



Engineering Statement

Mexico Educational Broadcasting Foundation
Form 340 - KJAB-FM

This consultant has been retained by Mexico Educational Broadcasting Foundation (Mexico) for the purpose of preparing the technical portion of Form 340 in application for a construction permit to relocate radio station KJAB-FM in Mexico, Missouri. Specifically, Mexico seeks to relocate the station to a new location, change the tower height above ground, the station HAAT, and change the station ERP.

Compliance with 47 CFR 73.509

The proposed KJAB-FM operation is fully compliant with the overlap provisions of 47 CFR 73.509. Exhibit 1 of this report is a spacing study which identifies potential radio stations to which interference may be caused to or received from. As shown in Exhibit 1 there are two other FM radio stations to which the minimum spacing requirements of 47 CFR 73.207 are not met. Specifically those stations are KCOU in Columbia, MO and WGCA-FM in Quincy, IL. Exhibit 2 of this report is a digitally generated map which graphically shows the lack of prohibited overlap between the proposed KJAB-FM operation and KCOU. As shown in Exhibit 2 there is tremendous separation between the KCOU 54 dBu interfering contour and the proposed KJAB-FM 60 dBu contour however the KJAB-FM 54 dBu interfering contour does come quite close to the KCOU protected 60 dBu contour. Exhibit 3 of this report is a *FM* Over study which predicts the interfering signal level at the KCOU 60 dBu contour over the relevant arc. As shown in Exhibit 3 the interfering signal level never exceeds 53.9 dBu. Exhibit 4 is a digitally generated map which graphically demonstrates the lack of prohibited overlap between the proposed KJAB-FM operation and WGCA-FM.

Channel 6 Television Interference

KJAB-FM is presently licensed with 6 kW H&V with an antenna height of 39 meters HAAT. There is a large area of interference to KMOS-TV in Sedalia, MO and that area has a population of 33,410 Persons¹. The proposed operation specifies 4.8 kW vertically polarized only. The interference area is completely outside of a community with a population of 50,000 or more hence the interfering contour was calculated by employing an effective radiated power of 192 Watts. 192 Watts represents 1/40th of the 4.8 kW vertical ERP as prescribed by 47 CFR 73.525. For the purposes of the study the interference was based on the worst case interfering contour of 50.9 dBu. The 6 db "Keyhole" was not added to the presently licensed KJAB-FM operation as the relevant arcs fell either entirely within the KMOS-TV Grade A Contour or entirely outside of the KMOS-TV Grade B contour. The population contained within the proposed KJAB-FM interference contour was determined to be 17,687 Persons which represents a decrease of 15,723 Persons. As such the proposed operation is compliant with the provisions 47 CFR 73.525(b)(i). Exhibit 5 of this report is a digitally generated map which graphically shows the reduced interference to KMOS-TV.

RF Radiation Analysis

Exhibit 6 of this report is a plot from the Commission's FM Model program which reveals that the maximum power density at a point 2 meters above the tower base would be predicted to be 2.55 $\mu\text{W}/\text{cm}^2$ which occurs at a point 6 meters from the tower base. This power density falls well below the 0.2 mW/cm^2 maximum prescribed by ANSI C95.1. Mexico will also make such power reductions as necessary or cease operation at time when tower maintenance is being performed so as to protect any tower workers from occupational overexposure to non ionizing RF Radiation. The base of the tower will be surrounded by a locked security fence which will be posted with signs warning of Hazards due to High Voltage and RF Radiation.

Certification

All information in this report and its associated exhibits is true and accurate to the best of my belief. Having had numerous matters before the Commission, my qualifications are a matter of record.

September 25, 2003

Date

R. Lee Wheeler

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¹ The large area of interference between the presently licensed KJAB-FM operation and KMOS-TV arose as a result of a major upgrade and relocation of the KMOS-TV facilities. That upgrade occurred after the KJAB-FM license was issued.