**July 2005**
**New FM – Channel 233C0 -- Elko, NV**
**NIER Analysis**

**Facilities Proposed**

The proposed operation will be on Channel 233C0 (94.5 MHz) with an effective radiated power of 36 kilowatts. Operation is proposed with an 8-element circularly-polarized omni-directional 0.9-wavelength-spaced antenna. The antenna will be side-mounted on an existing tower located 11 km northwest of Elko.

The antenna support structure does 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**

This site is shared with KHIX 244C1 Carlin and KLKO 229C2 Elko. Two FM translators at this site both operate with less than 100 Watts and are therefore categorically excluded from further study.

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 Elko FM antenna system assume a Type 2 element pattern, which is the element pattern for the “double V” antenna proposed for use. The highest calculated ground level power density occurs at a distance of 11 meters from the base of the antenna support structure. At this point the power density is calculated to be 45.9 μW/cm².

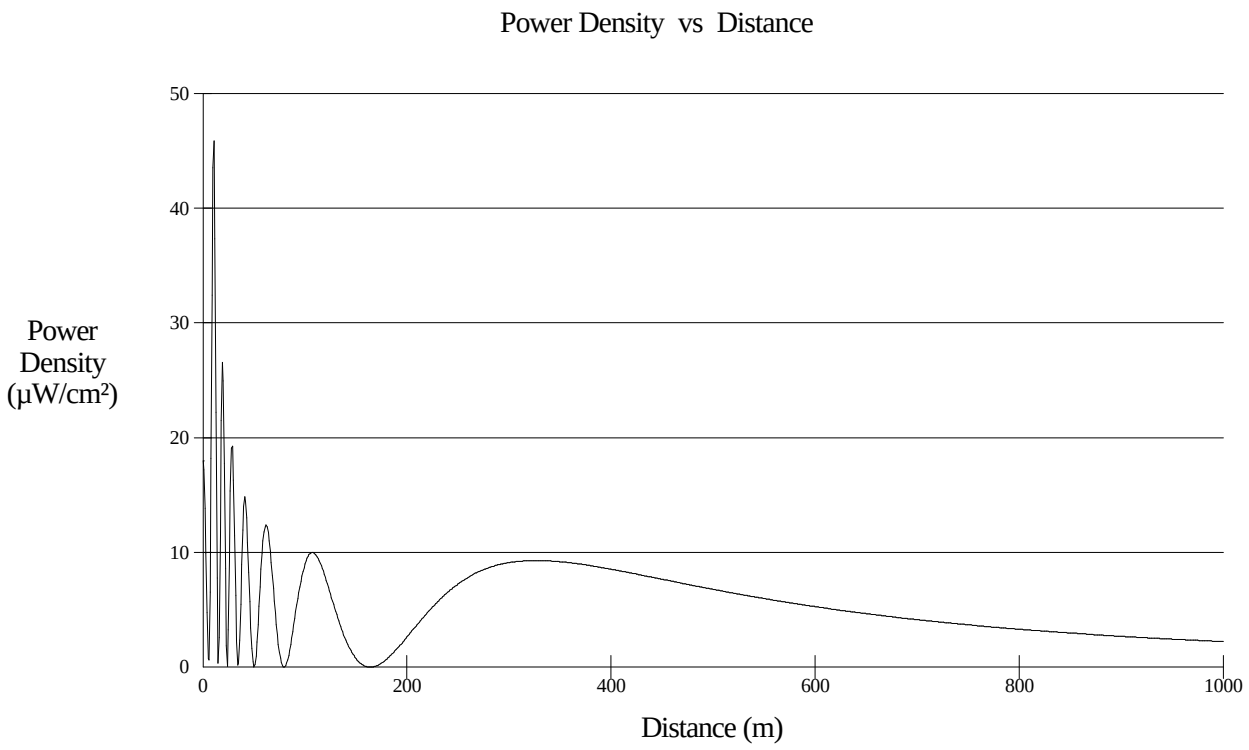
Calculations of the power density produced by the KHIX antenna system assume a Type 6 element pattern, which is the element pattern for the Shively 6813-8R antenna used by that station. The highest calculated ground level power density occurs at a distance of 14 meters from the base of the antenna support structure. At this point the power density is calculated to be 15.5 μW/cm².

Calculations of the power density produced by the KLKO antenna system assume a Type 2 element pattern, which is the element pattern for the 4-bay half-wave “double V” 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 16.9 μW/cm².

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of Elko 233C0 and the present operations of KHIX and KLKO (were their maxima to coincide, which they do not) is 78.3 $\mu W/cm^2$, which is 7.8% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 39.2% 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.



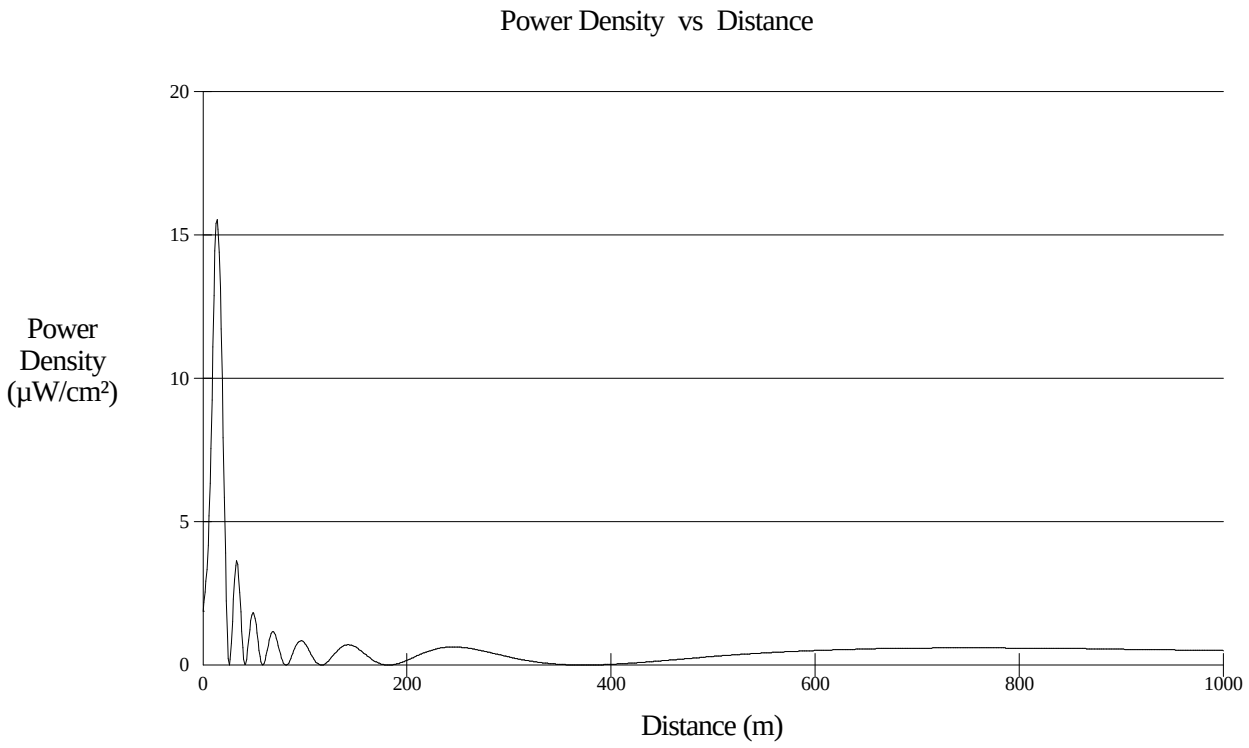

Ground-Level NIER Analysis OET FMModel

New FM 233C0 Elko
Antenna Type: "double V"
Number of Elements: 8
Element Spacing: 0.9 wavelength

Distance: 1000 meters
Horizontal ERP: 36 kW
Vertical ERP: 36 kW

Antenna Height: 25 meters AGL

Maximum Power Density is 45.9 µW/cm2 at 11 meters from the antenna structure.



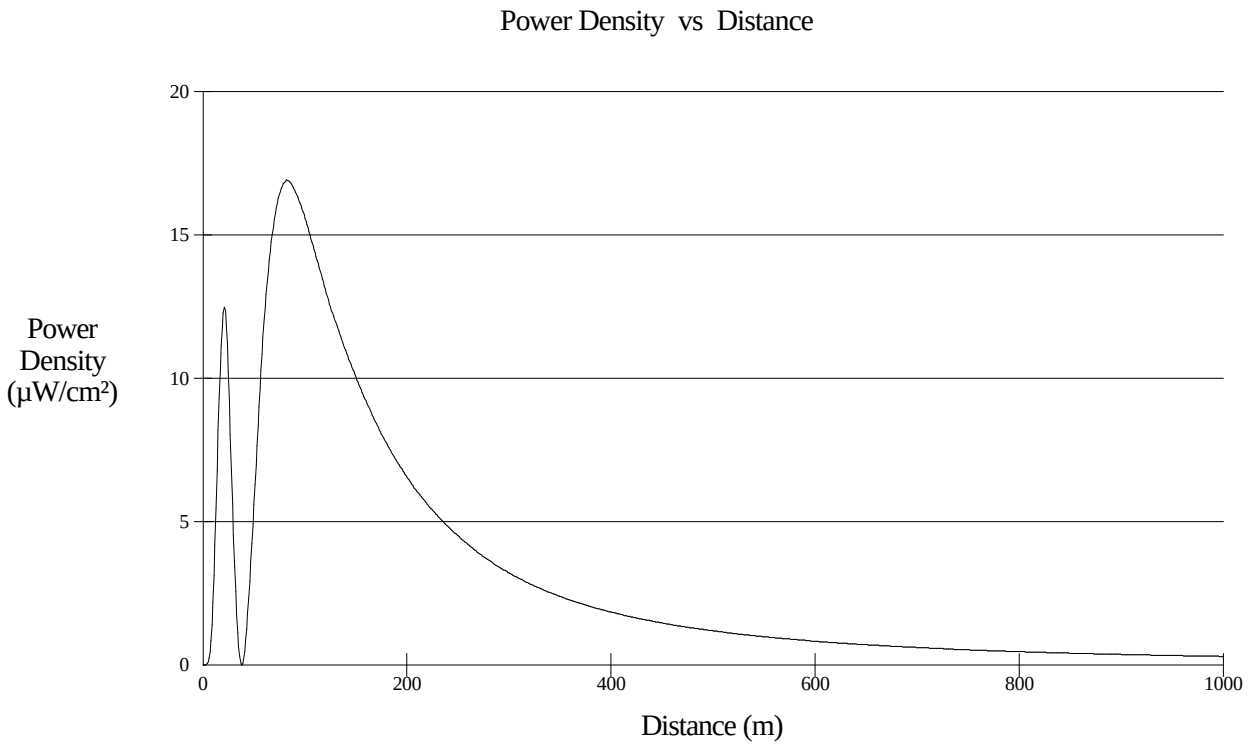

Ground-Level NIER Analysis OET FMModel

KHIX(FM) 244C1 Carlin
Antenna Type: Shively 6813-8R
Number of Elements: 8
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 12.5 kW
Vertical ERP: 12.5 kW

Antenna Height: 49 meters AGL

Maximum Power Density is 15.5 µW/cm2 at 14 meters from the antenna structure.




Ground-Level NIER Analysis OET FMModel

KLKO(FM) 229C2 Elko
Antenna Type: "double V"
Number of Elements: 4
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 4.5 kW
Vertical ERP: 4.5 kW

Antenna Height: 24 meters AGL

Maximum Power Density is 16.9 µW/cm2 at 82 meters from the antenna structure.