

January 2013
KANY(FM) Channel 229C0
Montesano, Washington
RF Exposure Study

Facilities Constructed

KANY has been constructed using a PSI model FH-3-HWS-DA antenna system. Since the underlying construction permit bears a condition specifying use of a 6-bay half-wave-spaced Shively antenna, a revised RF exposure calculation is provided in order to satisfy Condition #7 on the permit.

This tower site is shared with FM stations KDDS-FM and KOMO-FM.

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.

Since the Commission does not recognize the PSI "double V" antenna as a match to the Jampro "double V" element model used in the FMModel software, calculations of the power density produced by the KANY antenna system assume a Type 1 element pattern, which is the "worst case" element pattern for a "ring stub" antenna. Under this assumption, the highest calculated

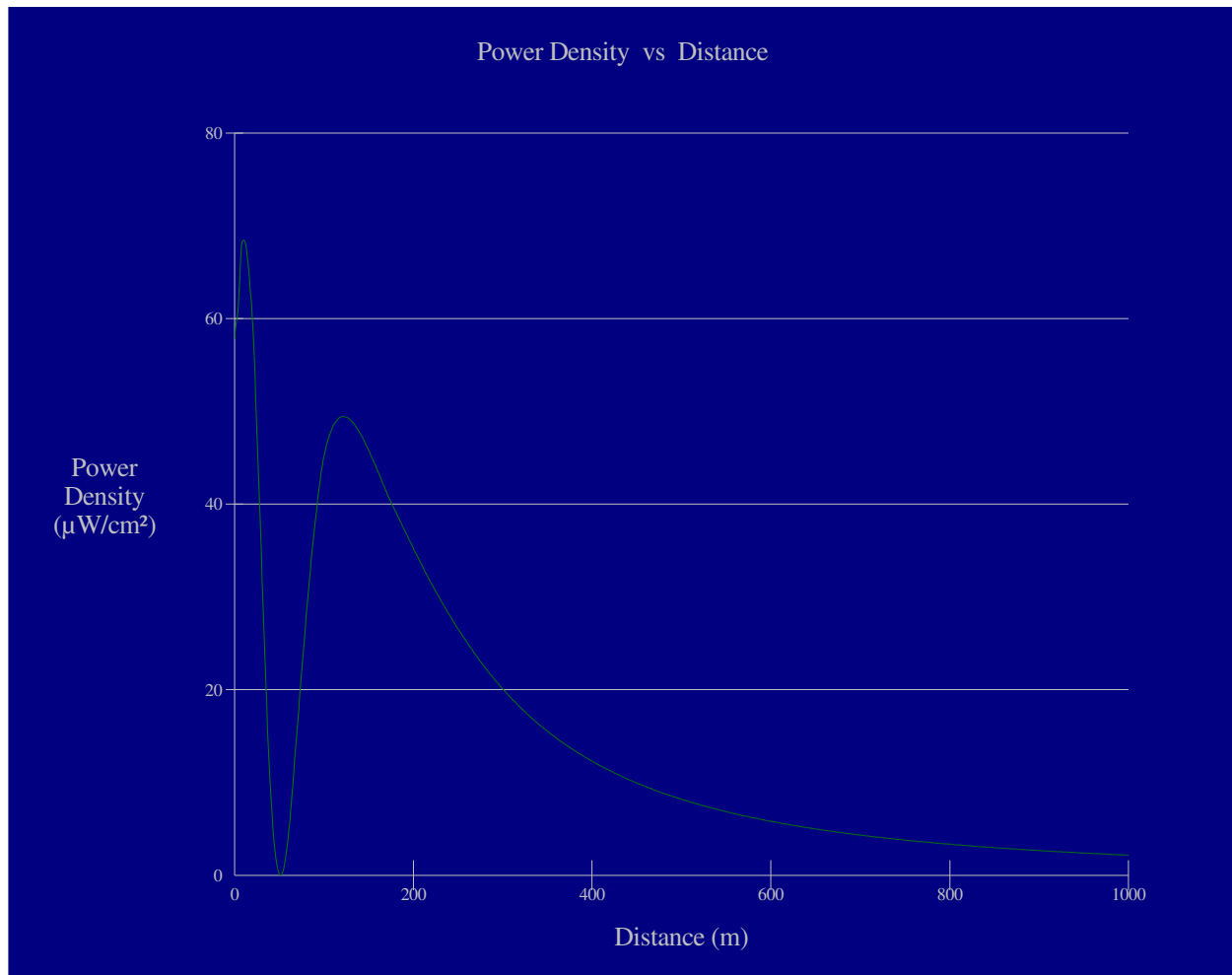
ground level power density occurs at a distance of 10 meters from the base of the antenna support structure. At this point the power density is calculated to be $68.5 \mu\text{W}/\text{cm}^2$.

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

Station	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Exposure	Uncontrolled FCC Limit	% of Limit
KANY(FM) 229C0	33 kW 3-bay half-wave ring-stub assumed	FMMModel	50 m	$68.5 \mu\text{W}/\text{cm}^2$	$200 \mu\text{W}/\text{cm}^2$	34.3%
KOMO-FM 249C	69 kW SHI 6810-6R-DA full wave	FMMModel	72 m	$47.9 \mu\text{W}/\text{cm}^2$	$200 \mu\text{W}/\text{cm}^2$	24.0%
KDDS-FM 257C	64 kW ERI SHP-6AC-DA-HW	FMMModel	113 m	$3.9 \mu\text{W}/\text{cm}^2$	$200 \mu\text{W}/\text{cm}^2$	2.0%

These calculations show that the maximum calculated power density produced at two meters above ground level by the constructed operation of KANY and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is $120.3 \mu\text{W}/\text{cm}^2$, which is 12% of $1000 \mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 60% of $200 \mu\text{W}/\text{cm}^2$ (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 exposure in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

KANY 229C0 Montesano

Antenna Type: "ring stub" assumed for this study

No. of Elements: 3

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 33 kW

Vertical ERP: 33 kW

Antenna Height: 48 meters AGL

Maximum Calculated Power Density is $68.5 \mu\text{W}/\text{cm}^2$ at 10 meters from the antenna structure.

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