

**February 2008
KSED(FM) Channel 298C
Sedona, AZ
NIER Analysis**

Facilities Proposed

The proposed operation will be on Channel 298C (107.5 MHz) with an effective radiated power of 100 kilowatts. Operation is proposed with a 6-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on an existing tower located atop Mormon Mountain. The FCC Antenna Structure Registration Number for the tower is 1007438.

NIER 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.

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

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.

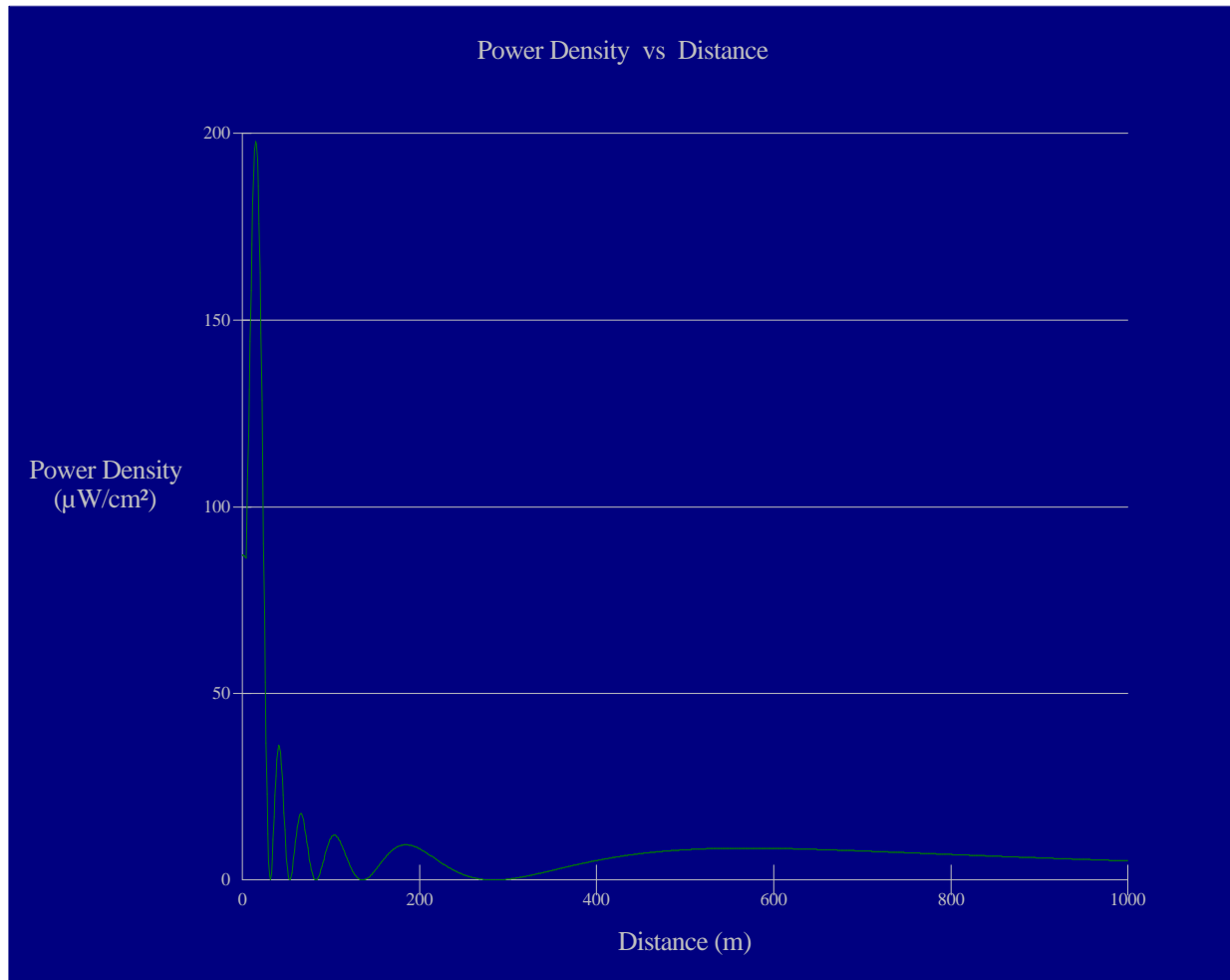
Calculations of the power density produced by the proposed antenna system assume a Type 3 element pattern, which is the element pattern for the ERI "rototiller" antenna proposed for use. The highest calculated ground level power density occurs at a distance of 15 meters from the base

of the antenna support structure. At this point the power density is calculated to be $197.8 \mu\text{W}/\text{cm}^2$.

Mormon Mountain is a multiple-user transmitter site hosting a number of FM and TV transmitting facilities. Should the Commission so require, the KSED licensee will conduct on-site ground-level RFR measurements as a condition of licensing the proposed facility.

Public access to the site is restricted and the antenna tower is or will be 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.

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

KSED 298C Sedona

Antenna Type: ERI "rototiller"

No. of Elements: 6

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 100 kW

Vertical ERP: 100 kW

Antenna Height: 50 meters AGL

Maximum Power Density is 197.8 : W/cm² at 15 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers