

## **Exhibit 22**

### **Radiation Hazard Calculation**

This application is for 8 kW ERP vertically polarized and 0.017 kW ERP horizontally polarized at 25 meters above ground level. This is a level which does not pass the worksheet calculation criteria for FCC Form 340. For economic reasons, the antenna is expected to require 4 bays spaced by one wavelength. There are no other high power occupants on the proposed tower at this time. Nor are there other sources of RF radiation in the vicinity.

Appendix C of OST Bulletin No. 65 (second edition) specifies the maximum radiation in the 30 MHz to 300 MHz region should be limited to  $1000 \mu\text{w}/\text{cm}^2$  for occupational/controlled exposure and  $200 \mu\text{w}/\text{cm}^2$  for general population/uncontrolled exposure.

The instant application was evaluated with a modified form of the Commission's FMMODEL program. The source code for FMMODEL was acquired from the FCC Office of Engineering and Technology Internet site. The single bay vertical plane profile was computed from the well-known theoretical performance of the vertical field pattern of a vertically oriented dipole. This model was used because the antenna used as a base for the directional is a stock vertical dipole antenna. The 4-bay field is then computed using the normal multibay calculations of FMMODEL, just as the program would for any other antenna type. The program reports that the peak value of the power density at 2 meters above the ground is  $47.4627 \mu\text{w}/\text{cm}^2$  at 10.2 meters from the tower. This is 4.7% of the maximum allowable occupational exposure level and 23.7% of the allowable uncontrolled exposure level.

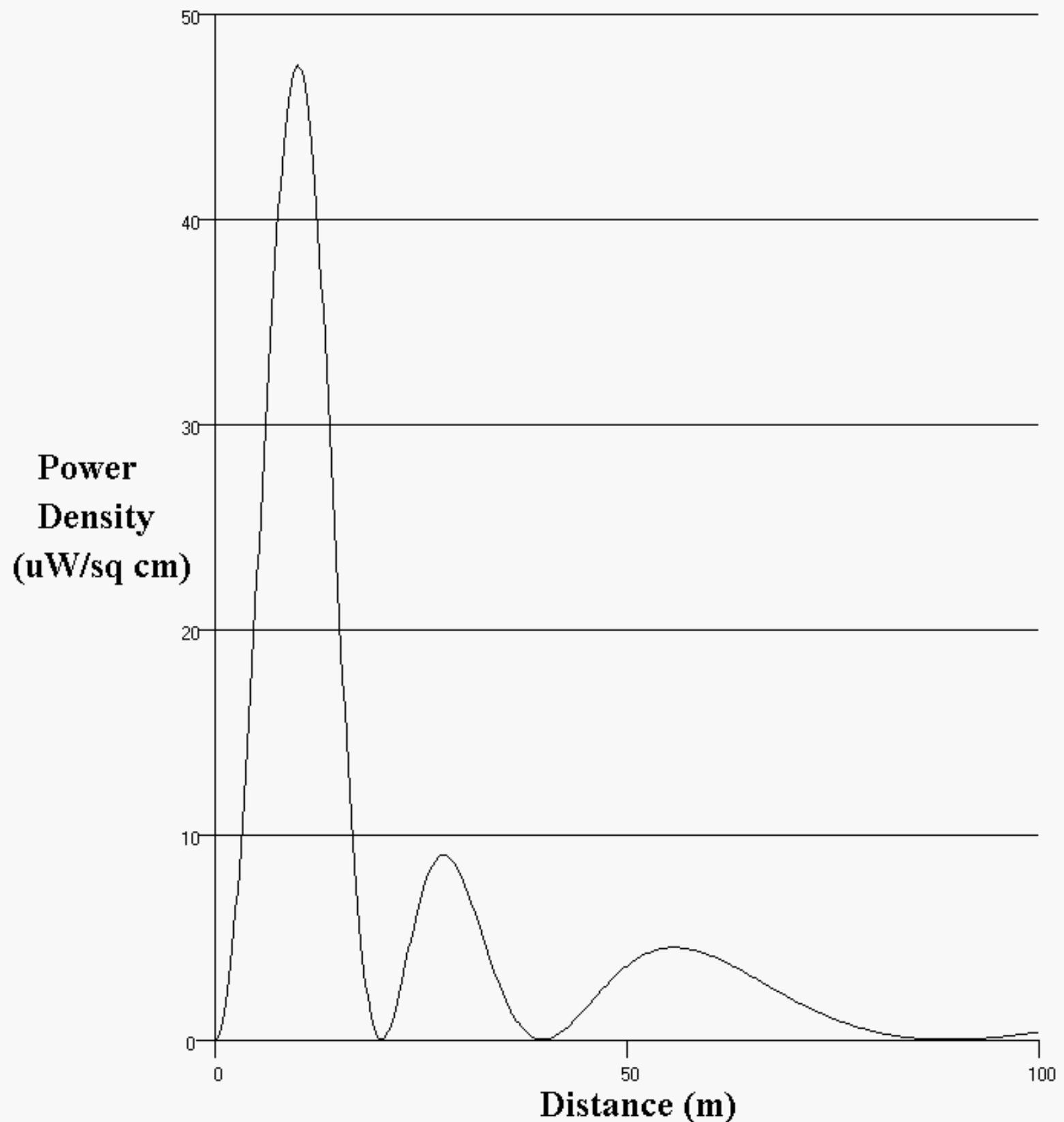
Note that even with only one bay of this antenna type, no radiation hazard is produced (see the second figure of this exhibit).

Unless personnel are actually climbing the tower, the radiation level is safe when the station is operating at full power. In the event of work on the tower, the transmitter power of the transmitter will be reduced to the extent required, (and possibly shut down, if necessary,) to allow safe work in the immediate region of the antennas.

Uncontrolled exposure will be prevented by fencing and a locked gate. Proper signs will be posted to warn of the potential for exposure to radiofrequency fields.

**This site is therefore not of environmental significance as defined by the Commission in CFR §1.1307(b).**

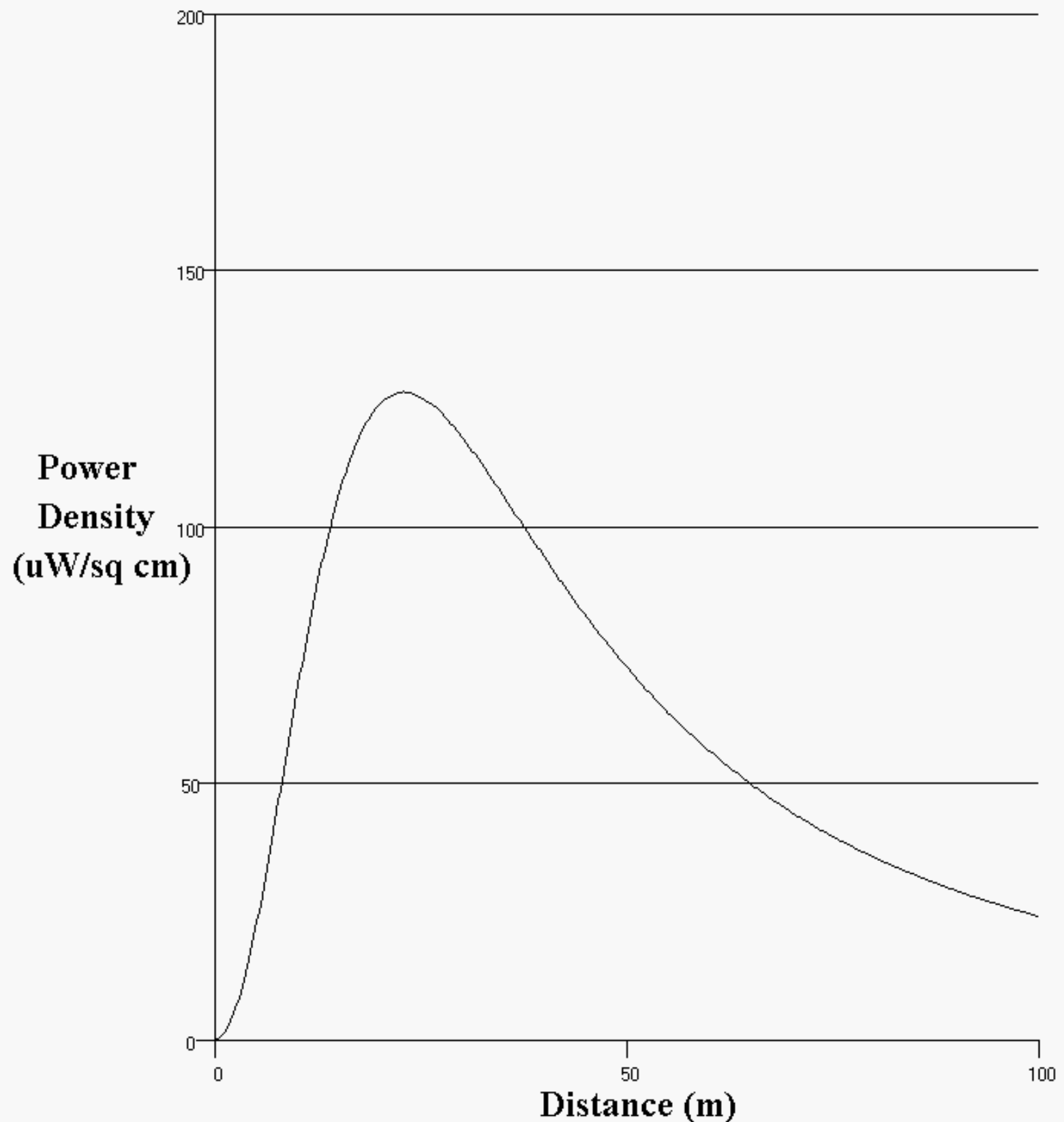
# Power Density vs Distance



Modified from FMModel, a program written by the FCC Office of Engineering and Technology

Distance(m):	<input type="text" value="100"/>	Antenna Type:	<input type="text" value="Vertical Dipole"/>	<b>Prop</b>
Horizontal ERP(kW):	<input type="text" value="0.017"/>	Number of Elements:	<input type="text" value="4"/>	47.4627 $\mu\text{W}/\text{sq cm}$
Vertical ERP(kW):	<input type="text" value="8"/>	Element Spacing:	<input type="text" value="1"/>	at 10.2 Meters
Antenna Height (m):	<input type="text" value="25"/>	4.7% of Occupational Limit 23.7% of General Limit		

# Power Density vs Distance



Modified from FMMODEL, a program written by the FCC Office of Engineering and Technology

Distance(m):	<input type="text" value="100"/>	Antenna Type:	<input type="text" value="Vertical Dipole"/>	<b>Prop - 1 bay</b>
Horizontal ERP(kW):	<input type="text" value="0.017"/>	Number of Elements:	<input type="text" value="1"/>	126.275 $\mu\text{W}/\text{sq cm}$
Vertical ERP(kW):	<input type="text" value="8"/>	Element Spacing:	<input type="text" value="1"/>	at 23 Meters
Antenna Height (m):	<input type="text" value="25"/>	12.6% of Occupational Limit 63.1% of General Limit		