

**November 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 atop an apartment building.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration, as demonstrated by the attached printout from the Commission's TOWAIR program. Therefore, this structure does not require an Antenna Structure Registration Number.

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.

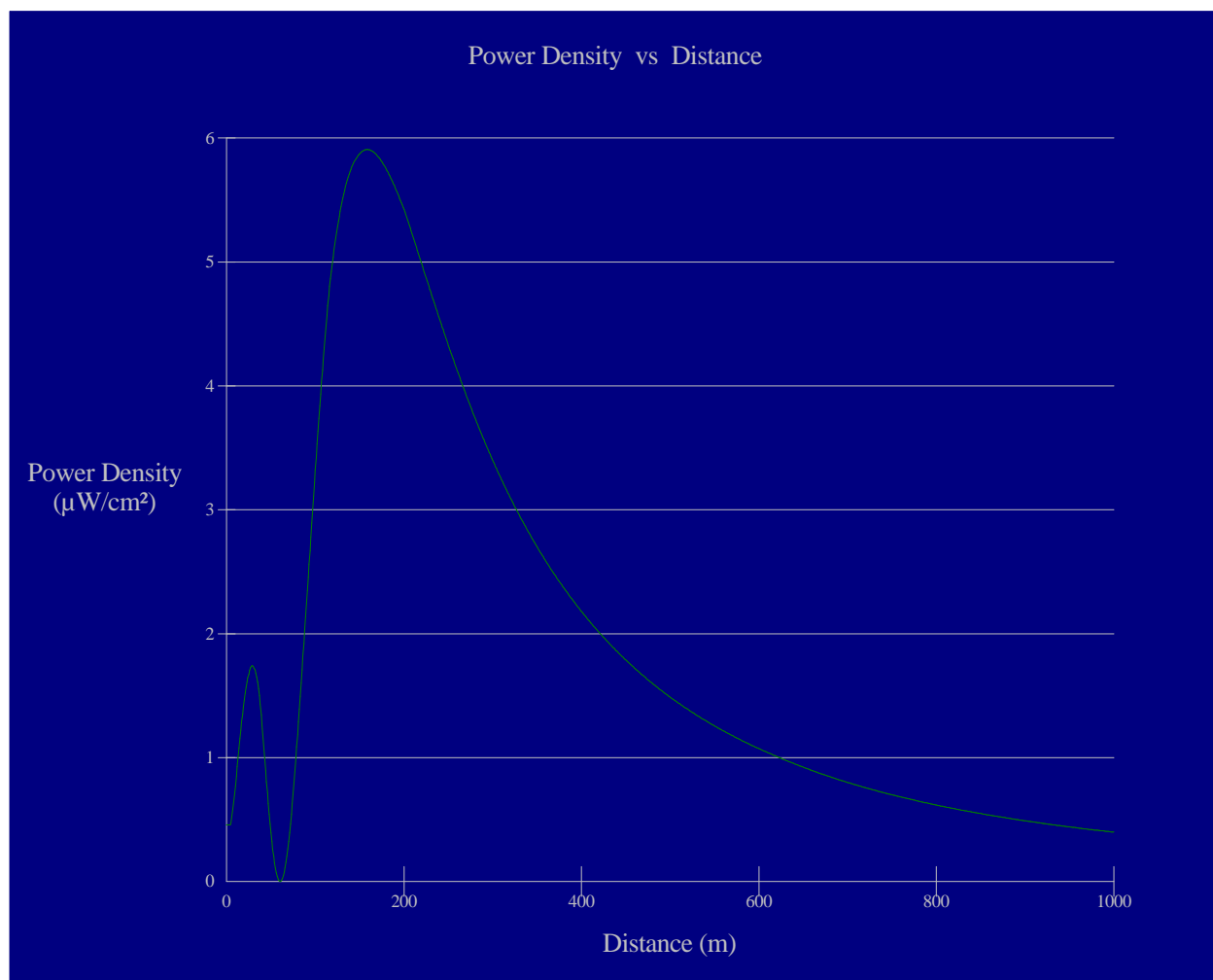
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume the appropriate element pattern for the ERI "rototiller" antenna to be used. The highest calculated ground level power density occurs at a distance of 159 meters from the base of the antenna

support structure. At this point the power density is calculated to be $5.9 \mu\text{W}/\text{cm}^2$, which is 3% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

The transmitting antenna will be installed 19 meters above the building rooftop. The highest calculated rooftop level power density occurs at a distance of 50 meters from the base of the antenna support structure. At this point the power density is calculated to be $59.6 \mu\text{W}/\text{cm}^2$, which is 30% 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

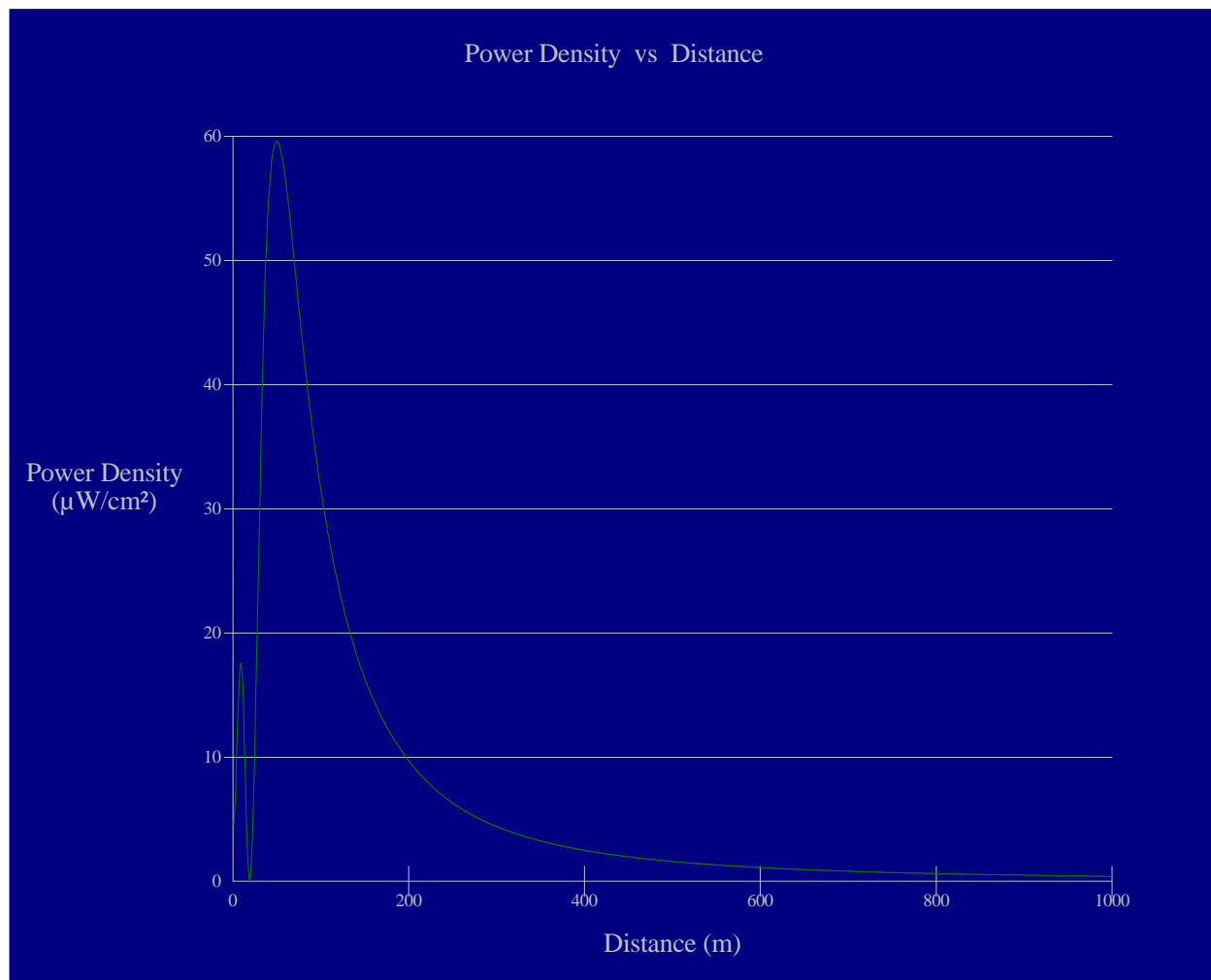
Antenna Type: ERI "rototiller"
No. of Elements: 3
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 6 kW
Vertical ERP: 6 kW

Antenna Height: 56 meters AGL

Maximum Calculated Power Density is 5.9 $\mu\text{W}/\text{cm}^2$ at 159 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers



Rooftop-Level RF Exposure

OET FMModel

Lawrence Park 224A

Antenna Type: ERI "rototiller"
No. of Elements: 3
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 6 kW
Vertical ERP: 6 kW

Antenna Height: 19 meters above the building rooftop

Maximum Calculated Power Density is $59.6 \mu\text{W}/\text{cm}^2$ at 50 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers



Antenna Structure Registration

[FCC](#) > [WTB](#) > [ASR](#) > [Online Systems](#) > TOWAIR

[FCC Site Map](#)

TOWAIR Determination Results

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A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6488.88 MTRS (6.48890 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	42-05-13.00N	080-10-41.00W	ERIE INTL/TOM RIDGE FIELD	ERIE, PA	221.9	1981.2

PASS SLOPE(100:1)NO FAA REQ - 5690.0 Meters (18667.7 Feet)away & below slope by 19.0 Meters (62.3400 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	42-05-13.00N	080-09-54.00W	ERIE INTL/TOM RIDGE FIELD	ERIE, PA	221.9	1981.2

Your Specifications

NAD83 Coordinates

Latitude	42-07-25.3 north
Longitude	080-07-01.4 west

Measurements (Meters)

Overall Structure Height (AGL)	61
Support Structure Height (AGL)	61
Site Elevation (AMSL)	198