

Radio Frequency Radiation Study and Statement

The facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65 “Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation”.

The proposed antenna system was previously licensed as the WRTR(FM) main antenna system and consists of an EPA type 3, 3-bay, 0.93-wave spaced “Rototiller” antenna mounted with its center of radiation 119 meters above ground level, and will operate with a maximum effective radiated power of 5.7 Kilowatts in both the horizontal and vertical planes. The tower that supports the proposed antenna is the vertical radiator for WACT(AM).

WACT(AM) is licensed for 1420 kHz with 5 kW non-directional daytime and 0.108 kW non-directional nighttime operation. The WACT(AM) radiator has an electrical height of 207.9 degrees at a frequency of 1420 kHz and is series-fed.

AM Power Density Prediction Method:

To determine the level of RF exposure attributable to WACT, Figures 3 & 4 of “Supplement A (Edition 97-01) to OET Bulletin 65 (Edition 97-01)” were used to determine the predicted E-field and H-field values at the nearest point on the fence that surrounds the tower for a power level of 1.0 kW. These values were multiplied by the square root of 5.0 since the WACT authorized daytime power is 5.0 kW. The minimum distance from the WACT radiator to the nearest point on the fence is 3.7 meters. The electrical height of the WACT radiator is 207.9 degrees, which falls in between the electrical heights specified in Figures 3 & 4. Rather than interpolating the predicted E-field and H-field values at a distance of 3.7 meters, the higher predicted E-field value of 190 V/m (85 V/m at 1.0 kW) for a 180-degree radiator and the higher predicted H-field value of 0.36 A/m (0.16 A/m at 1.0 kW) for a 225-degree radiator were assumed to provide a more conservative RF Exposure prediction.

FM Power Density Prediction Method:

To determine the level of RF exposure attributable to the proposed WTXT(FM) “emergency” antenna, the FCC microcomputer program “FM Model” was utilized to calculate the percentages of both the Occupational/Controlled and the General Public/Uncontrolled exposure limits. At 2 meters above ground, at 48 meters from the base of the tower, the proposed WTXT(FM) operation will contribute worst case, 1.85 microwatts per square centimeter, or 0.19 percent of the allowable ANSI limit for controlled exposure, and 0.93 percent of the allowable limit for uncontrolled exposure.

General Population/Uncontrolled Exposure:

The maximum predicted E-field level attributable to WACT is 190 V/m, which represents a Plane-wave equivalent power density of 9.59 mW/cm², or 10.74 % of the General Population/Uncontrolled exposure limit of 89.27 mW/cm² at a frequency of 1420 kHz (180/f²). The maximum predicted H-field level attributable to WACT is 0.36 A/m, which represents a Plane-wave equivalent power density of 4.83 mW/cm², or 5.41 % of the exposure limit. The predicted RF exposure levels attributable to the proposed WTXT Antennas totals 0.93% of the General Population/Uncontrolled Exposure Limit.

Even though the maximum predicted exposure levels attributable to WACT(AM), and the proposed WTXT Emergency antenna may occur at significantly different locations, a worst case exposure level can be assumed by adding the maximum exposure level percentages of 10.74 % (WACT E-field) and 0.93 % which totals 11.67 % of the General Population/Uncontrolled Exposure limit. The gate to the fence surrounding the tower is securely locked and RF Radiation Warning Signs are conspicuously posted at appropriate intervals on the fence. Therefore, WACT(AM) and the proposed WTXT “Emergency” Antenna do comply with OET Bulletin 65 Edition 97-01 with regard to General Population/Uncontrolled Exposure.

Occupational/Controlled Exposure:

The maximum predicted E-field level attributable to WACT is 190 V/m, which represents a Plane-wave equivalent power density of 9.59 mW/cm², or 9.50 % of the Occupational/Controlled exposure limit of 100 mW/cm² at frequencies from 300 kHz to 3.0 MHz. The maximum predicted H-field level attributable to WACT is 0.36 A/m, which represents a Plane-wave equivalent power density of 4.83 mW/cm², or 4.83 % of the exposure limit. The predicted RF exposure levels attributable to the proposed WTXT Antennas totals 0.19% of the General Population/Uncontrolled Exposure Limit.

Even though the maximum predicted exposure levels attributable to WACT(AM), the proposed WRTR(FM) and the WTXT Auxiliary Antennas may occur at significantly different locations, a worst case exposure level can be assumed by adding the maximum exposure level percentages of 9.50 % (WACT E-field) and 0.91 % which totals 10.41 % of the Occupational/Controlled Exposure limit. The gate to the fence surrounding the tower is securely locked and RF Radiation Warning Signs are conspicuously posted at appropriate intervals on the fence. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operations, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission when anyone must climb the tower for maintenance or inspection. Therefore, WACT(AM), and the WTXT “emergency” operation also comply with OET Bulletin 65 Edition 97-01 with regard to Occupational/Controlled Exposure.

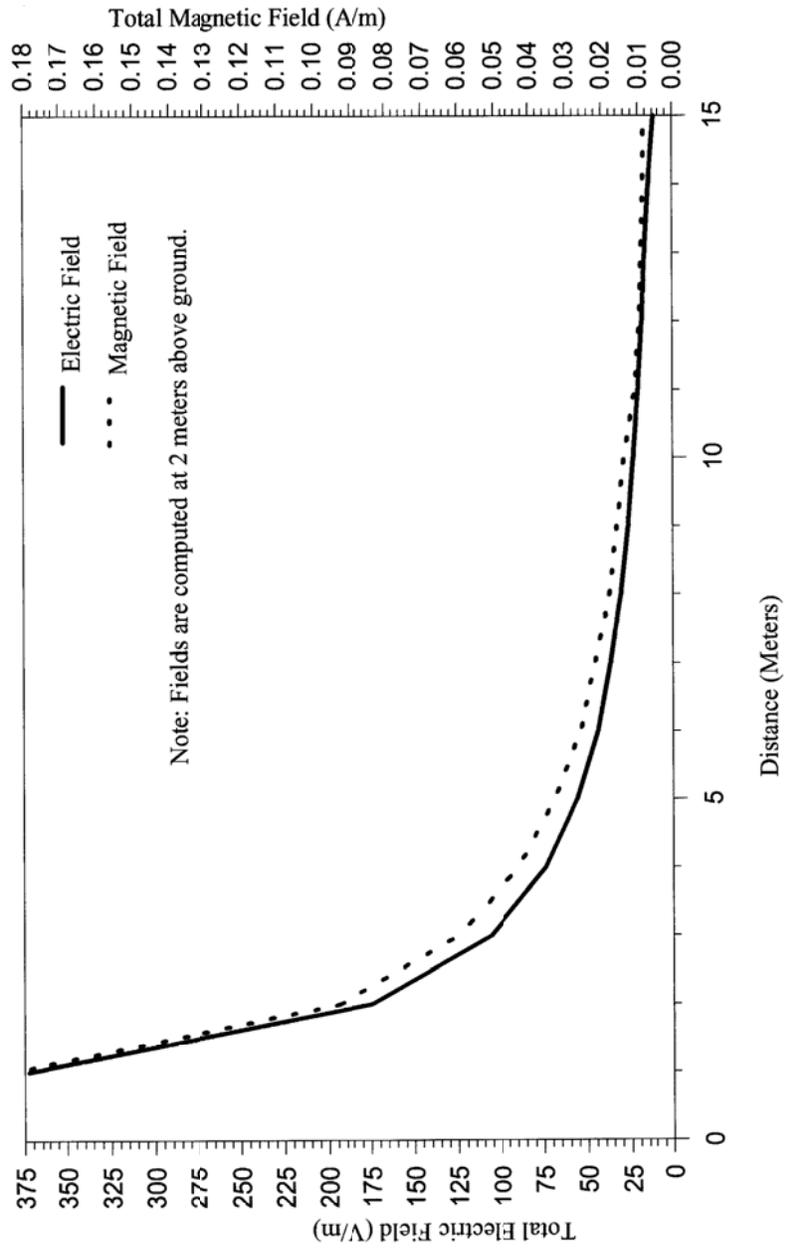


Figure 3. MININEC AM Model for 1 kW, 0.5 Wavelength Tower

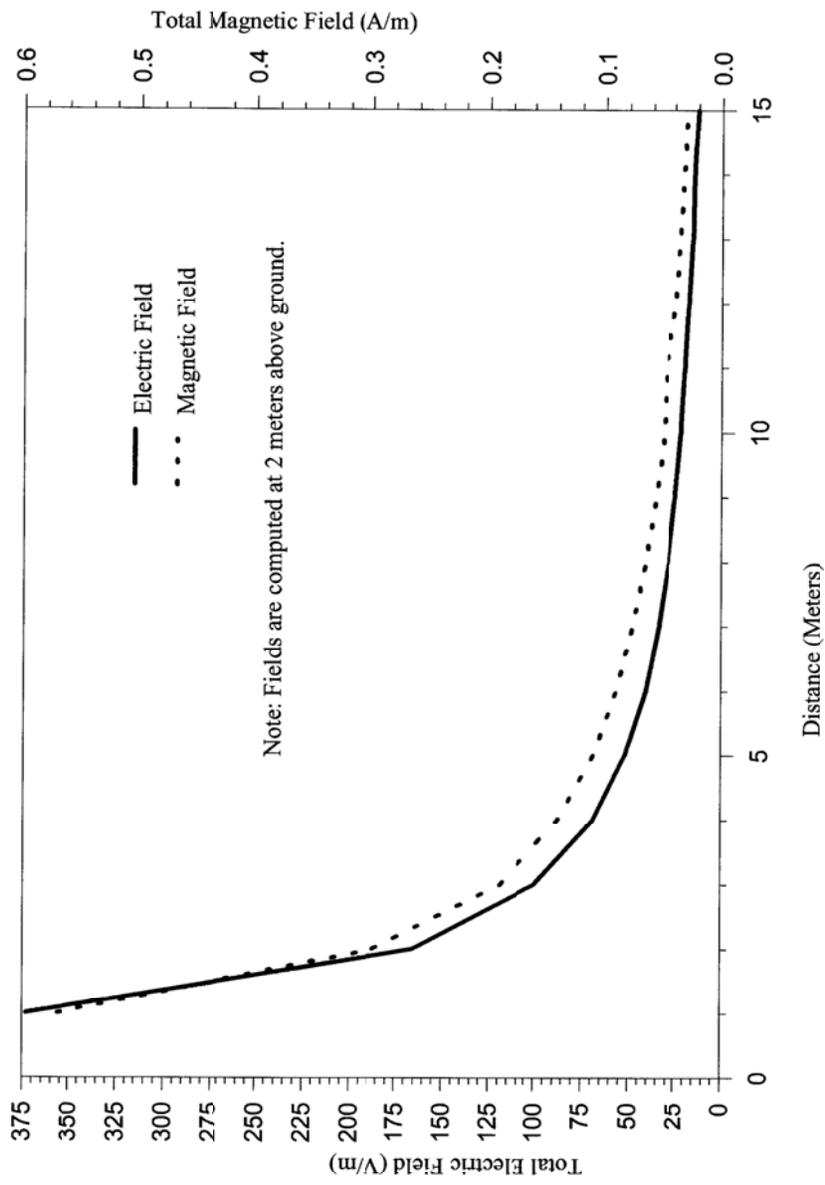


Figure 4. MININEC AM Model for 1 kW, 0.625 Wavelength Tower