

# ENGINEERING REPORT

PROPOSED KTVB-DT

CHANNEL 26  
BOISE, IDAHO

[MODIFICATION OF BPCDT-19991025AEN]

JUNE, 2001

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FCC Form 301, Section III-D

SMITH AND FISHER • BROADCASTING AND TELECOMMUNICATIONS CONSULTANTS

EXHIBIT A

## ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of KING BROADCASTING COMPANY, permittee of KTVB-DT, Boise, Idaho, in support of its Application for Modification of Construction Permit BPCDT-19991025AEN, to specify changes in ERP, antenna height, and antenna type.

Exhibit B is a vertical sketch of the antenna and supporting structure. Antenna data appears as Exhibit C, and a tabulation of operating parameters comprises Exhibit D. Exhibit E provides terrain and contour data and Exhibit F is a map of the digital service contour. An allocation study is included in Exhibit G. It is not expected that the proposed facility would cause objectionable interference to any authorized stations, but KTVB-DT recognizes its obligation to correct any such interference that may occur. Since there is to be no change in the location or overall height of this structure, the FAA has not been advised of this proposal.

We have studied the RF transmissions of this facility with regard to their environmental effect. Employing the methods set forth in *OST Bulletin No. 65* and considering the vertical pattern of the proposed Dielectric antenna, we calculate maximum power density two meters above ground from the proposed facility to be  $0.27 \text{ mw/cm}^2$ , at locations 14 meters northwest and southeast of the tower base, which is 15 percent of the  $1.8 \text{ mw/cm}^2$  reference at this frequency for controlled areas. (There is no public access to the Deer Point Electronics site.) Because of the large number of transmitting facilities at this location, KTVB-DT will provide RF measurements and/or detailed calculations showing compliance with the Commission's

EXHIBIT A

environmental Rules prior to the commencement of program tests. Further, KTVB-DT will take whatever preventive steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive RF energy. On this basis, a grant of this application would clearly be a minor environmental action.

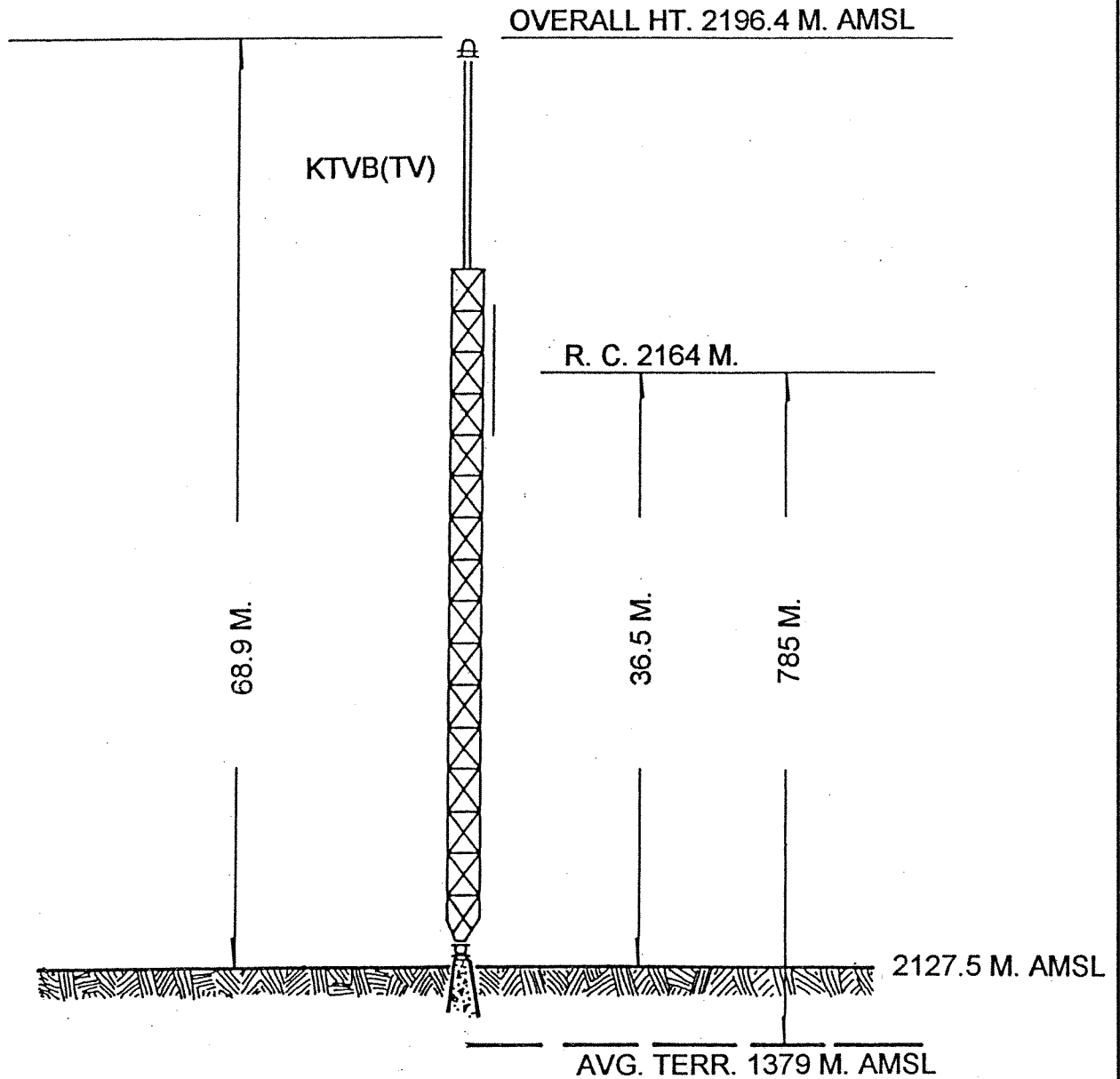
I declare under penalty of perjury that the foregoing statements and the attached Engineering Report, which was prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in black ink, appearing to be 'Neil M. Smith', with a long horizontal stroke extending to the right.

NEIL M. SMITH

July 24, 2001

NOT TO SCALE



SITE COORDINATES:

43° 45' 16"

116° 05' 56"

EXHIBIT B

ELEVATION OF ANTENNA STRUCTURE

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
[MODIFICATION OF BPCDT-19991025AEN

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Date  
Call Letters KTVB-DT Channel  
Location  
Customer  
Antenna Type TFU-24DSB-I (C)

ELEVATION PATTERN

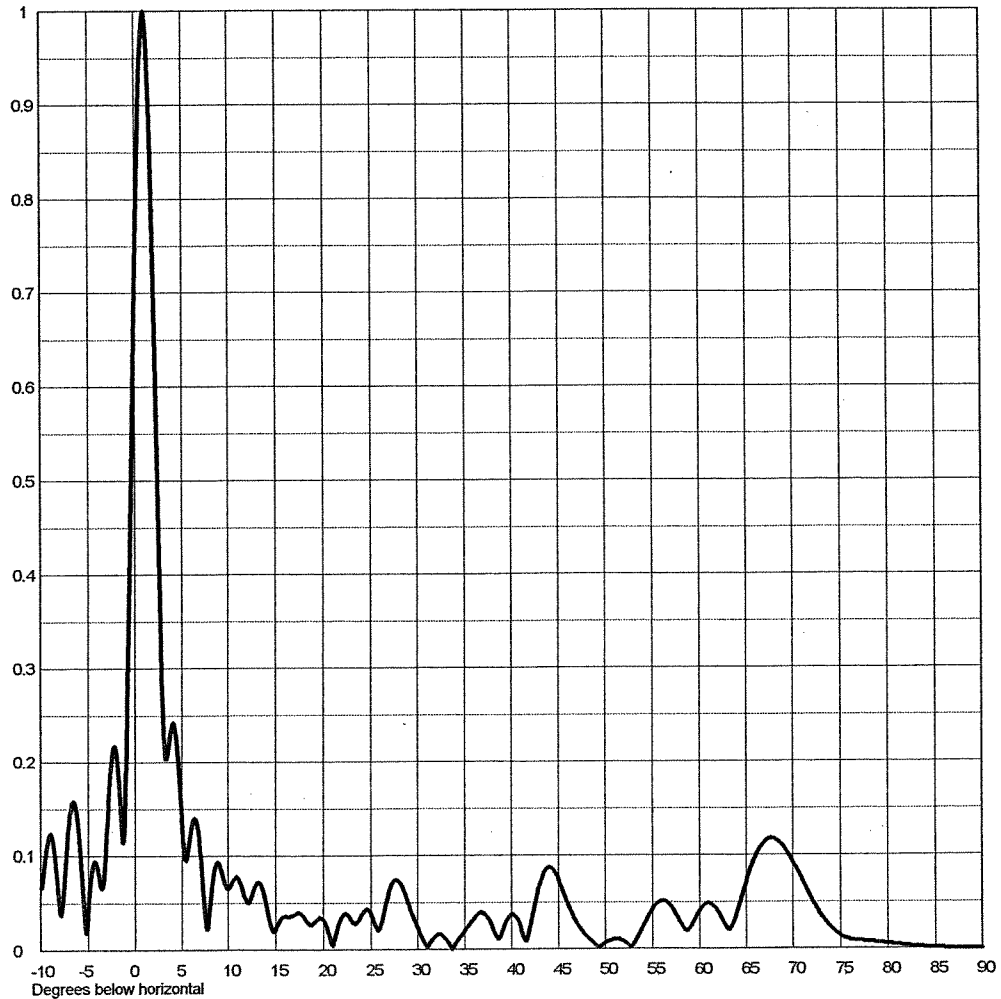
RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	MHz



Date  
Call Letters KTVB-DT Channel  
Location  
Customer  
Antenna Type TFU-24DSB-I (C)

#### ELEVATION PATTERN

RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	MHz
Calculated / Measured	Calculated	Drawing #	24B240100-90



#### EXHIBIT C-2

#### VERTICAL RELATIVE FIELD PATTERN

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
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Date  
Call Letters KTVB-DT Channel  
Location  
Customer  
Antenna Type TFU24-DSB-I

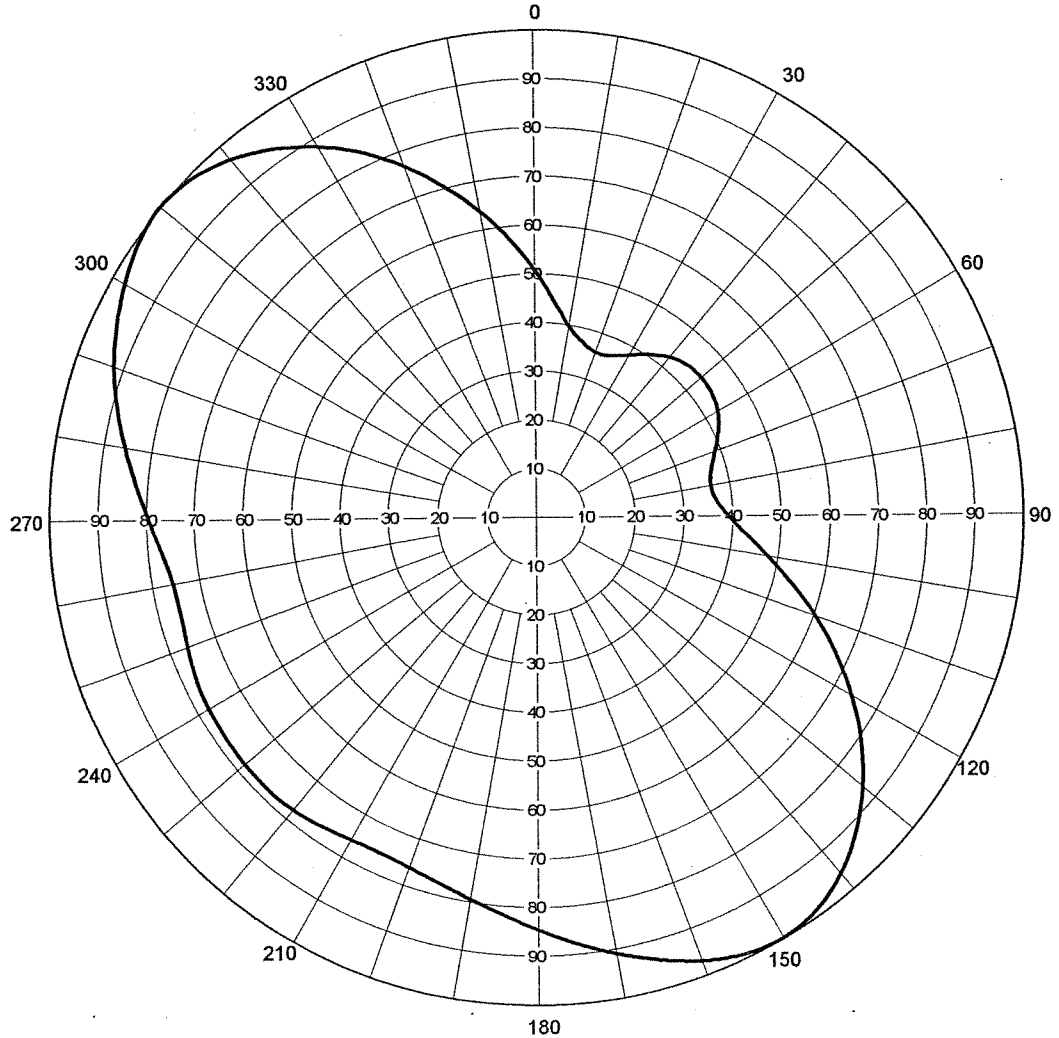
#### AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

1.80 (2.55 dB)  
Calculated

Frequency  
Drawing #

MHz  
DSB-I



#### EXHIBIT C-3

#### HORIZONTAL RELATIVE FIELD PATTERN

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
[MODIFICATION OF BPCDT-19991025AEN]

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EXHIBIT C-4

## BEAM TILT DATA

PROPOSED KTVB-DT  
 CHANNEL 26 - BOISE, IDAHO  
 [MODIFICATION OF BPCDT-19991025AEN]

<u>Azimuth</u> <u>(° T)</u>	<u>Mechanical</u> <u>Tilt</u> <u>(degrees)</u>	<u>Total</u> <u>Tilt</u> <u>(degrees)</u>	<u>Azimuth</u> <u>(° T)</u>	<u>Mechanical</u> <u>Tilt</u> <u>(degrees)</u>	<u>Total</u> <u>Tilt</u> <u>(degrees)</u>
0	+ 0.64	- 0.36	180	- 0.64	- 1.64
10	+ 0.77	- 0.23	190	- 0.77	- 1.77
20	+ 0.87	- 0.13	200	- 0.87	- 1.87
30	+ 0.94	- 0.06	210	- 0.94	- 1.94
40	+ 0.98	- 0.02	220	- 0.98	- 1.98
50	+ 1.00	0	230	- 1.00	- 2.00
60	+ 0.98	- 0.02	240	- 0.98	- 1.98
70	+ 0.94	- 0.06	250	- 0.94	- 1.94
80	+ 0.87	- 0.13	260	- 0.87	- 1.87
90	+ 0.77	- 0.23	270	- 0.77	- 1.77
100	+ 0.64	- 0.36	280	- 0.64	- 1.64
110	+ 0.50	- 0.50	290	- 0.50	- 1.50
120	+ 0.34	- 0.66	300	- 0.34	- 1.34
130	+ 0.17	- 0.83	310	- 0.17	- 1.17
140	0	- 1.00	320	0	- 1.00
150	- 0.17	- 1.17	330	+ 0.17	- 0.83
160	- 0.34	- 1.34	340	+ 0.34	- 0.66
170	- 0.50	- 1.50	350	+ 0.50	- 0.50

EXHIBIT C-5

MAIN LOBE  
DIRECTIONAL ANTENNA PATTERN DATA

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
[AMENDMENT TO BPCDT-19991025AEN]

<u>Azimuth</u> <u>(° T)</u>	<u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(dbk)</u>	<u>Azimuth</u> <u>(° T)</u>	<u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(dbk)</u>
0	0.508	23.9	180	0.847	28.4
10	0.399	21.8	190	0.795	27.8
20	0.359	20.9	200	0.763	27.5
30	0.381	21.4	210	0.761	27.4
40	0.424	22.3	220	0.778	27.6
50	0.441	22.7	230	0.781	27.7
60	0.429	22.4	240	0.776	27.6
70	0.389	21.6	250	0.761	27.4
80	0.362	21.0	260	0.756	27.4
90	0.391	21.6	270	0.795	27.8
100	0.479	23.4	280	0.855	28.4
110	0.605	25.4	290	0.919	29.1
120	0.743	27.2	300	0.970	29.5
130	0.868	28.6	310	1.000	29.8
140	0.961	29.5	320	0.964	29.5
150	1.000	29.8	330	0.881	28.7
160	0.971	29.5	340	0.768	27.5
170	0.910	29.0	350	0.638	25.9

EXHIBIT C-6

HORIZONTAL PLANE  
DIRECTIONAL ANTENNA PATTERN DATA

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
[MODIFICATION OF BPCDT-19991025AEN]

<u>Azimuth</u> <u>(° T)</u>	<u>Horizontal</u> <u>Relative</u> <u>Field</u>	<u>Vertical</u> <u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(dbk)</u>	<u>Azimuth</u> <u>(° T)</u>	<u>Horizontal</u> <u>Relative</u> <u>Field</u>	<u>Vertical</u> <u>Relative</u> <u>Field</u>	<u>ERP</u> <u>(dbk)</u>
0	0.508	0.92	23.2	180	0.847	0.21	14.8
10	0.399	0.965	21.5	190	0.795	0.16	11.9
20	0.359	0.985	20.9	200	0.763	0.135	10.1
30	0.381	0.995	21.4	210	0.761	0.13	9.7
40	0.424	1.00	22.3	220	0.778	0.135	10.2
50	0.441	1.00	22.7	230	0.781	0.135	10.3
60	0.429	1.00	22.4	240	0.776	0.135	10.2
70	0.389	0.995	21.6	250	0.761	0.13	9.7
80	0.362	0.985	20.8	260	0.756	0.135	10.0
90	0.391	0.965	21.3	270	0.795	0.16	11.9
100	0.479	0.92	22.7	280	0.855	0.21	14.9
110	0.605	0.885	24.4	290	0.919	0.30	18.6
120	0.743	0.835	25.7	300	0.970	0.35	20.4
130	0.868	0.73	25.8	310	1.000	0.52	24.1
140	0.961	0.60	25.0	320	0.964	0.60	25.0
150	1.000	0.52	24.1	330	0.881	0.73	26.0
160	0.971	0.35	20.4	340	0.768	0.835	25.9
170	0.910	0.30	18.5	350	0.638	0.885	24.8

EXHIBIT C-7

## DEVELOPMENT OF ERP VALUES

PROPOSED KTVB-DT  
 CHANNEL 26 - BOISE, IDAHO  
 [MODIFICATION OF BPCDT-19991025AEN]

Azimuth (° T)	Effective Antenna Height		A <sub>h</sub> (deg.)	Total Tilt (deg.)	Relative Field at A <sub>h</sub>	MAIN LOBE	ERP (dbk)
	<u>meters</u>	<u>feet</u>				ERP (dbk)	
0	594	1950	-0.68	-0.36	0.96	23.9	23.9*
45	621	2037	-0.69	0	0.81	22.6	20.8
90	859	2818	-0.81	-0.23	0.86	21.6	20.3
135	783	2569	-0.78	-0.915	0.985	29.1	29.1*
180	623	2044	-0.69	-1.64	0.635	28.4	24.5
225	1032	3384	-0.81	-1.99	0.52	27.7	22.0
270	919	3015	-0.84	-1.77	0.65	27.8	24.1
315	850	2789	-0.81	-1.08	0.96	29.7	29.7*

\*Maximum ERP employed, since radiation  
 is at least 90 percent of maximum

EXHIBIT D

## PROPOSED OPERATING PARAMETERS

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO  
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Transmitter power output	13.66 dbk, 23.2 kw
Transmission line loss	0.24 db
Antenna input power	13.42 dbk, 22 kw
Antenna gain, main lobe, maximum	16.35 db
ERP, main lobe, maximum	29.77 dbk, 948 kw

Transmitter:	Type-accepted
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## Transmission line

Make and model:	Dielectric 475-004
Size:	4 1/16"
Type:	Rigid coaxial
Length:	150 feet
Attenuation:	0.157 db/100 feet

Antenna:	Dielectric TFU-24DSB-I(C)
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EXHIBIT E

## ELEVATION AND CONTOUR DATA

PROPOSED KTVB-DT  
 CHANNEL 26 - BOISE, IDAHO  
 [MODIFICATION OF BPCDT-19991025AEN]

Az. (° T)	Avg. Elv. AMSL 2 to 10 Miles	Effective Ant. Ht. AAT	ERP (dbk)	Distance to Predicted Digital Contour (41 dbμ)	
	meters	meters		km.	mi.
0	1570	594	23.5	107	66
45	1543	621	20.3	101	63
90	1305	859	19.9	109	68
135	1381	783	28.6	126	78
180	1541	623	24.1	109	68
225	1133	1032	21.5	118	73
270	1245	919	23.7	119	74
315	1314	850	29.2	130	81

Height of radiation center above mean sea level	2164 meters
Height of average terrain above mean sea level	1379 meters
Height of radiation center above average terrain	785 meters
Effective radiated power, main lobe, maximum	29.8 dbk, 948 kw

Geographic Coordinates

N 43° 45' 16" W 116° 05' 56"

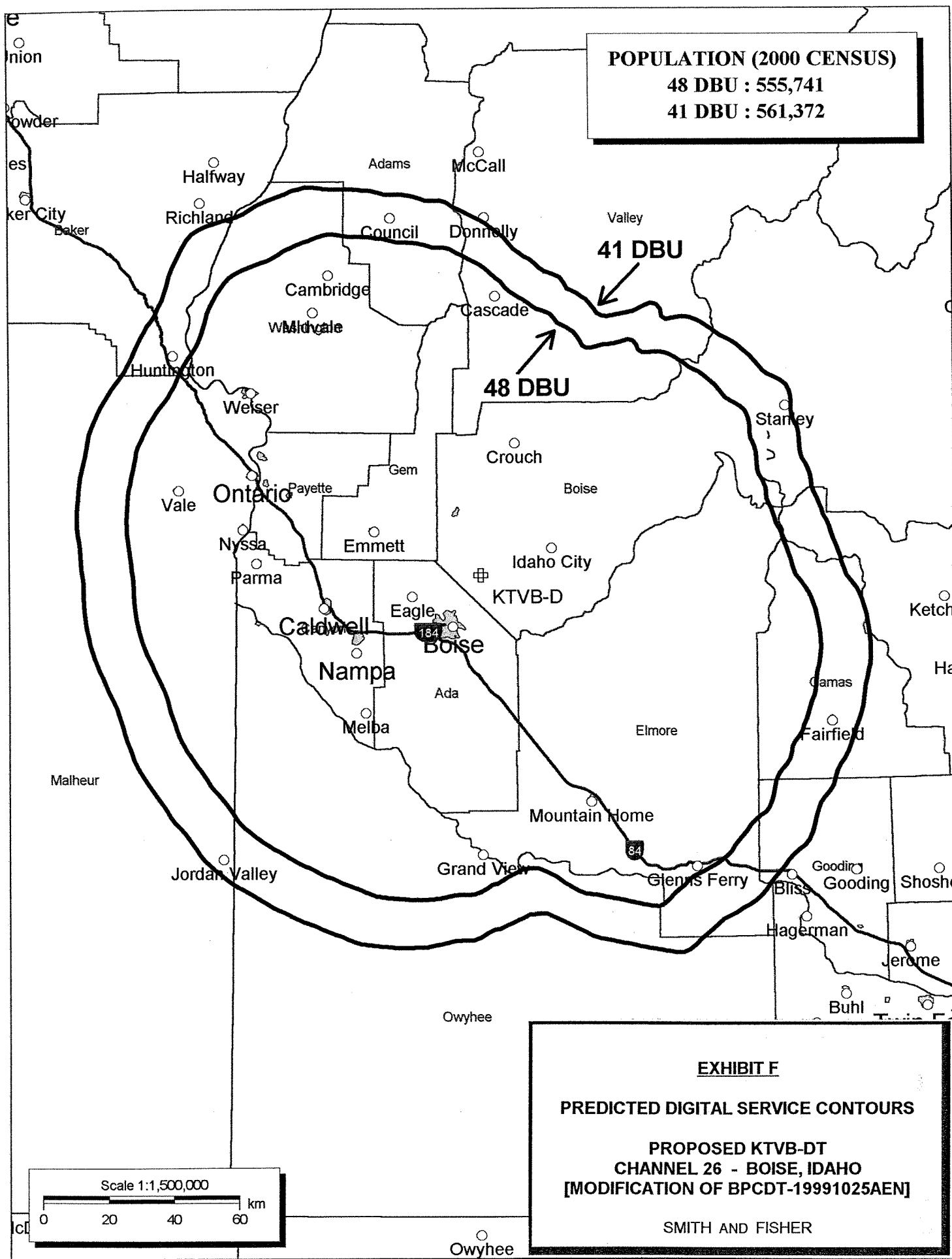


EXHIBIT G

ALLOCATION AND INTERFERENCE STUDY

PROPOSED KTVB-DT  
CHANNEL 26 - BOISE, IDAHO

[MODIFICATION OF BPCDT-19991025AEN]

The Commission allotted Channel 26 to KTVB-DT with a nominal ERP of 407.8 kw at 808 meters above average terrain. The instant application specifies an ERP of 948 kw, directional, at 785 meters, which is allowable under the FCC's *de minimis* standards with respect to various NTSC and DTV facilities.

In evaluating the interference effect of this proposal, we have relied upon the V-Soft Communications "Probe" computer program, which has been found generally to mimic the FCC's program. We found that operating as proposed, KTVB-DT would cause no interference to any analog or digital television station. Therefore, this proposal meets the FCC's *de minimis* interference standards for DTV operations.

It should be noted that with the proposed facilities, the coverage of KTVB-DT will equal the coverage of one of its competitors in the Boise market. KBCI-DT is allotted 978 kw at 777 meters on Channel 28, which produces an average distance to the 41 db $\mu$  contour distance of 129 kilometers. Likewise, the proposed 948 kw at 785 meters produces a 41 db $\mu$  contour distance of 129 kilometers.