

December 2008
KSAS-FM Channel 278C
Caldwell, ID
Auxiliary Facility NIER Analysis

Facilities Proposed

The proposed auxiliary operation will be on Channel 278C (103.5 MHz) with an effective radiated power of 3.2 kilowatts. Operation is proposed with a 1-element circularly-polarized antenna. The antenna will be side-mounted on an existing tower at the Deer Point communications site near Boise, Idaho. The FCC Antenna Structure Registration Number for the proposed tower is 1053967. This is the same location as the existing KSAS-FM auxiliary antenna installation. Several other FM and TV broadcast facilities operate from this transmitter site.

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.

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

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.

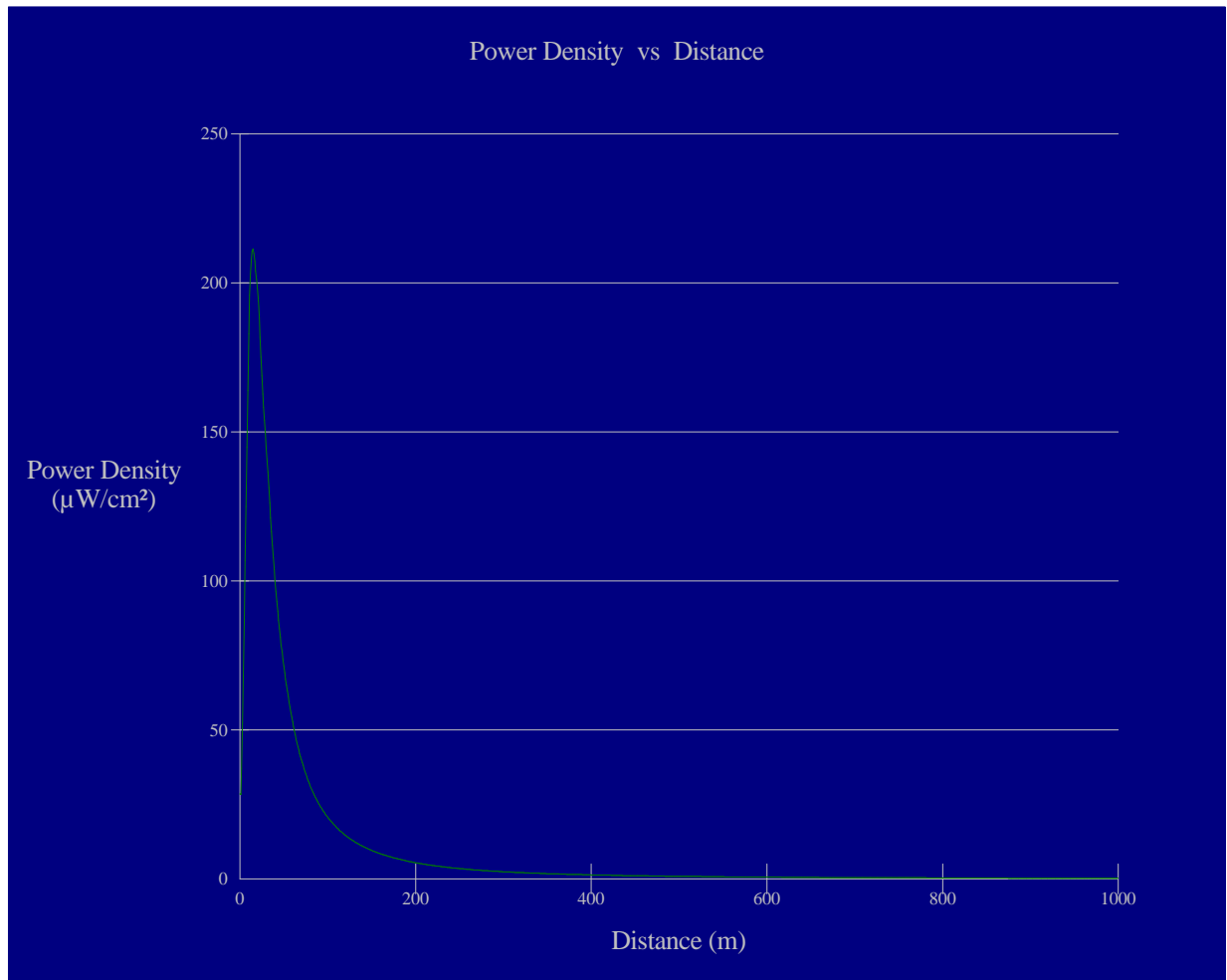
Calculations of the power density produced by the proposed KSAS-FM auxiliary antenna system assume a Type 3 element pattern, which is the element pattern for the ERI "rototiller" antenna proposed for use. The highest calculated ground level power density occurs at a distance of 15

meters from the base of the antenna support structure. At this point the power density is calculated to be 211.4 $\mu\text{W}/\text{cm}^2$.

KSAS-FM currently holds an auxiliary license on Channel 277C at this same location and height, and with the same model of antenna as proposed herein. Therefore, implementation of the channel change should not result in any change from the status quo in the ground-level power density levels at this site. Nevertheless, if so required by the Commission, the licensee will perform post-construction ground-level power density measurements and submit a report detailing those measurements as a part of the covering license application.

Public access to the site is restricted by a locked gate 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.

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

KSAS-FM 278C Caldwell Auxiliary

Antenna Type: ERI "rototiller"

No. of Elements: 1

Element Spacing: dna

Distance: 1000 meters

Horizontal ERP: 3.2 kW

Vertical ERP: 3.2 kW

Antenna Height: 17 meters AGL

Maximum Power Density is 211.4 : W/cm² at 15 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers