

Occupied Bandwidth Measurements
(FCC Rule 73.317)

KGHP, Gig Harbor, Washington

September 26, 2012

On September 26th, 2012, Boyd Broadcast Technical Services made measurements of KGHP, Gig Harbor, Washington, to show compliance with FCC Rule 73.317. These measurements were made following the installation of a new Nautel FM transmitter.

All measurements were made at a sample port located in line just before the transmission line going up the tower to the KGHP antenna. This sample port has a rising response characteristic of 6 db for every octave increase in frequency.

An Agilent E4402B spectrum analyzer (Serial Number MY44221068), was used for all of the measurements detailed in this report. This external attenuation was used to make a reference measurement of KGHP. The amplitude calibration of the instrument was electronically adjusted to account for this attenuation.

The external attenuation was removed for all other measurements. A double cavity notch filter tuned to KGHP's fundamental frequency of 89.9 was inserted ahead of the spectrum analyzer to prevent signal overload and subsequent erroneous intermodulation products. The amplitude versus frequency response of this filter is shown on page three of this report.

The filter, a Model 6367-2, was manufactured by Microwave Filter Company, Inc. Attenuators are precision devices. All cables are constructed of high quality, 100% shielded coaxial cable with premium connectors. Adapter connectors used are also premium quality. A block diagram of the measurement setup is shown on page eight.

All measurements were made by collecting data for a short period using the instrument's peak-hold feature. This measurement data was collected for several minutes each. This was done to observe possible short duration signals.

Data from these plots was saved in the analyzer's hard drive, then converted to .gif files and downloaded into a computer for viewing and analysis (and to provide the plots shown in this report). The Agilent analyzer collected 400 data points over the instrument's selected frequency span for all measurements.

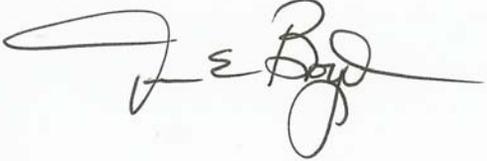
The reference plot for KGHP is shown on page three. This measurement shows compliance with paragraph (b) and (c) of section 73.317 of the Commission's rules.

The spectrum from 30 MHz to 900 MHz was examined to determine if any emissions attributable to KGHP were present. No products less than 71.58 dB below the KEXP reference signal were found. The 71.58 dB value is determined by the formula in paragraph d.) of FCC rule 73.317. Data plots for the spectrum between 30 MHz and 900 MHz are shown on pages four through seven.

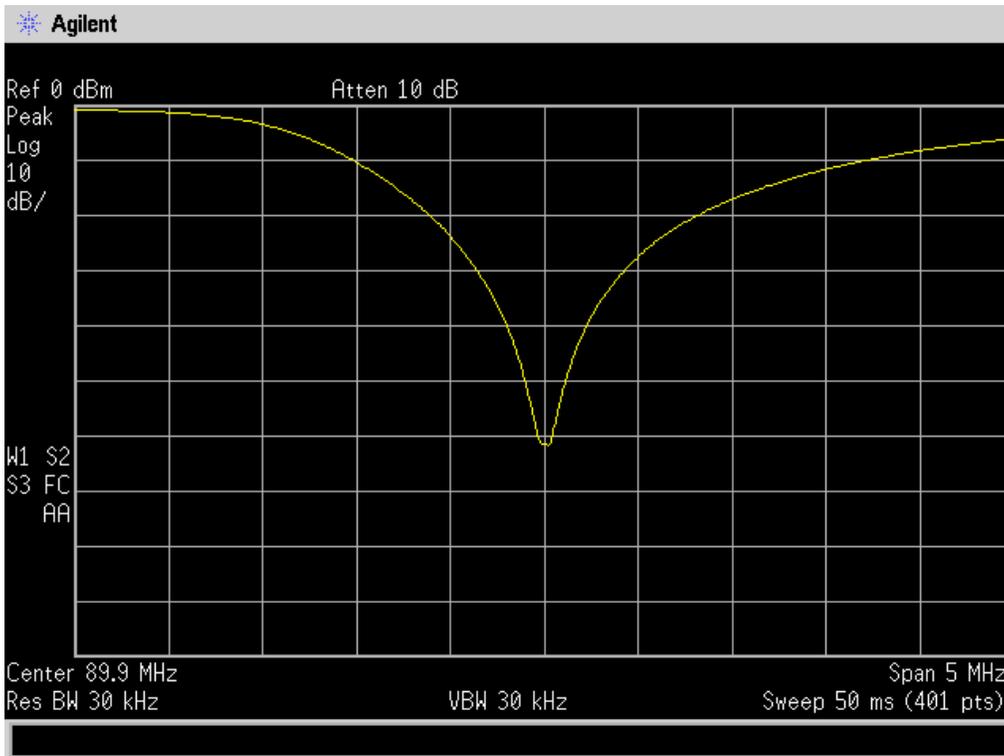
It is believed that KGHP is in full compliance with section 73.317 of the commission's rules. A copy of the pertinent sections of this rule can be found on page nine.

All information contained in this report was gathered by the undersigned, who has experience making these kinds of measurements and whose qualifications are a matter of record with the Federal Communications Commission.

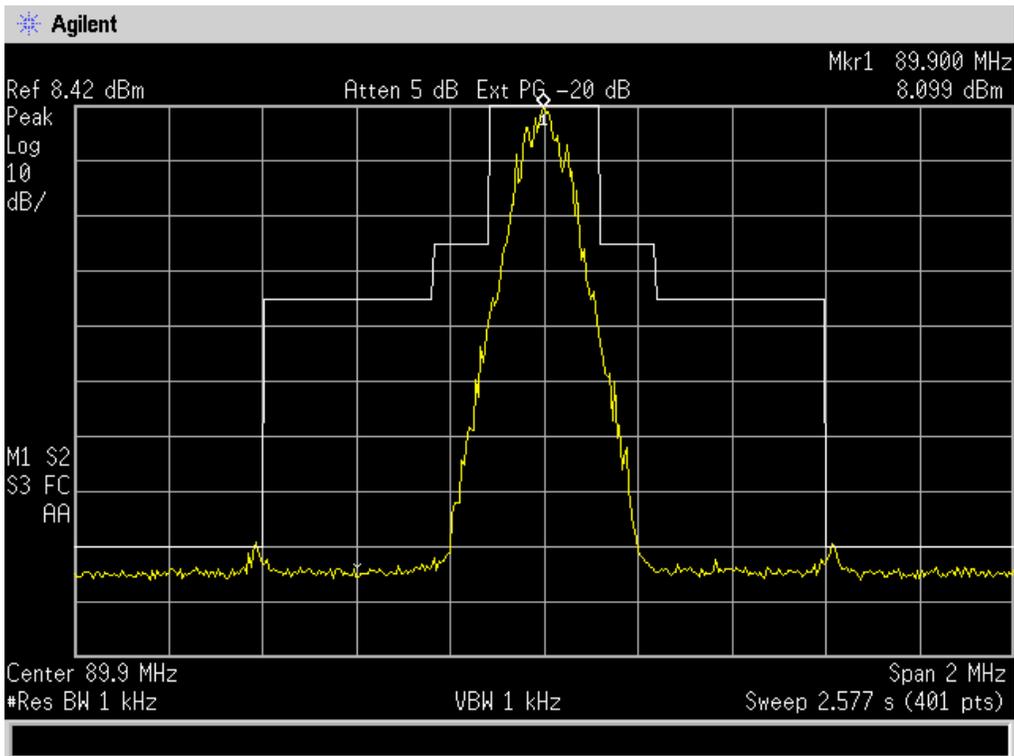
Respectfully Submitted,

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 right.

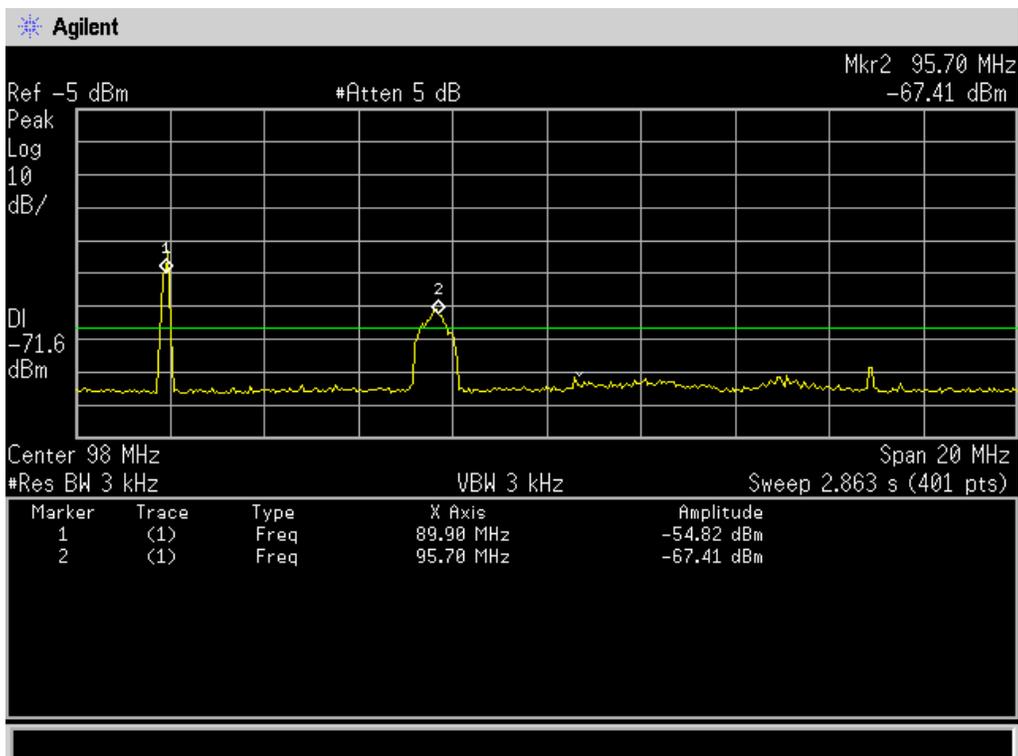
James E. Boyd
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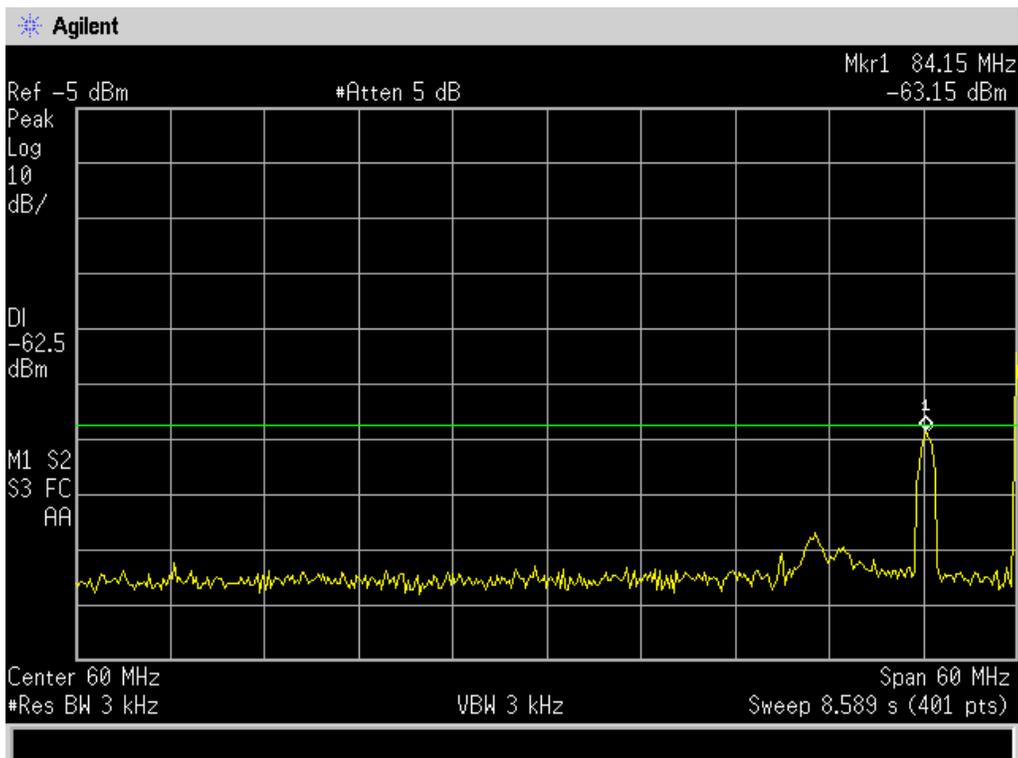
89.9 MHz Notch Filter



89.9 MHz, KGHP Reference Plot -- Reference carrier level +8.422 dBm

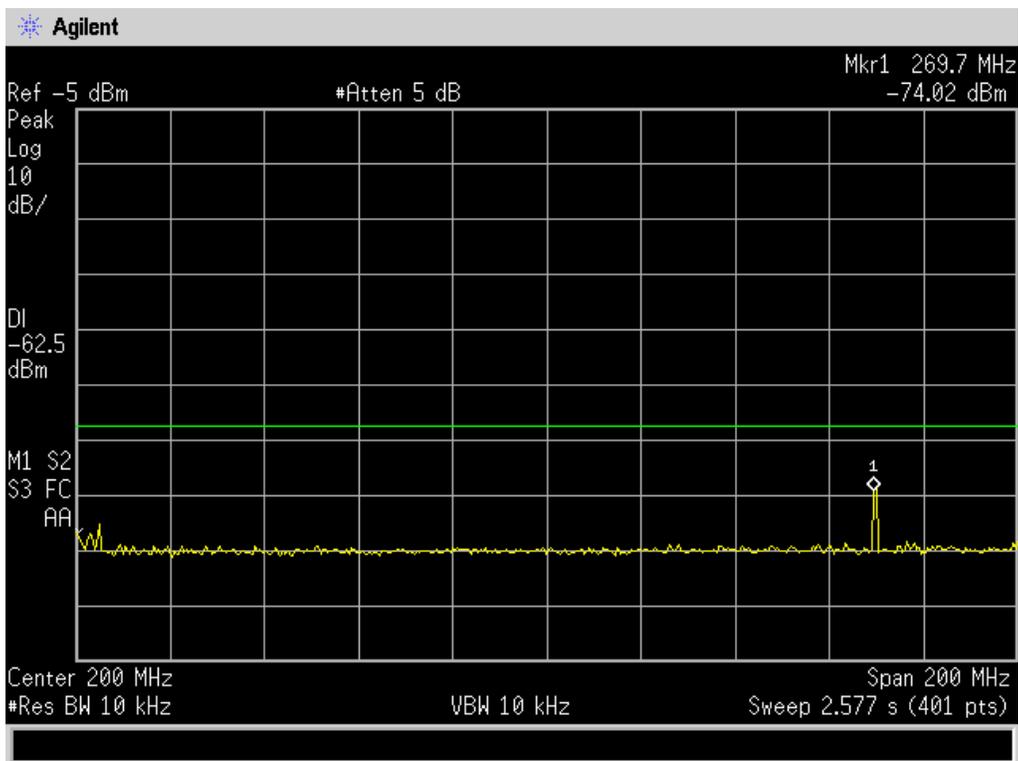


FM broadcast band. 88 MHz to 108 MHz with a double cavity notch filters in line for KGHP. No spurious emissions are present.

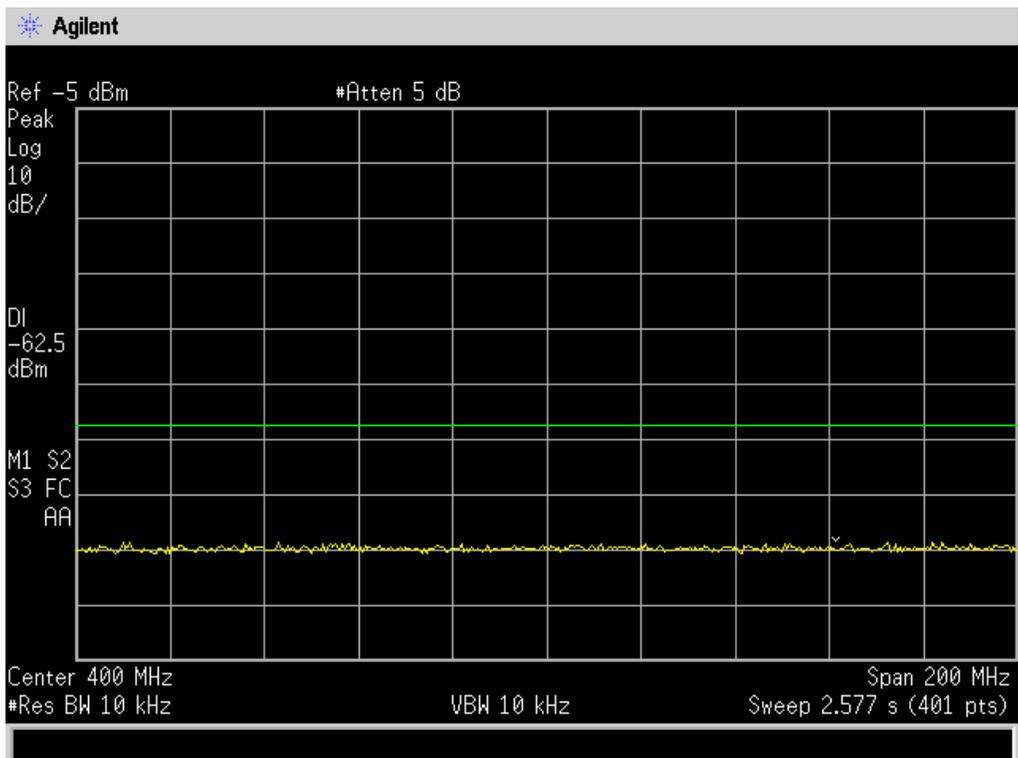


30 MHz to 90 MHz

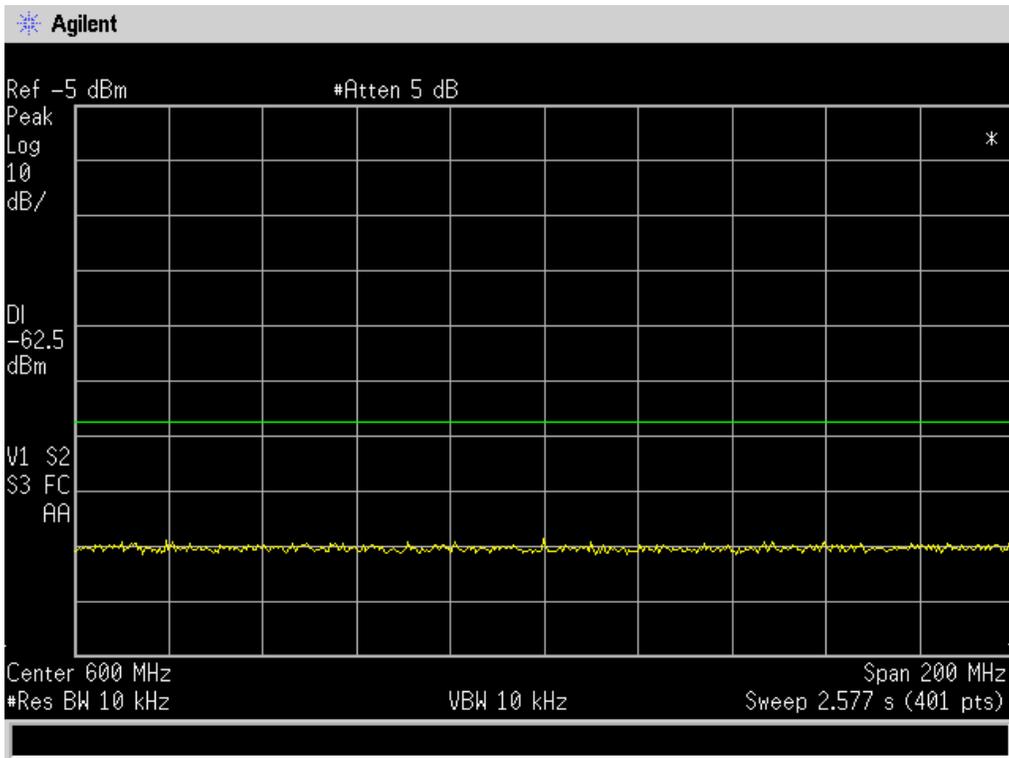
The signals in the region from 72 MHz to approximately 85 MHz are intermod signals produced in the transmitter by FM broadcast band signals entering the transmitter from the antenna and mixing with the second harmonic of KGHP. All signals are more than 71.58 dB below the carrier reference as required by FCC Rule 73.317.



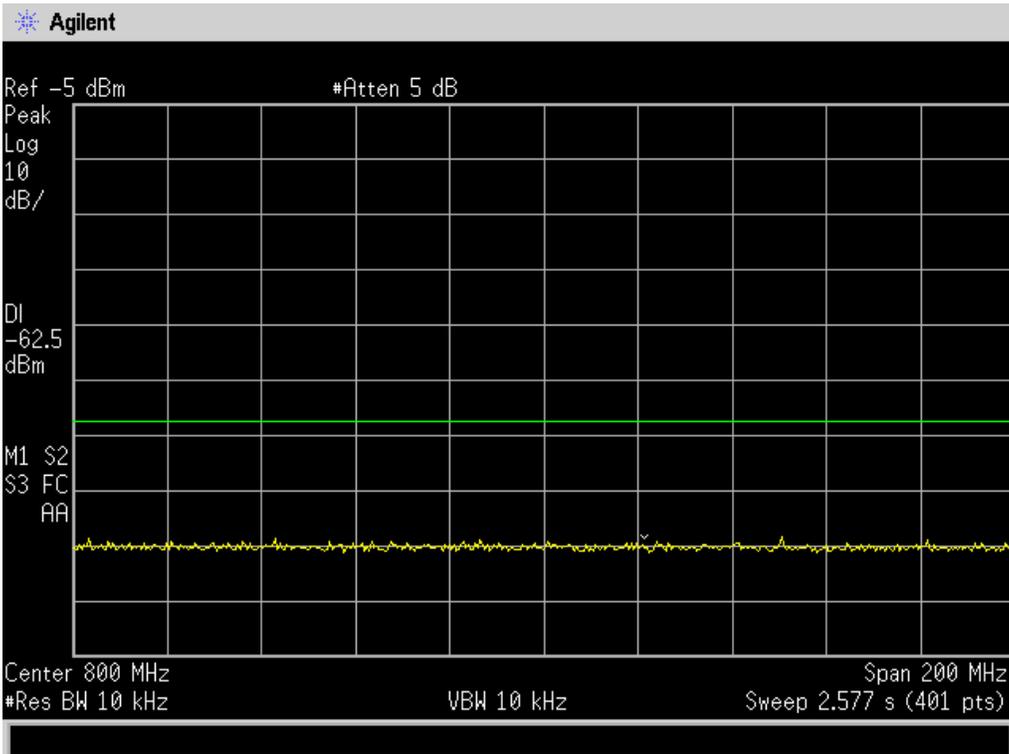
100 MHz to 300 MHz



300 MHz to 500 MHz

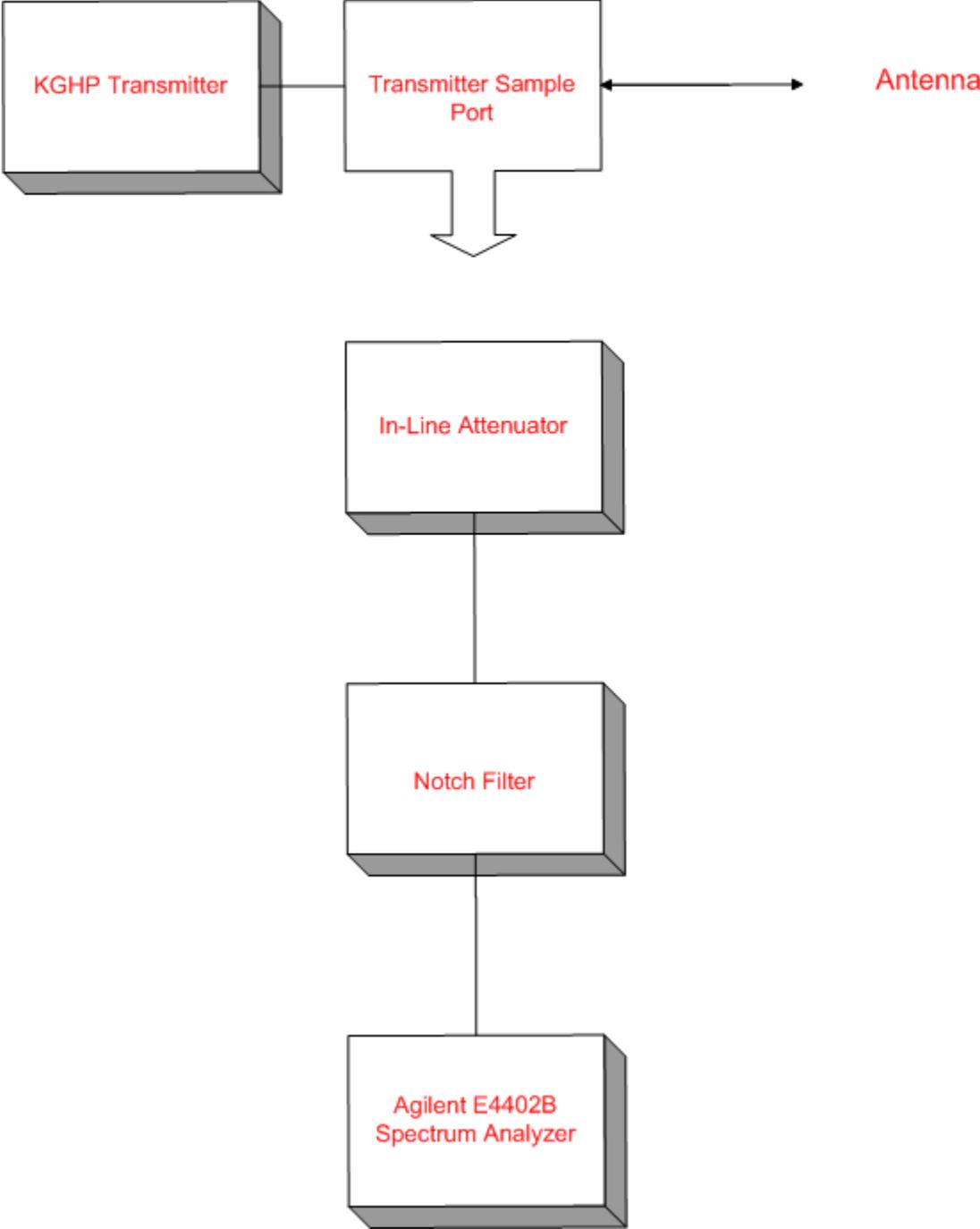


500 MHz to 700 MHz



700 to 900 MHz

Equipment Block Diagram





Picture of test setup

73.317 FM TRANSMISSION SYSTEM REQUIREMENTS

(a) FM broadcast stations employing transmitters authorized after January 1, 1960, must maintain the bandwidth occupied by their emissions in accordance with the specification detailed below. FM broadcast stations employing transmitters installed or type accepted before January 1, 1960, must achieve the highest degree of compliance with these specifications practicable with their existing equipment. In either case, should harmful interference to other authorized stations occur, the licensee shall correct the problem promptly or cease operation.

(b) Any emission appearing on a frequency removed from the carrier by between 120 kHz and 240 kHz inclusive must be attenuated 25 dB below the level of the unmodulated carrier. Compliance with this requirement will be deemed to show the occupied bandwidth to be 240 kHz or less.

(c) Any emission appearing on a frequency removed from the carrier by more than 240 kHz and up to and including 600 kHz must be attenuated at least 35 dB below the level of the unmodulated carrier.

(d) Any emission appearing on a frequency removed from the carrier by more than 600 kHz must be attenuated at $43 + 10\text{Log}(\text{Power in watts})$ dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.