

[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
CPR 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%

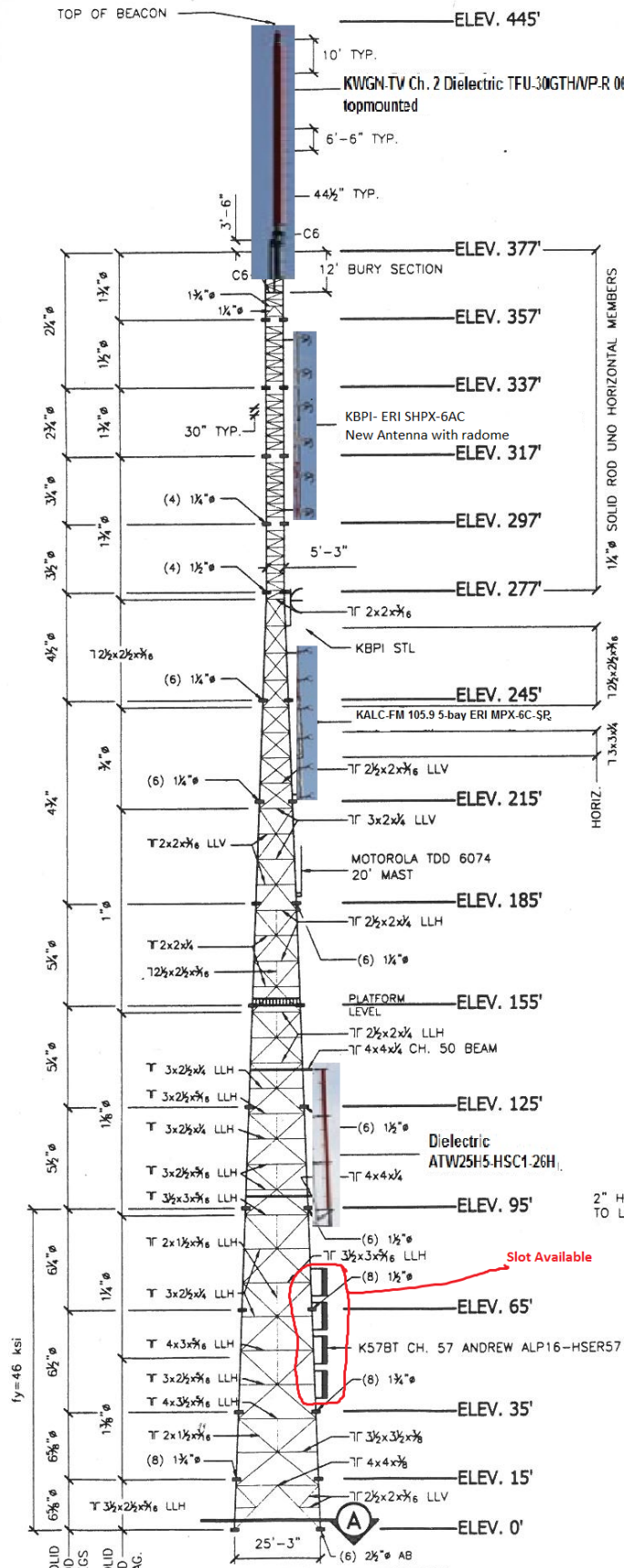
No.	Location	Coordinates (meters)			Slant Distance (m)	Look Down Angle, Deg.	V. Pattern Rel. Field	Power Density mW/cm^2	Power Density % of Occup.	Power Density % of Public	Measured Occup. %	Total Public %
		x	y	z								
34	30' from position 33	131.1	115.8	2251.6	190.4	7.8	0.50	0.03441	3.4%	17.2%	2.3	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%

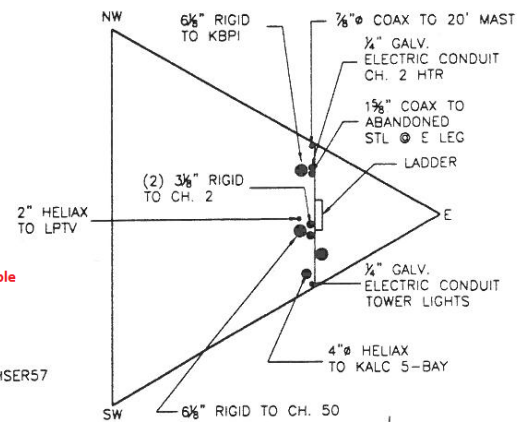
Notes:

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

Appendix B - Tribune Tower Elevation Drawing



NOTE:
ALL ANTENNAS ON EAST LEG



*Fy=60ksi, UNO

SCALE: 1/2" = 1'-0"