

## ENGINEERING EXHIBIT

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

prepared for

#### **Young Broadcasting of Davenport, Inc.**

KWQC-DT Davenport, IA

Facility ID 6885

Ch. 36 1000 kW 329 m

*Young Broadcasting of Davenport, Inc.* (“*Young*”) is the licensee of television station KWQC-TV, analog Channel 6 and digital Channel 56, Davenport, IA. *Young* herein proposes construction of the KWQC-DT post-transition digital facility on Channel 36. 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 1000 kW at 329 meters antenna height above average terrain (“HAAT”), with a nondirectional antenna. The proposed coverage extends beyond that of the Appendix B parameters of 696 kW ERP and 329 meters HAAT. The Appendix B facility contour location falls short of much of the KWQC-TV analog Channel 6 Grade B contour area.

The proposed digital Channel 36 operation will employ the existing non-directional antenna system licensed for the present KWQC-DT Channel 56 and shared with KLJB-DT (Ch. 49, Davenport, IA). The antenna is a horizontally polarized Dielectric model TUF-O4-14/56H-1-T. The antenna is top-mounted on an existing antenna supporting structure, having FCC Antenna Structure Registration (“ASR”) number 1225582. 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 Davenport, KWQC-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 48 dB $\mu$  contour.

The proposed KWQC-DT facility's predicted service population provides a 106.7 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	1,015,725	1,083,888
Not affected by terrain losses	1,001,238	1,071,994
Lost to all interference	2,209	5,714
Net DTV Service	<b>999,029</b>	<b>1,066,280</b>
Match of Appendix B	---	<b>106.73%</b>

### **Freeze Waiver Request**

A waiver of the Commission's August 3, 2004 "freeze" concerning expansion in service area<sup>1</sup> is requested. The proposal complies with the criteria for a freeze waiver request outlined in the Report and Order in the Third Periodic Review.<sup>2</sup> KWQC-DT will change channel for post-transition operation and will employ the existing antenna employed for its present digital Channel 56.<sup>3</sup>

The map attached as **Figure 2** supplies a comparison of the 41 dBμ digital service contour corresponding to the proposed KWQC-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 KWQC-DT ERP would have to be set at the Appendix B value of 696 kW to avoid a contour extension. At this power level, the resulting DTV service contour would

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

<sup>2</sup>Third 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.

<sup>3</sup>FCC Staff have informally advised that stations such as KWQC-DT that are changing to a channel other than its analog channel are also eligible for a waiver under the "5 mile" policy.

not cover 456,289 persons within a land area of 11,199 sq. km that are presently within the KWQC-TV analog Grade B contour. The potential loss area is depicted in **Figure 2A**.

A detailed interference study per OET Bulletin 69<sup>4</sup> 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
35	KRIN-DT	IA WATERLOO 29114	250 584	166.0 312.8	869,453	97	0.01%
36	WJYS-DT	IN HAMMOND 32334	50 455	237.2 73.7	7,988,734	409	0.01%
36	WTWO-DT	IN TERRE HAUTE 20426	1000 248	342.6 131.3	706,627	0	0.00%
36	KAAL-DT	MN AUSTIN 18285	500 295	343.8 319.5	484,850	0	0.00%

**Other Allocation Considerations**

The nearest FCC monitoring station is 394 km distant at Allegan, MI. 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

<sup>4</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 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.

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.

### **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 20 percent antenna relative field in downward elevations (pattern data shows less than 20 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  $12.9 \mu\text{W}/\text{cm}^2$ , which is 3.2 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.

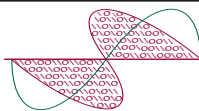
Joseph M. Davis, P.E.  
March 12, 2008

**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 12, 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.*



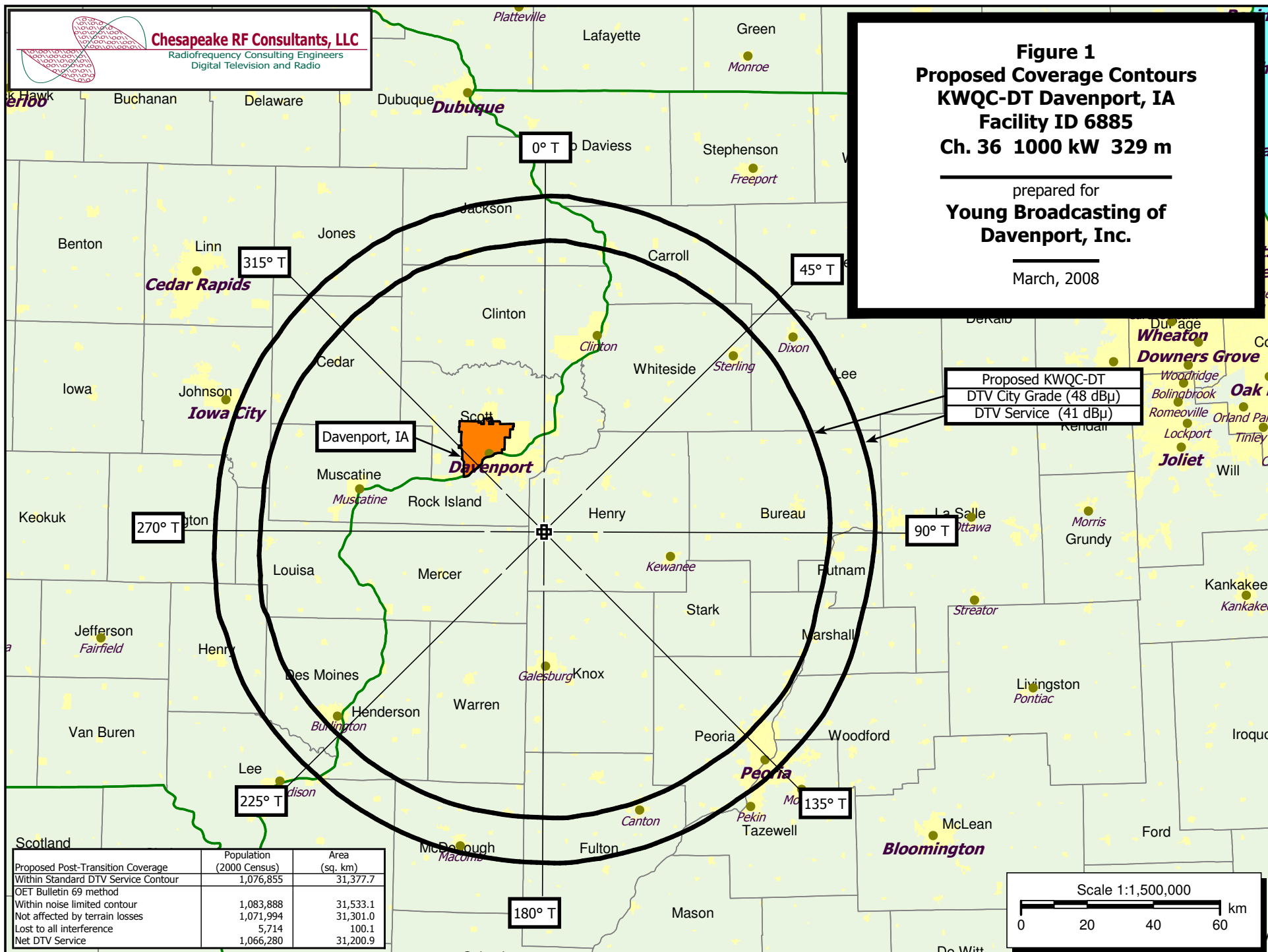
**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

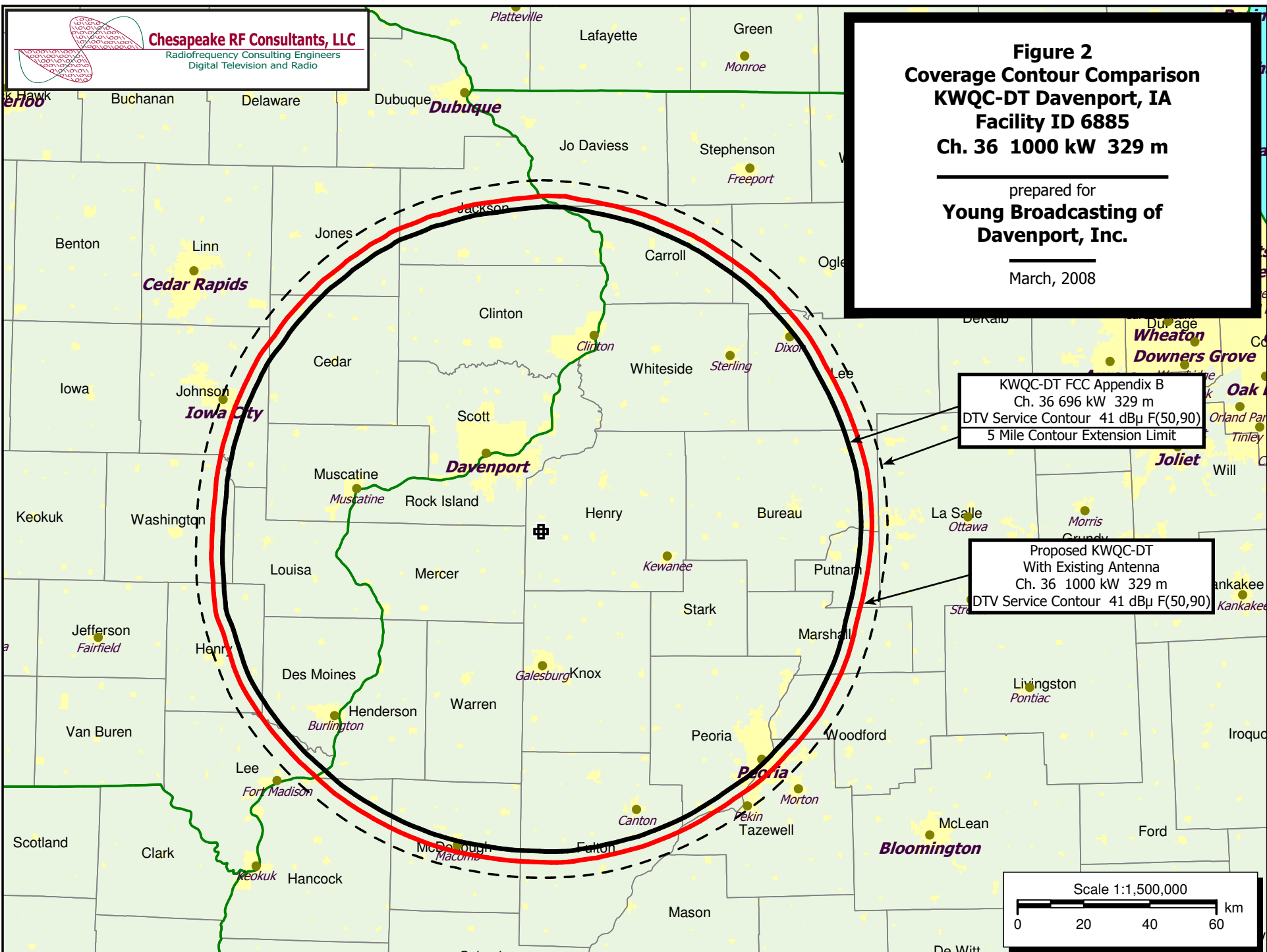
**Figure 1**  
**Proposed Coverage Contours**  
**KWQC-DT Davenport, IA**  
**Facility ID 6885**  
**Ch. 36 1000 kW 329 m**

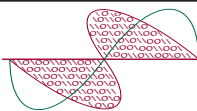
prepared for  
**Young Broadcasting of**  
**Davenport, Inc.**

March, 2008

Proposed KWQC-DT  
DTV City Grade (48 dBμ)  
DTV Service (41 dBμ)







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

Potential Loss Within Analog Grade B  
Without Waiver of Freeze  
Population: 456,289  
Land Area: 11,199.2 sq. km

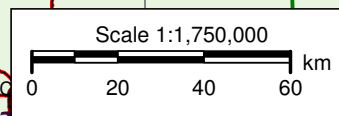
**Figure 2A**  
**Potential Loss Area Without Waiver**  
**KWQC-DT Davenport, IA**  
**Facility ID 6885**  
**Ch. 36 1000 kW 329 m**

prepared for  
**Young Broadcasting of**  
**Davenport, Inc.**

March, 2008

Licensed KWQC-TV Analog Ch. 6  
Grade B Contour 47 dBμ F(50,50)

KWQC-DT Ch. 36 at 696 kW 329 m  
Maximum ERP Without Freeze Waiver  
DTV Service Contour 41 dBμ F(50,90)



**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 <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 36 Analog TV, if any 6
2.	Zone: <input checked="" type="radio"/> I <input type="radio"/> II <input type="radio"/> III
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 41 Minutes 18 Seconds 44 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 90 Minutes 22 Seconds 46 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Antenna Structure Registration Number: 1225582 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
5.	Antenna Location Site Elevation Above Mean Sea Level: 229.5 meters
6.	Overall Tower Height Above Ground Level: 334.1 meters
7.	Height of Radiation Center Above Ground Level: 324.4 meters
8.	Height of Radiation Center Above Average Terrain : 329 meters

9.	Maximum Effective Radiated Power (average power):	1000 kW																																																																																																
10.	<div>Antenna Specifications:</div> <div>a. Manufacturer DIE    Model TUF-O4-14/56H-1-T</div> <div>b. Electrical Beam Tilt: 0.7 degrees    <input type="checkbox"/> Not Applicable</div> <div>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). <span style="float: right;">[Exhibit 42]</span></div> <div>d. Polarization: <input checked="" type="radio"/> Horizontal    <input type="radio"/> Circular    <input type="radio"/> Elliptical</div> <div>e. Directional Antenna Relative Field Values:    <input checked="" type="checkbox"/> Not applicable (Nondirectional)</div> <div>[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> <div style="text-align: center; padding: 10px;"><b>10e. Directional Antenna Relative Field Values</b> [Fill in this subform for a composite directional (not off-the-shelf) antenna, only.]</div> <div style="border: 1px solid black; padding: 5px;"><div>e. Directional Antenna Relative Field Values:</div><div>Rotation (Degrees): <input type="checkbox"/> No Rotation</div><table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"><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></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table><div style="text-align: center; color: red; margin-top: 5px;"><u>Relative Field Polar Plot</u></div></div>		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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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? ☒ Yes    ☐ 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: [Exhibit 46]

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.

**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 3/12/2008	
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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