

ENGINEERING STATEMENT  
RE DTV BROADCAST ENGINEERING DATA  
APPLICATION FOR CONSTRUCTION PERMIT  
ON BEHALF OF  
CAPITOL BROADCASTING CO., INC.  
WRAL-DT, RALEIGH, NORTH CAROLINA  
CHANNEL 48 1000 KW MAX ERP 629 METERS HAAT

MARCH 2008

COHEN, DIPPELL AND EVERIST, P.C.  
CONSULTING ENGINEERS  
RADIO AND TELEVISION  
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington            )  
  ) ss  
District of Columbia         )

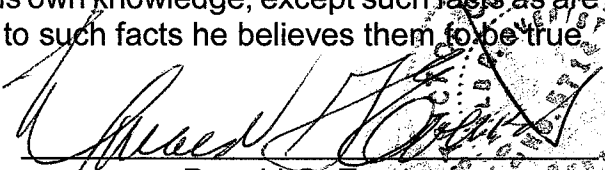
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

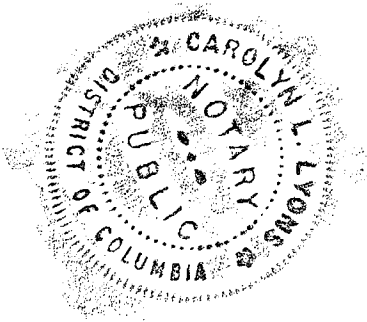
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

  
Donald G. Everist  
District of Columbia  
Professional Engineer  
Registration No. 5714

Subscribed and sworn to before me this 14th day of March, 2008.

  
Notary Public

My Commission Expires: 2/28/2013



COHEN, DIPPELL AND EVERIST, P. C.

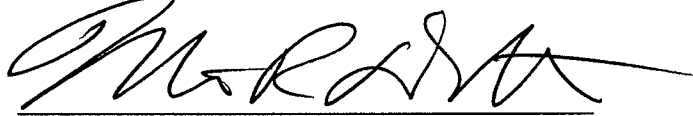
City of Washington                    )  
  ) ss  
District of Columbia                )

Martin R. Doczkat being duly sworn upon his oath, deposes and states that:

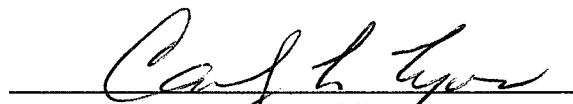
He is a graduate electrical engineer of the Pennsylvania State University, and is a staff engineer at Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That the attached engineering report was prepared by him or under his supervision and direction and

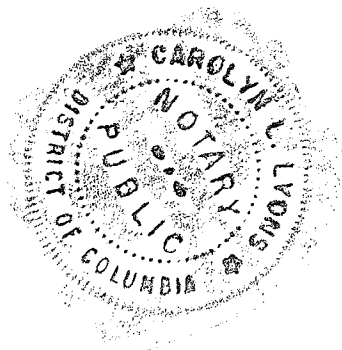
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

  
\_\_\_\_\_  
Martin R. Doczkat

Subscribed and sworn to before me this 14<sup>th</sup> day of March, 2008.

  
\_\_\_\_\_  
Notary Public

My Commission Expires: 2/28/2013



This engineering statement has been prepared in support of an application for outstanding construction permit on behalf of Capitol Broadcasting Co., Inc., licensee of WRAL-TV, Raleigh, North Carolina. The purpose of this application is to regularize the azimuth pattern of the allotted Appendix B<sup>1</sup> facilities and to attempt to avoid a reduction of as many viewers as possible in the currently licensed Grade B service with the WRAL-DT post-transition facilities using 1000 kW non-directional effective radiated power (“ERP”) from the authorized top-mounted 629 meters antenna height above average terrain (“HAAT”) with a combination of electrical and mechanical tilt to remain in accordance with the provisions of Paragraph 151 of the Third Periodic Review Report and Order.<sup>2</sup>

WRAL-TV is licensed to operate on NTSC television Channel 5 with a maximum visual ERP of 100 kW and a HAAT of 604 meters. WRAL-DT has been allocated DTV Channel 48 with facilities of 916 kW directional ERP and HAAT of 629 meters in the final DTV Table of Allotments.<sup>3</sup> WRAL-DT proposes to construct DTV facilities of 1000 kW (non-directional) at a HAAT of 629 meters with 1.25° electrical beam tilt and 0.25° mechanical tilt at a bearing of N 230° E, T. These proposed facilities are intended to avoid as much of a reduction of service from

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<sup>1</sup>“In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service”, MM Docket 87-268, Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Report & Order (FCC 08-72) Appendix B, Released March 6, 2008.

<sup>2</sup>“In the Matter of Third Periodic Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television”, MB Docket No. 07-91, Report & Order (FCC 07-228), Released December 31, 2007.

<sup>3</sup>Ibid.

the current Grade B contour as possible while not exceeding the service area of the final DTV Table of Allotments by more than five miles in any direction.

Filing Freeze Waiver Request

An allocation study from the proposed site has been performed as the predicted F(50,90) 41 dBu contour of the proposed DTV facilities at the currently authorized site are not expected to be entirely within the predicted F(50,90) 41 dBu contour of the WRAL-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order. However, the proposed operation does not extend more than five miles beyond the WRAL-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order (see Exhibit E-1) and does not exceed the 0.5% additional interference standard to any other station in the final DTV Table of Allotments in the Memorandum Opinion and Order potentially affected by the proposed operation (see Table I). Therefore, WRAL-DT requests a waiver of the DTV filing freeze<sup>4</sup> for rapid approval of minor expansion applications in accordance with Paragraph 151 of the Third Periodic Review Report and Order.<sup>5</sup>

The proposed operation which does not extend more than five miles beyond the WRAL-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order is predicted to serve 2,838,750 persons in an area of 41,577 square kilometers, which is 99.5% of the population served by the WRAL-DT facility in the final DTV Table of Allotments in the Memorandum Opinion and Order.

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<sup>4</sup>Public Notice entitled, "Freeze on the Filing of Certain TV and DTV Requests for Allotment or Service Area Changes", released August 3, 2004.

<sup>5</sup>Ibid.

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ENGINEERING STATEMENT  
WRAL-DT, RALEIGH, NORTH CAROLINA

PAGE 3

There are no AM stations located within 3.2 km of the proposed WRAL-DT tower site. There are no FM and there are, in addition to the proposed operation, five full-service DTV facilities and one licensed full-service TV station within 100 meters of the proposed WRAL-DT site.

The DTV antenna will be top-mounted on the existing tower. The WRAL-DT antenna will be located on an existing tower having a total overall structure height above ground of 606.2 meters (1988.8 feet). The existing transmitter site is located at 5033 TV Tower Road, Garner, North Carolina. The registration number for the existing tower is 1027322.

Since there will be no change in overall height, FAA airspace approval is not required. Exhibit E-2 is a vertical sketch of the existing tower and the proposed transmitting antenna.

The geographic coordinates of the proposed site are as follows:

North Latitude: 35° 40' 29"

West Longitude: 78° 31' 40"

NAD-27

Equipment Data

Antenna: ERI, Model ATW25H5-ETO-48H (or equivalent) antenna with 1.25° electrical beam tilt and 0.25° mechanical tilt at a bearing of N 230° E, T. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included as Exhibit E-3.

Transmission Line: 548.6 meters (1800 ft) of ERI, Type GLW1500, 15" circular waveguide

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ENGINEERING STATEMENT  
WRAL-DT, RALEIGH, NORTH CAROLINA

PAGE 4

95.4 meters (313 ft) of ERI, Type WR1500, 15" wide rectangular waveguide

31.4 meters (103 ft) of ERI, Type MACX775, 7-3/16" 75 ohm rigid transmission line

Power Data

Transmitter output	74.35 kW	18.71 dBk
Total Transmission line efficiency/loss	78.65%	1.04 dB
Input power to the antenna	58.48 kW	17.67 dBk
Antenna power gain, Horizontal Polarization	17.10	12.33 dB
Vertical Polarization	7.27	8.61 dB
Maximum Effective Radiated Power		
Horizontal Polarization	1000 kW	30 dBk
Vertical Polarization	425 kW	26.28 dBk

Elevation Data

Vertical dimension for Channel 48 antenna	12.2 meters 40.1 feet
Overall height above ground of the existing antenna structure (including beacon and lightning rod)	606.2 meters 1988.8 feet
Center of radiation of Channel 48 antenna above ground	598.9 meters 1964.9 feet
Elevation of site above mean sea level	109.7 meters 359.9 feet
Center of radiation of Channel 48 antenna above mean sea level	708.7 meters 2325.1 feet

Overall height above mean sea level of existing tower and stacked antenna (including beacon)	715.9 meters 2348.8 feet
Antenna height above average terrain	629 meters

Note: Slight height differences may result due to conversion to metric.

#### Allocation

An allocation study from the proposed site has been performed since the proposed DTV facilities exceed that listed in Appendix B.

#### Interference Analysis

A study of predicted interference caused by the proposed WRAL-DT service has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (February 6, 2004) and the Public Notice, "Additional Application Processing Guidelines for Digital Television (DTV)" (August 1998). The FCC's FORTRAN-77 code was modified only to the extent necessary (primarily input/output handling) for the program to run on a Windows XP platform. Comparison of service/interference areas and populations indicates that this model closely matches the FCC's evaluation program. Best efforts have been made to use data and calculations identical to the FCC's program. Any slight differences are attributable to compiler, operating system and/or processor characteristics. The effect of any variance in calculated population values versus the FCC's program is minimized when differencing a given model's results, such as calculating new interference as total interference less baseline interference. Any variance effect is further reduced when using ratios of calculated population values such as measuring the incremental population



affected as a percent of the total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately  $4 \text{ km}^2$  using 3-second terrain data sampled approximately every 1.0 km at one degree azimuth intervals with 2000 census centroids.

### Coverage

The average elevation data for 3.2 to 16.1 km along each radial are based upon NGDC 3-second terrain data.

The F(50,90) DTV coverage contour has been computed from reference to the propagation data for Channels 14-69, as published by the FCC in Figure 10b and Figure 10c, Section 73.699 of the FCC Rules and Regulations.

Utilizing the formula in Section 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle,  $A_h$ , varies from 0.684 to 0.701 degrees. Since the relative vertical field is greater than 90% of the maximum at these depression angles, the maximum power was used in determining the distance to the DTV contour.

Table II includes the distances to the 48 and 41 dBu F(50,90) coverage contours, the average elevation 3.2 to 16.1 km, and the antenna heights above average terrain using the resultant normalized relative field horizontal plane pattern at the horizontal with electrical and mechanical tilt in accordance with Section 73.625(c) of the FCC Rules and the maximum ERP at any angle of 1000 kW even though it does not exist in the horizontal plane based on informal guidance from the FCC.

Exhibit E-4 provides the 48 and 41 dBu F(50,90) coverage contours and demonstrates that the community of license is covered by the F(50,90) 48 dBu contour.

Other Licensed and Broadcast Facilities

There are no AM facilities within 3.22 km and no FM stations within 0.5 km of the authorized site. There is one licensed TV station and four authorized DTV stations, in addition to the full service WRAL-DT facilities, within 0.1 km of the existing transmitter site. Since this proposal is for post-transition operation, the predicted radiofrequency field ("RFF") levels for the one licensed TV station, WNCN(TV), will not be included in the following analysis. No adverse technical effect is anticipated by the proposed DTV auxiliary operation to any other FCC authorized facility.

FCC Rule, Section 1.1307

The proposed operation based upon the current OET Bulletin No. 65, Edition No. 97-01, dated August 1997 and Supplement A meets the provisions of the FCC RFF guidelines, and thus, complies with Section 1.1307 of the FCC Rules. Provisions will be made to reduce power or to terminate the transmitter emissions, as appropriate, when it is necessary for authorized personnel to be on the tower.

The following equations from OET Bulletin No. 65 have been used to calculate the predicted radiofrequency fields at 2 meters above ground at the base of the tower:

**Digital Television Broadcast Stations**

$$S = [(33.4)(F^2)(ERP^2)]/R^2$$

S = Power Density in Microwatts/sq. cm ( $\mu\text{W}/\text{cm}^2$ )

COHEN, DIPPELL AND EVERIST, P.C.

ENGINEERING STATEMENT  
WRAL-DT, RALEIGH, NORTH CAROLINA

PAGE 8

F = Relative Field Factor in the downward direction of interest (-60° to -90° elevation)

ERP = Power in Watts

R = Distance from 2 meters above ground to center of radiation in meters

The radio frequency field analysis of the existing site is calculated in the following table:

<u>Station</u>	<u>Statuts</u>	<u>ERP</u> (kW)	<u>Frequency</u> (MHz)	<u>Ch</u>	<u>RCAGL</u> (m)	<u>Relative</u> <u>Field</u>	<u>S</u> (: W/cm <sup>2</sup> )	<u>RFF</u> (%)
WNCN-DT	Application	244.4	488-494	17	598	0.1 <sup>6</sup>	0.23	0.07
WLFL-DT	Appendix B	568	548-554	27	580	0.2 <sup>7</sup>	2.27	0.62
WRDC-DT	Appendix B	225	554-560	28	580	0.2 <sup>7</sup>	0.9	0.25
WRAL-DT	Proposed	1000	674-680	48	599	0.038	0.14	0.03
WRAZ-DT	CP	1000	680-686	49	583.9	0.038	0.14	0.03

For the post-transition operation, WRAL-DT proposes to use an ERI, Type ATW25H5-ETO-48H or equivalent antenna. The manufacturer's elevation pattern for this antenna indicates a maximum relative downward field of less than 0.038 towards the ground in the vicinity of the tower. Using this relative field factor and the procedures prescribed in OET Bulletin 65, the maximum RFF resulting from the proposed operation is less than 0.14 uW/cm<sup>2</sup>. This is less than 0.03% of the 455 μW/cm<sup>2</sup> maximum human exposure to RFF recommended by the current FCC guidelines for the general population.

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<sup>6</sup>Value included in WNCN-DT post-transition application (FCC File No. BFRCCCT-20050815AAK).

<sup>7</sup>Assumed relative field value.

The total contribution by the presumed post-transition DTV broadcast facilities and the addition of the proposed operation of WRAL-DT at 2 meters above ground level is less than 1.0% of the current FCC guidelines for maximum permissible exposure (“MPE”) for the general population/uncontrolled exposure.

Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

#### Environmental Assessment

An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the licensee indicates:

- (a)(1) The existing tower is not located in an officially designated wilderness area.
- (a)(2) The existing tower is not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected

any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.

- (a)(5) The existing tower is not located near any known Indian religious sites.
- (a)(6) The existing tower is not located in a flood plain.
- (a)(7) The installation of the DTV facilities on an existing guyed tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) It is not proposed to modify the tower lighting unless required by the FAA.
- (b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

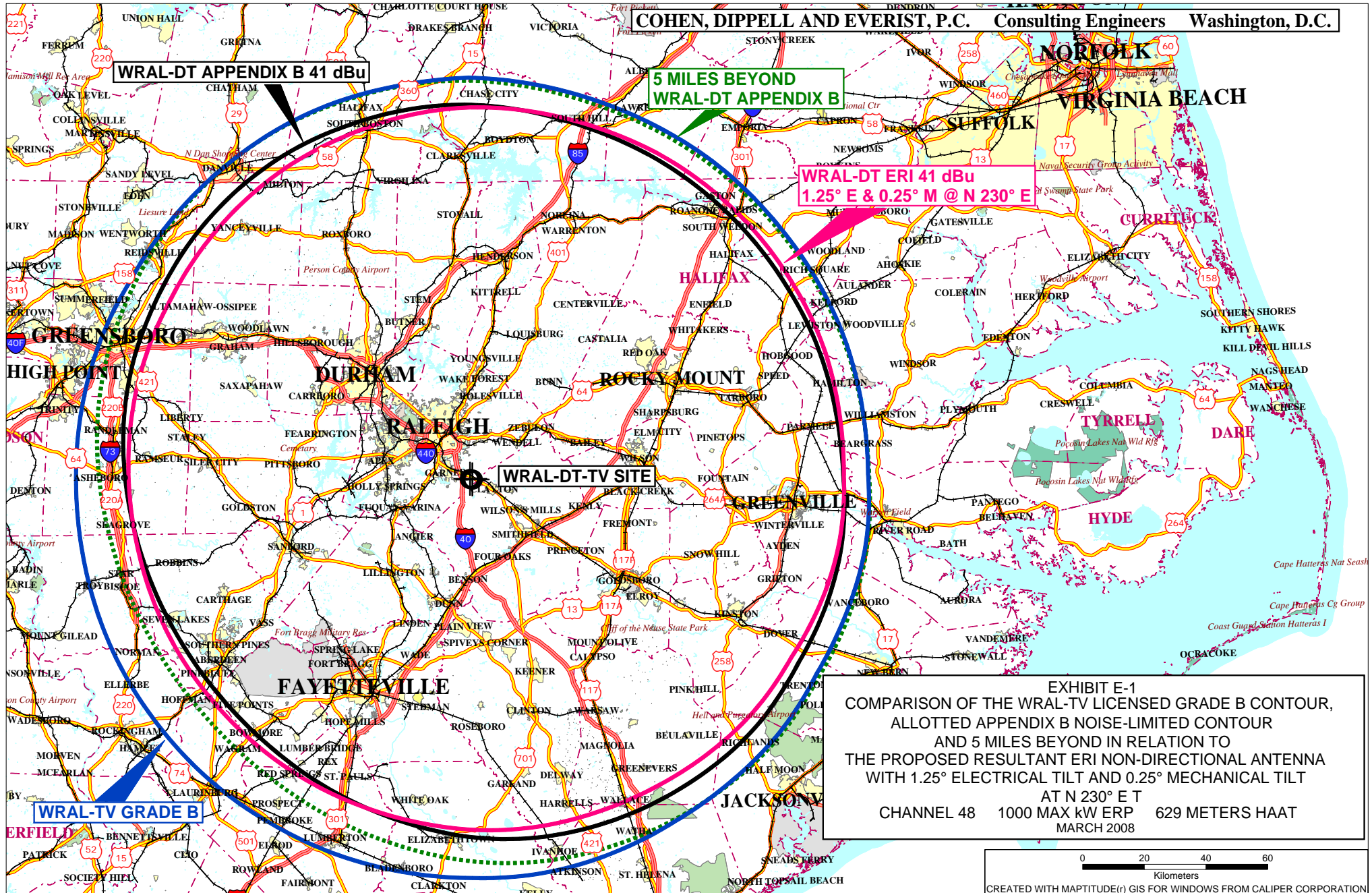


TABLE I  
PREDICTED LONGLEY-RICE INTERFERENCE  
FROM THE PROPOSED OPERATION OF  
WRAL-DT, CHANNEL 48, 1000 KW ERP, 629 METERS HAAT  
WITH 1.25° ELECTRICAL BEAM TILT AND 0.25° MECHANICAL TILT  
AT N 230° E, T TO POTENTIALLY AFFECTED FACILITIES IN THE  
FINAL DTV TABLE OF ALLOTMENTS  
ABOVE THE ALLOTTED WRAL-DT FACILITIES  
MARCH 2008

<u>Channel</u>	<u>Call</u>	<u>City/State</u>	<u>Distance</u> km	<u>Status</u>	<u>Result</u>
48	WRC-DT	Washington, DC	384.8	MO&O	no interference
48	WACH-DT	Columbia, SC	267.5	MO&O	0.05%
49	WRAZ-DT	Raleigh, NC	0.0	MO&O	0.01%

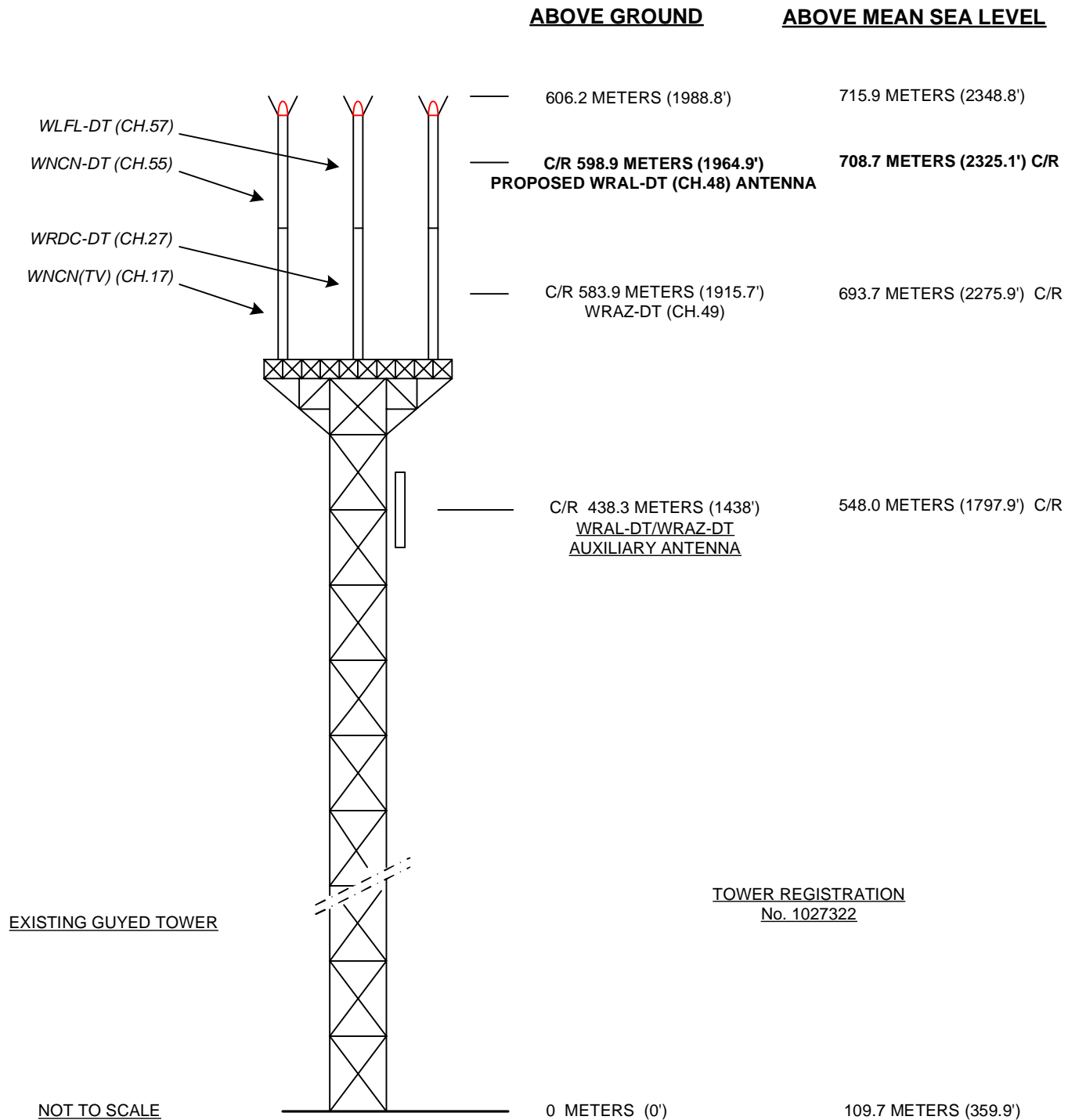


EXHIBIT E - 2  
VERTICAL SKETCH  
FOR THE PROPOSED DTV OPERATION OF  
**WRAL-DT, RALEIGH, NORTH CAROLINA**  
MARCH 2008

NOTE: METRIC FROM ENGLISH UNITS RESULTS IN ROUNDING DIFFERENCE.



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EXHIBIT E-3

ANTENNA MANUFACTURER DATA

WRAL-DT, RALEIGH, NORTH CAROLINA

***PRELIMINARY SPECIFICATION FOR  
TRASAR<sup>®</sup> ELLIPTICALLY POLARIZED  
COAXIAL SLOTTED ARRAY ANTENNA***

*Prepared for  
WRAL-DT Channel 48 Raleigh, NC  
February 13, 2008*

**ANTENNA TYPE:  
ATW25H5-ETO-48H**

**SPECIFICATION NO :  
KO060506-1620 RevC**



## **PRELIMINARY SPECIFICATION FOR TRASAR<sup>®</sup> ELLIPTICALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA**

### **ELECTRICAL CHARACTERISTICS:**

CHANNEL :		48
FREQUENCY RANGE :		674 - 680 MHz
AZIMUTH PATTERN NUMBER :	Hpol:	ATW-O
	Vpol:	ATW-O
ELEVATION PATTERN NUMBER :	Hpol:	ATW25H5H
	Vpol:	ATW23H5V
AZIMUTH DIRECTIVITY :	Hpol:	1.00 (0.00 dBd)
	Vpol:	1.00 (0.00 dBd)
ELEVATION DIRECTIVITY :	Hpol:	25.00 (13.98 dBd)
	Vpol:	23.00 (13.62 dBd)
PEAK POWER GAIN :	Hpol:	17.10 (12.33 dBd)
	Vpol:	7.27 (8.61 dBd)
GAIN AT HORIZONTAL :	Hpol:	5.17 (7.14 dBd)
	Vpol:	2.26 (3.55 dBd)
V/H RATIO:		0.425
ELECTRICAL BEAM TILT :		1.25 Degrees
INPUT POWER REQUIRED :		58.48 kW (17.67 dBk)
INPUT TYPE :		7 3/16-75 Ohm
INPUT POWER RATING (MAXIMUM):		75 kW Average, 8VSB Digital
ANTENNA VSWR (MAXIMUM) :		1.10 Over 6 MHz Channel

## PRELIMINARY SPECIFICATION FOR TRASAR<sup>®</sup> ELLIPTICALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

### MECHANICAL CHARACTERISTICS:

#### MOUNTING CONFIGURATION:

Top Mount\*

\*(Tower Interface supplied and installed by others)

HEIGHT OF ANTENNA (D) : 40.09 feet

HEIGHT OF CENTER OF RADIATION (B) : 20.04 feet

OVERALL HEIGHT (A) : 43.59 feet  
(Includes two 3.5ft Lightning Rods)

DEICING : Pressurized Radome Enclosure

RADOME DIAMETER (C): 18.40 inches, OD

RADOME COLOR : AVIATION ORANGE (Standard)

CLIMBING DEVICE : Fiberglass Climbing Ladder

CALCULATED WEIGHT : 7250.00 lbs

WINDLOAD DATA : CaAc : 90.30 sq.ft.

EFFECTIVE MOMENT ARM: 21.60 ft.

MOUNTING FLANGE : BOLT CIRCLE : 21.50 in.

BOLT DIAMETER : 1.25 in.

NUMBER OF BOLTS : 16

***This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.***

1 Calculated weight is based on the **PRELIMINARY** design of the antenna. The actual weight of the antenna will be within  $\pm 10\%$  of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

2 Based on a wind speed of 75 miles per hour (MPH), and 61 MPH with ice, a height above average terrain (HAAT) of 2,063 feet, and a height above ground level (HAGL) of 1,966 feet per EIA/TIA-222-F.

**NOTE:** Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.

## Broadcast Antenna System

### Power Analysis

**WRAL-DT**  
**Raleigh, NC**  
**ATW25H5-ETO-48H**

**Channel 48**

#### ANTENNA PARAMETERS :

##### Azimuth Directivity :

Hor. Pol : 1.00 (0.00 dBd)  
 Ver. Pol : 1.00 (0.00 dBd)

##### ERP :

Hor. Pol : 1,000.00 kW (30.00 dBk)  
 Ver. Pol : 425.00 kW (26.28 dBk)

##### Elevation Directivity :

Hor. Pol : 25.00 (13.98 dBd)  
 Ver. Pol : 23.00 (13.62 dBd)

##### POWER GAIN :

Hor. Pol : 17.10 (12.33 dBd)  
 Ver. Pol : 7.27 (8.61 dBd)

##### V/H Ratio

0.425

##### TRANSMISSION LINE :

##### VERTICAL RUN :

Type: GLW1500  
 Length, ft. : 1800  
 Attenuation , dB/100 ft: 0.0428

##### ANTENNA INPUT :

kW : 58.48  
 dBk : 17.67

##### HORIZONTAL RUN :

Type: WR1500  
 Length, ft. : 313  
 Attenuation , dB/100 ft: 0.0542

##### LINE LOSS :

kW : 15.87  
 dB : 1.04

##### OTHER LINE LOSSES:

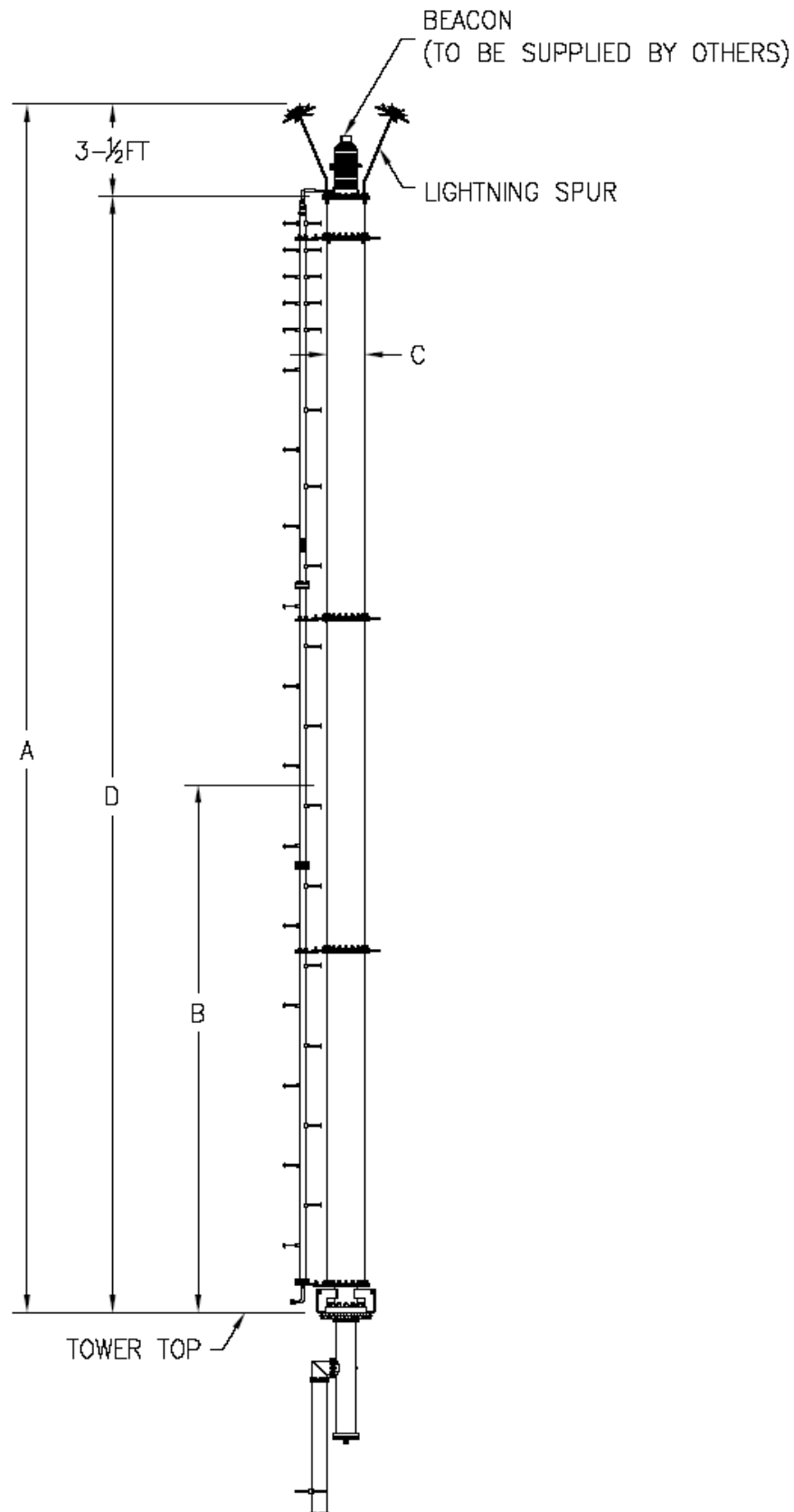
Type: MACX775  
 Length, ft. : 103  
 Attenuation , dB/100 ft: 0.1

Line Efficiency : 78.65%

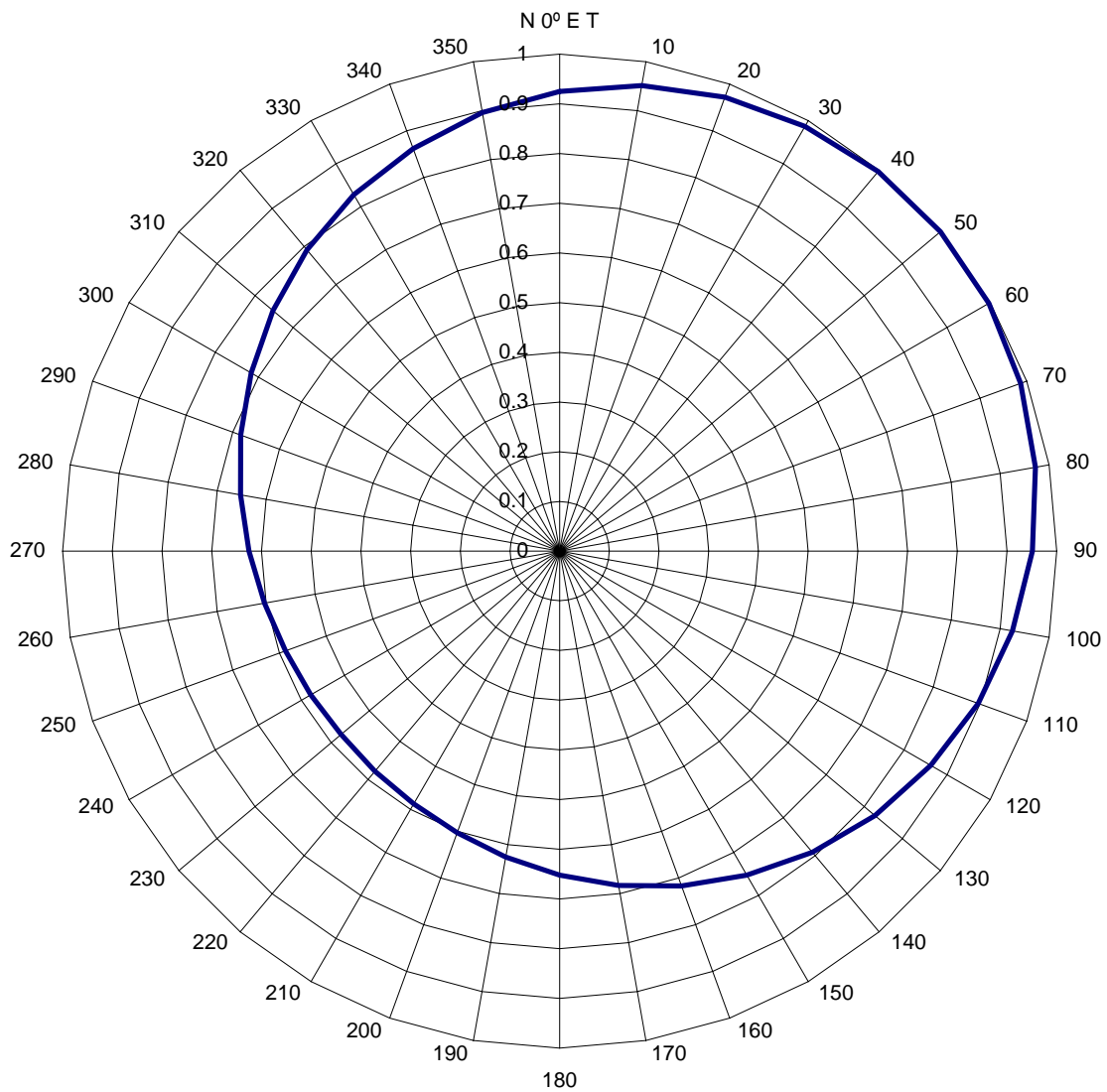
##### TRANSMITTER POWER :

kW : 74.35  
 dBk : 18.71

**TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.**



**TABULATION OF PROPOSED  
NORMALIZED DIRECTIONAL RELATIVE FIELD  
AT THE HORIZONTAL  
ERI, TYPE ATW-25H5-ETO-48H ANTENNA WITH  
1.25° ELECTRICAL BEAM TILT AND  
0.25° MECHANICAL TILT AT N 230° E T  
MARCH 2008**



TABULATION OF PROPOSED NORMALIZED DIRECTIONAL RELATIVE FIELD  
AT THE HORIZONTAL  
ERI, TYPE ATW-25H5-ETO-48H ANTENNA WITH  
1.25° ELECTRICAL BEAM TILT AND 0.25° MECHANICAL TILT AT N 230° E T  
MARCH 2008

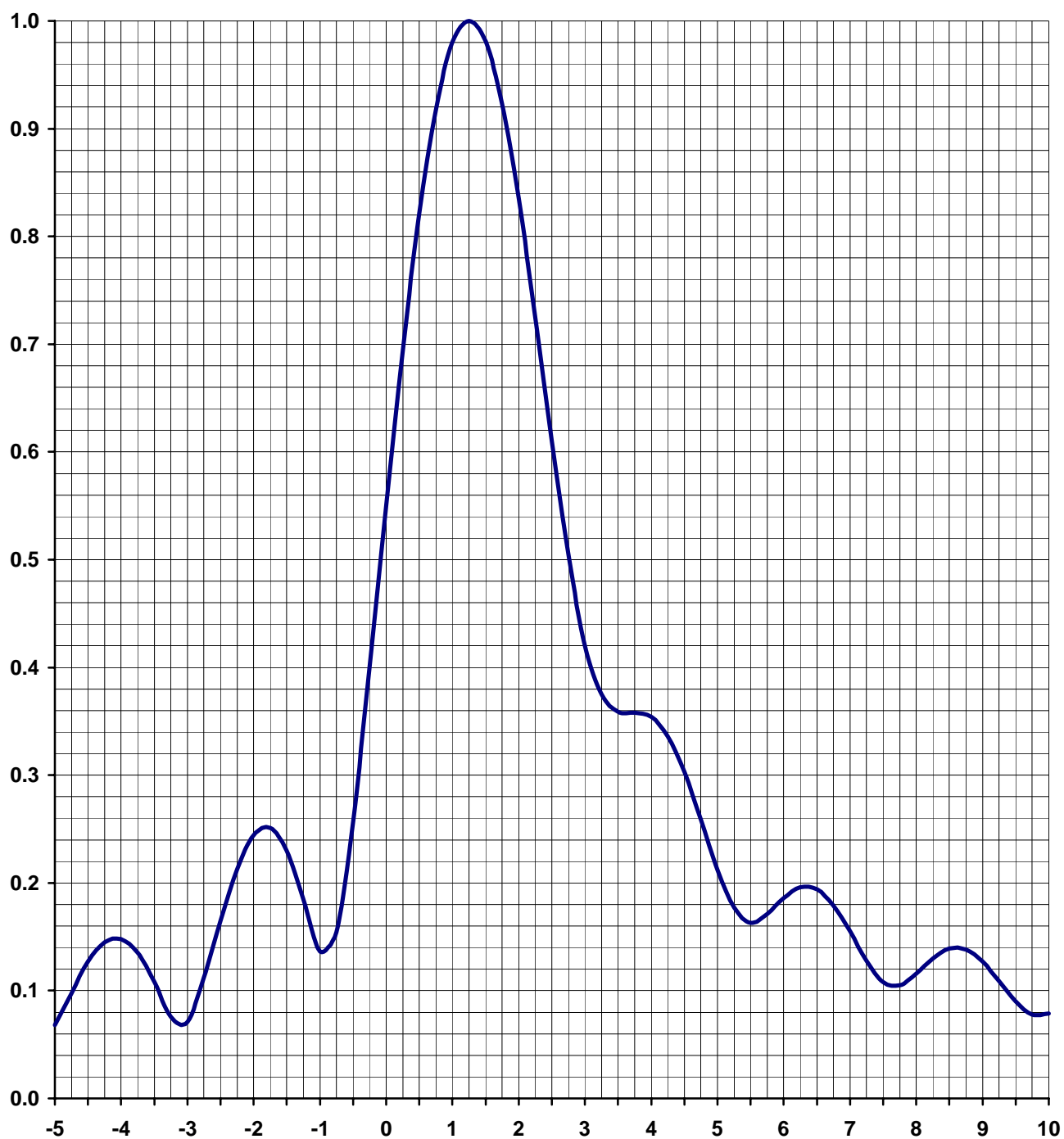
<u>Azimuth</u> N ° E T	<u>Relative Field at Horizontal</u> Tilted, Normalized
0	0.925
10	0.951
20	0.972
30	0.987
40	0.997
50	1.000
60	0.997
70	0.987
80	0.972
90	0.951
100	0.925
110	0.896
120	0.862
130	0.828
140	0.791
150	0.753
160	0.717
170	0.683
180	0.652
190	0.625
200	0.603
210	0.587
220	0.578
230	0.574
240	0.578
250	0.587
260	0.603
270	0.625
280	0.652
290	0.683
300	0.717
310	0.753
320	0.791
330	0.828
340	0.862
350	0.896



## ELEVATION PATTERN

<b>TYPE:</b>	<b>ATW25H5H</b>	
<b>Directivity:</b>	<b>Numeric</b>	<b>dBd</b>
<b>Main Lobe:</b>	<b>25.00</b>	<b>13.98</b>
<b>Horizontal:</b>	<b>7.56</b>	<b>8.79</b>

<b>Frequency:</b>	<b>48 (Digital)</b>
<b>Location:</b>	<b>Raleigh, NC</b>
<b>Beam Tilt:</b>	<b>1.25</b>
<b>Polarization:</b>	<b>Horizontal</b>



## TABULATED DATA FOR ELEVATION PATTERN

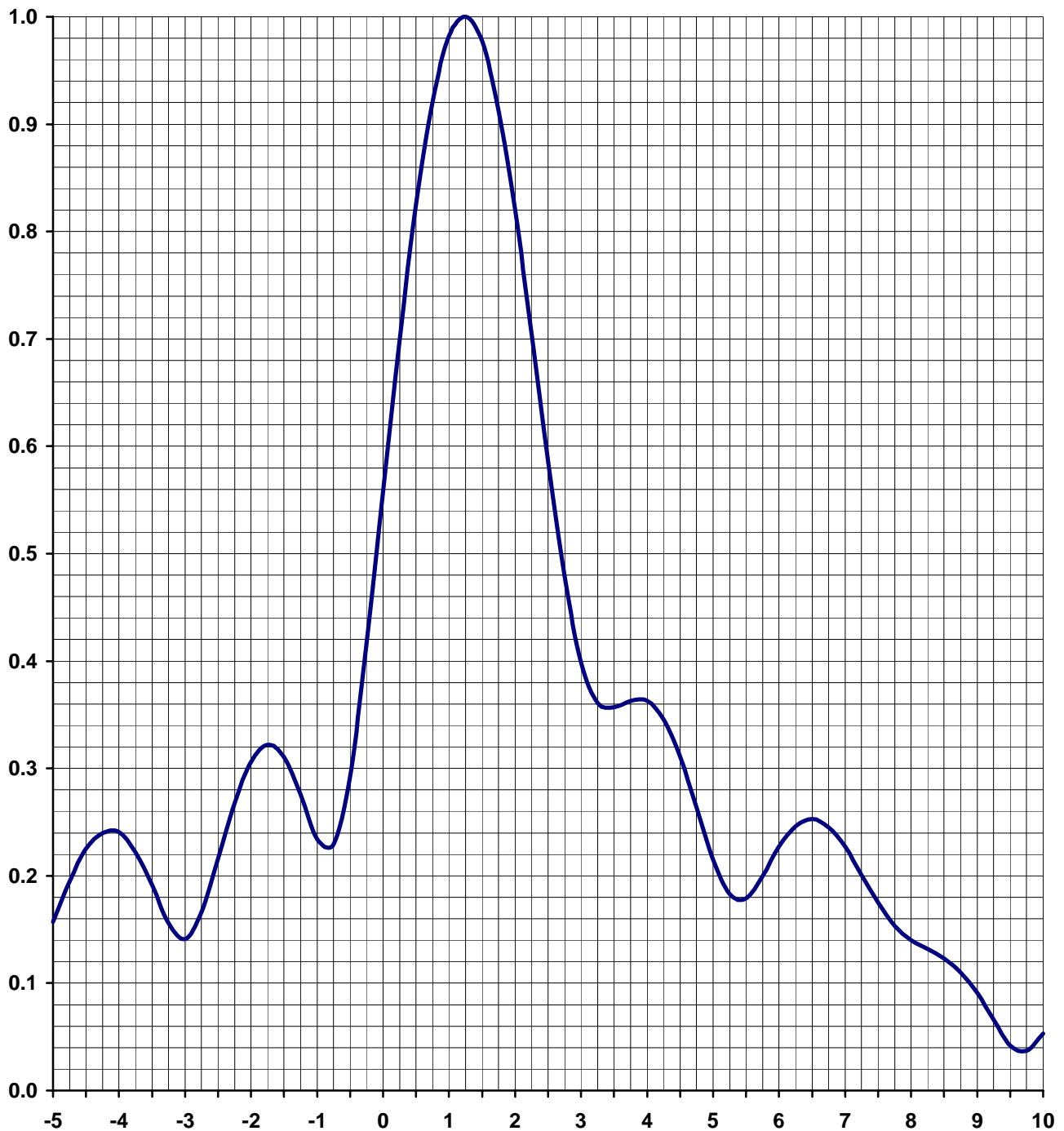
**TYPE ATW25H5H**
**-5 to 10 degrees in 0.25 increments**
**10 to 90 degrees in 0.50 increments**

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.068	-23.35	6.75	0.179	-14.94	27.00	0.043	-27.33	50.50	0.014	-37.08	74.00	0.013	-37.72
-4.75	0.098	-20.18	7.00	0.155	-16.19	27.50	0.035	-29.12	51.00	0.021	-33.56	74.50	0.021	-33.56
-4.50	0.127	-17.92	7.25	0.128	-17.86	28.00	0.023	-32.77	51.50	0.031	-30.17	75.00	0.028	-31.06
-4.25	0.145	-16.77	7.50	0.108	-19.33	28.50	0.028	-31.06	52.00	0.036	-28.87	75.50	0.033	-29.63
-4.00	0.148	-16.59	7.75	0.105	-19.58	29.00	0.038	-28.40	52.50	0.035	-29.12	76.00	0.037	-28.64
-3.75	0.135	-17.39	8.00	0.116	-18.71	29.50	0.040	-27.96	53.00	0.028	-31.06	76.50	0.040	-27.96
-3.50	0.108	-19.33	8.25	0.130	-17.72	30.00	0.031	-30.17	53.50	0.018	-34.89	77.00	0.042	-27.54
-3.25	0.076	-22.38	8.50	0.139	-17.14	30.50	0.021	-33.56	54.00	0.012	-38.42	77.50	0.042	-27.54
-3.00	0.071	-22.97	8.75	0.138	-17.20	31.00	0.027	-31.37	54.50	0.020	-33.98	78.00	0.041	-27.74
-2.75	0.112	-19.02	9.00	0.127	-17.92	31.50	0.037	-28.64	55.00	0.029	-30.75	78.50	0.040	-27.96
-2.50	0.165	-15.65	9.25	0.109	-19.25	32.00	0.038	-28.40	55.50	0.035	-29.12	79.00	0.037	-28.64
-2.25	0.213	-13.43	9.50	0.090	-20.92	32.50	0.030	-30.46	56.00	0.036	-28.87	79.50	0.034	-29.37
-2.00	0.244	-12.25	9.75	0.078	-22.16	33.00	0.020	-33.98	56.50	0.032	-29.90	80.00	0.030	-30.46
-1.75	0.251	-12.01	10.00	0.079	-22.05	33.50	0.024	-32.40	57.00	0.023	-32.77	80.50	0.027	-31.37
-1.50	0.230	-12.77	10.50	0.101	-19.91	34.00	0.034	-29.37	57.50	0.013	-37.72	81.00	0.023	-32.77
-1.25	0.185	-14.66	11.00	0.106	-19.49	34.50	0.037	-28.64	58.00	0.012	-38.42	81.50	0.018	-34.89
-1.00	0.136	-17.33	11.50	0.083	-21.62	35.00	0.030	-30.46	58.50	0.021	-33.56	82.00	0.015	-36.48
-0.75	0.154	-16.25	12.00	0.060	-24.44	35.50	0.020	-33.98	59.00	0.030	-30.46	82.50	0.011	-39.17
-0.50	0.257	-11.80	12.50	0.073	-22.73	36.00	0.021	-33.56	59.50	0.036	-28.87	83.00	0.008	-41.94
-0.25	0.399	-7.98	13.00	0.088	-21.11	36.50	0.031	-30.17	60.00	0.037	-28.64	83.50	0.005	-46.02
0.00	0.550	-5.19	13.50	0.078	-22.16	37.00	0.036	-28.87	60.50	0.033	-29.63	84.00	0.003	-50.46
0.25	0.695	-3.16	14.00	0.055	-25.19	37.50	0.032	-29.90	61.00	0.026	-31.70	84.50	0.002	-53.98
0.50	0.821	-1.71	14.50	0.052	-25.68	38.00	0.022	-33.15	61.50	0.016	-35.92	85.00	0.003	-50.46
0.75	0.918	-0.74	15.00	0.069	-23.22	38.50	0.017	-35.39	62.00	0.008	-41.94	85.50	0.004	-47.96
1.00	0.980	-0.18	15.50	0.072	-22.85	39.00	0.026	-31.70	62.50	0.014	-37.08	86.00	0.005	-46.02
1.25	1.000	0.00	16.00	0.056	-25.04	39.50	0.034	-29.37	63.00	0.024	-32.40	86.50	0.005	-46.02
1.50	0.981	-0.17	16.50	0.041	-27.74	40.00	0.034	-29.37	63.50	0.032	-29.90	87.00	0.006	-44.44
1.75	0.923	-0.70	17.00	0.052	-25.68	40.50	0.027	-31.37	64.00	0.037	-28.64	87.50	0.005	-46.02
2.00	0.835	-1.57	17.50	0.062	-24.15	41.00	0.017	-35.39	64.50	0.038	-28.40	88.00	0.005	-46.02
2.25	0.726	-2.78	18.00	0.056	-25.04	41.50	0.019	-34.42	65.00	0.036	-28.87	88.50	0.004	-47.96
2.50	0.610	-4.29	18.50	0.038	-28.40	42.00	0.029	-30.75	65.50	0.030	-30.46	89.00	0.003	-50.46
2.75	0.504	-5.95	19.00	0.037	-28.64	42.50	0.035	-29.12	66.00	0.022	-33.15	89.50	0.002	-53.98
3.00	0.420	-7.54	19.50	0.052	-25.68	43.00	0.033	-29.63	66.50	0.012	-38.42	90.00	0.001	-60.00
3.25	0.375	-8.52	20.00	0.055	-25.19	43.50	0.024	-32.40	67.00	0.005	-46.02			
3.50	0.359	-8.90	20.50	0.043	-27.33	44.00	0.015	-36.48	67.50	0.012	-38.42			
3.75	0.358	-8.92	21.00	0.030	-30.46	44.50	0.019	-34.42	68.00	0.022	-33.15			
4.00	0.354	-9.02	21.50	0.038	-28.40	45.00	0.029	-30.75	68.50	0.030	-30.46			
4.25	0.336	-9.47	22.00	0.049	-26.20	45.50	0.035	-29.12	69.00	0.036	-28.87			
4.50	0.303	-10.37	22.50	0.047	-26.56	46.00	0.033	-29.63	69.50	0.039	-28.18			
4.75	0.259	-11.73	23.00	0.033	-29.63	46.50	0.025	-32.04	70.00	0.040	-27.96			
5.00	0.212	-13.47	23.50	0.027	-31.37	47.00	0.015	-36.48	70.50	0.039	-28.18			
5.25	0.177	-15.04	24.00	0.039	-28.18	47.50	0.018	-34.89	71.00	0.035	-29.12			
5.50	0.163	-15.76	24.50	0.046	-26.74	48.00	0.027	-31.37	71.50	0.029	-30.75			
5.75	0.171	-15.34	25.00	0.039	-28.18	48.50	0.034	-29.37	72.00	0.022	-33.15			
6.00	0.186	-14.61	25.50	0.027	-31.37	49.00	0.035	-29.12	72.50	0.013	-37.72			
6.25	0.196	-14.15	26.00	0.028	-31.06	49.50	0.029	-30.75	73.00	0.004	-47.96			
6.50	0.194	-14.24	26.50	0.039	-28.18	50.00	0.019	-34.42	73.50	0.005	-46.02			

## ELEVATION PATTERN

<b>TYPE:</b>	<b>ATW23H5V</b>	
<b>Directivity:</b>	<b>Numeric</b>	<b>dBd</b>
<b>Main Lobe:</b>	<b>23.00</b>	<b>13.62</b>
<b>Horizontal:</b>	<b>7.16</b>	<b>8.55</b>

<b>Frequency:</b>	<b>48 (Digital)</b>
<b>Location:</b>	<b>Raleigh, NC</b>
<b>Beam Tilt:</b>	<b>1.25</b>
<b>Polarization:</b>	<b>Vertical</b>



## TABULATED DATA FOR ELEVATION PATTERN

TYPE: ATW23H5V

-5 to 10 degrees in 0.25 increments

10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.157	-16.08	6.75	0.245	-12.22	27.00	0.069	-23.22	50.50	0.019	-34.42	74.00	0.028	-31.06
-4.75	0.195	-14.20	7.00	0.227	-12.88	27.50	0.079	-22.05	51.00	0.009	-40.92	74.50	0.033	-29.63
-4.50	0.225	-12.96	7.25	0.201	-13.94	28.00	0.086	-21.31	51.50	0.007	-43.10	75.00	0.038	-28.40
-4.25	0.240	-12.40	7.50	0.175	-15.14	28.50	0.092	-20.72	52.00	0.009	-40.92	75.50	0.043	-27.33
-4.00	0.241	-12.36	7.75	0.153	-16.31	29.00	0.093	-20.63	52.50	0.013	-37.72	76.00	0.047	-26.56
-3.75	0.222	-13.07	8.00	0.140	-17.08	29.50	0.084	-21.51	53.00	0.020	-33.98	76.50	0.051	-25.85
-3.50	0.191	-14.38	8.25	0.132	-17.59	30.00	0.063	-24.01	53.50	0.031	-30.17	77.00	0.053	-25.51
-3.25	0.156	-16.14	8.50	0.123	-18.20	30.50	0.035	-29.12	54.00	0.045	-26.94	77.50	0.053	-25.51
-3.00	0.141	-17.02	8.75	0.110	-19.17	31.00	0.013	-37.72	54.50	0.058	-24.73	78.00	0.053	-25.51
-2.75	0.166	-15.60	9.00	0.091	-20.82	31.50	0.021	-33.56	55.00	0.068	-23.35	78.50	0.051	-25.85
-2.50	0.216	-13.31	9.25	0.066	-23.61	32.00	0.027	-31.37	55.50	0.073	-22.73	79.00	0.049	-26.20
-2.25	0.268	-11.44	9.50	0.042	-27.54	32.50	0.022	-33.15	56.00	0.072	-22.85	79.50	0.045	-26.94
-2.00	0.306	-10.29	9.75	0.037	-28.64	33.00	0.008	-41.94	56.50	0.065	-23.74	80.00	0.042	-27.54
-1.75	0.322	-9.84	10.00	0.053	-25.51	33.50	0.015	-36.48	57.00	0.054	-25.35	80.50	0.038	-28.40
-1.50	0.311	-10.14	10.50	0.090	-20.92	34.00	0.032	-29.90	57.50	0.042	-27.54	81.00	0.034	-29.37
-1.25	0.276	-11.18	11.00	0.093	-20.63	34.50	0.046	-26.74	58.00	0.034	-29.37	81.50	0.029	-30.75
-1.00	0.234	-12.62	11.50	0.064	-23.88	35.00	0.057	-24.88	58.50	0.033	-29.63	82.00	0.025	-32.04
-0.75	0.229	-12.80	12.00	0.055	-25.19	35.50	0.069	-23.22	59.00	0.038	-28.40	82.50	0.021	-33.56
-0.50	0.293	-10.66	12.50	0.097	-20.26	36.00	0.080	-21.94	59.50	0.044	-27.13	83.00	0.018	-34.89
-0.25	0.415	-7.64	13.00	0.130	-17.72	36.50	0.088	-21.11	60.00	0.046	-26.74	83.50	0.015	-36.48
0.00	0.558	-5.07	13.50	0.137	-17.27	37.00	0.087	-21.21	60.50	0.044	-27.13	84.00	0.013	-37.72
0.25	0.700	-3.10	14.00	0.125	-18.06	37.50	0.075	-22.50	61.00	0.039	-28.18	84.50	0.011	-39.17
0.50	0.825	-1.67	14.50	0.112	-19.02	38.00	0.055	-25.19	61.50	0.032	-29.90	85.00	0.009	-40.92
0.75	0.921	-0.71	15.00	0.100	-20.00	38.50	0.032	-29.90	62.00	0.025	-32.04	85.50	0.008	-41.94
1.00	0.982	-0.16	15.50	0.080	-21.94	39.00	0.020	-33.98	62.50	0.020	-33.98	86.00	0.008	-41.94
1.25	1.000	0.00	16.00	0.045	-26.94	39.50	0.027	-31.37	63.00	0.021	-33.56	86.50	0.007	-43.10
1.50	0.977	-0.20	16.50	0.004	-47.96	40.00	0.032	-29.90	63.50	0.023	-32.77	87.00	0.007	-43.10
1.75	0.913	-0.79	17.00	0.034	-29.37	40.50	0.029	-30.75	64.00	0.025	-32.04	87.50	0.006	-44.44
2.00	0.820	-1.72	17.50	0.048	-26.38	41.00	0.019	-34.42	64.50	0.024	-32.40	88.00	0.005	-46.02
2.25	0.706	-3.02	18.00	0.037	-28.64	41.50	0.006	-44.44	65.00	0.020	-33.98	88.50	0.005	-46.02
2.50	0.586	-4.64	18.50	0.016	-35.92	42.00	0.011	-39.17	65.50	0.014	-37.08	89.00	0.004	-47.96
2.75	0.478	-6.41	19.00	0.044	-27.13	42.50	0.022	-33.15	66.00	0.010	-40.00	89.50	0.002	-53.98
3.00	0.399	-7.98	19.50	0.077	-22.27	43.00	0.031	-30.17	66.50	0.016	-35.92	90.00	0.001	-60.00
3.25	0.361	-8.85	20.00	0.097	-20.26	43.50	0.043	-27.33	67.00	0.026	-31.70			
3.50	0.357	-8.95	20.50	0.102	-19.83	44.00	0.056	-25.04	67.50	0.037	-28.64			
3.75	0.363	-8.80	21.00	0.102	-19.83	44.50	0.070	-23.10	68.00	0.048	-26.38			
4.00	0.363	-8.80	21.50	0.101	-19.91	45.00	0.079	-22.05	68.50	0.056	-25.04			
4.25	0.346	-9.22	22.00	0.094	-20.54	45.50	0.082	-21.72	69.00	0.062	-24.15			
4.50	0.311	-10.14	22.50	0.075	-22.50	46.00	0.076	-22.38	69.50	0.065	-23.74			
4.75	0.264	-11.57	23.00	0.045	-26.94	46.50	0.062	-24.15	70.00	0.065	-23.74			
5.00	0.215	-13.35	23.50	0.010	-40.00	47.00	0.045	-26.94	70.50	0.063	-24.01			
5.25	0.183	-14.75	24.00	0.019	-34.42	47.50	0.030	-30.46	71.00	0.058	-24.73			
5.50	0.179	-14.94	24.50	0.031	-30.17	48.00	0.028	-31.06	71.50	0.051	-25.85			
5.75	0.200	-13.98	25.00	0.024	-32.40	48.50	0.034	-29.37	72.00	0.044	-27.13			
6.00	0.227	-12.88	25.50	0.003	-50.46	49.00	0.038	-28.40	72.50	0.036	-28.87			
6.25	0.246	-12.18	26.00	0.026	-31.70	49.50	0.036	-28.87	73.00	0.030	-30.46			
6.50	0.253	-11.94	26.50	0.051	-25.85	50.00	0.029	-30.75	73.50	0.027	-31.37			

TABLE II  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED OPERATION OF  
WRAL-DT, RALEIGH, NORTH CAROLINA  
CHANNEL 48 1000 KW MAX ERP 629 METERS HAAT  
MARCH 2008

<u>Radial</u> N ° E, T	<u>Average*</u>	<u>Effective</u>	<u>Depression</u>	<u>ERP</u> kW	<u>Distance to Contour</u>	
	<u>Elevation</u> meters	<u>Height</u> meters	<u>Angle</u> degrees		<u>48 dBu</u> km	<u>41 dBu</u> km
0	68.5	640.5	0.701	855.6	106.2	121.4
10	75.8	633.2	0.697	904.4	106.4	121.5
20	79.1	629.9	0.695	944.8	106.6	121.8
30	73.3	635.7	0.698	974.2	107.1	122.4
40	71.3	637.7	0.700	994.0	107.4	122.7
50	70.7	638.3	0.700	1000.0	107.5	122.8
60	71.3	637.7	0.700	994.0	107.4	122.7
70	70.3	638.7	0.700	974.2	107.3	122.6
80	79.5	629.5	0.695	944.8	106.6	121.8
90	83.4	625.6	0.693	904.4	106.1	121.1
100	70.4	638.6	0.700	855.6	106.1	121.3
110	77.1	631.9	0.696	802.8	105.3	120.3
120	90.6	618.4	0.689	743.0	104.1	118.8
130	78.5	630.5	0.696	685.6	103.9	118.6
140	79.2	629.8	0.695	625.7	103.1	117.7
150	81.6	627.4	0.694	567.0	102.1	116.6
160	77.7	631.3	0.696	514.1	101.5	115.9
170	70.2	638.8	0.700	466.5	100.9	115.3
180	70.0	639.0	0.700	425.1	100.2	114.4
190	76.5	632.5	0.697	390.6	99.2	113.3
200	78.1	630.9	0.696	363.6	98.5	112.6
210	79.0	630.0	0.695	344.6	98.0	112.0
220	82.9	626.1	0.693	334.1	97.6	111.6
230	86.3	622.7	0.691	329.5	97.4	111.3
240	89.0	620.0	0.690	334.1	97.4	111.3
250	93.1	615.9	0.687	344.6	97.5	111.4
260	98.4	610.6	0.684	363.6	97.7	111.6
270	96.8	612.2	0.685	390.6	98.4	112.4
280	92.7	616.3	0.688	425.1	99.3	113.3

TABLE II  
COMPUTED COVERAGE DATA  
FOR PROPOSED OPERATION OF  
WRAL-DT, RALEIGH, NORTH CAROLINA  
CHANNEL 48 1000 KW MAX ERP 629 METERS HAAT  
MARCH 2008  
(continued)

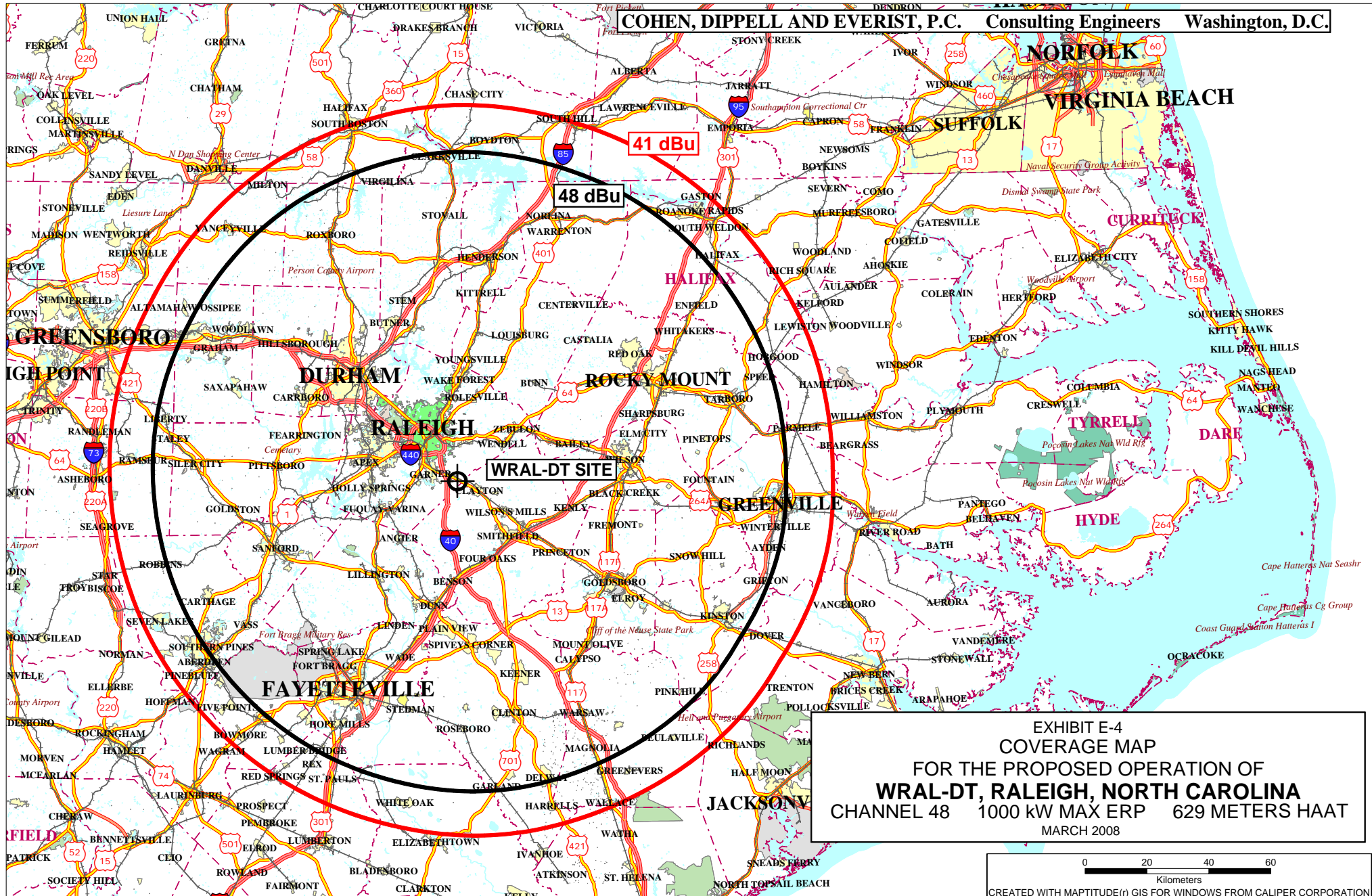
<u>Radial</u> N ° E, T	<u>Average*</u> <u>Elevation</u>	<u>Effective</u> <u>Height</u>	<u>Depression</u> <u>Angle</u>	<u>ERP</u> kW	<u>Distance to Contour</u>	
	meters	meters	degrees		<u>48 dBu</u> km	<u>41 dBu</u> km
290	91.5	617.5	0.688	466.5	100.1	114.3
300	95.8	613.2	0.686	514.1	100.8	115.0
310	87.4	621.6	0.691	567.0	101.9	116.3
320	79.6	629.4	0.695	625.7	103.1	117.7
330	74.7	634.3	0.698	685.6	104.0	118.8
340	75.6	633.4	0.697	743.0	104.7	119.6
350	70.9	638.1	0.700	802.8	105.5	120.6

\*Based on data from FCC 3-second data base.

DTV Channel 48 (674-680 MHz)  
Average Elevation 3.2 to 16.1 km 80 meters AMSL  
Center of Radiation 708.7 meters AMSL  
Antenna Height Above Average Terrain 629 meters  
Effective Radiated Power 1000 kW (30 dBk) Max

North Latitude: 35° 40' 29"  
West Longitude: 78° 31' 40"

(NAD-27)





### 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 pen-nit application to modify 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. ☐ Yes ☐ 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. ☐ Yes ☐ 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. ☐ Yes ☐ 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"). ☐ Yes ☐ No  
☐ 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. ☐ Yes ☐ No  
☐ N/A
2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RIF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307. ☐ Yes ☐ No

Applicant must **submit the Exhibit** called for in Item 13.

3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community. ☐ Yes ☐ 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. ☐ Yes ☐ No
5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration 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. ☐ Yes ☐ 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 \_\_\_\_\_ Analog TV, if any \_\_\_\_\_
2. Zone: ☐ I ☐ II ☐ III
3. Antenna Location Coordinates: (NAD 27)
- \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " ☐ N ☐ S Latitude  
\_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " ☐ E ☐ W Longitude
4. Antenna Structure Registration Number: \_\_\_\_\_
- ☐ Not applicable ☐ FAA Notification Filed with FAA
5. Antenna Location Site Elevation Above Mean Sea Level: \_\_\_\_\_ meters
6. Overall Tower Height Above Ground Level: \_\_\_\_\_ meters
7. Height of Radiation Center Above Ground Level: \_\_\_\_\_ meters
8. Height of Radiation Center Above Average Terrain: \_\_\_\_\_ meters
9. Maximum Effective Radiated Power (average power): \_\_\_\_\_ kW
10. Antenna Specifications:
- a. 

Manufacturer	Model
--------------	-------
- b. Electrical Beam Tilt: \_\_\_\_\_ degrees ☐ Not Applicable
- c. Mechanical Beam Tilt: \_\_\_\_\_ degrees toward azimuth \_\_\_\_\_ degrees True ☐ Not Applicable
- Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). Exhibit No.
- d. Polarization: ☐ Horizontal ☐ Circular ☐ Elliptical

## TECH BOX

e. Directional Antenna Relative Field Values:

☐

Not applicable (Nondirectional)

Rotation: \_\_\_\_\_

☐

No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. **Exhibit required.**

Exhibit No.

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

If "No," attach as an Exhibit justification therefore, including a summary of any related previously granted waivers.

Exhibit No.

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 No.

13. **Environmental Protection Act. Submit in an Exhibit** the following:

Exhibit No.

- 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 radio frequency 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.

**PREPARER'S CERTIFICATION IN SECTION III MUST BE COMPLETED AND SIGNED.**

13. **Petition for Rulemaking/Counterproposal to Add New FM Channel to FM Table of Allotments.** If the application is being submitted concurrently with a Petition for Rulemaking or Counterproposal to Amend the FM Table of Allotments (47 C.F.R. Section 73.202) to add a new FM channel allotment, petitioner/counter-proponent certifies that, if the FM channel allotment requested is allotted, petitioner/counter-proponent will apply to participate in the auction of the channel allotment requested and specified in this application.

☐ Yes ☐ No ☐ N/A

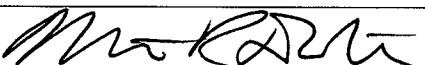
I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in 'good faith. I acknowledge that all certifications and attached Exhibits are considered material representations. I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

Typed or Printed Name of Person Signing	Typed or Printed Title of Person Signing
Signature	Date

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 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 Martin R. Doczkat	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 	Date March 14, 2008	
Mailing Address Cohen, Dippell and Everist, P.C, 1300 L Street, NW Suite 1100		
City Washington	State or Country (if foreign address) DC	ZIP Code 20005
Telephone Number (include area code) (202) 898-0111	E-Mail Address (if available) cde@attglobal.net	

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