

# KRMF-FM4 Spurious Emissions Report

Ogden, Utah

On the afternoon of March 10th, 2004 equipment performance measurements were made for broadcast booster station KRMF-FM permit file number: BNPFTB-20040331AUA

This Engineering evaluation report and RF proof of performance measurements were prepared in support of the operation of the specified transmitting system herein as to comply with 47 C.F.R. Section 73.317 (b) through 73.317 (d).

KRFM-FM4 (106.1 MHz) is one of three stations sharing a master antenna system at the Rocky Point Communications site located in North Ogden, Utah. The outputs of the three stations are combined using a constant impedance balanced bandpass filter combining system Model RCCC-29A – 0.8 designed and fabricated by Jampro antenna Systems of Sacramento, CA

Measurements were made while all stations broadcast programming material. All stations were operating into the combined antenna system at the full permitted power during measurements.

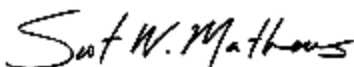
In the case of the KRMF FM-4 transmission system, the measurement equipment was feed by a directional coupler at the combined output. Measurements were made on the station's carrier frequency for reference purposes and to look at occupied bandwidth for any spurious emissions. The calibration of the IFR AN940 Serial Number 1009 spectrum analyzer was used to make all measurements. The system noise floor is approximately 80 db below the peak of the KRMF FM-4 unmodulated carrier. All other harmonic intermodulation product or spurious emission levels were referenced to this initial carrier frequency reference level. The radio spectrum from 50 MHz up to the stations 10<sup>th</sup> carrier frequency harmonic was tuned to look for any unusual emissions.

The intermodulation products measured in this report was calculated as the common 2 X A – B = intermodulation product. As in the case herein the carrier frequency of the station under test was multiplied times 2 and then the carrier frequency of the each of the combined individual stations was subtracted one at a time from the 2X sum to find the common intermodulation product.

No unusual spurious emissions, carrier frequency harmonics or intermodulation products were noted on the main transmission system for station KRMF-FM4.

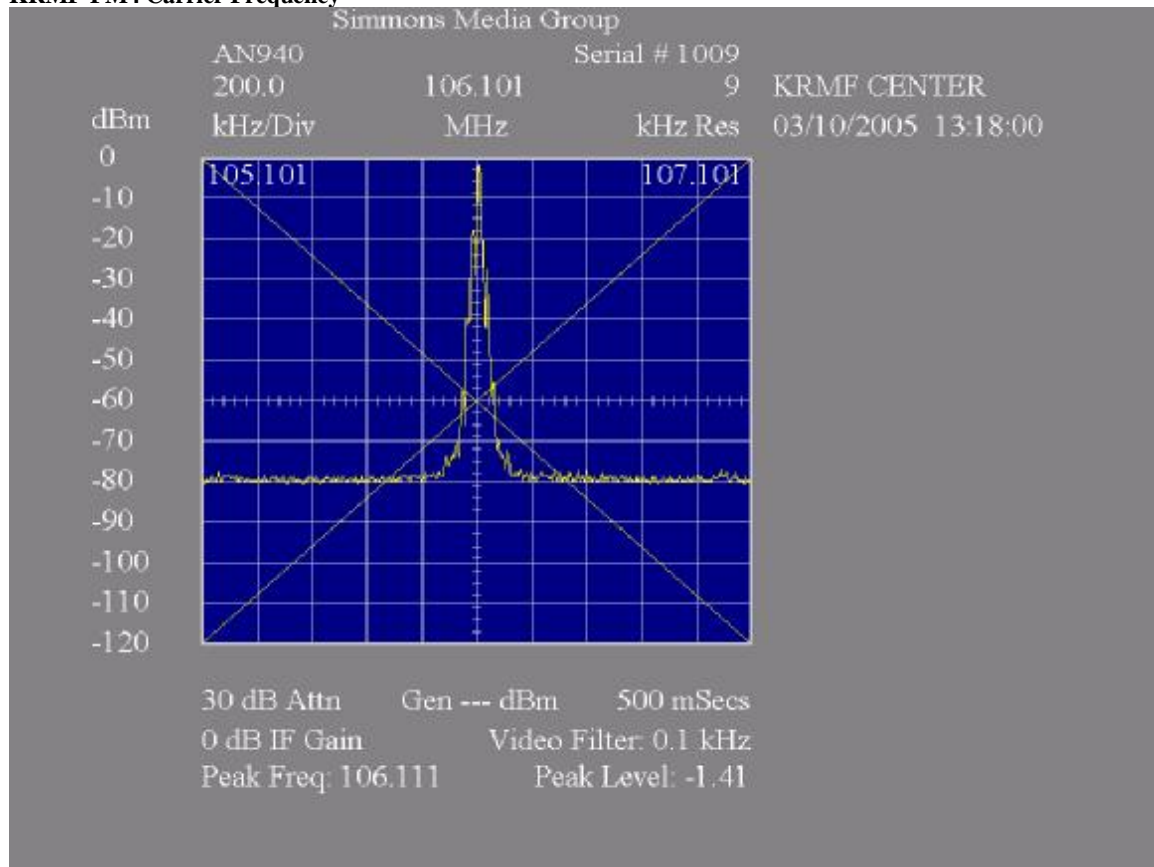
With regards to the KRMF-FM4 transmission system, I believe that the station is in compliance with the requirements of Section 73.317. This report was prepared by me and is based measurements made by myself. I believe them to be true and accurate to the best of my knowledge.

Respectfully submitted,

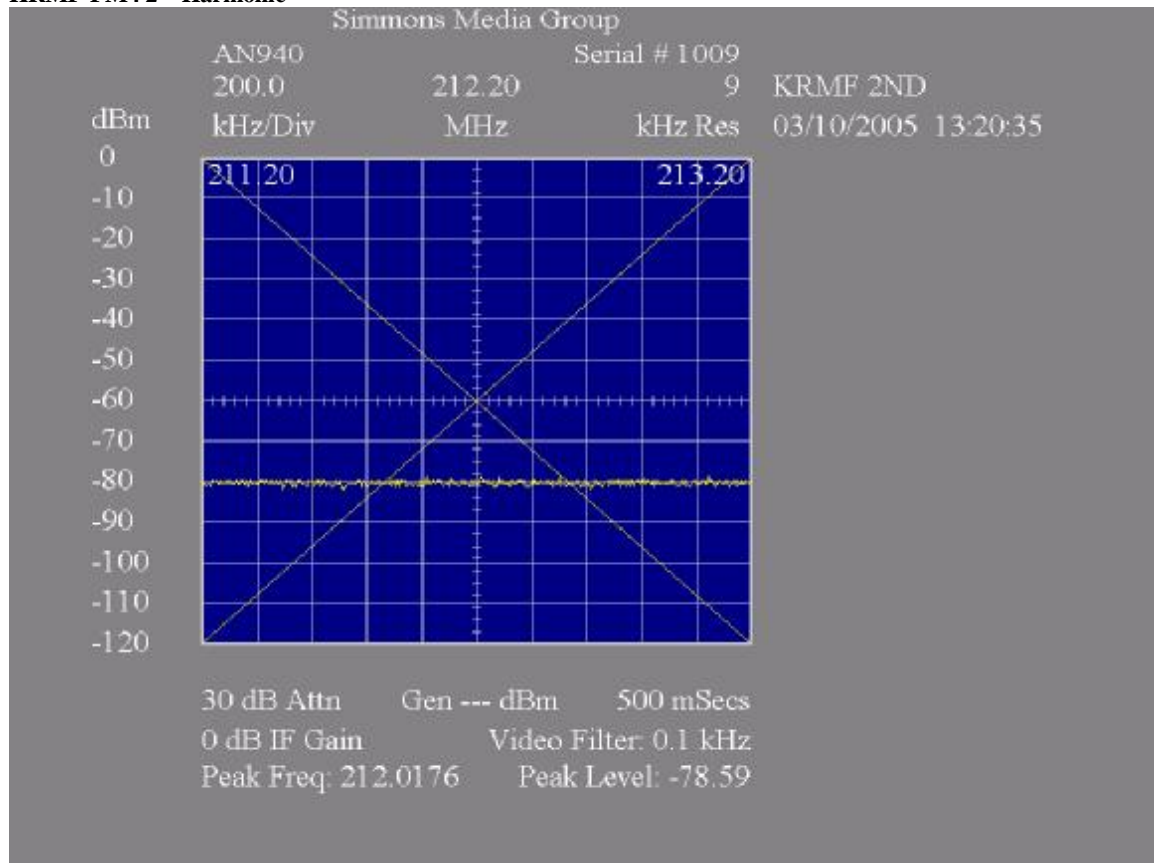


Scot W. Mathews  
Contract Engineer

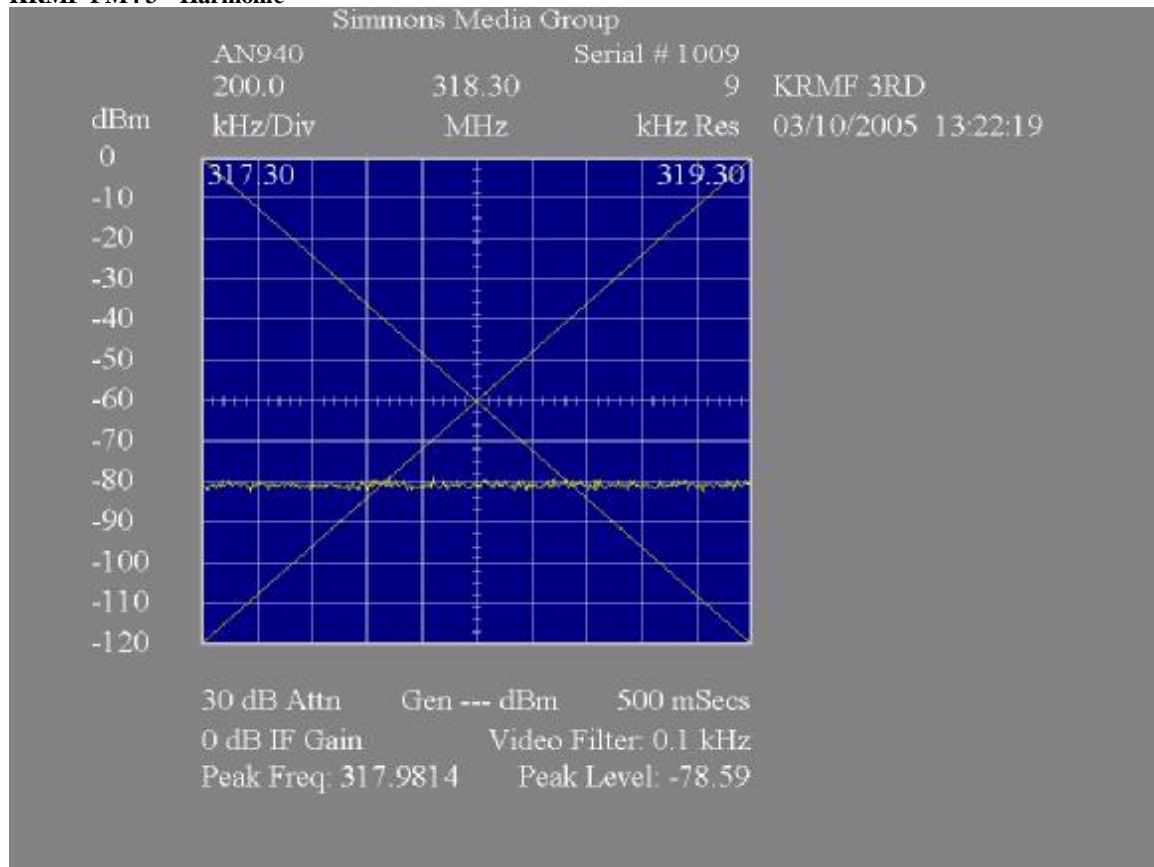
# KRMF-FM4 Carrier Frequency



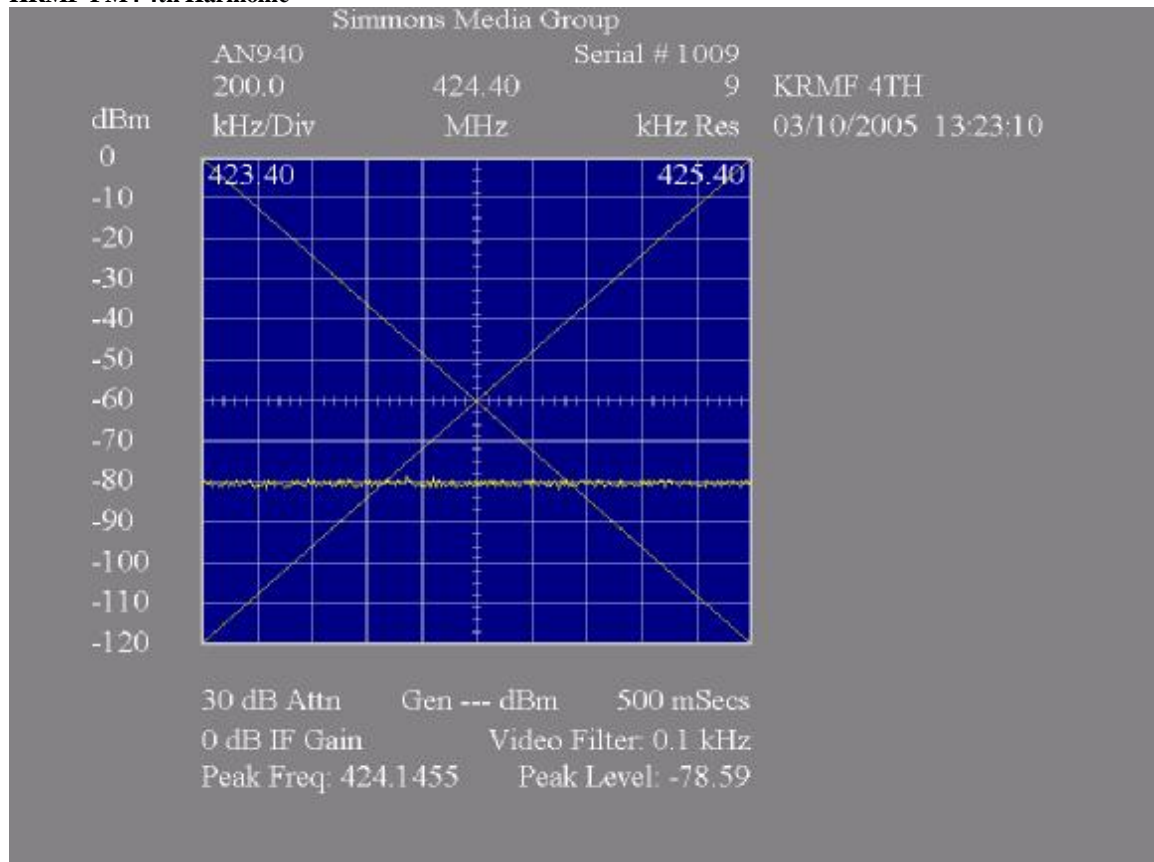
# KRMF-FM4 2<sup>nd</sup> Harmonic



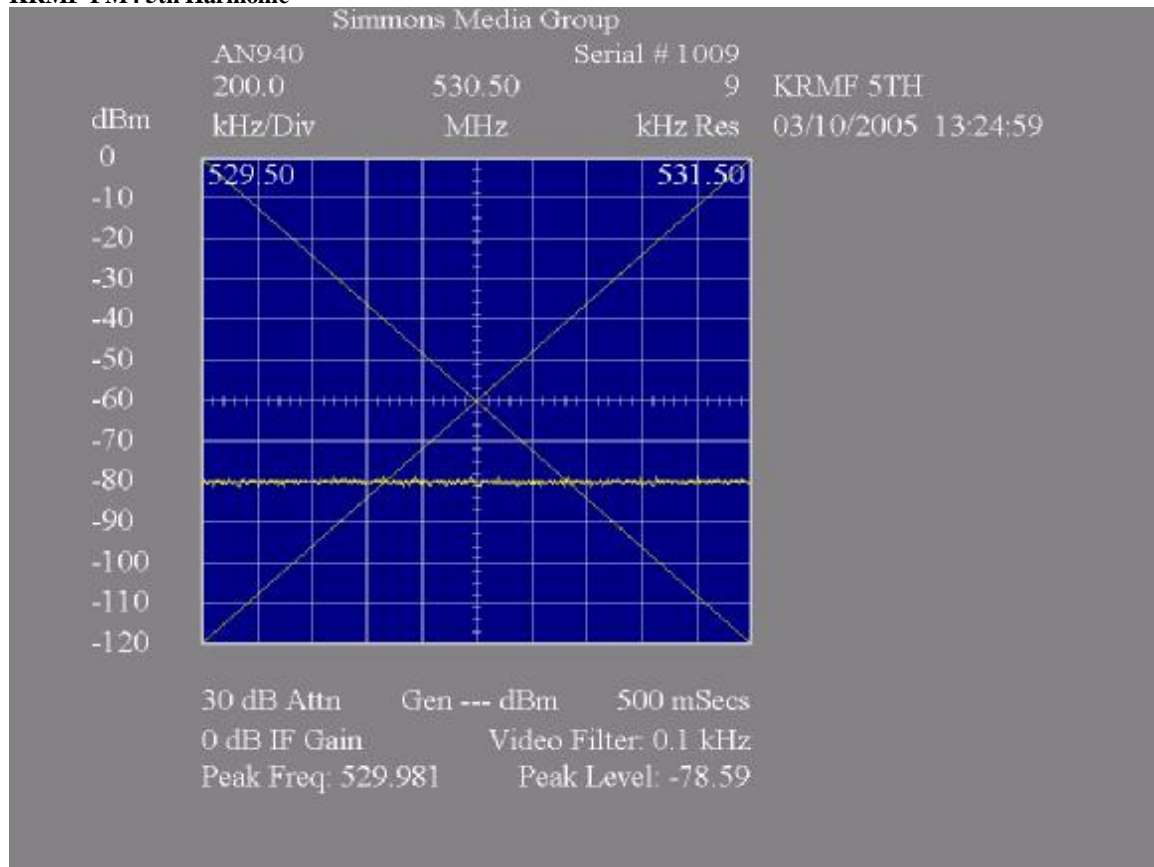
### KRMF-FM4 3<sup>rd</sup> Harmonic



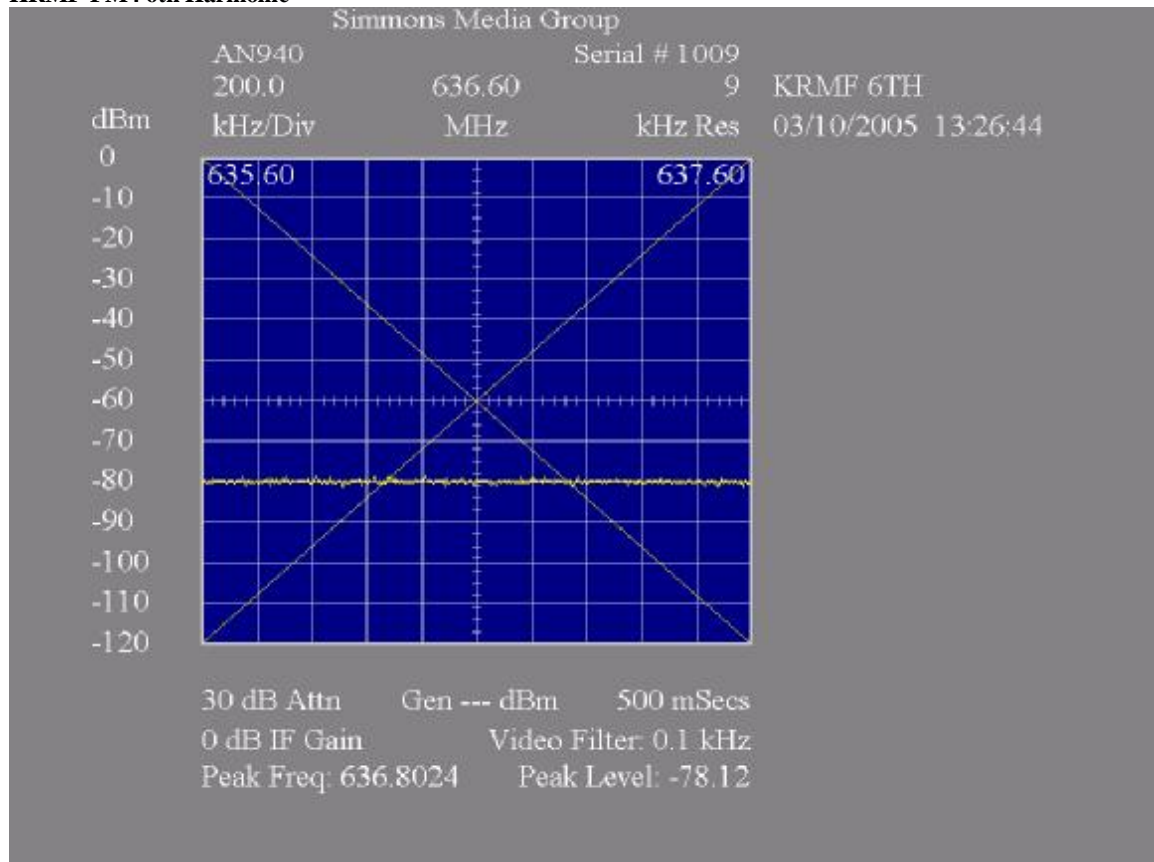
### KRMF-FM4 4th Harmonic



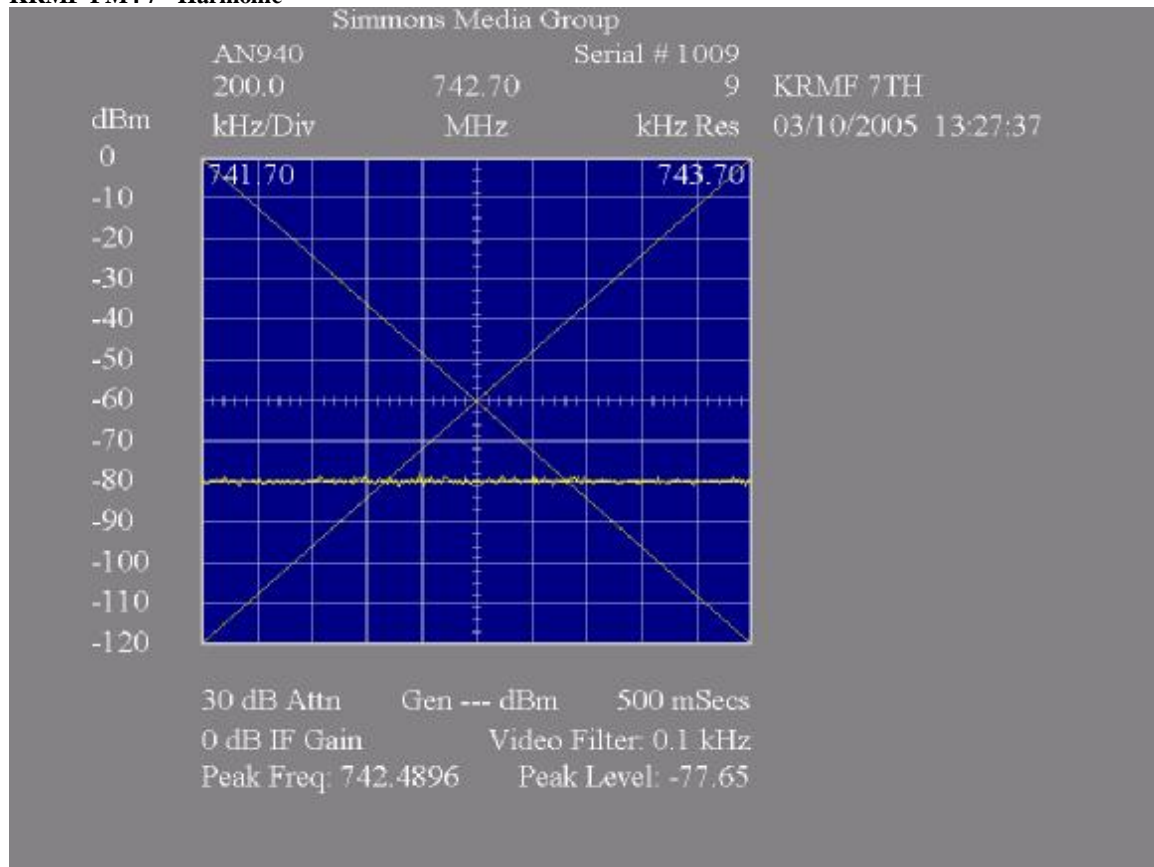
# KRMF-FM4 5th Harmonic



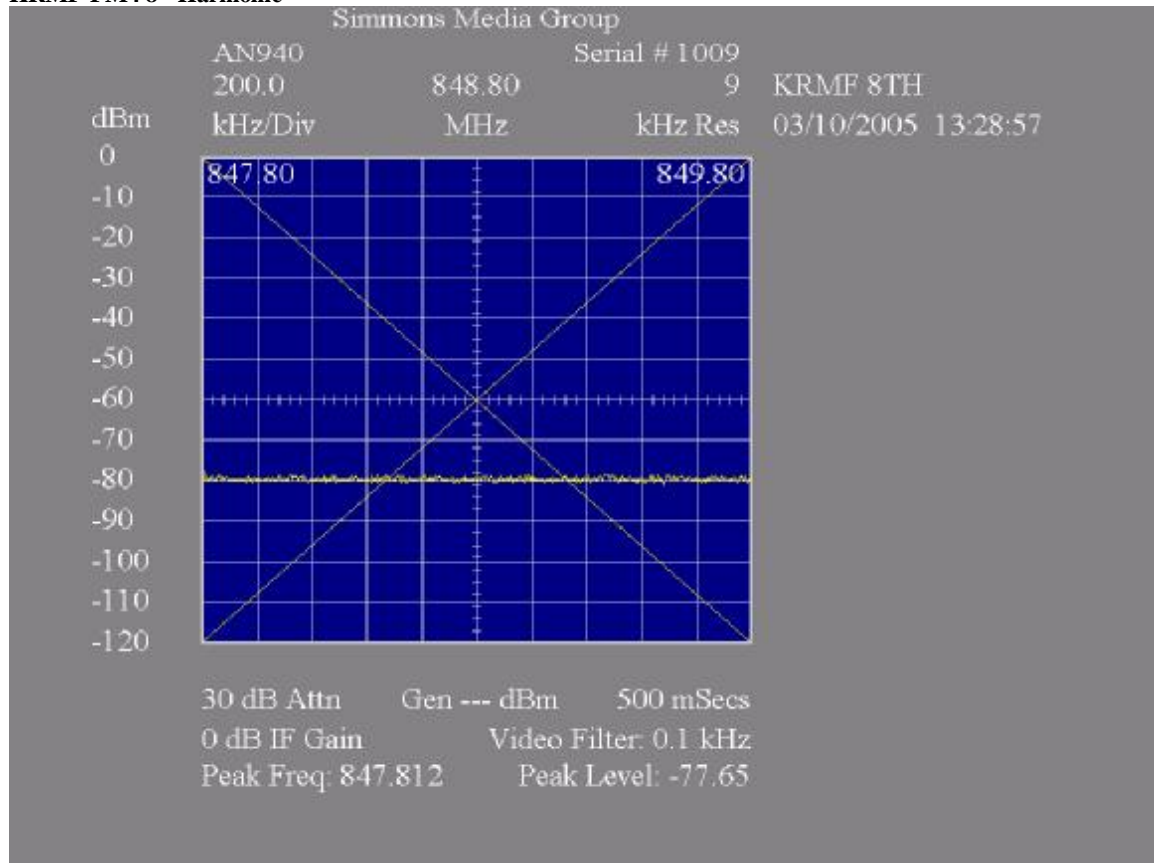
# KRMF-FM4 6th Harmonic



# KRMF-FM4 7<sup>th</sup> Harmonic



# KRMF-FM4 8<sup>th</sup> Harmonic

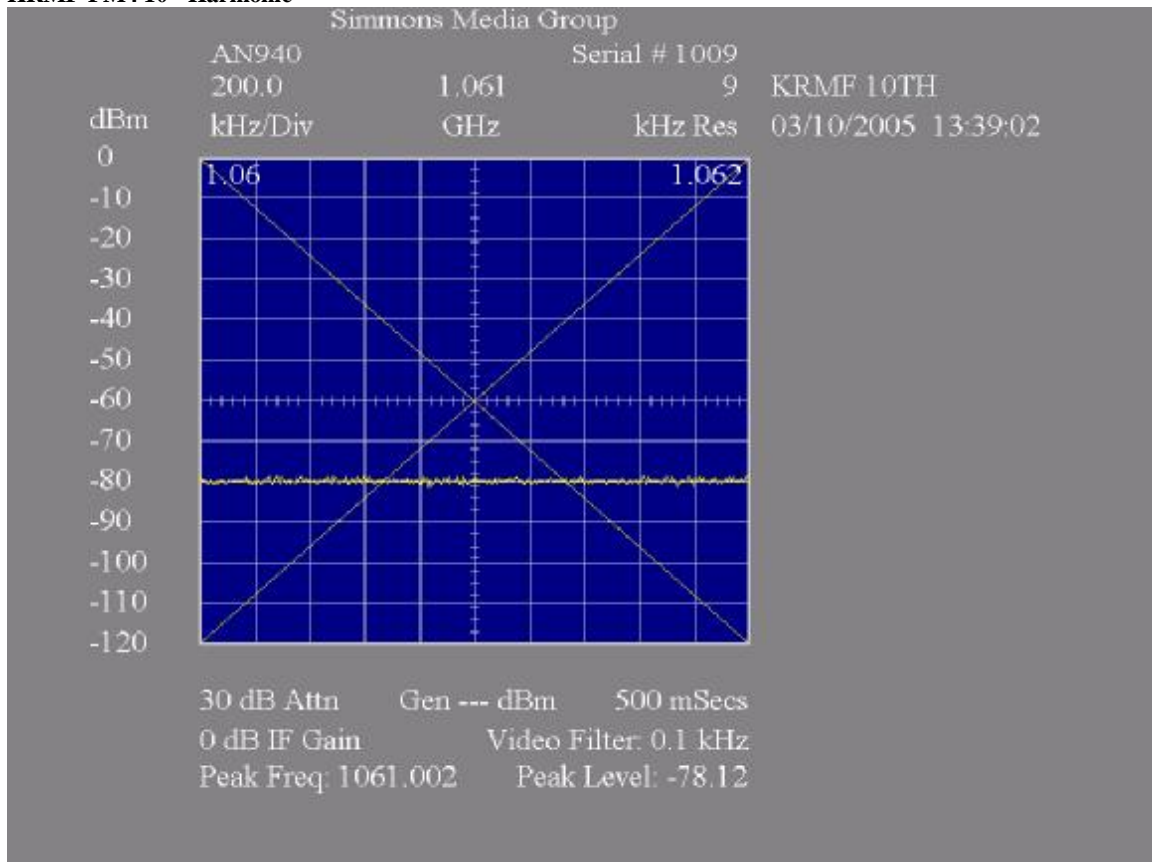


# KRMF-FM4 9<sup>th</sup> Harmonic





**KRMF-FM4 10<sup>th</sup> Harmonic**



Measured Intermodulation Product with KEGA (FM) 101.5 MHz 2 X 106.1- 101.5 MHz = 110.7 MHz



Measured Intermodulation Product with KJQN (FM) 103.1 MHz 2 X 106.1- 103.1 MHz = 109.1 MHz

