RF Exposure Calculations

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.
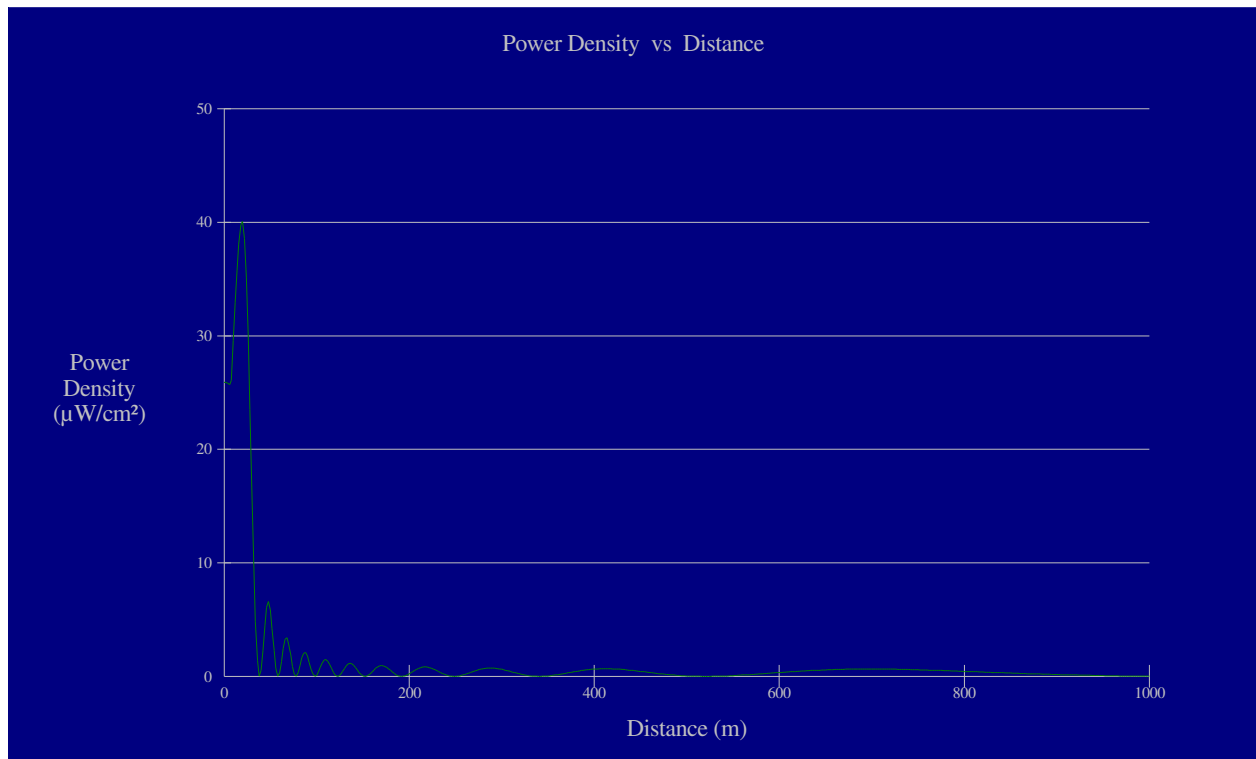
Calculations of the power density produced by the proposed facilities at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
KYVA-FM	100 kW avg ERI Rototiller	FMModel	90 m	40.1 μW/cm²	200 μW/cm²	20.1%
KYAT(FM)	100 kW avg ERI Rototiller	FMModel	90 m	40.1 μW/cm²	200 μW/cm²	20.1%
KXXI(FM)	100kW avg ERI Rototiller	FMModel	90 m	40.1 μW/cm²	200 μW/cm²	20.1%
K235BR	0.24 kW avg SCA CA2V	FMModel	27 m	12.2 μW/cm²	200 μW/cm²	6.1%
K225BK (CP)	0.013 kW avg SHI 6812	FMModel	30 m	0.2 μW/cm²	200 μW/cm²	0.1%

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These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operations of KYVA-FM, KYAT ,KXXI, K225BK, and K235BR (were their maxima to coincide) is 66.5% of 200 μW/cm^2 (the FCC standard for uncontrolled environments).

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 exposure in excess of FCC guidelines.

Power Density vs Distance

Ground-Level RF Exposure   **OET FMModel**

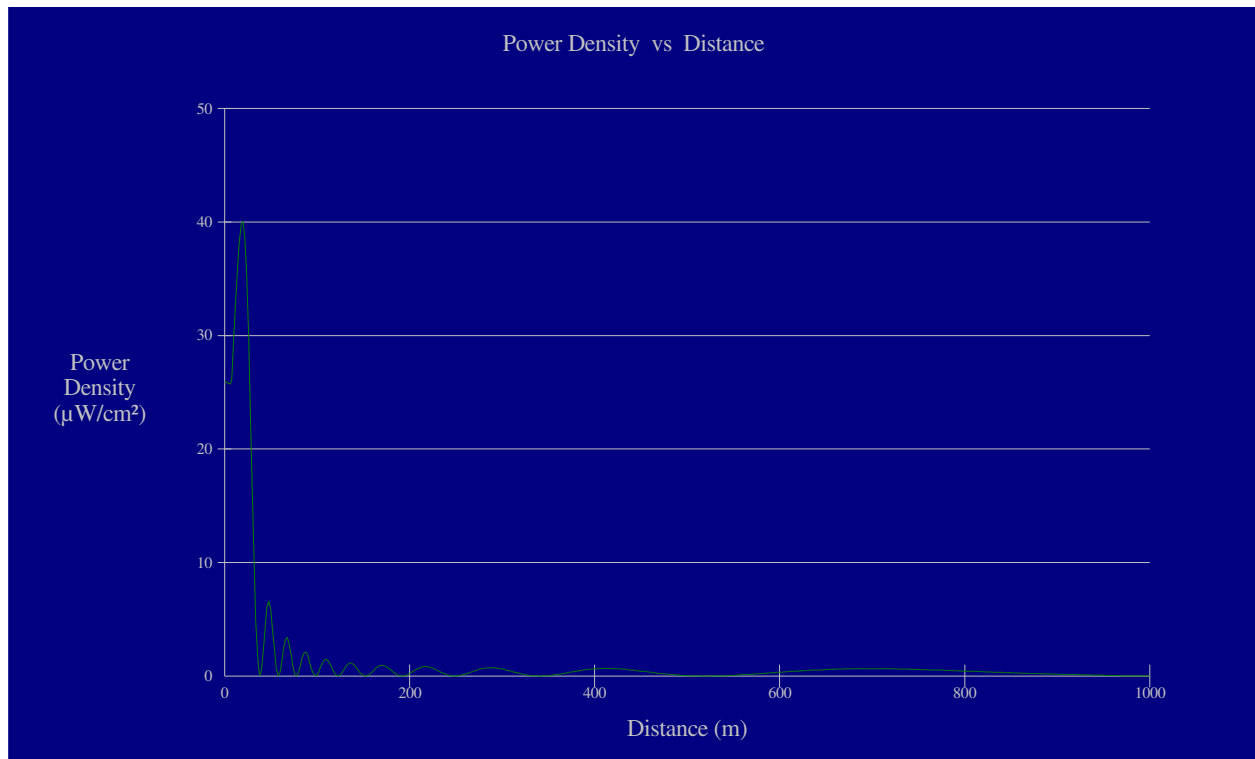**KYVA-FM Church Rock, NM**
Antenna Type: ERI "rototiller"
No. of Elements: 12
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 100 kW
Vertical ERP: 100 kW

Antenna Height: 90 meters AGL

Maximum Calculated Power Density is 40.1 $\mu W/cm^2$ at 20 meters from the antenna structure.

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Ground-Level RF Exposure   **OET FMModel**
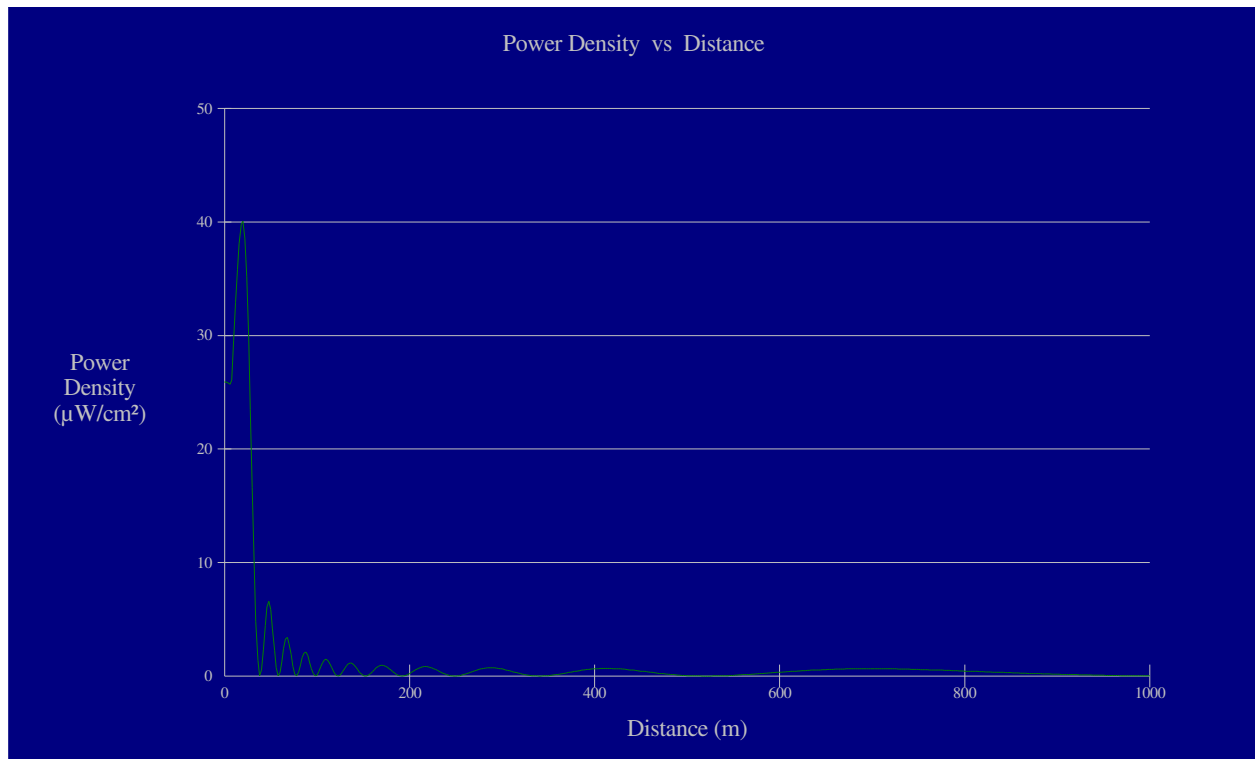
KYAT Gallup, NM
Antenna Type: ERI "rototiller"
No. of Elements: 12
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 100 kW
Vertical ERP: 100 kW

Antenna Height: 90 meters AGL

Maximum Calculated Power Density is 34.0 µW/cm^2 at 20 meters from the antenna structure.

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Power Density vs Distance

Ground-Level RF Exposure　　　　　　　　　　　　　　　　　**OET FMModel**

KXXI Gallup, NM

Antenna Type:	ERI "rototiller"
No. of Elements:	12
Element Spacing:	1.0 wavelength
Distance:	1000 meters
Horizontal ERP:	100 kW
Vertical ERP:	100 kW
Antenna Height:	90 meters AGL

Maximum Calculated Power Density is 40.1 μW/cm^2 at 20 meters from the antenna structure.

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