September 2013
FM Translator K266AZ
Ephrata, Washington Channel 266D
RF Exposure Study

Facilities Proposed
The K266AZ construction permit bears a condition requiring documentation that access to the site is restricted to prevent the exposure of humans to RF emissions in excess of the FCC guidelines. The following calculations are submitted in lieu of this requirement.

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.

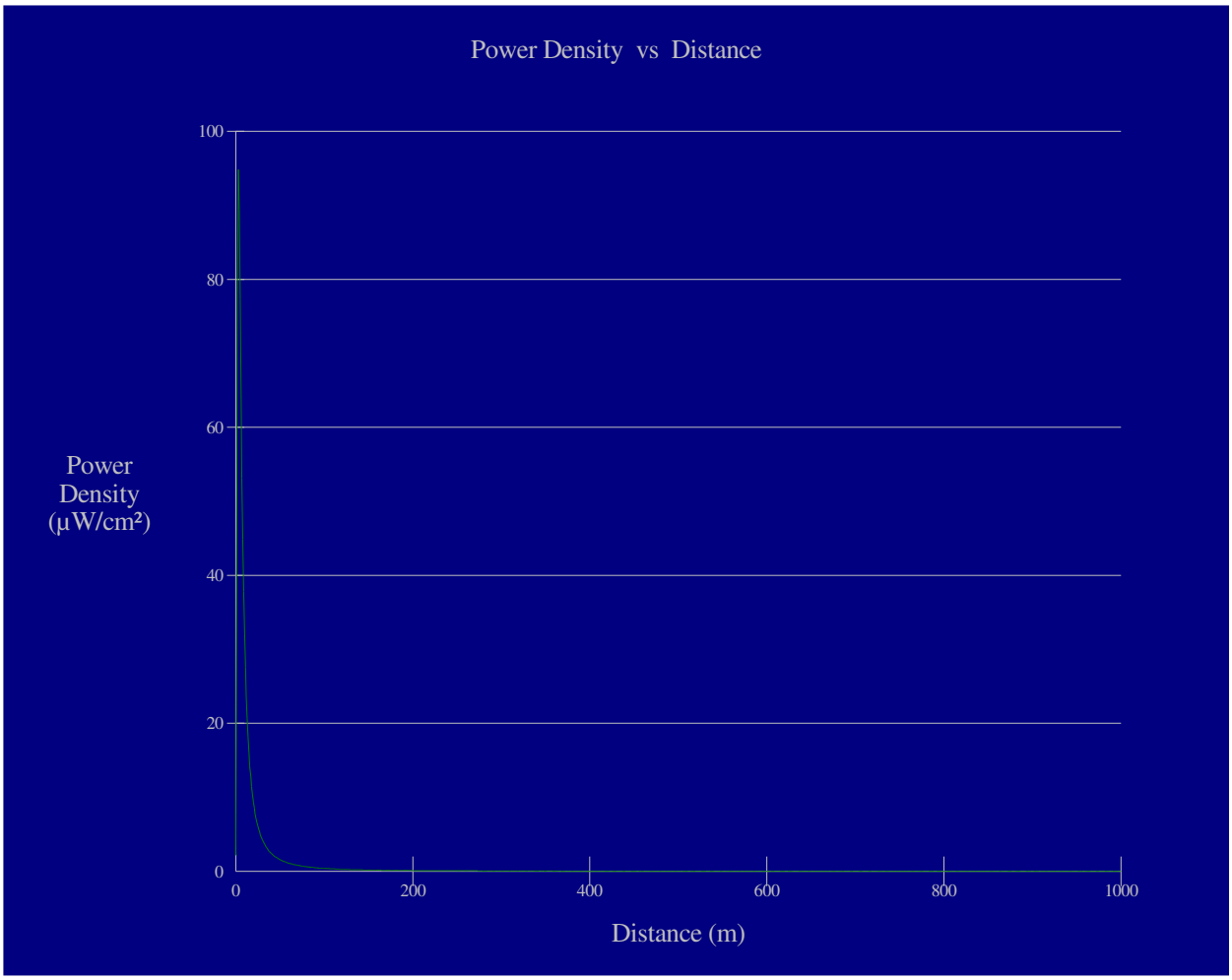
Calculations of the power density produced by the K266AZ antenna system assume a Type 6 element pattern, which is the element pattern for the Shively 6812B-1 antenna used by that station. The highest calculated ground level power density occurs at a distance of 3 meters from the base of the antenna support structure. At this point the power density is calculated to be 94.8 μW/cm².

Calculations of the power density produced by the adjacent K234BU antenna system assume a Type 6 element pattern, which is the element pattern for the Shively 6812B-1 antenna used by that station. The highest calculated ground level power density occurs at a distance of 14 meters from the base of the antenna support structure. At this point the power density is calculated to be 7.3 μW/cm².

Calculations of the power density produced by the adjacent KTAC(FM) antenna system assume a Type 2 element pattern, which is the element pattern for the Jampro JMPC-4 half-wave-spaced antenna used by that station. The highest calculated ground level power density from KTAC occurs at a distance of 75 meters from the base of the antenna support structure. At this point the power density is calculated to be 81.8 μW/cm².

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K266AZ and the present operations of K234BU and KTAC (were their maxima to coincide, which they do not) is 183.9 $\mu W/cm^2$, which is 92% of 200 $\mu W/cm^2$ (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**

K266AZ Ephrata

Antenna Type:	Shively 6812B-1
No. of Elements:	1
Element Spacing:	1.0 wavelength
Distance:	1000 meters
Horizontal ERP:	60 W
Vertical ERP:	60 W
Antenna Height:	5 meters AGL

Maximum Power Density is 94.8 µW/cm^2 at 3 meters from the antenna structure.