
Maximum Permissible Exposure (MPE) Survey for 100.3-FM on Mt. Morrison, CO



December 21, 2015

For Wilks Broadcasting

720 South Colorado Blvd., Suite 1200N

Denver, CO 80246

FCC Facility ID 59597, CP Permit #BPH-20150428AAL



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1.0 Executive Summary

This report is to satisfy Special Operating Conditions or Restrictions # 3 of FCC Construction Permit #BPH-20150428AAL:

“The permittee/licensee shall, upon completion of construction and during the equipment test period, make proper radiofrequency electromagnetic (RF) field strength measurements throughout the transmitter site area to determine if there are any areas that exceed the FCC guidelines for human exposure to RF fields. If necessary, a fence must be erected at such distances and in such a manner as to prevent the exposure of humans to RF fields in excess of the FCC Guidelines (OET Bulletin No. 65, Edition 97-01, August 1997). The fence must be a type which will preclude casual or inadvertent access, and must include warning signs at appropriate intervals which describe the nature of the hazard. Any areas within the fence found to exceed the recommended guidelines must be clearly marked with appropriate visual warning signs.”

An MPE survey was conducted on December 21, 2015 using a broadband exposure meter and following methods recommended in OET-65 and ANSI C95.3-2010. All measurements at ground level and on the transmitter building rooftop were well below the FCC public exposure limit. Further, the facility is fenced in its entirety using an 8' high chain link fence topped with three strands of barbed wire. The sole vehicle gate is locked at all times when personnel are not working on the site. The facility is located on private land and is accessible by a road owned by the site owner.

We can therefore conclude that the facility complies with FCC rule parts 1.1307-1.1310 governing human exposure to radio frequency energy.

2.0 Measurement Approach and Results

Spatial average power density measurements were collected at over 50 locations in the vicinity of the transmit antenna, ERI Model 1182-6CP-DA-SP. This antenna is a 6-bay panel antenna with two antenna elements per bay, oriented toward 70 degrees true, cardioid pattern. The measurement instrument was the Wandel & Goltermann Model EMR-300 broadband exposure meter using a Type 25.1 shaped electric field probe. Calibration of the instrument is due October 2, 2016.

The KIMN 100.3-FM transmitter was verified to be operating at 14.34 kW during the survey which corresponds to 100% transmitter power output and an ERP of 100 kW (directional).

Topographic map showing the area around the transmitter building and master FM antenna. The map includes contour lines, a fence line, and various elevation points. Key features include:

- Transmitter Bldg.**: Located near the center of the map, with a hatched area indicating its footprint.
- Master FM Antenna**: Located to the right of the transmitter building, with a hatched area indicating its footprint.
- Fence Line**: A line running across the top of the map, separating the transmitter area from the surrounding terrain.
- Gate**: Located at the bottom left of the map, near the transmitter building.
- Contour Lines**: Labeled with elevations such as 7600, 7620, 7640, 7660, 7680, 7700, 7720, 7740, 7760, 7780, 7800, 7820, 7840, 7860, 7880, 7900, 7920, 7940, 7960, 7980, 8000, 8020, 8040, 8060, 8080, 8100, 8120, 8140, 8160, 8180, 8200, 8220, 8240, 8260, 8280, 8300, 8320, 8340, 8360, 8380, 8400, 8420, 8440, 8460, 8480, 8500, 8520, 8540, 8560, 8580, 8600, 8620, 8640, 8660, 8680, 8700, 8720, 8740, 8760, 8780, 8800, 8820, 8840, 8860, 8880, 8900, 8920, 8940, 8960, 8980, 9000, 9020, 9040, 9060, 9080, 9100, 9120, 9140, 9160, 9180, 9200, 9220, 9240, 9260, 9280, 9300, 9320, 9340, 9360, 9380, 9400, 9420, 9440, 9460, 9480, 9500, 9520, 9540, 9560, 9580, 9600, 9620, 9640, 9660, 9680, 9700, 9720, 9740, 9760, 9780, 9800, 9820, 9840, 9860, 9880, 9900, 9920, 9940, 9960, 9980, 10000.
- Elevation Points**: Various points are marked with elevations, including 7705.9, 7719.3, 7720.5, 7721.0, 7723, 7725.5, 7726.5, 7727.5, 7728.5, 7729.5, 7730.5, 7731.5, 7732.5, 7733.5, 7734.5, 7735.5, 7736.5, 7737.5, 7738.5, 7739.5, 7740.5, 7741.5, 7742.5, 7743.5, 7744.5, 7745.5, 7746.5, 7747.5, 7748.5, 7749.5, 7750.5, 7751.5, 7752.5, 7753.5, 7754.5, 7755.5, 7756.5, 7757.5, 7758.5, 7759.5, 7760.5, 7761.5, 7762.5, 7763.5, 7764.5, 7765.5, 7766.5, 7767.5, 7768.5, 7769.5, 7770.5, 7771.5, 7772.5, 7773.5, 7774.5, 7775.5, 7776.5, 7777.5, 7778.5, 7779.5, 7780.5, 7781.5, 7782.5, 7783.5, 7784.5, 7785.5, 7786.5, 7787.5, 7788.5, 7789.5, 7790.5, 7791.5, 7792.5, 7793.5, 7794.5, 7795.5, 7796.5, 7797.5, 7798.5, 7799.5, 7800.5.

3.0 Conclusions

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4.0 References

- [1] ANSI C95.1-2005, "Safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz."
- [2] OET Bulletin No. 65, FCC, "Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields," Edition 97-01, August 1997.
- [3] ANSI C95.3-2010, "Recommended practice for the measurement of hazardous electromagnetic fields - RF and microwave."
- [4] ANSI C95.2-1981, "American National Standard radio frequency radiation hazard warning symbol."
- [5] Code of Federal Regulation, Title 47, Parts 1.1307 - 1.1310, October 1, 2015.
- [6] FCC OET Bulletin 56, 4th Ed., Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields, August, 1999.

5.0 Engineer's Statement

Mt. Morrison
Jefferson County, CO

This study addresses electromagnetic radiation in the band 300 kHz - 300 GHz. Fields from extremely low frequency (ELF) sources, such as those emitted by 60 Hz electrical distribution lines, were not modeled. Also, induced and contact radiofrequency currents were not measured or modeled.


Tower climbers should carry portable power density meters (e.g., Nardalert™) to verify that transmitter powers have been reduced to safe levels before working in the vicinity of high power transmit antennas.

Measurements were conducted according to procedures described in OET-65, ANSI C95.3-2010 and the user's manual for the meter used. Our conclusions are limited to those locations actually measured or predicted. All measurements were conducted with test equipment assumed to be calibrated and working properly. If new high power transmitters are installed at the site, measured power densities will change.

This study shows that the new 100.3-FM transmitter facility will comply with FCC guidelines for human exposure to radio frequency energy.

All representations contained herein are true to the best of my knowledge. I am a radio engineer with over 30 years experience. I hold a Bachelor of Science degree in Electrical Engineering from Virginia Tech and a Master of Science degree in Electrical Engineering from Cornell University. I am a corporate officer and stockholder of Pericle Communications Company and a Registered Professional Engineer in the State of Colorado.

Signed this 21st day of December, 2015.



Jay M. Jacobsmeyer, P.E., President
CO PE License #28768
Pericle Communications Company