

December 2014
WCMF-FM Auxiliary Antenna
Rochester, New York
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 243B (96.5 MHz) with an effective radiated power of 4.2 kilowatts. Operation is proposed with a 2-element circularly-polarized omni-directional antenna which will be leg-mounted on an existing tower with FCC Antenna Structure Registration Number 1228608.

WCMF-FM and WPXY-FM auxiliary operations will be diplexed onto this antenna.

RF Exposure Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation will produce less than 5% of the applicable exposure limit for controlled environments such as this one. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

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.

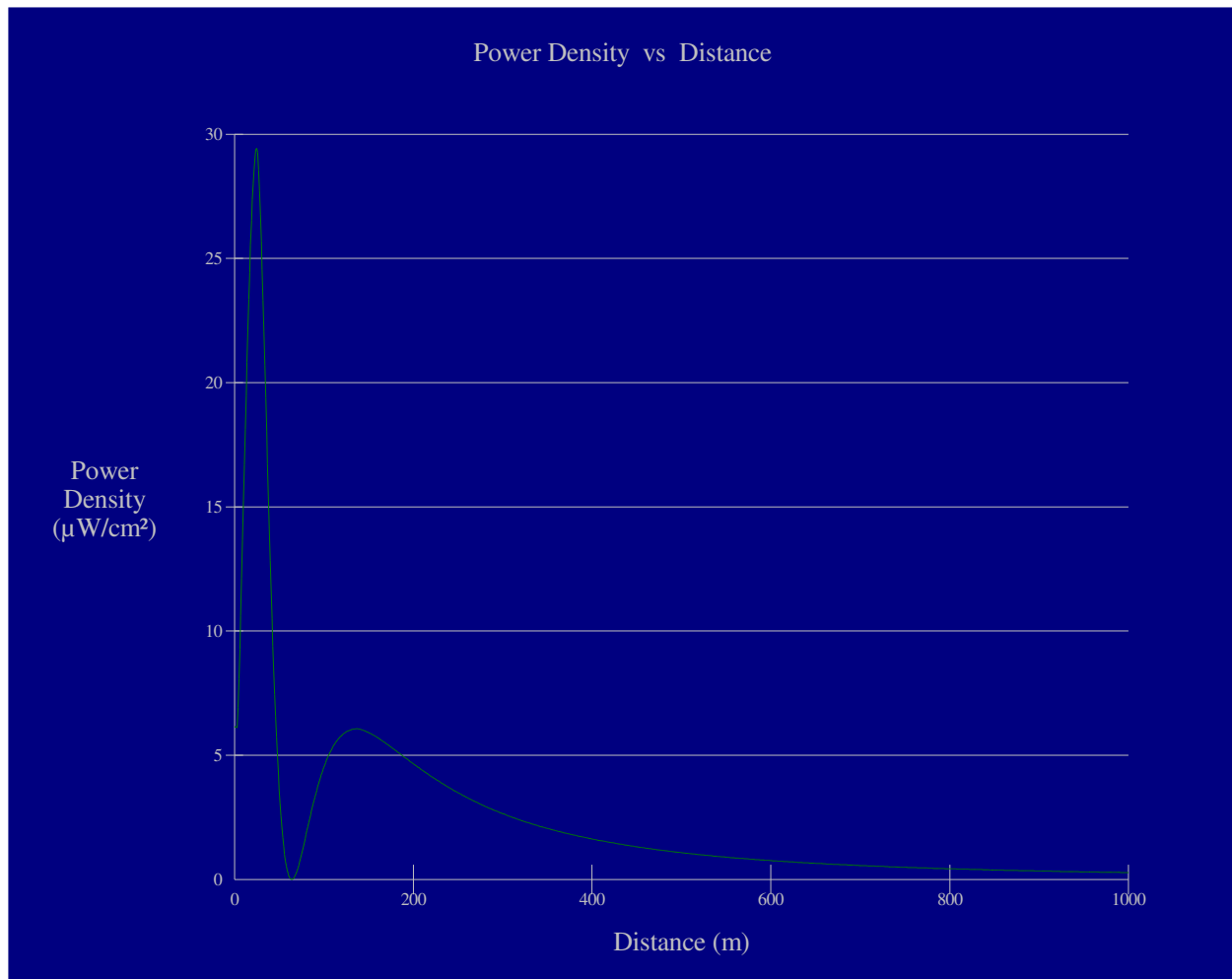
D is the distance in meters from the center of radiation to the calculation point.

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 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 25 meters from the base of the antenna support structure. At this point the power density is calculated to be 29.4 $\mu W/cm^2$, which is 2.9% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments such as this one).

According to information provided by the applicant, public access to the site is restricted by two layers of fencing with locked gates. This is considered to be a controlled access site. 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 exposure in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

WCMF-FM Auxiliary

Antenna Type: ERI "rototiller"
No. of Elements: 2
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: 4.2 kW
Vertical ERP: 4.2 kW

Antenna Height: 39 meters AGL

Maximum Calculated Power Density is $29.4 \mu\text{W}/\text{cm}^2$ at 25 meters from the antenna structure.

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