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COPY

September 28, 2009

Marnie K. Sarver
202.719.4289
msarver@wileyrein.com

BY HAND VIA COURIER

Marlene H. Dortch, Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
12th Street Lobby, TW-A325
Washington, DC 20554

ATTN: Media Bureau, Audio Division

Re: **MCC Radio, LLC**
Station KGNC, Amarillo, TX (Fac. ID 63159)
Application for License w/ Method of Moments Proof

Dear Ms. Dortch:

On behalf of MCC Radio, LLC, licensee of AM station KGNC, Amarillo, Texas, we are submitting herewith an original and two copies of an application on FCC Form 302-AM for license to following replacement of a tower and correction of licensed coordinates. A Method of Moments Computer Model proof, as authorized by Section 73.151(c), is provided in support of the application.

Should there be any questions concerning this matter, please contact the undersigned.

Sincerely,

Marnie K. Sarver

Enclosure

FILED/ACCEPTED

SEP 28 2009

Federal Communications Commission
Office of the Secretary

RECEIVED

SEP 30 P 2:39

AUDIO SERVICES DIVISION

FOR
FCC
USE
ONLY

FILED/ACCEPTED

SEP 28 2009

Federal Communications Commission
Office of the Secretary

FCC 302-AM
APPLICATION FOR AM
BROADCAST STATION LICENSE

(Please read instructions before filling out form.)

FOR COMMISSION USE ONLY

FILE NO.

BL-20090928AMH

SECTION I - APPLICANT FEE INFORMATION

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

MAILING ADDRESS (Line 1) (Maximum 35 characters)

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY

STATE OR COUNTRY (if foreign address)

ZIP CODE

TELEPHONE NUMBER (include area code)

CALL LETTERS
KGNC

OTHER FCC IDENTIFIER (If applicable)
63159

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:

Non-feeable application for modified license and
coordinates correction.

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			
0	0	0	1

(C)

FEE DUE FOR FEE TYPE CODE IN COLUMN (A)
\$

FOR FCC USE ONLY

--

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)

0	0	0	1
---	---	---	---

(C)

\$

FOR FCC USE ONLY

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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

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SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT MCC RADIO, LLC		
MAILING ADDRESS 1321 NORTH GENE AUTRY TRAIL		
CITY PALM SPRINGS	STATE CA	ZIP CODE 92262

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
KGNC	AMARILLO, TX	BP-20090430ABY	--	6/18/2012

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.

KGNC is a directional AM. Automatic program tests are not authorized. This application is for a modified license following repairs and correction of coordinates.

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.

The only permit involved is the above-referenced CP to correct coordinates. It also renumbered a tower.

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

If No, explain in an Exhibit.

☒ Does not apply

Exhibit No.

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

☐ Yes ☒ No

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

Exhibit No.

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

☐ Yes ☒ No

Exhibit No.

If Yes, provide particulars as an Exhibit.

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).

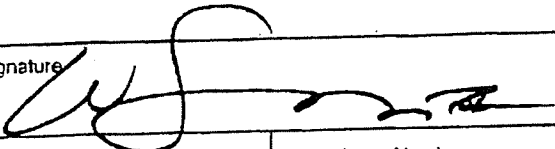
The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in the application.

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 	
William S. Morris, IV	Date	Telephone Number
Title	9/28/09	(706) 823-3333
President		

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 (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503)

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

MCC Radio, 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
KGNC	BP-20090430ABY	710	UNL	10	10

2. Station location

State TX	City or Town Amarillo
-------------	--------------------------

3. Transmitter location

State TX	County Carson	City or Town NW of Panhandle	Street address (or other identification) Ranch Rd 1342 & County Rd D
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4. Main studio location

State TX	County Potter	City or Town Amarillo	Street address (or other identification) 3505 Olsen Blvd #117
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5. Remote control point location (specify only if authorized directional antenna)

State TX	County Potter	City or Town Amarillo	Street address (or other identification) 3505 Olsen Blvd # 117
-------------	------------------	--------------------------	--

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 14.49		RF common point or antenna current (in amperes) without modulation for day system 14.49	
Measured antenna or common point resistance (in ohms) at operating frequency Night 50 Day 50		Measured antenna or common point reactance (in ohms) at operating frequency Night j0 Day 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
1 (S)	128.3	-171.3	0.266	0.178	No	
2 (SC)	-117.7	-87.2	0.744	0.693	Longer	
3 (C)	0	0	1.0	1.0	Required	
4 (NC)	118.3	---	0.747	---		
5 (N)	-123.9	---	0.265	---		

Manufacturer and type of antenna monitor:

Potomac Instruments AM 1901

SECTION III - Page 2

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

Type Radiator (5) Uniform cross-section guyed steel towers	Overall height in meters of radiator above base insulator, or above base, if grounded. 92.4	Overall height in meters above ground (without obstruction lighting) 91.5	Overall height in meters above ground (include obstruction lighting) 95	If antenna is either top loaded or sectionalized, describe fully in an Exhibit. Exhibit No. DNA
---	--	--	--	--

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	35° 25' 11"	West Longitude	101° 33' 24"
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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.
None

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system.

Exhibit No.

No change in data on file - BZ-20010906ABX


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

None

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

None

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) Thomas S. Gorton PE	Signature (check appropriate box below) 
Address (include ZIP Code) Hatfield & Dawson Consulting Engineers 9500 Greenwood Ave N Seattle, WA 98103	Date September 21, 2009
	Telephone No. (Include Area Code) 206-783-9151

☐ Technical Director

☒ Registered Professional Engineer

☐ Chief Operator

☐ Technical Consultant

☐ Other (specify)

BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE

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THOMAS S. GORTON, PE
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JAMES B. HATFIELD, PE
CONSULTANT

MAURY L. HATFIELD, PE
CONSULTANT
OAKHURST, NSW
AUSTRALIA

Engineering Report:
APPLICATION FOR STATION LICENSE

Proof of Performance

KGNC 710 kHz

10.0 kW DA-2

Facility ID 63159

Amarillo, Texas

MCC Radio, LLC

September 2009

Table of Contents

Introduction

Sample System Description

Moment Method Model

Reference Points

Survey

Statement of Engineer

Introduction

This Engineering Report is part of an application for Direct Measurement of Power by MCC Radio, LLC, licensee of KGNC-AM, Amarillo, TX. The north tower (tower #5) of KGNC's five tower antenna array was found to be structurally unsound, and was replaced in March of 2009. Under Commission policy, replacement of a tower requires completion of a partial proof of performance and application for a new station license on FCC Form 302. The ability to complete a traditional proof or partial proof of performance has been greatly complicated by the recent installation of over 25 wind mill towers within 1.5 miles of the KGNC array, none of which are detuned at KGNC's operating frequency. It was therefore decided that a Method of Moments Computer Model proof, as authorized by §73.151(c) of the Commission's rules was a more suitable option for the re-licensing of KGNC. Additionally, this application corrects the licensed coordinates of the KGNC array by four seconds to match those shown on the site survey included with this report. The tower numbers of the three towers used in the daytime directional array have also been changed to match the numbering scheme used for the nighttime antenna pattern.

All antenna and sample system measurements used in this report were taken by Thomas S. Gorton PE of this office on the evenings of March 31 and April 1, 2009.

Sample System Description

The sample system installed consists of Delta TCT toroidal current transformers installed inside the tuning houses at the base of each tower. Proper operation of the TCT's was verified by placing them side by side on the workbench and comparing the readings on the Potomac Instruments Antenna Monitor while a common RF signal was supplied to all five TCT's. The TCTs are connected to a Potomac Instruments AM-1901 antenna monitor by equal lengths of 3/8 inch Celwave coaxial cable. This cable has a foam dielectric, and solid copper inner and outer conductors. At each end of these cables there is a short (approximately 18") jumper connecting the cable to the antenna monitor or TCT. These lines were verified to have equal electrical lengths by open and short circuit measurements taken with a network analyzer. All excess cable is buried. The antenna monitor was repaired and calibrated at the factory in March of 2009. There is no change to the ground system, so the description contained in the current station license (BZ-20010906ABX) remains accurate.

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_0)
Sample Line 1	718.400	685.745	26.403 - j 41.660	751.055	29.966 + j 41.234	50.1 ohms
Sample Line 2	718.250	685.602	26.242 - j 41.658	750.898	29.891 + j 41.174	50.9 ohms
Sample Line 3	718.250	685.602	26.312 - j 41.613	750.898	29.890 + j 41.135	50.4 ohms
Sample Line 4	717.775	685.149	26.435 - j 41.755	750.401	29.830 + j 41.145	50.1 ohms
Sample Line 5	718.275	685.626	26.515 + j 41.247	750.924	29.473 + j 41.538	49.6 ohms

The sample line lengths calculated from the measurements above are:

	Length in Electrical Degrees at 710 kHz
Sample Line 1	978.4°
Sample Line 2	978.6°
Sample Line 3	978.6°
Sample Line 4	979.3°
Sample Line 5	978.6°

The following table contains measurements at 710 kHz of the sample lines taken from the antenna monitor end, with the TCTs connected. This data is provided for use in periodic sample system verification.

	Impedance (Z_s)
Sample Line 1	51.2 - j 2.3 ohms
Sample Line 2	51.3 - j 2.4 ohms
Sample Line 3	51.2 - j 2.4 ohms
Sample Line 4	51.3 - j 2.1 ohms
Sample Line 5	50.7 - j 2.3 ohms

Moment Method Model

Expert MININEC Broadcast Professional Version 12.5 was used to model the KGNC array. The antenna model was adjusted to match the measured matrix impedances. The physical height of the towers is 78°, the face width of towers 1-4 is 30 inches and the face width of tower 5 is 24 inches. The following adjusted parameters were used:

- antenna electrical height was adjusted to 102.6% of the physical height (80.0°)
 - north tower 103.3% (80.6°)
- wire radius of 0.4 meters
 - north tower 0.23 meters
- 21 segments per antenna element (3.8° per segment)

Matrix Measurements & Impedance Adjustments

	Measured Z (all others open circuit)	MININEC Calculated Z
Tower #1 (S)	29.0 - j 28.3	28.5 - j 29.8
Tower #2 (SC)	29.7 - j 28.5	28.7 - j 29.4
Tower #3 (C)	30.6 - j 29.7	28.7 - j 29.3
Tower #4 (NC)	29.4 - j 29.7	28.7 - j 29.4
Tower #5 (N)	31.9 - j 33.6	28.8 - j 32.3

Input File:

KGNC - Matrix

GEOMETRY

Wire coordinates in degrees; other dimensions in meters

Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.4	21
		0	0	80.		
2	none	160.	5.	0	.4	21
		160.	5.	80.		
3	none	320.	5.	0	.4	21
		320.	5.	80.		
4	none	480.	5.	0	.4	21
		480.	5.	80.		
5	none	640.	5.	0	.23	21
		640.	5.	80.6		

Number of wires = 5
current nodes = 105

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	3.80952	1	3.8381
radius	5	.23	1	.4

DAYTIME**ELECTRICAL DESCRIPTION****Frequencies (KHz)**

frequency			no. of steps	segment length (wavelengths)	
no.	lowest	step		minimum	maximum
1	710.	0	1	.010582	.0106614

Sources

source	node	sector	magnitude	phase	type
1	1	1	480.032	145.7	voltage
2	22	1	832.149	238.	voltage
3	43	1	758.163	305.4	voltage
4	64	1	0.010	0.0	voltage
5	85	1	0.010	0.0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	64	.01	560.84	0	0	0
2	85	.01	644.57	0	0	0

NIGHTTIME**ELECTRICAL DESCRIPTION****Frequencies (KHz)**

frequency			no. of steps	segment length (wavelengths)	
no.	lowest	step		minimum	maximum
1	710.	0	1	.010582	.0106614

Sources

source	node	sector	magnitude	phase	type
1	1	1	498.576	106.8	voltage
2	22	1	697.252	220.5	voltage
3	43	1	620.847	328.4	voltage
4	64	1	344.74	63.3	voltage
5	85	1	179.706	141.	voltage

Daytime Calculated Antenna Monitor Parameters

		Base Current from MNEC		Antenna Monitor Parameters	
		Magnitude	Phase (°)	Ratio	Phase (°)
Tower 1	South	2.67	190.7	0.178	-171.4
Tower 2	South Center	10.48	274.9	0.699	-87.2
Tower 3	Center	15.00	2.1	1.000	0.0
Tower 4	North Center	0.00	0.0	0.000	0.0
Tower 5	North	0.00	0.0	0.000	0.0

Nighttime Calculated Antenna Monitor Parameters

		Base Current from MNEC		Antenna Monitor Parameters	
		Magnitude	Phase (°)	Ratio	Phase (°)
Tower 1	South	3.07	131.6	0.266	128.3
Tower 2	South Center	8.57	245.6	0.744	-117.7
Tower 3	Center	11.52	3.3	1.000	0.0
Tower 4	North Center	8.60	121.4	0.747	118.3
Tower 5	North	3.05	239.4	0.265	-123.9

DAYTIME

ELECTRICAL DESCRIPTION

Frequencies (KHz)

frequency		no. of steps	segment length (wavelengths)	
no.	lowest		minimum	maximum
1	710.	0	.010582	.0106614

Sources

source	node	sector	magnitude	phase	type
1	1	1	480.032	145.7	voltage
2	22	1	832.149	238.	voltage
3	43	1	758.163	305.4	voltage
4	64	1	254.057	286.3	voltage
5	85	1	147.244	143.	voltage

NIGHTTIME

ELECTRICAL DESCRIPTION

Frequencies (KHz)

frequency		no. of steps	segment length (wavelengths)	
no.	lowest		minimum	maximum
1	710.	0	.010582	.0106614

Sources

source	node	sector	magnitude	phase	type
1	1	1	498.576	106.8	voltage
2	22	1	697.252	220.5	voltage
3	43	1	620.847	328.4	voltage
4	64	1	344.74	63.3	voltage
5	85	1	179.706	141.	voltage

Daytime Calculated Current Distribution

C:\AM\KGNC\MNEC\KGNC-Day 05-05-2009 10:32:12

CURRENT rms

Frequency = 710 KHz

Input power = 10,000. watts

Efficiency = 100. %

coordinates in degrees

current

no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	2.67474	190.7	-2.628	-.497838
2	0	0	3.80952	2.55533	188.1	-2.52956	-.361984
3	0	0	7.61905	2.46894	186.4	-2.45352	-.275497
4	0	0	11.4286	2.38468	184.9	-2.376	-.203313
5	0	0	15.2381	2.29816	183.5	-2.29385	-.140652
6	0	0	19.0476	2.20757	182.2	-2.20591	-.0856018
7	0	0	22.8571	2.11208	181.	-2.11175	-.0372468
8	0	0	26.6667	2.01128	179.9	-2.01128	4.91E-03
9	0	0	30.4762	1.90498	178.8	-1.90453	.0411517
10	0	0	34.2857	1.79315	177.7	-1.79172	.071667
11	0	0	38.0952	1.67584	176.7	-1.67306	.0965738
12	0	0	41.9048	1.55318	175.7	-1.54884	.115959
13	0	0	45.7143	1.42532	174.8	-1.41939	.129888
14	0	0	49.5238	1.29243	173.9	-1.285	.138414
15	0	0	53.3333	1.15469	173.	-1.14598	.141579
16	0	0	57.1429	1.01223	172.1	-1.00259	.139411
17	0	0	60.9524	.865103	171.2	-.854986	.131917
18	0	0	64.7619	.713167	170.4	-.703159	.11906
19	0	0	68.5714	.55593	169.6	-.546732	.100712
20	0	0	72.381	.392026	168.7	-.384483	.0765285
21	0	0	76.1905	.218119	167.9	-.213283	.0456737
END	0	0	80.	0	0	0	0
GND	159.391	-13.9449	0	10.4754	274.9	.890138	-10.4375
23	159.391	-13.9449	3.80952	10.2826	273.6	.648265	-10.2621
24	159.391	-13.9449	7.61905	10.1055	272.8	.494165	-10.0934
25	159.391	-13.9449	11.4286	9.89932	272.1	.365417	-9.89257
26	159.391	-13.9449	15.2381	9.65802	271.5	.253529	-9.65469
27	159.391	-13.9449	19.0476	9.37962	270.9	.155099	-9.37834
28	159.391	-13.9449	22.8571	9.06343	270.4	.0685094	-9.06317
29	159.391	-13.9449	26.6667	8.7096	270.	-7.11E-03	-8.7096
30	159.391	-13.9449	30.4762	8.31866	269.5	-.0722468	-8.31834
31	159.391	-13.9449	34.2857	7.89134	269.1	-.12722	-7.89031
32	159.391	-13.9449	38.0952	7.42878	268.7	-.172222	-7.42678
33	159.391	-13.9449	41.9048	6.932	268.3	-.207382	-6.9289
34	159.391	-13.9449	45.7143	6.40223	267.9	-.232795	-6.398
35	159.391	-13.9449	49.5238	5.84065	267.6	-.248529	-5.83536
36	159.391	-13.9449	53.3333	5.24838	267.2	-.254631	-5.2422
37	159.391	-13.9449	57.1429	4.62628	266.9	-.251122	-4.61946
38	159.391	-13.9449	60.9524	3.97478	266.6	-.237981	-3.96765
39	159.391	-13.9449	64.7619	3.29343	266.3	-.215106	-3.2864
40	159.391	-13.9449	68.5714	2.58001	265.9	-.182227	-2.57356
41	159.391	-13.9449	72.381	1.82813	265.6	-.138678	-1.82287
42	159.391	-13.9449	76.1905	1.02206	265.3	-.0828956	-1.0187
END	159.391	-13.9449	80.	0	0	0	0
GND	318.782	-27.8898	0	15.0425	2.1	15.0321	.55771
44	318.782	-27.8898	3.80952	14.7912	1.6	14.7856	.407013
45	318.782	-27.8898	7.61905	14.5497	1.2	14.5464	.310894
46	318.782	-27.8898	11.4286	14.2622	.9	14.2603	.230479
47	318.782	-27.8898	15.2381	13.9216	.7	13.9206	.160486
48	318.782	-27.8898	19.0476	13.5254	.4	13.525	.0988013

49	318.782	-27.8898	22.8571	13.0734	.2	13.0733	.0444304
50	318.782	-27.8898	26.6667	12.5659	360.	12.5659	-3.15E-03
51	318.782	-27.8898	30.4762	12.004	359.8	12.0039	-.0442514
52	318.782	-27.8898	34.2857	11.3889	359.6	11.3887	-.0790346
53	318.782	-27.8898	38.0952	10.7224	359.4	10.7218	-.107609
54	318.782	-27.8898	41.9048	10.0061	359.3	10.0053	-.130036
55	318.782	-27.8898	45.7143	9.24189	359.1	9.24073	-.146355
56	318.782	-27.8898	49.5238	8.43145	358.9	8.43	-.156587
57	318.782	-27.8898	53.3333	7.57663	358.8	7.57493	-.160742
58	318.782	-27.8898	57.1429	6.67858	358.6	6.67669	-.158808
59	318.782	-27.8898	60.9524	5.73805	358.5	5.73607	-.150748
60	318.782	-27.8898	64.7619	4.75439	358.4	4.75243	-.136476
61	318.782	-27.8898	68.5714	3.72444	358.2	3.72264	-.115794
62	318.782	-27.8898	72.381	2.639	358.1	2.63752	-.0882557
63	318.782	-27.8898	76.1905	1.47537	357.9	1.47442	-.052836
END	318.782	-27.8898	80.	0	0	0	0
GND	478.173	-41.8347	0	.320329	16.1	.307753	.0888752
65	478.173	-41.8347	3.80952	.233262	16.	.22417	.0644895
66	478.173	-41.8347	7.61905	.177833	16.	.170955	.0489802
67	478.173	-41.8347	11.4286	.131568	15.9	.126532	.0360507
68	478.173	-41.8347	15.2381	.0914045	15.8	.0879637	.0248429
69	478.173	-41.8347	19.0476	.056115	15.5	.0540697	.0150121
70	478.173	-41.8347	22.8571	.0251149	14.7	.0242876	6.39E-03
71	478.173	-41.8347	26.6667	2.02E-03	213.2	-1.69E-03	-1.1E-03
72	478.173	-41.8347	30.4762	.0251895	197.4	-.0240361	-7.53E-03
73	478.173	-41.8347	34.2857	.0447777	196.8	-.0428696	-.0129321
74	478.173	-41.8347	38.0952	.060783	196.6	-.058263	-.0173201
75	478.173	-41.8347	41.9048	.07326	196.4	-.0702697	-.0207169
76	478.173	-41.8347	45.7143	.0822514	196.3	-.07893	-.0231375
77	478.173	-41.8347	49.5238	.0877913	196.3	-.084276	-.0245943
78	478.173	-41.8347	53.3333	.0899073	196.2	-.086333	-.0250986
79	478.173	-41.8347	57.1429	.088617	196.2	-.0851167	-.0246598
80	478.173	-41.8347	60.9524	.083923	196.1	-.0806285	-.0232832
81	478.173	-41.8347	64.7619	.0757993	196.1	-.0728415	-.0209676
82	478.173	-41.8347	68.5714	.0641626	196.	-.061674	-.0176963
83	478.173	-41.8347	72.381	.0487889	196.	-.0469082	-.0134155
84	478.173	-41.8347	76.1905	.0291386	195.9	-.0280227	-7.99E-03
END	478.173	-41.8347	80.	0	0	0	0
GND	637.565	-55.7796	0	.161535	232.8	-.097713	-.12863
86	637.565	-55.7796	3.8381	.120522	232.7	-.0730261	-.0958787
87	637.565	-55.7796	7.67619	.0925119	232.6	-.0561284	-.0735395
88	637.565	-55.7796	11.5143	.0687611	232.6	-.0417611	-.0546269
89	637.565	-55.7796	15.3524	.0479129	232.6	-.0291107	-.0380553
90	637.565	-55.7796	19.1905	.0294401	232.6	-.017863	-.0234016
91	637.565	-55.7796	23.0286	.0130961	233.	-7.87E-03	-.0104654
92	637.565	-55.7796	26.8667	1.27E-03	42.7	9.32E-04	8.59E-04
93	637.565	-55.7796	30.7048	.0136678	51.1	8.59E-03	.010632
94	637.565	-55.7796	34.5429	.0241906	51.3	.015114	.0188879
95	637.565	-55.7796	38.381	.0328424	51.3	.020513	.0256484
96	637.565	-55.7796	42.219	.0396333	51.3	.0247845	.0309277
97	637.565	-55.7796	46.0571	.0445674	51.2	.027923	.0347356
98	637.565	-55.7796	49.8952	.0476452	51.1	.0299198	.0370793
99	637.565	-55.7796	53.7333	.0488641	51.	.0307637	.0379644
100	637.565	-55.7796	57.5714	.048217	50.9	.0304401	.0373936
101	637.565	-55.7796	61.4095	.04569	50.7	.0289291	.0353651
102	637.565	-55.7796	65.2476	.0412552	50.6	.0262014	.0318666
103	637.565	-55.7796	69.0857	.0348556	50.4	.0222079	.0268648
104	637.565	-55.7796	72.9238	.0263663	50.3	.0168554	.020275
105	637.565	-55.7796	76.7619	.0154803	50.1	9.93E-03	.0118748
END	637.565	-55.7796	80.6	0	0	0	0

Reference Points

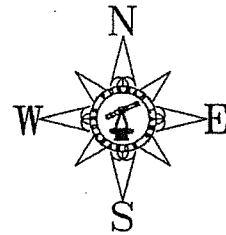
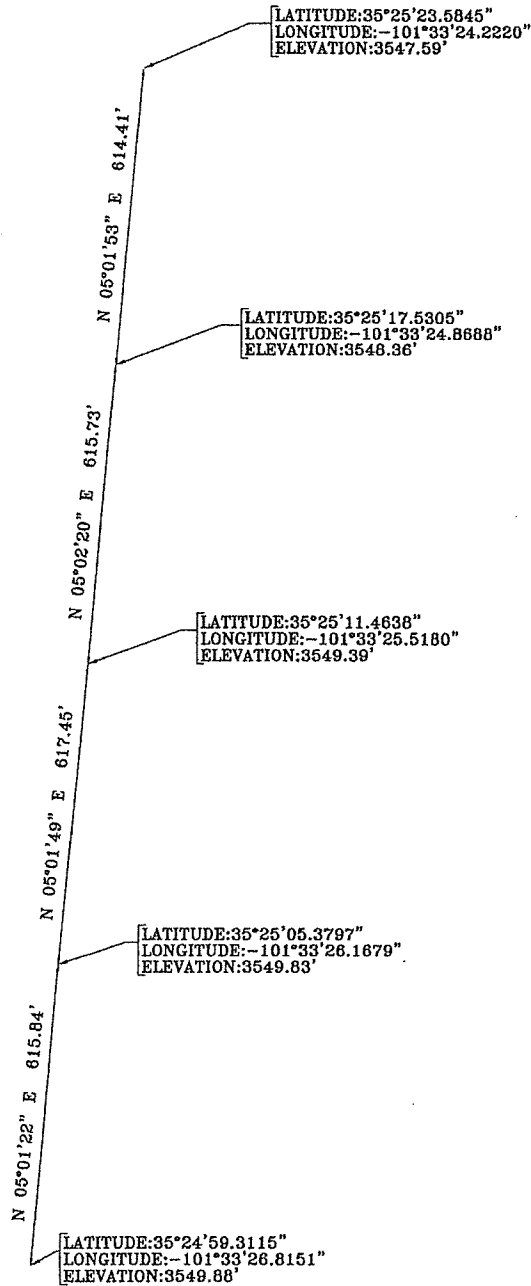
KGNC Field readings 9-9-09 - 9-16-09
GPS Readings WGS84 MS Streets & Trips

<u>Radial</u> <u>azimuth</u> <u>Deg</u>	<u>Map</u> <u>Ref</u>	<u>Distance</u> <u>km</u>	<u>Field</u> <u>mV/m</u>	<u>GPS coords</u>	<u>Pattern</u>	<u>Point description</u>
53.00	53-2	14.40	4.8	35-29-52 101-25-48	Night	Middle of Co Road K. Apx 60yds South of gate/cattle guard
53.00	53-3	17.69	3.6	35-30-56 101-24-3	Night	East Shoulder Hwy 207 Apx 22yds North of Fence corner of Conoco/Phillips Plant
53.00	53-6	36.04	4.7	35-36-52 101-14-18	Night	Apx 10yds South of Double pipe post, West shoulder of 152. Just past the crest of the hill
61.00	61-1	6.63	68	35-26-28 101-29-19	Day	NW Corner of Red Gate
61.00	61-3	11.80	25	35-27-28 101-26-7	Day	middle of Co Rd K just past slight Right bend in road
61.00	61-4	29.05	23	35-28-25 101-23-4	Day	West shoulder of Hwy 207. No landmarks
79.00	79-1	6.34	36	35-25-51 101-29-18	Night	Middle of Co Road H. Pump in the field to SE
79.00	79-3	11.24	10	35-26-21 101-26-7	Night	Middle of CO Road K, 42.5 yds North of 3 large wood post
79.00	79-4	16.18	3.7	35-26-51 101-22-54	Night	West Shoulder of Hwy 207 Midway between Pipe gate and Util Pole
129.00	129-1	11.59	92	35-21-15 101-27-28	Day	North Shoulder of Hwy 293, Apx 12' east of Util Pole
129.00	129-2	16.68	72	35-19-31 101-24-51	Day	South shoulder of Hwy 60, apx middle of 2 Util Poles
129.00	129-3	20.46	61	35-18-14 101-22-54	Day	West shoulder of Hwy 207, Pump located apx 100yds West
143.00	143-1	9.12	120	35-21-14 101-29-50	Night	North shoulder Hwy 293, apx 90yds east of Drain ditch under road

<u>Radial</u> <u>azimuth</u> <u>Deg</u>	<u>Map</u> <u>Ref</u>	<u>Distance</u> <u>km</u>	<u>Field</u> <u>mV/m</u>	<u>GPS coords</u>	<u>Pattern</u>	<u>Point description</u>
143.00	143-2	14.98	100	35-18-41 101-27-32	Night	South Shoulder Hwy 60, apx 24yds West of Util Pole/ Telco box
143.00	143-3	26.64	72	35-13-37 101-22-57	Night	West shoulder of hwy 207, apx 5yds North tall fence post, 58.5 yds South of Fence corner
300.00	300-1	8.20	6	35-27-24 101-38-8	Night	East shoulder of Hwy 136, South of gate to cell site
300.00	300-2	41.97	.9	35-36-29 101-57-34	Night	East side of Hwy 287 N, Midway between road and fence line, apx 7yds North of concrete pillar or apx 20yds' North of North edge of wire gate.
300.00	300-4	60.58	1.2	35-41-28 102-8-18		North shoulder hwy 354, Apx 18 yds East of large square double wood post
309.00	309-1	9.12	68	35-28-17 101-38-8	Day	East Side of Hwy 136, on the hill at the fence line. 40mv on shoulder
309.00	309-3	36.44	9.5	35-37-33 101-52-14	Day	Middle of Cig road, apx 35yds NW of beige armored valve on south side of road.
309.00	309-6	47.34	6.8	35-41-14 101-57-53	Day	Hwy 287 N, On exit ramp to Hwy's 354/1913, apx 1/2 way of guard rail
309.00	309-8	47.86	6.8	35-41-25 101-58-9	Day	North shoulder of Hwy 354, apx 17 yds East of Tx Plains Trails sign
311.00	311-1	9.40	13	35-28-31 101-38-8	Night	East Shoulder Hwy 136, Just South of small wood gate, apx 25yds North of end of Guard Rail
311.00	311-3	34.93	4.5	35-37-34 101-50-58	Night	middle of Cig road, apx 65yds west of power lines
311.00	311-5	45.86	2.1	35-41-24 101-56-26	Night	South shoulder of 1913, apx 89yds East of blue/green metal gate on North side of road.
311.00	311-6	48.74	1.65	35-42-25 101-57-53	Night	Apx center of bridge, East side Hwy 287 N

Tower Survey

Hatfield & Dawson Consulting Engineers



SCALE: 1" = 300'

NOTE

NAD 83 coordinates are based on NGS station POTTER. Elevation is based on City of Amarillo benchmark on the same station. Elevation is at ground level.

TOWER LOCATION SURVEY
FOR
KGNC



D. R. Furman
Daniel R. Furman
RPLS 5759

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PROJECT NO. 0910064 FILE NO. CARSON CO.
DRAWING NO. C:\DWG09\CARSON\0910064

Statement of Engineer

This Engineering Report regarding the Proof-of-Performance of KGNC, 1150 kHz, Amarillo, Texas has been prepared by myself or under my direct supervision. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am a partner in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Alaska.

Stephen S. Lockwood, P.E.

21 September 2009

