

ANSI STUDY

Due to the relatively small height AGL of the instant proposal, a detailed study of the ANSI impact was made. The calculations were made utilizing formula 7 from OET-65, Section II. In these calculations, the height above ground was reduced from 8 to 6 meters, to account for the head height of an average individual. In addition, since the scale of the study was so small as to preclude the use of topographic maps to reach conclusions regarding terrain profile, the terrain under and immediately surrounding the proposal was assumed to be horizontal. In fact, it is known that the terrain slopes sharply away from the side of the proposal in which all of the energy is directed. Due to the strongly directional characteristics of the CL-1469 antenna proposed, almost all of the energy is directed within 26° of 245° true in the horizontal plane, over the area in which the terrain slopes away. The calculations nevertheless ignore this fact, since the exact slope could not be determined, and instead were derived "worst-case", utilizing relative elevation field data from the manufacturer. These data are taken along the azimuthal angle of greatest radiation. See the attached specification sheet for the manufacturer's technical data on the proposed antenna.

A sample calculation:

Formula (7) from Section II of OET 65:

$$S = (2.56) (EIRP) / (4) (\pi) (R)^2$$

Where:

S = Highest power density (mW/cm²) at ground level

R = Distance from center antenna to ground in cm,

EIRP = 1.64 times ERP relative to dipole in mW,

Max field 0.02 used in calculation

MAX S = 2.31 mW/cm² for TV Channel 51

ERP = (0.4 times visual plus aural, times field factor².)

Station: K09UZ with ant. 6 m and Visual power 1 kW

$$S = \frac{(2.56) (1.64) (1000) [(0.4) (1,000) + (220)] (0.020)^2}{(4) (3.14) (600)^2}$$

S = 0.00023 mW/cm², 0.010 % of Controlled Exposure allowed.

S = 0.00023 mW/cm², 0.050 % of Uncontrolled Exposure allowed.



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K09UZ
Driggs, ID
Exhibit 7

The table of resulting power densities for different depression angles corresponding to different distances from the proposal:

Depression Angle(°)	Relative Field	Slant Distance (m)	Horizontal Distance (m)	Power Density (uW/cm ²)
-90	0.02	6.0	0.	0.23
-85	0.02	6.03	0.60	0.23
-80	0.02	6.09	1.04	0.22
-75	0.02	6.21	1.60	0.21
-70	0.03	6.39	2.20	0.46
-65	0.04	6.62	2.80	0.76
-60	0.10	6.93	3.50	4.31
-55	0.33	7.33	4.20	41.98
-50	0.45	7.83	5.0	68.42
-45	0.55	8.49	6.0	86.93
-40	0.63	9.33	7.2	94.45
-35	0.74	10.46	8.60	103.67
-30	0.80	12.0	10.4	92.06
-25	0.85	14.20	12.9	74.22
-20	0.90	17.54	16.5	54.54

It can be seen in this table that a peak of power density occurs at approximately 8.6 meters from the proposal. The value of the calculated peak is 103.67 microwatts per square centimeter. The maximum permissible uncontrolled exposure for TV channel 51 (692 MHz) is calculated:

$$S = \frac{f \text{ (MHz)}}{1500} = \frac{692}{1500} = 0.461 \text{ mW, or } 461 \text{ } \mu\text{W/cm}^2$$



The maximum permissible controlled exposure is calculated:


$$S = \frac{f(\text{MHz})}{300} = \frac{692}{300} = 2.307 \text{ mW, or } 2,307 \mu\text{W/cm}^2$$

At the point of greatest downward radiation then, this proposal is predicted to radiate a maximum of 22.5% of the uncontrolled maximum exposure limit, and 4.5% of the controlled limit to a uniformly horizontal plane surface intersecting the support tower at a point exactly 6 meters below the center of radiation, at the azimuth of 245° true, and at a distance of approximately 8.6 meters. Thus it is not predicted that the instant proposal will exceed the maximum permitted exposure limits of 47 CFR 1.1310.

The applicant will reduce power or suspend transmission as required to protect workers on the tower from exposure which would be in excess of the permitted limit for controlled exposure.

Respectfully submitted:

June 11, 2002



Gary O. Keener

