

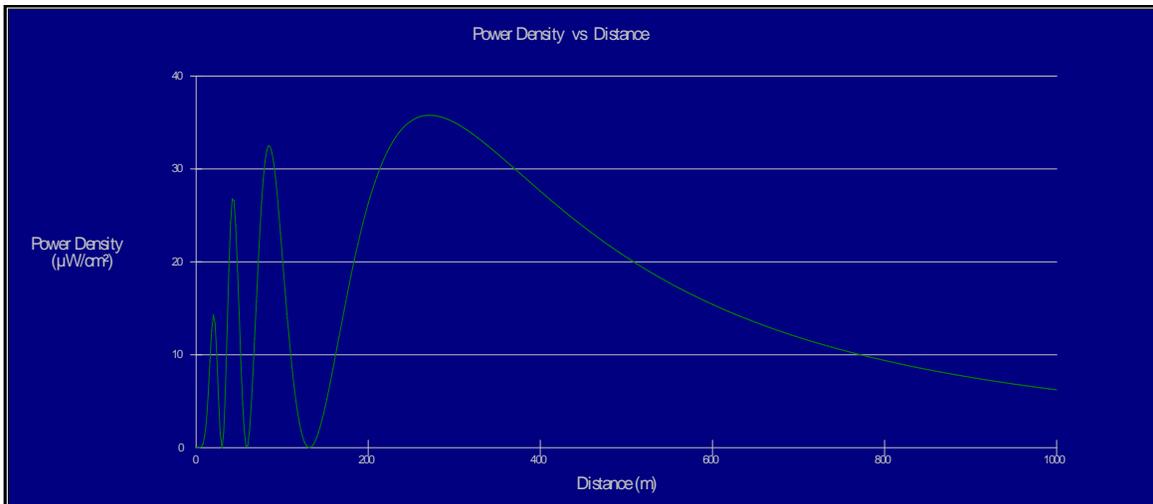
Environmental Protection Statement

An analysis of the proposed WWOZ site was performed using the Commission's FM Model program. The proposed antenna is a Shivley 6810-8-SS-DA. This half-wave spaced antenna has a maximum ERP of 100 kW. This analysis assumes 100 kW radiation in all horizontal azimuths and does not rely on the horizontal directionality of the antenna. The antenna is mounted with center of radiation at 38 meters above the top of the building on a 61 meter tower. The analysis is based on protection at the base of this tower on the roof of the building. The 8 bay, half-wave spaced antenna was analyzed using the following parameters.

Horizontally Polarized Radiation	100 kW
Vertically Polarized Radiation	100 kW
Distance from COR to 2 m above rooftop	36 meters
Type of Antenna	6810
Number of Bays	8
Antenna Element Spacing	½ Wave

The following Figure 1 was produced using the FCC FM Model:

Figure 1



Maximum Value: 35.78 $\mu\text{W}/\text{cm}^2$ at 272 meters.

This configuration produces a maximum of 35.78 $\mu\text{W}/\text{cm}^2$ at a distance of 272 meters from the base of the tower at 2 meters above rooftop level. This is far less than the allowed 200 microwatts per square centimeter for uncontrolled exposure.

In the main lobe of the antenna, the maximum power radiated horizontally outward from the center of radiation of the FM antenna is 200 kW (horizontal and vertical polarization).

A basic formula for power density is:

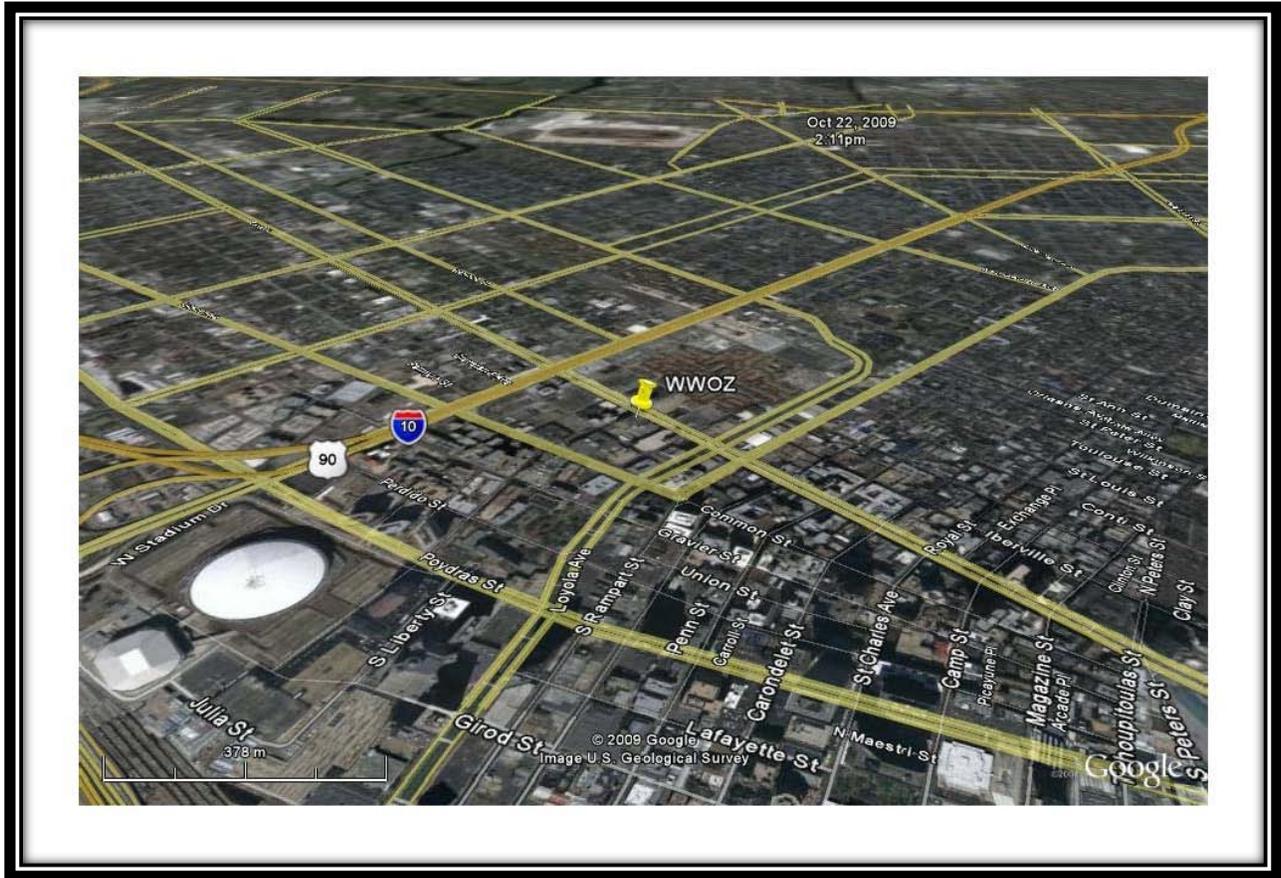
$$S = \frac{(33.4)F^2(ERP)}{R^2}$$

where:

- S = power density in microwatts/sq.cm
- F = typical relative field factor in the downward direction (-60 to -90 elevation)
- R = distance from center of radiation in meters
- ERP = Effective Radiated Power in watts

Since the full radiation is considered, $F = 1$. The maximum allowed power density for uncontrolled radiation given in OST Bulletin 65 is $200 \mu\text{W}/\text{cm}^2$. Using this value for S and solving for R in this case, the distance to a point in free space where the power density just reaches the $200 \mu\text{W}/\text{cm}^2$ value, we get $R = 183$ meters. Farther than this distance away from the center of radiation of the antenna, the power density is less. There are no structures in the main lobe of the antenna within 183 meters horizontally of the center of radiation. In fact, there are no buildings anywhere near the site in the main lobe of the antenna. Figure 2 of this document plots the WWOZ site relative to buildings in the area.

Figure 2



The applicant certifies that it, in coordination with any other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

WWOZ is lowering antenna height above ground. There is no tower construction. There is no change to the building or rooftop. WWOZ has no significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments. Therefore, this proposal is excluded from environmental processing.

Charles F. Ellis PE
Ellis Engineering
June 24, 2012