

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 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 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.

The logo for Kessler and Gehman Associates, Inc. (KGA) features the letters 'KGA' in a stylized, serif font. The letters are white with a black outline and are positioned in the center of 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

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

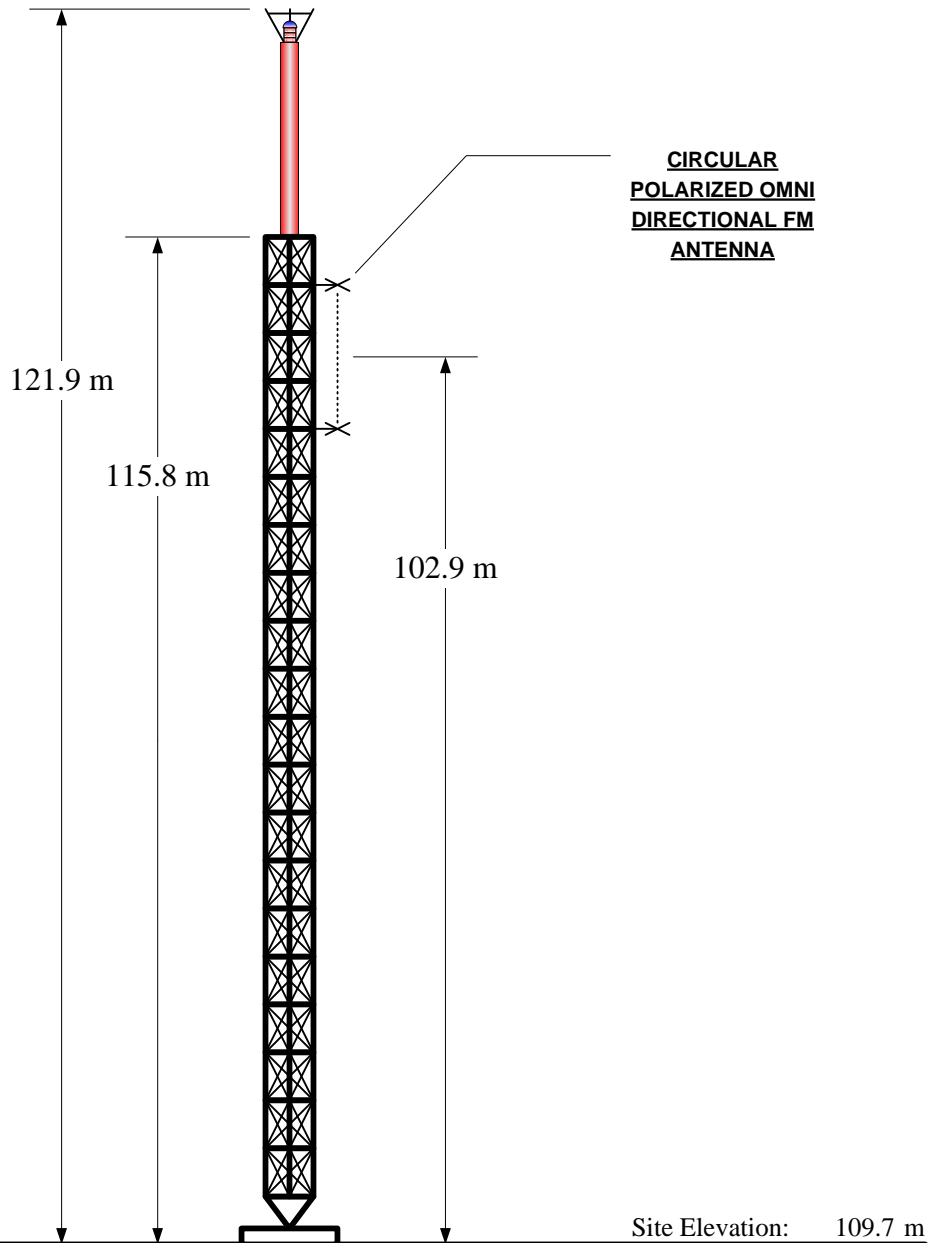
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WUSM-FM
Hattiesburg, MS

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

NOTE: NOT TO SCALE

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

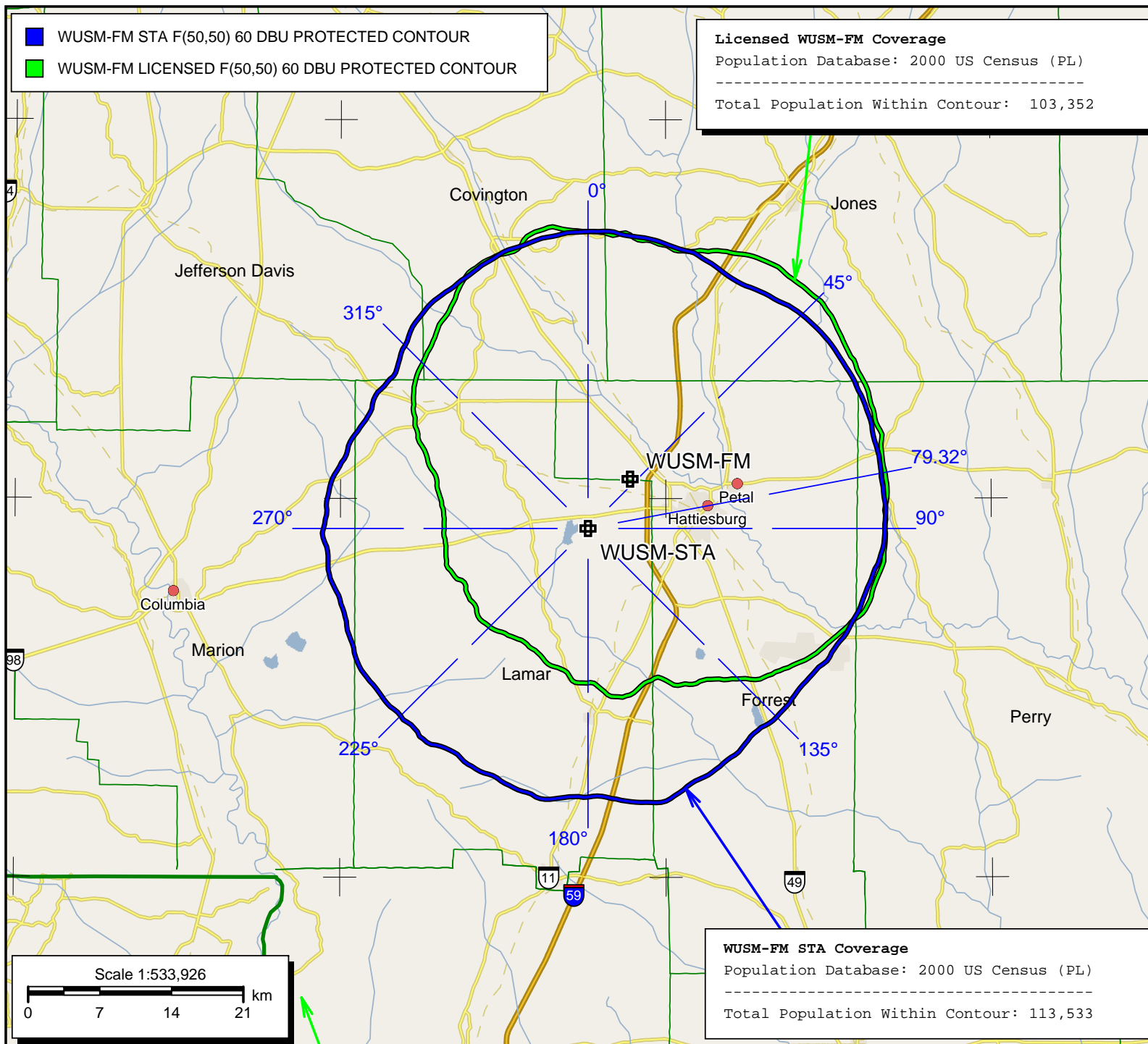
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WUSM-FM
Hattiesburg, MS

20090115

EXHIBIT E2



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

EXHIBIT E4

Kessler and Gehman Associates, Inc.

Co-Channel Contour Overlap Map

Scale 1:1,500,000

0 20 40 60 km

Legend:

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

WJFM
BLED19970306KB
ERP: 25.50 kW
Channel: 203



WJSU-FM

Jacks

Rankin

Scott

Newton



Hinds

~~Simpson~~

Smith

~~Jasper~~

Lincoln

Lawrence

Jefferson Davis

WUSM-STA



Marion

Lamar

Forest

Denny

Greene

Washin

Washington


WBHY-FM

Mobile

W-IEM

Livingston

190



21

Jackson

Pascagoula

100

Scale 1:1,500,000

Figure 1 is a line graph showing the relationship between the rate of change of the logarithm of the number of bacteria ($\log N$) and the rate of change of the logarithm of the number of viable bacteria ($\log N_v$). The x-axis is labeled $\log N$ and ranges from 0 to 60. The y-axis is labeled $\log N_v$ and ranges from 0 to 60. A solid line represents the theoretical relationship, and a dashed line represents the experimental data. The solid line starts at (0,0) and increases linearly, reaching (60,60). The dashed line starts at (0,0) and increases linearly, reaching (60,60). The dashed line is slightly below the solid line for most of the range.



 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



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

Legend:

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

Map Labels:

- Counties: East Carroll, Issaquena, Madison, Hinds, Rankin, Scott, Newton, Meridian, Lauderdale, Sumter, Kemper, Neshoba, Leake, Jasper, Smith, Simpson, Claiborne, Copiah, Jefferson, Lincoln, Lawrence, Jefferson Davis, Covington, Jones, Wayne, Washington, Marion, Pike, Walthall, Washington, Pearl River, Stone, George, Greene, Tangipahoa, St. Helena, Amite, Franklin, Madison, Vicksburg, Warren, East Feliciana, East Carroll, Issaquena, Madison, Hinds, Rankin, Scott, Newton, Meridian, Lauderdale, Sumter, Kemper, Neshoba, Leake, Jasper, Smith, Simpson, Claiborne, Copiah, Jefferson, Lincoln, Lawrence, Jefferson Davis, Covington, Jones, Wayne, Washington, Marion, Pike, Walthall, Washington, Pearl River, Stone, George, Greene, Tangipahoa, St. Helena, Amite, Franklin, Madison, Vicksburg, Warren, East Feliciana.
- Highways: 65, 84, 51, 55, 11, 49, 98, 45, 90, 59, 145, 220.
- Stations: WMAU-FM (Franklin), WMAW-FM (Jasper), WMBU (Newton), WUSM-STA (Hattiesburg), NEW.C (Greene).

Scale: 1:1,500,000

0 20.0 40.0 60 km

V-Soft Communications ©

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2nd and 3rd Adjacent Channel Contour Overlap Map

Legend:

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

Map Labels:

- Counties: East Carroll, Issaquena, Madison, Hinds, Rankin, Scott, Newton, Meridian, Lauderdale, Sumter, Kemper, Neshoba, Leake, Jasper, Smith, Simpson, Claiborne, Copiah, Jefferson, Lincoln, Lawrence, Jefferson Davis, Covington, Jones, Wayne, Washington, Marion, Walthall, Pike, Amite, Franklin, East Feliciana, St. Helena, Washington, Pearl River, Stone, George, Greene, Tangipahoa.
- Highways: 60, 65, 84, 51, 55, 220, 145, 11, 49, 98, 45, 90, 59.
- Stations: WMAU-FM (Franklin), WMAW-FM (Jasper), WMBU (Newton), WUSM-STA (Natchez), NEW.C (Greene).

Scale: 1:1,500,000

0 20.0 40.0 60 km

V-Soft Communications ©

Kessler and Gehman Associates, Inc.

2nd and 3rd Adjacent Channel Contour Overlap Map

Legend:

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

Map Labels:

- Counties: East Carroll, Issaquena, Madison, Hinds, Rankin, Scott, Newton, Meridian, Lauderdale, Sumter, Kemper, Neshoba, Leake, Jasper, Smith, Simpson, Claiborne, Copiah, Jefferson, Lincoln, Lawrence, Jefferson Davis, Covington, Jones, Wayne, Washington, Marion, Walthall, Pike, Amite, Franklin, East Feliciana, St. Helena, Washington, Pearl River, Stone, George, Greene, Tangipahoa.
- Highways: 60, 65, 84, 51, 55, 220, 145, 11, 49, 98, 45, 90, 59.
- Stations: WMAU-FM (Franklin), WMAW-FM (Jasper), WMBU (Newton), WUSM-STA (Natchez), NEW.C (Greene).

Scale: 1:1,500,000

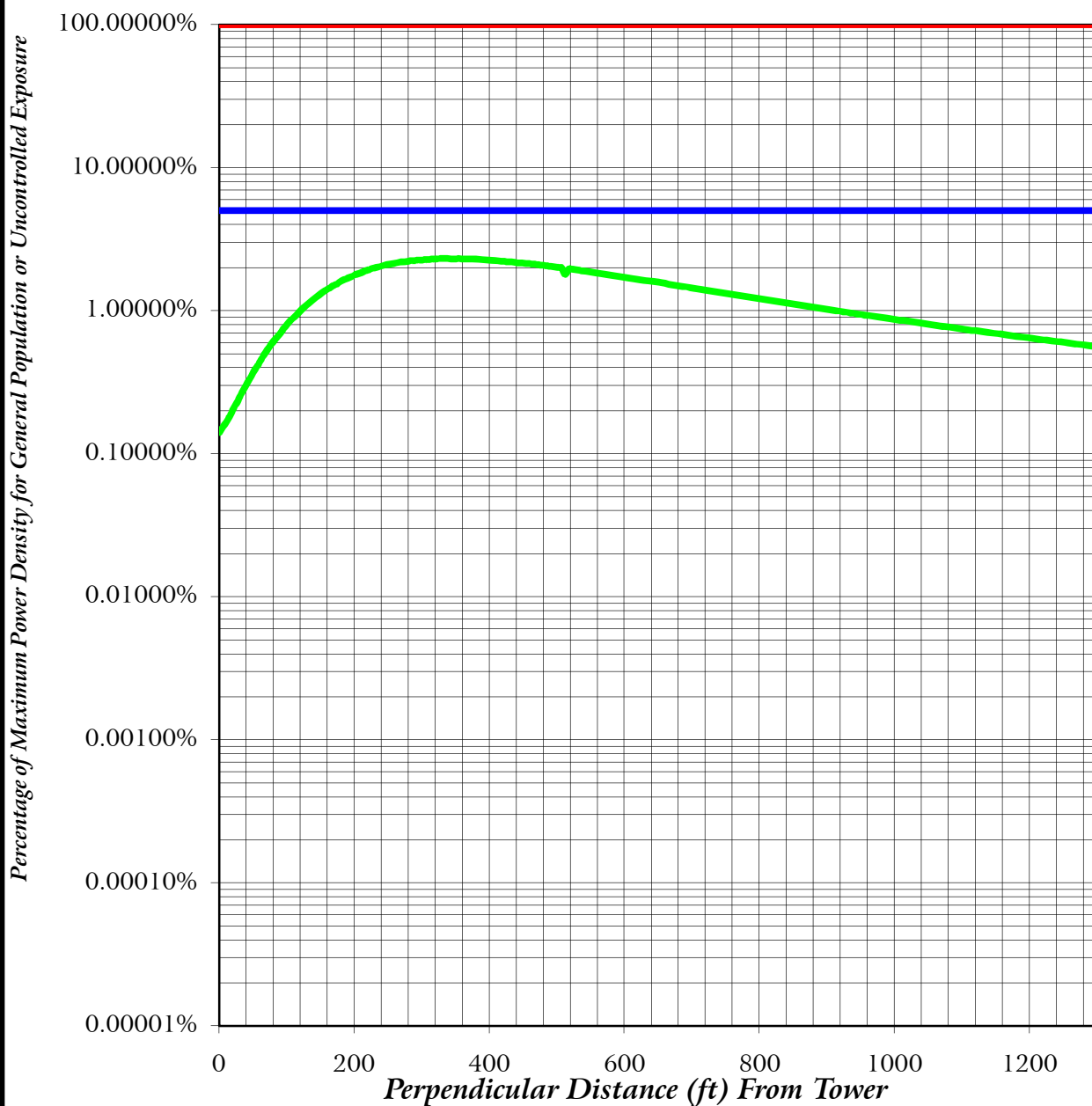
0 20.0 40.0 60 km

V-Soft Communications ©

Channel: 205

Exhibit E5C

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 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:

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.