August 2006
KFMY(FM) Auxiliary Antenna #2
NIER Analysis

Facilities Proposed

The proposed auxiliary facility will operate with an effective radiated power of 3.4 kilowatts. Operation is proposed with a 2-element circularly-polarized omni-directional half-wave-spaced antenna. This antenna is already in place and is being operated as a booster with the callsign KFMY-FM1. The proposed auxiliary facility would operate with the same technical facilities as the existing booster, at those times when the main KFMY facility is off-line due to either technical problems or maintenance. The antenna is side-mounted on an existing tower at Tumwater Hill in Tumwater, Washington.

The FCC Antenna Structure Registration Number for the tower is 1202500.

Also operating from this tower site are KAOS 207A Olympia and KDDS-FM1 257D Olympia.

NIER 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 auxiliary antenna system assume a Type 2 element pattern, which is the element pattern for the PSI FM-2-HWS antenna proposed for use. The highest calculated ground level power density occurs at a distance of 56 meters from the base of the antenna support structure. At this point the power density is calculated to be 26.5 $\mu W/cm^2$.

Calculations of the power density produced by the KAOS antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna used by that station. The highest calculated ground level power density occurs at a distance of 82 meters from the base of the antenna support structure. At this point the power density is calculated to be 4.6 $\mu W/cm^2$.

Calculations of the power density produced by the KDDS-FM1 antenna system assume a Type 2 element pattern, which is the element pattern for the PSI FM-2-HWS antenna used by that station. The highest calculated ground level power density occurs at a distance of 74 meters from the base of the antenna support structure. At this point the power density is calculated to be 14.0 $\mu W/cm^2$.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of the KFMY auxiliary and the present operation of KAOS and KDDS-FM1 (were their maxima to coincide, which they do not) is 45.1 $\mu W/cm^2$, which is 4.5% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 22.6% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

Public access to the site is restricted and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

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.

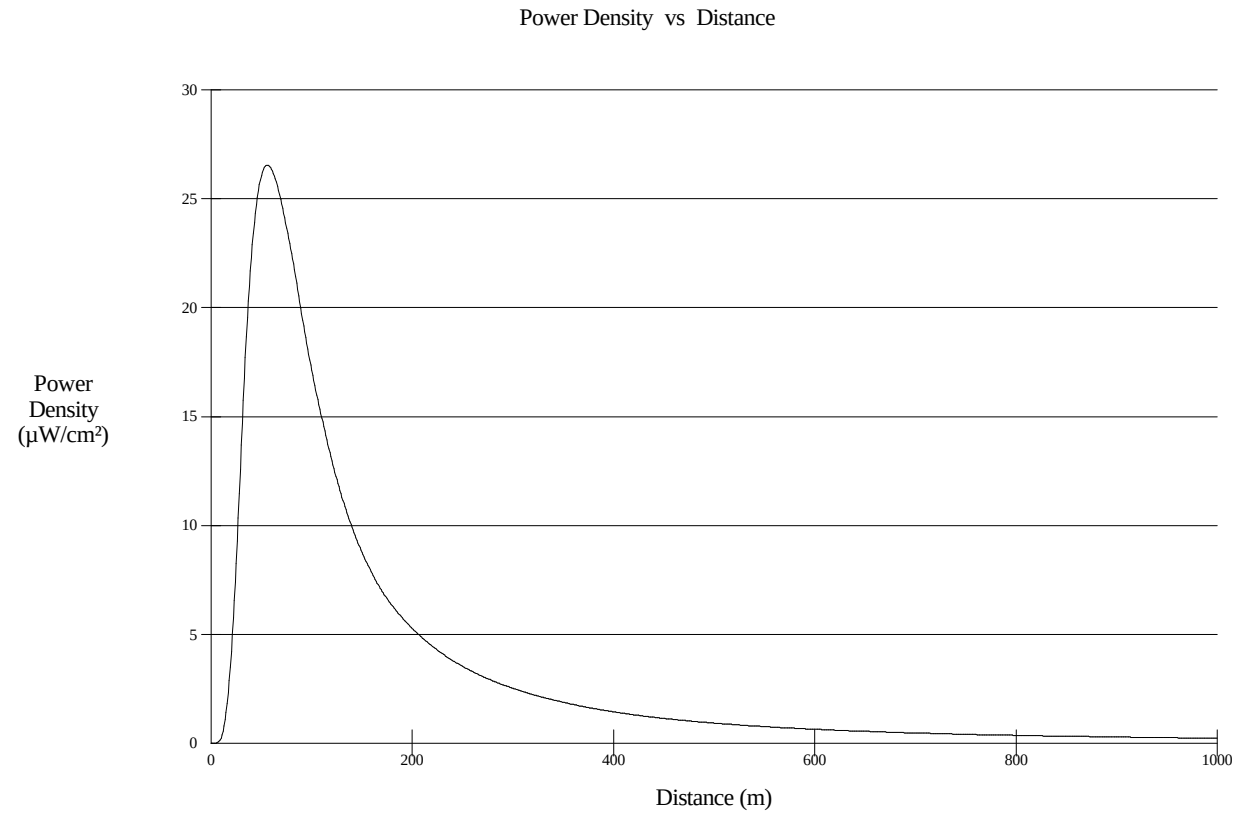
Ground-Level NIER Analysis OET FMModel

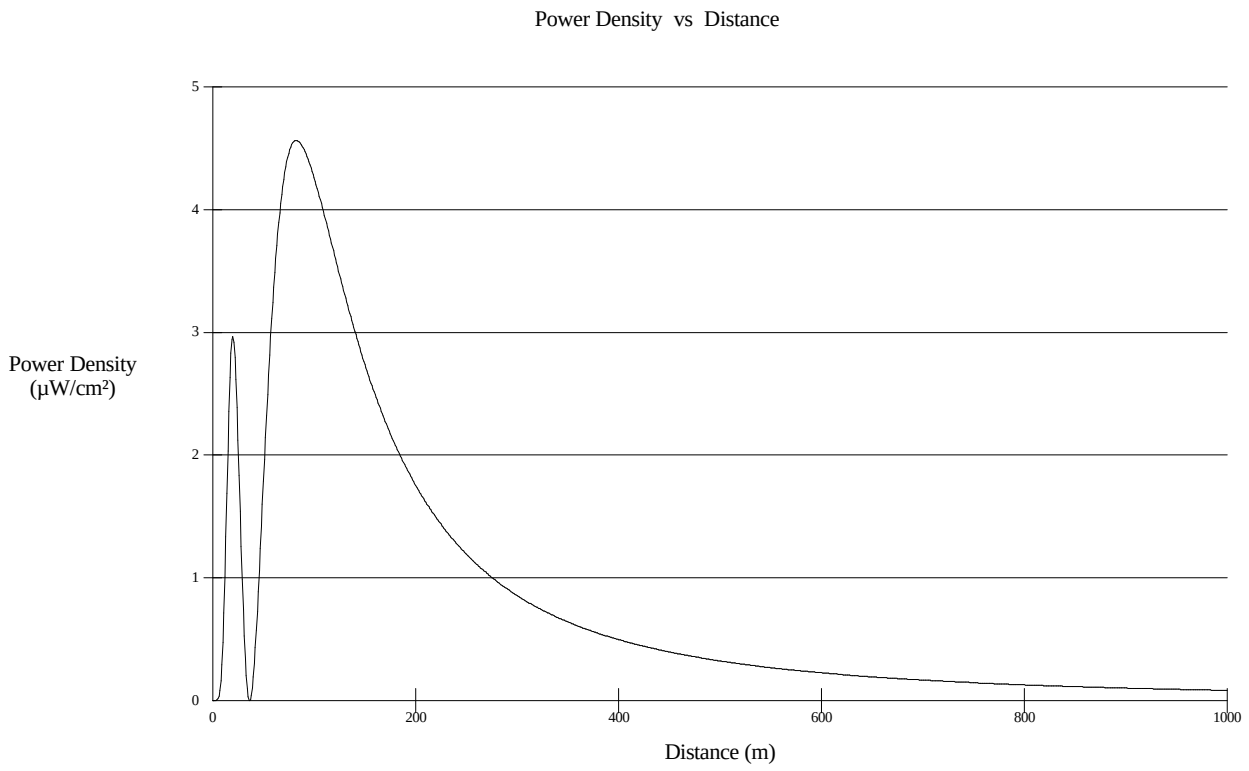
KFMY Auxiliary #2
Antenna Type: PSI FM-2-HWS
Number of Elements: 2
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 3.4 kW
Vertical ERP: 3.4 kW

Antenna Height: 32 meters AGL

Maximum Power Density is 26.5 µW/cm2 at 56 meters from the antenna structure.





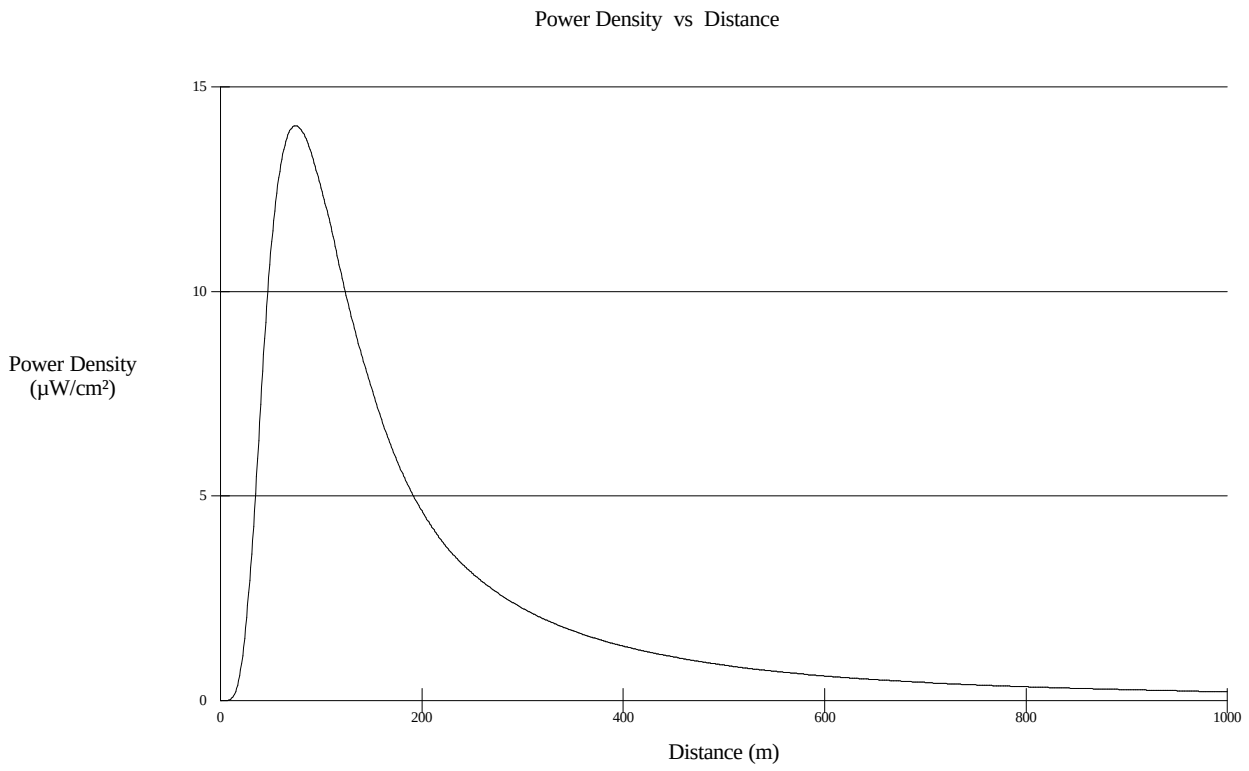
Ground-Level NIER Analysis OET FMModel

KAOS 207A Olympia
Antenna Type: Shively 6812-4-SS-R
Number of Elements: 4
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 1.25 kW
Vertical ERP: 1.25 kW

Antenna Height: 23 meters AGL

Maximum Power Density is 4.6 µW/cm2 at 82 meters from the antenna structure.



Ground-Level NIER Analysis OET FMModel

KDDS-FM1 257D Olympia
Antenna Type: PSI FM-2-HWS
Number of Elements: 2
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 3.2 kW
Vertical ERP: 3.2 kW

Antenna Height: 42 meters AGL

Maximum Power Density is 14.0 µW/cm2 at 74 meters from the antenna structure.