

**June 2011
New FM Channel 224A
Lawrence Park, PA
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 224A (92.7 MHz) with a maximum lobe effective radiated power of 6 kilowatts. Operation is proposed with a directional antenna which will be side-mounted on a tower to be constructed in Millcreek Township.

Notice of the proposed tower construction has been filed with the Federal Aviation Administration on FAA Form 7460-1. Upon receipt of the FAA's determination of no hazard, FCC Antenna Structure Registration for the tower will be filed on Form 854, and the resulting Antenna Structure Registration Number will be promptly supplied to the Audio Division.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(mW / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

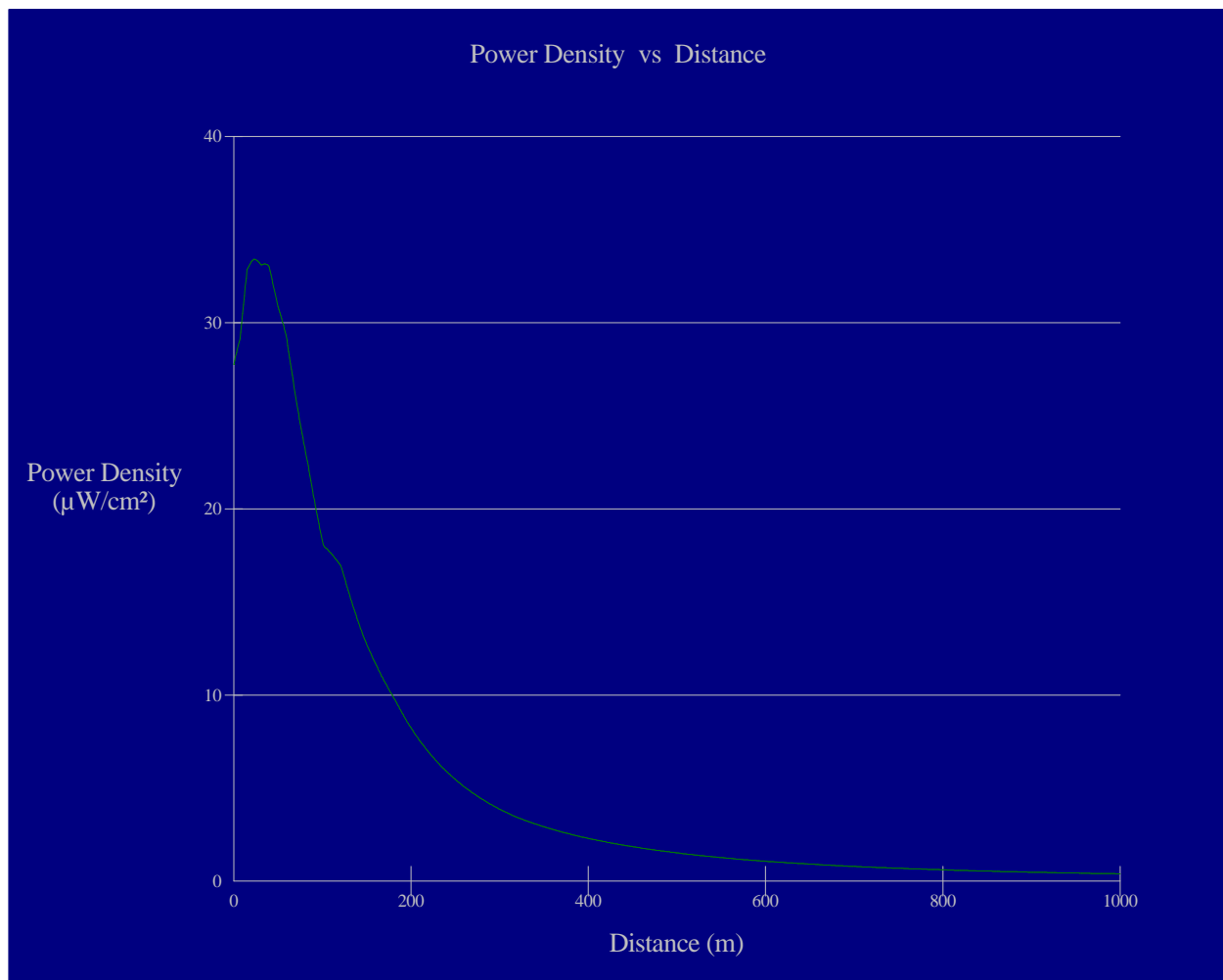
D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

The precise make and model of antenna to be used for this station has not yet been selected. Therefore, calculations of the power density produced by the proposed antenna system assume a one-bay Type 1 element pattern, which is the "worst case" assumption. Under this worst-case

assumption, the highest calculated ground level power density occurs at a distance of 23 meters from the base of the antenna support structure. At this point the power density is calculated to be $33.4 \mu\text{W}/\text{cm}^2$, which is 16.7% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

Lawrence Park 224A

Antenna Type: worst-case “ring stub” assumed for the purposes of this study

No. of Elements: 1

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 6 kW

Vertical ERP: 6 kW

Antenna Height: 87 meters AGL

Maximum Calculated Power Density is 33.4 : W/cm^2 at 23 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers