

May 2007
KRYK(FM) Channel 267C1
Auxiliary Antenna
NIER Analysis

Facilities Proposed

The proposed auxiliary (backup) operation will be on Channel 267C1 (101.3 MHz) with an effective radiated power of 21 kilowatts. Operation is proposed with a 4-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on an existing tower located atop Sayer Butte.

The FCC Antenna Structure Registration Number for this tower is #1000376.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation, apart from the main KRYK antenna. Therefore, 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.

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

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.

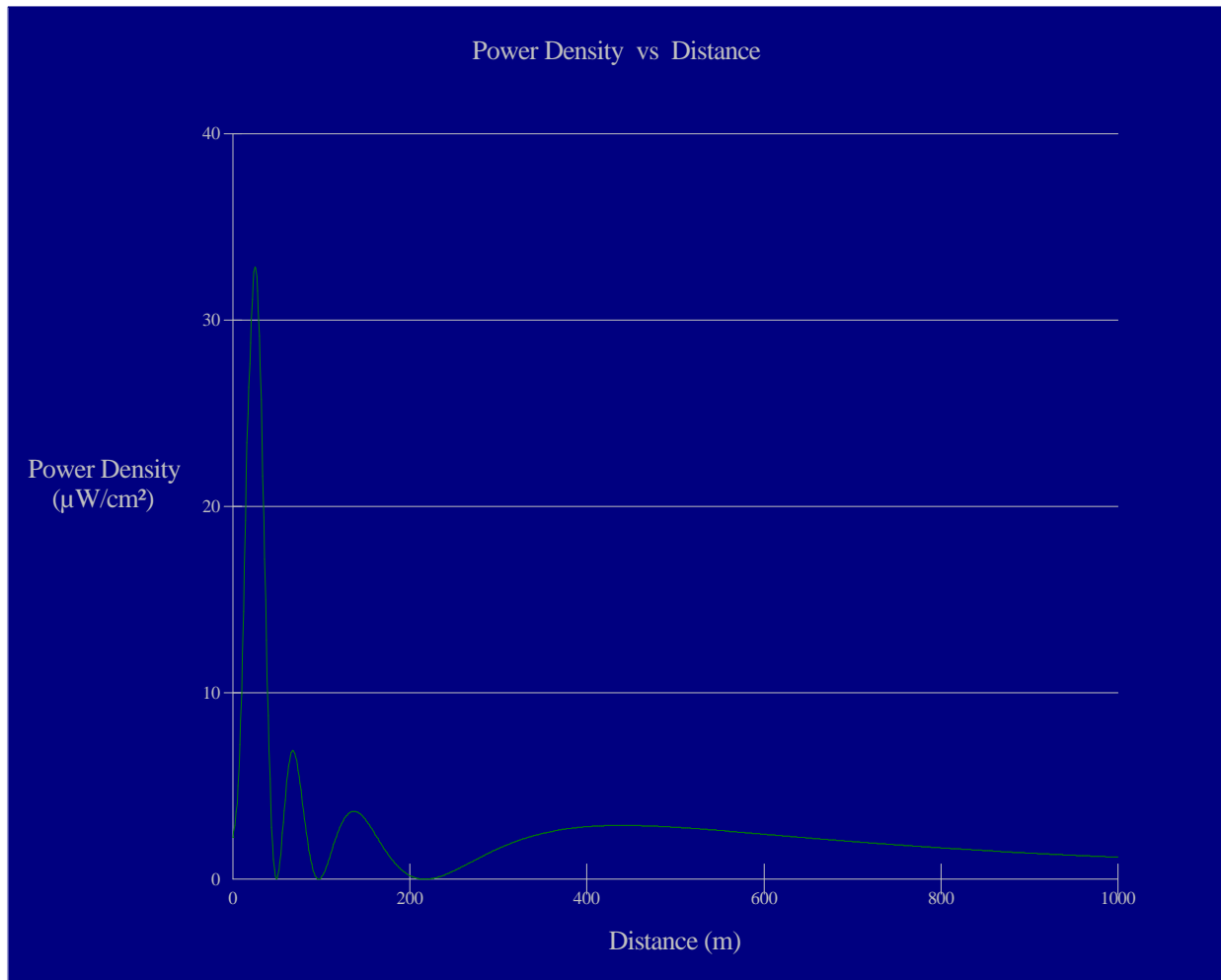
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

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Calculations of the power density produced by the proposed antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna proposed for use. The highest calculated ground level power density occurs at a distance of 25 meters from the base of the antenna support structure. At this point the power density is calculated to be $32.8 \mu\text{W}/\text{cm}^2$, which is 3.3% of $1000 \mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 16.4% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

Public access to the transmitter site is restricted. 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

OET FMModel

KRYK 267C1 Auxiliary Antenna

Antenna Type: Shively 6813-4

No. of Elements: 4

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 21 kW

Vertical ERP: 21 kW

Antenna Height: 58 meters AGL

Maximum Power Density is 32.8 : W/cm² at 25 meters from the antenna structure.

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