

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

**Broadcast Engineering**

---

1055 Powderhorn Drive  
Glen Mills, PA 19342-9504

PH (610) 399-1826  
FAX (610) 399-0995  
E-Mail lwill@voicenet.com

**WSKG PUBLIC TELECOMMUNICATIONS COUNCIL  
BINGHAMTON, NEW YORK**

**PERMITTEE OF  
WSKA(TV) CHANNEL 30  
CORNING, NEW YORK  
FACILITY ID # 78908**

**FCC FILE Nos. BPET-19960126KE  
BMPEDT-20040413AAJ**

**MINOR CHANGE AMENDMENT TO A PENDING  
APPLICATION TO MODIFY EXISTING  
CONSTRUCTION PERMIT TO SPECIFY DTV OPERATION**

**ENGINEERING EXHIBIT 36**

**Larry H. Will, P.E.  
1055 Powderhorn Drive  
Glen Mills, PA 19342**

**WSKG PUBLIC TELECOMMUNICATIONS COUNCIL  
BINGHAMTON, NEW YORK**

**PERMITTEE OF WSKA(TV) CHANNEL 30**

**CORNING, NEW YORK**

**FCC FILE No. BPET-19960126KE  
BMPEDT-20040413AAJ**

**ENGINEERING EXHIBIT 36**

**ENVIRONMENTAL CONSIDERATIONS**

The instant application is excluded under 1.1306. Using the procedures outlined in OET Bulletin 65, Edition 97-01 and specifically Equation 10, I have evaluated the RFR energy from the antenna system of the amended proposed WSKA-DT as follows:

The proposed WSKA -DT is one of several TV and FM broadcast antennas on two separate nearby towers at the proposed station location required to be considered by 47 CFR 1.1307(b). They include W202BN, W208BC, W214AA, W236AK, WGMM, 97.7 MHz, WCBA-FM, 106.7 MHz, NEW TX, 106.7 MHz, NEW TX 107.9 MHz, NEW CH 22 TX, NEW CH 27 TX, W39CP, CP, NEW CH 41 TX, NEW CH 41 TX, WYDC, CH 48 NTSC, and WYDC, CH 50 STA, DTV. Of these stations, all of the FM translators, TV translators, and WYDC DT STA were checked and each found to contribute significantly less than 5% to the total RFR energy levels allowable to the general public/uncontrolled areas so will not be discussed further. High power stations WSKA-DT, WYDC(TV), WGMM(FM), and WCBA-FM are discussed below.

**WSKA-DT**

WSKA-DT, Channel 30, is proposing to utilize an average ERP of 50 kilowatts with horizontal polarization. The WSKA-DT transmitting antenna is a medium gain unit with an elevation power gain of 22X top mounted with a base approximately 213 meters up the tower. Because of the elevation gain, the ERP at angles departing +/- 10 degrees from the horizon is attenuated by a minimum of 20 dB. For occupational/controlled

environment ( $1.9 \text{ mW/cm}^2$  at 569 MHz) and utilizing Equation 10 of OET Bulletin 65 and allowing for 20 dB at steep angles, the required physical separation is 3 meters. For general population/uncontrolled environment ( $0.38 \text{ mW/cm}^2$ ), the required physical spacing is 6.3 meters. Since the bottom of the antenna is approximately 213 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 206.7 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 above the ground from WSKA-DT is  $0.4 \text{ uW/cm}^2$  or 0.1 % of the total allowable at 569 MHz.*

Therefore the total calculated RFR levels at the base of the proposed tower contributed by the WSKA-DT proposed operation are calculated to *be no more than 0.1 % of the total* and well below the allowable limits of OET Bulletin 65 for the general public/uncontrolled environment. **The addition of WSKA-DT contributes less than 1 % of the total RFR energy at ground level at this multiple use site.**

## WYDC

WYDC, Channel 48, is operating with a visual peak ERP of 163 kilowatts (112 kW total average power) with horizontal polarization. The WYDC transmitting antenna is a medium gain unit with a base approximately 118 meters up the tower. Because of the transmitting antenna elevation gain, the ERP at angles departing +/- 10 degrees from the horizon is attenuated by a minimum of 10 dB. For occupational/controlled environment ( $2.25 \text{ mW/cm}^2$  at 675 MHz) and utilizing Equation 10 of OET Bulletin 65 and allowing for 10 dB at steep angles, the required physical separation is 12.9 meters. For general population/uncontrolled environment ( $0.45 \text{ mW/cm}^2$ ), the required physical spacing is 28.8 meters. Since the bottom of the antenna is approximately 118 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 89.2 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 above the ground from WYDC is  $26.84 \text{ uW/cm}^2$  or 5.96 % of the total allowable at 675 MHz.*

Therefore the total calculated RFR levels at the base of the proposed tower contributed by the WYDC operation, are calculated to *be no more than 5.96 %* of the total for the site and well below the allowable limits of OET Bulletin 65 for the general public/uncontrolled environment. **WYDC contributes less than 6 % of the total RFR energy at ground level at this multiple use site.**

## WGMM

WGMM is licensed with an ERP of 0.61 kilowatts with circular polarization. Assuming that the WGMM transmitting antenna is a 1 bay full wavelength spaced unit with an elevation power gain of 0.5x side mounted with a base approximately 114 meters up the tower. Because of the elevation gain, the ERP at angles departing +/- 30 degrees from the horizon is attenuated by a minimum of 3 dB. For occupational/controlled environment ( $1.0 \text{ mW/cm}^2$  at FM frequencies) and utilizing Equation 10 of OET Bulletin 65 and allowing for 3 dB at steep angles, the required physical separation is 4.5 meters. For general population/uncontrolled environment ( $0.20 \text{ mW/cm}^2$ ), the required physical spacing is 10.1 meters. Since the bottom of the antenna is approximately 114 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 103.9 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 calculated RF level at 2 meters above the ground from WGMM is  $1.62 \text{ uW/cm}^2$  or 0.8 % of the total allowable at FM.* **WGMM contributes less than 1 % of the total RFR energy at ground level at this multiple use site.**

Therefore the total calculated RFR levels at the base of the tower contributed by the WGMM licensed operation, will *be below 1 %* allowable

## WCBA-FM

WCBA-FM is licensed with an ERP of 1.2 kilowatts with circular polarization. Assuming that the WCBA-FM transmitting antenna is a 1 bay full wavelength spaced unit

with an elevation power gain of 0.5x side mounted with a base approximately 114 meters up the tower. Because of the elevation gain, the ERP at angles departing +/- 30 degrees from the horizon is attenuated by a minimum of 3 dB. For occupational/controlled environment ( $1.0 \text{ mW/cm}^2$  at FM frequencies) and utilizing Equation 10 of OET Bulletin 65 and allowing for 3 dB at steep angles, the required physical separation is 6.3 meters. For general population/uncontrolled environment ( $0.20 \text{ mW/cm}^2$ ), the required physical spacing is 14.1 meters. Since the bottom of the antenna is approximately 114 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 99.8 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 calculated RF level at 2 meters above the ground from WCBA-FM is  $3.19 \text{ uW/cm}^2$  or 1.6 % of the total allowable at FM.* **WCBA-FM contributes less than 2 % of the total RFR energy at ground level at this multiple use site.**

Therefore the total calculated RFR levels at the base of the tower contributed by the WCBA-FM licensed operation, will *be below 2 % allowable*

***The total calculated RFR energy at 2 meters above the ground at the base of the towers from all four stations is calculated to be  $32.1 \text{ uW/cm}^2$  and well below the allowable limits of OET Bulletin 65 for the general public/uncontrolled environment.***

## CONCLUSIONS ON RFR ANALYSIS

Based on the on the calculations included herein, I believe that the multiple use existing multiple tower site will be in compliance with 47 CFR 1.1307 and FCC OET Bulletin 65 with the inclusion of the proposed WSKA-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 is required.

Also, not all broadcast transmitters co-located on the site are owned by the applicant. The applicant further states that he will be 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 that could pose a hazard will be either turned off or reduced in power to insure that workers are not subject to excessive values of non-ionizing radiation.

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

### **NEARBY AM FACILITIES**

There are no AM facilities within 3.2 km of this site.

### **BLANKETING INTERFERENCE**

The area immediately surrounding the proposed site is rural, however due to the narrow elevation beamwidth of the proposed WSKA-DT antenna, no blanketing interference is anticipated. However, the applicant will investigate and cure any complaints reported within the blanketing area. No intermodulation interference is expected.

### **FAA NOTIFICATION**

An application to construct the tower to accommodate the WSKA-DT antenna will be filed by the tower owner with the FAA shortly. The FAA determination will be forwarded to the commission when received by the applicant.