

APPLICATION FOR MINOR MODIFICATION
TO A DTV PERMITTED BROADCAST
STATION FCC FILE NUMBER: BPEDT-
20080321AAK WNPB-DT
CHANNEL 33 ERP 615 KW (MAX-DA) AT
464 METERS AAT,
WEST VIRGINIA EDUCATIONAL
BROADCASTING AUTHORITY
MORGANTOWN, WEST VIRGINIA

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20080613

Prepared by Ryan Wilhour

KG&A

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

KESSLER AND GEHMAN ASSOCIATES, INC.

ENGINEERING STATEMENT OF RYAN WILLOUR OF THE FIRM KESSLER AND
GEHMAN ASSOCIATES, INC., CONSULTING ENGINEERS IN CONNECTION WITH
AN APPLICATION FOR MINOR MODIFICATION OF A PERMITTED DTV
BROADCAST STATION WNPB-DT FCC FILE NUMBER BPEDT-20080321AAK TO
MAXIMIZE OPERATION IN THE POST DTV TRANSITION PERIOD
WEST VIRGINIA EDUCATIONAL BROADCASTING AUTHORITY
MORGANTOWN, WEST VIRGINIA

PROCLAMATION OF ENGINEER

I, Ryan Wilhour, am an associate of Kessler and Gehman Associates, Inc. with offices in Gainesville, Florida. I am a graduate of the University of Florida with a Bachelor of Science degree in electrical engineering. This firm has been employed by West Virginia Educational Broadcasting Authority (“WVEBA”) to prepare engineering studies and a minor modification application to FCC file number BPEDT-20080321AAK for post DTV transition maximization.

ATTACHED FIGURES

In carrying out the engineering studies the following attached figures were prepared:

1. Engineering Specifications (Exhibit E1)
2. Elevation drawing of the antenna system (Exhibit E2)
3. USGS 7.5 minute topographic quadrangle showing the proposed transmitter location and the coordinate lines (Exhibit E3)
4. Antenna azimuth and elevation patterns (Exhibit E4)
5. Map showing the predicted DTV coverage contour (Exhibit E5)
6. Allocation Analysis (Exhibit E6)
7. Environmental Impact/ RFR Hazard Analysis (Exhibit E7)

NARRATIVE

WVEBA non-commercial licensee of WNPB-DT proposes to operate its post-transition Channel 33 digital facility using the existing support structure. The instant application proposes to replace the permitted top mounted antenna which will increase the effective center of radiation by 7.5 meters and change the antenna pattern. It is also proposed to increase the ERP from 92 kW to 615 kW to effectively maximize.

ALLOCATION ANALYSIS

It is proposed to modify WNPB-DT to maximize its coverage area without causing impermissible interference to other post DTV transition facilities. Exhibit E6 demonstrates the interference considerations for the proposed facility and further illustrates complete compliance to the 0.5% interference threshold criteria.

ENVIRONMENTAL IMPACT/RFR HAZARD ANALYSIS


An analysis has been made of the human exposure to RFR using the calculation methodology described in OET Bulletin 65, Edition, 97-01. Exhibit E7 is a RFR study demonstrating compliance within 5% of the most restrictive permissible exposure at any location 2 meters above the ground. Exhibit E7 calculations were made using a frequency of 584 MHz, which is the lower edge of the proposed channel. To account for ground reflections, a coefficient of 1.6 was included in the calculations.

Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licensees whose transmitters produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR. Since the proposed operation is well within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of WNPB-DT were not taken into account. The instant proposal complies with the FCC limits for human exposure to RF radiation and thus is excluded from further environmental processing.

KESSLER AND GEHMAN ASSOCIATES, INC.

DECLARATION OF ENGINEER

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on June 13, 2008.

The logo for Kessler and Gehman Associates, Inc. (KGA) features the letters "KGA" in a stylized, serif font. The letters are white and are superimposed on a thick, horizontal gray bar.

Ryan Wilhour

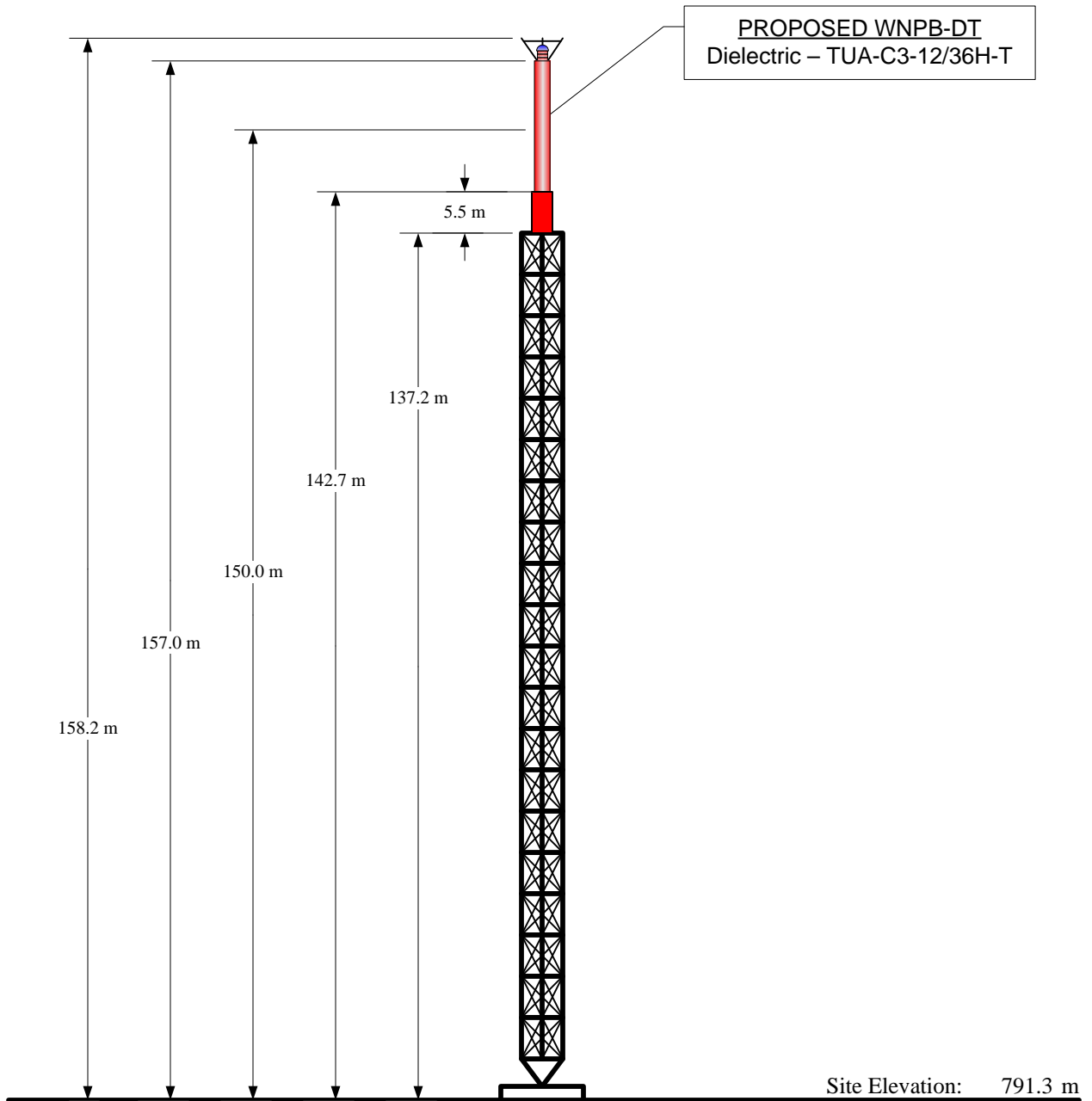
A handwritten signature in blue ink that reads "Ryan Wilhour". The signature is written in a cursive, flowing style.

Consulting Engineer

**WNPB-DT
MORGANTOWN, WEST VIRGINIA**

ENGINEERING SPECIFICATIONS

- A. Transmitter Site (NAD 27)
- | | |
|----------------------------|------------------|
| North Latitude | 39 ° 41 ' 44.7 " |
| West Longitude | 79 ° 45 ' 44.8 " |
| Street Address or Location | |
| | Sand Spring |
| | Morgantown, WV |
- B. Proposed Facility
- DTV Channel
- | | |
|-----------|-------------|
| Number | 33 |
| Frequency | 584-590 MHz |
- C. Antenna Height
- | | |
|---|---------|
| Height of Site Above Mean Sea Level (AMSL) | 791.3 m |
| Overall Height of Structure Above Ground
(including all appurtenances) | 158.2 m |
| Overall Height of Structure Above Mean Sea Level
(including all appurtenances) | 949.5 m |
| Effective Height of Antenna Above Ground | 150.0 m |
| Effective Height of Antenna Above Average Terrain | 464.0 m |
| Effective Height of Antenna Above Mean Sea Level | 941.3 m |
- D. Antenna Parameters – Horizontal Polarization
- | | |
|--|-----------|
| Maximum Antenna Gain in Beam Maximum | 16.94 dB |
| Maximum Antenna Gain in Horizontal Plane | 15.04 dB |
| Maximum Effective Radiated Power | 27.89 dBk |
| In Beam Maximum | 615.0 kW |
| Maximum Effective Radiated Power | 25.99 dBk |
| In Horizontal Plane | 397.1 kW |



Overall Height AGL: 158.2 m
 Overall Height AMSL: 949.5 m
 Radiation Center AGL: 150.0 m
 Radiation Center AMSL: 941.3 m
 Radiation Center HAAT: 464.0 m
 Average Terrain: 477.3 m

NAD 27 Coordinates:
 N. Latitude: 39° 41' 44.7"
 W. Longitude: 79° 45' 44.8"

FCC Tower Registration Number: 1035128

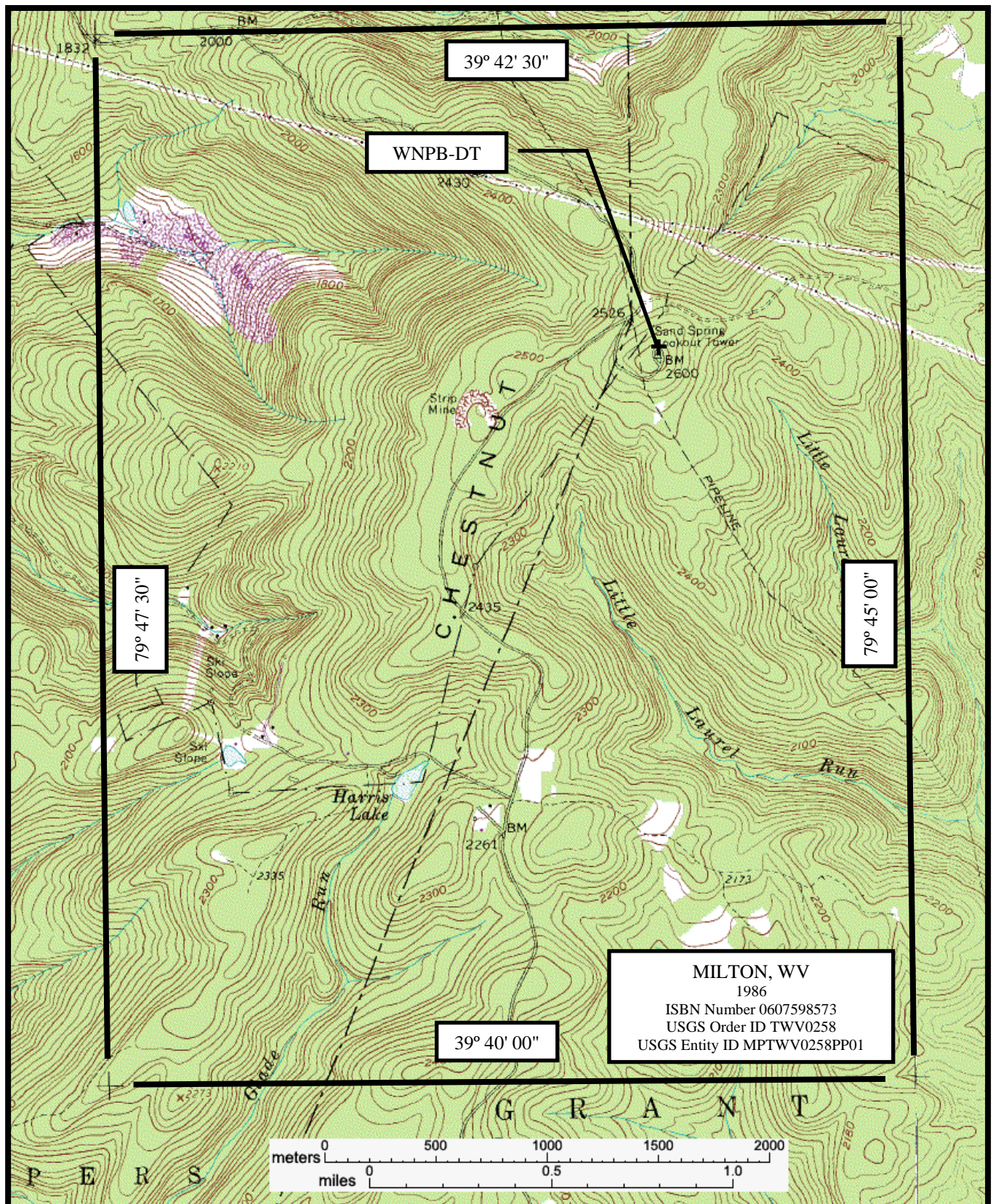
NOTE: NOT TO SCALE

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EXHIBIT E2



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 20080613 EXHIBIT E3

WNPB-DT

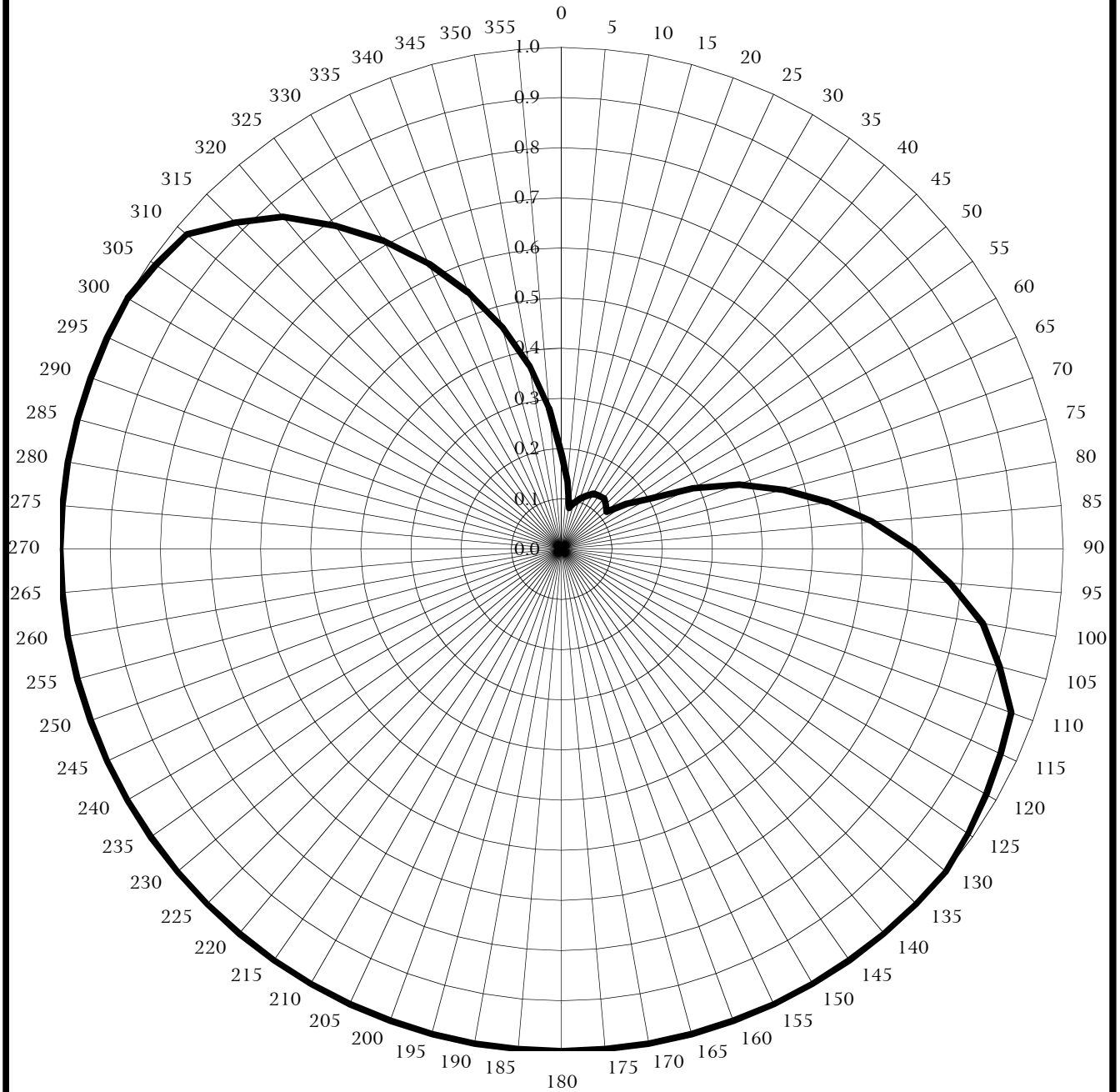
MORGANTOWN, WEST VIRGINIA

TABULATION OF RELATIVE FIELD FOR PROPOSED DIRECTIONAL ANTENNA

<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>	<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>
N000°E	0.189	N180°E	1.000
N010°E	0.083	N190°E	1.000
N020°E	0.108	N200°E	1.000
N030°E	0.128	N210°E	1.000
N040°E	0.132	N220°E	1.000
N050°E	0.117	N230°E	1.000
N060°E	0.200	N240°E	1.000
N070°E	0.377	N250°E	1.000
N080°E	0.540	N260°E	1.000
N090°E	0.704	N270°E	1.000
N100°E	0.853	N280°E	1.000
N110°E	0.954	N290°E	1.000
N120°E	0.978	N300°E	1.000
N130°E	1.000	N310°E	0.977
N140°E	1.000	N320°E	0.865
N150°E	1.000	N330°E	0.710
N160°E	1.000	N340°E	0.545
N170°E	1.000	N350°E	0.371

MAXIMUM OF 1.000 AT N130°E THROUGH N300°E
MINIMUM OF 0.083 AT N010°E

RELATIVE FIELD AZIMUTH PATTERN



DIELECTRIC TUA-C3-12/36H-T
ORIENTED WITH BEAM MAXIMA AT 130° THROUGH 300°
MAXIMUM GAIN: 1.90 (2.79 DB)

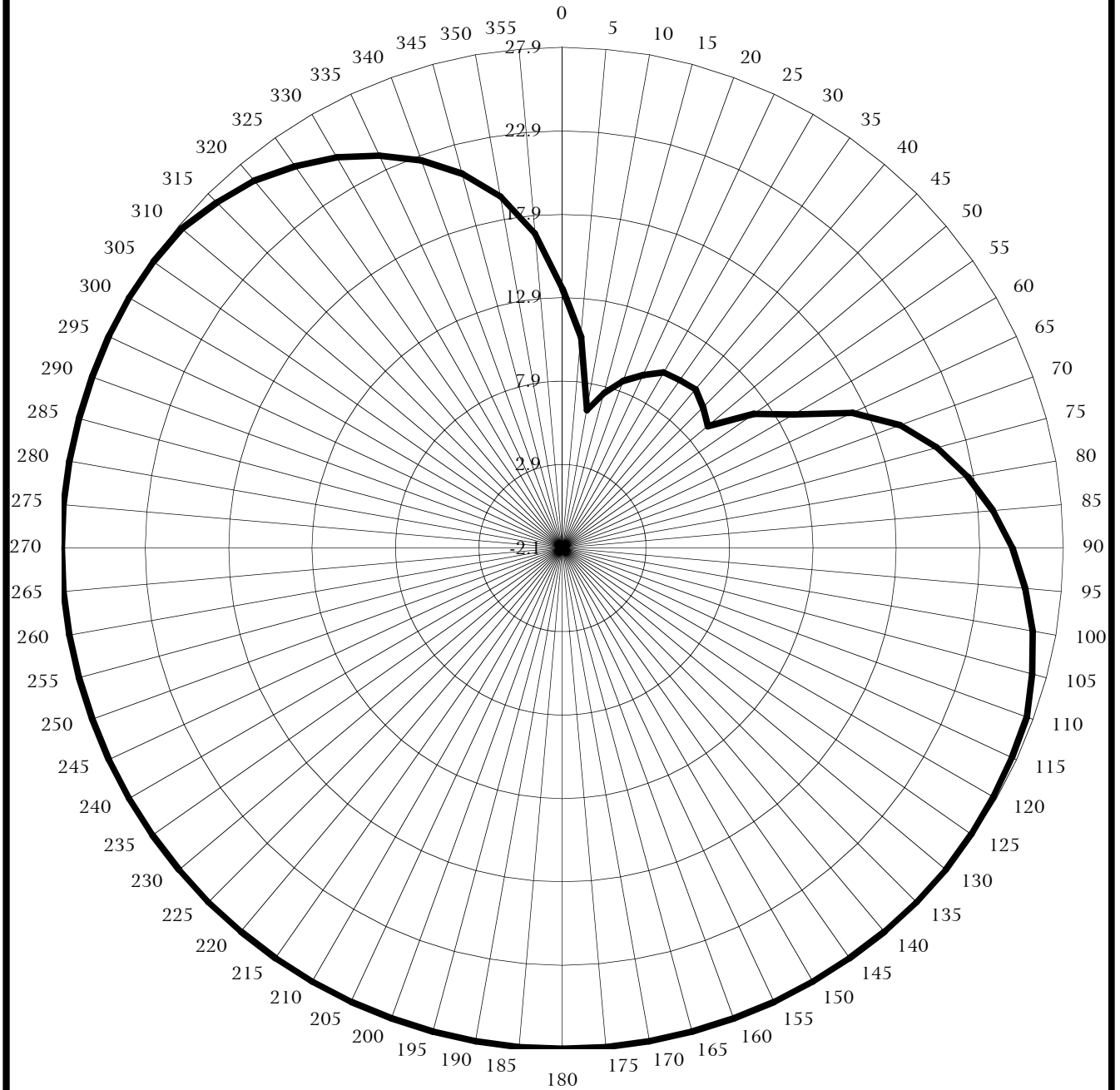
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EXHIBIT E4B

ERP - dBk



DIELECTRIC TUA-C3-12/36H-T
 ORIENTED WITH BEAM MAXIMA AT 130° THROUGH 300°
 MAXIMUM GAIN: 1.90 (2.79 DB)

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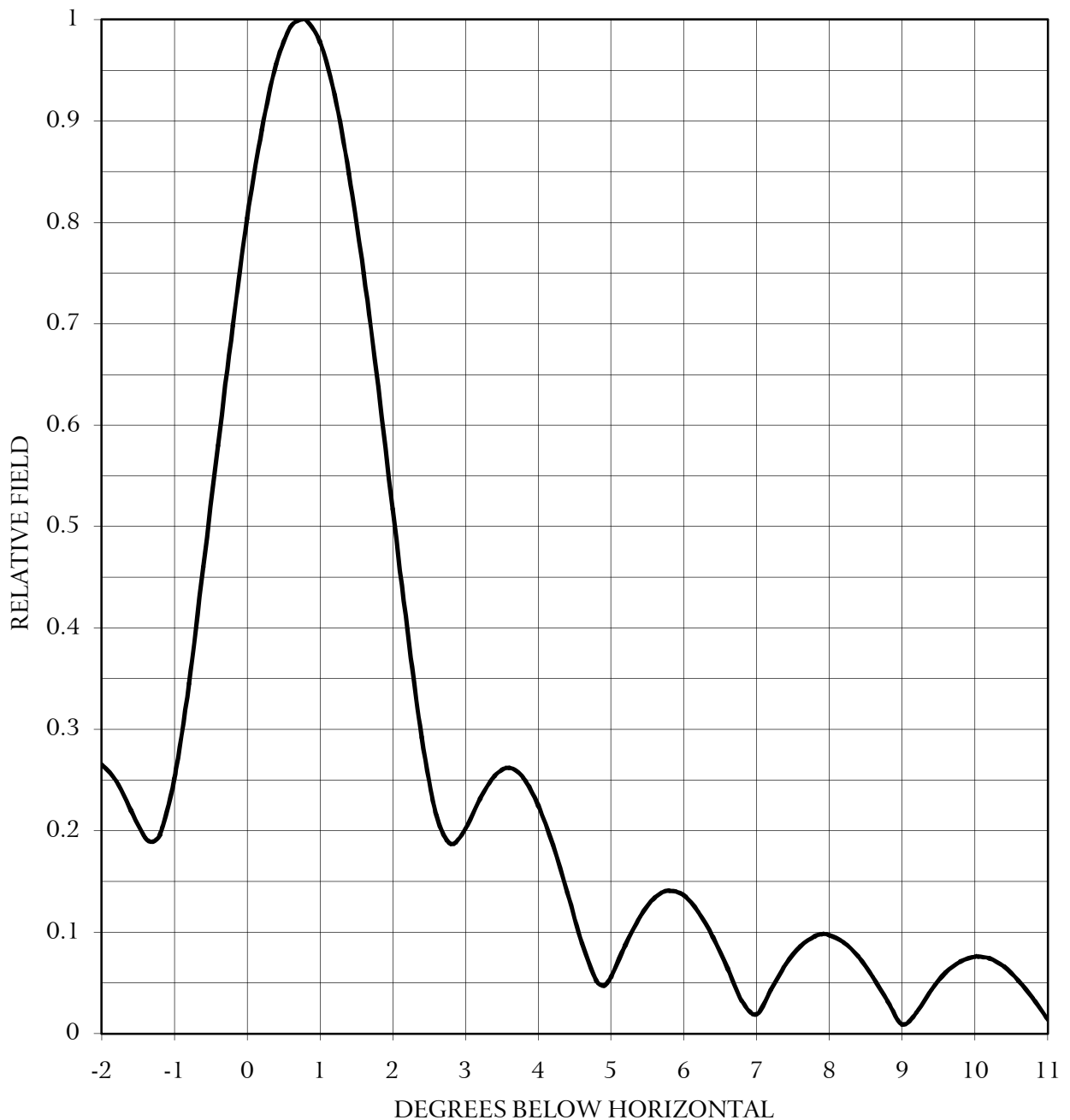
EXHIBIT E4C

ELEVATION PATTERN

DIELECTRIC TUA-C3-12/36H-T

RMS Gain at Main Lobe 26.0 (14.15 dB)
RMS Gain at Horizontal 16.8 (12.25 dB)

Beam Tilt 0.75 deg
Frequency 587.0 MHz



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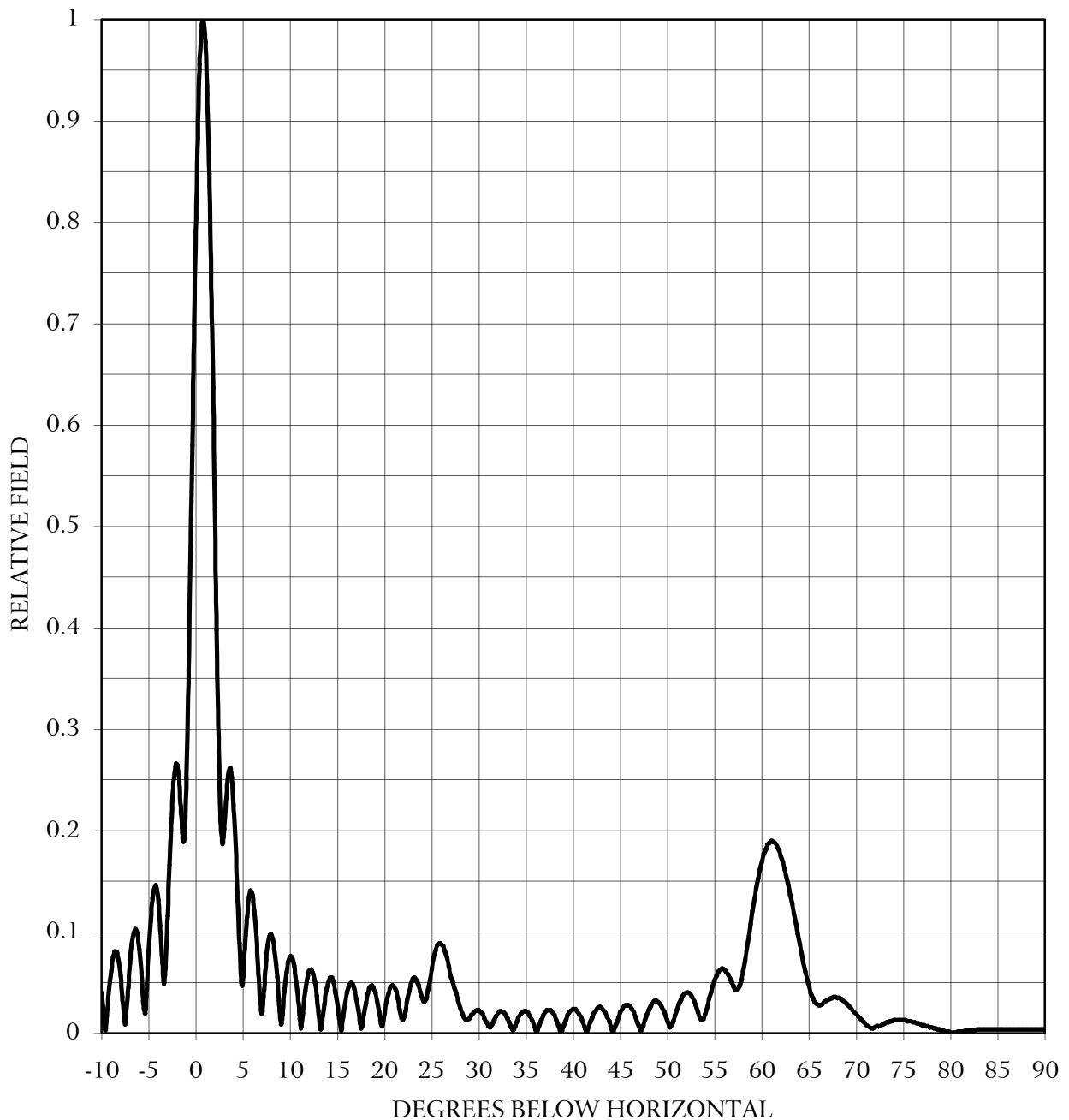
EXHIBIT E4D

ELEVATION PATTERN

DIELECTRIC TUA-C3-12/36H-T

RMS Gain at Main Lobe 26.0 (14.15 dB)
RMS Gain at Horizontal 16.8 (12.25 dB)

Beam Tilt 0.75 deg
Frequency 587.0 MHz



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EXHIBIT E4E

WNPB-DT-CP

BPEDT-20080321AAK

Population Database: 2000 US Census (SF1)

Total Population Within Contour: 1,317,172

Total Area Within Contour: 21167.62 sq. km

WNPB-DT-MAX - Green Ctr.

Maximized

Latitude: 39-41-45 N

Longitude: 079-45-45 W

ERP: 615.00 kW

Channel: 33

AMSL Height: 941.3 m

HAAT: 464.02 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.0

Prop Model: None

WNPB-DT-CP - Blue Ctr.

BPEDT-20080321AAK

Latitude: 39-41-44.70 N

Longitude: 079-45-44.80 W

ERP: 92.00 kW

Channel: 33

AMSL Height: 933.8 m

HAAT: 456.5 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.5

Prop Model: None

WNPB-DT-219X

WNPB-DT-MAX

Maximized

Population Database: 2000 US Census (SF1)

Total Population Within Contour: 2,469,193

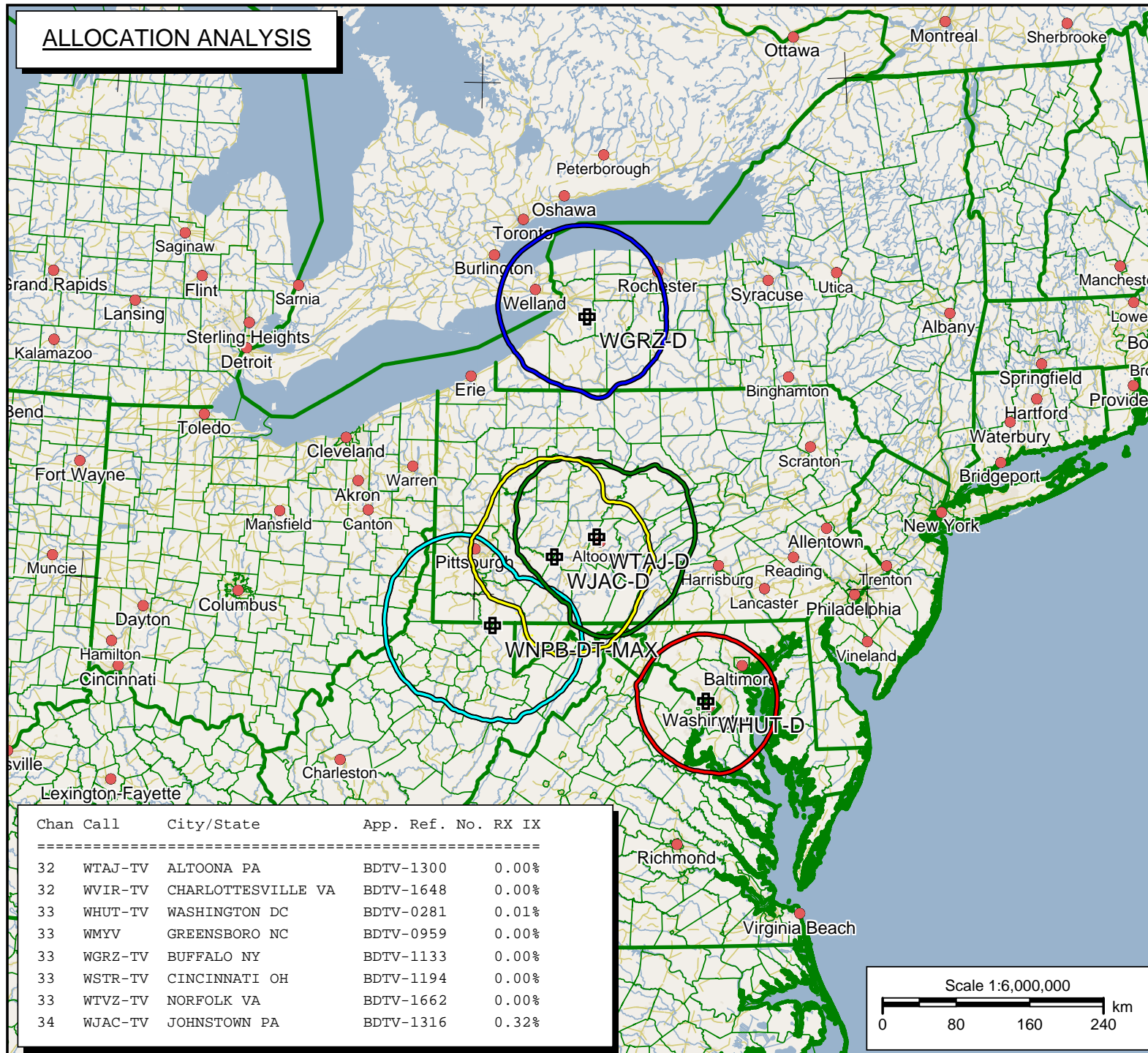
Total Area Within Contour: 29907.18 sq. km

Scale 1:1,541,782

0 20 40 60 km

Exhibit E5

ALLOCATION ANALYSIS



WNPB-DT-MAX

Latitude: 39-41-45 N
 Longitude: 079-45-45 W
 ERP: 615.00 kW
 Channel: 33
 Frequency: 587.0 MHz
 AMSL Height: 941.3 m
 Elevation: 761.0 m
 Horiz. Pattern: Directional
 Vert. Pattern: Yes
 Elec Tilt: 0.0
 Prop Model: Longley/Rice
 Climate: Cont temperate
 Conductivity: 0.0050
 Dielec Const: 15.0
 Refractivity: 311.0
 Receiver Ht AG: 10.0 m
 Receiver Gain: 0 dB
 Time Variability: 50.0%
 Sit. Variability: 50.0%
 ITM Mode: Broadcast

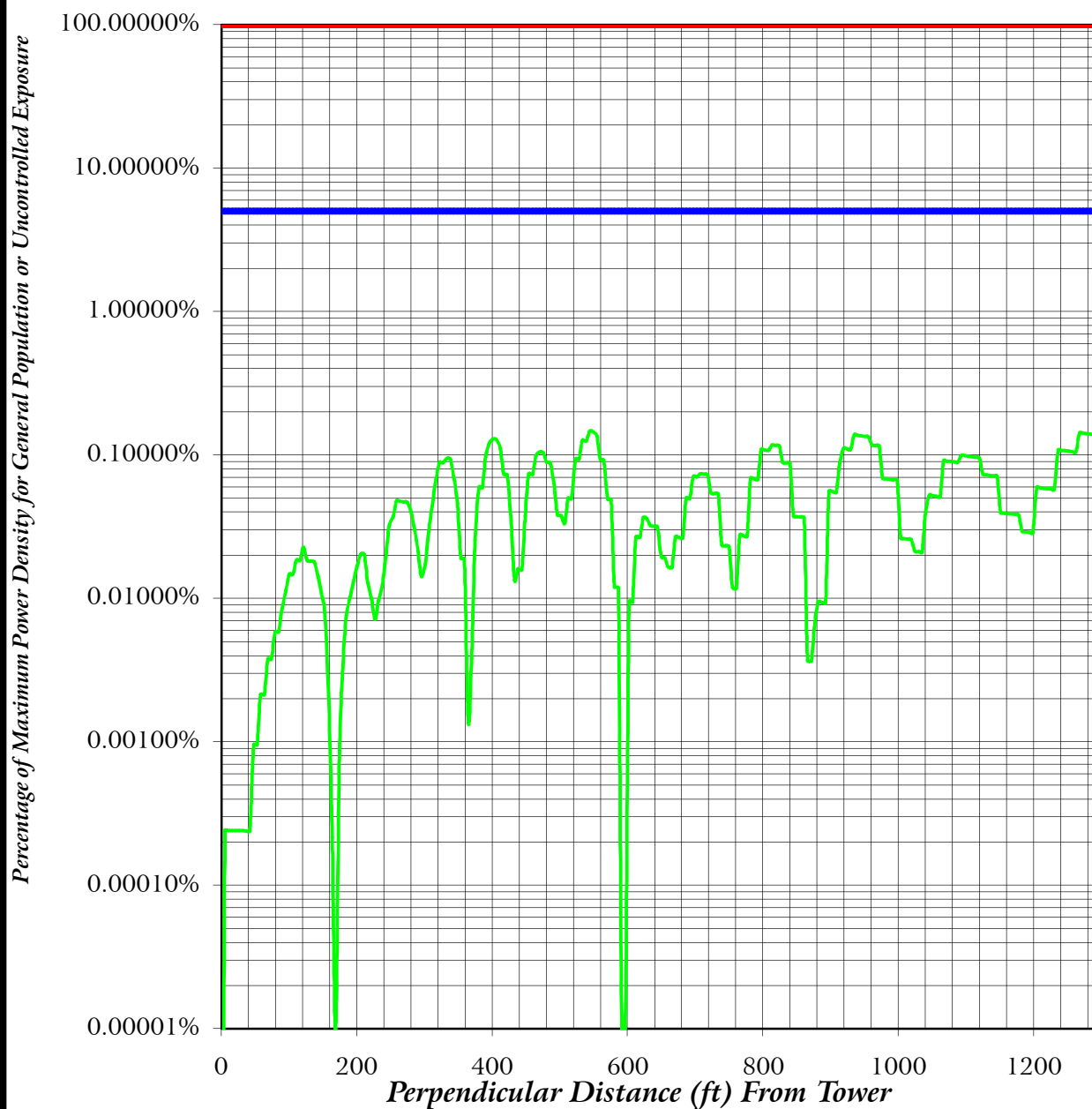
Chan	Call	City/State	App. Ref. No.	RX IX
32	WTAJ-TV	ALTOONA PA	BDTV-1300	0.00%
32	WVIR-TV	CHARLOTTESVILLE VA	BDTV-1648	0.00%
33	WHUT-TV	WASHINGTON DC	BDTV-0281	0.01%
33	WMYV	GREENSBORO NC	BDTV-0959	0.00%
33	WGRZ-TV	BUFFALO NY	BDTV-1133	0.00%
33	WSTR-TV	CINCINNATI OH	BDTV-1194	0.00%
33	WTVZ-TV	NORFOLK VA	BDTV-1662	0.00%
34	WJAC-TV	JOHNSTOWN PA	BDTV-1316	0.32%

Scale 1:6,000,000

0 80 160 240 km

Exhibit E6

FAR FIELD EXPOSURE TO RF EMISSIONS



- Maximum Allowable General Population or Uncontrolled Exposure
- 5 % of Maximum General Population or Uncontrolled Exposure
- Percentage of Maximum General Population or Uncontrolled Exposure

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EXHIBIT E7



METHODOLOGY AND EXPLANATION OF
ENVIRONMENTAL IMPACT / RADIO FREQUENCY RADIATION
HAZARD ANALYSIS

A theoretical analysis has been conducted of the human exposure to radio frequency radiation ("RFR") using the calculation methodology described in *OET Bulletin 65, Edition 97-01*. The RFR analysis is conducted pursuant to the following methodology:

Terrain¹ extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

¹ Terrain extraction is based upon a 3 arc second point spacing terrain database.