EXHIBIT E

ENGINEERING STATEMENT
RE DTV BROADCAST ENGINEERING DATA
APPLICATION FOR CONSTRUCTION PERMIT
BASED ON PETITION FOR RULE MAKING
FOR MODIFICATION OF DIGITAL ALLOTMENT
ON BEHALF OF
KTVQ COMMUNICATIONS, INC.
KTVQ-DT, BILLINGS, MONTANA
CHANNEL 10 160 KW ERP 165 METERS

AUGUST 2003

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

Introduction

This engineering statement has been prepared on behalf of KTVQ Communications, Inc., licensee of KTVQ(TV). The purpose of this engineering statement is to accompany the KTVQ-DT application for construction permit based on Report and Order, MB Docket No. 02-116 (RM-10233) May 9, 2003, granting the substitution of DTV Channel 10 for station KTVQ(TV)'s assigned DTV Channel 17. Effective June 23, 2003, the DTV Table of Allotments, Section 73.622(b) of the Commission's Rules was amended with respect to the community of Billings. Included with this report are the exhibits referenced in this text along with FCC Form 301, Section III-D.

KTVQ Communications, Inc. operates Station KTVQ(TV) on NTSC television Channel 2 with a maximum visual effective radiated power (ERP) of 100 kW (horizontal polarization) and an antenna height above average terrain (HAAT) of 165 meters (541.3 feet). KTVQ(TV) was allotted DTV Channel 17 with facilities of 1000 kW and an HAAT of 165 meters in the revised DTV Table of Allotments.[1] KTVQ(TV) has been authorized in Report and Order, MB Docket No. 02-116 (RM-10233) to substitute DTV Channel 10 in place of DTV Channel 17.

KTVQ(TV) Tower

The DTV antenna will be top-mounted on an existing tower having a total overall structure height above ground of 116.7 meters (382.9 feet) (see Exhibit E-1). The existing

[1] "In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service", MM Docket No. 87-286, Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order. (FCC 98-24), 2/12/98, DTV Table of Allotments.

transmitter site is located on Coburn Road, mile marker 2, Billings, Montana. The tower has been registered under the number 1001064.

North Latitude: 45° 46' 00"

West Longitude: 108° 27' 27"

NAD-27

Equipment Data

A Dielectric, Type TW-12B10-R (or equivalent) antenna, with maximum power gain of 12.0 (10.79 dB) and 1.0° electrical beam tilt will be installed. The elevation patterns and other exhibits required by Section 73.625(c) are attached as Exhibits E-2(a-d).

Elevation Data

(Existing Tower; No Change in Overall Height)

Elevation of site above mean sea level	1118 meters (3668 feet)
Overall height above ground of the existing antenna structure (including beacon)	116.7 meters (382.9 feet)
Overall height above mean sea level of existing tower (including beacon)	1234.7 meters (4050.9 feet)
Center of radiation of Channel 10 antenna above ground	104 meters (341.2 feet)
Center of radiation of Channel 10 antenna above mean sea level	1222 meters (4009.2 feet)
Antenna height above average terrain	165 meters

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

Topographic Data

The average elevation data of each radial separated every 45 degrees in azimuth from 3.2 to 16.1 kilometers, are based on the NGDC 3-second computerized terrain database.

Allocation

An allocation study from the proposed site has not been performed since the proposed DTV facilities will radiate the equivalent effective radiated power in every direction as the effective radiated power authorized for the KTVQ-DT facilities in the Report and Order, MB Docket No. 02-116 (RM-10233).

Interference Analysis

A study of predicted interference caused by the proposed Channel 10 DTV service was 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 study (Table II) includes all stations listed in the FCC data base as of August 6, 2003. No potentially affected station is predicted to receive more than the 2% de minimis standard.

Coverage

A coverage map (Exhibit E-3) is provided showing the 43 dBu and 36 dBu contours. The proposed facilities of KTVQ-DT place a predicted 43 dBu contour over the community of Billings.

Other Licensed and Broadcast Facilities

There are no AM stations within 3.22 km of the existing KTVQ-DT tower site. There are numerous TV and FM broadcast stations operating within 300 meters of the existing site.

No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. If required, the licensee of KTVQ-DT will install filters or take other measures as necessary to resolve the problem.

Radio Frequency Field Level

The DTV antenna will be top-mounted on the existing tower at 91.4 meters above ground level. The radio frequency field "RFF" level contribution of the NTSC broadcasting station operation from the transmitting site will be calculated using the following formula:

$$S = \frac{33.4(F^2)\,[0.4\,ERP_V + ERP_A]}{R^2}$$

The RFF contribution of the DTV and FM station operation will be calculated using the following formula:

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

where:

S = power density in $\mu W/cm^2$
F = relative field factor
ERP_V = total peak visual ERP in watts
ERP_A = total peak aural ERP in watts
R = RCAGL - 2 meters

Radio Frequency Field Level Calculations

Station	Channel	ERP kW	Field	RCAGL* (meters)	S-Calculated $\mu W/cm^2$	S-Limit $\mu W/cm^2$	% of Limit**
KBBB-FM (existing)	279	100	0.3	74.0	109.8	200	54.89
KTVQ(TV) (existing)	2	100	0.2	102	6.4	200	3.21
KTVQ-DT (proposed)	10	160	0.1	102	5.1	200	2.57

*RCAGL Minus 2 meters
**Maximum Exposure Limit for an Uncontrolled Environment

Total RFF at the Site

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

Total RFF =

109.8 $\mu W/cm^2$ (KBBB-FM)+3.21 $\mu W/cm^2$ (KTVQ(TV))+2.57 $\mu W/cm^2$ (KTVQ-DT)+2.27 (KRTV-DT)

Total RFF = 54.89% + 3.21 of 2.57% Total RFF = 60.67%

Therefore, all facilities contribute only 60.67% RFF for an uncontrolled environment 2 meters above the ground at the tower site.

The tower site is located inside a chain link fence with a locked gate to prevent unauthorized access to the tower.

Finally, provisions will be made to reduce power or to terminate the transmitter emissions as appropriate when it is necessary for authorized personnel to climb the tower. All facilities operating on the tower will coordinate to ensure that workers will not be subjected to

radio frequency levels in excess of the current FCC guidelines listed in OET Bulletin No. 65, dated August 1997.

Environmental Assessment

An environmental assessment ("EA") is categorically excluded under Section 1.1306 of the FCC Rules and Regulations since 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 will not affect 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) The installation of the DTV 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, August 1997 edition.

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
KTVQ-DT, BILLINGS, MONTANA
CHANNEL 10, 160 KW ERP, 165 METERS HAAT
AUGUST 2003

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	993.5	228.5	0.419	160	97.5	110.7
45	1022.9	199.1	0.391	160	94.9	108.1
90	1081.3	140.7	0.329	160	89.2	100.9
135	1104.0	118.0	0.301	160	85.2	97.7
180	1122.2	99.8	0.277	160	81.2	94.1
225	1058.4	163.6	0.354	160	91.6	103.8
270	981.4	240.6	0.430	160	98.5	111.5
315	1035.8	186.2	0.378	160	93.7	106.7
Average	1049.9					

*Based on data from FCC 3-second data base

DTV Channel 10 (192-198 MHz)
Average Elevation 3.2 to 16.1 km 1049.9 meters AMSL
Center of Radiation 1222 meters AMSL
Antenna Height Above Average Terrain 165 meters
Effective Radiated Power 160 kW (22.04 dBk) Max.

North Latitude: 45° 46' 00"
West Longitude: 108° 27' 27"

NAD-27

TABLE II
POTENTIAL INTERFEREES OF
KTVQ-DT, BILLINGS, MONTANA
CHANNEL 10, 160 KW, 165 METERS
AUGUST 2003

NTSC	Channel	Status	City/State	Power	Bearing/Distance	New Interference
KBJL(TV)	9	Lic	Sheridan, WY	1.78	140°/1615.2 km	fully-spaced
KUSM(TV)	9	Lic	Bozeman, MT	3.39	267.8°/202.4 km	fully-spaced
KMTF(TV)	10	Lic	Helena, MT	217	296.4°/276.9 km	0.1%
KISU-TV	10	Lic	Pocatello, ID	123	234°/417.9 km	fully-spaced
KFNE(TV)	10	Lic	Riverton, WY	170	175.4°/257.4 km	0.6%
KUSM(TV)	9	CP	Bozeman, MT	44.0	267.7°/187.9 km	fully-spaced
KMTF(TV)	10	CP Mod	Helena, MT	219	296.4°/276.9 km	0.1%
DTV						
KXGN-DT	10	PRM	Glendive, MT	30.0	62.3°/323.9 km	1.95%
KULR-DT	11	Lic	Billings, MT	6.08	160°/0.8 km	0.1%
KULR-DT	11	Allot	Billings, MT	14.5	160°/0.8 km	0.1%

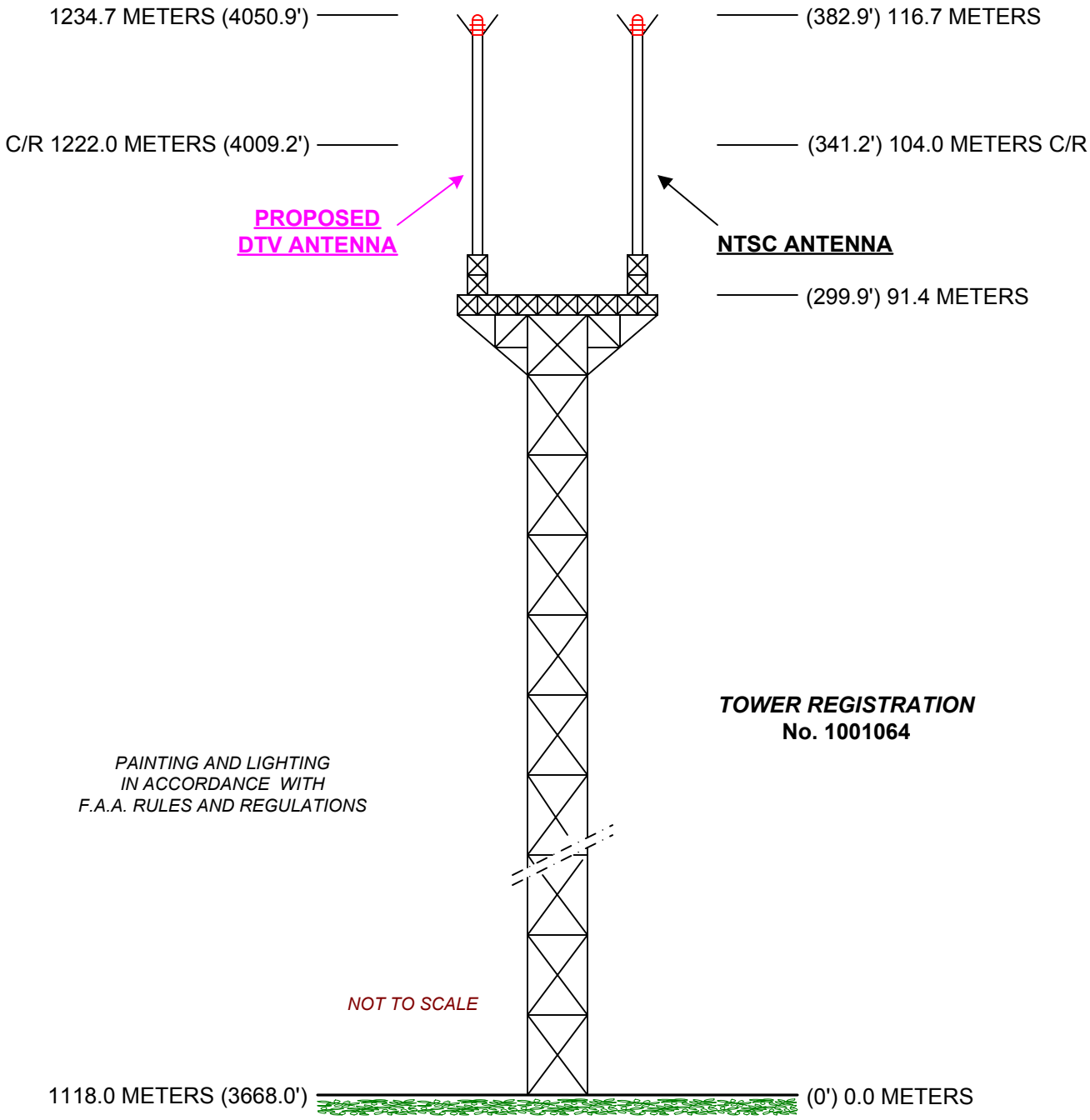


EXHIBIT E-1
VERTICAL SKETCH
FOR THE PROPOSED DTV OPERATION OF
KTVQ-DT, BILLINGS, MONTANA
AUGUST 2003

COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

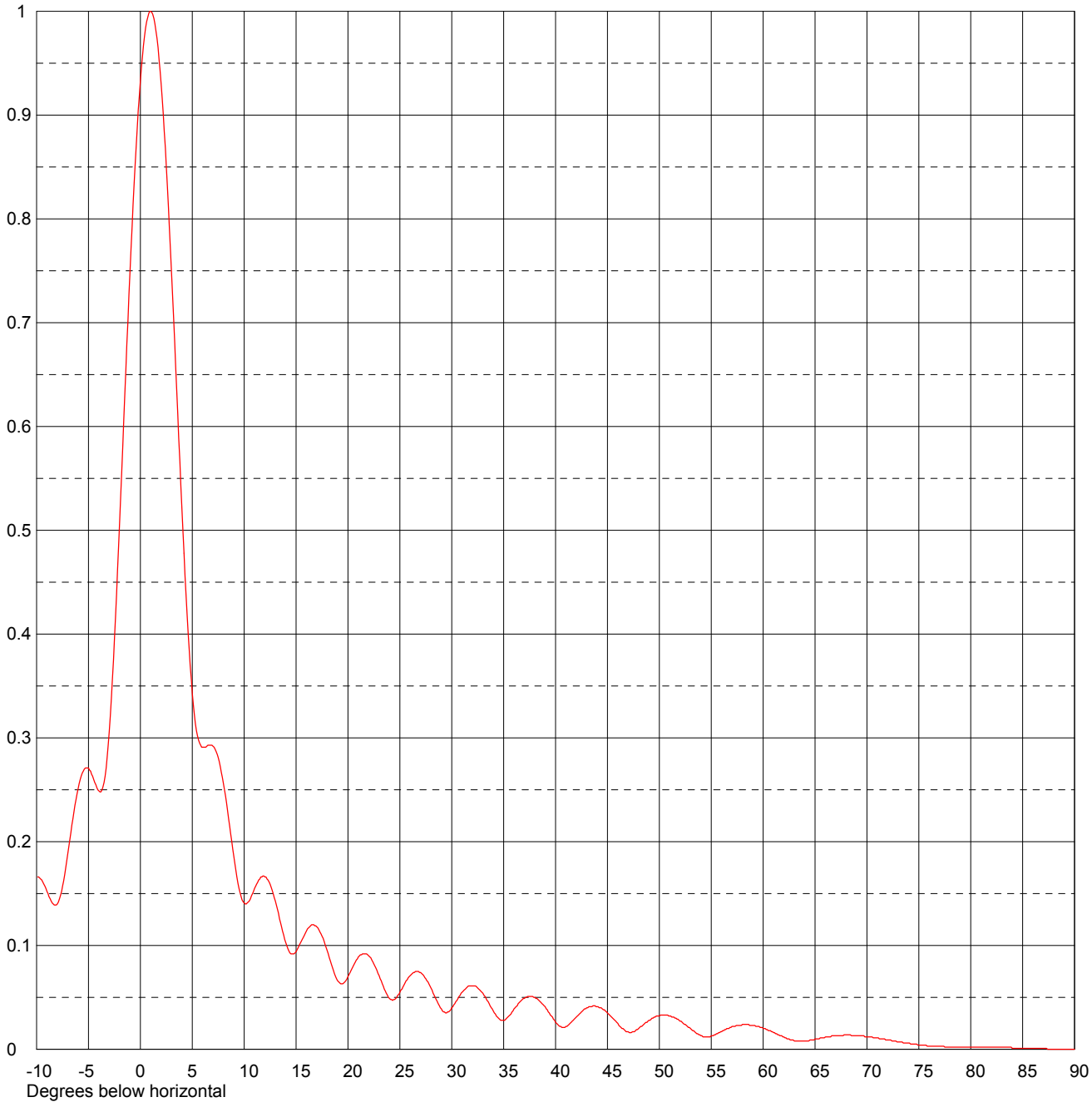
Exhibit No.
E-2a

Dielectric

Date	**Aug 2003**		
Call Letters	**KTVQ-DT**	Channel	**10**
Location	**Billings, Montana**		
Customer			
Antenna Type	**TW-12B10-R**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**12.0 (10.79 dB)**	Beam Tilt	**1.00 Degrees**
RMS Gain at Horizontal	**10.4 (10.17 dB)**	Frequency	**195.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**25W120100-90**



Remarks:

Exhibit No.
E-2b

Dielectric

Date **Aug 2003**
Call Letters **KTVQ-DT** Channel **10**
Location **Billings, Montana**
Customer
Antenna Type **TW-12B10-R**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **25W120100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.166	2.4	0.868	10.6	0.145	30.5	0.047	51.0	0.032	71.5	0.010
-9.5	0.163	2.6	0.831	10.8	0.150	31.0	0.055	51.5	0.030	72.0	0.009
-9.0	0.152	2.8	0.791	11.0	0.155	31.5	0.060	52.0	0.027	72.5	0.008
-8.5	0.141	3.0	0.748	11.5	0.164	32.0	0.061	52.5	0.024	73.0	0.007
-8.0	0.140	3.2	0.704	12.0	0.166	32.5	0.059	53.0	0.020	73.5	0.006
-7.5	0.157	3.4	0.658	12.5	0.159	33.0	0.054	53.5	0.016	74.0	0.006
-7.0	0.188	3.6	0.612	13.0	0.143	33.5	0.046	54.0	0.013	74.5	0.005
-6.5	0.222	3.8	0.566	13.5	0.122	34.0	0.037	54.5	0.012	75.0	0.004
-6.0	0.251	4.0	0.521	14.0	0.103	34.5	0.030	55.0	0.013	75.5	0.004
-5.5	0.268	4.2	0.478	14.5	0.092	35.0	0.028	55.5	0.015	76.0	0.003
-5.0	0.271	4.4	0.438	15.0	0.094	35.5	0.032	56.0	0.017	76.5	0.003
-4.5	0.260	4.6	0.401	15.5	0.104	36.0	0.039	56.5	0.020	77.0	0.003
-4.0	0.249	4.8	0.370	16.0	0.114	36.5	0.045	57.0	0.022	77.5	0.002
-3.5	0.257	5.0	0.343	16.5	0.120	37.0	0.049	57.5	0.023	78.0	0.002
-3.0	0.306	5.2	0.322	17.0	0.118	37.5	0.051	58.0	0.024	78.5	0.002
-2.8	0.338	5.4	0.307	17.5	0.109	38.0	0.050	58.5	0.024	79.0	0.002
-2.6	0.375	5.6	0.298	18.0	0.095	38.5	0.046	59.0	0.023	79.5	0.002
-2.4	0.416	5.8	0.293	18.5	0.079	39.0	0.041	59.5	0.022	80.0	0.002
-2.2	0.461	6.0	0.291	19.0	0.066	39.5	0.033	60.0	0.020	80.5	0.002
-2.0	0.508	6.2	0.291	19.5	0.063	40.0	0.026	60.5	0.018	81.0	0.002
-1.8	0.557	6.4	0.292	20.0	0.070	40.5	0.022	61.0	0.016	81.5	0.002
-1.6	0.606	6.6	0.293	20.5	0.080	41.0	0.022	61.5	0.014	82.0	0.002
-1.4	0.655	6.8	0.293	21.0	0.089	41.5	0.026	62.0	0.012	82.5	0.002
-1.2	0.703	7.0	0.292	21.5	0.092	42.0	0.031	62.5	0.010	83.0	0.002
-1.0	0.749	7.2	0.289	22.0	0.090	42.5	0.036	63.0	0.008	83.5	0.002
-0.8	0.793	7.4	0.284	22.5	0.082	43.0	0.040	63.5	0.008	84.0	0.001
-0.6	0.834	7.6	0.277	23.0	0.071	43.5	0.041	64.0	0.008	84.5	0.001
-0.4	0.871	7.8	0.267	23.5	0.058	44.0	0.041	64.5	0.009	85.0	0.001
-0.2	0.905	8.0	0.256	24.0	0.049	44.5	0.039	65.0	0.010	85.5	0.001
0.0	0.933	8.2	0.244	24.5	0.048	45.0	0.035	65.5	0.011	86.0	0.001
0.2	0.957	8.4	0.230	25.0	0.055	45.5	0.030	66.0	0.012	86.5	0.001
0.4	0.976	8.6	0.215	25.5	0.064	46.0	0.025	66.5	0.012	87.0	0.001
0.6	0.990	8.8	0.200	26.0	0.071	46.5	0.020	67.0	0.013	87.5	0.000
0.8	0.998	9.0	0.186	26.5	0.075	47.0	0.017	67.5	0.013	88.0	0.000
1.0	1.000	9.2	0.172	27.0	0.074	47.5	0.017	68.0	0.014	88.5	0.000
1.2	0.997	9.4	0.160	27.5	0.068	48.0	0.020	68.5	0.013	89.0	0.000
1.4	0.988	9.6	0.151	28.0	0.059	48.5	0.024	69.0	0.013	89.5	0.000
1.6	0.974	9.8	0.144	28.5	0.048	49.0	0.028	69.5	0.013	90.0	0.000
1.8	0.954	10.0	0.141	29.0	0.039	49.5	0.031	70.0	0.012		
2.0	0.930	10.2	0.140	29.5	0.035	50.0	0.032	70.5	0.012		
2.2	0.901	10.4	0.142	30.0	0.040	50.5	0.033	71.0	0.011		

Remarks:

SYSTEM SUMMARY

Antenna:

			H Pol	
Type:	**TW-12B10-R**	ERP:	**160 kW**	**(22.04 dBk)**
Channel:		RMS Gain*:	**12.0**	**(10.79 dB)**
Location:	**Billings, Montana**	Input Power:	**13.33 kW**	**(11.25 dBk)**

Transmission Line:

Type:	**EIA Style Rigid TL**	Attenuation:		**0.69 dB**
Size:	**3" 50 ohm**	Efficiency:	**85.3%**	
Length	**500 ft**	**152 m**		

Transmitter:

Average Power Required:	**15.63 kW**	**(11.94 dBk)**

* Gain is with respect to half wave dipole.

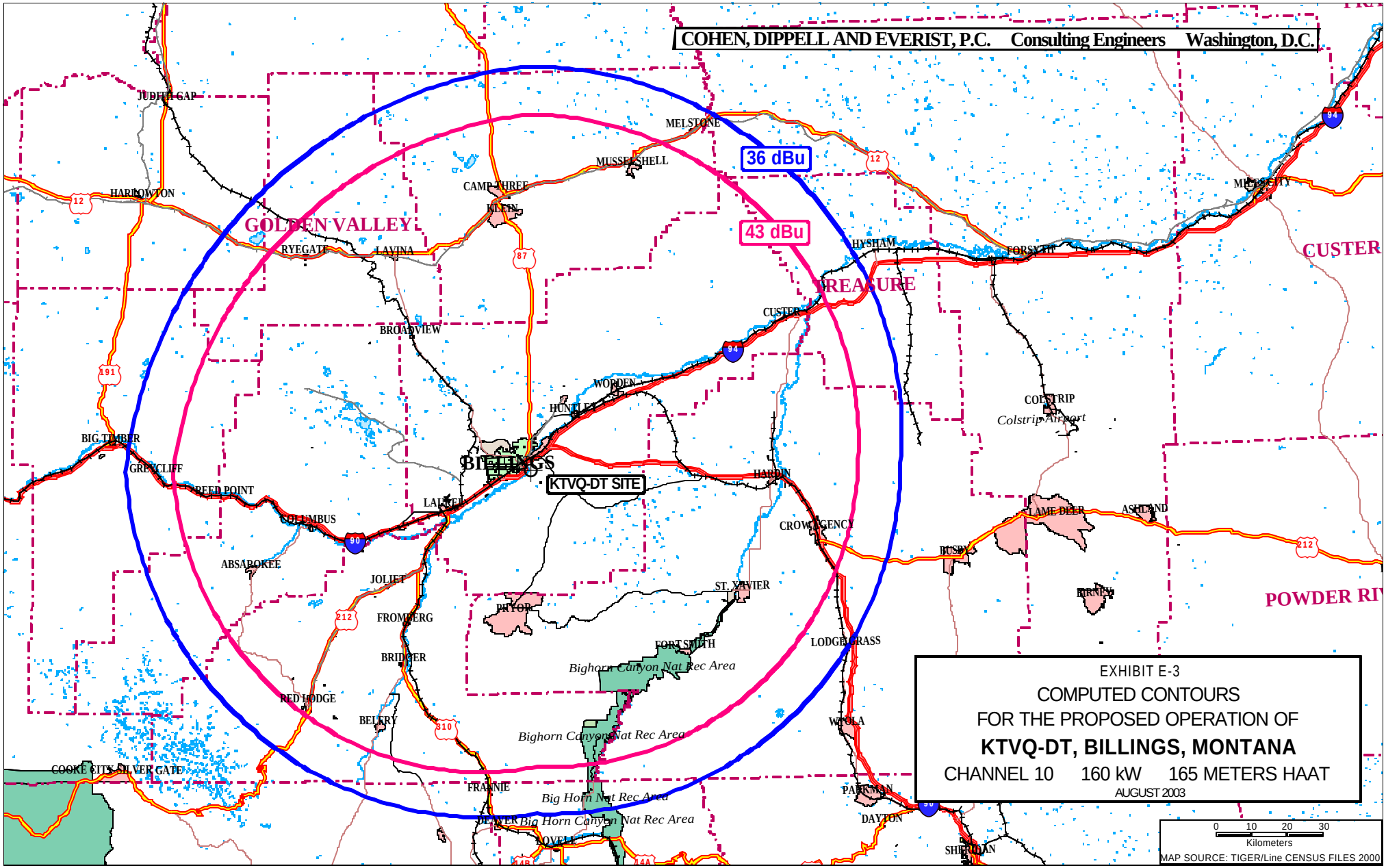
MECHANICAL SPECIFICATIONS

Antenna:

Type: **TW-12B10-R**
Channel: **10**
Location: **Billings, Montana**

Antenna Length (H2):	**69.6 ft**
With Lightning Protector (H4):	**73.6 ft**
Center of Radiation (H3):	**36.5 ft**

Weight:


COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.
36 dBu
43 dBu
KTVQ-DT SITE
BILLINGS
JUDITH GAP
HARLOWTON
GOLDEN VALLEY
RYEGATE
LAVINA
MELSTONE
MUSSELSHELL
CAMP THREE
KLEIN
BROADVIEW
WORDEN
HUNTLEY
CUSTER
HYSHAM
FORSYTH
MILES CITY
CUSTER
TREASURE
COLSTRIP
Colstrip Airport
BIG TIMBER
GREYCLIFF
BREED POINT
COLUMBUS
LAUREL
HARDIN
CROW AGENCY
LAME DEER
ASHLAND
BUSBY
BIRNEY
ABSAROKEE
JOLIET
FROMBERG
PRYOR
ST. XAVIER
FORT SMITH
Bighorn Canyon Nat Rec Area
LODGE GRASS
BRIDGER
RED LODGE
BELFRY
WOLA
Bighorn Canyon Nat Rec Area
COOKE CITY-SILVER GATE
FRANNIE
Big Horn Nat Rec Area
Big Horn Canyon Nat Rec Area
PARKMAN
DAYTON
SHERIDAN
POWDER RIV
EXHIBIT E-3
COMPUTED CONTOURS
FOR THE PROPOSED OPERATION OF
KTVQ-DT, BILLINGS, MONTANA
CHANNEL 10 160 kW 165 METERS HAAT
AUGUST 2003
0 10 20 30
Kilometers
MAP SOURCE: TIGER/Line CENSUS FILES 2000