

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  
KEVN-DT, RAPID CITY, SOUTH DAKOTA  
CHANNEL 7 12.3 KW ERP 204 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                 )

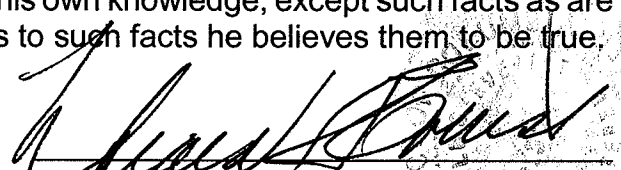
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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;

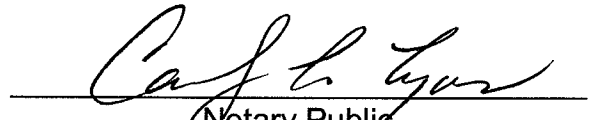
That his qualifications are a matter of record in the Federal Communications Commission;

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

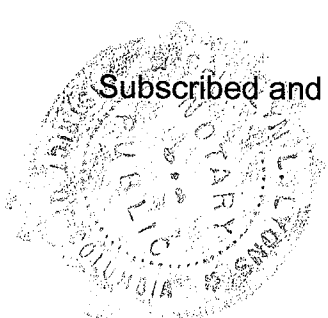
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

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

Subscribed and sworn to before me this 9<sup>th</sup> day of February, 2009.

  
Notary Public

My Commission Expires: 2/28/2013



### Introduction

This engineering statement has been prepared on behalf of KEVN, Inc., licensee of TV station KEVN-TV, Rapid City, South Dakota, 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, KEVN-DT operates on DTV Channel 18 (494-500 MHz) with 2.54 kW effective radiated power (“ERP”) directional and 181 meters antenna height above average terrain (“HAAT”).

Station KEVN-DT has been allotted its current analog Channel 7 (174-180 MHz) for its permanent, post-transition digital TV operation and been authorized to construct a facility (FCC File No. BMPCDT-20080208ADU) with 12.3 kW non-directional ERP and 204 meters HAAT. KEVN-DT desires to operate these facilities as authorized by the construction permit. It is shown herein in this request that early DTV commencement by KEVN-DT protects all pre-transition analog and digital operations as defined by the FCC Public Notice dated February 5, 2009<sup>1</sup>. The final phase of construction for the Channel 7 DTV facilities can be carried out only after analog Channel 7 goes permanently silent. This filing is in accordance with Paragraphs 121 through 123 of the Third Periodic Review.<sup>2</sup>

### Antenna Site

There is no change in the proposed antenna site. The authorized DTV Channel 7 antenna is top-mounted on the tower with its center of radiation at 179 meters above ground level. The antenna site is located at 2000 Skyline Drive, Rapid City, South Dakota. The antenna structure registration number is 1042276.

The geographic coordinates of the existing tower are as follows:

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<sup>1</sup>*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*

<sup>2</sup>“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: 44° 04' 00"

West Longitude: 103° 15' 01"

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

Power Data

STA Transmitter Output Past	1.64 kW	2 . 1 4 5 dBk
Filter and Combiner		
Transmission Line Efficiency/Loss	79.9%	0.975 dB
Input Power to Antenna	1.31 kW	1.17 dB
Antenna Power Gain	9.40	9.73 dB
Effective Radiated Power	12.3 kW	10.9 dBk

Antenna Data

Antenna:	RCA, Type TF-12BH antenna (or equivalent) with 1.0 degree electrical beamtilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are on file--see FCC File Number BMPCDT-20080208ADY.
Transmission Line:	228.6 meters (750 ft) of RCA, Type MI-19313-1H (dual run), 3-1/8" coaxial line (or equivalent)

Elevation Data

Vertical dimension for Channel 7 antenna (including lightning protection)	23.2 meters 76 feet
Elevation of the site above mean sea level:	1132.6 meters 3716 feet
Elevation of the top of existing supporting structure above ground including appurtenances	190.8 meters 626 feet
Elevation of the top of supporting structure and antenna above mean sea level including appurtenances	1323.4 meters 4342 feet
Height of Channel 7 antenna radiation center meters above ground	179.4 meters 588.5 feet

Height of Channel 7 radiation center above mean sea level	1312 meters 4304.5 feet
Height of Channel 7 antenna radiation center above average terrain	204 meters 669.3 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 KEVN-DT service 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 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<sup>2</sup> using 3-second terrain data sampled approximately every 1.0 km at one degree azimuth intervals with 2000 census centroids.

The stations considered are those outlined in the FCC Public Notice dated February 5, 2009<sup>3</sup> and the CDBS dated February 6, 2009.

#### Coverage

The average elevation data for 3.2 to 16.1 km along each radial are based upon the 3-second profile data and conforms to the terrain information of that determined by using the 7.5 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.

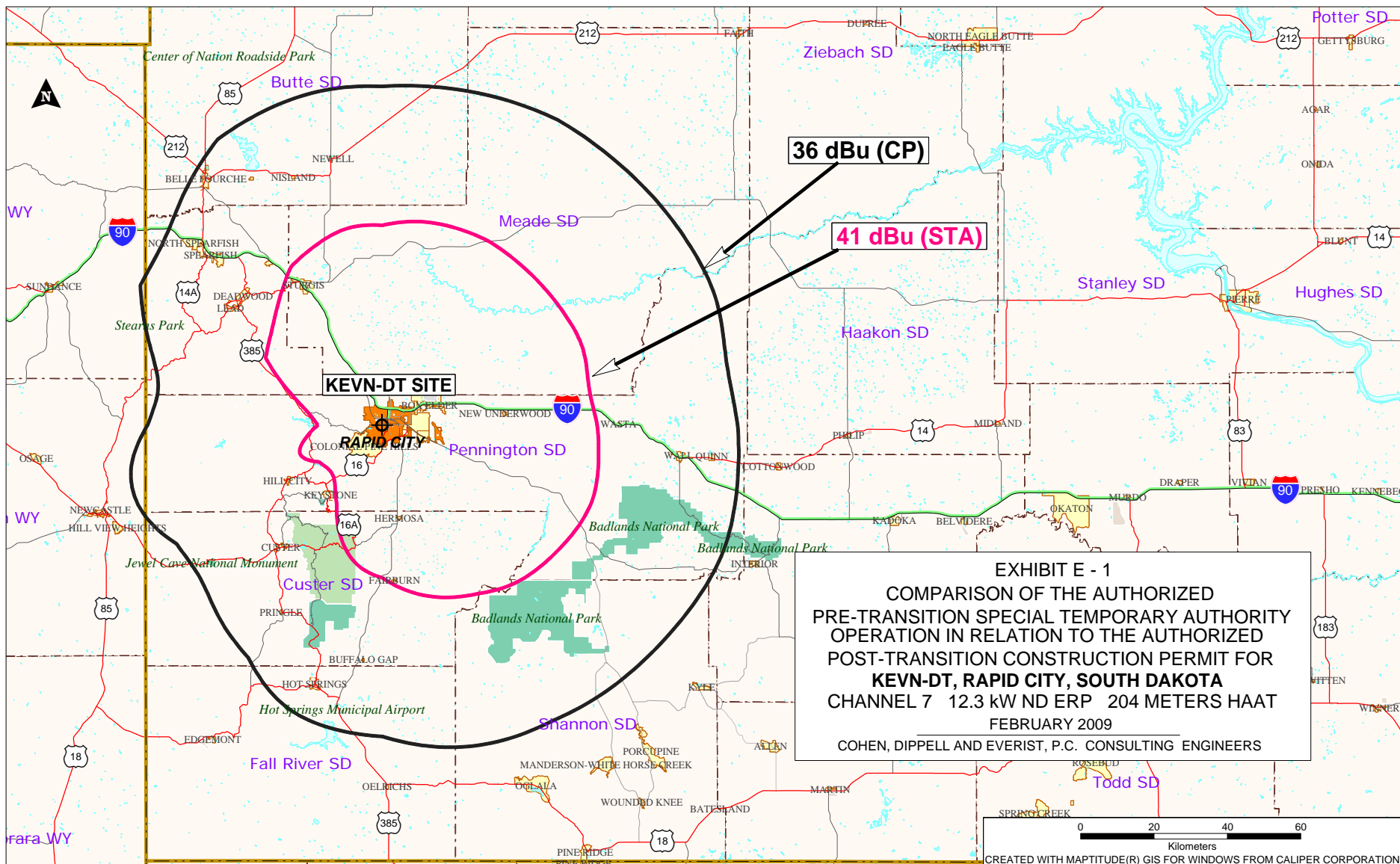
Utilizing the formula in Section 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle,  $A_n$ , varies from 0.204 to 0.511 degrees. Since the relative vertical field is greater than 90% of the maximum at these depression angles, the maximum power was used in determining the distance to the DTV contour.

Table II includes the distances to the 43 and 36 dBu F(50,90) coverage contours, 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.

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<sup>3</sup>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



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TABLE I  
PREDICTED PRE-TRANSITION LONGLEY-RICE INTERFERENCE ANALYSIS  
FOR THE AUTHORIZED POST-TRANSITION OPERATION OF  
KEVN-DT, RAPID CITY, SOUTH DAKOTA  
CHANNEL 7 12.3 KW ND ERP 204 METERS HAAT  
FEBRUARY 2009

<u>Channel</u>	<u>Call</u>	<u>City/State</u>	<u>Dist(km)</u>	<u>Status</u>	<u>FCC File No.</u>	<u>Result</u>
7	KQCD-TV	DICKINSON ND	320.8	LIC	BLCT-19800804KE	0.01%
7	KQCD-DT	DICKINSON ND	320.9	CP	BPCDT-20080305AEL	0.01%
7	KMNE-TV	BASSETT NE	360.8	LIC	BLET-19871103KG	No interference
7	KMNE-DT	BASSETT NE	360.8	CP MO	BMPEDT-20080620AAK	No interference
7	KDUH-DT	SCOTTSBLUFF NE	247.8	LIC	BLCDT-20050914AAH	No interference
7	KDUHTV	SCOTTSBLUFF NE	210.5	GRANT	BPRM-20000417AAF	0.25%
7	KBNM	SHERIDAN WY	313.4	LIC	BLCT-20020408ABG	No interference
7	KSWY	SHERIDAN WY	313.4	CP	BPCDT-20080618ACM	No interference
7	K07HC	SHERIDAN ETC. WY	313.3	LIC	BLTTV-19840116IA	No interference
8	KZSD-TV	MARTIN SD	153.3	LIC	BLET-20070202AAO	No interference
8	KZSD-DT	MARTIN SD	153.3	CP MO	BMPEDT-20080618ACQ	No interference
8	KZSD-TV	MARTIN SD	153.3	APP	BSTA-20081003ADP	No interference
8	KZSD-TV	MARTIN SD	153.3	APP	BSTA-20080214AEE	No interference
8	KZSD-TV	MARTIN SD	153.2	MOO	MISS-61062MOO	No interference

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TABLE II  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED SPECIAL TEMPORARY DTV OPERATION FOR  
KEVN-DT, RAPID CITY, SOUTH DAKOTA  
CHANNEL 7 12.3 KW ERP 204 METERS HAAT  
FEBRUARY 20009

Radial Bearing N ° E, T	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depressio n Angle	ERP At Radio Horizon kW	Distance to Contour F(50,90)	
					43 dBu City Grade km	36 dBu Noise-Limited km
0	1056.6	255.4	0.443	12.3	79.5	92.0
45	982.4	329.6	0.503	12.3	83.7	96.1
90	971.9	340.1	0.511	12.3	84.4	96.9
135	993.5	318.5	0.494	12.3	82.9	95.3
180	1152.2	159.8	0.350	12.3	72.4	84.6
225	1248.4	63.6	0.221	12.3	55.6	66.4
270	1257.5	54.5	0.204	12.3	53.2	63.9
315	1202.5	109.5	0.290	12.3	64.8	76.7
Average	1108	204				

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

DTV Channel 7 (174-180 MHz)  
Average Elevation 3.2 to 16.1 km 1108 meters AMSL  
Center of Radiation 1312 meters AMSL  
Antenna Height Above Average Terrain 204 meters  
Effective Radiated Power 12.3 kW (10.9 dBk) Max.

North Latitude: 44° 04' 00"  
West Longitude: 103° 15' 01"

(NAD-27)