Kessler and Gehman Associates
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MINOR MODIFICATION TO A LICENSED TELEVISION BROADCAST STATION

CALL SIGN: WRJA-TV
FACILITY ID: 61012
FCC FILE NO.: 0000081209
LOCATION: SUMTER, SC

Prepared For:

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

Prepared By:

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November 9, 2020

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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 WRJA-TV facility ID 61012. It is herein proposed to increase the ERP from 109 kW to 167kW. No other changes are proposed.

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 § 73.625 PREDICTED CONTOURS

Appendix C illustrates the § 73.625 predicted F(50,90) 40.23 dBµV/m dipole adjusted noise limited protected contour and the 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-5[1] 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.

[1] Version 5.15

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[2] 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 0.011% 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

[2] 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.

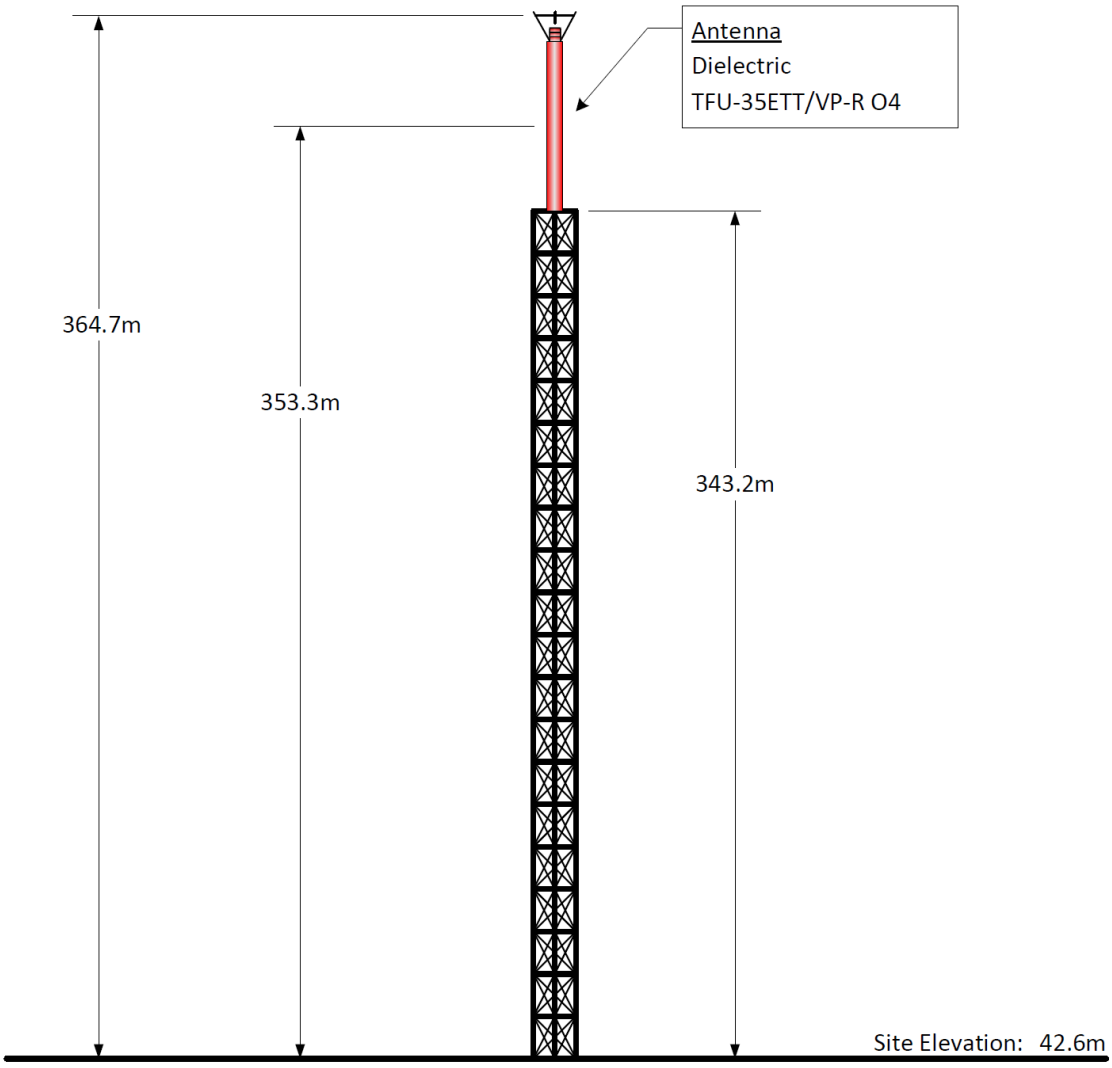
5.0 CERTIFICATION

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on November 9, 2020

Ryan Wilhour

Consulting Engineer

APPENDIX A – Tower Elevation Profile



Antenna CRAGL:	353.3 m
Antenna CRAMSL:	395.9 m
Antenna HAAT:	354.6 m

NOTE: NOT TO SCALE

NAD 83 Coordinates:	
N. Latitude:	33° 52' 52.0"
W. Longitude:	80° 16' 14.0"
FCC Tower Registration Number:	1059184
FAA Study Number	1998-ASO-3346-OE

APPENDIX B – TVStudy V2.2.5 Allocation Analysis

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Study created: 2020.11.09 11:41:18

Study build station data: LMS TV 2020-11-06

    Proposal: WRJA-TV D29 DT LIC SUMTER, SC
 File number: WRJA Maximized
 Facility ID: 61012
Station data: User record
   Record ID: 92
     Country: U.S.
        Zone: II

Stations potentially affected by proposal:

IX   Call      Chan       Svc Status  City, State              File Number            Distance
Yes  WJBF      D28        DT  LIC     AUGUSTA, GA              BLANK0000116201        154.0 km
No   WRDC      D28        DT  LIC     DURHAM, NC               BLANK0000125061        254.8
No   WMYV      D28        DT  LIC     GREENSBORO, NC           BLANK0000119626        224.5
Yes  WHMC      D28        DT  LIC     CONWAY, SC               BLANK0000115805        107.5
No   WYGA-CD   D29        DC  LIC     ATLANTA, GA              BLANK0000081313        377.9
No   WUND-TV   D29        DT  CP      EDENTON, NC              BLANK0000025090        422.3
No   WUND-TV   D29        DT  BL      EDENTON, NC              DTVBL69292             422.3
Yes  WSFX-TV   D29        DT  LIC     WILMINGTON, NC           BLANK0000111706        193.9
Yes  WXLV-TV   D29        DT  LIC     WINSTON-SALEM, NC        BLCDT20050624ABB       224.5
No   WKOP-TV   D29        DT  LIC     KNOXVILLE, TN            BLANK0000081273        409.9
No   WCVW      D29        DT  LIC     RICHMOND, VA             BLANK0000112380        470.0
No   WAGT-CD   D30        DC  LIC     AUGUSTA, GA              BLANK0000063630        154.0
No   WUNU      D30        DT  LIC     LUMBERTON, NC            BLANK0000114990        151.8
No   WYFF      D30        DT  LIC     GREENVILLE, SC           BLANK0000081030        254.0

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

    Channel: D29
   Latitude:  33 52 52.00 N (NAD83)
  Longitude:  80 16 14.00 W
Height AMSL: 395.9 m
       HAAT: 354.6 m
   Peak ERP: 167 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 1.05

40.2 dBu contour:
Azimuth      ERP        HAAT   Distance
  0.0 deg    167 kW   352.5 m   88.7 km
 45.0        167      358.4     89.3
 90.0        167      360.6     89.5
135.0        167      357.5     89.2
180.0        167      358.7     89.3
225.0        167      348.2     88.3
270.0        167      354.4     88.9
315.0        167      346.3     88.1

Distance to Canadian border: 886.3 km
Distance to Mexican border: 1825.7 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 271.0 degrees   Distance: 411.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 294.7 degrees   Distance: 2312.2 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 WRJA Maximized ----

Proposal receives 1.43% interference from scenario 1
No IX check failures found.
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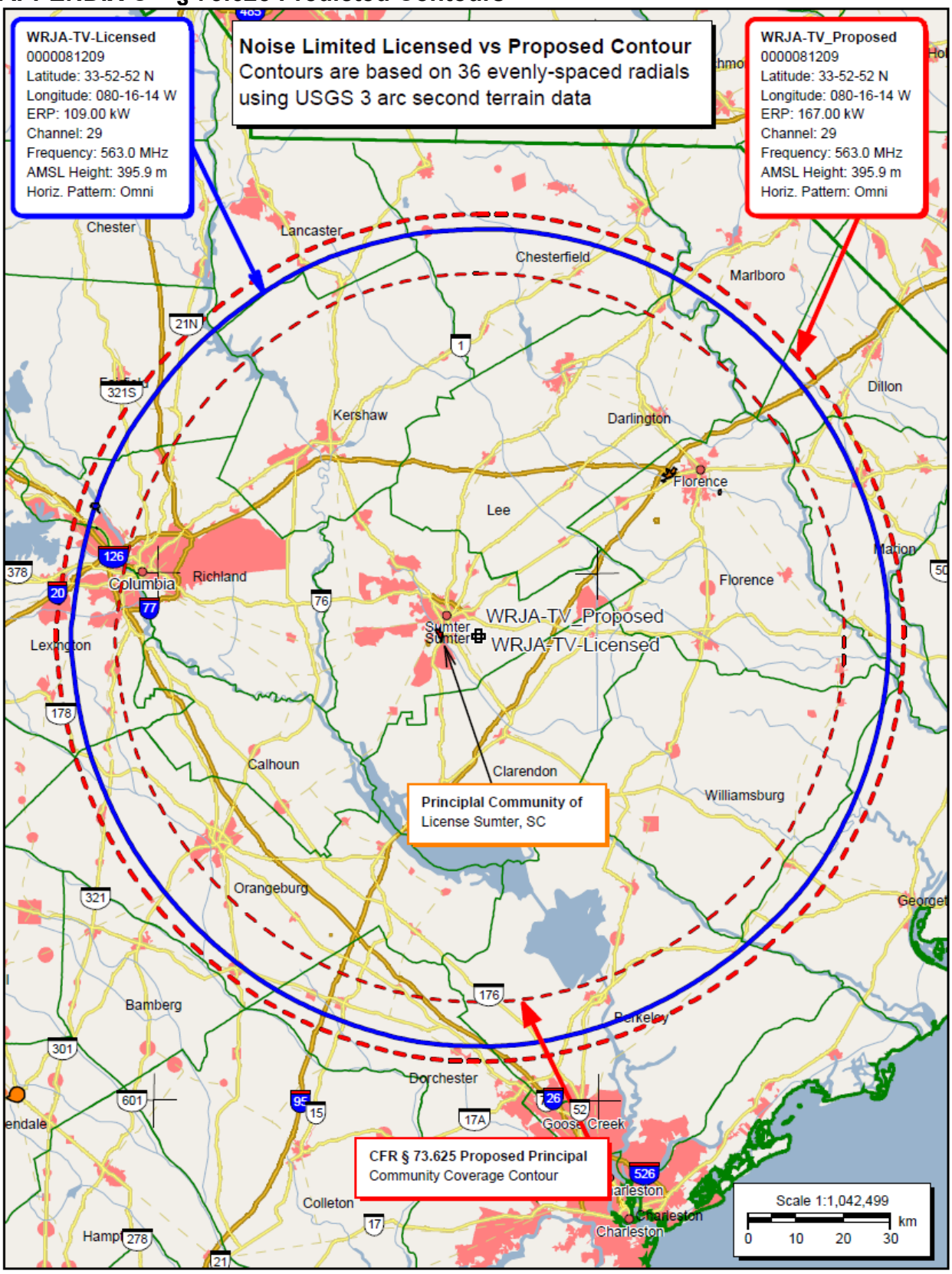
APPENDIX C – § 73.625 Predicted Contours



APPENDIX D – Far Field Exposure to RF Emissions