

ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR. OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS ON BEHALF OF BLUE RIDGE PUBLIC TELEVISION, INC. (“BRPTV”), LICENSEE OF WBRA-TV (FILE NO. 0000047419) IN SUPPORT OF A MINOR MODIFICATION OF A LICENSED FACILITY FOR DTV APPLICATION (FACILITY ID 5981).

SUMMARY

BRPTV is licensed to operate the WBRA-TV full-service digital television broadcast facility (Facility ID 5981) on reserved low-band VHF Channel *3 with an ERP of 9.8 kW using a nondirectional antenna with an antenna height radiation center of 55.0 m AGL serving Roanoke, VA (File No. 0000047419). BRPTV filed a Petition for Rulemaking requesting the substitution of high-band VHF channel *13 in place of low-band VHF channel *3 at Roanoke, VA in the Table of TV which was adopted in a Report and Order¹ (“R&O”) on March 15, 2023 (MB Docket 23-14; RM-11943) and published in the Federal Register on March 24, 2023 based on the following parameters at the existing site.

City/State	Channel	DTV Power (kW)	Antenna HAAT (m)
Roanoke, VA	*13	66	630.6

Pursuant to the R&O, BRPTV is submitting this minor change application for a construction permit (Form 2100, Schedule A) specifying channel *13 at the existing site (37° 11' 46.0" N and 80° 09' 16.0" W) using a new elliptically polarized directional antenna specifically tuned for Channel 13 which satisfies all FCC rules as demonstrated in the petition for rulemaking and adopted in the R&O.

RADIO FREQUENCY RADIATION COMPLIANCE

The proposed WBRA-TV Channel *13 full-service NCE digital television broadcast facility will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The digital transmitter, transmission line and antenna system shall produce a horizontally polarized ERP

¹ *In the Matter of Amendment of Section 73.622(j), Table of Allotments, Television Broadcast Stations (Roanoke, VA)*

of 66 kW and a vertically polarized ERP of 62.7 kW (E-pol). It was determined that the maximum lobe of radiation will occur at approximately 92.7 feet from the base of the tower (237.3 ft radial distance from the antenna center). At 92.7 feet from the base of the tower, the depression angle of the main lobe will be approximately 67° below the horizontal. At that point, the relative field is 0.173 and the power density six feet above the ground will be 0.02461 mW/cm². This equates to only 2.46% of the Maximum Permissible Exposure (MPE) limits for Occupational/Controlled Exposure and only 12.30% of the MPE limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute (ANSI). Since operation of the proposed WBRA-TV Channel *13 full-service NCE digital television broadcast facility would exceed 5.0% of the MPE limit for Occupational/Controlled Exposure or General Population/Uncontrolled Exposure at any point on the ground, the proposed WBRA-TV Channel *13 full-service NCE digital television broadcast facility is considered a “contributor” to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were accounted for in this analysis. Therefore, all broadcast antennas on the WBRA-TV tower must be analyzed and a composite study is required to demonstrate that the total power density of all antennas on the tower would not exceed 100% of the MPE allowable.

Since the only broadcast antenna mounted on the WBRA-TV support structure is the WBRA-TV antenna, the composite power density on the support structure is equal to the power density produced by the WBRA-TV facility. Therefore, the total RF energy emanating from the single antenna mounted on the WBRA-TV support structure will be 2.46% of the MPE limits for Occupational/Controlled Exposure and 12.30% of the MPE limits for General Population/Uncontrolled Exposure. Accordingly, the total exposure, which would be generated by the WBRA-TV facility alone, would result in exposure levels well below the allowable exposure threshold authorized by the ANSI and the FCC. Accordingly, it is safe to conclude that the emissions would be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. It is also understood that additional antennas on the support structure could increase the overall RF exposure levels and it is the responsibility of each licensee to ensure that the total RF exposure resulting from the operation of all antennas on the support structure do not exceed the MPE level at any point on the ground.

CERTIFICATION

This engineering technical statement was prepared by William T. Godfrey, Jr., with the professional firm Kessler and Gehman Associates, Inc., Telecommunications Consulting Engineers having offices in Gainesville, Florida, and has been working with the firm in the field of television and radio broadcast consulting since 1998 and his qualifications are a matter of record with the Federal Communications Commission. Mr. Godfrey is a Graduate from the University of North Florida and a Distinguished Military Graduate from the University of Florida. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

A handwritten signature in blue ink that reads 'William T. Godfrey, Jr.'.

WILLIAM T. GODFREY, JR., CBT
Kessler and Gehman Associates, Inc.
Consulting Engineers

March 24, 2023

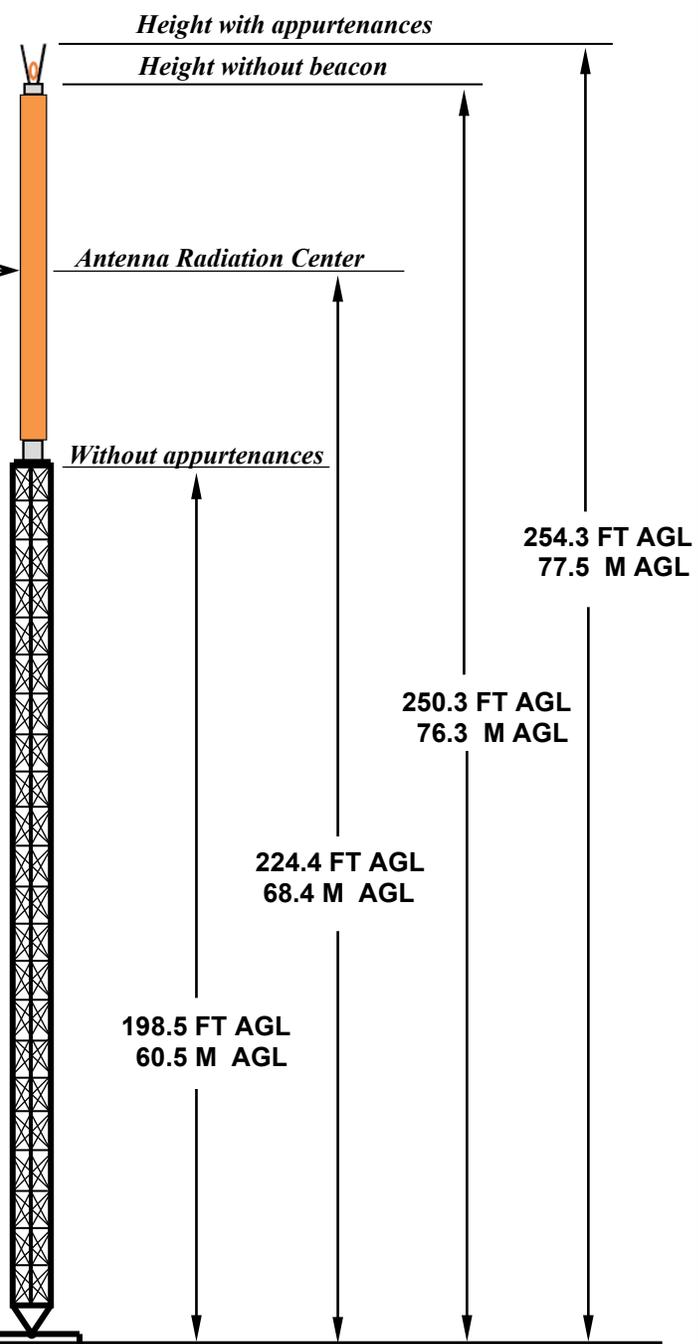
WBRA-TV ELEVATION VIEW

WBRA-TV Channel *13
 Dielectric Model
 THV-10A13/VP-R C150
 Elliptically Polarized
 Directional Antenna

*****NOTE*****

The overall height of the tower with appurtenances is currently 271.7 ft AGL (82.8 m). Therefore, the overall height of the tower with the proposed top-mount antenna, beacon and lightning protection will not exceed the overall height of the tower and will decrease by 17.4 ft (5.3 m). An FAA Form 7460-1 and FCC Form 854 ASR modification will be required.

SELF SUPPORTING TOWER



SITE ELEVATION: 3,740.3 FT (1,140 M AMSL)

OVERALL HEIGHT AGL:	77.5 M
OVERALL HEIGHT AMSL:	1,217.5 M
RADIATION CENTER AGL:	68.4 M
RADIATION CENTER AMSL:	1,208.4 M
RADIATION CENTER HAAT:	630.6 M
AVG OF ALL NON-ODD RADIALS:	577.8 M
SITE HAAT:	562.2 M

COORDINATES (NAD 83):
N. LATITUDE 37° 11' 46"
W. LONGITUDE 80° 09' 16"

Antenna Structure Registration Number:
 1017598

NOTE: NOT TO SCALE

Kessler and Gehman Associates, Inc.



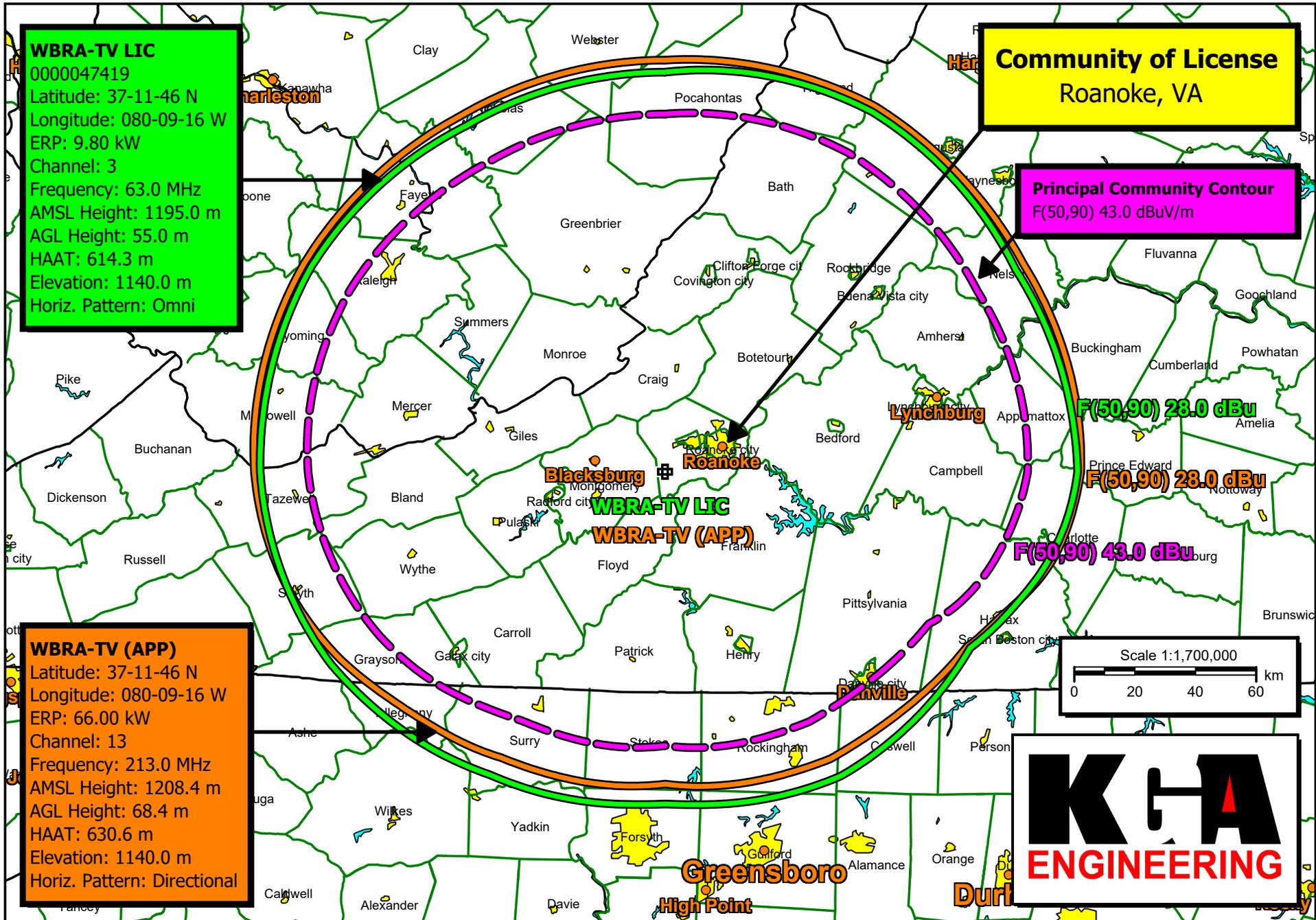
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WBRA-TV CHANNEL *13

Roanoke, Virginia

20230324

EXHIBIT 1



WBRA-TV Channel *3 License vs. WBRA-TV Channel *13 APP