

**REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION**

**LAWRENCE F. LOESCH**

**K59ID LPTV STATION**

**CH 59- - 740-746 MHZ - 0.1 KW (DA)**

**MANTEO, NORTH CAROLINA**

**June 2007**

**EXHIBIT A**

**Radio Frequency Assessment**

This 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 TV stations W17CT, W28CJ, W45CL, W51DF, W56EC and K59ID; FM stations WOBX-FM and WOBR and AM station WOBX, and utilizes the appropriate formulas contained in the OET Bulletin.<sup>1</sup>

The W17CT, Channel 17, antenna system is mounted with its center of radiation 70.1 meters (230.0 feet) above the ground at the tower location and operates with an effective radiated power of 11.5 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 W17CT antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.115 kilowatt. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the W17CT antenna system contributes 0.0005 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, <0.1% of the allowable

---

1) The elevation of the TV antenna systems above ground were determined based on their respective licensed AMSL height, minus the site elevation, taken from the tower registration.

ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.2% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The W28CJ, Channel 28, antenna system is mounted with its center of radiation 70.1 meters (230.0 feet) above the ground at the tower location and operates with an effective radiated power of 11.5 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 W28CJ antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.115 kilowatt. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the W28CJ antenna system contributes 0.0005 mw/cm<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, 0.1% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The proposed W45CL STA, Channel 45, antenna system is to be mounted with its center of radiation 16.8 meters (55.0 feet) above the ground at the tower location and operate with an effective radiated power of 0.1 kilowatt (100 watts) in the horizontal plane. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the W45CL antenna system will contribute 0.0095 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled

environment, 0.4% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 2.2% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The proposed W51DF STA, Channel 51, antenna system is to be mounted with its center of radiation 16.8 meters (55.0 feet) above the ground at the tower location and operate with an effective radiated power of 0.1 kilowatts (100 watts) in the horizontal plane. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the W51DF antenna system will contribute  $0.0095 \text{ mw/cm}^2$ . Based on exposure limitations for a controlled environment, 0.4% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 2.0% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The proposed W56EC STA, Channel 56, antenna system is to be mounted with its center of radiation 16.8 meters (55.0 feet) above the ground at the tower location and operate with an effective radiated power of 0.1 kilowatt (100 watts) in the horizontal plane. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the W56EC antenna system will contribute  $0.0095 \text{ mw/cm}^2$ . Based on exposure limitations for a controlled environment, 0.4% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 2.0% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The proposed K59ID STA, Channel 59, antenna system is to be mounted with its center of radiation 16.8 meters (55.0 feet) above the ground at the tower location and operate with an effective radiated power of 0.1 kilowatt (100 watts) in the horizontal plane. At 2.0 meters, the height of an average person, above the ground at the base of the tower, the K59ID antenna system will contribute  $0.0095 \text{ mw/cm}^2$ . Based on exposure limitations for a controlled environment, 0.4% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 1.9% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower

The WOBX-FM antenna system is mounted with its center of radiation 70.0 meters (230.0 feet) above the ground at the existing tower location and operates with an effective radiated power of 40.0 kilowatts in the horizontal and vertical planes (circularly polarized). The WOBX-FM antenna is a six bay Jampro double V system ( FCC/EPA Type #2 ). At 2.0 meters, the height of an average person, above the ground at the base of the tower, the WOBX-FM antenna system contributes  $0.0640 \text{ mw/cm}^2$ .<sup>2</sup> Based on exposure limitations for a controlled environment, 6.4% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 32.0% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The WOBR antenna system is mounted with its center of radiation 89.0 meters (292.0 feet) above the ground at the existing tower location and operates with an effective radiated

---

2) This level of field occurs at 20.0 meters out from the base of the tower and is considered worst case.

power of 25.0 kilowatts in the horizontal and vertical planes (circularly polarized). The WOBR antenna is a six bay, Electronics Research, Inc., rototiller system ( FCC/EPA Type #3 ). At 2.0 meters, the height of an average person, above the ground at the base of the tower, the WOBR antenna system contributes  $0.0151 \text{ mw/cm}^2$ .<sup>3</sup> Based on exposure limitations for a controlled environment, 1.5% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 7.6% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The WOBX AM facility is licensed to operate with a two tower directional antenna system with 1.0 kilowatt on 1530 kHz. The station is presently operating under Special Temporary Authority using one of the two towers with a power of 0.250 kilowatt. For the purposes of this review, it will be assumed that the full 1.0 kilowatt is operating from the tower on which all TV and FM antenna systems are located, as a worst case review.<sup>4</sup> The WOBX (AM) tower is a  $179.1^\circ$  radiator at 1530 kHz. A fence is installed 3.65 meters (10.0 feet) out from the base of the tower. At the fence perimeter, the WOBX radiator delivers 84.8 V/m or 0.050 A/m. As the frequency for the station is above 1340 kHz, the levels for controlled and uncontrolled environments differ. For the controlled environment, WOBX delivers 13.8% of the electrical field and 3.1% of the magnetic field. For the uncontrolled levels, WOBX delivers 15.8% of the electric field and 3.5% of the magnetic field. As the 15.8% of the electric field in the controlled environments is highest, it will be used as a worst case level.

---

3) This level of field occurs at 28.0 meters out from the base of the tower and is considered worst case.

4) In actuality the WOBX facility is operating from the other of the two towers. There is no AM energy at present on the tower with the other antenna systems.

Combining the contributions of W17CT, W28CJ, W45CL, W51DF, W56EC, K59ID, WOBX-FM, WOBR, and WOBX, a total of less than 63.8% percent of the uncontrolled environment is reached at the fence perimeter, two meters above the base of the tower. Since this level for uncontrolled environments is below the 100% limit defined by the Commission, the proposed LPTV STA facilities are believed to be in compliance with the radio frequency radiation exposure limits as required by the Federal Communications Commission. In addition, Loesch 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. Warning signs are posted in the vicinity of the tower warning of potential radio frequency radiation hazards at the site.