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NIER Report

KZBD-FM Ch 289C

Spokane, WA  
Facility ID 11243

Mapleton License of Spokane, LLC

October 2009

This Engineering Exhibit has been prepared on behalf of Mapleton License of Spokane, LLC in support of an application for a modified station license for KZBD-FM, Spokane, WA.

Mapleton has recently replaced the KZBD antenna as authorized by §73.1690(c). The new antenna is mounted at the same height as the previous antenna, and the ERP is unchanged.

This Exhibit contains the Radio Frequency Radiation calculations required by the rule referenced above.

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 of KZBD-FM will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. 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 the modified KZBD-FM facility.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65, using the Commission's FM Model computer program. "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.

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

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.

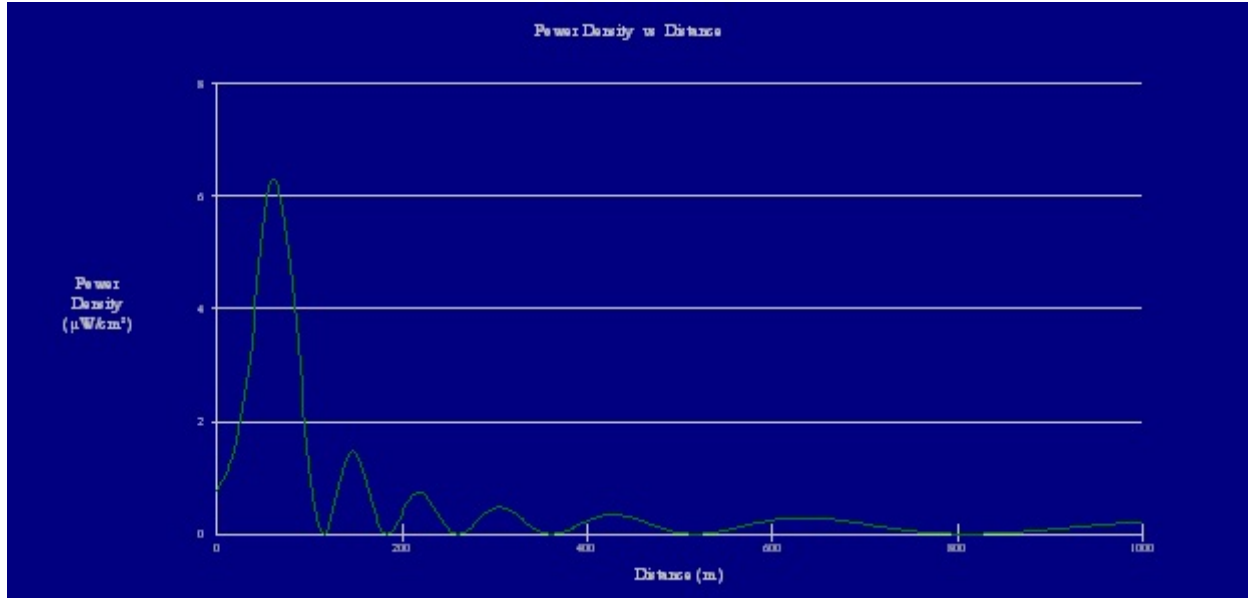
Calculations of the power density produced by the KZBD-FM antenna system assume a Type 6 element pattern, which is the appropriate element pattern for the Shively 6810-8R-PS antenna now in use by KZBD-FM. Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

The highest calculated ground level power density from KZBD-FM occurs at a distance of 62 meters from the base of the antenna support structure. At this point the power density is calculated to be 6.3  $\mu W/cm^2$ , which is 0.63% of 1000  $\mu W/cm^2$  (the FCC standard for controlled environments) and 3.15% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KZBD-FM alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this 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 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.



NIER Calculations at 2 meters Above Ground-Level  
KZBD-FM Spokane, WA

Antenna Type: Shively 6810-8R-PS  
Number of Elements: 8  
Element Spacing: 1 wavelength

ERP: 100 kW H&V  
Antenna Height: 213.6 meters AGL

Maximum Power Density: 6.29  $\mu\text{W}/\text{cm}^2$  at 62 meters from the tower base  
Statement of Engineer

This Engineering Report, relative to an application for a modified license for KZBD-FM, Spokane WA has been prepared by the undersigned. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Oregon.

Signed this 8<sup>th</sup> day of October 2009



Thomas S. Gorton P.E.

Hatfield & Dawson Consulting Engineers