

NONIONIZING RADIATION COMPLIANCE

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Bowling Green State University
Bowling Green, OH

The proposed WBGU-TV facilities will fully comply with the current FCC Standard with regard to human exposure to nonionizing radiation. The proposed WBGU-TV antenna is the existing horizontally polarized Dielectric TUF-O4-14/56H-1-T-R non-directional antenna, which will operate on Channel 22 with an average effective radiated power of 137 kilowatts. This antenna is top mounted with its center of radiation located 323.4 meters above ground on an existing tower, which stands 332.1 meters above ground.

Equation (2), found on Page 30 of Supplement A to OET Bulletin 65, details the calculation technique used to determine the power density at the base of a TV broadcast tower. In this case, however, it is necessary to substitute the proposed average DTV effective radiated power (137 kilowatts) for the expression $[0.4ERP_v + ERP_A]$ in this equation to compensate for the fact that DTV power levels are expressed in terms of average power, rather than peak power, as is the case for the visual portion of an analog TV signal. Using the vertical radiation pattern data for this antenna, which was supplied by the antenna manufacturer and is detailed in a separate attachment to this application, and substituting these values into this equation yields a predicted maximum power density at two meters above ground level of $0.68 \mu\text{W}/\text{cm}^2$, which will occur at a depression angle of 71 degrees below horizontal and at a distance of 110.7 meters from the base of this tower. Since the maximum permitted power density for uncontrolled exposure on TV Channel 22 is $347.3 \mu\text{W}/\text{cm}^2$, this amounts to only 0.2% of the permitted level for uncontrolled exposure. Since this is less than 5% of the permitted level, the

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proposed facilities are excluded from environmental processing and need not be considered in conjunction with other co-located and nearby facilities to establish compliance with this standard for uncontrolled exposure.

WBGU-TV will also take appropriate steps to insure that workers who must climb this tower will not be exposed to power densities exceeding the permitted levels for controlled exposure. This will include a reduction in power or the cessation of operation, as appropriate, at any time that workers must be on this tower in any area where the total power density exceeds the permitted level for controlled exposure.

Because the modifications proposed in the attached application will fully comply with the FCC standard regarding human exposure to nonionizing radiation and don't involve any tower modifications which would qualify as a major environmental action, it isn't necessary to undertake any further environmental studies or submit an environmental assessment for these proposed modifications.