

**Kessler and Gehman Associates**  
Consultants • Broadcast • Wireless

# APPLICATION FOR A NEW FM AUXILIARY BROADCAST STATION FOR WMAB-FM

**Prepared For:**

Mississippi Authority for  
Educational Television  
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## **1.0 Executive Summary**

Kessler and Gehman Associates, Inc. has been authorized by Mississippi Authority for Educational Television, licensee of WMAB-FM to prepare a new FM auxiliary broadcast station for use when the main antenna is out-of-service for maintenance, repairs, or replacement.

## **2.0 Proposed Auxiliary Facility**

It is hereby proposed to side mount a Jampro JHPC-8R circularly polarized omnidirectional antenna at 680' (207.3m) AGL on the same support structure as the main antenna and operate it at 95kW ERP on occasions that the main antenna is down for maintenance.

## **3.0 Predicted Coverage Contour and Section 73.1675 Compliance**

Appendix A demonstrates the 1.0 mV/m contours of the proposed auxiliary facility and its associated main licensed<sup>1</sup> facility. The contours were generated in accordance with the method described in 47 CFR Section 73.313 utilizing the appropriate F(50,50) propagation curves, 36 evenly-spaced radials, and USGS 3 arc second terrain data.

Appendix A illustrates that the proposed auxiliary contour is 100% subsumed by the licensed contour and thus, complies with the coverage requirement of 47 CFR Section 73.1675(a)(1). As demonstrated, the proposed auxiliary facility shall substantially achieve its goal of providing comparable coverage to the main facility.

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<sup>1</sup> FCC File No.: BLED-20090707ACZ

## **4.0 National Environmental Policy Act (NEPA)**

### **4.1 General Environmental Requirements**

The proposed auxiliary antenna shall be side mounted on an existing tower having ASRN 1041039. The addition of the auxiliary antenna will not change the support structure overall height and thus FAA and FCC ASR modifications are not required. Since the existing structure has been previously accepted by the FAA and the FCC, it is thus presumed that the following screening criteria has already been mitigated:

- Require high intensity white lighting.
- Is not located in an official designated wilderness area or wildlife preserve.
- Does not threaten the existence or habitat of endangered species.
- Does not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture that are listed in the National Register of Historic Places or are eligible for listing.
- Does not affect Indian religious sites.
- Is not located in a floodplain
- Does not require construction that involves significant changes in surface features (e.g., wetland fill, deforestation, or water diversion).

### **4.2 Radio Frequency Radiation (RFR) Compliance.**

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 extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using 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.

The resulting RFR study in Appendix B demonstrates that the peak exposure is 3.30% of the most restrictive permissible exposure threshold. 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.

**5.0 Certification**

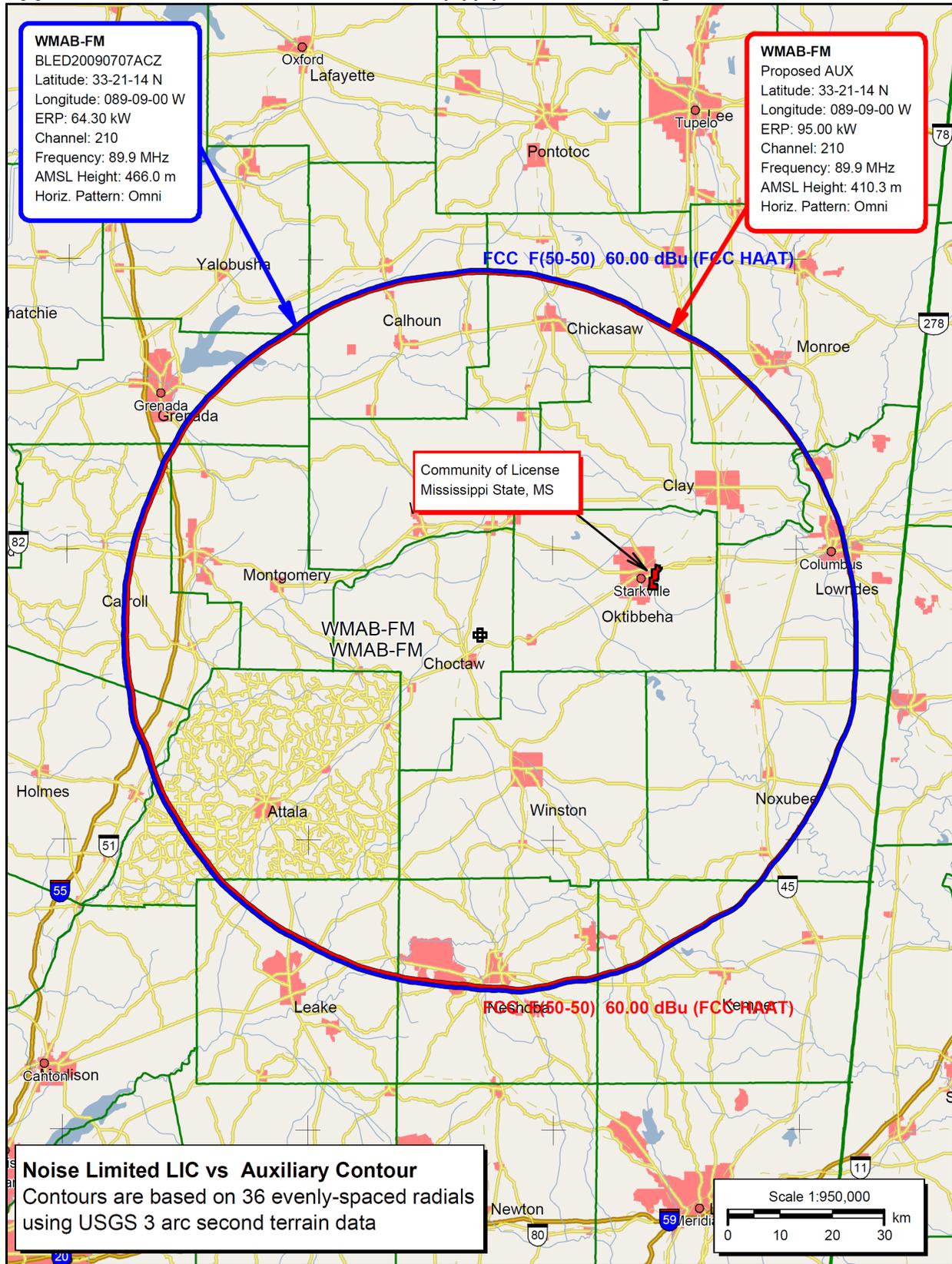
The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge.

Ryan Wilhour



Consulting Engineer  
October 25, 2022

Appendix A – 47 CFR Section 73.1675(a)(1) Contour Analysis



**WMAB-FM – Application for a New FM Auxiliary Broadcast Station***Mississippi State, MS*

<b>Azimuth</b>	<b>Licensed 1.0 mV/m Contour Distance in KM</b>	<b>AUX 1.0 mV/m Contour Distance in KM</b>	<b>Distance Licensed Contour Extends Beyond Aux in KM</b>
0	69.8	69.3	0.4
10	69.7	69.2	0.4
20	69.4	68.9	0.5
30	69.2	68.7	0.5
40	70.3	70.0	0.3
50	70.7	70.4	0.3
60	71.4	71.2	0.2
70	71.8	71.6	0.2
80	71.8	71.7	0.1
90	71.9	71.8	0.1
100	72.6	72.5	0.1
102	72.7	72.6	0.1
110	71.8	71.7	0.1
120	71.6	71.4	0.2
130	71.3	71.1	0.2
140	70.5	70.2	0.3
150	69.6	69.2	0.4
160	69.4	68.9	0.5
170	68.7	68.1	0.6
180	67.9	67.2	0.7
190	67.6	66.9	0.7
200	68.0	67.3	0.6
210	67.9	67.2	0.6
220	68.4	67.8	0.6
230	68.3	67.7	0.6
240	68.2	67.6	0.6
250	67.8	67.1	0.7
260	67.9	67.3	0.6
270	68.2	67.5	0.6
280	68.5	67.9	0.6
290	68.6	68.0	0.6
300	69.0	68.5	0.5
310	69.2	68.7	0.5
320	69.0	68.4	0.5
330	68.9	68.3	0.5
340	69.4	68.9	0.5
350	69.4	68.9	0.5

Appendix B – Far Field Exposure to RF Emissions

