



**Kessler and Gehman Associates**

**Consultants • Broadcast • Wireless**

**APPLICATION FOR  
SPECIAL TEMPORARY  
AUTHORITY FOR A  
TRANSITIONING  
TELEVISION BROADCAST  
STATION**

**CALL SIGN: WEKW-TV**  
**FACILITY ID: 69271**  
**LOCATION: KEENE, NH**

**Prepared For:**

New Hampshire Public  
Broadcasting  
268 Mast Road  
Durham, NH 03824

**Prepared By:**

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## **1.0 PROPOSED SPECIAL TEMPORARY AUTHORITY**

Kessler and Gehman Associates, Inc. has been authorized by New Hampshire Public Broadcasting, licensee of WEKW-TV to prepare an engineering Special Temporary Authority (STA) to operate with reduced power relative to its licensed<sup>1</sup> facility. WEKW-TV currently operates the licensed channel 49 facility with a TPO of 4.31kW; however, the transmitter is beginning to exhibit anomalies. There are no parts readily available to repair the aging transmitter. It is proposed to operate a standby channel 49 transmitter capable of generating 3kW for interim operation until the Channel 18 post transition Construction Permit<sup>2</sup> can be brought online. The 3kW TPO shall generate an ERP of 78.0kW which is down from the licensed ERP of 112kW. Once the standby transmitter is patched in and operating pursuant to the instant STA, the licensed transmitter will be permanently decommissioned and removed to make way for the new post transition channel 18 transmitter to be installed and be made ready for commission. The grant of this STA is in the public interest since it will allow WEKW-TV to broadcast uninterrupted while preparing for its channel 18 post transition facility.

## **2.0 § 73.625 PREDICTED CONTOURS**

Appendix B illustrates the § 73.625 predicted F(50,90) 41.9 dBµV/m noise limited protected contour and the 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 B predicted coverage contours were generated using V-Soft Probe-3 software in accordance with § 73.625(b) methodology using F(50,90) propagation curves and clearly illustrates that the proposed STA contour is 100%

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<sup>1</sup> FCC File No.: BLEDT-20120831AAG

<sup>2</sup> FCC File No.: 0000100752

subsumed by the licensed contour. The average terrain was extracted from three arc second terrain along eight equally spaced cardinal radials from 3  
The instant STA facility shall substantially achieve its goal of providing comparable coverage to its viewers while the main antenna is waiting to be replaced.

### **3.0 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>3</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.

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

The resulting RFR study in Appendix C demonstrates that the peak exposure is 0.638% 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 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.

#### **4.0 CERTIFICATION**

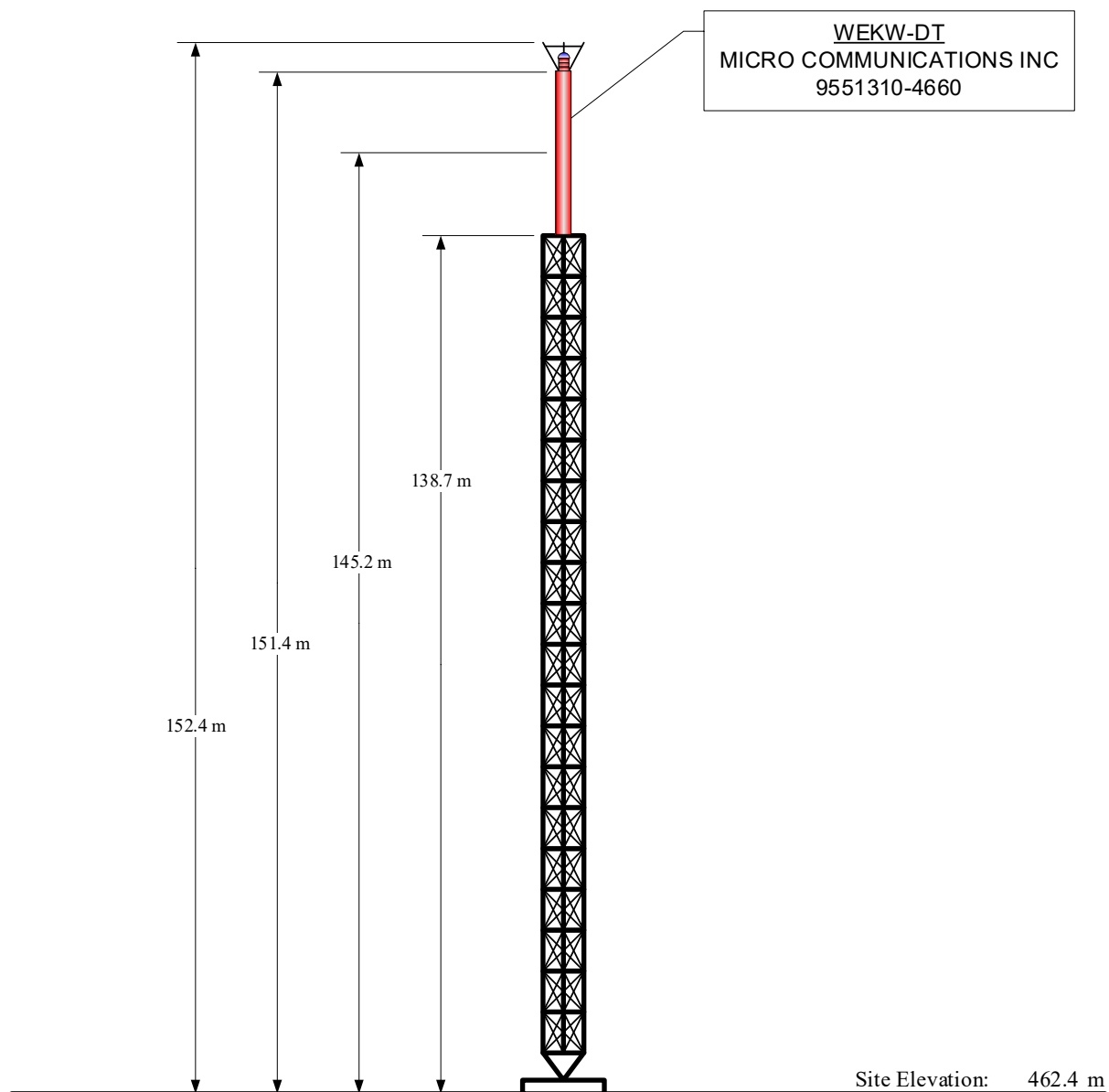
I, Ryan Wilhour, am an engineering associate of Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and have been working in the field of radio and television broadcast consulting since 1996. The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge.

Ryan Wilhour



Consulting Engineer  
February 4, 2020

## APPENDIX A – Tower Elevation Profile



Overall Height AGL: 152.4 m

Overall Height AMSL: 614.8 m

Radiation Center AGL: 145.2 m

Radiation Center AMSL: 607.6 m

Radiation Center HAAT: 328.4 m

NOTE: NOT TO SCALE

NAD 83 Coordinates:

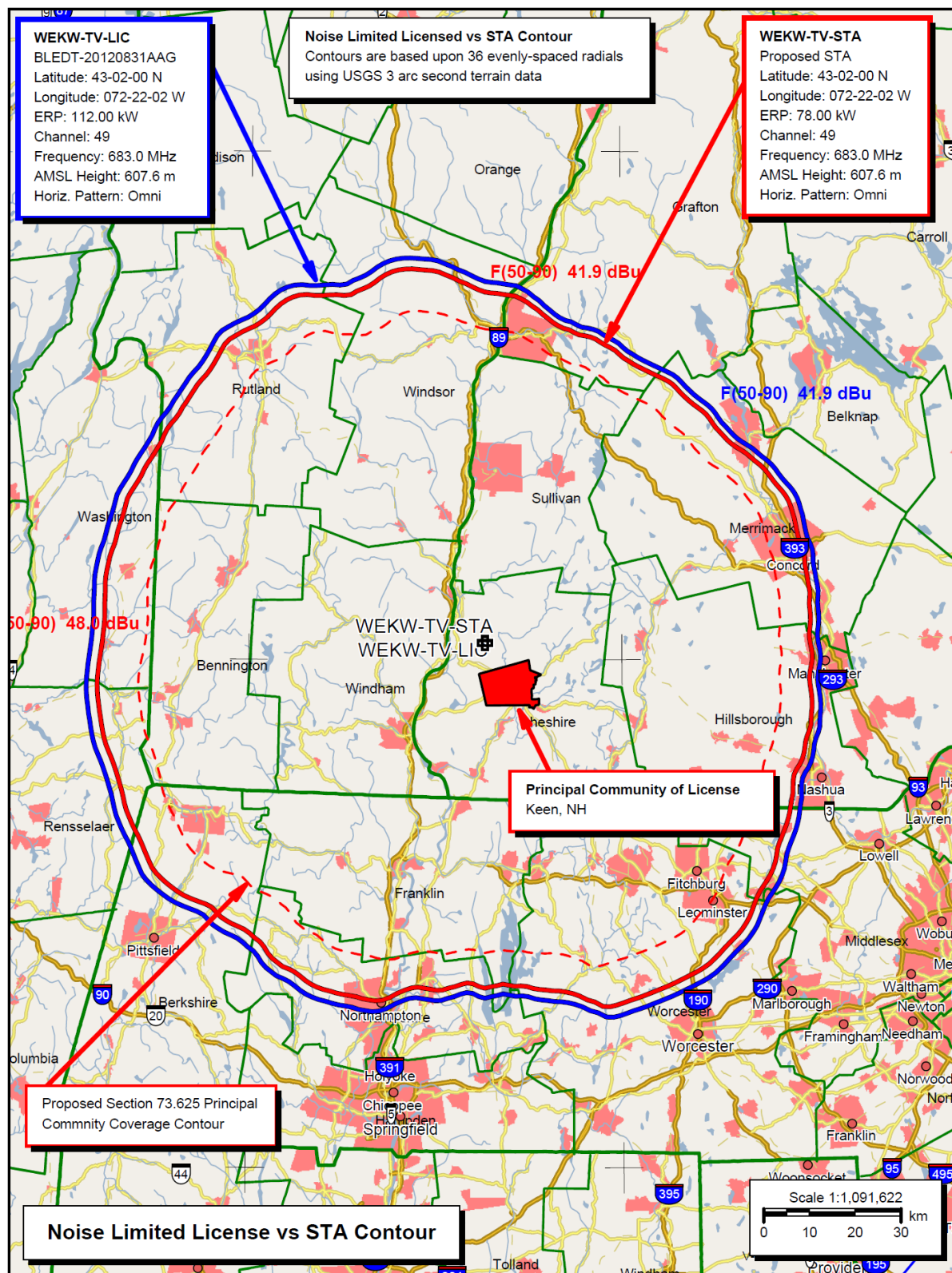
N. Latitude: 43° 02' 00"

W. Longitude: 72° 22' 02"

FCC Tower Registration Number: 1034694

FAA Aeronautical Study Number: 97-ANE-0169-OE

**APPENDIX B – Section 73.625(a) Community of License Coverage Map**



## APPENDIX C – Far Field Exposure to RF Emissions

