

July 2013
New FM Channel 238C1
McCall, Idaho
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 238C1 (95.5 MHz) with an effective radiated power of 2.7 kilowatts. The antenna will be side-mounted on an existing 100 foot tower at No Business Mountain.

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.

RF Exposure 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.

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

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 1 element pattern, which is the "worst case" element pattern for a "ring stub" antenna. The highest calculated ground level power density occurs at a distance of 3 meters from the base of the antenna support structure. At this point the power density is calculated to be 70.1 $\mu W/cm^2$.

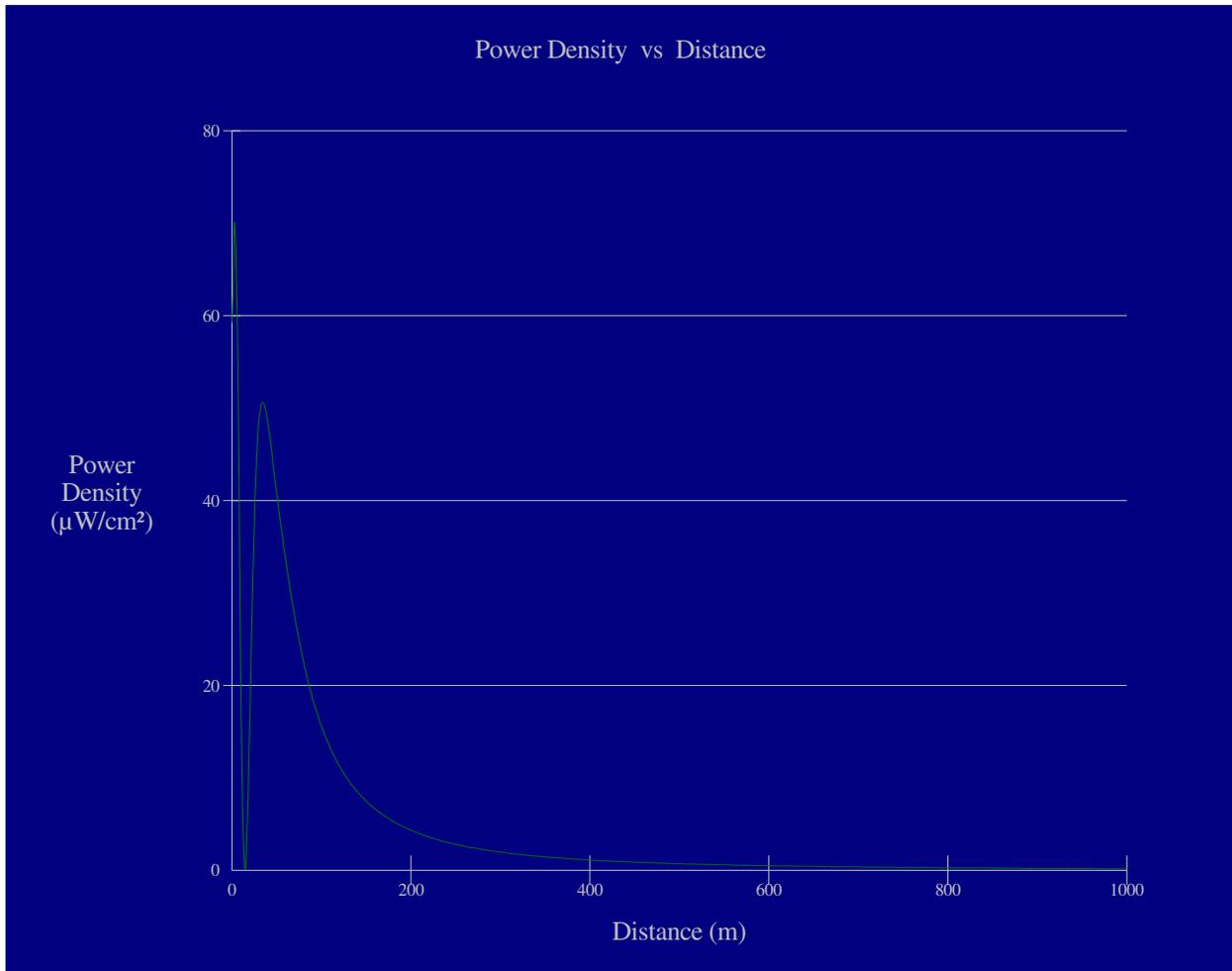
Calculations of the power density produced by McCall 238C1 and the other stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pub FCC Limit	% of Limit
McCall 238C1	2.7 kW avg Nicom BKG77-3 half-wave	FMMModel	15 m	70.1 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	35.1%
K27DX	1.96 kW peak model unknown	0.500 assumed	15 m	48.4 $\mu\text{W}/\text{cm}^2$	365 $\mu\text{W}/\text{cm}^2$	13.3%
K41HS-D	0.085 kW avg Scala 4DR-4-2HW	0.257	19 m	0.6 $\mu\text{W}/\text{cm}^2$	421 $\mu\text{W}/\text{cm}^2$	0.1%

For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern. The resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower. Since the K27DX antenna model is not listed in CDDBS, a worst-case relative field value of 0.500 has been assumed.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of McCall 238C1 and the other stations at this site (were their maxima to coincide, which they do not) is 49% of 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 exposure in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

McCall 238C1

Antenna Type: Nicom BKG77-3 half-wave (ring stub element model used)

No. of Elements: 3

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 2.7 kW

Vertical ERP: 2.7 kW

Antenna Height: 15 meters AGL

Maximum Calculated Power Density is 70.1 $\mu\text{W}/\text{cm}^2$ at 3 meters from the antenna structure.