May 2005
KUMA-FM Channel 299C1 Pendleton, OR
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 299C1 (107.7 MHz) with an effective radiated power of 75 kilowatts. Operation is proposed with a 6-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on a tower located atop Emigrant Mountain.

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. Therefore, this structure does not require an Antenna Structure Registration Number.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation other than TV translator station K59BO Pendleton. K59BO is located at a site in excess of 250 meters from the proposed KUMA-FM operation, and operates with just 485 Watts ERP on Channel 59. Thus, the ground level NIER values from K59BO near the base of the proposed KUMA-FM tower are believed to be negligible, and precise calculations are made only with regard to the levels from this proposal.

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.

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

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.

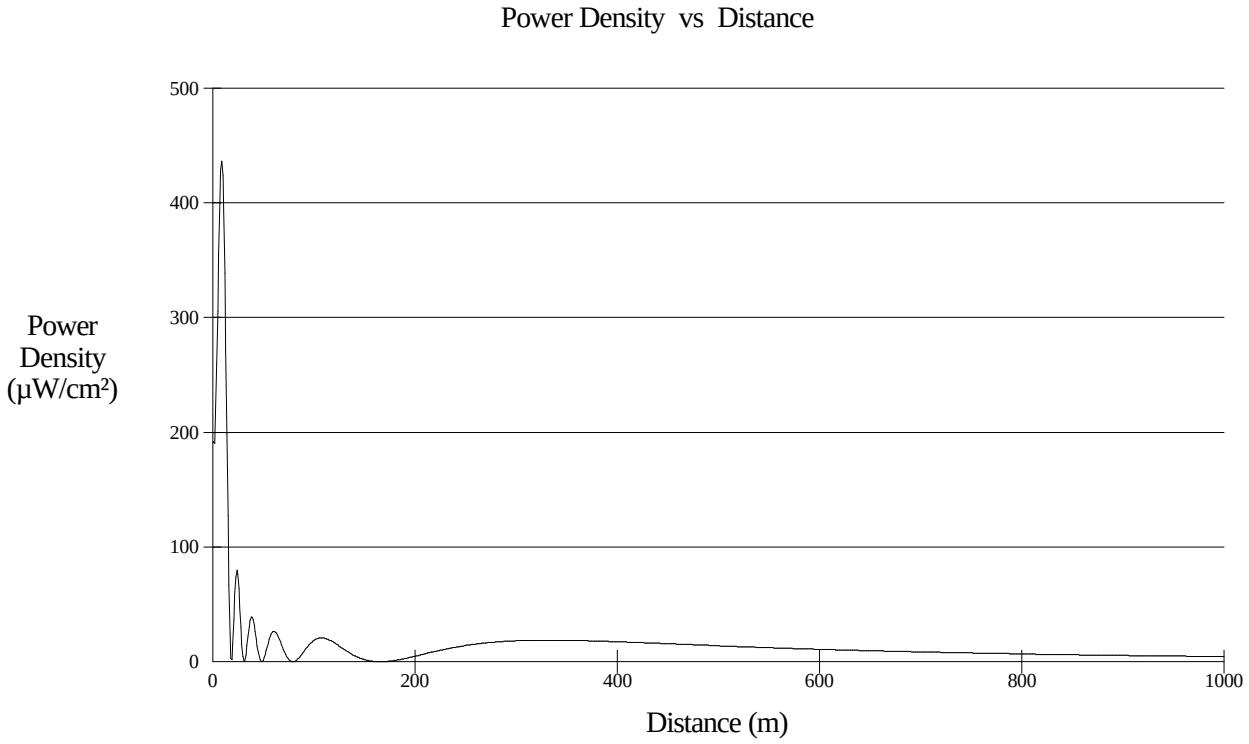
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed KUMA-FM antenna system assume a Type 3 element pattern, which is the element pattern for the ERI antenna proposed for use. The highest calculated ground level power density occurs at a distance of 9 meters from the base of the antenna support structure. At this point the power density is calculated to be 436.3 μW/cm², which is 43.6% of 1000 μW/cm^2 (the FCC standard for controlled environments) and 218% of 200 μW/cm^2 (the FCC standard for uncontrolled environments).

Ground-level power density falls below 200 μW/cm² at 14 meters (46 feet) from the tower base. The licensee of KUMA-FM informs this firm that it has constructed a fence at least 14 meters from the new tower, in order to ensure that members of the general public cannot enter areas in which the FCC standard for uncontrolled environments is exceeded.

Public access to the site is restricted by a locked gate 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

KUMA-FM Pendleton
Antenna Type: ERI "rototiller"
Number of Elements: 6
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 75 kW
Vertical ERP: 75 kW

Antenna Height: 30 meters AGL

Maximum Power Density is 436.3 µW/cm2 at 9 meters from the antenna structure, falling below 200 µW/cm2 at 14 meters from the antenna structure