

ENGINEERING EXHIBIT

“Maximization” Application for Post-Transition Digital Television Station Construction Permit

prepared for

Hampton Roads Educational Telecommunications Association, Inc.

WHRO-DT Hampton-Norfolk, VA

Facility ID 25932

Ch. 16 1000 kW 361 m

Hampton Roads Educational Telecommunications Association, Inc. (“HRETA”) is the licensee of television station WHRO-TV, analog Channel 15 and digital Channel 16, Hampton-Norfolk, VA. *HRETA* herein seeks a Construction Permit to expand the WHRO-DT post-transition digital facility on Channel 16. WHRO-DT will be remaining on Channel 16 during the post-transition period, as established in Appendix B of the Seventh Report and Order in MB Docket 87-278. The instant application is intended to be filed upon lifting of the August 3, 2004 “freeze” concerning expansion in service area.¹

WHRO-DT is presently licensed (BLCDT-20020604AAB) to operate with an effective radiated power (“ERP”) of 950 kW with a directional antenna at 361 meters height above average terrain (“HAAT”). The proposal would increase the ERP to 1000 kW with the continued use of the currently licensed antenna system. The antenna is a horizontally polarized Dielectric model TFU-24GBH-R O8 SP. The directional antenna’s azimuthal pattern is depicted in **Figure 1**. **Figures 2** and **2A** provide the theoretical vertical plane (elevation) pattern².

¹Public Notice “Freeze on the Filing of Certain TV and DTV Requests for Allotment or Service Area Changes,” DA 04-2446, released August 3, 2004.

² 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 antenna is part of a top-mounted antenna stack on the existing WHRO-DT antenna supporting structure, having FCC Antenna Structure Registration (“ASR”) number 1057874. 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 location of Hampton and Norfolk, WHRO-DT’s principal communities. As demonstrated thereon, the proposed facility complies with §73.625(a)(1), as the entire principal community will be encompassed by the 48 dBμ contour.

The proposed WHRO-DT facility’s predicted service population provides a 100.3 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	2,003,670	2,010,650
Not affected by terrain losses	2,003,670	2,010,650
Lost to all interference	0	0
Net DTV Service	2,003,670	2,010,650
Match of Appendix B	---	100.35%

A detailed interference study per OET Bulletin 69³ shows that the proposal complies with the 0.5 percent limit of new interference caused to other stations’ Appendix B facilities, as summarized in the following table. Protection requirements towards authorized Class A stations are also satisfied. The only potentially affected Class A stations are WYSJ-CA (Ch. 19, Yorktown, VA, 30.3 km distant) and WITD-CA (Lic and CP, Ch. 23, Chesapeake, VA, 1.5 km). OET Bulletin 69 interference analysis with a 1 km cell size shows that no interference would be caused to WYSJ-CA and no additional interference would be caused to WITD-CA (Lic and CP).

³FCC 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 standard cell size of 2 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.

Post-Transition Interference Analysis Summary

Ch	Call Sign	State/City Facility ID	Power (kW) HAAT (m)	Dist (km) Bear (°T)	Appendix B	New Interference	
					Baseline Population (2000 Census)	From Proposal Population	Percent
15	WRPX-DT	NC ROCKY MOUNT 20590	180 354	170.4 243.0	--- no interference caused ---		
16	WPDE-DT	SC FLORENCE 17012	421 602	373.1 224.1	1,611,681	0	0.00%
17	WNCN-DT	NC GOLDSBORO 50782	244 628	221.2 235.8	--- no interference caused ---		

Other Allocation Considerations

The nearest FCC monitoring station is 263 km distant at Laurel, MD. 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 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 10 percent antenna relative field in downward elevations (pattern data shows less than 10 percent relative field at angles 10 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 $2.7 \mu\text{W}/\text{cm}^2$, which is 0.8 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 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.
May 29, 2008

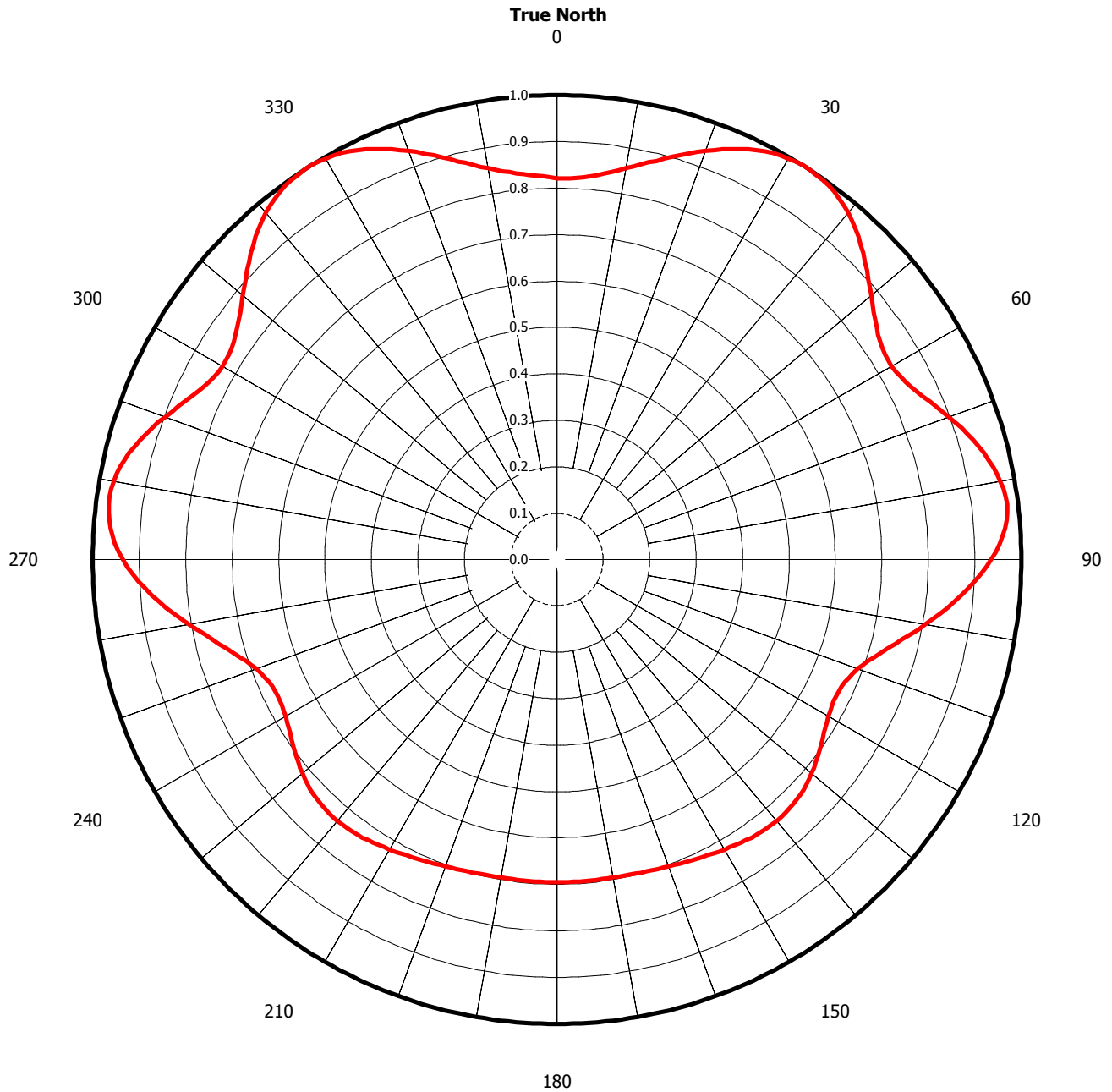
Chesapeake RF Consultants, LLC
11993 Kahns Road
Manassas, VA 20112
703-650-9600

List of Attachments

Figure 1	Antenna Horizontal Plane Pattern
Figure 2, 2A	Antenna Vertical Plane (Elevation) Pattern
Figure 3	Proposed Coverage Contours
Form 340	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered May 29, 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.

**Azimuth Pattern
Relative Field**



**Figure 1
Antenna Horizontal
Plane Pattern
WHRO-DT Hampton-Norfolk, VA
Facility ID 25932
Ch. 16 1000 kW 361 m**

prepared for
**Hampton Roads Educational
Telecommunications Assoc., Inc.**

May, 2008

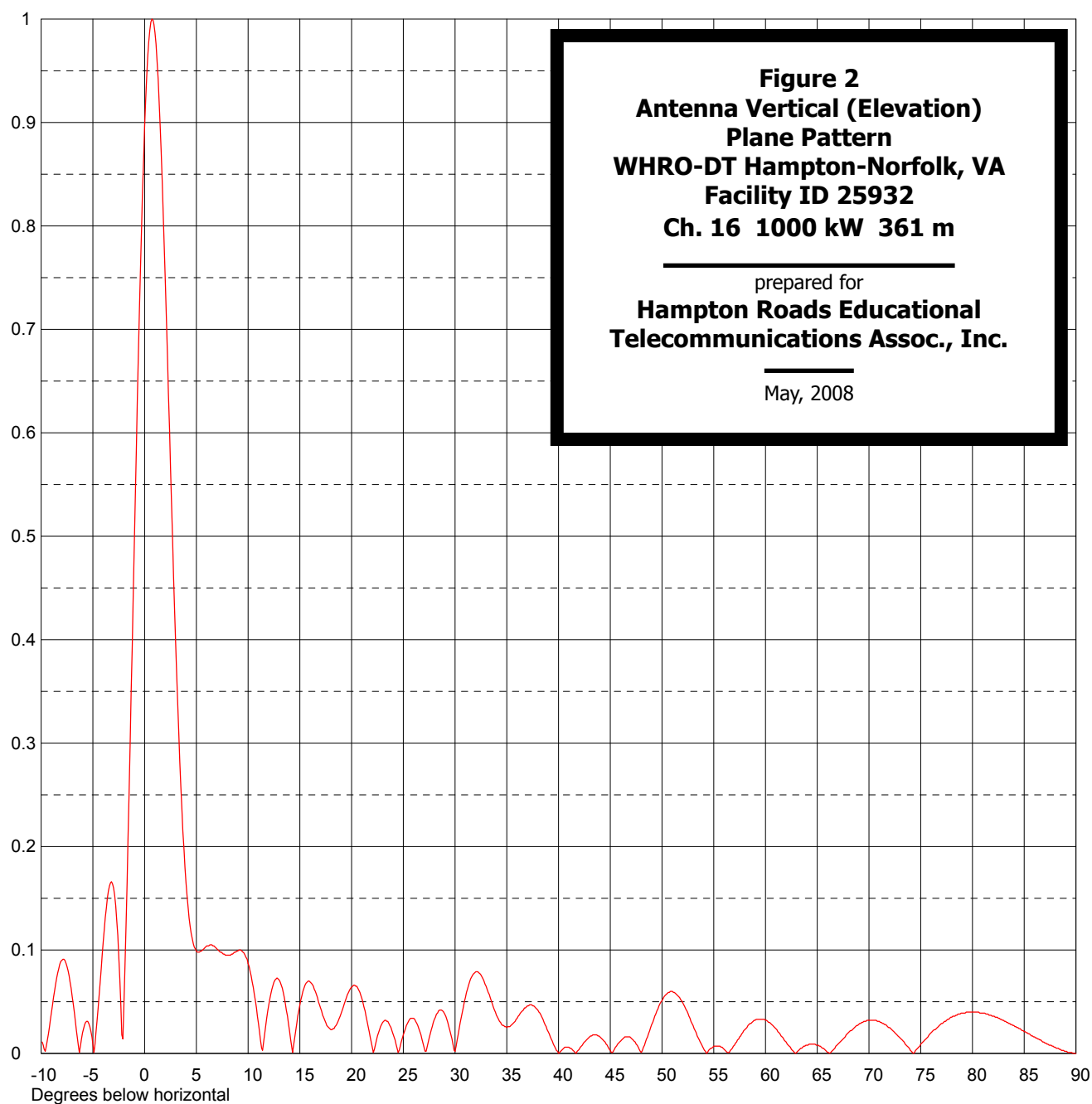


Date **28 May 2008**
Call Letters
Location
Customer
Antenna Type

Channel

ELEVATION PATTERN

RMS Gain at Main Lobe	21.5 (13.32 dB)	Beam Tilt	0.75 Degrees
RMS Gain at Horizontal	17.3 (12.38 dB)	Frequency	MHz
Calculated / Measured	Calculated	Drawing #	24G215075-90



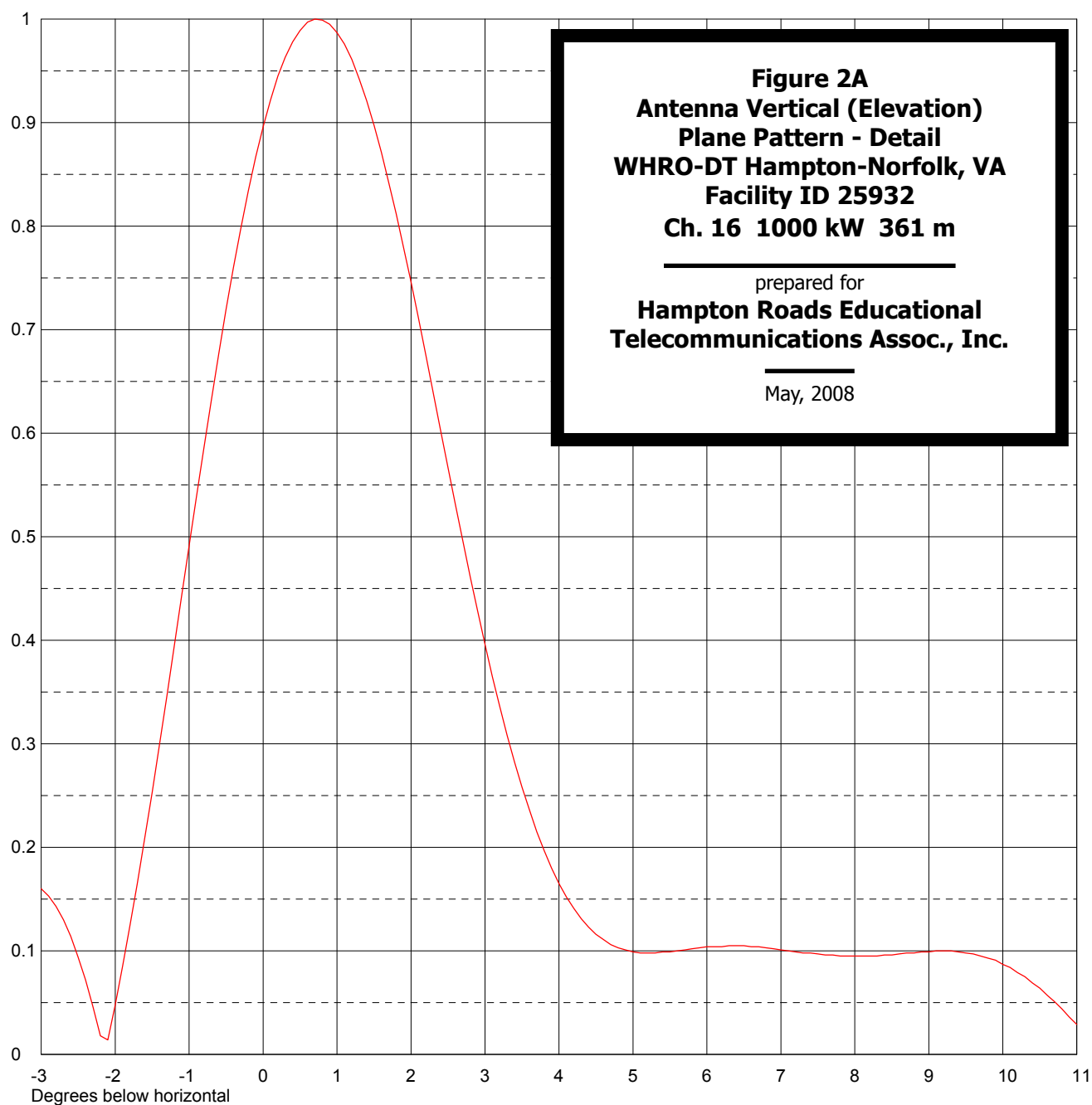


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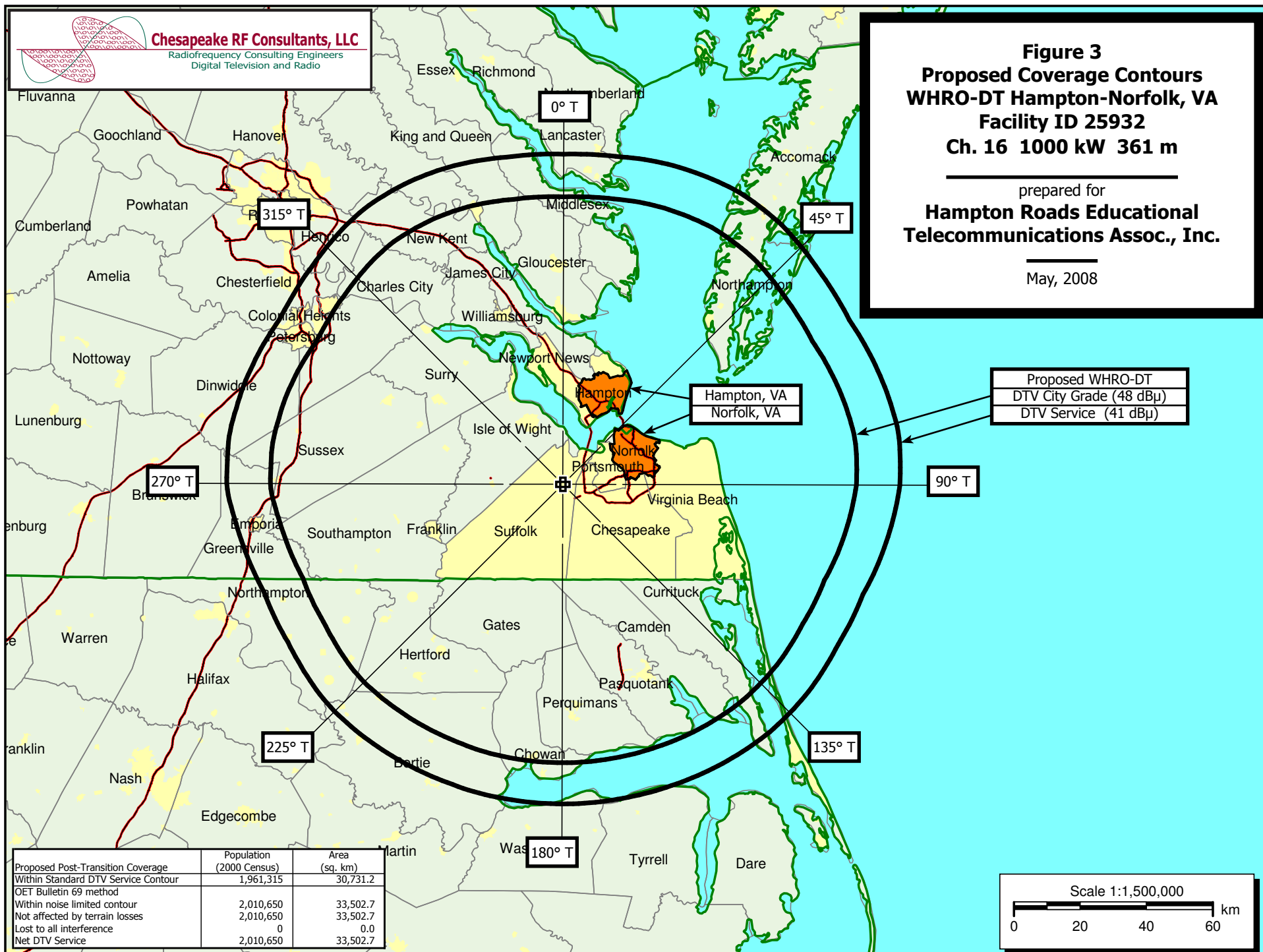


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 3
Proposed Coverage Contours
WHRO-DT Hampton-Norfolk, VA
Facility ID 25932
Ch. 16 1000 kW 361 m

prepared for
Hampton Roads Educational
Telecommunications Assoc., Inc.

May, 2008



Proposed Post-Transition Coverage	Population (2000 Census)	Area (sq. km)
Within Standard DTV Service Contour	1,961,315	30,731.2
OET Bulletin 69 method		
Within noise limited contour	2,010,650	33,502.7
Not affected by terrain losses	2,010,650	33,502.7
Lost to all interference	0	0.0
Net DTV Service	2,010,650	33,502.7

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 JOSEPH M. DAVIS, P.E.	Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature	Date 5/29/2008	
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).

SECTION VII - 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.
(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.
(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.
(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").
(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"/> Yes <input type="radio"/> No
<input type="radio"/> Yes <input type="radio"/> No
<input type="radio"/> Yes <input checked="" type="radio"/> No
<input type="radio"/> N/A
<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 submit the Exhibit 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 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 16 Analog TV, if any 15																																																																																																																																		
2.	Zone: <input checked="" type="radio"/> I <input type="radio"/> II <input type="radio"/> III																																																																																																																																		
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 36 Minutes 48 Seconds 31 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 76 Minutes 30 Seconds 12 <input checked="" type="radio"/> West <input type="radio"/> East																																																																																																																																		
4.	Antenna Structure Registration Number: 1057874 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA																																																																																																																																		
5.	Antenna Location Site Elevation Above Mean Sea Level:										7 meters																																																																																																																								
6.	Overall Tower Height Above Ground Level:										383.7 meters																																																																																																																								
7.	Height of Radiation Center Above Ground Level:										356.6 meters																																																																																																																								
8.	Height of Radiation Center Above Average Terrain (HAAT):										360.6 meters																																																																																																																								
9.	Maximum Effective Radiated Power (average power):										1000 kW																																																																																																																								
10.	Antenna Specifications: a. Manufacturer DIE Model TFU-24GBH-R O8 SP b. Electrical Beam Tilt: 0.75 degrees <input type="checkbox"/> Not Applicable c. Mechanical Beam Tilt: degrees toward azimuth degrees True <input checked="" type="checkbox"/> Not Applicable Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). [Exhibit 33] d. Polarization: <input checked="" type="radio"/> Horizontal <input type="radio"/> Circular <input type="radio"/> Elliptical e. Directional Antenna Relative Field Values: <input type="checkbox"/> Not applicable (Nondirectional) [For a composite directional (not off-the-shelf) antenna, press the following button to fill in the relative field values subform.] [Relative Field Values] <div style="text-align: center;">10e. Directional Antenna Relative Field Values [Fill in this subform for a composite directional (not off-the-shelf) antenna, only.]</div> <table border="1"><thead><tr><th colspan="12">e. Directional Antenna Relative Field Values:</th></tr><tr><th colspan="12">Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation</th></tr><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>0.82</td><td>10</td><td>0.855</td><td>20</td><td>0.936</td><td>30</td><td>0.997</td><td>40</td><td>0.975</td><td>50</td><td>0.883</td></tr><tr><td>60</td><td>0.832</td><td>70</td><td>0.898</td><td>80</td><td>0.97</td><td>90</td><td>0.935</td><td>100</td><td>0.805</td><td>110</td><td>0.689</td></tr><tr><td>120</td><td>0.675</td><td>130</td><td>0.716</td><td>140</td><td>0.735</td><td>150</td><td>0.721</td><td>160</td><td>0.703</td><td>170</td><td>0.695</td></tr><tr><td>180</td><td>0.695</td><td>190</td><td>0.695</td><td>200</td><td>0.703</td><td>210</td><td>0.721</td><td>220</td><td>0.735</td><td>230</td><td>0.716</td></tr><tr><td>240</td><td>0.675</td><td>250</td><td>0.689</td><td>260</td><td>0.805</td><td>270</td><td>0.935</td><td>280</td><td>0.97</td><td>290</td><td>0.898</td></tr><tr><td>300</td><td>0.832</td><td>310</td><td>0.883</td><td>320</td><td>0.975</td><td>330</td><td>0.997</td><td>340</td><td>0.936</td><td>350</td><td>0.855</td></tr><tr><td>Additional Azimuths</td><td></td><td>32</td><td>1</td><td>82</td><td>0.973</td><td>278</td><td>0.973</td><td>327</td><td>1</td><td></td><td></td></tr></tbody></table> <div style="text-align: center;">Relative Field Polar Plot</div>											e. Directional Antenna Relative Field Values:												Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation												Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	0	0.82	10	0.855	20	0.936	30	0.997	40	0.975	50	0.883	60	0.832	70	0.898	80	0.97	90	0.935	100	0.805	110	0.689	120	0.675	130	0.716	140	0.735	150	0.721	160	0.703	170	0.695	180	0.695	190	0.695	200	0.703	210	0.721	220	0.735	230	0.716	240	0.675	250	0.689	260	0.805	270	0.935	280	0.97	290	0.898	300	0.832	310	0.883	320	0.975	330	0.997	340	0.936	350	0.855	Additional Azimuths		32	1	82	0.973	278	0.973	327	1		
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	If a directional antenna is proposed, the requirements of 47 C.F.R. Sections 73.625(c) must be satisfied. Exhibit required.	[Exhibit 34]
11.	Does the proposed facility satisfy the pre-transition 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.") and/or the post-transition interference protection provisions of 47 C.F.R. Section 73.616? If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.	<input checked="" type="radio"/> Yes <input type="radio"/> No [Exhibit 35]
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 36]
13.	Environmental Protection Act. Submit in an Exhibit the following: 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.	[Exhibit 37]
PREPARERS CERTIFICATION ON PAGE 8 MUST BE COMPLETED AND SIGNED.		

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.

