

**INTER-MODULATION STUDY**

**OF THE TWO STATION COMBINER**

**FOR**

**WSLC-FM, 94.9 MHz AND WSLQ-FM, 99.1 MHz**

**LOCATED AT POOR MOUNTAIN NEAR ROANOKE, VA**

**MEASUREMENTS MADE ON JUNE 25, 2012**

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The following report details the measurements made on a two station combiner at Poor Mountain, near Roanoke, VA. The data was acquired using a Rohde & Schwarz, ZVL-6, Vector Network Analyzer, serial number 100429. The analyzer is also equipped with option K-1, spectrum analysis software. The instrument was calibrated in accordance with the manufacturer's instructions for use within the frequency range(s) of interest.

For measurements made within the FM band, a bandpass filter was tuned to the frequency of interest to reduce mixing products within the test instrument. Notch filters were used to suppress the fundamental frequencies for measurements outside the FM band. Insertion loss of the bandpass filters and depth of the notch filters were measured using the ZVL 6 Vector network analyzer. The forward port of a directional coupler located on the output of the combiner was used for data collection. Coupler correction is 6 dB per octave.

Intercept frequencies, calculated to the third order, from 10 MHz to 300 MHz are detailed in the table at the top of the following page, with WSLC, 94.9 MHz, being F1, and WSLQ, 99.1 MHz, being F2. As shown in the second table on page 2, only the second harmonic of 94.9 could be detected above the instrument noise floor.

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**TWO STATION COMBINER FOR WSLC-FM AND WSLQ-FM, ROANOKE, VA**  
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**Intercept Frequencies to the Third Order**

Frequency (MHz)	
F1	94.9
F2	99.1
2F1	189.8
2F2	198.2
F1+F2	194
2F1-F2	90.7
2F1+F2	288.9
2F2-F1	103.3
2F2+F1	293.1

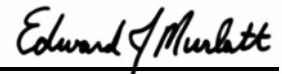
**Out of Band Measurements (Instrument Noise Floor is – 93 dB)**

Frequency (MHz)	Measured (dB)	Filter Correction (dB)	Coupler Correction (dB)	Net (dB)
90.7	-93	2.4	0	-90.6
103.3	-93	2.6	0	-90.4
189.8	-88.6		-6	-94.6
194	-93		-6	-99
198.2	-93		-6	-99
288.9	-93		-6	-99
293.1	-93		-6	-99

As demonstrated in the table above, all out of band emissions comply with 47CFR 73.317 (a)-(d).

**STATEMENT OF AUTHENTICITY**

The preceding statements and data contained herein were prepared by me and/or under my direct supervision, and are true and accurate to the best of my knowledge and belief.

  
Edward J. Murlatt

**July 3, 2012**  
Date