



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

# MINOR MODIFICATION TO A LICENSED TELEVISION BROADCAST STATION

**CALL SIGN: WNEH-TV**  
**FACILITY ID: 60931**  
**FCC FILE NO.: 0000081201**  
**LOCATION: GREENWOOD, SC**

## **Prepared For:**

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

## **Prepared By:**

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October 9, 2019

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## **1.0 MINOR MODIFICATION APPLICATION**

South Carolina Educational TV Commission is the licensee of a television broadcast station having call sign WNEH-TV facility ID 60931. It is herein proposed to increase the ERP from 147kW to 176kW and replace the licensed top mounted horizontally polarized omni directional antenna with a similar model capable of elliptical polarization.

Pursuant to 47 CFR § 73.3572 the instant application is considered a minor modification since:

- No change in frequency is proposed
- No change in community of licensed is proposed

## **2.0 ALLOCATION ANALYSIS**

Appendix B are the summarized results from TVStudy V2.2.5 which illustrates that there are no interference failures.

## **3.0 § 73.683 AND § 73.625 PREDICTED CONTOURS**

Appendix C illustrates the § 73.683 predicted F(50,90) 40.0 dBμV/m noise limited protected contour and the § 73.625 predicted F(50,90) 48.0 dBμV/m principal community coverage contour. As illustrated the 48 dBμV/m contour completely subsumes the principal community of license as required.

The Appendix C predicted coverage contours were generated using V-Soft Probe-3<sup>1</sup> 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.

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<sup>1</sup> Version 3.101

#### **4.0 RADIO FREQUENCY RADIATION 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<sup>2</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.

The resulting RFR study in Appendix D demonstrates that the peak exposure is 0.25% 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

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<sup>2</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.

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. 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.

A chain link fence encloses the support structure and 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 to protect maintenance workers on the tower.

## **5.0 CERTIFICATION**

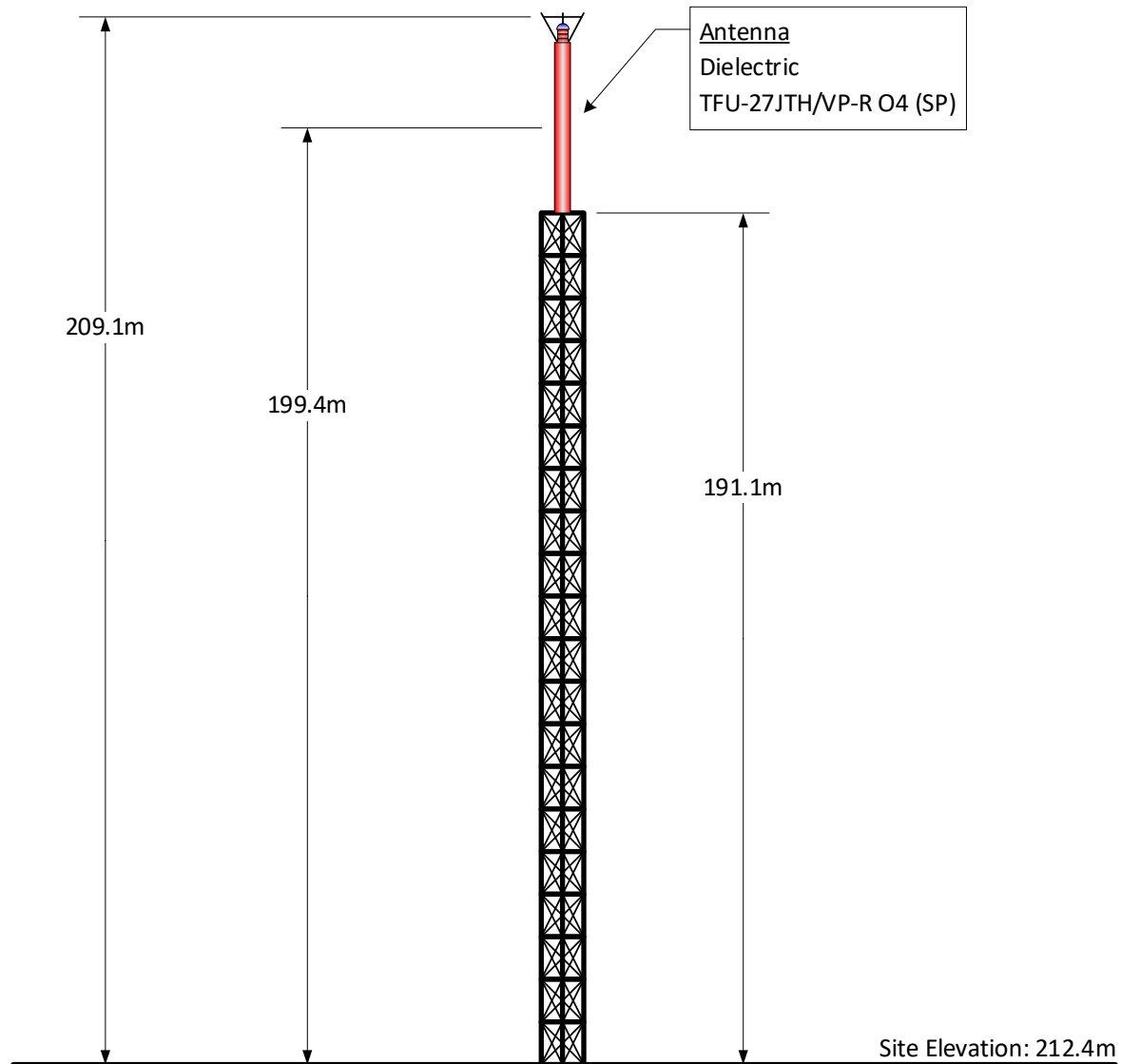
The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on October 9, 2019

Ryan Wilhour



Consulting Engineer

## APPENDIX A – Tower Elevation Profile



Antenna CRAGL:	199.4 m
Antenna CRAMSL:	411.8 m
Antenna HAAT:	234.4 m

NOTE: NOT TO SCALE

NAD 83 Coordinates:	
N. Latitude:	34° 22' 19.9"
W. Longitude:	82° 10' 03.9"

FCC Tower Registration Number: 1059185

FAA Study Number 2004-ASO-3230-OE

## APPENDIX B – TVStudy V2.2.5 Allocation Analysis

Study created: 2019.10.09 14:12:45  
Study build station data: LMS TV 2019-10-08  
Proposal: WNEH D26 DT LIC GREENWOOD, SC  
File number: WNEH Proposed  
Facility ID: 60931  
Station data: User record  
Record ID: 4258  
Country: U.S.  
Zone: II  
Search options:  
Non-U.S. records included  
Baseline record excluded if station has CP  
Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WATL	D25	DT	LIC	ATLANTA, GA	BLCDT20020716AAH	209.5 km
Yes	WJZY	D25	DT	LIC	BELMONT, NC	BLANK0000081702	143.7
No	WZRB	D25	DT	LIC	COLUMBIA, SC	BLANK0000081456	113.6
No	WTJP-TV	D26	DT	LIC	GADSDEN, AL	BLCDT20110304ACB	398.8
No	WYBU-CD	D26	DC	CP	COLUMBUS, GA	BLANK0000025321	341.5
Yes	WGXA	D26	DT	LIC	MACON, GA	BLANK0000074961	221.7
Yes	WGPX-TV	D26	DT	LIC	BURLINGTON, NC	BLANK0000081829	269.3
Yes	WWMB	D26	DT	CP	FLORENCE, SC	BLANK0000034332	260.3
Yes	WTGS	D26	DT	CP	HARDEEVILLE, SC	BLANK0000027450	269.7
Yes	WATE-TV	D26	DT	LIC	KNOXVILLE, TN	BMLCDT20041203AEG	242.6
No	WAGA-TV	D27	DT	LIC	ATLANTA, GA	BLCDT20060728AEL	209.4
Yes	WUNW	D27	DD	APP	CANTON, NC	BLANK0000036076	149.1
Yes	WUNW	D27	DT	CP	CANTON, NC	BLANK0000035959	149.1
Yes	WUNW	D27	DT	LIC	CANTON, NC	BLEDT20110921AAA	149.1
No	WGTE-CD	D27	DC	CP	CHARLOTTE, NC	BLANK0000080004	143.7
No	WPDE-TV	D27	DT	CP	FLORENCE, SC	BLANK0000034379	260.3

No non-directional AM stations found within 0.8 km  
No directional AM stations found within 3.2 km  
Record parameters as studied:

Channel: D26  
Latitude: 34 22 19.90 N (NAD83)  
Longitude: 82 10 3.90 W  
Height AMSL: 411.8 m  
HAAT: 234.4 m  
Peak ERP: 176 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 0.50

40.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	176 kW	227.8 m	76.9 km
45.0	176	229.0	76.9
90.0	176	242.6	77.9
135.0	176	259.8	79.3
180.0	176	243.4	78.0
225.0	176	235.9	77.5
270.0	176	225.6	76.7
315.0	176	210.7	75.6

Distance to Canadian border: 812.1 km  
Distance to Mexican border: 1694.6 km  
Conditions at FCC monitoring station: Powder Springs GA  
Bearing: 257.2 degrees Distance: 241.9 km  
Proposal is not within the West Virginia quiet zone area  
Conditions at Table Mountain receiving zone:  
Bearing: 294.2 degrees Distance: 2130.7 km

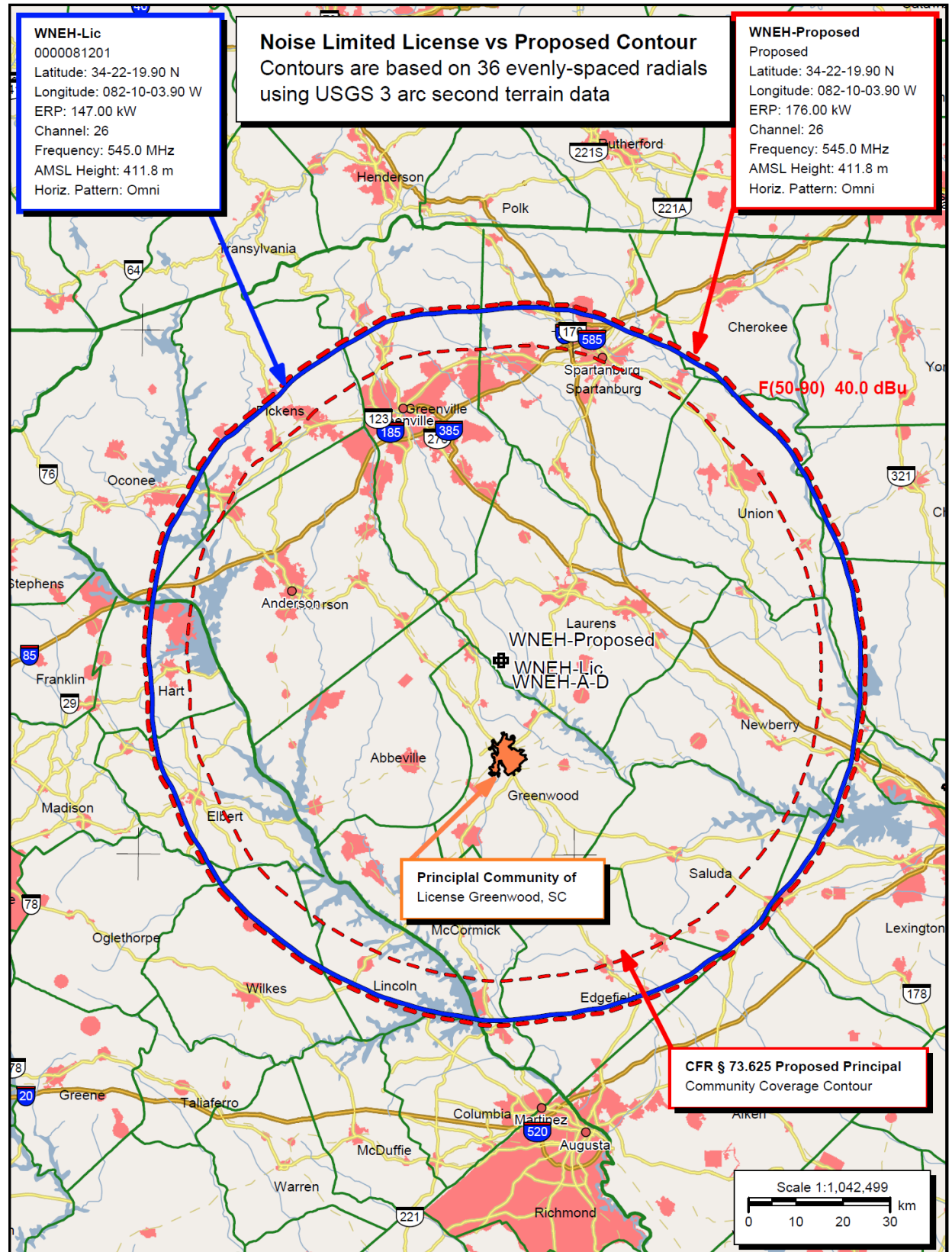
Study cell size: 2.00 km  
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%  
Maximum new IX to LPTV: 2.00%

---- Below is IX received by proposal WNEH Proposed ----

Proposal receives 1.04% interference from scenario 1  
No IX check failures found.

**APPENDIX C – Section 73.683 and 73.625 Predicted Contours**





## APPENDIX D – Far Field Exposure to RF Emissions

