

# **Engineering Statement**

W255DB Kingsport, Tennessee (Facility ID # 140578)

*Licensee - Bristol Broadcasting Company, Inc.*

## **Application - Minor Modification to Licensed Facilities**

By this Application, the Licensee (Bristol Broadcasting Company, Inc. "Bristol") seeks authority to modify the authorized facilities of FM Translator Station W255DB including changing the antenna/transmitter location and the antenna height above average terrain.

### **Engineering Discussion - Rules Compliance**

It is proposed that W255DB will rebroadcasts FM Station WFHG-FM at Bluff City, Tennessee (Facility ID # 36982) as a "fill-in" translator. WFHG-FM is co-owned with W255DB by Bristol Broadcasting Company, Inc. The service contour of Translator Station W255DB with the proposed facilities will be completely encompassed by the 1.0 mV/m (60 dBu) contour of WFHG-FM. See Figure 1 "Primary Station Data/Rules Compliance Showing" attached herewith.

As is also shown on Figure 1, the predicted 60 dBu contour of the proposed facility will overlap the 60 dBu contour of the W255DB licensed facilities as is required for the filing of a "minor change" application.

Applicant proposes to employ a directional antenna for W255DB with an effective radiated power of 99 watts.

The W255DB antenna will be side-mounted on an existing lattice-type guyed tower, thus no new construction will be required.

### **Contour Overlap Analysis**

An analysis of contour overlap to co-channel, adjacent channel, and IF channel facilities created by the instant proposal to operate W255DB on channel 225D (98.9 MHz) was completed. This analysis (see Figure 2) demonstrated that there will be no prohibited contour overlap to any present or proposed facilities with three exceptions:

The first potential for interference is vis-a-vis WTFM(FM) at Kingsport, Tennessee, operating on the second lower adjacent channel. Second adjacent channel interference is presumed to be caused within a +40 db undesired/desired F(50,10) contour overlap. The WTFM(FM) signal strength at the proposed W255DB tower site was calculated to be in excess of 142 dBu. Therefore, the W255DB interfering contour would be the 188 dBu F(50,10) contour which would extend less than 0.1 kilometer. The proposed antenna location for W255DB is in the Cherokee National Forest and there is no population within 0.1 kilometer of the tower location. Therefore, this potential interference area should be waived pursuant to established commission policies.

The second potential for interference is relative to WEXX(FM) at Elizabethton, Tennessee, operating on the second upper adjacent channel. Second adjacent channel interference is presumed to be caused within a +40 db undesired/desired F(50,10) contour overlap. WEXX(FM) (Class C3) operates with an ERP of 4.4 kilowatts and a HAAT of 244 meters from a

site *only* 6.93 kilometers from the proposed W255DB site. Because of the very close proximity of the WEXX(FM) site, any +40 db undesired/desired F(50,10) contour overlap from the proposed facility for W255DB would be limited to a very small area (less than 0.50 kilometers) surrounding the base of the W255DB tower. The proposed antenna location for W255DB is in the Cherokee National Forest and there is no population within 3.0 kilometers of the tower location. Therefore, this potential interference area should be waived pursuant to established commission policies.

Finally, the proposed site for W255DB does not meet the required separation distances set out in § 73.207 of the rules relative to WCQR-FM at Kingsport, Tennessee, operating on Channel 202 which is an IF channel to Channel 255D. However, the proposed ERP for W255DB is 99 watts and pursuant to § 74.1204(g) "FM translator stations...operating with less than 100 watts ERP will be treated as class D stations and will not be subject to intermediate frequency separation requirements."

Based on the foregoing, the instant application is in full compliance with all applicable FCC rules regarding interference to other existing or proposed facilities.

### **Radiofrequency Radiation Exposure and Environmental Considerations**

The RF contribution from the proposed 99 watt facility with the center of radiation at 19 meters above ground level was evaluated using the Commission's FM Model Program and assuming a "worst case" single bay, opposed-V dipole circularly polarized antenna. The maximum RF contribution of the facility at a height of 2 meters above ground was calculated to be 6.297  $\mu\text{W}/\text{cm}^2$  at a horizontal distance of 17.4 meters from the tower base. This is below the 5% threshold of the maximum permissible of 200  $\mu\text{W}/\text{cm}^2$  for general public exposure, and, therefore, may be excluded from consideration of a detailed analysis. Accordingly, the proposed facility will be in full compliance with the FCC-specified guidelines for human exposure to radiofrequency radiation in both the "controlled" and "uncontrolled" environments.

The proposed W255DB antenna will be side-mounted on an existing tower and will create no significant visual impact to the tower.

The area at the base of the existing tower is secured to prevent unauthorized or accidental access to the area. Signs will be posted warning of potential RF danger. Additionally, the licensee in cooperation with other users at the site will reduce operating power or cease transmissions entirely to comply with ANSI guidelines whenever persons require access to the area for maintenance purposes.

In light of the foregoing, it is clear that the proposed facility will have no significant impact on the environment.