

### 3. Facilities Proposed

The proposed operation will be on Channel 226B (93.1 MHz) with a maximum lobe effective radiated power of 50 kilowatts. Operation is proposed with a 6-element circularly-polarized directional antenna. The antenna will be side-mounted on a uniform cross-section guyed tower to be located off Brady Road, west of Ripon, California. There are no other broadcast users of this site.

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 FCC Form 854, and the resulting Antenna Structure Registration Number will be promptly supplied to the Audio Services Division.

#### a. NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation. Thus, the ground level NIER values near the base of the proposed structure are believed to be negligible. 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 the EPA report titled: *An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM, and TV Broadcast Services* (Gailey & Tell, April, 1985). All calculations contained herein are based on the measured element

patterns for the antenna, and follow the procedure shown in the Gailey and Tell report. The patterns were identified by applying the procedure outlined in the report to the measurement data contained in the report titled: *Element Pattern Measurements on FM Antennas* (EPA-520/ 6-85-107, June 1985).

"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. Equation #1, contained in the Gailey & Tell report and shown below, was used to calculate the ground level power density figures from each antenna at incremental distances from the base of its supporting tower.

$$S(FW/cm^2) = \frac{(\text{Adjusted ERP in Watts}) \times 1.64 \times 2.56 \times 100}{4 \times B \times (\text{Distance})^2}$$

Where: Adjusted ERP in Watts is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

Distance = 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.

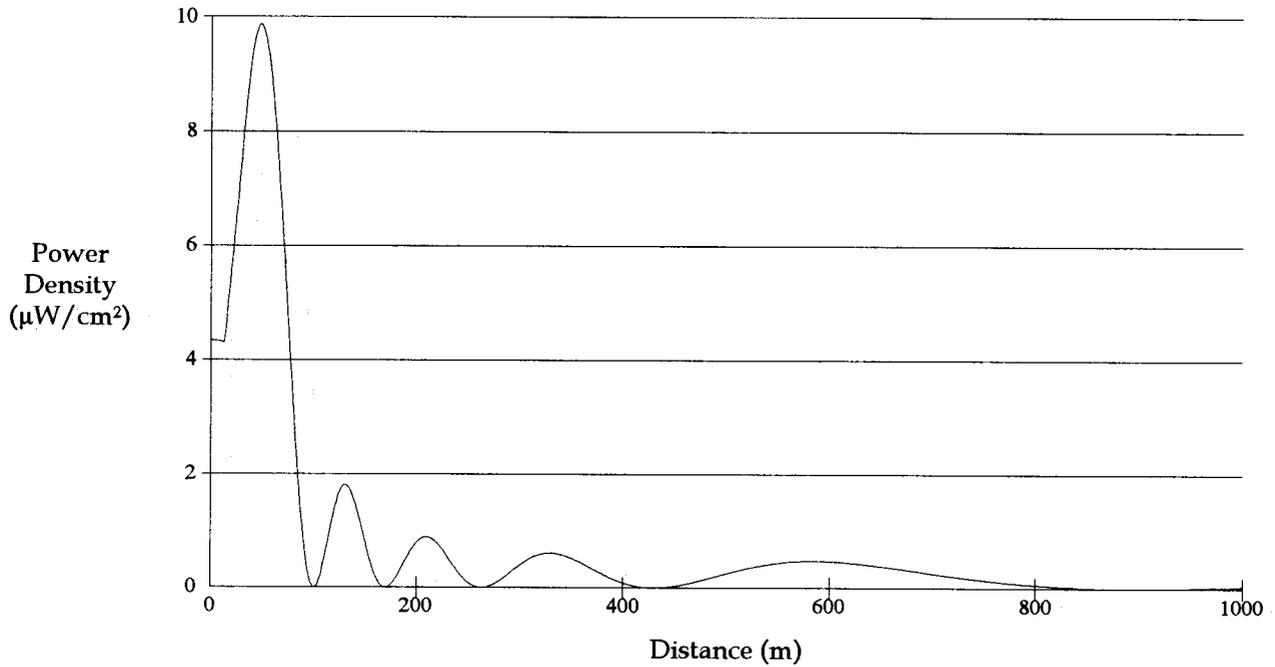
Calculations of the power density produced by the proposed antenna system assume a Type 3 element pattern, which is the element pattern for the ERI antenna proposed for use. The highest calculated ground level power density occurs at a distance of 48 meters

from the base of the antenna support structure. At this point the power density is calculated to be 9.9 FW/cm<sup>2</sup>, 1% of 1000 FW/cm<sup>2</sup> (the FCC standard for controlled environments) and 5% of 200 FW/cm<sup>2</sup> (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 OST 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



Ground-Level NIER Analysis

OET FMModel

**KOSO(FM) Patterson, CA**

Antenna Type: ERI "rototiller"

Number of Elements: 6

Element Spacing: 1 wavelength

Distance: 1000 meters

Horizontal ERP: 50 kW

Vertical ERP: 50 kW

Antenna Height: 154 meters AGL

Maximum Power Density is 9.9 µW/cm² at 48 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers