



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

# APPLICATION FOR A NEW TELEVISION AUXILIARY BROADCAST STATION

**CALL SIGN: WEBA-TV**  
**FACILITY ID: 61003**  
**LOCATION: ALLENDALE, SC**

## **Prepared For:**

South Carolina Educational  
Television Commission  
1041 George Rogers Boulevard  
Columbia, SC 29201

## **Prepared By:**

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September 14, 2023

## **1.0 BACKGROUND AND DISCUSSION**

Kessler and Gehman Associates, Inc. has been retained by South Carolina Educational TV Commission, licensee of full-power television broadcast station WEBA-TV to prepare a new broadcast auxiliary facility for emergency, maintenance, and test operations. It is proposed to co-located a Dielectric antenna having model number TFU-8WB-R C160 on the same support structure as the main facility at 352' (107.3m) AGL with an effective radiated power of 15.0 kW.

## **2.0 ALLOCATION ANALYSIS**

Appendix A demonstrates that the proposed broadcast auxiliary facility has a service contour which is 100 percent subsumed by the license WEBA-TV contour as required by 47 C.F.R Section 73.1675. The broadcast auxiliary facility shall also provide Section 73.625 48-dB $\mu$ V/m F(50,90) principal community coverage to the entire Allendale, SC incorporated boundaries. The Appendix A predicted coverage contours were generated using V-Soft Probe-5 software in accordance with § 73.625(b) methodology using F(50,90) propagation curves. The average terrain was extracted from three arc second terrain along eight equally spaced cardinal radials from 3 kilometers to 16 kilometers from the site and beginning from true north.

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

### **3.1 General Environmental Requirements**

The proposed antenna is to be side mounted to an existing tower which is registered with the FAA and FCC and will not require modification since there is no change in overall height. 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).

### 3.2 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 0.089% 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 considered. The instant application is compliant with the FCC limits for human exposure to RF radiation and is excluded from further environmental processing since no changes are proposed to the tower structure in order to accommodate the proposed antenna.

#### **4.0 CERTIFICATION**

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

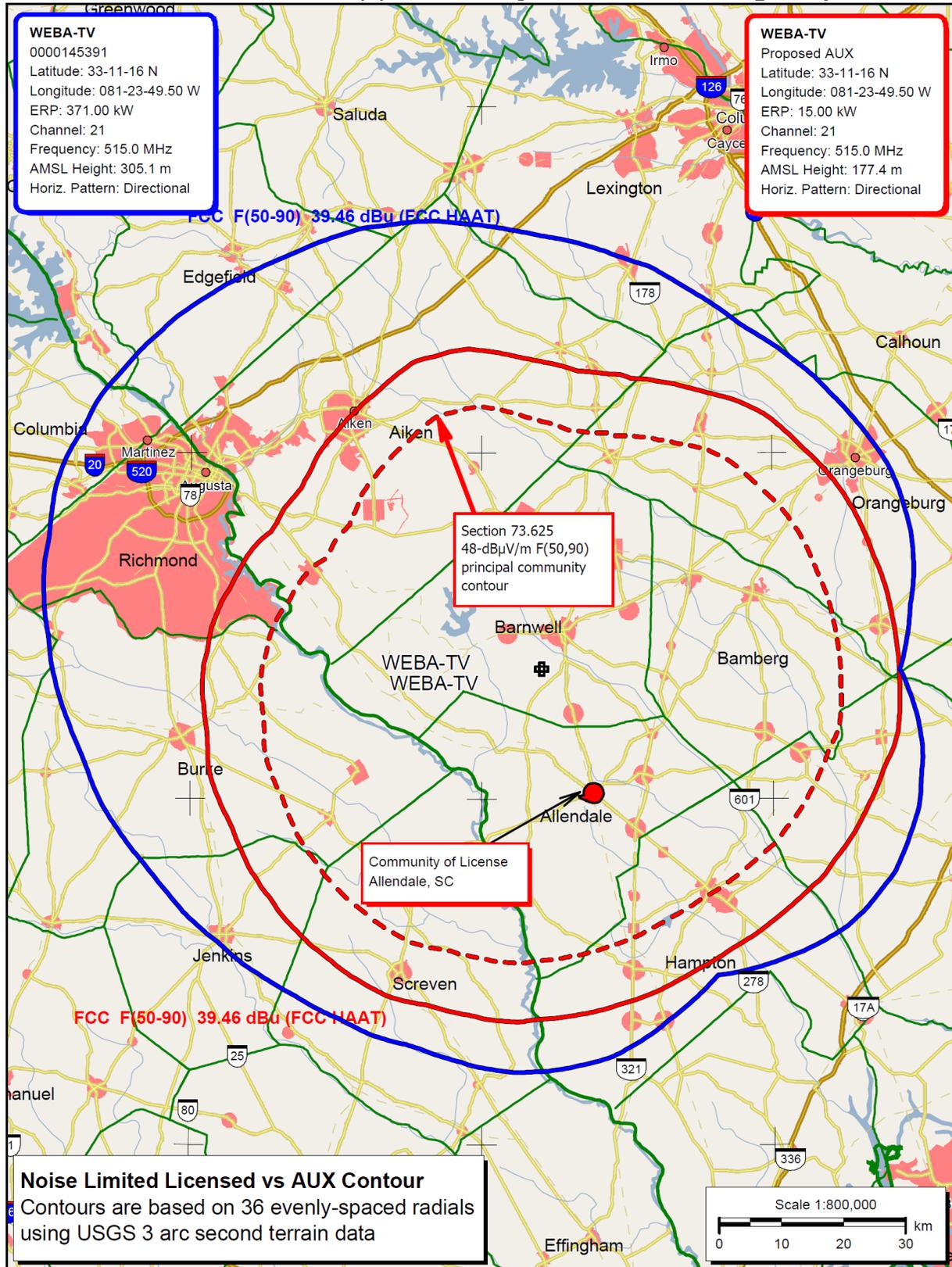
Ryan Wilhour



Consulting Engineer

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APPENDIX A – Section 73.625(a) Community of License Coverage Map



APPENDIX B – Far Field Exposure to RF Emissions

FAR FIELD EXPOSURE TO RF EMISSIONS

