Kessler and Gehman Associates
Consultants • Broadcast • Wireless

MINOR MODIFICATION TO A CONSTRUCTION PERMITTED POST TRANSITION TELEVISION BROADCAST STATION

CALL SIGN: WEKW-TV
FACILITY ID: 69271
FCC FILE NO.: 0000034357
LOCATION: KEENE, NH

Prepared For:

New Hampshire Public
Broadcasting
268 Mast Road
Durham, NH 03824

Prepared By:

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January 26, 2020

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1.0 MINOR MODIFICATION APPLICATION

New Hampshire Public Broadcasting is the licensee of a television broadcast station having call sign WEKW-TV facility ID 69271. It is herein proposed to

- decrease the ERP from 1MW to 95kW,
- change the polarity from Elliptical to Horizontal,
- change the permitted Electronics Research, Inc ATW18H4-ETO-18H antenna to a Micro Communications Inc 9551310-4660 antenna,
- increase the effective center of radiation antenna height by 0.2m.

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

- no change in frequency is proposed and,
- 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 CONTOUR COMPLIANCE

Appendix C illustrates the § 73.625 predicted F(50,90) 39.2 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 C predicted coverage contours were generated using V-Soft Probe-3[1] software in accordance with § 73.625(b) methodology using F(50,90) propagation curves. The average terrain was extracted from three arc second

[1] Version 3.101

terrain along eight equally spaced cardinal radials from 3 kilometers to 16 kilometers from the site and beginning from true north.

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 0.745% of the most restrictive permissible exposure threshold. Pursuant to OET

[2] Terrain extraction is based upon a 3 arc second point spacing terrain database.

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.

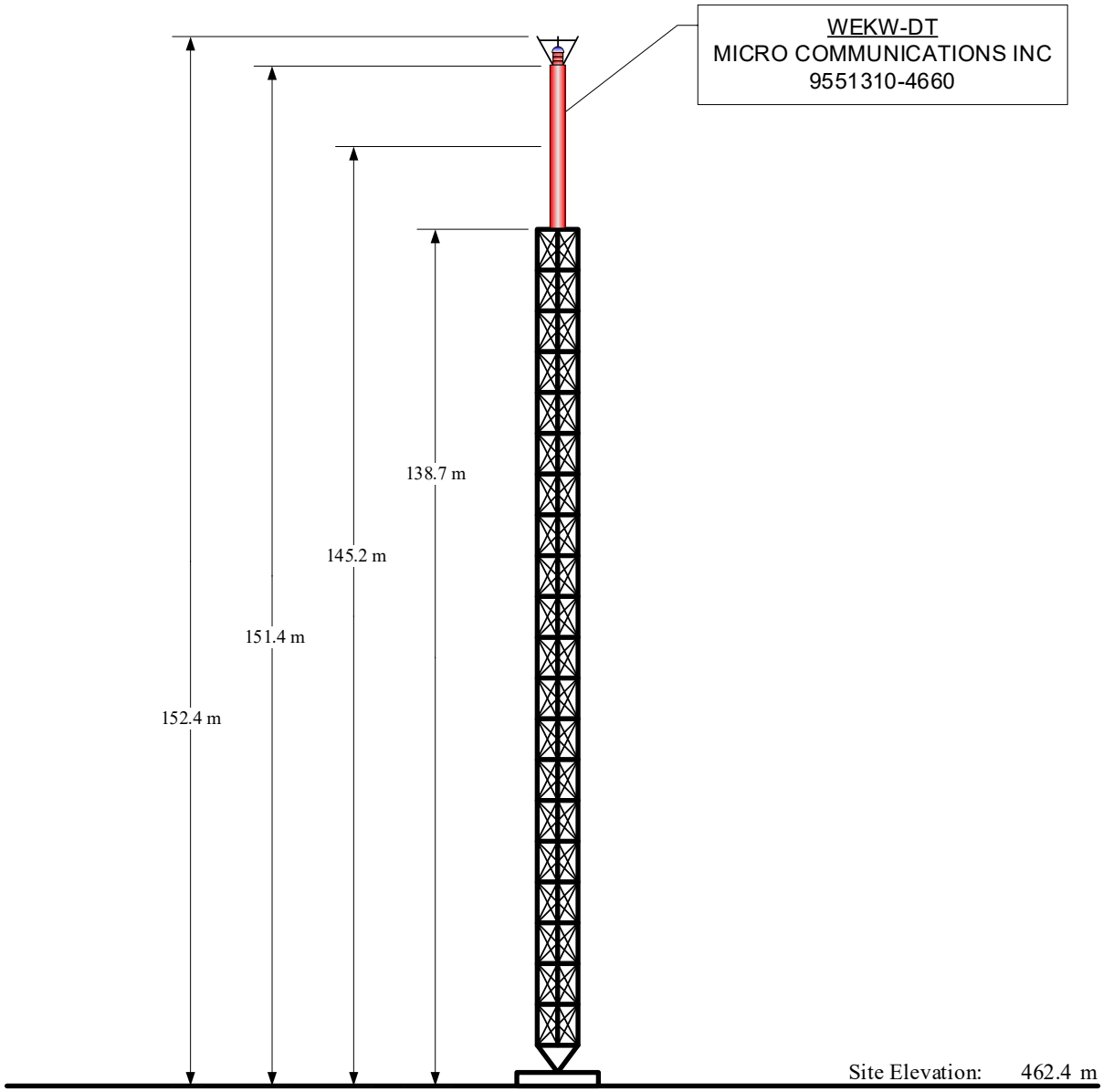
5.0 CERTIFICATION

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on January 26, 2020

Ryan Wilhour

Consulting Engineer

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 – TVStudy V2.2.5 Allocation Analysis

```
Study created: 2020.01.26 12:44:07
Study build station data: LMS TV 2020-01-26

    Proposal: WEKW-TV D18 DT CP KEENE, NH
 File number: WEKW CP Modification
 Facility ID: 69271
Station data: User record
   Record ID: 4813
     Country: U.S.
        Zone: I

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	WPFO	D17	DT	LIC	WATERVILLE, ME	BLANK0000080224	180.9 km
No	WYCI	D17	DT	BL	SARANAC LAKE, NY	DTVBL77515	202.9
No	WPXQ-TV	D17	DT	LIC	NEWPORT, RI	BLANK0000068158	177.6
Yes	WMBC-TV	D18	DT	APP	NEWTON, NJ	BLANK0000035693	291.7
Yes	WMBC-TV	D18	DD	LIC	NEWTON, NJ	BLCDT20101130AAX	284.7
No	WWNY-CD	D18	DC	LIC	MASSENA, NY	BLDTL20101118ALZ	257.3
No	WVVH-CD	D18	DC	LIC	SOUTHAMPTON, NY	BLANK0000098161	229.4
Yes	WTVH	D18	DT	CP	SYRACUSE, NY	BLANK0000094502	304.3
Yes	WUTF-TV	D19	DT	CP	WORCESTER, MA	BLANK0000034871	122.5
Yes	WYPX-TV	D19	DT	LIC	AMSTERDAM, NY	BLANK0000080167	140.2

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

    Channel: D18
   Latitude:  43  2  0.00 N (NAD83)
  Longitude:  72 22  2.00 W
Height AMSL: 607.6 m
       HAAT: 328.4 m
   Peak ERP: 95.0 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 1.00

39.1 dBu contour:
```

Azimuth	ERP	HAAT	Distance
0.0 deg	95.0 kW	314.3 m	82.3 km
45.0	95.0	221.6	74.1
90.0	95.0	244.4	75.8
135.0	95.0	366.2	87.6
180.0	95.0	298.1	80.6
225.0	95.0	385.0	89.1
270.0	95.0	388.0	89.3
315.0	95.0	409.4	90.5

```
**Proposal is within coordination distance of Canadian border
Distance to Canadian border: 219.1 km

Distance to Mexican border: 2922.0 km

Conditions at FCC monitoring station: Belfast ME
Bearing: 58.1 degrees   Distance: 306.9 km
Proposal is not within the West Virginia quiet zone area
Conditions at Table Mountain receiving zone:
Bearing: 274.6 degrees   Distance: 2732.5 km

No land mobile station failures found

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 WEKW CP Modification ----

**MX with BLANK0000035693 APP scenario 1, 8.74% interference received
Proposal receives 8.72% interference from scenario 2
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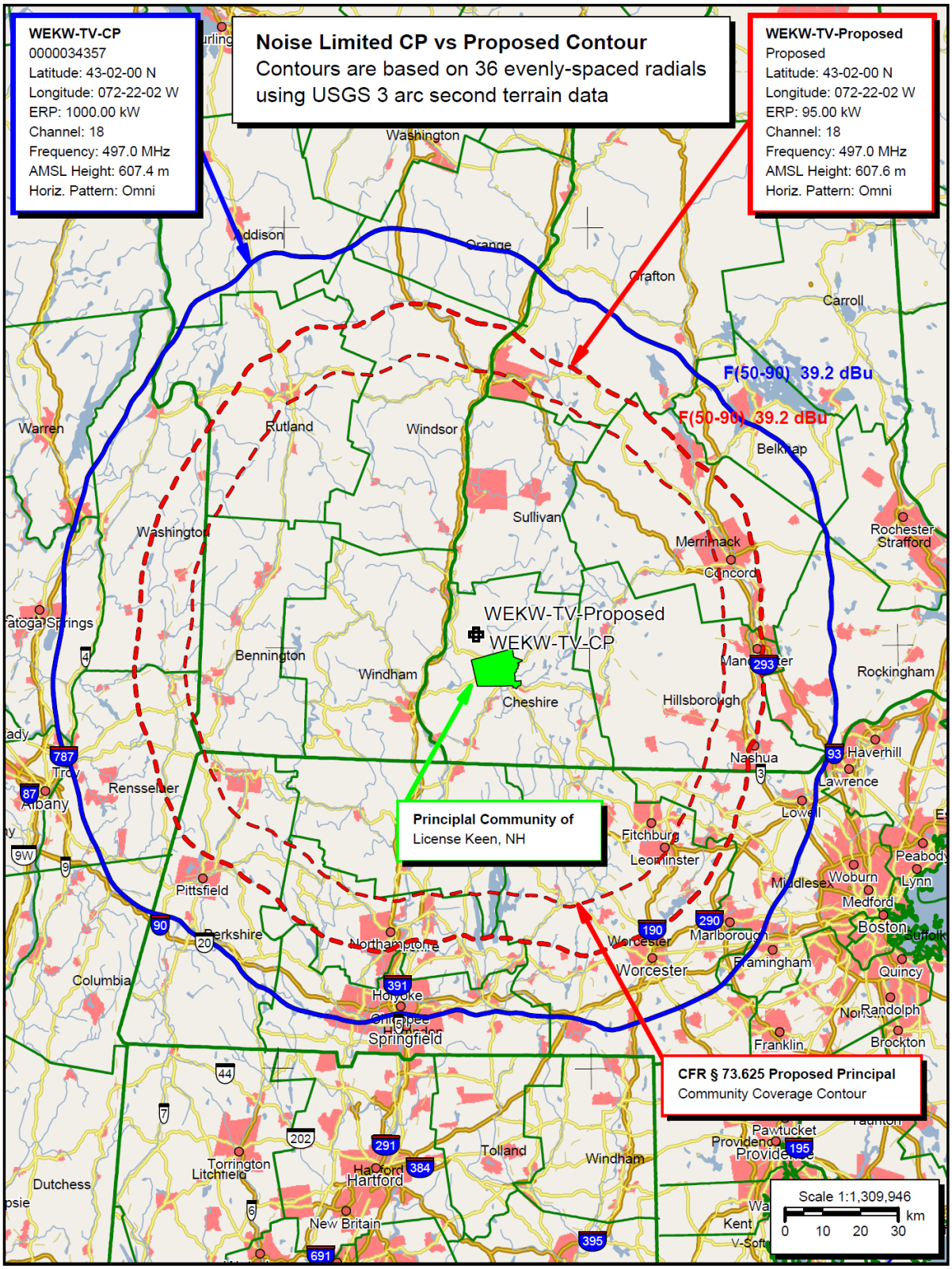
APPENDIX C – § 73.625 Predicted Contours



APPENDIX D – Far Field Exposure to RF Emissions