

**RADIO FREQUENCY RADIATION STUDY**  
**INFINITY RADIO INC.**  
**WKRQ RADIO STATION**  
**AUXILIARY FM ANTENNA SYSTEM**  
**CH 270B - 101.9 MHZ - 16.0 KW**  
**CINCINNATI, OHIO**  
**November 2005**

**Radio Frequency Radiation Assessment**

This statement was prepared on behalf of Infinity Radio Inc. ("Infinity"). Infinity is submitting an application seeking authorization for a new auxiliary FM antenna system for WKRQ, which would operate when the main antenna system is out of service. Since the proposed WKRQ auxiliary antenna is located on a tower with television stations and several other FM stations, it is not possible to use the worksheets associated with the application for construction permit to certify compliance with the Commission's radio frequency radiation rules. Therefore, 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 co-located FM stations WOFX-FM, WVMX<sup>1</sup>, WKRQ<sup>2</sup>, WEBN, WKFS and TV stations WKRC-TV and WKRC-DT, and utilizes the appropriate formulas contained in the OET Bulletin.<sup>3</sup>

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- 1) While the WVMX facility is an authorized permit, the station has not yet commenced operation. However, it is considered an operating station for RF contribution calculations.
  - 2) While it is unlikely that the main WKRQ and proposed auxiliary antenna would be energized at the same time, the contributions of both were considered for a worst case contribution.
  - 3) The contributions of the FM stations are calculated with the FMModel program. The EPA dipole antenna was used for calculations unless otherwise noted.

The proposed WKRQ auxiliary antenna system will be mounted with its center of radiation 176.8 meters (580.0 feet) above the ground at the tower location and operate with an effective radiated power of 16.0 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WKRQ auxiliary antenna system will contribute 0.0211 mw.<sup>2</sup> Based on exposure limitations for a controlled environment, 2.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 10.5% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WKRQ antenna system is mounted with its center of radiation 247.0 meters (810.4 feet) above the ground at the tower location and operates with an effective radiated power of 16.0 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WKRQ antenna system contributes 0.0107 mw.<sup>2</sup> Based on exposure limitations for a controlled environment, 1.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 5.4% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WOFX-FM antenna system is mounted with its center of radiation 247.0 meters (810.4 feet) above the ground at the tower location and operates with an effective radiated

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- 2) This level of field occurs 47.0 meters out from the base of the tower and is considered worst case.
  - 2) This level of field occurs 66.0 meters out from the base of the tower and is considered worst case.

power of 16.0 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WOFX-FM antenna system contributes 0.0107 mw.<sup>3</sup> Based on exposure limitations for a controlled environment, 1.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 5.4% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WVMX antenna system is mounted with its center of radiation 247.0 meters (810.4 feet) above the ground at the tower location and operates with an effective radiated power of 16.0 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WVMX antenna system contributes 0.0107 mw.<sup>4</sup> Based on exposure limitations for a controlled environment, 1.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 5.4% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WEBN antenna system is mounted with its center of radiation 247.0 meters (810.4 feet) above the ground at the tower location and operates with an effective radiated power of 16.0 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WEBN

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3) This level of field occurs 66.0 meters out from the base of the tower and is considered worst case.

4) This level of field occurs 66.0 meters out from the base of the tower and is considered worst case.



antenna system contributes 0.0107 mw.<sup>5</sup> Based on exposure limitations for a controlled environment, 1.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 5.4% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WKFS antenna system is mounted with its center of radiation 247.0 meters (810.4 feet) above the ground at the tower location and operates with an effective radiated power of 2.8 kilowatts in the horizontal and vertical planes (circularly polarized). At two meters, the height of an average person, above the ground at the base of the tower, the WKFS antenna system contributes 0.0019 mw.<sup>6</sup> Based on exposure limitations for a controlled environment, 0.2% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 1.0% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WKRC-TV Channel 12 antenna system is mounted with its center of radiation 287.0 meters (941.6 feet) above the ground at the tower location and operates with an effective radiated power of 316 kilowatts in the horizontal plane. At two meters, the height of an average person, above the ground at the base of the tower, the WKRC-TV antenna system contributes 0.0780 mw. Based on exposure limitations for a controlled environments, 7.8 % of

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5) This level of field occurs 66.0 meters out from the base of the tower and is considered worst case.

6) This level of field occurs 66.0 meters out from the base of the tower and is considered worst case.

the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 39.0% of the ANSI limit is reached at two meters above the ground at the base of the tower.

The authorized WKRC-DT Channel 31 antenna system is to be mounted with its center of radiation 261.0 meters (856.3 feet) above the ground at the tower location and operates with an effective radiated power of 800 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the WKRC-DT antenna system radio frequency radiation calculations were made based on an effective radiated power of 8.0 kilowatts. At two meters, the height of an average person, above the ground at the base of the tower, the WKRC-DT antenna system contributes 0.0025 mw. Based on exposure limitations for a controlled environments, 0.1% of the allowable ANSI limit is reached at two meters above the ground at the base of the tower. For uncontrolled environments, 0.6% of the ANSI limit is reached at two meters above the ground at the base of the tower.

Combining the contributions of the proposed WKRQ auxiliary, WKRQ, WOFX-FM, WVMX, WEBN, WKFS and TV stations WKRC-TV and WKRC-DT, a total of 72.7% of the limits for uncontrolled environments is reached at the base of the tower. Since the contribution level for uncontrolled environments is below the 100% limit defined by the Commission, the

proposed WKRQ auxiliary facility is believed to be in compliance with the radio frequency radiation exposure limits as required by the Federal Communications Commission. Further, Infinity has posted warning signs in the vicinity of the tower warning of potential radio frequency radiation hazards at the site. In addition, Infinity will reduce the power of the facility or cease operation, in cooperation and coordination with other tower users, as necessary, to protect persons having access to the site, tower or antenna from radio frequency radiation in excess of FCC guidelines.

**AFFIDAVIT AND QUALIFICATIONS OF CONSULTANT**

State of Georgia    )  
St. Simons Island    ) ss:  
County of Glynn    )

**JEFFERSON G. BROCK**, being duly sworn, deposes and says that he is an officer of Graham Brock, Inc. Graham Brock has been engaged by Infinity Radio Inc. to prepare the attached Technical Exhibit.

His qualifications are a matter of record before the Federal Communications Commission. He has been active in Broadcast Engineering since 1979.

The attached report was either prepared by him or under his direction and all material and exhibits attached hereto are believed to be true and correct.

*This the 3rd day of November, 2005.*

  
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Jefferson G. Brock  
Affiant

Sworn to and subscribed before me  
this the 3rd day of November, 2005

  
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Notary Public, State of Georgia  
My Commission Expires: September 3, 2007