

## **ENGINEERING EXHIBIT**

### **Application for Television Translator Station Digital Flashcut Construction Permit**

prepared for

**Mountain Licenses, L.P.**

K09UP Colville, WA

Facility ID 58691

Ch. 9 (digital) 0.05 kW

*Mountain Licenses, L.P. (“MLLP”)* is the licensee television translator K09UP, analog Channel 9, Facility ID 58691, Colville, WA (BLTTV-20050803AAT). *MLLP* proposes herein to flashcut K09UP to digital operation using its presently licensed antenna.

As proposed herein, the effective radiated power will be 0.05 kW (50 Watts) utilizing a “simple” out of channel emission mask. Continued use of the licensed K09UP analog Channel 9 antenna is proposed, a directional array of two Scala CL-713 log-periodic antennas. No change in antenna location or height is proposed.

The antenna system is side-mounted on an existing tower structure having an overall height of 30 meters above ground level and no change in overall tower height is proposed. The structure does not require an FCC Antenna Structure Registration number since its overall height is less than 61 meters above ground and the structure passes the FCC’s “TOWAIR” slope test program.

Figure 1 depicts the 48 dB $\mu$  coverage contour of the proposed digital facility with the 68 dB $\mu$  coverage contour of the licensed analog facility. The use of the same site and corresponding service area overlap demonstrates compliance with §73.3572 for a minor change.

Interference study per OET Bulletin 69<sup>1</sup> shows that the proposal complies with the FCC’s interference protection requirements toward all digital television, television translator, LPTV, and

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<sup>1</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 (“OET-69”). The implementation of OET-69 for this study followed the

Class A stations. The results, summarized in Table 1, show that the proposal will not result in any predicted interference to any other station. Accordingly, the proposed digital K09UP facility complies with §74.793 regarding interference protection to digital television, low power television, television translator, and Class A television facilities.

The site is located 47.3 km from the U.S. – Canadian border. The worst-case 13.5 dB $\mu$  F(50,10) co-channel DTV-to-DTV interfering contour is depicted in Figure 2 and does not extend across the border. Thus, international coordination is not required.

The nearest FCC monitoring station is 344 km distant at Ferndale, WA. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with quiet zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3 kilometers of the site.

### **Human Exposure to Radiofrequency Electromagnetic Field**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. Based on OET-65 equation (10), and considering the worst-case of 100 percent relative field at downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 4.5  $\mu$ W/cm<sup>2</sup>, which is 2.2 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent. The calculated RF electromagnetic field will be even lower when the antenna's elevation pattern is considered.

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guidelines of OET-69 as specified therein. The default cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

This exhibit is limited to the evaluation of exposure to RF electromagnetic field. The proposal involves continued use of an existing side-mounted transmitting antenna. No change in structure height is proposed.

### **Certification**

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



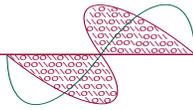
Joseph M. Davis, P.E.  
September 18, 2014

**Chesapeake RF Consultants, LLC**  
207 Old Dominion Road  
Yorktown, VA 23692  
703-650-9600

### List of Attachments

Figure 1	Coverage Contour Comparison
Figure 2	Interfering Contour Towards Canada
Table 1	Interference Analysis Results Summary
Form 346	Saved Version of Engineering Sections from FCC Form at Time of Upload

*This material was entered September 18, 2014 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.*

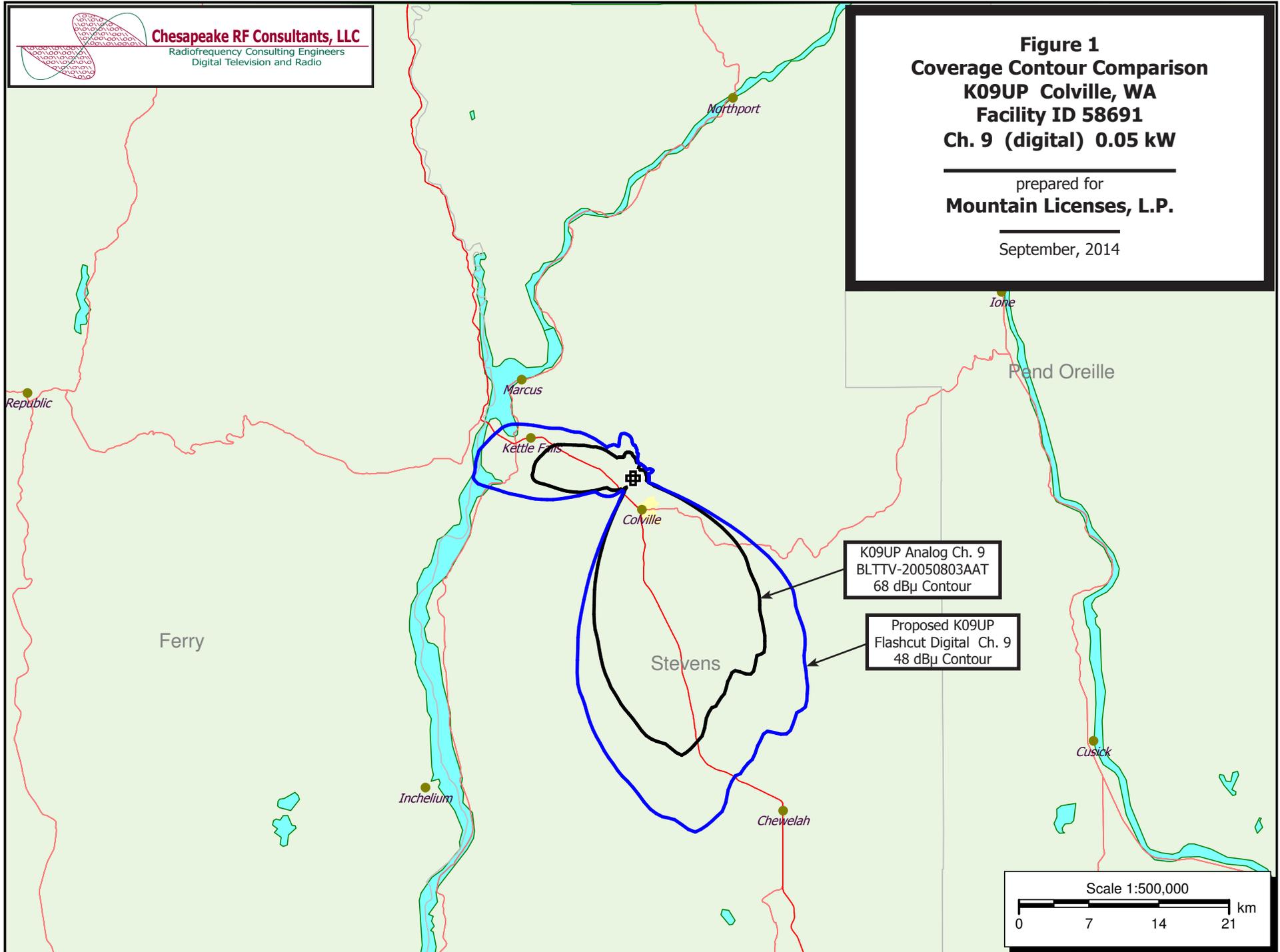


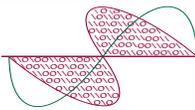
**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 1**  
**Coverage Contour Comparison**  
**K09UP Colville, WA**  
**Facility ID 58691**  
**Ch. 9 (digital) 0.05 kW**

prepared for  
**Mountain Licenses, L.P.**

September, 2014



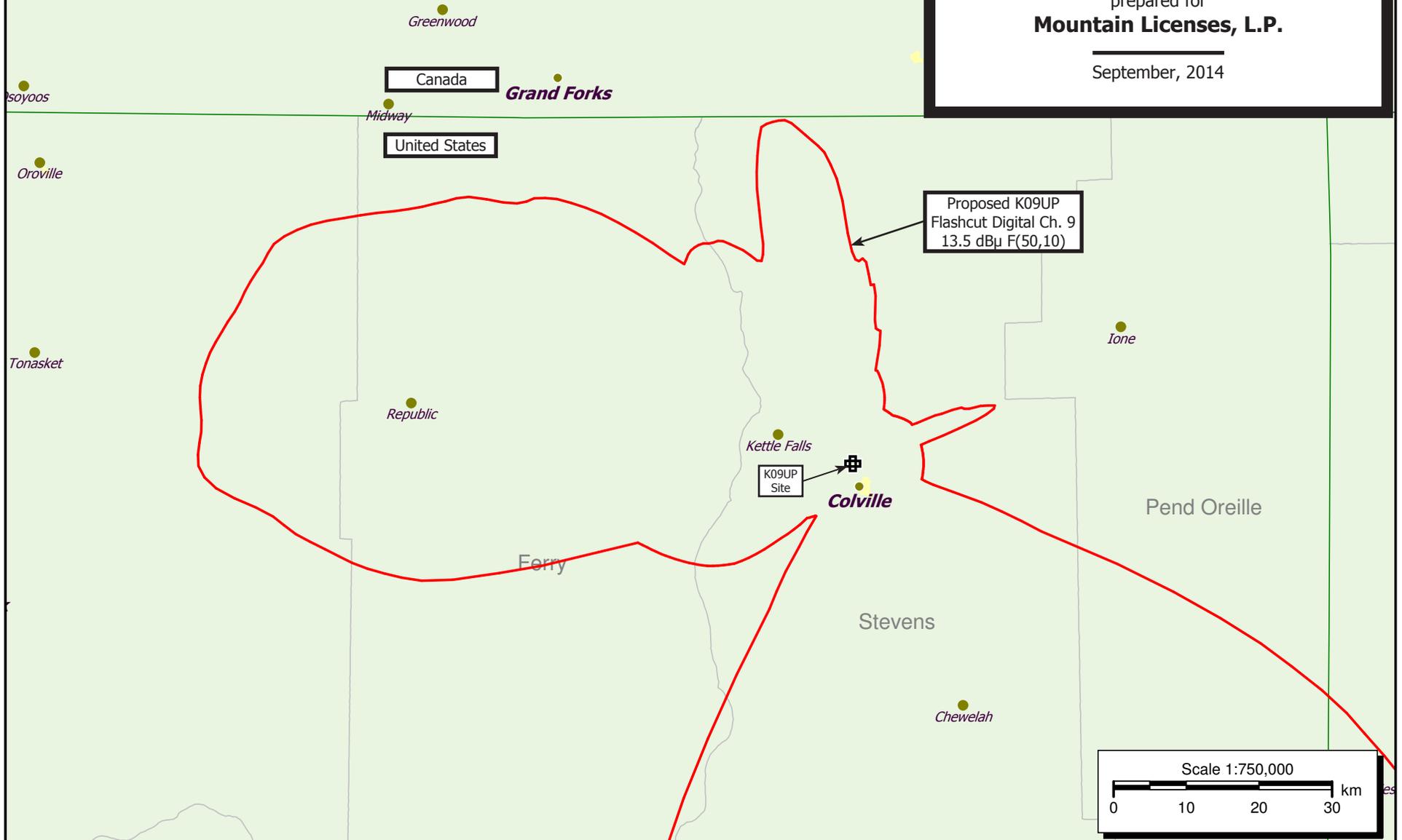


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Digital Television and Radio

**Figure 2**  
**Interfering Contour Towards Canada**  
**K09UP Colville, WA**  
**Facility ID 58691**  
**Ch. 9 (digital) 0.05 kW**

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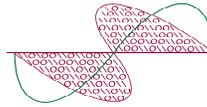
**Table 1**

**Interference Analysis Results Summary**

prepared for

**Mountain Licenses, L.P.**

**K09UP Colville, WA**



**Chesapeake RF Consultants, LLC**

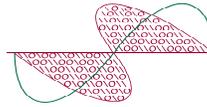
Radiofrequency Consulting Engineers  
Digital Television and Radio

K09UP-D USERRECORD-01 COLVILLE WA US  
 Channel 09 ERP 0.05 kW HAAT 164. m RCAMSL 00878 m SIMPLE MASK  
 Latitude 048-34-30 Longitude 0117-55-00  
 Dir Antenna Make usr Model K09UP\_CL713 Beam tilt N Ref Azimuth 0.

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---	
						Baseline	New Interference
8	K08OZ-D	TROUT CREEK, ETC MT	180.0	LIC	BLDTV-20100126ADJ	---	none
8	K08BG-D	TROY MT	155.8	LIC	BLDTV-20110815ADR	---	none
8	K08AX-D	ARDENVOIR WA	204.0	LIC	BLDTV-20120619AAX	---	none
8	KWVC-LD	MALAGA, ECT WA	210.7	LIC	BLDTV-20110222AAG	---	none
8	K08CW-D	MALOTT WAKEFIELD WA	134.6	LIC	BLDTV-20110824ACS	---	none
8	K08BA-D	ORONDO, ECT WA	197.2	LIC	BLDTV-20120619AAU	---	none
8	K08AP-D	PATEROS, MANSFIELD WA	164.8	LIC	BLDTV-20120120ADX	---	none
8	K08CY-D	RIVERSIDE WA	117.8	LIC	BLDTV-20110824ACV	---	none
8	K08CX-D	TONASKET WA	110.3	LIC	BLDTV-20140408AAO	---	none
8	K08AY-D	WINTHROP-TWISP WA	164.6	LIC	BLDTV-20120123AMQ	---	none
9	K09ZC-D	BONNERS FERRY ID	122.1	LIC	BLDTV-20140530ATP	---	none
9	K09XY-D	COOLIN ID	74.2	LIC	BLDTV-20100909AAF	---	none
9	K09CK	FERDINAND ID	292.4	LIC	BLTTV-191	---	none
9	K09DF-D	JULIAETTA ID	240.2	LIC	BLDTV-20120117ABF	---	none
9	K09AL	KAMIAH ID	300.4	LIC	BLTTV-678	---	none
9	K09GK	WHITE BIRD ID	328.2	LIC	BLTTV-1197	---	none
9	KCFW-TV	KALISPELL MT	269.9	LIC	BLCDT-20090622ADR	---	none
9	K09FQ-D	THOMPSON FALLS MT	224.6	LIC	BLDTV-20090610ADP	---	none
9	DK09KE	TROY MT	155.8	CP	BDFCDTV-20100208AAG	---	none
9	K09ES-D	CASHMERE WA	223.4	LIC	BLDTV-20110222AAI	---	none
9	K09BJ-D	ENTIAT WA	203.2	LIC	BLDTV-20120619AAR	---	none
9	K09ZA-D	LEAVENWORTH WA	230.9	LIC	BLDTV-20111114AEO	---	none
9	K09BI-D	METHOW WA	164.2	LIC	BLDTV-20120123AMO	---	none
9	K09DG	OMAK, ETC. WA	103.3	LIC	BLTTV-19950419IH	---	none
9	K09CL-D	ROCK ISLAND WA	221.1	LIC	BLDTV-20120619AAM	---	none
9	KCTS-TV	SEATTLE WA	342.9	LIC	BLEDT-20090612AAN	---	none
9	KXMN-LD	SPOKANE, ETC. WA	120.1	LIC	BLDVL-20080206AGM	---	none
9	K09FF-D	SQUILCHUCK ST. PARK WA	224.6	LIC	BLDTV-20120619AAJ	---	none
10	K10KR-D	COOLIN ID	74.2	LIC	BLDTV-20091019AEF	---	none
10	DK10LL	PIPE CREEK, ETC. MT	166.8	LIC	BLTTV-19810504II	---	none

**Table 1**  
**Interference Analysis Results Summary**

(page 2 of 2)



**Chesapeake RF Consultants, LLC**

Radiofrequency Consulting Engineers  
 Digital Television and Radio

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---	
						Baseline	New Interference
10	K10QH-D	TROUT CREEK, ETC MT	180.0	LIC	BLDTV-20100126ADI	---	none
10	K10AF-D	TROY MT	155.8	LIC	BLDTV-20111222AXG	---	none
10	K10BB-D	ARDENVOIR WA	204.0	LIC	BLDTV-20120619AAY	---	none
10	K10RA-D	COULEE CITY WA	150.0	LIC	BLDTV-20140903AFY	---	none
10	KNEE-LD	MALAGA, ECT WA	210.7	LIC	BLDTV-20110222AAF	---	none
10	K10DK-D	MALOTT WAKEFIELD WA	134.6	LIC	BLDTV-20110824ACT	---	none
10	K10BA-D	ORONDO, ECT WA	197.2	LIC	BLDTV-20120619AAV	---	none
10	K10AP-D	PATEROS, MANSFIELD WA	164.8	LIC	BLDTV-20120120ADV	---	none
10	KWSU-TV	PULLMAN WA	198.3	LIC	BLEDT-20130307AAK	---	none
10	K10DM-D	RIVERSIDE WA	117.8	LIC	BLDTV-20110824ACW	---	none
10	K10DL-D	TONASKET WA	110.3	LIC	BLDTV-20140408AAP	---	none
10	K10BD-D	WINTHROP-TWISP WA	164.6	LIC	BLDTV-20120123AFJ	---	none

<b>Section III - Engineering (Digital)</b>												
<b>TECHNICAL SPECIFICATIONS</b>												
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.												
<b>TECH BOX</b>												
1.	Channel: 9											
2.	Translator Input Channel No. : 28											
3.	Primary station proposed to be rebroadcast:											
	Facility Identifier	Call Sign	City	State	Channel							
	58684	KAYU-TV	SPOKANE	WA	28							
4.	Antenna Location Coordinates: (NAD 27)											
	Latitude:											
	Degrees 48 Minutes 34 Seconds 30 <input checked="" type="radio"/> North <input type="radio"/> South											
	Longitude:											
	Degrees 117 Minutes 55 Seconds 0 <input checked="" type="radio"/> West <input type="radio"/> East											
5.	Antenna Structure Registration Number:											
	<input checked="" type="checkbox"/> Not Applicable [Exhibit 10] <input type="checkbox"/> Notification filed with FAA											
6.	Antenna Location Site Elevation Above Mean Sea Level:										856.9 meters	
7.	Overall Tower Height Above Ground Level:										30 meters	
8.	Height of Radiation Center Above Ground Level:										21.3 meters	
9.	Maximum Effective Radiated Power (ERP):										0.05 kW	
10.	Transmitter Output Power:										0.008 kW	
11.	a. Transmitting Antenna:											
	Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under <a href="http://licensing.fcc.gov/prod/cdbforms/pubacc/prod/cdb_pa.htm">CDBS Public Access</a> (http://licensing.fcc.gov/prod/cdbforms/pubacc/prod/cdb_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.											
	<input type="radio"/> Nondirectional <input type="radio"/> Directional Off-the Shelf <input checked="" type="radio"/> Directional composite											
	Manufacturer SCA Model 2X CL-713 ARRAY											
	b. Electrical Beam Tilt: degrees <input checked="" type="checkbox"/> Not Applicable											
	c. Mechanical Beam Tilt: degrees toward azimuth degrees True <input checked="" type="checkbox"/> Not Applicable											
	d. Directional Antenna Relative Field Values: <input type="checkbox"/> N/A (Nondirectional or Off-the-Shelf)											
	Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation											
	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
	0	0.031	10	0.026	20	0.021	30	0.011	40	0.011	50	0.013
	60	0.014	70	0.014	80	0.014	90	0.014	100	0.014	110	0.034
	120	0.356	130	0.6	140	0.805	150	0.945	160	1	170	0.945
	180	0.805	190	0.599	200	0.353	210	0.031	220	0.014	230	0.06
	240	0.095	250	0.125	260	0.145	270	0.153	280	0.145	290	0.125
	300	0.105	310	0.075	320	0.034	330	0.031	340	0.031	350	0.031
	Additional Azimuths											
	e. Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt? <input type="radio"/> Yes <input checked="" type="radio"/> No											
	[Exhibit 11]											
	If Yes, attach an Exhibit (see instructions for details).											
<a href="#">Relative Field Polar Plot</a>												
<b>NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.</b>												
12.	Out-of-channel Emission Mask: <input checked="" type="radio"/> Simple <input type="radio"/> Stringent <input type="radio"/> Full Service											
<b>CERTIFICATION</b>												
13.	Interference : The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030.										<input checked="" type="radio"/> Yes <input type="radio"/> No	
											See Explanation in [Exhibit 12]	

14.	<p><b>Environmental Protection Act.</b> The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an <b>Exhibit is required.</b></p> <p>By checking "Yes" above, 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.</p>	<p style="text-align: right;"> <input checked="" type="radio"/> Yes <input type="radio"/> No                  See Explanation in                  [Exhibit 13]             </p>
15.	<p><b>Channels 52-59.</b> If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable:</p> <p><input type="checkbox"/> The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available.</p> <p><input type="checkbox"/> Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.</p>	
16.	<p><b>Channels 60-69.</b> If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable:</p> <p><input type="checkbox"/> Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application , all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.</p> <p><input type="checkbox"/> Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreements(s) with 700 MHz public safety regional planning committee(s) and state administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location.</p> <p><input type="checkbox"/> Pursuant to Section 74.786(e), the applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.</p>	
<p><b>PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.</b></p>		

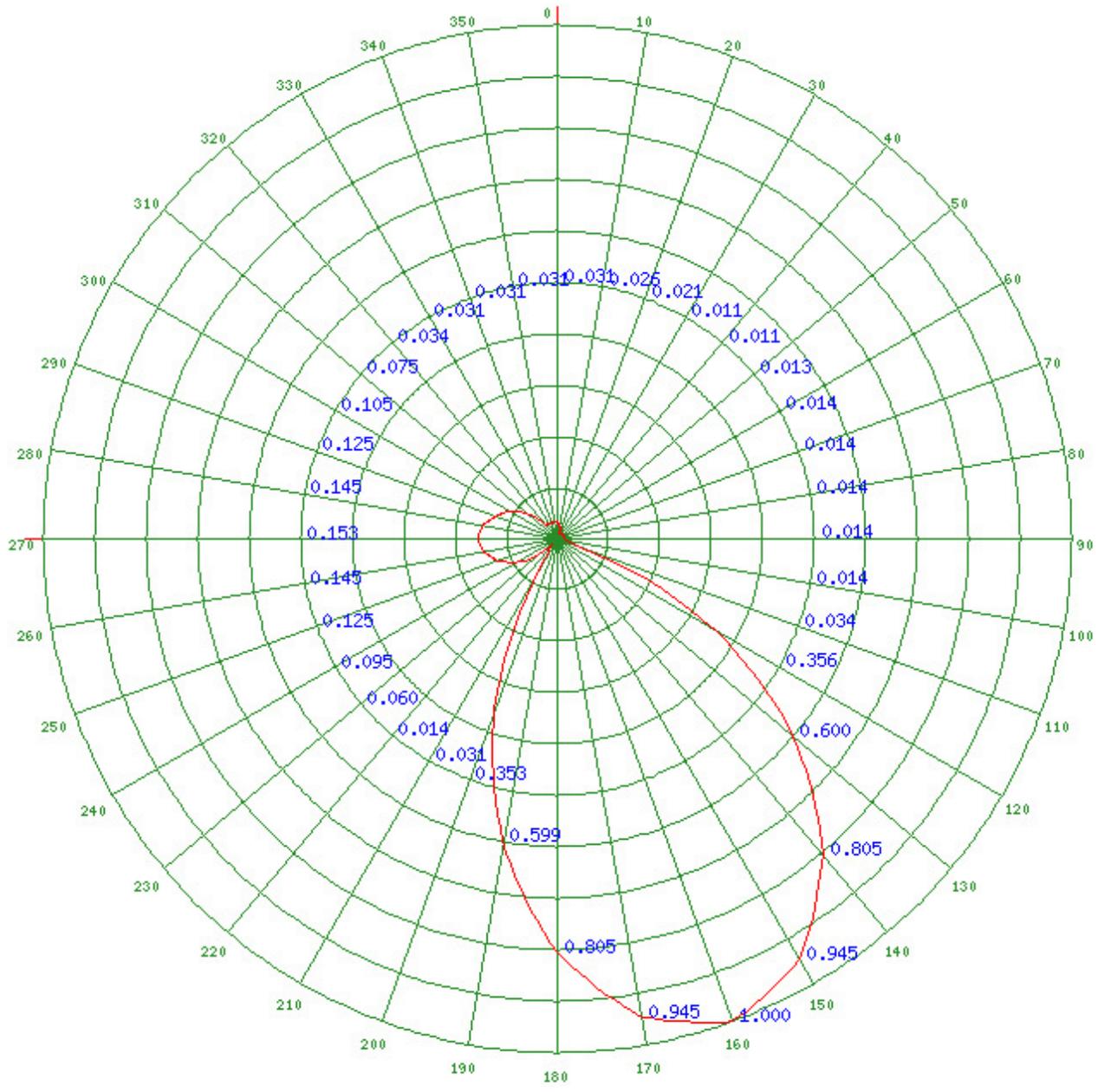
**SECTION III PREPARER'S CERTIFICATION**

I certify that I have prepared Section III (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 JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature		Date 9/18/2014	
Mailing Address CHESAPEAKE RF CONSULTANTS LLC 207 OLD DOMINION ROAD			
City YORKTOWN	State or Country (if foreign address) VA	Zip Code 23692 -	
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM		

Any specified rotation has already been applied to the plotted pattern.  
Field strength values shown on a rotated pattern may differ from the listed values  
because intermediate azimuths are interpolated between entered azimuths.

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