

**Engineering Exhibit**  
**WNCD-FM (FID#13668) Auxiliary Facility**  
**WBBW-AM (FID#13667)**  
**Youngstown, OH.**  
**RF Radiation Compliance**

As specified in the WNCD (FM) Auxiliary Construction Permit BXPB-20140923AAE, special operating conditions 2, measurements were conducted to demonstrate that the WNCD (FM) Auxiliary Facility and WBBW(AM) complies with the FCC established guidelines regarding exposure to RF electromagnetic fields as described in OET Bulletin 65 Edition 97-01.

**Facilities:**

WBBW (AM) is licensed for 1240 kHz with 1.0 kW Non-Directional utilizing a folded di-pole (skirted antenna) supported by a tower with ASR 1013881. This same grounded tower supports both the main and the auxiliary FM antenna for this construction permit for WNCD (FM). The FM auxiliary will operate with an ERP of 50 kW, utilizing a Harris model FME-6AE, 6-bay full wave spaced antenna with the center of radiation at 84.7 meters above ground.

**Measurement Procedure:**

The measurements were made on October 2, 2017 in all accessible areas of the transmitter site and surrounding areas outside the fences surrounding the tower. The RF exposure levels were measured using a Narda survey meter, model 8718B. E-field measurements were made using a model A8742D probe, which is calibrated in percent of limit for Controlled Exposure for frequencies ranging from 300 kHz to 3.0 GHz. H-field measurements were made using a model 8752D probe, which is calibrated directly in mW/cm<sup>2</sup> for frequencies ranging from 300 kHz to 10 MHz. Measurements were made at 2 meters above the ground while walking the entire area around the fenced tower and of the fenced site along the Knox street entrance. The RF radiation attributable to WBBW (AM) was measured first at licensed power with the WNCD FM main facility in operation (6 bay ERI antenna at 112 meters above ground level center of radiation) to set a base line, then the RF radiation attributable to the operation of the WNCD (FM) auxiliary was measured with the WBBW (AM) at licensed power.

**Maximum Exposure Measured:**

As a base line measurement the General Population/Uncontrolled E Field Exposure Limit for both WBBW (AM) and WNCD (FM) operating on the licensed Main antenna value 13.12 %. The maximum baseline was measured at the hinged point of supporting pole for the gate that surrounds the entire site plot of land. This figure is represented by a measured value on the Narda meter of 2.62% of the occupational/controlled Exposure Limit multiplied by 5. To further show OET-65 compliance an H field measurement was made with the maximum H-field level of .2437 mW/cm<sup>2</sup> at 1240 is equivalent to .2437% (Per figure 1 on page 68 of OET-65edition 95-01) of both controlled and uncontrolled exposure limits which was measured adjacent to the fence at the north east corner surrounding the tower base.

The maximum exposure level measured for the operation of the WNCD-(FM) auxiliary antenna was 1.575% with WBBW (AM) operating at full licensed power of the Occupational/Controlled Exposure Limit which was measured to the south east of the entrance gate to the tower site property. This value represents 7.875% of the General Population/Uncontrolled Exposure Limit for frequencies from 30-300 MHz.

**Conclusion:**

With a maximum general population/uncontrolled exposure level attributable to the WNCD (FM) Auxiliary operation with WBBW at full licensed power of 7.875% E-field. A 15 meter by 10 meter security fence surrounds the base of the tower, the gate to the fence is securely locked and RF radiation warning signs are conspicuously posted at appropriate intervals along the tower base fence, additionally the overall tower site is surrounded with a security fence that is locked for security. In conclusion, the WNCD (FM) Auxiliary antenna installation complies with the FCC established guidelines regarding exposure to RF electromagnetic fields as described in OET Bulletin 65 Edition 97-01.



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