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DrinkerBiddle&Reath LLP

Alisa R. Lahey
202-230-5168
alisa.lahey@dbr.com

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Law Offices

1500 K Street, N.W.
Washington, DC
20005-1209

202-842-8800 phone
202-842-8465 fax
www.drinkerbiddle.com

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August 18, 2011

Via Hand Delivery

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AUG 18 2011

Federal Communications Commission
Office of the Secretary

ORIGINAL

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
The Portals, Room TW-A325
445 12th Street, SW
Washington, D.C. 20554

Re: CCR-Great Falls IV, LLC
KMON(AM), Great Falls, MT, Facility No. 62330
Amendment to BMML-20110415ABP

Dear Ms. Dortch:

On behalf of CCR-Great Falls IV, LLC, the licensee of AM broadcast station KMON, Great Falls, Montana, this is to amend the engineering sections of the above-referenced, pending application in response correspondence with the FCC staff.

Please contact Howard Liberman of this firm at 202-842-8876 or me with any questions.

Sincerely,

Alisa R. Lahey

Alisa R. Lahey

cc: Mr. Ed Lubetzky, Audio Division, Media Bureau (via e-mail)

Established 1849

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
CCR - Great Falls IV, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ Station License ☐ Direct Measurement of Power

1. Facilities authorized in construction permit					
Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
KMON	N/A	560	Unlimited	5.0	5.0

2. Station location	
State	City or Town
Montana	Great Falls

3. Transmitter location			
State	County	City or Town	Street address (or other identification)
MT	Cascade	Great Falls	6 miles south of Great Falls

4. Main studio location			
State	County	City or Town	Street address (or other identification)
MT	Cascade	Great Falls	20 Third Street North

5. Remote control point location (specify only if authorized directional antenna)			
State	County	City or Town	Street address (or other identification)
MT	Cascade	Great Falls	20 Third Street North

6. Has type-approved stereo generating equipment been installed? ☐ Yes ☑ No

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

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. See Engineering

8. Operating constants:	
RF common point or antenna current (in amperes) without modulation for night system 10.0	RF common point or antenna current (in amperes) without modulation for day system 11.0
Measured antenna or common point resistance (in ohms) at operating frequency Night 54 Day 41.5	Measured antenna or common point reactance (in ohms) at operating frequency Night J0 Day +J76

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 (N)	-127.1	---	0.475	---	---	---
2 (C)	0	---	1.000	---	---	---
3 (S)	+125.2	---	0.572	---	---	---

Manufacturer and type of antenna monitor: Potomac Instruments AM-19 (204)

SECTION !!I - Page 2

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Uniform cross - section	134.1	135.0	135.6	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 47 ° 25 ' 29 "	West Longitude 111 ° 17 ' 20 "

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.

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)
Clarence M. Beverage	
Address (include ZIP Code)	Date
Communications Technologies, Inc.	08/08/2011
P. O. Box 1130	Telephone No. (Include Area Code)
Marlton, NJ 08053	856-985-0077

☐ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☐ Technical Consultant

☑ Other (specify) Broadcast Engineering Consultant

ENGINEERING STATEMENT IN SUPPORT OF 302-AM APPLICATION FOR LICENSE EMPLOYING MOMENT METHOD MODELING

KMON 560 kHz

5 kW DA-N U

GREAT FALLS, MONTANA

APRIL 2011 (REVISED AUGUST 8, 2011)

ENGINEERING STATEMENT IN
SUPPORT OF 302-AM
APPLICATON FOR LICENSE
EMPLOYING MOMENT METHOD MODELING
KMON 560 kHz
5 kW DA-N U
GREAT FALLS, MONTANA

APRIL 2011 (REVISED AUGUST 8, 2011)

TABLE OF CONTENTS

ENGINEERING STATEMENT

FORMS: FCC FORM 302-AM, SECTION III

EXHIBITS:

I. MoM detail for towers driven individually.

II. Derivation of nighttime operating parameters.

FIGURES:

1. Circuit Model for Tower #1 Base – other towers floating.
2. Circuit Model for Tower #2 Base – other towers floating.
3. Circuit Model for Tower #3 Base – other towers floating.
4. Circuit Model for Tower #1 Base – DA-N.
5. Circuit Model for Tower #2 Base – DA-N
6. Circuit Model for Tower #3 Base – DA-N. (Figures 1-6 Revised 07142011)

APPENDIX:

1. Reference Field Strength Measurements (Revised 07142011)

ENGINEERING STATEMENT IN
SUPPORT OF 302-AM
APPLICATON FOR LICENSE
EMPLOYING MOMENT METHOD MODELING
KMON 560 kHz
5 kW DA-N U
GREAT FALLS, MONTANA
APRIL 2011 (REVISED AUGUST 8, 2011)

SUMMARY

The following engineering statement has been prepared on behalf of **CCR – Great Falls IV, LLC**, licensee of standard broadcast station KMON, FCC ID 62330, 560 kHz, Great Falls, Montana. KMON is currently licensed under BZ-20041029AJR which authorizes 560 kHz daytime non directional operation at a power of 5 kW and 5 kW nighttime directional operation. This application requests licensing of the KMON antenna system using computer modeling and sample system verification as provided for in the Second Report and Order in MM Docket No. 93-177 released September 26, 2008. The rules specify that the night directional antenna parameters be set to the operating parameters determined by the moment method without deviation. That operation has been completed and Form 302-AM is submitted herein specifying the as adjusted operating parameters.

It is noted that the application material specified in the above paragraph was filed with the FCC on April 15, 2011 and assigned file number BMML-20110415ABP. By letter dated June 24, 2011 the Audio Division requested that the applicant correct certain deficiencies. This filing is complete with the material originally filed as well as the following changes in response to the FCC letter and subsequent staff discussion:

1. Appendix 1 has been supplemented with reference field strength measurement data on the 28.5 degree, major lobe, radial.
2. The current used in the circuit analysis was increased from 1.0 ampere to 10.0 amperes to for greater resolution. Base circuit tabulations are complete and reflect the higher applied current.
3. The sample lines have been swept in 1 kHz steps for better resolution to allow the characteristic impedance to be calculated 1/8 wave above and below the open circuit resonant frequency closest to carrier rather than at the second resonant frequency originally employed.
4. The frequency used to measure sample line impedance with toroid sampling devices connected has been specified.

METHOD OF MOMENTS MODEL – SELF IMPEDANCE ANALYSIS

In an effort to model the antenna system as accurately as possible, detailed mechanical data was obtained from the licensee and is summarized below:

> Each tower is 440' (134.1 meters) in height, steel, uniform cross section, 24" face mounted on a square concrete base pier with 4" strap in an X configuration. Each tower has lightning dissipation panels at the top.
>
> Base Insulators are brown ceramic 14" in height; specified capacitance of 30 pf.
>
> Three wire tower lightning chokes are employed at each tower.
>
> None of the towers support an antenna or transmission line.
>
> Tower #1 (N) is 32" from feed through bowl with a 2 turn lightning dissipation choke 8" in diameter. Tower #2 (C) is 51" from the feed through bowl with a 1 turn 11" diameter lightning dissipation choke. Tower #3 (S) is 45" from the feed through bowl with a 2 turn 8" diameter choke.

The choice of calculating engine and software implementation chosen for this filing is the ACS Model Version 1.015 employing MININEC3. The circuit analysis software employed is WCAP Professional Version 1.1.02.

The wire models for the three towers are constructed as specified below:

Tower #1 North

0.2911 meters

Percentage of actual radius = 100%

Z = 138.3 meters

Percentage of actual height = 103.1%

Number of segments = 20

Tower #2 Center

0.2911 meters

Percentage of actual radius = 100%

Z = 138.3 meters

Percentage of actual height = 103.1%

Number of segments = 20

Tower #3 South

0.2474 meters

Percentage of actual radius = 85.0%

Z = 136.8 meters

Percentage of actual height = 102.0%

Number of segments = 20

The above variations comply with the 73.151 requirement that the radii of the wire model cylinder be within 80 and 150 percent of the radius of a circle with a circumference equal to the sum of the faces, that the height be between 75 and 125 percent of the physical length and that no segment be less than 10 electrical degrees.

The tower measured base self impedances, with all other towers floating, as measured at the J plug, are listed below. Tower impedance was obtained using a Delta OIB-3, serial number 1369 fed by the transmitter. The modeled self impedance measurements, with all other towers floating, may be found in Exhibit I, page 3 for Tower #1, page 7 for Tower #2 and page 11 for Tower #3. A circuit model has been constructed for each tower to account for shunt and series reactance across the tower base. All calculations have been made employing WCAP Professional version 1.1.02 as seen in Figures 1 – 3 for self impedance and Figures 4 – 6 for nighttime directional operation. The measured and calculated self impedance values are well within the tolerance specified in 73.151(c)(2)(ii) as seen below:

Tower #1

Measured self impedance at ATU:	43.0 +J 70
Modeled self impedance at base:	45.469 +J 39.541
Shunt capacitance:	30 pf
Series inductance:	+J 30.57, 8.72 uh
Shunt reactance:	+J 19,000, 5400 uh
Modeled self impedance at ATU:	45.51 +J 70.0

Tower #2

Measured self impedance at ATU:	40.0 +J 73
Modeled self impedance at base:	43.449 +J 38.939
Shunt capacitance:	30 pf
Series inductance:	+J 34.14, 9.74 uh
Shunt reactance:	+J 19,000, 5400 uh
Modeled self impedance at ATU:	43.47 +J 73.0

Tower #3

Measured self impedance at ATU:	40.0 +J 72
Modeled self impedance at base:	43.585 +J 33.84
Shunt capacitance:	30 pf
Series inductance:	+J 35.06, 10.0 uh
Shunt reactance:	+J 19,000, 5400 uh
Modeled self impedance at ATU:	43.58 +J 68.8

The calculated tolerances are:

Tower #1 43 +/- 3.72 resistance, 70 +/- 4.8 reactance
Tower #2 40 +/-3.6 resistance, 73 +/- 4.92 reactance
Tower #3 40 +/- 3.6 resistance, 72 +/- 4.88 reactance

METHOD OF MOMENTS MODEL – BASE OPERATING PARAMETERS

The modeled tower array was employed, as constructed for the derivation of self impedance, for the determination of nighttime operating parameters. The FCC theoretical values were converted to base excitation values. The base excitation values for the nighttime array may be found in Exhibit II, page 3 and the base operating parameters on page 4.

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

NIGHTTIME:

Tower	Figures 4 – 6 Circuit Model Ratio and Phase		Correction to Modeled Values to Derive Antenna Monitor Values	
#1	1.005	-0.106°	0.996	+0.011
#2	1.001	-0.095°	1.000	0.00
#3	0.999	-0.030°	1.002	-0.065

Tower	MoM Modeled Current & Phase		Antenna Monitor Current & Phase	
#1	0.477	-127.1	0.475	-127.1
#2	1.000	0.00	1.000	0.00
#3	0.570	125.3	0.571	+125.2

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

DIRECT MEASUREMENT OF POWER

Common point impedance was measured with a Delta OIB-3, serial number 1369, placed at the Delta TCA-10/20 EXR common point ammeter. Common point current was measured with a Delta TCA 10/20 EXR permanently installed in the phasing cabinet with the toroidal sample immediately adjacent to the impedance bridge. Common point resistance was set to 54 +J0 and the transmitter power adjusted to yield the correct current for a power level of 5,400 watts as found on FCC Form 302-AM attached.

Tower #2 impedance, was taken at the J plug at the Delta TCA-20EX RF ammeter in the non directional mode with the other towers detuned. The Delta OIB-3 specified above was employed.

POST CONSTRUCTION CERTIFICATION OF ARRAY GEOMETRY

The array has been modeled using the best available data.

	ASR	Height Above Base Insulator	Height Overall AGL
Tower #1	1007214	134.1 meters	135.6
Tower #2	1007215	134.1 meters	135.6
Tower #3	1007216	134.1 meters	135.6

As an existing licensed facility a surveyor's certification is not included as provided for in Public Notice FCC DA 09-2430 dated October 29, 2009.

SAMPLING SYSTEM

The antenna system is licensed with an approved sampling system and no changes to the sampling system were required for this filing.

Delta toroid sampling devices, type TCT-3, are mounted on open panels in weather proof buildings at the base of each tower. Sample lines are equal length Andrew LDF2-50. The antenna monitor is a Potomac Instruments AM-19 (204).

Measurements on the sampling system components are tabulated below. Toroidal sample devices were tested for accuracy by removing the units from the tuning units at the base of each of the three towers and placing the devices in series on the same conductor in the transmitter building. The sample devices were then measured when connected to the phase monitor with coax jumpers having exact equal electrical length:

	Ratio	Phase
Toroid #1	100.0	0.0
Toroid #2	100.0	0.0
Toroid #3	101.0	0.0

The sampling device accuracy was verified as being well within the manufacturer tolerance of +/-2% in magnitude and +/-3 degrees in phase

Phase monitor accuracy was confirmed by feeding two tower inputs at a time through a splitter and equal length jumpers to confirm equal magnitude and phase on each tower. There were no observable errors.

Impedance and electrical length for each of the three sample lines were measured with an Array Solutions model AIM4170C vector network analyzer ("VNA"). The VNA was connected to the sample lines at the transmitter building with the sample lines unterminated on the turning unit end. The measured electrical length data is found below:

Sample line open-circuited odd quarter wave below 560 kHz (0.25 wavelength)	1(N) = 306 kHz 803.6' = 164.7 deg. 2(C) = 306.5 kHz 800.9' = 164.2 deg. 3(S) = 305.5 kHz 803.6' = 164.7 deg.
Sample line open-circuited odd quarter wave above 560 kHz (0.75 wavelength)	1(N) = 928 kHz 794.9' = 162.9 deg. 2(C) = 932 kHz 791.5' = 162.2 deg. 3(S) = 926 kHz 796.6' = 163.2 deg.

It may be seen that the sample lines are, for all practical purposes, equal in length to better than plus and minus 0.3 degrees at the lower frequency and 0.5 degrees at the higher frequency. The sample system meets the rule requirement that the sample lines be equal to within one degree.

The impedance of the sample lines was determined by measuring the open circuit impedance 45 degrees above and below the resonant length of the sample lines. The measured data is presented below. The impedance is determined using the formula:

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

	3/8 lambda +45° From ¼ wave	Measured Impedance	1/8 lambda -45° From 1/4 wave	Measured Impedance	Calculated Impedance by formula
Tower #1(N)	459	6.71 +J50.52	153	1.19 –J51.76	51.37
Tower #2(C)	460.5	6.74 +J49.57	153.5	1.21 –J51.51	50.77
Tower #3(S)	459	6.67 +J50.39	153	1.20 –J51.6	51.22

The characteristic impedance of the transmission lines is within 1 ohm. The allowable tolerance is 2 ohms.

Sampling system impedance was measured with each of the three sampling lines terminated in its respective toroid sampling device. Impedance was measured by connecting each sample line directly to the VNA. The measured impedance data is found below as measured at 560 kHz.

Measured impedance of sampling line and associated toroid

Tower #1(N)	48.5 +J1.0
Tower #2(C)	48.5 +J0.5
Tower #3(S)	49.0 +J1.3

REFERENCE FIELD STRENGTH MEASUREMENTS

Reference field strength measurements were taken by Kenneth Eklund, Director of Engineering for Cherry Creek Radio. The measurement data appears in *Appendix 1*. The field meter was checked against other meters of known calibration prior to the commencement of measurements.

CONCLUSION

All adjustments, measurements and field work were undertaken under the direction of the affiant.

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

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

August 8, 2011

EXHIBIT I

KMON TOWER #1 FED TOWERS 2 & 3 FLOATING

****
ACSModel
(MININEC 3.1 Core)
03-26-2011 15:47:03
****

KMON TOWER #1

Frequency = 0.560 MHz Wavelength = 535.35714 Meters

No. of Wires: 3

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	138.3006	0.2911	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-117.6203	-63.86259	0		-2	
-117.6203	-63.86259	138.3006	0.2911	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-235.2405	-127.7252	0		-3	
-235.2405	-127.7252	136.8135	0.2474	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.2911	-1	1	1
0	0	6.91503	0.2911	1	1	2
0	0	13.83006	0.2911	1	1	3
0	0	20.74509	0.2911	1	1	4
0	0	27.66012	0.2911	1	1	5
0	0	34.57515	0.2911	1	1	6
0	0	41.49018	0.2911	1	1	7
0	0	48.40521	0.2911	1	1	8
0	0	55.32024	0.2911	1	1	9
0	0	62.23527	0.2911	1	1	10
0	0	69.1503	0.2911	1	1	11
0	0	76.06533	0.2911	1	1	12
0	0	82.98036	0.2911	1	1	13
0	0	89.89539	0.2911	1	1	14
0	0	96.81042	0.2911	1	1	15
0	0	103.7254	0.2911	1	1	16
0	0	110.6405	0.2911	1	1	17
0	0	117.5555	0.2911	1	1	18
0	0	124.4705	0.2911	1	1	19
0	0	131.3856	0.2911	1	0	20

EXHIBIT I

KMON TOWER #1 FED TOWERS 2 & 3 FLOATING

Wire No. 2 Coordinates X	Y	Z	Radius	Connection End1	End2	Pulse No.
-117.6203	-63.86259	0	0.2911	-2	2	21
-117.6203	-63.86259	6.91503	0.2911	2	2	22
-117.6203	-63.86259	13.83006	0.2911	2	2	23
-117.6203	-63.86259	20.74509	0.2911	2	2	24
-117.6203	-63.86259	27.66012	0.2911	2	2	25
-117.6203	-63.86259	34.57515	0.2911	2	2	26
-117.6203	-63.86259	41.49018	0.2911	2	2	27
-117.6203	-63.86259	48.40521	0.2911	2	2	28
-117.6203	-63.86259	55.32024	0.2911	2	2	29
-117.6203	-63.86259	62.23527	0.2911	2	2	30
-117.6203	-63.86259	69.1503	0.2911	2	2	31
-117.6203	-63.86259	76.06533	0.2911	2	2	32
-117.6203	-63.86259	82.98036	0.2911	2	2	33
-117.6203	-63.86259	89.89539	0.2911	2	2	34
-117.6203	-63.86259	96.81042	0.2911	2	2	35
-117.6203	-63.86259	103.7254	0.2911	2	2	36
-117.6203	-63.86259	110.6405	0.2911	2	2	37
-117.6203	-63.86259	117.5555	0.2911	2	2	38
-117.6203	-63.86259	124.4705	0.2911	2	2	39
-117.6203	-63.86259	131.3856	0.2911	2	0	40

Wire No. 3 Coordinates X	Y	Z	Radius	Connection End1	End2	Pulse No.
-235.2405	-127.7252	0	0.2474	-3	3	41
-235.2405	-127.7252	6.840674	0.2474	3	3	42
-235.2405	-127.7252	13.68135	0.2474	3	3	43
-235.2405	-127.7252	20.52202	0.2474	3	3	44
-235.2405	-127.7252	27.3627	0.2474	3	3	45
-235.2405	-127.7252	34.20337	0.2474	3	3	46
-235.2405	-127.7252	41.04405	0.2474	3	3	47
-235.2405	-127.7252	47.88472	0.2474	3	3	48
-235.2405	-127.7252	54.7254	0.2474	3	3	49
-235.2405	-127.7252	61.56607	0.2474	3	3	50
-235.2405	-127.7252	68.40675	0.2474	3	3	51
-235.2405	-127.7252	75.24742	0.2474	3	3	52
-235.2405	-127.7252	82.0881	0.2474	3	3	53
-235.2405	-127.7252	88.92877	0.2474	3	3	54
-235.2405	-127.7252	95.76945	0.2474	3	3	55
-235.2405	-127.7252	102.6101	0.2474	3	3	56
-235.2405	-127.7252	109.4508	0.2474	3	3	57
-235.2405	-127.7252	116.2915	0.2474	3	3	58
-235.2405	-127.7252	123.1321	0.2474	3	3	59
-235.2405	-127.7252	129.9728	0.2474	3	0	60

Sources: 3
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 100.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 0.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 0.0, 0.0

Number of Loads: 2
Pulse No., Resistance, Reactance: 21 , 0 ,-10000
Pulse No., Resistance, Reactance: 41 , 0 ,-10000

EXHIBIT I

KMON TOWER #1 FED TOWERS 2 & 3 FLOATING

```
********************    SOURCE DATA     ********************
Pulse  1       Voltage = (100.0, 0.0j)
               Current = (1.2523, -1.089j)
               Impedance = (45.469, 39.541j)
               Power = 62.61 Watts

Pulse  21      Voltage = (0.0, 0.0j)
               Current = (-0.005, -0.0006j)
               Impedance = (0.0, 0.0j)
               Power = 0.000000 Watts

Pulse  41      Voltage = (0.0, 0.0j)
               Current = (-0.0009, 0.0034j)
               Impedance = (0.0, 0.0j)
               Power = 0.000000 Watts

Total Power = 62.614 Watts

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

Wire No.  1 :
```

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	1.2523	-1.089	1.6596	-41.0111
2	1.2487	-1.1305	1.6844	-42.1567
3	1.2378	-1.1504	1.6899	-42.9049
4	1.2198	-1.1587	1.6824	-43.5277
5	1.1947	-1.1566	1.6628	-44.0706
6	1.1627	-1.1448	1.6317	-44.5555
7	1.1239	-1.1237	1.5893	-44.9954
8	1.0786	-1.0937	1.5361	-45.399
9	1.027	-1.0551	1.4724	-45.7725
10	0.9694	-1.0081	1.3986	-46.1208
11	0.9061	-0.9531	1.315	-46.4475
12	0.8373	-0.8903	1.2222	-46.7557
13	0.7635	-0.8202	1.1206	-47.048
14	0.685	-0.743	1.0106	-47.3264
15	0.6021	-0.6592	0.8928	-47.5927
16	0.515	-0.569	0.7674	-47.8487
17	0.424	-0.4725	0.6349	-48.0956
18	0.3291	-0.3699	0.4951	-48.3351
19	0.2299	-0.2605	0.3475	-48.5686
20	0.1248	-0.1425	0.1894	-48.7996
E	0.0	0.0	0.0	0.0

EXHIBIT I

KMON TOWER #1 FED TOWERS 2 & 3 FLOATING

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
21	-0.005	-0.0006	0.0051	-172.7899
22	-0.0274	-0.0035	0.0276	-172.7548
23	-0.0421	-0.0054	0.0424	-172.6991
24	-0.0539	-0.007	0.0543	-172.6327
25	-0.0635	-0.0083	0.0641	-172.5579
26	-0.0713	-0.0094	0.0719	-172.4757
27	-0.0773	-0.0103	0.078	-172.3868
28	-0.0816	-0.011	0.0823	-172.2918
29	-0.0843	-0.0116	0.085	-172.1911
30	-0.0853	-0.0119	0.0862	-172.0852
31	-0.0849	-0.012	0.0857	-171.9747
32	-0.0829	-0.0119	0.0838	-171.86
33	-0.0795	-0.0115	0.0803	-171.7417
34	-0.0746	-0.011	0.0754	-171.6206
35	-0.0684	-0.0102	0.0691	-171.4973
36	-0.0608	-0.0092	0.0615	-171.3727
37	-0.0518	-0.008	0.0525	-171.2475
38	-0.0416	-0.0065	0.0421	-171.1227
39	-0.03	-0.0048	0.0304	-170.999
40	-0.0168	-0.0027	0.017	-170.8762
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
41	-0.0009	0.0034	0.0035	104.6125
42	-0.0046	0.0177	0.0182	104.581
43	-0.007	0.0272	0.0281	104.5314
44	-0.009	0.0349	0.036	104.4725
45	-0.0106	0.0413	0.0426	104.4064
46	-0.0119	0.0464	0.0479	104.3341
47	-0.0128	0.0505	0.0521	104.2563
48	-0.0135	0.0535	0.0551	104.1732
49	-0.0139	0.0554	0.0571	104.0853
50	-0.014	0.0563	0.058	103.9928
51	-0.0139	0.0561	0.0578	103.8957
52	-0.0135	0.055	0.0566	103.7942
53	-0.0129	0.0529	0.0544	103.6884
54	-0.012	0.0498	0.0513	103.5781
55	-0.011	0.0458	0.0471	103.4633
56	-0.0097	0.0408	0.042	103.3438
57	-0.0082	0.035	0.0359	103.2194
58	-0.0065	0.0281	0.0289	103.0897
59	-0.0047	0.0203	0.0209	102.9541
60	-0.0026	0.0114	0.0117	102.8107
E	0.0	0.0	0.0	0.0

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

Twr.	Ratio	Phase
1	1.000	0.0
2	0.003	-131.8
3	0.002	145.6

EXHIBIT I

KMON TOWER #2 FED TOWERS 1 & 3 FLOATING

```
****************************************
                ACSModel
          (MININEC 3.1 Core)
    03-26-2011              15:44:54
****************************************
```

KMON TOWER #2

Frequency = 0.560 MHz Wavelength = 535.35714 Meters

No. of Wires: 3

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	138.3006	0.2911	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-117.6203	-63.86259	0		-2	
-117.6203	-63.86259	138.3006	0.2911	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-235.2405	-127.7252	0		-3	
-235.2405	-127.7252	136.8135	0.2474	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.2911	-1	1	1
0	0	6.91503	0.2911	1	1	2
0	0	13.83006	0.2911	1	1	3
0	0	20.74509	0.2911	1	1	4
0	0	27.66012	0.2911	1	1	5
0	0	34.57515	0.2911	1	1	6
0	0	41.49018	0.2911	1	1	7
0	0	48.40521	0.2911	1	1	8
0	0	55.32024	0.2911	1	1	9
0	0	62.23527	0.2911	1	1	10
0	0	69.1503	0.2911	1	1	11
0	0	76.06533	0.2911	1	1	12
0	0	82.98036	0.2911	1	1	13
0	0	89.89539	0.2911	1	1	14
0	0	96.81042	0.2911	1	1	15
0	0	103.7254	0.2911	1	1	16
0	0	110.6405	0.2911	1	1	17
0	0	117.5555	0.2911	1	1	18
0	0	124.4705	0.2911	1	1	19
0	0	131.3856	0.2911	1	0	20

EXHIBIT I

KMON TOWER #2 FED TOWERS 1 & 3 FLOATING

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-117.6203	-63.86259	0	0.2911	-2	2	21
-117.6203	-63.86259	6.91503	0.2911	2	2	22
-117.6203	-63.86259	13.83006	0.2911	2	2	23
-117.6203	-63.86259	20.74509	0.2911	2	2	24
-117.6203	-63.86259	27.66012	0.2911	2	2	25
-117.6203	-63.86259	34.57515	0.2911	2	2	26
-117.6203	-63.86259	41.49018	0.2911	2	2	27
-117.6203	-63.86259	48.40521	0.2911	2	2	28
-117.6203	-63.86259	55.32024	0.2911	2	2	29
-117.6203	-63.86259	62.23527	0.2911	2	2	30
-117.6203	-63.86259	69.1503	0.2911	2	2	31
-117.6203	-63.86259	76.06533	0.2911	2	2	32
-117.6203	-63.86259	82.98036	0.2911	2	2	33
-117.6203	-63.86259	89.89539	0.2911	2	2	34
-117.6203	-63.86259	96.81042	0.2911	2	2	35
-117.6203	-63.86259	103.7254	0.2911	2	2	36
-117.6203	-63.86259	110.6405	0.2911	2	2	37
-117.6203	-63.86259	117.5555	0.2911	2	2	38
-117.6203	-63.86259	124.4705	0.2911	2	2	39
-117.6203	-63.86259	131.3856	0.2911	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-235.2405	-127.7252	0	0.2474	-3	3	41
-235.2405	-127.7252	6.840674	0.2474	3	3	42
-235.2405	-127.7252	13.68135	0.2474	3	3	43
-235.2405	-127.7252	20.52202	0.2474	3	3	44
-235.2405	-127.7252	27.3627	0.2474	3	3	45
-235.2405	-127.7252	34.20337	0.2474	3	3	46
-235.2405	-127.7252	41.04405	0.2474	3	3	47
-235.2405	-127.7252	47.88472	0.2474	3	3	48
-235.2405	-127.7252	54.7254	0.2474	3	3	49
-235.2405	-127.7252	61.56607	0.2474	3	3	50
-235.2405	-127.7252	68.40675	0.2474	3	3	51
-235.2405	-127.7252	75.24742	0.2474	3	3	52
-235.2405	-127.7252	82.0881	0.2474	3	3	53
-235.2405	-127.7252	88.92877	0.2474	3	3	54
-235.2405	-127.7252	95.76945	0.2474	3	3	55
-235.2405	-127.7252	102.6101	0.2474	3	3	56
-235.2405	-127.7252	109.4508	0.2474	3	3	57
-235.2405	-127.7252	116.2915	0.2474	3	3	58
-235.2405	-127.7252	123.1321	0.2474	3	3	59
-235.2405	-127.7252	129.9728	0.2474	3	0	60

Sources: 3
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 0.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 100.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 0.0, 0.0

Number of Loads: 2
Pulse No., Resistance, Reactance: 1 , 0 ,-10000
Pulse No., Resistance, Reactance: 41 , 0 ,-10000

EXHIBIT I

KMON TOWER #2 FED TOWERS 1 & 3 FLOATING

```
********************    SOURCE DATA     ********************
Pulse  1       Voltage = (0.0, 0.0j)
               Current = (-0.0052, -0.0006j)
               Impedance = (0.0, 0.0j)
               Power = 0.000000 Watts

Pulse  21      Voltage = (100.0, 0.0j)
               Current = (1.2764, -1.1439j)
               Impedance = (43.449, 38.939j)
               Power = 63.82 Watts

Pulse  41      Voltage = (0.0, 0.0j)
               Current = (-0.0051, -0.0006j)
               Impedance = (0.0, 0.0j)
               Power = 0.000000 Watts

Total Power = 63.820 Watts

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

Wire No.  1 :
```

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	-0.0052	-0.0006	0.0052	-173.6567
2	-0.0284	-0.0032	0.0285	-173.6216
3	-0.0435	-0.0049	0.0438	-173.5659
4	-0.0557	-0.0064	0.0561	-173.4995
5	-0.0657	-0.0076	0.0662	-173.4245
6	-0.0738	-0.0086	0.0743	-173.3419
7	-0.08	-0.0095	0.0805	-173.2524
8	-0.0844	-0.0101	0.085	-173.1564
9	-0.0872	-0.0106	0.0878	-173.0544
10	-0.0883	-0.0109	0.089	-172.9467
11	-0.0879	-0.011	0.0886	-172.8338
12	-0.0858	-0.011	0.0865	-172.7162
13	-0.0823	-0.0107	0.083	-172.5945
14	-0.0772	-0.0102	0.0779	-172.4693
15	-0.0708	-0.0095	0.0714	-172.3413
16	-0.0629	-0.0086	0.0635	-172.2114
17	-0.0537	-0.0075	0.0542	-172.0804
18	-0.0431	-0.0061	0.0435	-171.9491
19	-0.0311	-0.0045	0.0314	-171.8183
20	-0.0174	-0.0025	0.0176	-171.6878
E	0.0	0.0	0.0	0.0

EXHIBIT I

KMON TOWER #2 FED TOWERS 1 & 3 FLOATING

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
21	1.2764	-1.1439	1.714	-41.8662
22	1.2727	-1.1852	1.7391	-42.9612
23	1.2616	-1.2047	1.7444	-43.6768
24	1.2433	-1.2121	1.7364	-44.2725
25	1.2177	-1.2089	1.7159	-44.7919
26	1.1851	-1.1957	1.6835	-45.256
27	1.1456	-1.173	1.6396	-45.6771
28	1.0994	-1.141	1.5845	-46.0636
29	1.0468	-1.1001	1.5186	-46.4213
30	0.9881	-1.0506	1.4423	-46.755
31	0.9236	-0.9928	1.356	-47.0681
32	0.8535	-0.927	1.2601	-47.3636
33	0.7783	-0.8537	1.1552	-47.6438
34	0.6983	-0.7731	1.0417	-47.9109
35	0.6137	-0.6856	0.9202	-48.1665
36	0.525	-0.5916	0.7909	-48.4123
37	0.4322	-0.4911	0.6542	-48.6495
38	0.3355	-0.3843	0.5102	-48.8796
39	0.2344	-0.2706	0.358	-49.1041
40	0.1272	-0.148	0.1951	-49.3263
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
41	-0.0051	-0.0006	0.0051	-173.2916
42	-0.0263	-0.0031	0.0265	-173.256
43	-0.0404	-0.0048	0.0407	-173.1998
44	-0.0518	-0.0062	0.0522	-173.1329
45	-0.0611	-0.0074	0.0616	-173.0573
46	-0.0687	-0.0085	0.0692	-172.9742
47	-0.0745	-0.0093	0.0751	-172.8841
48	-0.0787	-0.01	0.0793	-172.7876
49	-0.0813	-0.0104	0.0819	-172.6849
50	-0.0823	-0.0107	0.083	-172.5764
51	-0.0819	-0.0108	0.0826	-172.4628
52	-0.08	-0.0108	0.0808	-172.3443
53	-0.0767	-0.0105	0.0774	-172.2215
54	-0.072	-0.01	0.0727	-172.0951
55	-0.066	-0.0093	0.0666	-171.9658
56	-0.0586	-0.0084	0.0593	-171.8342
57	-0.05	-0.0073	0.0506	-171.7013
58	-0.0401	-0.0059	0.0406	-171.5678
59	-0.0289	-0.0044	0.0292	-171.4344
60	-0.0161	-0.0025	0.0163	-171.3012
E	0.0	0.0	0.0	0.0

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

Twr.	Ratio	Phase
1	0.003	-131.8
2	1.000	0.0
3	0.003	-131.4

EXHIBIT I

KMON TOWER #3 FED TOWERS 1 & 2 FLOATING

```
****************************************
                ACSModel
            (MININEC 3.1 Core)
   03-26-2011              15:41:18
****************************************
```

KMON TOWER #3

Frequency = 0.560 MHz Wavelength = 535.35714 Meters

No. of Wires: 3

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	138.3006	0.2911	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-117.6203	-63.86259	0		-2	
-117.6203	-63.86259	138.3006	0.2911	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-235.2405	-127.7252	0		-3	
-235.2405	-127.7252	136.8135	0.2474	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.2911	-1	1	1
0	0	6.91503	0.2911	1	1	2
0	0	13.83006	0.2911	1	1	3
0	0	20.74509	0.2911	1	1	4
0	0	27.66012	0.2911	1	1	5
0	0	34.57515	0.2911	1	1	6
0	0	41.49018	0.2911	1	1	7
0	0	48.40521	0.2911	1	1	8
0	0	55.32024	0.2911	1	1	9
0	0	62.23527	0.2911	1	1	10
0	0	69.1503	0.2911	1	1	11
0	0	76.06533	0.2911	1	1	12
0	0	82.98036	0.2911	1	1	13
0	0	89.89539	0.2911	1	1	14
0	0	96.81042	0.2911	1	1	15
0	0	103.7254	0.2911	1	1	16
0	0	110.6405	0.2911	1	1	17
0	0	117.5555	0.2911	1	1	18
0	0	124.4705	0.2911	1	1	19
0	0	131.3856	0.2911	1	0	20

EXHIBIT I

KMON TOWER #3 FED TOWERS 1 & 2 FLOATING

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-117.6203	-63.86259	0	0.2911	-2	2	21
-117.6203	-63.86259	6.91503	0.2911	2	2	22
-117.6203	-63.86259	13.83006	0.2911	2	2	23
-117.6203	-63.86259	20.74509	0.2911	2	2	24
-117.6203	-63.86259	27.66012	0.2911	2	2	25
-117.6203	-63.86259	34.57515	0.2911	2	2	26
-117.6203	-63.86259	41.49018	0.2911	2	2	27
-117.6203	-63.86259	48.40521	0.2911	2	2	28
-117.6203	-63.86259	55.32024	0.2911	2	2	29
-117.6203	-63.86259	62.23527	0.2911	2	2	30
-117.6203	-63.86259	69.1503	0.2911	2	2	31
-117.6203	-63.86259	76.06533	0.2911	2	2	32
-117.6203	-63.86259	82.98036	0.2911	2	2	33
-117.6203	-63.86259	89.89539	0.2911	2	2	34
-117.6203	-63.86259	96.81042	0.2911	2	2	35
-117.6203	-63.86259	103.7254	0.2911	2	2	36
-117.6203	-63.86259	110.6405	0.2911	2	2	37
-117.6203	-63.86259	117.5555	0.2911	2	2	38
-117.6203	-63.86259	124.4705	0.2911	2	2	39
-117.6203	-63.86259	131.3856	0.2911	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-235.2405	-127.7252	0	0.2474	-3	3	41
-235.2405	-127.7252	6.840674	0.2474	3	3	42
-235.2405	-127.7252	13.68135	0.2474	3	3	43
-235.2405	-127.7252	20.52202	0.2474	3	3	44
-235.2405	-127.7252	27.3627	0.2474	3	3	45
-235.2405	-127.7252	34.20337	0.2474	3	3	46
-235.2405	-127.7252	41.04405	0.2474	3	3	47
-235.2405	-127.7252	47.88472	0.2474	3	3	48
-235.2405	-127.7252	54.7254	0.2474	3	3	49
-235.2405	-127.7252	61.56607	0.2474	3	3	50
-235.2405	-127.7252	68.40675	0.2474	3	3	51
-235.2405	-127.7252	75.24742	0.2474	3	3	52
-235.2405	-127.7252	82.0881	0.2474	3	3	53
-235.2405	-127.7252	88.92877	0.2474	3	3	54
-235.2405	-127.7252	95.76945	0.2474	3	3	55
-235.2405	-127.7252	102.6101	0.2474	3	3	56
-235.2405	-127.7252	109.4508	0.2474	3	3	57
-235.2405	-127.7252	116.2915	0.2474	3	3	58
-235.2405	-127.7252	123.1321	0.2474	3	3	59
-235.2405	-127.7252	129.9728	0.2474	3	0	60

Sources: 3
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 0.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 0.0, 0.0
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 100.0, 0.0

Number of Loads: 2
Pulse No., Resistance, Reactance: 1 , 0 ,-10000
Pulse No., Resistance, Reactance: 21 , 0 ,-10000

EXHIBIT I

KMON TOWER #3 FED TOWERS 1 & 2 FLOATING

```
********************    SOURCE DATA     ********************
Pulse  1      Voltage = (0.0, 0.0j)
              Current = (-0.0012, 0.0037j)
              Impedance = (0.0, 0.0j)
              Power = 0.000000 Watts

Pulse  21     Voltage = (0.0, 0.0j)
              Current = (-0.0053, -0.001j)
              Impedance = (0.0, 0.0j)
              Power = 0.000000 Watts

Pulse  41     Voltage = (100.0, 0.0j)
              Current = (1.4315, -1.1114j)
              Impedance = (43.585, 33.84j)
              Power = 71.57 Watts

Total Power = 71.573 Watts

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

Wire No.  1 :
```

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	-0.0012	0.0037	0.0038	107.7869
2	-0.0064	0.02	0.021	107.7551
3	-0.0098	0.0307	0.0322	107.705
4	-0.0125	0.0394	0.0414	107.6454
5	-0.0148	0.0466	0.0488	107.5785
6	-0.0165	0.0524	0.0549	107.5052
7	-0.0179	0.0569	0.0596	107.4263
8	-0.0188	0.0602	0.0631	107.3421
9	-0.0194	0.0624	0.0653	107.2529
10	-0.0196	0.0634	0.0663	107.159
11	-0.0194	0.0632	0.0661	107.0606
12	-0.0189	0.062	0.0648	106.9576
13	-0.018	0.0596	0.0623	106.8502
14	-0.0169	0.0561	0.0586	106.7383
15	-0.0154	0.0516	0.0538	106.6218
16	-0.0136	0.046	0.048	106.5005
17	-0.0116	0.0394	0.0411	106.3742
18	-0.0092	0.0317	0.0331	106.2424
19	-0.0066	0.023	0.0239	106.1045
20	-0.0037	0.0129	0.0134	105.9584
E	0.0	0.0	0.0	0.0

EXHIBIT I

KMON TOWER #3 FED TOWERS 1 & 2 FLOATING

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
21	-0.0053	-0.001	0.0054	-169.2505
22	-0.029	-0.0055	0.0295	-169.2122
23	-0.0444	-0.0085	0.0452	-169.1517
24	-0.0569	-0.011	0.058	-169.0797
25	-0.0671	-0.013	0.0683	-168.9985
26	-0.0753	-0.0148	0.0767	-168.9095
27	-0.0816	-0.0161	0.0832	-168.8134
28	-0.0861	-0.0172	0.0878	-168.7108
29	-0.0889	-0.0179	0.0907	-168.6024
30	-0.09	-0.0183	0.0919	-168.4886
31	-0.0895	-0.0184	0.0914	-168.3701
32	-0.0874	-0.0182	0.0893	-168.2474
33	-0.0838	-0.0176	0.0856	-168.1213
34	-0.0786	-0.0167	0.0804	-167.9925
35	-0.072	-0.0155	0.0737	-167.8617
36	-0.064	-0.0139	0.0655	-167.7298
37	-0.0546	-0.012	0.0559	-167.5977
38	-0.0438	-0.0097	0.0449	-167.4664
39	-0.0316	-0.0071	0.0324	-167.3365
40	-0.0177	-0.004	0.0181	-167.208
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
41	1.4315	-1.1114	1.8123	-37.8258
42	1.4273	-1.1501	1.833	-38.8603
43	1.415	-1.1685	1.8351	-39.5506
44	1.3944	-1.1754	1.8237	-40.1287
45	1.3658	-1.1721	1.7997	-40.6349
46	1.3293	-1.1591	1.7637	-41.0886
47	1.285	-1.1369	1.7158	-41.5013
48	1.2333	-1.1058	1.6565	-41.881
49	1.1744	-1.0661	1.5861	-42.233
50	1.1086	-1.0181	1.5051	-42.5619
51	1.0363	-0.962	1.4139	-42.871
52	0.9577	-0.8982	1.313	-43.1629
53	0.8733	-0.827	1.2028	-43.4401
54	0.7835	-0.7489	1.0838	-43.7044
55	0.6886	-0.664	0.9566	-43.9576
56	0.589	-0.5728	0.8216	-44.201
57	0.4848	-0.4753	0.6789	-44.4361
58	0.3761	-0.3717	0.5288	-44.6642
59	0.2624	-0.2614	0.3704	-44.8867
60	0.1419	-0.1425	0.2011	-45.1066
E	0.0	0.0	0.0	0.0

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

Twr.	Ratio	Phase
1	0.002	145.6
2	0.003	-131.4
3	1.000	0.0

EXHIBIT II

KMON NIGHT DA ARRAY

```
****************************************
                ACSModel
            (MININEC 3.1 Core)
    03-26-2011              16:28:31
****************************************
```

KMON NIGHT DA ARRAY

Frequency = 0.560 MHz Wavelength = 535.35714 Meters

No. of Wires: 3

Wire No. 1	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
0	0	0		-1	
0	0	138.3006	0.2911	0	20

Wire No. 2	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-117.6203	-63.86259	0		-2	
-117.6203	-63.86259	138.3006	0.2911	0	20

Wire No. 3	Coordinates			End	No. of
X	Y	Z	Radius	Connection	Segments
-235.2405	-127.7252	0		-3	
-235.2405	-127.7252	136.8135	0.2474	0	20

**** ANTENNA GEOMETRY ****

Wire No. 1	Coordinates			Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
0	0	0	0.2911	-1	1	1
0	0	6.91503	0.2911	1	1	2
0	0	13.83006	0.2911	1	1	3
0	0	20.74509	0.2911	1	1	4
0	0	27.66012	0.2911	1	1	5
0	0	34.57515	0.2911	1	1	6
0	0	41.49018	0.2911	1	1	7
0	0	48.40521	0.2911	1	1	8
0	0	55.32024	0.2911	1	1	9
0	0	62.23527	0.2911	1	1	10
0	0	69.1503	0.2911	1	1	11
0	0	76.06533	0.2911	1	1	12
0	0	82.98036	0.2911	1	1	13
0	0	89.89539	0.2911	1	1	14
0	0	96.81042	0.2911	1	1	15
0	0	103.7254	0.2911	1	1	16
0	0	110.6405	0.2911	1	1	17
0	0	117.5555	0.2911	1	1	18
0	0	124.4705	0.2911	1	1	19
0	0	131.3856	0.2911	1	0	20

EXHIBIT II

KMON NIGHT DA ARRAY

Wire No. 2 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-117.6203	-63.86259	0	0.2911	-2	2	21
-117.6203	-63.86259	6.91503	0.2911	2	2	22
-117.6203	-63.86259	13.83006	0.2911	2	2	23
-117.6203	-63.86259	20.74509	0.2911	2	2	24
-117.6203	-63.86259	27.66012	0.2911	2	2	25
-117.6203	-63.86259	34.57515	0.2911	2	2	26
-117.6203	-63.86259	41.49018	0.2911	2	2	27
-117.6203	-63.86259	48.40521	0.2911	2	2	28
-117.6203	-63.86259	55.32024	0.2911	2	2	29
-117.6203	-63.86259	62.23527	0.2911	2	2	30
-117.6203	-63.86259	69.1503	0.2911	2	2	31
-117.6203	-63.86259	76.06533	0.2911	2	2	32
-117.6203	-63.86259	82.98036	0.2911	2	2	33
-117.6203	-63.86259	89.89539	0.2911	2	2	34
-117.6203	-63.86259	96.81042	0.2911	2	2	35
-117.6203	-63.86259	103.7254	0.2911	2	2	36
-117.6203	-63.86259	110.6405	0.2911	2	2	37
-117.6203	-63.86259	117.5555	0.2911	2	2	38
-117.6203	-63.86259	124.4705	0.2911	2	2	39
-117.6203	-63.86259	131.3856	0.2911	2	0	40

Wire No. 3 Coordinates				Connection		Pulse
X	Y	Z	Radius	End1	End2	No.
-235.2405	-127.7252	0	0.2474	-3	3	41
-235.2405	-127.7252	6.840674	0.2474	3	3	42
-235.2405	-127.7252	13.68135	0.2474	3	3	43
-235.2405	-127.7252	20.52202	0.2474	3	3	44
-235.2405	-127.7252	27.3627	0.2474	3	3	45
-235.2405	-127.7252	34.20337	0.2474	3	3	46
-235.2405	-127.7252	41.04405	0.2474	3	3	47
-235.2405	-127.7252	47.88472	0.2474	3	3	48
-235.2405	-127.7252	54.7254	0.2474	3	3	49
-235.2405	-127.7252	61.56607	0.2474	3	3	50
-235.2405	-127.7252	68.40675	0.2474	3	3	51
-235.2405	-127.7252	75.24742	0.2474	3	3	52
-235.2405	-127.7252	82.0881	0.2474	3	3	53
-235.2405	-127.7252	88.92877	0.2474	3	3	54
-235.2405	-127.7252	95.76945	0.2474	3	3	55
-235.2405	-127.7252	102.6101	0.2474	3	3	56
-235.2405	-127.7252	109.4508	0.2474	3	3	57
-235.2405	-127.7252	116.2915	0.2474	3	3	58
-235.2405	-127.7252	123.1321	0.2474	3	3	59
-235.2405	-127.7252	129.9728	0.2474	3	0	60

Sources: 3
Pulse No., Voltage Magnitude, Phase (Degrees): 1, 937.4, -50.1
Pulse No., Voltage Magnitude, Phase (Degrees): 21, 945.6, 62.4
Pulse No., Voltage Magnitude, Phase (Degrees): 41, 169.8, -172.3

Number of Loads: 0

EXHIBIT II

KMON NIGHT DA ARRAY

```
*******************    SOURCE DATA     *******************
Pulse  1       Voltage = (600.9812, -719.3486j)
               Current = (-4.1367, -6.0642j)
               Impedance = (34.818, 122.854j)
               Power = 938.1 Watts

Pulse  21      Voltage = (438.0614, 837.9675j)
               Current = (15.3629, 0.7631j)
               Impedance = (31.147, 52.998j)
               Power = 3684.67 Watts

Pulse  41      Voltage = (-168.3232, -22.6901j)
               Current = (-5.4126, 6.9022j)
               Impedance = (9.806, 16.697j)
               Power = 377.23 Watts

Total Power = 5000.000 Watts

*******************    CURRENT DATA    *******************
```

Wire No. 1 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
1	-4.1367	-6.0642	7.3408	-124.2998
2	-4.4456	-6.3148	7.7227	-125.1452
3	-4.6205	-6.4387	7.925	-125.6639
4	-4.7319	-6.4947	8.0356	-126.0763
5	-4.7896	-6.4913	8.067	-126.4217
6	-4.7979	-6.4324	8.0247	-126.7193
7	-4.7592	-6.3202	7.9118	-126.9803
8	-4.6753	-6.1568	7.7308	-127.2122
9	-4.5477	-5.9437	7.4839	-127.4204
10	-4.3777	-5.6828	7.1735	-127.6088
11	-4.1669	-5.3758	6.8016	-127.7806
12	-3.9168	-5.0245	6.3708	-127.9381
13	-3.629	-4.631	5.8836	-128.0835
14	-3.3051	-4.1973	5.3424	-128.2184
15	-2.9467	-3.7252	4.7497	-128.3443
16	-2.555	-3.2164	4.1077	-128.4625
17	-2.1312	-2.6721	3.4179	-128.574
18	-1.6751	-2.0923	2.6802	-128.6801
19	-1.1844	-1.474	1.8909	-128.7819
20	-0.6504	-0.8066	1.0361	-128.8812
E	0.0	0.0	0.0	0.0

EXHIBIT II

KMON NIGHT DA ARRAY

Wire No. 2 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
21	15.3629	0.7631	15.3819	2.8436
22	15.6923	0.5654	15.7025	2.0634
23	15.8049	0.43	15.8108	1.5586
24	15.7833	0.3144	15.7864	1.1412
25	15.6397	0.2127	15.6412	0.7792
26	15.3804	0.1228	15.3809	0.4574
27	15.0096	0.0436	15.0097	0.1665
28	14.5312	-0.0252	14.5312	-0.0995
29	13.9487	-0.084	13.949	-0.345
30	13.2663	-0.1328	13.267	-0.5734
31	12.4882	-0.1716	12.4894	-0.7872
32	11.6187	-0.2005	11.6204	-0.9886
33	10.6625	-0.2195	10.6648	-1.1794
34	9.6242	-0.2287	9.6269	-1.361
35	8.5084	-0.2279	8.5115	-1.5346
36	7.319	-0.2174	7.3222	-1.7014
37	6.0587	-0.197	6.0619	-1.8625
38	4.7276	-0.1666	4.7305	-2.0187
39	3.3195	-0.1258	3.3218	-2.1711
40	1.8103	-0.0734	1.8118	-2.3221
E	0.0	0.0	0.0	0.0

Wire No. 3 :

Pulse No.	Real (Amps)	Imaginary (Amps)	Magnitude (Amps)	Phase (Degrees)
41	-5.4126	6.9022	8.7713	128.1031
42	-5.4062	6.9528	8.8073	127.8674
43	-5.3651	6.9403	8.7722	127.7052
44	-5.2914	6.8797	8.6792	127.5649
45	-5.1859	6.7735	8.5308	127.4379
46	-5.0493	6.6234	8.3286	127.3197
47	-4.8826	6.4307	8.0743	127.2081
48	-4.6867	6.1967	7.7695	127.1013
49	-4.4629	5.9229	7.416	126.9981
50	-4.2123	5.6108	7.016	126.8976
51	-3.9364	5.2621	6.5715	126.7992
52	-3.6368	4.8787	6.085	126.7022
53	-3.3149	4.4624	5.5589	126.6063
54	-2.9723	4.0152	4.9956	126.5111
55	-2.6106	3.5388	4.3976	126.4162
56	-2.2312	3.035	3.7668	126.3215
57	-1.835	2.5047	3.1049	126.2268
58	-1.4222	1.9481	2.412	126.1318
59	-0.9914	1.3627	1.6851	126.0362
60	-0.5357	0.7389	0.9127	125.9391
E	0.0	0.0	0.0	0.0

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

Twr.	Ratio	Phase
1	0.477	-127.1
2	1.000	0.0
3	0.570	125.3

FIGURE 1
TOWER #1 BASE CIRCUIT MODEL

WCAP - KMON TOWER #1 ND

WCAP - KMON-1

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	602.8617 ∡	40.8727° V
Node:	2	835.1154 ∡	56.9753° V
Node:	3	835.1099 ∡	56.9759° V

WCAP PART		CURRENT IN	CURRENT OUT

WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R 2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L 3→1	8.72000000	305.69 ∡ 90.138° V	9.96 ∡ 0.138° A
C 1→0	0.00003000	602.86 ∡ 40.873° V	0.06 ∡ 130.873° A
R 1→0	45.46900000	602.86 ∡ 40.873° V	10.00 ∡ -0.138° A
L 3→0	5400.00000000	835.11 ∡ 56.976° V	0.04 ∡ -33.024° A

WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R 2→3	0.00100000	45.51 + j 70.019	45.51 + j 70.019
L 3→1	8.72000000	45.85 + j 70.168	45.85 + j 39.486
C 1→0	0.00003000	0.01 - j 9473.509	0.00 + j 0.000
R 1→0	45.46900000	45.47 + j 39.541	0.00 + j 0.000
L 3→0	5400.00000000	0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	8.72000000	3	1	0.00000000
C	0.00003000	1	0	
R	45.46900000	1	0	39.54100000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: 0 kHz

Frequency Step: 1 kHz

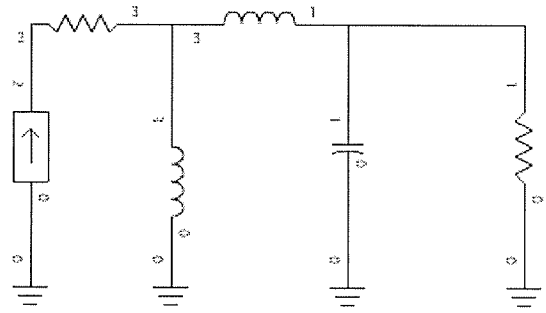


FIGURE 2
TOWER #2 BASE CIRCUIT MODEL

WCAP – KMON TOWER #2 ND

WCAP - KMON-2

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	583.5962 ∡	41.7344° V
Node:	2	849.5380 ∡	59.2214° V
Node:	3	849.5329 ∡	59.2219° V

WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L	3→1	9.74000000	341.39 ∡ 90.132° V	9.96 ∡ 0.132° A
C	1→0	0.00003000	583.60 ∡ 41.734° V	0.06 ∡ 131.734° A
R	1→0	43.44900000	583.60 ∡ 41.734° V	10.00 ∡ -0.132° A
L	3→0	5400.00000000	849.53 ∡ 59.222° V	0.04 ∡ -30.778° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→3	0.00100000	43.47 + j 72.988	43.47 + j 72.988
L	3→1	9.74000000	43.81 + j 73.169	43.81 + j 38.898
C	1→0	0.00003000	0.00 - j 9473.509	0.00 + j 0.000
R	1→0	43.44900000	43.45 + j 38.939	0.00 + j 0.000
L	3→0	5400.00000000	0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	9.74000000	3	1	0.00000000
C	0.00003000	1	0	
R	43.44900000	1	0	38.93900000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: 0 kHz

Frequency Step: 1 kHz

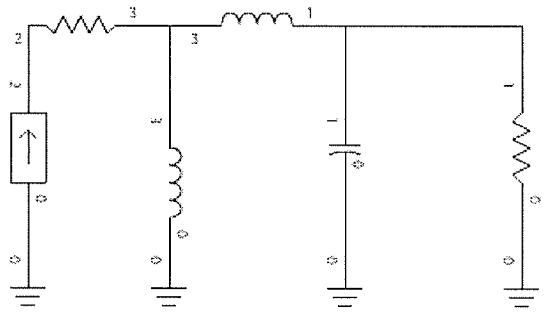


FIGURE 3
TOWER #3 BASE CIRCUIT MODEL

WCAP - KMON TOWER #3 ND

WCAP - KMON-3

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	551.7655 ∡	37.6936° V
Node:	2	814.3790 ∡	57.6463° V
Node:	3	814.3736 ∡	57.6469° V

WCAP PART		CURRENT IN	CURRENT OUT

WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L	3→1	10.00000000	350.59 ∡ 90.132° V	9.96 ∡ 0.132° A
C	1→0	0.00003000	551.77 ∡ 37.694° V	0.06 ∡ 127.694° A
R	1→0	43.58500000	551.77 ∡ 37.694° V	10.00 ∡ -0.133° A
L	3→0	5400.00000000	814.37 ∡ 57.647° V	0.04 ∡ -32.353° A

WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→3	0.00100000	43.58 + j 68.796	43.58 + j 68.796
L	3→1	10.00000000	43.90 + j 68.944	43.90 + j 33.759
C	1→0	0.00003000	0.01 - j 9473.509	0.00 + j 0.000
R	1→0	43.58500000	43.59 + j 33.840	0.00 + j 0.000
L	3→0	5400.00000000	0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	10.00000000	3	1	0.00000000
C	0.00003000	1	0	
R	43.58500000	1	0	33.84000000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: ±0 kHz

Frequency Step: 1 kHz

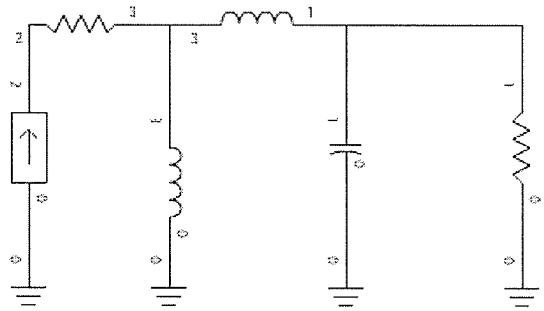


FIGURE 4
TOWER #1 BASE CIRCUIT MODEL - NIGHT DA PATTERN

WCAP - KMON TOWER #1 NIGHT DA

WCAP - KMON-1 DA

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	1283.2223 ∡	74.0703° V
Node:	2	1577.9597 ∡	77.1241° V
Node:	3	1577.9575 ∡	77.1245° V

WCAP PART		CURRENT IN	CURRENT OUT

WCAP PART			BRANCH VOLTAGE	BRANCH CURRENT
R	2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L	3→1	8.72000000	304.34 ∡ 90.107° V	9.92 ∡ 0.107° A
C	1→0	0.00003000	1283.22 ∡ 74.070° V	0.14 ∡ 164.070° A
R	1→0	34.81800000	1283.22 ∡ 74.070° V	10.05 ∡ -0.106° A
L	3→0	5400.00000000	1577.96 ∡ 77.124° V	0.08 ∡ -12.876° A

WCAP PART			FROM IMPEDANCE	TO IMPEDANCE
R	2→3	0.00100000	35.16 + j 153.828	35.16 + j 153.828
L	3→1	8.72000000	35.74 + j 155.017	35.74 + j 124.335
C	1→0	0.00003000	0.00 - j 9473.509	0.00 + j 0.000
R	1→0	34.81800000	34.82 + j 122.854	0.00 + j 0.000
L	3→0	5400.00000000	0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	8.72000000	3	1	0.00000000
C	0.00003000	1	0	
R	34.81800000	1	0	122.85400000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: 0 kHz

Frequency Step: 1 kHz

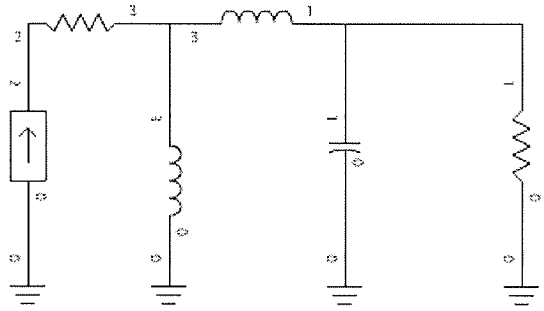


FIGURE 5
TOWER #2 BASE CIRCUIT MODEL - NIGHT DA PATTERN

WCAP - KMON TOWER #2 NIGHT DA

WCAP - KMON-2 DA

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	615.4668 ∡	59.4623° V
Node:	2	891.9993 ∡	69.5108° V
Node:	3	891.9958 ∡	69.5114° V

WCAP PART		CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L	3→1	8.72000000	305.47 ∡ 90.095° V	9.96 ∡ 0.095° A
C	1→0	0.00003000	615.47 ∡ 59.462° V	0.06 ∡ 149.462° A
R	1→0	31.14700000	615.47 ∡ 59.462° V	10.01 ∡ -0.095° A
L	3→0	5400.00000000	892.00 ∡ 69.511° V	0.05 ∡ -20.489° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→3	0.00100000	31.22 + j 83.557	31.22 + j 83.557
L	3→1	8.72000000	31.50 + j 83.874	31.50 + j 53.192
C	1→0	0.00003000	0.00 - j 9473.509	0.00 + j 0.000
R	1→0	31.14700000	31.15 + j 52.998	0.00 + j 0.000
L	3→0	5400.00000000	-0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	8.72000000	3	1	0.00000000
C	0.00003000	1	0	
R	31.14700000	1	0	52.99800000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: 0 kHz

Frequency Step: 1 kHz

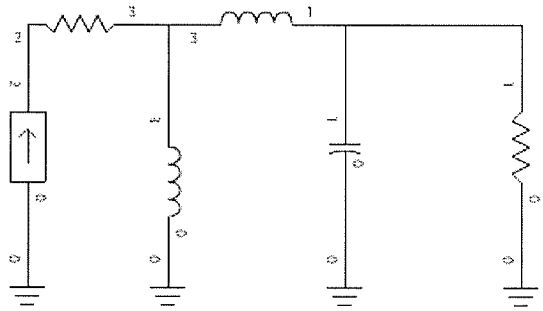


FIGURE 6
TOWER #3 BASE CIRCUIT MODEL - NIGHT DA PATTERN

WCAP - KMON TOWER #3 NIGHT DA

WCAP - KMON-3 DA

WCAP OUTPUT AT FREQUENCY: 0.560 MHz

NODE VOLTAGES

Node:	1	193.4947 ∡	59.5449° V
Node:	2	482.8882 ∡	78.2996° V
Node:	3	482.8862 ∡	78.3007° V

WCAP PART	CURRENT IN	CURRENT OUT

	WCAP PART		BRANCH VOLTAGE	BRANCH CURRENT
R	2→3	0.00100000	0.01 ∡ 0.000° V	10.00 ∡ 0.000° A
L	3→1	8.72000000	306.06 ∡ 90.030° V	9.98 ∡ 0.030° A
C	1→0	0.00003000	193.49 ∡ 59.545° V	0.02 ∡ 149.545° A
R	1→0	9.80600000	193.49 ∡ 59.545° V	9.99 ∡ -0.030° A
L	3→0	5400.00000000	482.89 ∡ 78.301° V	0.03 ∡ -11.699° A

	WCAP PART		FROM IMPEDANCE	TO IMPEDANCE
R	2→3	0.00100000	9.79 + j 47.285	9.79 + j 47.285
L	3→1	8.72000000	9.84 + j 47.398	9.84 + j 16.716
C	1→0	0.00003000	-0.01 - j 9473.509	0.00 + j 0.000
R	1→0	9.80600000	9.81 + j 16.697	0.00 + j 0.000
L	3→0	5400.00000000	0.00 + j 19000.352	0.00 + j 0.000

WCAP PART	VSWR

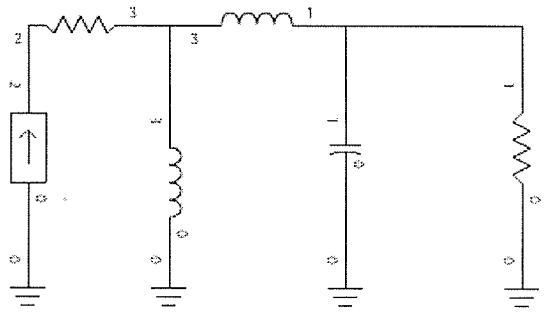
WCAP INPUT DATA:

	0.5600	0.00100000	1	
I	10.00000000	0	2	0.00000000
R	0.00100000	2	3	0.00000000
L	8.72000000	3	1	0.00000000
C	0.00003000	1	0	
R	9.80600000	1	0	16.69700000
L	5400.00000000	3	0	0.00000000

Center Frequency: 0.56 MHz

Frequency Range: 10 kHz

Frequency Step: 1 kHz



APPENDIX 1

KMON AM
5.4 KW Night DA
Reference Field Strength Measurements for M.O.M. LICENSING
AMENDED JULY 14, 2011
PI FIM-41 SN 699

Radial	Point	Time	Distance	mV/m	Coordinates (WGS84)		Description
140.5	1	12:58p	1.91 mi	24.1	47° 24' 12.27"	111° 15' 49.43"	West side Eden Rd by phone box
	2	1:09p	4.19 mi	7.8	47° 22' 40.21"	111° 13' 58.38"	South side of E. Hunter road by bush
	3	1:16p	5.5 mi	8.3	47° 21' 47.68"	111° 12' 53.37"	In driveway on north side of Red Butte Ln
172	1	1:45p	3.29 mi	9.4	47° 22' 39.43"	111° 16' 46.95"	North side of Ross Rd 200ft East of driveway
	2	1:31p	5.07 mi	9.3	47° 21' 07.90"	111° 16' 28.21"	West side of Eden Rd by curve sign
	3	1:36p	6.49 mi	8.2	47° 19' 53.80"	111° 16' 13.15"	South side of Eden Rd by 50 MPH curve sign
245	1	1:59p	3.3 mi	3.5	47° 24' 15.51"	111° 21' 12.68"	East side of Russel Ranch Ln at driveway
	2	2:08p	4.87 mi	5.4	47° 23' 41.36"	111° 23' 01.54"	West on Private Drive off Wilson Butte Road 150 yds
	3	2:14p	6.56 mi	4.2	47° 23' 04.19"	111° 25' 00.02"	West of top of hill, East of pasture entrance 200 ft
276.5	1	11:20a	1.75 mi	34	47° 25' 39.20"	111° 19' 36.14"	North side Fox Farm Ln 100ft South of fountain by tree
	2	11:33a	3.75 mi	22.9	47° 25' 51.10"	111° 22' 09.57"	North side Flood Rd at 4 mi marker
	3	11:39a	4.31 mi	14	47° 25' 53.99"	111° 22' 52.27"	South side Flood Rd by curve sign
28.5	1	11:40a	2.02 mi	450	47° 27' 1.87"	111° 16' 8.11"	In front of metal house, power pole #115
	2	11:53a	3.1 mi	330	47° 27' 54.52"	111° 15' 25.21"	At curve on Highland road at driveway
	3	11:59a	3.75 mi	242	47° 28' 20.3"	111° 15' 2.6"	North side of Gibson Flats road by 2 metal markers