

April 2005
KFMY(FM) Channel 249C Oakville, WA
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 249C (97.7 MHz) with a maximum lobe effective radiated power of 60 kilowatts. Operation is proposed with a 6-element circularly-polarized directional antenna. The antenna will be side-mounted on a new tower to be constructed at South Mountain. The FCC Antenna Structure Registration Number for the tower is 1247912.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation. Thus, 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.

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

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 a Type 1 element pattern, which is the “worst case” element pattern for a “ring stub” antenna. The highest calculated ground level power density occurs at a distance of 22 meters from the base of the antenna support structure. At this point the power density is calculated to be $147.8 \mu\text{W}/\text{cm}^2$, which is 14.8% of $1000 \mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 73.9% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

Public access to the site will be restricted and the antenna tower will be 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.

Power Density vs Distance

