

May 2011
New FM Channel 232A
Netarts, Oregon
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 232A (94.3 MHz) with an effective radiated power of 0.460 kilowatts. Operation is proposed with an antenna which will be mounted on an existing tower at Cape Meares. The FCC Antenna Structure Registration Number for this tower is 1018405.

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.

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

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 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 6 meters from the base of the antenna support structure. At this point the power density is calculated to be 34.9 $\mu\text{W}/\text{cm}^2$, which is 3.5% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 17.5% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

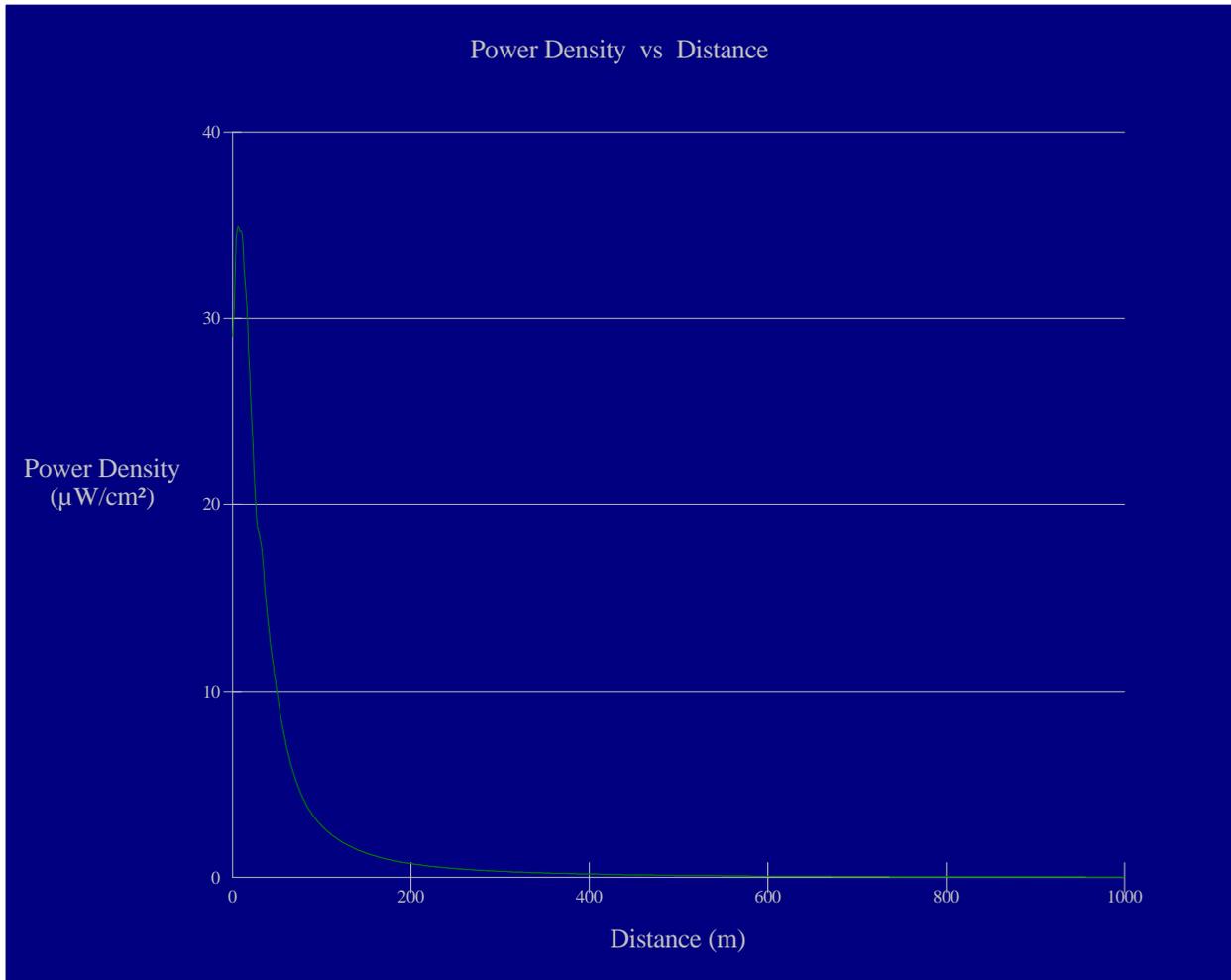
Calculations of the power density produced by Netarts 232A and the other stations at this transmitter site are summarized in the following table:

Call	ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
Netarts 232A	0.460 kW 1-bay ring-stub assumed	FMMModel	25 m	34.9 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	17.5%
KAIK 203A	0.060 kW (V only) ERI P300G-1AE	FMMModel	32 m	2.1 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	1.1%
KTCB 208A	0.380 kW SHI 6812-2	FMMModel	17 m	14.8 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	7.4%
KTMK 216A	0.140 kW DIE DCR-L2 2-bay ring-stub	FMMModel	22 m	13.9 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	7.0%
KTIL-FM 240A	0.450 kW ARM FMA-707W-1 ring stub assumed	FMMModel	27 m	28.9 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	14.5%
KDEP 288A	0.320 kW ARM FMA-707W-1 ring stub assumed	FMMModel	27 m	20.6 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	10.3%

Nearby FM translator K259BT operates with an ERP of less than 100 Watts and is therefore excluded from this study.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of Netarts 232A and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 115 $\mu\text{W}/\text{cm}^2$, which is 11.5% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 57.5% 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 radiation in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

Netarts 232A

Antenna Type: ring stub assumed

No. of Elements: 1

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 0.460 kW

Vertical ERP: 0.460 kW

Antenna Height: 25 meters AGL

Maximum Calculated Power Density is 34.9 : W/cm^2 at 6 meters from the antenna structure.