

R.F. Hazard Study

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CH. 208, Winona, Minnesota**

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The proposed antenna will be energized such that it produces 2.5 kW effective radiated power, circularly polarized, from a center of radiation of 126.4 meters above ground. Under OST 65, "worst case," using a height above ground of 124.4 meters to calculate the non-ionization radiation level at average head height, it can be shown that the proposed antenna produces 10.8 microwatts per square centimeter which is 1.08 percent of the maximum for a controlled environment maximum and 5.4 percent for an uncontrolled environment. The results of these same calculations are considerably reduced when a combination of the element vertical elevation field and the vertical array pattern are considered. Therefore, the actual measured value will be much smaller than the worst case prediction.

KHME (FM) operates from the same site using 5 kW ERP from an antenna height above ground of 138 meters. At head height KHME's worst case contribution is calculated to be 18.1 microwatts per square centimeter which, for a controlled environment is 1.8%. For an uncontrolled environment the percentage of contribution is 9%.

Translator W297AW also operates from the tower and has an antenna height above ground of 122 meters using an ERP of 0.235 kW. This station uses a high gain CA-5 FM antenna having a center of radiation at 120 meters. Using worst case calculations this station produces 1.09 microwatts per square centimeter, which for a controlled environment is 0.11 % and for an uncontrolled environment 0.55 %.

This site is also the location of weather station KGG-95. This station transmits on 162.425 MHz from an antenna 61 meters above the ground using an ERP of 899 watts. At head height, using worst case OET 65 formulas, the power density for this station is calculated to be 3.37 microwatts per square centimeter which is 0.34 percent of the maximum for a controlled environment and 1.69 percent for an uncontrolled environment.

Finally, the ULS database shows that the antenna for station KNKD0729 is also mounted on the tower. This station transmits from an antenna height of 52 meters above ground with 550 watts ERP on 454.175 MHz. Based on the OET 65 "worst case" formulas this station produces 2.9 microwatts per square centimeter, which for a controlled environment is 0.19% and for an uncontrolled environment the station contributes a total of 0.95%.

Together, all five antennas contribute 3.52 percent of the maximum of 1000 microwatts per square centimeter for a controlled environment and 17.6 percent for a uncontrolled environment where the maximum is 200 microwatts per square centimeter.

With regard to protecting workers at the tower site, the applicant will reduce operating power or cease operating in the event a worker is within a range of the antenna where the sum of all non-ionization radiation exposure would exceed the maximum FCC standard for the time involved. An agreement exists with the other users of the tower to reduce power or to terminate transmission when a worker is on or near the tower where exposure would result in greater than the maximum FCC standard.

There are no other known sources of R.F. emissions on or near the tower, consequently, the proposed FM facility will be in compliance with the Commission's rules regarding exposure to workers or the general public to levels of radio frequency emissions in excess of the Commission's maximums with respect to human exposure to radio frequency electromagnetic fields.