

June 2014
KLSY(FM) Channel 229C0
Montesano, Washington
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 229C0 (93.7 MHz) with a maximum lobe effective radiated power of 28 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 also used by 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.

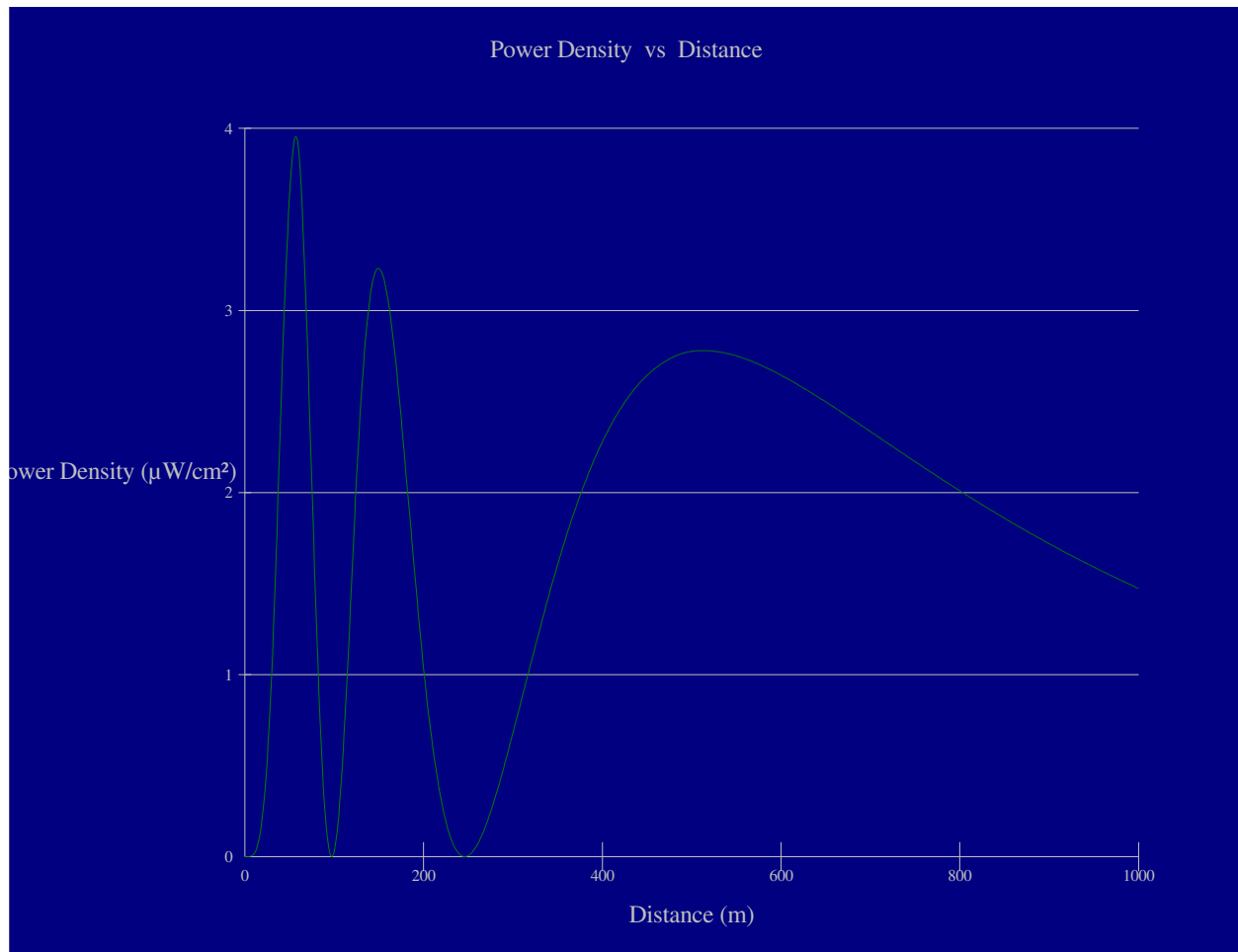
Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the "worst case" element pattern for a "ring stub" antenna. Under this assumption, the highest calculated ground level power density occurs at a distance of 57 meters from the base of the antenna support structure. At this point the power density is calculated to be 4.0 $\mu W/cm^2$.

Calculations of the power density produced by KLSY 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
KLSY(FM) 229C0	28 kW 6-bay half-wave ring-stub assumed	FMMModel	89 m	4.0 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	2.0%
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 proposed operation of KLSY and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 56 $\mu\text{W}/\text{cm}^2$, which is 5.6% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 28% 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

KLSY 229C0 Montesano

Antenna Type: "ring stub" assumed for this study

No. of Elements: 6

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 28 kW

Vertical ERP: 28 kW

Antenna Height: 89 meters AGL

Maximum Calculated Power Density is 4.0 $\mu\text{W}/\text{cm}^2$ at 57 meters from the antenna structure.

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