

February 2014
KBLX-FM Channel 275B
Berkeley, California
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 275B (102.9 MHz) with an effective radiated power of 7.2 kilowatts. Operation is proposed with the existing 2-element circularly-polarized omni-directional antenna.² The antenna is side-mounted on an existing tower located at the San Bruno Mountain transmitter site, having FCC Antenna Structure Registration Number 1010564.

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 3 element pattern, which is the element pattern for the ERI LPX-2E antenna used by KBLX-FM. The highest calculated ground level power density occurs at a distance of 51 meters from the base of the antenna support structure. At this point the power density is calculated to be 12.0 $\mu W/cm^2$.

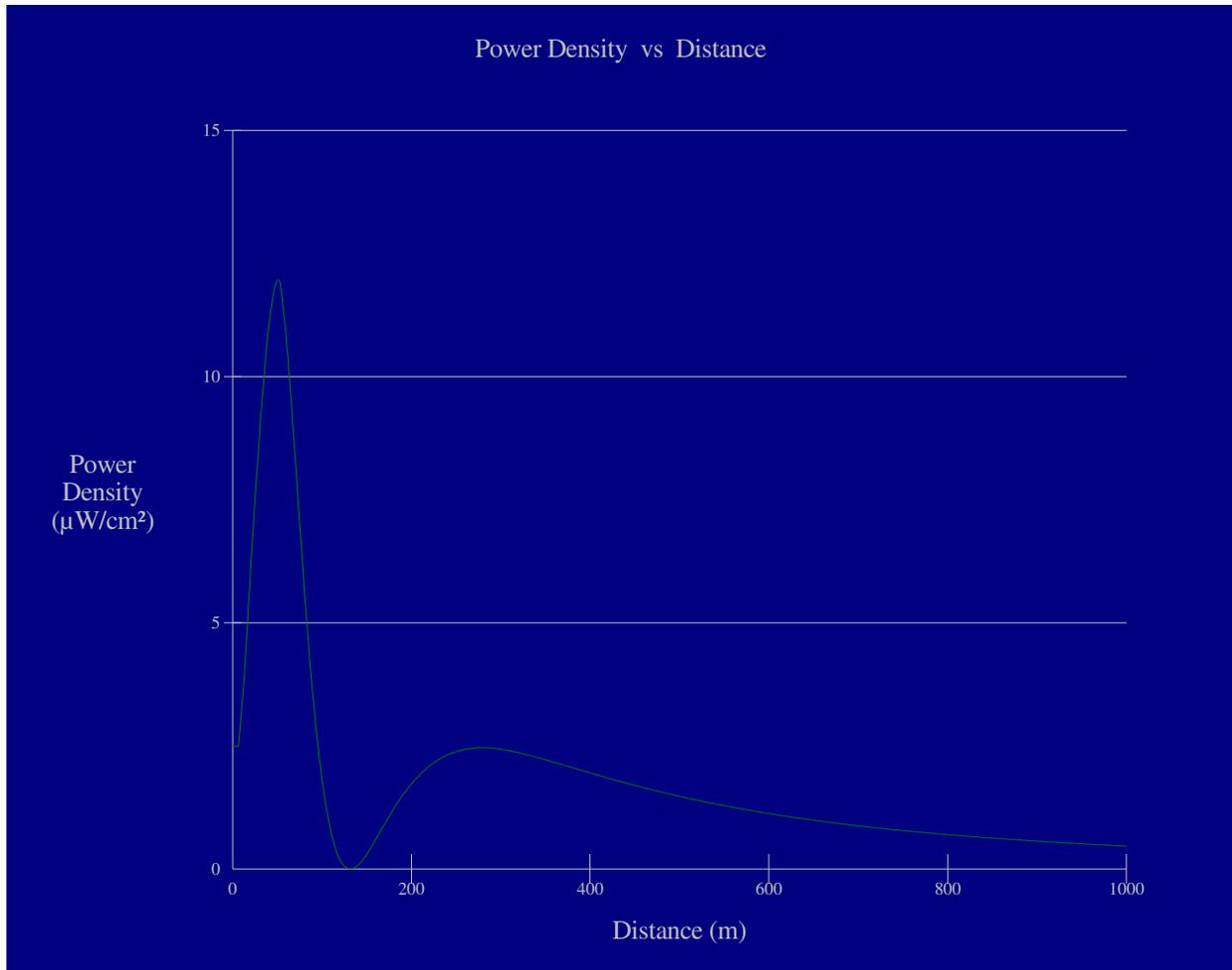
² See FCC File No. BMLH-20131127BJS

The KBLX-FM transmitter site on San Bruno Mountain is located within the San Bruno Mountain State and County Park. While individual towers are fenced to prevent access to the structures themselves, the site is traversed by a public road and a number of hiking trails. Apart from the fenced tower bases, this site is subject to the FCC General Population MPE limits. Simple summation of the calculated maxima from each of the eleven FM stations, three TV stations, and two LPTV stations operating from the San Bruno Mountain transmitter site would produce a result which exceeds the FCC General Population MPE.

These stations, however, operate from as many as 10 separate towers, spread out 2000 feet along the ridgeline. Since the stations' individual maxima do not coincide, simple summation would produce a result which far exceeds the actual ground-level power density levels in the vicinity of the towers. Measurements made over the past eight years by various stations at the site, in connection with renewal and antenna change applications, have shown operation of the main antenna facilities to be in compliance with the FCC General Population MPE. The addition of just 600 watts of additional ERP by KBLX-FM (as is proposed in this application) – adding just 1 $\mu\text{W}/\text{cm}^2$ to the station's calculated maximum ground level power density – would not be expected to change that result.³

The permittee/licensee acknowledges its obligation, in coordination with other users of the site, to 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.

³ 1 $\mu\text{W}/\text{cm}^2$ is equal to just 0.5% of the FCC General Population MPE.



Ground-Level RF Exposure

OET FMModel

KBLX-FM 275B Berkeley

Antenna Type: ERI LPX-2E “rototiller”
 No. of Elements: 2
 Element Spacing: 1.0 wavelength

Distance: 1000 meters
 Horizontal ERP: 7.2 kW
 Vertical ERP: 7.2 kW

Antenna Height: 78 meters AGL

Maximum Calculated Power Density is 12.0 µW/cm² at 51 meters from the antenna structure.