

## NON-IONIZING ELECTROMAGNETIC RADIATION (NIER) MEASUREMENTS AT KCUF-FM

Prepared for KCUF-FM, BS&T Wireless, Jon Banks, Engineer by:

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This report documents RFR measurements made in the vicinity of KCUF-FM tower site on Williams Hill, near Basalt, Colorado. The measurements detailed in this report were made October 13, 2006.

KCUF-FM operates at 6 Kw ERP at frequency 100.5 MHz. The tower location is 39-18-55.9 N Lat and 106-57-34.2 W Long. The tower registration number is: 1200877. The KCUF-FM antenna is co-located on the same tower structure with the KPVW-FM antenna operating at 20.5 Kw ERP frequency 107.1 MHz and within 200 ft of another tower which supports the antenna for KNFO-FM ~ 2 Kw ERP and frequency 106.1 MHz.

Since KCUF-FM is just beginning on air operations, the purpose for this site analysis was to survey the area around the tower and building and measure the RF levels for compliance with FCC Maximum Permissible Exposure standards.

### Equipment...

The equipment used to make the RFR measurements is a Wandel & Goltermann W&G EMR 300. Serial # BN2244/31 T-0008. FCC shaped probe Type 25 BN2244/90.62 Serial # B-0055. The probe is shaped to respond to Occupational/Controlled Exposure as described in FCC OET Bulletin 65. The probe frequency range is 300KHz to 40GHz. Last calibration for each device was January 19, 2006. Next calibration is due January 2008. A Narda SRM-3000 Serial #B-0075 with probe type 3501/01 Serial # B-0063, last calibrated on July 11, 2006, was used for selective radiation metering. Next calibration for the SRM-3000 is July, 2008. The probe frequency range for the SRM-3000 is 75MHz to 3GHz.

### Measurement Procedure and Results...

The measurements were made with me facing the tower and holding the probe away from my body to place the probe at an angle of about 90° relative to the RF source. For spatial averaging, the W&G probe was moved in a "zigzag" pattern over a 6 ft. x 17-inch rectangle with the lowest point on the rectangle being 8 inches above ground.

The direct readings from the W&G meter indicate the spatial average exposure or maximum RF field in percent relative to the FCC exposure limits for Occupational/Controlled Exposure. These numbers are multiplied by 5 to obtain the maximum RF field or spatial average exposure in percent relative to the FCC exposure limits for general population.

The transmitter site is located at the top of Williams Hill near Basalt, CO. There is a fence and a locked gate to limit access to the road leading up to the mountain top site. The site is 1.7 miles up

a winding dirt road that requires a 4-wheel drive vehicle. Access to the site from other directions is limited by natural heavy brush that would impede foot traffic.

The site consists of a building that houses KCUF and KPVW and a 100 foot self supported tower for their antennas. Approximately 60 yards away to the southwest, is another building and a guyed tower for KNFO. Approximately 100 yards to the east is a building and tower for communications services. I recommended to Mr. Banks that an RF warning sign be posted in a spot about 50 ft. in front of the building where it would be seen by authorized people who would need to do work at the site.

The peak level RF measurements shown in this report were made with all the stations at full power. However, KPVW-FM did have a problem with its transmitter. When ac power was turned on, the transmitter responded with 100% RF power. However, after about 5-6 seconds, it detected a problem and folded power back to 75%. I was able to use the "store" feature on the SRM-3000 meter and capture the 100% RF reading for power during that 5-6 second time interval. Spatial average readings took longer so they were made with KPVW-FM at 75% power.

I walked around the site using the EMR 300 meter to survey the RF fields. I found the highest fields at the site formed a ring around the building and tower. I marked the highest locations with flags so I could check them later with the SRM-3000 meter. The locations are shown in drawing I attached. The RF levels outside the "ring" dropped off very quickly to 5% or less MPE for general population. The RF levels inside the "ring" dropped off to 10% or less MPE for general population. RF fields were high, 90% MPE for general population, about 1 foot from each tower leg. Due to the uncertainty of results when measuring close to the metal tower, it would be advisable to post RF warning signs on the tower legs.

The accompanying chart shows the RF levels contributed by the 3 FM stations to the RF "ring" around the building and tower. The highest RF level was found 18.5 ft. northwest of the corner of the building, toward one anchor for the KNFO guyed tower. Two spatial average readings were taken there. The readings were 18% and 19% of MPE for occupational controlled environment; or in terms of MPE for general public it would be 90% and 95%. Considering that KPVW was at 75% power when the spatial average readings were made, there is an uncertainty about the measurements, which makes it highly probable that the readings would go up with 100% ERP power operation and thereby exceed the MPE for general public.

The site is a remote mountain location. It has a locked gate and fence for controlled access. The natural terrain inhibits and acts as a deterrent for unauthorized visitors. Under these conditions, I would characterize this site as an occupational/controlled site and subject to the Maximum Permissible Exposure limits as described in FCC OET Bulletin 65 for such a site. The site for the KCUF-FM antenna is in compliance with MPE limits for occupational/controlled exposure.

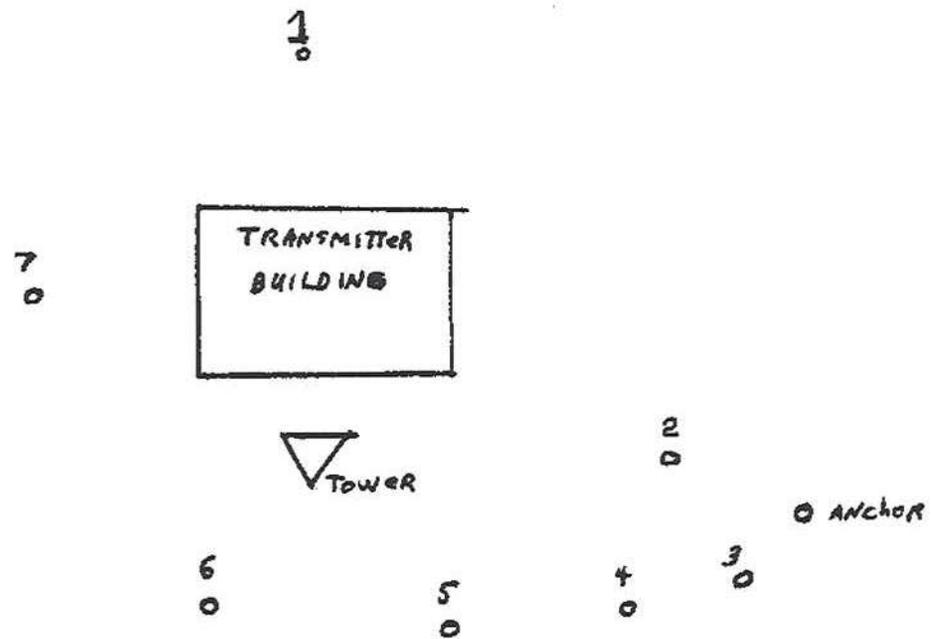
Engineers Statement...

All representations contained herein are true to the best of my knowledge.

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Myron Oliner  
October 19, 2006

Peak RF from 3 FM Stations, each at 100% ERP						
Location	KCUF-FM 100.5 MHz	KNFO-FM 106.1 MHz	KPVW-FM 107.1 MHz	RF from Other Sources	Total RF Contribution % MPE general public	Total RF Contribution % MPE Occupational Controlled
1	20.87%	3.66%	57.01%	5%	87%	17%
2	23.27%	0.24%	84.56%	6%	114%	23%
3	32.68%	0.21%	68.32%	5%	106%	21%
4	26.44%	0.19%	49.88%	5%	82%	16%
5	28.46%	0.13%	43.20%	5%	77%	15%
6	14.08%	0.37%	72.01%	5%	91%	18%
7	1.87%	1.99%	75.84%	5%	85%	17%
2	Spatial Average:				90%	18%
2	Spatial Average:				95%	19%



KCFU-FM



DRAWING 1