

ENGINEERING EXHIBIT

Application for Post-Transition Digital Television Station Construction Permit

prepared for

North Carolina License Holdings, Inc.

WCTI-DT New Bern, NC

Facility ID 18334

Ch. 12 22.2 kW 589 m

North Carolina License Holdings, Inc. (“NCLH”) is the licensee of television station WCTI-TV, analog Channel 12 and digital Channel 48, New Bern, NC. *NCLH* herein proposes construction of the WCTI-DT post-transition digital facility on Channel 12. 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 22.2 kW at 589 meters antenna height above average terrain (“HAAT”), with a nondirectional antenna. The proposed coverage extends beyond that of the Appendix B parameters of 22.2 kW ERP and 591 meters HAAT. The Appendix B facility incorporates a theoretical directional antenna pattern produced in part by the impact of non-uniform terrain and the differences in the F(50,50) and F(50,90) propagation curves.

The proposed digital Channel 12 operation will employ the existing non-directional antenna system licensed for WCTI-TV’s analog Channel 12. The antenna is a circularly polarized RCA model TCL-16A12. The antenna is top-mounted on the existing WCTI-TV antenna supporting structure, having FCC Antenna Structure Registration (“ASR”) number 1011271. No change to the overall structure height and no tower work are required to carry out this proposal.

A map is supplied as **Figure 1**, which depicts the standard predicted coverage contours. This map includes the location of New Bern, WCTI-DT’s principal community. As demonstrated thereon, the proposed facility complies with §73.625(a)(1), as the entire principal community will be encompassed by the 43 dB μ contour.

The proposed WCTI-DT facility's predicted service population provides a 100.6 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	1,366,157	1,384,196
Not affected by terrain losses	1,365,045	1,382,557
Lost to all interference	40,124	49,575
Net DTV Service	1,324,921	1,332,982
Match of Appendix B	---	100.61%

Freeze Waiver Request

A waiver of the Commission's August 3, 2004 "freeze" concerning expansion in service area¹ is requested. The proposal complies with the criteria for a freeze waiver request outlined in the Report and Order in the Third Periodic Review.² WCTI-DT will change channel for post-transition operation and will employ its existing analog antenna.

The map attached as **Figure 2** supplies a comparison of the 36 dB μ digital service contour corresponding to the proposed WCTI-DT facility and the Appendix B parameters. As shown thereon, the amount of contour extension does not exceed five miles at any azimuth.

Absent the waiver, the WCTI-DT non-directional ERP would have to be reduced to 16.2 kW to avoid a contour extension. At this power level, the resulting DTV service contour would not cover 53,536 persons within a land area of 1,389 sq. km that are presently within the WCTI-TV analog Grade B contour. The potential loss area is depicted in **Figure 2A**.

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.

²Third Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, MB Docket No. 07-91, FCC 07-228, released December 31, 2007.

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 below. Protection requirements towards authorized Class A stations are also satisfied.

Post-Transition Interference Analysis Summary

Ch	Call Sign	State/City Facility ID	Power (kW) HAAT (m)	Dist (km) Bear (°T)	Appendix B Baseline Population (2000 Census)	New Interference From Proposal Population	Percent
11	WTVD-DT	NC DURHAM 8617	19.2 607	125.4 300.4	2,807,147	2,753	0.10%
12	WWBT-DT	VA RICHMOND 30833	5.41 241	267.0 356.8	1,279,972	1,162	0.09%
13	WBTW-DT	SC FLORENCE 66407	22.4 594	199.4 246.3	--- no interference caused ---		
13	WVEC-DT	VA HAMPTON 74167	19.1 344	205.5 22.1	--- no interference caused ---		

Other Allocation Considerations

The nearest FCC monitoring station is 453 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 also located outside the areas specified in §73.1030(a)(1) and §73.1030(b). Thus, notification of the instant proposal to the National Radio Astronomy Observatory at Green Bank, West Virginia, or the Table Mountain Radio Receiving Zone in Boulder County, Colorado is not required. 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 zones that would require international coordination.

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.

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 assuming the worst-case of 100% antenna relative field in downward elevations, the calculated power density attributable to the proposed WCTI-DT facility at locations near the transmitter site at a height of two meters above ground level is $4.3 \mu\text{W}/\text{cm}^2$, which is 2.2 percent of the "uncontrolled / general public" maximum permissible 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. When the antenna's elevation pattern is considered, the calculated RF exposure level will be even lower.

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.
March 10, 2008

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

List of Attachments

Figure 1	Proposed Coverage Contours
Figure 2	Coverage Contour Comparison
Figure 2A	Potential Loss Area Without Waiver
Form 301	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered March 10, 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.

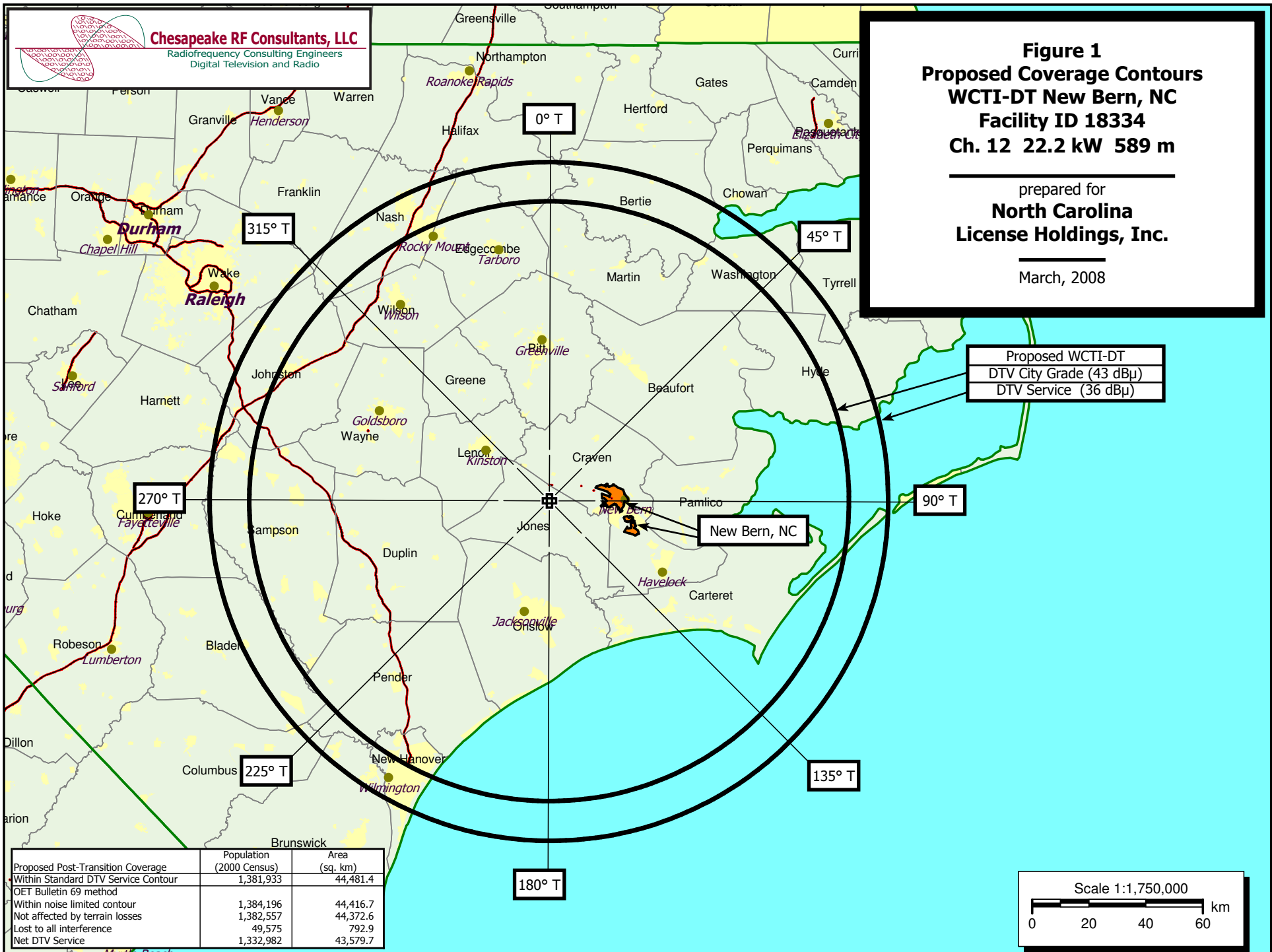


Figure 2
Coverage Contour Comparison
WCTI-DT New Bern, NC
Facility ID 18334
Ch. 12 22.2 kW 589 m

prepared for
North Carolina
License Holdings, Inc.

March, 2008

Proposed WCTI-DT
With Existing Analog Antenna (Omni)
Ch. 12 22.2 kW 589 m
DTV Service Contour 36 dBμ F(50,90)

WCTI-DT FCC Appendix B
Ch. 12 22.2 kW 591 m (Directional)
DTV Service Contour 36 dBμ F(50,90)
5 Mile Contour Extension Limit

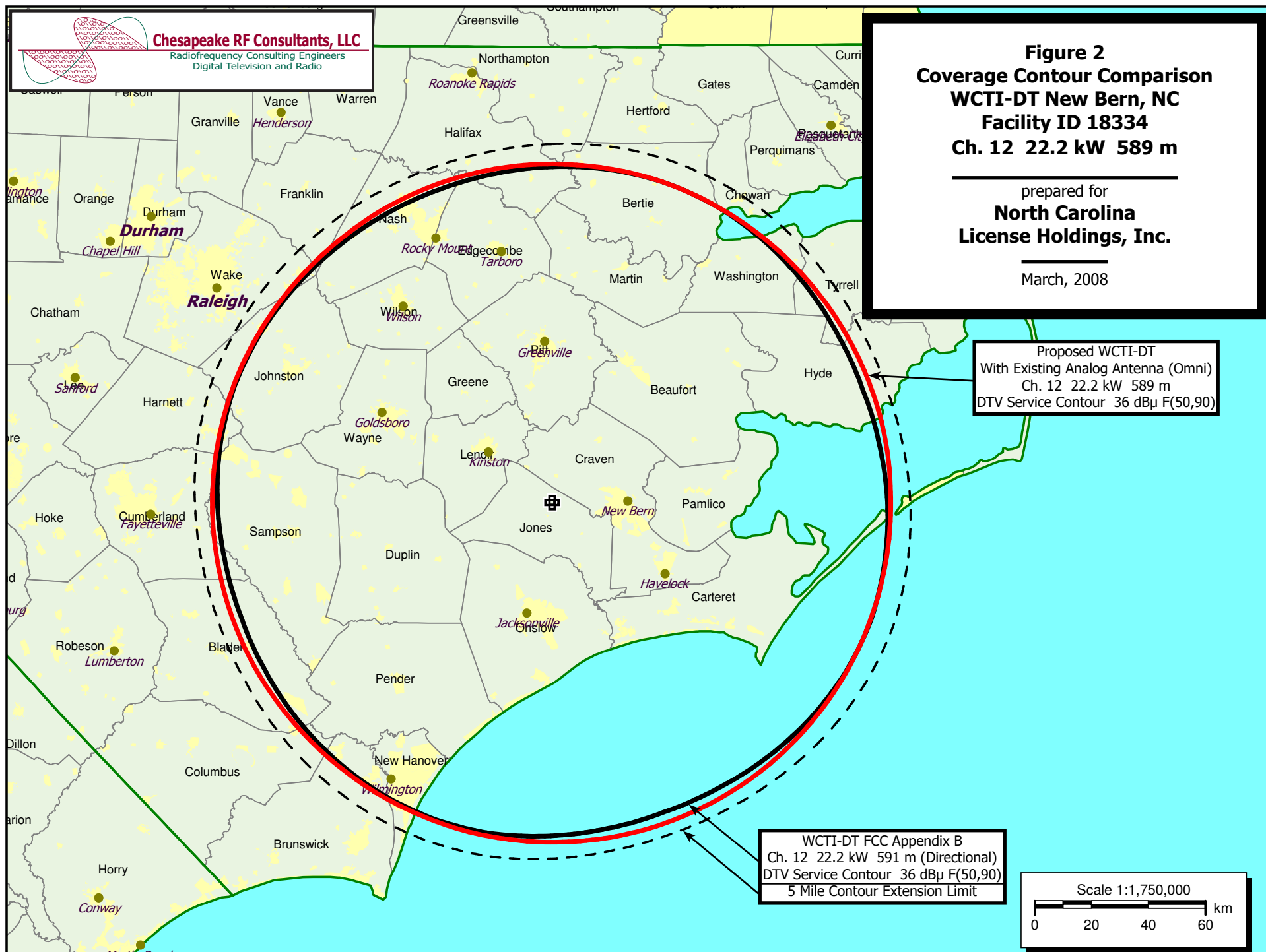
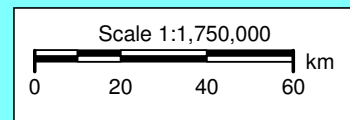


Figure 2A
Potential Loss Area Without Waiver
WCTI-DT New Bern, NC
Facility ID 18334
Ch. 12 22.2 kW 589 m

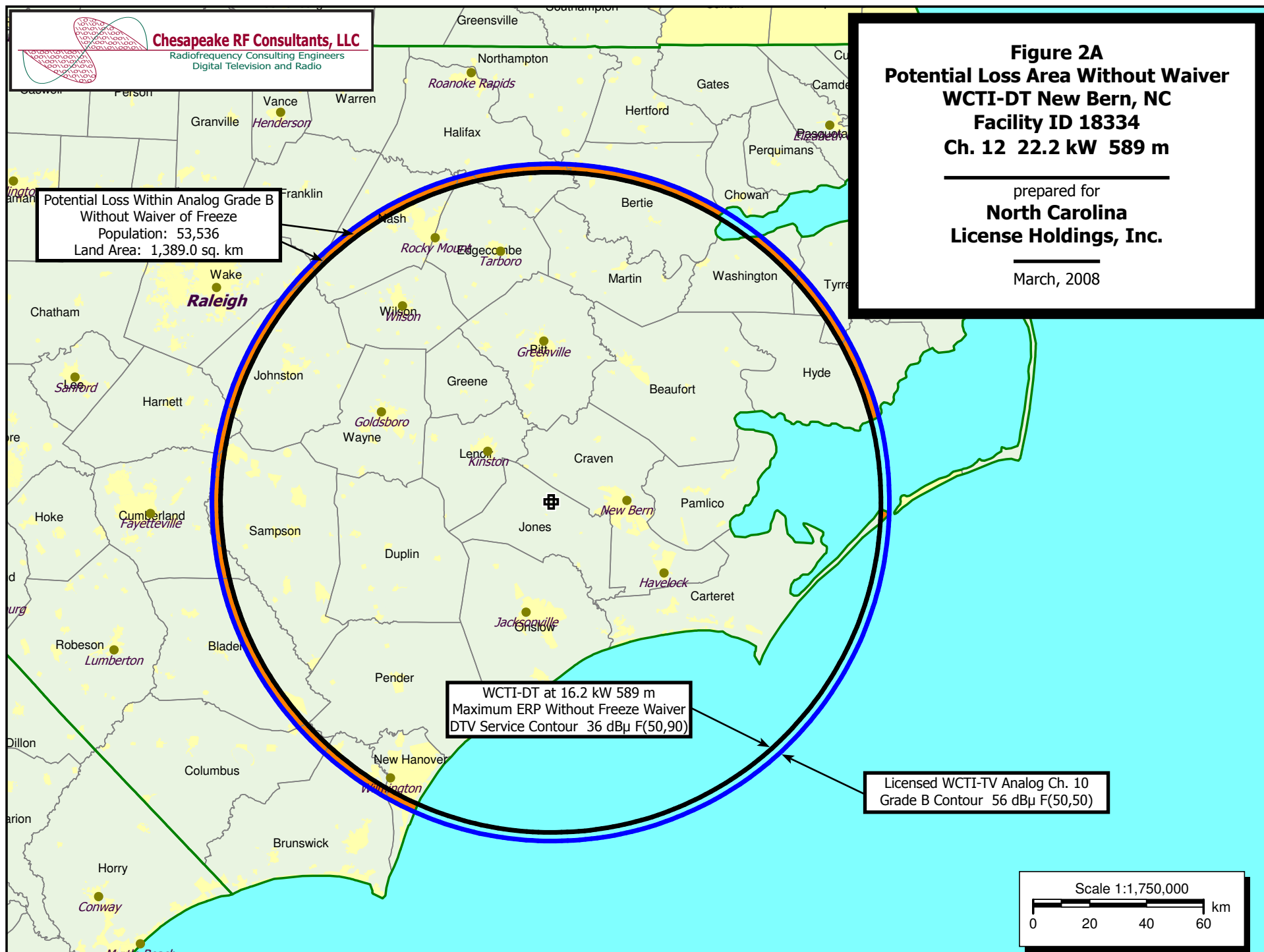
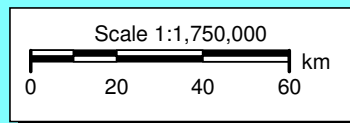
prepared for
North Carolina
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March, 2008

Potential Loss Within Analog Grade B
Without Waiver of Freeze
Population: 53,536
Land Area: 1,389.0 sq. km

WCTI-DT at 16.2 kW 589 m
Maximum ERP Without Freeze Waiver
DTV Service Contour 36 dBμ F(50,90)

Licensed WCTI-TV Analog Ch. 10
Grade B Contour 56 dBμ F(50,50)



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 type="radio"/> Yes <input checked="" 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 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 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 12 Analog TV, if any 12
2.	Zone: <input type="radio"/> I <input checked="" type="radio"/> II <input type="radio"/> III
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 35 Minutes 06 Seconds 15 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 77 Minutes 20 Seconds 12 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Antenna Structure Registration Number: 1011271 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
5.	Antenna Location Site Elevation Above Mean Sea Level: 14 meters
6.	Overall Tower Height Above Ground Level: 606 meters
7.	Height of Radiation Center Above Ground Level: 588 meters
8.	Height of Radiation Center Above Average Terrain : 589 meters
9.	Maximum Effective Radiated Power (average power): 22.2 kW
10.	Antenna Specifications: a. Manufacturer RCA Model TCL-16A12

b. Electrical Beam Tilt: 0.78 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 42]	
d. Polarization: <input type="radio"/> Horizontal <input checked="" type="radio"/> Circular <input type="radio"/> Elliptical	
e. Directional Antenna Relative Field Values: <input checked="" 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]	
If a directional antenna is proposed, the requirements of 47 C.F.R. Sections 73.625(c) must be satisfied. Exhibit required. [Exhibit 43]	
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?	<input checked="" type="radio"/> Yes <input type="radio"/> No [Exhibit 44]
If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.	
12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefore. (Applicable only if Certification Checklist item 3 is answered "No.")	[Exhibit 45]
13. Environmental Protection Act. Submit in an Exhibit the following: 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 46]
PREPARERS CERTIFICATION ON SECTION III 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 3/10/2008	
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).