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NON-IONIZING ELECTROMAGNETIC FIELD MEASUREMENTS

NEAR THE KDES-FM ANTENNA SITE

ATOP EDOM HILL

NEAR CATHEDRAL CITY, CALIFORNIA

PREPARED FOR

ALPHA MEDIA LICENSEE LLC

ASSIGNEE OF KDES-FM

CATHEDRAL CITY, CALIFORNIA

September 2015

INTRODUCTION

Hatfield & Dawson Consulting Engineers has been retained by Alpha Media Licensee LLC (“Alpha”) to evaluate the KDES-FM transmitter facility atop Edom Hill, near Cathedral City, California, for compliance with current Federal Communications Commission (FCC) rules regarding human exposure to radiofrequency (RF) electromagnetic fields (EMFs).

The Edom Hill broadcast and telecommunications site is northeast of Cathedral City, in Riverside County, California. The site has multiple towers that support transmitting antennas for several broadcast and non-broadcast wireless facilities. The KDES transmitter facility and tower is also used by KUSC-FM. The KDES-FM facility utilizes an 8-bay $\frac{1}{2} \lambda$ antenna with a center of radiation 20.5 meters above ground. Thus it is unlikely that anyone other than authorized RF workers could approach near enough to the KDES-FM antenna to cause those persons' RF exposure levels to exceed FCC limits.

There appear to be no occupied structures within 1km of the site.

To verify that the KDES-FM facility, in combination with colocated facilities, is in compliance with FCC rules regarding human exposure to RF fields, I have performed RF exposure measurements at ground locations near the KDES-FM antenna tower atop Edom Hill to determine the exposure conditions that exist in accessible areas near the facility.

MEASUREMENTS OF RF EXPOSURE CONDITIONS AT EDM HILL

RF exposure measurements were taken in accessible areas in the immediate vicinity of the KDES-FM transmitter facility atop Edom Hill. The RF exposure measurements were performed midday on September 25, 2015. The hours of measurement were during midday when RF activity at Edom Hill was expected to be at or near its highest level. The transmitters for both KDES-FM and KUSC-FM were observed to be operating normally prior to the taking of these measurements.

MEASUREMENT EQUIPMENT

Exposure measurements were made using a Narda model 8718B RF Survey meter with an A8742D shaped isotropic electric field probe. This meter and probe combination is a broadband instrument which measures power densities over a wide spectrum as required by *IEEE Standard C95.3-2002, IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz*.

The NARDA A8742D probe provides an output proportional to the FCC Occupational(Controlled Environment) maximum permissible exposure (MPE) over a frequency range from 300 kHz to 3.0 GHz. The measurement range of the probe is 0.6 to 600% of the occupational standard.

The meter/probe combination is sensitive to all RF signals in the frequency range of 300 kHz to 3.0 GHz. Therefore the recent exposure measurements at Edom Hill included RF signals over a wide frequency range. Thus RF signals from all of the significant Edom Hill broadcast and non-broadcast facilities were accounted for in the measurement process.

RF EXPOSURE MEASUREMENT METHODOLOGY

Measurement procedures were performed in accordance with methods described in OET Bulletin 65, August 1997, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields," IEEE Standard C95.3-2002, "IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz," and NCRP Report No. 119, "A Practical Guide to the Determination of Human Exposure to Radiofrequency Fields."

During the measurement period, areas in the immediate vicinity of the KDES-FM auxiliary tower were scanned with the measurement probe at approximate head level.

At the locations of the highest peak RF exposure readings, the probe was moved from close to ground level up to a height of approximately 2 meters. During this procedure, the "Spatial Averaging" feature of the survey meter was activated to capture both peak and spatially averaged RF exposure levels simultaneously. Peak exposure measurements are quicker and easier to obtain, but they overstate exposure conditions. Spatially averaged measurements are more time-consuming, but they yield a more

accurate representation of human exposure conditions, and they are in accordance with IEEE Standard C95.3-2002. Thus an efficient measurement procedure calls for the use of spatial averaging only at those locations where peak measurements indicate the highest exposure conditions.

CONTRIBUTION OF KDES-FM TO RF EXPOSURE ENVIRONMENT

Two small areas were found where RF exposure limits approach the standard for areas accessible to the public. Both of these areas are inside the locked perimeter fence. One is near the base of the tower, directly below the transmission line for KUSC-FM. The spatially averaged field measured at this location was 100% of the public standard. The second is near the diesel tank for the generator. The spatially averaged field measured at this location was 83% of the public standard. Approximately 20 feet inside the gate, along the road, a spatially average field was measured at 75% of the public standard. Measurements were also taken along the road/driveway leading to the KDES-FM transmitter site; no peak readings exceeding 20% of the public standard were observed.

RECOMMENDATIONS

Based on my measurements, the KDES-FM auxiliary facility at Edom Hill will comply with current FCC rules regarding human exposure to radiofrequency electromagnetic fields provided that access to the area within the perimeter fence is properly controlled. Because fields were measured that are close enough to the general public standard to be within the margin of error of the instrument, the area within the fence should be treated as a controlled area, with access carefully restricted. Proper signs should be posted such that they may be read by a person approaching the access gate to the KDES-FM transmitter site, before opening or passing through the gate. The proper RF sign for this site is the standard blue "Notice" sign. Additionally, a sign should be posted advising visitors to contact the appropriate site manager prior to entry. If a person other than an engineering employee of KDES or KUSC, such as a fuel truck driver or HVAC technician requires access to the site, KDES should be reduced to 50% of licensed ERP for the duration of the visit.

This conclusion is based solely on the comparison of predicted and measured RF conditions in specific areas with the corresponding safe exposure limits set forth in the FCC rules. The FCC exposure limits are based on recommendations by federal and private entities with the appropriate expertise in human safety issues.

QUALIFICATIONS

I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield & Dawson Consulting Engineers and I am registered as a Professional Engineer in the States of Washington and Oregon and I hold an FCC General Radiotelephone Operator License PG-13-10466. All representations contained herein are true to the best of my knowledge.



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