

Power Density Certification

I, Ronald L. Myers, hereby certify that I personally inspected the WQQA (FM) broadcasting antenna to see if it met FCC specifications and concerns over Power Density.

After calculating the probable radiation levels from the antenna manufacturer's graphs, and then making measurements using a calibrated RF meter, I found that this antenna system does not produce non-ionizing radiation in excess of the authorized general public safety standard of 200 uW/cm².

According to the manufacturer's measurements of the antenna at the factory, the relative field strength at the base of the tower (-90 degrees from maximum horizontal lobe) is no more than 1.2, with a maximum of about 2.8 relative field at -60 degrees. Thus the true power directed at the base of the tower should not exceed 170 watts, peaking at a maximum of 738 watts at about 18 meters from the tower on the lobe side (north).

The antenna array is composed of 2 circularly polarized panel directional elements (manufactured by PSI), which are side mounted on an existing wind generator tower.

The lowest point of the lowest antenna element is at 24.75 meters above ground level.

Using the FCC power density calculator, the estimated power density near ground level at 738 watts could be expected to reach as high as 14 uW/cm² at about 18 meters distance from the base of the tower.

With transmitter output power set at 3 kW yielding a calculated ERP of 11.8 kW, I measured the power density around the base of the tower using a factory calibrated Trifield Alfa Lab RF power meter. Readings varied from 3 to the south, up to a maximum of 31 uW/cm² at a spot about 17 meters north of the tower.

Consequently no protective fencing should be required around this antenna system. However a sign is being posted at the base of the tower to warn climbers of the potential hazard aloft.

WQQA pledges to reduce power or to switch off the transmitter as needed to protect maintenance personnel from receiving unacceptable levels of radiation.

Ronald L. Myers
Radio Engineer

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Forestville, WI