

## **ENGINEERING EXHIBIT**

### **Application for Construction Permit Digital Television Translator** prepared for

**Gray Television Licensee, LLC**  
New Translator, Paris, TX  
Ch. 24 (digital) 15 kW

*Gray Television Licensee, LLC* (“Gray”) herein proposes to construct a new digital television translator station on Channel 24 to serve Paris, TX other nearby communities. The proposed facility will be a translator for digital television station KXII(DT), Ch. 12, Facility ID 35954, Sherman, TX, also licensed to *Gray*.

The proposed site is located more than 121 kilometers (75 miles) from the reference coordinates of the cities listed in Appendix A of DA 09-1487.<sup>1</sup>

The proposed facility will operate on Channel 24 using a “simple” out of channel emission mask. The effective radiated power is 15 kW utilizing a nondirectional antenna. **Figure 1** depicts the proposed translator’s 51 dBμ coverage contour. The proposed digital translator facility will employ a new antenna system to be side-mounted on an existing tower structure, associated with Antenna Structure Registration number 1054343. No change to the overall structure height is proposed.

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<sup>1</sup>“Commencement of Rural, First-come, First-served digital licensing for Low Power Television and TV Translators Beginning August 25, 2009 and Commencement of Nationwide, First-come, First-served Digital Licensing for Low Power Television and TV Translator Services Beginning January 25, 2010,” Public Notice, DA 09-1487, Released June 29, 2009.

Detailed interference studies per OET Bulletin 69<sup>2</sup> show 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) to any facility except the unbuilt Construction Permit for K24HO-D (BDCCDTT-20061030APB, Ch. 24, Paris, TX). *Gray* is the permittee of K24HO-D and consents to accept the predicted interference to K24HO-D. The proposed translator is filed as a replacement authorization to K24HO-D. The authorization for K24HO-D will expire January 12, 2010.

Accordingly, the instant proposal complies with §§73.6012 – 73.6020 regarding interference protection to digital television, low power television, television translator, Class A television, and land mobile facilities.

The nearest FCC monitoring station is 754 km distant at Kingsville, TX. 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 AM stations within 3.2 kilometers of the site, based on information contained within the Commission's database. The site location is beyond the border areas requiring international coordination.

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<sup>2</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 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.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed transmitting antenna will be side-mounted on an existing antenna support structure. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules.

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 20 percent antenna relative field in downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is  $0.93 \mu\text{W}/\text{cm}^2$ , which is 0.3 percent of the general population/uncontrolled maximum permitted exposure limit. This is well 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 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.

### **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.  
November 2, 2009

**Chesapeake RF Consultants, LLC**  
11993 Kahns Road  
Manassas, VA 20112  
703-650-9600

### List of Attachments

Figure 1	Proposed Coverage Contour
Table 1	Interference Analysis Results Summary
Form 346	Saved Version of Engineering Sections from FCC Form at Time of Upload

*This material was entered November 29, 2009 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.*

**Figure 1**  
**Proposed Coverage Contour**  
**New Translator, Paris, TX**  
**Ch. 24 (digital) 15 kW**

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prepared for  
**Gray Television Licensee, LLC**

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November, 2009

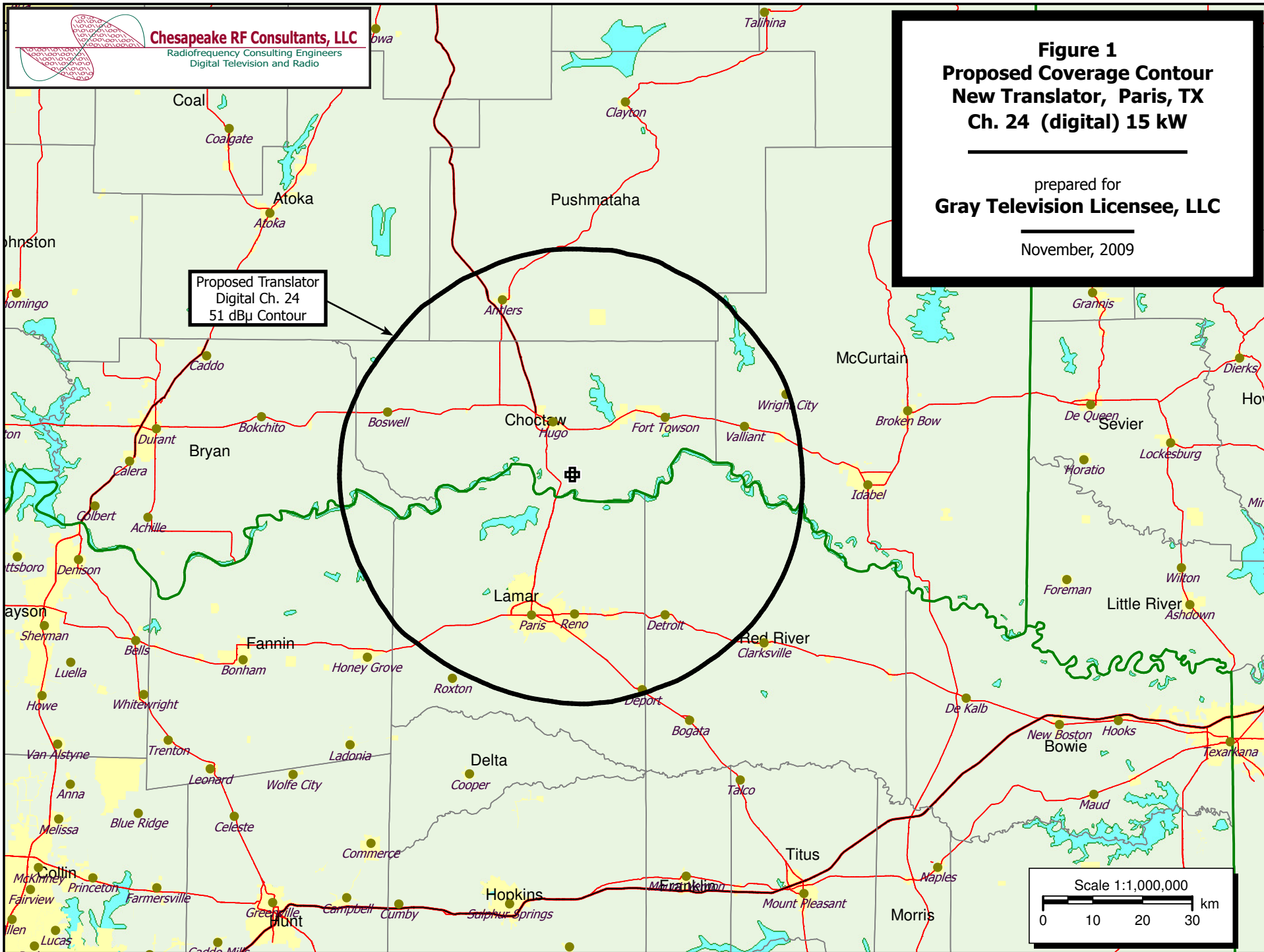


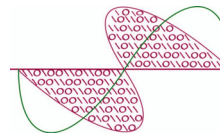
Table 1

**Interference Analysis Results Summary**

prepared for

**Gray Television Licensee, LLC**

Paris, TX

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

New-LD	USERRECORD-01	PARIS	TX US
Channel 24	ERP 15. kW	HAAT 139. m	RCAMSL 00277 m
Latitude 033-54-56		Longitude 0095-28-04	
Nondirectional antenna			

Ch.	Call	City/State	Dist		Application Ref. No.	---Population (2000 Census)---	
			(km)	Status		Baseline	New Interference
16	NEW	ADA OK	111.9	APP	BNPTTL-20000830BPQ	---	none
20	KAQC-LP	ATLANTA TX	140.7	LIC	BLTTL-20050817AAN	---	none
23	KJEP-CA	NASHVILLE AR	151.4	CP	BDFCDTA-20070103AAQ	---	none
23	KJEP-CA	NASHVILLE AR	151.4	LIC	BLTTL-19960111AE	---	none
23	K63BA	IDABEL OK	61.0	CP	BDFCDTT-20061026AEJ	59,413	657 (1.11%)
23	KUVN-DT	GARLAND TX	203.1	CP MOD	BMPCDT-20080618ADY	---	none
24	KVTN-DT	PINE BLUFF AR	321.9	LIC	BLCDT-20071231AFB	---	none
24	NEW	SPRINGDALE AR	274.1	APP	BNPDTL-20090825BUF	---	none
24	NEW	MONROE LA	343.7	APP	BNPDTL-20090825AKN	---	none
24	KLTS-DR	SHREVEPORT LA	198.7	LIC	BPRM-20080620AOC	597,672	449 (0.08%)
24	KLTS-TV	SHREVEPORT LA	198.7	CP MOD	BMPEDT-20090406AFO	839,081	275 (0.03%)
24	KJOM-LP	ASBURY MO	399.8	LIC	BLTTL-20060109ABS	---	none
24	NEW	ARDMORE OK	123.5	APP	BNPDTL-20090825AUP	---	none
24	KOKH-TV	OKLAHOMA CITY OK	258.9	LIC	BLCDDT-20041207ACV	1,448,089	87 (0.01%)
24	NEW	LUFKIN TX	293.3	APP	BNPDTL-20091030AGO	---	none
24	K24HO-D	PARIS TX	0.0	CP	BDCCDTT-20061030APB	79,752	78,523 (98.46%) **
24	K24HH-D	WICHITA FALLS TX	283.6	CP	BDCCDTL-20060927AGW	---	none
25	K25GJ	MUSKOGEE OK	198.5	LIC	BLTT-20051206ADA	---	none
25	K25FW	CORSICANA TX	203.0	LIC	BLTTL-20000320AAR	---	none
25	K57GF	GARLAND TX	159.8	APP	BPTTL-20020816AAR	---	none
25	NEW	TYLER TX	174.5	APP	BNPDTT-20091001AHI	---	none
27	K27GR	PARIS TX	33.6	LIC	BLTTL-20040617AAS	---	none
28	K28DJ	BROKEN BOW OK	65.1	LIC	BLTTL-19900731IM	---	none

\*\* Gray Television Licensee, LLC is permittee of K24HO-D and consents to accept the predicted interference to K24HO-D. The proposed translator is filed as a replacement authorization to K24HO-D. The authorization for K24HO-D will expire January 12, 2010.

**SECTION III - ENGINEERING DATA (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 Number: 24																																																																																																
2.	Translator Input Channel No. : 12																																																																																																
3.	Primary station proposed to be rebroadcast: <table border="1"><tr><td>Facility Identifier</td><td>Call Sign</td><td>City</td><td>State</td><td>Channel</td></tr><tr><td>35954</td><td>KXII</td><td>SHERMAN</td><td>TX</td><td>12</td></tr></table>	Facility Identifier	Call Sign	City	State	Channel	35954	KXII	SHERMAN	TX	12																																																																																						
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35954	KXII	SHERMAN	TX	12																																																																																													
4.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 33 Minutes 54 Seconds 56 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 95 Minutes 28 Seconds 04 <input checked="" type="radio"/> West <input type="radio"/> East																																																																																																
5.	Antenna Structure Registration Number: 1054343 <input type="checkbox"/> Not Applicable [Exhibit 10] <input type="checkbox"/> Notification filed with FAA																																																																																																
6.	Antenna Location Site Elevation Above Mean Sea Level: 128 meters																																																																																																
7.	Overall Tower Height Above Ground Level: 174 meters																																																																																																
8.	Height of Radiation Center Above Ground Level: 149 meters																																																																																																
9.	Maximum Effective Radiated Power (ERP): 15 kW																																																																																																
10.	Transmitter Output Power: 2.19 kW																																																																																																
11.	a. Transmitting Antenna: Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under <a href="http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm">CDBS Public Access</a> (http://fjallfoss.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. <input checked="" type="radio"/> Nondirectional <input type="radio"/> Directional "Off-the-shelf" <input type="radio"/> Directional composite  Manufacturer ERI Model ALP12M3-HSO-24  b. Electrical Beam Tilt: 0.75 degrees <input type="checkbox"/> Not Applicable  c. Directional Antenna Relative Field Values: <input checked="" type="checkbox"/> N/A (Nondirectional or Directional "Off-the-shelf") Rotation (Degrees): <input type="checkbox"/> No Rotation <table border="1"><thead><tr><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th></tr></thead><tbody><tr><td>0</td><td></td><td>10</td><td></td><td>20</td><td></td><td>30</td><td></td><td>40</td><td></td><td>50</td><td></td></tr><tr><td>60</td><td></td><td>70</td><td></td><td>80</td><td></td><td>90</td><td></td><td>100</td><td></td><td>110</td><td></td></tr><tr><td>120</td><td></td><td>130</td><td></td><td>140</td><td></td><td>150</td><td></td><td>160</td><td></td><td>170</td><td></td></tr><tr><td>180</td><td></td><td>190</td><td></td><td>200</td><td></td><td>210</td><td></td><td>220</td><td></td><td>230</td><td></td></tr><tr><td>240</td><td></td><td>250</td><td></td><td>260</td><td></td><td>270</td><td></td><td>280</td><td></td><td>290</td><td></td></tr><tr><td>300</td><td></td><td>310</td><td></td><td>320</td><td></td><td>330</td><td></td><td>340</td><td></td><td>350</td><td></td></tr><tr><td colspan="2">Additional Azimuths</td><td colspan="10"></td></tr></tbody></table>	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	0		10		20		30		40		50		60		70		80		90		100		110		120		130		140		150		160		170		180		190		200		210		220		230		240		250		260		270		280		290		300		310		320		330		340		350		Additional Azimuths											
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[Relative Field Polar Plot](#)

	<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.	<b>Out-of-channel Emission Mask:</b> <input checked="" type="radio"/> Simple <input type="radio"/> Stringent
<b>CERTIFICATION</b>	
13.	<b>Interference :</b> 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 <div>See Explanation in [Exhibit 11]</div>
14.	<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> <input checked="" type="radio"/> Yes <input type="radio"/> No <div>See Explanation in [Exhibit 12]</div> 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.
15.	<b>Channels 52-59.</b> If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable:  <input type="checkbox"/> The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available.  <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.
16.	<b>Channels 60-69.</b> If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable:  <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.  <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.  <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.
<b>PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.</b>	

### 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 11/02/2009	
Mailing Address CHESAPEAKE RF CONSULTANTS, LLC 11993 KAHNS ROAD			
City MANASSAS		State or Country (if foreign address) VA	Zip Code 20112 -
Telephone Number (include area code) 7036509600		E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	