

Engineering Assessment of RFR for WDRV(FM) Antenna

A power density calculation can be made using the techniques outlined in the EPA report titled: *An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM, and TV Broadcast Services* (P. Gailey & R.Tell, April, 1985).

The equation used below, contained, in part, in the above mentioned report is used to determine the level of non-ionizing radio frequency radiation from the 3-bay panel antenna radiator on the AON building rooftop.

$$S(\text{mW}/\text{cm}^2) = \frac{(\text{Total EIRP in mWatts}) * .64 * (\text{Power Density factor at } 46^\circ)}{\pi * (\text{Distance in cm})^2}$$

Where: Total ERP in Watts is the combined watts of WDRV(FM), 8.3KW Horizontal and 8.3KW Vertical.

Distance: The furthest one can stand at the edge of the rooftop from the base of the antenna is 25 meters. Calculations for "S" were made from the base of the antenna to the 25 meter point. The rooftop is over 1000 feet above street level and it is assumed that the power level density on the street from this facility will be negligible.

The highest calculated rooftop level power density from WDRV(FM) occurs at a distance of 10.35 meters from the base of the antenna support structure. At this point the power density is calculated to be **145uW/cm²**, just 14.5% of the 1000uW/cm² (the ANSI standard for controlled environments such as the rooftop proposed).

A second calculation is made using the "*RFS, RF Specialties Technical Program Disk*", Version 2.48. Under section II, *FM Antenna Calculations*. The power density calculations for the proposed ERI 3-Bay panel antenna result in a maximum power density at 10.35 meters from the base of the antenna support structure of **85uW/cm²**. This is just 8.5% of the 1000 uW/cm² (the ANSI standard for controlled environments such as this rooftop proposed). Careful rooftop measurements using an ETS-Lindgren, model HI-4433 meter will be taken after construction and during initial turn-on to prove this facility meets specifications outlined in O.E.T. bulletin 65.

The permittee/licensee in coordination with other users of the site have a program in place to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radio frequency radiation in excess of FCC guidelines.

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