

Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

**KFXO-LD, KLTW-FM, KQAK, KTVZ and KWPK-FM
Transmitter Site
Awbrey Butte
Bend, Oregon**

**Report of Measurements & Conclusions
August 10, 2012**

This report details radio frequency radiation (RFR) measurements made on August 10th, 2012, at the transmitter site for KFXO-LD, KLTW-FM, KQAK, KTVZ and KWPK-FM on Awbrey Butte communications site in Bend, Oregon. The measurements detailed herein were made by the undersigned, James Boyd of Boyd Broadcast Technical Services.

The measurement equipment used consists of a Narda Microwave model 8718B RFR meter (SN: 7127) with a model A8722D E-Field probe (SN: 09014). The E-Field probe is broadband with a frequency coverage of 300 kHz to 50 GHz. The instrument set was calibrated in July of 2011.

The A8722D probe used is a “shaped” probe, meaning that the response to radiofrequency fields follows the 1997 FCC Limits for Maximum Permissible Exposure (MPE) for Occupational/Controlled Exposure, resulting in a display on the 8718B meter of percentage of MPE for Occupational/Controlled Exposure.

Measurement techniques used are consistent with generally accepted practices. Steps and procedures used in making these measurements are similar to those printed in Section 3 of OET Bulletin 65, Edition 97-01, August 1997, published by the FCC Office of Engineering and Technology.

KQAK and KWPK-FM are combined into a single FM broadcast antenna side mounted on a tower owned by KTVZ at this site. KLTW-FM uses a half-wave spaced antenna also side mounted on this tower. KTVZ and KFXO-LD are combined into a top-mounted medium power UHF antenna. An FM translator and broadcast auxiliary STL and RPU antennas are also mounted on this tower. A single building houses all transmitter equipment. The building and tower are surrounded by a fence with a locked entry gate.

The entire communications site which has a number of high and low power FM broadcast facilities, medium power UHF and VHF television broadcast facilities, land-mobile and cellular facilities, is surrounded by a 6 foot high metal fence with a locked entry gate which completely precludes uncontrolled access. The site is therefore deemed Occupational/Controlled. At the time of the measurements, all broadcast stations were believed to be operating with licensed facilities and power levels. The measurements made herein were a condition of the construction permit for KLTW-FM

The power density data gathered in this study, expressed as a percentage of Occupational/Controlled MPE is tabulated on page three. All of the measurements are peak readings except as noted below

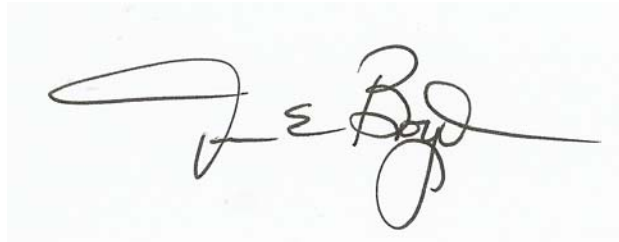
No areas on the KTVZ property exceed the Occupational/Controlled MPE level, except for the southwest guy anchor and a hot spot about five feet away from the south end of the west side fence around the transmitter building. Guy wire anchors have appropriate signage warning of RF safety hazards.

The hot spot near the south end of the fence was also measured using spatial averaging. With spatial averaging, the occupational/Controlled MPE level is below the 100% limit. Again the result is shown on page three and is in red ink and underlined.

No measurements were made on the tower. Work on antennas on the tower will require shut down of transmitters. Although the entire Awbrey Butte site is fenced and is considered to be Occupational/Controlled, it should be noted maintenance workers such as HVAC technicians, meter readers and others who must visit the site are not considered Occupational and therefore they must be instructed to avoid lingering in areas where RF radiation is highest.

A drawing of the site is shown on page four. A topographical map showing the location of the transmitter site is on page five. Pictures of the transmitter site are on pages 6, 7, 8, 9, 10, 11 and 12. The FCC Limits for Maximum Permissible Exposure curve is shown on page 13. A picture of the test equipment used is shown on page 14.

All measurements were made by the undersigned. I am an experienced radio broadcast engineer. I have experience making these measurements. My technical qualifications are a matter of record with the Federal Communications Commission.

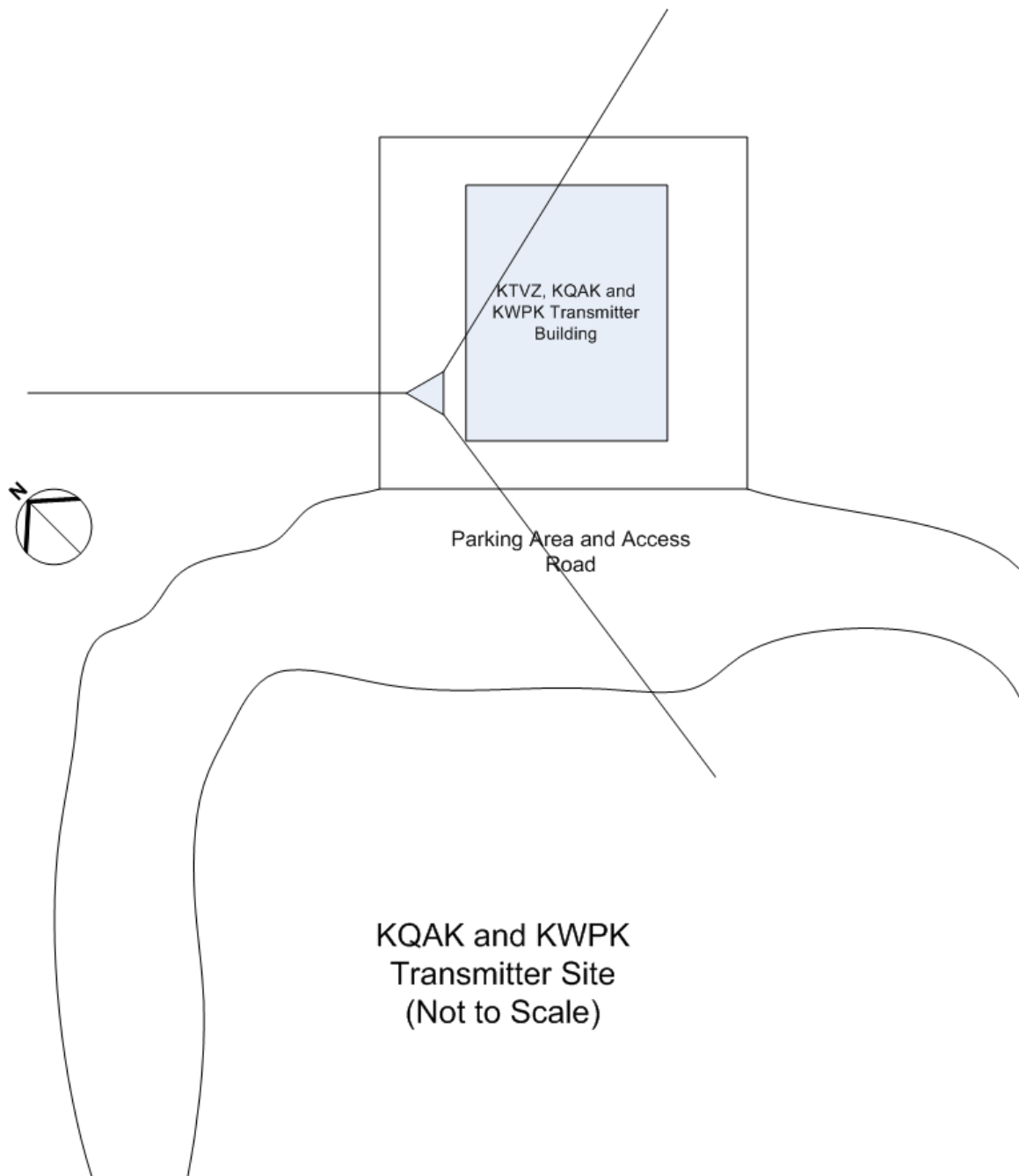
A handwritten signature in dark ink, appearing to read "J E Boyd". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

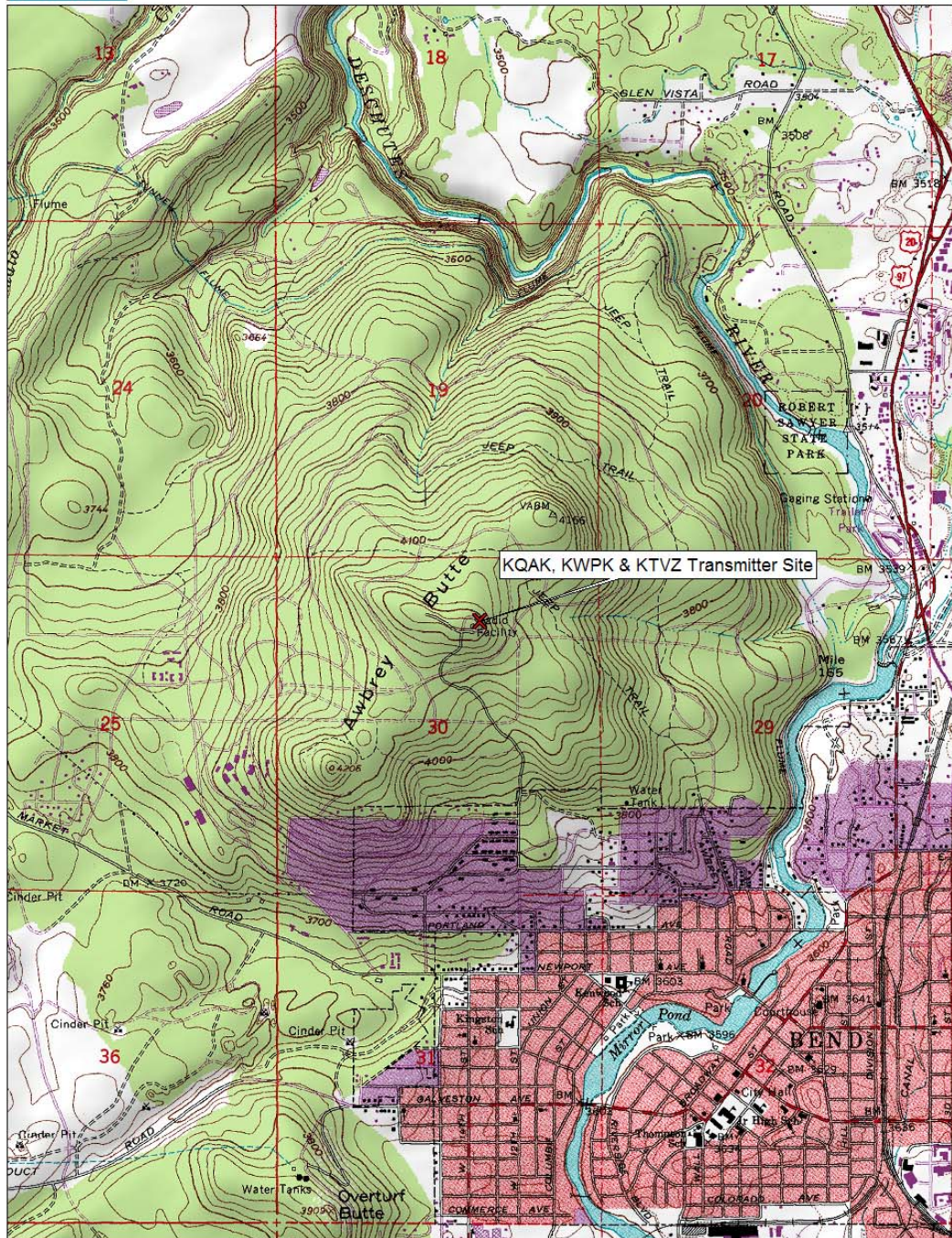
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Tabulated Measurement Data
(Peak reading recorded in areas identified below)

Occupational/Controlled MPE

•	Parking area west side of building	109.2%
•	<u>Parking area west side of building with spatial averaging</u>	<u>33.9%</u>
•	West end of building inside building fence	50.8%
•	Inside Transmitter building	15.3%
•	Northwest guy anchor	70.4%
•	East guy anchor	102.3%
•	Area around generator, south side	30.8%
•	Outside of building fence on south side	63.1%
•	East end of building at HVAC equipment	27.9%
•	Outside of building fence, east end	20.8%
•	North side of building inside building fence from east side of building fence to building entry gate	39.3%
•	North side of building outside of building fence from east side of building fence to west side of building fence	19.7%
•	ATC building parking area south of KTVZ property	27.2%
•	Parking area on road near Bend Radio Group, KMGX building, northwest of KTVZ	38.8%
•	Southwest guy anchor	146.5%

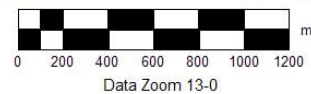




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USGS Topographical Map of Transmitter Site



Entry Road and Locked Entry Gate



Views of perimeter fence at Awbrey Butte communications Site



Wide angle picture of transmitter building and tower



Close-up view of antennas. KLTW antenna is on left.



Inside view of transmitter building, KQAK transmitter and combiner



KWPK-FM transmitter is on the right. KTVZ is in foreground on left

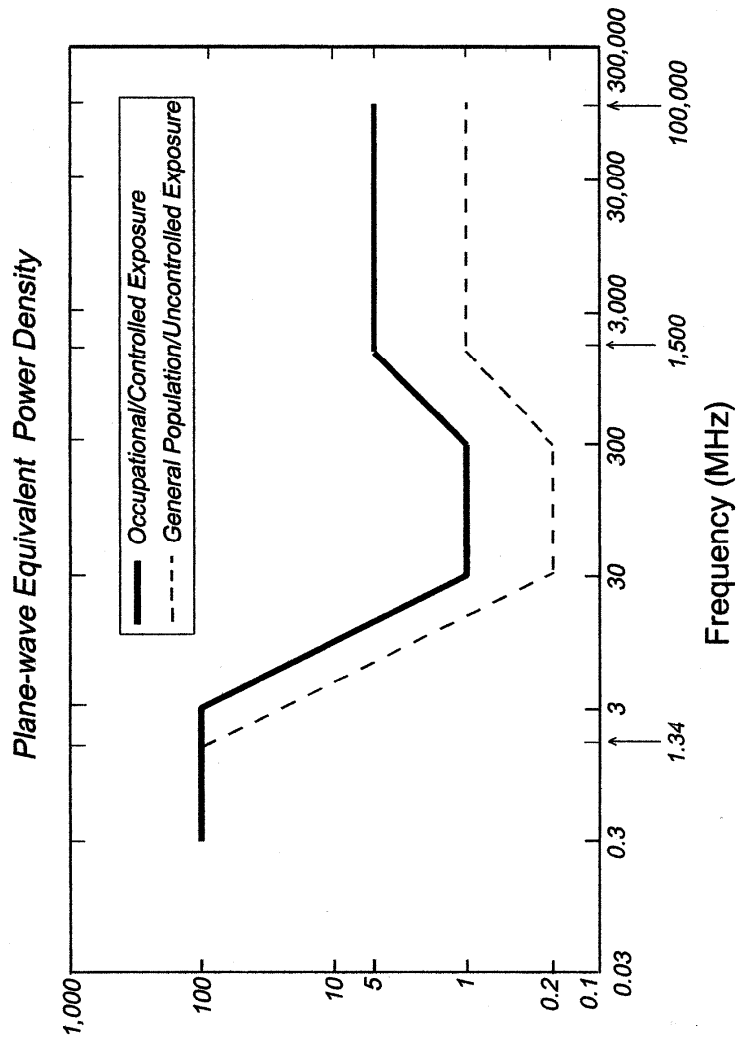


KFXO-LD Transmitter



KLTW-FM Transmitter

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)





Narda Test Equipment