

APPLICATION FOR MINOR  
MODIFICATION TO A LICENSED DTV  
BROADCAST STATION  
FCC FILE NO.: BLEDT-20030326ABX  
TO MAXIMIZE AND OPERATE IN THE POST  
DTV TRANSITION PERIOD  
WMAB-DT MISSISSIPPI AUTHORITY FOR  
EDUCATIONAL TELEVISION  
MISSISSIPPI STATE, MISSISSIPPI

KESSLER & GEHMAN ASSOCIATES, INC.  
TELECOMMUNICATIONS CONSULTING ENGINEERS

20080610

*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 LICENSED DTV  
BROADCAST STATION FCC FILE NUMBER BLEDT-20030326ABX TO MAXIMIZE  
OPERATION IN THE POST DTV TRANSITION PERIOD  
WMAB-DT  
MISSISSIPPI AUTHORITY FOR EDUCATIONAL TELEVISION  
MISSISSIPPI STATE, MS

This firm has been employed by Mississippi Authority for Educational Television “MAET” to prepare engineering studies and a minor modification application to FCC file number BLEDT-20030326ABX for post DTV transition maximization.

MAET, licensee of WMAB-DT, Channel 10 herein proposes to increase its ERP from 4.3kW to 8.0kW for its post DTV transition operation. No other changes are proposed.

### 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. Antenna Elevation Pattern (Exhibit E3)
4. USGS 7.5 minute topographic quadrangle showing the proposed transmitter location and the coordinate lines (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)

### ALLOCATION ANALYSIS

It is herein proposed to modify the above referenced channel 10 digital facility 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 192 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 WMAB-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.

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 10, 2008.

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 above a thick, solid black horizontal bar.

Ryan Wilhour

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

Consulting Engineer

# WMAB-DT

## MISSISSIPPI STATE, MISSISSIPPI

### ENGINEERING SPECIFICATIONS

A. Transmitter Site (NAD 27)

North Latitude 33 ° 21 ' 14 "

West Longitude 89 ° 09 ' 00 "

Street Address or Location

Located on the eastern side of the road, 2  
kilometers north of Highway 12, Ackerman,  
Mississippi

B. Proposed Facility  
DTV Channel

Number 10  
Frequency 192-198 MHz

C. Antenna Height

Height of Site Above Mean Sea Level (AMSL) 203.0 m

Overall Height of Structure Above Ground 333.0 m  
(including all appurtenances)

Overall Height of Structure Above Mean Sea Level 536.0 m  
(including all appurtenances)

Height of Site Above Average Terrain 60.5 m

Effective Height of Antenna Above Ground 288.0 m

Effective Height of Antenna Above Average Terrain 348.5 m

Effective Height of Antenna Above Mean Sea Level 491.0 m

D. Antenna Parameters – Horizontal Polarization

Maximum Antenna Gain in Beam Maximum 8.45 dB

Maximum Antenna Gain in Horizontal Plane 8.39 dB

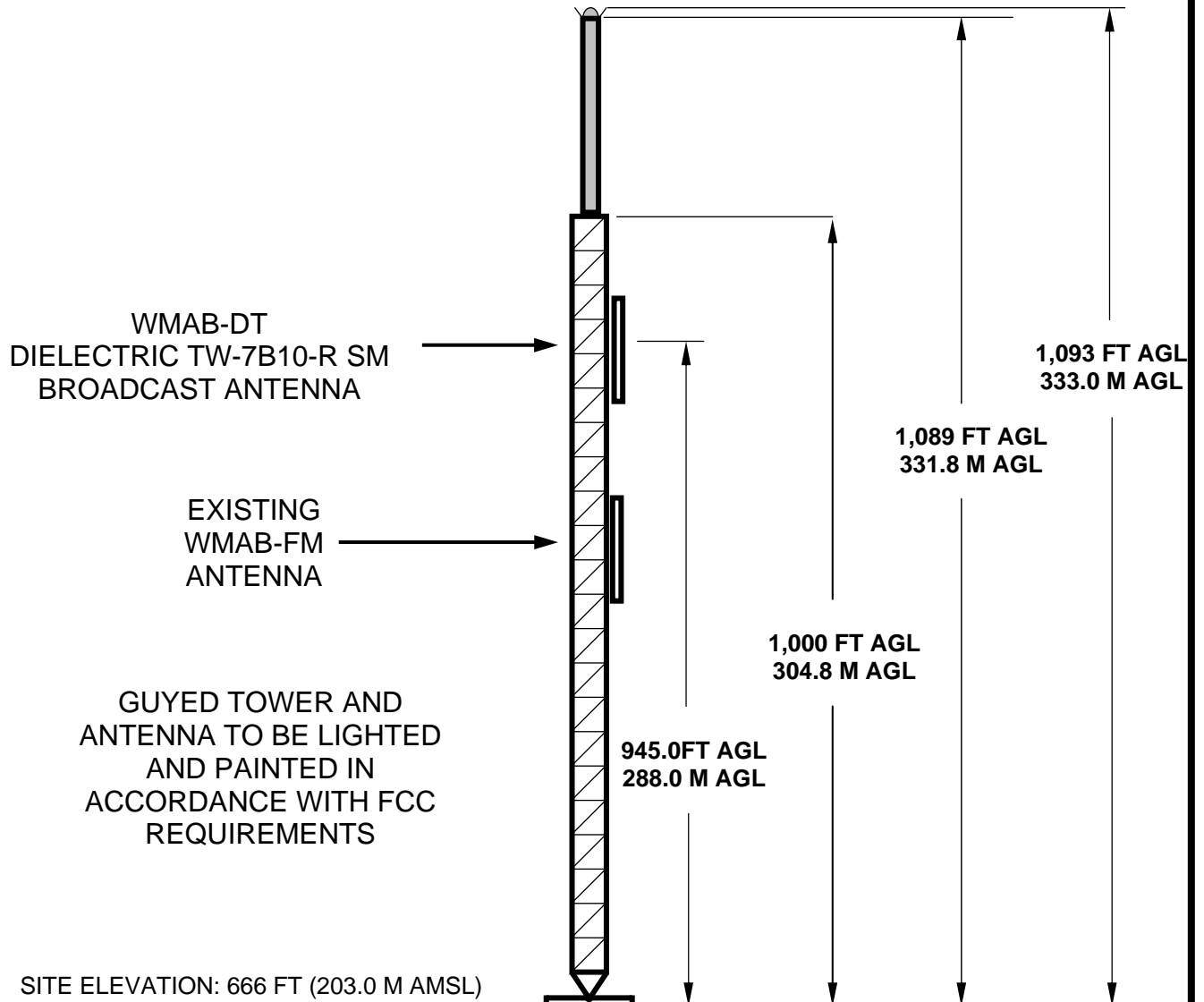
Maximum Effective Radiated Power 9.03 dBk

In Beam Maximum 8.0 kW

Maximum Effective Radiated Power 8.97 dBk

In Horizontal Plane 7.89 kW

## ELEVATION VIEW



OVERALL HEIGHT AGL: 333.0 M  
OVERALL HEIGHT AMSL: 536.0 M  
RADIATION CENTER AGL: 288.0 M  
RADIATION CENTER AMSL: 491.0 M  
RADIATION CENTER HAAT: 348.5 M  
AVERAGE TERRAIN: 142.5 M

NAD 27 COORDINATES:  
N. LATITUDE 33° 21' 14"  
W. LONGITUDE 89° 09' 00"

**NOTE: NOT TO SCALE**

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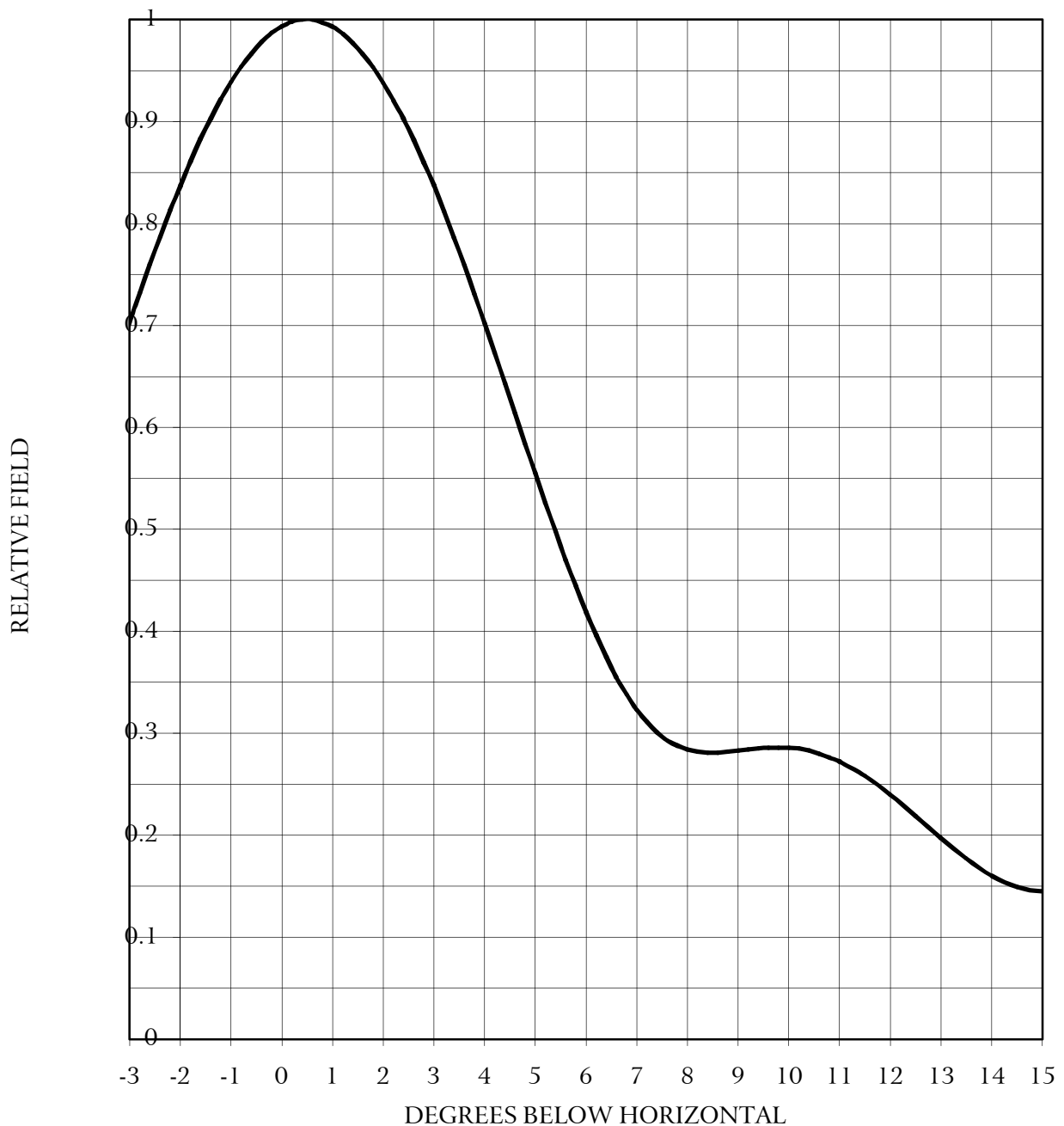
WMAB-DT  
MISSISSIPPI STATE, MISSISSIPI  
20080610  
EXHIBIT E2

# ELEVATION PATTERN

DIELECTRIC TW-7B10-R SM

RMS Gain at Main Lobe 7.0 (8.45dB)  
RMS Gain at Horizontal 6.9 (8.39dB)

Beam Tilt 0.50 deg  
Frequency 195.0 MHz



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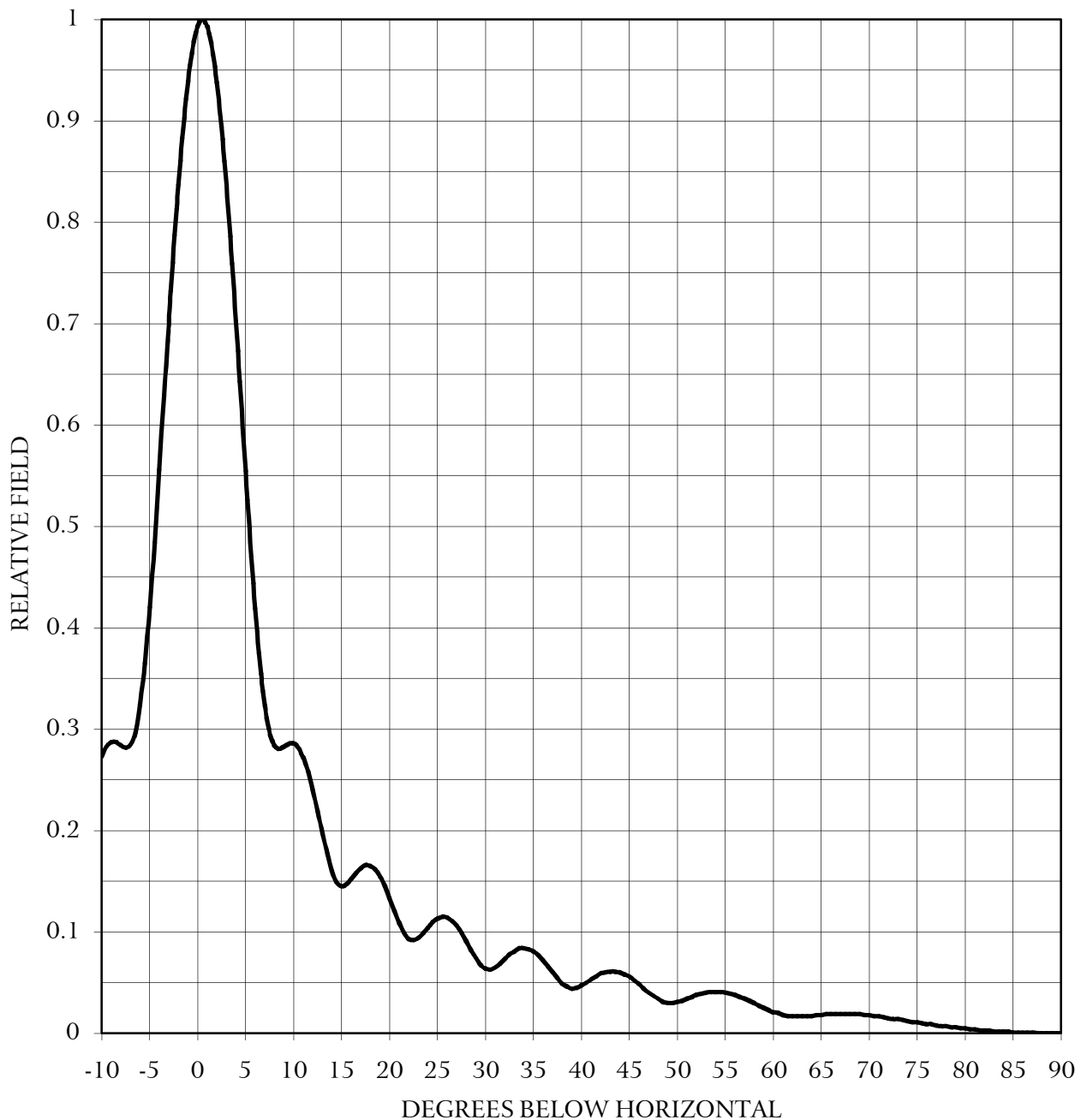
EXHIBIT 3A

# ELEVATION PATTERN

DIELECTRIC TW-7B10-R SM

RMS Gain at Main Lobe 7.0 (8.45dB)  
RMS Gain at Horizontal 6.9 (8.39dB)

Beam Tilt 0.50 deg  
Frequency 195.0 MHz



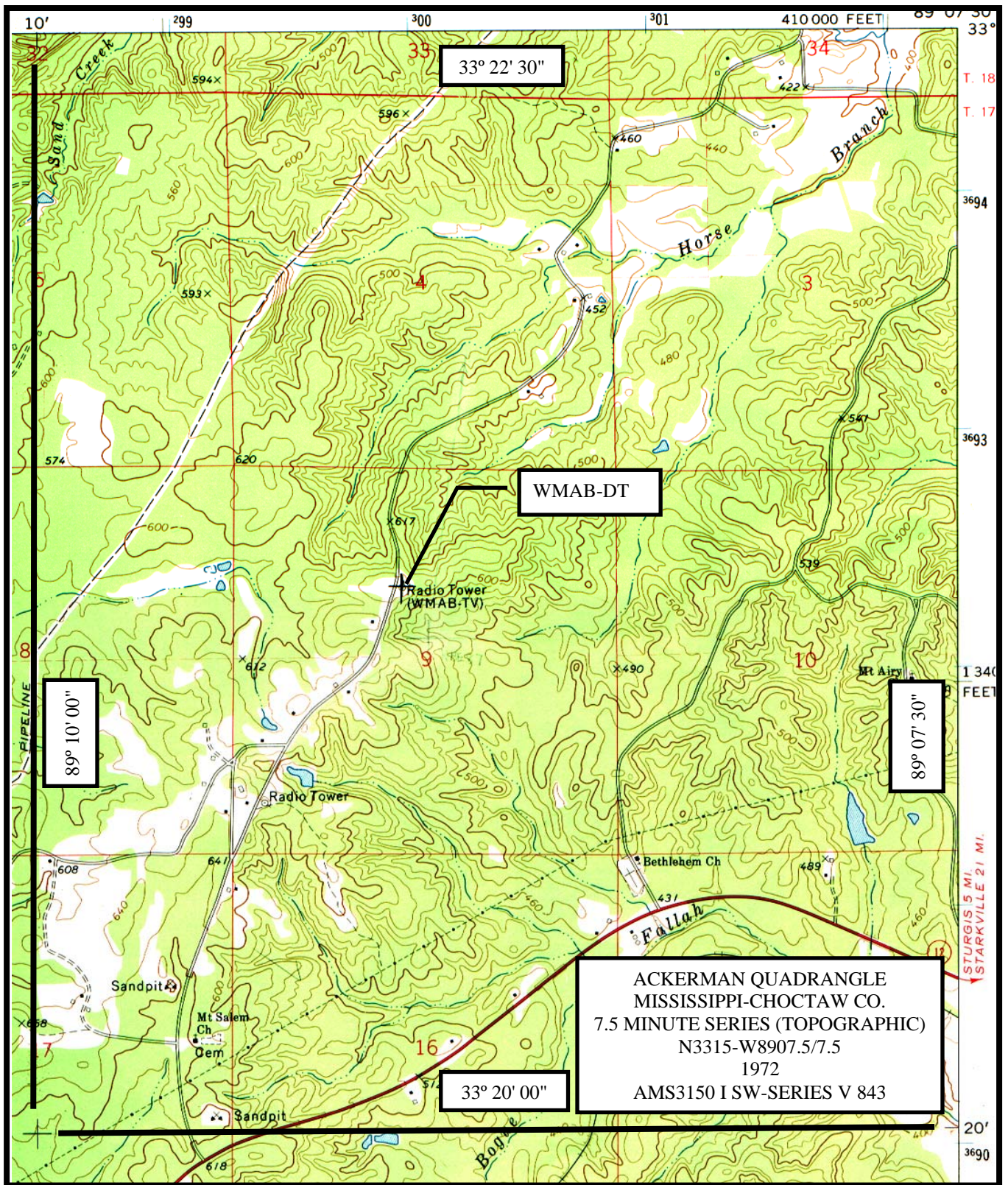
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EXHIBIT 3B





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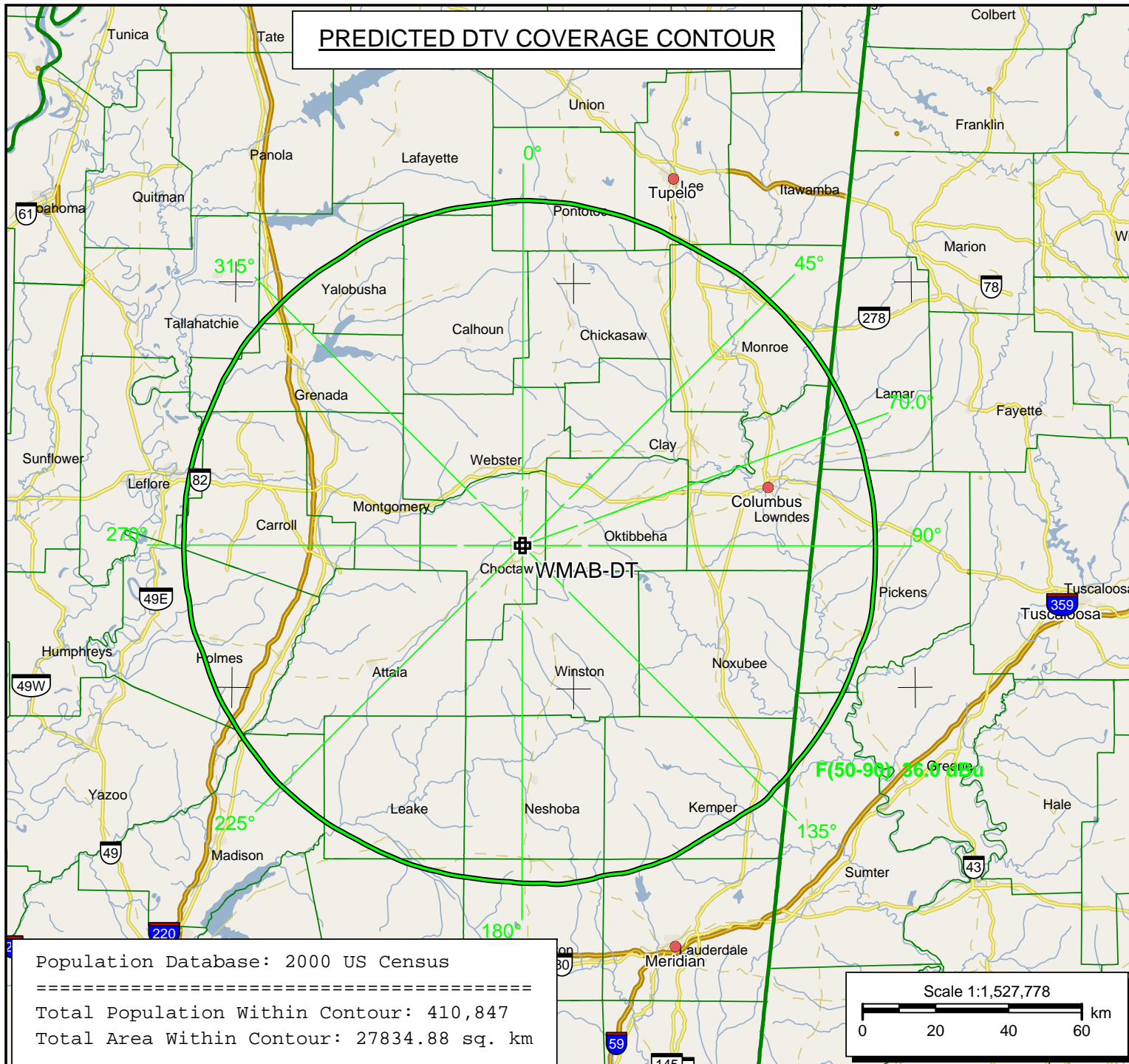
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EXHIBIT E4

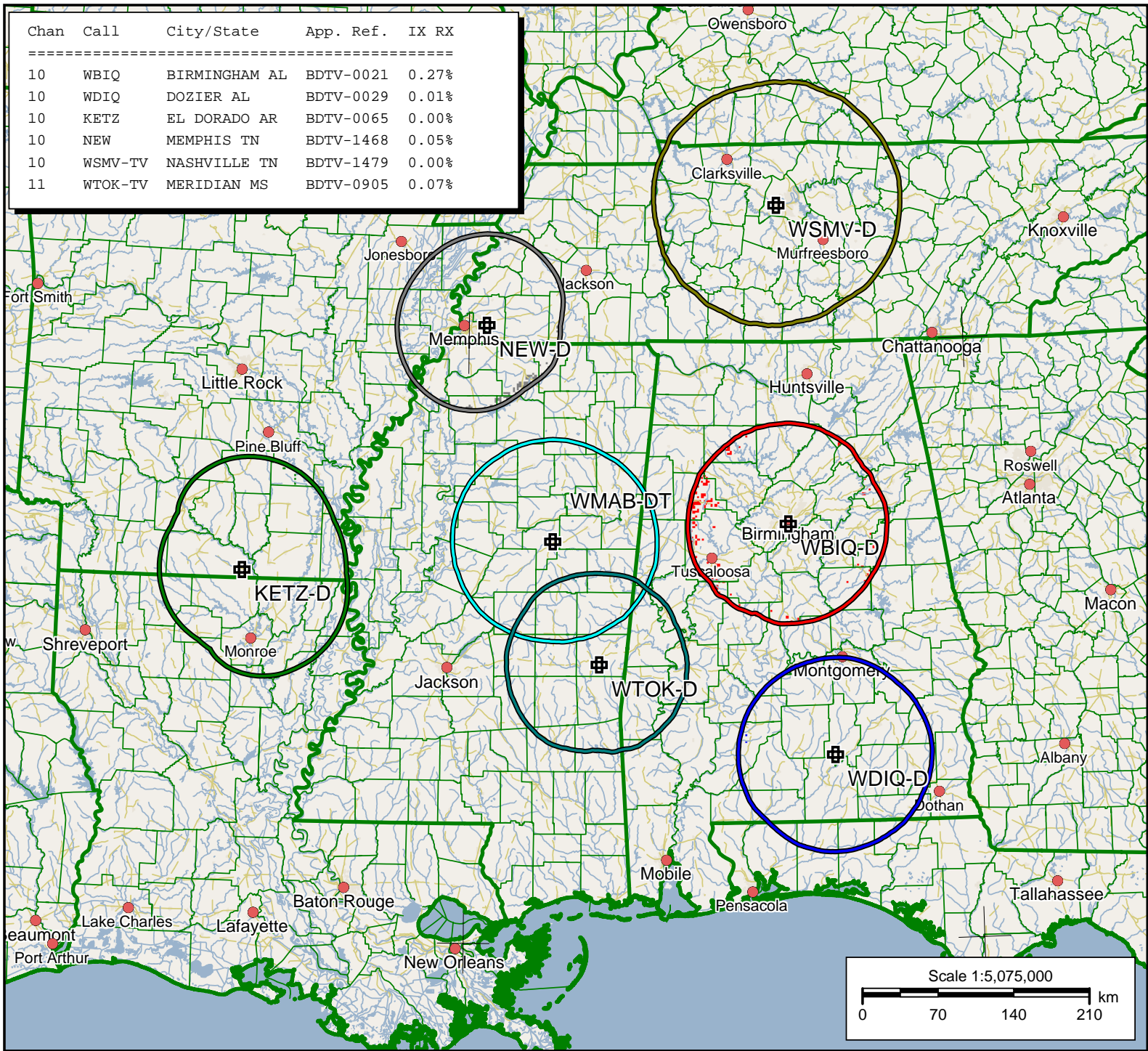




**WMAB-DT**  
MAXIMIZED  
Latitude: 33-21-14 N  
Longitude: 089-09-00 W  
ERP: 8.00 kW  
Channel: 10  
Frequency: 195.0 MHz  
AMSL Height: 491.0 m  
Elevation: 196.737 m  
Horiz. Pattern: Omni  
Vert. Pattern: Yes  
Elec Tilt: 0.0  
Prop Model: None

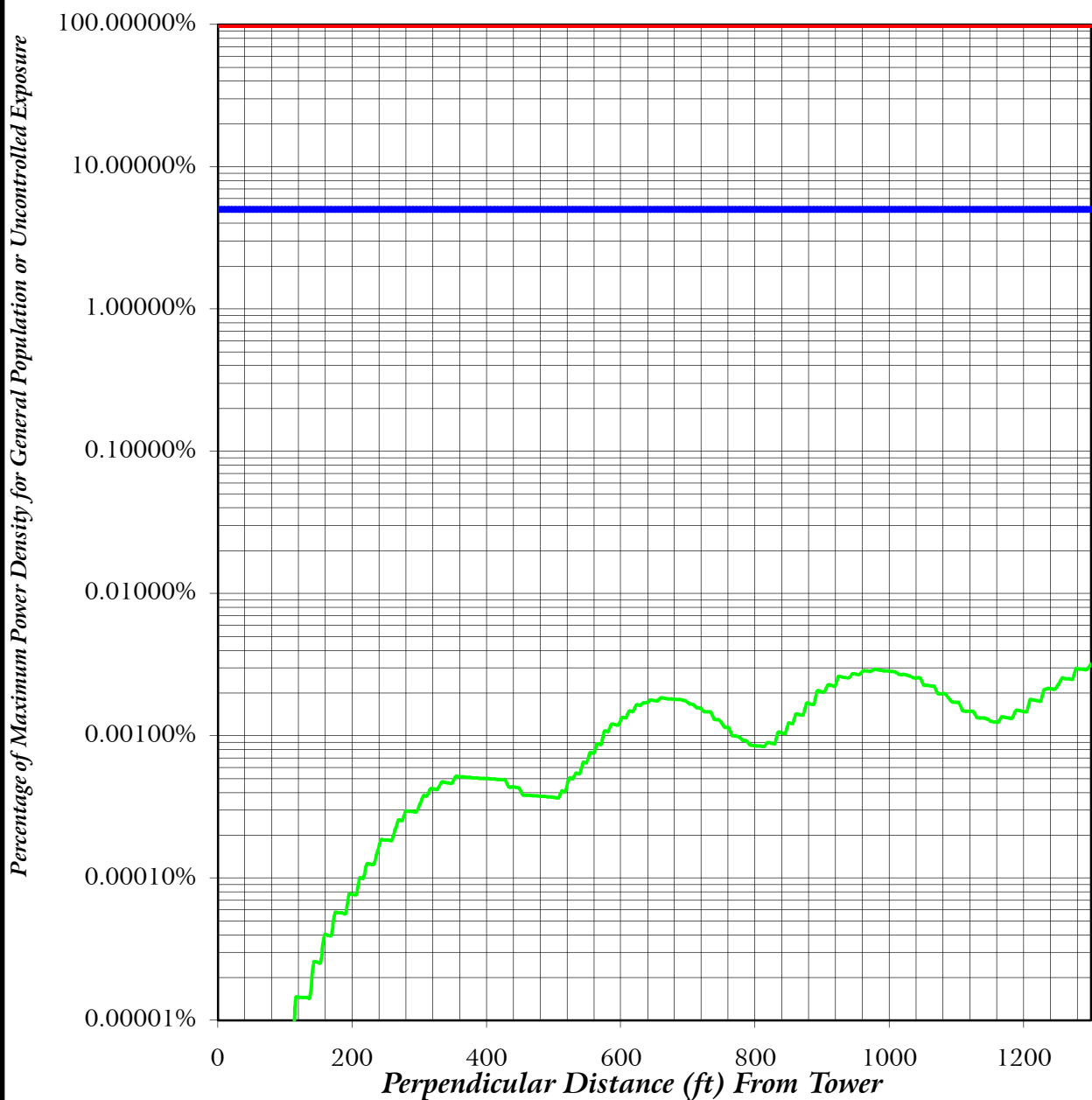
EXHIBIT E5

Chan	Call	City/State	App. Ref.	IX RX
10	WBIQ	BIRMINGHAM AL	BDTV-0021	0.27%
10	WDIQ	DOZIER AL	BDTV-0029	0.01%
10	KETZ	EL DORADO AR	BDTV-0065	0.00%
10	NEW	MEMPHIS TN	BDTV-1468	0.05%
10	WSMV-TV	NASHVILLE TN	BDTV-1479	0.00%
11	WTOK-TV	MERIDIAN MS	BDTV-0905	0.07%



**WMAB-DT**  
**MAXIMIZED**  
Latitude: 33-21-14 N  
Longitude: 089-09-00 W  
ERP: 8.00 kW  
Channel: 10  
Frequency: 195.0 MHz  
AMSL Height: 491.0 m  
Elevation: 196.74 m  
Horiz. Pattern: Omni  
Vert. Pattern: Yes  
Elec Tilt: 0.0  
Prop Model: Longley/Rice  
Climate: Cont temperate  
Conductivity: 0.0050  
Dielec Const: 15.0  
Refractivity: 301.0  
Receiver Ht AG: 10.0 m  
Receiver Gain: 0 dB  
Time Variability: 10.0%  
Sit. Variability: 50.0%  
ITM Mode: Broadcast

# 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:

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.