

ENGINEERING TECHNICAL STATEMENT PREPARED BY RYAN WILLOUR OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH A REQUEST FOR SPECIAL TEMPORARY AUTHORITY TO OPERATE THE UNIVERSITY OF SOUTHERN MISSISSIPPI FM BROADCAST STATION WUSM-FM FROM AN ALTERNATE TRANSMITTER SITE RELATIVE TO THE AUTHORIZED SITE SPECIFIED IN FCC FILE NUMBER BLED-19840228AA  
HATTIESBURG, MISSISSIPPI

### **DISCUSSION**

The University of Southern Mississippi (“USM”) currently has a license (FCC File No.: BLED-19840228AA) to operate WUSM-FM on Channel 203 with an ERP of 3kW horizontally and vertically polarized through an omni-directional antenna. The request for the instant STA is justified since the instant applicant is being forced off the existing tower. USM in conjunction with Mississippi Authority for Educational Television (“MAET”) are planning a joint venture to re-collocate W47BP and WUSM-FM to a new tower site (FAA Study No.:2008-ASO-3616-OE) which is pending construction. A minor modification application to the WUSM-FM license will be submitted shortly after submission of the instant STA. A grant of the instant STA will temporarily allow WUSM-FM to operate at an alternate site until the WUSM-FM license modification construction permit application is granted and the tower and transmitter facility is built. Upon completion, WUSM-FM will begin operation using the newly permitted parameters and file a license to cover the construction permit. USM believes that rejection of the instant STA means going dark until the new joint tower site is built and a construction permit is granted.

Exhibit E1 through E3 specify the technical parameters for the proposed STA. Exhibit E4 demonstrates that the STA will continue to cover Hattiesburg with a 60 dBu coverage contour. Exhibit E5 is an allocation study demonstrating contour overlap compliance to all potentially affected stations. The contours are based upon more accurate 3 arc second terrain in lieu of the 30 arc second terrain the Commission uses for contour analysis. 3 arc second terrain extraction shall be provided if requested.

### 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 E6 is a RFR study demonstrating compliance within 5% of the most restrictive permissible exposure at any location 2 meters above the ground. Exhibit E2 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 licenses 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 WUSM-FM 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 WUSM-FM 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.

CERTIFICATION

I, Ryan Wilhour, am an associate of Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and have been working in the field of radio and television broadcast consulting since 1996. I am a graduate of the University of Florida with a Bachelor of Science degree in electrical engineering. The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on February 19, 2009.



Ryan Wilhour

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

Consulting Engineer

## ENGINEERING SPECIFICATIONS

- A. Transmitter Site:  
FCC Tower Registration Number: 1213385  
FAA Study Number: 00-ASO-2478-OE  
Site Coordinates (NAD 27): N. Latitude: 31° 18' 25.6"  
W. Longitude: 89° 24' 47.2"
- B. Proposed Facility:  
Channel: 203  
Frequency: 88.4 – 88.6 MHz  
Station Class: A
- C. Antenna and Other Elevations:  
Height of Site Above Mean Sea Level (AMSL) 109.7 m  
Overall Height of Structure Above Ground 121.9 m  
(including all appurtenances)  
Overall Height of Structure Above Mean Sea Level 231.6 m  
(including all appurtenances)  
Average Terrain 83.2 m  
Effective Height of Antenna Above Ground 102.9 m  
Effective Height of Antenna Above Average Terrain 129.3 m  
Effective Height of Antenna Above Mean Sea Level 212.6 m
- D. Antenna Parameters – Circular Polarization:  
Maximum ERP in the Horizontal Plane 3.0 kW  
Maximum ERP in the Vertical Plane 3.0 kW

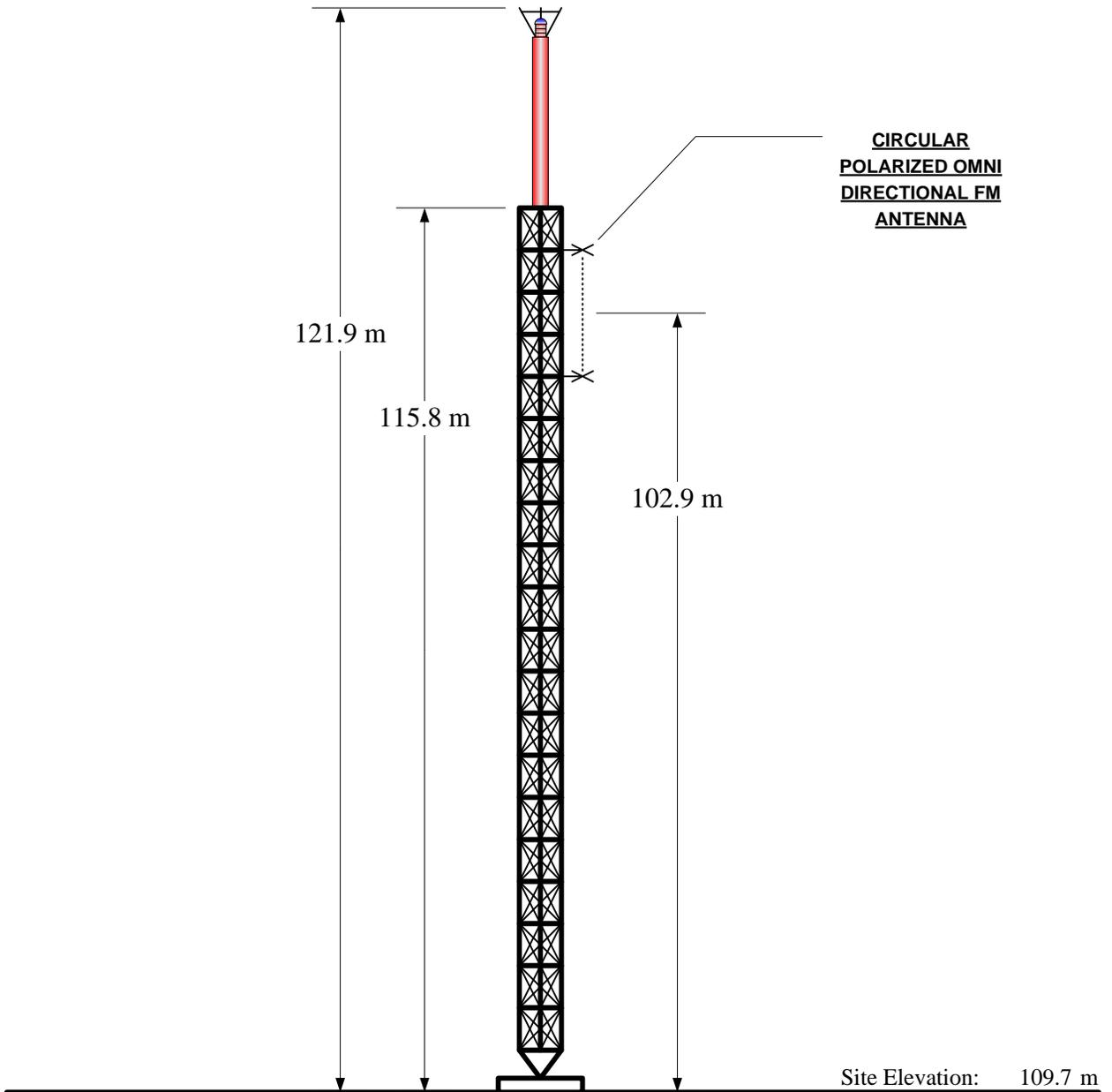
**KESSLER & GEHMAN**

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

**WUSM-FM**  
**Hattiesburg, MS**

20090219

EXHIBIT E1



Overall Height AGL:	121.9 m
Overall Height AMSL:	231.6 m
Radiation Center AGL:	102.9 m
Radiation Center AMSL:	212.6 m
Radiation Center HAAT:	129.3 m
Average Terrain:	83.2 m

NAD 27 Coordinates:	
N. Latitude:	31° 18' 25.6"
W. Longitude:	89° 24' 47.2"

FCC ASR No.: 1213385

FAA Study No.: 2000-ASO-2478-OE

NOTE: NOT TO SCALE

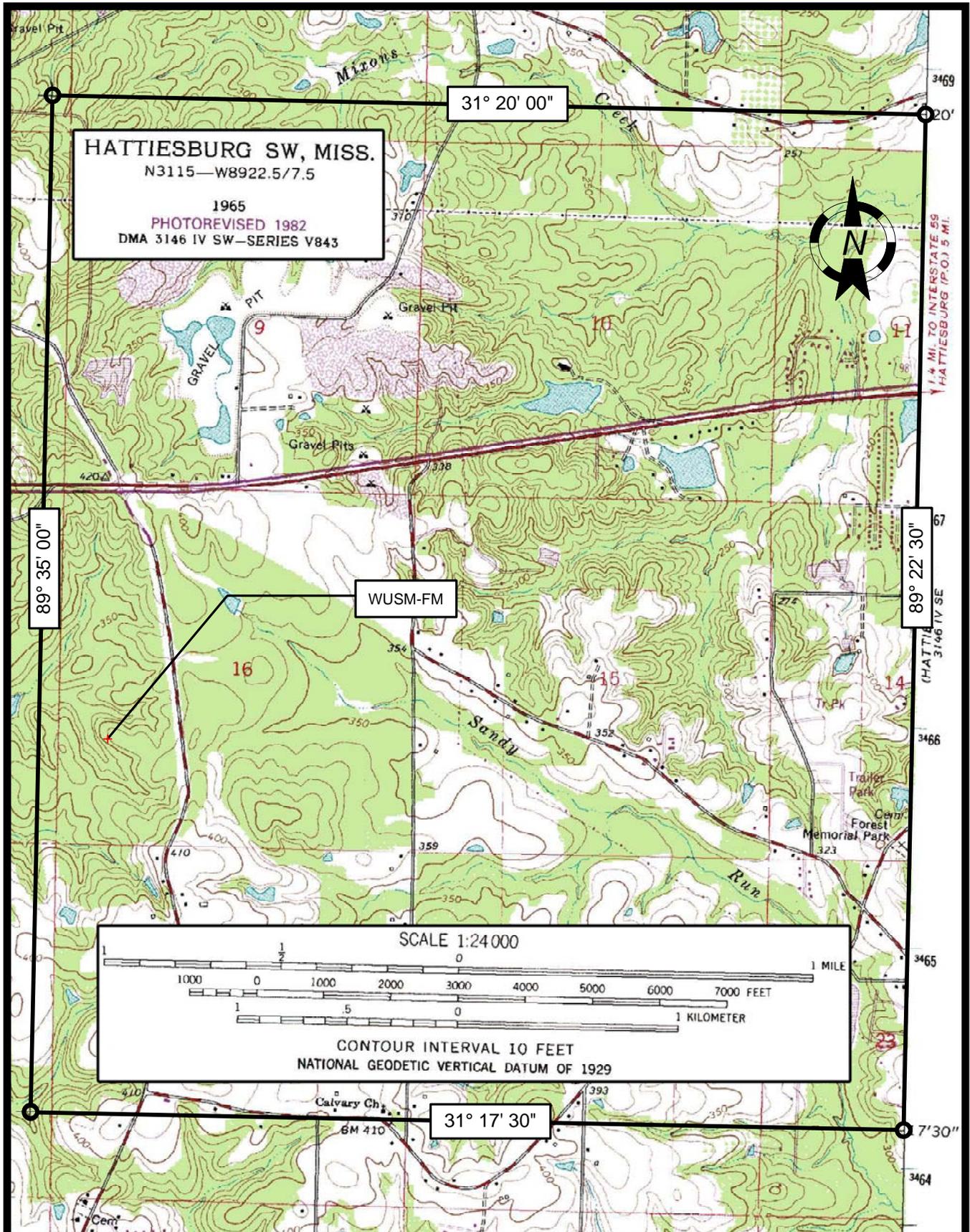
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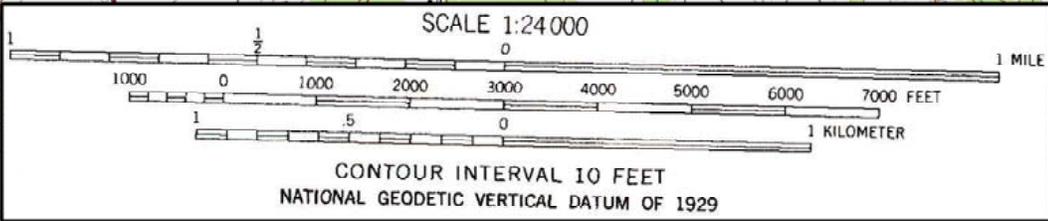
20090115

EXHIBIT E2



**HATTIESBURG SW, MISS.**  
 N3115—W8922.5/7.5  
 1965  
 PHOTOREVISED 1982  
 DMA 3146 IV SW—SERIES V843

**WUSM-FM**



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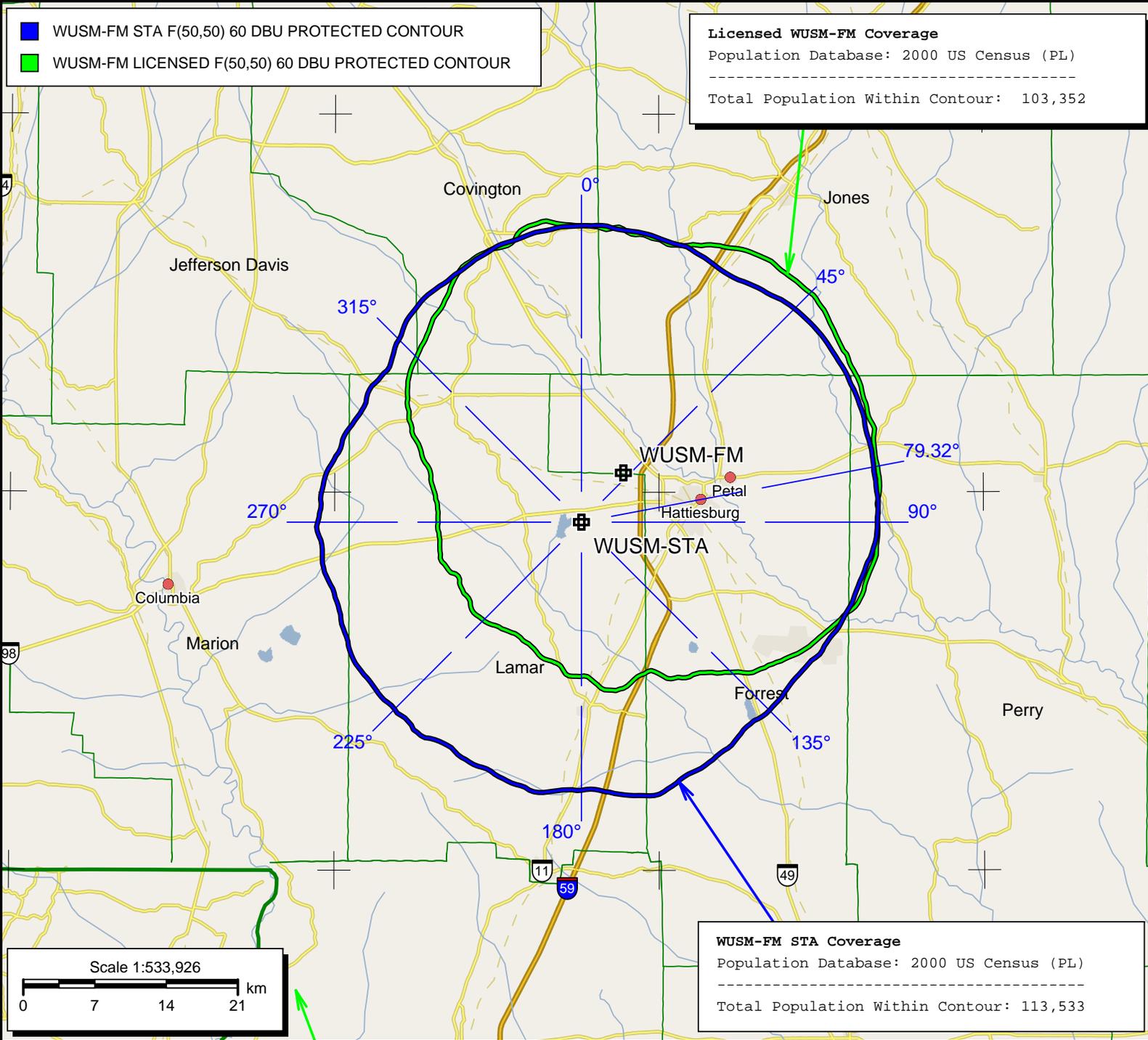
EXHIBIT E3

- WUSM-FM STA F(50,50) 60 DBU PROTECTED CONTOUR
- WUSM-FM LICENSED F(50,50) 60 DBU PROTECTED CONTOUR

**Licensed WUSM-FM Coverage**  
 Population Database: 2000 US Census (PL)  
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 Total Population Within Contour: 103,352

**WUSM-FM**  
 BLED19840228AA  
 Latitude: 31-21-02 N  
 Longitude: 089-22-12 W  
 ERP: 3.00 kW  
 Channel: 203  
 AMSL Height: 164.0 m  
 Horiz. Pattern: Omni  
 Prop Model: None

**WUSM-STA**  
 PROP-STA  
 Latitude: 31-18-25.60 N  
 Longitude: 089-24-47.20 W  
 ERP: 3.00 kW  
 Channel: 203  
 AMSL Height: 212.6 m  
 Horiz. Pattern: Omni  
 Prop Model: None

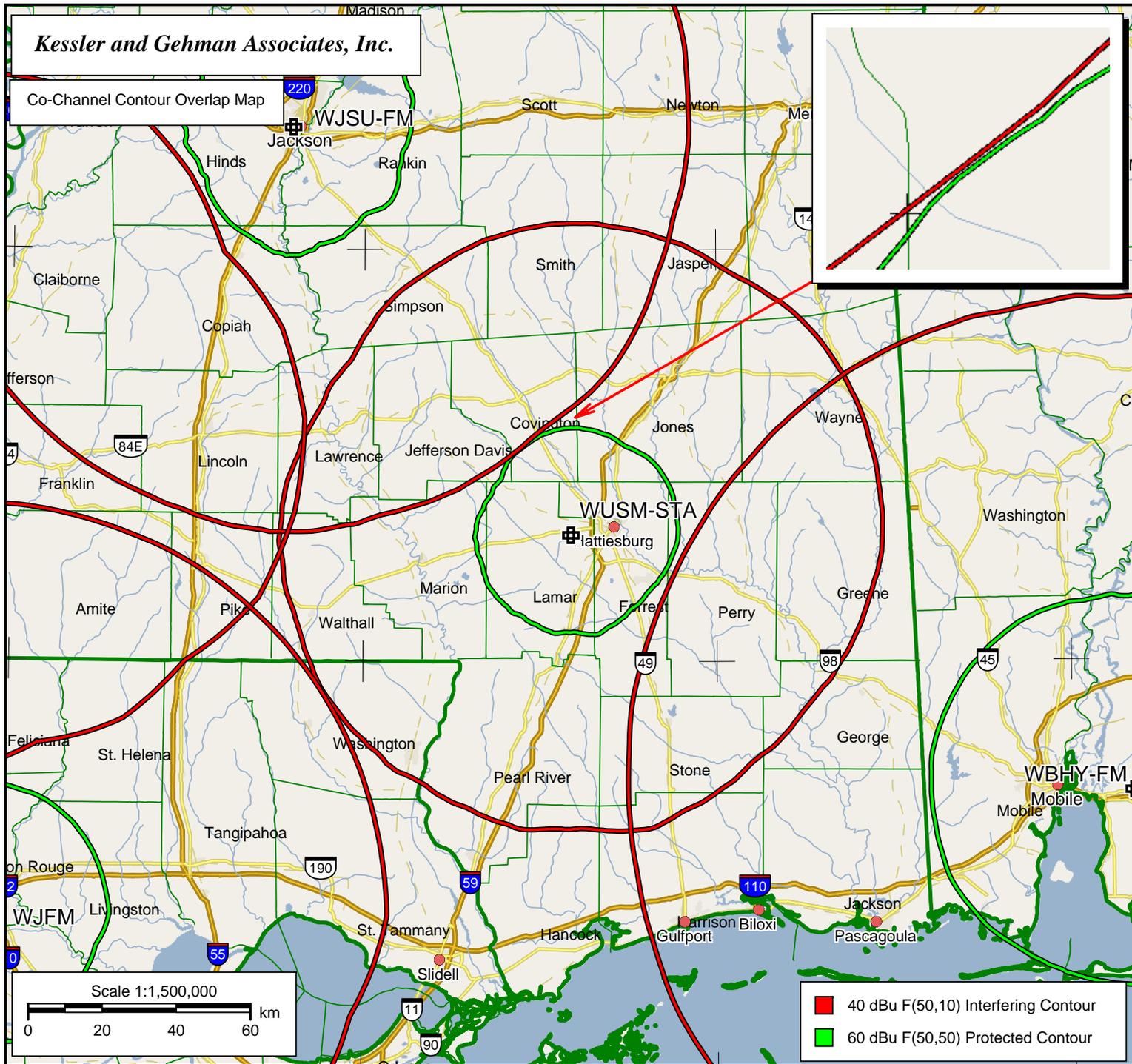


**WUSM-FM STA Coverage**  
 Population Database: 2000 US Census (PL)  
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 Total Population Within Contour: 113,533

**EXHIBIT E4**

**Kessler and Gehman Associates, Inc.**

Co-Channel Contour Overlap Map



**WUSM-STA**  
PROP-STA  
Latitude: 31-18-25.60 N  
Longitude: 089-24-47.20 W  
ERP: 3.00 kW  
Channel: 203

WJSU-FM  
BLED19940627KA  
ERP: 24.50 kW  
Channel: 203

WBHY-FM  
BLED19920401KB  
ERP: 33.00 kW  
Channel: 203

NEW.C  
BNPED20071022BRI  
ERP: 100.00 kW  
Channel: 203

WJFM  
BLED19970306KB  
ERP: 25.50 kW  
Channel: 203

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

Exhibit E5A

**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

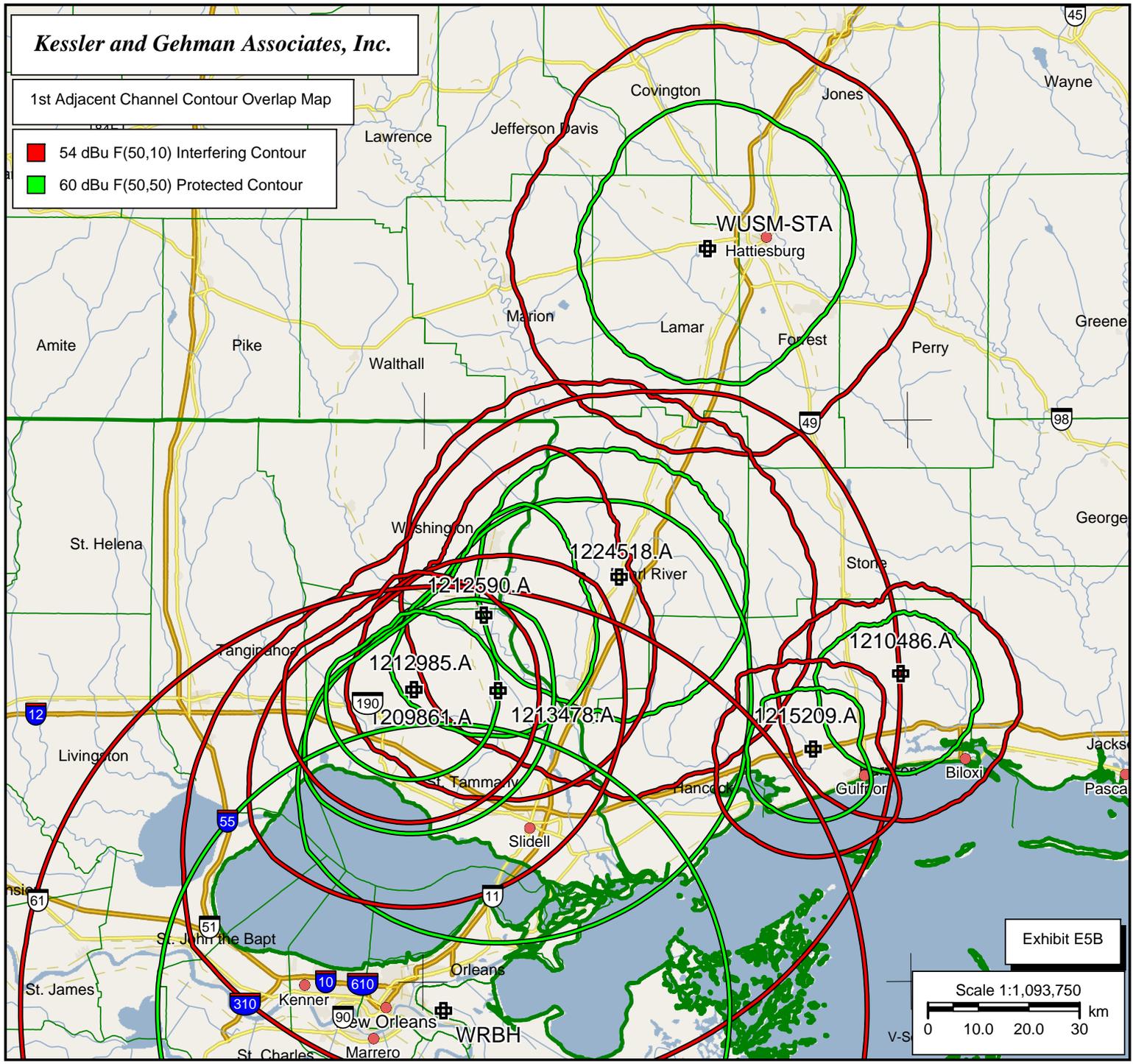
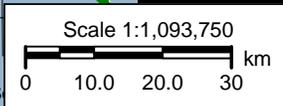


Exhibit E5B



**WUSM-STA**  
 PROP-STA  
 Latitude: 31-18-25.60 N  
 Longitude: 089-24-47.20 W  
 ERP: 3.00 kW  
 Channel: 203

1224518.A  
 BNPED20071018ADJ  
 ERP: 5.00 kW  
 Channel: 204

1213478.A  
 BNPED20071022BAN  
 ERP: 100.00 kW  
 Channel: 204

1212590.A  
 BNPED20071017ACK  
 ERP: 6.00 kW  
 Channel: 204

1210486.A  
 BNPED20071012ACS  
 ERP: 1.80 kW  
 Channel: 204

1209861.A  
 BNPED20071019APC  
 ERP: 1.40 kW  
 Channel: 204

1215209.A  
 BNPED20071022AJA  
 ERP: 0.60 kW  
 Channel: 204

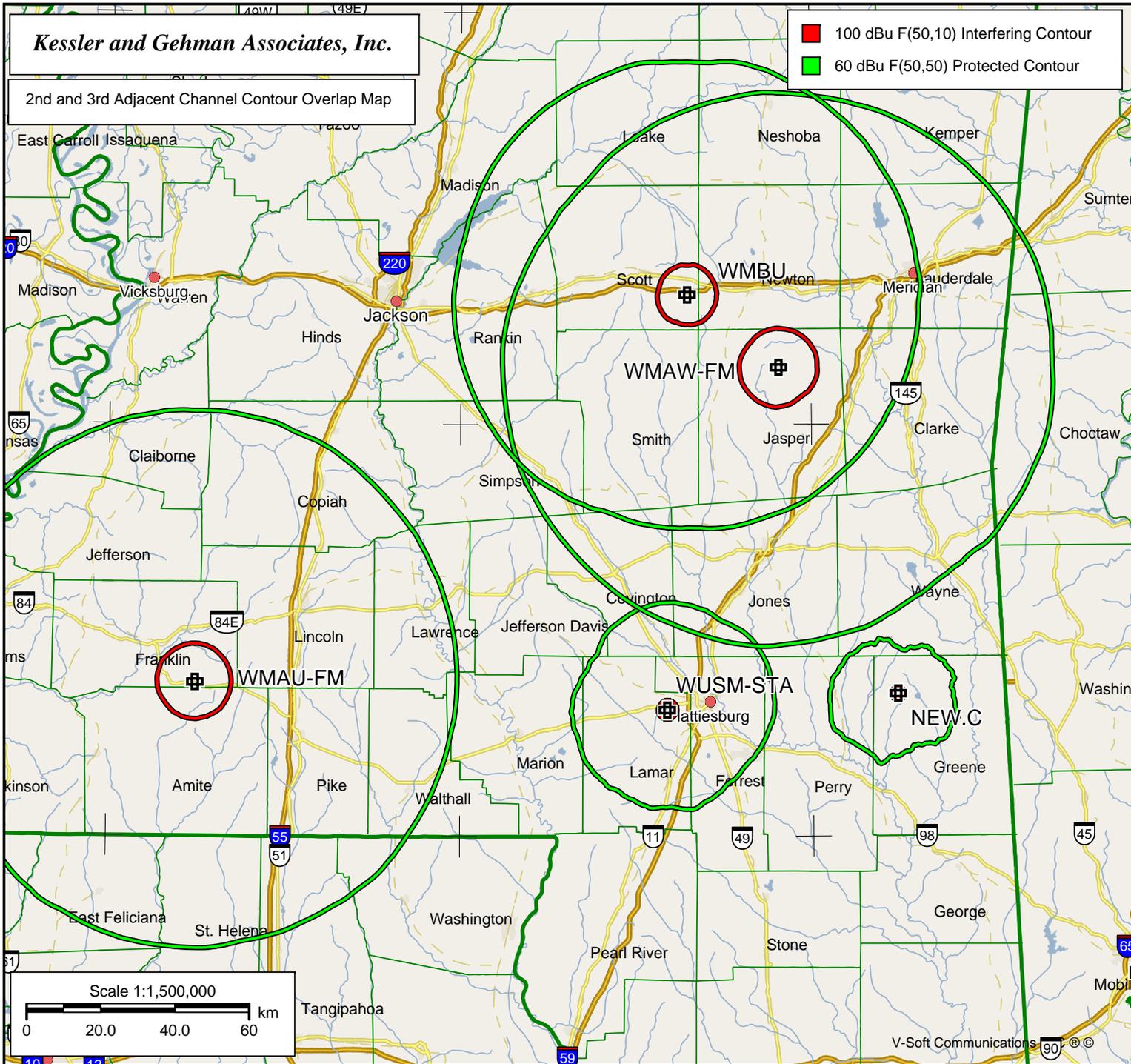
WRBH  
 BLED20020530ACL  
 ERP: 51.00 kW  
 Channel: 202

1212985.A  
 BNPED20071022BCQ  
 ERP: 0.70 kW  
 Channel: 204

**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



**WUSM-STA  
PROP-STA**

Latitude: 31-18-25.60 N  
Longitude: 089-24-47.20 W  
ERP: 3.00 kW  
Channel: 203

WMAW-FM  
BLED19831114AM  
ERP: 100.00 kW  
Channel: 201

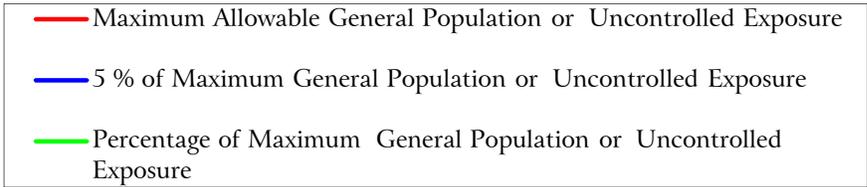
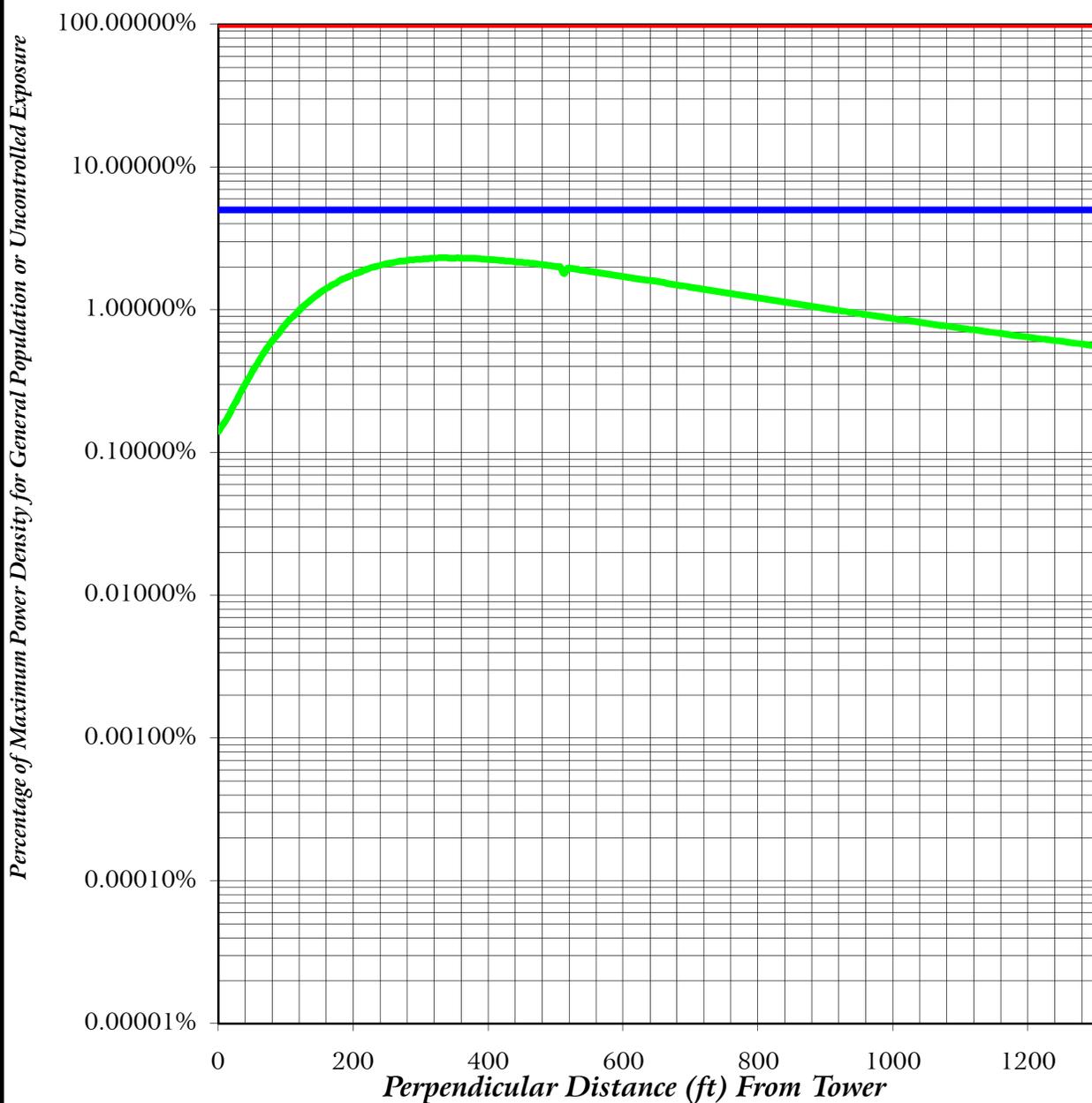
NEW.C  
BNPED20071022AIB  
ERP: 1.80 kW  
Channel: 205

WMBU  
BMLED20080527AAI  
ERP: 100.00 kW  
Channel: 206

WMAU-FM  
BLED20010301ABG  
ERP: 100.00 kW  
Channel: 205

Exhibit E5C

# FAR FIELD EXPOSURE TO RF EMISSIONS



K E S S L E R & G E H M A N

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EXHIBIT E6

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.