

## KGNC-FM occupied Bandwidth Measurements

### FCC Rule 73.317

On April 7, 2017, measurements were made to show FCC compliance after installation of a new combiner and transmitter. KGNC-FM and KXGL-FM share an auxiliary antenna through a Nicom FSD2000 combiner. Both stations were operating at the time of the tests as required by special condition 1 of the CP.

A Tektronix 492AP Spectrum Analyzer connected to a Coaxial Dynamics X-Tractor sample port was used to make the measurements. The sample port, located just before the transmission line feeding the antenna, is directional so it exhibits a typical 6 dB per octave rise in coupling.

Occupied bandwidth measurements were made with modulation applied. Unmodulated carrier reference level was determined with precision attenuation. A Microwave Filter Company 6367-2 filter was then inserted to reduce the main carriers at 97.9 and 100.9 for the spurious tests.

Occupied bandwidth measurements were made with peak hold feature enabled and data collected for about 15 minutes. Plots are shown at the end of this report.

It is believed that KGNC is in full compliance with section 73.317 of the commission's rules. Pertinent sections of this rule and special conditions are reproduced here.

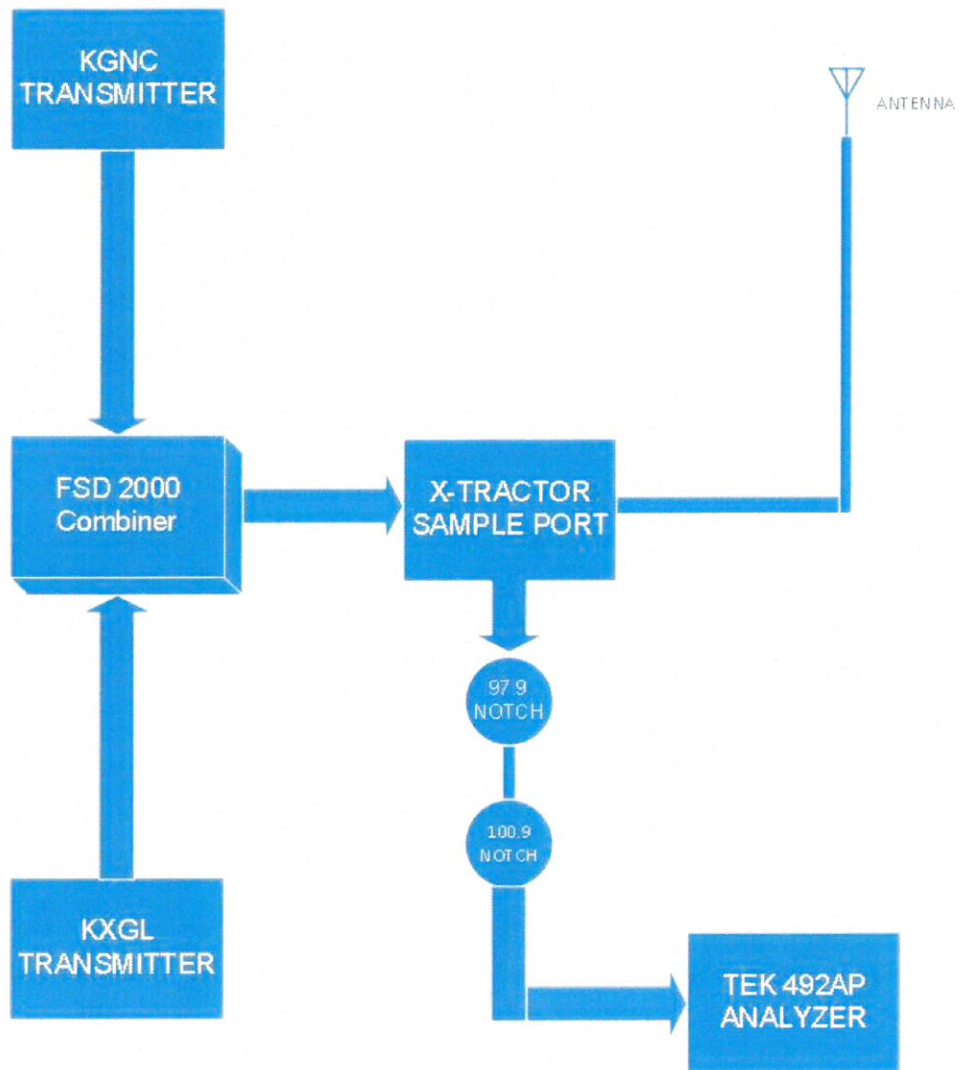
- (a) FM broadcast stations employing transmitters authorized after January 1, 1960, must maintain the bandwidth occupied by their emissions in accordance with the specification detailed below. FM broadcast stations employing transmitters installed or type accepted before January 1, 1960, must achieve 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  $43 + 10\log(\text{Power in watts})$  dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

#### Special operating conditions or restrictions:

1 BEFORE PROGRAM TESTS COMMENCE, sufficient measurements shall be made to establish that the operation authorized in this construction permit is in compliance with the spurious emissions requirements of 47 C.F.R. Sections 73.317(b) through 73.317(d). All measurements must be made with all stations simultaneously utilizing the shared antenna. These measurements shall be submitted to the Commission along with the FCC Form 302-FM application for license.

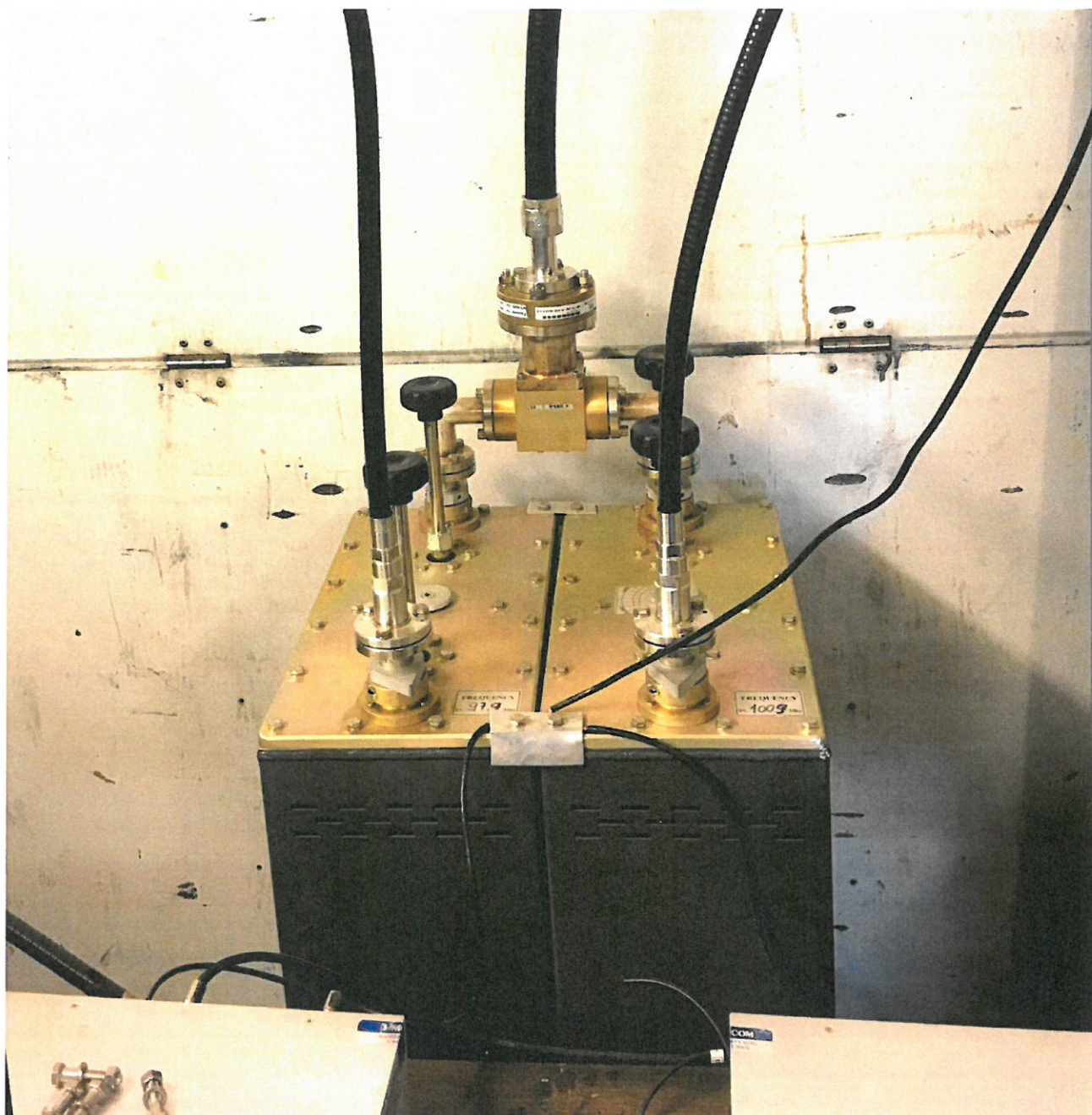
2 The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

## KGNC/KXGL TEST SETUP



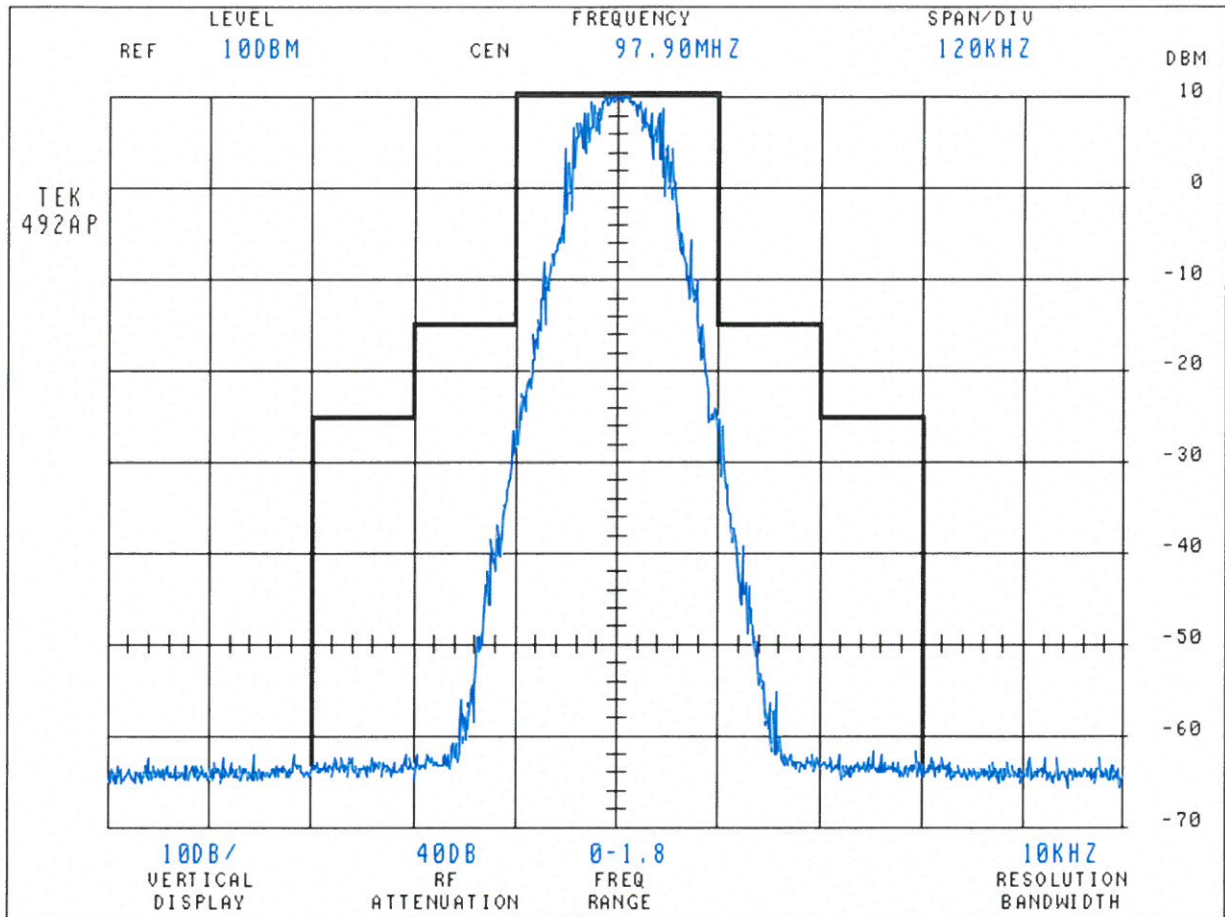




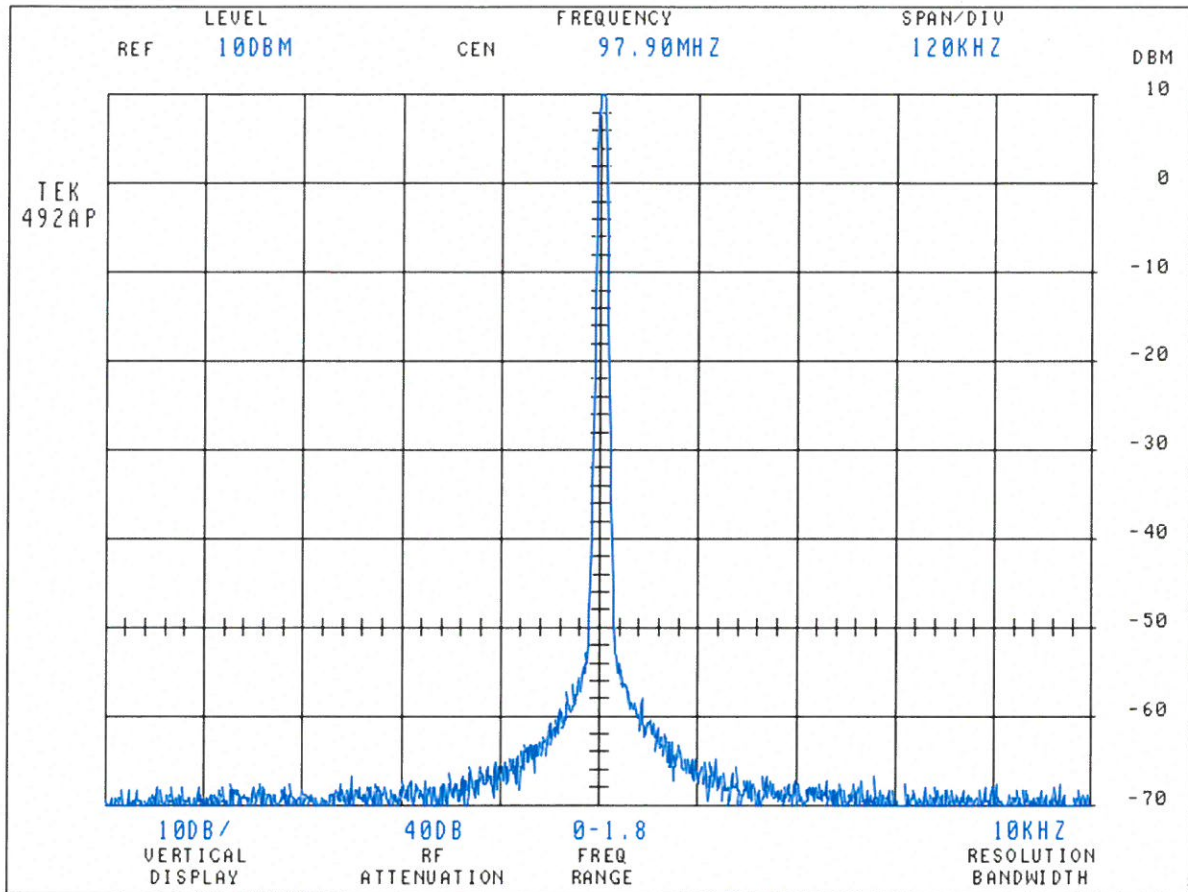




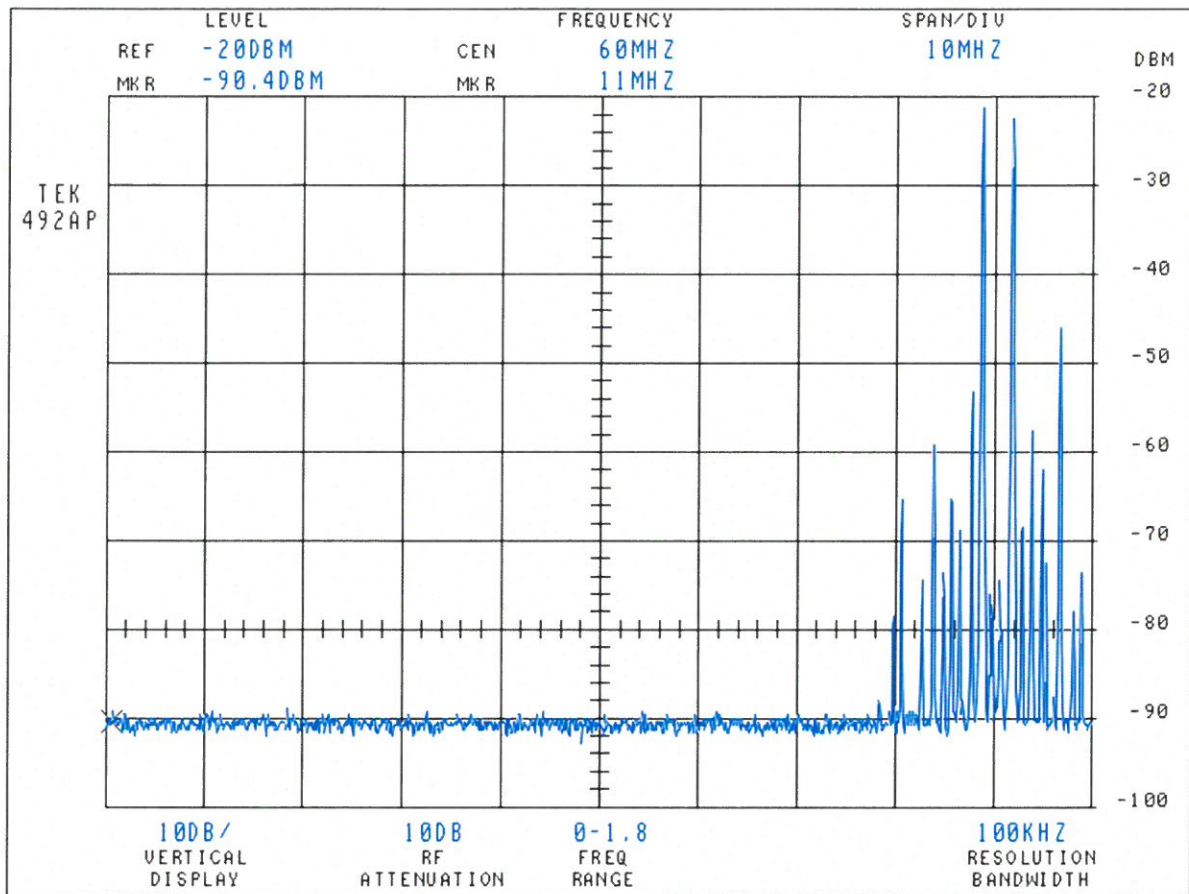




Measured about 15 minutes with peak hold on. Occupied bandwidth with modulation.

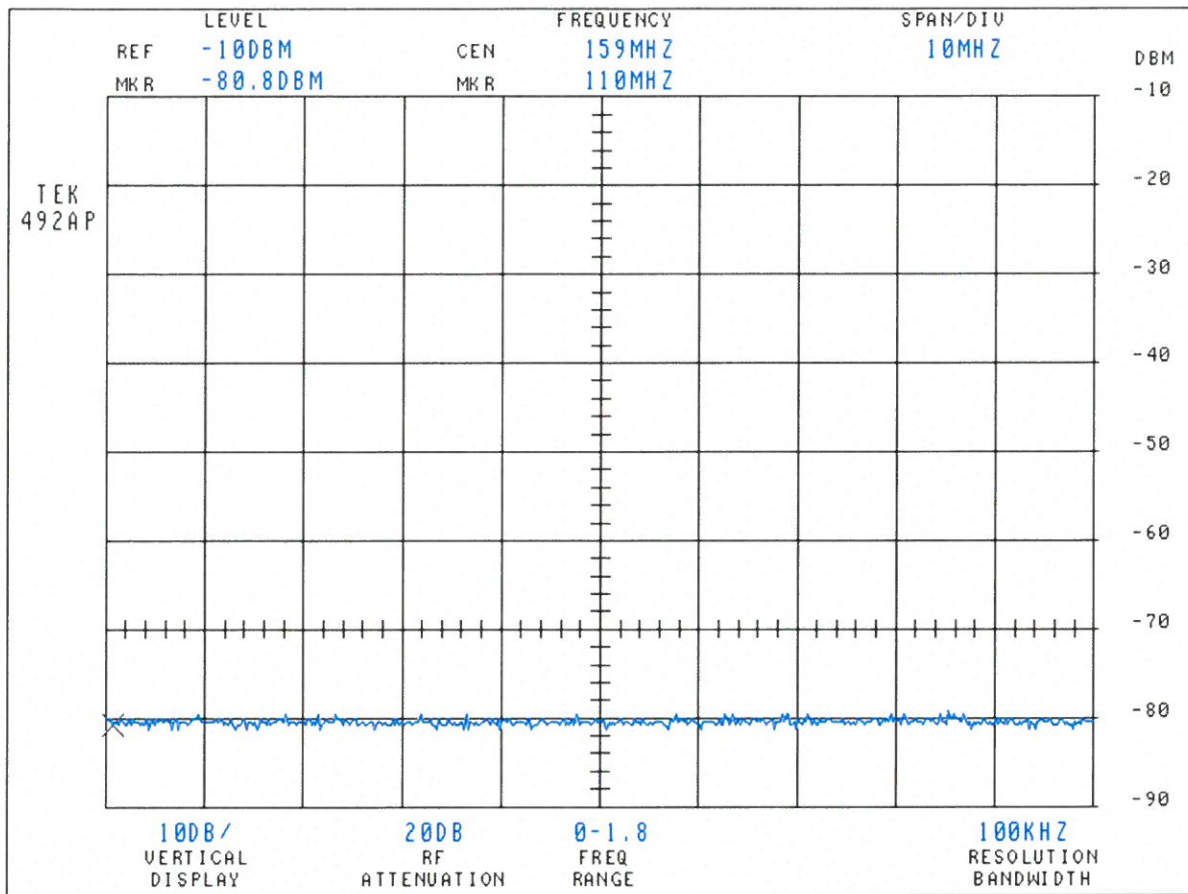


Reference level without filter. +10 dBm is the reference level for all spurious measurements. +10 dBm represents 1 kW TPO. See filter response plot.

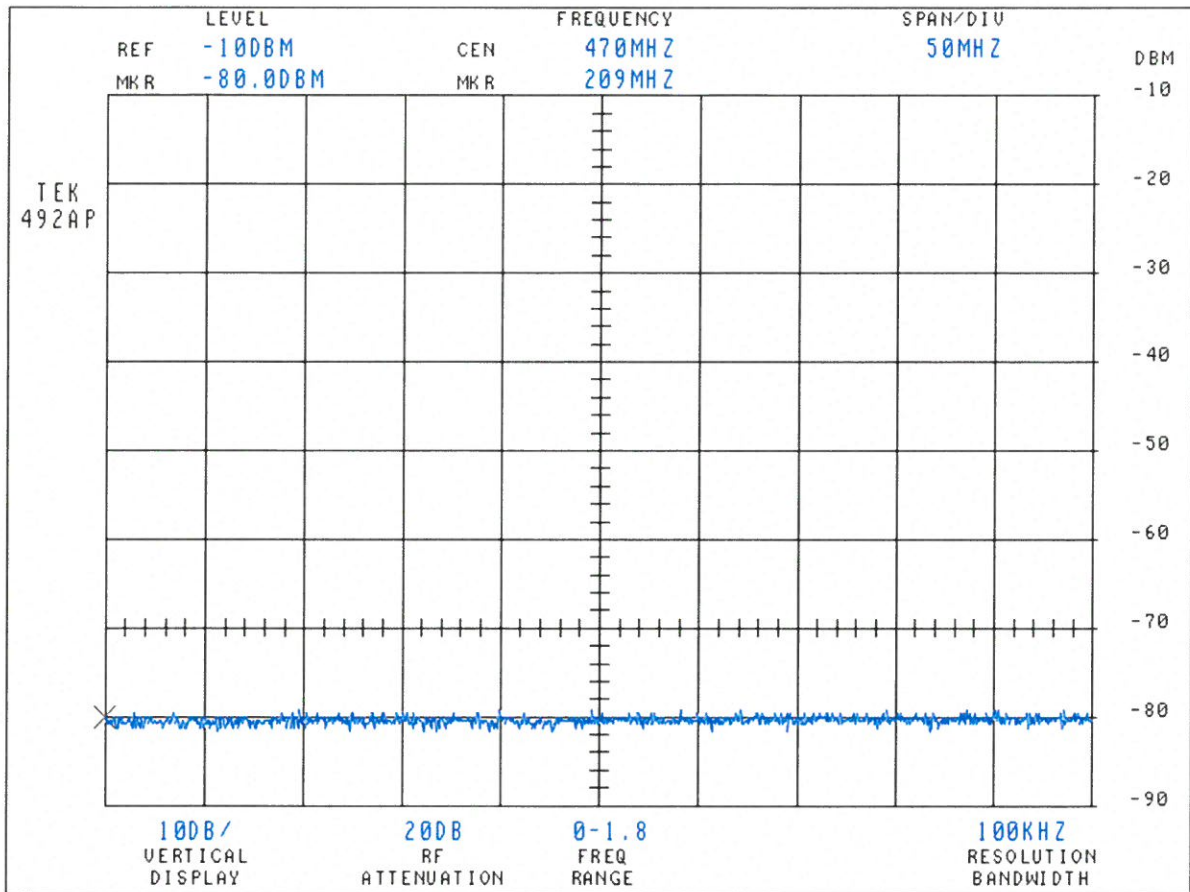


Clear below FM band

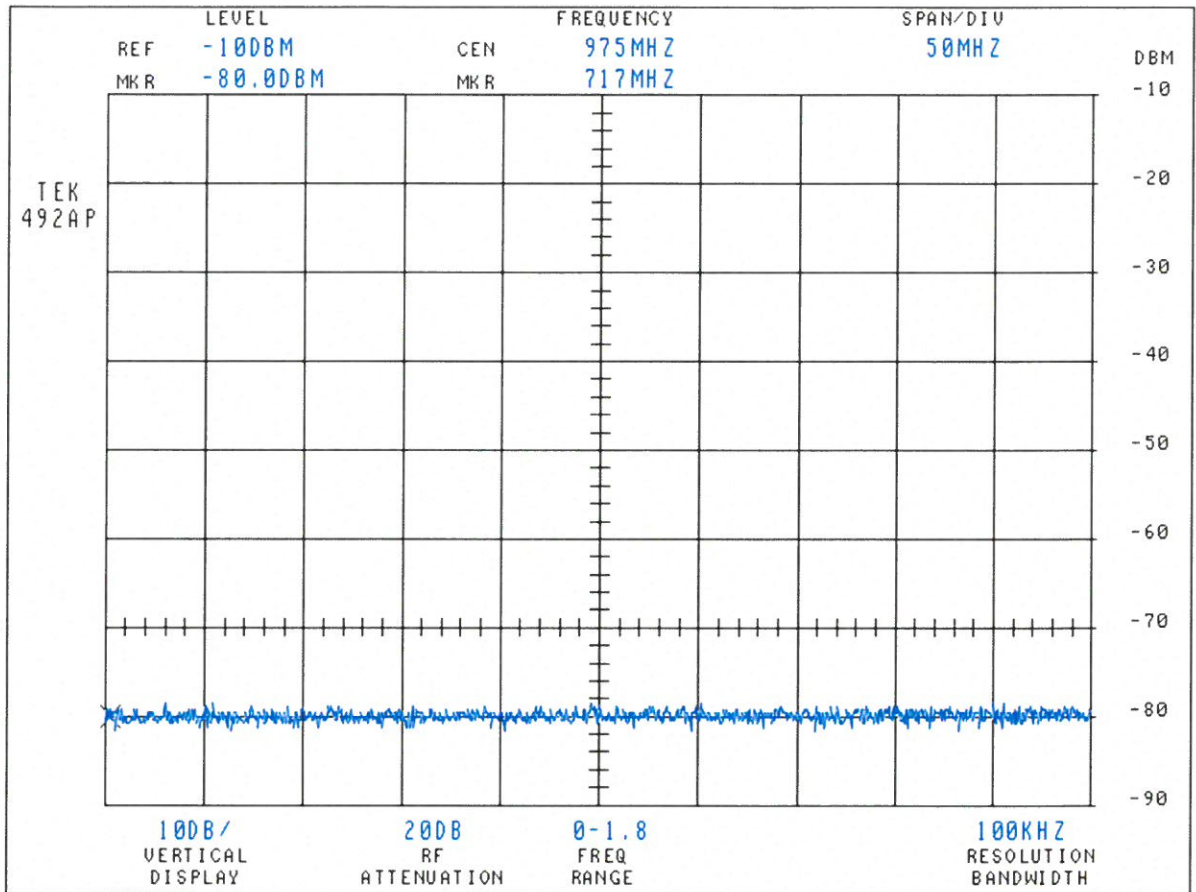




Clear from 110 MHz to 210 MHz

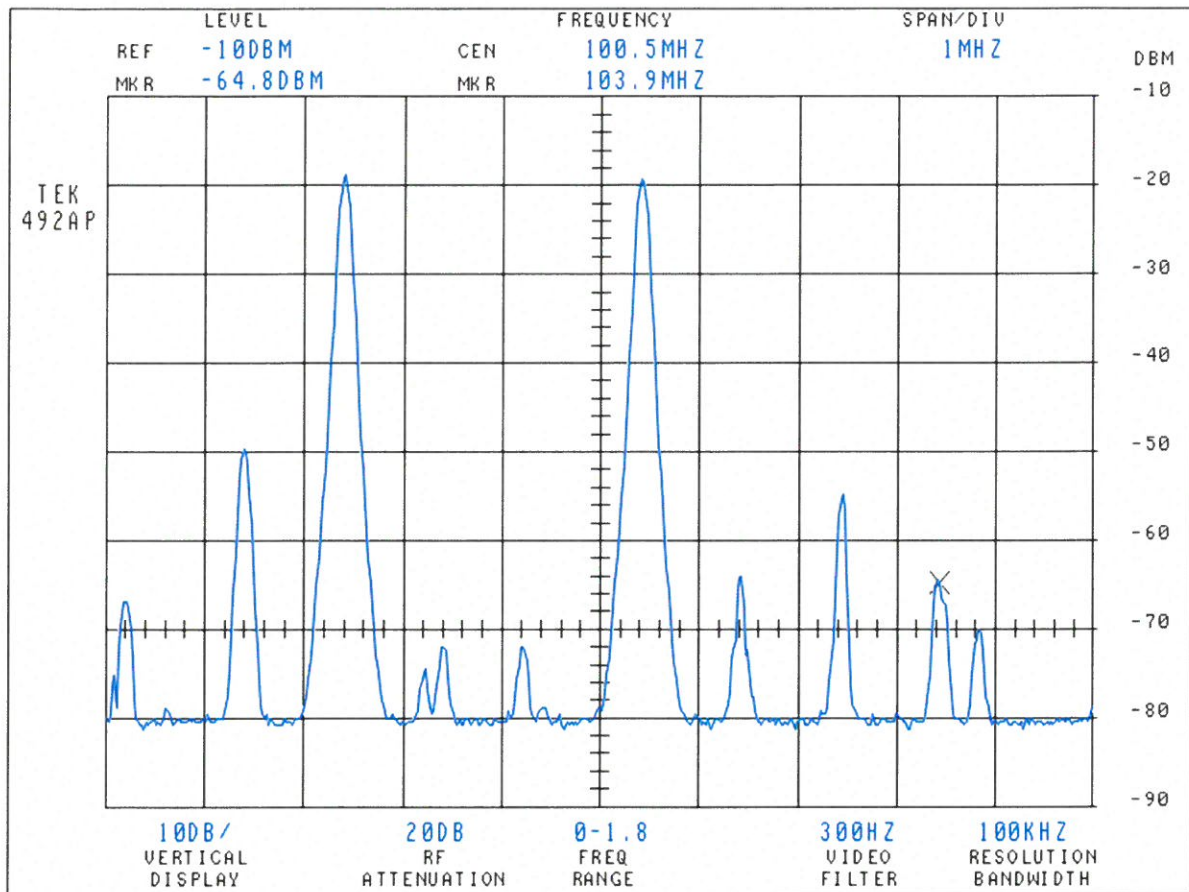


Clear from 210 MHz to 720 MHz

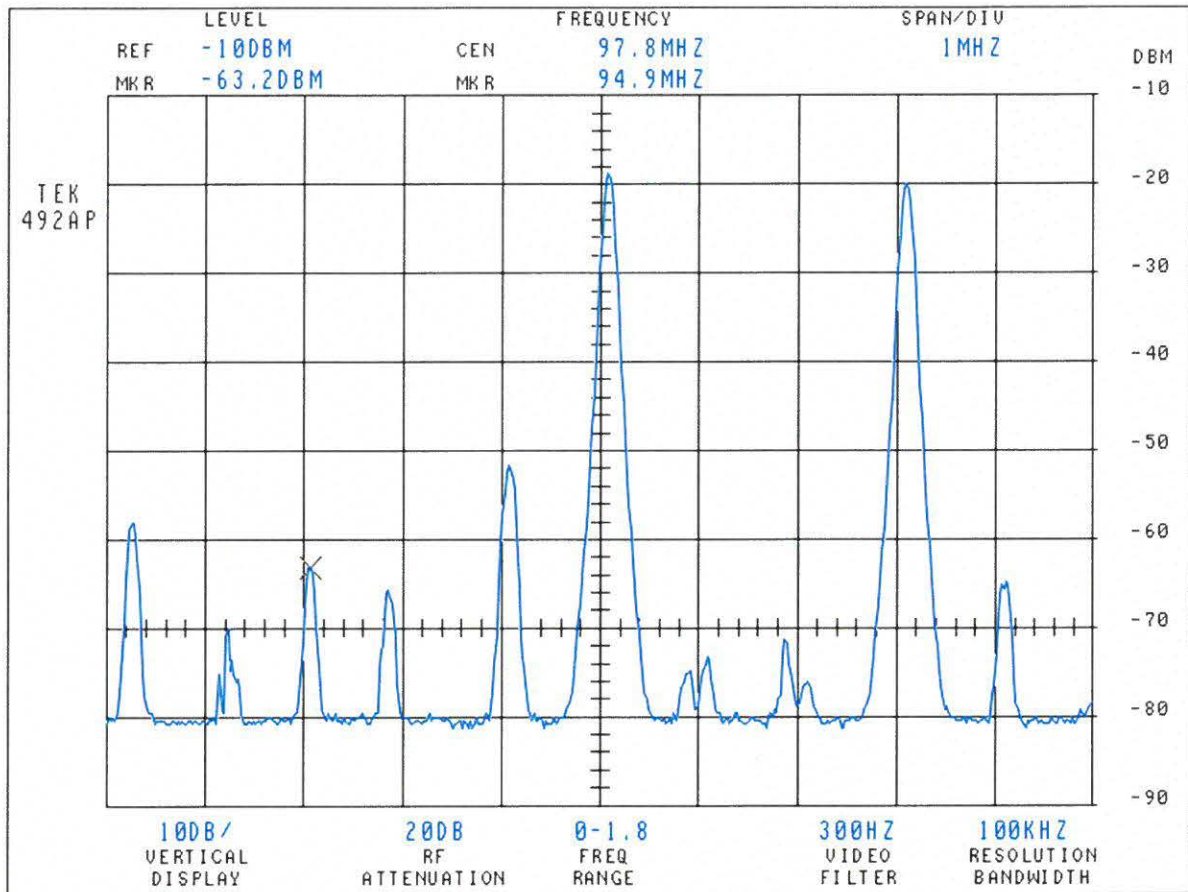


Clear from 720 to 1225

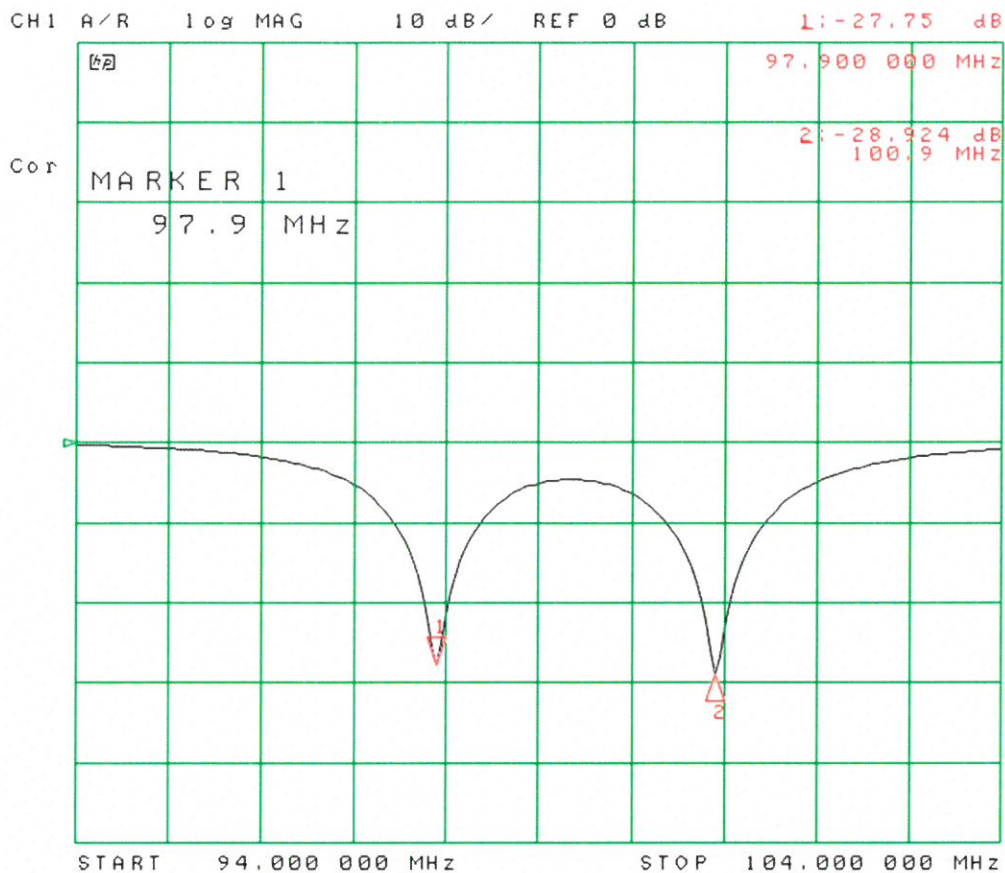




Spur at 103.9 is below 73 dB as required. 97.9 MHz and 100.9 MHz Carriers are suppressed by filter. All other frequencies are known transmitters in the area.



Nearby station, K235AL adds slightly to the spur seen at 94.9 MHz. 97.9 MHz and 100.9 MHz carriers are suppressed by filter.



Measured response of Microwave Filter Company 6367-2 filter tuned to carrier frequencies 97.9 MHz and 100.9 MHz. Plot was taken with HP 8753C Network Analyzer.

All information contained in this report was gathered by the undersigned, who has experience making these kinds of measurements.

Respectfully Submitted,

*Charles Singleton*

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