

ENGINEERING STATEMENT
ON BEHALF OF
THE BOARD OF REGENTS OF THE
MONTANA UNIVERSITY SYSTEM
IN SUPPORT OF AN APPLICATION
TO CONSTRUCT NEW FACILITIES FOR
KALISPELL, MONTANA
CHANNEL *46 67.1 KW ERP 830 METERS HAAT

AUGUST 2006

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

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 pursuant to the filing window announced in Public Notice DA 06-1390, released July 6, 2006.

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 operate a noncommercial educational broadcast station on DTV Channel *46 with an average effective radiated power ("ERP") of 67.1 kW maximum directional (horizontal polarization) and a height above average terrain ("HAAT") of 829.5 meters (2721 feet).

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.

KCFW Tower

MUS has an agreement with Bluestone License Holdings, Inc., licensee of KCFW ("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 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 (NAD-27) of the existing tower are:

North Latitude: 48° 00' 48.2"

West Longitude: 114° 21' 54.5"

Equipment Data

Antenna: Dielectric, Type TFU-16DSB-O (or equivalent) horizontally polarized directional antenna with 1.0° 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: 180 feet (55 m) of Dielectric, FLEXLine 1-5/8" 50 ohm line (or equivalent)

Power Data

Transmitter output ("TPO"):	2.50 kW	3.98 dBk
Transmission Line Efficiency/(Loss):	76.3%	(1.18) dB
Input power to the antenna:	1.91 kW	2.80 dBk
Antenna power gain maximum:	35.2	15.47 dB
Effective Radiated Power (ERP) Maximum, Main Lobe:	67.1 kW	18.27 dBk

Elevation Data

Vertical dimension of Channel *46 side-mounted antenna	8.3 meters 27.2 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 233.9 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	829.5 meters 2721 feet

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

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 0.93 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 I includes the distances to the 48 dBu and 41 dBu F(50,90) coverage contours, the average elevation from 3.2 to 16.1 km, and the antenna height above average terrain for every 45 degrees. Table II displays the same information for every 10 degrees of azimuth. 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. The predicted Longley-Rice [OET Bulletin 69] noise-limited coverage for the proposed DTV operation serves 98,700 people [2000 census] in an area of 19,415 square kilometers, which is 89.1% of the population predicted to be served by the allotment facilities.

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

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 July 22, 2006 predicts no new interference to any authorized or protected television broadcast facility.

RF Safety-FCC Rule, Section 1.1307

There are no AM stations within 3.22 km of the existing tower site. There is one FM station, KALS(FM), operating on a tower less than 20 meters away. Other than the analog and digital television facilities for KCFW, 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 relevant facilities are summarized below.

Radio Frequency Field Level Calculations

<u>Station</u>	<u>Channel</u>	<u>ERP</u> kW	<u>Relative</u> <u>Field</u>	<u>RCAGL</u> (meters)	<u>S-Calculated*</u> $\mu\text{W}/\text{cm}^2$	<u>S-Limit**</u> $\mu\text{W}/\text{cm}^2$	<u>% of MPE**</u>
New DTV (proposed)	*46	67.1	0.13	47.2	17.1	441	3.9%
KALS(FM) (licensed)	246C	26.5	0.29	27.0	238.2	200	119.1%
KCFW-TV (licensed)	9	26.3	0.4	67.2	16.5	200	8.3%
KCVW-DT (CP Mod)	38	52.5	0.18	57.4	18.5	200	4.5%

*Power density calculated at 2 meters above ground.

**Maximum permissible exposure limit for an uncontrolled environment (general population).

Based on the elevation pattern from the manufacturer's antenna data, a maximum downward field of 0.13 would create a field level of $17.1 \mu\text{W}/\text{cm}^2$ in the vicinity of the base of the tower. Therefore, the proposed 67.1 kW operation would contribute less than 3.9% of the Maximum Permissible Exposure ("MPE") guideline for an uncontrolled environment and the general population.

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 less than 5%, if the application is granted and prior to construction, MUS represents that it will ensure that it is party to a comprehensive RF safety plan 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 understanding with the tower owner, authorized personnel and rigging contractors will be alerted to the potential zone of high radiation 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

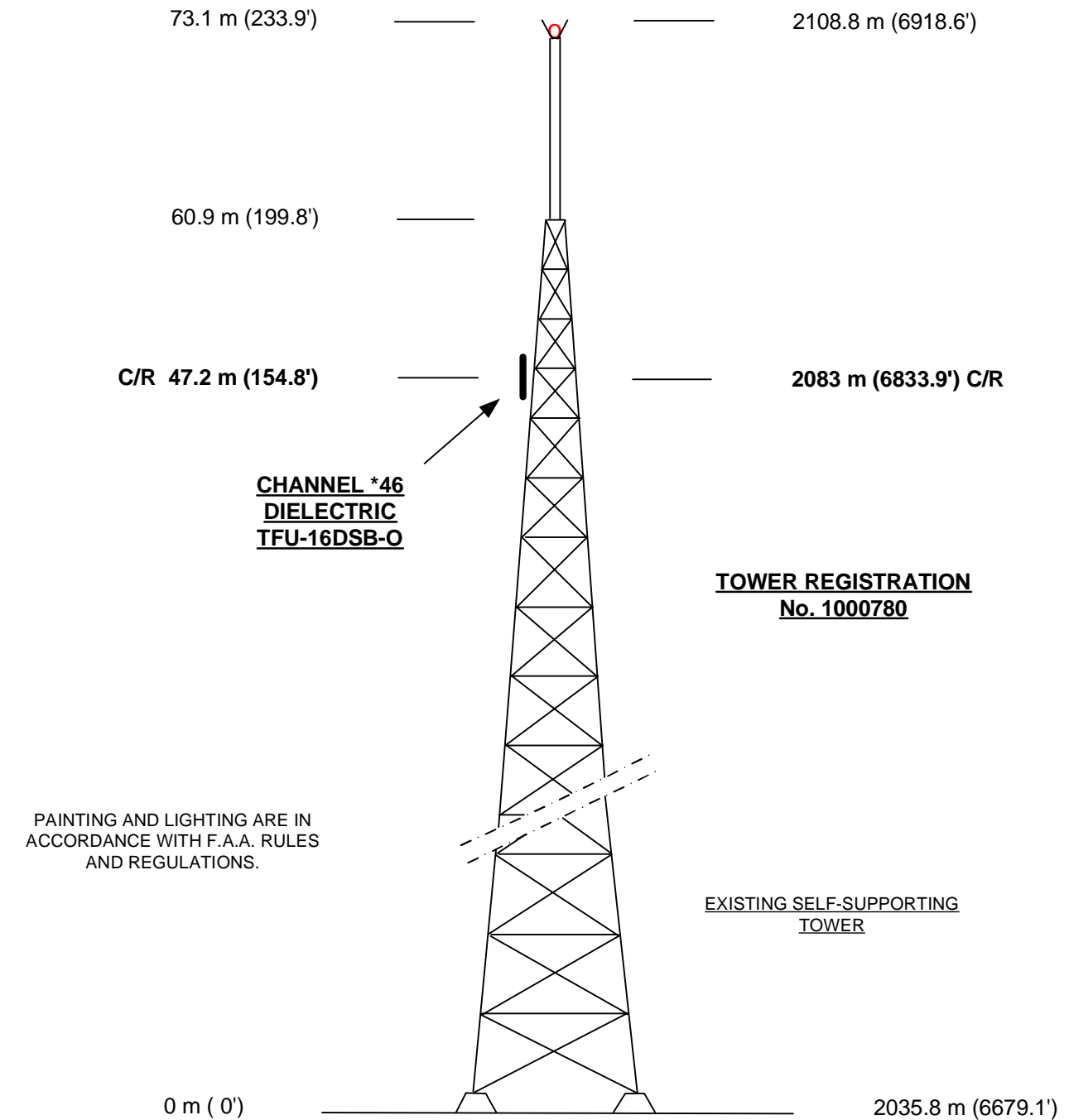
An environmental assessment ("EA") is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the applicant indicates that:

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

ABOVE GROUND

ABOVE MEAN SEA LEVEL



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

NOT TO SCALE

EXHIBIT E - 1

VERTICAL SKETCH
FOR THE PROPOSED OPERATION OF
NEW DTV CHANNEL *46, KALISPELL, MONTANA
AUGUST 2006

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

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

NEW DTV CHANNEL *46, KALISPELL, MONTANA



Exhibit No.

Date
Call Letters
Location
Customer
Antenna Type

25 Jul 2006
NEW DTV
Kalispell
Montana PBS
TFU-16DSB-O

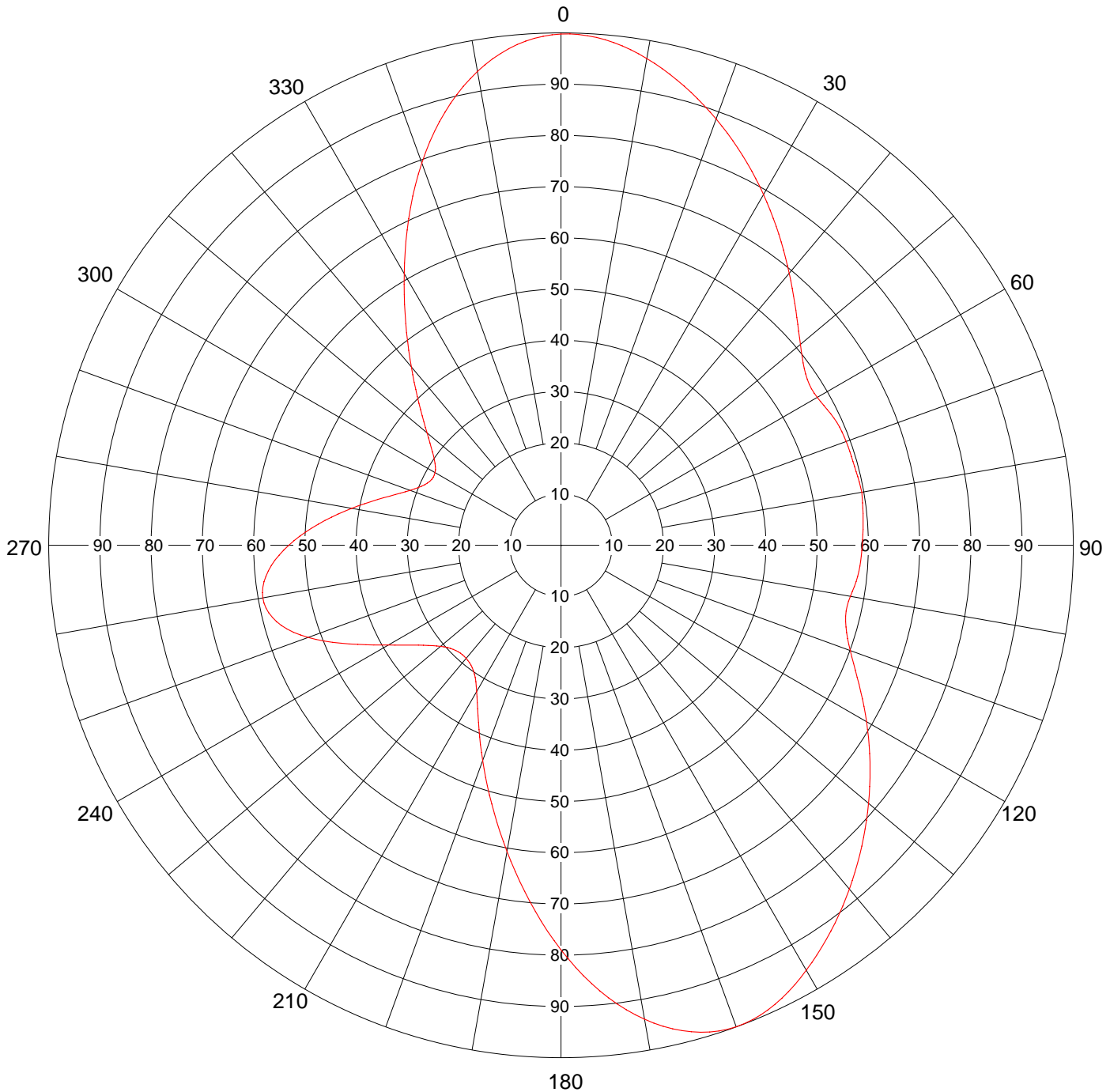
Channel **46****AZIMUTH PATTERN**

Gain
Calculated / Measured

2.20 (3.42 dB)
Calculated

Frequency
Drawing #

665 MHz
DSB-O



Remarks:



Date **25 Jul 2006**
 Call Letters **NEW DTV** Channel **46**
 Location **Kalispell**
 Customer **Montana PBS**
 Antenna Type **TFU-16DSB-O**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **DSB-O**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.998	45	0.648	90	0.588	135	0.830	180	0.790	225	0.290	270	0.532	315	0.392
1	0.998	46	0.640	91	0.587	136	0.839	181	0.772	226	0.292	271	0.521	316	0.404
2	0.997	47	0.632	92	0.587	137	0.849	182	0.753	227	0.295	272	0.510	317	0.416
3	0.996	48	0.624	93	0.586	138	0.858	183	0.735	228	0.298	273	0.499	318	0.428
4	0.994	49	0.617	94	0.585	139	0.867	184	0.716	229	0.302	274	0.487	319	0.441
5	0.990	50	0.610	95	0.584	140	0.876	185	0.698	230	0.307	275	0.475	320	0.455
6	0.986	51	0.603	96	0.582	141	0.885	186	0.679	231	0.312	276	0.463	321	0.469
7	0.982	52	0.597	97	0.580	142	0.893	187	0.661	232	0.318	277	0.451	322	0.483
8	0.977	53	0.592	98	0.578	143	0.902	188	0.643	233	0.325	278	0.439	323	0.498
9	0.971	54	0.587	99	0.576	144	0.910	189	0.624	234	0.332	279	0.427	324	0.513
10	0.965	55	0.583	100	0.574	145	0.919	190	0.607	235	0.340	280	0.415	325	0.528
11	0.958	56	0.580	101	0.572	146	0.927	191	0.589	236	0.348	281	0.403	326	0.544
12	0.951	57	0.578	102	0.571	147	0.935	192	0.572	237	0.358	282	0.391	327	0.561
13	0.944	58	0.577	103	0.571	148	0.943	193	0.555	238	0.368	283	0.380	328	0.577
14	0.936	59	0.577	104	0.573	149	0.950	194	0.539	239	0.378	284	0.369	329	0.594
15	0.928	60	0.578	105	0.575	150	0.958	195	0.523	240	0.389	285	0.358	330	0.612
16	0.920	61	0.579	106	0.579	151	0.965	196	0.507	241	0.401	286	0.348	331	0.630
17	0.911	62	0.581	107	0.583	152	0.971	197	0.491	242	0.414	287	0.338	332	0.648
18	0.903	63	0.583	108	0.588	153	0.978	198	0.476	243	0.427	288	0.329	333	0.666
19	0.894	64	0.586	109	0.594	154	0.983	199	0.462	244	0.441	289	0.321	334	0.685
20	0.885	65	0.588	110	0.601	155	0.988	200	0.447	245	0.455	290	0.314	335	0.703
21	0.876	66	0.589	111	0.608	156	0.993	201	0.433	246	0.470	291	0.307	336	0.722
22	0.867	67	0.591	112	0.616	157	0.996	202	0.420	247	0.484	292	0.301	337	0.740
23	0.858	68	0.591	113	0.624	158	0.998	203	0.406	248	0.499	293	0.296	338	0.758
24	0.849	69	0.592	114	0.633	159	1.000	204	0.394	249	0.512	294	0.291	339	0.776
25	0.839	70	0.592	115	0.642	160	1.000	205	0.381	250	0.525	295	0.288	340	0.794
26	0.830	71	0.593	116	0.651	161	0.999	206	0.370	251	0.538	296	0.285	341	0.811
27	0.820	72	0.593	117	0.660	162	0.997	207	0.358	252	0.549	297	0.283	342	0.828
28	0.810	73	0.593	118	0.670	163	0.993	208	0.348	253	0.559	298	0.282	343	0.844
29	0.800	74	0.593	119	0.679	164	0.989	209	0.338	254	0.568	299	0.283	344	0.860
30	0.791	75	0.593	120	0.689	165	0.983	210	0.329	255	0.575	300	0.284	345	0.875
31	0.781	76	0.594	121	0.698	166	0.976	211	0.321	256	0.581	301	0.286	346	0.889
32	0.771	77	0.594	122	0.708	167	0.968	212	0.314	257	0.586	302	0.289	347	0.903
33	0.761	78	0.595	123	0.717	168	0.960	213	0.308	258	0.589	303	0.293	348	0.916
34	0.751	79	0.596	124	0.727	169	0.950	214	0.303	259	0.591	304	0.298	349	0.928
35	0.741	80	0.596	125	0.736	170	0.939	215	0.298	260	0.591	305	0.304	350	0.939
36	0.731	81	0.595	126	0.746	171	0.928	216	0.295	261	0.590	306	0.310	351	0.949
37	0.722	82	0.594	127	0.755	172	0.915	217	0.292	262	0.588	307	0.317	352	0.959
38	0.712	83	0.594	128	0.765	173	0.902	218	0.290	263	0.584	308	0.325	353	0.967
39	0.702	84	0.593	129	0.774	174	0.888	219	0.289	264	0.579	309	0.333	354	0.975
40	0.693	85	0.592	130	0.784	175	0.873	220	0.288	265	0.574	310	0.341	355	0.981
41	0.684	86	0.591	131	0.793	176	0.858	221	0.288	266	0.567	311	0.351	356	0.986
42	0.675	87	0.590	132	0.802	177	0.841	222	0.287	267	0.559	312	0.360	357	0.991
43	0.666	88	0.590	133	0.812	178	0.825	223	0.288	268	0.551	313	0.370	358	0.994
44	0.657	89	0.589	134	0.821	179	0.807	224	0.289	269	0.541	314	0.381	359	0.996

Remarks:



Date
Call Letters
Location
Customer
Antenna Type

25 Jul 2006
NEW DTV
Kalispell
Montana PBS
TFU-16DSB-O

Channel **46**

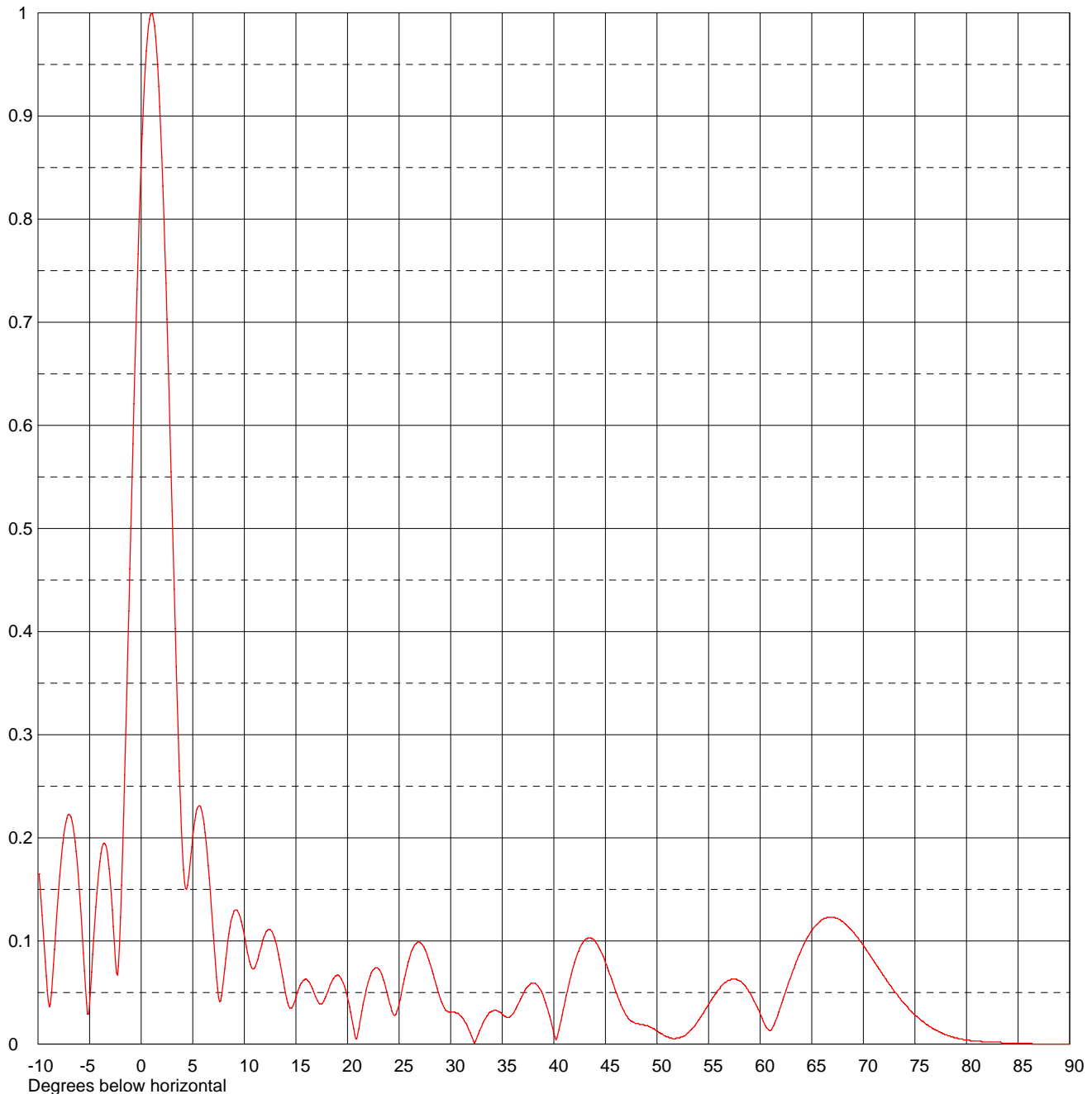
ELEVATION PATTERN

RMS Gain at Main Lobe
RMS Gain at Horizontal
Calculated / Measured

16.0 (12.04 dB)
11.8 (10.72 dB)
Calculated

Beam Tilt
Frequency
Drawing #

1.00 Degrees
665.00 MHz
16B160100-90



Remarks:



Date **25 Jul 2006**
 Call Letters **NEW DTV** Channel **46**
 Location **Kalispell**
 Customer **Montana PBS**
 Antenna Type **TFU-16DSB-O**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **16B160100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.177	2.4	0.738	10.6	0.077	30.5	0.030	51.0	0.007	71.5	0.073
-9.5	0.110	2.6	0.667	10.8	0.073	31.0	0.027	51.5	0.005	72.0	0.066
-9.0	0.041	2.8	0.593	11.0	0.074	31.5	0.020	52.0	0.006	72.5	0.058
-8.5	0.077	3.0	0.517	11.5	0.090	32.0	0.008	52.5	0.007	73.0	0.051
-8.0	0.150	3.2	0.441	12.0	0.106	32.5	0.005	53.0	0.011	73.5	0.045
-7.5	0.203	3.4	0.366	12.5	0.111	33.0	0.017	53.5	0.016	74.0	0.039
-7.0	0.223	3.6	0.297	13.0	0.100	33.5	0.027	54.0	0.023	74.5	0.033
-6.5	0.204	3.8	0.235	13.5	0.077	34.0	0.032	54.5	0.030	75.0	0.028
-6.0	0.150	4.0	0.187	14.0	0.049	34.5	0.032	55.0	0.038	75.5	0.024
-5.5	0.071	4.2	0.157	14.5	0.035	35.0	0.029	55.5	0.046	76.0	0.020
-5.0	0.039	4.4	0.150	15.0	0.045	35.5	0.026	56.0	0.053	76.5	0.017
-4.5	0.118	4.6	0.162	15.5	0.059	36.0	0.029	56.5	0.059	77.0	0.014
-4.0	0.177	4.8	0.181	16.0	0.063	36.5	0.038	57.0	0.062	77.5	0.011
-3.5	0.194	5.0	0.201	16.5	0.056	37.0	0.048	57.5	0.063	78.0	0.009
-3.0	0.159	5.2	0.217	17.0	0.044	37.5	0.056	58.0	0.061	78.5	0.007
-2.8	0.130	5.4	0.228	17.5	0.039	38.0	0.059	58.5	0.057	79.0	0.006
-2.6	0.097	5.6	0.231	18.0	0.049	38.5	0.056	59.0	0.050	79.5	0.005
-2.4	0.069	5.8	0.229	18.5	0.061	39.0	0.046	59.5	0.040	80.0	0.004
-2.2	0.076	6.0	0.220	19.0	0.067	39.5	0.030	60.0	0.029	80.5	0.003
-2.0	0.123	6.2	0.205	19.5	0.061	40.0	0.010	60.5	0.018	81.0	0.003
-1.8	0.188	6.4	0.185	20.0	0.045	40.5	0.014	61.0	0.013	81.5	0.002
-1.6	0.261	6.6	0.161	20.5	0.020	41.0	0.037	61.5	0.023	82.0	0.002
-1.4	0.339	6.8	0.134	21.0	0.010	41.5	0.060	62.0	0.037	82.5	0.002
-1.2	0.420	7.0	0.106	21.5	0.038	42.0	0.079	62.5	0.052	83.0	0.002
-1.0	0.501	7.2	0.078	22.0	0.060	42.5	0.093	63.0	0.066	83.5	0.001
-0.8	0.582	7.4	0.054	22.5	0.072	43.0	0.101	63.5	0.080	84.0	0.001
-0.6	0.659	7.6	0.041	23.0	0.073	43.5	0.103	64.0	0.092	84.5	0.001
-0.4	0.732	7.8	0.047	23.5	0.062	44.0	0.100	64.5	0.102	85.0	0.001
-0.2	0.798	8.0	0.064	24.0	0.043	44.5	0.091	65.0	0.110	85.5	0.001
0.0	0.857	8.2	0.083	24.5	0.028	45.0	0.079	65.5	0.116	86.0	0.001
0.2	0.907	8.4	0.100	25.0	0.039	45.5	0.066	66.0	0.121	86.5	0.000
0.4	0.947	8.6	0.113	25.5	0.063	46.0	0.051	66.5	0.123	87.0	0.000
0.6	0.976	8.8	0.123	26.0	0.083	46.5	0.038	67.0	0.123	87.5	0.000
0.8	0.994	9.0	0.129	26.5	0.096	47.0	0.028	67.5	0.122	88.0	0.000
1.0	1.000	9.2	0.130	27.0	0.099	47.5	0.022	68.0	0.119	88.5	0.000
1.2	0.994	9.4	0.128	27.5	0.092	48.0	0.020	68.5	0.114	89.0	0.000
1.4	0.977	9.6	0.123	28.0	0.078	48.5	0.019	69.0	0.109	89.5	0.000
1.6	0.948	9.8	0.115	28.5	0.061	49.0	0.018	69.5	0.103	90.0	0.000
1.8	0.909	10.0	0.105	29.0	0.044	49.5	0.016	70.0	0.096		
2.0	0.860	10.2	0.094	29.5	0.033	50.0	0.013	70.5	0.088		
2.2	0.802	10.4	0.085	30.0	0.031	50.5	0.010	71.0	0.081		

Remarks:



SYSTEM SUMMARY

Antenna:

Type:	TFU-16DSB-O	ERP:	67.1 kW	H Pol (18.27 dBk)
Channel:	46	Peak Gain*:	35.2	(15.47 dB)
Location:	Kalispell	Input Power:	1.91 kW	(2.80 dBk)

Transmission Line:

Type:	FLEXLine®	Attenuation:	1.18 dB
Size:	1-5/8" 50 ohm	Efficiency:	76.3%
Length	180 ft	55 m	

Transmitter:

Average Power Required: 2.50 kW (3.98 dBk)

* Gain is with respect to half wave dipole.



MECHANICAL SPECIFICATIONS

Antenna:

Type: **TFU-16DSB-O**
Channel: **46**
Location: **Kalispell**

Antenna Length (H2): **27.2 ft**

Center of Radiation (H3): **13.6 ft**

Weight: **450 lbs**

RS-222C Specification per RS-222-C

Area of Flats: **27.6 ft²**
Force Coef x Projected Area:

EIA-222F Specification per EIA 222-F

43.8 ft²

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
NEW DTV, KALISPELL, MONTANA
CHANNEL *46 67.1 KW 829.5 METERS HAAT
AUGUST 2006

<u>Radial</u> <u>Bearing</u> N ° E, T	<u>Average†</u> <u>Elevation</u> <u>3.2 to 16.1 km</u> <u>meters</u>	<u>Effective</u> <u>Height</u> <u>meters</u>	<u>Depression</u> <u>Angle</u>	<u>ERP At</u> <u>Radio</u> <u>Horizon</u> <u>kW</u>	<u>Distance to Contour F(50,90)</u>	
					<u>48 dBu</u> <u>City Grade</u> <u>km</u>	<u>41 dBu</u> <u>Noise-Limited</u> <u>km</u>
0	1373.2	709.8	0.738	67.100	86.9	100.8
45	1160.9	922.1	0.841	28.481	84.9	99.5
90	970.9	1112.1	0.924	23.199	87.9	102.3
135	1305.8	777.2	0.772	46.225	85.5	99.9
180	1234.0	849.0	0.807	41.877	86.4	101.2
225	1428.9	654.1	0.708	5.939	67.2	78.7
270	1377.8	705.2	0.736	18.991	76.6	89.7
315	1176.4	906.6	0.834	10.629	76.5	90.0
Average	1253.5	829.5				

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

DTV Channel *46 (662-668 MHz)
 Average Elevation 3.2 to 16.1 km 1253.5 meters AMSL
 Center of Radiation 2083 meters AMSL
 Antenna Height Above Average Terrain 829.5 meters
 Effective Radiated Power 67.1 kW (18.27 dBk) Max.

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

(NAD-27)

TABLE II
DTV COVERAGE DATA
FOR THE PROPOSED OPERATION OF
NEW DTV, KALISPELL, MONTANA
CHANNEL *46 67.1 KW ERP 813.8 METERS HAAT
AUGUST 2006

<u>Radial</u> N ° E, T	<u>Average†</u> <u>Elevation</u>	<u>Effective</u> <u>Height</u>	<u>Depression</u> <u>Angle</u>	<u>ERP</u> kW	<u>Distance to Contour F(50,90)</u>	
	meters	meters	degrees		<u>48 dBu</u> km	<u>41 dBu</u> km
0	1373.2	709.8	0.738	67.1	86.9	100.8
10	1339.3	743.7	0.755	62.5	87.2	101.4
20	1250.9	832.1	0.799	52.6	88.0	102.8
30	1270.6	812.4	0.790	42.0	85.6	100.1
40	1217.8	865.2	0.815	32.2	84.6	99.2
50	1124.6	958.4	0.858	25.0	84.7	99.1
60	1064.4	1018.6	0.884	22.4	85.3	99.6
70	1055.9	1027.1	0.888	23.5	85.9	100.2
80	1038.2	1044.8	0.895	23.8	86.5	100.8
90	970.9	1112.1	0.924	23.2	87.9	102.3
100	1070.9	1012.1	0.881	22.1	85.1	99.3
110	1150.5	932.5	0.846	24.2	83.8	98.2
120	1265.1	817.9	0.792	31.9	83.3	97.7
130	1309.2	773.8	0.771	41.2	84.5	98.7
140	1348.8	734.2	0.751	51.5	85.3	99.4
150	1377.3	705.7	0.736	61.6	86.0	99.9
160	1179.5	903.5	0.833	67.1	92.0	107.2
170	1148.8	934.2	0.847	59.2	91.5	106.8
180	1234.0	849.0	0.807	41.9	86.4	101.2
190	1266.0	817.0	0.792	24.7	81.2	95.4
200	1344.5	738.5	0.753	13.4	74.7	87.7
210	1327.6	755.4	0.761	7.3	70.7	82.9
220	1387.8	695.2	0.730	5.6	67.7	79.3
230	1510.3	572.7	0.663	6.3	65.4	76.5
240	1596.0	487.0	0.611	10.2	65.8	76.4
250	1495.8	587.2	0.671	18.5	73.1	85.4
260	1474.2	608.8	0.683	23.4	75.5	88.2
270	1377.8	705.2	0.736	19.0	76.6	89.7
280	1405.8	677.2	0.721	11.6	72.3	84.7

TABLE II
DTV COVERAGE DATA
FOR PROPOSED OPERATION OF
NEW DTV, KALISPELL, MONTANA
CHANNEL *46 67.1 KW ERP 813.8 METERS HAAT
AUGUST 2006
 (continued)

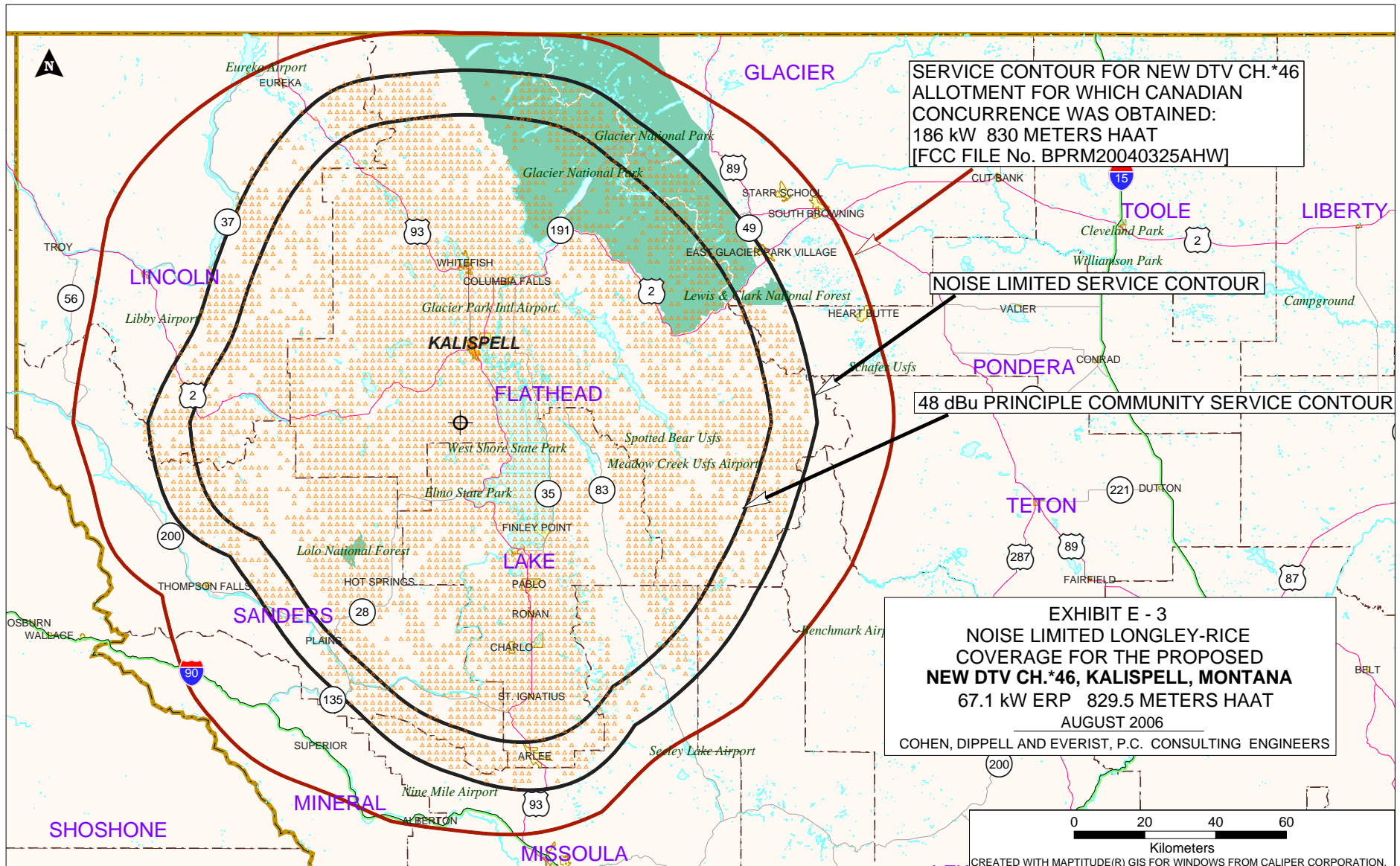
<u>Radial</u> N ° E, T	<u>Average†</u> <u>Elevation</u>	<u>Effective</u> <u>Height</u>	<u>Depression</u> <u>Angle</u>	<u>ERP</u> kW	<u>Distance to Contour F(50,90)</u>	
	meters	meters	degrees		<u>48 dBu</u> km	<u>41 dBu</u> km
290	1376.3	706.7	0.736	6.6	69.1	80.9
300	1238.1	844.9	0.805	5.4	70.4	82.6
310	1200.0	883.0	0.823	7.8	73.7	86.7
320	1182.2	900.8	0.831	13.9	78.5	92.2
330	1173.9	909.1	0.835	25.1	83.6	98.0
340	1206.3	876.7	0.820	42.3	87.2	102.1
350	1337.6	745.4	0.756	59.2	86.8	101.0

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

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 813.8 meters
 Effective Radiated Power 67.1 kW (18.27 dBk) Max

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

(NAD-27)



SECTION VII- DTV Engineering

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

Certification Checklist: A correct answer of "Yes" to all of the questions below will ensure an expeditious grant of a construction permit. 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.

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 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
- (c) It will operate 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

2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RF 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 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.") ☐ Yes ☐ No

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

Exhibit No.

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefor. (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 radiofrequency 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.

PREPARER'S CERTIFICATION ON PAGE 8 MUST BE COMPLETED AND SIGNED.

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		Relationship to Applicant (e.g., Consulting Engineer)	
Signature		Date	
Mailing Address			
City		State or Country (if foreign address)	ZIP Code
Telephone Number (include area code)		E-Mail Address (if available)	

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).