

## ENGINEERING EXHIBIT

### Application for Post-Transition Digital Television Station Construction Permit

prepared for

#### **Hearst-Argyle Stations, Inc.**

KHVO-DT Hilo, HI

Facility ID 64544

Ch. 13 2 kW -92 m

*Hearst-Argyle Stations, Inc.* (“*Hearst-Argyle*”) is the licensee of television station KHVO(TV), analog Channel 13 and digital Channel 18, Hilo, HI. *Hearst-Argyle* herein proposes construction of the KHVO-DT post-transition digital facility on Channel 13. This channel was established in Appendix B of the Seventh Report and Order in MB Docket 87-278.

The instant proposal specifies an effective radiated power (“ERP”) of 2 kW at (minus) -92 meters antenna height above average terrain (“HAAT”), using a shared directional antenna.<sup>1</sup> The proposed coverage contour does not exceed the Appendix B parameters of 3.73 kW ERP and 1 meter HAAT over land area.

The proposed antenna is a horizontally polarized Dielectric model THA-C2-2H/4H-1-H. The directional antenna’s azimuthal pattern is depicted in **Figure 1**, and **Figure 2** provides the theoretical vertical plane (elevation) pattern<sup>2</sup>. The antenna is mounted on an existing antenna supporting structure, having FCC Antenna Structure Registration number 1029536. No change to the overall structure height and no tower work are required to carry out this proposal.

A map is supplied as **Figure 3**, which depicts the standard predicted coverage contours. This map includes the boundaries of Hilo, KHVO-DT’s principal community. As demonstrated thereon,

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<sup>1</sup>The antenna is currently employed by KGMD-TV (Ch. 9) and KHAW-TV (Ch. 11), both Hilo, HI, and will continue to be employed by those stations’ post-transition facilities.

<sup>2</sup> These patterns are supplied in terms of relative field. In recent years, FCC Staff have not required pattern data in dBk format however such patterns are available upon request.

the proposed facility complies with §73.625(a)(1), as the entire principal community will be encompassed by the 43 dB $\mu$  contour.

The proposed KHVO-DT facility's predicted service population provides a 96.8 percent match of the Appendix B facility, as detailed in the table below.

**Post-Transition Population Summary**

Population Summary (2000 Census) OET Bulletin 69 method	Appendix B	Proposed
Within Noise Limited Contour	81,450	77,456
Not affected by terrain losses	79,272	76,717
Lost to all interference	0	0
Net DTV Service	<b>79,272</b>	<b>76,717</b>
Match of Appendix B	---	<b>96.78%</b>

Since no extension over land area in contour location beyond that of the allotment will result, interference analysis to other television facilities is not required (see **Figure 3**).

Pursuant to §73.625(b)(3), the calculated average terrain elevation and associated antenna HAAT have been adjusted due to the proximity of the site to the Pacific Ocean (see **Figure 3**). The 45 and 90 degree radials have been truncated to include only the part of the radial extending from 3.2 kilometers to the outermost portion of land area covered by the radial.

The nearest FCC monitoring station is 350 km distant at Waipahu, HI. This exceeds by a large margin 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, based on information contained within the Commission's database. The site location is beyond the border areas requiring international coordination.

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

The proposal will involve use of an existing transmitting antenna. 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. No tower construction or change in

structure height is proposed. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's 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 35 percent antenna relative field in downward elevations (pattern data shows less than 35 percent relative field at angles 20 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is  $1.6 \mu\text{W}/\text{cm}^2$ , which is 0.8 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.  
June 18, 2008

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

### List of Attachments

Figure 1	Antenna Horizontal Plane Pattern
Figure 2	Antenna Vertical Plane (Elevation) Pattern
Figure 3	Proposed Coverage Contours
Form 301	Saved Version of Engineering Sections from FCC Form at Time of Upload

*This material was entered June 18, 2008 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name 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**  
**Antenna Azimuth Pattern**

Proposal Number

**DCA-10577**

Date

**6-May-08**

Call Letters

**KHVO**

Channel

**13**

Location

**Hilo, HI**

Customer

Antenna Type

**THA-C2-2H/4H-1-H**

### AZIMUTH PATTERN

Gain  
Calculated / Measured

**2.51**

**( 4.00 dB)**

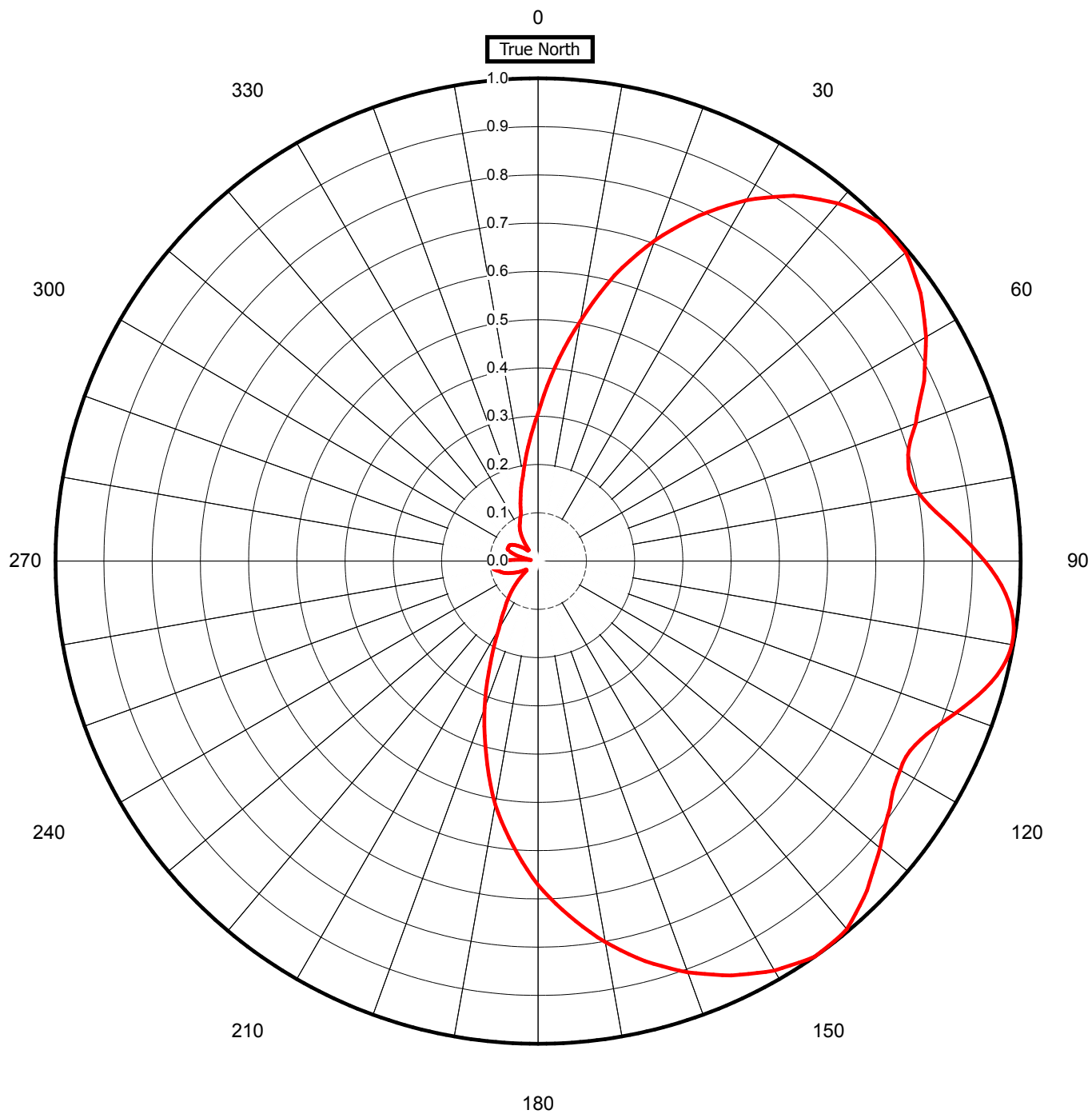
**Calculated**

Frequency

**213.00 MHz**

Drawing #

**C2-213**



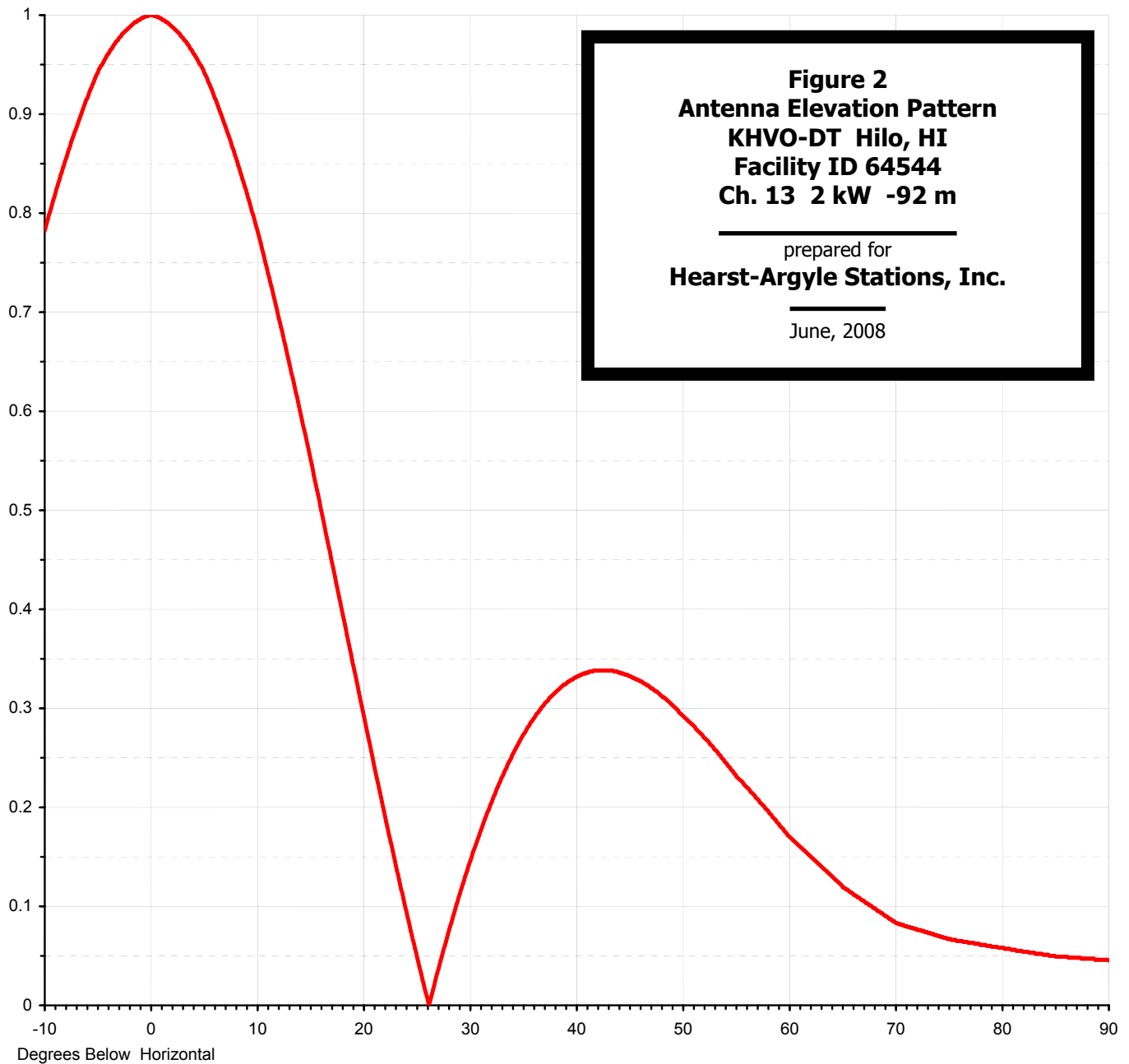


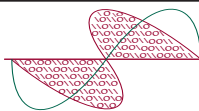
Proposal Number	<b>DCA-10577</b>	
Date	<b>6-May-08</b>	
Call Letters	<b>KHVO</b>	Channel <b>13</b>
Location	<b>Hilo, HI</b>	
Customer		
Antenna Type	<b>THA-C2-2H/4H-1-H</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>2.40</b>	<b>( 3.80 dB )</b>
RMS Gain at Horizontal	<b>2.40</b>	<b>( 3.80 dB )</b>
Calculated / Measured	<b>Calculated</b>	

Beam Tilt	<b>0.00 deg</b>
Frequency	<b>213.00 MHz</b>
Drawing #	<b>02H023700-90</b>



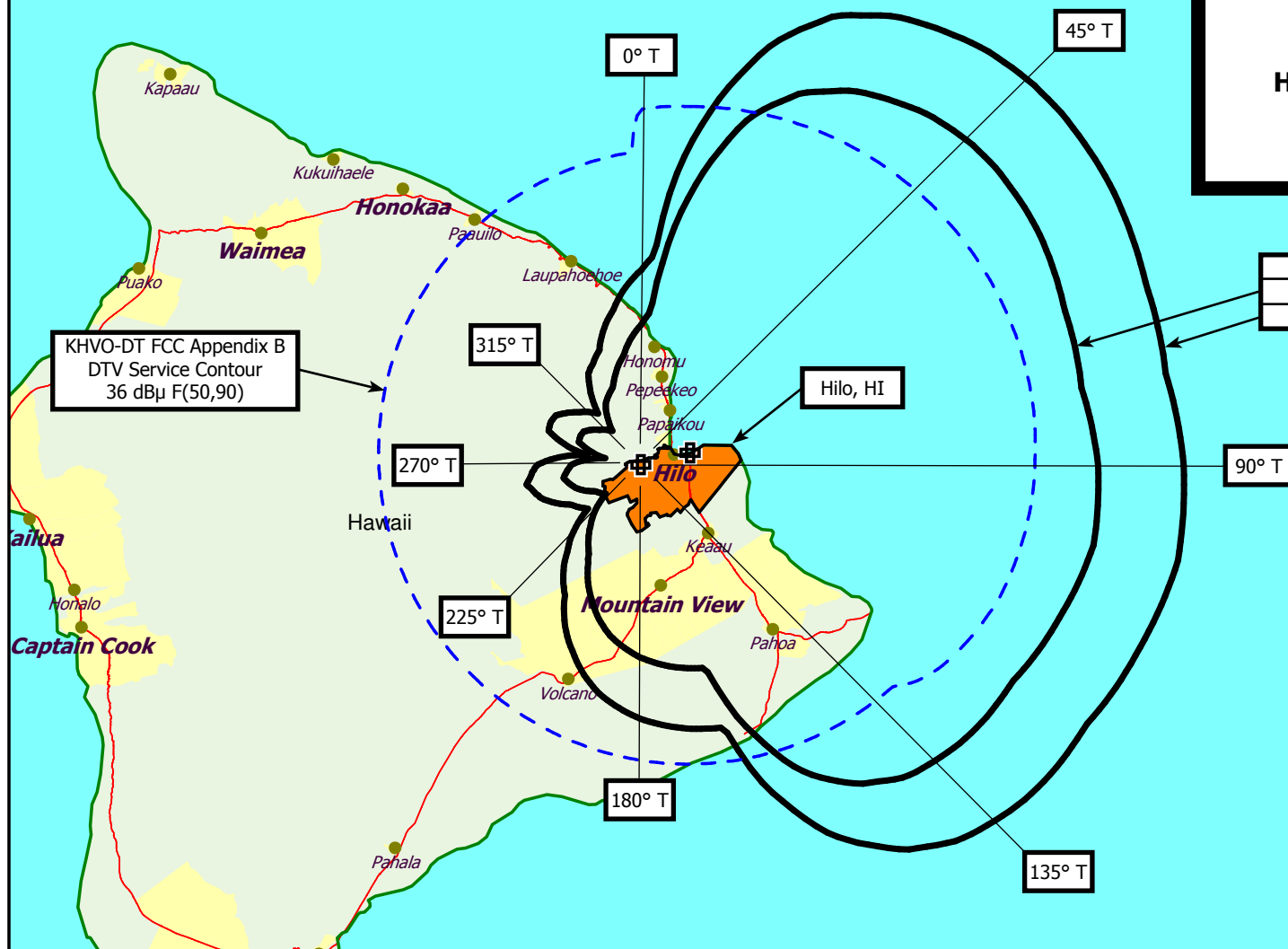


**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 3**  
**Proposed Coverage Contours**  
**KHVO-DT Hilo, HI**  
**Facility ID 64544**  
**Ch. 13 2 kW -92 m**

prepared for  
**Hearst-Argyle Stations, Inc.**

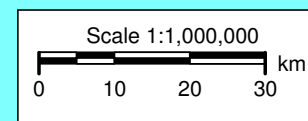
June, 2008



KHVO-DT FCC Appendix B  
DTV Service Contour  
36 dBμ F(50,90)

Proposed KHVO-DT  
DTV City Grade (43 dBμ)  
DTV Service (36 dBμ)

Proposed Post-Transition Coverage	Population (2000 Census)	Area (sq. km)
Within Standard DTV Service Contour	77,145	8,401.1
OET Bulletin 69 method		
Within noise limited contour	77,456	8,563.8
Not affected by terrain losses	76,717	7,944.1
Lost to all interference	0	0.0
Net DTV Service	76,717	7,944.1



**SECTION III-D - 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 the 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 within 45 days of the effective date of Section 73.616 of the rules adopted in 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.	<input checked="" type="radio"/> Yes <input type="radio"/> 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.	<input type="radio"/> Yes <input type="radio"/> No
(c) 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.	<input type="radio"/> Yes <input type="radio"/> 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").	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
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. Applicant must <b>submit the Exhibit</b> called for in Item 13.	<input checked="" type="radio"/> Yes <input type="radio"/> No
3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community.	<input checked="" type="radio"/> Yes <input type="radio"/> 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No
5. The antenna structure to be used by this facility has been registered by the Commission and will not require registration 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No

**SECTION III-D - 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 13 Analog TV, if any 13
2.	Zone: <input type="radio"/> I <input checked="" type="radio"/> II <input type="radio"/> III
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 19 Minutes 43 Seconds 00 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 155 Minutes 08 Seconds 13 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Antenna Structure Registration Number: 1029536 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
5.	Antenna Location Site Elevation Above Mean Sea Level: 263 meters
6.	Overall Tower Height Above Ground Level: 80 meters
7.	Height of Radiation Center Above Ground Level: 73 meters
8.	Height of Radiation Center Above Average Terrain : -92 meters



2 of 3

**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 6/18/2008	
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	

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).

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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.

