

**APPLICATION FOR CONSTRUCTION
PERMIT FOR A NEW NON-COMMERCIAL
FM BROADCAST STATION
CHANNEL 203B1 ERP 31.0 KW VERICALLY
POLARIZED AT 70 M AAT
WEST VIRGINIA EDUCATIONAL
BROADCASTING AUTHORITY
BLUEFIELD, WV**

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20070927

Prepared by Ryan Wilhour

KG&A

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TECHNICAL STATEMENT OF RYAN WILLOUR OF THE
FIRM OF KESSLER AND GEHMAN ASSOCIATES, INC.,
CONSULTING ENGINEERS IN CONNECTION WITH AN
APPLICATION FOR A NEW NON-COMMERCIAL FM BROADCAST STATION
CHANNEL 203B1 ERP 31 KW V POLARIZED AT 70 M AAT
WEST VIRGINIA EDUCATIONAL BROADCASTING AUTHORITY

APPLICATION SUMMARY

West Virginia Educational Broadcasting Authority (“WVEBA”) is applying for a construction permit for a new non-commercial FM Broadcast Station to serve Bluefield, WV

ATTACHED FIGURES

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

- 1) Proposed engineering specifications Exhibit E1.
- 2) Elevation drawing of the antenna system Exhibit E2.
- 3) USGS topographic map showing the transmitter site Exhibit E3.
- 4) Proposed transmitting antenna azimuth and elevation patterns Exhibit E4.
- 5) Map showing the proposed 1-mV/m contour Exhibit E5.
- 6) Contour protection studies as per §73.509 Exhibit E6.
- 7) Interference studies to TV channel 6 stations within 246 km of transmit site as per §73.525 Exhibit E7.
- 8) Environmental impact / RFR hazard analysis and methodology Exhibit E8.

AREA AND POPULATION ANALYSIS

The area within the proposed 1 mV/m contour demonstrated in Exhibit E5 was generated by a computer which calculates and plots the distances to the contour. The population served by the proposed 1 mV/m contour was determined by using 2000 census data and a computer program which added the population of all census blocks whose centroids fall within the contour. The area and population which would be served by the proposed 1 mV/m contour are 2383.6 km² and 100,227 persons respectively.

ALLOCATION STUDIES

Non-Commercial FM Broadcast Stations

Pursuant to Section 73.509 regarding contour overlap requirements, Exhibit E6 demonstrates that the contour overlap requirements have been met to all non-commercial FM broadcast stations.

Commercial FM Broadcast Stations

Pursuant to Section 73.207 regarding spacing requirements, the proposed facility meets all spacing requirements to commercial FM broadcast stations by a large margin and thus an exhibit was not prepared. Pursuant to Section 73.213(a) regarding grandfathered short spaced stations, there are no grandfathered short spaced stations in the vicinity of the proposed station and thus an exhibit was not prepared. Pursuant to Section 73.215 regarding contour protection to commercial stations, contour protection is not employed since all spacing requirements of §73.207 were met by a large margin and thus an exhibit was not prepared.

TV Channel 6 Stations

Exhibit E7A demonstrates all the full service and Class A channel 6 NTSC and ATSC stations that exist within 246 km of the proposed site. Exhibit E7B demonstrates the WDTV protected contour with respect to the first associated interfering contour of the proposed station. Since the demonstrated contours do not overlap, interference is not predicted to occur to WDTV from the instant application. The proposed facility employs Section 73.525(e)(4)(i) vertical only polarization techniques to protect WVVA. Exhibit E7C demonstrates that the resulting WVVA interference area contains 1,747 people and is fully compliant with Section 73.525(c).

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 E8 is a RFR study demonstrating compliance within 5% of the most restrictive permissible exposure at any location 2 meters above the ground using the enveloping azimuth pattern shown in Exhibit E4. Exhibit E8 calculations were made using a frequency of 88.4 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 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 the proposed facility 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.

A chain link fence shall encompass the support structure if it is not already. The applicant will cooperate with any other users of the tower by reducing the power to the antenna or if necessary completely cutting it off in order to protect maintenance workers on the tower.

BLANKETING CONTOUR

The blanketing 115 dBu contour would extend no more than 2.2 km pursuant to Section 73.318(a) of the FCC rules. If blanketing interference is caused to other communication facilities or the residents of this area, the applicant will take full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of intermodulation) to these and other facilities in existence or authorized or to radio receivers in use prior to the grant of this application.

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 September 27, 2007

KESSLER AND GEHMAN ASSOCIATES, INC.



Ryan Wilhour

Consulting Engineer

ENGINEERING SPECIFICATIONS

A. Transmitter Site (NAD 27)

FCC Tower Reg. Number 1246566

North Latitude 37 ° 16 ' 58.5 "

West Longitude 81 ° 15 ' 42.4 "

Street Address or Location

Slate Road

Brushy Creek, WV

B. Proposed Facility Channel

Number 203B1

Frequency 88.4 – 88.6 MHz

C. Antenna Height

Height of Site Above Mean Sea Level (AMSL) 823.5 m

Overall Height of Structure Above Ground 77.4 m

(including all appurtenances)

Overall Height of Structure Above Mean Sea Level 900.9 m

(including all appurtenances)

Average Terrain 805.3 m

Effective Height of Antenna Above Ground 51.8 m

Effective Height of Antenna Above Average Terrain 70.0 m

Effective Height of Antenna Above Mean Sea Level 875.3 m

D. Proposed ERP

Polarization

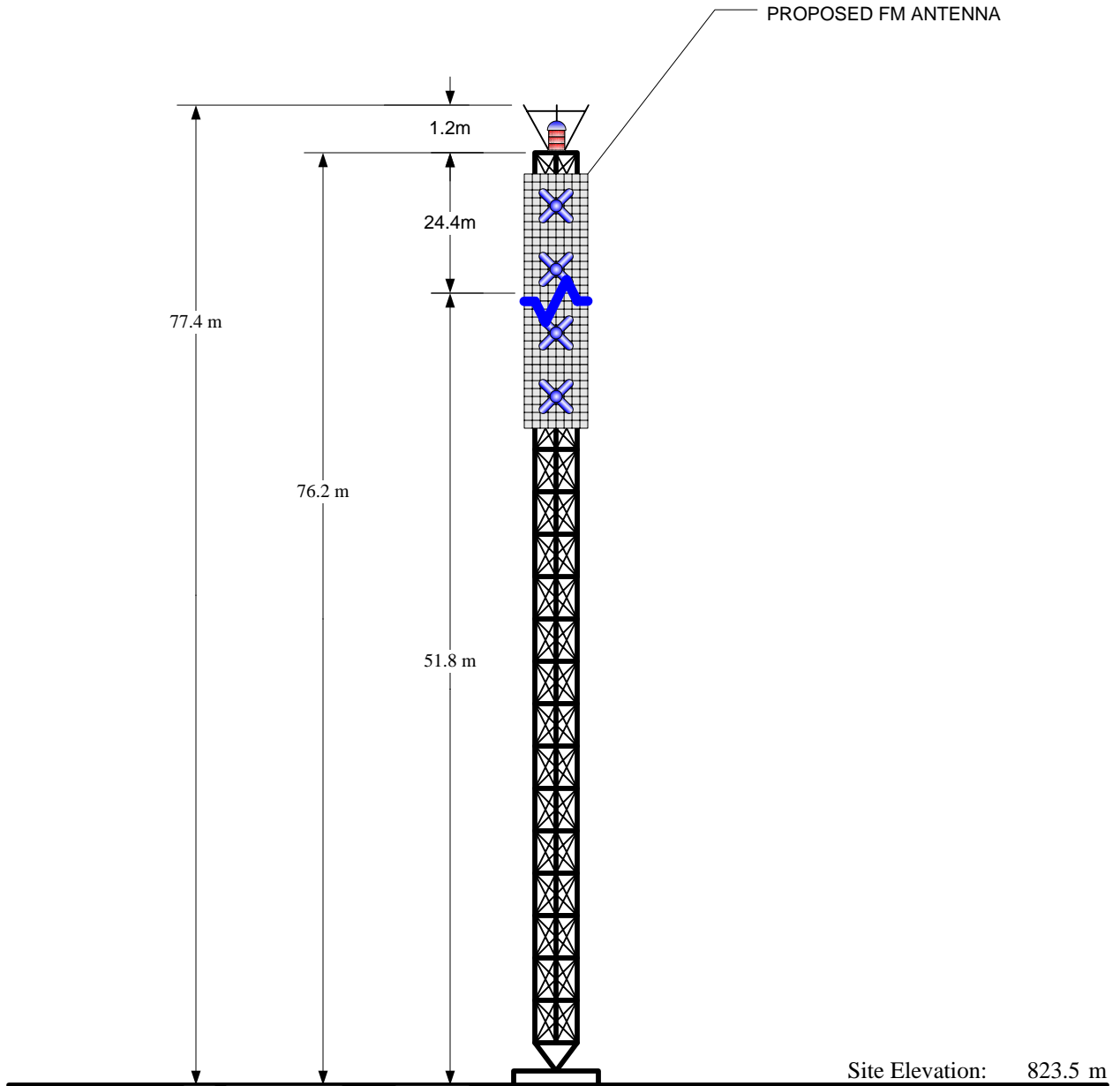
Horizontal

Vertical

Effective Radiated Power

0.0 kW

31.0 kW



Radiation Center AGL:	51.8 m
Radiation Center AMSL:	875.3 m
Radiation Center HAAT:	70.0 m
Average Terrain:	805.3 m

NAD 27 Coordinates:	
N. Latitude:	37° 16' 58.5"
W. Longitude:	81° 15' 42.4"

FCC Tower Registration Number: 1246566

FAA Aeronautical Study Number: 2004-AEA-2219-OE

NOTE: NOT TO SCALE

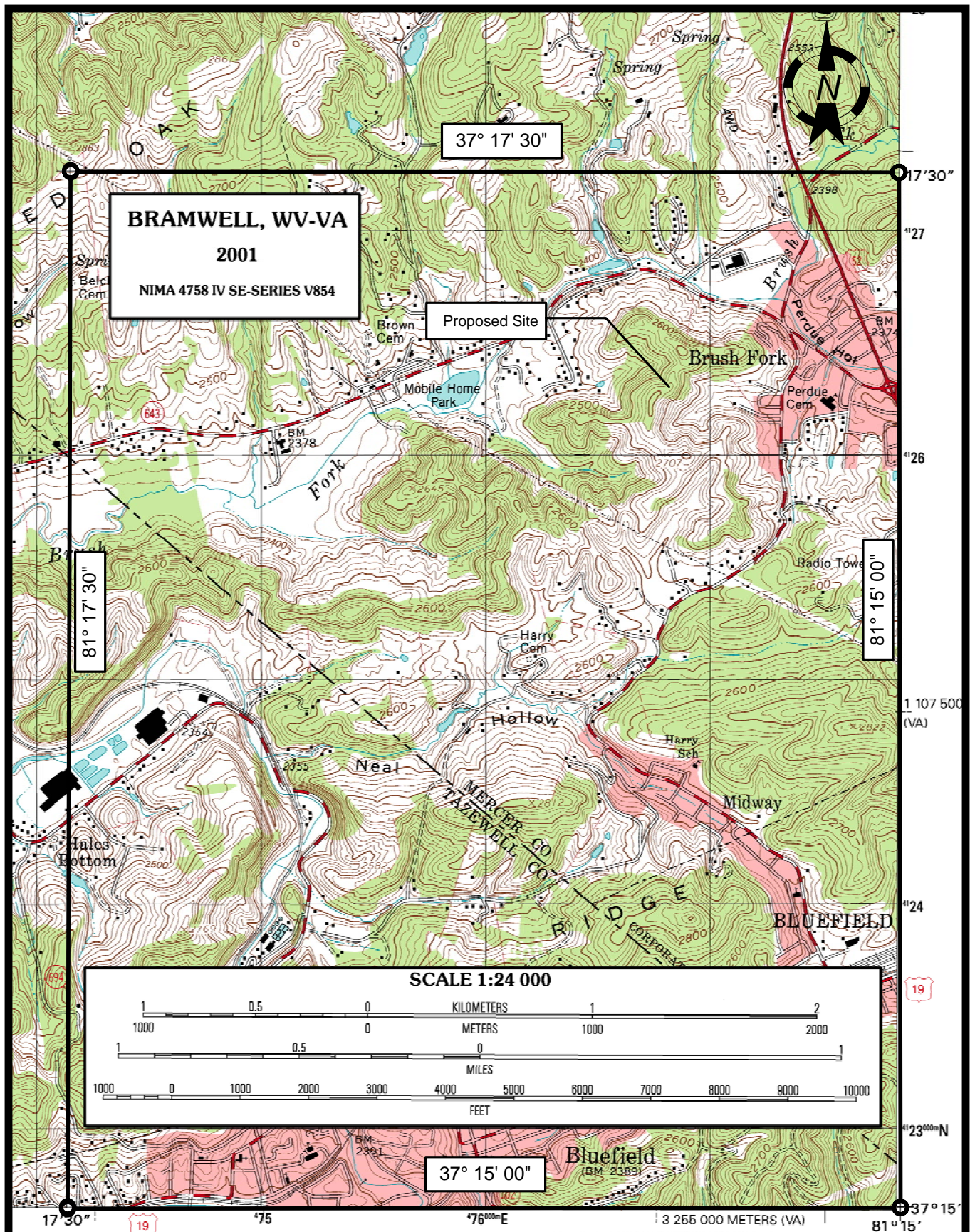
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EXHIBIT E2



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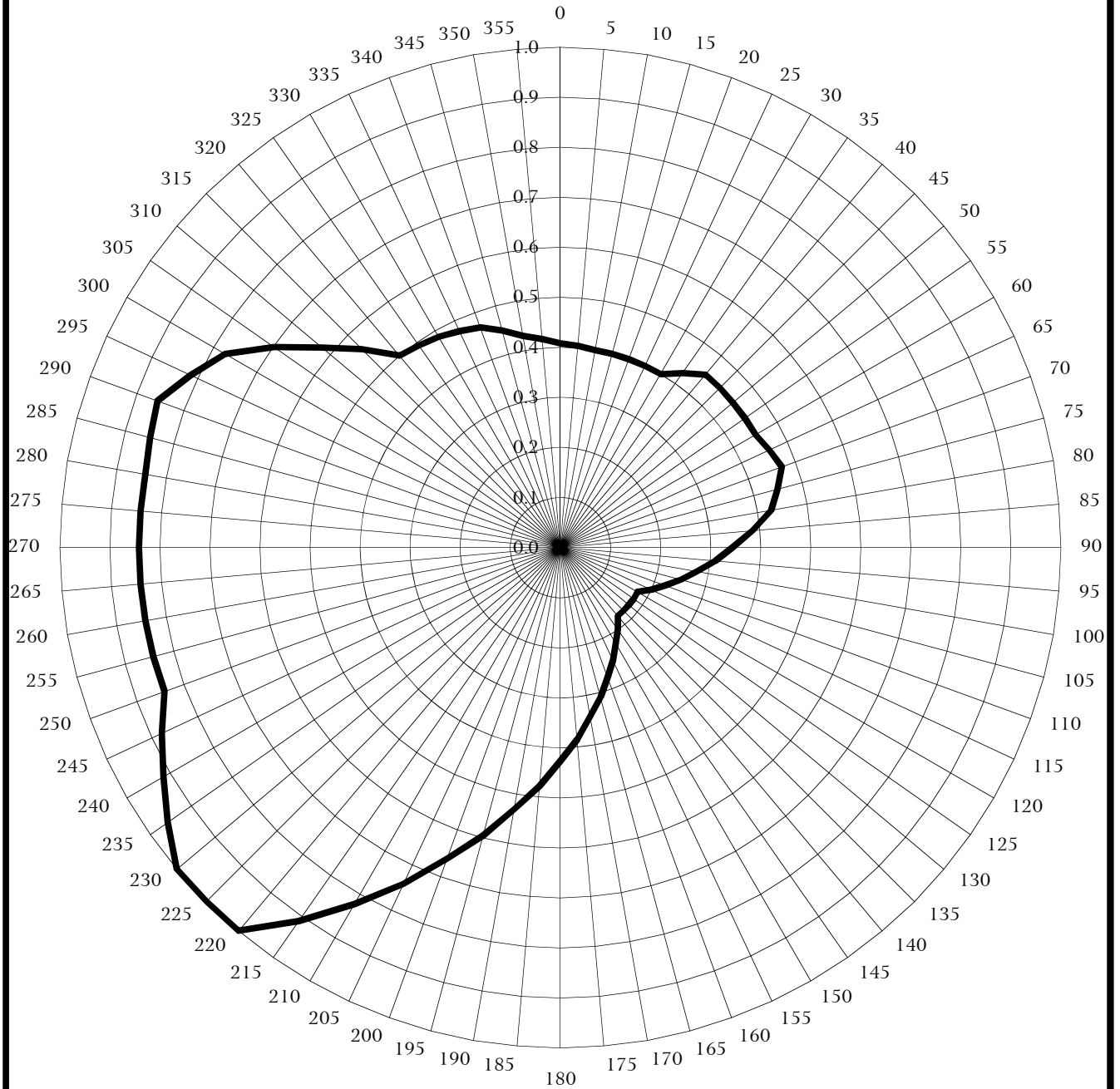
EXHIBIT E3

BLUEFIELD, WV

TABULATION OF RELATIVE FIELD FOR PROPOSED DIRECTIONAL ANTENNA

<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>	<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>
0	0.408	180	0.427
10	0.400	190	0.531
20	0.400	200	0.661
30	0.400	210	0.823
40	0.450	220	1.000
50	0.450	230	1.000
60	0.450	240	0.916
70	0.470	250	0.842
80	0.427	260	0.842
90	0.343	270	0.842
100	0.276	280	0.842
110	0.222	290	0.856
120	0.178	300	0.774
130	0.178	310	0.622
140	0.178	320	0.500
150	0.221	330	0.486
160	0.275	340	0.468
170	0.343	350	0.429

RELATIVE FIELD AZIMUTH PATTERN



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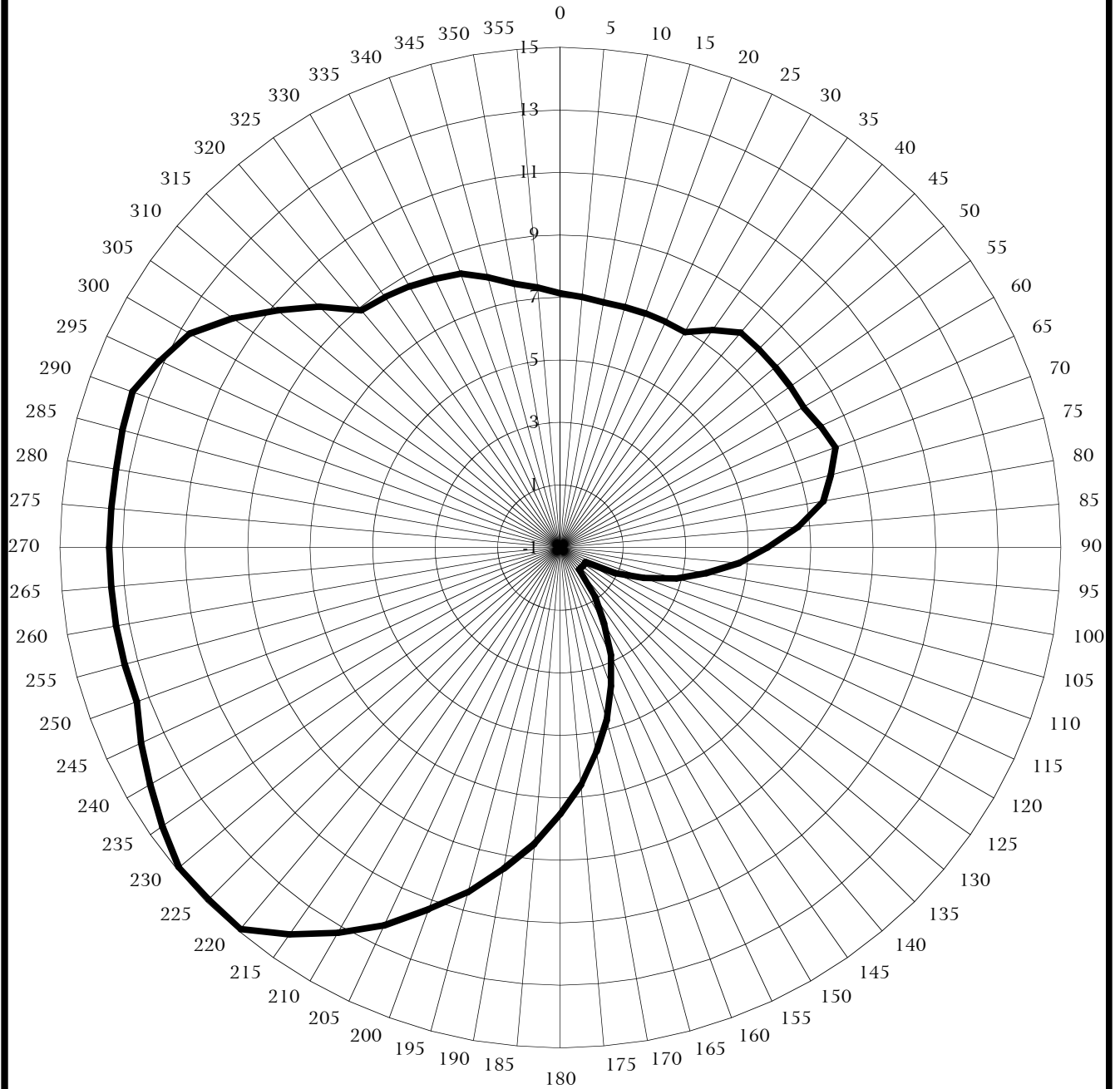
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EXHIBIT E4B

ERP - dBk



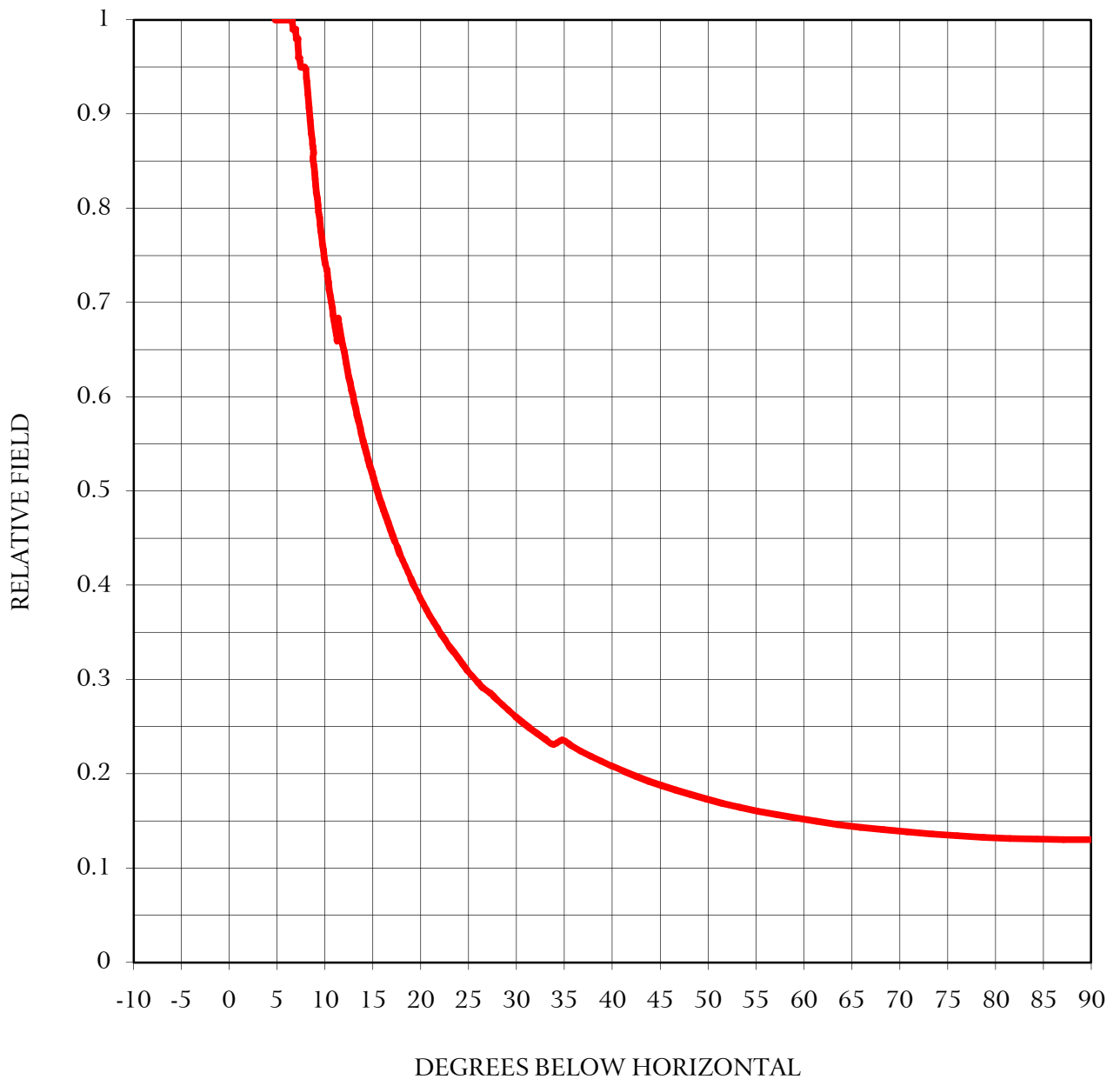
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EXHIBIT E4C

ELEVATION PATTERN



— Maximum Elevation Pattern Envelope for 5% General Population RFR Compliance

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EXHIBIT E4D

Kessler and Gehman Associates, Inc.

Bluefield-203

Proposed 1246566

Latitude: 37-16-58.50 N

Longitude: 081-15-42.40 W

ERP: 31.00 kW

Channel: 203

AMSL Height: 875.3 m

HAAT: 70.02 m

Horiz. Pattern: Directional

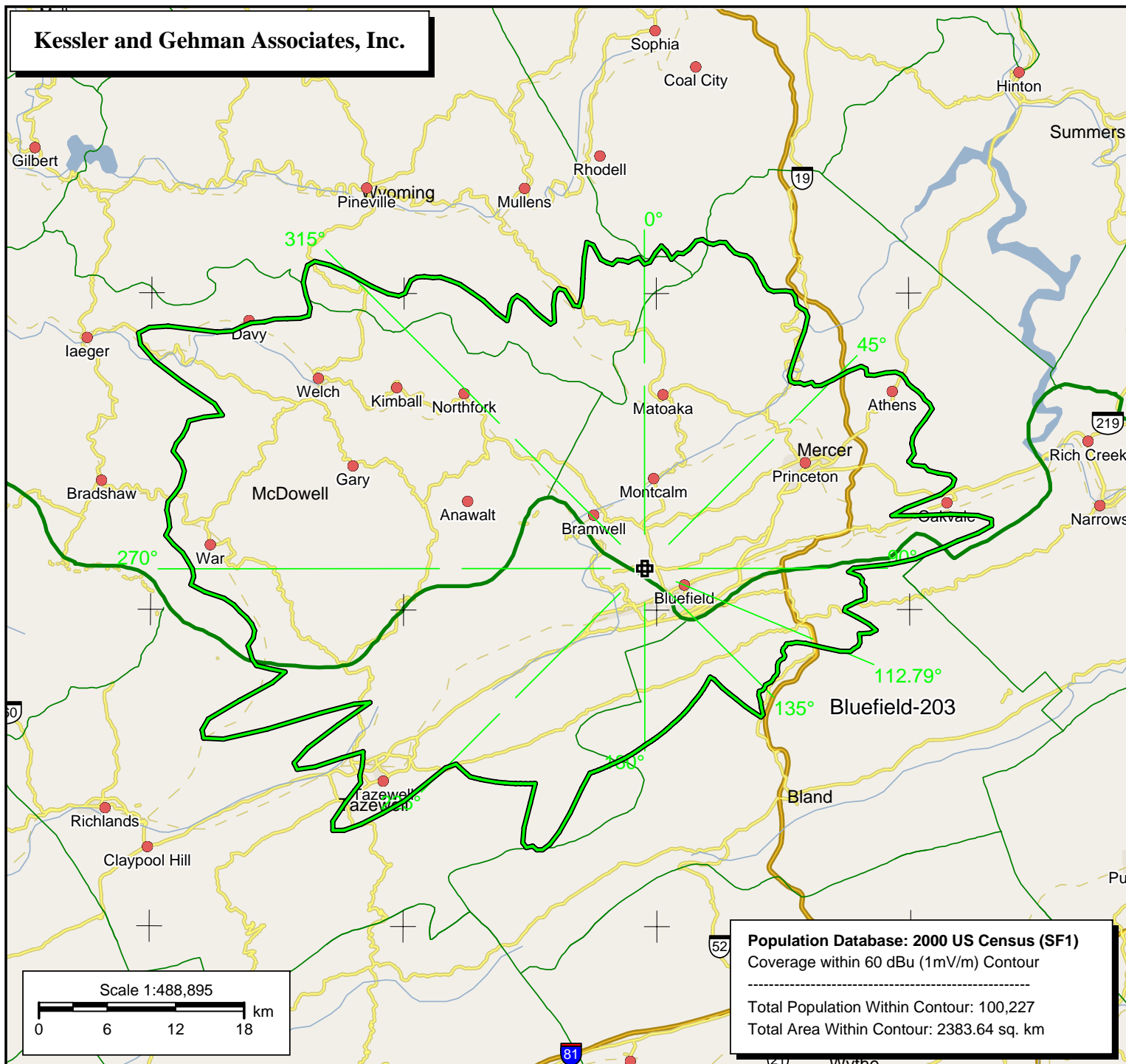
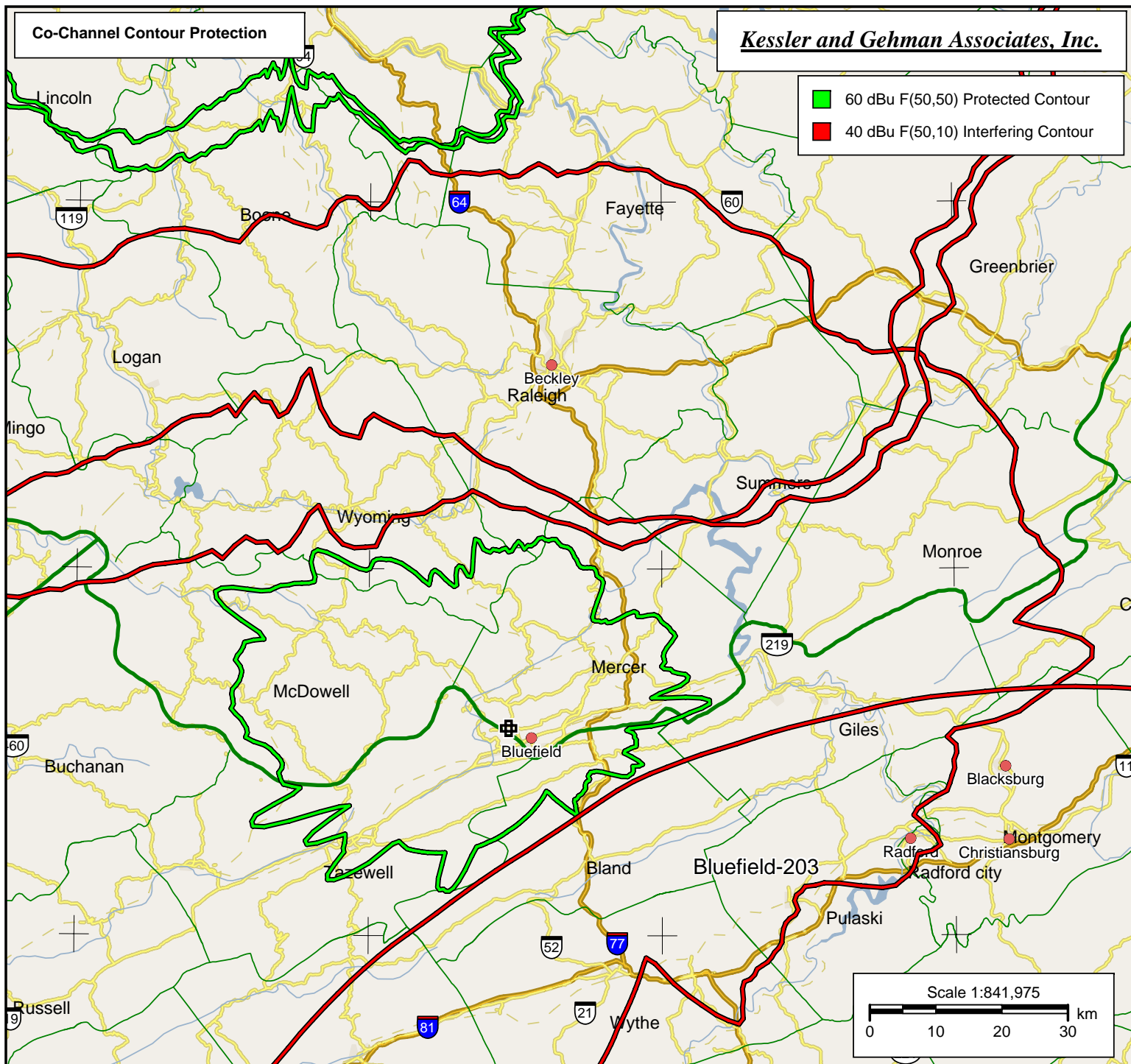


Exhibit E5



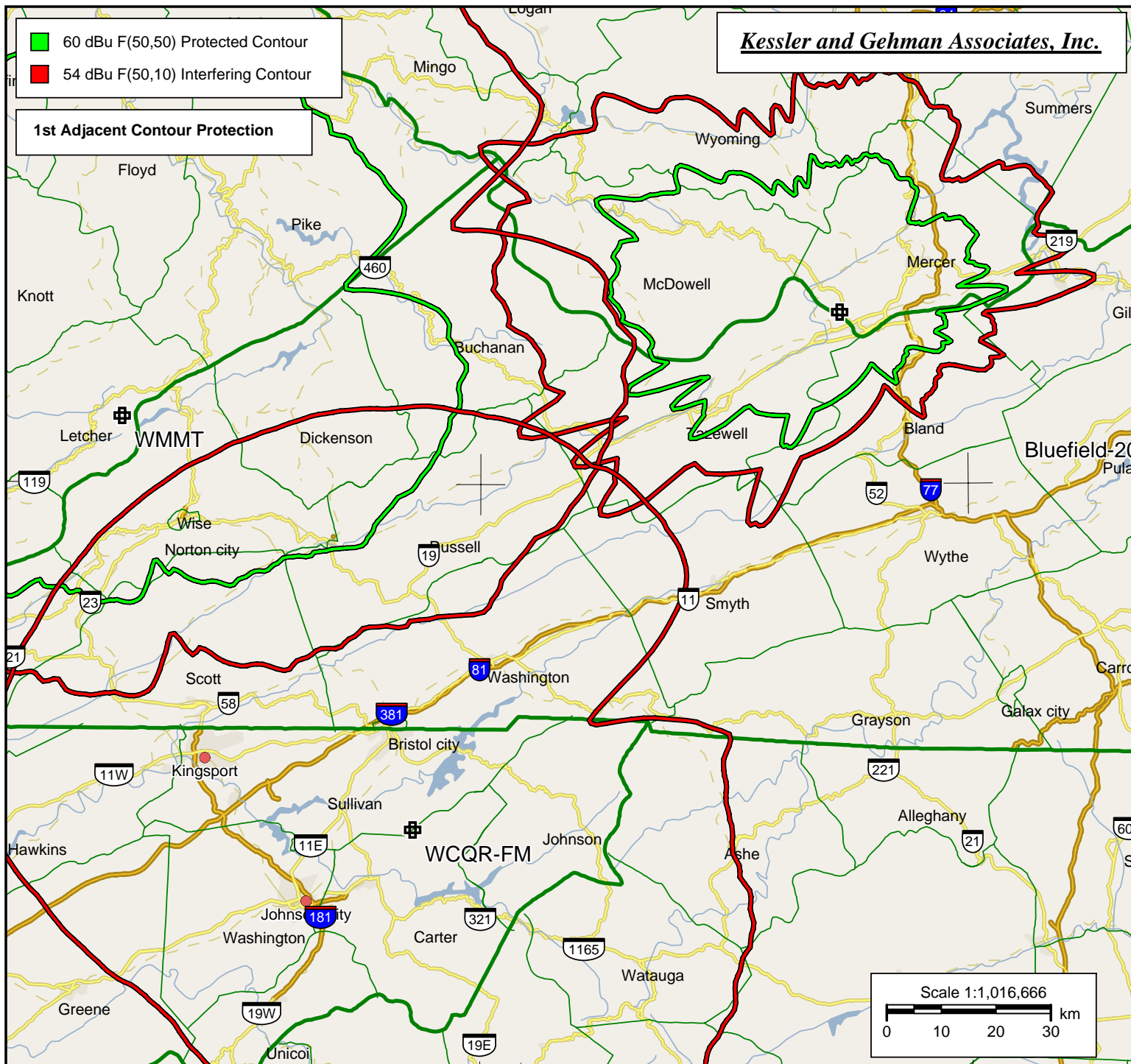
Bluefield-203
Proposed 1246566
Latitude: 37-16-58.50 N
Longitude: 081-15-42.40 W
ERP: 31.00 kW
Channel: 203
AMSL Height: 875.3 m
HAAT: 70.02 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

WFDD
BLED19940929KB
Channel: 203

WVPN
BLED20040302ABC
Channel: 203

WVPN.C
BPED20040608ABF
Channel: 203

Exhibit E6A



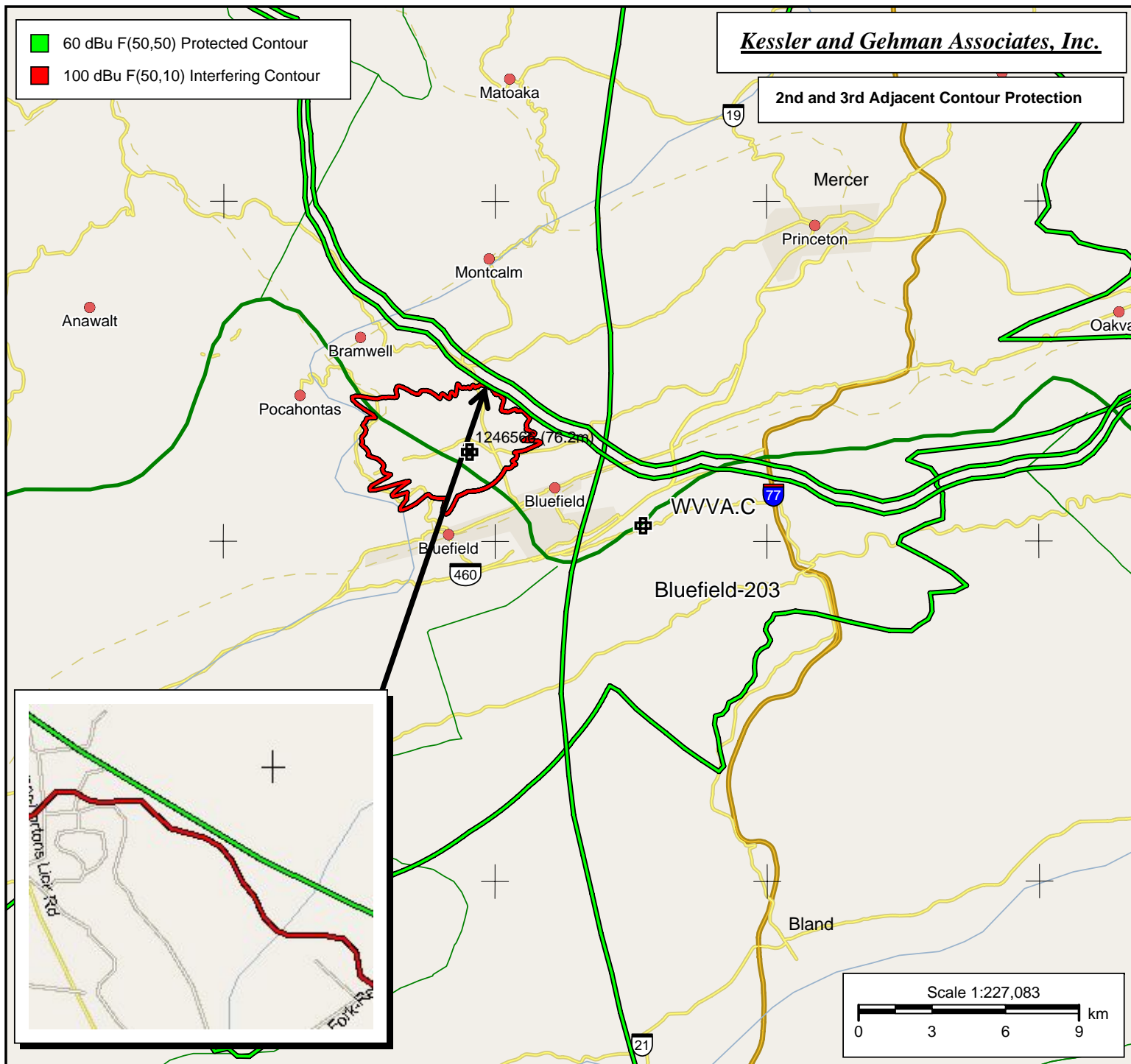
Bluefield-203
Proposed 1246566
Latitude: 37-16-58.50 N
Longitude: 081-15-42.40 W
ERP: 31.00 kW
Channel: 203
AMSL Height: 875.3 m
HAAT: 70.02 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

WMMT
BLED19951023KA
Channel: 204

WCQR-FM
BLED19961120KB
Channel: 202

WRVL
BLED19831012AJ
Channel: 202

Exhibit E6B



BLUEFIELD, WV
PROPOSED
Spacing Mode

REFERENCE

37 16 58.5 N
81 15 42.4 W

CLASS = B1
Current Spacings

DISPLAY DATES

DATA 9-27-07
SEARCH 9-27-07

----- Channel 203 - 88.5 MHz -----
Call Channel Location FCC File No. Distance

WVVA 6 BLUEFIELD, WV BMLCT-19880907KE 7.69 km
WVVA 6 BLUEFIELD, WV BPCT-20010725ADN 7.69 km
WDTV 6 WESTON, WV BPCDT-19991029AFO 212.0 km

*** End of Data File ***
3 records retrieved within 246.00 km radius

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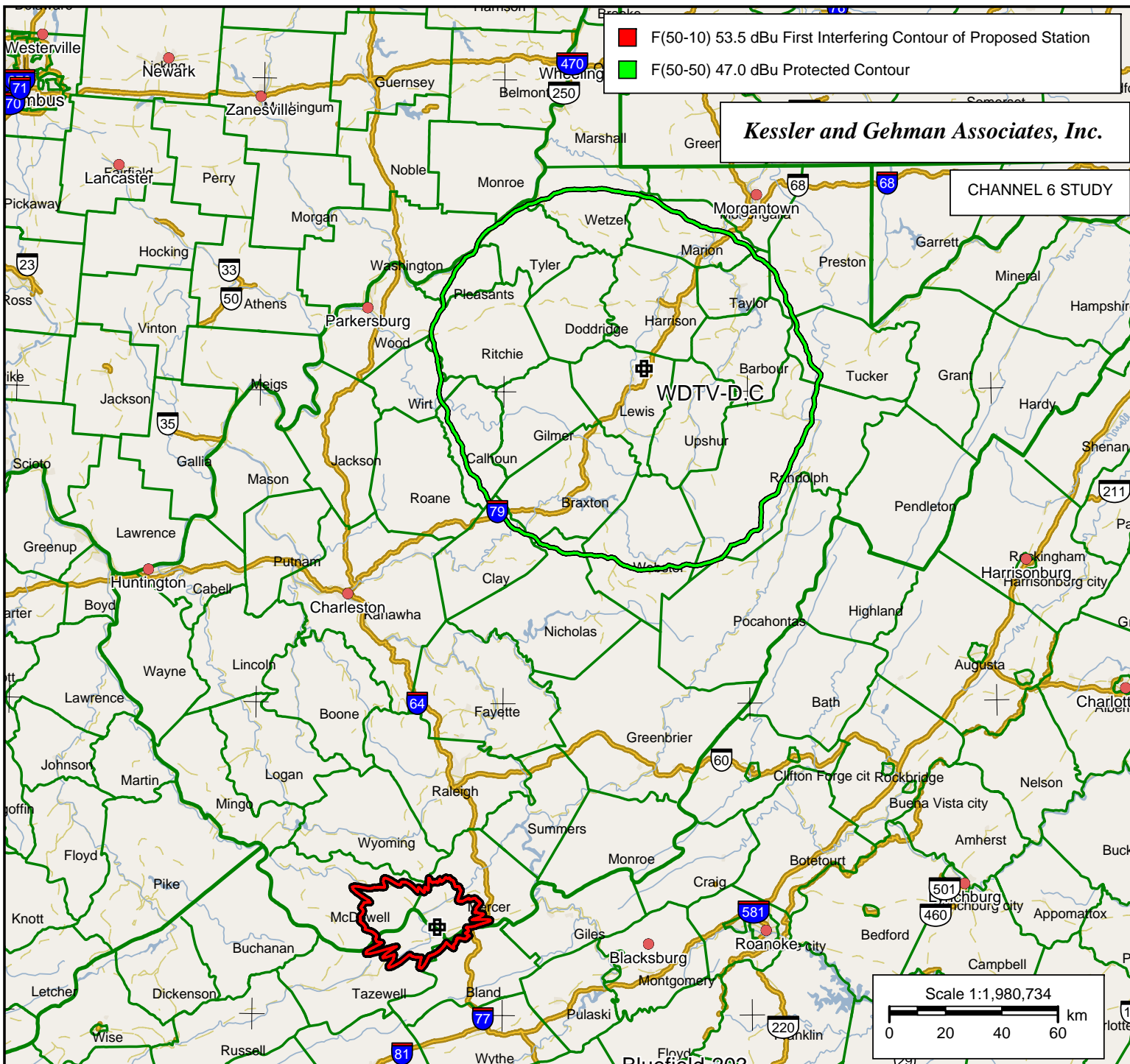
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EXHIBIT E7A



Kessler and Gehman Associates, Inc.

TV Channel 6 Interference:

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Total Population Within Contour: 1,747
Total Area Within Contour: 19.32 sq. km

Bluefield-203

Proposed 1246566
Latitude: 37-16-58.50 N
Longitude: 081-15-42.40 W
ERP: 31 kW V-Pole Only
Channel: 203
AMSL Height: 875.3 m
HAAT: 70.02 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

WVVA.C

BPCT20010725ADN
Latitude: 37-15-21 N
Longitude: 081-10-55 W
Power: 50.10 kW
Channel: 06-
Frequency: 84.5 MHz
AMSL Height: 1162.0 m
Elevation: 1066.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 0.0
Prop Model: None

WVVA

BMLCT19880907KE
Latitude: 37-15-21 N
Longitude: 081-10-55 W
ERP: 50.10 kW
Channel: 06-
AMSL Height: 1157.0 m
HAAT: 372.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 0.0
Prop Model: None

F(50-50) 90.0 dBu

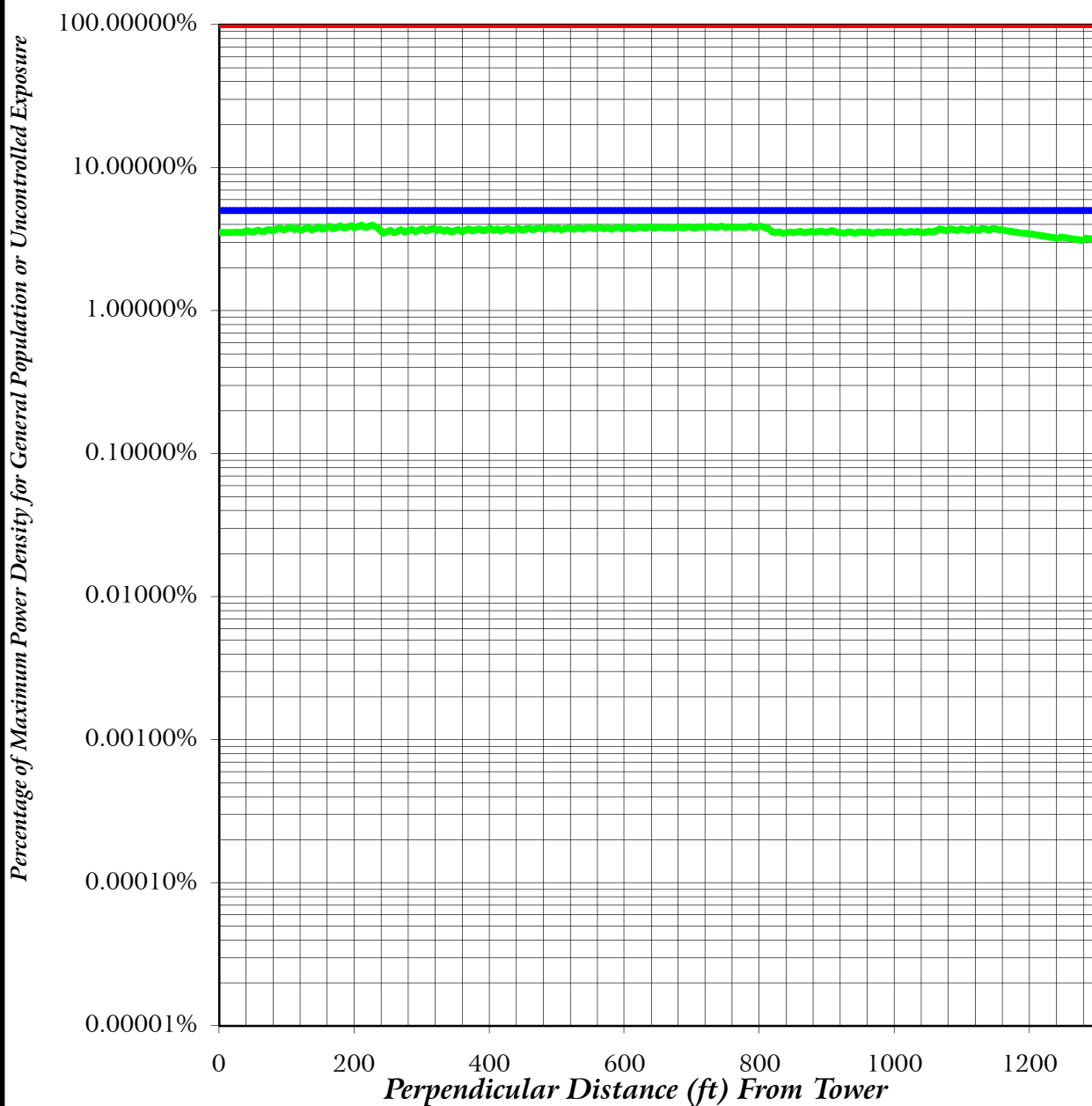
F(50-10) 86.1 dBu

Scale 1:146,041

0 2 4 6 km

Exhibit E7C

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 E8



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.