Kessler and Gehman Associates
Consultants • Broadcast • Wireless

MINOR MODIFICATION TO A CONTRUCTION PERMITTED TELEVISION BROADCAST STATION

CALL SIGN: WRJA-TV
FACILITY ID: 61012
FCC FILE NO.: 0000127547
LOCATION: SUMTER, SC

Prepared For:

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

Prepared By:

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February 3, 2021

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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 decrease the ERP from 167 kW to 158.8kW. 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 5.19

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.

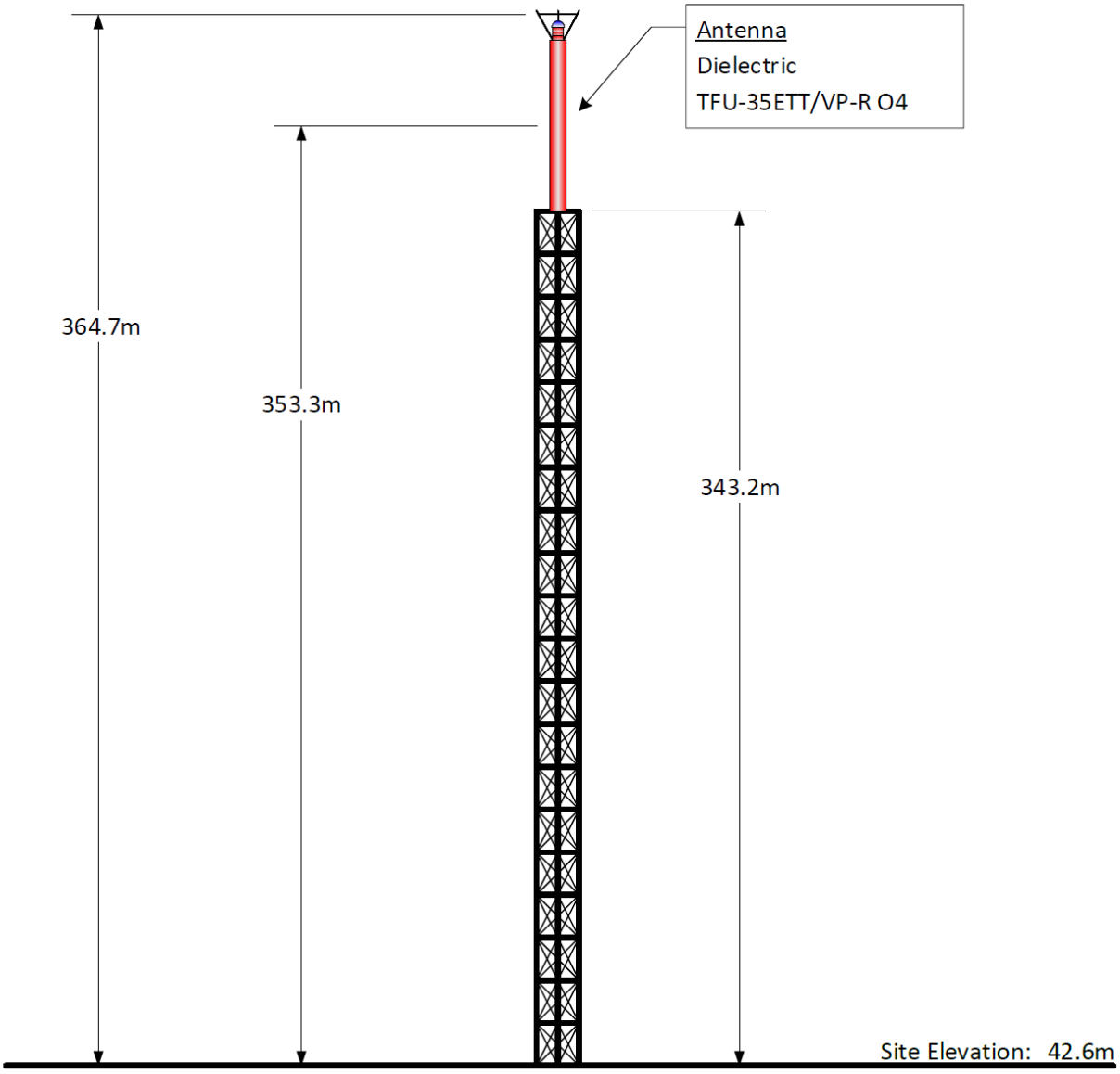
5.0 CERTIFICATION

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on February 3, 2021

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:	105918
FAA Study Number	2003-ASO-5460-O

APPENDIX B – TVStudy V2.2.5 Allocation Analysis

```
Study created: 2021.02.03 12:40:03
Study build station data: LMS TV 2021-02-03
    Proposal: WRJA-TV D29 DT CP SUMTER, SC
 File number: WRJA Proposed
 Facility ID: 61012
Station data: User record
   Record ID: 734
     Country: U.S.
        Zone: II
Search options:
Non-U.S. records included
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	WMYV	D28	DT	LIC	GREENSBORO, NC	BLANK0000119626	224.5
Yes	WHMC	D28	DT	LIC	CONWAY, SC	BLANK0000115805	107.5
No	WFXL	D29	DT	APP	ALBANY, GA	BLANK0000127633	439.7
No	WYGA-CD	D29	DC	CP	ATLANTA, GA	BLANK0000127583	377.9
No	WYGA-CD	D29	DC	LIC	ATLANTA, GA	BLANK0000081313	377.9
No	WUND-TV	D29	DT	LIC	EDENTON, NC	BLANK0000132286	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	W30CV-D	D30	DC	CP	HILTON HEAD ISLAND, SC	BLANK0000127486	191.7

```
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: 159 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 1.05

40.2 dBu contour:
```

Azimuth	ERP	HAAT	Distance
0.0 deg	159 kW	352.5 m	88.4 km
45.0	159	358.4	88.9
90.0	159	360.6	89.1
135.0	159	357.5	88.8
180.0	159	358.7	88.9
225.0	159	348.2	87.9
270.0	159	354.4	88.5
315.0	159	346.3	87.7

```
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 Proposed ----

Proposal receives 1.39% interference from scenario 1
No IX check failures found.
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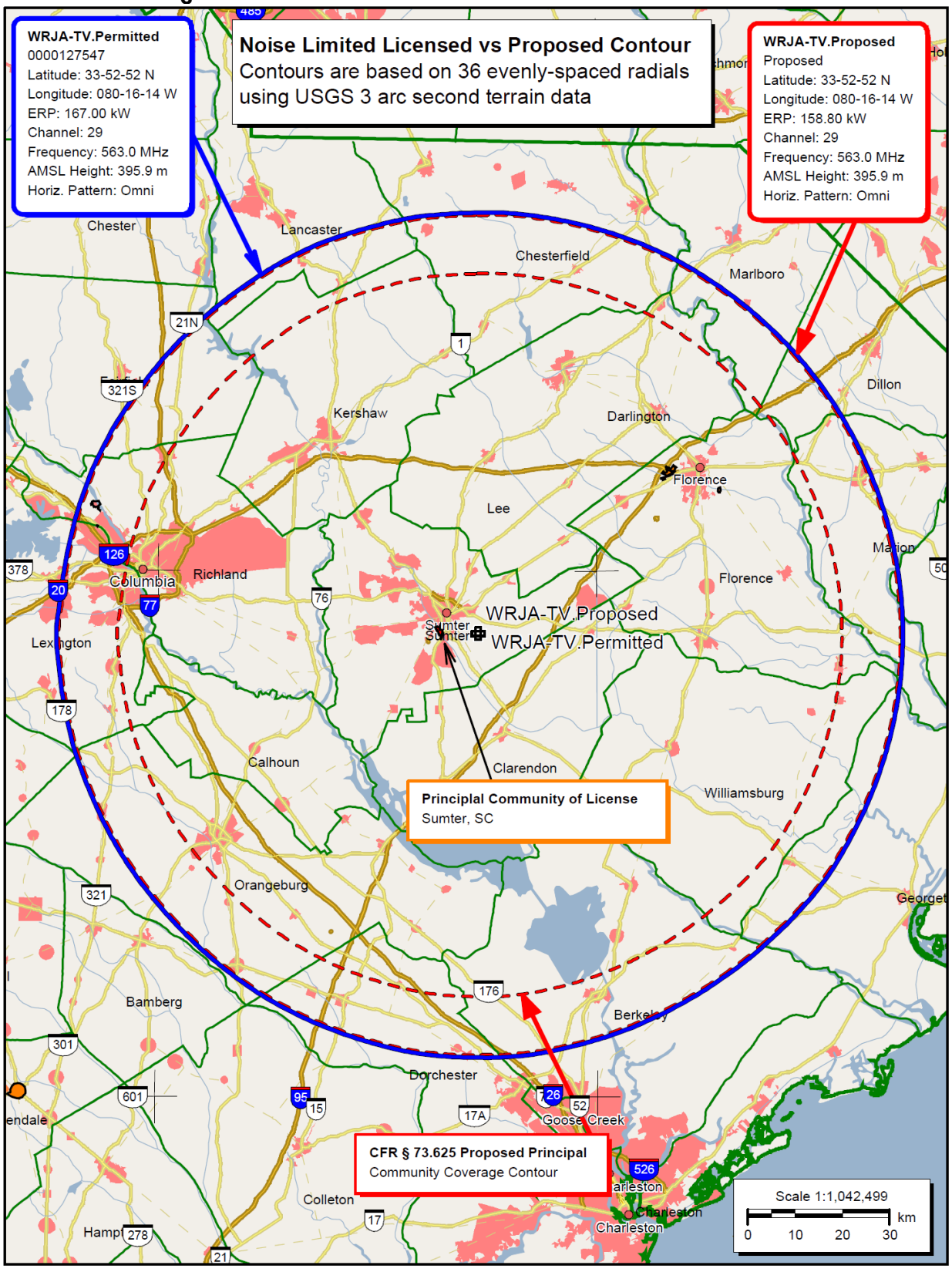
APPENDIX C – § 73.625 Predicted Contours



APPENDIX D – Far Field Exposure to RF Emissions