

Analysis of Non Ionizing RF Radiation

In accordance with the order of Docket 79-144, as adopted January 1, 1986, the following analysis of human exposure to non ionizing RF radiation has been performed. All calculations were made using the worst case formulas prescribed by OST Bulletin Number 65 at a point 2 meters above the tower base. WUPY will employ an ERI model SHPX-12 AC antenna and the downward radiation has been scaled by a field factor of 0.13. A study of the actual levels of non ionizing RF radiation vs. the distance from the tower created via the Commission's own *FMMModel* program is included in this report as Exhibit 3. As shown in Exhibit 3, the maximum actual power density at ground level is 56.78 $\mu\text{W}/\text{cm}^2$ at a distance of 16.4 m from the tower base.

I. Facilities

WUPY (FM)
101.1 MHz
100.0 kW H&V
76 m AGL

No other facilities are proposed nor are considered.

II. Calculations

WUPY

$$s = \frac{(0.64)(f^2)(\text{EIRP})}{\pi R^2}$$

$$s = \frac{(0.64)(1.64)(.13)^2(100,000 + 100,000)W(1000) \text{ mW/W}}{\pi ((74)(100\text{cm/m}))^2}$$

s = 0.0206 mW/cm²
ANSI Max = 0.2 mW/cm²
% of ANSI Max = 10.31%

III. Conclusion

As the above calculation indicates, the worst case power density at the tower base falls below ANSI maximums established under ANSI C 95.1 (1992). This effectively precludes inadvertent passive overexposure by members of the public. So as to discourage trespassers from putting themselves at risk additional precautions are in place, signs warning of hazards due to High Voltage and RF Radiation are posted on the site. Upon completion of construction, plans will be developed based on the downward radiation characteristics of the FM broadcast antenna, so as to establish minimum safe distances at various power levels so as to protect agents and employees of the licensee from occupational overexposure. Tower maintenance will be performed only after sufficient power reductions are made so as to protect workers or work will be scheduled at night when a complete cessation of the operation can be accomplished.