

[3] ANSI C95.3-2002, "Recommended practice for the measurement of hazardous electromagnetic fields - RF and microwave."

[4] ANSI C95.2-1999, "American National Standard radio frequency radiation hazard warning symbol."

[5] Code of Federal Regulation, Title 47, Parts 1.1307 - 1.1310, October 1, 2016.

[6] FCC OET Bulletin 56, 4th Ed., Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields, August, 1999.

8.0 Engineer's Statement

Lookout Mountain
Jefferson County, CO

This Maximum Permissible Exposure (MPE) study addresses electromagnetic radiation in the band from 300 kHz to 300 GHz. Fields from extremely low frequency (ELF) sources, such as those emitted by 60 Hz electrical distribution lines, were not measured or modeled. Also, induced and contact radio frequency 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 ANSI Standard C95.3-2002 and the user's manual for the exposure meter used. Our conclusions are limited to those locations actually measured. All measurements were conducted with test equipment assumed to be calibrated and working properly. If new high power transmitters are installed at the site, power densities may change. The measurement results reported in this report are valid as of March 29, 2017.

All representations contained herein are true to the best of my knowledge. I am a radio engineer with over thirty-five 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 7th day of April, 2017.

- original signed and stamped -

Jay M. Jacobsmeyer, P.E.
Colorado License #28768

Appendix A - Measurements

Lookout Mountain MPE Measurements

Pericle Communications Company

April 6, 2017

| | Meters | | |
|--|--------|--------------------|--------|
| | x | y | z |
| GPR Antenna (Tribune Twr., 56.4 m AGL) | 317.0 | 146.3 | 2277.5 |
| Observer Height | 1.8 | m | |
| Power Reflection Factor | 2.56 | | |
| Antenna CoR | 56.4 | m | |
| 88.1 ERP | 6.4 | kW | |
| 90.1 ERP | 68.3 | kW | |
| Occupational Standard | 1.0 | mW/cm ² | |
| Public Standard | 0.2 | mW/cm ² | |

| No. | Location | Coordinates (meters) | | | Slant Distance (m) | Look Down Angle, Deg. | V. Pattern Rel. Field | Power Density mW/cm ² | Power Density % of Occup. | Power Density % of Public | Measured Occup. % | Total Public % |
|-----|---------------------------------|----------------------|-------|--------|--------------------|-----------------------|-----------------------|----------------------------------|---------------------------|---------------------------|-------------------|----------------|
| | | x | y | z | | | | | | | | |
| 1 | East of William Cody entrance | 57.9 | 21.3 | 2236.0 | 290.9 | 8.2 | 0.50 | 0.01475 | 1.5% | 7.4% | 1.7 | 16% |
| 2 | William Cody Park entrance | 9.1 | 33.5 | 2236.6 | 330.6 | 7.1 | 0.62 | 0.01755 | 1.8% | 8.8% | 0.0 | 9% |
| 3 | Park Gate | 12.2 | 82.3 | 2241.5 | 313.7 | 6.6 | 0.70 | 0.02485 | 2.5% | 12.4% | 0.1 | 13% |
| 4 | East of park entrance | 24.4 | 42.7 | 2237.8 | 313.2 | 7.3 | 0.60 | 0.01832 | 1.8% | 9.2% | 0.0 | 9% |
| 5 | Driveway | 51.8 | 9.1 | 2236.0 | 301.7 | 7.9 | 0.50 | 0.01371 | 1.4% | 6.9% | 1.6 | 15% |
| 6 | Parking lot entrance | 24.4 | 176.8 | 2243.3 | 296.4 | 6.6 | 0.70 | 0.02784 | 2.8% | 13.9% | 0.0 | 14% |
| 7 | Maintenance vehicle lot | 42.7 | 161.5 | 2245.5 | 276.8 | 6.6 | 0.70 | 0.03192 | 3.2% | 16.0% | 0.0 | 16% |
| 8 | West side parking lot entrance | 21.3 | 207.3 | 2241.8 | 304.2 | 6.7 | 0.70 | 0.02643 | 2.6% | 13.2% | 0.2 | 14% |
| 9 | West side a parking lot | 21.3 | 225.6 | 2240.0 | 308.6 | 7.0 | 0.62 | 0.02015 | 2.0% | 10.1% | 0.1 | 11% |
| 10 | Northwest parking lot | 21.3 | 246.9 | 2239.7 | 314.8 | 6.9 | 0.65 | 0.02128 | 2.1% | 10.6% | 0.1 | 11% |
| 11 | Stairs north parking lot | 27.4 | 280.4 | 2237.5 | 321.8 | 7.1 | 0.62 | 0.01853 | 1.9% | 9.3% | 0.1 | 10% |
| 12 | Monument | 51.8 | 283.5 | 2237.2 | 301.5 | 7.7 | 0.55 | 0.01661 | 1.7% | 8.3% | 0.2 | 9% |
| 13 | Parking lot north center | 51.8 | 246.9 | 2240.3 | 286.3 | 7.5 | 0.56 | 0.01910 | 1.9% | 9.5% | 0.1 | 10% |
| 14 | Parking lot south center | 54.9 | 219.5 | 2241.8 | 274.7 | 7.5 | 0.56 | 0.02074 | 2.1% | 10.4% | 0.2 | 11% |
| 15 | Top of stairs parking lot east | 70.1 | 253.0 | 2240.0 | 271.8 | 7.9 | 0.50 | 0.01689 | 1.7% | 8.4% | 0.1 | 9% |
| 16 | Northwest corner of overlook | 82.3 | 249.9 | 2239.1 | 259.7 | 8.5 | 0.49 | 0.01777 | 1.8% | 8.9% | 0.3 | 10% |
| 17 | North end of museum overlook | 94.5 | 249.9 | 2239.4 | 248.7 | 8.8 | 0.42 | 0.01424 | 1.4% | 7.1% | 0.5 | 9% |
| 18 | Overlook center | 100.6 | 237.7 | 2240.0 | 238.2 | 9.1 | 0.42 | 0.01552 | 1.6% | 7.8% | 0.3 | 9% |
| 19 | Museum back door | 103.6 | 234.7 | 2240.0 | 234.3 | 9.2 | 0.42 | 0.01604 | 1.6% | 8.0% | 0.4 | 10% |
| 20 | South corner of museum overlook | 112.8 | 222.5 | 2239.7 | 221.5 | 9.8 | 0.40 | 0.01627 | 1.6% | 8.1% | 0.3 | 10% |
| 21 | Top of stairs to museum | 82.3 | 225.6 | 2241.8 | 250.5 | 8.2 | 0.50 | 0.01988 | 2.0% | 9.9% | 0.1 | 10% |
| 22 | Walkway between buildings | 85.3 | 204.2 | 2243.6 | 241.4 | 8.1 | 0.50 | 0.02141 | 2.1% | 10.7% | 0.1 | 11% |
| 23 | Bottom of stairs to gift shop | 85.3 | 189.0 | 2245.5 | 238.0 | 7.7 | 0.55 | 0.02667 | 2.7% | 13.3% | 0.5 | 16% |
| 24 | center of picnic area | 70.1 | 176.8 | 2246.7 | 250.9 | 7.1 | 0.62 | 0.03048 | 3.0% | 15.2% | 0.3 | 17% |
| 25 | South parking lot | 57.9 | 195.1 | 2243.3 | 266.1 | 7.4 | 0.56 | 0.02211 | 2.2% | 11.1% | 0.1 | 12% |
| 26 | Pahaska Teepee | 94.5 | 170.7 | 2247.6 | 226.1 | 7.6 | 0.59 | 0.03400 | 3.4% | 17.0% | 0.1 | 18% |
| 27 | South of Pahaska Teepee | 103.6 | 161.5 | 2248.2 | 216.1 | 7.8 | 0.50 | 0.02671 | 2.7% | 13.4% | 0.3 | 15% |
| 28 | On path south edge of building | 115.8 | 158.5 | 2248.8 | 203.8 | 8.1 | 0.49 | 0.02885 | 2.9% | 14.4% | 0.2 | 15% |
| 29 | Tree in path | 131.1 | 146.3 | 2247.9 | 188.6 | 9.0 | 0.42 | 0.02477 | 2.5% | 12.4% | 1.8 | 21% |
| 30 | North of path overlook | 158.5 | 128.0 | 2246.7 | 162.8 | 10.9 | 0.30 | 0.01694 | 1.7% | 8.5% | 2.1 | 19% |
| 31 | Path overlook | 158.5 | 112.8 | 2247.6 | 165.1 | 10.4 | 0.32 | 0.01876 | 1.9% | 9.4% | 2.4 | 21% |
| 32 | On path south of overlook | 143.3 | 109.7 | 2249.4 | 180.0 | 9.0 | 0.42 | 0.02717 | 2.7% | 13.6% | 2.5 | 26% |
| 33 | Southern most point on path | 131.1 | 100.6 | 2250.6 | 193.6 | 8.0 | 0.50 | 0.03330 | 3.3% | 16.6% | 3.3 | 33% |

| No. | Location | Coordinates (meters) | | | Slant Distance (m) | Look Down Angle, Deg. | V. Pattern Rel. Field | Power Density mW/cm ² | Power Density % of Occup. | Power Density % of Public | Measured Occup. % | Total Public % |
|-----|---|----------------------|-------|--------|--------------------|-----------------------|-----------------------|----------------------------------|---------------------------|---------------------------|-------------------|----------------|
| | | x | y | z | | | | | | | | |
| 34 | 30' from position 33 | 131.1 | 115.8 | 2251.6 | 190.4 | 7.8 | 0.50 | 0.03441 | 3.4% | 17.2% | 2.3 | 29% |
| 35 | Southern path intersection | 118.9 | 118.9 | 2251.9 | 201.9 | 7.3 | 0.56 | 0.03841 | 3.8% | 19.2% | 0.5 | 22% |
| 36 | Southwest edge of path | 100.6 | 128.0 | 2252.2 | 218.9 | 6.6 | 0.70 | 0.05106 | 5.1% | 25.5% | 0.1 | 26% |
| 37 | On path west of grave | 97.5 | 140.2 | 2251.6 | 221.3 | 6.7 | 0.70 | 0.04995 | 5.0% | 25.0% | 0.1 | 26% |
| 38 | West side of grave | 112.8 | 131.1 | 2251.3 | 206.7 | 7.3 | 0.57 | 0.03796 | 3.8% | 19.0% | 0.6 | 22% |
| 39 | East side of grave | 128.0 | 128.0 | 2250.6 | 192.0 | 8.0 | 0.50 | 0.03385 | 3.4% | 16.9% | 2.5 | 29% |
| 40 | Bottom of stairs west side of grave. | 146.3 | 128.0 | 2250.0 | 174.1 | 9.1 | 0.42 | 0.02904 | 2.9% | 14.5% | 2.3 | 26% |
| 41 | 40' off path south west of position 36 | 85.3 | 118.9 | 2252.5 | 234.8 | 6.1 | 0.72 | 0.04693 | 4.7% | 23.5% | 0.4 | 25% |
| 42 | Tall Rock off path | 176.8 | 100.6 | 2244.9 | 151.4 | 12.5 | 0.19 | 0.00786 | 0.8% | 3.9% | 1.8 | 13% |
| 43 | Rocks east of overlook | 179.8 | 112.8 | 2244.2 | 145.5 | 13.2 | 0.13 | 0.00399 | 0.4% | 2.0% | 1.6 | 10% |
| 44 | Wood power pole | 161.5 | 67.1 | 2244.2 | 178.0 | 10.8 | 0.30 | 0.01418 | 1.4% | 7.1% | 3.6 | 25% |
| 45 | North leg of power transmission tower | 173.7 | 27.4 | 2236.9 | 190.9 | 12.3 | 0.20 | 0.00548 | 0.5% | 2.7% | 1.8 | 12% |
| 46 | Northern wood power pole | 158.5 | 100.6 | 2247.9 | 167.9 | 10.2 | 0.33 | 0.01928 | 1.9% | 9.6% | 4.3 | 31% |
| 47 | Near north power pole | 158.5 | 94.5 | 2247.9 | 169.7 | 10.1 | 0.32 | 0.01775 | 1.8% | 8.9% | 4.5 | 31% |
| 48 | Center of wood power poles | 158.5 | 85.3 | 2247.0 | 172.9 | 10.2 | 0.33 | 0.01819 | 1.8% | 9.1% | 4.7 | 33% |
| 49 | West of powerlines | 115.8 | 100.6 | 2249.1 | 208.5 | 7.8 | 0.50 | 0.02871 | 2.9% | 14.4% | 2.3 | 26% |
| 50 | North west of transmission tower | 131.1 | 39.6 | 2241.8 | 217.6 | 9.4 | 0.42 | 0.01859 | 1.9% | 9.3% | 1.1 | 15% |
| 51 | On road at base of transmission tower | 173.7 | 12.2 | 2232.7 | 201.7 | 12.9 | 0.15 | 0.00276 | 0.3% | 1.4% | 0.3 | 3% |
| 52 | On road east of transmission tower | 198.1 | 27.4 | 2231.1 | 174.9 | 15.4 | 0.02 | 0.00007 | 0.0% | 0.0% | 1.0 | 5% |
| 53 | North east of transmission tower | 185.9 | 42.7 | 2236.3 | 172.5 | 13.8 | 0.09 | 0.00136 | 0.1% | 0.7% | 0.6 | 3% |
| 54 | East of transmission tower | 189.0 | 70.1 | 2240.0 | 154.1 | 14.1 | 0.06 | 0.00076 | 0.1% | 0.4% | 0.7 | 4% |
| 55 | On road north side of curve | 204.2 | 51.8 | 2229.9 | 155.2 | 17.9 | 0.18 | 0.00672 | 0.7% | 3.4% | 0.0 | 4% |
| 56 | On road across from antenna site entrance | 210.3 | 97.5 | 2229.0 | 127.6 | 22.4 | 0.19 | 0.01106 | 1.1% | 5.5% | 1.9 | 15% |
| 57 | On road directly west of channel 2 | 210.3 | 131.1 | 2229.3 | 118.8 | 24.1 | 0.18 | 0.01146 | 1.1% | 5.7% | 1.3 | 12% |
| 58 | On road across from residence and tower site. | 201.2 | 158.5 | 2231.7 | 125.8 | 21.4 | 0.21 | 0.01391 | 1.4% | 7.0% | 0.1 | 7% |
| 59 | CP Rail | 219.5 | 164.6 | 2226.9 | 112.2 | 27.0 | 0.09 | 0.00321 | 0.3% | 1.6% | 0.5 | 4% |
| 60 | Concrete vault | 146.3 | 219.5 | 2230.8 | 191.9 | 14.1 | 0.05 | 0.00034 | 0.0% | 0.2% | 0.2 | 1% |
| 61 | Behind gift shop between buildings | 112.8 | 204.2 | 2241.8 | 215.5 | 9.5 | 0.42 | 0.01895 | 1.9% | 9.5% | 0.3 | 11% |
| 62 | Behind gift shop | 128.0 | 192.0 | 2242.7 | 197.8 | 10.1 | 0.32 | 0.01306 | 1.3% | 6.5% | 0.1 | 7% |
| 63 | South base of overlook | 115.8 | 234.7 | 2236.3 | 223.9 | 10.6 | 0.30 | 0.00896 | 0.9% | 4.5% | 0.8 | 8% |
| 64 | Base of overlook center | 103.6 | 256.0 | 2236.6 | 243.7 | 9.7 | 0.40 | 0.01345 | 1.3% | 6.7% | 0.2 | 8% |
| 65 | North corner of overlook base | 88.4 | 256.0 | 2236.6 | 257.1 | 9.2 | 0.42 | 0.01332 | 1.3% | 6.7% | 0.1 | 7% |
| 66 | Between north overlook and road | 82.3 | 268.2 | 2236.3 | 267.9 | 8.8 | 0.42 | 0.01226 | 1.2% | 6.1% | 0.0 | 6% |
| 67 | Gate | 231.6 | 112.8 | 2225.3 | 106.4 | 29.6 | 0.01 | 0.00004 | 0.0% | 0.0% | 0.3 | 2% |
| 68 | Tree with plans box | 271.3 | 149.4 | 2220.8 | 74.3 | 51.1 | 0.02 | 0.00036 | 0.0% | 0.2% | 1.5 | 8% |
| 69 | Outhouse | 280.4 | 131.1 | 2219.9 | 71.4 | 55.5 | 0.06 | 0.00352 | 0.4% | 1.8% | 2.4 | 14% |
| 70 | Residence driveway | 249.9 | 158.5 | 2221.7 | 89.2 | 39.3 | 0.11 | 0.00759 | 0.8% | 3.8% | 0.3 | 5% |
| 71 | Gate to Channel 2 | 295.7 | 140.2 | 2220.5 | 62.8 | 68.7 | 0.02 | 0.00051 | 0.1% | 0.3% | 1.9 | 10% |
| 72 | South west fence corner | 295.7 | 115.8 | 2218.0 | 71.7 | 58.0 | 0.06 | 0.00350 | 0.3% | 1.7% | 0.5 | 4% |
| 73 | Channel 2 center | 326.1 | 115.8 | 2218.6 | 68.5 | 61.6 | 0.05 | 0.00266 | 0.3% | 1.3% | 0.1 | 2% |
| 74 | South of generator | 347.5 | 115.8 | 2215.0 | 77.4 | 55.4 | 0.05 | 0.00208 | 0.2% | 1.0% | 1.0 | 6% |
| 75 | South east corner of fence | 387.1 | 115.8 | 2200.7 | 109.6 | 45.1 | 0.04 | 0.00066 | 0.1% | 0.3% | 0.6 | 3% |
| 76 | At fence west of channel 2 | 387.1 | 131.1 | 2199.1 | 107.6 | 47.5 | 0.01 | 0.00004 | 0.0% | 0.0% | 0.0 | 0% |
| 77 | At fence east of Channel 50 | 387.1 | 149.4 | 2200.7 | 105.4 | 47.6 | 0.01 | 0.00004 | 0.0% | 0.0% | 0.1 | 1% |
| 78 | East of site | 417.6 | 131.1 | 2186.6 | 137.6 | 41.8 | 0.08 | 0.00169 | 0.2% | 0.8% | 0.0 | 1% |
| 79 | North east corner of fence | 387.1 | 161.5 | 2200.7 | 106.4 | 47.0 | 0.02 | 0.00018 | 0.0% | 0.1% | 0.2 | 1% |
| 80 | At fence half way between old and new perimeter | 356.6 | 161.5 | 2206.8 | 84.0 | 59.0 | 0.05 | 0.00177 | 0.2% | 0.9% | 1.1 | 6% |
| 81 | At old perimeter fence | 344.4 | 161.5 | 2214.7 | 71.8 | 63.4 | 0.04 | 0.00155 | 0.2% | 0.8% | 1.6 | 9% |
| 82 | Fence corner | 313.9 | 158.5 | 2220.5 | 60.1 | 77.6 | 0.01 | 0.00014 | 0.0% | 0.1% | 1.8 | 9% |

| No. | Location | Coordinates (meters) | | | Slant Distance (m) | Look Down Angle, Deg. | V. Pattern Rel. Field | Power Density mW/cm ² | Power Density % of Occup. | Power Density % of Public | Measured Occup. % | Total Public % |
|-----|---------------------------------------|----------------------|-------|--------|--------------------|-----------------------|-----------------------|----------------------------------|---------------------------|---------------------------|-------------------|----------------|
| | | x | y | z | | | | | | | | |
| 83 | North of channel 50 back side | 301.8 | 158.5 | 2220.8 | 61.7 | 71.0 | 0.02 | 0.00053 | 0.1% | 0.3% | 2.5 | 13% |
| 84 | North of Channel 50 front side. | 292.6 | 158.5 | 2220.8 | 64.5 | 64.3 | 0.04 | 0.00192 | 0.2% | 1.0% | 2.4 | 13% |
| 85 | North west corner of fence | 286.5 | 158.5 | 2220.8 | 67.1 | 59.9 | 0.05 | 0.00277 | 0.3% | 1.4% | 2.6 | 14% |
| 86 | Front of Channel 50 | 283.5 | 146.3 | 2220.5 | 67.7 | 59.5 | 0.05 | 0.00272 | 0.3% | 1.4% | 2.1 | 12% |
| 87 | Rock | 295.7 | 176.8 | 2220.5 | 69.6 | 56.9 | 0.04 | 0.00165 | 0.2% | 0.8% | 2.0 | 11% |
| 88 | Southeast corner Clear Channel fence | 283.5 | 189.0 | 2217.1 | 82.5 | 48.0 | 0.01 | 0.00007 | 0.0% | 0.0% | 2.6 | 13% |
| 89 | Behind Clear Channel | 280.4 | 204.2 | 2214.1 | 94.6 | 42.8 | 0.09 | 0.00452 | 0.5% | 2.3% | 2.2 | 13% |
| 90 | Clear Channel north east fence corner | 265.2 | 207.3 | 2212.5 | 104.2 | 39.1 | 0.11 | 0.00556 | 0.6% | 2.8% | 1.2 | 9% |
| 91 | Clear Channel north west fence corner | 253.0 | 192.0 | 2213.8 | 102.4 | 39.0 | 0.11 | 0.00576 | 0.6% | 2.9% | 0.6 | 6% |
| 92 | Between Residence and Clear Channel | 234.7 | 192.0 | 2214.4 | 114.3 | 33.8 | 0.08 | 0.00244 | 0.2% | 1.2% | 0.3 | 3% |
| 93 | Fence in front of Clear channel | 253.0 | 176.8 | 2218.6 | 93.3 | 39.7 | 0.11 | 0.00694 | 0.7% | 3.5% | 0.3 | 5% |
| 94 | Clear Channel driveway | 271.3 | 173.7 | 2219.9 | 79.8 | 47.2 | 0.02 | 0.00031 | 0.0% | 0.2% | 0.3 | 2% |
| 95 | Clear Channel gate | 265.2 | 179.8 | 2218.6 | 86.5 | 43.6 | 0.06 | 0.00240 | 0.2% | 1.2% | 0.2 | 2% |

Notes:

- 1) Coordinates are for ground level.
- 2) Measurements collected on 3/29/17 by B. Canaan

Appendix B - Tribune Tower Elevation Drawing

