

**MINOR MODIFICATION TO AN  
FM CONSTRUCTION  
PERMITTED STATION  
HAVING FACILITY ID 176879  
FCC FILE NO.:  
BPED-20150327ABG  
WVWS (FM)  
WEBSTER SPRINGS, WV**

JULY 15, 2016

*Prepared For:*

West Virginia Educational  
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**1.0 PURPOSE OF CONSTRUCTION PERMIT MODIFICATION APPLICATION**

It is herein proposed to modify the above referenced construction permit to make the following technical changes:

1.1 Modify the antenna from directional to omni-directional

1.2 Reduce the ERP from 0.85KW to 0.135KW

WVEBA has decided to eliminate the complexity and cost of a directional antenna as specified in the construction permit, and replace it with an off-the-shelf circularly polarized omni-directional antenna. A power reduction is proposed in order to meet contour overlap criteria.

**2.0 FREQUENCY ALLOCATION ANALYSIS**

Contour overlap allocation studies have not been prepared since the proposed facility has protected and interfering contours which do not exceed the construction permitted contours, thus no new interference shall be caused or received. As further evidence of no new interference, Appendix B and C demonstrate that the proposed ERP shall not exceed the construction permitted ERP in any azimuth direction while holding the site and height as constants.

**3.0 FM TRANSMITTER LOCATION AND COVERAGE REQUIREMENTS**

Appendix E demonstrates that even with the change of antenna and power reduction, a minimum field strength of 60 dBu will be provided over the entire principal community of Webster Springs, WV.

**4.0 INTERNATIONAL COORDINATION**

The proposed facility is not within 320km of any international borders and is not subject to international coordination.

**5.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)****5.1 General Environmental Requirements**

The proposed support structure and antenna will not:

- Require high intensity white lighting.
- Is not located in an official designated wilderness area or wildlife preserve.
- Does not threaten the existence or habitat of endangered species.

- Does not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture that are listed in the National Register of Historic Places or are eligible for listing.
- Does not affect Indian religious sites.
- Is not located in a floodplain
- Does not require construction that involves significant changes in surface features (e.g., wetland fill, deforestation or water diversion).

## 5.2 Radio Frequency Radiation (RFR) Compliance.

Appendix G is a RFR analysis which demonstrates that the peak RFR exposure is less than 5% of the most restrictive permissible exposure threshold standing anywhere at ground level and in any proximity to the proposed support structure. Pursuant to OET Bulletin 65, since the proposed operation does not exceed 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR and other sources of RFR need not be taken into consideration for a net effect. The instant application is compliant with the FCC limits for human exposure to RFR and thus is excluded from further environmental processing.

## 6.0 CERTIFICATION

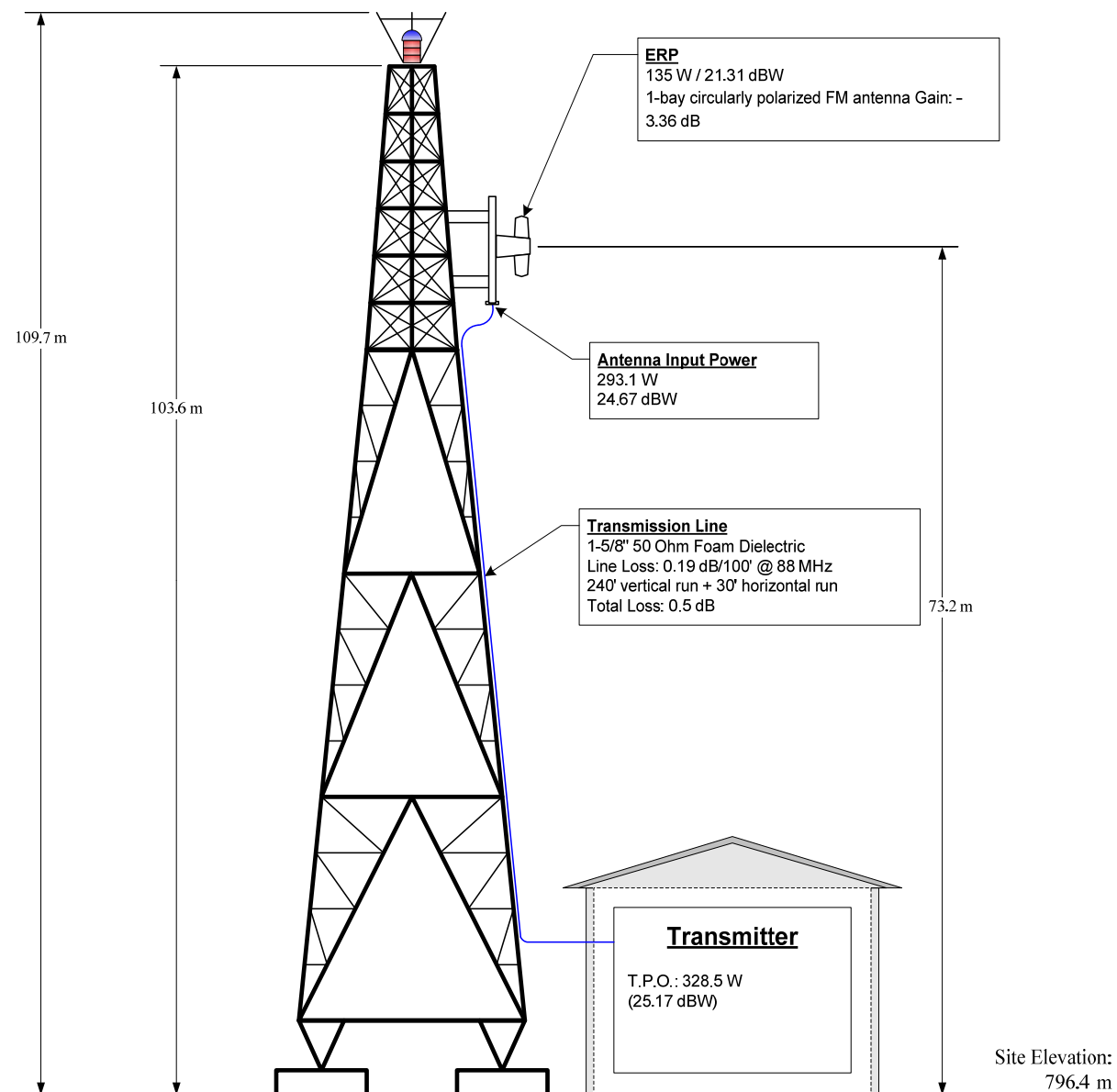
The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on July 15 2016.

KESSLER AND GEHMAN ASSOCIATES, INC.



Ryan Wilhour  
Consulting Engineer

## APPENDIX A – Tower Sketch



Overall Height AGL:	109.7 m
Overall Height AMSL:	906.1 m
Radiation Center AGL:	73.2 m
Radiation Center AMSL:	869.6 m
Radiation Center HAAT:	248.2 m
Average Terrain:	621.4 m

NOTE: NOT TO SCALE

NAD 27 Coordinates:

N. Latitude: 38° 35' 46.4"

W. Longitude: 80° 23' 54.4"

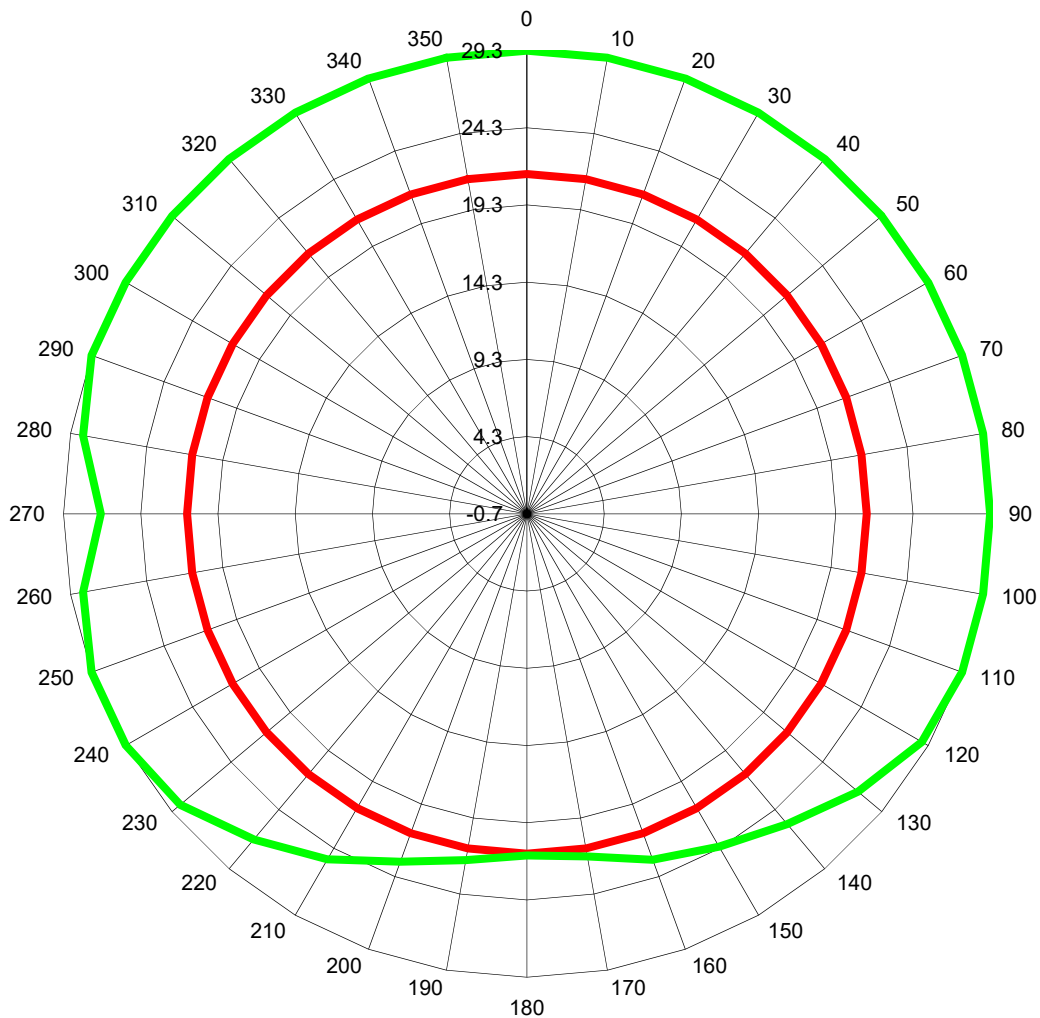
ASR No.: 1274614

FAA Study No.: 2010-AEA-2031-OE

## APPENDIX B – CP –vs– CP Mod. ERP Tabulation Comparison

AZIMUTH	CP ERP (DB)	CP-MOD ERP (DB)	Meets ERP Margin BY (DB)
N000°E	29.294	21.303	7.991
N010°E	29.294	21.303	7.991
N020°E	29.294	21.303	7.991
N030°E	29.294	21.303	7.991
N040°E	29.294	21.303	7.991
N050°E	29.294	21.303	7.991
N060°E	29.294	21.303	7.991
N070°E	29.294	21.303	7.991
N080°E	29.294	21.303	7.991
N090°E	29.294	21.303	7.991
N100°E	29.294	21.303	7.991
N110°E	29.294	21.303	7.991
N120°E	28.840	21.303	7.536
N130°E	27.291	21.303	5.987
N140°E	25.526	21.303	4.222
N150°E	24.180	21.303	2.877
N160°E	23.133	21.303	1.830
N170°E	21.821	21.303	0.518
N180°E	21.422	21.303	0.118
N190°E	22.064	21.303	0.761
N200°E	23.274	21.303	1.970
N210°E	25.128	21.303	3.825
N220°E	26.819	21.303	5.515
N230°E	28.608	21.303	7.304
N240°E	29.294	21.303	7.991
N250°E	29.294	21.303	7.991
N260°E	28.485	21.303	7.181
N270°E	26.888	21.303	5.584
N280°E	28.485	21.303	7.181
N290°E	29.294	21.303	7.991
N300°E	29.294	21.303	7.991
N310°E	29.294	21.303	7.991
N320°E	29.294	21.303	7.991
N330°E	29.294	21.303	7.991
N340°E	29.294	21.303	7.991
N350°E	29.294	21.303	7.991

**APPENDIX C – CP –vs– CP Mod. ERP Azimuth ERP Comparison Chart**

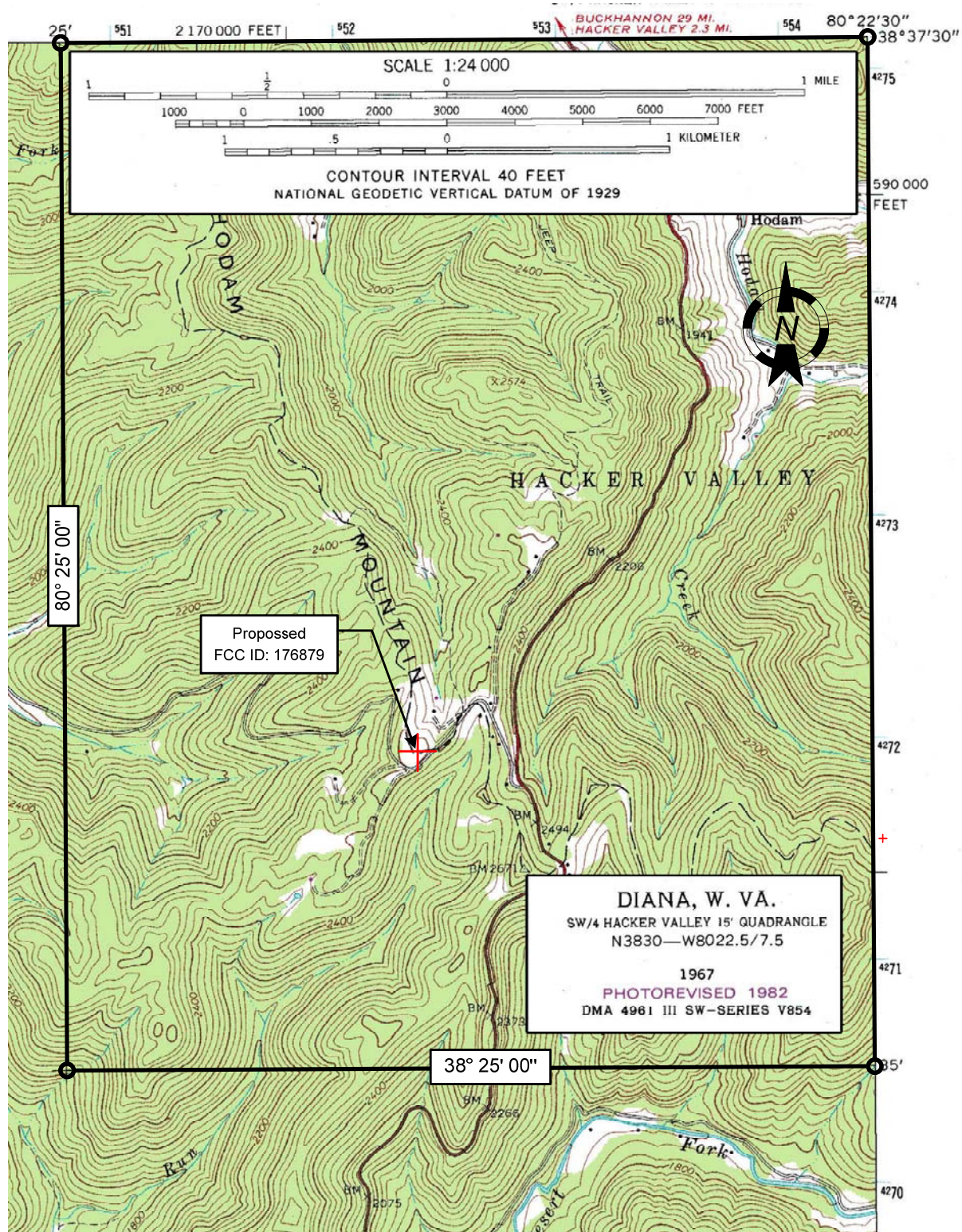


**GREEN LINE** = Construction Permitted ERP-DBW

**RED LINE** = Proposed ERP-DBW

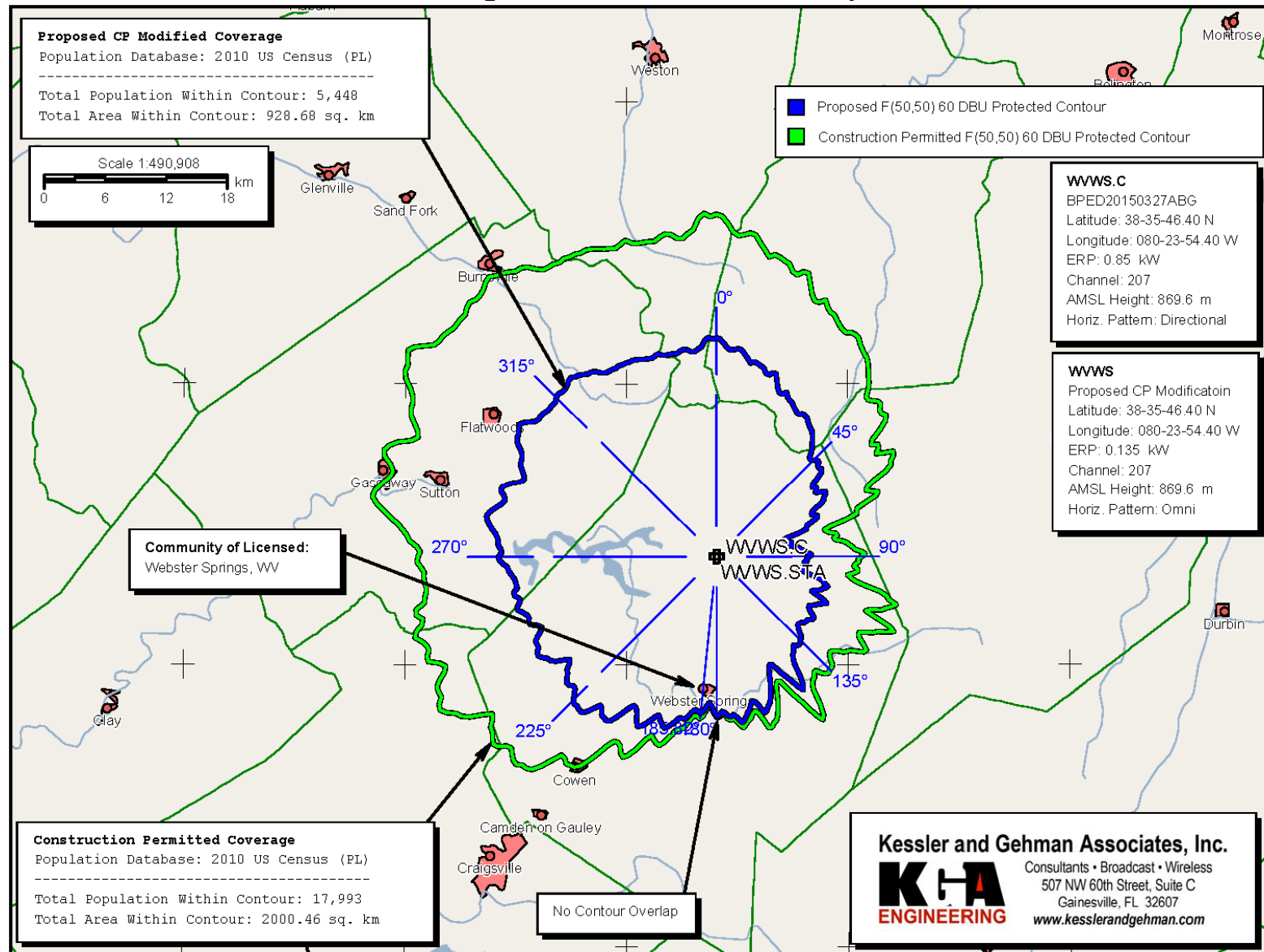


## APPENDIX D – Site Map





## APPENDIX E – FM Transmitter Coverage Contours and Location Map



**APPENDIX G - Far Field Exposure to RF Emissions**

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>1</sup> extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using 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.

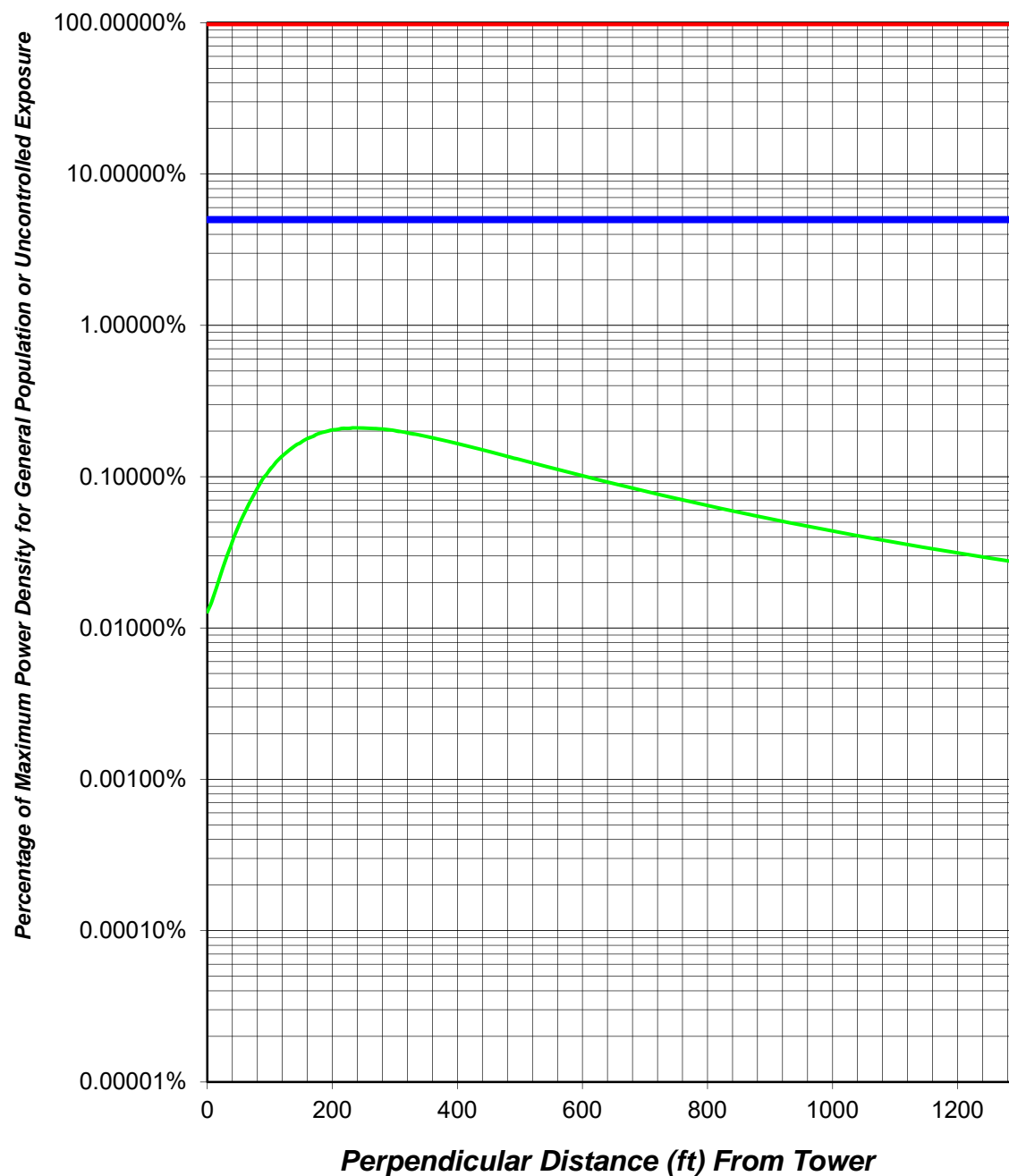
The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

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>1</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.

## FAR FIELD EXPOSURE TO RF EMISSIONS



- Maximum Allowable General Population or Uncontrolled Exposure
- 5 % of Maximum General Population or Uncontrolled Exposure
- Percentage of Maximum General Population or Uncontrolled Exposure