

Broadcast Engineering Services of Bonny Doon, Inc.

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Engineering Statement Special Operating conditions KNUQ, Pa`auilo, Hawaii BPH-20180404AAU

KNUQ Paauilo, Hawai`i RF Field Strength Measurements

Introduction

After completion of construction of the KNUQ facility at Haleakala, Maui on December 13th, 2019, Consulting Engineer Don Mussell energized the transmitter and antenna system of KNUQ, and then measured the site for RFR compliance with OET-65 using a Narda NRD-NGM-550, (S/N D-0129), and an attached probe Narda F0391, (S/N A-1188).

Description of Site and Measurements Taken

KNUQ is located at Mt Haleakala, an isolated communications site 10,000 feet above sea level. KNUQ was constructed on an existing tower with a Shively 6600-6R-.85SS antenna, mounted at 17 meters above ground, and operating with 14.5 KW ERP, as specified in the KNUQ construction permit. There are multiple FM transmitters and antennas in operation on this tower. Measurements were conducted with all stations operating at full licensed power.

The highest readings were found adjacent to the KNUQ tower. However, none of the combined readings exceeded 770 uW/cm² anywhere inside the existing RFR fence. Adjacent to the site, none of the readings exceeded the public limit. The highest readings in these locations do not exceed 200 uW/cm². Since there was no location where the readings exceeded 1000 uW/cm², the facility is fully compliant with the controlled (worker) access provisions of OET-65. Additionally, there was no location adjacent to the site that exceeded 200 uW/cm², and is therefore compliant with the uncontrolled (public) access provisions of OET-65.

These areas appear to comply with the uncontrolled (public) access provisions of OET-65; this is a remote site with steep, slopes surrounding the top of the mountain, and with controlled access, including two gates, one at the beginning of the access road (which is secured with many locks), and another surrounding the site itself. There are signs warning of the possibility of high RF in

the area mounted on the KNUQ site fence surrounding the facility, directly adjacent to the KNUQ tower.

Summary

The highest reading found after completion of the measurements described above was 770 uW/cm², directly underneath the KNUQ tower. This value is certainly below the 1000 uW/cm² permitted for controlled (worker) exposure. Appropriate RFR warning signage is mounted and clearly visible on the fence surrounding the tower

Conclusion

There are no areas outside the existing fence that exceed the uncontrolled (public) or controlled (worker) exposure limits. In addition, the site has restricted access and the public is warned of the possibility of high RF levels in the immediate area via appropriate signage. Therefore, the site complies with OET-65.

The permittee/licensee in coordination with other users of the site will reduce power or cease operation as necessary to protect persons having access to the site, tower or antennas from radio frequency electromagnetic fields in excess of FCC guidelines.

Respectfully submitted this 16th day of December, 2019

A handwritten signature in black ink, appearing to read 'Donald E. Mussell Jr.', with a stylized, cursive script.

Donald E. Mussell Jr. NCE-CBT