

ENGINEERING STATEMENT  
RE DTV BROADCAST ENGINEERING DATA  
APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT  
(FCC FILE NO. BPCDT-20080317AFP)  
ON BEHALF OF  
GRIFFIN OKC LICENSING, L.L.C.  
KWTB-DT, OKLAHOMA CITY, OKLAHOMA  
CHANNEL 9 62.2 KW ND ERP 465 METERS HAAT

JUNE 2008

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

COHEN, DIPPELL AND EVERIST, P. C.

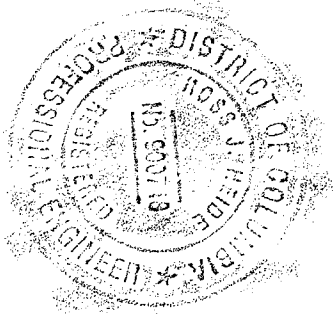
City of Washington                    )  
  ) ss  
District of Columbia                )

Ross J. Heide, being duly sworn upon his oath, deposes and states that:

He is a graduate of the Massachusetts Institute of Technology in Operations Research and Management Science, a Registered Professional Engineer in the District of Columbia, and employed by Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

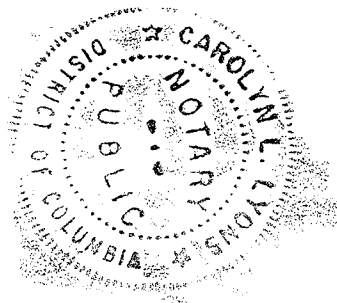
That the attached engineering report was prepared by him or under his supervision and direction and

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.



Ross J. Heide  
Ross J. Heide  
District of Columbia  
Professional Engineer  
Registration No. PE900748

Subscribed and sworn to before me this 18<sup>th</sup> day of June, 2008.



Carolyn L. Lyne  
Notary Public

My Commission Expires: 2/28/2013

This engineering statement has been prepared in support of an application for modification of the outstanding construction permit (FCC File No. BPCDT-20080317AFP) on behalf of Griffin OKC Licensing, L.L.C., licensee of KWTW-TV, Oklahoma City, Oklahoma. The purpose of this application is to improve reception in the built-up area and to retain as many viewers as possible in the currently licensed Grade B service. KWTW-DT proposes to construct post-transition facilities using 62.6 kW non-directional effective radiated power (“ERP”) from the authorized top-mounted antenna 465 meters height above average terrain (“HAAT”).

KWTW-TV is licensed to operate on NTSC television Channel 9 with a maximum visual ERP of 316 kW and a HAAT of 465 meters. KWTW-DT has been allocated DTV Channel 9 with facilities of 19.43 kW directional ERP and HAAT of 465 meters in the final DTV Table of Allotments.<sup>1</sup> KWTW-DT has been authorized in its outstanding construction permit (FCC File No. BPCDT-20080317AFP) to construct DTV facilities of 40 kW (non-directional antenna) at a HAAT of 365 meters with 0.75° electrical beam tilt. KWTW-DT proposes herein to modify these authorized DTV facilities to operate with 62.2 kW (non-directional) at HAAT of 465 meters. These proposed facilities comply with the maximum height/power restrictions in Section 73.622(c)(7)(i) of the Commission’s Rules.

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<sup>1</sup>“In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service”, MM Docket 87-268, Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Report & Order” (FCC 08-72) Appendix B, Released March 6, 2008.

Lifting of the Application Filing Freeze June 20, 2008

An allocation study from the proposed site has been performed as the predicted F(50,90) 41 dBu contour of the proposed DTV facilities at the currently authorized site are not expected to be entirely within the predicted F(50,90) 41 dBu contour of the KWTB-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order. However, the proposed operation does not exceed the 0.5% additional interference standard to any potentially affected station in the final DTV Table of Allotments in the Memorandum Opinion and Order (see Table I).

The proposed operation is predicted to serve approximately 1,528,350 persons in an area of 44,840 square kilometers, which is approximately 106.4% of the population served by the KWTB-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order and encompasses the predicted Grade B contour of the licensed analog operation of KWTB-TV.

There is one directional AM station located within 3.2 km of the existing KWTB tower site. WKY(AM) 930 KHz is located approximately 1.7 km away. There will be no change to the tower structure, antenna or vertical transmission line. Therefore, Section 73.1692(d) concerning modification does not apply because there will be no change in the electrical length at 930 KHz. There are no FM stations and there will be no NTSC stations and one other full-service DTV facility within 100 meters.

The TV antenna is top-mounted on the existing tower with total overall structure height above ground of 480.5 meters (1576 feet). The existing transmitter site is located at 7401 North Kelley Avenue, Oklahoma City, OK. The registration number for the tower is 1010943. Since there

is no change in overall height, FAA airspace approval is not required. The antenna structure registration number of the existing tower is 1010943. Exhibit E-1 is a vertical sketch of the existing tower and the proposed transmitting antenna.

The geographic coordinates of the proposed site are as follows:

North Latitude: 35° 32' 58"

West Longitude: 97° 29' 49"

NAD-27

Equipment Data

Antenna: Harris, Model TAB-12H (or equivalent) antenna with 0.75° electrical beam tilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included as Exhibit E-2.

Transmission Line: 518 meters (1700 ft) of Mayat, Type 601-001, 6-1/8", coaxial, 50 Ω or equivalent

Power Data

Transmitter output	8.32 kW	9.20 dBk
Combiner/Transmission line efficiency/loss	77.1%	-1.13 dB
Input power to the antenna	6.41 kW	6.15 dBk
Antenna power gain, Main Lobe	9.7	8.07 dB
Effective Radiated Power, Maximum	62.2 kW	17.94 dBk

Elevation Data  
(unchanged from NTSC Ch. 9 License)

Vertical dimension for Channel 9 antenna	23.8 meters 78 feet
Overall height above ground of the existing antenna structure (including beacon and lightning rod)	480.5 meters 1576.4 feet
Center of radiation of Channel 9 antenna above ground	466.4 meters 1530.2 feet
Elevation of site above mean sea level	353.6 meters 1160.1 feet
Center of radiation of Channel 9 antenna above mean sea level	820.0 meters 2690.3 feet
Overall height above mean sea level of existing tower and stacked antenna (including beacon)	834.1 meters 2736.5 feet
Antenna height above average terrain	465.0 meters

Note: Slight height differences may result due to conversion to metric.

Allocation

An allocation study from the proposed site has been performed since the proposed DTV facilities exceed that listed in Appendix B.

Interference Analysis

A study of predicted interference caused by the proposed Ch. 9 DTV service has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (February 6, 2004) and the Public Notice, "Additional Application Processing Guidelines for Digital

Television (DTV)” (August 1998). The FCC’s FORTRAN-77 code was modified only to the extent necessary (primarily input/output handling) for the program to run on a Windows XP platform. Comparison of service/interference areas and populations indicates that this model closely matches the FCC’s evaluation program. Best efforts have been made to use data and calculations identical to the FCC’s program. Any slight differences are attributable to compiler, operating system and/or processor characteristics. The effect of any variance in calculated population values versus the FCC’s program is minimized when differencing a given model’s results, such as calculating new interference as total interference less baseline interference. Any variance effect is further reduced when using ratios of calculated population values such as measuring the incremental population affected as a percent of the total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 4 km<sup>2</sup> using 3-second terrain data sampled approximately every 1.0 km at one degree azimuth intervals with 2000 census centroids.

The above considers all pending, outstanding construction permits and licensed operations abstracted from the FCC engineering database dated June 17, 2008.

#### Coverage

The average elevation data for 3.2 to 16.1 km along each radial are based upon the KWTv license file (BLCT-19860922KP) and the terrain data. This 3-second NGDC profile data conforms very closely to the terrain information of that determined by using the 7.5 minute topographic maps on file at the Commission.

The F(50,90) DTV coverage contour has been computed from reference to the propagation data for Channels 7-13, as published by the FCC in Figure 10 and Figure 10a, Section 73.699 of the FCC Rules and Regulations.

Utilizing the formula in Section 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle,  $A_h$ , varies from 0.58 to 0.62 degrees. Since the relative vertical field is greater than 90% of the maximum at these depression angles, the maximum power was used in determining the distance to the DTV contour.

Table I includes the distances to the 36 dBu F(50,90) service contours, the 43 dBu F(50,90) community coverage contour, the average elevation 3.2 to 16.1 km, and the antenna height above average terrain for the eight radials. Exhibit E-3 shows the 36 and 43 dBu F(50,90) coverage contours on a map and demonstrates that the community of license is covered by the F(50,90) 43 dBu contour.

#### Total Radiofrequency Field Levels at KWTv-DT Tower Site

The total percentage of radiofrequency field levels ("RFF") can be calculated by combining the percentage contribution of each station.

The total "worst-case" post-transition RFF contribution of all stations two meters above the ground at the base of the KWTv-DT tower is no more than 1.0% of the FCC guidelines for an uncontrolled environment which is no more than 0.2% of the proposed FCC guidelines for a controlled environment. KWTv-DT will likely not operate its post-transition facilities until 2009,



thereby potentially reducing the RFF at the site after analog operations are removed from the tower and the vicinity.

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 licensee 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) Reuse by DTV of the 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.

TABLE I  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED DTV OPERATION OF  
KWTV-DT, OKLAHOMA CITY, OK  
CHANNEL 9, 62.2 KW ERP, 465 METERS HAAT  
JUNE 2008

<u>Radial</u> <u>Bearing</u> N° E, T	Average * Elevation <u>3.2 to 16.1 km</u> meters	Effective <u>Height</u> meters	Depression <u>Angle</u>	ERP At Radio <u>Horizon</u> kW	<u>Distance to Contour F(50,90)</u>	
					<u>43 dBu</u> <u>City Grade</u> km	<u>36 dBu</u> <u>Noise-Limited</u> km
0	349.6	470.4	0.601	62.200	106.7	121.9
45	323.1	496.9	0.617	62.200	108.6	123.5
90	353.4	466.6	0.598	62.200	106.4	121.7
135	360.1	459.9	0.594	62.200	105.9	121.2
180	368.3	451.7	0.589	62.200	105.2	120.5
225	362.8	457.2	0.592	62.200	105.6	121.0
270	375.4	444.6	0.584	62.200	104.6	119.8
315	347.2	472.8	0.602	62.200	106.9	122.1
Average	355	465				

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

DTV Channel 9 (186-192 MHz)  
Average Elevation 3.2 to 16.1 km 355 meters AMSL  
Center of Radiation 820 meters AMSL  
Antenna Height Above Average Terrain 465 meters  
Effective Radiated Power 62.2 kW (17.94 dBk) Max.

North Latitude: 35° 32' 58"  
West Longitude: 97° 29' 49"

(NAD-27)

**EXHIBIT E-2**

**ANTENNA MANUFACTURER DATA**

**KWTV-DT, OKLAHOMA CITY, OKLAHOMA**

# EXHIBIT E-3



HARRIS CORPORATION  
1111 WEST 10TH AVENUE, SUITE 1000, DENVER, CO 80202

## CALCULATED ELEVATION PATTERN

TAB-12H

CH-9

GAIN

	<u>Ratio</u>	<u>dB</u>
@ $-0.75^\circ$	9.70	9.87
@ $0^\circ$	8.58	9.33

PATTERN NO. 012786-1 Rev. 2-25-85

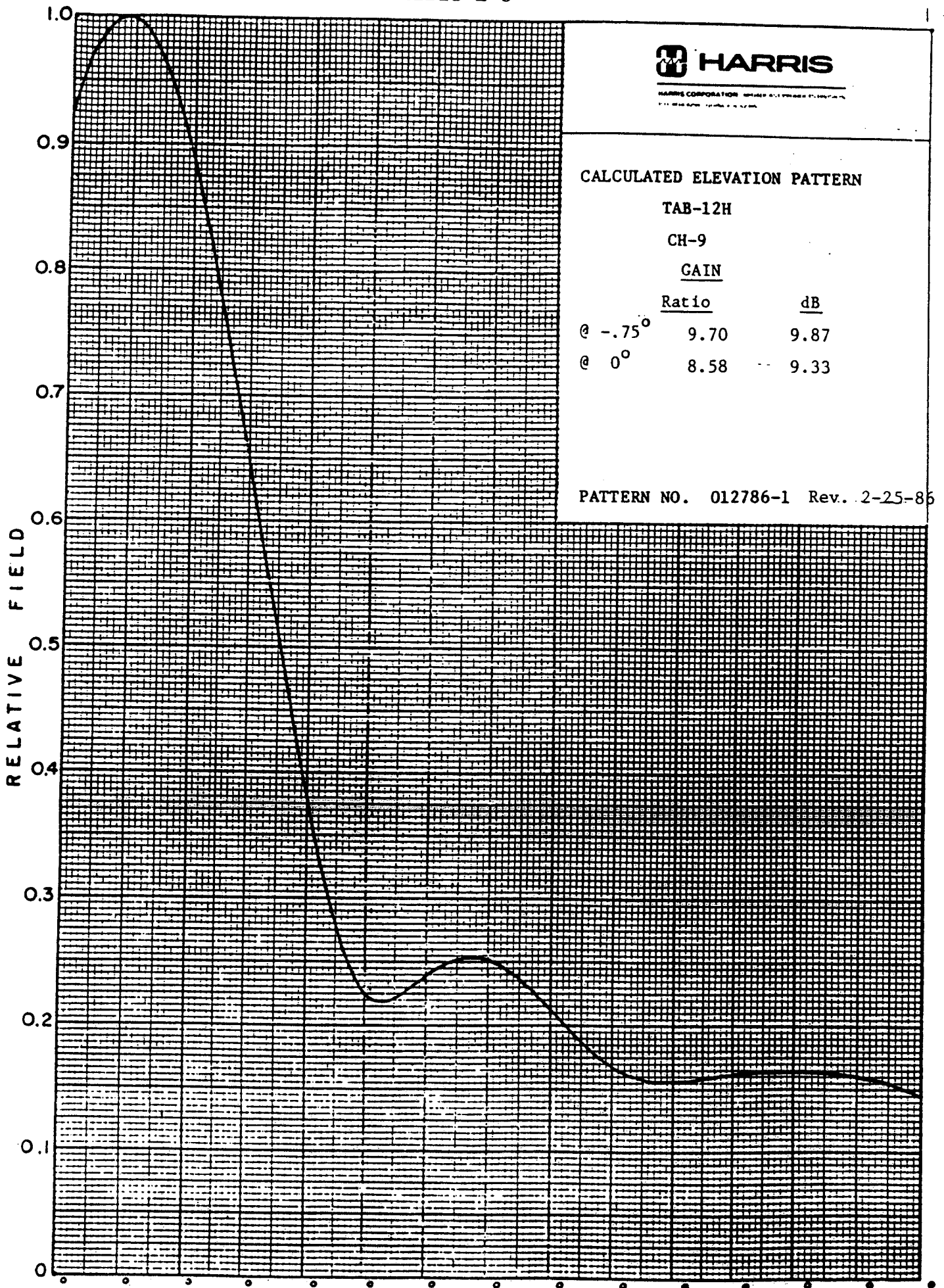
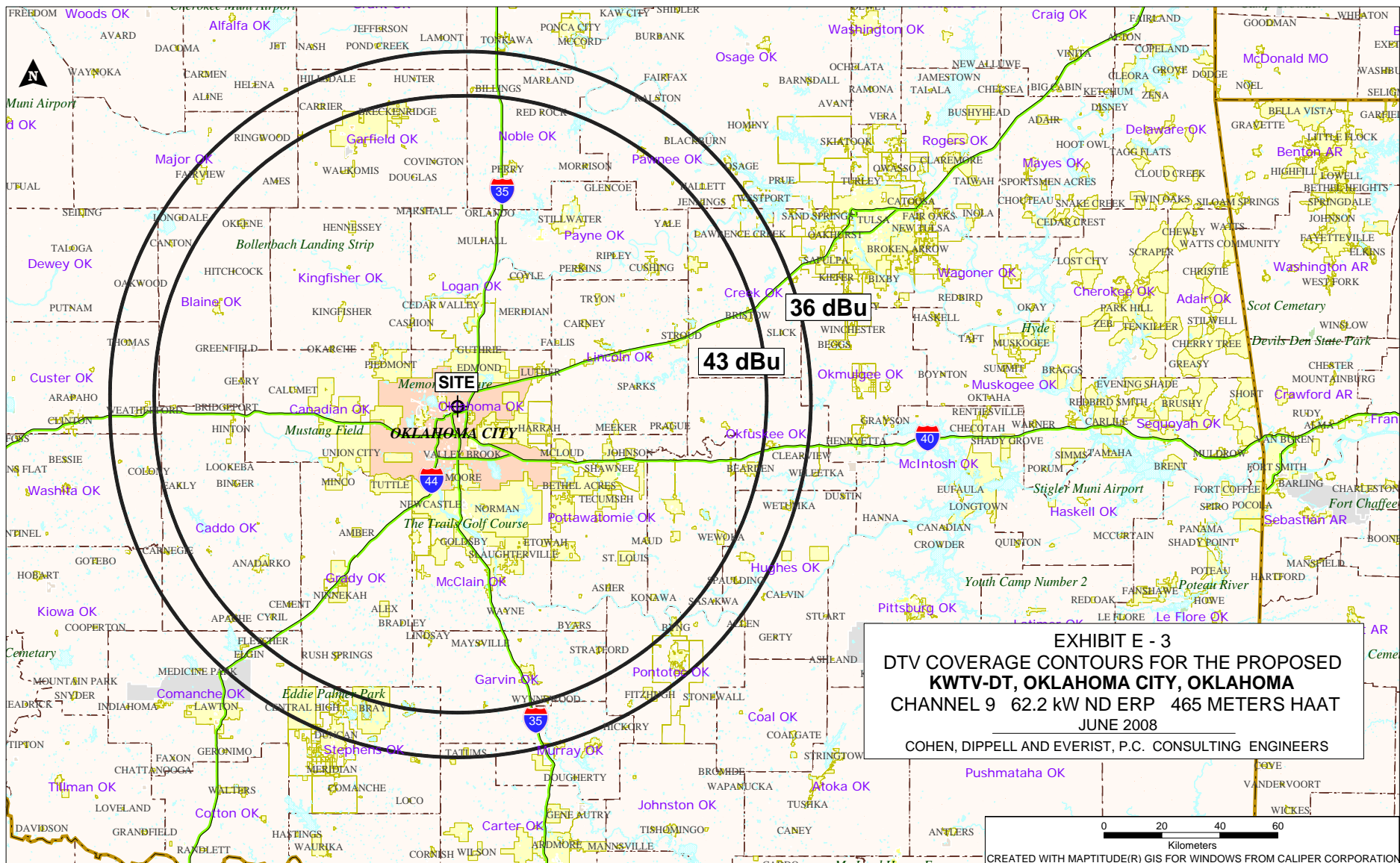


TABLE II  
INTERFERENCE STUDY FOR THE PROPOSED  
KWTV-DT, CHANNEL 9, 62.2 KW, 465 M HAAT  
JUNE 2008

<u>Affected Station</u>	<u>Status</u>	<u>New Interference</u>
KAFT-DT Ch. 9 Fayetteville, AR 19 kW ERP 501 M HAAT	License & Allotment	0.50%
KFWD-DT Ch. 9 Fort Worth, TX 6.9 kW ERP 545 M HAAT	Allotment	0.00%
KFWD-DT Ch. 9 Fort Worth, TX 13 kW ERP 546 M HAAT	CP	0.14%
KJRH-DT Ch. 8 Tulsa, OK 18.2 kW ERP 558 M HAAT	Allotment	0.12%
KJRH-DT Ch. 8 Tulsa, OK 15.9 kW ERP 572 M HAAT	CP	0.0%
KWET-DT Ch. 8 Cheyenne, OK 30 kW ERP 303 M HAAT	License & Allotment	0.0%
KTUL-DT Ch. 10 Tulsa, OK 6.9 kW ERP 542 M HAAT	License & Allotment	0.0%



### SECTION III - D - DTV Engineering

**Complete Questions 1-5, and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.**

**Pre-Transition Certification Checklist:** An application concerning a pre-transition channel must complete questions 1(a)-(c), and 2-5. A correct answer of "Yes" to all of the questions will ensure an expeditious grant of a construction pen-nit application to modify pre-transition facilities. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be required prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.

**Post-Transition Expedited Processing.** An application concerning a post-transition channel must complete questions 1(a), (d)-(e), and 2-5. A station applying for a construction permit to build its post-transition channel will receive expedited processing if its application (1) does not seek to expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B"); (2) specifies facilities that match or closely approximate those defined in the new DTV Table Appendix B facilities; and (3) is filed within 45 days of the effective date of Section 73.616 of the rules adopted in the Report and Order in the Third DTV Periodic Review proceeding, MB Docket No. 07-91.

1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:
  - (a) It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☐ No
  - (b) It will operate a pre-transition facility from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☐ No
  - (c) It will operate a pre-transition facility with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☐ No
  - (d) It will operate at post-transition facilities that do not expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B"). ☐ Yes ☐ No  
☐ N/A
  - (e) It will operate at post-transition facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the new DTV Table Appendix B. ☐ Yes ☐ No  
☐ N/A
2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RIF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307. ☐ Yes ☐ No

Applicant must **submit the Exhibit** called for in Item 13.

3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community. ☐ Yes ☐ No
4. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied or are not applicable. ☐ Yes ☐ No
5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7. ☐ Yes ☐ No



### SECTION III - D 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

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

Exhibit No.

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 IN SECTION III MUST BE COMPLETED AND SIGNED.**

☐ Yes ☐ No ☐ N/A

13. **Petition for Rulemaking/Counterproposal to Add New FM Channel to FM Table of Allotments.** If the application is being submitted concurrently with a Petition for Rulemaking or Counterproposal to Amend the FM Table of Allotments (47 C.F.R. Section 73.202) to add a new FM channel allotment, petitioner/counter-proponent certifies that, if the FM channel allotment requested is allotted, petitioner/counter-proponent will apply to participate in the auction of the channel allotment requested and specified in this application.


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. I acknowledge that all certifications and attached Exhibits are considered material representations. I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

Typed or Printed Name of Person Signing	Typed or Printed Title of Person Signing
Signature	Date

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).

### 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 Ross J. Heide		Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 		Date June 18, 2008	
Mailing Address Cohen, Dippell and Everist, P.C, 1300 L Street, NW Suite 1100			
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).