

**November 2007
KQCM(FM) Channel 221A
Thermal, CA
NIER Analysis**

Facilities Proposed

The proposed operation will be on Channel 221A (92.1 MHz) with an effective radiated power of 1.55 kilowatts. Operation is proposed with a 1-bay directional antenna. The antenna will be side-mounted on an existing tower.

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

The only other broadcast users of this site are KRCK-FM 249A Mecca and K217EZ Coachella. The FM translator operates with less than 100 Watts ERP and is therefore categorically excluded from further study.

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 KQCM antenna system assume a Type 2 element pattern, which is the element pattern for the Jampro “double V” antenna proposed for use. The highest calculated ground level power density occurs at a distance of 23 meters from the base of the antenna support structure. At this point the power density is calculated to be $58.8 \mu\text{W}/\text{cm}^2$.

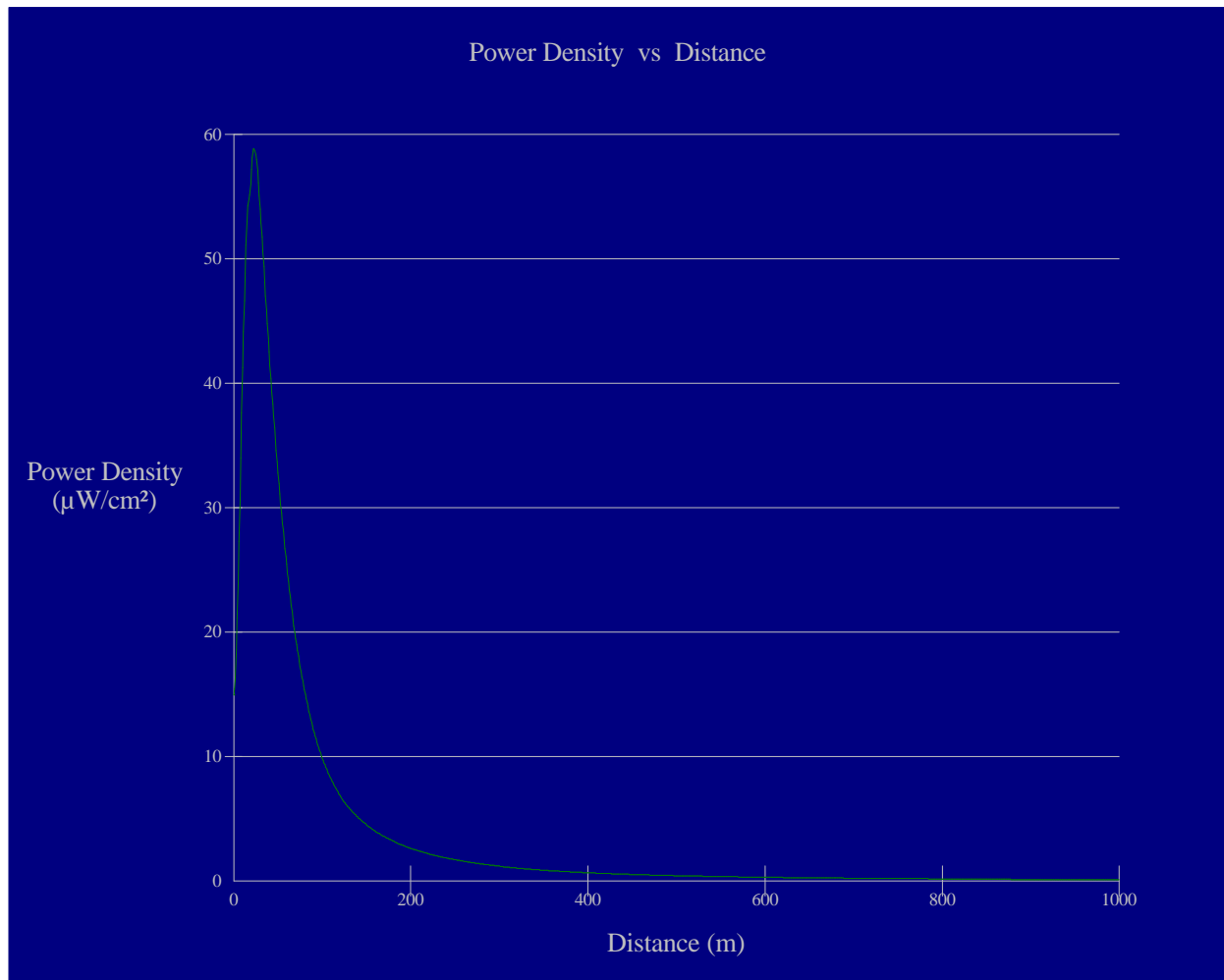
Calculations of the power density produced by the KRCK-FM antenna system assume a Type 2 element pattern, which is the element pattern for the Jampro JMPC-2 antenna used by that station. The highest calculated ground level power density occurs at a distance of 22 meters from the base of the antenna support structure. At this point the power density is calculated to be $10.8 \mu\text{W}/\text{cm}^2$.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KQCM the present operation of KRCK-FM (were their maxima to coincide, which they do not) is $69.6 \mu\text{W}/\text{cm}^2$, which is 7.0% of $1000 \mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 34.8% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

Public access to the site is restricted and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

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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 NIER

OET FMModel

KQCM 221A Thermal

Antenna Type: Jampro "double V"

No. of Elements: 1

Element Spacing: dna

Distance: 1000 meters

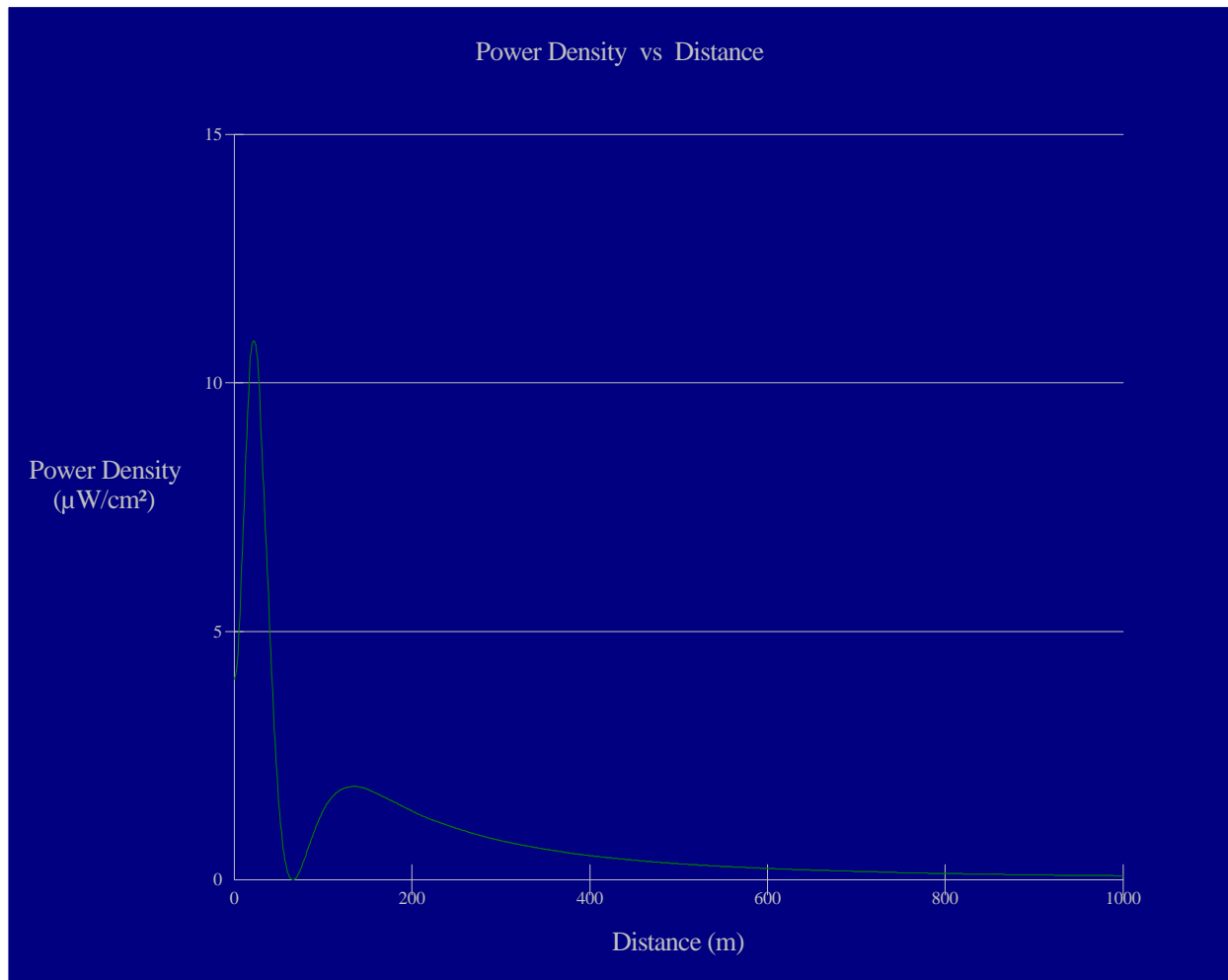
Horizontal ERP: 1.55 kW

Vertical ERP: 1.55 kW

Antenna Height: 24 meters AGL

Maximum Power Density is $58.8 : \text{W}/\text{cm}^2$ at 23 meters from the antenna structure.

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Ground-Level NIER

OET FMModel

KRCK-FM 249A Mecca

Antenna Type: Jampro JMPC-2

No. of Elements: 2

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 1.25 kW

Vertical ERP: 1.25 kW

Antenna Height: 40 meters AGL

Maximum Power Density is 10.8 : W/cm² at 22 meters from the antenna structure.

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