

KFXX

Portland, Oregon

AM Occupied Bandwidth Proof of Performance

October 16 & 23, 2020

KFXX, Portland, Oregon, operates on 1080 kHz with 50 kW daytime using a directional antenna system and 9 kW nighttime also with a directional antenna system with a different pattern. The station is diplexed with KMTT, Vancouver, Washington. On October 16th and October 23rd, 2020, measurements were made to determine the station's compliance with section 73.44 of the FCC rules and regulations.

Two measurement locations were used because of the wide difference between daytime and nighttime antenna radiation patterns. At both locations an Agilent Model E4402B spectrum analyzer (SN: MY44221068) was connected to a model LP-3 (SN: 401) broadband shielded-loop antenna manufactured by Chris Scott & Associates, to observe the radiated signal. The analyzer was setup in the peak acquisition mode. The signal was acquired for ten minutes and stored in software for subsequent analysis and for presentation in this report. This was done twice, once with a frequency span of 5 kHz per division and 300 Hertz resolution bandwidth and once with a frequency span of 20 kHz per division and 1 kHz resolution bandwidth. Measurement data plots for daytime operation are shown on page two of this report and the nighttime measurement data plots are shown on page three.

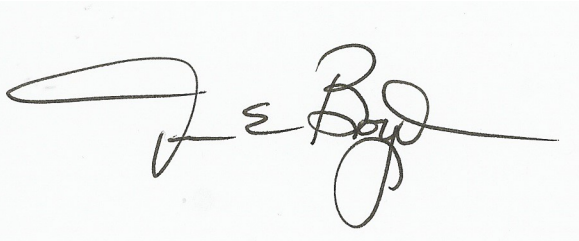
A Potomac Instruments model PI 4100 (SN: 312) was used at the two locations to look for spurious emissions beyond 75 kHz from the station's frequency. Because KMTT is diplexed with KFXX, particular attention was paid to intermodulation products possibly generated by the operation of the two stations. This information is tabulated on page four.

Pictures of the test setups are shown on page five. A topographic map showing the daytime and nighttime measurement locations is printed on page six.

For reference the portions of section 73.44 and 73.1590 of FCC Rules pertaining to these measurements are shown on page seven.

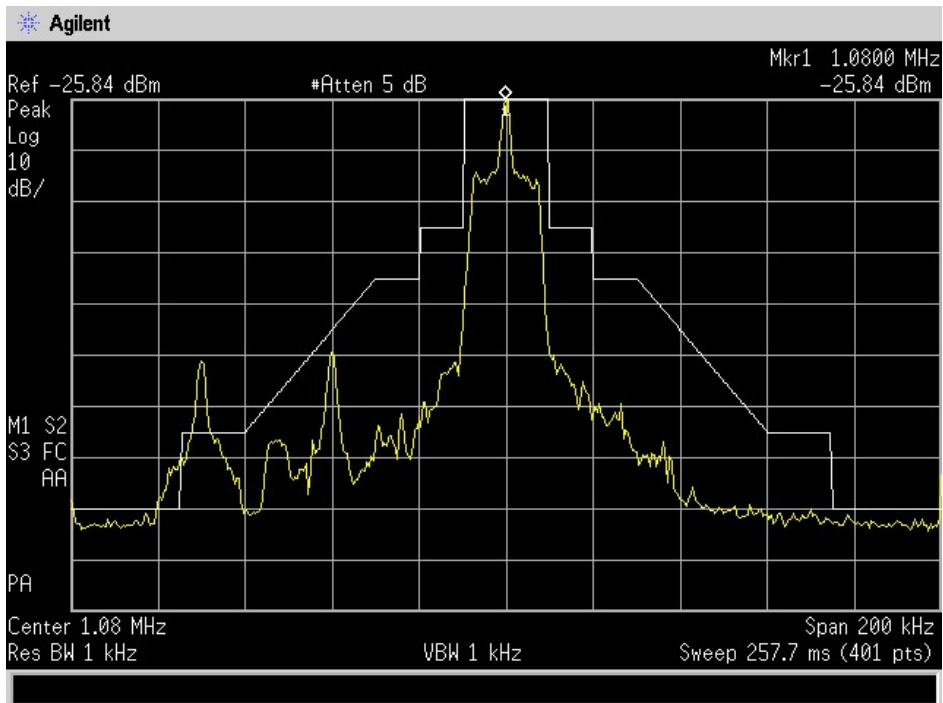
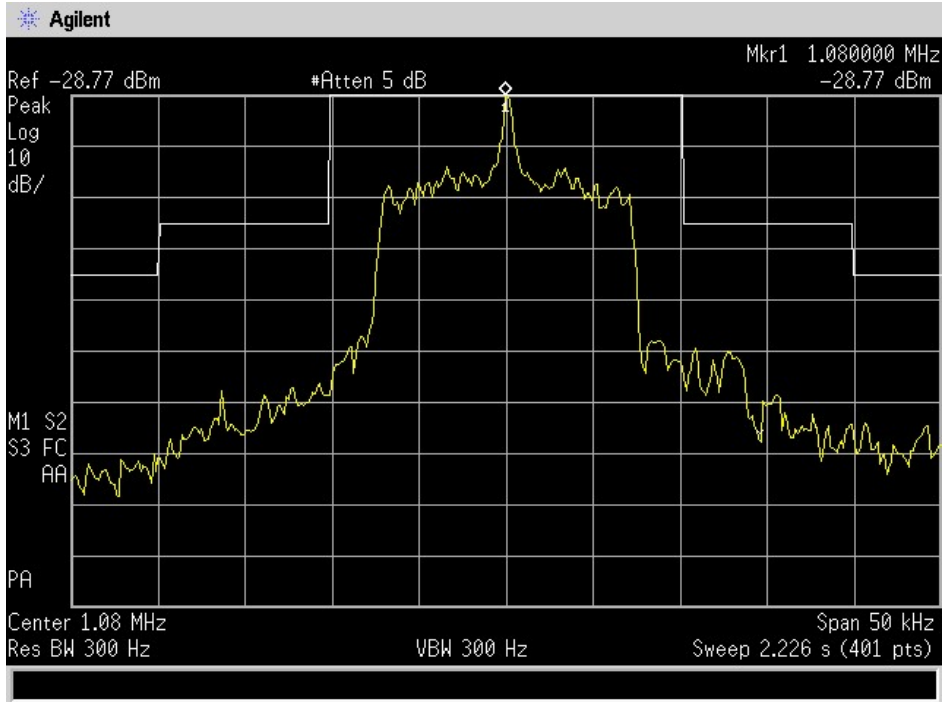
It is believed that KFXX is in compliance with section 73.44 and 73.1590 of the FCC Rules and Regulations.

All Measurements were made by James E. Boyd, holder of General Class Radiotelephone License #PG-13-6198, and whose qualifications are a matter of record with the Federal Communications Commission.

A handwritten signature in black ink, appearing to read "J E Boyd". The signature is fluid and cursive, with a long horizontal stroke extending to the left from the first letter.

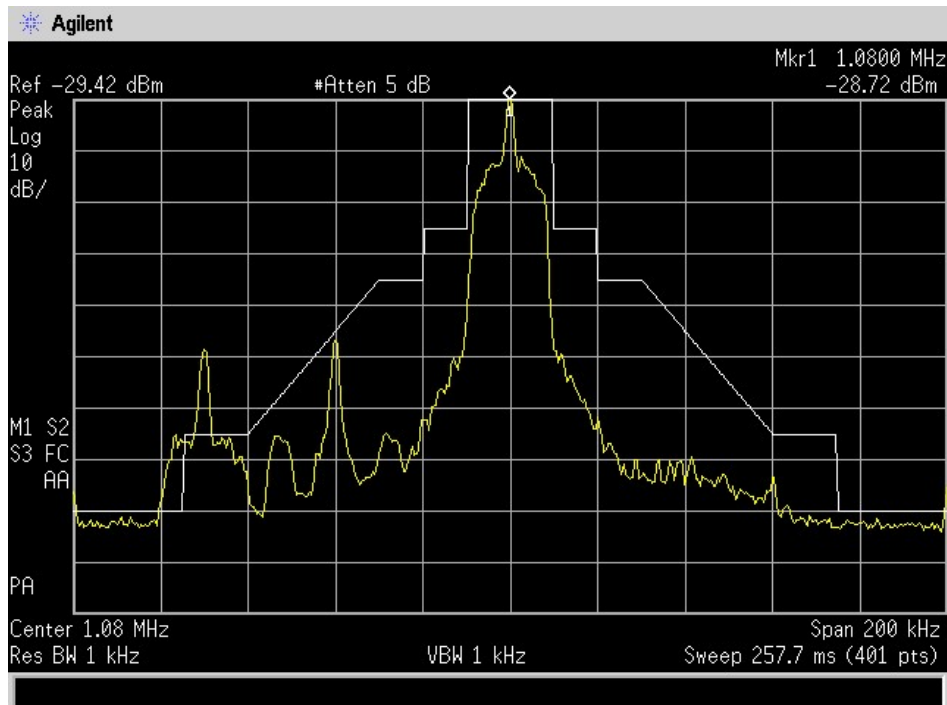
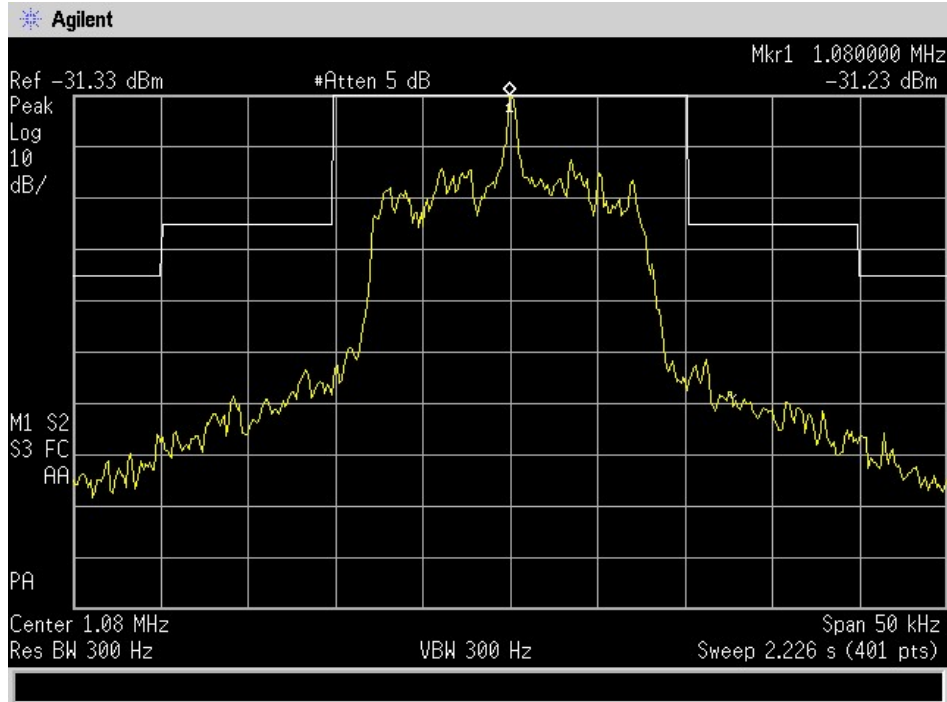
James E. Boyd
Boyd Broadcast Technical Services
21818 SW Columbia Circle
Tualatin, OR 97062
(503) 703-8360

Day Antenna System



Adjacent channel stations can be seen and were identified at 1010 kHz and 1040 kHz.

Night Antenna System



Adjacent channel stations can be seen and were identified at 1010 kHz and 1040 kHz.

Measurements of energy more than 60 kHz from carrier frequency

Daytime Pattern

170 kHz (F2-F1)	Not measureable because of 101 $\mu\text{V/m}$ noise floor
570 kHz (3F1-F2)	Channel occupied by KVI, Seattle, no interference
740 kHz (2F1-F2)	Sidebands from KXTG on 750 kHz preclude measurement
910 kHz (F1)	612 mV/m
1080 kHz (F2)	2400 mV/m
1250 kHz (2F2-F1)	92.1 $\mu\text{V/m}$ (88.3 dB below 1080 KFXX)
1420 kHz (3F2-2F1)	Sidebands from KBNP on 1410 kHz preclude measurement
1990 kHz (F1+F2)	23 $\mu\text{V/m}$ (88.5 dB below 910 KMTT and 100.4 dB below 1080 KFXX)
2560 kHz (4F1-F2)	9 $\mu\text{V/m}$ (96.7 dB below 910 KMTT)
2900 kHz (2F1+F2)	11.3 $\mu\text{V/m}$ (94.7 dB below 910 KMTT)
3070 kHz (F1+2F2)	31.9 $\mu\text{V/m}$ (97.5 dB below 1080 KFXX)
3410 kHz (4F2-F1)	8.4 $\mu\text{V/m}$ (109.1 dB below 1080 KFXX)
4720 kHz (4F1+F2)	9 $\mu\text{V/m}$ (96.7 dB below 910 KMTT)
4890 kHz (3F1+2F2)	9.2 $\mu\text{V/m}$ (96.5 dB below 910 KMTT and 108.3 dB below 1080 KFXX)
2160 kHz (2F2)	28.5 $\mu\text{V/m}$ (98.5 dB below 1080 KFXX)
3240 kHz (3F2)	51.1 $\mu\text{V/m}$ (93.4 dB below 1080 KFXX)
4320 kHz (4F2)	13.9 $\mu\text{V/m}$ (104.7 dB below 1080 KFXX)
5400 kHz (5F2)	42.6 $\mu\text{V/m}$ (95 dB below 1080 KFXX)

Nighttime Pattern

170 kHz (F2-F1)	95 $\mu\text{V/m}$ (82.1 dB below 910 KMTT and 85.3 dB below 1080 KFXX)
570 kHz (3F1-F2)	Channel occupied by KVI, Seattle, no interference
740 kHz (2F1-F2)	Sidebands from KXTG on 750 kHz preclude measurement
910 kHz (F1)	1210 mV/m
1080 kHz (F2)	1750 mV/m
1250 kHz (2F2-F1)	97 $\mu\text{V/m}$ (85.1 dB below 1080 KFXX)
1420 kHz (3F2-2F1)	Sidebands from KBNP on 1410 kHz preclude measurement
1990 kHz (F1+F2)	10.5 $\mu\text{V/m}$ (101.3 dB below 910 KMTT and 104.4 dB below 1080 KFXX)
2560 kHz (4F1-F2)	23.2 $\mu\text{V/m}$ (94.3 dB below 910 KMTT)
2900 kHz (2F1+F2)	102 $\mu\text{V/m}$ (81.5 dB below 910 KMTT)
3070 kHz (F1+2F2)	51 $\mu\text{V/m}$ (90.7 dB below 1080 KFXX)
3410 kHz (4F2-F1)	45.8 $\mu\text{V/m}$ (91.6 dB below 1080 KFXX)
4720 kHz (4F1+F2)	34.6 $\mu\text{V/m}$ (90.9 dB below 910 KMTT)
4890 kHz (3F1+2F2)	60 $\mu\text{V/m}$ (86.1 dB below 910 KMTT and 89.3 dB below 1080 KFXX)
1820 kHz (2F1)	24.4 $\mu\text{V/m}$ (93.9 dB below 910 KMTT)
2730 kHz (3F1)	29.5 $\mu\text{V/m}$ (92.3 dB below 910 KMTT)
3640 kHz (4F1)	9.6 $\mu\text{V/m}$ (102 dB below 910 KMTT)
4550 kHz (5F1)	99.6 $\mu\text{V/m}$ (81.7 dB below 910 KMTT)
2160 kHz (2F2)	15.2 $\mu\text{V/m}$ (101.2 dB below 1080 KFXX)
3240 kHz (3F2)	13.5 $\mu\text{V/m}$ (102.3 dB below 1080 KFXX)
4320 kHz (4F2)	17.6 $\mu\text{V/m}$ (100 dB below 1080 KFXX)
5400 kHz (5F2)	39.4 $\mu\text{V/m}$ (93 dB below 1080 KFXX)



Daytime measurement location off NE Airport Way at NE 158th Avenue. GPS Coordinates (NAD83): 45° 33' 30.9" North Latitude and 122° 29' 55.8" West Longitude.



Nighttime measurement location just off NE Cameron Boulevard. GPS Coordinates (NAD83): 45° 33' 32.3" North Latitude and 122° 29' 37.6" West Longitude

Emissions requirements form Part 73.44, CFR 47:

(B) Emissions 10.2 kHz to 20 kHz removed from the carrier must be attenuated at least 25 dB below the unmodulated carrier level, emissions 20 kHz to 30 kHz removed from the carrier must be attenuated at least 35 dB below the unmodulated carrier level, emissions 30 kHz to 60 kHz removed from the carrier must be attenuated at least [5 + 1 dB/kHz] below the unmodulated carrier level, and emissions between 60 kHz and 75 kHz must be attenuated at least 43 + 10Log(Power in watts) or 80 dB below the unmodulated carrier level whichever is the lesser attenuation, except for transmitters having power less than 158 watts, where the attenuation must be at least 65 dB below the carrier level.

Requirement for Measurements: §73.1590 Equipment Performance Measurements.

(a) The licensee of each AM, FM, TV and Class A TV station, except licensees of Class D non-commercial educational FM stations authorized to operate with 10 watts or less output power, must make equipment performance measurements for each main transmitter as follows:

- (1) Upon initial installation of a new or replacement main transmitter.
- (2) Upon modification of an existing transmitter made under the provisions of [§73.1690]
- (3) Installation of AM stereophonic transmission equipment pursuant to [§73.128] §73.128.
- (4) Installation of FM subcarrier or stereophonic transmission equipment pursuant to [§73.295] §73.295, [§73.297] §73.297, [§73.5-93] §73.593 or [§73.597] §73.597.
- (5) Installation of TV stereophonic or subcarrier transmission equipment pursuant to [§§73.669] §§73.669 and [73.1690] 73.1690.
- (6) Annually, for AM stations, with not more than 14 months between measurements.
- (7) When required by other provisions of the rules or the station license.

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(d) The data required by [paragraphs (b)] paragraphs (b) and [(c)] (c) of this section, together with a description of the equipment and procedure used in making the measurements, signed and dated by the qualified person(s) making the measurements, must be kept on file at the transmitter or remote control point for a period of 2 years, and on request must be made available during that time to duly authorized representatives of the FCC.