September 2011
KXZM(FM)   Channel 229B1
Felton, California
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 229B1 (93.7 MHz) with a maximum lobe effective radiated power of 0.41 kilowatts. Operation is proposed with a 1-element circularly-polarized directional antenna, which will be side-mounted on an existing tower at a communications site located between Mount Thayer and Mount Umunhum.

The proposed 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.

RF Exposure Calculations

A search of the Commission's database indicates that there are no other broadcast users of this site, with the exception of two FM translators which operate with less than 100 watts ERP and which are therefore categorically excluded from further consideration. 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

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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 "rototiller" antenna proposed for use. The highest calculated ground level power density occurs at a distance of 23 meters from the base of the antenna support structure. At this point the power density is calculated to be 11.5 µW/cm², which is 5.8% of 200 µW/cm^2 (the FCC standard for uncontrolled environments).

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.

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Power Density vs Distance
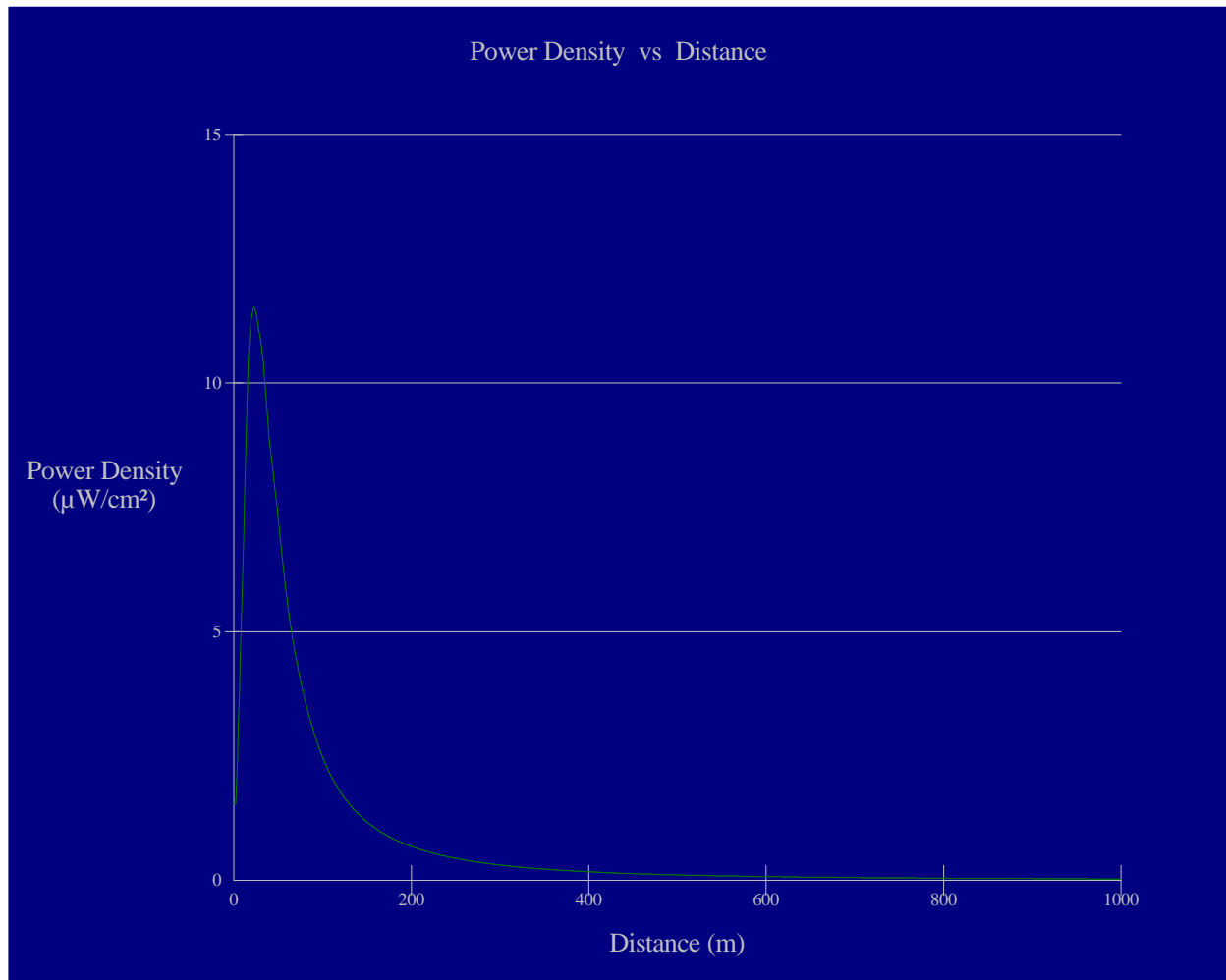
Ground-Level RF Exposure   **OET FMModel**

KXZM 229B1 Felton

Antenna Type:	ERI "rototiller"
No. of Elements:	1
Element Spacing:	1.0 wavelength

Distance:	1000 meters
Horizontal ERP:	0.410 kW
Vertical ERP:	0.410 kW

Antenna Height:	25 meters AGL

Maximum Calculated Power Density is 11.5 : W/cm^2 at 23 meters from the antenna structure.

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