

March 2006
New FM – Channel 265C2 – Wasilla, AK
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 265C2 (100.9 MHz) with an effective radiated power of 50 kilowatts. Operation is proposed with a 6-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on a tower to be constructed atop Bodenbug Butte.

Notice of the proposed tower construction is being 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 Form 854, and the resulting Antenna Structure Registration Number will be promptly supplied to the Audio Division.

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 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 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 21 meters from the base of the antenna support structure. At this point the power density is calculated to be 54.0 $\mu\text{W}/\text{cm}^2$, which is 5.4% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 27% 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.

Hatfield & Dawson Consulting Engineers

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

