EXHIBIT E

ENGINEERING STATEMENT
RE REQUEST FOR SPECIAL TEMPORARY AUTHORITY
FOR DTV OPERATION ON POST-TRANSITION CHANNEL
DURING EXTENDED JUNE 12, 2009 TRANSITION PERIOD PER
PROCEDURES CONTAINED IN THE THIRD PERIODIC REVIEW
AND FCC PUBLIC NOTICE DATED FEBRUARY 5, 2009
KTWU-DT, TOPEKA, KANSAS
CHANNEL 11 25 KW ERP 302 METERS HAAT

FEBRUARY 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 12th day of February, 2009.

Notary Public

My Commission Expires: 2/28/2013

Introduction

This engineering statement has been prepared on behalf of Washburn University of Topeka, licensee of TV station KTWU(TV), Topeka, Kansas, as part of its request for Special Temporary Authority ("STA") to initiate early operation of its post-transition DTV station on February 17, 2009 at its authorized power. At present, KTWU-DT operates on DTV Channel 23 (524-530 MHz) with 960 kW effective radiated power ("ERP") directional and 281 meters antenna height above average terrain ("HAAT").

Station KTWU-DT has been allotted its current analog Channel 11 (198-204 MHz) for its permanent, post-transition digital TV operation and been authorized to construct a facility (FCC File No. BMPDT-20080620AIK) with 25 kW non-directional ERP and 302 meters HAAT. KTWU-DT desires to operate these facilities as authorized by the construction permit. It is shown herein in this request that early DTV commencement by KTWU-DT protects all pre-transition analog and digital operations as defined by the FCC Public Notice dated February 5, 2009[1]. The final phase of construction for the Channel 11 DTV facilities can be carried out only after analog Channel 11 goes permanently silent. This filing is in accordance with Paragraphs 121 through 123 of the Third Periodic Review.[2]

Antenna Site

There is no change in the proposed antenna site. The authorized DTV Channel 11 antenna is top-mounted on the tower with its center of radiation at 274.6 meters above ground level. The antenna site is located at 301 NW Wanamaker Road, Topeka, Kansas. The antenna structure registration number is 1032651.

The geographic coordinates of the existing tower are as follows:

[1] *FCC Announces Procedures Regarding Termination of Analog Television Service on or After February 17, 2009 Termination Notifications for February 17, 2009 Must Be Filed By Monday, February 9.*

[2] "In the Matter of Third Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television", MB Docket No. 07-91, Report & Order (FCC 07-228), Released December 31, 2007.

North Latitude: 39° 03' 50"

West Longitude: 95° 45' 49"

NAD-27

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

Power Data

STA Transmitter Output Past Filter	2.68 kW	4.15 dBk
Transmission Line Efficiency/Loss	80.6%	
Input Power to Antenna	2.09 kW	3.19 dBk
Antenna Power Gain	12	10.79 dB
Effective Radiated Power	25 kW	13.98 dBk

Antenna Data

Antenna: Andrew, TRASAR, Type ATW12V4-HTO-11 with 0.96 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: 292.6 meters (960 ft) of Andrew, Type MACXLINE, Type MACX450, 4-1/16", coaxial, 50 ohm line (or equivalent)

Elevation Data

Vertical dimension for Channel 11 antenna (including lightning protection)	19.5 meters 64.1 feet
Elevation of the site above mean sea level:	329.4 meters 1080.8 feet
Elevation of the top of existing supporting structure above ground including appurtenances	285.7 meters 937.3 feet
Elevation of the top of supporting structure above mean sea level including appurtenances	614.7 meters 2016.7 feet
Height of Channel 11 antenna radiation center meters above ground	274.6 meters 900.9 feet
Height of Channel 11 antenna radiation center above mean sea level	604 meters 1981.6 feet

Height of Channel 11 antenna radiation center above average terrain	302 meters 990.8 feet

Interference Protection

The requested STA operation adequately protects all pre-transition analog stations if these stations are operating after February 17, 2009 as well as all pre- and post-transition DTV stations. All affected pre-transition stations are listed in Table I.

Interference Analysis

A study of predicted interference by the proposed KTWU-DT facility has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (July 2, 1997) 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 WindowsXP/Intel 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, e.g., new interference equals total interference less baseline interference. The effect is further reduced for ratios of calculated population values, e.g., incremental population affected as a percent of total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 4 km^2 using 3-second terrain data sampled approximately every 1.0 km at one degree azimuth intervals with 1990 census centroids.

The stations considered are those outlined in the FCC Public Notice dated February 5, 2009[3] and the CDBS dated February 10, 2009.

Coverage

The average elevation data for 3.2 to 16.1 km along each radial are based upon the 3-second profile data.

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 Secion 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle, A_h, varies from 0.448 to 0.508 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 II includes the distances to the 43 and 36 dBu F(50,90) coverage contour, the average elevation 3.2 to 16.1 km, and the antenna height above average terrain for the eight cardinal radials.

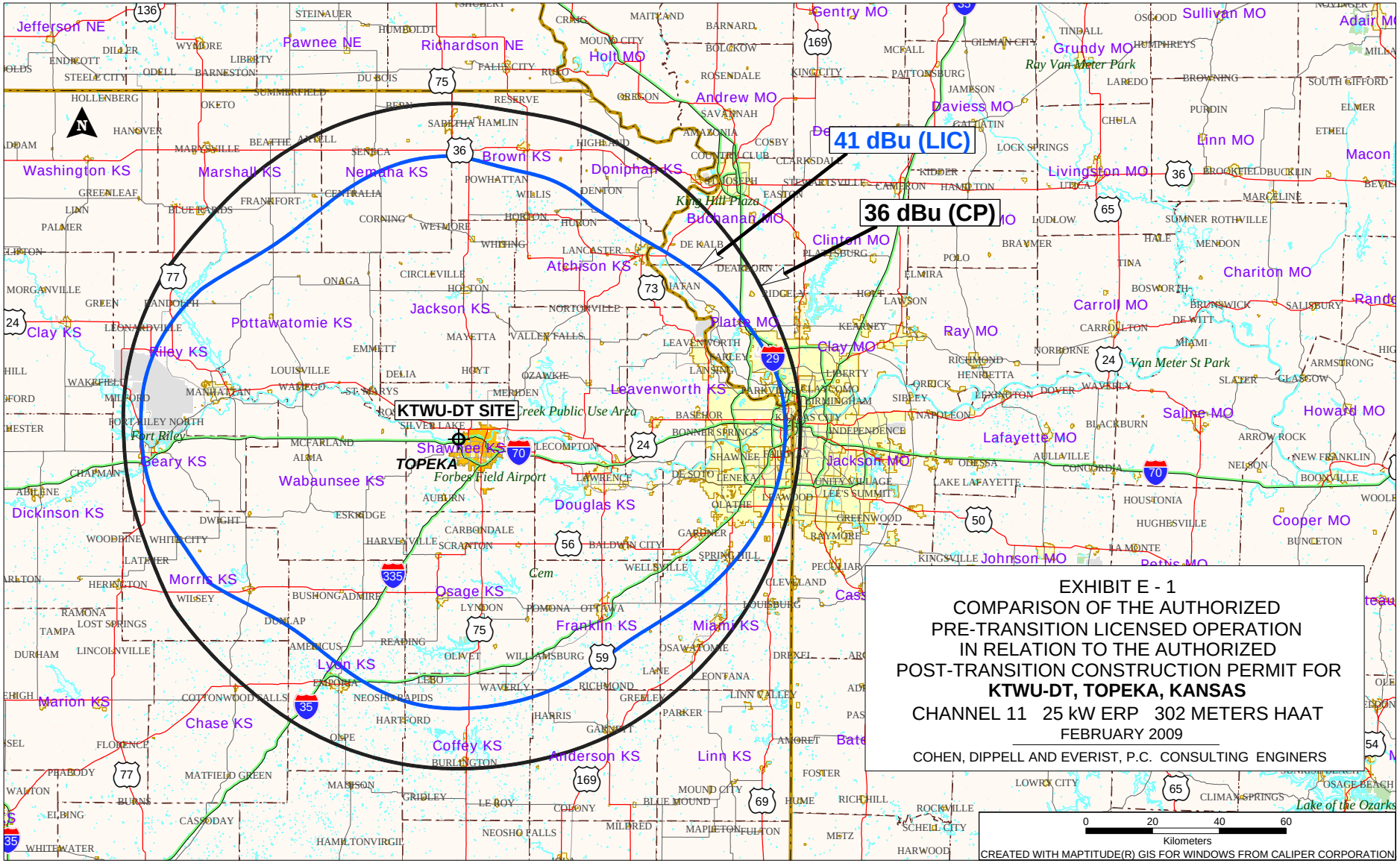
Exhibit E-1 provides the 36 dBu F(50,90) coverage contour as well as provides the coverage provided by the current STA operation.

[3] *FCC Announces Procedures Regarding Termination of Analog Television Service on or After February 17, 2009 Termination Notifications for February 17, 2009 Must Be Filed By Monday, February 9.*

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
PREDICTED PRE-TRANSITION LONGLEY-RICE INTERFERENCE ANALYSIS
FOR THE AUTHORIZED POST-TRANSITION OPERATION OF
KTWU-DT, TOPEKA, KANSAS
CHANNEL 11 25 KW ND ERP 302 METERS AMSL
FEBRUARY 2009

Channel	Call	City/State	Dist(km)	Status	FCC File No.	Result
10	K10PD	TOPEKA KS	45.7	LIC	BLTVL-20080826ADE	No interference
10	KAKE-TV	WICHITA KS	209	LIC	BMLCT-20050623ABM	No interference
10	KAKE-DT	WICHITA KS	209	CP MO	BMPCDT-20080609ACD	No interference
10	KOLN-DT	LINCOLN NE	227.9	CP MO	BMPCDT-20080611AAN	No interference
11	K67EO	BENTONVILLE AR	327.8	CP	BDISTTV-20070824ADL	No interference
11	KDIN-TV	DES MOINES IA	355.2	LIC	BLET-19860923KM	0.23%
11	KDIN-DT	DES MOINES IA	355.2	CP MO	BMPEDT-20080620AHP	0.03%
11	K11OJ	SEDALIA ETC. MO	218.1	LIC	BLTTV-19791004IA	No interference
11	NEW	SPRINGFIELD MO	300.7	CP	BDCCDVL-20061026AFA	No interference
11	KGIN	GRAND ISLAND NE	309.9	LIC	BLCT-1143	1.13%
11	KGIN-DT	GRAND ISLAND NE	309.8	CP MO	BMPCDT-20080611AAP	0.15%
11	KGIN	GRAND ISLAND NE	309.8	CP	BPCT-20050315AFL	1.15%
11	KOED-TV	TULSA OK	338.3	LIC	BLET-19850403KI	0.68%
11	KOED-DT	TULSA OK	338.3	CP MO	BMPEDT-20080620ABR	0.04%
12	KWCH-TV	HUTCHINSON KS	206.5	LIC	BMLCT-20040826AAF	No interference
12	KWCH-DT	HUTCHINSON KS	206.5	CP	BPCDT-20080313ACP	No interference


41 dBu (LIC)
36 dBu (CP)
KTWU-DT SITE
TOPEKA
Forbes Field Airport
Fort Riley
Creek Public Use Area
King Hill Plaza
Van Meter St Park
Ray Van Meter Park
Lake of the Ozarks
Jefferson NE
Pawnee NE
Richardson NE
Gentry MO
Sullivan MO
Grundy MO
Andrew MO
Daviess MO
Linn MO
Livingston MO
Macon
Holt MO
Washington KS
Marshall KS
Nemaha KS
Brown KS
Doniphan KS
Buchanan MO
Clinton MO
Atchison KS
Jackson KS
Pottawatomie KS
Platte MO
Clay MO
Ray MO
Carroll MO
Chariton MO
Clay KS
Riley KS
Leavenworth KS
Saline MO
Howard MO
Lafayette MO
Jackson MO
Shawnee KS
Wabaunsee KS
Douglas KS
Dickinson KS
Beary KS
Morris KS
Osage KS
Franklin KS
Miami KS
Lyon KS
Marion KS
Chase KS
Coffey KS
Anderson KS
Linn KS
Cooper MO
Johnson MO
Cass
Bate
EXHIBIT E - 1
COMPARISON OF THE AUTHORIZED
PRE-TRANSITION LICENSED OPERATION
IN RELATION TO THE AUTHORIZED
POST-TRANSITION CONSTRUCTION PERMIT FOR
KTWU-DT, TOPEKA, KANSAS
CHANNEL 11 25 kW ERP 302 METERS HAAT
FEBRUARY 2009
COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS
0 20 40 60
Kilometers
CREATED WITH MAPTITUDE(R) GIS FOR WINDOWS FROM CALIPER CORPORATION

COHEN, DIPPELL AND EVERIST, P.C.

TABLE II
COMPUTED COVERAGE DATA
FOR THE CP DTV OPERATION OF
KTWU-DT, TOPEKA, KANSAS
CHANNEL 11 25 KW ERP 302 METERS HAAT
FEBRUARY 2009

Radial Bearing N ° E, T	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depression Angle	ERP At Radio Horizon kW	Distance to Contour F(50,90) 43 dBu City Grade km	36 dBu Noise-Limited km
0	294.2	309.8	0.488	25	87.7	100.2
45	288.1	315.9	0.492	25	88.1	100.7
90	267.7	336.3	0.508	25	89.6	102.3
135	303.5	300.5	0.480	25	87.0	99.5
180	327.0	277.0	0.461	25	85.9	98.3
225	342.7	261.3	0.448	25	85.3	97.8
270	290.4	313.6	0.490	25	87.9	100.5
315	300.1	303.9	0.483	25	87.3	99.7
Average	302	302.3				

*Based on data from FCC 3-second data base

DTV Channel 11 (198-204 MHz)
Average Elevation 3.2 to16.1 km 302 meters AMSL
Center of Radiation 604 meters AMSL
Antenna Height Above Average Terrain 302 meters
Effective Radiated Power 25 kW (13.998 dBk) Max.

North Latitude: 39° 03' 50"
West Longitude: 95° 45' 49"

(NAD-27)

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 11 Analog TV, if any 11

2. Zone: ☐ I ☒ II ☐ III

3. Antenna Location Coordinates: (NAD 27)

39 ° 03 ' 50 " ☒ N ☐ S Latitude

95 ° 45 ' 49 " ☐ E ☒ W Longitude

4. Antenna Structure Registration Number: 1032651

☐ Not applicable ☐ FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: 329.4 meters

6. Overall Tower Height Above Ground Level: 614.7 meters

7. Height of Radiation Center Above Ground Level: 274.6 meters

8. Height of Radiation Center Above Average Terrain: 302 meters

9. Maximum Effective Radiated Power (average power): 25 kW

10. Antenna Specifications:

a. Manufacturer: Andrew | Model: ATW12V4-HTO-11

b. Electrical Beam Tilt: 0.96 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: [X] 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? [X] 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. E

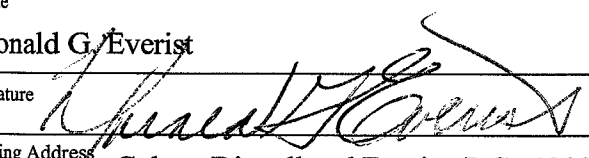
a. If **Certification Checklist** Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

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.

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 Donald G. Everist	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 	Date February 12, 2009	
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).