

APPLICATION FOR MINOR  
MODIFICATION OF WWIO(FM) FCC FILE  
NUMBER BLED-20020314AAH FOR  
A FM BROADCAST STATION  
CHANNEL 205C3 ERP 11.7 KW  
H AND V POLARIZED AT 46 M AAT  
GEORGIA PUBLIC  
TELECOMMUNICATIONS COMMISSION  
BRUNSWICK, GEORGIA

KESSLER & GEHMAN ASSOCIATES, INC.  
TELECOMMUNICATIONS CONSULTING ENGINEERS

20070629

*Prepared by Ryan Wilhour*

KGGA

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

TECHNICAL STATEMENT OF RYAN WILHOUR OF THE FIRM OF  
KESSLER AND GEHMAN ASSOCIATES, INC., CONSULTING ENGINEERS  
IN CONNECTION WITH AN APPLICATION FOR MINOR MODIFICATION OF  
WWIO(FM) FCC FILE NUMBER BLED-20020314AAH FOR A FM BROADCAST  
STATION CHANNEL 205C3 ERP 11.7 KW H AND V POLARIZED AT 46 M AAT  
GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION  
BRUNSWICK, GEORGIA

**APPLICATION SUMMARY**

The Georgia Public Telecommunications Commission (“GPTC”) is the applicant of WWIO(FM) FCC file number BLED-20020314AAH. Upon approval, the instant application will make the following modifications:

- Replace the licensed broadcast antenna with a similar antenna able to handle more power.
- Increase the maximum horizontal and vertical ERP from 7 kW to 11.7 kW.

No other changes are proposed.

**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 elevation pattern 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 225 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 1666.14 km<sup>2</sup> and 70,350 persons respectively.

## ALLOCATION STUDIES

### Non-Commercial and Commercial FM Broadcast Stations

The terrain and distances to contours were calculated and plotted electronically using Probe III v3.53 a product of V-Soft Communications.

- Pursuant 47 C.F.R. §73.509 Regarding Contour Overlap Requirements - Exhibit E6 demonstrates that all contour overlap requirements have been met to all non-commercial FM broadcast stations.
- Pursuant 47 C.F.R. §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 47 C.F.R. §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 47 C.F.R. §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 Studies

Exhibit E7 demonstrates no full service channel 6 NTSC and ATSC stations that exist within 225 km of the proposed site.

### ENVIRONMENTAL IMPACT / RFR HAZARD ANALYSIS

The proposed WWIO(FM) facility has no significant environmental impact as defined in §1.1307 of the FCC Rules. Exhibit E8 demonstrates that the proposed facility generates a power density that is 19.7% of the maximum permissible exposure (“MPE”) limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute (“ANSI”). Since the operation of the proposed facility would exceed 5.0% of the MPE limit for General Population/Uncontrolled Exposure at various points on the ground, WWIO(FM) would be considered a “contributor” to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, all sources of RF which contribute to the exceeded area must be analyzed and a composite study must be prepared to demonstrate that the total power density from all contributing sources in the affected areas do not exceed 100% of the allowable MPE.

Since the proposed WWIO(FM) facility is the only significant source of power density in the affected area, the composite power density is equal to the power density produced by the WWIO-FM facility. Therefore, the total power density emanating from the single antenna mounted on the WWIO-FM support structure would be 19.7% of the MPE limits for General Population/Uncontrolled Exposure. Accordingly, the total exposure, which is generated by the WWIO-FM facility alone, would result in exposure levels well below the allowable exposure threshold authorized by the American National Standards Institute and the FCC. It is safe to conclude that the emissions would be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna.

The tower is completely enclosed within a fence where the nearest point from the base of the tower to any point along the fence is eight feet. The gate is kept locked at all times while unattended.

### **BLANKETING CONTOUR**

The blanketing 115 dBu contour would extend no more than 1.35 km pursuant to §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

I, Ryan Wilhour, declare and state that I am a graduate electrical engineer with a Bachelor of Science in Electrical Engineering and my qualifications are a matter of record with the Federal Communication Commission, and that I am an engineer in the firm of Kessler and Gehman Associates, Inc., and that firm has been retained by Georgia Public Telecommunications Commission to prepare the herein application.

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on June 29, 2007

KESSLER AND GEHMAN ASSOCIATES, INC.



Ryan Wilhour  
Consulting Engineer

## ENGINEERING SPECIFICATIONS

A. Transmitter Site (NAD 27)

FCC Tower Reg. Number N/A

North Latitude 31 ° 11 ' 20 "

West Longitude 81 ° 29 ' 05 "

B. Proposed Facility  
Channel

Number 205C3

C. Antenna Height

Height of Site Above Mean Sea Level (AMSL) 5 m

Overall Height of Structure Above Ground 49 m

(including all appurtenances)

Overall Height of Structure Above Mean Sea Level 54 m

(including all appurtenances)

Average Terrain 2 m

Height of Site Above Average Terrain 3 m

Effective Height of Antenna Above Ground 43 m

Effective Height of Antenna Above Average Terrain 46 m

Effective Height of Antenna Above Mean Sea Level 48 m

D. Proposed ERP

Polarization	<u>Horizontal</u>	<u>Vertical</u>
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Effective Radiated Power	11.7 kW	11.7 kW
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**KESSLER & GEHMAN**

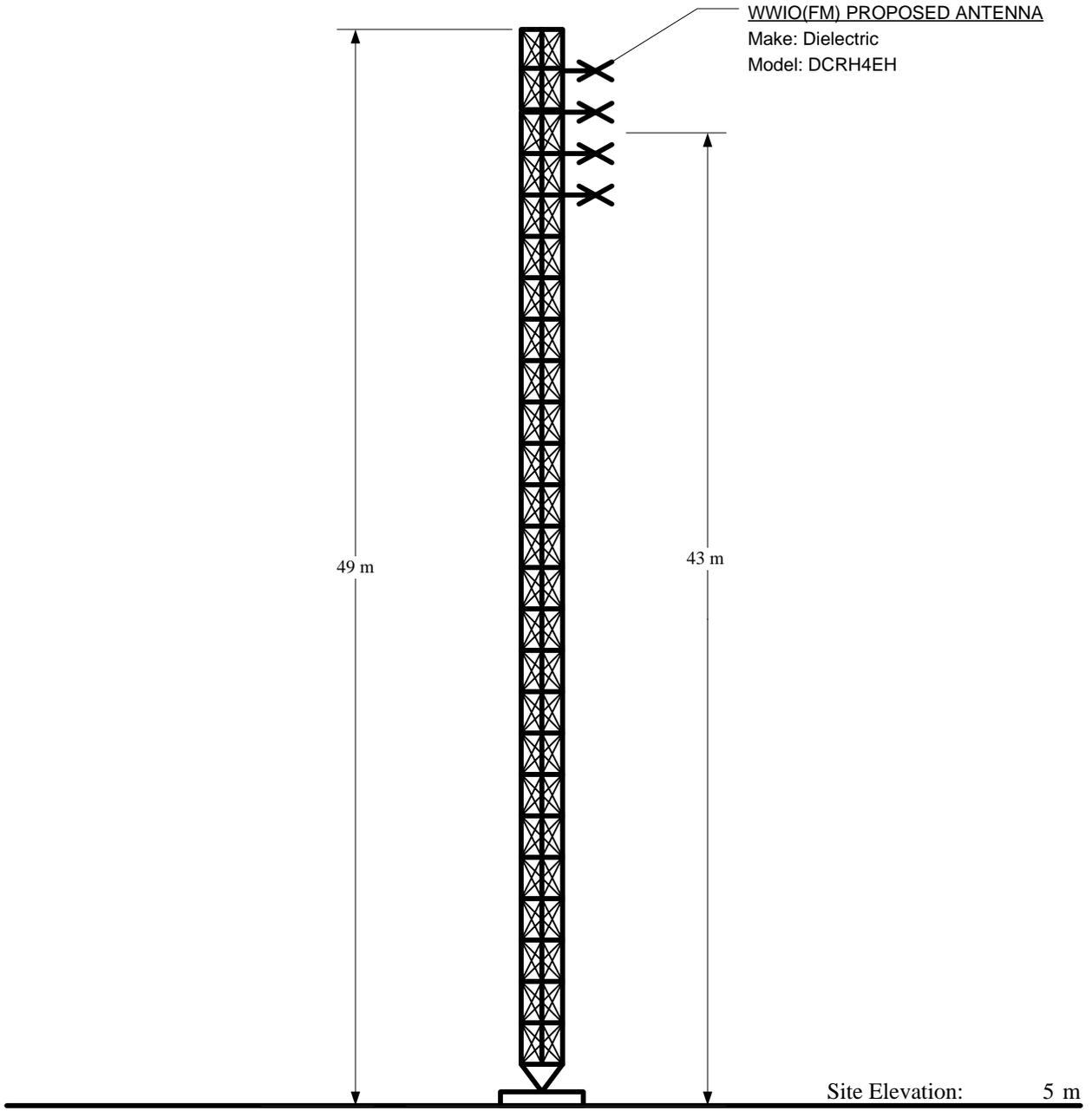
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WWIO(FM)  
BRUNSWICK, GEORGIA

20070629

EXHIBIT E1

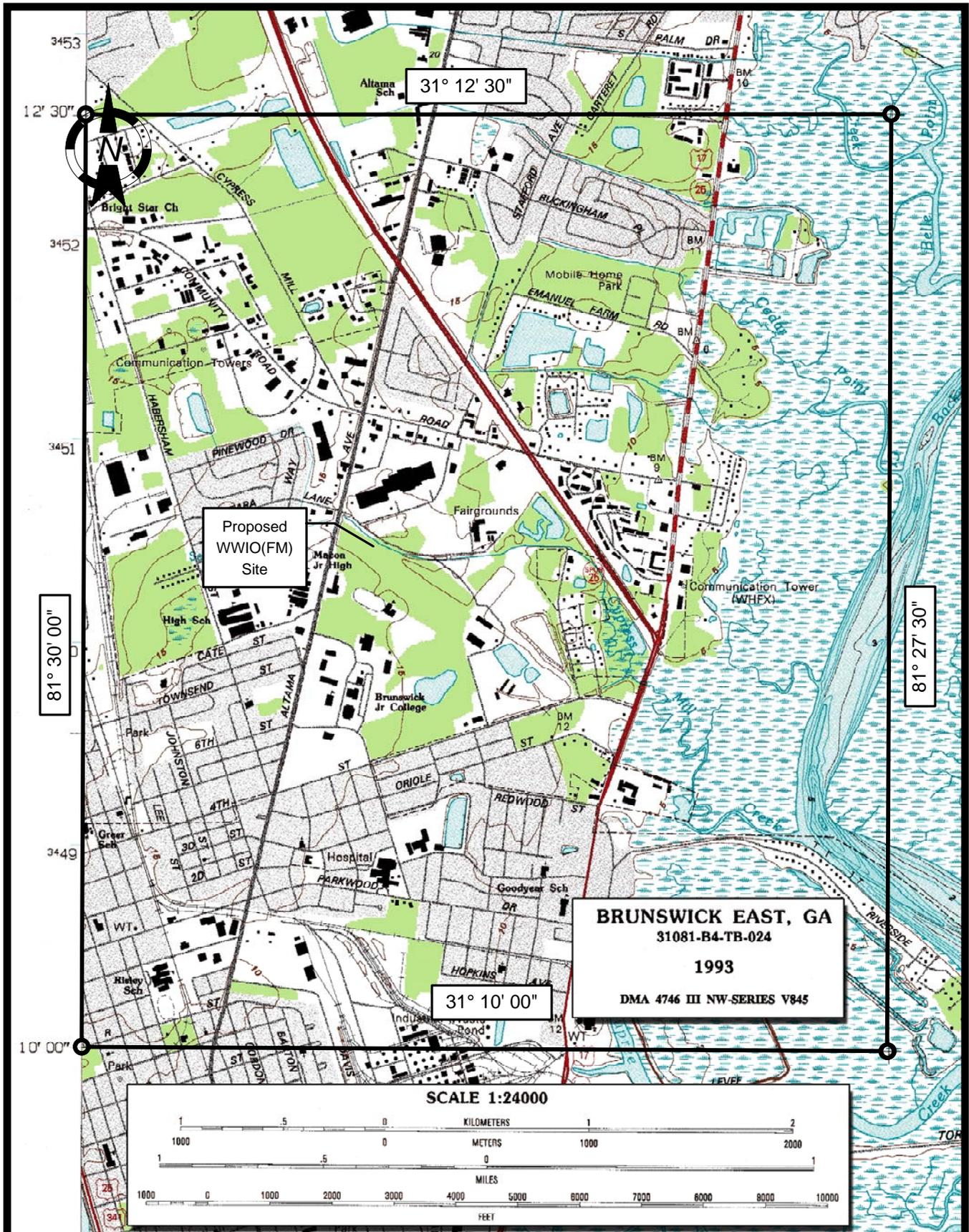


Overall Height AMSL:	49 m	NAD 27 Coordinates:	
Overall Height AMSL:	54 m	N. Latitude:	31° 11' 20"
Radiation Center AGL:	43 m	W. Longitude:	81° 29' 5"
Radiation Center AMSL:	48 m	FCC Tower Registration Number:	N/A
Radiation Center HAAT:	46 m	FAA Aeronautical Study Number:	N/A
Average Terrain:	2 m		

NOTE: NOT TO SCALE

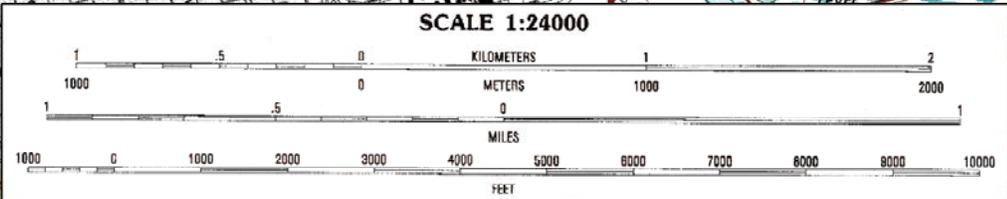
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**WWIO(FM)**  
**BRUNSWICK, GEORGIA**  
 20070629 EXHIBIT E2



Proposed  
WWIO(FM)  
Site

**BRUNSWICK EAST, GA**  
31081-B4-TB-024  
**1993**  
DMA 4746 III NW-SERIES V845



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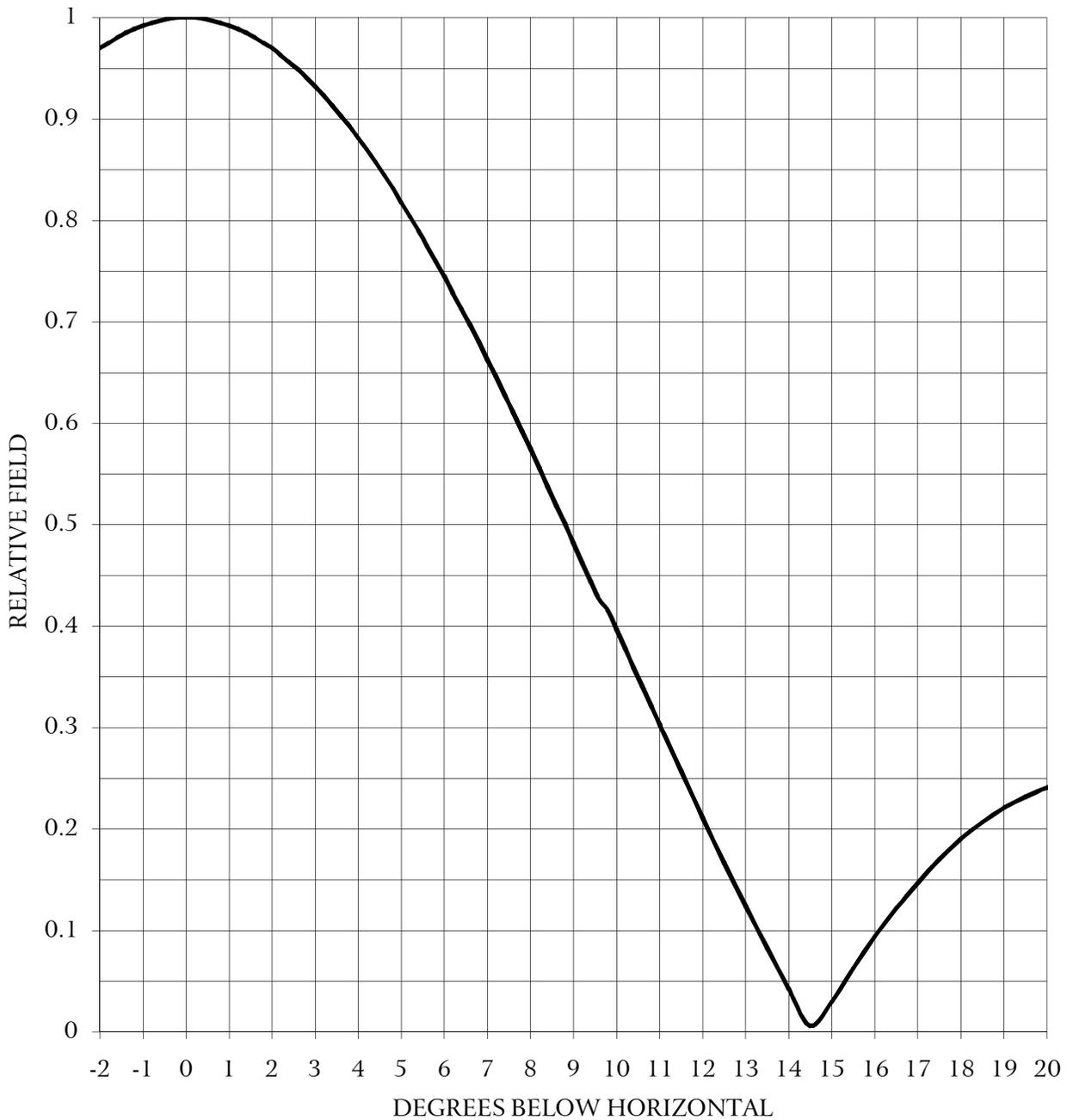
# WWIO(FM) BRUNSWICK, GEORGA

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EXHIBIT E3

# ELEVATION PATTERN

Beam Tilt 0.00 deg  
Frequency 88.9 MHz



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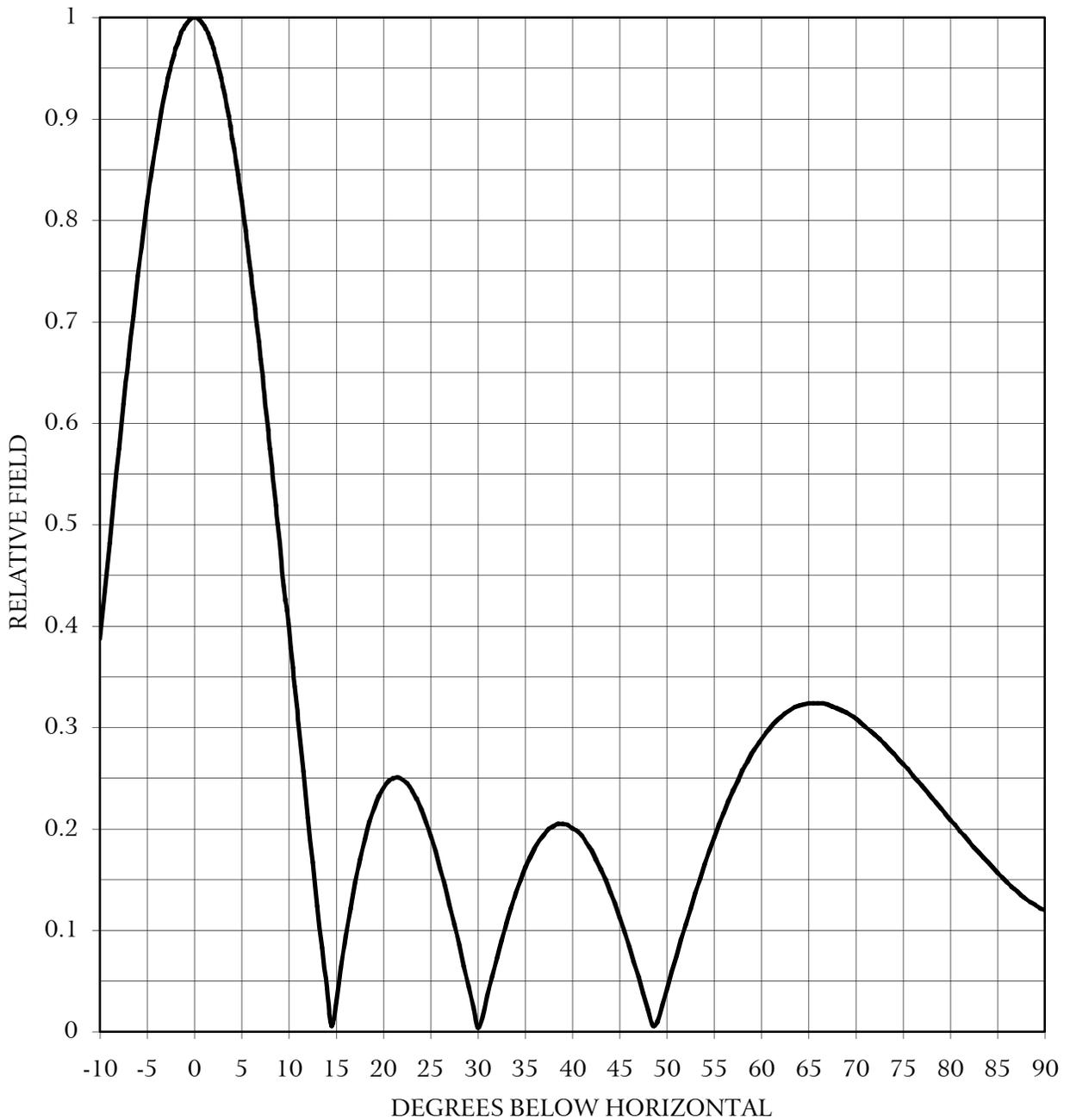
**WWIO(FM)**  
**BRUNSWICK, GEORGIA**

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EXHIBIT E4A

# ELEVATION PATTERN

Beam Tilt 0.00 deg  
Frequency 88.9 MHz



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**WWIO(FM)**  
**BRUNSWICK, GEORGIA**

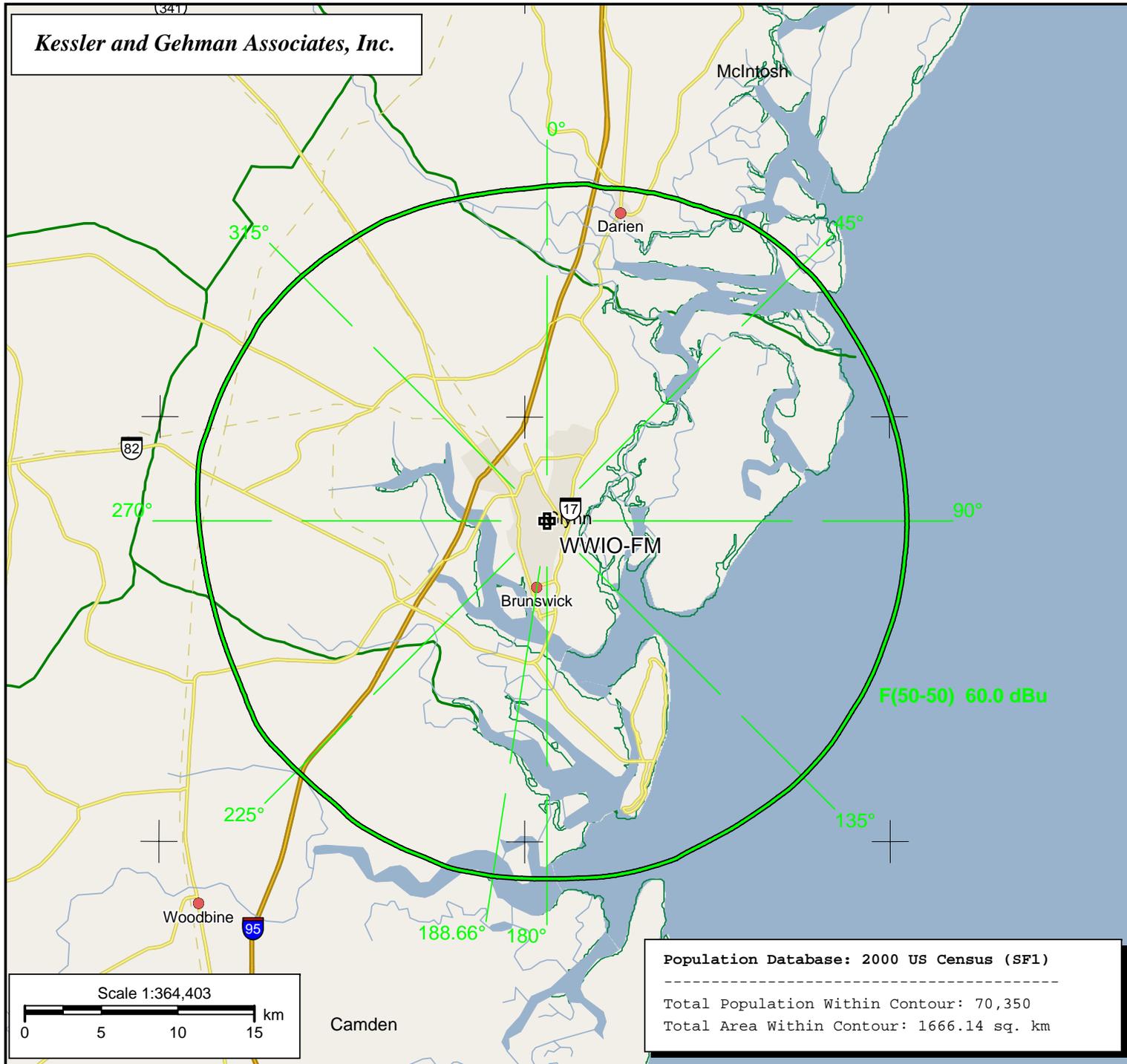
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EXHIBIT E4B

Kessler and Gehman Associates, Inc.

**WWIO-FM**

Proposed  
Latitude: 31-11-20 N  
Longitude: 081-29-05 W  
ERP: 11.70 kW  
Channel: 205  
AMSL Height: 48.0 m  
Horiz. Pattern: Omni  
Prop Model: None



F(50-50) 60.0 dBu

**Population Database: 2000 US Census (SF1)**

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Total Population Within Contour: 70,350  
Total Area Within Contour: 1666.14 sq. km

Exhibit E5

**Kessler and Gehman Associates, Inc.**

Co-Channel Contour Overlap Map

- 40 dBu F(50,10) Interfering Contour
- 60 dBu F(50,50) Protected Contour

**WWIO-FM**  
Proposed  
Latitude: 31-11-20 N  
Longitude: 081-29-05 W  
ERP: 11.70 kW  
Channel: 205  
AMSL Height: 48.0 m  
Horiz. Pattern: Omni  
Prop Model: None

**WFSU-FM**  
BLED19950120KD  
Latitude: 30-40-13 N  
Longitude: 083-56-26 W  
ERP: 95.00 kW  
Channel: 205  
AMSL Height: 427.0 m  
Horiz. Pattern: Omni  
Prop Model: None

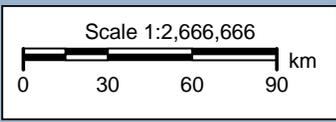
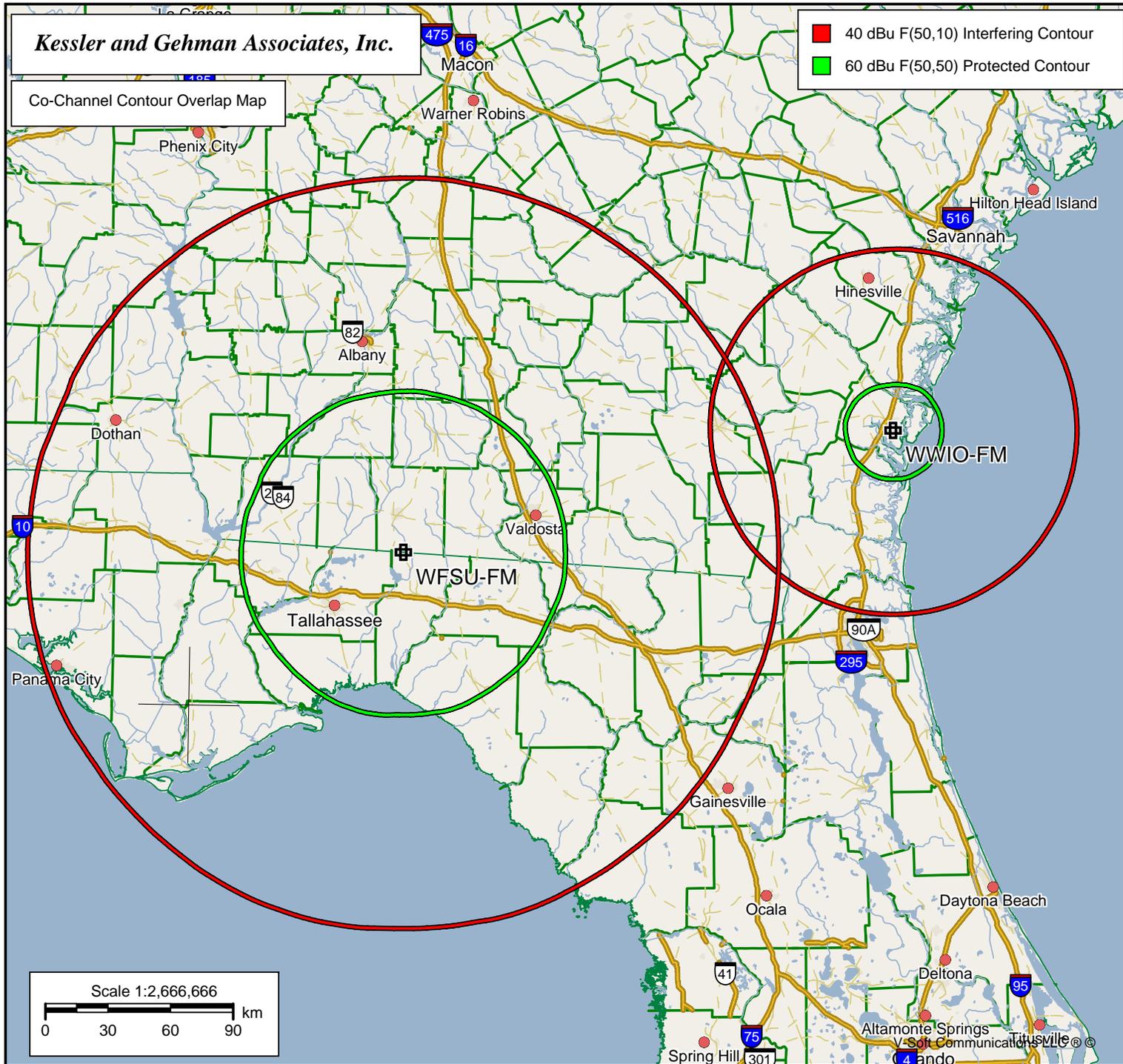
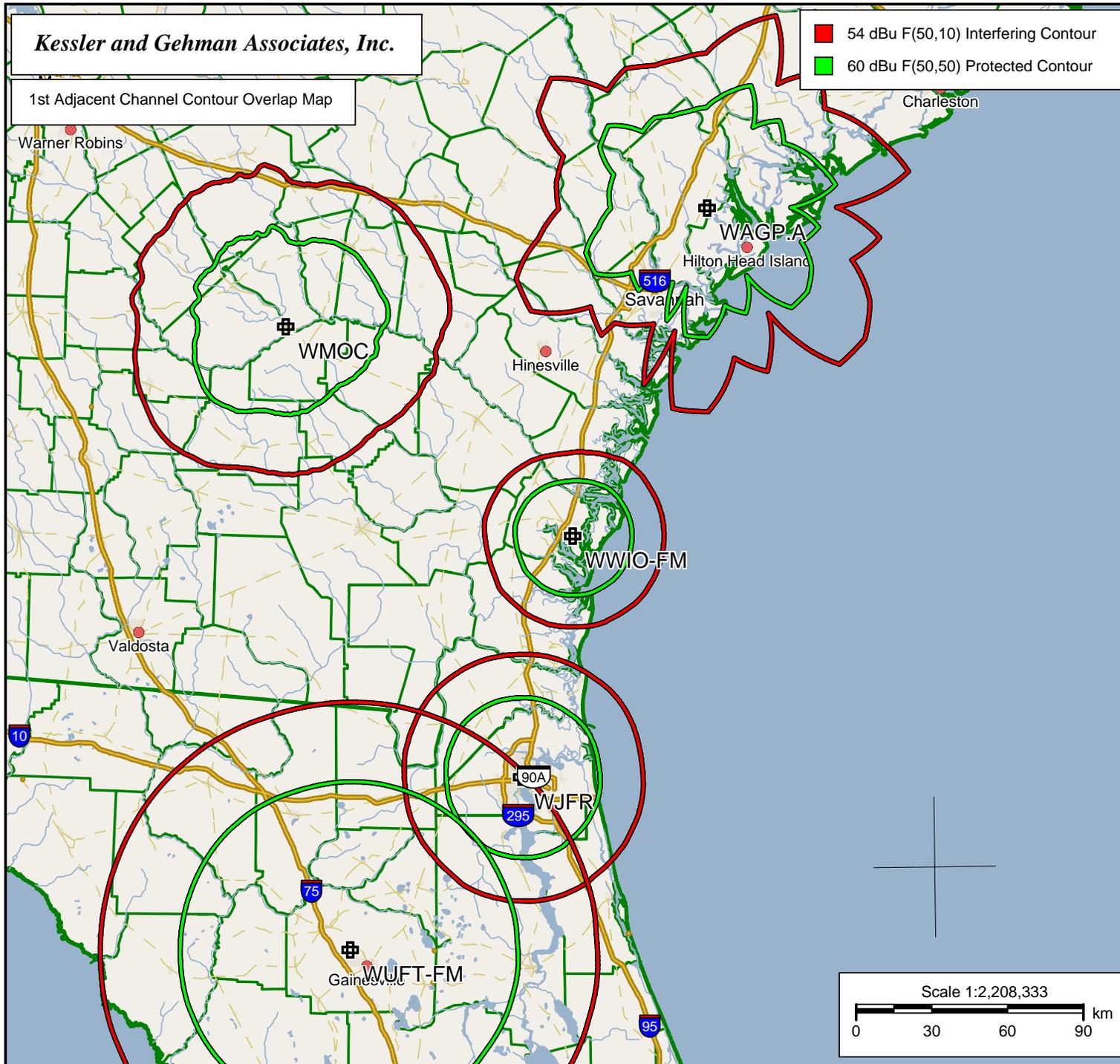


Exhibit E6A

*Kessler and Gehman Associates, Inc.*

1st Adjacent Channel Contour Overlap Map



- 54 dBu F(50,10) Interfering Contour
- 60 dBu F(50,50) Protected Contour

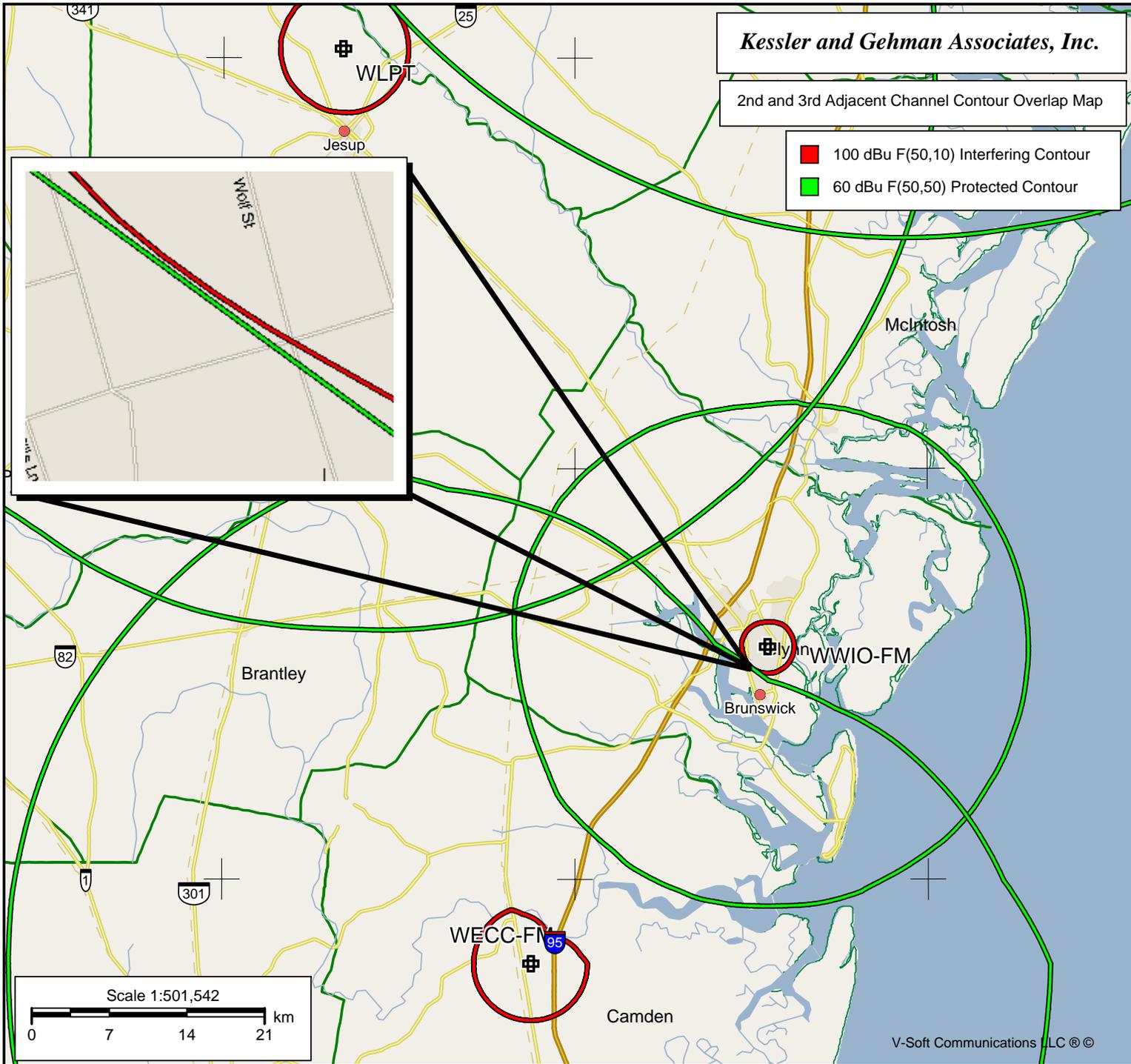
**WWIO-FM**  
Proposed  
Latitude: 31-11-20 N  
Longitude: 081-29-05 W  
ERP: 11.70 kW  
Channel: 205  
AMSL Height: 48.0 m  
Horiz. Pattern: Omni  
Prop Model: None

**WJFR**  
BLED19870928KC  
Latitude: 30-19-43 N  
Longitude: 081-41-42 W  
ERP: 8.00 kW  
Channel: 204  
AMSL Height: 113.0 m  
Horiz. Pattern: Omni  
Prop Model: None

**WMOC**  
BLED19970818KA  
Latitude: 31-55-48 N  
Longitude: 082-41-06 W  
ERP: 50.00 kW  
Channel: 204  
AMSL Height: 113.0 m  
Horiz. Pattern: Omni  
Prop Model: None

**WAGP.A**  
BPED20070604ACR  
Latitude: 32-21-27.10 N  
Longitude: 080-55-11.20 W  
ERP: 100.00 kW  
Channel: 204  
AMSL Height: 105.4 m  
Horiz. Pattern: Directional  
Prop Model: None

Exhibit E6B



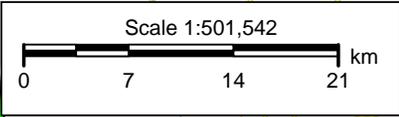
**Kessler and Gehman Associates, Inc.**

2nd and 3rd Adjacent Channel Contour Overlap Map

- 100 dBu F(50,10) Interfering Contour
- 60 dBu F(50,50) Protected Contour

**WWIO-FM**  
 Proposed  
 Latitude: 31-11-20 N  
 Longitude: 081-29-05 W  
 ERP: 11.70 kW  
 Channel: 205  
 AMSL Height: 48.0 m  
 Horiz. Pattern: Omni  
 Vert. Pattern: No  
 Prop Model: None

**WECC-FM**  
 BLED20051202AJY  
 Latitude: 30-55-54 N  
 Longitude: 081-42-30 W  
 ERP: 30.00 kW  
 Channel: 207  
 AMSL Height: 150.0 m  
 Horiz. Pattern: Directional  
 Prop Model: None



Spacing Mode

REFERENCE  
31 11 20 N  
81 29 05 W

CLASS = C3  
Current Spacings

DISPLAY DATES  
DATA 6-28-07  
SEARCH 6-28-07

----- Channel 205 - 88.9 MHz -----  
Call Channel Location FCC File No. Distance  
-----  
--- --- --- --- --- km

0 TV Records within 225.00 km distance of  
31° 11' 20.00" N, 81° 29' 5.00 " W

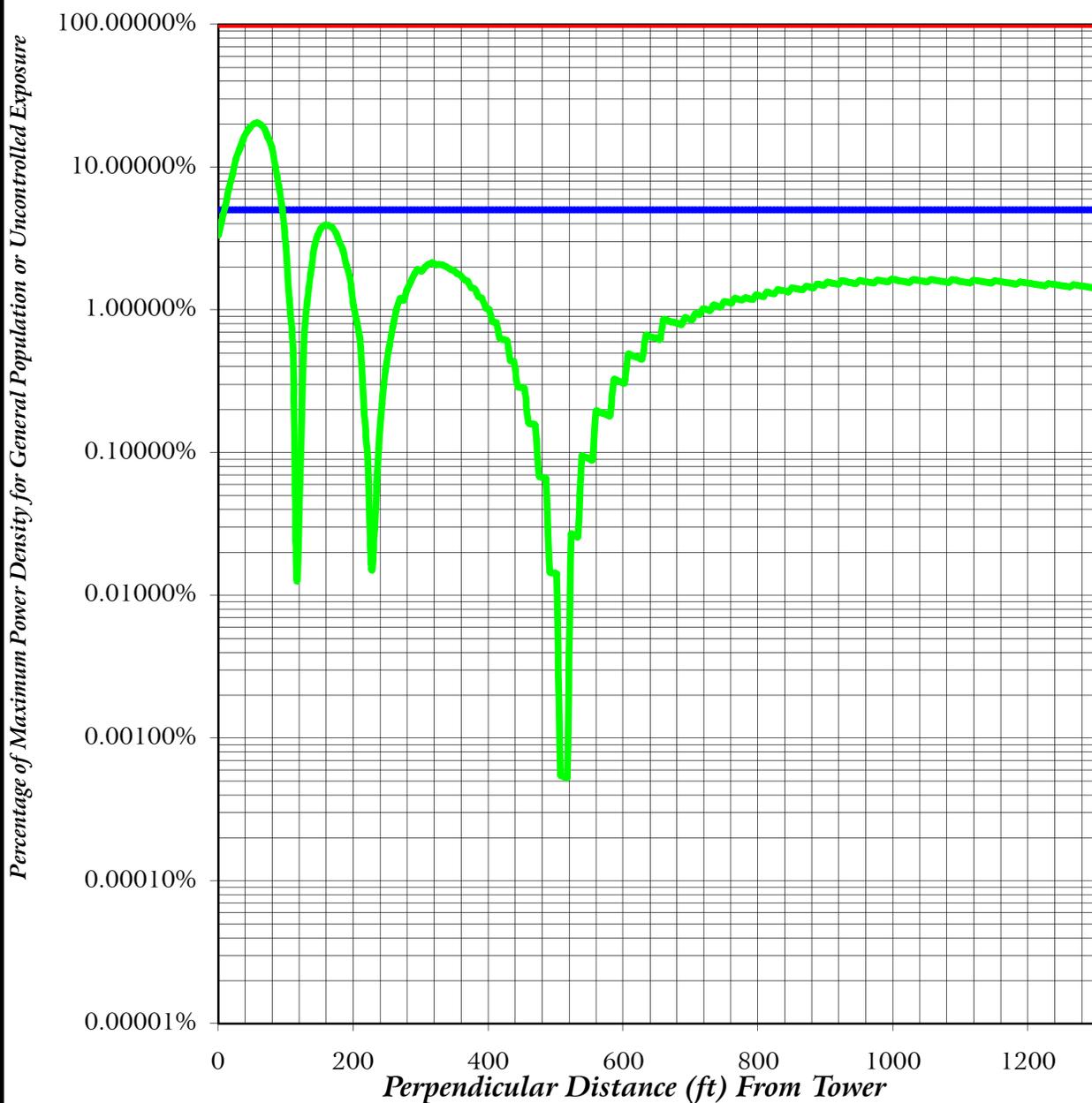
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EXHIBIT E7

# 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:

Terrain<sup>1</sup> 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.

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<sup>1</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.