



## ***Engineering Report***

Community Broadcasting, Inc.  
New Translator - La Vista, NE

This consultant has been retained by Community Broadcasting, Inc. (Community) for the purpose of preparing the technical portion of Form 349 in application for a new FM translator station on Channel 224 in La Vista, NE.

### **Compliance with 47 CFR 73.1204**

A full search of the Commission's FM database was performed on Channel 224 which revealed seven radio stations to which the minimum spacing requirements of 47 CFR 73.207 are not met when the proposed translator stations was considered a Class A radio station. That report is included in this report as Exhibit 1. The stations are KEZO-FM in Omaha, NE, KRQC in Bennington, NE, KTGL in Beatrice, NE, BNPFT20030317ITQ in Harlan, IA, KUSO in Albion, NE, BNPFT20030317GWK in Atlantic, IA, and KSJQ in Savannah, MO. Exhibit 2 of this report is a digitally generated map which demonstrates the lack of prohibited overlap between the proposed operation and KTGL. Exhibit 3 of this report is a digitally generated map which demonstrates the lack of prohibited overlap between the proposed operation and BNPFT20030317ITQ. Exhibit 4 of this report is a digitally generated map which demonstrates the lack of prohibited overlap between the proposed operation and KUSO. Exhibit 5 of this report is a digitally generated map which demonstrates the lack of prohibited overlap between the proposed operation and BNPFT20030317GWK. Exhibit 6 of this report is a digitally generated map which demonstrates the lack of prohibited overlap between the proposed operation and KSJQ.

The proposed operation is located very near to two second and third adjacent, full service, FM radio stations. Specifically the proposed operation is located 8.53 km distant from KEZO-FM and 8.10 km distant from KRQC. As such, the 100 dBu interfering contour of the of the proposed operation is wholly contained within the protected contours of the above noted radio stations.

47 CFR 74.1204(d), in part, states that “[A]n application [for an FM Translator Construction Permit] otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference[to FM Broadcast stations of FM translators] will occur due to...lack of population or other such factors as may be applicable.”

The proposed Channel 224 operation is located in an area where both KEZO-FM and KRQC have very high signal levels. Exhibit 7 of this report is a digitally generated map which identifies the predicted KEZO-FM signal level at the proposed Channel 224 tower site. That predicted signal level is 104.7 dBu. Similarly, Exhibit 8 identifies the predicted signal level from KRQC at the proposed channel 224 tower site and that signal level is 86.8 dBu. The interfering contour from the proposed Channel 224 operation is 40 dBu above the contours of the two second and third adjacent radio stations and is thus 144.7 dBu to KEZO-FM and 126.8 dBu to KRQC.

Due to the low power of the proposed Channel 224 operation (140 Watts) and the high level of the interfering contour it is not possible to accurately predict the distance to the predicted interfering contour by employing the curves in figure 1a of 47 CFR 73.333. As such, free space calculations have been employed by utilizing the following formula:

$$E_{\text{freespace}}(\text{dB}\mu) = 106.85 - 20 \log(d_{\text{km}}) + 10 \log(\text{ERP}_{\text{kw}})$$

Solving for distance (d) the formula becomes:

$$d_{\text{km}} = \log^{-1} ( ( 106.85 + 10 \log(\text{ERP}_{\text{kw}}) - E_{\text{freespace}}(\text{dB}\mu) ) / 20 )$$

When the equation is solved for d the relevant distances to the interfering contours are as follows:

$$\text{KEZO-FM (144.7 dB}\mu) = 0.0048 \text{ km (4.79 meters)}$$

$$\text{KRQC (126.8 dB}\mu) = 0.0376 \text{ km (37.63 meters)}$$

In both cases the interfering contour from the proposed Channel 224 operation extends less than 38 meters. There is no population within 38 meters of the antenna and, inasmuch as the proposed antenna is 89 meters above ground level the interfering contour will never reach ground level.

### **RF Radiation Analysis**

The proposed operation was checked by employing the Commission's *FMModel* software and was found to have a maximum power density of 0.1620  $\mu\text{W}/\text{cm}^2$  which occurs at a distance 57.6 meters from the tower base. This power density represents but 0.0810% of the 0.2  $\text{mW}/\text{cm}^2$  limit established in ANSI C95.1. A copy of the power density plot is included in this report as Exhibit 10.

**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.

August 27, 2003

Date

R. Lee Wheeler

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