



RFR Measurements at Eagle's Nest Radio Site

On July 3, 2001, at about 9 PM, Wolfgang Kurtz, and Aaron Wallender, both of Ubik Corporation, and Jeremy Lansman of Fireweed Communications Corporation met at their common transmitter site in order to take radio energy exposure measurements.

Mr. Lansman has over 40 years experience in broadcasting, having obtained an FCC First Class Radiotelephone license before 1960. He has constructed, been a consultant for, and has assisted many broadcast stations, AM, FM and TV. He is a principal in the licensee of KYES-(TV).

A Holaday Meter, Model No. HI-3012, Serial Number 81297, rented from Electro Rents was used for the readings. A sticker indicated calibration was performed on April 4, 2001. The meter was used in accord with the included instruction manual and FCC OET Bulletin 65.

Power of each VHF radio transmitter with more than 100 Watts at the site was logged. The several UHF 1 kW TV transmitters were not logged, but were observed to be operating normally.

Power output meters indicated the following: KQEZ (92.1 MHz), 5.75 kW; KFAT (92.9 MHz) 6.45kW; KRPM (96.3 MHz, 6.3 kW, KNIK-FM (105.7 MHz) 7.0 kW, KYES (Channel 5), varied around 4.2 kW. Two low power FM stations on the site are a translator station for KATB, K206AO indicated 90 Watts, and KRUA (88.1 MHz) indicated 55%. The KRUA nominal TPO is about 80 Watts.

The meter antenna used was an MSE E field antenna. Full scale readings used were the most sensitive, .265 mW/cm or the next most sensitive at 2.65 mw/cm². Full scale is one unit of measure, or 1.0. The manual said indications were squared field strength, allowing linear interpolation of the meter indicator. Thus, uncontrolled exposure of .2 mW/cm² equaled .7547 full scale reading on the most sensitive scale, and occupational exposure of 1 mW/cm² equaled a reading of .337 on the second scale.

Readings were taken from several locations in each room inside the building, except for that used by AT&T wireless, which was not accessible. The highest indication inside the building was .5 on the most sensitive scale, well below the uncontrolled exposure limit. Outside the building measurements were taken around the fence perimeter, near the tower, and at various other spots. We looked for a hot spot 20 cm or more from metal. The highest reading found was 2.5 near the north west leg of the tower using the scale where 7.5 equals 1 mW/cm². This reading is well within permissible occupational exposure limits.

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We walked the outer perimeter of the fence looking for any readings that might exceed permissible uncontrolled exposure. The highest reading found was .25 West of the tower on the road leading away from the site, again, well below permissible limits.

A few "hotter" spots were checked to determine the contribution of KNIK to overall exposure. Outdoors, near the tower, turning KNIK off and on had no observable effect on readings. For example, near the front door of the building, where readings were well within safe limits, readings with KNIK on were .25, while with KNIK off readings were .22. As this is a controlled exposure area, the allowed limit is 3.7. We noted that as we got closer to the KNIK transmitter, turning KNIK on and off made more difference. It appears some leakage from the transmitter is a significant component of exposure. However, overall, where KNIK was a measurable contributor, exposure was far short of allowed occupational exposure. Therefore, we can conclude that KNIK can increase power without any location exceeding permissible limits.

As no measurements were near the permissible exposure limits, we did not attempt to segregate out the UHF TV readings. This was expected as the UHF antenna is high gain, near the top of the tower, thus less likely to contribute to RF exposure at any location. A scan was performed near the transmitters. No significant UHF signal leaks were detected.

In conclusion, readings indicated considerable safety margin between exposure limits and actual exposure. No reading inside the equipment shelter or outside the perimeter fence exceeded limits for uncontrolled exposure, and readings under the tower within the safety fence were well within limits for occupational exposure.

Signed

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