Facilities Proposed

The proposed operation will be on Channel 261A (100.1 MHz) with an effective radiated power of 1.9 kilowatts. Operation is proposed with a 4-element circularly-polarized, omni-directional, half-wave-spaced antenna, side-mounted on an existing tower located at Jump Off Joe Butte.

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.

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

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 PSIFM-4C-50WS-H antenna system assume the "worst case" Type 1 element pattern. The highest calculated ground level power density occurs at a distance of 10 meters from the base of the antenna support structure. At this point the power density is calculated to be 28.9 $\mu W/cm^2$, which is 3% of 1000 $\mu W/cm^2$ (the FCC

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standard for controlled environments) and 14.5% of 200 µW/cm² (the FCC standard for uncontrolled environments).

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

Callsign	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
KRKG-FM 261C3	1.9 kW H 1.9 kW V PSIFM-4C-50WS-H 4-bay half-wave ring stub assumed	FMModel	14 m	28.9 µW/cm²	200 µW/cm²	14.5%
K258CN	0.099 kW V SCA CLFMV	Manf Pattern	10 m	5.4 µW/cm²	200 µW/cm²	2.7%
K282AA	0.274 kW H 0.274 kW V ring stub assumed	FMModel	24 m	22.8 µW/cm²	200 µW/cm²	11.4%
K285FN	0.250 kW H 0.250 kW V NIC BKG77-1	FMModel	19 m	34.8 µW/cm²	200 µW/cm²	17.4%
Total 46.0%						

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.

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Power Density vs Distance

Power Density (μW/cm²)
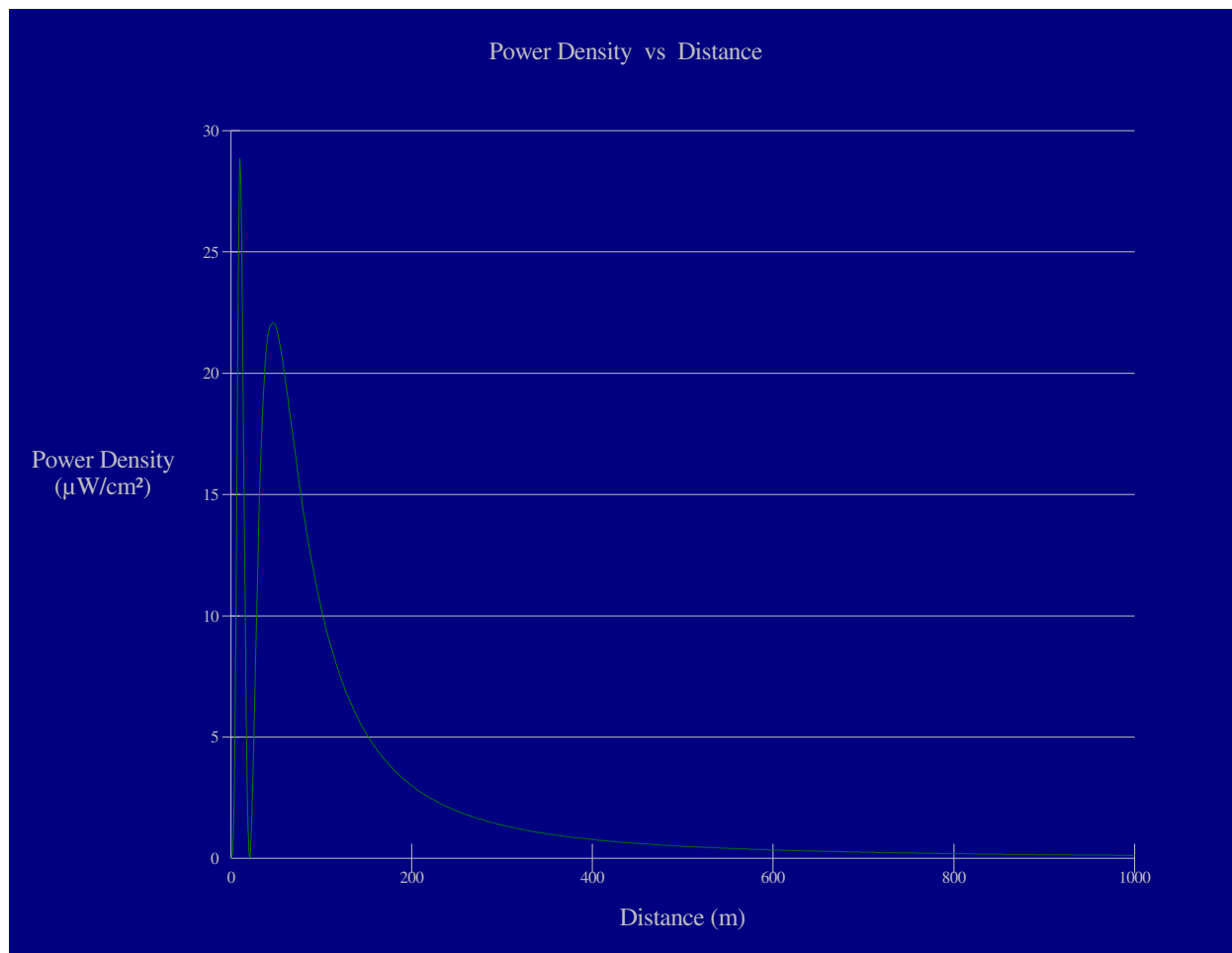
Distance (m)

Ground-Level RF Exposure   **OET FMModel**

KRKG-FM 261C3 Pasco
Antenna Type: PSIFM-4C-50WS-H (ring stub assumed)
No. of Elements: 4
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 1.900 kW
Vertical ERP: 1.900 kW

Antenna Height: 14 meters AGL

Maximum Calculated Power Density is 28.9 μW/cm^2 at 10 meters from the antenna structure.

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