

## Spurious Emissions Measurements

BMPFT-20180830AAU

Radio Training Network, Inc.

### W262AL and W220EH Shared Antenna

W262AL is being combined into the antenna system that has been Licensed for W220EH. A Shively Labs model 2930 3-pole two station combiner was installed between the 2 transmitters and the antenna feed line input. The TPO for each transmitter was calculated and each transmitter was operated at normal power and modulation.

A Narda 2030A Directional coupler, SN40394, was used to sample the combined RF output of the combiner. An Anritsu MS2721B , SN 0713106 RF Spectrum analyzer was used the measure a 40 MHz span around the 2 translator frequencies. Markers were place on the 91.9 MHz carrier and the 100.3 MHz carrier. Markers were also set the most likely intermodulation frequencies of 83.5 MHz (2A-B) and 108.7 MHz (2B-A).

The measured level of 91.9 MHz was +0.8 dBm for 8 watts ERP. The spurious emission attenuation of  $43+10*\text{Log}(8)$  equals -52.0 dB, which would be -51.2 dBm. The measured level of 100.3 MHz was +12.0 dBm for 105 watts ERP. The spurious emission attenuation of  $43+10*\text{Log}(105)$  equals -63.2 dB, which would be -51.2 dBm. The measured level at 83.5 MHz was -68 dBm and at 108.7 MHz was -70 dBm, well below the requirement of -51.2 dBm.

No signals were seen that exceed the -51.2 dBm limit. The spectrum was also observed of both transmitters for occupied bandwidth. Any emission between 120kHz and 240kHz removed from each carrier were attenuated by 30 db or greater. Any emission between 240 kHz and 600 kHz removed from each carrier were attenuated by 60 db or greater.

These measurements were made by myself on May 29, 2019 and are in compliance with 47 C.F.R Sections 73.317(b) through 73.317(d).

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