

March 2007
KRTO Channel 286B1
Lompoc, CA
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 286B1 (105.1 MHz) with an effective radiated power of 1.75 kilowatts. Operation is proposed with a 3-element circularly-polarized omni-directional antenna. The antenna is side-mounted on an existing tower located atop Redrock Mountain.

The antenna support structure will 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

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation apart from KRTO and KSYV.

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.

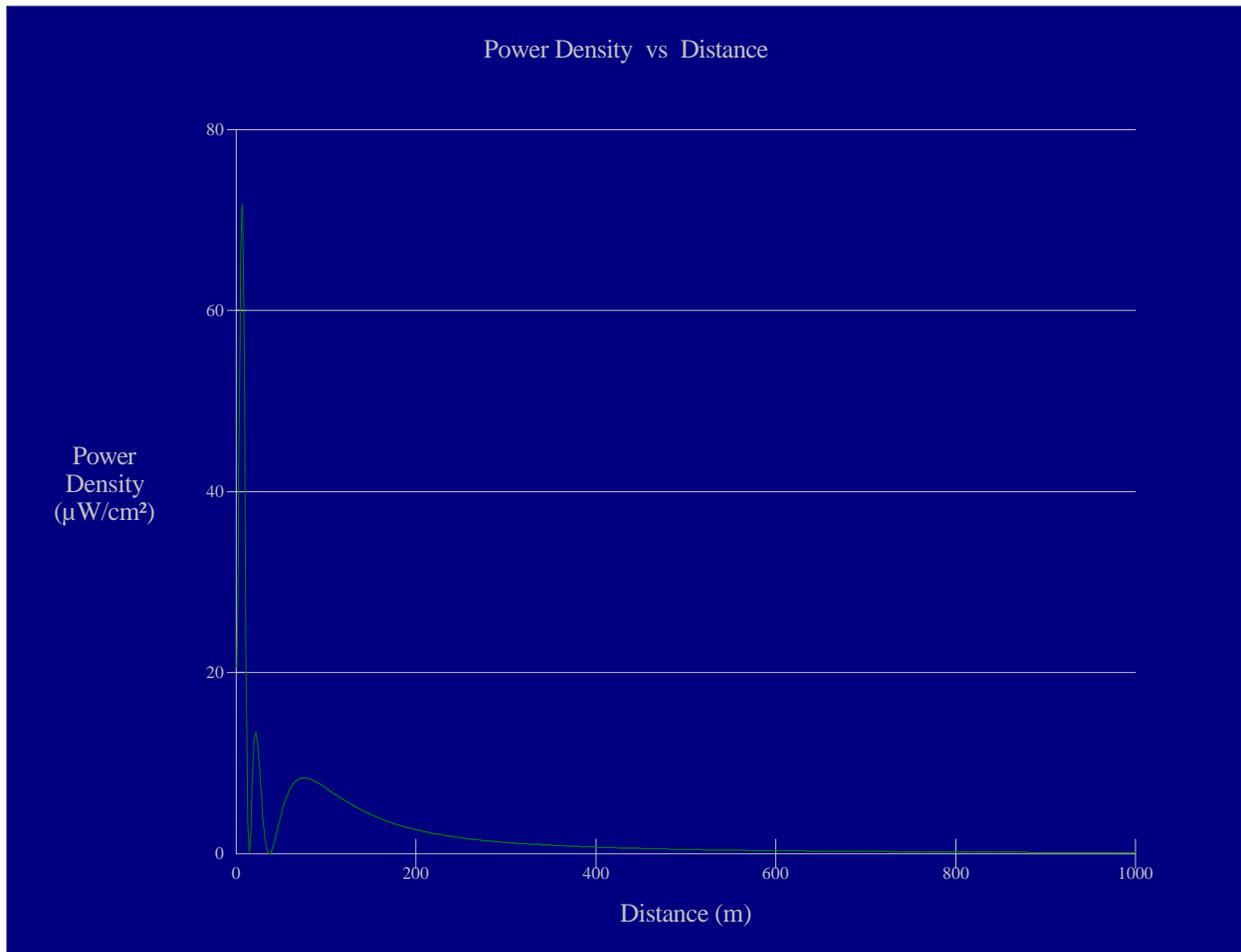
Calculations of the power density produced by the proposed KRTO antenna system assume a Type 3 element pattern, which is the element pattern for the ERI SHP-3AE antenna proposed for use. The highest calculated ground level power density occurs at a distance of 7 meters from the base of the antenna support structure. At this point the power density is calculated to be 71.7 $\mu\text{W}/\text{cm}^2$.

Calculations of the power density produced by the KSYV antenna system assume a Type 3 element pattern, which is the element pattern for the ERI LPX-2 antenna licensed for use by that station. The highest calculated ground level power density occurs at a distance of 9 meters from the base of the antenna support structure. At this point the power density is calculated to be 23.8 $\mu\text{W}/\text{cm}^2$.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KRTO and the present operation of KSYV (were their maxima to coincide, which they do not) is 95.5 $\mu\text{W}/\text{cm}^2$, which is 9.6% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 47.8% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

Public access to the site is restricted by a locked gate 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

OET FMModel

KRTO 286B1 Lompoc

Antenna Type: ERI SHP-AE "rototiller"

No. of Elements: 3

Element Spacing: 1.0 wavelength

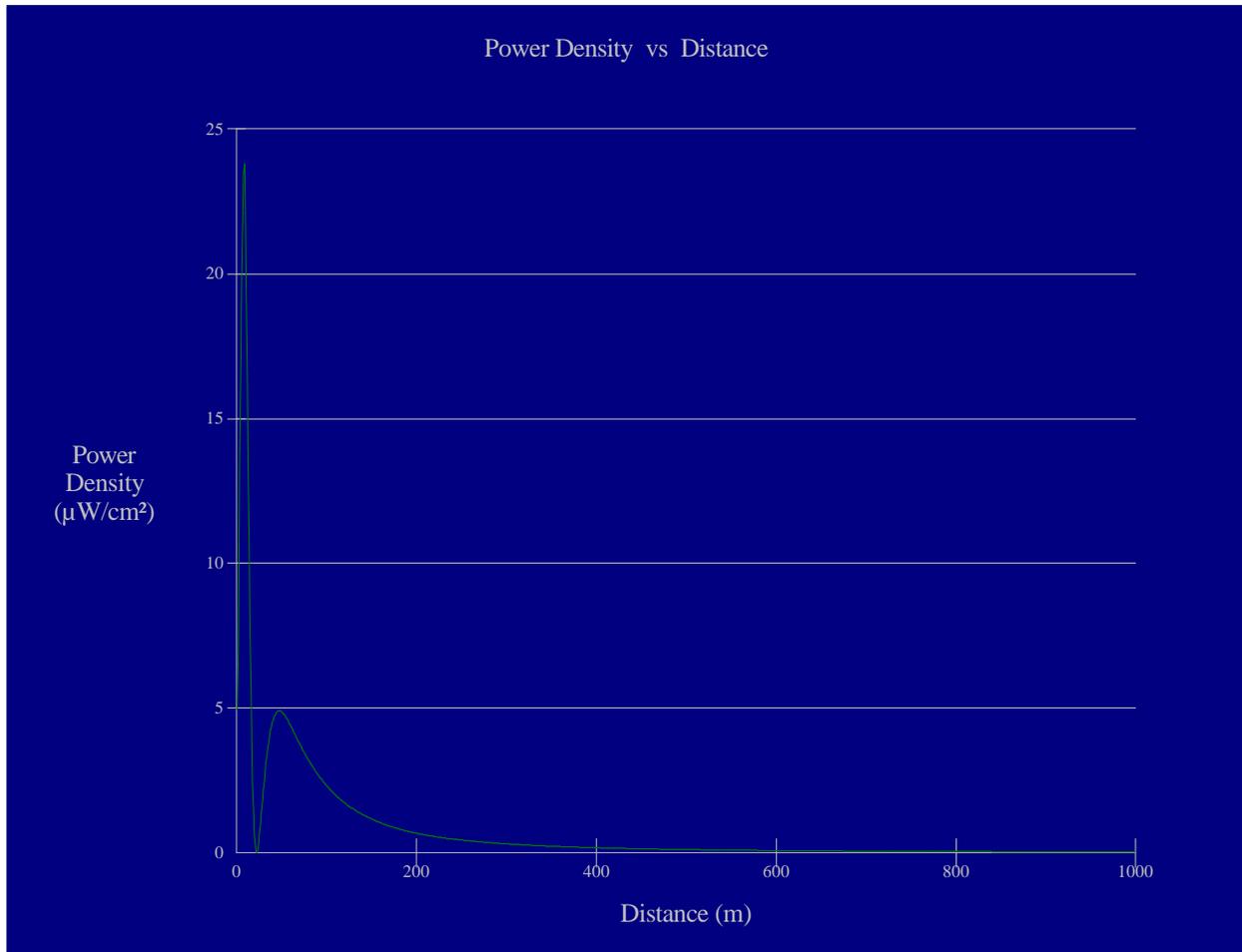
Distance: 1000 meters

Horizontal ERP: 1.75 kW

Vertical ERP: 1.75 kW

Antenna Height: 15 meters AGL

Maximum Power Density is 71.7 : W/cm^2 at 7 meters from the antenna structure.



Ground-Level NIER

OET FMModel

KSYV 244A Solvang

Antenna Type: ERI LPX-2 "rototiller"
 No. of Elements: 2
 Element Spacing: 1.0 wavelength

Distance: 1000 meters
 Horizontal ERP: 0.42 kW
 Vertical ERP: 0.42 kW

Antenna Height: 15 meters AGL

Maximum Power Density is 23.8 : W/cm² at 9 meters from the antenna structure.