

WDPR EXHIBIT 22 -
ANALYSIS OF RADIOFREQUENCY RADIATION (RFR)
EXPOSURE LEVELS FOR PROPOSED STATION WDPR
April 2004

Dayton Public Radio, Inc. agrees that FM Broadcast WDPR will reduce power or cease operation as necessary to protect persons having access to the antenna from radiofrequency radiation in excess of FCC guidelines. Compliance with FCC-specified guidelines for human exposure to radiofrequency radiation is evaluated in accordance with 47 C.F.R. 1.1310 and OET Bulletin No. 65 (August 1997). As shown in the following analysis, the proposed WDPR is in compliance with 47 C.F.R. 1.1310. The worst case calculated exposure level for the proposed WDPR is below the Maximum Permissible Exposure (MPE) of 0.2 mW/cm^2 for general population/uncontrolled environments.

According to 47 C.F.R. 1.1307(b)(3), at locations with multiple transmitters a facility is categorically excluded from responsibility for taking corrective action in the areas where its contribution is less than five percent of the MPE. As shown below the proposed WDPR meets the five percent exclusion test at all ground level locations, so the proposed WDPR can be evaluated independently of the surrounding environment. Exposure to climbers will be controlled by scheduling work in close proximity to the antenna radiating elements when the WDPR transmitter is operating at reduced power or is shut down.

The WPTD(TV) tower site is the antenna location for the proposed WDPR facility. The proposed WDPR center of radiation is 235 m above ground level. The transmitter building at the site has a height of about 5.5 m and is about 9 m from the base of the tower. A standing 2 m tall person on top of this building is used as a worst case condition. The site elevation is 268 m AMSL. The tower base is at or above the level of the surrounding terrain, although there is a gradual slope to the southwest with a crest at 295 m about 850 m from the tower base. There are two story residences on or near this crest.

A far-field prediction based on pages 19-23 of OET 65 is used to calculate the worst case upper limit:

$$PD = \frac{(2.56)(1.64)(F^2)(VERP+HERP)(1000 \text{ mW/W})}{4\pi R^2}$$

where PD is the power density in mW/cm^2 , R is the slant range in centimeters from the center of radiation, F is the antenna relative field factor, VERP is the vertically polarized effective radiated power, and HERP is the horizontally polarized effective radiated power.

For the proposed WDPR a relative field factor of 1.00 is used as a worst case assumption. The vertically polarized effective radiated power is the same as the horizontally polarized effective radiated power and is 600 watts. The slant range in centimeters for a person on top of the transmitter building at the base of the tower is

$$R = [(235 - 5.5 - 2)^2 + 9^2]^{1/2}$$

The worst case total exposure due to the proposed WDPR for a person on top of the transmitter building at the base of the tower is about 0.39 percent of the MPE for uncontrolled exposure. Similarly, the worst case exposure due to the proposed WDPR on the roof of a two story building at the crest of the hill to the southwest is 0.03 percent of the MPE for uncontrolled exposure. It follows that the proposed WDPR exposure at all ground level locations is below five percent of the MPE.

CERTIFICATION

Louis A. Williams, Jr. certifies that he is a consulting engineer doing business since 1970 as Louis A. Williams, Jr. and Associates with offices at 2092 Arrowood Place, Cincinnati, Ohio 45231. He holds a degree of Bachelor of Science in Humanities and Engineering from the Massachusetts Institute of Technology. He is a licensed Professional Engineer in Ohio (#33727) and Kentucky (#7374) and holds a General Radiotelephone license (PG-19-19343).

He is a full member of the Association of Federal Communications Consulting Engineers (AFCCE), a member of the IEEE International Committee on Electromagnetic Safety (Standards Coordinating Committee 28), and a member of other technical and professional organizations. This analysis was prepared by him personally or under his supervision and is true and accurate to the best of his belief and knowledge.