Certification

I, Ronald L. Myers, broadcast engineer, hereby certify that on Tuesday, June 12, 2012, I personally installed, tuned and tested the KTQQ (FM) broadcasting antenna system, and that after measurements using a calibrated RF meter I find this antenna does not produce non-ionizing radiation in excess of the authorized general public safety standard of 200 uW/cm2 and thus does not require further fencing or warning signs posted.

The antenna array is composed of 2 circularly polarized non-directional elements (manufactured by Nikon, model BKG77), side mounted on the tower, vertically aligned and spaced at 0.85 wavelengths between elements. The antenna is oriented generally towards the north.

The lowest point of the lowest element on the 9 m. tall tower is at 7.8 meters above ground level.

Using the FCC power density calculator, and assuming the worst case (if utilizing an RCA "BFC" CPA two bay antenna), the estimated power density near ground level could be expected to reach as high as 93 uW/cm2.

With transmitter output power set at 0.299 kW (SWR of 2 watts) yielding a calculated ERP of 0.23 kW, I measured the power density around the base of the tower using a factory calibrated Trifield Alfa Lab RF power meter. On July 8, 2011, I had calibrated this meter against a Narda field strength meter.

Holding the meter with reception antenna element at head level, about 1.8 meters above ground, I walked throughout the area near the base of the tower on Grindstone Mountain, out to a distance of about 15 meters. Readings varied from 2 up to a maximum of 178 uW/cm2 at about 4 meters to the NE of the tower where a small hot spot was found. This hot spot is localized and is no more than about 1.5 meters in diameter. Outside this zone, power density rapidly falls to under 50 uW/cm2, usually as low as 12 uW/cm2.

The FM transmitter was then switched off and power density was again measured in the same area and found to vary from about 1 to 14 uW/cm2. This is the result of RF energy being radiated from relatively low power adjacent FM and TV antennas.

It should also be noted that this site is very remote. The site is exclusively leased to the City of Elko. It is located on private grazing land and is already fenced. Numerous "No Trespassing" signs have been posted by the owners. Signs have also been posted by other users of the site warning of potential RF radiation danger. The only access road (of sorts) to the site is gravel and in many places quite steep and rocky. Along the way, one must open and close seven cattle gates. Property owners authorize access to the site only radio technicians.

Consequently, this antenna site, including the KTQQ antenna system, should not require further fencing or signing to protect the general public from straying into the area or from receiving radiation in excess of federal standards.

Applicant pledges to reduce power or to switch off the transmitter when needed to protect tower and antenna maintenance personnel from receiving unacceptable levels of radiation.

15 September 2012
Ronald L. Myers