

ENGINEERING STATEMENT RE  
REQUEST TO CONSTRUCT AUXILIARY ANTENNA FOR  
KETA-TV, OKLAHOMA CITY, OKLAHOMA  
CHANNEL 13 34.0 KW ERP 418.1 METERS HAAT

JUNE 2009

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 )

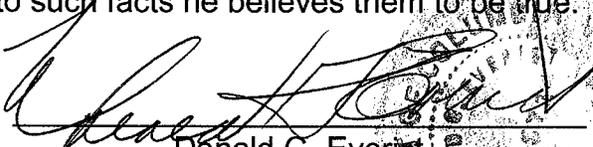
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

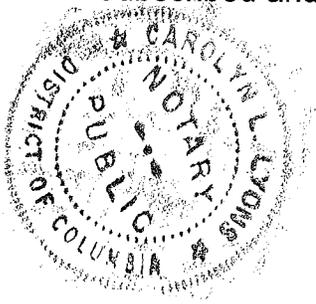
That his qualifications are a matter of record in the Federal Communications Commission;

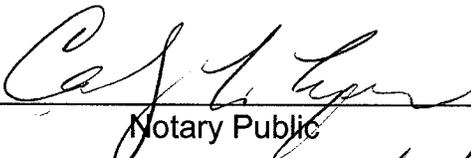
That the attached engineering report was prepared by him or under his supervision and direction and

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 15<sup>th</sup> day of June, 2009.



  
Notary Public

My Commission Expires: 2/28/2013

Introduction

This engineering statement has been prepared on behalf of Oklahoma Educational Television Authority (“KETA”) licensee of TV station KETA-TV, Oklahoma City, Oklahoma, as part of its request to construct a post-transition DTV antenna for auxiliary operation. Station KETA-TV has been allotted its current analog Channel 13 (210-216 MHz) for its permanent, post-transition digital TV operation and has been authorized to construct a facility (FCC File No. BNPEDT-20080620ABQ) with 50 kW non-directional effective radiated power (“ERP”) and 465 meters height above average terrain (“HAAT”). KETA-TV proposes to construct an auxiliary operation for DTV Channel 13 on the authorized tower with 34.0 kW non-directional ERP at 418.1 meters HAAT. A new auxiliary broadband antenna will be side-mounted on the existing tower and will also be authorized as an auxiliary antenna for KWTW-DT, Channel 9, Oklahoma City, Oklahoma.

Antenna Site  
(Unchanged)

There is no change in the proposed antenna site. The proposed TV Channel 13 auxiliary antenna is a broadband antenna and will be side-mounted on the tower (Exhibit E-1) with its center of radiation (“C/R”) at 419.5 meters above ground level. The KETA-TV antenna site is located at 7403 North Kelley Avenue, Oklahoma City, Oklahoma. The antenna structure registration number is 1010943.

The geographic coordinates of the existing tower are as follows:

North Latitude: 35° 32’ 58”

West Longitude: 97° 29’ 49”

NAD-27

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

Antenna Data

Antenna: Dielectric, TF-6HS-HDC (or equivalent) with 0.70 degrees electrical beamtilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are included herein as Exhibit E-2.

Transmission Line: 557.8 meters (1830 ft) of Myat, Type 601-001, 6-1/8" coaxial, 50 ohm line (or equivalent)

Power Data

Transmitter Power Output ("TPO")	7.3 kW	8.63 dBk
Dielectric Combiner for Ch.9 and Ch.13	97.7%	0.1 dB
Transmission Line Efficiency/Loss	74.5%	1.28 dB
Input Power to Auxiliary Antenna	5.31 kW	7.25 dBk
Auxiliary Antenna Power Gain	6.4	8.06 dB
Auxiliary Effective Radiated Power	34.0 kW	15.31dBk

Elevation Data

Vertical dimension for Ch.9 and Ch.13 auxiliary antenna	11.4 meters 37.3 feet
Elevation of the site above mean sea level:	353.6 meters 1160.1 feet
Elevation of the top of existing supporting structure above ground including appurtenances	480.5 meters 1576.4 feet
Elevation of the top of supporting structure above mean sea level including appurtenances	834.1 meters 2736.5 feet
Height of Ch.9 and Ch.13 auxiliary antenna radiation center meters above ground	419.5 meters 1376.5 feet
Height of Ch.9 and Ch.13 auxiliary antenna radiation center above mean sea level	773.1 meters 2536.4 feet
Height of Ch.9 and Ch.13 auxiliary antenna radiation center above average terrain	418.1 meters 1371.7 feet

Effective Radiated Power

The ERP authorized for the main DTV Channel 13 operation is 50 kW at 465 meters HAAT. KETA-TV is proposing to operate its DTV Channel 13 auxiliary facility with an ERP of 34.0 kW non-directional at 418.1 meters HAAT. This power and height will ensure that the auxiliary operation does not extend the predicted 36 dBu F(50,90) noise-limited contour in any direction beyond that authorized in the CP. The attached map (Exhibit E-3) shows the computed F(50,90) 36 dBu contours predicted according to Section 73.625(b) of the Commission's rules based on the DTV facilities authorized in the current CP and the facilities of 34.0 kW ERP proposed for the auxiliary operation.

Principal Community Coverage

The Commission requires DTV stations to place a stronger signal over the principal community. The proposed auxiliary operation of KETA-TV on Channel 13 places a predicted 43 dBu contour over the community of license as shown in Exhibit E-3.

Topographic Data

The average elevation data of the eight cardinal radials from 3.2 to 16.1 kilometers, are based on the NGDC 3-second computerized terrain database.

Contour Data

Utilizing the formula in Section 73.625(b)(2) for the effective heights shown on the attached tabulation, the depression angle  $A_n$ , for each azimuth has been calculated. The maximum radiation value has been used to calculate ERP where the vertical radiation pattern at these angles is greater than 90% of the maximum.

Table I provides the distances along the eight cardinal radials to the predicted F(50,90) 43 dBu and 36 dBu contours, the average elevations, and the effective antenna heights. The distances along each radial to the limits of F(50,90) 43 dBu and 36 dBu contours were determined

as specified in Section 73.625(b) by reference to the propagation data for Channels 7-13, as published by the Commission in Figures 10 and 10a, Section 73.699 of its rules.

#### Environmental

As with its operation authorized in the CP, KETA-TV Channel 13 auxiliary at reduced power will remain in compliance with radio frequency field (“RFF”) safety guidelines, FAA requirements, and environmental statutes. The total percentage of RFF levels was calculated by combining the percentage contribution of each station.

The RFF study will consider the following stations:

#### Station

KETA-TV	Channel 13
KWTV-DT	Channel 9

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  $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

ERP =  $[0.4 \text{ ERP}_V + \text{ERP}_A]$  for NTSC Stations

$\text{ERP}_V$  = peak visual ERP in watts

$\text{ERP}_A$  = RMS aural ERP in watts

#### KETA-TV DTV Facility (Proposed Auxiliary)

Channel 13	Freq:	210-216 MHz
	ERP =	34,000 watts
	Polarization =	Horizontal
	RCAGL -2 meters =	417.5 meters

KETA-TV proposes to utilize a Dielectric, Type TF-6HS-HDC antenna with  $0.7^\circ$  electrical beam tilt. The manufacturer's vertical plane pattern for this antenna is included in Exhibit E-2. Based on this plot, the field factor will be less than 0.32 at any angle greater than 10 degrees below the horizon. A value of 0.32 will be used in the calculation.

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

Tot ERP = 34,000 watts (Horizontal Only)  
 R = 417.5 meters  
 F = 0.32 (field factor)

$$S = 0.67 \mu\text{W}/\text{cm}^2$$

KETA-TV will contribute  $0.67 \mu\text{W}/\text{cm}^2$  at 2 meters above ground. The limit for an uncontrolled environment is  $200 \mu\text{W}/\text{cm}$  for station broadcasting in the 30-300 MHz range.

Therefore:

KETA-TV proposed auxiliary facility will contribute less than 0.4% RFF for an uncontrolled environment two meters above ground at the tower site.

#### KWTV DTV Facility (Auxiliary)

Channel 9	Freq:	186-192 MHz range
	ERP =	40,500 watts (assumed)
	Polarization =	Horizontal
	RCAGL -2 meters =	417.5 meters

KWTV-DT proposes to utilize a Dielectric, Type TF-6HS-HDC antenna with  $0.7^\circ$  electrical beam tilt. The manufacturer's vertical plane pattern for this antenna is included in Exhibit E-2. Based on this plot, the field factor will be less than 0.26 at any angle greater than 10 degrees below the horizon. A value of 0.26 will be used in the calculation.

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

Tot ERP = 40,500 watts (Horizontal Only)(assumed)  
 R = 417.5 meters  
 F = 0.26 (field factor)

$$S = 0.25 \mu\text{W}/\text{cm}^2$$

KWTV-DT will contribute  $0.52 \mu\text{W}/\text{cm}^2$  at 2 meters above ground. The limit for an uncontrolled environment is  $200 \mu\text{W}/\text{cm}$  for a station broadcasting in the 30-300 MHz range.

Therefore:

KWTV-DT proposed auxiliary facility will contribute less than 0.3% RFF for an uncontrolled environment two meters above ground at the tower site.

Total RFF at Site With Auxiliary Operation

The total RFF contribution for all transmitters can now be calculated:

$$\text{Total RFF} = 0.67 \mu\text{W}/\text{cm}^2 \text{ DT RFF} + 0.52 \mu\text{W}/\text{cm}^2 \text{ DT RFF} = 1.17 \mu\text{W}/\text{cm}^2$$

$$\text{Total RFF} = 0.4\% + 0.3\% \quad \text{Total RFF} = 0.7\%$$

The total “worst-case” post-transition RFF contribution of all auxiliary operations two meters above the ground near the base of the tower is no more than 1% of the FCC guidelines for an uncontrolled environment and no more than 0.2% of the FCC guidelines for a controlled environment.

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.

Environmental Assessment

An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the permittee indicates:

- (a)(1) The existing tower is not located in an officially designated wilderness area.
- (a)(2) The existing tower is not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected

any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.

- (a)(5) The existing tower is not located near any known Indian religious sites.
- (a)(6) The existing tower is not located in a flood plain.
- (a)(7) Addition of DTV auxiliary facilities on an existing guyed tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) It is not proposed to equip the tower with high intensity white lights unless required by the FAA.
- (b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

ABOVE GROUND

ABOVE MEAN SEA LEVEL

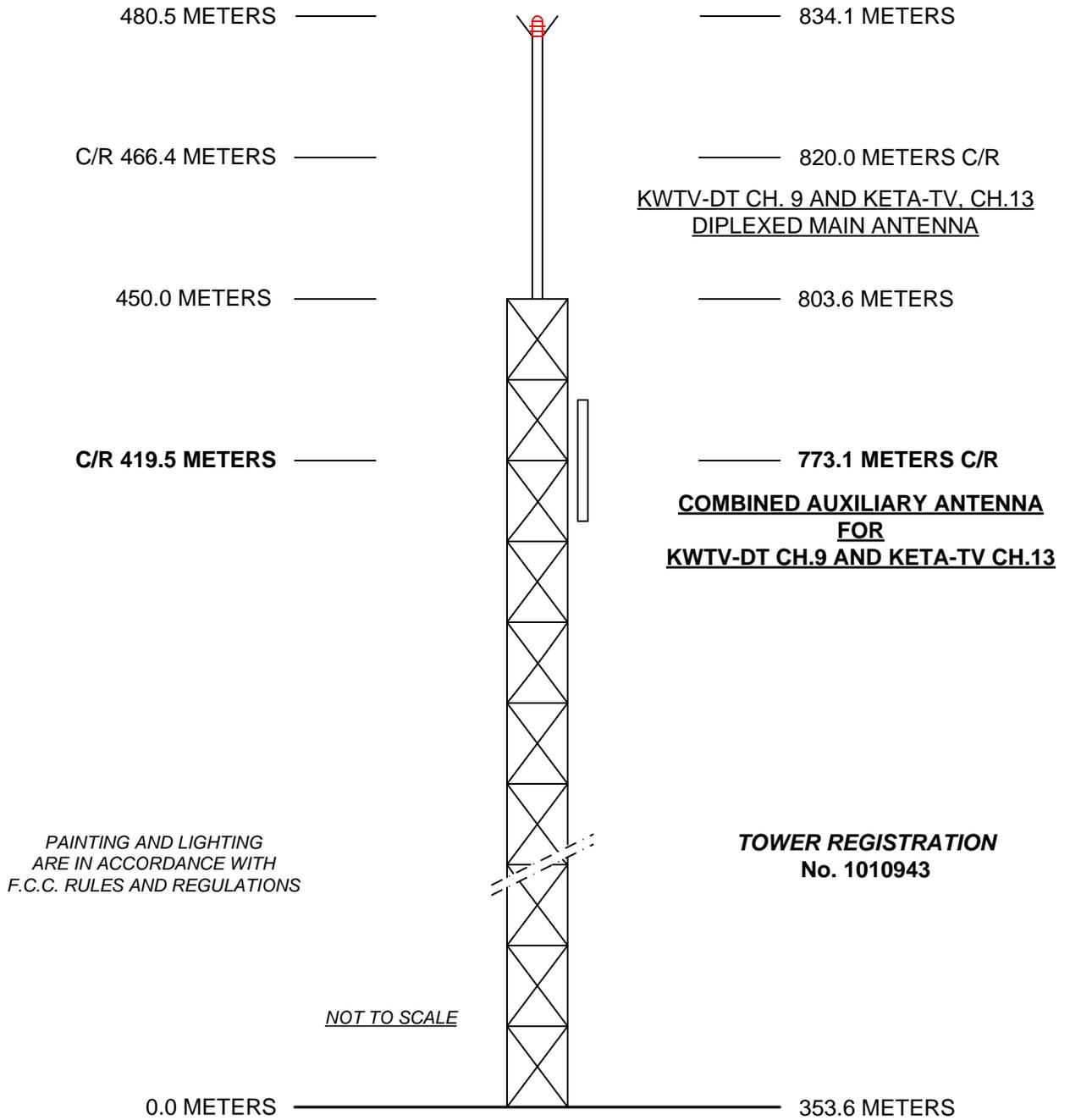


EXHIBIT E - 1  
VERTICAL SKETCH  
FOR THE PROPOSED AUXILIARY OPERATION OF  
**KETA-TV, OKLAHOMA CITY, OKLAHOMA**  
JUNE 2009

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

KETA-TV, OKLAHOMA CITY, OKLAHOMA



Proposal #: **C-02437**

Antenna Type: **TF-6HS-H DC**

Channel: **9 DTV**

Call Letters: **KWTV-DT**

Location: **Oklahoma City, OK**

**13 DTV**

Electrical Specifications		Value		Remarks	
		Ratio	dBd		
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	6.2	7.92	D9;	D13: 6.4 (8.06 dbd)
	Vpol				
RMS Gain at Horizontal over Halfwave Dipole	Hpol	6.1	7.85	D9;	D13: 6.2 (7.92 dbd)
	Vpol				
Peak Directional Gain over Halfwave Dipole	Hpol				
	Vpol				
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol				
	Vpol				
Circularity		+/- 2.0 dB		In free space	
Axial Ratio		dB			
Beam Tilt		0.70 deg		D9;	D13: 0.70 deg
Average Power		35 kW	15.44 dBk		
Antenna Input: T/L		3-1/8 in	50.0 ohm	Type: EIA/DCA	
Maximum Antenna Input VSWR		Channel 1.10 : 1		Notes: 5 psi dry air or Nitrogen required.	
				D13: Channel: 1.10 : 1	
Patterns	Azimuth	TF-0-1890		D9 D13	
	Elevation	06S062070	06S062070-90		
Mechanical Specifications		Metric	English	Preliminary	
Height with Lightning Protector	H4	m	ft	Side mounted	
Height Less Lightning Protector	H2	11.4 m	37.3 ft	TIA/EIA-222-F.	
Height of Center of Radiation	H3	6.0 m	19.2 ft		
Basic Wind Speed	V	120.7 km/h	75 mi/h		
Force Coeff. x Projected Area		CaAc	5.9 m <sup>2</sup>	63.5 ft <sup>2</sup>	Excludes Mounts
Moment Arm		D1	m	ft	
Force Coeff. x Projected Area		CaAc	m <sup>2</sup>	ft <sup>2</sup>	
Moment Arm		D3	m	ft	
Pole Bury Length		D2	m	ft	
Weight		W	1.2 t	2,700 lbs	Excludes Mounts
Deicer Power		TBD kW	TBD V	Three Phase	
Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F. <b>Mechanical Loads Exclude Mounts</b>					

NOTE:

Prepared By : **SWB**

**RMS**

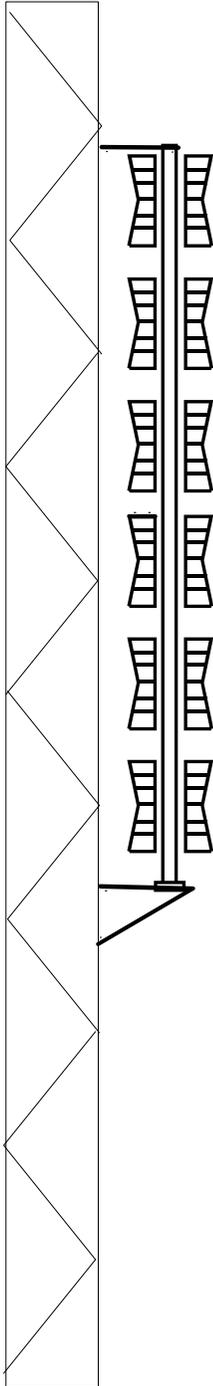
Approved By :

**MS**

Original Date : **17-Mar-08**

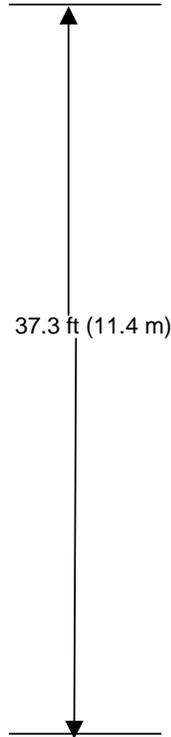
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**Mechanical Specifications**  
**TIA/EIA-222-F. @ 75 mi/h (120.7 km/h )**

CaAc = 63.5 ft<sup>2</sup>(5.9 m<sup>2</sup>)  
W = 2700 lbs(1.2 t)



TF-6HS-H DC  
Channel: D9 D13

SWB=000317-2

Not to Scale

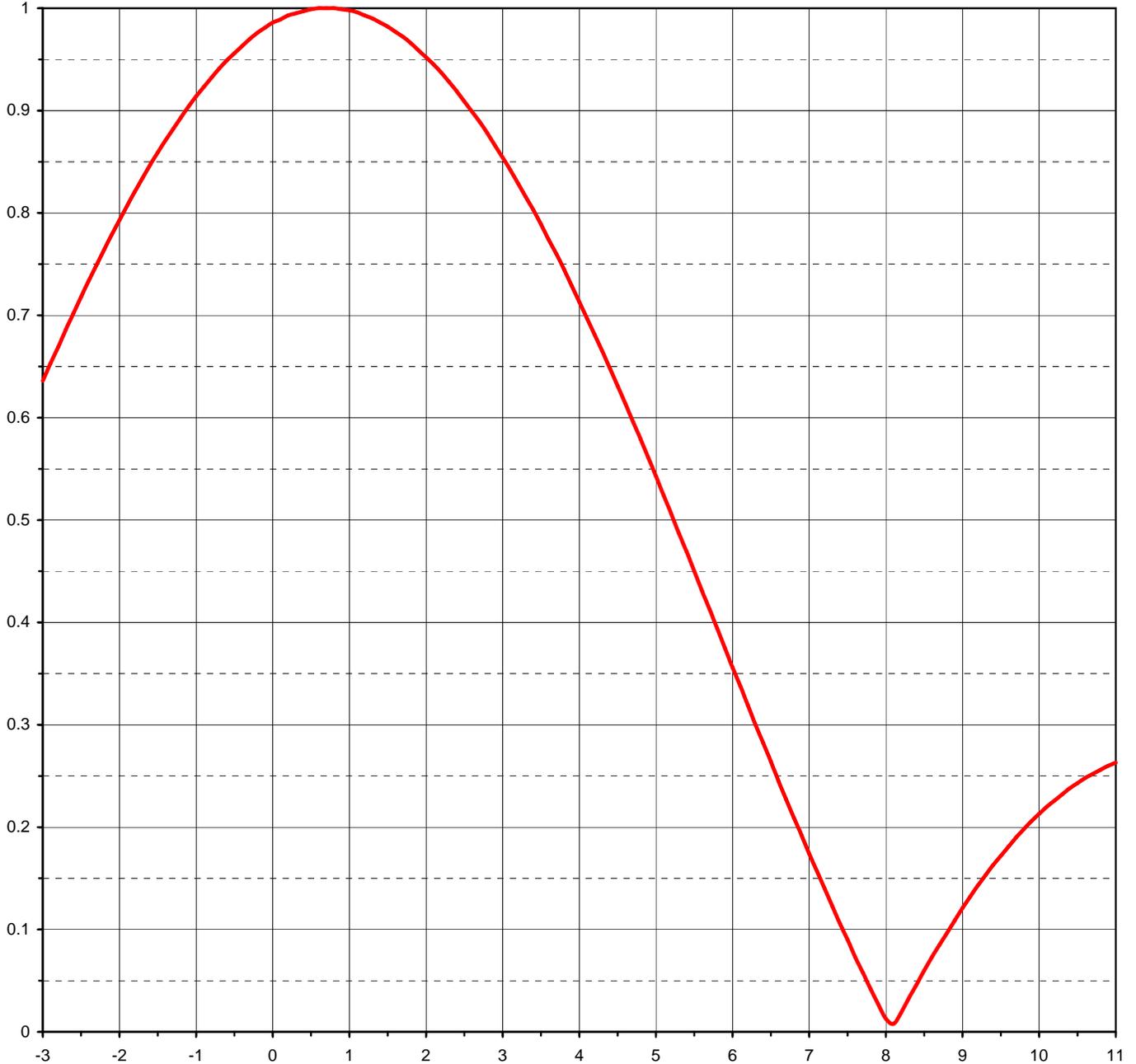
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Proposal Number **C-02437**  
Date **17-Mar-08**  
Call Letters **KETA-DT** Channel **13**  
Location **Oklahoma City, OK**  
Customer  
Antenna Type **TF-6HS-H DC**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>6.38 ( 8.05 dB )</b>	Beam Tilt	<b>0.70 deg</b>
RMS Gain at Horizontal	<b>6.20 ( 7.92 dB )</b>	Frequency	<b>213.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>06S064070</b>



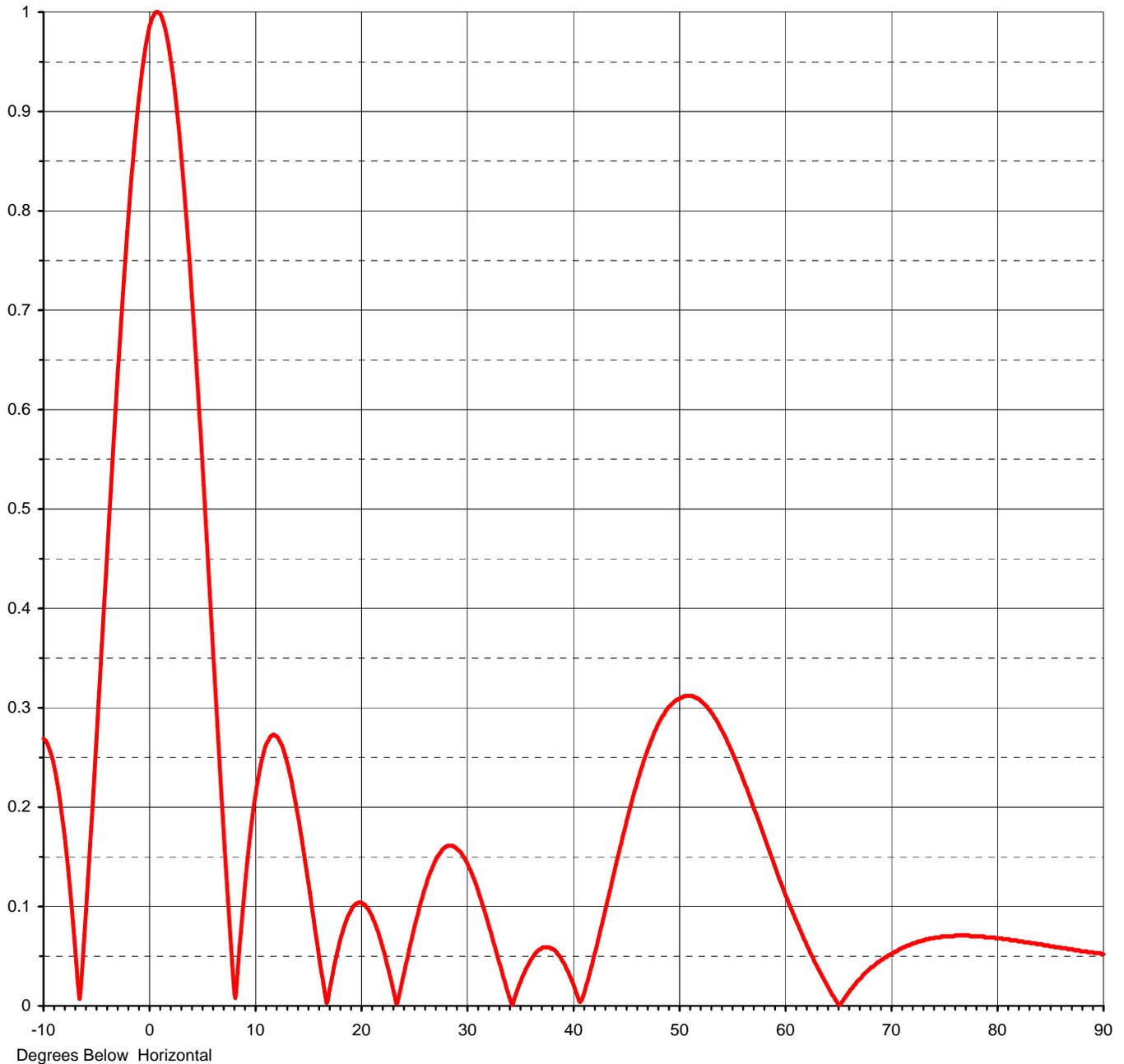
Degrees Below Horizontal



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RMS Gain at Horizontal	<b>6.20 ( 7.92 dB )</b>	Frequency	<b>213.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>06S064070-90</b>



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### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **06S064070-90**

Angle	Field										
-10.0	0.269	2.4	0.919	10.6	0.243	30.5	0.133	51.0	0.312	71.5	0.061
-9.5	0.260	2.6	0.899	10.8	0.252	31.0	0.119	51.5	0.311	72.0	0.063
-9.0	0.241	2.8	0.878	11.0	0.260	31.5	0.102	52.0	0.308	72.5	0.065
-8.5	0.211	3.0	0.854	11.5	0.271	32.0	0.085	52.5	0.303	73.0	0.066
-8.0	0.170	3.2	0.829	12.0	0.272	32.5	0.066	53.0	0.297	73.5	0.067
-7.5	0.118	3.4	0.803	12.5	0.264	33.0	0.047	53.5	0.289	74.0	0.068
-7.0	0.056	3.6	0.774	13.0	0.248	33.5	0.028	54.0	0.279	74.5	0.069
-6.5	0.017	3.8	0.745	13.5	0.226	34.0	0.010	54.5	0.269	75.0	0.070
-6.0	0.094	4.0	0.713	14.0	0.197	34.5	0.007	55.0	0.257	75.5	0.070
-5.5	0.180	4.2	0.681	14.5	0.165	35.0	0.022	55.5	0.244	76.0	0.071
-5.0	0.270	4.4	0.648	15.0	0.130	35.5	0.034	56.0	0.231	76.5	0.071
-4.5	0.363	4.6	0.614	15.5	0.093	36.0	0.045	56.5	0.217	77.0	0.071
-4.0	0.456	4.8	0.579	16.0	0.057	36.5	0.053	57.0	0.202	77.5	0.070
-3.5	0.547	5.0	0.543	16.5	0.022	37.0	0.057	57.5	0.188	78.0	0.070
-3.0	0.636	5.2	0.506	17.0	0.011	37.5	0.059	58.0	0.173	78.5	0.070
-2.8	0.669	5.4	0.469	17.5	0.039	38.0	0.058	58.5	0.158	79.0	0.069
-2.6	0.702	5.6	0.431	18.0	0.063	38.5	0.054	59.0	0.143	79.5	0.069
-2.4	0.734	5.8	0.394	18.5	0.081	39.0	0.046	59.5	0.128	80.0	0.068
-2.2	0.764	6.0	0.356	19.0	0.094	39.5	0.036	60.0	0.114	80.5	0.067
-2.0	0.793	6.2	0.319	19.5	0.102	40.0	0.024	60.5	0.101	81.0	0.067
-1.8	0.821	6.4	0.282	20.0	0.104	40.5	0.009	61.0	0.088	81.5	0.066
-1.6	0.847	6.6	0.245	20.5	0.100	41.0	0.010	61.5	0.076	82.0	0.065
-1.4	0.871	6.8	0.209	21.0	0.092	41.5	0.028	62.0	0.064	82.5	0.064
-1.2	0.893	7.0	0.174	21.5	0.079	42.0	0.049	62.5	0.052	83.0	0.064
-1.0	0.914	7.2	0.140	22.0	0.062	42.5	0.070	63.0	0.041	83.5	0.063
-0.8	0.932	7.4	0.106	22.5	0.042	43.0	0.092	63.5	0.031	84.0	0.062
-0.6	0.949	7.6	0.073	23.0	0.020	43.5	0.115	64.0	0.021	84.5	0.061
-0.4	0.963	7.8	0.042	23.5	0.004	44.0	0.138	64.5	0.010	85.0	0.060
-0.2	0.976	8.0	0.013	24.0	0.028	44.5	0.160	65.0	0.001	85.5	0.059
0.0	0.986	8.2	0.019	24.5	0.052	45.0	0.181	65.5	0.007	86.0	0.058
0.2	0.993	8.4	0.046	25.0	0.075	45.5	0.202	66.0	0.014	86.5	0.058
0.4	0.997	8.6	0.073	25.5	0.097	46.0	0.221	66.5	0.021	87.0	0.057
0.6	1.000	8.8	0.097	26.0	0.116	46.5	0.239	67.0	0.027	87.5	0.056
0.8	1.000	9.0	0.121	26.5	0.132	47.0	0.255	67.5	0.033	88.0	0.055
1.0	0.998	9.2	0.143	27.0	0.145	47.5	0.269	68.0	0.038	88.5	0.054
1.2	0.993	9.4	0.163	27.5	0.154	48.0	0.282	68.5	0.042	89.0	0.054
1.4	0.986	9.6	0.181	28.0	0.160	48.5	0.292	69.0	0.046	89.5	0.053
1.6	0.977	9.8	0.190	28.5	0.161	49.0	0.300	69.5	0.049	90.0	0.052
1.8	0.966	10.0	0.206	29.0	0.159	49.5	0.305	70.0	0.052		
2.0	0.952	10.2	0.220	29.5	0.154	50.0	0.309	70.5	0.055		
2.2	0.937	10.4	0.232	30.0	0.145	50.5	0.311	71.0	0.058		

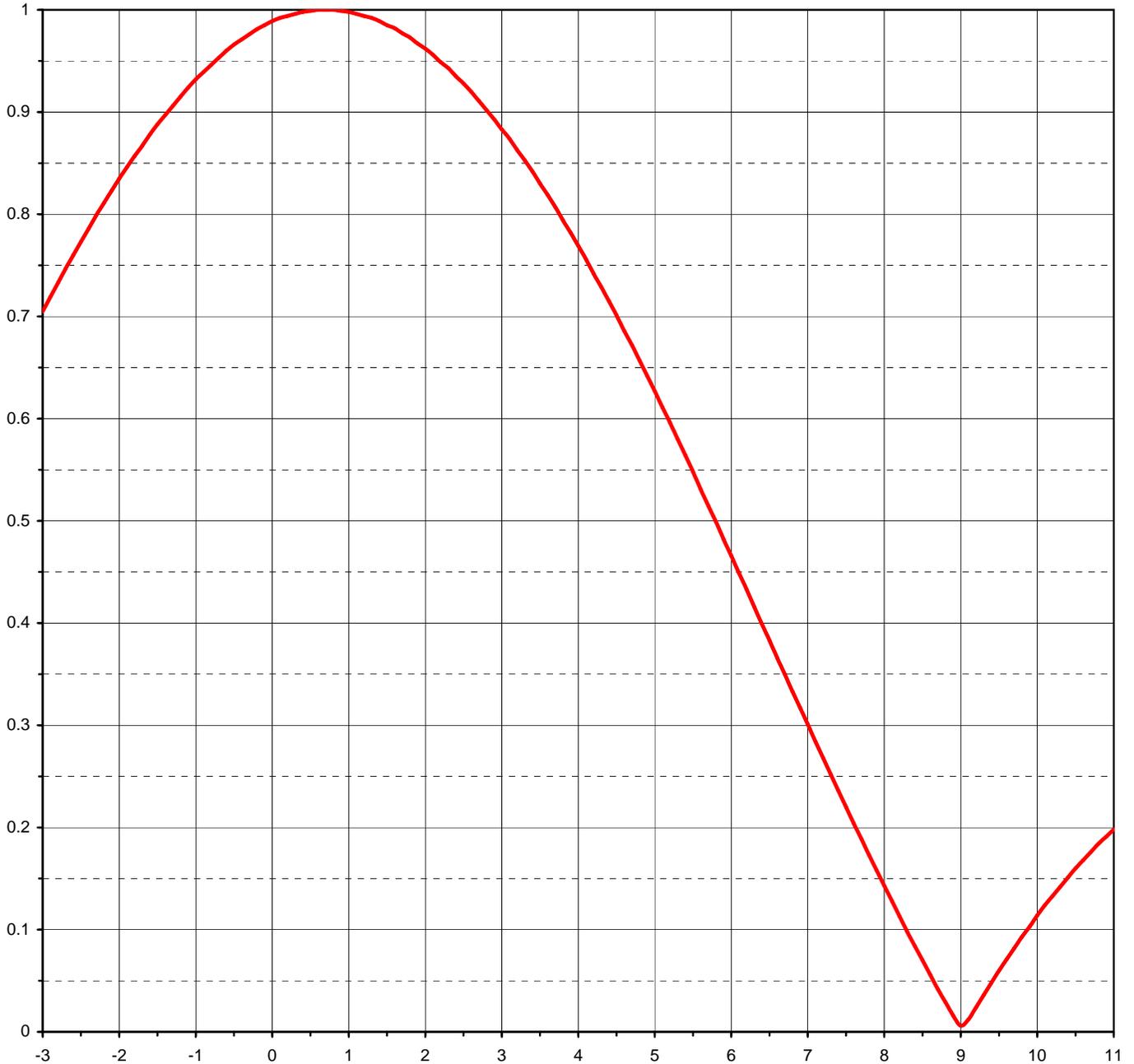
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Proposal Number **C-02437**  
Date **17-Mar-08**  
Call Letters **KWTV-DT** Channel **9**  
Location **Oklahoma City, OK**  
Customer  
Antenna Type **TF-6HS-H DC**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>6.25 ( 7.96 dB )</b>	Beam Tilt	<b>0.70 deg</b>
RMS Gain at Horizontal	<b>6.10 ( 7.85 dB )</b>	Frequency	<b>189.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>06S062070</b>



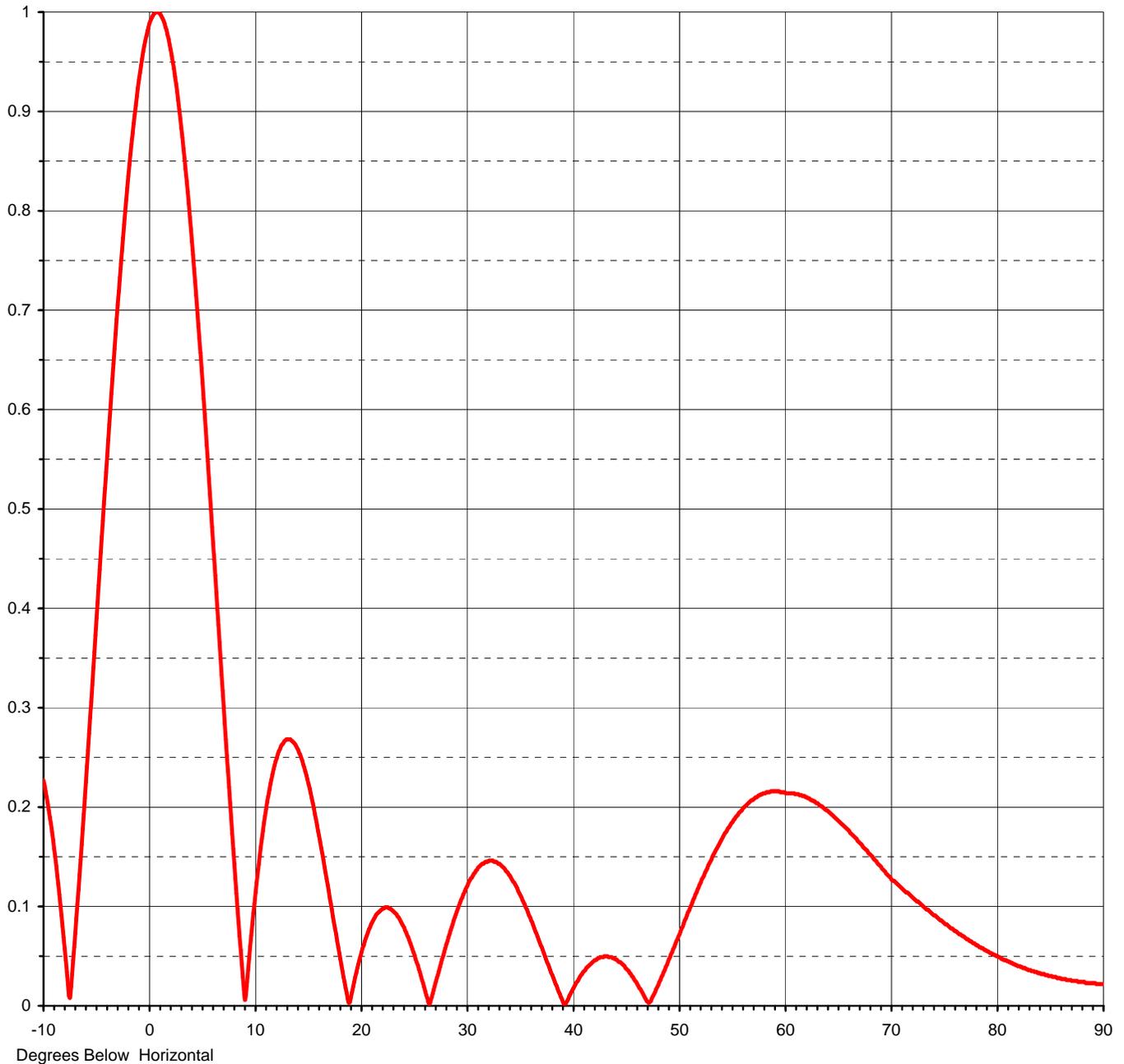
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Date **17-Mar-08**  
Call Letters **KWTV-DT** Channel **9**  
Location **Oklahoma City, OK**  
Customer  
Antenna Type **TF-6HS-H DC**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>6.25 ( 7.96 dB )</b>	Beam Tilt	<b>0.70 deg</b>
RMS Gain at Horizontal	<b>6.10 ( 7.85 dB )</b>	Frequency	<b>189.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>06S062070-90</b>



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Proposal Number **C-02437**  
 Date **17-Mar-08**  
 Call Letters **KWTV-DT** Channel **9**  
 Location **Oklahoma City, OK**  
 Customer  
 Antenna Type **TF-6HS-H DC**

### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **06S062070-90**

Angle	Field										
-10.0	0.227	2.4	0.935	10.6	0.160	30.5	0.129	51.0	0.096	71.5	0.114
-9.5	0.197	2.6	0.920	10.8	0.176	31.0	0.137	51.5	0.109	72.0	0.109
-9.0	0.158	2.8	0.902	11.0	0.191	31.5	0.143	52.0	0.122	72.5	0.105
-8.5	0.112	3.0	0.883	11.5	0.223	32.0	0.145	52.5	0.134	73.0	0.100
-8.0	0.057	3.2	0.863	12.0	0.246	32.5	0.146	53.0	0.145	73.5	0.096
-7.5	0.008	3.4	0.842	12.5	0.261	33.0	0.143	53.5	0.156	74.0	0.091
-7.0	0.073	3.6	0.819	13.0	0.268	33.5	0.139	54.0	0.166	74.5	0.087
-6.5	0.147	3.8	0.794	13.5	0.267	34.0	0.132	54.5	0.175	75.0	0.083
-6.0	0.225	4.0	0.769	14.0	0.260	34.5	0.124	55.0	0.184	75.5	0.079
-5.5	0.306	4.2	0.742	14.5	0.247	35.0	0.113	55.5	0.191	76.0	0.075
-5.0	0.390	4.4	0.715	15.0	0.228	35.5	0.102	56.0	0.197	76.5	0.072
-4.5	0.472	4.6	0.686	15.5	0.204	36.0	0.089	56.5	0.203	77.0	0.068
-4.0	0.553	4.8	0.657	16.0	0.176	36.5	0.075	57.0	0.207	77.5	0.065
-3.5	0.631	5.0	0.627	16.5	0.147	37.0	0.061	57.5	0.211	78.0	0.061
-3.0	0.705	5.2	0.596	17.0	0.116	37.5	0.047	58.0	0.214	78.5	0.058
-2.8	0.733	5.4	0.564	17.5	0.084	38.0	0.033	58.5	0.215	79.0	0.055
-2.6	0.760	5.6	0.531	18.0	0.053	38.5	0.020	59.0	0.216	79.5	0.052
-2.4	0.786	5.8	0.499	18.5	0.024	39.0	0.007	59.5	0.216	80.0	0.050
-2.2	0.811	6.0	0.466	19.0	0.004	39.5	0.005	60.0	0.215	80.5	0.047
-2.0	0.835	6.2	0.433	19.5	0.029	40.0	0.016	60.5	0.214	81.0	0.045
-1.8	0.857	6.4	0.399	20.0	0.050	40.5	0.025	61.0	0.213	81.5	0.042
-1.6	0.878	6.6	0.366	20.5	0.068	41.0	0.034	61.5	0.212	82.0	0.040
-1.4	0.897	6.8	0.333	21.0	0.082	41.5	0.040	62.0	0.210	82.5	0.038
-1.2	0.915	7.0	0.301	21.5	0.092	42.0	0.045	62.5	0.207	83.0	0.036
-1.0	0.932	7.2	0.268	22.0	0.097	42.5	0.048	63.0	0.204	83.5	0.034
-0.8	0.946	7.4	0.236	22.5	0.099	43.0	0.050	63.5	0.201	84.0	0.033
-0.6	0.960	7.6	0.204	23.0	0.096	43.5	0.049	64.0	0.197	84.5	0.031
-0.4	0.971	7.8	0.173	23.5	0.090	44.0	0.047	64.5	0.191	85.0	0.030
-0.2	0.981	8.0	0.143	24.0	0.081	44.5	0.044	65.0	0.186	85.5	0.029
0.0	0.989	8.2	0.113	24.5	0.069	45.0	0.038	65.5	0.181	86.0	0.027
0.2	0.994	8.4	0.084	25.0	0.054	45.5	0.032	66.0	0.176	86.5	0.026
0.4	0.998	8.6	0.056	25.5	0.037	46.0	0.024	66.5	0.170	87.0	0.025
0.6	1.000	8.8	0.029	26.0	0.019	46.5	0.015	67.0	0.164	87.5	0.025
0.8	1.000	9.0	0.006	26.5	0.001	47.0	0.005	67.5	0.158	88.0	0.024
1.0	0.998	9.2	0.024	27.0	0.020	47.5	0.008	68.0	0.152	88.5	0.023
1.2	0.994	9.4	0.048	27.5	0.039	48.0	0.019	68.5	0.146	89.0	0.023
1.4	0.989	9.6	0.071	28.0	0.058	48.5	0.031	69.0	0.140	89.5	0.022
1.6	0.982	9.8	0.082	28.5	0.076	49.0	0.044	69.5	0.133	90.0	0.022
1.8	0.973	10.0	0.103	29.0	0.092	49.5	0.057	70.0	0.127		
2.0	0.962	10.2	0.124	29.5	0.107	50.0	0.070	70.5	0.123		
2.2	0.949	10.4	0.142	30.0	0.119	50.5	0.083	71.0	0.118		

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COHEN, DIPPELL AND EVERIST, P.C.

TABLE I  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED TV OPERATION OF  
KETA-TV, OKLAHOMA CITY, OKLAHOMA  
CHANNEL 13 34.0 KW 418.1 METERS HAAT  
JUNE 2009

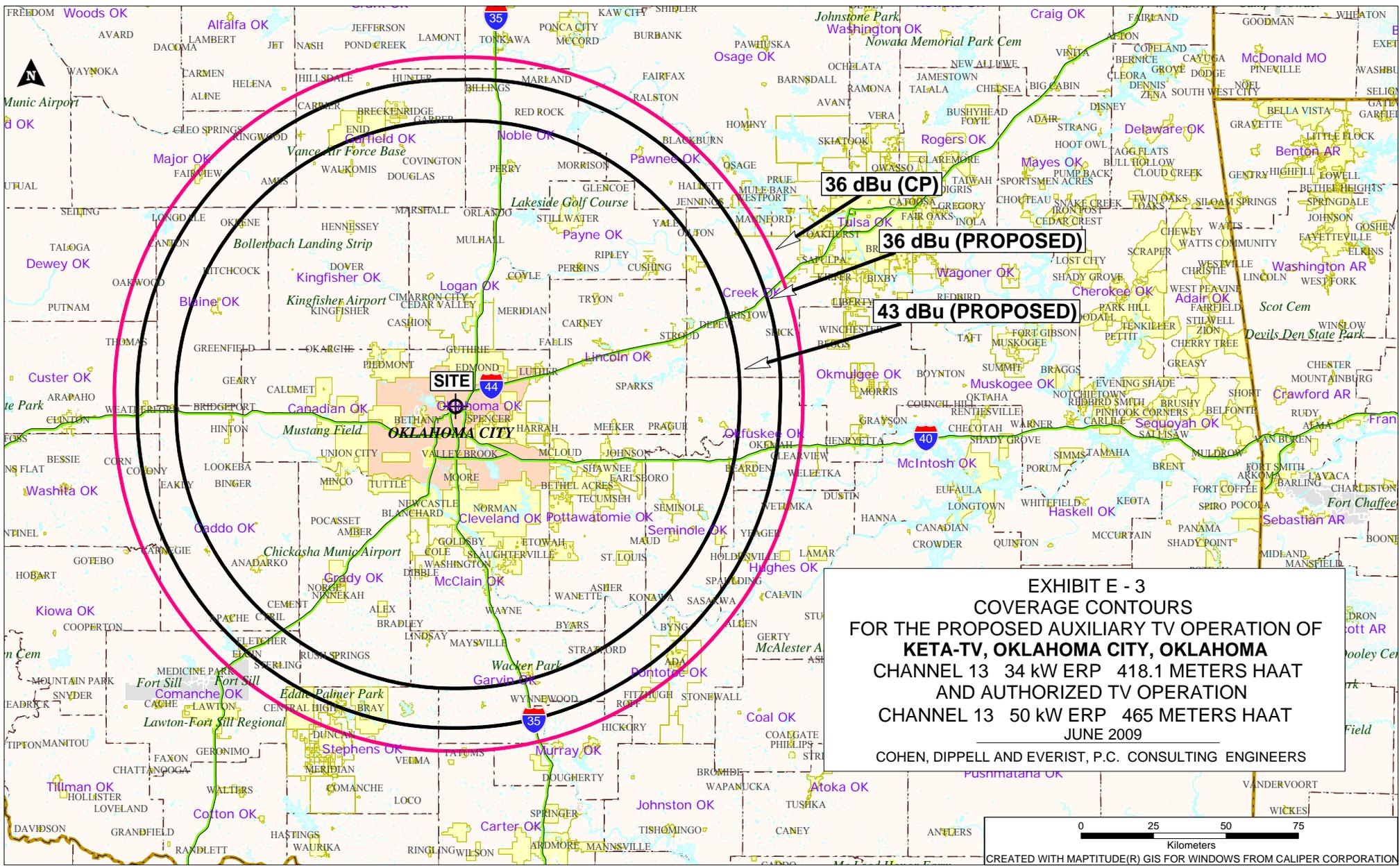
Radial Bearing N ° E, T	Average*	Effective Height meters	Depression Angle	ERP At Radio Horizon kW	Distance to Contour F(50,90)	
	Elevation 3.2 to 16.1 km meters				43 dBu City Grade km	36 dBu Noise-Limited km
0	349.6	423.5	0.570	34.0	97.9	112.0
45	323.3	449.8	0.587	34.0	99.6	114.4
90	353.3	419.8	0.568	34.0	97.7	111.7
135	360.1	413.0	0.563	34.0	97.3	111.1
180	368.2	404.9	0.557	34.0	96.8	110.4
225	363.0	410.1	0.561	34.0	97.1	110.8
270	375.5	397.6	0.552	34.0	96.4	109.8
315	347.1	426.0	0.572	34.0	98.1	112.2
Average	355	418.1				

\*Based on data from FCC 3-second data base

TV Channel 13 (210-216 MHz)  
 Average Elevation 3.2 to 16.1 km 355 meters AMSL  
 Center of Radiation 773.1 meters AMSL  
 Antenna Height Above Average Terrain 418.1 meters  
 Effective Radiated Power 34.0 kW (15.31 dBk) Max.

North Latitude: 35° 32' 58"  
 West Longitude: 97° 29' 50"

(NAD-27)

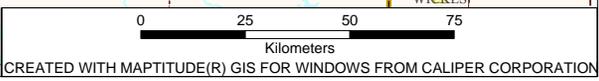


36 dBu (CP)

36 dBu (PROPOSED)

43 dBu (PROPOSED)

**EXHIBIT E - 3**  
**COVERAGE CONTOURS**  
**FOR THE PROPOSED AUXILIARY TV OPERATION OF**  
**KETA-TV, OKLAHOMA CITY, OKLAHOMA**  
**CHANNEL 13 34 kW ERP 418.1 METERS HAAT**  
**AND AUTHORIZED TV OPERATION**  
**CHANNEL 13 50 kW ERP 465 METERS HAAT**  
**JUNE 2009**  
**COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS**



**SECTION VII - DTV 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 Number: DTV \_\_\_\_\_ Analog TV, if any \_\_\_\_\_

2. Zone:  I  II  III

3. Antenna Location Coordinates: (NAD 27)

\_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "  N  S Latitude  
 \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "  E  W Longitude

4. Antenna Structure Registration Number: \_\_\_\_\_

Not applicable  FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: \_\_\_\_\_ meters

6. Overall Tower Height Above Ground Level: \_\_\_\_\_ meters

7. Height of Radiation Center Above Ground Level: \_\_\_\_\_ meters

8. Height of Radiation Center Above Average Terrain: \_\_\_\_\_ meters

9. Maximum Effective Radiated Power (average power): \_\_\_\_\_ kW

10. Antenna Specifications:

a. 

Manufacturer	Model
--------------	-------

b. Electrical Beam Tilt: \_\_\_\_\_ degrees  Not Applicable

c. Mechanical Beam Tilt: \_\_\_\_\_ degrees toward azimuth \_\_\_\_\_ degrees True  Not Applicable

Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). Exhibit No.

d. Polarization:  Horizontal  Circular  Elliptical

**TECH BOX**

e. Directional Antenna Relative Field Values:  Not applicable (Nondirectional)  
 Rotation: \_\_\_\_\_ °  No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. **Exhibit required.**

Exhibit No.

11. Does the proposed facility satisfy the pre-transition interference protection provisions of 47 C.F.R. Section 73.623(a) (Applicable only if **Certification Checklist** Items 1(a), (b), or (c) are answered "No.") and/or the post-transition interference protection provisions of 47 C.F.R. Section 73.616?  Yes  No

Exhibit No.

If "No," attach as an Exhibit justification therefore, including a summary of any related previously granted waivers.

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefore. (Applicable only if **Certification Checklist** Item 3 is answered "No.")

Exhibit No.

13. **Environmental Protection Act. Submit in an Exhibit** the following:

Exhibit No.

a. If **Certification Checklist** Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

By checking "Yes" to **Certification Checklist** Item 2, 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.

If **Certification Checklist** Item 2 is answered "No," an Environmental Assessment as required by 47 C.F.R. Section 1.1311.

**PREPARER'S CERTIFICATION ON PAGE 8 MUST BE COMPLETED AND SIGNED.**

**Section VII -- Preparer's Certification**

I certify that I have prepared Section VII (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 <b>Donald G. Everist</b>		Relationship to Applicant (e.g., Consulting Engineer) <b>Consulting Engineer</b>	
Signature 		Date <b>June 15, 2009</b>	
Mailing Address <b>Cohen, Dippell and Everist, P.C., 1300 L Street NW, Suite 1100</b>			
City <b>Washington</b>		State or Country (if foreign address) <b>DC</b>	ZIP Code <b>20005</b>
Telephone Number (include area code) <b>(202) 898-0111</b>		E-Mail Address (if available) <b>cde@attglobal.net</b>	

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