

**August 2009
KWYS-FM Channel 275C
Island Park, ID
NIER Analysis**

Facilities Proposed

The proposed operation will be on Channel 275C (102.9 MHz) with an effective radiated power of 37 kilowatts. Operation is proposed with a 4-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on an existing tower located atop Sawtelle Peak.

The antenna support structure does 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.

NIER Calculations

Study of the area within 1000 meters of the proposed site reveals no other likely sources of non-ionizing radiation other than FM station KEZQ, which is commonly-owned with KWYS-FM. These two stations are currently licensed to share an 8-bay ERI "rototiller" antenna. That antenna, however, was badly damaged by winter storms and has been removed from the tower. A single-station 4-bay antenna is being installed for use by KWYS-FM only.

Furthermore, station KEZQ was previously licensed at West Yellowstone MT but was reallocated to Iona ID by the Report & Order in MB Docket No. 06-72¹. KEZQ now holds a construction permit on Channel 226C1 at Iona, FCC File No. BPH-20080908ABA, from a new transmitter site.

Power density calculations are shown only with regard to the levels from this proposal for KWYS-FM, and demonstrate compliance with the FCC standard for uncontrolled environments. Were the calculated maximum from the KEZQ licensed facility to be added to that of KWYS-FM, the result would exceed the general public exposure standard. However, KEZQ is not now operating from the Sawtelle Peak transmitter site (see silent STA request BLSTA-20090422AAP), its antenna has

¹ *Arlington and Boardman, Oregon; Boise, Caldwell, Grangeville, Hazelton, Iona, Jerome, McCall, Melba, Salmon, and Sun Valley, Idaho; Elko and Owyhee, Nevada; Finley, Pasco, and Walla Walla, Washington; and West Yellowstone, Montana, Report and Order in MB Docket No. 06-72, Released July 25, 2008.*

been removed from the tower, and the licensee has no plans to resume KEZQ operation from this site pending commencement of operation at its new Iona transmitter site. Therefore, given that KWYS-FM will be the only station operating from this transmitter site, there is no need for the Commission to include a post-construction measurement condition on the KWYS-FM construction permit. **Indeed, such a measurement condition would be pointless because KEZQ would not be operating at the time of the measurements.**

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.

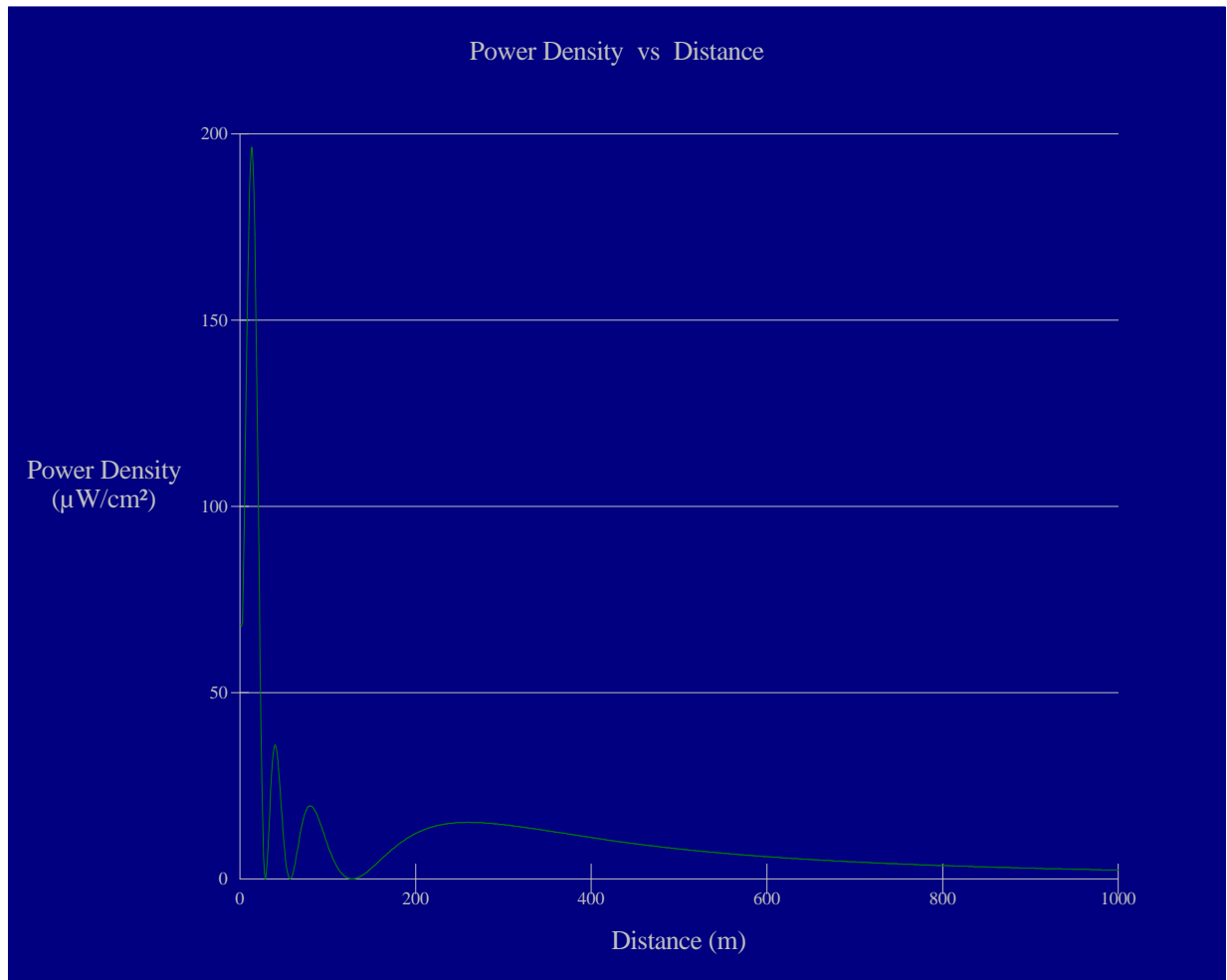
D is the distance in meters from the center of radiation to the calculation point.

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 KWYS-FM antenna system assume a Type 3 element pattern, which is the element pattern for the ERI rototiller antenna proposed for use. 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 196.4 $\mu\text{W}/\text{cm}^2$, which is 19.6% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 98.2% 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.

Hatfield & Dawson Consulting Engineers



Ground-Level NIER

OET FMModel

KWYS-FM 275C Island Park

Antenna Type: ERI SHP-4AE "rototiller"

No. of Elements: 4

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 37 kW

Vertical ERP: 37 kW

Antenna Height: 35 meters AGL

Maximum Power Density is 196.4 : W/cm² at 14 meters from the antenna structure.