

ENGINEERING STATEMENT
ON BEHALF OF
THE BOARD OF REGENTS OF THE
MONTANA UNIVERSITY SYSTEM
IN SUPPORT OF AN APPLICATION
TO CONSTRUCT NEW FACILITIES
PURSUANT TO MB DOCKET NO. 11-20
KALISPELL, MONTANA
CHANNEL *46 23.4 KW (MAX) ERP 830 METERS HAAT
JUNE 2011

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 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

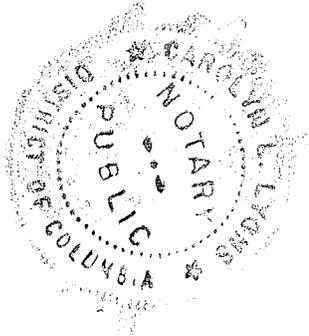
That his qualifications are a matter of record in the Federal Communications Commission;

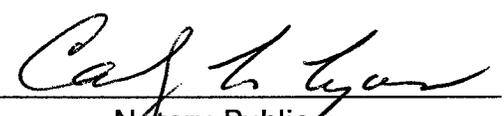
That the attached engineering report was prepared by him or under his supervision and direction and

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 30th day of June, 2011.




Notary Public

My Commission Expires: 2/28/2013

This engineering statement has been prepared on behalf of The Board of Regents of the Montana University System ("MUS"). The purpose of this engineering statement is to support its application for a permit to construct new digital television ("DTV") facilities on Channel *46 to serve the community of Kalispell, Montana, and the surrounding area. This application is submitted in response to MB Docket No. 11-20.

Channel *46 is assigned for use by a noncommercial educational broadcast station to serve Kalispell, Montana, in the DTV Table of Allotments.¹ As recorded in the Federal Register,² concurrence from the Canadian government was obtained for this allotment with the following parameters.

FCC File No. BPRM-20040325AHW

North Latitude: 48° 00' 48"

West Longitude: 114° 21' 55"

NAD-27

186 kW, 830 meters HAAT

MUS proposes to construct and to operate a noncommercial educational broadcast station on DTV Channel *46 with an average effective radiated power ("ERP") of 23.4 kW maximum directional (horizontal polarization) and a height above average terrain ("HAAT") of 830 meters (2723 feet).

KCFW-TV Tower

¹47 CFR § 73.622(b); effective January 14, 2005, MB Docket No. 04-283, RM-10965.

²Federal Register, Vol. 69, No. 236, Thursday, December 9, 2004, Page 71384.

MUS has an agreement with Bluestone License Holdings, Inc., licensee of KCFW-TV ("KCFW") to install a new DTV antenna on an existing tower owned by KCFW. The proposed new DTV antenna will be side-mounted on the tower, therefore, the overall structure height will remain unchanged. The transmitter site is located in a very rural area on Blacktail Mountain near Lakeside, Montana. The Antenna Structure Registration No. is 1000780. Exhibit E-1 shows a vertical sketch of the tower.

The geographic coordinates of the existing tower are:

North Latitude: 48° 00' 48.2"

West Longitude: 114° 21' 54.5"

NAD 27

Equipment Data

Antenna: ERI, Type ETU-2U2-HSC1-46 (or equivalent) horizontally polarized directional antenna with 0.5° electrical beam tilt. The azimuth and vertical plane patterns and other exhibits required by Section 73.625(c) are included in Exhibit E-2.

Transmission Line: 175 feet (53.3 m) of Andrew, Helix, Type HJ7-50 1-5/8" 50 ohm line (or equivalent) with an attenuation of 0.558 dB/100 ft.

Power Data

Transmitter output ("TPO"):	2.0 kW	3.0 dBk
Transmission Line Efficiency/(Loss):	79.85%	(0.9777) dB
Input power to the antenna:	1.597 kW	2.023 dBk
Antenna power gain maximum:	14.69	11.67 dB

Effective Radiated Power (ERP) Maximum, Main Lobe:	23.4 kW	13.69 dBk
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Elevation Data

Vertical dimension of Channel *46 side-mounted antenna	2.04 meters 6.7 feet
Elevation of site above mean sea level	2035.8 meters 6679.1 feet
Overall height above ground of existing tower structure and appurtenances (including lightning protection)	73.1 meters 239.8 feet
Overall height above mean sea level of existing tower and appurtenances (including lightning protection)	2108.8 meters 6918.6 feet
Center of radiation of Channel *46 antenna above ground	47.2 meters 154.8 feet
Center of radiation of Channel *46 antenna above mean sea level	2083 meters 6833.9 feet
Antenna height above average terrain	830 meters 2723 feet

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

Interference Study in Accordance with Section 73.622 of the FCC's Rules

Out of an abundance of caution, a comprehensive FCC Longley-Rice study was performed to ensure compliance with the FCC interference rules. A version of the Longley-Rice program described in OET Bulletin No. 69 (July 2, 1997) and the Public Notice, "Additional Application Processing Guidelines for Digital Television (DTV)" (August 1998) was executed. This version uses the FCC's FORTRAN-77 code that has been modified

only to the extent necessary (primarily I/O handling) for the program to run on a Windows/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, such as calculating new interference as total interference less baseline interference. Any variance effect is further reduced when using ratios of calculated population values such as measuring the incremental population affected as a percent of the total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 4 km² using 3-second terrain data sampled approximately every 1.0 km at one degree azimuth intervals with 2000 census centroids.

This study based on the data abstracted from the CDBS dated June 14, 2011 predicts no new interference to any authorized or protected television broadcast facility. Table I provides a summary of that interference analysis.

Coverage

The average elevation data for 3.2 to 16.1 km along each radial have been determined from the USGS 3-second terrain data base. The F(50,90) 48dBu and 41 dBu DTV coverage contours have been computed from reference to the propagation data

curves for Channels 14-69, as published by the FCC in Figure 10b and Figure 10c, 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_h , varies from 0.61 to 0.92 degrees. Since the relative vertical field of the antenna pattern is greater than 90% of the maximum at these depression angles, the maximum power was used in determining the distance to the DTV contours.

Table II includes at every 10° in azimuth beginning with True North, the average elevation from 3.2 to 16.1 km, and the distances to the 48 dBu and 41 dBu F(50,90) coverage contours. The antenna height above average terrain is based on the eight cardinal radials. The map of Exhibit E-3 shows that the 48 dBu F(50,90) coverage contour encompasses the community of license. In Exhibit E-3, the proposed 41 dBu F(50,90) coverage contour is fully contained within the allotted 41 dBu F(50,90) coverage contour for which Canadian concurrence was obtained.

RF Safety-FCC Rule, Section 1.1307 of the FCC Rules

There are no AM stations within 3.22 km of the existing tower site. There are two FM stations, KALS(FM) and KLKM(FM), operating in the vicinity and other than the digital television facilities for KCFW and KAJJ, according to CDBS, there are no other broadcast stations operating within 100 meters of the site.

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

The radio frequency field (“RFF”) contributions of the proposed operates is as follows.

Based on the elevation pattern from the manufacturer’s antenna data, a maximum downward field of 0.247 in the range of 20° to 90° would create a maximum field level of 23.3 $\mu\text{W}/\text{cm}^2$ in the vicinity of the base of the tower.

The limit for an uncontrolled environment is 441 $\mu\text{W}/\text{cm}^2$ and for a controlled environment is 2206 $\mu\text{W}/\text{cm}^2$ for the UHF Channel 46.

The proposed operation contributes less than 6% RFF level for an uncontrolled environment two meters above the ground at the proposed site or approximately 2% RFF level for a controlled environment two meters above ground at the proposed site.

The applicant indicates that access to the site is approximately 10 miles on an unimproved road from a main highway. The unimproved road is not regularly traveled. A locked gate prevents vehicle access. Therefore, it is believed this site qualifies under Situation B of OET Bulletin 65 as discussed below:

From Pages 77 and 78, guidance for such a situation is provided from the FCC publication entitled, *”Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65, Edition 97-01, August 1997”*, *“Appendix B, Summary of 1986 Mass Media Bureau, Public Notice on RF Compliance”*.

A portion is abstracted as follows:

Situations

(B) High RF levels are produced at ground level in a remote area not likely to be visited by the public.

- If the area of concern is marked by appropriate warning signs, an applicant may assume that there is no significant effect on the human environment with regard to exposure of the general public. It is recommended that fences also be used where feasible.

Therefore, members of the public and personnel working around the proposed tower site would not be exposed to RFF levels exceeding the FCC standards. With respect to work performed on the tower, the applicant will establish procedure to ensure for the proposed facility that workers are not exposed to RFF levels above those prescribed by FCC, by reducing or turning off the power, as appropriate.

MUS does not currently have any operations at the proposed site and cannot attest to the specifics of any RFF measurements or RFF safety policies. Although the proposed RFF contribution will be far less than 5% for controlled environment, if the application is granted and prior to construction, MUS represents that it will attempt to create a comprehensive RF safety plan if necessary with the site owner and other operators for the site's compliance with the Commission's RF safety rules.

MUS indicates that according to their initial understanding with the tower owner, authorized personnel and rigging contractors will be alerted to the potential zone of high levels on the tower, and if necessary, stations will operate with reduced power or terminate operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on the tower. The tower site is located inside a chain link fence with a locked gate to prevent unauthorized access to the tower.

Environmental Assessment

An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the applicant indicates that:

- (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 located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected 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 addition of a new side-mounted DTV antenna 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 on the ground will not be subjected to RFF levels in excess of the current FCC guidelines contained in

Cohen, Dippell and Everist, P.C.

NEW DTV CH.*46, KALISPELL, MONTANA

Page 9

OET Bulletin No. 65, Edition 97-01, dated August 1997 and
Supplement A.

ABOVE GROUND

ABOVE MEAN SEA LEVEL

73.1 m (239.8')

2108.8 m (6918.6')

60.9 m (199.8')

C/R 47.2 m (154.8')

2083 m (6833.9') C/R

CHANNEL *46
ERI ETU-2U2-HSC1-46

TOWER REGISTRATION
No. 1000780

PAINTING AND LIGHTING ARE IN
ACCORDANCE WITH F.A.A. RULES
AND REGULATIONS.

EXISTING SELF-SUPPORTING
TOWER

0 m (0')

2035.8 m (6679.1')

NOT TO SCALE

EXHIBIT E - 1

VERTICAL SKETCH
FOR THE PROPOSED OPERATION OF
NEW DTV CHANNEL *46, KALISPELL, MONTANA
JUNE 2011

COHEN, DIPPELL and EVERIST, P.C. Consulting Engineers

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

KALISPELL, MONTANA

**ERI HORIZONTALLY POLARIZED
UHF PANEL ARRAY ANTENNA
SPECIFICATION SUMMARY**

CALL SIGN	NEW
CHANNEL	46
LOCATION	Kalispell, MT
ANTENNA TYPE	ETU-2U2-HSC1-46

ELECTRICAL PARAMETERS

AZIMUTH DIRECTIVITY	2.50 (3.98 dBd)
ELEVATION DIRECTIVITY	5.87 (7.69 dBd)
PEAK POWER GAIN	14.69 (11.67 dBd)
GAIN AT HORIZONTAL	14.57 (11.64 dBd)
ELECTRICAL BEAM TILT	0.50 Degrees
INPUT SIZE	3 1/8-50 Ohm
INPUT POWER MAXIMUM	8 kW Average, Digital
ANTENNA VSWR	1.10 Across 6MHz Channel

MECHANICAL PARAMETERS

LENGTH	6.7 feet
WEIGHT	400 lbs
CaAa (EIA-TIA-222F)	42.0 sqf

Broadcast Antenna System Power Analysis

NEW-DT
Kalispell, MT
ETU-2U2-HSC1-46

Channel 46

ANTENNA PARAMETERS :

Azimuth Directivity :

Hor. Pol : 2.50
dBd : 3.98

Elevation Directivity :

Hor. Pol : 5.87
dBd : 7.69

TRANSMISSION LINE :

VERTICAL RUN :

Type: 1 5/8-50 Ohm Heliax (HJ7-50)
Length, ft. : 150
Attenuation , dB/100 ft: 0.558

HORIZONTAL RUN :

Type: 1 5/8-50 Ohm Heliax (HJ7-50)
Length, ft. : 25
Attenuation , dB/100 ft: 0.558

OTHER LINE LOSSES:

Type: N/A
Length, ft. : 0
Attenuation , dB/100 ft: 0

Line Efficiency : 79.86%

ERP :

kW : 21.60
dBk : 13.34

POWER GAIN :

Ratio : 14.69
dBd : 11.67

ANTENNA INPUT :

kW : 1.47
dBk : 1.67

LINE LOSS :

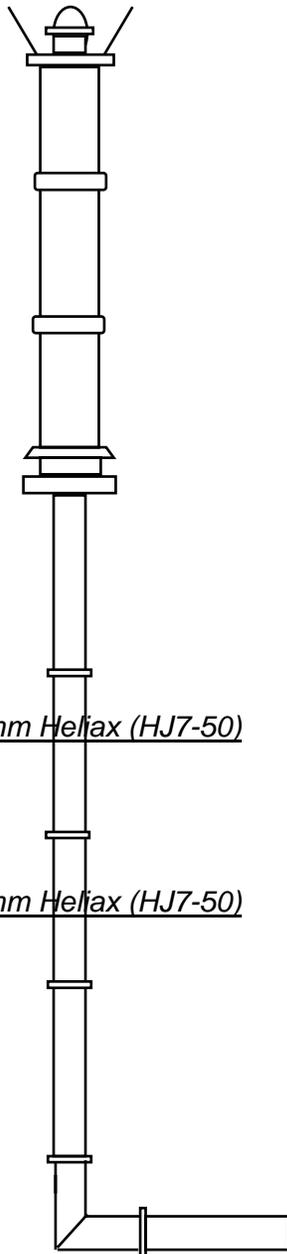
kW : 0.37
dB : 0.98

COMBINER LOSS

kW : 0.15
dB : 0.35

**TRANSMITTER
POWER :**

kW : 2.00
dBk : 3.00

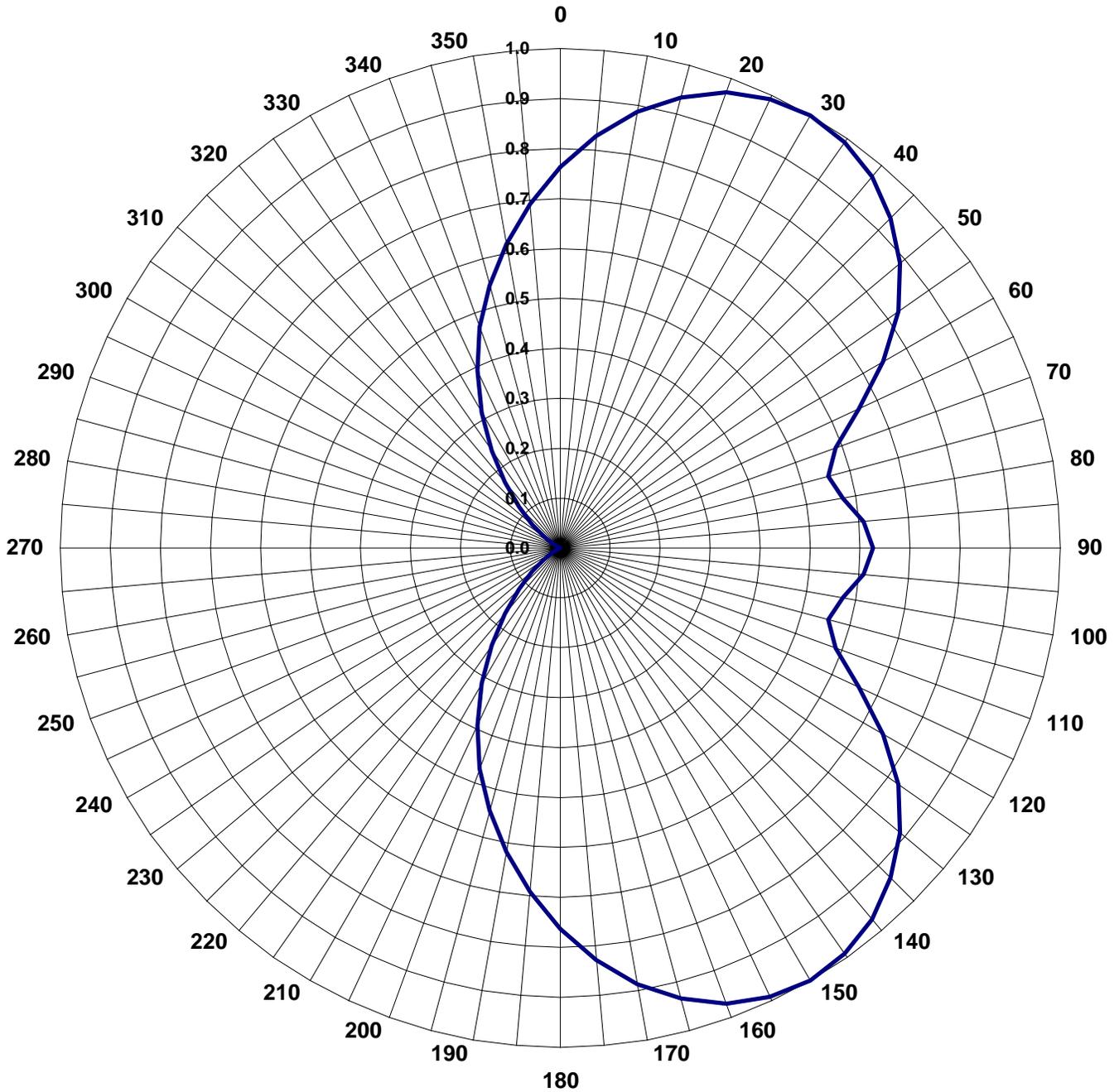


AZIMUTH PATTERN

TYPE: CH46HAZ-C1
Directivity: Numeric dB
2.50 3.98
Peak(s) at: _____

Frequency: 46 (Digital)
Location: Kalispell, MT
Polarization: Horizontal

Note: Pattern shape and directivity may vary with channel and mounting configuration.



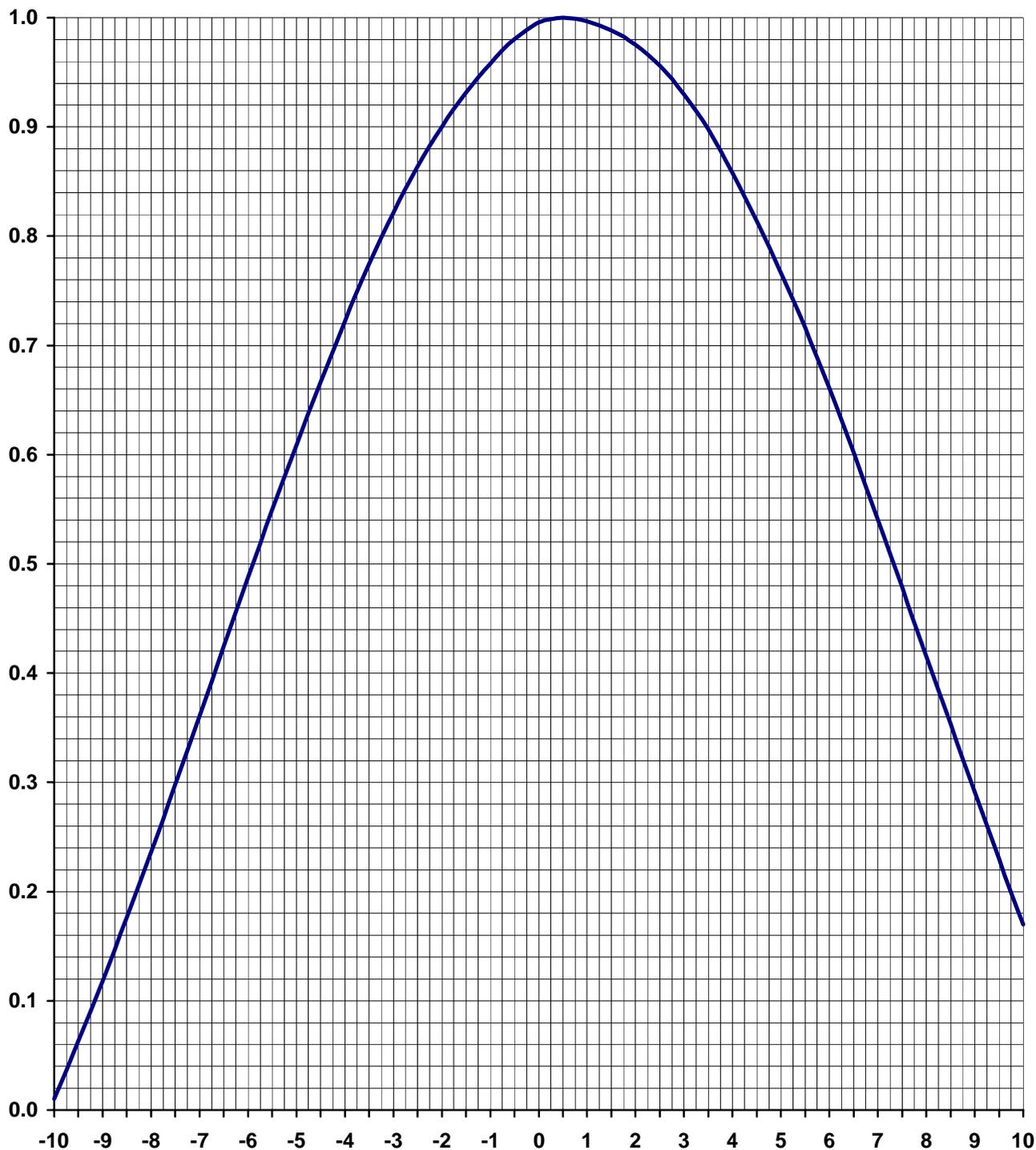
TABULATED DATA FOR AZIMUTH PATTERN

TYPE: CH46HAZ-C1

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.763	-2.350	92	0.623	-4.110	184	0.706	-3.024	276	0.000	---
2	0.790	-2.047	94	0.615	-4.222	186	0.677	-3.388	278	0.000	---
4	0.816	-1.766	96	0.603	-4.394	188	0.648	-3.768	280	0.000	---
6	0.841	-1.504	98	0.588	-4.612	190	0.618	-4.180	282	0.000	---
8	0.864	-1.270	100	0.574	-4.822	192	0.588	-4.612	284	0.000	---
10	0.887	-1.042	102	0.562	-5.005	194	0.559	-5.052	286	0.000	---
12	0.907	-0.848	104	0.555	-5.114	196	0.529	-5.531	288	0.000	---
14	0.926	-0.668	106	0.556	-5.099	198	0.500	-6.021	290	0.000	---
16	0.943	-0.510	108	0.566	-4.944	200	0.470	-6.558	292	0.000	---
18	0.958	-0.373	110	0.585	-4.657	202	0.440	-7.131	294	0.000	---
20	0.970	-0.265	112	0.610	-4.293	204	0.408	-7.787	296	0.005	-46.021
22	0.981	-0.167	114	0.641	-3.863	206	0.376	-8.496	298	0.010	-40.000
24	0.989	-0.096	116	0.675	-3.414	208	0.344	-9.269	300	0.017	-35.391
26	0.995	-0.044	118	0.711	-2.963	210	0.313	-10.089	302	0.025	-32.041
28	0.999	-0.009	120	0.746	-2.545	212	0.282	-10.995	304	0.035	-29.119
30	1.000	0.000	122	0.780	-2.158	214	0.253	-11.938	306	0.046	-26.745
32	0.999	-0.009	124	0.812	-1.809	216	0.224	-12.995	308	0.058	-24.731
34	0.995	-0.044	126	0.841	-1.504	218	0.197	-14.111	310	0.073	-22.734
36	0.989	-0.096	128	0.865	-1.260	220	0.172	-15.289	312	0.089	-21.012
38	0.981	-0.167	130	0.887	-1.042	222	0.149	-16.536	314	0.107	-19.412
40	0.970	-0.265	132	0.907	-0.848	224	0.127	-17.924	316	0.127	-17.924
42	0.958	-0.373	134	0.926	-0.668	226	0.107	-19.412	318	0.149	-16.536
44	0.943	-0.510	136	0.943	-0.510	228	0.089	-21.012	320	0.172	-15.289
46	0.926	-0.668	138	0.958	-0.373	230	0.073	-22.734	322	0.197	-14.111
48	0.907	-0.848	140	0.970	-0.265	232	0.059	-24.583	324	0.224	-12.995
50	0.887	-1.042	142	0.981	-0.167	234	0.046	-26.745	326	0.253	-11.938
52	0.864	-1.270	144	0.989	-0.096	236	0.035	-29.119	328	0.282	-10.995
54	0.841	-1.504	146	0.995	-0.044	238	0.025	-32.041	330	0.313	-10.089
56	0.812	-1.809	148	0.999	-0.009	240	0.017	-35.391	332	0.344	-9.269
58	0.780	-2.158	150	1.000	0.000	242	0.010	-40.000	334	0.376	-8.496
60	0.746	-2.545	152	0.999	-0.009	244	0.005	-46.021	336	0.408	-7.787
62	0.711	-2.963	154	0.995	-0.044	246	0.000	---	338	0.440	-7.131
64	0.675	-3.414	156	0.989	-0.096	248	0.000	---	340	0.470	-6.558
66	0.641	-3.863	158	0.981	-0.167	250	0.000	---	342	0.500	-6.021
68	0.610	-4.293	160	0.970	-0.265	252	0.000	---	344	0.529	-5.531
70	0.585	-4.657	162	0.958	-0.373	254	0.000	---	346	0.559	-5.052
72	0.566	-4.944	164	0.943	-0.510	256	0.000	---	348	0.588	-4.612
74	0.556	-5.099	166	0.926	-0.668	258	0.000	---	350	0.618	-4.180
76	0.555	-5.114	168	0.907	-0.848	260	0.000	---	352	0.648	-3.768
78	0.562	-5.005	170	0.887	-1.042	262	0.000	---	354	0.677	-3.388
80	0.574	-4.822	172	0.865	-1.260	264	0.000	---	356	0.706	-3.024
82	0.588	-4.612	174	0.841	-1.504	266	0.000	---	358	0.735	-2.674
84	0.603	-4.394	176	0.816	-1.766	268	0.000	---	360	0.763	-2.350
86	0.615	-4.222	178	0.790	-2.047	270	0.000	---			
88	0.623	-4.110	180	0.763	-2.350	272	0.000	---			
90	0.626	-4.069	182	0.735	-2.674	274	0.000	---			

ELEVATION PATTERN

TYPE:	CH46HEL-2U2		Frequency:	46 (Digital)
Directivity:	Numeric	dBd	Location:	Kalispell, MT
Main Lobe:	<u>5.87</u>	<u>7.69</u>	Beam Tilt:	<u>0.50</u>
Horizontal:	<u>5.83</u>	<u>7.66</u>	Polarization:	<u>Horizontal</u>



TABULATED DATA FOR ELEVATION PATTERN

CH46HEL-2U2

-5 to 10 degrees in 0.25 increments

10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-10.00	0.011	-39.58	2.00	0.975	-0.22	18.00	0.279	-11.10	42.00	0.155	-16.20	66.00	0.039	-28.22
-9.75	0.036	-28.83	2.25	0.966	-0.30	18.50	0.274	-11.25	42.50	0.159	-15.96	66.50	0.036	-28.95
-9.50	0.063	-24.04	2.50	0.956	-0.39	19.00	0.267	-11.48	43.00	0.163	-15.78	67.00	0.033	-29.74
-9.25	0.090	-20.90	2.75	0.944	-0.50	19.50	0.258	-11.77	43.50	0.165	-15.66	67.50	0.029	-30.63
-9.00	0.118	-18.54	3.00	0.930	-0.63	20.00	0.247	-12.14	44.00	0.166	-15.58	68.00	0.026	-31.63
-8.75	0.147	-16.65	3.25	0.915	-0.78	20.50	0.235	-12.57	44.50	0.167	-15.55	68.50	0.023	-32.77
-8.50	0.176	-15.08	3.50	0.898	-0.94	21.00	0.223	-13.03	45.00	0.167	-15.57	69.00	0.020	-34.07
-8.25	0.206	-13.72	3.75	0.878	-1.13	21.50	0.212	-13.47	45.50	0.165	-15.63	69.50	0.017	-35.55
-8.00	0.236	-12.53	4.00	0.858	-1.33	22.00	0.202	-13.88	46.00	0.164	-15.72	70.00	0.014	-37.39
-7.75	0.267	-11.48	4.25	0.836	-1.55	22.50	0.193	-14.28	46.50	0.161	-15.86	70.50	0.010	-39.66
-7.50	0.298	-10.52	4.50	0.814	-1.79	23.00	0.185	-14.66	47.00	0.158	-16.02	71.00	0.007	-42.62
-7.25	0.329	-9.65	4.75	0.791	-2.04	23.50	0.178	-14.98	47.50	0.155	-16.22	71.50	0.004	-47.13
-7.00	0.361	-8.85	5.00	0.767	-2.31	24.00	0.174	-15.21	48.00	0.151	-16.44	72.00	0.001	-57.08
-6.75	0.393	-8.12	5.25	0.742	-2.59	24.50	0.170	-15.38	48.50	0.146	-16.69	72.50	0.001	-57.08
-6.50	0.424	-7.44	5.50	0.716	-2.90	25.00	0.168	-15.48	49.00	0.142	-16.97	73.00	0.004	-47.54
-6.25	0.456	-6.82	5.75	0.689	-3.24	25.50	0.167	-15.54	49.50	0.137	-17.26	73.50	0.007	-43.22
-6.00	0.488	-6.23	6.00	0.661	-3.60	26.00	0.167	-15.57	50.00	0.132	-17.58	74.00	0.010	-40.45
-5.75	0.519	-5.70	6.25	0.632	-3.99	26.50	0.166	-15.58	50.50	0.127	-17.91	74.50	0.012	-38.42
-5.50	0.550	-5.20	6.50	0.602	-4.41	27.00	0.166	-15.61	51.00	0.122	-18.25	75.00	0.014	-36.83
-5.25	0.579	-4.74	6.75	0.571	-4.86	27.50	0.164	-15.69	51.50	0.118	-18.60	75.50	0.017	-35.55
-5.00	0.609	-4.31	7.00	0.541	-5.34	28.00	0.161	-15.84	52.00	0.113	-18.94	76.00	0.019	-34.47
-4.75	0.638	-3.91	7.25	0.510	-5.86	28.50	0.158	-16.05	52.50	0.109	-19.28	76.50	0.021	-33.60
-4.50	0.666	-3.53	7.50	0.478	-6.41	29.00	0.153	-16.30	53.00	0.105	-19.61	77.00	0.023	-32.80
-4.25	0.694	-3.17	7.75	0.447	-6.99	29.50	0.148	-16.61	53.50	0.101	-19.92	77.50	0.025	-32.11
-4.00	0.722	-2.83	8.00	0.416	-7.62	30.00	0.141	-17.03	54.00	0.097	-20.23	78.00	0.027	-31.54
-3.75	0.749	-2.52	8.25	0.384	-8.30	30.50	0.131	-17.65	54.50	0.094	-20.52	78.50	0.028	-31.00
-3.50	0.775	-2.22	8.50	0.353	-9.04	31.00	0.120	-18.41	55.00	0.091	-20.80	79.00	0.030	-30.54
-3.25	0.799	-1.95	8.75	0.322	-9.84	31.50	0.108	-19.31	55.50	0.088	-21.07	79.50	0.031	-30.12
-3.00	0.822	-1.70	9.00	0.291	-10.71	32.00	0.096	-20.35	56.00	0.086	-21.32	80.00	0.033	-29.76
-2.75	0.843	-1.48	9.25	0.260	-11.69	32.50	0.083	-21.64	56.50	0.084	-21.57	80.50	0.000	0.00
-2.50	0.864	-1.27	9.50	0.230	-12.77	33.00	0.068	-23.30	57.00	0.081	-21.80	81.00	0.000	0.00
-2.25	0.883	-1.08	9.75	0.200	-14.00	33.50	0.053	-25.47	57.50	0.079	-22.01	81.50	0.000	0.00
-2.00	0.900	-0.91	10.00	0.170	-15.40	34.00	0.038	-28.45	58.00	0.077	-22.24	82.00	0.000	0.00
-1.75	0.917	-0.76	10.50	0.112	-18.99	34.50	0.022	-33.11	58.50	0.076	-22.44	82.50	0.000	0.00
-1.50	0.932	-0.62	11.00	0.058	-24.76	35.00	0.006	-44.01	59.00	0.074	-22.66	83.00	0.000	0.00
-1.25	0.945	-0.49	11.50	0.007	-43.74	35.50	0.009	-40.54	59.50	0.072	-22.90	83.50	0.000	0.00
-1.00	0.958	-0.37	12.00	0.041	-27.70	36.00	0.025	-32.04	60.00	0.070	-23.14	84.00	0.000	0.00
-0.75	0.970	-0.26	12.50	0.085	-21.42	36.50	0.040	-27.92	60.50	0.068	-23.40	84.50	0.000	0.00
-0.50	0.981	-0.17	13.00	0.124	-18.10	37.00	0.055	-25.22	61.00	0.066	-23.68	85.00	0.000	0.00
-0.25	0.989	-0.10	13.50	0.159	-15.95	37.50	0.069	-23.24	61.50	0.063	-23.99	85.50	0.000	0.00
0.00	0.996	-0.03	14.00	0.190	-14.43	38.00	0.082	-21.70	62.00	0.061	-24.31	86.00	0.000	0.00
0.25	0.999	-0.01	14.50	0.216	-13.31	38.50	0.095	-20.46	62.50	0.058	-24.67	86.50	0.000	0.00
0.50	1.000	0.00	15.00	0.238	-12.49	39.00	0.106	-19.46	63.00	0.056	-25.05	87.00	0.000	0.00
0.75	0.999	-0.01	15.50	0.254	-11.89	39.50	0.117	-18.63	63.50	0.053	-25.47	87.50	0.000	0.00
1.00	0.997	-0.03	16.00	0.267	-11.47	40.00	0.127	-17.94	64.00	0.051	-25.93	88.00	0.000	0.00
1.25	0.993	-0.06	16.50	0.275	-11.20	40.50	0.135	-17.37	64.50	0.048	-26.43	88.50	0.000	0.00
1.50	0.989	-0.10	17.00	0.280	-11.06	41.00	0.143	-16.90	65.00	0.045	-26.97	89.00	0.000	0.00
1.75	0.983	-0.15	17.50	0.281	-11.04	41.50	0.149	-16.52	65.50	0.042	-27.58	89.50	0.000	0.00
												90.00	0.000	0.00

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
LONGLEY-RICE INTERFERENCE
FOR THE PROPOSED OPERATION OF
NEW, KALISPELL, MONTANA
CHANNEL 46 23.4 KW (MAX) ERP 830 METERS HAAT
JUNE 2010

<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>
45	KCDT	COEUR D'ALENE ID	179	PLN	DTVPLN-DTVPLN62424	No interference
45	KCDT	COEUR D'ALENE ID	179	LIC	BLEDT-20090827ABV	No interference
45	KTGF	GREAT FALLS MT	228.9	CP MO	BMPCDT-20090122ACG	No interference
45	KTGF	GREAT FALLS MT	229	PLN	DTVPLN-DTVPLN13792	No interference
46	CKAL-DT-	LETHBRIDGE AB	222.9	AL	CANADA-C1435128	No interference
46	CKAL-DT-	LETHBRIDGE AB	213.3	AU	CANADA-6254	No interference
46	CKAL-PT-	LETHBRIDGE AB	213.3	AL	CANADA-1436617NULL	No interference
46	CKAL-TV-	LETHBRIDGE AB	223	GRANT	BPFS-20040928AKW	No interference
46	CKAL-TV-	LETHBRIDGE AB	213.3	GRANT	BPFS-20081104AAI	No interference
47	AB-PT-39	BURMIS AB	171.8	AL	CANADA-1435956NULL	No interference
47	CBRT8	BURMIS AB	171.8	LIC	NULL-301258NULL	No interference
47	CBRT-8	BURMIS AB	171.8	OP	CANADA-1357	No interference
47	VACANT	BURMIS AB	171.8	GRANT	BPFS-20080929AIO	No interference

TABLE II
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
NEW, KALISPELL, MONTANA
CHANNEL 46 23.4 KW (MAX) ERP 830 METERS HAAT
JUNE 2011

<u>Radial</u> <u>Bearing</u> (N ° E, T)	<u>Average*</u>	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>ERP At</u> <u>Radio</u> <u>Horizon</u> kW	<u>Distance to Contour F(50/90)</u>	
	<u>Elevation</u> <u>3.2 to 16.1 km</u> meters				<u>48 dBu</u> <u>City Grade</u> km	<u>41 dBu</u> <u>Noise-Limited</u> km
0	1373.2	710.0	0.738	13.623	74.2	87.0
10	1339.9	743.3	0.755	18.410	77.2	90.6
20	1250.6	832.6	0.799	22.017	80.6	94.8
30	1270.3	812.9	0.790	23.400	80.7	94.8
40	1218.1	865.1	0.815	22.017	81.4	95.6
50	1124.9	958.3	0.857	18.410	82.2	96.2
60	1064.5	1018.7	0.884	13.022	80.9	94.5
70	1055.9	1027.3	0.888	8.008	77.1	90.4
80	1038.1	1045.1	0.895	7.710	77.3	90.6
90	970.9	1112.3	0.924	9.170	80.2	93.7
100	1070.5	1012.7	0.881	7.710	76.5	89.8
110	1150.7	932.5	0.846	8.008	75.0	88.1
120	1264.9	818.3	0.792	13.022	76.2	89.6
130	1308.9	774.3	0.771	18.410	77.9	91.5
140	1348.7	734.5	0.751	22.017	78.4	91.9
150	1377.2	706.0	0.736	23.400	78.2	91.5
160	1180.0	903.2	0.832	22.017	82.3	96.6
170	1149.1	934.1	0.847	18.410	81.6	95.6
180	1234.2	849.0	0.807	13.623	77.2	90.8
190	1266.3	816.9	0.792	8.937	73.4	86.2
200	1344.8	738.4	0.753	5.169	68.1	79.8
210	1327.8	755.4	0.761	2.292	62.9	74.0
220	1388.0	695.2	0.730	0.692	53.8	64.5
230	1511.0	572.2	0.663	0.125	41.2	51.1
240	1595.7	487.5	0.612	0.007	22.7	31.1
250	1495.5	587.7	0.672	0.007**	24.3	33.4
260	1474.1	609.1	0.684	0.007**	24.6	33.7
270	1377.8	705.4	0.736	0.007**	25.9	35.3

TABLE II
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
NEW, KALISPELL, MONTANA
CHANNEL 46 23.4 KW (MAX) ERP 830 METERS HAAT
JUNE 2011

<u>Radial</u> <u>Bearing</u> (N ° E, T)	<u>Average*</u>	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>ERP At</u> <u>Radio</u> <u>Horizon</u> kW	<u>Distance to Contour F(50/90)</u>	
	<u>Elevation</u> 3.2 to 16.1 km meters				<u>48 dBu</u> <u>City Grade</u> km	<u>41 dBu</u> <u>Noise-Limited</u> km
280	1405.8	677.4	0.721	0.007**	25.5	34.8
290	1376.0	707.2	0.737	0.007**	26.0	35.3
300	1237.9	845.3	0.805	0.007	27.8	37.5
310	1199.9	883.4	0.823	0.125	46.1	56.5
320	1182.4	900.8	0.831	0.692	57.4	68.2
330	1173.7	909.6	0.835	2.292	65.5	77.2
340	1206.3	876.9	0.820	5.169	70.6	83.0
350	1337.2	746.0	0.757	8.937	72.0	84.4

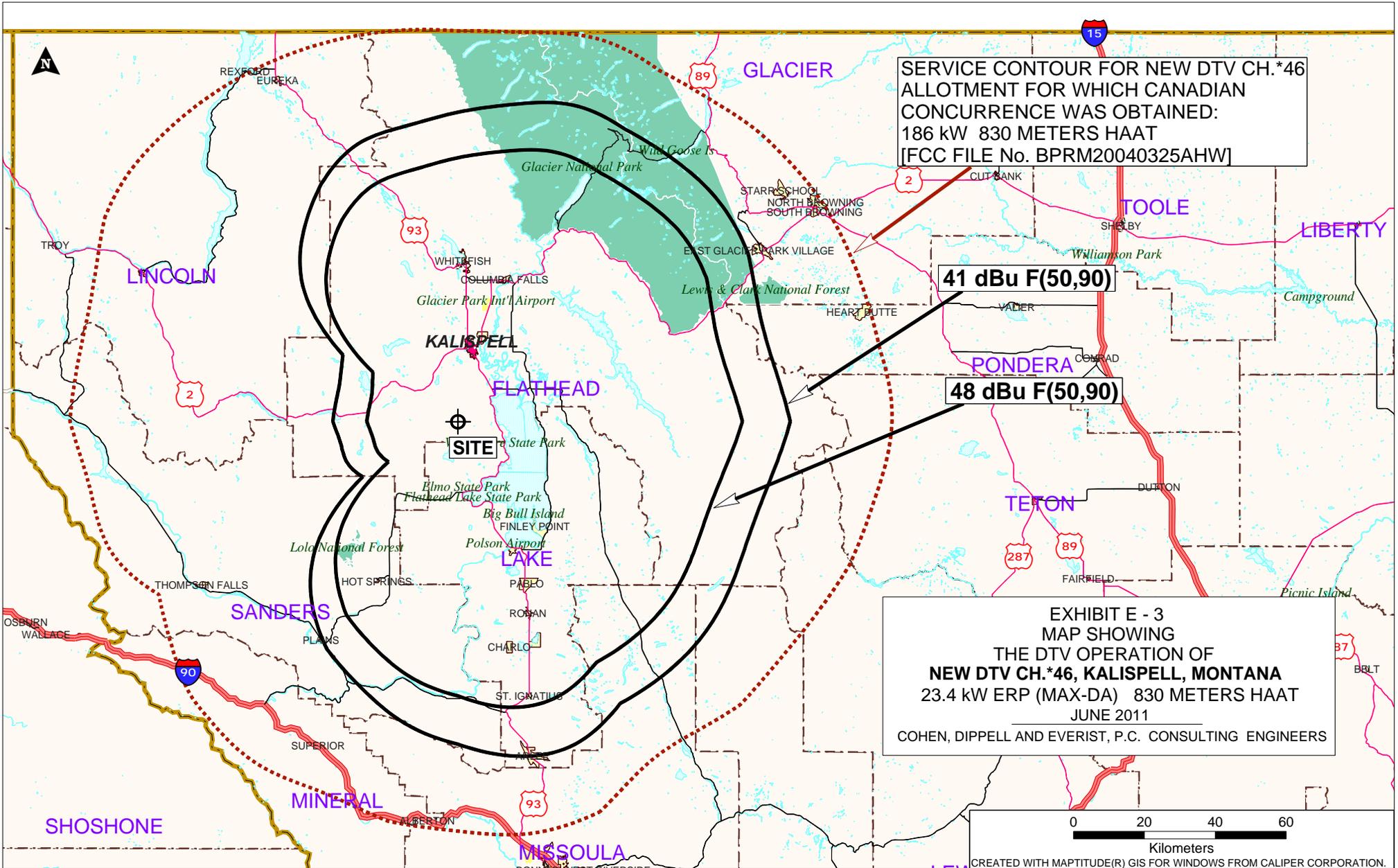
*Based on data from FCC 3-second data base.

**Field ratio 0.017 has been assumed.

DTV Channel 46 (662-668 MHz)
 Average Elevation 3.2 to 16.1 km 1269.2 meters AMSL
 Center of Radiation 2083 meters AMSL
 Antenna Height Above Average Terrain 830 meters
 (based on eight cardinal radials)
 Effective Radiated Power 23.4 kW (13.69 dBk) Max.

North Latitude: 48° 00' 48.2"
 West Longitude: 114° 21' 54.5"

(NAD-27)



SERVICE CONTOUR FOR NEW DTV CH. *46
 ALLOTMENT FOR WHICH CANADIAN
 CONCURRENCE WAS OBTAINED:
 186 kW 830 METERS HAAT
 [FCC FILE No. BPRM20040325AHW]

41 dBu F(50,90)

48 dBu F(50,90)

EXHIBIT E - 3
 MAP SHOWING
 THE DTV OPERATION OF
NEW DTV CH. *46, KALISPELL, MONTANA
 23.4 kW ERP (MAX-DA) 830 METERS HAAT
 JUNE 2011
 COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS

0 20 40 60
 Kilometers
 CREATED WITH MAPTITUDE(R) GIS FOR WINDOWS FROM CALIPER CORPORATION.

SECTION VII - DTV Engineering

Complete Questions 1-5, and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.

Pre-Transition Certification Checklist. An application concerning a pre-transition channel must complete questions 1(a)-(c), and 2-5. A correct answer of "Yes" to all of these questions will ensure an expeditious grant of a construction permit application to change pre-transition facilities. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be required prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.

Post-Transition Expedited Processing. An application concerning a post-transition channel must complete questions 1(a), (d)-(e), and 2-5. A station applying for a construction permit to build its post-transition channel will receive expedited processing if its application (1) does not seek to expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B"); (2) specifies facilities that match or closely approximate those defined in the new DTV Table Appendix B facilities; and (3) is filed on or before March 17, 2008 (45 days of the Report and Order in the Third DTV Periodic Review proceeding, MB Docket No. 07-91).

1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:
 - (a) It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622. Yes No
 - (b) It will operate a pre-transition facility from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622. Yes No
 It will operate a pre-transition facility with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622. Yes No
 - (d) It will operate at post-transition facilities that do not expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B"). No
 N/A
 - (e) It will operate at post-transition facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the new DTV Table Appendix B. Yes No
 N/A
2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RIF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307. Yes No

Applicant must **submit the Exhibit** called for in Item 13.

3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community. Yes No
4. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied or are not applicable. Yes No
5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7. Yes No

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 _____ Analog TV, if any _____

2. Zone: I II III

3. Antenna Location Coordinates: (NAD 27)

_____ ° _____ ' _____ " N S Latitude
 _____ ° _____ ' _____ " E W Longitude

4. Antenna Structure Registration Number: _____

Not applicable FAA Notification Filed with FAA

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

6. Overall Tower Height Above Ground Level: _____ meters

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

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

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

10. Antenna Specifications:

a. Manufacturer	Model
-----------------	-------

b. Electrical Beam Tilt: _____ 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: 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? Yes No

Exhibit No.

If "No," attach as an Exhibit justification therefore, including a summary of any related previously granted waivers.

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.

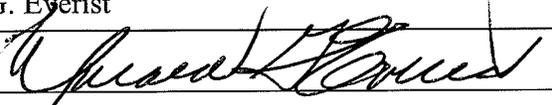
a. If **Certification Checklist** Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

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 June 30, 2011	
Mailing Address Cohen, Dippell and Everist, P.C., 1420 N Street, NW			
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).