

July 2011
KWVR-FM Channel 225A
Enterprise, Oregon
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 225A (92.9 MHz) with an effective radiated power of 0.190 kilowatts. Operation is proposed with an antenna which will be side-mounted on an existing tower located atop Sheep Ridge.

The proposed antenna support structure will 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

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 tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Since the precise make and model of antenna to be used for the KWVR-FM facility has not yet been selected, 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. The highest calculated ground level power density occurs at a distance of 3 meters from

the base of the antenna support structure. At this point the power density is calculated to be 53.0 $\mu\text{W}/\text{cm}^2$.

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

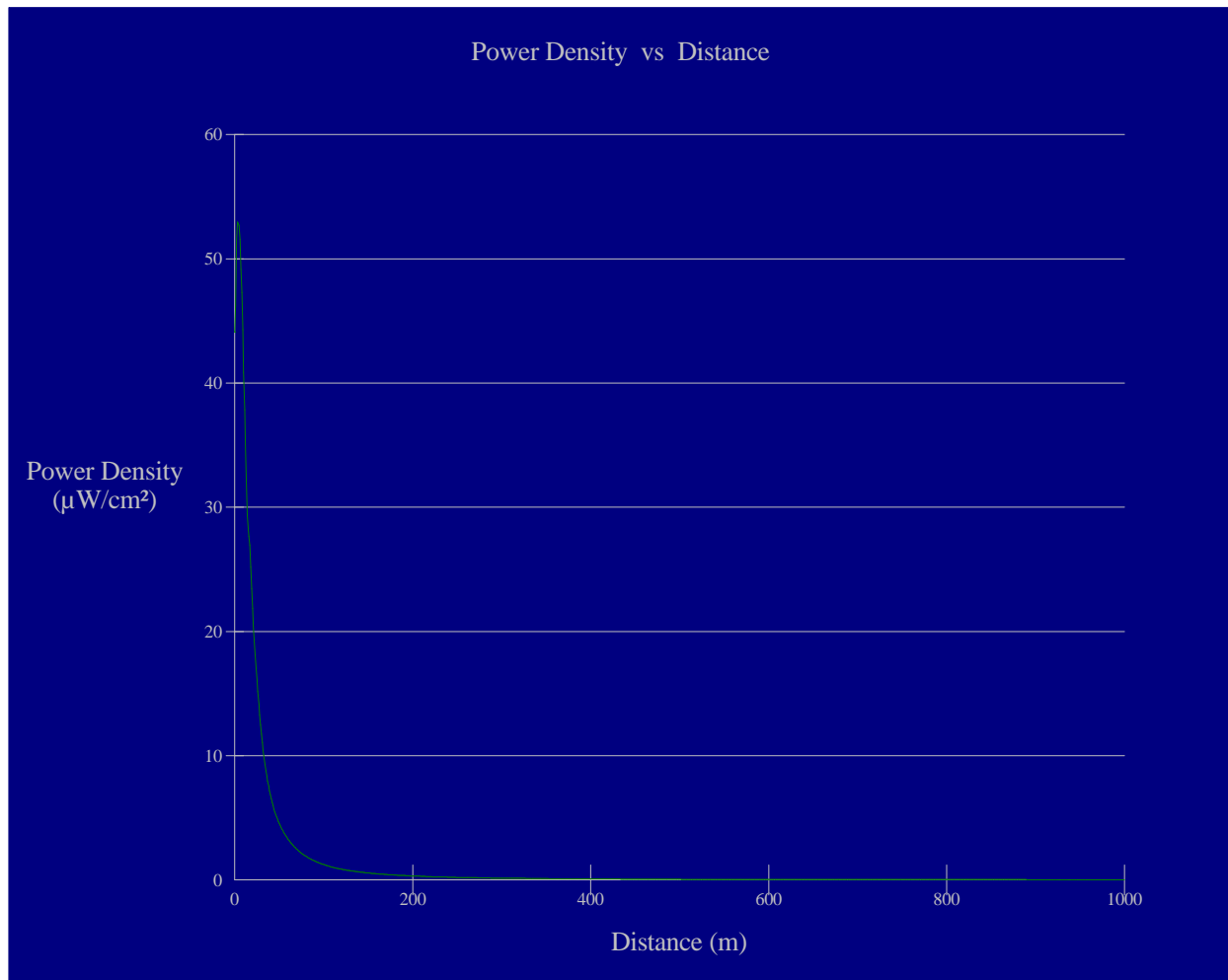
Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
KWVR-FM Ch 225A	0.190 kW avg ring-stub assumed	FMModel	14 m	53.0 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	26.5%
KETP Ch 204A	0.100 kW avg SWR FMECR-2 2-bay full ring-stub assumed	FMModel	16 m	20.2 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	10.1%
K28JC-D Ch 28	0.165 kW avg KAT K723417 array (1 level)	0.200	8 m	6.1 $\mu\text{W}/\text{cm}^2$	371 $\mu\text{W}/\text{cm}^2$	1.6%
K30IV Ch 30 Analog Lic	0.550 kW peak KAT K723417 array (1 level)	0.200	8 m	10.2 $\mu\text{W}/\text{cm}^2$	379 $\mu\text{W}/\text{cm}^2$	2.7%
Digital CP	0.165 kW avg KAT K723417 array (1 level)	0.200	8 m	6.1 $\mu\text{W}/\text{cm}^2$	379 $\mu\text{W}/\text{cm}^2$	or 1.6%
K34IF Ch 34 Analog Lic	0.550 kW peak KAT K723417 array (1 level)	0.200	8 m	10.2 $\mu\text{W}/\text{cm}^2$	395 $\mu\text{W}/\text{cm}^2$	2.6%
Digital CP	0.165 kW avg KAT K723417 array (1 level)	0.200	8 m	6.1 $\mu\text{W}/\text{cm}^2$	395 $\mu\text{W}/\text{cm}^2$	or 1.5%
K36HV Ch 36 Analog Lic	0.550 kW peak KAT K723417 array (1 level)	0.200	8 m	10.2 $\mu\text{W}/\text{cm}^2$	403 $\mu\text{W}/\text{cm}^2$	2.5%
Digital CP	0.165 kW avg KAT K723417 array (1 level)	0.200	8 m	6.1 $\mu\text{W}/\text{cm}^2$	403 $\mu\text{W}/\text{cm}^2$	or 1.5%
K40IK Ch 40 Analog Lic	0.550 kW peak KAT K723417 array (1 level)	0.200	8 m	10.2 $\mu\text{W}/\text{cm}^2$	419 $\mu\text{W}/\text{cm}^2$	2.4%
Digital CP	0.165 kW avg KAT K723417 array (1 level)	0.200	8 m	6.1 $\mu\text{W}/\text{cm}^2$	419 $\mu\text{W}/\text{cm}^2$	or 1.5%

Nearby FM translators K208DB, K234AD, and K265DX operate with ERPs of less than 100 watts and are therefore excluded from this study.

(For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern. The resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower.)

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KWVR-FM and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 48.4% 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.



Ground-Level RF Exposure

OET FMModel

KWVR-FM 225A Enterprise

Antenna Type: "ring stub" assumed for this study

No. of Elements: 1

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 0.190 kW

Vertical ERP: 0.190 kW

Antenna Height: 14 meters AGL

Maximum Calculated Power Density is 53.0 : W/cm² at 3 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers