Interference Analysis of the Co-located Signals Of

W297BT

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Measurements taken by
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General

These pages document the procedures and results of the measurements required by title 47 section 73.1590, as specified in Title 47, Section 73.317 of the Code of Federal Regulations, to demonstrate compliance with in-band emission requirements, and for analysis of intermodulation components as required by the Construction Permit.

Site

FM translator W297BT is located atop the City Place One tower located in downtown Hartford, CT. FM translator antennas are pole mounted and arranged 10 feet above the rooftop deck. This location is approximately 50 feet horizontally from radio station WUCS at 97.9 MHz, a Class A station operated by iHeart media.

A test antenna of approximately 1/4 wavelength tuned to the mid FM band was placed with an unobstructed view between the two transmisssion sites on the roof, which was connected to (2) 6" x 1/4 wave notch cavities providing a 25 db notch at both 97.9 MHz and 107.3 MHz.

This sampling configuration was in turn fed to an Anritsu spectrum analyzer which provided and additional 40 db attenuation. The test results are displayed in the images below. All signals present within the spectrum analyzer picture are of licensed radio stations received. No spurious radiation was detected in the occupied bandwidth displayed meets requirements of 47 CFR Sections 73.317 b-d. Low level intermodulation products in band would exist at a frequency of 88.5 MHz. WFCR FM 88.5Mhz is a radio station in an adjacent market, which has a fairly strong signal at this site. Intermodulation products were barely detectible 100 yards from the W297BT transmitting antenna. Using this test setup, second and third harmonics, if any were present, were below detectable thresholds.

Measurement Procedure

A swept frequency RF spectrum analyzer with a resolution bandwidth of 30 kHz was used for these measurements. The signal was received from a 1/4 wave antenna placed on the roof followed by the filters.

Equipment List

Spectrum Analyzer .....Anritsu MT8212B
Notch Filter .....Microwave Filter Co.

Technical Qualifications

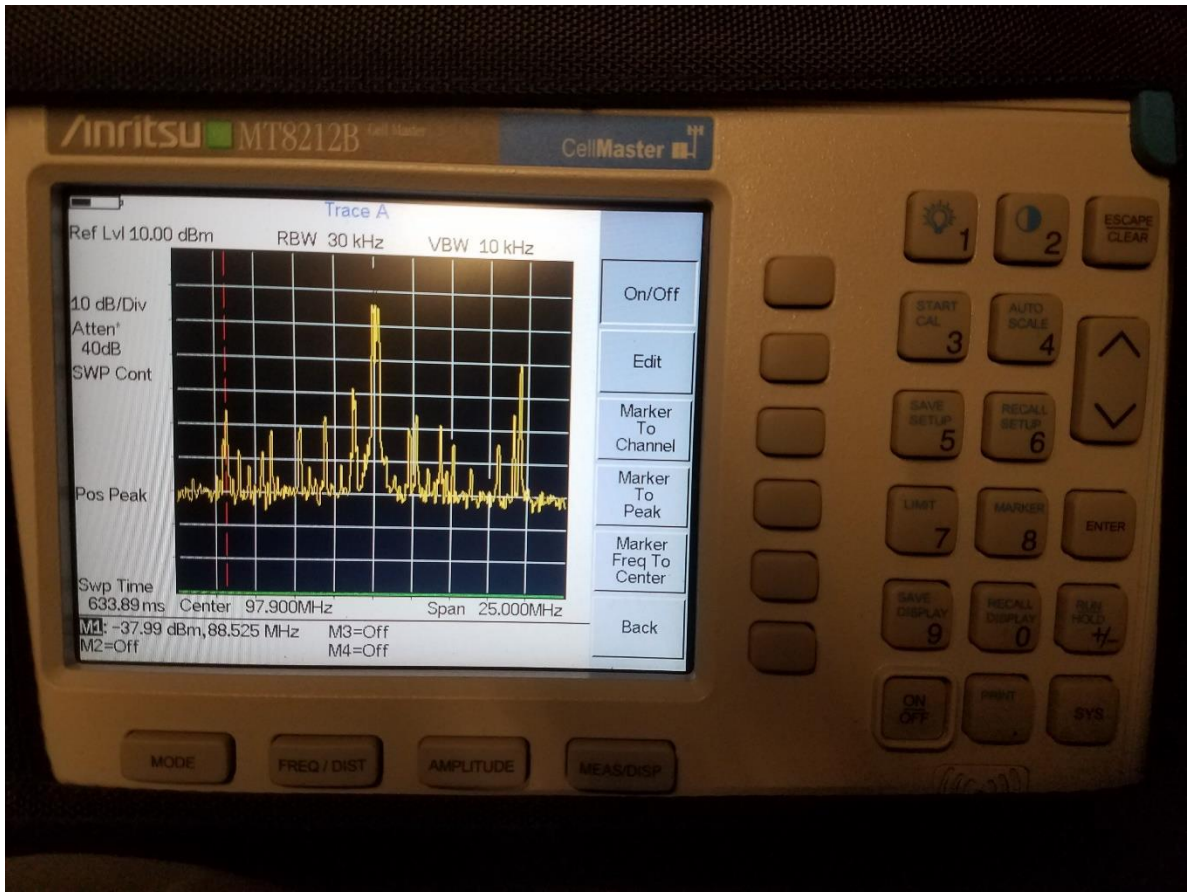
All measurements were made by Kurt Jackson, broadcast engineering consultant.

Measurement methodology

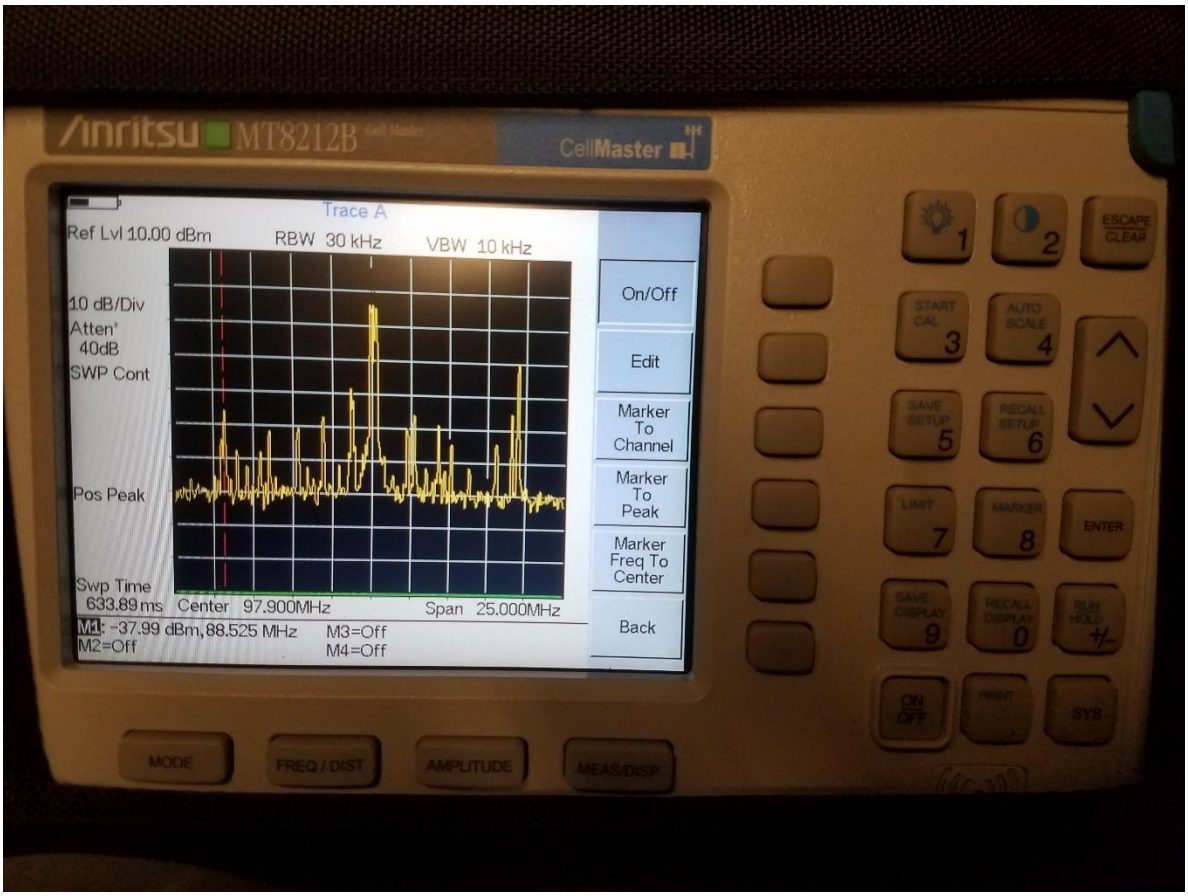
Due to construction permit requirements specific spurious emission measurements were performed from 1MHz to 1GHz in frequency.

From these measurements the only found variations from the reference sweeps were well within FCC tolerances.

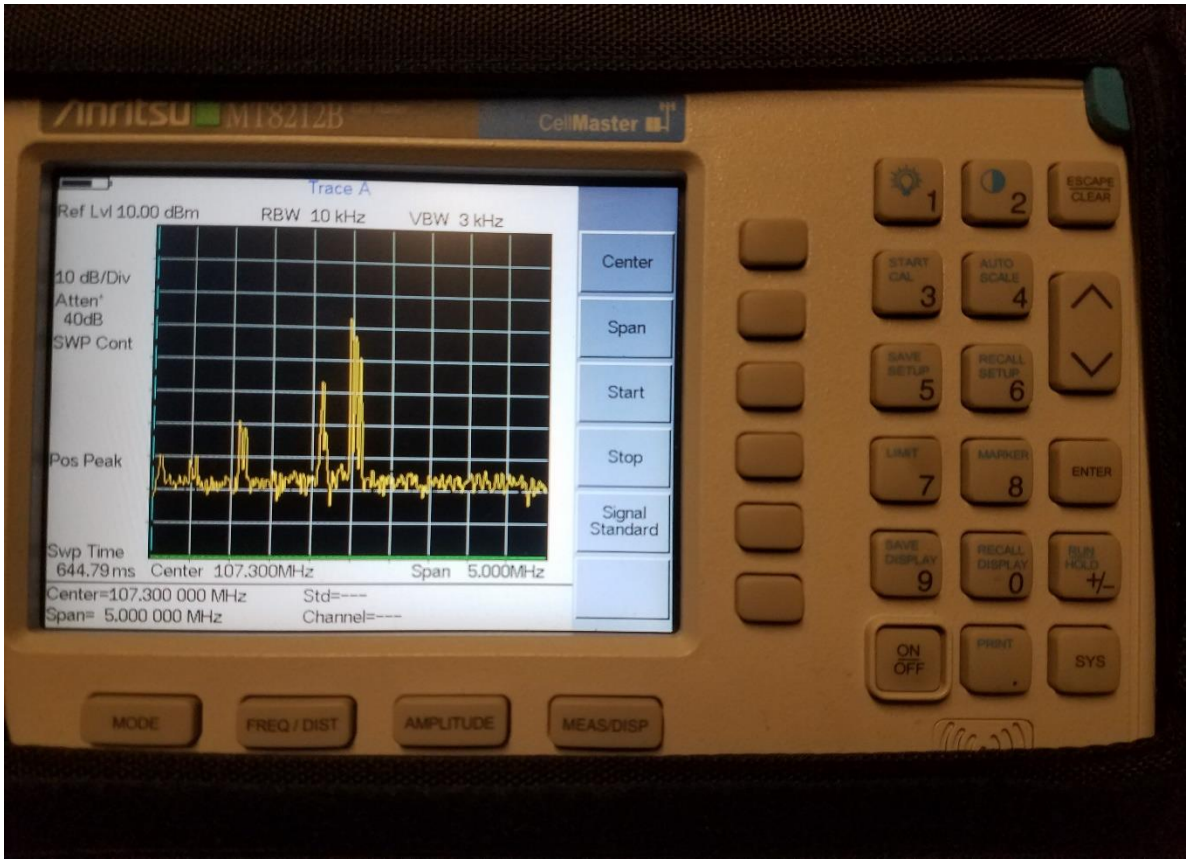
The Notch filters provided approximately 25db of isolation at each respective carrier frequency. Specific attenuation at each frequency is indicated below.



Low order intermod product (2A-B) in-band masked by strong adjacent market FM signal 88.5 MHz



Whole FM Band spectral measurement. Analyzer centered on iHeart FM transmitter
Note last carrier to far right is 107.3 MHz W297BT_____



Spectral purity measurements 107.3 MHz W297BT

The graphs indicate that the constructed facility is in compliance with FCC rules for spurious emission. No in band or out of band spurious transmissions other than the direct mix products shown above were noted in the test.

Kurt R. Jackson, President