

**MINOR CHANGE APPLICATION**  
**BIBLE BROADCASTING NETWORK, INC.**  
**W240AX FM TRANSLATOR STATION**  
**CH 240D - 95.9 MHZ - 0.25 KW**  
**COLUMBIA, SOUTH CAROLINA**  
**May 2007**

**EXHIBIT C**

**Radio Frequency Assessment**

A study has been made to determine whether this proposal is in compliance with 47 C.F.R. §1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997 ("Bulletin"), regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. This study considers all nearby contributing stations, specifically the licensed WGCV (AM), permitted WQXL (AM) and application for WEAJ (AM), and utilizes the appropriate formulas contained in the OET Bulletin.<sup>1</sup>

The proposed W240AX antenna system will be mounted with its center of radiation 97.5 meters (319.9 feet) above the ground at the tower location and will operate with an effective radiated power of 0.25 kilowatt (250 watts) in the horizontal and vertical planes (circularly polarized). At 2.0 meters, the height of an average person above the ground, at the base of the tower, the proposed W240AX antenna system will contribute 0.0011 mw/cm<sup>2</sup>.<sup>2</sup> Based on exposure limitations for a controlled environment, 0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.6% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

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- 1) The contributions of the FM station were calculated with the FMModel program. The EPA single bay dipole antenna was used for calculations unless otherwise noted.
  - 2) This level occurs at 26 meters out from the base of the tower and is considered worst case.

At the WGCV frequency of 620 kHz, the tower is  $73.5^\circ$  ( $0.204 \lambda$ ) in electrical height. The tower is fenced at a minimum distance of 4.0 meters (13.1 feet) from the radiating structure. Based on the guidelines of the OET bulletin, at the WGCV licensed power of 2.5 kilowatts, calculations indicate that 167.3 V/m and 0.485 A/m will be present at the fence perimeter. This represents 27.3 % of the electric field limit of 614 V/m and 29.8% of the magnetic field limit of 1.63 A/m. In this case, the magnetic field contribution of 29.8% is considered as the worst case contribution scenario.<sup>3</sup>

At the WEAJ frequency of 1130 kHz, the tower is  $134.0^\circ$  ( $0.372 \lambda$ ) in electrical height. The tower is fenced at a minimum distance of 4.0 meters (13.1 feet) from the radiating structure. Based on the guidelines of the OET bulletin, at the WEAJ proposed power of 1.0 kilowatt, calculations indicate that 44.8 V/m and 0.123 A/m will be present at the fence perimeter. This represents 7.3 % of the electric field limit of 614 V/m and 7.5% of the magnetic field limit of 1.63 A/m. In this case the magnetic field contribution of 7.5% is considered as the worst case contribution scenario.<sup>4</sup>

At the WQXL frequency of 1470 kHz, the tower is  $174.3^\circ$  ( $0.484 \lambda$ ) in electrical height. The tower is fenced at a minimum distance of 4.0 meters (13.1 feet) from the radiating structure. Based on the guidelines of the OET bulletin, at the WQXL authorized power of 11.0 kilowatts, calculations indicate that 236.4 V/m and 0.172 A/m will be present at the fence perimeter. Due to the operating frequency of WQXL the controlled and uncontrolled exposure limits differ. The

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3) Due to the operating frequency of WGCV the controlled and uncontrolled limits are the same.

4) Due to the operating frequency of WEAJ the controlled and uncontrolled limits are the same.

electric field represents 38.5% of the electric field controlled limit of 614 V/m and 42.2% of the electric field uncontrolled limit of 560.5 V/m. The magnetic field represents 10.6% of the magnetic field controlled limit of 1.63 A/m and 11.6% of the magnetic field uncontrolled limit of 1.49 A/m. In this case, the electric field uncontrolled contribution of 42.2% is considered as the worst case contribution.

Combining the contributions of W240AX, WGCV (AM), WEAJ (AM) and WQXL (AM), a total of 80.1% of the limit for uncontrolled environments is reached at 2.0 meters above the ground at the fence perimeter at the base of the tower. Since this level is below the 100% limit defined by the Commission, the proposed W240AX facility is believed to be in compliance with the radio frequency radiation exposure limits as required by the Federal Communications Commission. Further, BBN will post warning signs at the fence perimeter warning of potential radio frequency radiation hazards at the site. In addition, BBN will reduce the power of the proposed facility or cease operation, in cooperation and coordination with other building/roof users, as necessary, to protect persons having access to the site, tower or antenna from radio frequency radiation in excess of FCC guidelines.