

**July 2008**  
**KANY(FM) Channel 229C0**  
**Montesano, Washington**  
**NIER Analysis**

**Facilities Proposed**

The proposed operation will be on Channel 229C0 (93.7 MHz) with an effective radiated power of 33 kilowatts. Operation is proposed with a 6-element circularly-polarized half-wave-spaced directional antenna. The antenna will be side-mounted on an existing tower atop South Mountain. The FCC Antenna Structure Registration Number is 1247912. This site is used by KDDS-FM and KFMY(FM).

**NIER 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.

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

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 KANY antenna system assume a Type 6 element pattern, which is the element pattern for the Shively 6810 series antenna proposed for use. The highest calculated ground level power density occurs at a distance of 274 meters from

the base of the antenna support structure. At this point the power density is calculated to be 11.4  $\mu\text{W}/\text{cm}^2$ .

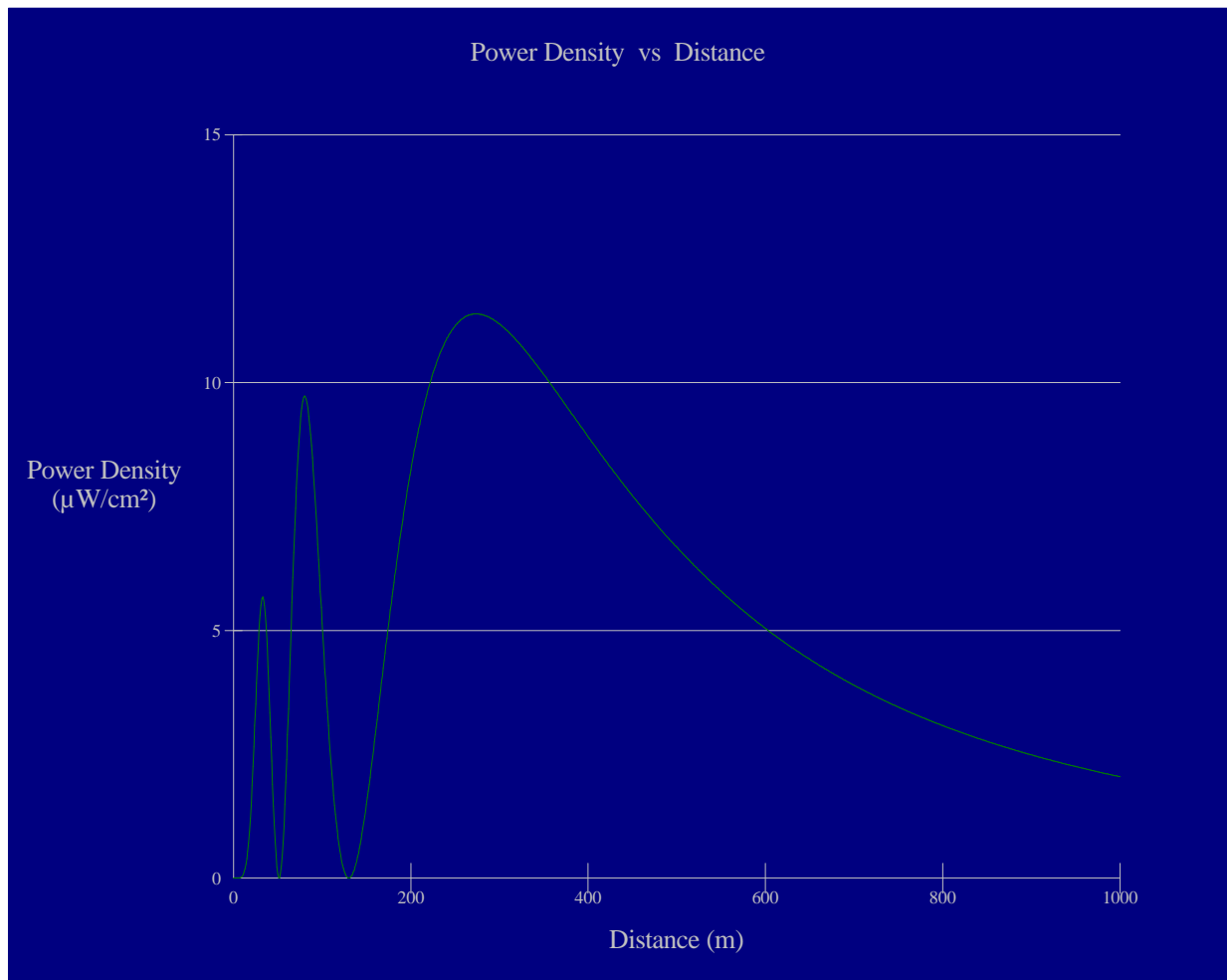
Calculations of the power density produced by KANY and the other stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Exposure	Uncontrolled FCC Limit	% of Limit
KANY(FM) 229C0	33 kW 6-bay half-wave Shively	FMMModel	48 m	11.4 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	5.7%
KFMY(FM) 249C	63 kW ERI MP-6E-DA- HW	FMMModel	99 m	5.0 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	2.5%
KDDS-FM 257C	64 kW ERI MP-6AC-DA- HW	FMMModel	113 m	3.9 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	2.0%
KFMY(FM) Aux App 249C	16 kW 6-bay full-wave Shively	FM Model	72 m	11.5 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	5.8%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KANY and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 13.5% of the FCC standard for uncontrolled environments. That total pertains when the pending KFMY auxiliary application facility is used rather than the KFMY main facility. When the KFMY main facility is considered, the total drops to 10.2% of 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.

Hatfield & Dawson Consulting Engineers



#### Ground-Level NIER

#### OET FMModel

##### **KANY 229C0 Montesano**

Antenna Type: Shively 6810 Series

No. of Elements: 6

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 33 kW

Vertical ERP: 33 kW

Antenna Height: 48 meters AGL

Maximum Power Density is 11.4 : W/cm<sup>2</sup> at 274 meters from the antenna structure.

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