ORIGINAL

Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

BMML

FOR COMMISSION USE ONLY
FILE NO. BL-20101013AEB

SECTION I - APPLICANT FEE INFORMATION

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

Gammon & Grange, P.C.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
8280 Greensboro Drive, 7th Floor

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
McLean	VA	22102

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
703-761-5013	KGMS	53592

2. A. Is a fee submitted with this application? [✓] Yes [ ] No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

[ ] Governmental Entity [ ] Noncommercial educational licensee [ ] Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
M M R	0 0 0 1	$ 615.00	

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

(A)	(B)	(C)	FOR FCC USE ONLY
	0 0 0 1	$	

ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.

TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
$ 615.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT GOOD MUSIC, INC.		
MAILING ADDRESS 3222 S. RICHEY AVE.		
CITY TUCSON	STATE AZ	ZIP CODE 85713

2. This application is for:

☑ Commercial ☐ Noncommercial

☑ AM Directional ☐ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
KGMS	TUCSON, AZ	BP-20100505AGG	BZ-20031014AQO	08/16/2013

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☑ Yes ☐ No

If No, explain in an Exhibit.

Exhibit No.

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

☑ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No.

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

☐ Yes ☑ No

If Yes, explain in an Exhibit.

Exhibit No.

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

☐ Yes ☐ No

☑ Does not apply

If No, explain in an Exhibit.

Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

Exhibit No.

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

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

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

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

CERTIFICATION

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

☑ Yes ☐ No

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

Name	Signature	
DOUGLAS E. MARTIN		
Title	Date	Telephone Number
PRESIDENT	10-8-10	520-791-7200

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
GOOD MUSIC, INC.

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
KGMS	BP-20100505AGG	940	UNL	0.25	1.0

2. Station location

State	City or Town
AZ	TUCSON

3. Transmitter location

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	2354 WEST SAN JUAN

4. Main studio location

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	3222 S. RICHEY AVE.

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

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	3222 S. RICHEY AVE.

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

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

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. ENG RPT

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
2.33	4.65

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	50	+/- j0	+/- j0

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
TOWER 1 NORTHWEST	1.000	1.000	0.0	0.0		
TOWER 2 SOUTHEAST	0.754	0.569	22.4	23.2		

Manufacturer and type of antenna monitor: POTOMAC INSTRUMENTS AM 19 (204)

9. Description of antenna system (If 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.
	79.2 m	79.9 m	79.9 m	Exhibit No.

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			
	32 °	12 '	03 "		111 °	01 '	05 "

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.

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?

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

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)
Stephen S. Lockwood, P.E.	
Address (include ZIP Code) Hatfield & Dawson Consulting Engineers 9500 Greenwood Ave N Seattle, WA	Date 7 October 2010
	Telephone No. (Include Area Code) 206 783 9151

[ ] Technical Director

[X] Registered Professional Engineer

[ ] Chief Operator

[ ] Technical Consultant

[ ] Other (specify)

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(1942-2009)

Engineering Report:

APPLICATION FOR STATION LICENSE

Moment Method Proof of Performance

KGMS, 940 kHz

1.0 kW Daytime 0.25 kW Nighttime DA-2

Facility ID 53592

Tucson, Arizona

Good Music, Inc.

October 2010

Table of Contents

Purpose of Application

This Engineering Report has been prepared on behalf of Good Music, Inc., licensee of AM station KGMS, Tucson, AZ and is part of an application for a license to cover construction permit BP-20100505AGG. The underlying application proposed a modified standard pattern for the nighttime operation of KGMS to match as closely as possible the presently licensed augmented pattern in order to facilitate use of a "Method of Moment" proof of performance without loss of presently authorized coverage in the heavily populated null regions of the antenna pattern. No changes to the presently licensed daytime operation of KGMS are proposed in the construction permit, with the exception of a correction of the coordinates specified to agree with those of the Antenna Structure Registrations.

Background

This application contains a Method of Moments Computer Model proof of performance, as authorized by §73.151(c) of the Commission's rules. As Commission policy normally requires that all patterns of a multi-pattern operation must be verified by the same proof of performance method, this application also contains a Method of Moments proof of the unchanged daytime operation of KGMS.

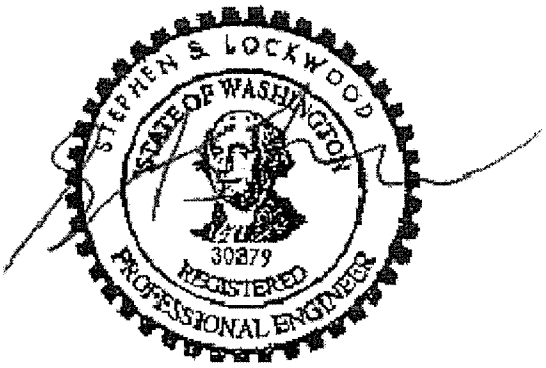
Information provided in this Engineering Report demonstrates that the directional antenna parameters specified on the included FCC Form 302-AM have been determined in accordance with the requirements of section §73.151(c) of the Commission's rules. The system has been adjusted to produce antenna monitor parameters within ± 5% of the ratio and ± 3° of the phase values determined by the model, as required by the Commission's Rules.

The enclosed survey shows the tower locations to be within 0.1° or 3.6 inches of the specified location.

All antenna and sample system measurements used in this report were taken by the undersigned between the 8th and 10th of September 2010.

Stephen S. Lockwood, P.E.

7 October 2010

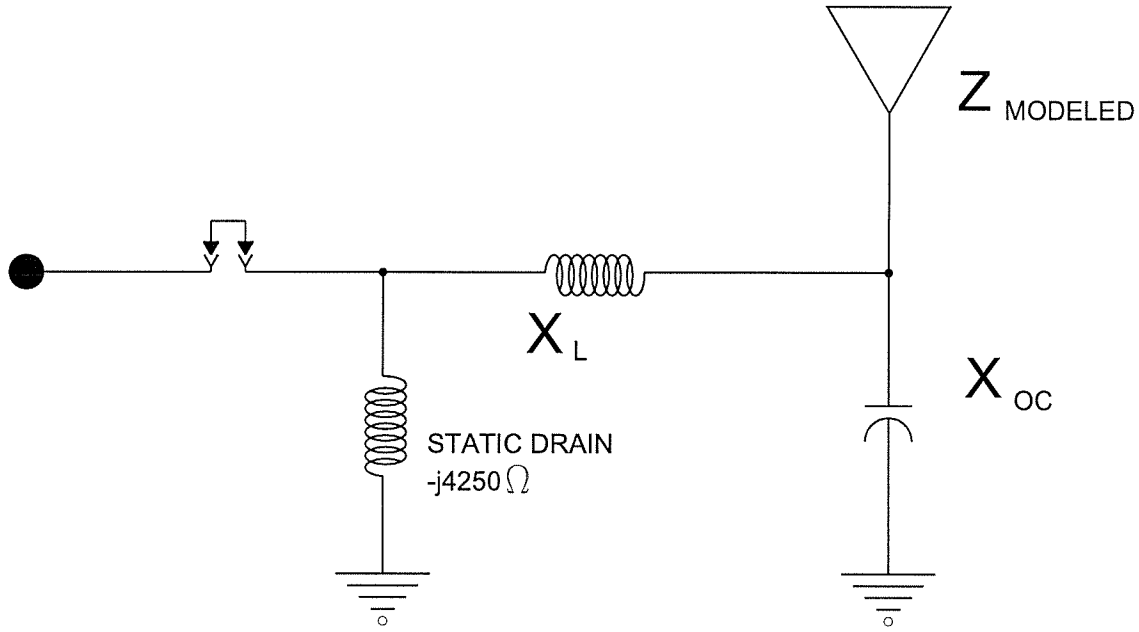


ITEM 1 - Tower Impedance Measurements and Model Verification

Tower base Impedance measurements were made at the reference points in each Antenna Tuning Unit (ATU) circuit, adjacent to the sample system toroidal current transformers. These measurements were made using an HP 8751A network analyzer, an ENI 403LA amplifier and custom manufactured directional couplers in a calibrated measurement system. The other tower in the array was floated with the reference point in the circuit open.

Standard electrical circuit calculations have been used to relate the measured impedance ($Z_{ATU\ Measured}$) to the moment method base modeled impedance ($Z_{Modeled}$). X_L and X_C were calculated for the assumed stray base capacitance and lead inductance for each tower

The modeled ($Z_{ATU\ Modeled}$) and measured ($Z_{ATU\ Measured}$) base impedance at each ATU reference point with the other tower open circuited at its ATU reference point agree within ± 2 ohm and ± 4 % for resistance and reactance.



TOWER	$X_L(\Omega)$	$X_{OC}(\Omega)$	$Z_{MODELED}(\Omega)$	$Z_{ATU\ MODELED}(\Omega)$	$Z_{ATU\ MEASURED}(\Omega)$
TOWER #1	+j39.0	-j680	38.3 +j8.5	38.3 +j45.2	38.8 +j45.3
TOWER #2	+j31.0	-j680	45.4 +j33.9	48.6 +j62.8	50.5 +j 62.5

Bob Allen, H&D 9/9/2010 3:17 PM KGMS TOWER CIRCUITS.dwg

Hatfield & Dawson
Consulting Engineers

ANALYSIS OF TOWER IMPEDANCE MEASUREMENTS TO VERIFY METHOD OF MOMENTS MODEL

KGMS (AM) 940 kHz TUCSON, AZ 09/2010

ITEM 2 - Derivation of Operating Parameters for Directional Antenna

PSpice is an analog circuit simulator computer program. It calculates the voltages and currents in a circuit under a variety of excitation circumstances, such as DC, AC, and in time using nodal and mesh analysis applications of Kirchhoff's law. PSpice was used to model the circuit conditions around the tower bases to derive the antenna monitor parameters, based on the tower base currents calculated by the moment method model. The 1987 MicroSim release of this program was used.

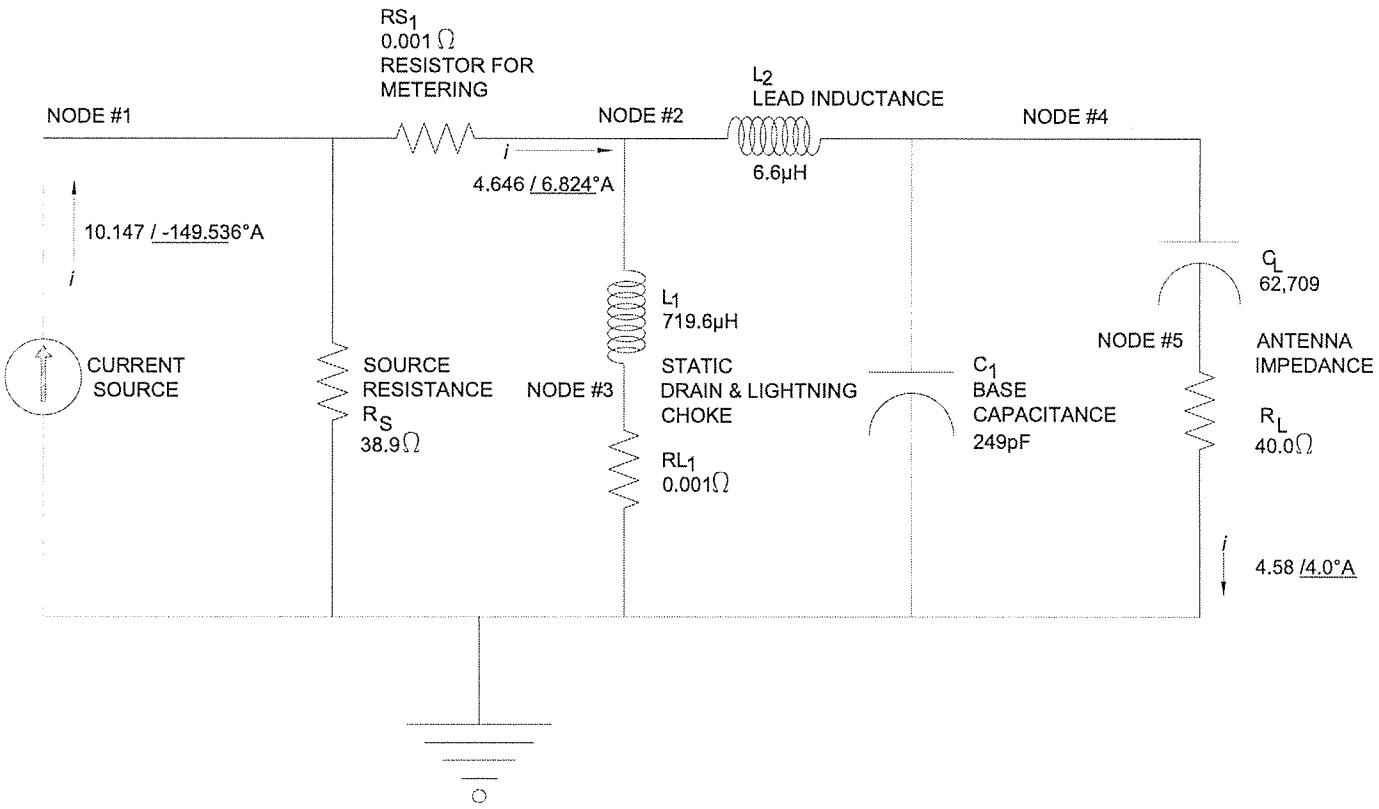
PSPICE MODELS

Daytime Tower 1 Input

```
## KGMS Day TOWER 1 BASE MODEL
.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 940kHz 940kHz

IIN     1       0       AC 10.147 -149.536
rs      1       0       38.9
rs1     1       2       .001

L1      2       3       719.6uH
RL1     3       0       .001
L2      2       4       6.6uH
C1      4       0       249pF

CL      4       5       62709pF
RL      5       0       40.0ohms

.PRINT AC VM(2,0) VP(2,0) VM(4,0) VP(4,0)
.PRINT AC IM(L1) IP(L1) IM(L2) IP(L2)
.PRINT AC IM(RS1) IP(RS1) IM(RL) IP(RL)
##.PROBE
.END
```

Day Tower 1 Output

FREQ	IM(RS1)	IP(RS1)	IM(RL)	IP(RL)
9.400E+05	4.646E+00	6.824E+00	4.583E+00	4.000E+00



Bob Allen, H&D 9/30/2010 10:34 AM KGMS TOWER CIRCUITS.dwg

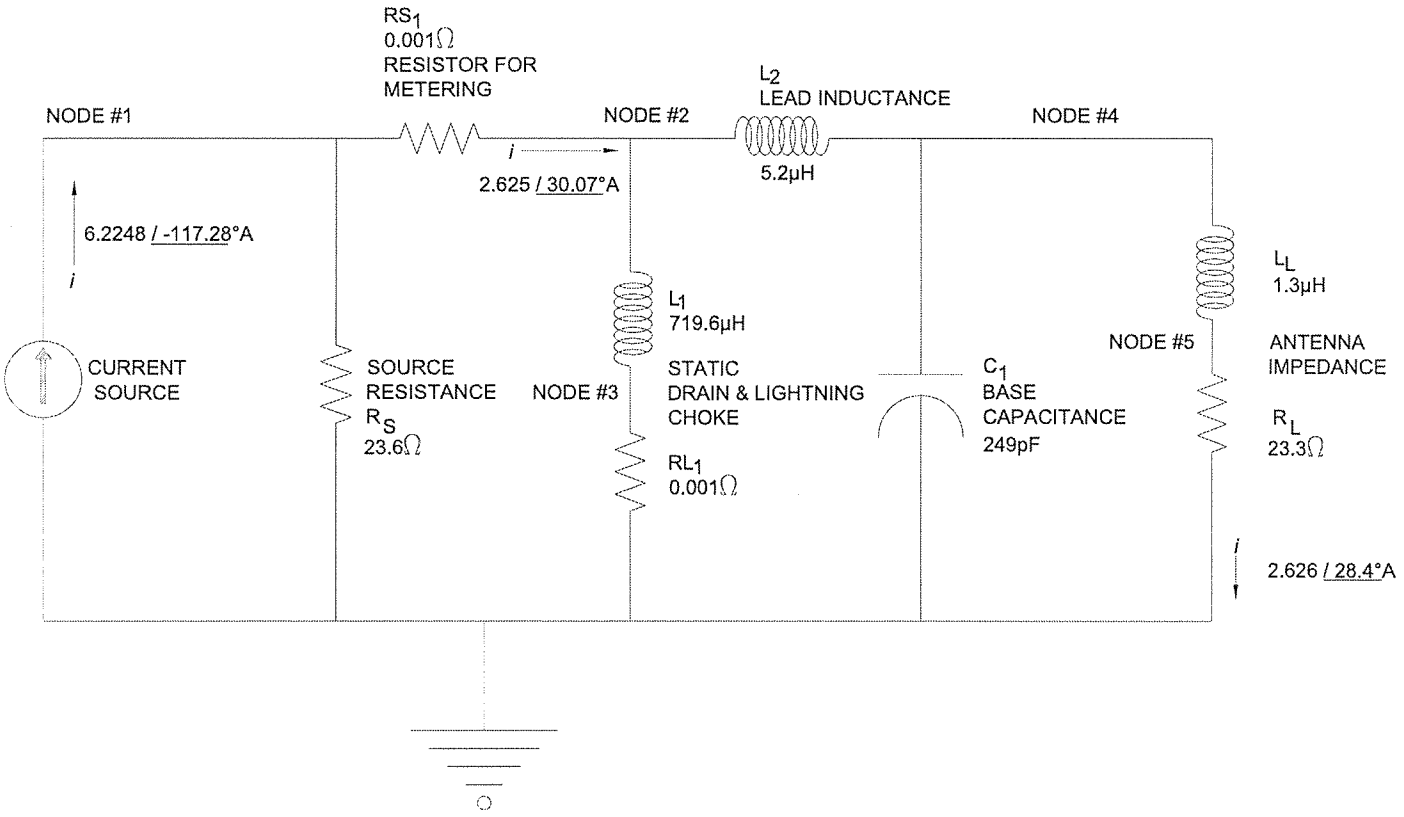
Hatfield & Dawson Consulting Engineers	KGMS(AM) TOWER #1 DAYTIME PSPICE MODEL KGMS (AM) 940 kHz TUCSON, AZ 09/2010

Daytime Tower 2 Input

```
## KGMS DAY TOWER 2 BASE MODEL
.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 940kHz 940kHz

IIN     1       0       AC 6.2248 -117.28
rs      1       0       23.4
rs1     1       2       .001

L1      2       3       761.9uH
RL1     3       0       .001
L2      2       4       5.2uH
C1      4       0       249pF

CL      4       5       1.3uH
RL      5       0       23.3ohms

.PRINT AC VM(2,0) VP(2,0) VM(4,0) VP(4,0)
.PRINT AC IM(L1) IP(L1) IM(L2) IP(L2)
.PRINT AC IM(RS1) IP(RS1) IM(RL) IP(RL)
##.PROBE
.END
```

Daytime Tower 2 Output

FREQ	IM(RS1)	IP(RS1)	IM(RL)	IP(RL)
9.400E+05	2.645E+00	3.007E+01	2.626E+00	2.840E+01



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Hatfield & Dawson
Consulting Engineers

KGMS(AM) TOWER #2 DAYTIME PSPICE MODEL

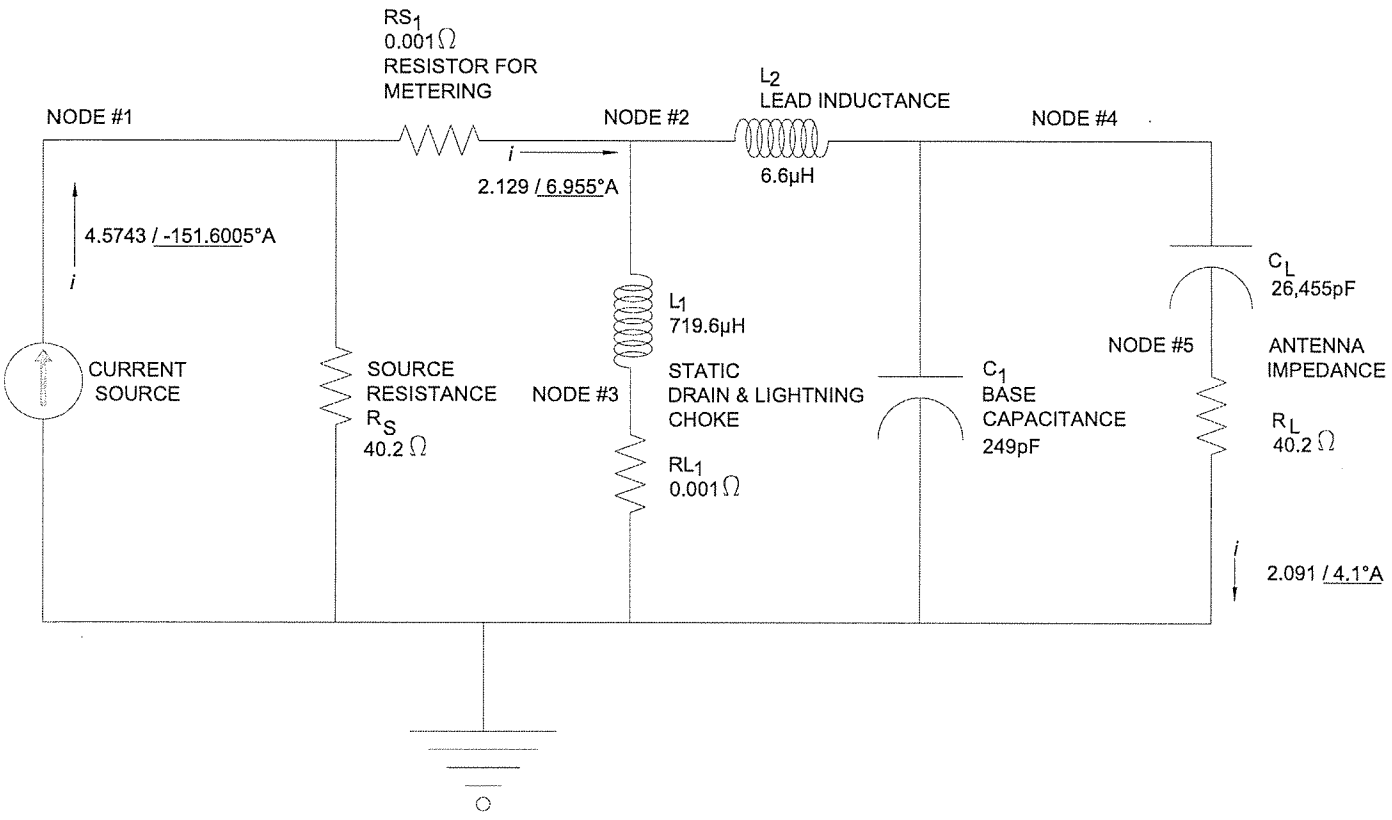
KGMS (AM) 940 kHz TUCSON, AZ 09/2010

Nighttime Tower 1 Input

```
## KGMS NIGHT TOWER 1 BASE MODEL
.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 940kHz 940kHz

IIN      1        0        AC 4.5743 -151.605
rs       1        0        38.8
rs1      1        2        .001

L1       2        3        761.9uH
RL1      3        0        .001
L2       2        4        6.6uH
C1       4        0        249pF

CL       4        5        26455pF
RL       5        0        40.2ohms

.PRINT AC VM(2,0) VP(2,0) VM(4,0) VP(4,0)
.PRINT AC IM(L1) IP(L1) IM(L2) IP(L2)
.PRINT AC IM(RS1) IP(RS1) IM(RL) IP(RL)
##.PROBE
.END
```

Nighttime Tower 1 Output

FREQ	IM(RS1)	IP(RS1)	IM(RL)	IP(RL)
9.400E+05	2.129E+00	6.955E+00	2.091E+00	4.100E+00



Bob Allen, H&D 9/30/2010 10:34 AM KGMS TOWER CIRCUITS.dwg

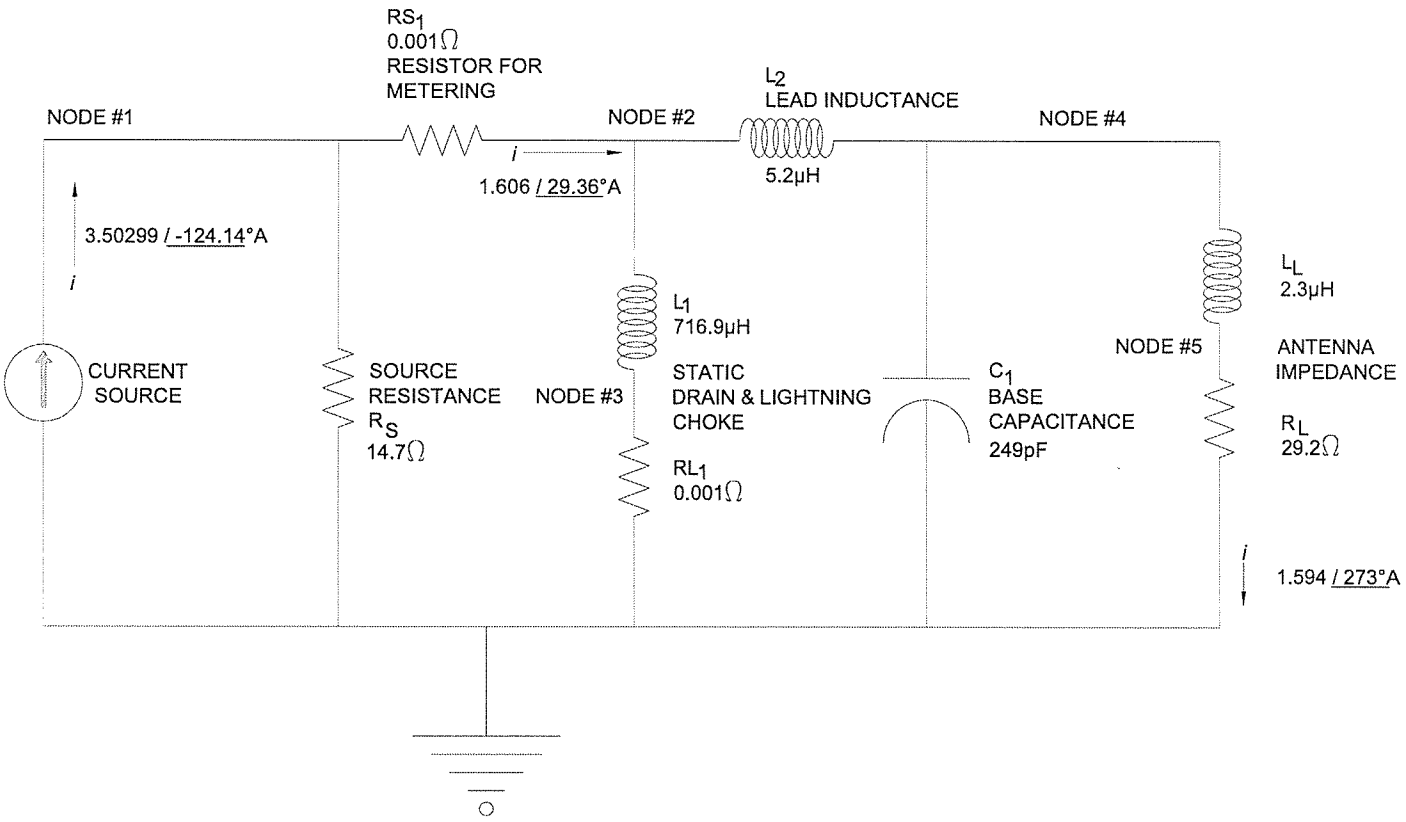
Hatfield & Dawson Consulting Engineers	KGMS(AM) TOWER #1 NIGHTTIME PSPICE MODEL KGMS (AM) 940 kHz TUCSON, AZ 09/2010

Nighttime Tower 2 Input

```
## KGMS NIGHT TOWER 2 BASE MODEL
.OPT LIST NOPAGE NODE NOMOD
.AC LIN 1 940kHz 940kHz

IIN     1       0       AC 3.50299 -124.14
rs      1       0       30.2
rs1     1       2       .001

L1      2       3       719.6uH
RL1     3       0       .001
L2      2       4       5.2uH
C1      4       0       249pF

CL      4       5       2.3uH
RL      5       0       29.2ohms

.PRINT AC VM(2,0) VP(2,0) VM(4,0) VP(4,0)
.PRINT AC IM(L1) IP(L1) IM(L2) IP(L2)
.PRINT AC IM(RS1) IP(RS1) IM(RL) IP(RL)
##.PROBE
.END
```

Nighttime Tower 2 Output

FREQ	IM(RS1)	IP(RS1)	IM(RL)	IP(RL)
9.400E+05	1.606E+00	2.936E+01	1.594E+00	2.730E+01



Bob Allen, H&D 9/30/2010 10:34 AM KGMS TOWER CIRCUITS.dwg

Hatfield & Dawson
Consulting Engineers

KGMS(AM) TOWER #2 NIGHTTIME PSPICE MODEL

KGMS (AM) 940 kHz TUCSON, AZ 09/2010

Calculated Antenna Monitor Parameters

Daytime	Modeled Current Pulse	Sample Current Calculated (Amps)		Antenna Monitor Parameters	
		Magnitude	Phase (°)	Ratio	Phase (°)
Tower 1 Northwest	Node 1	4.646	6.8°	1.000	0.0°
Tower 2 Southeast	Node 22	2.645	30.1°	0.569	23.2°

Nighttime	Modeled Current Pulse	Sample Current Calculated (Amps)		Antenna Monitor Parameters	
		Magnitude	Phase (°)	Ratio	Phase (°)
Tower 1 Northwest	Node 1	2.129	7.0°	1.000	0.0°
Tower 2 Southeast	Node 22	1.606	29.4°	0.754	22.4°

ITEM 3- Moment Method Model for Tower Driven Individually

Expert MININEC Broadcast Professional Version 12.5 was used to model the KGMS array. The antenna model was adjusted to match the measured matrix impedances. The wire coordinates used are in electrical degrees and wire radius is in meters The physical height of the triangular cross section towers is 80.4°, the face width is 18 inches. The following adjusted parameters were used:

- antenna electrical height was adjusted to be 98% of the physical height (87.6°) for tower 1 and tower 2 was adjusted to 103% of the physical height (92.1°)
- wire radius of 100% (0.2175 meters) of the equivalent radius of the tower was used
- 21 segments per antenna element (4.2° per segment for towers #1 and 4.4° for tower #2) were used

There is a considerable difference in the height above ground of the two ATU cabinets and tower bases. Both cabinets are within 4" of the tower foundation pier but differ in height above ground by about 18". The coupling between the ATU cabinets and their respective tower is quite different due to the variation in capacitive coupling to ground and the interaction with the strong electical field at the base of the tower. The tower heights in the model are adjusted to account for this difference.

Northwest Tower #1 Model

KGMS

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2175	21
		0	0	87.6		
2	none	163.2	135.	0	.2175	21
		163.2	135.	92.1		

Number of wires = 2
current nodes = 42

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	4.17143	2	4.38571
radius	1	.2175	1	.2175

ELECTRICAL DESCRIPTION
Frequencies (KHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	940.	0	1	.0115873	.0121825

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	22	1.E+06	-808.1	0	0	0

IMPEDANCE
normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
940.	38.281	8.4666	39.206	12.5	1.3895	-15.755	-.11697

Southeast Tower #2 Model

KGMS

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2175	21
		0	0	87.6		
2	none	163.2	135.	0	.2175	21
		163.2	135.	92.1		

Number of wires = 2
current nodes = 42

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	4.17143	2	4.38571
radius	1	.2175	1	.2175

ELECTRICAL DESCRIPTION
Frequencies (KHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	940.	0	1	.0115873	.0121825

Sources

source	node	sector	magnitude	phase	type
1	22	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	1.E+06	-808.4	0	0	0

IMPEDANCE
normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 22, sector 1							
940.	45.436	33.902	56.69	36.7	2.02	-9.4279	-.52605

ITEM 4 - Moment Method Model for Directional Array

Input File:

```
KGMS Daytime

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

wire  caps Distance     Angle        Z            radius       segs
 1    none 0            0            0            .2175         21
           0            0            87.6
 2    none 163.2        135.         0            .2175         21
           163.2        135.         92.1

Number of wires          =  2
          current nodes  =  42

                          minimum                   maximum
Individual wires       wire    value             wire  value
segment length          1      4.17143            2    4.38571
radius                  1      .2175              1    .2175


ELECTRICAL DESCRIPTION
Frequencies (KHz)
     frequency                  no. of  segment length (wavelengths)
 no. lowest       step          steps   minimum        maximum
 1   940.         0              1      .0115873       .0121825

Sources
source node    sector  magnitude      phase          type
 1      1       1       259.594        .2             voltage
 2      22      1       91.0077        46.6           voltage

IMPEDANCE
normalization = 50.
freq     resist    react     imped     phase     VSWR     S11       S12
(KHz)    (ohms)    (ohms)    (ohms)    (deg)              dB        dB
source =  1; node 1, sector 1
940.     39.96     -2.6831   40.05     356.2     1.2611   -18.751   -5.8E-02
source =  2; node 22, sector 1
940.     23.286    7.6492    24.51     18.2      2.2109   -8.4705   -.66623
```

CURRENT rms
Frequency = 940 KHz
Input power = 1,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	4.58341	4.	4.57212	.321612
2	0	0	4.17143	4.56699	3.	4.56074	.238932
3	0	0	8.34286	4.52975	2.3	4.52604	.183213
4	0	0	12.5143	4.4703	1.7	4.46823	.136069
5	0	0	16.6857	4.3886	1.2	4.38758	.094746
6	0	0	20.8571	4.28484	.8	4.28444	.0581829
7	0	0	25.0286	4.15935	.4	4.15927	.0258867
8	0	0	29.2	4.01261	360.	4.01261	-2.4E-03
9	0	0	33.3714	3.84518	359.6	3.84508	-.0268035
10	0	0	37.5429	3.6577	359.3	3.65739	-.0474146
11	0	0	41.7143	3.4509	358.9	3.4503	-.0642766
12	0	0	45.8857	3.22556	358.6	3.22463	-.0774214
13	0	0	50.0571	2.98251	358.3	2.98125	-.0868728
14	0	0	54.2286	2.72258	358.	2.721	-.0926522
15	0	0	58.4	2.44658	357.8	2.44474	-.0947792
16	0	0	62.5714	2.15523	357.5	2.15321	-.0932702
17	0	0	66.7429	1.8491	357.3	1.847	-.0881301
18	0	0	70.9143	1.52836	357.	1.5263	-.0793455
19	0	0	75.0857	1.19248	356.8	1.19061	-.0668494
20	0	0	79.2571	.839154	356.6	.837636	-.0504487
21	0	0	83.4286	.461559	356.3	.460608	-.0296132
END	0	0	87.6	0	0	0	0
GND	-115.4	-115.4	0	2.62561	28.4	2.30983	1.2484
23	-115.4	-115.4	4.38571	2.6282	27.8	2.32536	1.22479
24	-115.4	-115.4	8.77143	2.61414	27.4	2.32153	1.20176
25	-115.4	-115.4	13.1571	2.58551	27.	2.30316	1.17487
26	-115.4	-115.4	17.5429	2.54274	26.7	2.27111	1.1435
27	-115.4	-115.4	21.9286	2.48617	26.5	2.22587	1.1075
28	-115.4	-115.4	26.3143	2.41613	26.2	2.16782	1.06688
29	-115.4	-115.4	30.7	2.33298	26.	2.09734	1.02174
30	-115.4	-115.4	35.0857	2.23713	25.8	2.01484	.972217
31	-115.4	-115.4	39.4714	2.12904	25.6	1.92072	.918496
32	-115.4	-115.4	43.8571	2.00921	25.4	1.81547	.860794
33	-115.4	-115.4	48.2429	1.87815	25.2	1.69957	.799324
34	-115.4	-115.4	52.6286	1.73645	25.	1.57354	.734332
35	-115.4	-115.4	57.0143	1.58466	24.9	1.43788	.666056
36	-115.4	-115.4	61.4	1.42334	24.7	1.29313	.59474
37	-115.4	-115.4	65.7857	1.25302	24.5	1.13975	.520599
38	-115.4	-115.4	70.1714	1.07411	24.4	.978128	.44381
39	-115.4	-115.4	74.5571	.886823	24.3	.808467	.364468
40	-115.4	-115.4	78.9429	.690974	24.1	.630588	.282495
41	-115.4	-115.4	83.3286	.485364	24.	.4434	.197419
42	-115.4	-115.4	87.7143	.266194	23.9	.243424	.107723
END	-115.4	-115.4	92.1	0	0	0	0

CURRENT MOMENTS(amp-degrees) rms

Frequency = 940 KHz
Input power = 1,000. watts

wire	magnitude	phase (deg)	vertical current moment magnitude	phase (deg)
1	329.391	360.	329.391	360.
2	200.924	26.	200.924	26.

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	329.391	360.
2	200.924	26.

Input File:

```
KGMS Nighttime

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

wire  caps Distance     Angle        Z            radius       segs
 1    none 0            0            0            .2175         21
           0            0            87.6
 2    none 163.2        135.         0            .2175         21
           163.2        135.         92.1

Number of wires          =  2
          current nodes  =  42

                         minimum                   maximum
Individual wires      wire    value             wire  value
segment length         1      4.17143            2    4.38571
radius                 1      .2175              1    .2175


ELECTRICAL DESCRIPTION
Frequencies (KHz)
     frequency                 no. of  segment length (wavelengths)
 no. lowest       step          steps   minimum        maximum
 1   940.         0              1      .0115873       .0121825

Sources
source node    sector  magnitude      phase          type
 1      1       1      120.432        355.           voltage
 2      22      1      72.7783        52.6           voltage


IMPEDANCE
normalization = 50.
freq     resist    react    imped    phase    VSWR    S11       S12
(KHz)    (ohms)    (ohms)   (ohms)   (deg)            dB        dB
source =  1; node 1, sector 1
940.     40.213   -6.4046  40.72    351.     1.2971  -17.766   -7.3E-02
source =  2; node 22, sector 1
940.     29.187   13.825   32.296   25.3     1.9021  -10.149   -.44129
```

CURRENT rms
Frequency = 940 KHz
Input power = 250. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	2.09137	4.1	2.08609	.148571
2	0	0	4.17143	2.08041	3.	2.07748	.11036
3	0	0	8.34286	2.06117	2.4	2.05943	.0846142
4	0	0	12.5143	2.03223	1.8	2.03126	.0628338
5	0	0	16.6857	1.99346	1.3	1.99298	.0437478
6	0	0	20.8571	1.94489	.8	1.9447	.0268644
7	0	0	25.0286	1.88665	.4	1.88661	.0119558
8	0	0	29.2	1.81894	360.	1.81894	-1.1E-03
9	0	0	33.3714	1.74202	359.6	1.74198	-.0123552
10	0	0	37.5429	1.65618	359.2	1.65604	-.0218592
11	0	0	41.7143	1.56173	358.9	1.56145	-.0296305
12	0	0	45.8857	1.45904	358.6	1.45861	-.0356846
13	0	0	50.0571	1.34846	358.3	1.34787	-.0400337
14	0	0	54.2286	1.23039	358.	1.22965	-.0426884
15	0	0	58.4	1.10519	357.7	1.10433	-.043659
16	0	0	62.5714	.973178	357.5	.97223	-.0429538
17	0	0	66.7429	.834613	357.2	.833626	-.040577
18	0	0	70.9143	.689581	357.	.688613	-.0365231
19	0	0	75.0857	.53783	356.7	.53695	-.030763
20	0	0	79.2571	.378335	356.5	.377622	-.0232092
21	0	0	83.4286	.208018	356.2	.207572	-.0136197
END	0	0	87.6	0	0	0	0
GND	-115.4	-115.4	0	1.59351	27.3	1.41634	.730237
23	-115.4	-115.4	4.38571	1.59966	26.5	1.4315	.713951
24	-115.4	-115.4	8.77143	1.59418	26.	1.43284	.698856
25	-115.4	-115.4	13.1571	1.57931	25.6	1.42456	.681796
26	-115.4	-115.4	17.5429	1.55544	25.2	1.40737	.66234
27	-115.4	-115.4	21.9286	1.52285	24.9	1.38166	.640365
28	-115.4	-115.4	26.3143	1.48174	24.6	1.34769	.615861
29	-115.4	-115.4	30.7	1.43236	24.3	1.30571	.588877
30	-115.4	-115.4	35.0857	1.37496	24.	1.25598	.559494
31	-115.4	-115.4	39.4714	1.30983	23.8	1.19877	.527814
32	-115.4	-115.4	43.8571	1.23725	23.5	1.13437	.493958
33	-115.4	-115.4	48.2429	1.15758	23.3	1.0631	.458059
34	-115.4	-115.4	52.6286	1.07115	23.1	.985262	.420252
35	-115.4	-115.4	57.0143	.978297	22.9	.901192	.380681
36	-115.4	-115.4	61.4	.879386	22.7	.811217	.339481
37	-115.4	-115.4	65.7857	.774734	22.5	.715634	.296783
38	-115.4	-115.4	70.1714	.664587	22.3	.614675	.252687
39	-115.4	-115.4	74.5571	.54909	22.2	.508474	.207252
40	-115.4	-115.4	78.9429	.428112	22.	.396914	.160437
41	-115.4	-115.4	83.3286	.300918	21.8	.279307	.111978
42	-115.4	-115.4	87.7143	.165144	21.7	.153456	.061022
END	-115.4	-115.4	92.1	0	0	0	0

CURRENT MOMENTS(amp-degrees) rms

Frequency = 940 KHz
Input power = 250. watts

wire	magnitude	phase (deg)	vertical current moment magnitude	phase (deg)
1	149.323	0.0	149.323	0.0
2	123.341	24.3	123.341	24.3

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	149.323	0.0
2	123.341	24.3

ITEM 5 - Sampling System Measurements

Measurements were made using a HP 8751A network analyzer, an ENI 403LA amplifier and custom manufactured directional couplers in a calibrated measurement system. The sample line was found to be resonant (an odd multiple of 90° which is an impedance zero - very low resistance and zero reactance) around 1024 kHz which is 270° for this length of transmission line. The characteristic impedance was calculated using the following formula, where $R_1 \pm jX_1$ and $R_2 \pm X_2$ are the measured impedances at the -45° and +45° offset frequencies:

$$Z_0 = \sqrt{\sqrt{R_1^2 + X_1^2} \bullet \sqrt{R_2^2 + X_2^2}}$$

The measured open circuit sample line impedances and characteristic impedance calculations are shown below:

	Resonance Frequency (kHz)	-45° Offset Frequency (kHz)	-45° Offset Impedance ($R_1 \pm jX_1$) (Ohms)	+45° Offset Frequency (kHz)	+45° Offset Impedance ($R_2 \pm jX_2$) (Ohms)	Characteristic Impedance (Z_ϕ)
Sample Line 1	1023.50	852.917	4.35 - j 50.2	1194.083	5.96 + j 49.9	50.3 ohms
Sample Line 2	1024.25	853.542	4.37 - j 50.4	1194.858	5.98 + j 49.9	50.4 ohms

The sample line lengths calculated from the measurements above are:

	Length in Electrical Degrees at 940 kHz	Measured Impedance (Z_S) With TCT Attached
Sample Line 1	248.0°	50.7 + j 0.7 ohms
Sample Line 2	247.8°	52.9 - j 1.6 ohms

ITEM 6 - Reference Field Strength Measurements

Daytime Reference Point Data

Radial °	Dist. (km)	Date	Time	Description	Coordinates NAD27 Lat	Coordinates NAD27 Lon	Field Strength (mV/m)
36	4.63	9/15/2010	1:35 PM	W Delaware St. E of N Grande Ave	32° 14' 4.3"	110° 59' 21"	77
36	6.19	9/15/2010	1:50 PM	W Ventura St E of N 14th Ave	32° 14' 45.0"	110° 58' 46.1"	72
36	8.53	9/15/2010	11:50 AM	E Delano St E of N Geronimo	32° 15' 46.6	110° 57' 53.2"	33.9
115	5.1	9/15/2010	3:40 PM	Veterans Blvd & S 7th Ave	32° 10' 53.4"	110° 58' 8"	18.3
115	7.37	9/15/2010	4:00 PM	Benson Hwy E of Apache Park Pl	32° 10' 22.6"	110° 56' 49.5"	16.1
115	9.61	9/15/2010	2:50 PM	Country Club Rd N of Irvington Rd	32° 9' 51.8"	110° 55' 31.9"	12.6
135	4.82	9/16/2010	9:30 AM	W Macarthur St W of 16th Ave	32° 10' 11.9"	110° 58' 54.8"	25.6
135	6.77	9/16/2010	9:15 AM	6th Ave N of Nebraska St	32° 9' 27.3"	110° 58' 2.7"	19.8
135	8.89	9/16/2010	9:00 AM	Randal Blvd N of Mossman Rd	32° 8' 38.4"	110° 57' 5.1"	13.9
155	4.81	9/16/2010	2:05 PM	Bagpipe Dr W of Maltby Ct	32° 9' 41.4"	110° 59' 47.2"	21
155	7.75	9/16/2010	1:35 PM	Santa Maria W of Calle Pinto	32° 8' 14.8"	110° 58' 59.6"	14
155	9.56	9/16/2010	11:30 AM	W Corona Rd E of S Leary Dr	32° 7' 22.6"	110° 58' 30.8"	12.5
234	5.84	9/16/2010	3:10 PM	Calle Don Miguel E of Kinney Rd	32° 10' 11.8"	111° 4' 5.7"	41
234	7.66	9/16/2010	3:00 PM	S Sunset Blvd S of Iowa St.	32° 9' 37"	111° 5' 2"	24
234	9.6	9/16/2010	2:40 PM	Lemon Tree Dr & Sandpaper Tree Way	32° 9' 0.4"	111° 6' 2"	22.8

Nighttime Reference Point Data

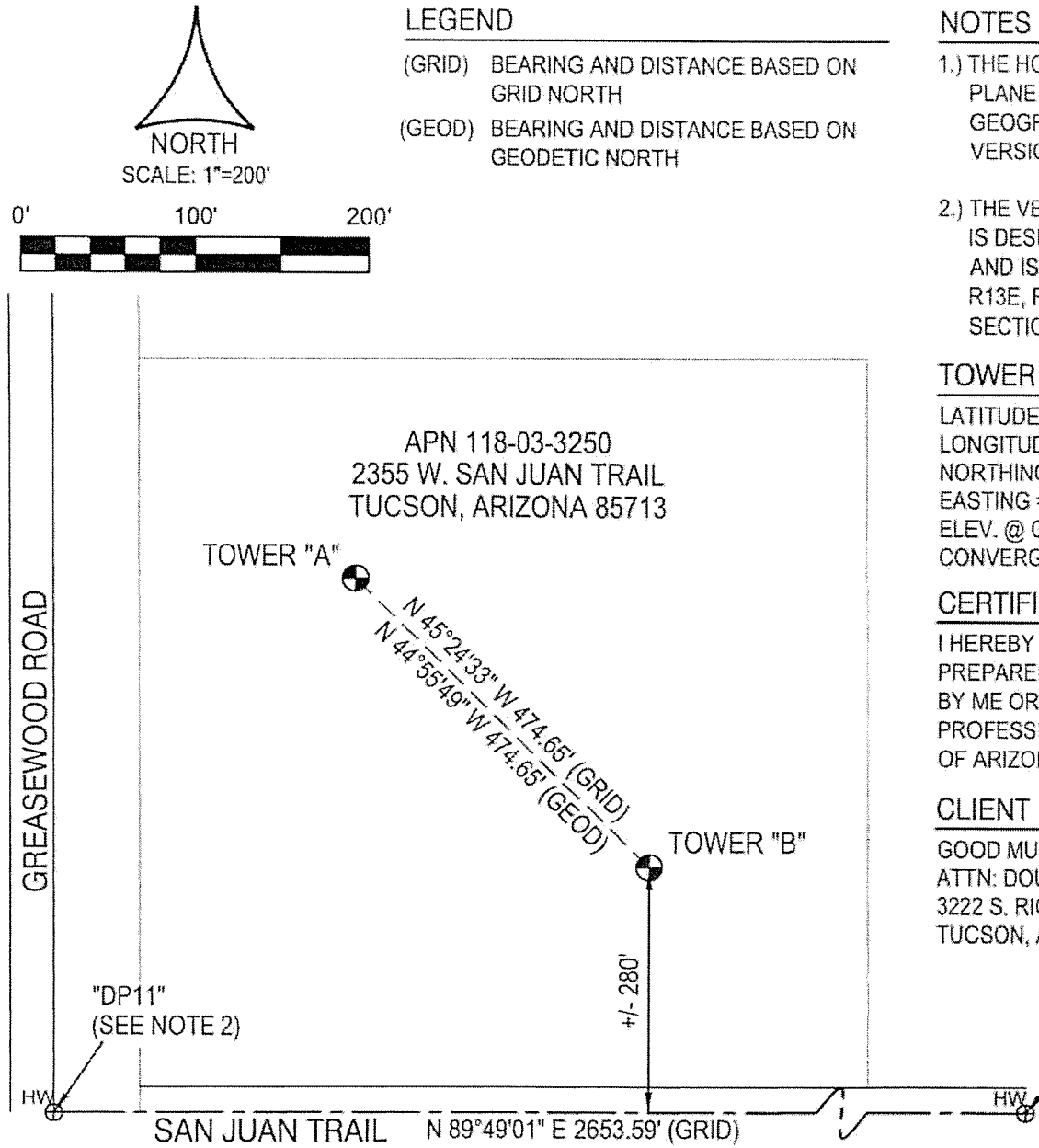
Radial °	Dist. (km)	Date	Time	Description	Coordinates NAD27 Lat	Coordinates NAD27 Lon	Field Strength (mV/m)
36	4.63	9/15/2010	1:35 PM	W Delaware St. E of N Grande Ave	32° 14' 4.3"	110° 59' 21"	40
36	6.19	9/15/2010	1:50 PM	W Ventura St E of N 14th Ave	32° 14' 45.0"	110° 58' 46.1"	36.8
36	8.53	9/15/2010	11:50 AM	E Delano St E of N Geronimo	32° 15' 46.6	110° 57' 53.2"	17.8
117.5	5.23	9/16/2010	8:35 AM	7th Ave N of Ajo Way	32° 10' 44.3"	110° 58' 8.1"	5.3
117.5	7.56	9/16/2010	8:20 AM	Cherry Ave S of Calle Salmaca	32° 10' 9.3"	110° 56' 49.3"	4.1
117.5	9.83	9/15/2010	4:20 PM	Country Club Rd & Acacia Club Ln	32° 9' 36.0"	110° 55' 31.9"	3.45
152.5	3.02	9/16/2010	11:00 AM	Probasco Dr W of Mission Rd	32° 10' 35.7"	111° 0' 11.8"	7.8
152.5	6.87	9/16/2010	10:35 AM	Calle Ramona W of Calle Pinta	32° 8' 44.8"	110° 59' 4"	4.1
152.5	9.04	9/16/2010	11:40 AM	Aragon Rd & S 10th Ave	32° 7' 42.3"	110° 58' 25.9"	4.05
234	5.84	9/16/2010	3:10 PM	Calle Don Miguel E of Kinney Rd	32° 10' 11.8"	111° 4' 5.7"	21.4
234	7.66	9/16/2010	3:00 PM	S Sunset Blvd S of Iowa St.	32° 9' 37"	111° 5' 2"	12.6
234	9.6	9/16/2010	2:40 PM	Lemon Tree Dr & Sandpaper Tree Way	32° 9' 0.4"	111° 6' 2"	12.4
315.5	2.59	9/17/2010	11:45 AM	Players Club Dr S of Foxes Den Dr	32° 13' 2.6"	111° 2' 14.5"	32.7
315.5	5.04	9/17/2010	11:30 AM	N Windbell Cir S of Anklam Rd	32° 13' 59.5"	111° 3' 20"	11.5
315.5	6.5	9/16/2010	4:15 PM	N Windbell Cir S of Anklam Rd	32° 14' 33.0"	111° 3' 59.1"	16.1

ITEM 7 - Direct Measurement of Power

Common point impedance measurement were made using a HP 8751A network analyzer, an ENI 403LA amplifier and custom manufactured directional couplers in a calibrated measurement system. The measurements were made at the phasor cabinet input adjacent to the common point current meter that is used to determine operation power. The impedance measured at this point was adjusted to a value of 50 ± j0 for both the day and night directional antenna systems.

ITEM 8 - Antenna Monitor, Sampling System and Ground System

The sample system installed consists of Delta Electronics model TCT-3 toroidal current transformers (TCT) installed inside the tuning houses at the base of each tower. One of the TCTs is new and was compared to the other on the bench and found to give the same readings. The TCTs are connected to a Potomac Instruments AM 19 (204) antenna monitor by equal lengths of 3/8 inch Andrew LDF2-50 coaxial cable. This cable has a foam dielectric, and solid copper inner and outer conductors. At the antenna monitor end of these cables there is a short (approximately 36") RG-58 jumper connecting the cable to the antenna monitor. These lines were verified to have equal electrical lengths. All excess cable is buried. The antenna monitor was tested with a signal generator, a Tee connector and equal lengths of cable. The two signals were fed into the reference input and sample input and the monitor was found to be in good working order. There is no change to the ground system, the description contained in the current station license (BZ-20031014AQO) remains accurate.



LEGEND

(GRID) BEARING AND DISTANCE BASED ON GRID NORTH

(GEOD) BEARING AND DISTANCE BASED ON GEODETIC NORTH

NOTES

1.) THE HORIZONTAL DATUM FOR THIS SURVEY IS THE ARIZONA STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 27. CONVERSION TO GEOGRAPHICAL COORDINATES (1927) WAS DONE UTILIZING CORPSCON VERSION 6.0.1.

2.) THE VERTICAL DATUM FOR THIS SURVEY IS NAVD 88. THE BENCHMARK IS DESIGNATED "DP11" BY THE PIMA ASSOCIATION OF GOVERNMENTS AND IS A 2" DIAMETER BRASS CAP STAMPED "COT, C1/4, S21, 1991, T14S, R13E, RLS 20373" IN A HAND WELL AT THE INTERIOR 1/4 CORNER OF SECTION 21. THE ELEVATION IS 2478.33 FEET.

TOWER "A"

LATITUDE = N32°12'04.3"
LONGITUDE = W111°01'07.1"
NORTHING = 438072.195 (GRID '27)
EASTING = 777780.934 (GRID '27)
ELEV. @ GROUND = 2480.4
CONVERGENCE = 0°28'43"

TOWER "B"

LATITUDE = N32°12'01.0"
LONGITUDE = W111°01'03.2"
NORTHING = 437738.972 (GRID '27)
EASTING = 778118.950 (GRID '27)
ELEV. @ GROUND = 2475.0
CONVERGENCE = 0°28'45"

CERTIFICATION

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECTION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF ARIZONA.

CLIENT

GOOD MUSIC, INC.
ATTN: DOUG MARTIN
3222 S. RICHEY AVENUE
TUCSON, AZ 85713-5498

FOUND BRASS CAP IN HANDWELL STAMPED "COT, 1991, 21-22, 1/4, T14S, R13E, RLS 20373", @ THE E. 1/4 CORNER OF SECTION 21

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21774
RICHARD B. HOWELL JR.
DATE SIGNED 10-6-10
ARIZONA U.S.A.

Richard B. Howell Jr.

EXPIRES 3/31/2012

Ashby
SURVEYING & DRAFTING, INC.
717 N. SWAN ROAD
TUCSON, ARIZONA 85711
TEL: (520) 325-1991 FAX: (520) 325-2074

RADIO TOWER SURVEY

IN ASSESSOR'S PARCEL #118-03-3250 IN THE N.E 1/4 OF SECTION 21, TOWNSHIP 14 SOUTH, RANGE 13 EAST, GILA & SALT RIVER MERIDIAN, PIMA COUNTY, ARIZONA

DATE OF SURVEY: OCT. 4, 2010

JOB NO: 5188

SHEET: 1 OF 1

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
GOOD MUSIC, INC.

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
KGMS	BP-20100505AGG	940	UNL	0.25	1.0

2. Station location

State	City or Town
AZ	TUCSON

3. Transmitter location

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	2354 WEST SAN JUAN

4. Main studio location

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	3222 S. RICHEY AVE.

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

State	County	City or Town	Street address (or other identification)
AZ	PIMA	TUCSON	3222 S. RICHEY AVE.

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

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

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. ENG RPT

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
2.33	4.65

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	50	+/- j0	+/- j0

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
TOWER 1 NORTHWEST	1.000	1.000	0.0	0.0		
TOWER 2 SOUTHEAST	0.754	0.569	22.4	23.2		

Manufacturer and type of antenna monitor: POTOMAC INSTRUMENTS AM 19 (204)

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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.
	79.2 m	79.9 m	79.9 m	Exhibit No.

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
32 ° 12 ' 03 "	111 ° 01 ' 05 "

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.

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?

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

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)
Stephen S. Lockwood, P.E.	
Address (include ZIP Code) Hatfield & Dawson Consulting Engineers 9500 Greenwood Ave N Seattle, WA	Date 7 October 2010
	Telephone No. (Include Area Code) 206 783 9151

[ ] Technical Director

[x] Registered Professional Engineer

[ ] Chief Operator

[ ] Technical Consultant

[ ] Other (specify)