

TELECOMMUNICATIONS ENGINEERING
GRAY FRIERSON HAERTIG & ASSOC.
4646 S.W. COUNCIL CREST DRIVE
PORTLAND, OREGON 97239
503-282-2989

ELECTRONIC MAIL
gfh@haertig.com

28 June 2022

Prepared for The University of Utah
K299CB – Saint George, Utah
LMS File Number 0000146777

FIELD MEASUREMENTS OF RADIOFREQUENCY ELECTROMAGNETIC POWER DENSITY

Though LMS 000146777 does not require the measurement of the ambient radiofrequency power density levels in the area surrounding K299CB, the applicant promised in its application for Construction Permit that such measurements would be made.

This office was retained by The University of Utah to make post-construction measurements of the ambient radiofrequency electromagnetic field attributable to the operation of FM Translator station K299CB and to assess the station's compliance with the Maximum Permissible Exposure ("MPE") standards for human exposure to radiofrequency electromagnetic fields as outlined in FCC Office of Engineering and Technology Bulletin 65, Edition 97-01 and 47CFR1.1310.

K299CB operates with an ERP of 0.25 kilowatts, vertically polarized, using a Scala FMV-MP-2, side mounted at the 16-meter level of an existing 25.9-meter antenna support structure. K299CB was operating at its full licensed power at the time these measurements were made.

The K299CB antenna support structure is located Near the apex of Webb Hill, Saint George, Utah. There is a steep escarpment to the south which prevents access to the site from that direction, otherwise, the site is accessible to the general public. There are numerous other facilities in the FM, FM Translator, Television Translator and Land Mobile services in the near vicinity.

Measurements were made using a Narda Model 8715 (S/N 19006) Electromagnetic Radiation Monitor coupled to E-Field Probe Model 8722 (S/N 03027), in current calibration. This probe has a frequency response that is shaped to the ANSI C95.1-1991 Occupational/Controlled MPE standard and reads directly in percent of standard. At the frequencies of interest in these measurements, the General Public/Uncontrolled MPE standard is equal to one fifth of the Occupational/Controlled MPE standard. For simplicity's sake, all radio frequency power densities are reported as percent of the General Public/Uncontrolled MPE standard in this report.

The measurement protocols outlined in ANSI/IEEE Standards C95.1-1991 and C95.3-1991 were followed. No measurements were made closer than 20 cm to conducting surfaces and all measurements were spatially averaged over a volume representing the volume occupied by an adult male.

A series of four radials centered on the tower were traversed to a distance of 50 meters or until terrain made access impractical. The highest measured radiofrequency power density was found to be 27% of the Occupational/Controlled MPE standard, which occurred approximately 10 meters south of the base of the antenna support structure. This equates to 135% of the General Public/Uncontrolled MPE standard.

The areas exceeding the General Public/Uncontrolled MPE standard were concentrated along a rocky ledge to the south of the transmitter site which is at a higher elevation than the site itself.

Turning off the K299CB transmitter made no appreciable change in the measured ambient radiofrequency field in these areas. It is believed that the majority of the field is attributable to stations in the FM, FM Booster and FM Translator services located at another site adjacent to the ENE. Because it was not possible to arrange turning off these transmitters on short notice, it could not be determined whether or not the contribution from K299CB exceeds the 5% of the General Public/Uncontrolled MPE trigger threshold.

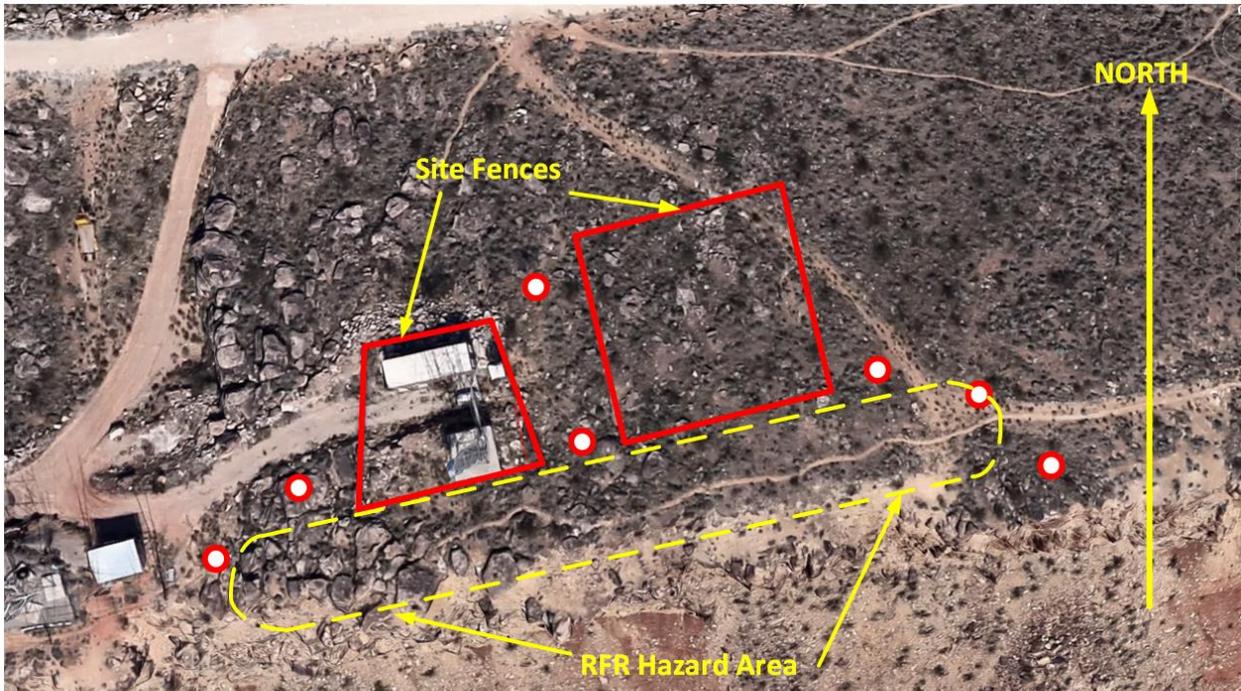
In an abundance of caution, the applicant has erected warning signs around the perimeter this area warning that the radiofrequency field may exceed the General Public/Uncontrolled standard.

Attached is an aerial photograph annotated with the locations where warning signs were erected and the area where the General Public/Uncontrolled MPE standard is exceeded. There are warning signs from all directions of approach, except from the south where a steep escarpment makes approach impossible. There are no avenues of approach from which a warning sign cannot be seen.

Attached also are photographs representative of the sign installations.

In light of these measurements and the erected warning signs, it is my belief that the K299CB is in complete compliance with the provisions of 47CFR1.1307 as regards human exposure to radiofrequency electromagnetic fields.

Webb Hill – St. George - Washington County – Utah
University of Utah and Frandsen Site RFR Signage
June 2022



○ RFR Hazard Sign Locations







I, Gray Frierson Haertig, hereby affirm that:

I have been retained by The University of Utah to prepare this report and make the underlying measurements;

I am principal of Gray Frierson Haertig & Assoc.;

I have a particular interest and expertise in the measurement and assessment of radiofrequency electromagnetic fields;

This report and its underlying measurements have been prepared by myself;

All statements made herein are true to the best of my knowledge and reflect the actual facts of the matter;

I am a broadcast engineer of 56 years' experience and;

My credentials are a matter of record with the Commission.

Respectfully submitted this 28th day of June 2022,

ELECTRONIC SIGNATURE

Gray Frierson Haertig