



Kessler and Gehman Associates
Consultants • Broadcast • Wireless

**APPLICATION
FOR A NEW FM
AUXILIARY
BROADCAST
STATION FOR
WN5C(FM)**

Prepared For:

South Carolina Educational
TV Commission
1041 George Rogers Boulevard
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1.0 Executive Summary

Kessler and Gehman Associates, Inc. has been authorized by South Carolina Educational TV Commission (SCETV), licensee of WNSC(FM) to prepare the instant application and associated exhibits in support of an application for construction permit for a new auxiliary FM broadcast station.

2.0 Proposed Auxiliary Facility

SCETV seeks authorization for a new auxiliary facility with an ERP of 19.47kW at a HAAT of 132 m on channel 205 located at ASR 1059182. The facility will utilize a side mount Dielectric DCR-2M circularly polarized omni-directional 2 bay antenna with a full 1 wavelength spacing.

3.0 Predicted Coverage Contour

Appendix A demonstrates the predicted noise limited coverage contours of the proposed auxiliary facility and its associated main licensed¹ 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 clearly 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)(ii). The instant auxiliary facility shall substantially achieve its goal of providing comparable coverage to its viewers when necessary to use the proposed auxiliary facility.

¹ FCC File No.: BMLED-20060215AAK

4.0 National Environmental Policy Act (NEPA)

4.1 General Environmental Requirements

The proposed auxiliary antenna shall be mounted on the same tower as the main antenna. 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 8.55% of the most restrictive permissible exposure threshold. Pursuant to OET Bulletin 65 concerning multiple-user transmitters that produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR and require a cumulative study including all emitters in the proximity of the proposed transmitter site. The proposed facility is in a complex RF environment and is beyond the scope of theoretical calculations to formulate the cumulative effect. Individually the proposed facility has no significant effect on human exposure and cumulatively it is very unlikely to have a significant effect. It is believed that the facility should be excluded from environmental processing.

5.0 Certification

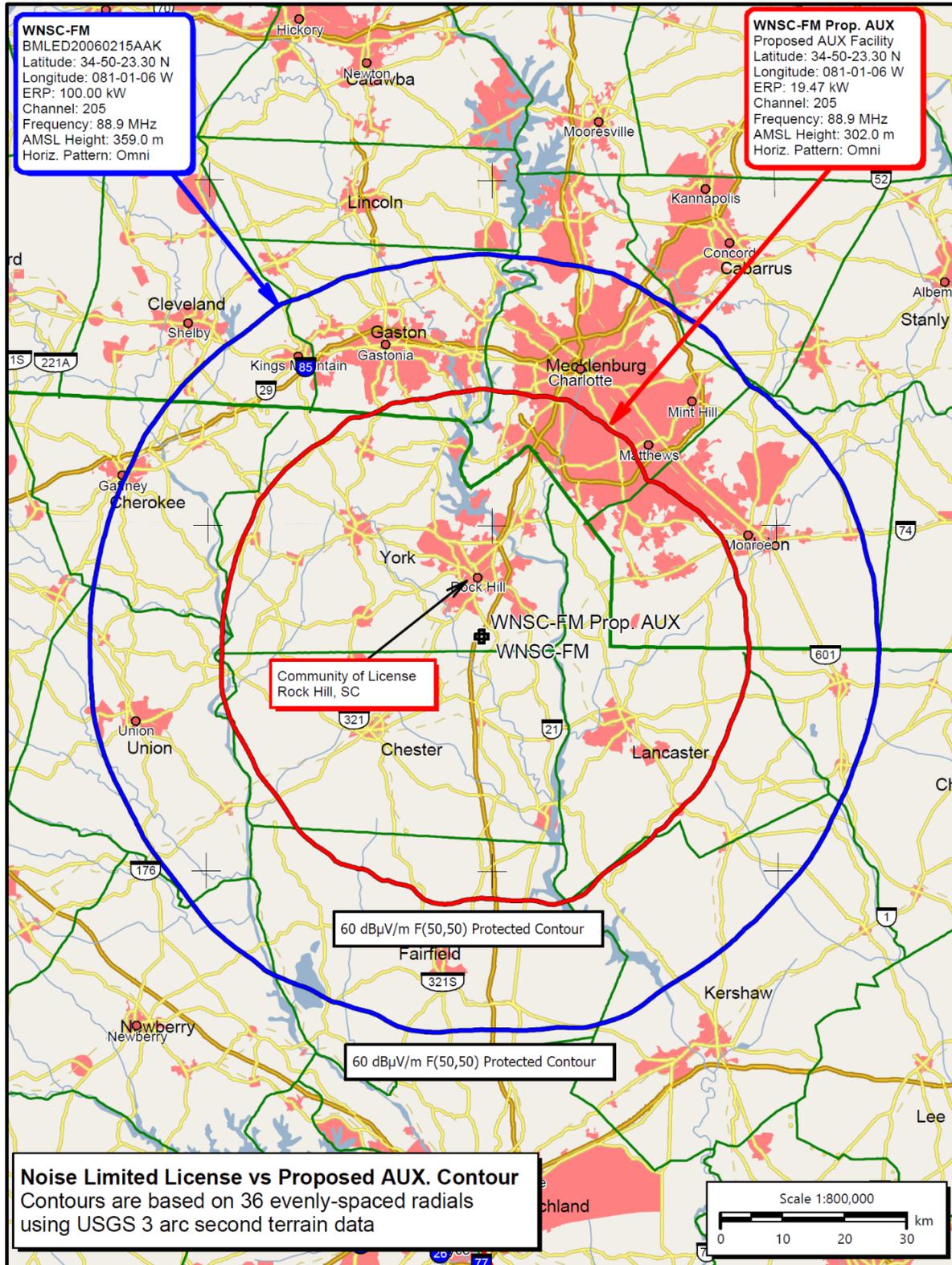
The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge.

Ryan Wilhour



Consulting Engineer
February 2, 2024

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



Appendix B – Far Field Exposure to RF Emissions

