

**January 2012
New FM Channel 208A
Coos Bay, OR
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 208A (89.5 MHz) with an effective radiated power of 55 watts. Operation is proposed with a 1-element circularly-polarized omni-directional antenna which will be mounted on an existing tower at Blossom Hill. The FCC Antenna Structure Registration Number for this tower is 1027927.

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.

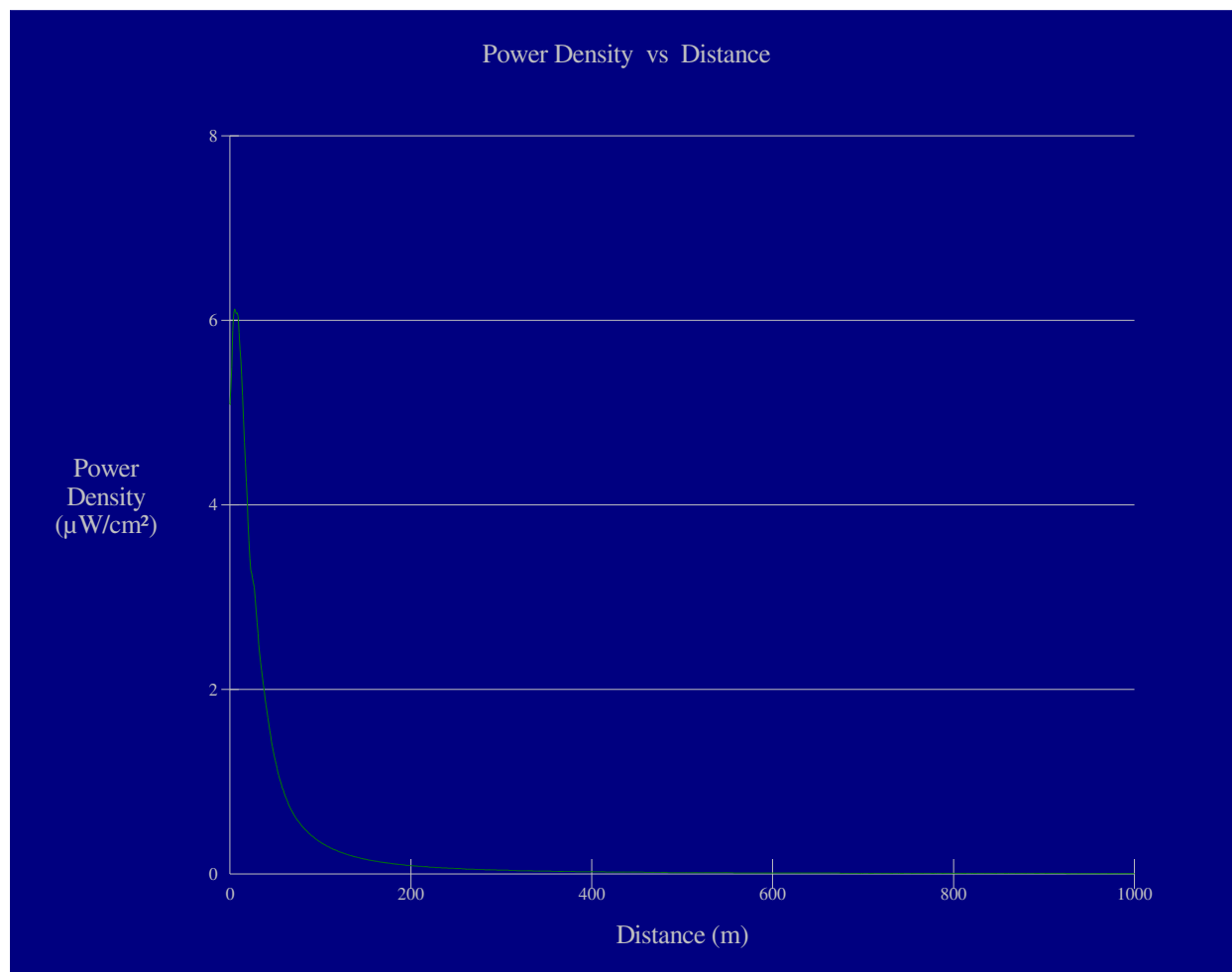
D is the distance in meters from the center of radiation to the calculation point.

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. The highest calculated ground level power density occurs at a distance of 5 meters from the base of the antenna support structure. At this point the power density is calculated to be 6.1 $\mu W/cm^2$, which is 0.6% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 3.1% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of Coos Bay 208A alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

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

Coos Bay 208A

Antenna Type: "ring stub" assumed for this study

No. of Elements: 1

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 55 watts

Vertical ERP: 55 watts

Antenna Height: 21 meters AGL

Maximum Calculated Power Density is $6.1 \mu\text{W}/\text{cm}^2$ at 5 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers