	1216	N39-25-40.3 W76-47-55.6	South side of road opposite the mailbox to 100 Pleasant Hill Road
317.5	2	3.99	10.0	2/2/11	1226	N39-26-04.5 W76-48-23.4	Center of the road at the driveway to 110 Oakmere Road
317.5	3	5.17	2.45	2/2/11	1246	N39-26-33.1 W76-48-55.9	Center of road at the driveway to 113 Chestnut Hill Lane West
355.5	1	2.92	20.0	1/31/11	1450	N39-26-03.6 W76-46-38.6	North side of the road opposite the driveway to 3705 Crondall Lane
355.5	2	3.99	15.0	1/31/11	1505	N39-26-38.1 W76-46-43.6	Center of Gwynnbrook Avenue, 0.25 kilometers east of Owings Mills Boulevard
355.5	3	5.20	5.0	1/31/11	1530	N39-27-17.1 W76-46-47.8	Center of the road at the Driveway to 12121 Faulkner Drive

5.0 POST CONSTRUCTION SITE CERTIFICATION

A post-construction site survey was done on the WVIE nighttime antenna system by a Professional Land Surveyor who is registered in the state of Maryland. This survey revealed that all six towers are located within 1.5 electrical degrees on 1370 kHz (0.91 meters) of their authorized location as specified in the construction permit (BP-20100119ACG). This site certification is included as Exhibit 5.0.

EXHIBIT 5.0

JFC INC.
10370 BALTIMORE NATIONAL PIKE • ELLICOTT CITY, MARYLAND 21042
BALTO. (410) 461-2266 WASH. (301) 596-4666 FAX (410) 461-1421



February 11, 2011

To Whom It May Concern:

It is my conclusion that all towers located at the WVIE nighttime transmitter site are built within 1.5 electrical degrees on 1370 kHz (2.99' /0.9114m) of the authorized location as required by FCC Construction Permit No.BP-20100119ACG.

	Authorized Location		Orientation	Location Differs	
TOWER #	SPACING Feet	SPACING Meters		Feet	Meters
1	0.00	0.00	REF True North		
2	146.58'	44.68 m	131.4°		
3	359.98'	109.72 m	130.3°		
4	717.96'	218.83 m	127.0°		
5	891.26'	271.66 m	127.0°		
6	1076.93'	328.25 m	127.0°		

	As Built Location				
	Feet	Meters			
1	0.00	0.00	REF True North		
2	146.37'	44.61 m	131.39°	0.35'	0.11 m
3	359.89'	109.60 m	130.30°	0.10'	0.03 m
4	717.96'	218.83 m	126.99°	0.10'	0.03 m
5	891.03'	271.59 m	126.98°	0.02'	0.01 m
6	1076.59'	328.14 m	126.99°	0.22'	0.07 m

If you have any questions or concerns, please feel free to contact me at (410) 984-6480.

02-21-11

Sincerely,
John Thomas Donohue Jr.
Chief of Surveys

I have reviewed the information provided on this document and the survey work that it is based on and agree with the results

2-17-11

Donald A. Mason
Professional Land Surveyor
Maryland Reg. No. 21320

Date

STATE OF MARYLAND · DONALD ALAN MASON · No. 21320 · PROFESSIONAL LAND SURVEYOR

6.0 COMMON POINT IMPEDANCE MEASUREMENTS

The WVIE nighttime directional common point impedance measurements were conducted February 3, 2011 by Derek Gorman using the equipment shown in Figure 6.0. A Delta Electronics RG-4 receiver/generator was used as the signal source and as the bridge detector. A Delta Electronics OIB-3 was used as the bridge. The manufacturer's stated accuracy is ±2%, ±1 ohm. Table 6.1 tabulates the WVIE nighttime directional common point impedance measurements. These measurements are plotted in Figure 6.1. While conducting these measurements, the resistance values were read directly from the sum of the switch and dial positions on the bridge. The reactance values were also read according to the sum of the switch and dial positions and then corrected by multiplying the reading by the frequency in MHz.

Figure 6.2 is a diagram of feeder system for the WVIE nighttime directional antenna system showing the point at which these impedance measurements were made.

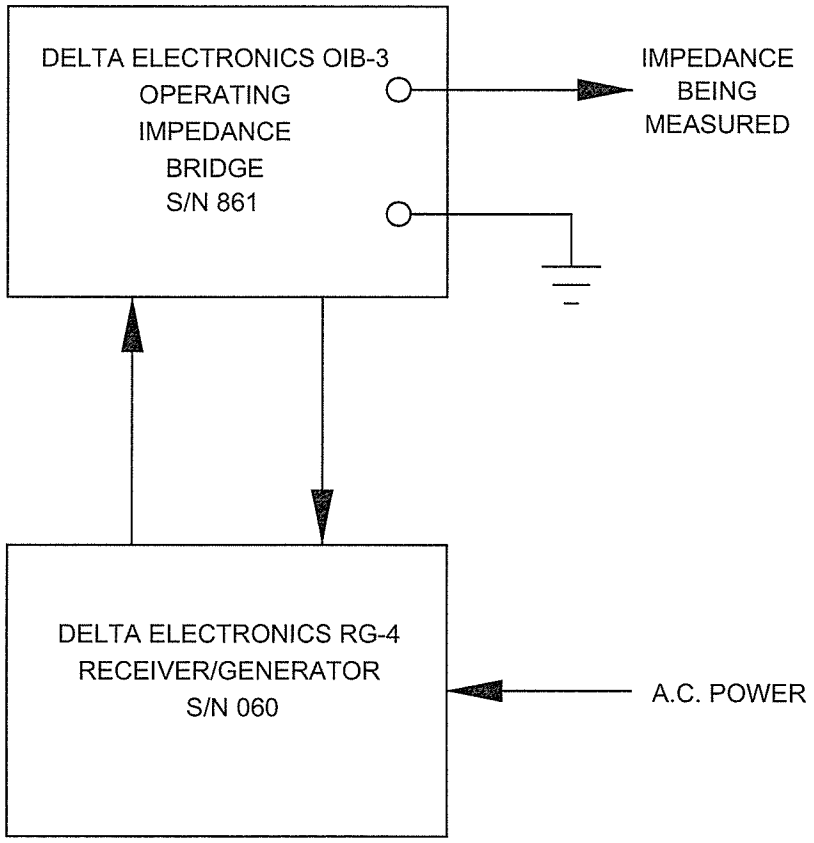


FIG. 6.0

BLOCK DIAGRAM OF
IMPEDANCE MEASURING EQUIPMENT

M-10 BROADCASTING, INC.
PIKESVILLE, MD

CARL E. SMITH CONSULTING ENGINEERS
2324 N. CLEVE-MASS., RD. BOX 807
BATH, OHIO 44210-0807
(330) 659-4440

TABLE 6.1

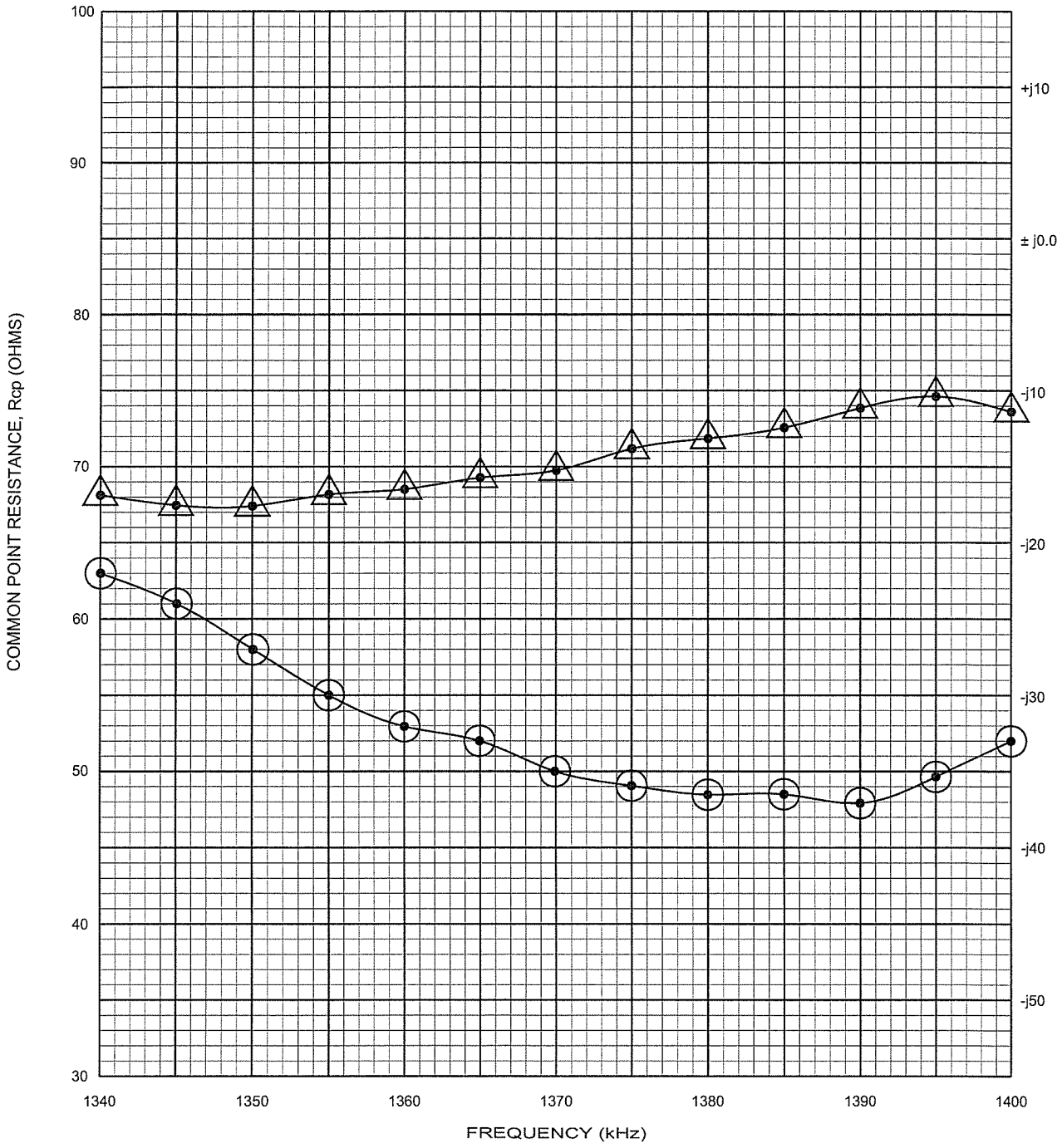
WVIE NIGHTTIME DIRECTIONAL
COMMON POINT
IMPEDANCE MEASUREMENTS
M-10 Broadcasting, Inc.
Pikesville, MD

Frequency (kHz)	Resistance (ohms)	Reactance (ohms)
1340	63.0	-j16.8
1345	61.0	-j17.5
1350	58.0	-j17.6
1355	55.0	-j16.9
1360	53.0	-j16.3
1365	52.0	-j15.7
*1370	50.0	-j15.1
1375	49.0	-j13.8
1380	48.5	-j13.1
1385	48.5	-j12.5
1390	48.0	-j11.1
1395	49.5	-j10.5
1400	52.0	-j11.2

*Operating Frequency

CES-116

CCMIM1 3/28/00



- Rcp

- jXcp

Zcp = 50.0 - j15.1 OHMS

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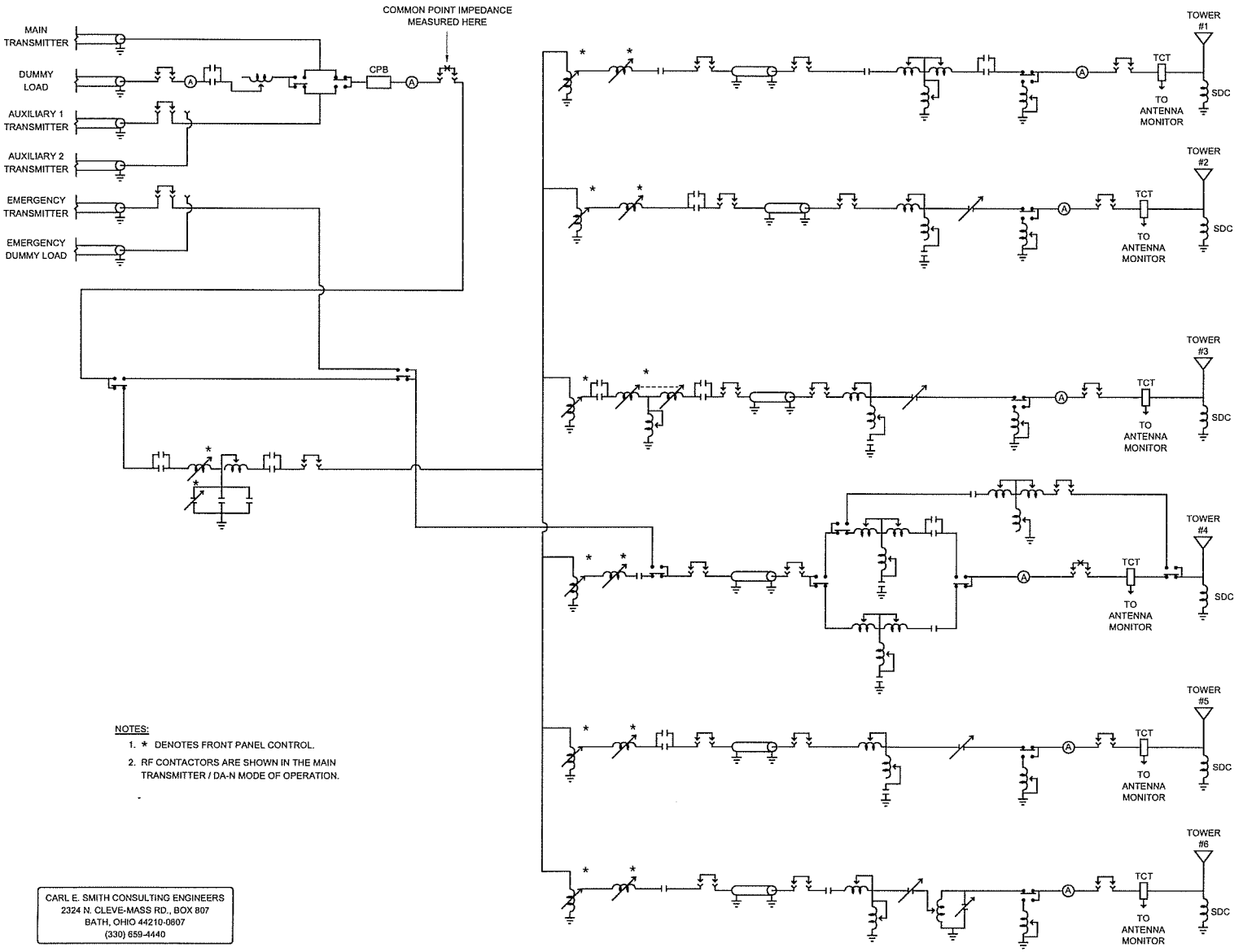
2324 N. CLEVE-MASS RD., BOX 807
BATH, OHIO 44210-0807
(330) 659-4440

FIG. 6.1

WVIE NIGHTTIME DIRECTIONAL
COMMON POINT
IMPEDANCE MEASUREMENTS

M-10 BROADCASTING, INC.
PIKESVILLE, MD



NOTES:

1. * DENOTES FRONT PANEL CONTROL.
2. RF CONTACTORS ARE SHOWN IN THE MAIN TRANSMITTER / DA-N MODE OF OPERATION.

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BATH, OHIO 44210-0807
(330) 659-4440

FIG. 6.2

WVIE FEEDER SYSTEM
(NIGHTTIME TRANSMITTER SITE)

M-10 BROADCASTING, INC.
PIKESVILLE, MD