

ENGINEERING STATEMENT  
RE MINOR AMENDMENT TO PENDING APPLICATION  
(FCC FILE NO. BPEDT-20000427ACS)  
ON BEHALF OF  
VERMONT ETV INC.  
**WETK-DT, BURLINGTON, VERMONT**  
CHANNEL 32 90 KW ERP 830 METERS HAAT

JUNE 2005

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         )

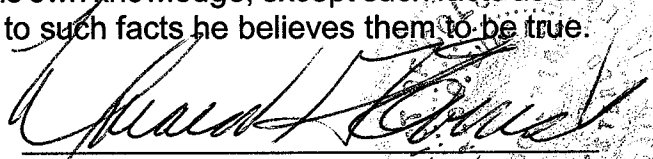
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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;

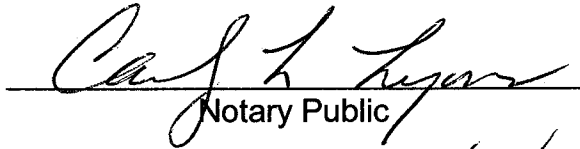
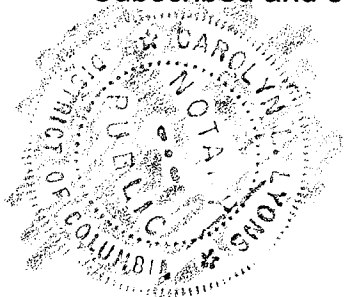
That the attached engineering report was prepared by him or under his supervision and direction and

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 10<sup>th</sup> day of June, 2005.

  
Notary Public

My Commission Expires: 2/28/2008

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:

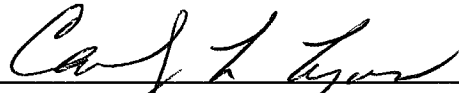
He is a graduate electrical engineer of the Pennsylvania State University, and is a staff engineer at Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

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

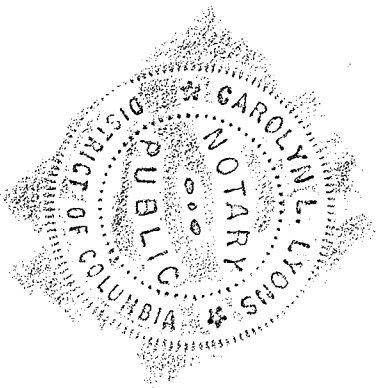
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

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

Subscribed and sworn to before me this 10<sup>th</sup> day of June, 2005.

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

My Commission Expires: 2/28/2008



### Introduction

This engineering report has been prepared on behalf of Vermont ETV, Inc. ("VETV"), licensee of TV station WETK(TV), Burlington, Vermont, in support of its request to amend the pending application on file (FCC File No. BPEDT-20000427ACS) for digital television ("DTV") operation. At present, WETK-TV operates on analog TV Channel 33 (584-590 MHz) with 1,350 kW directional effective radiated power ("ERP") and 815 meters antenna height above average terrain ("HAAT"). Station WETK(TV) has been allocated DTV Channel 32 (578-584 MHz) for its digital TV operation with 50 kW maximum ERP and 815 meters HAAT.

WETK-DT proposes to amend the pending DTV application (FCC File No. BPEDT-20000427ACS) by operating on Channel 32 with a non-directional ERP of 90 kW and 830 meters HAAT. No other changes are requested.

### Antenna Site

WETK-DT will operate at the summit of Mount Mansfield in Stowe, Vermont. Mount Mansfield is a multiple use site located 19.5 miles east of Burlington, Vermont. The DTV antenna will be top-mounted on a new tower having an overall structure height above ground of 37.6 meters. Since the height of the tower is less than 50 meters, FAA airspace approval is not required.

The geographic coordinates (NAD-27) of the tower (Exhibit E-1) are as follows:

North Latitude: 44° 31' 32"

West Longitude: 72° 48' 51"

The following data shows the pertinent information concerning the proposed DTV operation.

Equipment Data

Antenna: Dielectric, Type TUP-04-10/40H-1-R (or equivalent) antenna with 1° electrical beam tilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included as Exhibit E-2.

Power Data

Transmitter output	5.37 kW	7.30 dBk
Dielectric 3-1/8" 50 ohm line or equivalent length 36.6 meters (120 ft)	89.5%	0.48 dB
Input power to the antenna	4.81 kW	6.82 dBk
Antenna power gain, Main Lobe	18.7	12.72 dB
Effective Radiated Power, Maximum	90 kW	19.54 dBk

Elevation Data

Elevation of the site above mean sea level	1222.2 meters (4009.8 feet)
Overall height above ground of the antenna structure	37.6 meters (123.3 feet)
Overall height above mean sea level of antenna structure	1259.8 meters (4133.2 feet)
Center of radiation of Channel 32 antenna above ground	30.5 meters (100 feet)
Center of radiation of Channel 32 antenna above mean sea level	1252.7 meters (4109.8 feet)

Antenna height above average terrain

830 meters

#### Topographic Data

The average elevation data for 3.2 to 16.1 km along each radial every 45 degrees has been determined from FCC 3-second terrain data.

#### Contour Data

Utilizing the formula in Section 73.625(b)(2) for the effective heights, the depression angle  $A_h$ , varies from 0.691 to 0.862 degrees. The maximum radiation value has been used to calculate ERP where the vertical radiation pattern at these angles is greater than 90% of the maximum.

The distances along each radial to the limits of the F(50,90) 48 dBu and 41 dBu contours were determined from reference to the propagation data for Channels 14-69, as published by the Commission in Figure 10b and 10c, Section 73.699 of its rules.

The distances along each radial every 45 degrees in azimuth to the predicted F(50,90) 48 dBu and 41 dBu contours, the average elevations, and the effective antenna heights are included on the attached tabulation (Table I). The predicted 48 dBu and 41 dBu contours determined from these distances are shown on the attached map (Exhibit E-3).

#### Permissible Maximum & Reference ERP

Station WETK-DT is proposing to operate with an ERP of 90 kW and 830 meters HAAT using a non-directional antenna, thereby exceeding the 50 kW directional ERP at 815 meters

HAAT authorized in the DTV Table of Allotments but less than that specified in the application (FCC File No. BPEDT-20000427ACS).

#### Domestic Allocation Analysis

An allocation study from the proposed site has not been performed since the proposed DTV facilities are domestically less than requested in the pending application. Further, more Canadian coordination for a facility of 90 kW ERP and 844 meters HAAT was received by the FCC (reference 6128-5 (DBC-E) in response to the FCC letter dated March 15, 2005) which exceeds the 90 kW ERP and 830 meters HAAT proposed herein. Therefore, there are no domestic or Canadian interference issues.

#### Radio Frequency Field ("RFF") Determination

The proposed 90 kW operation will utilize a Dielectric, TUP-04-10/40H-1-R antenna or the equivalent with a center of radiation above ground of 30.5 meters. The proposed top-mounted antenna will be top-mounted on a new 80 foot self-supported tower with an overall height of 37.6 meters AGL.

WETK-DT will operate at a multiple use site on the summit of Mount Mansfield in Stowe Vermont. There are currently four (NTSC and DTV) television stations, three FM stations and numerous other communications services operating within 500 meters of this site. Because some of the locations at Mount Mansfield are visited by the general public, a collocation association has been formed to address environmental concerns at the site. The association has engaged a professional engineer to provide guidance on the Mount Mansfield reconfiguration so that the FCC RFF guidelines are met.

The proposed DTV operation will satisfy the current provisions stated OET Bulletin No. 65, Edition No. 97-01 dated August 1997 and Supplement A regarding radio frequency field ("RFF"), and thus, comply 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 elevation pattern for the proposed DTV Channel 32 antenna shows a maximum relative field of less than 0.05 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  $9.25 \mu\text{W}/\text{cm}^2$ . This is less than 2.4 percent of the  $387.3 \mu\text{W}/\text{cm}^2$  maximum human exposure to RFF recommended by the current FCC guidelines for the general population.

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") per Section 1.1307 of the FCC Rules is categorically excluded under Section 1.1306 of the FCC Rules and Regulations since the applicant indicates:

- (a)(1) The proposed operation from an existing communications site is not located in an officially designated wilderness area.
- (a)(2) The proposed operation from an existing communications site is not located in an officially designated wildlife preserve.
- (a)(3) The proposed operation will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed operation 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 operation will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
- (a)(5) The proposed operation is not located near any known Indian religious sites.
- (a)(6) The proposed operation is not located in a flood plain.
- (a)(7) The installation of the antenna on a new tower less than 50 meters in height at an existing communications site 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 equip the tower with high intensity white lights 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 in accordance with OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A. Authorized personnel will be alerted to areas of the antennas where potential radiation levels are in excess of the FCC guidelines. A security fence with a locked gate precludes access to the tower site.

ABOVE MEAN SEA LEVEL

ABOVE GROUND

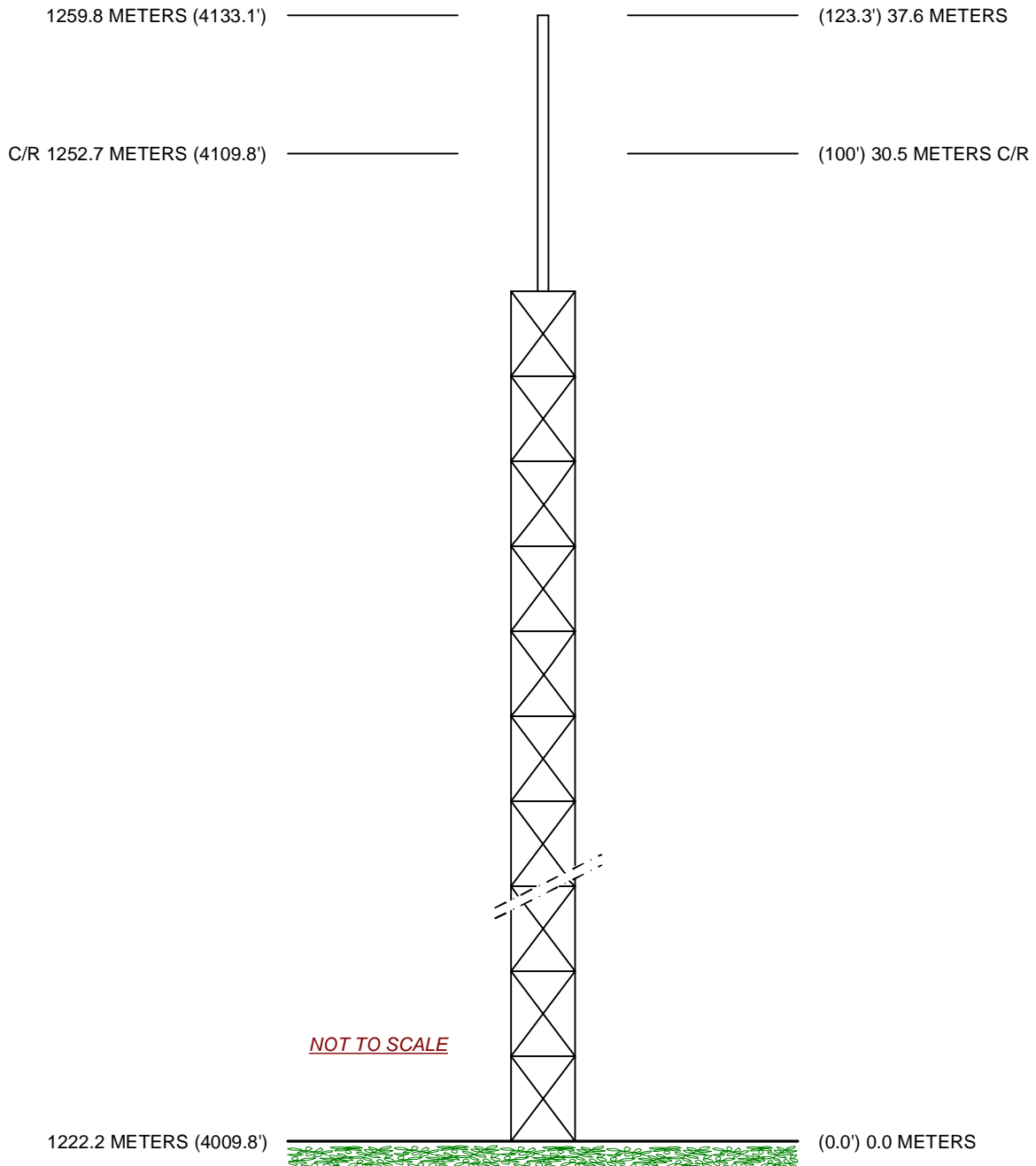


EXHIBIT E-1  
VERTICAL SKETCH  
FOR THE PROPOSED DTV OPERATION OF  
**WETK-DT, BURLINGTON, VERMONT**

JUNE 2005

COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

TABLE I  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED DTV OPERATION OF  
WETK-DT, BURLINGTON, VERMONT  
CHANNEL 32 90 KW ERP 830 METERS HAAT  
JUNE 2005

<u>Radial</u> <u>Bearing</u> N ° E, T	<u>Average*</u> <u>Elevation</u> <u>3.2 to 16.1 km</u>	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u>	<u>Effective</u> <u>Radiated</u> <u>Power</u> kW	<u>Distance to Contour F(50,90)</u>	
	meters				<u>48 dBu</u> <u>City Grade</u> km	<u>41 dBu</u> <u>Noise-Limited</u> km
0	385.9	866.8	0.816	90	93.8	108.9
45	620.9	631.8	0.696	90	86.9	100.4
90	411.1	841.6	0.804	90	93.1	108.1
135	348.5	904.2	0.833	90	94.7	110.0
180	631.1	621.6	0.691	90	86.5	100.0
225	374.4	878.3	0.821	90	94.0	109.3
270	285.0	967.7	0.862	90	96.2	111.7
315	318.8	933.9	0.847	90	95.3	110.8
Average						

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

DTV Channel 32 (578-584 MHz)  
Average Elevation 3.2 to 16.1 km 422.7 meters AMSL  
Center of Radiation 1252.7 meters AMSL  
Antenna Height Above Average Terrain 830 meters  
Site Elevation 1222.2 meters AMSL  
Effective Radiated Power 90 kW (19.54 dBk) Max. 1.0° Tilt

North Latitude: 44° 31' 32"  
West Longitude: 72° 48' 51"

(NAD-27)

TABLE II  
POPULATION AND AREA DATA  
FOR THE PROPOSED OPERATION OF  
WETK-DT, BURLINGTON, VERMONT  
CHANNEL 32 90KW 830 METERS HAAT  
JUNE 2005

DTV F(50,90) <u>Contour</u>	2000 <u>Population</u>	<u>Area</u> sq.km
48 dBu	543,395	22,796
41 dBu	634,655	29,279

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

WETK-DT, BURLINGTON, VERMONT



Proposal Number

Revision

Date

**27 Jan 2005**

Call Letters

**WETK-DT**

Channel

**32**

Location

**Mt. Mansfield**

Customer

Antenna Type

**TUP-O4-10/40H-1-R**

### ELEVATION PATTERN

RMS Gain at Main Lobe

**18.7 (12.72 dB)**

Beam Tilt

**1.00 Degrees**

RMS Gain at Horizontal

**12.3 (10.90 dB)**

Frequency

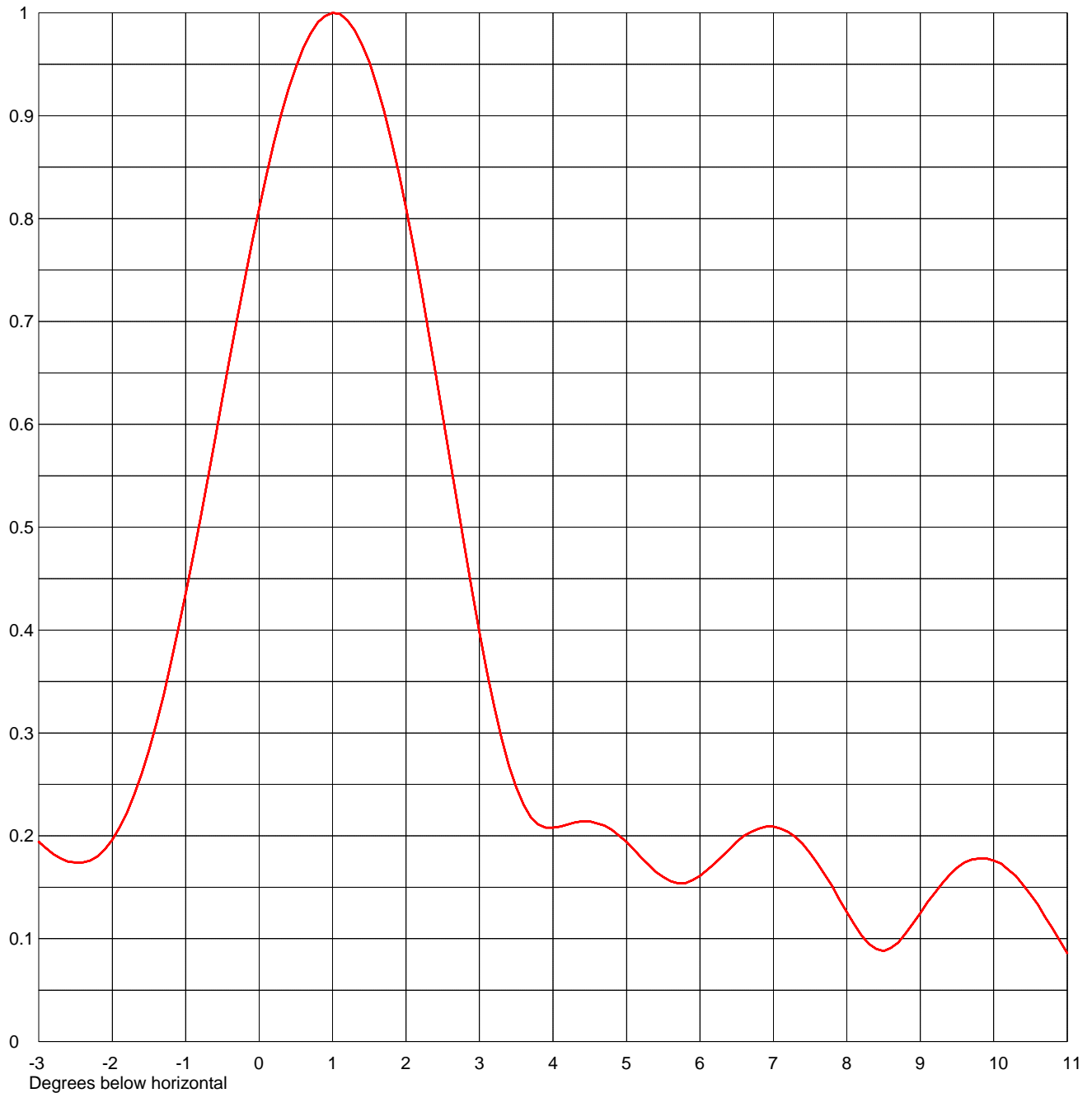
**581.00 MHz**

Calculated / Measured

**Calculated**

Drawing #

**10U187100**



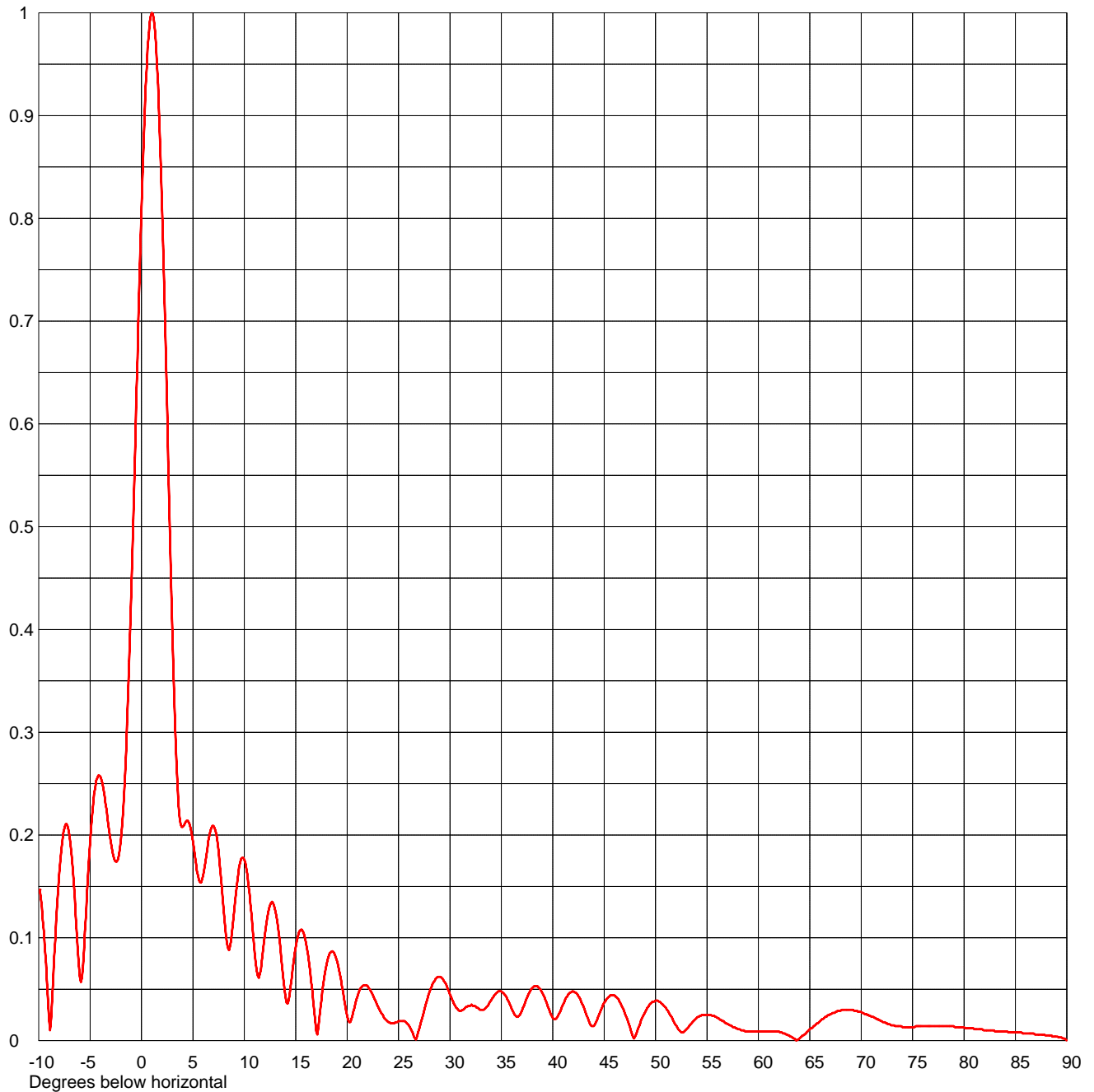
Remarks:



Proposal Number		Revision	
Date	27 Jan 2005		
Call Letters	WETK-DT	Channel	32
Location	Mt. Mansfield		
Customer			
Antenna Type	TUP-O4-10/40H-1-R		

### ELEVATION PATTERN

RMS Gain at Main Lobe	18.7 (12.72 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	12.3 (10.90 dB)	Frequency	581.00 MHz
Calculated / Measured	Calculated	Drawing #	10U187100-90



Remarks:



Proposal Number  
 Date **27 Jan 2005**  
 Call Letters **WETK-DT** Channel **32**  
 Location **Mt. Mansfield**  
 Customer  
 Antenna Type **TUP-O4-10/40H-1-R**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **10U187100-90**

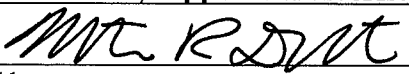
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.154	2.4	0.651	10.6	0.133	30.5	0.034	51.0	0.032	71.5	0.021
-9.5	0.105	2.6	0.565	10.8	0.110	31.0	0.029	51.5	0.024	72.0	0.019
-9.0	0.022	2.8	0.479	11.0	0.086	31.5	0.032	52.0	0.015	72.5	0.017
-8.5	0.079	3.0	0.398	11.5	0.064	32.0	0.034	52.5	0.008	73.0	0.015
-8.0	0.163	3.2	0.326	12.0	0.103	32.5	0.033	53.0	0.011	73.5	0.014
-7.5	0.207	3.4	0.268	12.5	0.132	33.0	0.030	53.5	0.017	74.0	0.013
-7.0	0.199	3.6	0.230	13.0	0.127	33.5	0.032	54.0	0.022	74.5	0.013
-6.5	0.139	3.8	0.211	13.5	0.090	34.0	0.039	54.5	0.025	75.0	0.013
-6.0	0.062	4.0	0.208	14.0	0.043	34.5	0.046	55.0	0.025	75.5	0.014
-5.5	0.106	4.2	0.211	14.5	0.052	35.0	0.048	55.5	0.024	76.0	0.014
-5.0	0.193	4.4	0.214	15.0	0.091	35.5	0.042	56.0	0.022	76.5	0.014
-4.5	0.247	4.6	0.212	15.5	0.108	36.0	0.031	56.5	0.019	77.0	0.014
-4.0	0.257	4.8	0.206	16.0	0.095	36.5	0.023	57.0	0.016	77.5	0.014
-3.5	0.231	5.0	0.194	16.5	0.058	37.0	0.029	57.5	0.013	78.0	0.014
-3.0	0.194	5.2	0.179	17.0	0.009	37.5	0.042	58.0	0.011	78.5	0.014
-2.8	0.182	5.4	0.165	17.5	0.040	38.0	0.051	58.5	0.010	79.0	0.014
-2.6	0.175	5.6	0.156	18.0	0.074	38.5	0.053	59.0	0.009	79.5	0.013
-2.4	0.174	5.8	0.154	18.5	0.087	39.0	0.046	59.5	0.009	80.0	0.013
-2.2	0.180	6.0	0.161	19.0	0.078	39.5	0.034	60.0	0.009	80.5	0.012
-2.0	0.196	6.2	0.173	19.5	0.053	40.0	0.022	60.5	0.009	81.0	0.011
-1.8	0.222	6.4	0.187	20.0	0.024	40.5	0.024	61.0	0.009	81.5	0.011
-1.6	0.260	6.6	0.200	20.5	0.024	41.0	0.035	61.5	0.009	82.0	0.010
-1.4	0.309	6.8	0.207	21.0	0.043	41.5	0.045	62.0	0.009	82.5	0.010
-1.2	0.368	7.0	0.209	21.5	0.053	42.0	0.048	62.5	0.007	83.0	0.009
-1.0	0.435	7.2	0.204	22.0	0.053	42.5	0.043	63.0	0.005	83.5	0.009
-0.8	0.508	7.4	0.192	22.5	0.044	43.0	0.033	63.5	0.002	84.0	0.009
-0.6	0.586	7.6	0.173	23.0	0.033	43.5	0.019	64.0	0.002	84.5	0.008
-0.4	0.664	7.8	0.151	23.5	0.024	44.0	0.014	64.5	0.006	85.0	0.008
-0.2	0.739	8.0	0.126	24.0	0.018	44.5	0.025	65.0	0.011	85.5	0.008
0.0	0.810	8.2	0.103	24.5	0.017	45.0	0.037	65.5	0.015	86.0	0.007
0.2	0.873	8.4	0.090	25.0	0.019	45.5	0.043	66.0	0.019	86.5	0.007
0.4	0.926	8.6	0.091	25.5	0.019	46.0	0.044	66.5	0.023	87.0	0.006
0.6	0.966	8.8	0.105	26.0	0.015	46.5	0.038	67.0	0.026	87.5	0.006
0.8	0.991	9.0	0.125	26.5	0.004	47.0	0.027	67.5	0.028	88.0	0.005
1.0	1.000	9.2	0.145	27.0	0.011	47.5	0.013	68.0	0.029	88.5	0.005
1.2	0.993	9.4	0.162	27.5	0.030	48.0	0.004	68.5	0.030	89.0	0.004
1.4	0.969	9.6	0.174	28.0	0.047	48.5	0.017	69.0	0.030	89.5	0.003
1.6	0.930	9.8	0.178	28.5	0.058	49.0	0.028	69.5	0.029	90.0	0.000
1.8	0.876	10.0	0.176	29.0	0.062	49.5	0.036	70.0	0.028		
2.0	0.810	10.2	0.167	29.5	0.057	50.0	0.039	70.5	0.026		
2.2	0.734	10.4	0.152	30.0	0.045	50.5	0.037	71.0	0.023		

Remarks:



## 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 <b>Martin R. Doczkat</b> <b>Cohen, Dippell and Everist, P.C.</b>		Relationship to Applicant (e.g., Consulting Engineer) <b>Consulting Engineer</b>	
Signature 		Date <b>June 10, 2005</b>	
Mailing Address <b>1300 L Street, NW Suite 1100</b>			
City <b>Washington</b>		State or Country (if foreign address) <b>DC</b>	ZIP Code <b>20005</b>
Telephone Number (include area code) <b>(202) 898-0111</b>		E-Mail Address (if available) <b>cde@attglobal.net</b>	

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AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).