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# NON-IONIZING ELECTROMAGNETIC FIELD MEASUREMENTS NEAR THE KQFO-FM ANTENNA SITE

PREPARED FOR

**Alexandra Communications, Inc.**

LICENSEE of KQFO-FM

Pasco, Washington

February 2018

## **INTRODUCTION**

Hatfield & Dawson Consulting Engineers has been retained by Alexandra Communications, Inc (“Alexandra”) to evaluate the KQFO-FM transmitter facility south of Kennewick, Washington for compliance with current Federal Communications Commission (FCC) rules regarding human exposure to radiofrequency (RF) electromagnetic fields (EMFs).

KQFO-FM operates from Jump Off Joe Butte located south of Kennewick, in Benton County, Washington. There are several other broadcast or communications facilities at or near this site. The KQFO-FM facility utilizes a 4 element  $\frac{1}{2} \lambda$  omni-directional antenna with a center of radiation 15 meters above ground.

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

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

## **MEASUREMENTS OF RF EXPOSURE CONDITIONS**

RF exposure measurements were taken in accessible areas in the immediate vicinity of the KQFO-FM antenna tower. The RF exposure measurements were performed between 1 and 2PM on February 9, 2018. The transmitter for KQFO-FM was observed to be operating normally at a TPO of 6.58 kW prior to the taking of these measurements.

## **MEASUREMENT EQUIPMENT**

Exposure measurements were made using a Narda model 8718B RF Survey meter with an 8742D 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 8742D probe provides an output proportional to the FCC Public (Uncontrolled 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 public standard.

The meter/probe combination is sensitive to all RF signals in the frequency range of 300 kHz to 3.0 GHz. Therefore the exposure measurements included RF signals over a wide frequency range. Thus RF signals from other facilities, were any such facilities to be present, would have been 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 KQFO-FM antenna tower, and radially outward to a distance of approximately 100 meters were scanned with the measurement probe at approximate head level.

## **CONTRIBUTION OF KQFO-FM TO RF EXPOSURE ENVIRONMENT**

The highest observed peak field inside the tower fence was located at the southeast corner of the tower base. At this point, the spatially-averaged field was measured at approximately 70% of the FCC's standard for areas accessible to the general public. Along the outside parameter of the fence, the maximum observed peak field at head level was 50% of general public standard. The highest observed field outside the fence was located between the KQFO tower and the microwave tower to the east, where the spatially-averaged field was 41% of the general public standard. The maximum field measured on the site access road was 14% (peak) of the general public standard.

## **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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