EXHIBIT E

ENGINEERING STATEMENT
RE REQUEST FOR LICENSE
CONSTRUCTION PERMIT
BPEDT-20131106AGQ
(FACILITY ID 50205)
KETA-TV, OKLAHOMA CITY, OKLAHOMA
CHANNEL 13 50 KW ERP ND (H) /12.5 KW ERP ND (V)
462.6 METERS HAAT

SEPTEMBER 2014

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 24th day of September, 2014.

CAROLYN L. LYONS NOTARY PUBLIC DISTRICT OF COLUMBIA 02-28-2018

Notary Public

My Commission Expires: 2/28/2018

Introduction

This engineering statement has been prepared on behalf of Oklahoma Educational Television Authority, licensee of TV Station KETA-TV (Facility ID 50205) Oklahoma City, Oklahoma. The attached is in support of its request for license for a digital television ("DTV") operation as authorized by the outstanding construction permit, FCC File No. BPEDT-20131106AGQ. KETA-TV has finished construction by locating the DTV transmission facility at an existing tower site. The facility is constructed to operate on Channel 13 with 50 kW non-directional horizontal and 12.5 kW non-directional vertical at an HAAT of 462.6 meters.

Antenna Site

The DTV antenna's center of radiation is mounted on a candelabra on an existing tower at 475.2 meters above ground level.

The KETA-TV antenna site is located at the corner of Kelly Avenue and 122nd Street, Oklahoma City, Oklahoma. The antenna structure registration number is 1045226.

The geographic coordinates of the existing tower are as follows:

North Latitude: 35° 35' 52"

West Longitude: 97° 29' 22"

(NAD-27)

The following data shows the pertinent information concerning the proposed DTV operation.

Antenna Data

Antenna: Dielectric, Model No. THV-6A13/VP-R 04 SM elliptically polarized antenna--side-mounted on a 42 inch triangular tower

Beam Tilt 1.0° electrical

Maximum		
ND Power Gain Horizontal	4.80	6.81 dB
ND Power Gain Vertical	1.2	0.79 dB

According to the manufacturer, the horizontal vertical elevation patterns are identical.

See Exhibits E-1 in response to Section 73.625 of the FCC Rules

Power Data

Transmitter output		15.6 kW	11.93 dBk
Transmission line efficiency/loss EIA/DCA 4-1/16" 50 ohm rigid line loss 0.098 dB/100 ft length 545.6 meters (1790 ft)		66.8%	1.75 dB
Input power to antenna		10.42 kW	10.18 dBk
Antenna: ND power gain, Horizontal		4.80	6.81 dB
ND power gain, Vertical		1.20	0.79 dB
Effective Radiated Power	Horizontal	50 kW	16.99 dBk
	Vertical	12.5 kW	10.97 dBk

Elevation Data

Elevation of the site above mean sea level	335.9 meters 1102 feet
Elevation of the top of existing supporting structure above ground including DTV antenna	502 meters 1647 feet
Elevation of the top of supporting structure above mean sea level including DTV antenna	837.9 meters 2749 feet
Height of DTV antenna radiation center above ground	475.2 meters 1558.95 feet
Height of DTV antenna radiation center above mean sea level	811.1 meters 2660.95 feet
Height of DTV antenna radiation center above average terrain	462.6 meters 1517.7 feet

Radio Frequency Field Level Analysis

Pursuant to OET Bulletin No. 65 dated August 1997, these non-broadcast stations are all exempt from RFF evaluations for the following reason:

Station	Licensed Under Part No.	Reason for Exemption
	Part 74, Subpart F	Subpart F Exempt
	Part 90	Antenna Height > 10 meters
	Part 90	ERP < 1000 watts
	Part 74, Subpart F	Subpart F Exempt

The RFF contribution of each station will be calculated using the following formula:

$$S = \frac{33.4(F^2)\ \text{Total ERP}}{R^2}$$

where:

S = power density in μW/cm²
F = relative field factor
Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization
R = RCAGL - 2 meters

ERP = RMS ERP in watts for FM and DTV Stations

There are numerous other transmitters operating from the tower. The radio frequency field level ("RFF") contribution of the proposed KETA-TV operation will be added to the calculated value of the total RFF level of all other broadcast stations operating from the tower. The proposed operation based upon the current OET Bulletin No.65, Edition 97-01, dated August 1997 and Supplement A meets the provisions of the FCC radio frequency field guidelines, and thus, complies with Section 1.1307 of the FCC Rules. The following table has been prepared based on the CDBS information dated September 18, 2014.

Therefore, the RFF study will consider the following stations:

Station	Status	Channel	ERP (kW)	RCAGL(m) [1]	RFV [2]	S (μW/cm²)	RFF % [3]
KETA-TV	Prop	13	50/12.5	473.2	0.1	0.093	<1
KWTV-DT	LIC	39	1000	489.1	0.05	0.4	<0.5
KSBI-DT	LIC	23	1000/300	340.9	0.05	0.9	<0.5

Station	Status	Channel	ERP (kW)	RCAGL(m) [1]	RFV [2]	S (μW/cm^2)	RFF % [3]
KFOR-TV	LIC	27	790	488.0	0.1	1.10	0.30
KAUT-TV	LIC	40	1000	447.3	0.05	0.42	<0.5
KOPX-TV	LIC	50	200	491.1	0.1	0.277	0.06
KTST-FM	LIC	270C0	100/100	379	0.05	0.116	0.06
KBRU(FM)	CP	234C0	100/100	379	0.05	0.116	0.06
KXXY-FM	LIC	241C0	100/100	379	0.05	0.116	0.06
KJYO-FM	LIC	274C0	100/100	379	0.05	0.116	0.06
KOCM-DT	LIC	46	50	425	0.1	0.092	0.021
KXOC-LP-TX	CP	41	15	303	0.2	0.218	0.05

1. Radiation Center minus 2 meters
2. F = Relative Downward Field
3. Limit for an uncontrolled environment

The total contribution of all stations, 2 meters above the ground at the base of the tower, will be less than five (5) percent of the current FCC guidelines for general population exposure. Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

Cohen, Dippell and Everist, P.C.

EXHIBIT E-1

ANTENNA MANUFACTURER DATA

KETA-TV, OKLAHOMA CITY, OKLAHOMA

Dielectric

Proposal #: **C-06070-2** Antenna Type: **THV-6A13/VP-R O4 SM** Channel: **13 DTV**

Call Letters: **KETA** Location: **Oklahoma City, OK**

Electrical Specifications		Value Ratio	Value dBd	Remarks
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	4.8	6.81	
	Vpol	1.2	0.79	
RMS Gain at Horizontal over Halfwave Dipole	Hpol	4.7	6.72	
	Vpol	1.2	0.79	
Peak Directional Gain over Halfwave Dipole	Hpol			
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol			
	Vpol			
Circularity		+/- 1.0 dB		
Beam Tilt		1.00 deg		
Average Power		50 kW	16.99 dBk	
Antenna Input: T/L		4-1/16 in	50.0 ohm	Type: EIA/DCA
Maximum Antenna Input VSWR		Channel	1.10 : 1	Notes:

Patterns			
	Azimuth	THV-O4 HPOL	THV-O4 VPOL
	Elevation	06V060100	06V060100-90

Mechanical Specifications		Metric	English		Preliminary	w/ 3/4" ice
Height with Lightning Protector	H4					tiz=2.1
Height Less Lightning Protector	H2	11.2 m	36.8 ft			
Height of Center of Radiation	H3	5.6 m	18.4 ft	Above base flange		
Basic Wind Speed	V	144.8 km/h	90 mi/h			
Structure Class II	Exposure Category	C	Topographic Category	1		TIA-222-G.
Effective Projected Area	(EPA)s	4.9 m²	53.1 ft²	Above base flange		134.1 ft²
Moment Arm	D1					
Effective Projected Area	(EPA)s					
Moment Arm	D3					
Pole Bury Length	D2					
Weight	W	0.7 t	1,450 lbs			4,700 lbs
Radome						

Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA-222-G.

NOTE:

Prepared By : CAB RMS Approved By : JLS JLS

Original Date : 17-Dec-13 **Revision: 2** **Rev. Date:** **20-Jan-14** CAB

Proposal Number	**C-06070**	Revision:	**2**
Date	**20-Jan-14**		
Call Letters	**KETA**	Channel	**13**
Location	**Oklahoma City, OK**		
Customer			
Antenna Type	**THV-6A13/VP-R O4 SM**		

SYSTEM SUMMARY

Antenna:

			H Pol			V Pol	
Type:	**THV-6A13/VP-R O4 SM**	ERP:	**50 kW**	**(16.99 dBk)**	**ERP:**	**12.5 kW**	**(10.97 dBk)**
Channel:	**13**	RMS Gain*:	**4.8**	**(6.81 dB)**	**Peak Gain*:**	**1.2**	**(0.79 dB)**
Location:	**Oklahoma City, OK**	Input Power:	**10.4 kW**	**(10.18 dBk)**			

Transmission Line:

Type:	**EIA/DCA**	Attenuation:		**1.75 dB**
Size:	**4-1/16 in**	Efficiency:	**66.8%**	
Impedance:	**50 ohm**			
Length:	**1,790 ft**	**545.6 m**		

Transmitter:

Power Required: **15.6 kW (11.93 dBk)**

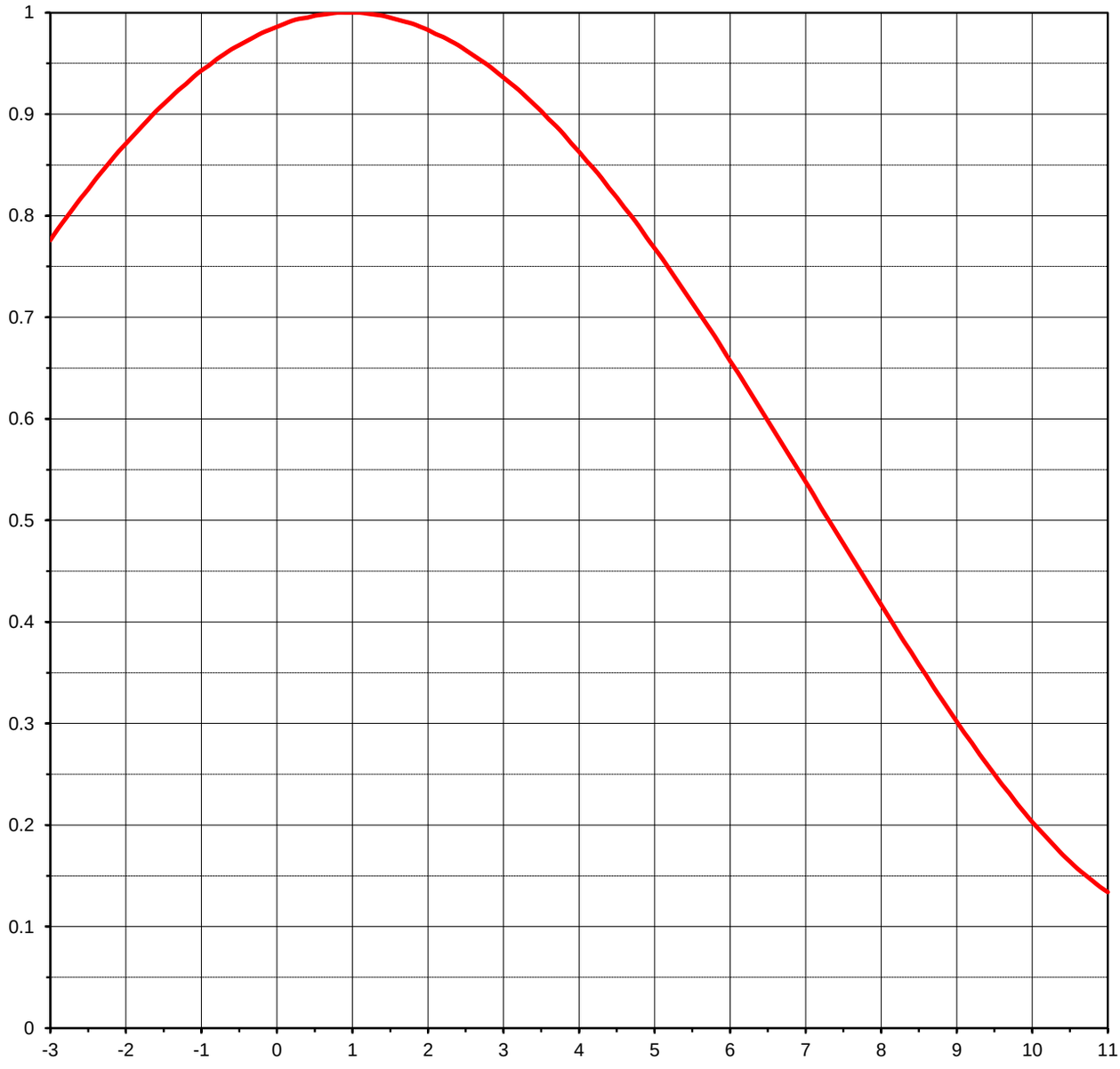
* Gain is with respect to half wave dipole.

Proposal Number	**C-06070**	Revision:	**2**
Date	**20-Jan-14**		
Call Letters	**KETA**	Channel	**13**
Location	**Oklahoma City, OK**		
Customer			
Antenna Type	**THV-6A13/VP-R O4 SM**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**6.00**	**(7.78 dB)**	
RMS Gain at Horizontal	**5.80**	**(7.63 dB)**	
Calculated / Measured	**Calculated**		

Beam Tilt	**1.00 deg**
Frequency	**213.00 MHz**
Drawing #	**06V060100**



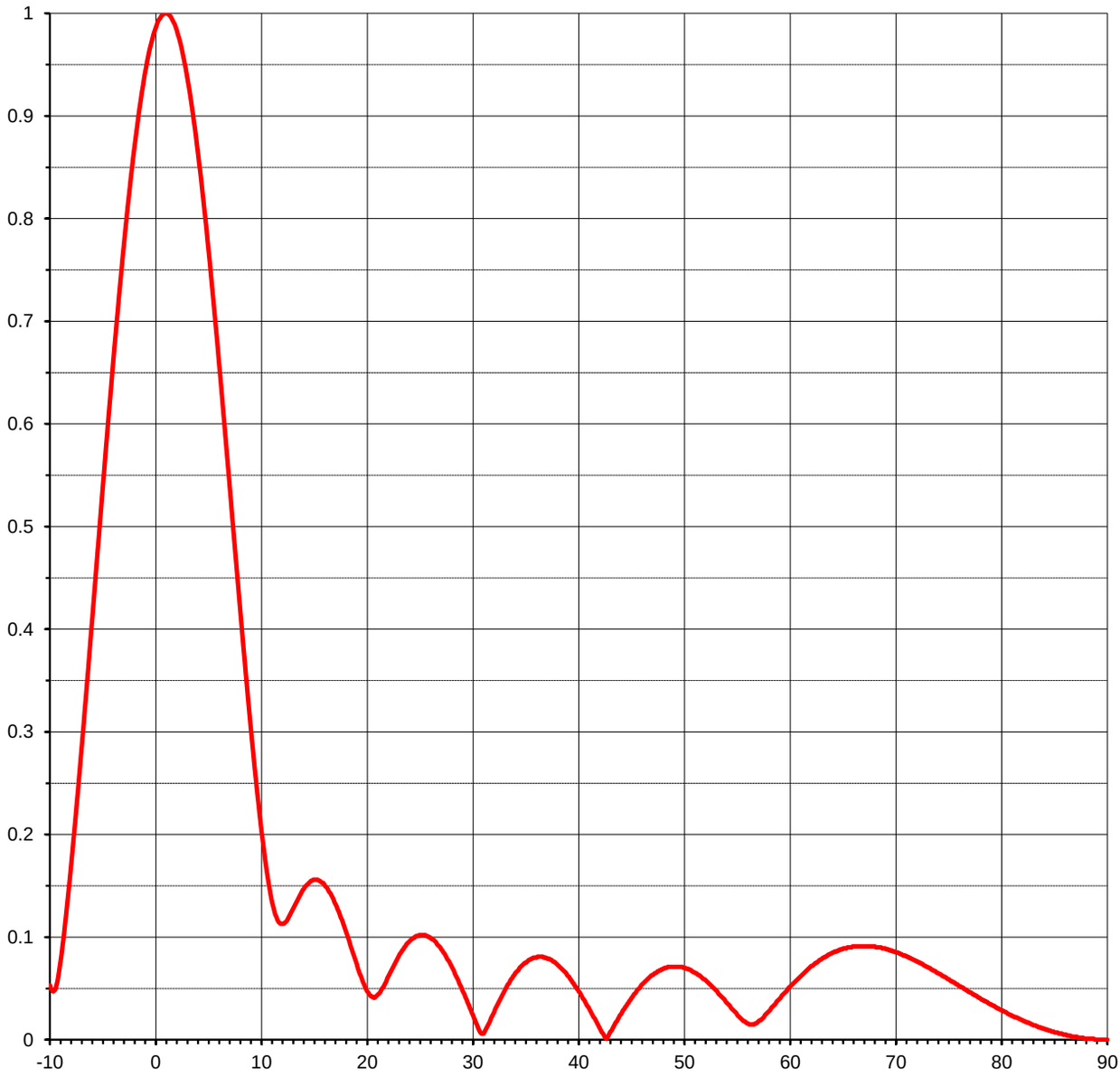
Degrees Below Horizontal

Proposal Number	**C-06070**	Revision:	**2**
Date	**20-Jan-14**		
Call Letters	**KETA**	Channel	**13**
Location	**Oklahoma City, OK**		
Customer			
Antenna Type	**THV-6A13/VP-R O4 SM**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**6.00**	**(7.78 dB)**	
RMS Gain at Horizontal	**5.80**	**(7.63 dB)**	
Calculated / Measured	**Calculated**		

Beam Tilt	**1.00 deg**
Frequency	**213.00 MHz**
Drawing #	**06V060100-90**



Dielectric

Proposal Number	**C-06070**	Revision:	**2**
Date	**20-Jan-14**		
Call Letters	**KETA**	Channel	**13**
Location	**Oklahoma City, OK**		
Customer			
Antenna Type	**THV-6A13/VP-R O4 SM**		

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **06V060100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.053	2.4	0.968	10.6	0.164	30.5	0.014	51.0	0.066	71.5	0.079
-9.5	0.049	2.6	0.958	10.8	0.151	31.0	0.006	51.5	0.063	72.0	0.076
-9.0	0.077	2.8	0.948	11.0	0.139	31.5	0.014	52.0	0.059	72.5	0.074
-8.5	0.120	3.0	0.936	11.5	0.120	32.0	0.025	52.5	0.054	73.0	0.071
-8.0	0.171	3.2	0.924	12.0	0.113	32.5	0.036	53.0	0.049	73.5	0.068
-7.5	0.227	3.4	0.910	12.5	0.116	33.0	0.046	53.5	0.043	74.0	0.065
-7.0	0.286	3.6	0.895	13.0	0.126	33.5	0.055	54.0	0.037	74.5	0.062
-6.5	0.348	3.8	0.880	13.5	0.136	34.0	0.063	54.5	0.031	75.0	0.059
-6.0	0.411	4.0	0.863	14.0	0.146	34.5	0.070	55.0	0.026	75.5	0.056
-5.5	0.476	4.2	0.846	14.5	0.152	35.0	0.075	55.5	0.020	76.0	0.052
-5.0	0.540	4.4	0.827	15.0	0.156	35.5	0.078	56.0	0.016	76.5	0.049
-4.5	0.603	4.6	0.808	15.5	0.155	36.0	0.080	56.5	0.015	77.0	0.046
-4.0	0.664	4.8	0.789	16.0	0.152	36.5	0.081	57.0	0.017	77.5	0.043
-3.5	0.722	5.0	0.768	16.5	0.144	37.0	0.080	57.5	0.021	78.0	0.040
-3.0	0.776	5.2	0.747	17.0	0.134	37.5	0.078	58.0	0.027	78.5	0.037
-2.8	0.797	5.4	0.725	17.5	0.122	38.0	0.074	58.5	0.033	79.0	0.034
-2.6	0.817	5.6	0.703	18.0	0.108	38.5	0.069	59.0	0.039	79.5	0.031
-2.4	0.836	5.8	0.681	18.5	0.092	39.0	0.063	59.5	0.045	80.0	0.029
-2.2	0.854	6.0	0.657	19.0	0.077	39.5	0.056	60.0	0.051	80.5	0.026
-2.0	0.871	6.2	0.634	19.5	0.062	40.0	0.049	60.5	0.056	81.0	0.023
-1.8	0.887	6.4	0.610	20.0	0.049	40.5	0.040	61.0	0.061	81.5	0.021
-1.6	0.903	6.6	0.586	20.5	0.042	41.0	0.032	61.5	0.066	82.0	0.019
-1.4	0.917	6.8	0.562	21.0	0.043	41.5	0.022	62.0	0.071	82.5	0.017
-1.2	0.930	7.0	0.538	21.5	0.050	42.0	0.013	62.5	0.075	83.0	0.014
-1.0	0.943	7.2	0.513	22.0	0.060	42.5	0.004	63.0	0.078	83.5	0.012
-0.8	0.954	7.4	0.489	22.5	0.070	43.0	0.006	63.5	0.081	84.0	0.011
-0.6	0.964	7.6	0.465	23.0	0.080	43.5	0.015	64.0	0.084	84.5	0.009
-0.4	0.972	7.8	0.441	23.5	0.088	44.0	0.024	64.5	0.087	85.0	0.007
-0.2	0.980	8.0	0.417	24.0	0.095	44.5	0.032	65.0	0.089	85.5	0.006
0.0	0.986	8.2	0.393	24.5	0.099	45.0	0.039	65.5	0.090	86.0	0.005
0.2	0.992	8.4	0.370	25.0	0.102	45.5	0.046	66.0	0.091	86.5	0.004
0.4	0.995	8.6	0.347	25.5	0.102	46.0	0.053	66.5	0.091	87.0	0.003
0.6	0.998	8.8	0.324	26.0	0.100	46.5	0.058	67.0	0.091	87.5	0.002
0.8	1.000	9.0	0.302	26.5	0.096	47.0	0.063	67.5	0.091	88.0	0.001
1.0	1.000	9.2	0.281	27.0	0.090	47.5	0.066	68.0	0.091	88.5	0.001
1.2	0.999	9.4	0.260	27.5	0.082	48.0	0.069	68.5	0.090	89.0	0.000
1.4	0.997	9.6	0.240	28.0	0.073	48.5	0.071	69.0	0.089	89.5	0.000
1.6	0.993	9.8	0.231	28.5	0.062	49.0	0.071	69.5	0.087	90.0	0.000
1.8	0.989	10.0	0.212	29.0	0.051	49.5	0.071	70.0	0.085		
2.0	0.983	10.2	0.195	29.5	0.039	50.0	0.070	70.5	0.083		
2.2	0.976	10.4	0.179	30.0	0.026	50.5	0.069	71.0	0.081		

Section III - Engineering

TECHNICAL SPECIFICATIONS Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel 13

2. Operating Constants

Transmitter power output (average power at input to transmission line, after any filter attached to the transmitter, if used)		Transmission line power loss
15.6 kW	11.93 dBk	1.75 dB

Antenna Input power	Maximum antenna power gain	Effective radiated power (average power)	
10.18 dBk	H ND 6.81 dB V ND 0.79 dB dB	H 50 kW V 12.5 kW kW	16.99 dBk 10.97 dBk dBk

3. Antenna Data

Manufacturer	Model
Dielectric	THV-6A13/VP-R 04 SM

NOTE: In addition to the information called for in the Certification Checklist, an explanatory exhibit providing full particulars must be submitted for each question for which a ''No'' response is provided.

CERTIFICATION

4. **Main Studio Location.** The main studio location complies with 47 C.F.R. Section 73.1125. [X] Yes [ ] No — See Explanation in Exhibit No.

5. **Constructed Facility.** The facility was constructed as authorized in the underlying construction permit or complies with 47 C.F.R. Section 73.1690. [X] Yes [ ] No — See Explanation in Exhibit No.

6. **Special Operating Conditions.** The facility was constructed in compliance with all special operating conditions, terms, and obligations described in the construction permit. [X] Yes [ ] No — See Explanation in Exhibit No.

   An exhibit may be required. Review the underlying construction permit. Exhibit No.

7. **Transmitter.** The transmitter complies with 47 C.F.R. Section 73.1660. [X] Yes [ ] No — See Explanation in Exhibit No.

PREPARER'S CERTIFICATION ON PAGE 6 MUST BE COMPLETED AND SIGNED.

APPLICATION FILED PURSUANT TO 47 C.F.R. SECTIONS 73.1675(c) or 73.1690(c).
Only applicants filing this application pursuant to 47 C.F.R. Sections 73.1675(c) or 73.1690(c) must complete the following section.

8. **Changing transmitter power output.** Is this application being filed to authorize a change in transmitter power output caused by the replacement of an omnidirectional antenna with another omnidirectional antenna or an alteration of the transmission line system? See 47 C.F.R. Sections 73.1690(c)(1) and (c)(10). ☐ Yes ☒ No

9. **Replacing a directional antenna.** Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(3) to replace a directional antenna with another directional antenna? ☐ Yes ☒ No

If "Yes" to the above, the applicant certifies the following:

a. **Pattern of Directional Antenna.** The proposed theoretical antenna pattern complies with 47 C.F.R. Section 73.1690(c)(3). **Exhibit is required.** ☐ Yes ☐ No

Exhibit No.

See Explanation in Exhibit No.

10. Use **a formerly licensed main facility as an auxiliary facility.** Is this application being filed pursuant to 47 C.F.R. Section 73.1675(c)(1) to request authorization to use a formerly licensed main facility as an auxiliary facility and/or change the ERP of the proposed auxiliary facility? ☐ Yes ☒ No

If "Yes" to the above, the applicant certifies the following:

a. **Auxiliary antenna service area.** The proposed auxiliary facility complies with 47 C.F.R. Section 73.1675(a). **Exhibit is required.** ☐ Yes ☐ No

See Explanation in Exhibit No.

b. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radio frequency electromagnetic exposure limits for controlled and uncontrolled environments). ☐ Yes ☐ No

See Explanation in Exhibit No.

By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radio frequency electromagnetic exposure in excess of FCC guidelines.

11. **Change the license status.** Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(9) to change the license status from commercial to noncommercial or from noncommercial to commercial? ☐ Yes ☒ No

Exhibit No.

If "Yes" to the above, submit an exhibit providing full particulars. For applications changing license status from commercial to noncommercial, include Section II of FCC Form 340 as an exhibit to this application.

PREPARER'S CERTIFICATION ON PAGE 6 MUST BE COMPLETED AND SIGNED.

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name DONALD G. EVERIST	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature	Date September 24, 2014	
Mailing Address Cohen, Dippell and Everist, P.C., 1420 N Street, NW, Suite One		
City Washington	State or Country (if foreign address) DC	ZIP Code 20005
Telephone Number (include area code) (202) 898-0111	E-Mail Address (if available) cde@attglobal.net	

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