

**Larry H. Will, P.E.**

**Broadcast Engineering**

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**LEHIGH VALLEY PUBLIC TELECOMMUNICATIONS  
CORPORATION**

**PERMITTEE OF  
WLVT-DT  
DTV CHANNEL 62  
ALLENTOWN, PENNSYLVANIA**

**FACILITY ID # 36989**

**FCC FILE No. BPEDT-19990902AAE**

**APPLICATION FOR A COVERING LICENSE**

**ENGINEERING EXHIBIT 12**

**LEHIGH VALLEY PUBLIC TELECOMMUNICATION CORPORATION**

**DECLARATION OF LARRY H. WILL**

Larry H. Will declares and says:

That he prepared the attached engineering exhibit on behalf of LEHIGH VALLEY PUBLIC TELECOMMUNICATIONS CORPORATION (LVPTC), applicant for a covering License for digital television facility WLVT-DT on Channel 62, a Non-commercial Educational TV station at Allentown, Pennsylvania.

That he has been involved in radio and television broadcast engineering for over 35 years, and that his qualifications are a matter of record with the Federal Communications Commission.

That he is a Registered Professional Engineer in Pennsylvania and New Jersey.

That all statements contained within this exhibit are true and accurate to the best of his knowledge and belief, and as to such statements made of belief, they are believed to be true, except for information for which the Federal Communications Commission takes official notice.

\_\_(s) Larry H. Will\_\_

Larry H. Will

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**LEHIGH VALLEY PUBLIC TELECOMMUNICATIONS CORPORATION**  
**PERMITTEE OF WLVT-DT AND APPLICANT FOR**  
**A COVERING LICENSE**

**ENGINEERING EXHIBIT 12 - ENVIRONMENTAL CONSIDERATIONS**

The instant application is excluded under 1.1306. Using the procedures outlined in Supplement A, OET Bulletin 65, Edition 97-01 and specifically Tables 9 and 10, I have evaluated the non-ionizing radiation from the antenna system of proposed WLVT -DT as follows:

The proposed WLVT-DT is one of several TV and FM broadcast antennas at the station location required to be considered by 47 CFR 1.1307(b). A complete RFR analysis was included with the original application for the WLVT-DT Construction Permit and is not repeated here. Since the WLVT-DT CP application was filed, WFMZ-TV has received a covering License for an increase in visual ERP to 5000 kW. The calculated submitted with WFMZ-TV are included here for reference.

**WFMZ-TV** WFMZ-TV (NTSC) is now operating with an ERP of 5000 kilowatts visual and 500 kilowatts aural (maximum DA) with horizontal polarization (3645 kW average power), up from 1780 kW visual ERP. The WFMZ-TV transmitting antenna is a high gain unit with an elevation power gain of 29X side mounted approximately 181 meters up the tower. Because of the high gain, the ERP at angles departing +/- 10 degrees from the horizon is attenuated by a minimum of 14 dB. Utilizing Table 9 Supplement A of OET 65, with interpolation and allowing for 10 dB at steep angles, the required occupational/controlled environment ( $2.65 \text{ mW/cm}^2$  at 801 Mhz) physical separation is 56.6 meters. For general population/uncontrolled environment ( $0.53 \text{ mW/cm}^2$  at 801 Mhz) the required physical separation is 126.6 meters. Since the bottom

of the antenna is approximately 173 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 97.5 meters above the ground. Using Equation 10 of OET Bulletin 65, and using the total average visual and aural RF power corrected for steep angles, the *actual RF level at 2 meters about the ground from WFMZ-TV increased from 57.9  $\mu\text{W}/\text{cm}^2$  to 166.2  $\mu\text{W}/\text{cm}^2$ , or 31.3 % of the allowable at 801 Mhz.*

### **ADDITION OF WLVT-DT**

The information filed with the WLVT-DT CP application is repeated herein. **WLVT-DT** WLVT-DT, Channel 62, is utilizing an average ERP of 47.7 kilowatts with horizontal polarization. The WLVT-DT transmitting antenna is a high gain unit with an elevation power gain of 8X side mounted approximately 162 meters up the tower. Because of the high gain, the ERP at angles departing +/- 10 degrees from the horizon is attenuated by a minimum of 10 dB. For occupational/controlled environment (2.54  $\text{mW}/\text{cm}^2$  at 761 Mhz) and utilizing Table 9, with interpolation, correcting peak ERP to average power and allowing for 10 dB at steep angles, the required physical separation is 8.7 meters.

For general population/uncontrolled environment (0.508  $\text{mW}/\text{cm}^2$ ), the required physical spacing is 19.4 meters. Since the center of the antenna is 162 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 142.6 meters above the ground. Again using Equation 10 of OET Bulletin 65, and using the total average RF power corrected for steep angles, **the actual RF level at 2 meters about the ground from WLVT-DT is 6.0  $\mu\text{W}/\text{cm}^2$  or 1.2 % of the total allowable at 761 MHz.**

Therefore the total calculated RFR levels at the base of the WFMZ-TV tower after taking the WLVT-DT operation into account will **increase by no more than 0.006  $\text{mW}/\text{cm}^2$  (6.0  $\mu\text{W}/\text{cm}^2$ ). The baseline ground level RFR energy level increases by 1.2 % to a total of 59.9 % of the allowable under OET 65 and well below the**

*allowable limits of OET Bulletin 65 for the general public/uncontrolled environment.*  
**The addition of WLVT-DT contributes less than 5 % of the total RFR energy at ground level at this multiple use site.**

## **CONCLUSIONS ON RFR ANALYSIS**

Even with the WFMZ-TV change from above, the joint use tower site continues to be in compliance with the requirements of OET Bulletin 65.

Based on the on previously submitted WFMZ-TV site measurements and the calculations included herein, I believe that the MBC transmission system and tower utilized by WLVT-DT is and will continue to be in compliance with 47 CFR 1.1307 and FCC OET Bulletin 65 with the addition of WLVT-DT.

The antenna supporting structure is enclosed by a chain-link fence to prevent unauthorized access. As a precaution to employees, a suitable sign is posted at the base of the tower alerting maintenance personnel to the presence of RFR energy so that appropriate action can be taken when access on the tower above 26 meters above ground is required.

Also not all broadcast transmitters co-located on the site are owned by the applicant. The applicant further states that he is a party to an electromagnetic radiation abatement plan to educate employees and workers as to the potential hazards when working on the tower. During periods of maintenance where workers on the tower could be exposed to excessive levels of RFR energy, any transmitting system, including the WLVT-DT transmitting system, that could pose a hazard will be turned off, reduced in power, or switched to standby antennas where available to insure that workers are not subject to excessive values of RFR energy.

With these procedures in place, we believe the proposed WLVT-DT operation is in compliance with the RFR energy requirements of 47 CFR 1.1307(b).