

May 2015
KWPZ(FM) Channel 293C
Lynden, Washington
RF Exposure Study

Facilities Proposed

The proposed auxiliary facility will be on Channel 293C (106.5 MHz) with an effective radiated power of 8.2 kilowatts. Operation is proposed with a 2-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on an existing tower with FCC Antenna Structure Registration Number 1251758.

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.

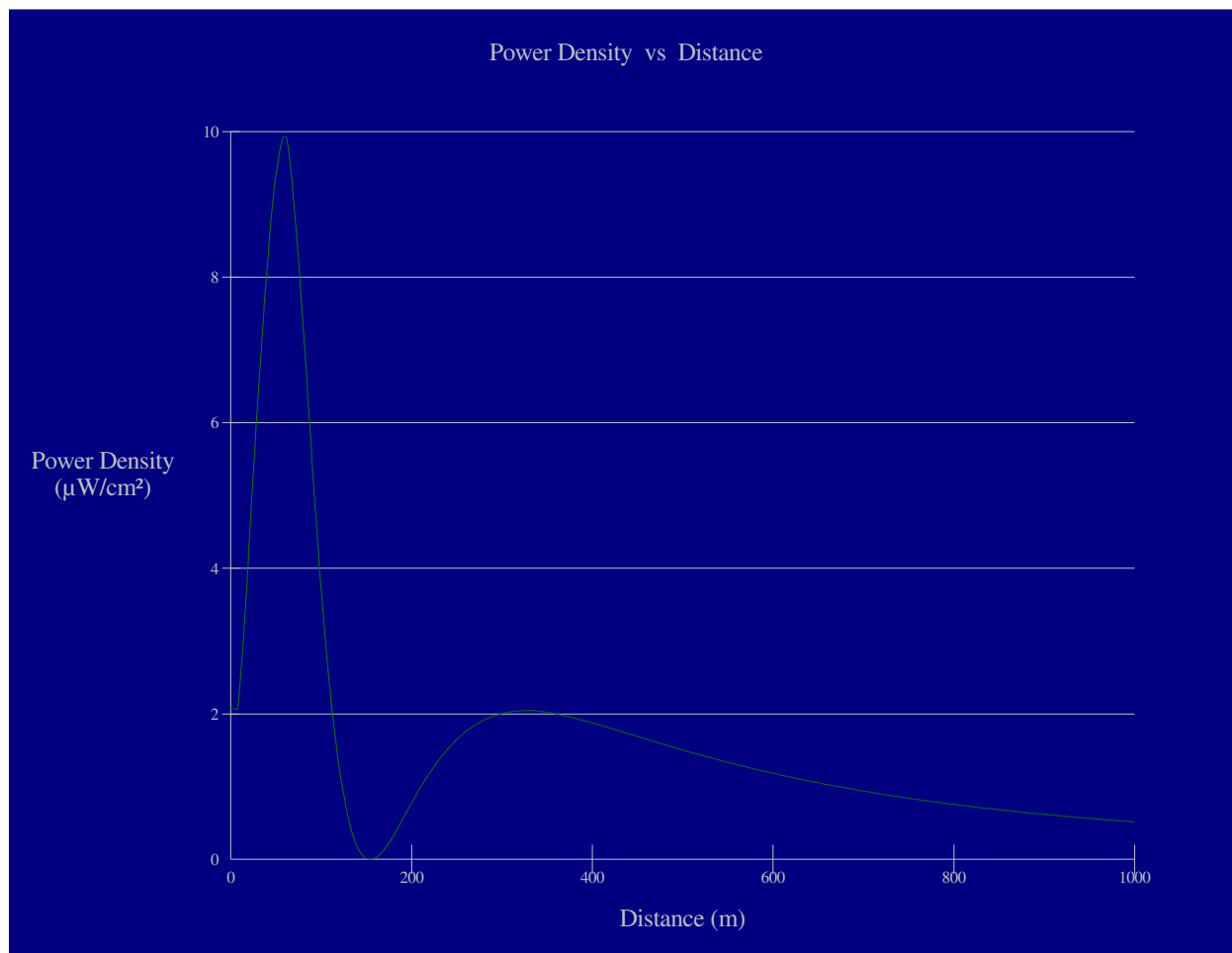
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed auxiliary antenna system assume a Type 3 element pattern, which is the element pattern for the ERI MPX-2E antenna proposed for use. The highest calculated ground level power density occurs at a distance of 60 meters from the base of the antenna support structure. At this point the power density is calculated to be 9.9 $\mu W/cm^2$, which is less than 5% 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 auxiliary operation 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 applicant's 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

KWPZ 293C Auxiliary

Antenna Type: ERI MPX-2E "rototiller"

No. of Elements: 2

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 8.2 kW

Vertical ERP: 8.2 kW

Antenna Height: 91 meters AGL

Maximum Calculated Power Density is $9.9 \mu\text{W}/\text{cm}^2$ at 60 meters from the antenna structure.

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