

**ENGINEERING REPORT  
FM SPECTRUM ANALYSIS**

**WICR(FM) – INDIANAPOLIS, IN.  
88.7 MHz**

**JUNE 2001**

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**MUNN-REESE, INC.**

Broadcast Engineering Consultants

Coldwater, MI 49036

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## CERTIFICATION OF ENGINEERS

The firm of Munn-Reese, Inc., Broadcast Engineering Consultants, with offices at 100 Airport Drive, Coldwater, Michigan, has been retained for the purpose of preparing the technical data forming this report.

Some data utilized in this report was taken from the FCC Secondary Database and data on file. While this information is believed accurate, errors or omissions in the database and file data are possible. This firm may not be held liable for damages as a result of such data errors or omissions.

The report has been prepared by properly trained electronics specialists under the direction of the undersigned whose qualifications are a matter of record before the Federal Communications Commission.

I declare under penalty of perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

June 8, 2001

**Munn-Reese, Inc.**

By



Edmond R. Trombley, Project Engineer

By



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**COMPLIANCE WITH §73.317**  
**WICR**  
**INDIANAPOLIS, INDIANA**

This firm was retained by WICR, 88.7 MHz., 5.0 kW ERP, Indianapolis, IN, to perform the required measurements to show compliance with the provisions of §73.317 of the Rules governing FM Broadcast Stations and to meet the required conditions on FCC Construction Permit file number BPED-19990901IF. WICR is di-plexed into the WRTV channel 6 broadcast antenna. The occupied spectrum measurements were made using a properly calibrated and operated spectrum analyzer with both stations operating normally in the antenna. That plotted data is found in this report as Figures 1 and 2.

The second harmonic was measured using a Potomac Instruments Model FIM-71 Field Strength Meter. The measurements were made June 6, 2001. The measurements were taken in an unobstructed location within 1 km of the transmitting antenna. The meter was setup and calibrated in accordance with the manufacturer's instructions. Measurements were taken on the fundamental carrier frequency, second harmonic frequency and the primary mixing frequencies with the channel 6 operation. The readings were logged. The appropriate antenna factor was determined from the chart in the manual for the meter, and the corrected reading on each frequency was then noted.

The signal difference in dB was then calculated as follows for the Second Harmonic:

$$20 \log (f_2 \div f_1) = \\ 20 \log (<1.0 \mu\text{V/m} \div 40 \text{ mV/m}) = > -92.04 \text{ dB}$$

The minimum required attenuation is calculated as follows:  $43 + 10 \log (\text{power in watts})$  or 80 dB whichever is the lessor. Thus:  $43 + 10 \log (5000) = -79.99 \text{ dB}$

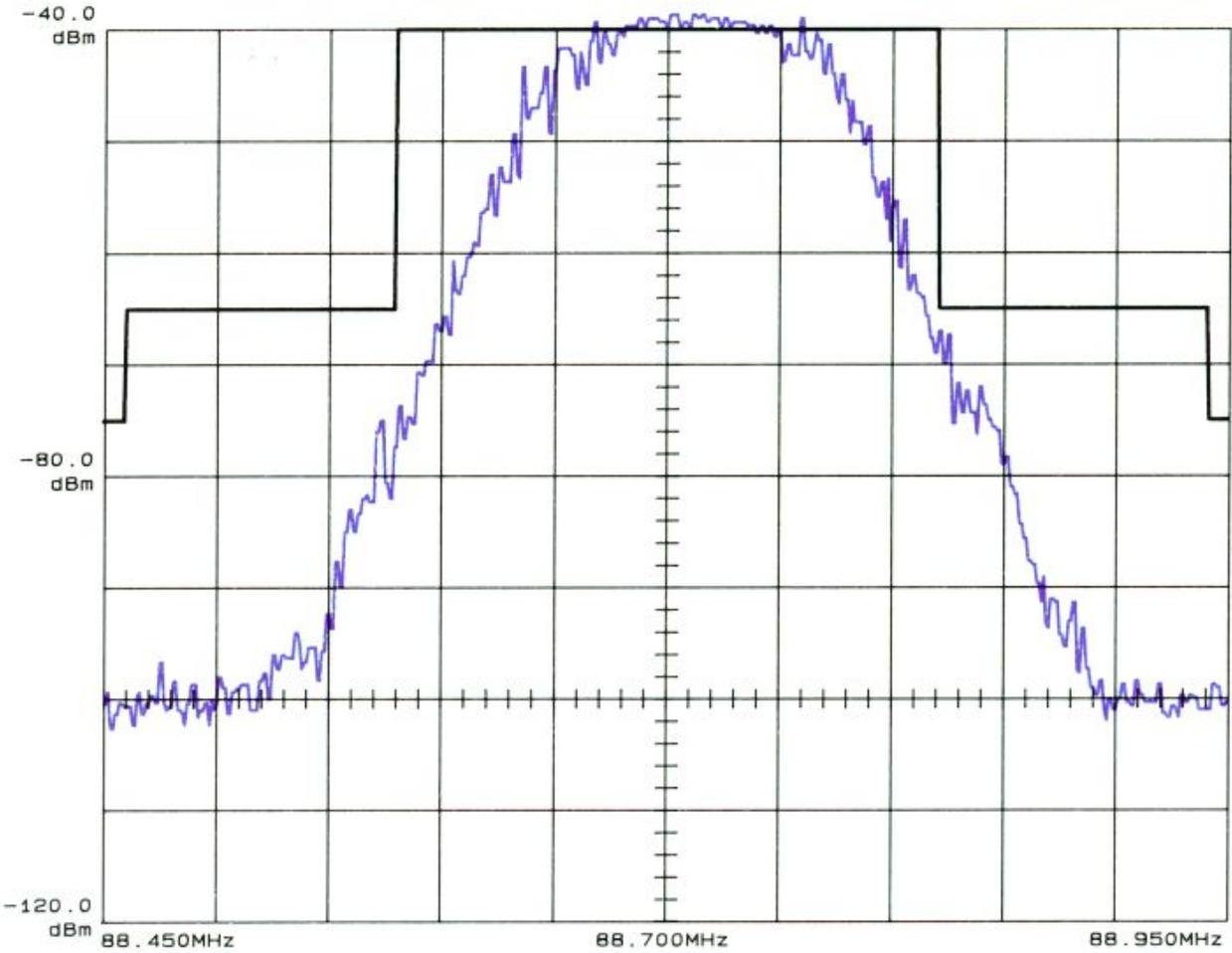
Additional frequencies were checked to show that mixing products between channel 6 audio or video carriers and the di-plexed WIRC operation were well below the required limit.

77.800 MHz. = > -92.04 dB  
86.800 MHz. = A local TV station has video on this frequency.  
89.650 MHz. = > -92.04 dB  
94.150 MHz. = A local broadcast station covers this frequency.  
171.95 MHz. = > -92.04 dB  
176.45 MHz. = > -92.04 dB  
255.20 MHz. = > -92.04 dB  
260.65 MHz. = > -92.04 dB  
264.20 MHz. = > -92.04 dB  
265.15 MHz. = > -92.04 dB

Based on these findings WICR meets the requirements of §73.317 of the Rules governing FM Broadcast Stations.

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A - WICR FM FIGURE 1



88.700MHz  
-40.0dBm  
50.0kHz/  
3KHz RBW

ATTN 0dB  
VF 3kHz  
10 dB/

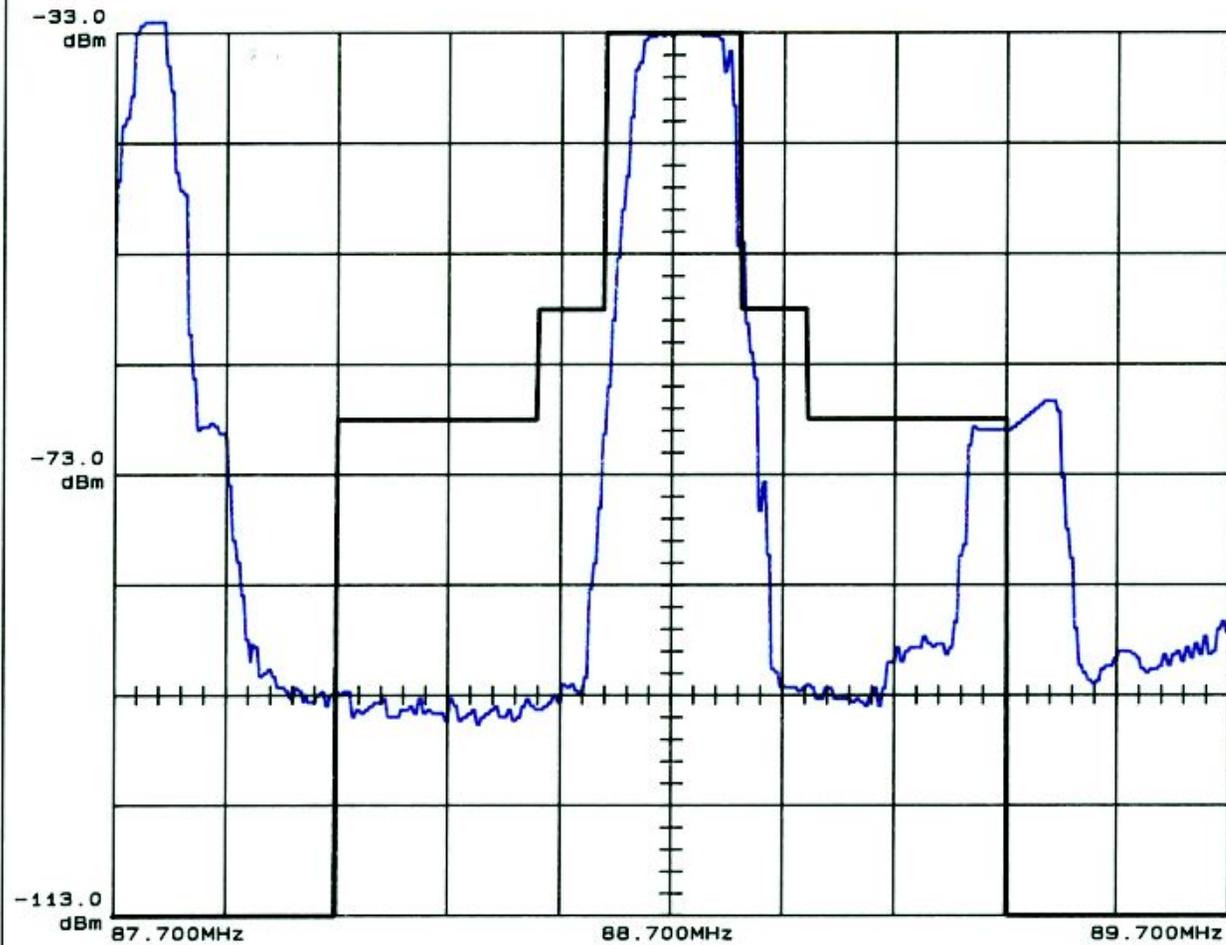
TIME: 100 ms/DIV

MAX/MIN MODE

Note: Readouts correspond to waveform 'A'

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A - WICR FM FIGURE 2



88.700MHz  
-33.0dBm  
200.0kHz/  
30kHz RBW

ATTN 0dB  
VF 30kHz  
10 dB/

TIME: 50 ms/DIV

MAX/MIN MODE

Note: Readouts  
correspond to  
waveform 'A'

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