ENGINEERING EXHIBIT

Application for Construction Permit
Digital Low Power Television Station

prepared for

Mountain Licenses, L.P.
KCYU-LD Yakima, WA
Facility ID 58694
Ch. 41 (digital) 12.9 kW

Mountain Licenses, L.P. ("MLLP") is the licensee of digital Low Power Television ("LPTV") station KCYU-LD, Facility ID 58694, Yakima, WA (BLDTL-20081219AAC). *MLLP* herein seeks a minor modification of KCYU-LD to specify corrected geographic coordinates and transmitting antenna elevation.

The Antenna Structure Registration ("ASR", number 1235050) associated with the KCYU-LD antenna has recently been modified by the structure owner to specify corrected geographic coordinates. The geographic coordinates on the ASR were changed by six seconds longitude. As due diligence, it has also been determined that the actual KCYU-LD antenna height is 19.2 meters above ground level ("AGL") which exceeds the authorized height AGL of 12.1 meters. *MLLP* herein seeks a Construction Permit to modify KCYU-LD to correspond to the corrected coordinates and increased antenna elevation.

No changes in the actual KCYU-LD facility are proposed. KCYU-LD will continue to operate on Channel 41 and employ a "stringent" out of channel emission mask. The maximum effective radiated power is 12.9 kW utilizing a directional antenna.

Figure 1 depicts the 51 dBμ coverage contour of the proposed facility correction as well as that of the licensed facility. The service area overlap demonstrates compliance with §73.3572 for a minor change.

Interference analysis per OET Bulletin 69[1] shows that the proposal complies with the Commission's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the Commission's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations). Accordingly, the proposed digital LPTV 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 274 km from the U.S. – Canadian border. The worst-case 19.5 dBµ 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 should not be required.

The nearest FCC monitoring station is 310 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 3.2 kilometers of the site.

Human Exposure to Radiofrequency Electromagnetic Field

The KCYU-LD operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The transmitting antenna is an ERI model AL8-41. Figure 3 supplies a plot of the antenna's elevation pattern as provided by the manufacturer. Based on OET-65 equation (10), and considering the antenna relative field in downward elevations, the graph in Figure 4 depicts calculated power density levels attributable to KCYU-LD at locations near the transmitter site at a height of two meters above ground level. The maximum calculated RF electromagnetic field attributable to KCYU-LD is 3.2 percent of the general

[1]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 guidelines of OET-69 as specified therein. A 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.

population / uncontrolled MPE limit at any location two meters above ground level. 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 general public is not 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. No change to the existing facility is proposed.

Certification

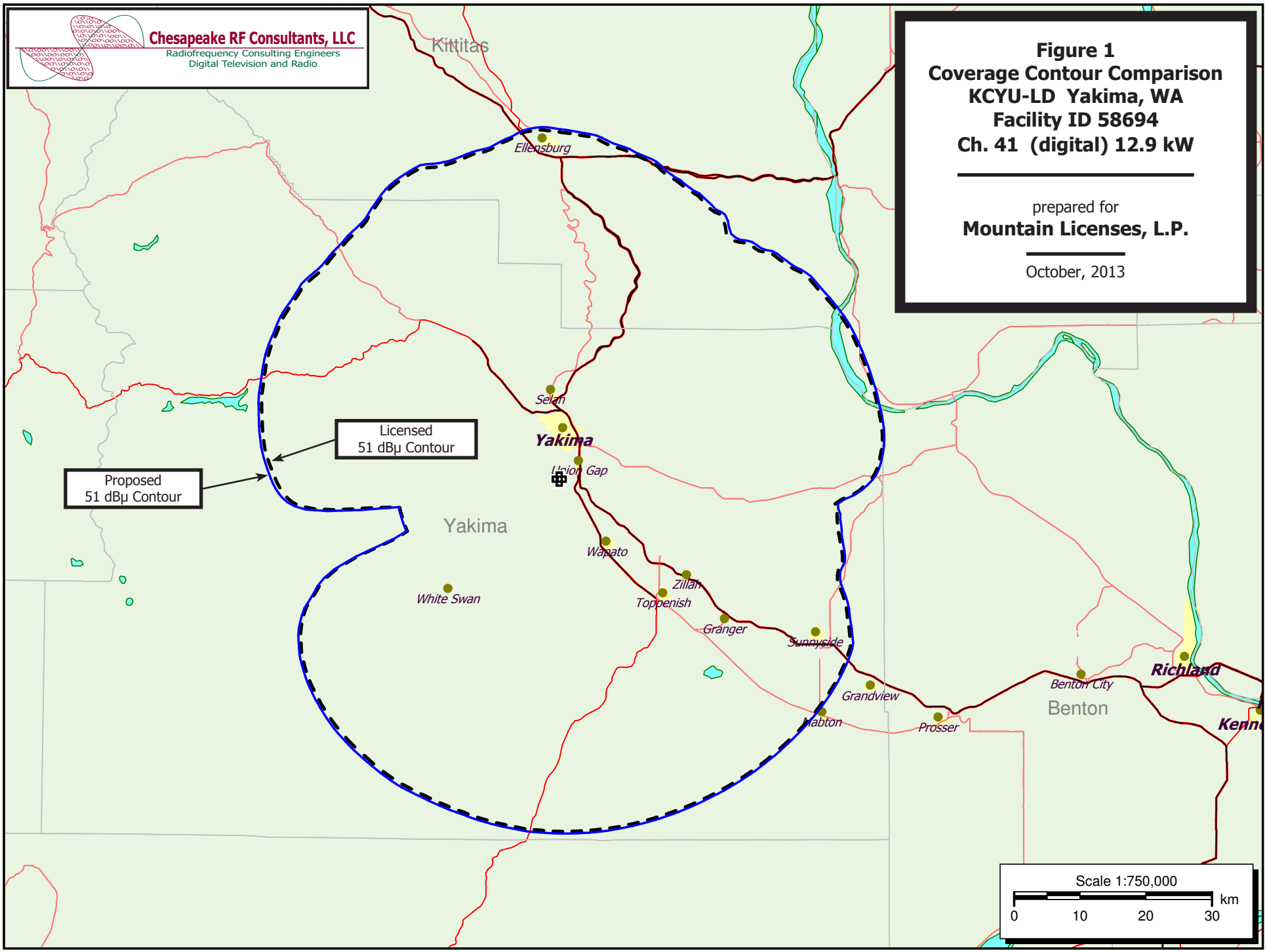
The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.

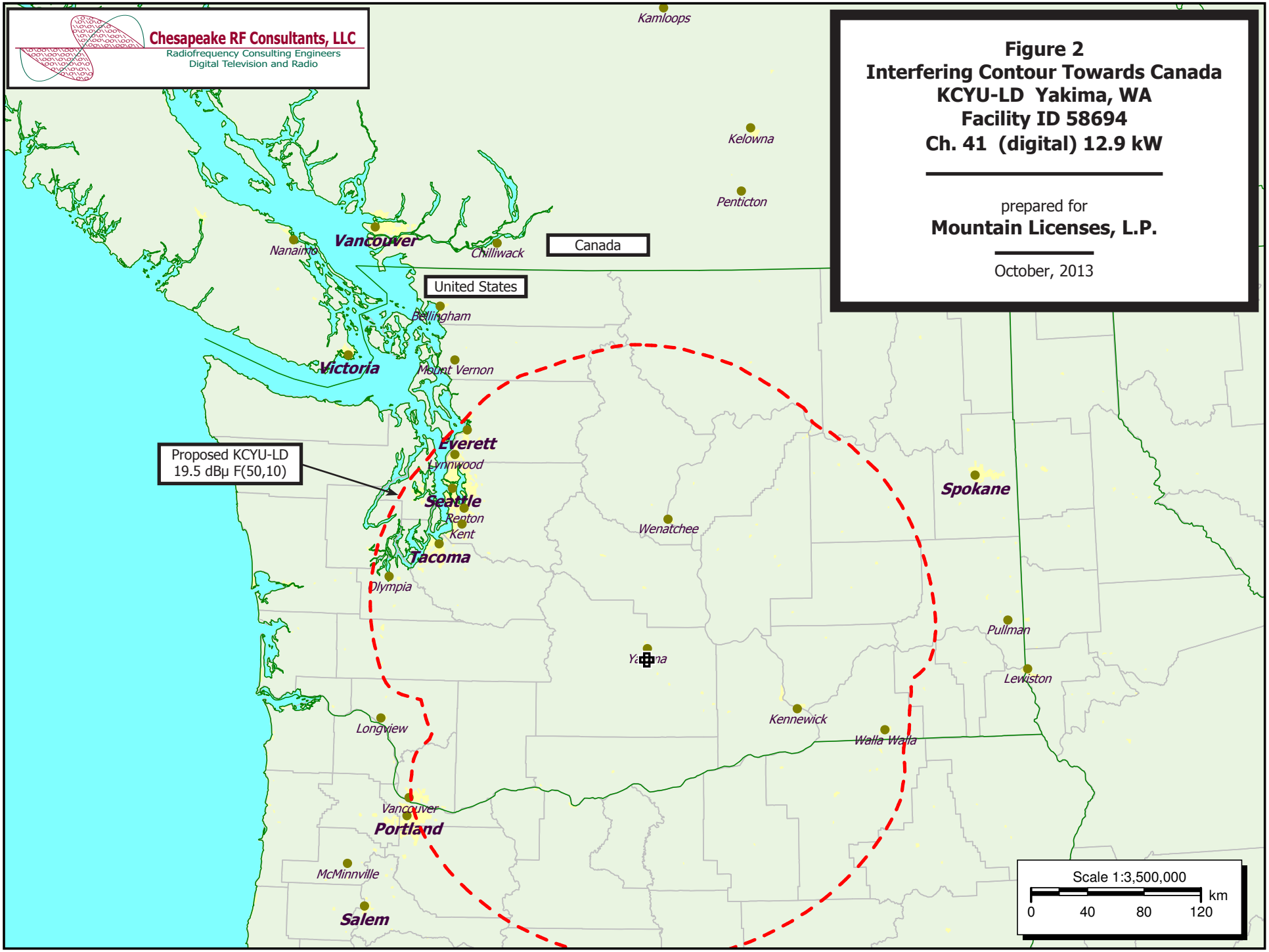
Joseph M. Davis, P.E.
October 23, 2013

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

List of Attachments

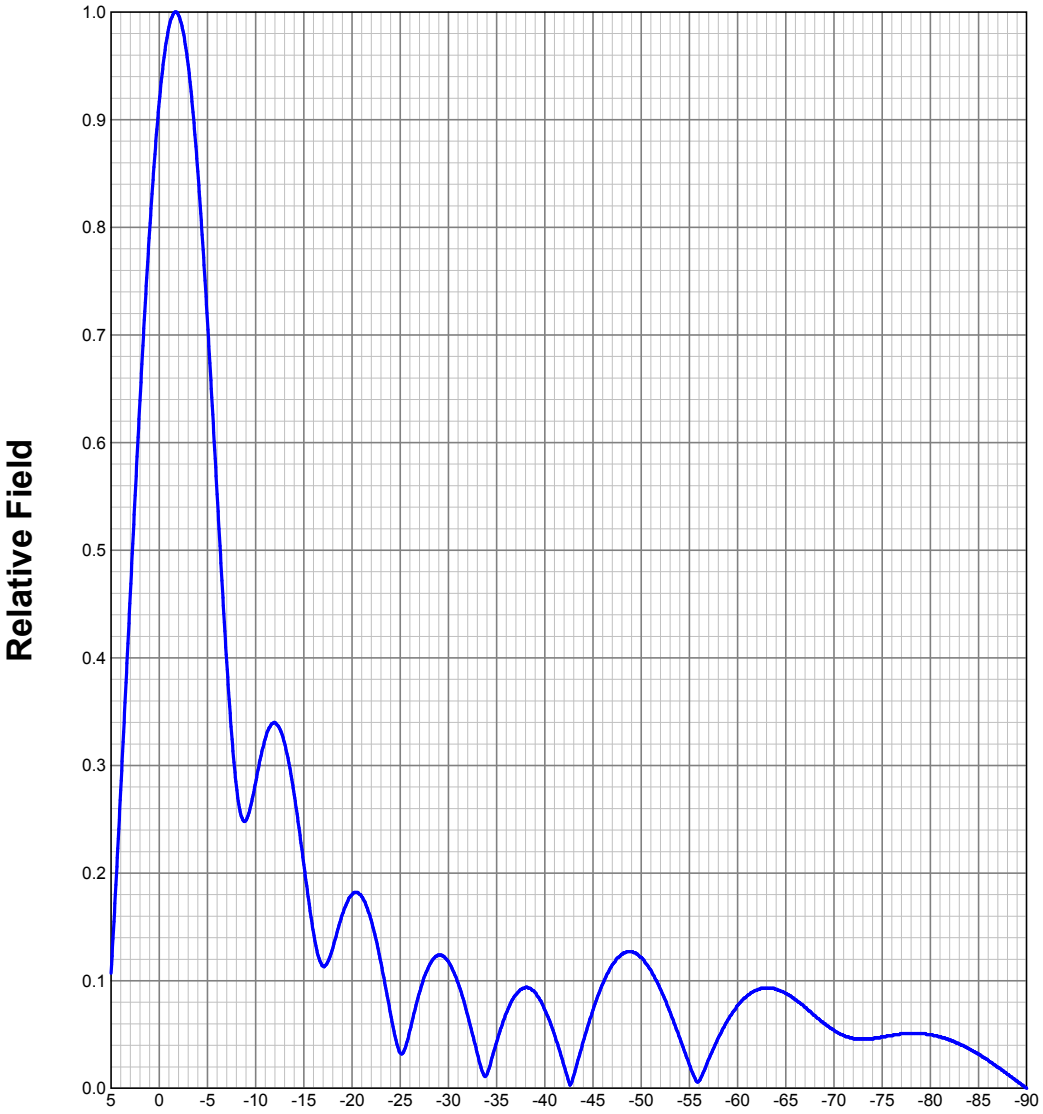
Figure 1	Coverage Contour Comparison
Figure 2	Interfering Contour Towards Canada
Figure 3	Antenna Elevation Pattern
Figure 4	Calculated RF Electromagnetic Field
Table 1	Interference Analysis Results Summary
Form 346	Saved Version of Engineering Sections from FCC Form at Time of Upload


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Coverage Contour Comparison
KCYU-LD Yakima, WA
Facility ID 58694
Ch. 41 (digital) 12.9 kW
prepared for
Mountain Licenses, L.P.
October, 2013
Licensed
51 dBµ Contour
Proposed
51 dBµ Contour
Kittitas
Ellensburg
Selah
Yakima
Union Gap
Yakima
Wapato
White Swan
Zillah
Toppenish
Granger
Sunnyside
Grandview
Prosser
Benton City
Benton
Richland
Scale 1:750,000
km
0
10
20
30


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 2
Interfering Contour Towards Canada
KCYU-LD Yakima, WA
Facility ID 58694
Ch. 41 (digital) 12.9 kW
prepared for
Mountain Licenses, L.P.
October, 2013
Kamloops
Kelowna
Penticton
Vancouver
Nanaimo
Chilliwack
Canada
United States
Bellingham
Victoria
Mount Vernon
Everett
Lynnwood
Seattle
Renton
Kent
Tacoma
Olympia
Proposed KCYU-LD
19.5 dBµ F(50,10)
Wenatchee
Spokane
Pullman
Yakima
Lewiston
Kennewick
Walla Walla
Longview
Vancouver
Portland
McMinnville
Salem
Scale 1:3,500,000
km
0
40
80
120

ELEVATION PATTERN

Type:	AL8		Channel:	41
Directivity:	Numeric	dBd	Location:	
Main Lobe:	8.68	9.39	Beam Tilt:	-1.75
Horizontal:	7.30	8.63	Polarization:	Horizontal



Preliminary, subject to final des

ELECTRONICS RESEARCH, INC. ERI®

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Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 3
Antenna Elevation Pattern
KCYU-LD Yakima, WA
Facility ID 58694
Ch. 41 (digital) 12.9 kW

prepared for
Mountain Licenses, L.P.

October, 2013

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

Figure 4
Calculated RF Electromagnetic Field
KCYU-LD Yakima, WA
Facility ID 58694
Ch. 41 (digital) 12.9 kW

prepared for
Mountain Licenses, L.P.

October, 2013

Graph depicts calculated percentage of General Population/Uncontrolled Maximum Exposure Limit attributable to KCYU-LD for locations 2 meters above ground level. Flat terrain assumed. Calculations conducted pursuant to FCC OET Bulletin Number 65.

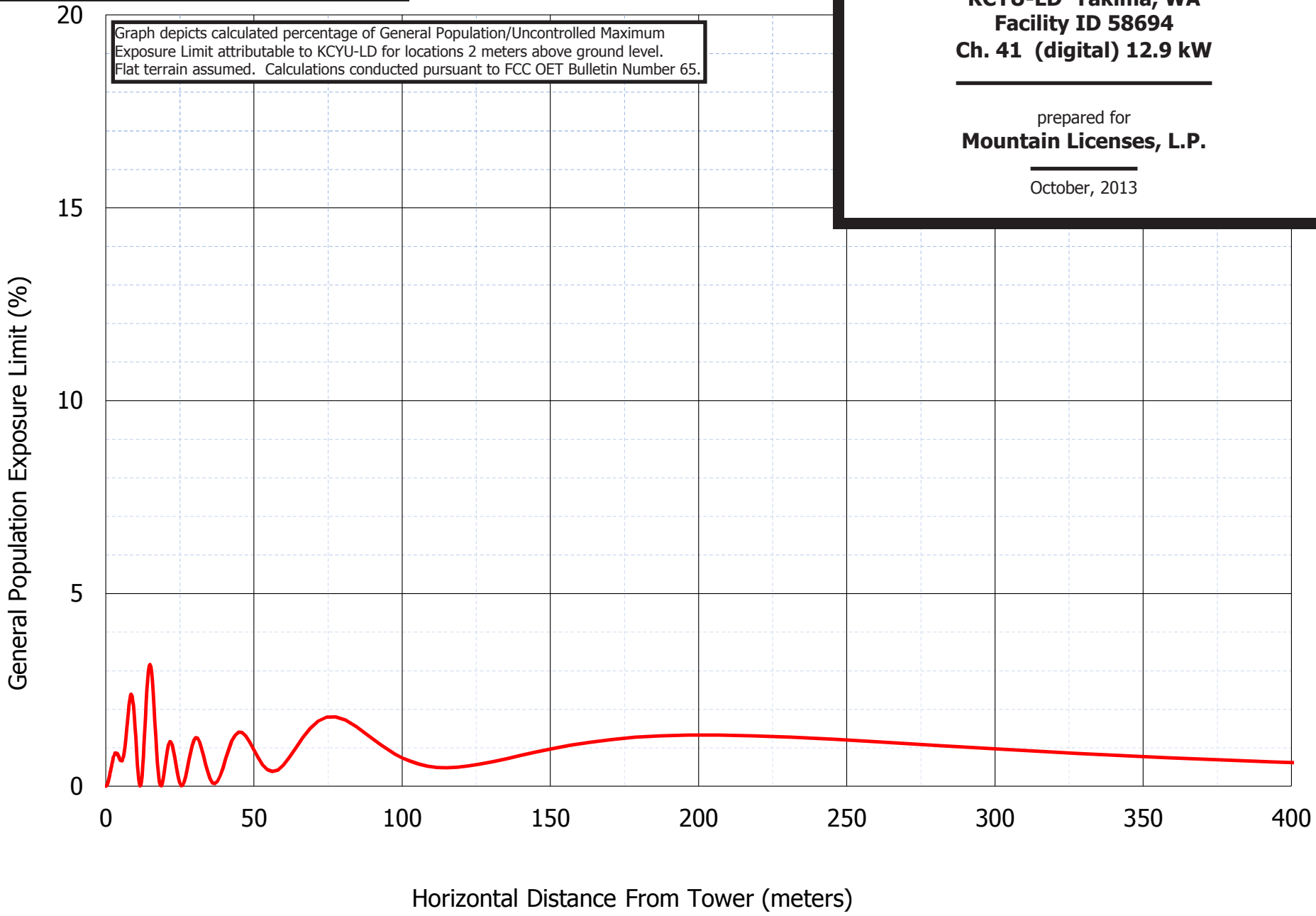


Table 1

Interference Analysis Results Summary

prepared for

Mountain Licenses, L.P.

KCYU-LD Yakima, WA

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

```
KCYU-LD  USERRECORD-01                YAKIMA                  WA US
Channel 41 ERP 12.9   kW   HAAT  259. m  RCAMSL 00621 m STRINGENT MASK
Latitude 046-31-57  Longitude 0120-30-43
Dir Antenna Make CDB  Model 00000000088933  Beam tilt N  Ref Azimuth 0.
```

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---- Baseline	New Interference
34	K34EM	WENATCHEE WA	103.8	LIC	BLTT-19971030JA	---	none
38	K38IT	STEMILT, ETC. WA	82.8	LIC	BLTT-20091217AAO	---	none
39	K39DM	ELLENSBURG WA	40.1	APP	BLTTL-20090709AEB	---	none
40	K40FM-D	MILTON-FREEWATER OR	190.0	LIC	BLDTT-20120423ABW	---	none
40	KOIN	PORTLAND OR	205.3	LIC	BLCDT-20050613ABB	---	none
40	K40AE-D	CASHMERE, ECT WA	110.4	LIC	BLDTT-20120619AAF	---	none
40	K40NJ-D	CENTERVILLE WA	99.6	CP	BNPDTL-20100513ADX	---	none
40	K40KS-D	KENNEWICK WA	108.2	CP	BNPDTL-20090825BJB	---	none
40	NEW	MOSES LAKE WA	122.5	APP	BNPDTL-20090825ALZ	---	none
40	NEW	MOSES LAKE WA	113.8	APP	BNPDTL-20090825ACX	---	none
41	K41FJ-D	COEUR D'ALENE ID	315.5	LIC	BLDTT-20121005AGL	---	none
41	K41GW-D	JULIAETTA ID	292.1	APP	BSTA-20110706AAX	---	none
41	K41GW-D	JULIAETTA ID	292.1	LIC	BLDTT-20120117ABG	---	none
41	K41HS-D	MCCALL ID	388.5	LIC	BLDTT-20090515AAY	---	none
41	K41MH-D	MULLAN ID	376.9	CP	BNPDTL-20100505AFF	---	none
41	KBND-LP	BEND OR	280.3	LIC	BLTT-20041025AEO	---	none
41	KBND-LP	BEND OR	280.3	CP MOD	BMPDTL-20090521AEQ	---	none
41	KBND-LP	BEND OR	280.3	CP	BDFCDTL-20090430ABC	---	none
41	K41HZ	BURNS OR	346.3	LIC	BLTT-20060526ALC	---	none
41	KORY-CA	EUGENE OR	347.0	LIC	BLTTA-20020722ABH	---	none
41	K41MU-D	LA GRANDE OR	235.8	LIC	BLDTT-20120625ABV	---	none
41	K41IP-D	RAINIER OR	184.1	LIC	BLDTL-20100615AOG	---	none
41	K41GG-D	ROCKAWAY BEACH OR	278.1	LIC	BLDTT-20100804AAH	---	none
41	K41CK	ELLENSBURG WA	40.1	LIC	BLTT-19890227IN	---	none
41	K41KT-D	GRAYS RIVER WA	232.5	LIC	BLDTT-20100218ADE	---	none
41	K41MM-D	PATEROS WA	170.1	LIC	BLDTL-20120613AAX	---	none
41	KOXO-CA	VANCOUVER WA	205.7	CP	BDISDTA-20120221ADP	1,910,460	0 (0.00%)
41	KOXO-CA	VANCOUVER WA	170.4	APP	BSTA-20130215ABU	---	none
42	K42IT-D	PENDLETON OR	182.3	LIC	BLDTT-20091124AHC	---	none
42	KPXG-LD	PORTLAND OR	205.7	LIC	BLDTL-20090828ACK	---	none
42	K42CM-D	CENTRALIA/CHEHALIS WA	194.6	LIC	BLDTL-20110815ABH	---	none

Table 1

Interference Analysis Results Summary

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
42	K42IH-D	EAST WENATCHEE WA	95.5	LIC	BLDTL-20100106AEC	---	none
42	K42KA-D	MOSES LAKE WA	113.8	CP	BNPDTL-20090825ABH	---	none
42	K42JY-D	RICHLAND WA	73.6	CP	BNPDTL-20090825AGL	67,808	272 (0.40%)
42	KWDK	TACOMA WA	154.5	LIC	BLEDT-20050421AAE	---	none
43	KUMN-LP	MOSES LAKE, ETC. WA	78.9	LIC	BLTT-20060428ACH	---	none
43	K43GY	YAKIMA, ETC. WA	1.2	LIC	BLTTL-20040615ACA	---	none
45	K45AC	WENATCHEE WA	82.8	LIC	BLTT-19940914JD	---	none
49	K49GF	YAKIMA, ETC. WA	1.2	LIC	BLTTL-20040616AAK	---	none

Section III - Engineering (Digital)

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:
41

2. Translator Input Channel No. :

3. Primary station proposed to be rebroadcast:

Facility Identifier	Call Sign	City	State	Channel

4. Antenna Location Coordinates: (NAD 27)
Latitude:
Degrees 46 Minutes 31 Seconds 57 (•) North ( ) South

Longitude:
Degrees 120 Minutes 30 Seconds 43 (•) West ( ) East

5. Antenna Structure Registration Number: 1235050
☐ Not Applicable [Exhibit 11] ☐ Notification filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: 602.0 meters

7. Overall Tower Height Above Ground Level: 20.1 meters

8. Height of Radiation Center Above Ground Level: 19.2 meters

9. Maximum Effective Radiated Power (ERP): 12.9 kW

10. Transmitter Output Power: 1.0 kW

11. a.Transmitting Antenna:
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://licensing.fcc.gov/prod/cdbs/pubacc/prod/cdbs_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.
( ) Nondirectional ( ) Directional Off-the Shelf (•) Directional composite

Manufacturer ERI Model AL8-41

b. Electrical Beam Tilt: 1.75 degrees ☐ Not Applicable

c. Mechanical Beam Tilt: degrees toward azimuth degrees True ☑ Not Applicable

d. Directional Antenna Relative Field Values: ☐ N/A (Nondirectional or Off-the-Shelf)
Rotation (Degrees): ☑ No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	1	10	0.995	20	0.979	30	0.953	40	0.918	50	0.876
60	0.829	70	0.781	80	0.734	90	0.694	100	0.663	110	0.645
120	0.641	130	0.647	140	0.661	150	0.679	160	0.694	170	0.705
180	0.709	190	0.705	200	0.694	210	0.678	220	0.661	230	0.647
240	0.641	250	0.645	260	0.663	270	0.694	280	0.734	290	0.781
300	0.829	310	0.876	320	0.918	330	0.953	340	0.979	350	0.995
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? ( ) Yes (•) No

[Exhibit 12]

If Yes, attach an Exhibit (see instructions for details).

Relative Field Polar Plot

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.

12. **Out-of-channel Emission Mask:** ( ) Simple (•) Stringent ( ) Full Service

CERTIFICATION

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. (•) Yes ( ) No

See Explanation in

		[Exhibit 13]
14.	**Environmental Protection Act.** 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 **Exhibit is required.** 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.	(●) Yes ( ) No See Explanation in [Exhibit 14]
15.	**Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable: ☐ The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available. ☐ 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.	
16.	**Channels 60-69.** If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable: ☐ 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. ☐ 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. ☐ 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.	

PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.

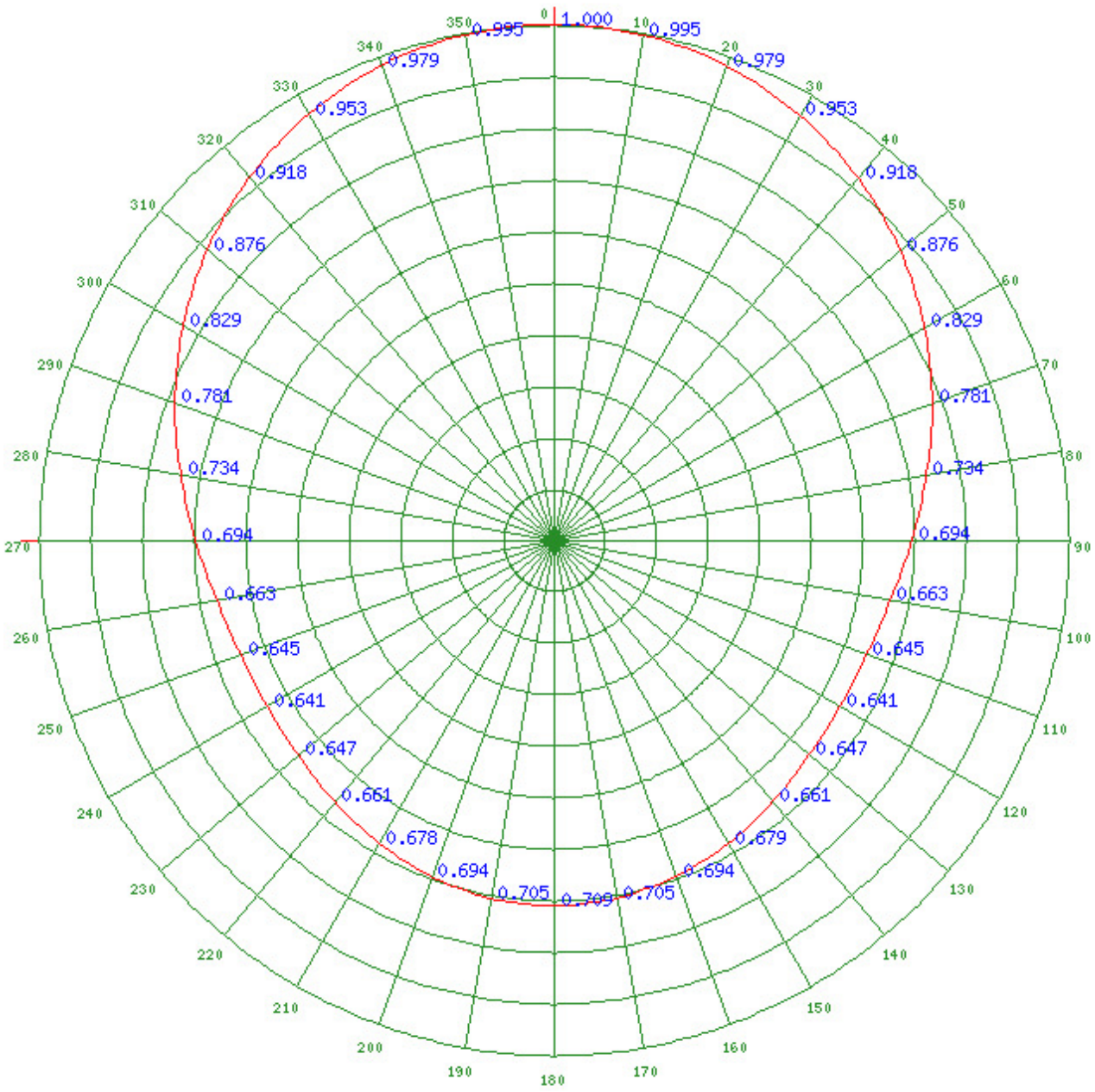
SECTION III PREPARER'S CERTIFICATION

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 10/23/2013	
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.

Close Window



FM Query FCC TV Query