Comprehensive Technical Exhibit

Application for Construction Permit

KTVH-DT – Helena, Montana

Beartooth Communications Company

June, 2008

General

The following engineering statement and attached exhibits have been prepared for **Beartooth Communications Company**, licensee of television station KTVH(TV) at Helena, Montana, and are in support of their application for construction permit for the KTVH-DT post transition facilities.[1]

KTVH currently operates on channel 12 as an NTSC facility, with pre-transition DTV operations on channel 14. In the post-transition environment, KTVH-DT will operate on channel 12 pursuant to the Commission's DTV Table of Allotments in Appendix B of the *Eighth Report and Order*. This application is therefore being filed to request a construction permit for the post-transition DTV facilities, which will vary from those listed in Appendix B. The proposed facilities, even though differing from those listed in Appendix B, will be consistent with Commission policies and rules.

Discussion of KTVH-DT Allotment and Proposed Facilities

In the Commission's Table of Allotments, KTVH-DT is specified as operating in the post-transition environment on channel 12. The table specifies maximum effective radiated power of 9.36 kW at an antenna center of radiation at 697 meters above average terrain. The allocation lists an Antenna ID of 74375 for KTVH-DT.

The pattern contained within Antenna ID 74375 is inconsistent with the pattern associated with the current NTSC antenna. The current NTSC antenna will be utilized for DTV operations in the post-transition environment. This antenna is a Systems With Reliability (SWR) model SWVHFP4-4/10-12, which utilizes 1.0 degrees of electrical beamtilt. No mechanical beamtilt is

[1] The Facility ID for KTVH(TV) is 5290.

utilized or proposed. Since this antenna is considered by the manufacturer to be a non-directional antenna, the applicant seeks to remove the directional characteristics assigned to the associated antenna ID.

In addition to removing the directional characteristics of the antenna, the applicant seeks to increase the center of radiation from the allocated value of 697 meters above average terrain to 712.9 meters above average terrain and increase the effective radiated power to 25 kW. Although an increase in the center of radiation relative to average terrain is proposed, there would be no change in the NTSC antenna center of radiation relative to mean sea level which is currently at 2421 meters AMSL for the existing antenna. The apparent increase in the center of radiation above average terrain is the result of a recalculation of the average terrain from the site using a more accurate terrain database. The determination of the elevations utilized for the calculation of average terrain was based on the sampling of 360 radials and a 3-second linearly interpolated terrain database.

The above described changes would necessarily increase the distance to the noise limited service contour. Exhibits E-1 and E-2 respectively depict and tabulate the noise limited contours for the allocated and proposed KTVH-DT facilities. As these exhibits demonstrate, the distance to the noise limited contour is greater than five miles along all azimuths.

The increase in the noise limited service contour, however, does not result in any impermissible interference to domestic facilities. Exhibits E-3 and E-4 depict, tabulate, and summarize the interference situation for the proposed facility. As these two exhibits demonstrate, the proposed facility is predicted to cause interference to small areas served by several stations.

These areas, however, are uninhabited according to the 2000 US Census, thus the proposed facility would cause interference to zero population.

In the case of Canadian interference, the proposed facility would result in an increase in the predicted interference to the two records listed for CBCA-TV at Etzikom, AB. Although an increase in the predicted interference relative to the allocation would exist, the predicted interference covers *less* area than currently receives interference from the licensed KTVH(TV) NTSC facilities. Exhibits E-5 and E-6 depict the predicted interference from the licensed KTVH(TV) NTSC transmission facility. As Exhibit E-6 demonstrates, when compared against Exhibit E-4, the CBCA-TV coverage area receiving interference from the proposed facility is nearly *half* the area currently receiving interference from the licensed analog facility. Examination of the Canadian television database indicates that CBCA has an allocation for digital operations on channel 15.

The changes in the technical parameters of the proposed facility relative to Appendix B will necessarily affect the DTV service area population. Exhibits E-7 and E-8 depict and summarize the proposed DTV service area. As these two exhibits demonstrate, the population of the DTV service area would increase from the Appendix B value of 152 thousand persons to 171,930 persons by the 2000 US Census.

The proposed facility would satisfy the coverage requirements of the Commission's Rules. Due to irregular, mountainous terrain in the region, a coverage map illustrating the predicted Longley-Rice coverage absent interference considerations along with the relevant FCC service contours has been included as Exhibit E-7. As this map demonstrates, the Commission's DTV coverage requirements in Section 73.625 will be met as both the 43 dBu F(50,90) service contour

encompasses Helena, Montana and the entire community will receive a signal level of at least 43 dBu F(50,90) by the Longley-Rice propagation model.

The antenna that would be utilized by the proposed facility is a Systems With Reliability (SWR) model SWVHFP4-4/10-12. This is the same antenna that has been in use by the NTSC facility. This antenna is a non-directional antenna with 1.0 degree of electrical beamtilt and no mechanical beamtilt. The antenna utilized by the facility is not part of an AM radiator and is not located in close proximity to an AM radiation system.

The proposed KTVH-DT facility would not constitute a substantial environmental impact. The absence of a significant environmental impact by the proposed facility is based on two considerations. The first of these considerations is the fact that the proposed facility would utilize the existing KTVH transmission facility. Since no new excavation or construction would result, no additional environmental impact to the area would ensue.

Secondly, the proposed facility would not constitute an RF exposure hazard to persons at the site. In addition to KTVH-DT, the structure would also be utilized by DTV station KMTF-DT for post transition operations. The predicted power density for both stations was calculated using the equations contained in OET Bulletin 65. The predicted power density for each station is calculated as follows:

$$S = \frac{33.4(E_{Rel})^2 (ERP)}{h^2}$$

Due to the dimensions of the site, the areas of concern lie within regions where the relative field from both antennas would be no greater than 0.3. The effective radiated power is simply the maximum effective radiated power of each of the facilities under consideration. For KTVH-DT an

ERP of 25,000 Watts is proposed. In the case of KMTF, the appendix B effective radiated power of 43.4 kW was utilized. The denominator term is the height of the center of radiation minus 2 meters to accommodate the average human height. For KTVH-DT this is 42 meters, while a value of 25 meters was utilized for KMTF-DT as Appendix B specifies its center of radiation at 697 meters above average terrain corresponding to a lower center of radiation above ground.[2]

The calculated power density for KTVH-DT is 42.6 $\mu W/cm^2$, while for KMTF-DT it is 208.7 $\mu W/cm^2$. For the channel 12 operations of KTVH-DT, the maximum permissible power density under the uncontrolled environment condition of the applicable safety standard is 200 $\mu W/cm^2$. For KMTF-DT, it is a function of frequency and is calculated to be 373 $\mu W/cm^2$.[3] The contributions from each facility do not exceed the relevant upper limit based on frequency of operation. In addition, the addition of the contributions of both facilities is not sufficient to exceed restrictions on the uncontrolled environment. As a result, the proposed facility is not expected to result in an RF exposure hazard to persons at the site.

In order to protect workers having access to the tower from being exposed to levels of non-ionizing radiation which may exceed the applicable safety standards, the applicant certifies that it will coordinate with other present and future users of the site. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

The requirements of Section 73.1030 of the Commission's Rules are not applicable in this particular case. The proposed facility would not operate in any of the zones described in the

[2] KMTF has not submitted any additional construction permit applications subsequent to BMPCDT-20041101AHP. The parameters specified in that application were therefore utilized, which are consistent with the allocation contained in Appendix B. The facility ID for KMTF-DT is 68717.

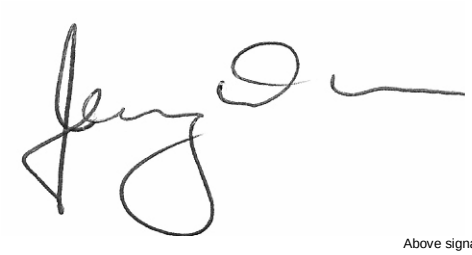
[3] For UHF channels the uncontrolled environment upper limit is defined by f/1500. The value of 373 $\mu W/cm^2$ is assumed as it provides a more conservative level of protection and is based on the lower channel 29 limit of 560 MHz.

referenced section. In addition, the proposed facility is not in proximity to the protected FCC Field Installations described in Section 0.121 of the Commission's Rules.

The structure utilized for the facilities described in this application has not been registered with the Commission. Due to the actual height of the tower above ground level, registration is not required.

Affidavit

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2009

Jeremy D. Ruck, PE
June19, 2008

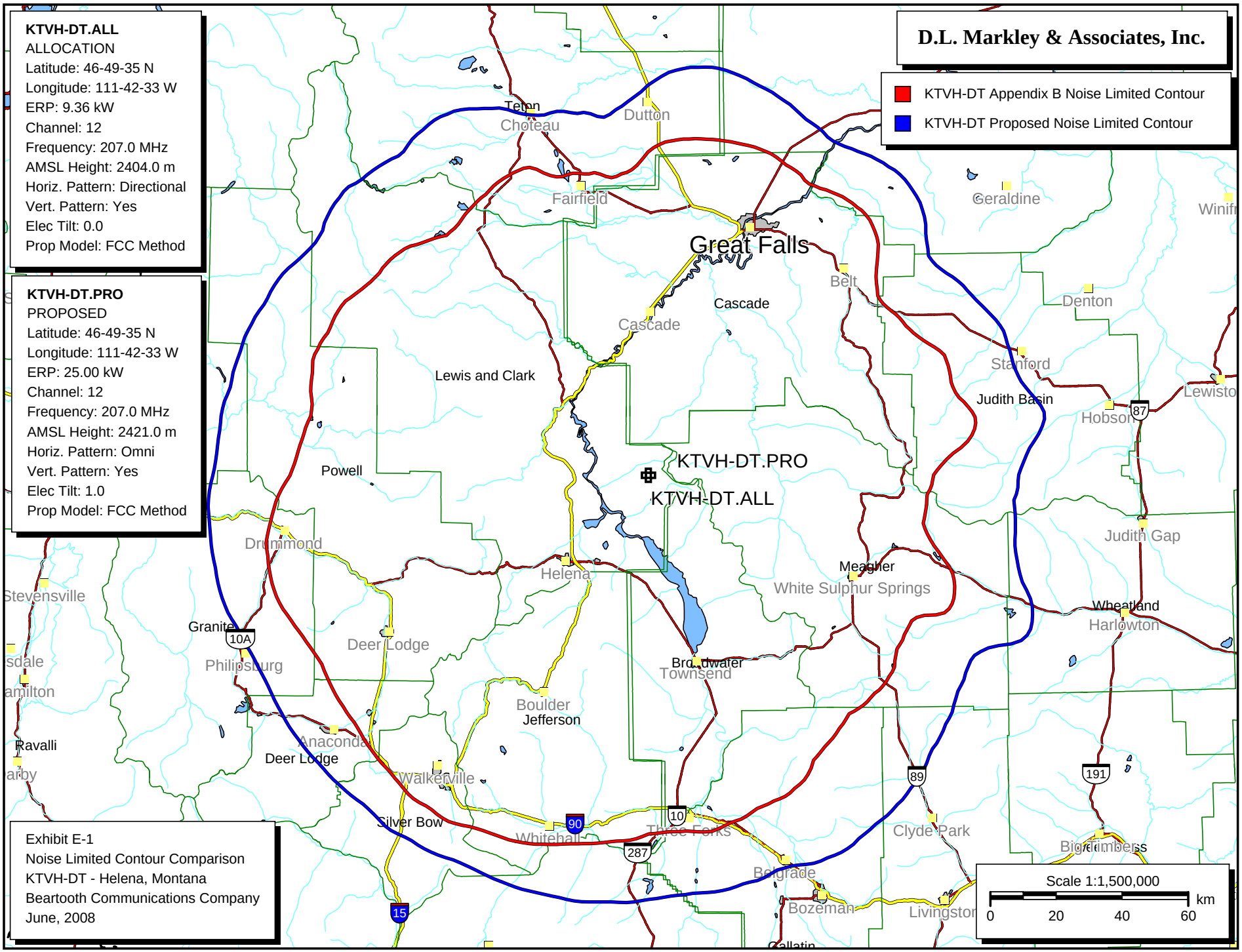

KTVH-DT.ALL
ALLOCATION
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 9.36 kW
Channel: 12
Frequency: 207.0 MHz
AMSL Height: 2404.0 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Elec Tilt: 0.0
Prop Model: FCC Method
KTVH-DT.PRO
PROPOSED
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 25.00 kW
Channel: 12
Frequency: 207.0 MHz
AMSL Height: 2421.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: FCC Method
D.L. Markley & Associates, Inc.
KTVH-DT Appendix B Noise Limited Contour
KTVH-DT Proposed Noise Limited Contour
Great Falls
KTVH-DT.PRO
KTVH-DT.ALL
Choteau
Dutton
Fairfield
Geraldine
Belt
Cascade
Denton
Stanford
Judith Basin
Hobson
Lewis and Clark
Powell
Judith Gap
Helena
Meagher
White Sulphur Springs
Wheatland
Harlowton
Granite
Deer Lodge
Philipsburg
Townsend
Boulder
Jefferson
Anaconda
Deer Lodge
Walkerville
Silver Bow
Whitehall
Three Forks
Clyde Park
Belgrade
Bozeman
Livingston
Stevensville
Ravalli
Drummond
Exhibit E-1
Noise Limited Contour Comparison
KTVH-DT - Helena, Montana
Beartooth Communications Company
June, 2008
Scale 1:1,500,000
km
0
20
40
60

Exhibit E-2 - Comparison of Proposed and Allocated Noise Limited Service Contours

	COR HAAT in meters		Contour Distance in km		Contour Distance Difference Proposed to Allocation	
Azimuth	Allocation(1)	Proposed(2)	Allocation	Proposed	kilometers	miles
0	540.3	557.3	97.8	118.0	20.2	12.55
10	659.3	676.3	103.2	125.0	21.8	13.55
20	578.2	595.2	104.2	120.5	16.3	10.13
30	498.6	515.6	101.0	115.7	14.7	9.13
40	550.2	567.2	102.7	118.6	15.9	9.88
50	416.5	433.5	90.2	110.1	19.9	12.37
60	433.0	450.0	90.1	111.6	21.5	13.36
70	499.9	516.9	96.6	115.7	19.1	11.87
80	579.3	596.3	100.5	120.6	20.1	12.49
90	438.9	455.9	86.4	112.1	25.7	15.97
100	445.6	462.6	84.4	112.6	28.2	17.52
110	632.8	649.8	98.6	123.7	25.1	15.60
120	444.6	461.6	91.2	112.6	21.4	13.30
130	530.7	547.7	95.0	117.4	22.4	13.92
140	630.7	647.7	94.4	123.6	29.2	18.14
150	723.3	740.3	99.7	127.1	27.4	17.03
160	685.0	702.0	105.9	126.0	20.1	12.49
170	753.5	770.5	109.5	127.7	18.2	11.31
180	793.6	810.6	108.6	128.4	19.8	12.30
190	935.9	952.9	113.2	130.8	17.6	10.94
200	937.8	954.8	117.9	130.8	12.9	8.02
210	975.2	992.2	121.0	131.7	10.7	6.65
220	983.2	1000.2	119.5	131.8	12.3	7.64
230	1017.4	1034.4	116.3	132.6	16.3	10.13
240	979.9	996.9	114.2	131.8	17.6	10.94
250	1024.3	1041.3	117.7	132.8	15.1	9.38
260	1074.7	1091.7	117.5	134.0	16.5	10.25
270	982.3	999.3	108.4	131.8	23.4	14.54
280	910.1	927.1	103.7	130.2	26.5	16.47
290	822.3	839.3	107.4	128.8	21.4	13.30
300	675.3	692.3	105.7	125.6	19.9	12.37
310	666.1	683.1	101.8	125.2	23.4	14.54
320	631.9	648.9	94.9	123.7	28.8	17.90
330	669.4	686.4	98.2	125.4	27.2	16.90
340	524.4	541.4	98.6	117.0	18.4	11.43
350	432.8	449.8	93.0	111.5	18.5	11.50

(1) - HAAT value based on antenna COR of 2403 meters AMSL.
(2) - HAAT value based on actual antenna COR of 2421 meters AMSL.

D.L. Markley & Associates, Inc.
Consulting Engineers
2104 West Moss Avenue
Peoria, Illinois 61604

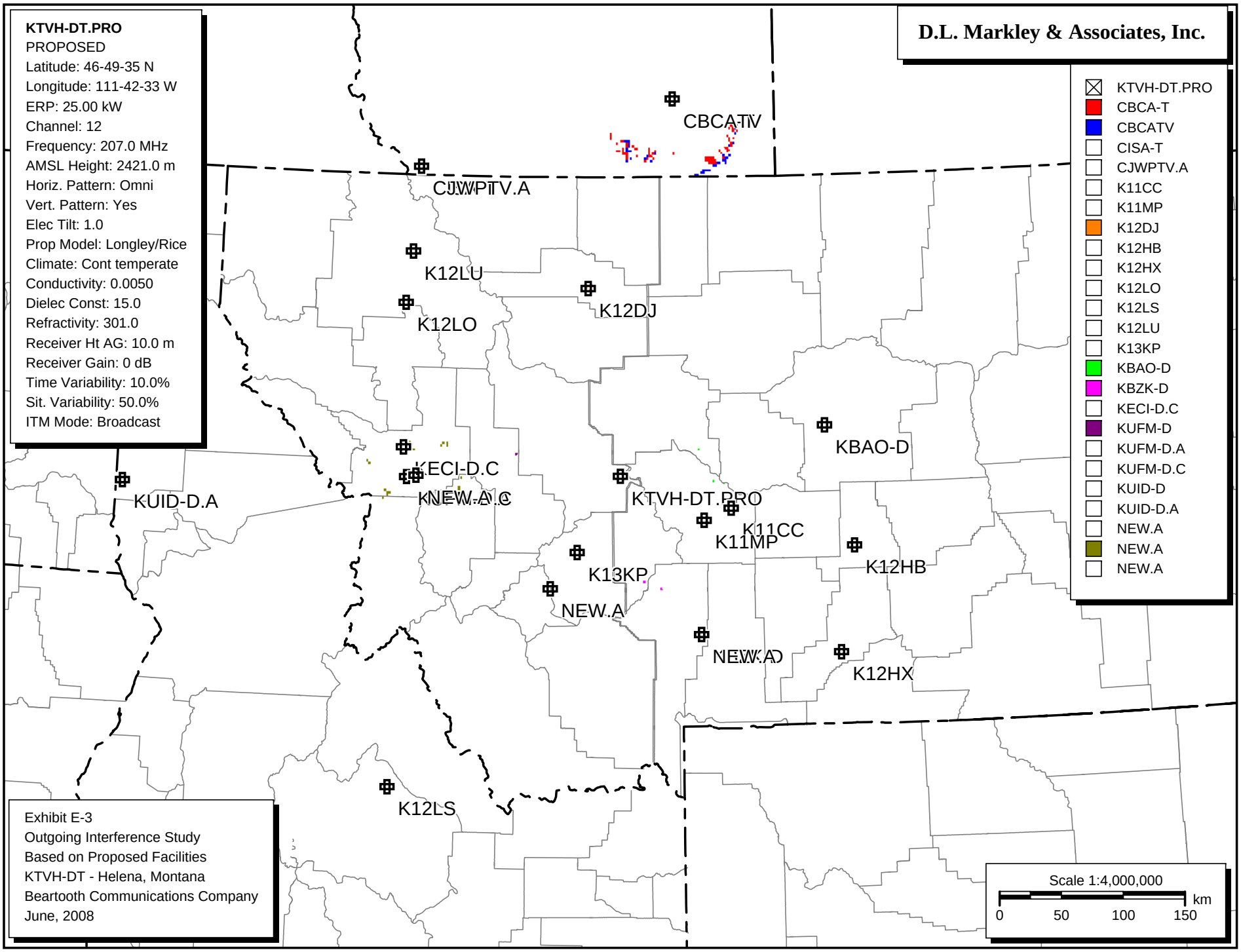

KTVH-DT.PRO
PROPOSED
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 25.00 kW
Channel: 12
Frequency: 207.0 MHz
AMSL Height: 2421.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 301.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 10.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
D.L. Markley & Associates, Inc.
KTVH-DT.PRO
CBCA-T
CBCATV
CISA-T
CJWPTV.A
K11CC
K11MP
K12DJ
K12HB
K12HX
K12LO
K12LS
K12LU
K13KP
KBAO-D
KBZK-D
KECI-D.C
KUFM-D
KUFM-D.A
KUFM-D.C
KUID-D
KUID-D.A
NEW.A
NEW.A
NEW.A
CBCATV
CJWPTV.A
K12LU
K12DJ
K12LO
KBAO-D
KECI-D.C
NEW.A.C
KUID-D.A
KTVH-DT.PRO
K11CC
K11MP
K12HB
K13KP
NEW.A
NEW.A
K12HX
K12LS
Exhibit E-3
Outgoing Interference Study
Based on Proposed Facilities
KTVH-DT - Helena, Montana
Beartooth Communications Company
June, 2008
Scale 1:4,000,000
km
0
50
100
150

Exhibit E-4
Outgoing Interference Population Report
Based on Proposed KTVH-DT Facilities

KTVH-DT.PRO (12) Helena, MT - PROPOSED
Broadcast Type: Digital Service: V
Lat: 46-49-35 N Lng: 111-42-33 W ERP: 25.0 kW AMSL: 2421.0 m
TV Outgoing Interference Study
Signal Resolution: 2.0 km
Consider NTSC Taboo: Yes
KWX error points are considered to
     be interference free coverage.
Default # of radials computed for contours: 72
Contours calculated using 8 radial HAAT.
LR Profile Spacing Increment: 1.0 km
Masked interference points are being
     counted as interference.
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 6/18/2008
TV Database Date: 6/18/2008

Primary Terrain: V-Soft 3 Second US Terrain
Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

Stations Considered:

Call Letters	City	State	Dist	Bear
CBCA-T (12+)	Etzikom	AB	307.6	7.8
CBCATV (12+)	Etzikom	AB	307.7	7.8
CISA-T (12)	Waterton Park	AB	297.5	327.3
CJWPTV.A (12Z)	Waterton Park	AB	297.5	327.3
K11CC (11N)	Checkerboard	MT	93.1	106.0
K11MP (11N)	White Sulphur Sprin	MT	76.4	117.7
K12DJ (12N)	Conrad	MT	153.8	350.3
K12HB (12N)	Ryegate	MT	197.1	106.3
K12HX (12N)	Absarokee	MT	228.0	128.4
K12LO (12N)	Ferndale, Etc.	MT	222.9	309.1
K12LS (12N)	Challis & Ellis	ID	313.6	216.9
K12LU (12N)	West Glacier, Etc.	MT	247.0	317.5
K13KP (13N)	Boulder	MT	70.8	209.5
KBAO-D (13)	LEWISTOWN	MT	170.0	75.9
KBZK-D (13)	Bozeman	MT	143.7	152.8
KECI-D.C (13)	Missoula	MT	176.8	277.8
KUFM-D (11)	MISSOULA	MT	172.7	269.9
KUFM-D.A (11)	Missoula	MT	172.7	269.9
KUFM-D.C (11)	Missoula	MT	172.7	269.9

KUID-D (12)	Moscow	ID	402.2	269.6
KUID-D.A (12)	Moscow	ID	402.2	269.6
NEW.A (11-)	Butte	MT	107.1	211.9
NEW.A (12-)	Missoula	MT	165.1	270.3
NEW.A (13-)	Bozeman	MT	143.7	152.8

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
CBCA-T (12+)	220.9	0	0	0	0	0.0
CBCATV (12+)	259.5	0	0	0	0	0.0
CISA-T (12)	0.0	0	0	0	0	0.0
CJWPTV.A (12Z)	0.0	0	0	0	0	0.0
K11CC (11N)	0.0	0	0	0	0	0.0
K11MP (11N)	0.0	0	0	0	0	0.0
K12DJ (12N)	9.8	0	12	0	0	0.0
K12HB (12N)	0.0	0	288	0	0	0.0
K12HX (12N)	0.0	0	1,147	0	0	0.0
K12LO (12N)	0.0	0	816	0	0	0.0
K12LS (12N)	0.0	0	132	0	0	0.0
K12LU (12N)	0.0	0	15	0	0	0.0
K13KP (13N)	0.0	0	1,256	0	0	0.0
KBAO-D (13)	10.0	0	19,621	0	0	0.0
KBZK-D (13)	6.8	0	93,037	0	0	0.0
KECI-D.C (13)	0.0	0	186,928	0	0	0.0
KUFM-D (11)	3.3	0	158,196	0	0	0.0
KUFM-D.A (11)	0.0	0	165,190	0	0	0.0
KUFM-D.C (11)	0.0	0	159,040	0	0	0.0
KUID-D (12)	0.0	0	394,542	0	0	0.0
KUID-D.A (12)	0.0	0	394,542	0	0	0.0
NEW.A (11-)	0.0	0	47,746	0	0	0.0
NEW.A (12-)	56.9	0	98,960	0	0	0.0
NEW.A (13-)	0.0	0	68,463	0	0	0.0

	Housing Units	Population
Montana		
Judith Basin County		
Total	1,325	2,329
KBAO-D (13)	0	0
Meagher County		
Total	1,363	1,932
KBAO-D (13)	0	0
Missoula County		
Total	41,319	95,802
NEW.A (12-)	0	0

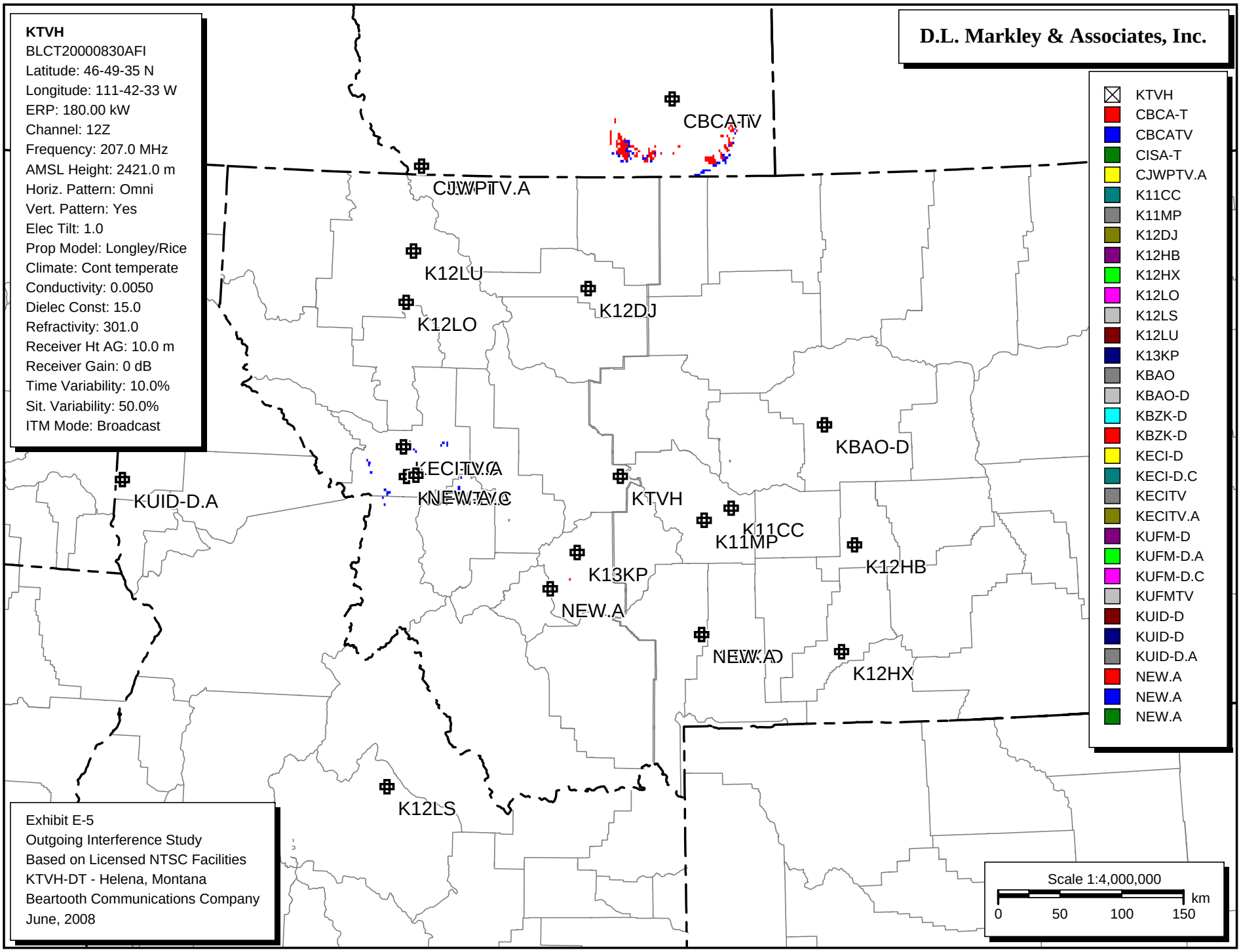

KTVH
BLCT20000830AFI
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 180.00 kW
Channel: 12Z
Frequency: 207.0 MHz
AMSL Height: 2421.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 301.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 10.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
D.L. Markley & Associates, Inc.
KTVH
CBCA-T
CBCATV
CISA-T
CJWPTV.A
K11CC
K11MP
K12DJ
K12HB
K12HX
K12LO
K12LS
K12LU
K13KP
KBAO
KBAO-D
KBZK-D
KBZK-D
KECI-D
KECI-D.C
KECITV
KECITV.A
KUFM-D
KUFM-D.A
KUFM-D.C
KUFMTV
KUID-D
KUID-D
KUID-D.A
NEW.A
NEW.A
NEW.A
CBCATV
CJWPTV.A
K12LU
K12LO
K12DJ
KBAO-D
KECITV.A
KNEWTV.C
KUID-D.A
KTVH
K11CC
K11MP
K12HB
K13KP
NEW.A
NEW.AD
K12HX
K12LS
Exhibit E-5
Outgoing Interference Study
Based on Licensed NTSC Facilities
KTVH-DT - Helena, Montana
Beartooth Communications Company
June, 2008
Scale 1:4,000,000
km
0
50
100
150

Exhibit E-6
Outgoing Interference Population Report
Based on Licensed NTSC Facilities.

KTVH (12Z) Helena, MT - BLCT20000830AFI
Broadcast Type: NTSC Service: V
Lat: 46-49-35 N Lng: 111-42-33 W ERP: 180.0 kW AMSL: 2421.0 m
TV Outgoing Interference Study
Signal Resolution: 2.0 km
Consider NTSC Taboo: Yes
KWX error points are considered to
     be interference free coverage.
Default # of radials computed for contours: 72
Contours calculated using 8 radial HAAT.
LR Profile Spacing Increment: 1.0 km
Masked interference points are being
     counted as interference.
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 6/18/2008
TV Database Date: 6/18/2008

Primary Terrain: V-Soft 3 Second US Terrain
Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

Stations Considered:

Call Letters	City	State	Dist	Bear
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CBCATV (12+)	Etzikom	AB	307.7	7.8
CISA-T (12)	Waterton Park	AB	297.5	327.3
CJWPTV.A (12Z)	Waterton Park	AB	297.5	327.3
K11CC (11N)	Checkerboard	MT	93.1	106.0
K11MP (11N)	White Sulphur Sprin	MT	76.4	117.7
K12DJ (12N)	Conrad	MT	153.8	350.3
K12HB (12N)	Ryegate	MT	197.1	106.3
K12HX (12N)	Absarokee	MT	228.0	128.4
K12LO (12N)	Ferndale, Etc.	MT	222.9	309.1
K12LS (12N)	Challis & Ellis	ID	313.6	216.9
K12LU (12N)	West Glacier, Etc.	MT	247.0	317.5
K13KP (13N)	Boulder	MT	70.8	209.5
KBAO (13Z)	Lewistown	MT	170.0	75.9
KBAO-D (13)	LEWISTOWN	MT	170.0	75.9
KBZK-D (13)	BOZEMAN	MT	143.7	152.8
KBZK-D (13)	Bozeman	MT	143.7	152.8
KECI-D (13)	MISSOULA	MT	176.8	277.8
KECI-D.C (13)	Missoula	MT	176.8	277.8

KECITV (13-)	Missoula	MT	176.8	277.8
KECITV.A (13-)	Missoula	MT	176.8	277.8
KUFM-D (11)	MISSOULA	MT	172.7	269.9
KUFM-D.A (11)	Missoula	MT	172.7	269.9
KUFM-D.C (11)	Missoula	MT	172.7	269.9
KUFMTV (11+)	Missoula	MT	172.7	269.9
KUID-D (12)	Moscow	ID	402.2	269.6
KUID-D (12)	MOSCOW	ID	402.2	269.6
KUID-D.A (12)	Moscow	ID	402.2	269.6
NEW.A (11-)	Butte	MT	107.1	211.9
NEW.A (12-)	Missoula	MT	165.1	270.3
NEW.A (13-)	Bozeman	MT	143.7	152.8

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
CBCA-T (12+)	390.5	0	0	0	0	0.0
CBCATV (12+)	410.0	0	0	0	0	0.0
CISA-T (12)	0.0	0	0	0	0	0.0
CJWPTV.A (12Z)	0.0	0	0	0	0	0.0
K11CC (11N)	0.0	0	0	0	0	0.0
K11MP (11N)	0.0	0	0	0	0	0.0
K12DJ (12N)	9.8	0	12	0	0	0.0
K12HB (12N)	0.0	0	288	0	0	0.0
K12HX (12N)	0.0	0	1,147	0	0	0.0
K12LO (12N)	0.0	0	816	0	0	0.0
K12LS (12N)	0.0	0	132	0	0	0.0
K12LU (12N)	0.0	0	15	0	0	0.0
K13KP (13N)	0.0	0	1,256	0	0	0.0
KBAO (13Z)	6.7	0	15,455	0	0	0.0
KBAO-D (13)	0.0	0	19,621	0	0	0.0
KBZK-D (13)	0.0	0	92,948	0	0	0.0
KBZK-D (13)	0.0	0	93,037	0	0	0.0
KECI-D (13)	0.0	0	183,547	0	0	0.0
KECI-D.C (13)	0.0	0	186,928	0	0	0.0
KECITV (13-)	3.4	0	180,781	0	0	0.0
KECITV.A (13-)	0.0	0	108,414	0	0	0.0
KUFM-D (11)	0.0	0	158,196	0	0	0.0
KUFM-D.A (11)	0.0	0	165,190	0	0	0.0
KUFM-D.C (11)	0.0	0	159,040	0	0	0.0
KUFMTV (11+)	0.0	0	144,472	0	0	0.0
KUID-D (12)	0.0	0	394,542	0	0	0.0
KUID-D (12)	0.0	0	394,542	0	0	0.0
KUID-D.A (12)	0.0	0	394,542	0	0	0.0
NEW.A (11-)	3.4	0	47,746	0	0	0.0
NEW.A (12-)	77.1	0	98,960	0	0	0.0
NEW.A (13-)	0.0	0	68,463	0	0	0.0

	Housing Units	Population
Montana		
Missoula County		

Total	41,319	95,802
NEW.A (12-)	0	0

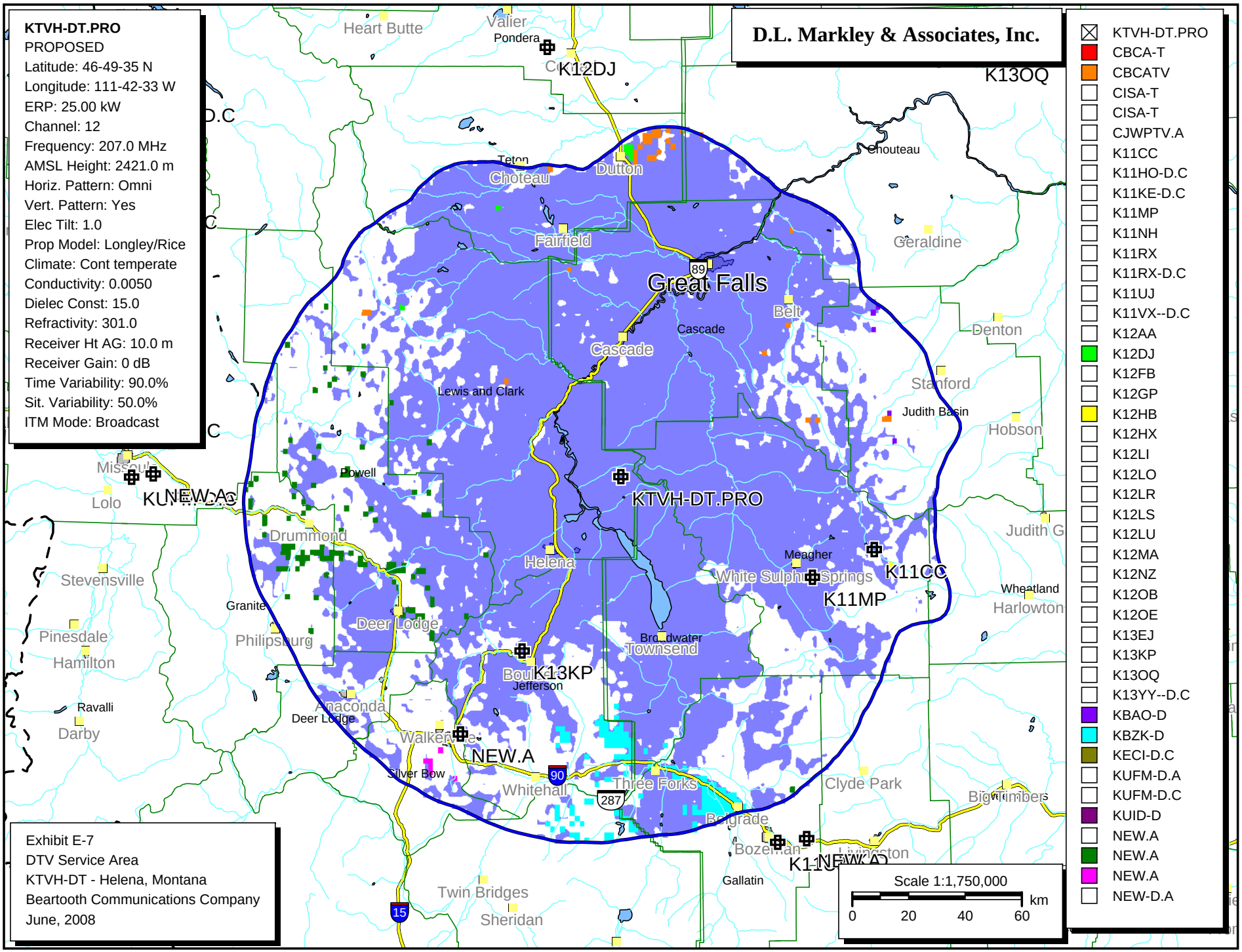

KTVH-DT.PRO
PROPOSED
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 25.00 kW
Channel: 12
Frequency: 207.0 MHz
AMSL Height: 2421.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 301.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
D.L. Markley & Associates, Inc.
KTVH-DT.PRO
CBCA-T
CBCATV
CISA-T
CISA-T
CJWPTV.A
K11CC
K11HO-D.C
K11KE-D.C
K11MP
K11NH
K11RX
K11RX-D.C
K11UJ
K11VX--D.C
K12AA
K12DJ
K12FB
K12GP
K12HB
K12HX
K12LI
K12LO
K12LR
K12LS
K12LU
K12MA
K12NZ
K12OB
K12OE
K13EJ
K13KP
K13OQ
K13YY--D.C
KBAO-D
KBZK-D
KECI-D.C
KUFM-D.A
KUFM-D.C
KUID-D
NEW.A
NEW.A
NEW.A
NEW-D.A
Heart Butte
Valier
Pondera
K12DJ
K13OQ
Choteau
Dutton
Teton
Chouteau
Fairfield
Geraldine
Great Falls
89
Belt
Cascade
Cascade
Denton
Lewis and Clark
Stanford
Judith Basin
Hobson
Missoula
Lolo
Powell
KUM...
NEW.A
KTVH-DT.PRO
Drummond
Judith G
Helena
Meagher
White Sulphur Springs
K11CC
K11MP
Wheatland
Harlowton
Stevensville
Granite
Deer Lodge
Philipsburg
Pinesdale
Hamilton
Broadwater
Townsend
Boulder
Jefferson
K13KP
Ravalli
Darby
Anaconda
Deer Lodge
Walkerville
NEW.A
Silver Bow
90
Whitehall
287
Three Forks
Clyde Park
Big Timbers
Belgrade
Bozeman
Livingston
K11NEW.A
Gallatin
Twin Bridges
Sheridan
15
Exhibit E-7
DTV Service Area
KTVH-DT - Helena, Montana
Beartooth Communications Company
June, 2008
Scale 1:1,750,000
km
0
20
40
60

Exhibit E-8
DTV Service Area Tabulation and Summary of Population and Interference
Based on Proposed KTVH-DT Facilities.

KTVH-DT.PRO (12) Helena, MT - PROPOSED
Broadcast Type: Digital Service: V
Lat: 46-49-35 N Lng: 111-42-33 W ERP: 25.0 kW AMSL: 2421.0 m
TV Incoming Interference Study
Interference Considered Within: FCC Contour: 36 dBu
Signal Resolution: 2.0 km
LR Profile Spacing Increment: 1.0 km
Consider NTSC Taboo: Yes
KWX error points are considered to
     be interference free coverage.
# of radials computed for protected contour: 360
Threshold for reception: 36.0
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 6/19/2008
TV Database Date: 6/18/2008

Primary Terrain: V-Soft 3 Second US Terrain
Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

Percentages calculated using a baseline population of 227,627.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
CBCA-T (12+)	43	34	0.015	88.96
CBCATV (12+)	63	82	0.036	108.91
K12DJ (12N)	14	26	0.011	59.19
K12HB (12N)	0	0	0.000	3.37
KBAO-D (13)	8	20	0.009	19.98
KBZK-D (13)	4420	11157	4.901	494.51
KECI-D.C (13)	0	0	0.000	3.38
KUID-D (12)	0	0	0.000	13.43
NEW.A (12-)	148	354	0.156	369.87
NEW.A (11-)	226	538	0.236	23.84

Masking Summary:

	Total Interference		Unique Interference	
Call Letters	Population	%	Population	%
CBCA-T (12+)	34	0.015	0	0.000
CBCATV (12+)	82	0.036	48	0.021
K12DJ (12N)	26	0.011	18	0.008
K12HB (12N)	0	0.000	0	0.000
KBAO-D (13)	20	0.009	20	0.009
KBZK-D (13)	11157	4.901	11157	4.901
KECI-D.C (13)	0	0.000	0	0.000

KUID-D (12)	0	0.000	0	0.000
NEW.A (12-)	354	0.156	354	0.156
NEW.A (11-)	538	0.236	538	0.236

Stations considered which do not cause interference:

CISA-T (12)
CISA-T (12)
CJWPTV.A (12Z)
K11CC (11N)
K11HO-D.C (11)
K11KE-D.C (11)
K11MP (11N)
K11NH (11N)
K11RX (11N)
K11RX-D.C (11)
K11UJ (11N)
K11VX--D.C (11)
K12AA (12N)
K12FB (12N)
K12GP (12N)
K12HB (12N)
K12HX (12N)
K12LI (12N)
K12LO (12N)
K12LR (12N)
K12LS (12N)
K12LU (12N)
K12MA (12N)
K12NZ (12Z)
K12OB (12+)
K12OE (12+)
K13EJ (13N)
K13KP (13N)
K13OQ (13N)
K13YY--D.C (13)
KECI-D.C (13)
KUFM-D.A (11)
KUFM-D.C (11)
KUID-D (12)
NEW.A (13-)
NEW-D.A (11)

Call Letters	City	State	Dist	Bear
CBCA-T (12+)	Etzikom	AB	307.6	7.8
CBCATV (12+)	Etzikom	AB	307.7	7.8
CISA-T (12)	Waterton Park	AB	297.5	327.3
CISA-T (12)	Coleman	AB	369.6	326.9
CJWPTV.A (12Z)	Waterton Park	AB	297.5	327.3
K11CC (11N)	Checkerboard	MT	93.1	106.0

K11HO-D.C (11)	Polson	MT	207.2	298.1
K11KE-D.C (11)	Woods Bay	MT	221.5	307.7
K11MP (11N)	White Sulphur Sprin	MT	76.4	117.7
K11NH (11N)	Winifred, Etc.	MT	195.6	64.5
K11RX (11N)	Elmo, Etc.	MT	225.6	300.2
K11RX-D.C (11)	Big Arm	MT	226.0	300.1
K11UJ (11N)	Bozeman	MT	140.5	156.8
K11VX--D.C (11)	Gallatin River, Etc	MT	174.2	171.8
K12AA (12N)	Troy	MT	360.0	303.0
K12DJ (12N)	Conrad	MT	153.8	350.3
K12FB (12N)	Saco, Etc.	MT	369.6	59.0
K12GP (12N)	Dodson, Wagner	MT	318.1	55.5
K12HB (12N)	Ryegate	MT	197.1	106.3
K12HX (12N)	Absarokee	MT	228.0	128.4
K12LI (12N)	Thayne, Etc.	WY	425.6	173.0
K12LO (12N)	Ferndale, Etc.	MT	222.9	309.1
K12LR (12N)	Forsyth	MT	388.1	96.4
K12LS (12N)	Challis & Ellis	ID	313.6	216.9
K12LU (12N)	West Glacier, Etc.	MT	247.0	317.5
K12MA (12N)	Rexburg, Etc.	ID	341.4	183.4
K12NZ (12Z)	Idaho Falls	ID	369.2	183.8
K12OB (12+)	St. Anthony	ID	318.7	179.7
K12OE (12+)	Firth & Basalt	ID	392.2	185.7
K13EJ (13N)	East Glacier Park	MT	216.5	329.3
K13KP (13N)	Boulder	MT	70.8	209.5
K13OQ (13N)	Big Sandy	MT	194.8	39.8
K13YY--D.C (13)	Gallatin River, Etc	MT	174.2	171.8
KBAO-D (13)	LEWISTOWN	MT	170.0	75.9
KBZK-D (13)	Bozeman	MT	143.7	152.8
KECI-D.C (13)	Missoula	MT	176.8	277.8
KUFM-D.A (11)	Missoula	MT	172.7	269.9
KUFM-D.C (11)	Missoula	MT	172.7	269.9
KUID-D (12)	Moscow	ID	402.2	269.6
NEW.A (13-)	Bozeman	MT	143.7	152.8
NEW.A (12-)	Missoula	MT	165.1	270.3
NEW.A (11-)	Butte	MT	107.1	211.9
NEW-D.A (11)	Winifred, Etc.	MT	195.6	64.5

Totals for KTVH-DT.PRO (12)

Calculation Area Population:	228,420	(47997.8 sq. km)
Not Affected by Terrain Loss:	184,099	(39214.8 sq. km)
Total NTSC Interference:	992	(529.0 sq. km)
DTV Only Interference:	11,177	(511.2 sq. km)
Total DTV Interference:	11,177	(531.3 sq. km)
Interfered Population:	12,169	(1040.2 sq. km)
Interference Free:	171,930	(38174.6 sq. km)
Percent Interference:	5.35	

Terrain Blocked Population: 44,321 (8783.0 sq. km)
Contour Area Population: 227,627

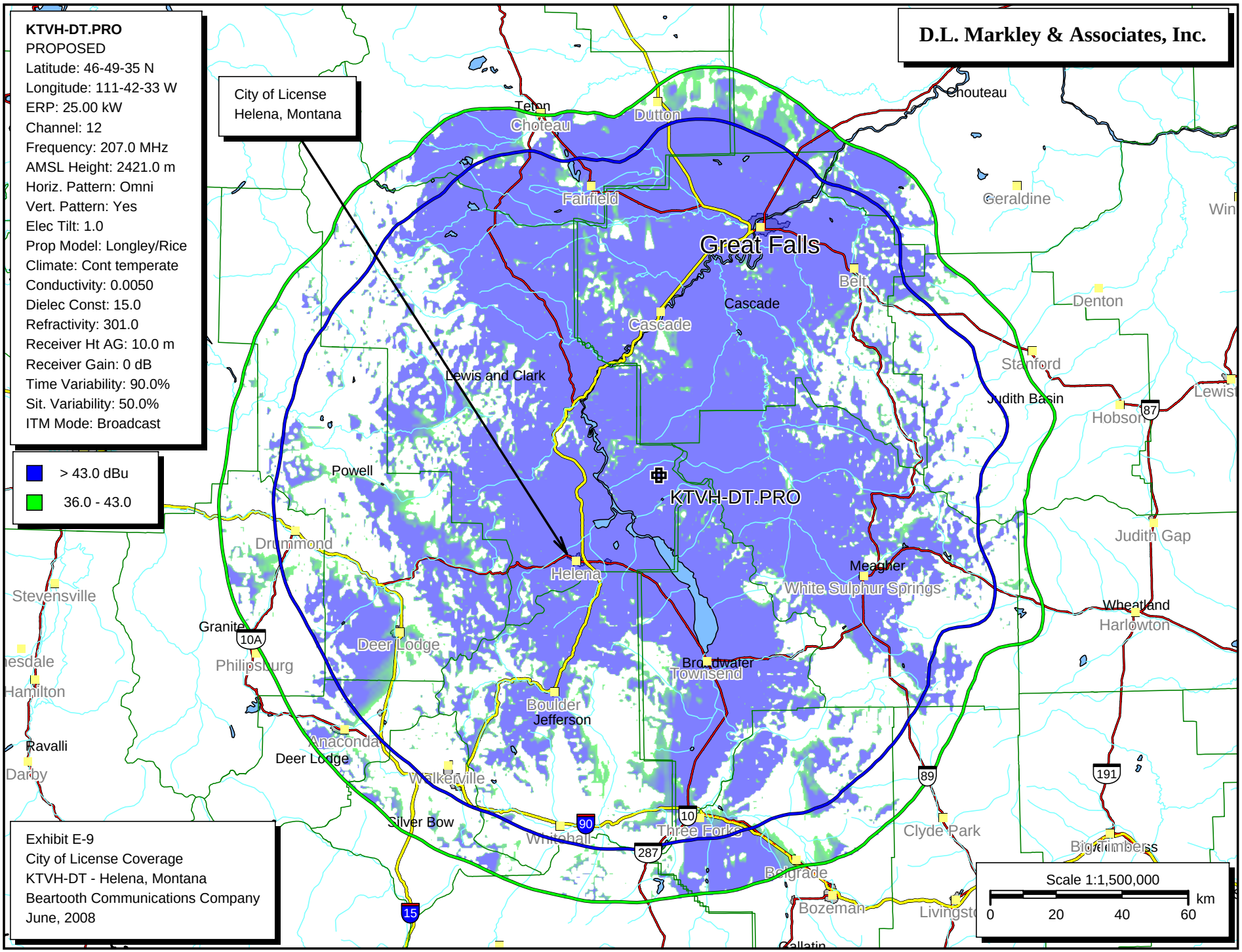
Interference Free Breakdown:

White:	158,488	(92.2%)
Black:	1,025	(0.6%)
Hispanic:	3,353	(2.0%)
Native American:	4,864	(2.8%)
Asian:	1,029	(0.6%)
Pacific Islander:	102	(0.1%)
Mixed Race:	2,989	(1.7%)
Other:	80	(0.0%)
Total:	171,930	

	Housing Units	Population	% of County
Montana			
Broadwater County			
County Pop	2,002	4,385	
KTVH-DT.PRO (12)	1,986	4,361	
KBZK-D (13)	14	33	0.76
Ix Free	1,972	4,328	99.24
Cascade County			
County Pop	35,225	80,357	
KTVH-DT.PRO (12)	35,120	80,234	
CBCA-T (12+)	32	12	0.01
CBCATV (12+)	50	56	0.07
Ix Free	35,070	80,178	99.93
Chouteau County			
County Pop	2,776	5,970	
KTVH-DT.PRO (12)	243	513	
Ix Free	243	513	100.00
Deer Lodge County			
County Pop	4,958	9,417	
KTVH-DT.PRO (12)	2,275	4,899	
Ix Free	2,275	4,899	100.00
Gallatin County			
County Pop	29,489	67,831	
KTVH-DT.PRO (12)	6,327	15,719	
KBZK-D (13)	4,365	11,027	70.15
Ix Free	1,962	4,692	29.85
Granite County			
County Pop	2,074	2,830	
KTVH-DT.PRO (12)	184	352	
NEW.A (12-)	89	178	50.57

Ix Free	95	174	49.43
Jefferson County			
County Pop	4,199	10,049	
KTVH-DT.PRO (12)	2,825	7,024	
KBZK-D (13)	4	13	0.19
Ix Free	2,821	7,011	99.81
Judith Basin County			
County Pop	1,325	2,329	
KTVH-DT.PRO (12)	156	183	
KBAO-D (13)	8	20	10.93
Ix Free	148	163	89.07
Lewis and Clark County			
County Pop	25,672	55,716	
KTVH-DT.PRO (12)	25,565	55,665	
CBCATV (12+)	2	4	0.01
Ix Free	25,563	55,661	99.99
Madison County			
County Pop	4,671	6,851	
KTVH-DT.PRO (12)	90	192	
KBZK-D (13)	37	84	43.75
Ix Free	53	108	56.25
Meagher County			
County Pop	1,363	1,932	
KTVH-DT.PRO (12)	1,138	1,697	
Ix Free	1,138	1,697	100.00
Missoula County			
County Pop	41,319	95,802	
KTVH-DT.PRO (12)	93	115	
Ix Free	93	115	100.00
Park County			
County Pop	8,247	15,694	
KTVH-DT.PRO (12)	10	14	
Ix Free	10	14	100.00
Powell County			
County Pop	2,930	7,180	
KTVH-DT.PRO (12)	2,474	6,379	
NEW.A (12-)	59	176	2.76
Ix Free	2,415	6,203	97.24
Silver Bow County			
County Pop	16,176	34,606	
KTVH-DT.PRO (12)	1,249	2,908	
NEW.A (11-)	226	538	18.50
Ix Free	1,023	2,370	81.50
Teton County			
County Pop	2,910	6,445	
KTVH-DT.PRO (12)	1,642	3,725	
CBCA-T (12+)	11	22	0.59
CBCATV (12+)	11	22	0.59
K12DJ (12N)	14	26	0.70
Ix Free	1,621	3,685	98.93
Wheatland County			
County Pop	1,154	2,259	

KTVH-DT.PRO (12)	0	119	
Ix Free	0	119	100.00


KTVH-DT.PRO
PROPOSED
Latitude: 46-49-35 N
Longitude: 111-42-33 W
ERP: 25.00 kW
Channel: 12
Frequency: 207.0 MHz
AMSL Height: 2421.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 301.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
> 43.0 dBu
36.0 - 43.0
City of License
Helena, Montana
D.L. Markley & Associates, Inc.
Exhibit E-9
City of License Coverage
KTVH-DT - Helena, Montana
Beartooth Communications Company
June, 2008
Scale 1:1,500,000
km
0
20
40
60
Great Falls
KTVH-DT.PRO
Helena
Lewis and Clark
Cascade
Fairfield
Choteau
Dutton
Geraldine
Belt
Denton
Stanford
Judith Basin
Hobson
Judith Gap
Meagher
White Sulphur Springs
Wheatland
Harlowton
Powell
Drummond
Stevensville
Granite
Philipsburg
Deer Lodge
Boulder
Jefferson
Townsend
Broadwater
Anaconda
Deer Lodge
Ravalli
Darby
Hamilton
Walkerville
Silver Bow
Whitehall
Three Forks
Clyde Park
Bozeman
Livingston
Big Timber
Belgrade
Gallatin
10A
87
89
90
10
287
15
191