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WHYY INCORPORATED

WILMINGTON, DE

LICENSEE OF WDPB-TV CHANNEL 44

SEAFORD, DELAWARE

FCC Facility ID #72335

FCC FILE No. 26250

**MINOR CHANGE APPLICATION FOR A MODIFICATION OF
CP TO INCREASE POWER AND DA TRANSMITTING ANTENNA
ORIENTATION**

ENGINEERING RFR EXHIBIT

October 27, 2017

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ENVIRONMENTAL CONSIDERATIONS

The instant application is excluded under 1.1306. Using the procedures outlined in OET Bulletin 65, Edition 97-01, Equation 10 and Tables 9 and 10 in Supplement A, I have evaluated the radiofrequency energy radiation from the antenna system of proposed WDPB(DT) modification follows:

The proposed WDPB(DT) is one of several TV and FM broadcast antennas at the station location required to be considered by 47 CFR 1.1307(b).

MODIFICATION OF PROPOSED OF WDPB(DT)

WDPB -DT, Channel 44, is proposing to change operations in Phase 4 of the Repack to Channel 24 and utilize an average ERP of 150 kilowatts (DA) with horizontal polarization.

WDPB PROPOSED OPERATION

The proposed operation of WDPB, CH 24 is with 150 kW ERP (H). The proposed WDPB (DT), CH 24 transmitting antenna is a high gain unit with an elevation power gain of 16X top mounted with a base approximately 201.5 meters above ground. Because of the high gain, the ERP at angles departing +/- 10 degrees from the horizon is attenuated by a minimum of 15 dB. For occupational/controlled environment (1.77 mW/cm² at 533 MHz) and utilizing Equation 10 of OET Bulletin 65 and allowing for 15 dB at steep angles, the required physical separation is 6.5 meters. For general population/uncontrolled environment (0.354 mW/cm²), the required physical separation is 21.15 meters. Since the base of the antenna is 201.5 meters above ground, the height of the structure limits the possible excessive radiation values to at least 178.6 meters above the ground. Again using Equation 10 of OET Bulletin 65, and using the total RF power corrected for steep angles, the *actual predicted RF level at 2 meters about the ground from the proposed WDPB (DT) is 3.53 uW/cm² or 1.0 % of the total allowable at 533 MHz.*

WDPB INTERIM OPERATION

This antenna and transmission system will be operating intermittently while at the same time(s) either the WBPB CH 44 system or the new CH 24 system could be operating. The proposed interim WDPB (DT) transmitting antenna will be a high gain unit with an elevation power gain of 8X side mounted with a base at least 160 meters up the tower. Because of the high gain, the ERP at angles departing +/- 20 degrees from the horizon is attenuated by a minimum of 20 dB. For occupational/controlled environment (1.77 mW/cm² at 533 MHz) and utilizing Equation 10 of OET Bulletin 65 and allowing for 20 dB at steep angles, the required physical separation is 5.3 meters. For general population/uncontrolled environment (0.354 mW/cm²), the required physical separation is

13.9 meters. Since the base of the antenna is 160 meters above ground, the height of the structure limits the possible excessive radiation values to at least 146.0 meters above the ground. Again using Equation 10 of OET Bulletin 65, and using the total RF power corrected for steep angles, the **actual predicted RF level at 2 meters about the ground from the proposed WDPB (DT) is 2.0 uW/cm² or 0.57 % of the total allowable at 533 MHz.**

WSCL (FM)

WSCL (FM), on 208B is operating with an ERP of 33 kilowatts horizontal and vertical. The WSCL(FM) 4 bay transmitting antenna is side mounted with the bottom approximately 175 meters up the tower. The maximum off axis field factor is 0.33. For occupational/controlled environment and utilizing Table 5, with interpolation, the required physical separation is 13 meters. Since the bottom of the antenna is 175 meters above ground, the height of the structure limits the possible excessive radiation values to at least 162 meters above the ground. For general population/uncontrolled environment, and utilizing Table 6, the required physical separation is 26.9 meters. Since the bottom of the antenna is 175 meters above ground, the height of the structure limits the possible excessive radiation values to at least 148.1 meters above the ground.

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 the WSCL(FM) antenna is 7.2 uW/cm² or 3.6 % of the total allowable (200 uW/cm²) at 89.5 Mhz.**

Therefore the total calculated RFR levels at the base of the WDPB-TV tower, after taking the installation of the WDPB(DT) proposed operation into account, will increase by no more than 0.3 % to a total of 6 % of the allowable under OET 65 and below the allowable limits of OET Bulletin 65 for the general public/uncontrolled environment. **The replacement of the CH 44 antenna with the new CH 24 antenna**

for WDPB(DT) is calculated to contribute less than 1.57 % of the total RFR energy at ground level in the vicinity of the existing tower at this multiple use site. The total equals 5.17% of allowable for the general public/uncontrolled space.

CONCLUSIONS ON RFR ANALYSIS

Based on the on the calculations included herein, I believe that the WDPB(DT) transmission system and tower is and will continue to be in compliance with 47 CFR 1.1307 and FCC OET Bulletin 65 with the addition of the proposed modified WDPB(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 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 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 radiofrequency energy radiation.

With these procedures in place, we believe the proposed WDPB(DT) operation is in compliance with the radiofrequency energy radiation exposure requirements of 47 CFR 1.1307(b).

BLANKETING INTERFERENCE

The area surrounding the proposed site is industrial and residential, however due to the narrow vertical beamwidth of the proposed WDPB(DT) DTV antenna; no blanketing interference from the revised WDPB(DT) transmitter system is anticipated. However, the applicant will investigate and cure any complaints reported within the blanketing area.

There is one FM station co-located with the proposed WDPB(DT). The co-located facility is WSCL(FM). Because of the inherent narrow bandwidth of the output filters in the proposed WDPB(DT) installation, no transmitter induced intermodulation interference from WDPB(DT) is expected.

FAA NOTIFICATION AND FORM 854-R

The FAA has amended the previous antenna registration, assigning 2017-AEA-11-OE and the FCC Form 854-R has been updated as well. The FCC ASR number remains as **1032913**.