

# Spurious Emissions Report

## KYMV 100.7 (FM)

Provo “Y” Communications Site

Provo, Utah

On the Evening of November 21, 2010 equipment performance measurements were made on behalf of FM broadcast booster station KYMV FM-1 as part requirements set forth by the FCC file permit number: BPFTB-20100805AJP

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).

KYMV FM-1 is one of five stations sharing a master antenna system at the Provo “Y” Communications site located in the Provo, Utah serving the Provo and Orem area. The outputs of the five stations are combined using a balanced filter combining system Model RCCC .8 designed and fabricated by Jampro Antennas in 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 KYMV FM-1 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 use of the IFR AN940 Serial Number 1009 spectrum analyzer within current calibration was used to make all measurements. The assigned carrier frequency level was recorded. All other harmonic intermodulation products or spurious emission levels were referenced to this initial carrier frequency reference level with a noise floor of -80dBC. 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.

A set of Trilithic bandpass filters model VF-40003 Serial #200514038 was used to reduce the effects of multi signal mixing in the IFR AN940 analyzer; all insertion losses have been accounted for to reflect accuracy in this report.

The intermodulation products measured in this study were 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.

All of the signals noted were identified as being either signals from other stations in the combined system or ingress from other known transmitters.

No intermodulation products, spurious signals or harmonics were found that could be attributed to the operation of KYMV FM-1.

With consideration to the KYMV FM-1 transmission system, I believe that the station is in compliance with the requirements of 47 CFR § 73.1590 (a) & (b) and 47 CFR § 73.317 (b-d). This report and associated exhibits were prepared by me and are based on measurements made by myself. I believe them to be true and accurate to the best of my knowledge.

Respectfully submitted,

A handwritten signature in black ink that reads "Scot W. Mathews". The signature is written in a cursive, flowing style.

Scot W. Mathews  
Director of Engineering

# Simmons Media Group

AN940

Serial # 1009

400.0

100.70

9

100.7 with Mod

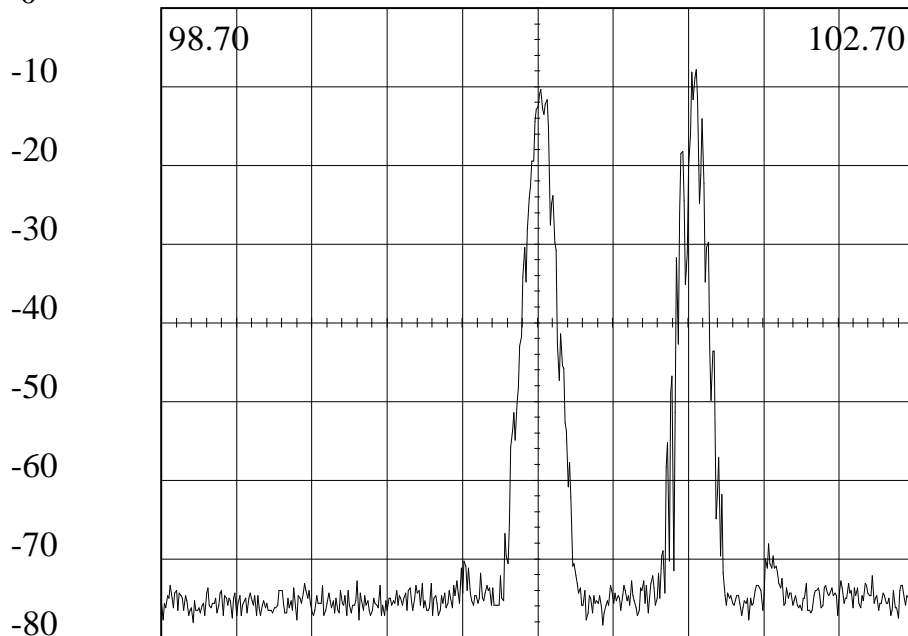
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:44:56



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 101.5457

Peak Level: -7.84

# Simmons Media Group

AN940

Serial # 1009

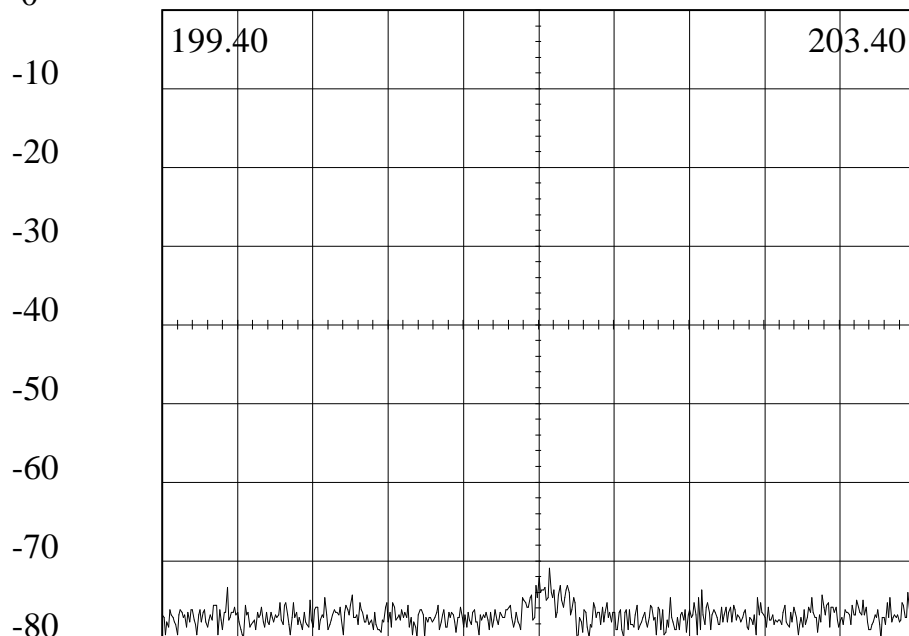
dBm  
0

400.0  
kHz/Div

201.40  
MHz

9  
kHz Res

100.7 2nd order  
11/21/2010 23:45:35



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 201.4601

Peak Level: -70.9

# Simmons Media Group

AN940

Serial # 1009

400.0

302.10

9

100.7 3rd order

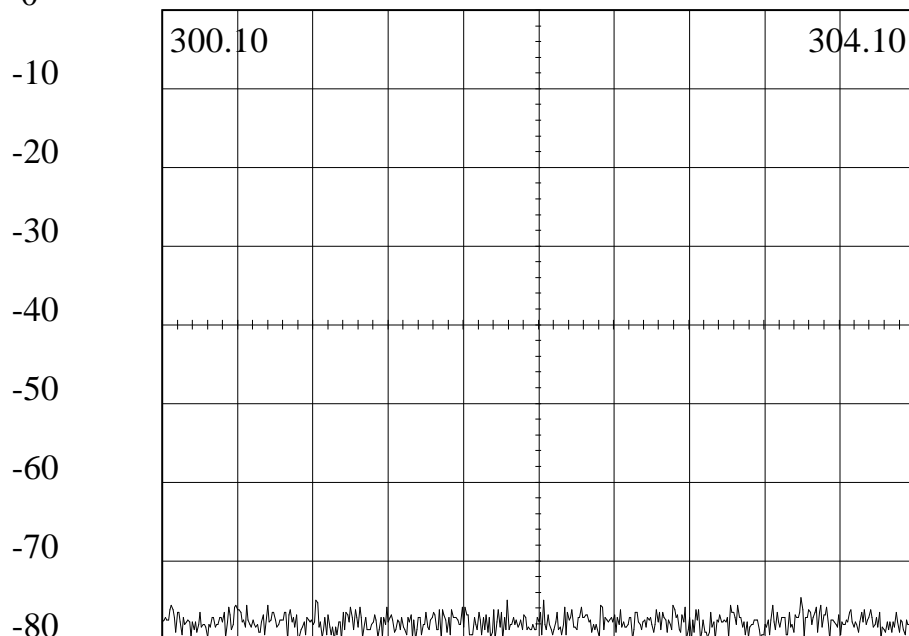
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:46:08



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 303.4988

Peak Level: -74.67

# Simmons Media Group

AN940

Serial # 1009

400.0

402.80

9

100.7 4th order

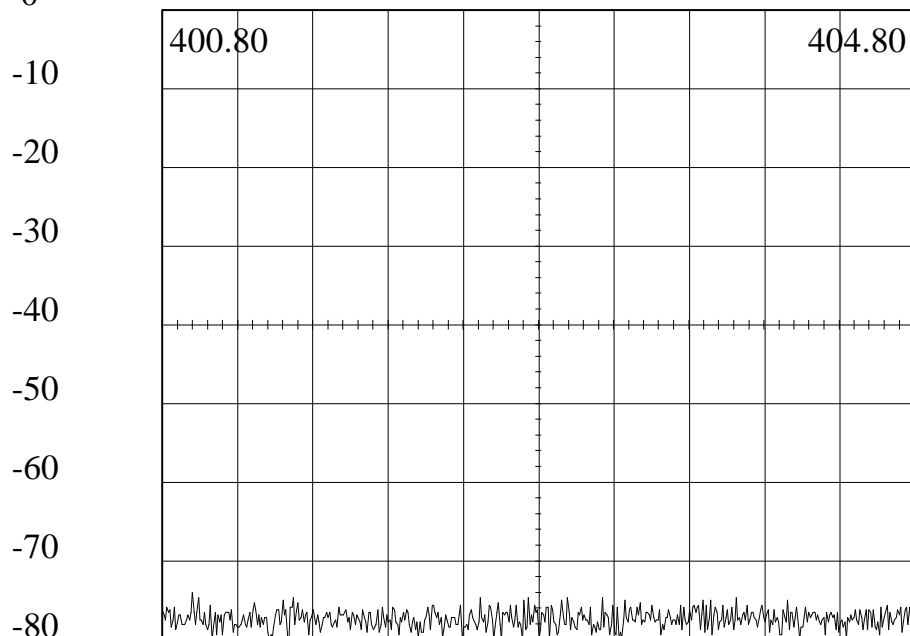
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:46:44



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 400.9603

Peak Level: -74.04

# Simmons Media Group

AN940

Serial # 1009

400.0

503.50

9

100.7 5th order

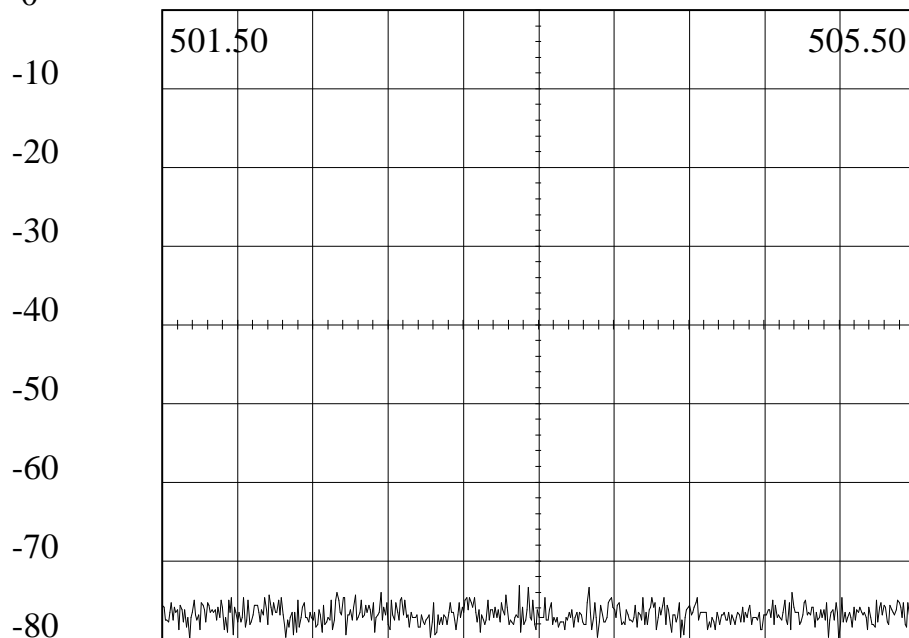
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:47:17



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 503.3998

Peak Level: -73.1

# Simmons Media Group

AN940

Serial # 1009

400.0

604.20

9

100.7 6th order

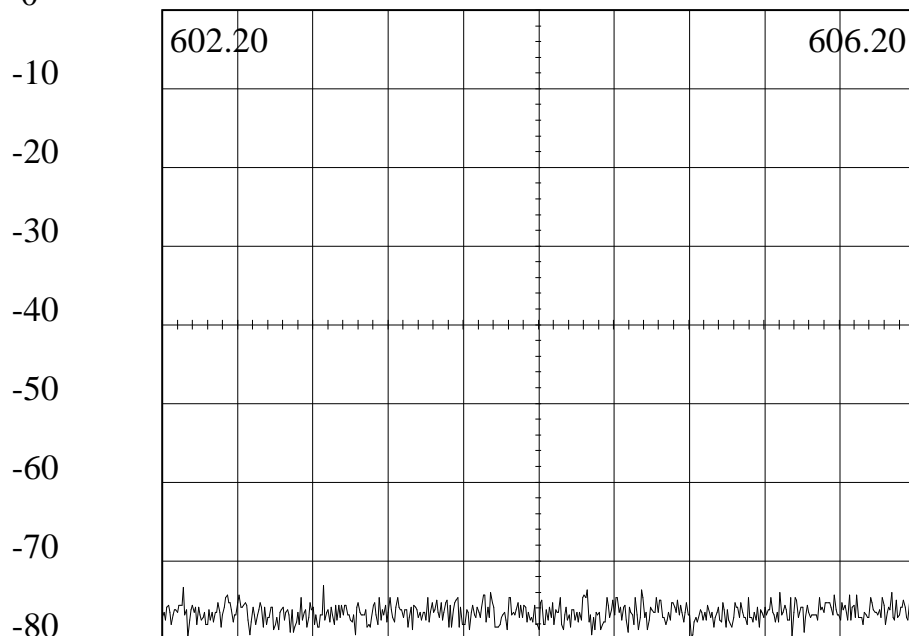
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:47:48



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 603.0577

Peak Level: -73.1



# Simmons Media Group

AN940

Serial # 1009

400.0

704.90

9

100.7 7th order

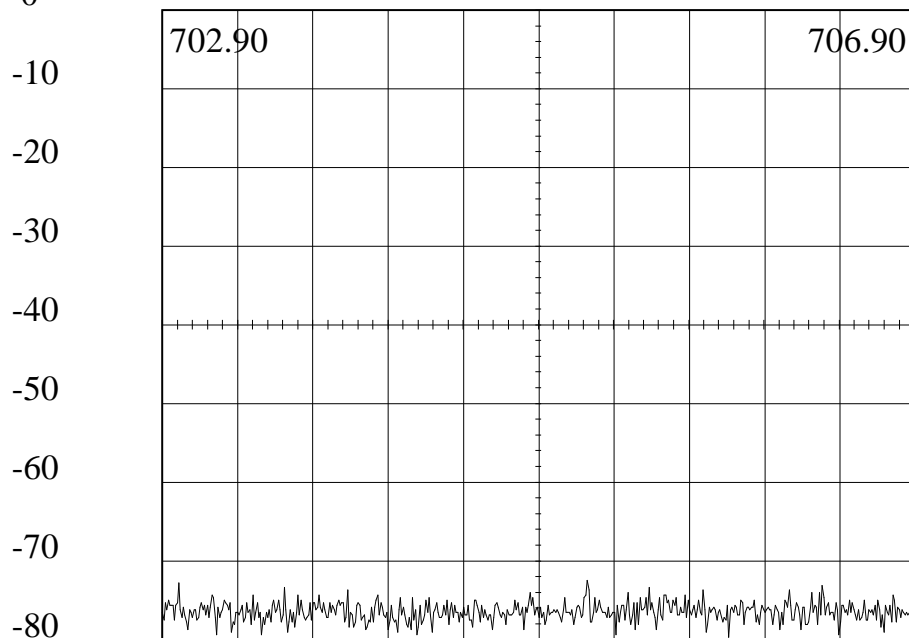
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:48:21



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 705.1605

Peak Level: -72.47

# Simmons Media Group

AN940

Serial # 1009

400.0

100.70

9

100.7 without Mod

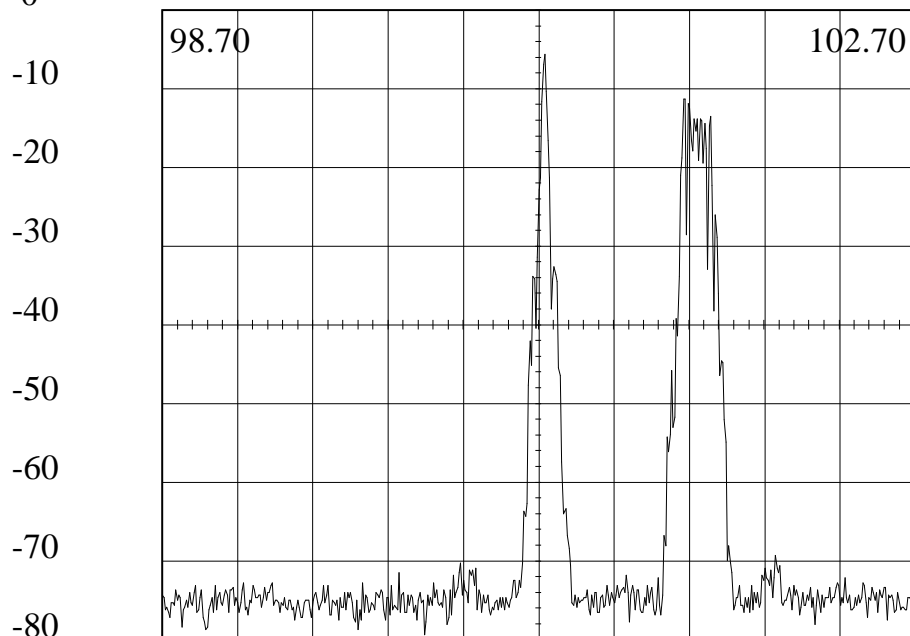
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:42:37



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 100.7361

Peak Level: -5.65

# Simmons Media Group

AN940

Serial # 1009

400.0

805.60

9

100.7 8th order

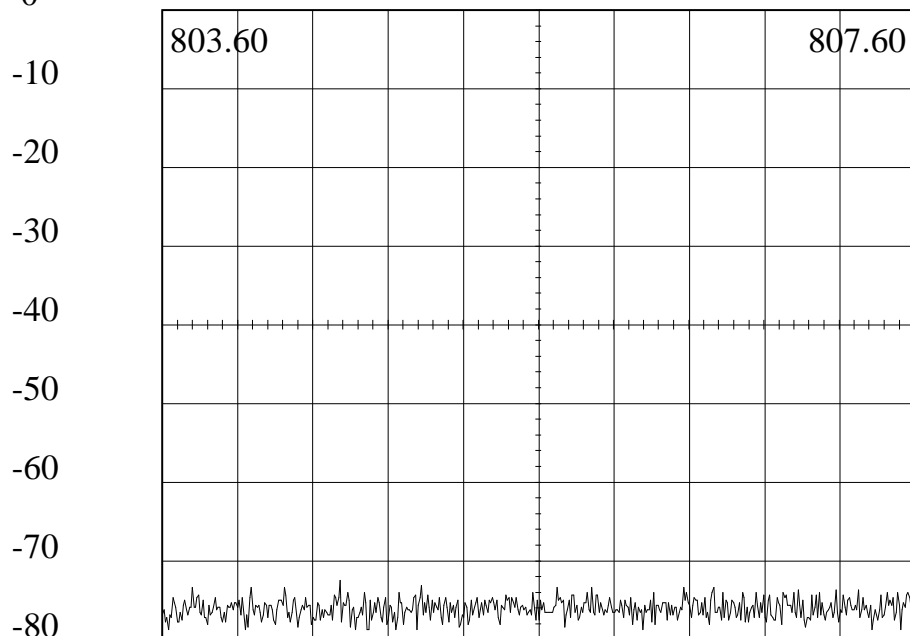
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:48:55



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 804.5459

Peak Level: -72.47

# Simmons Media Group

AN940

Serial # 1009

400.0

906.30

9

100.7 9th order

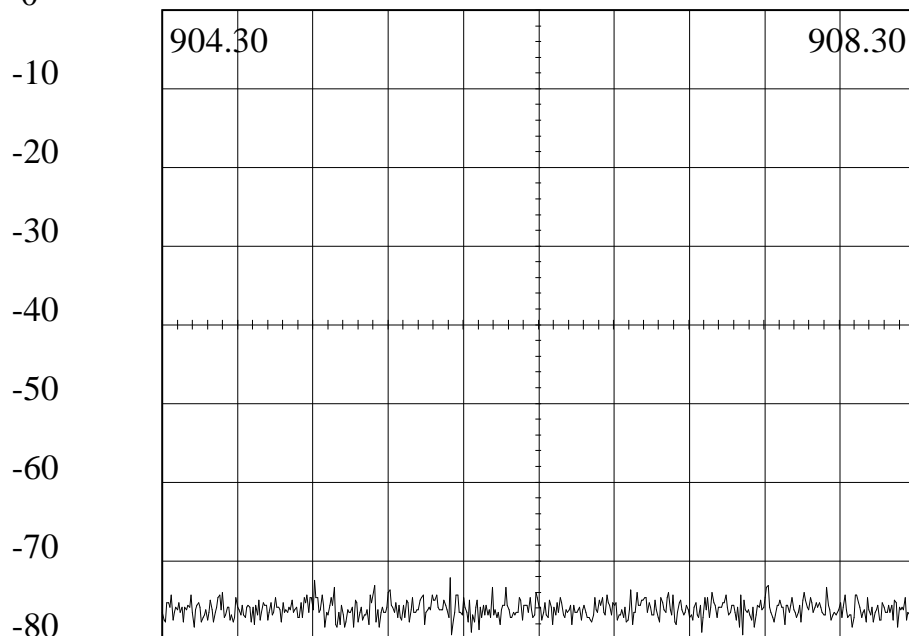
dBm  
0

kHz/Div

MHz

kHz Res

11/21/2010 23:49:33



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 905.8311

Peak Level: -72.16

# Simmons Media Group

AN940

Serial # 1009

400.0

1.007

9

100.7 10th order

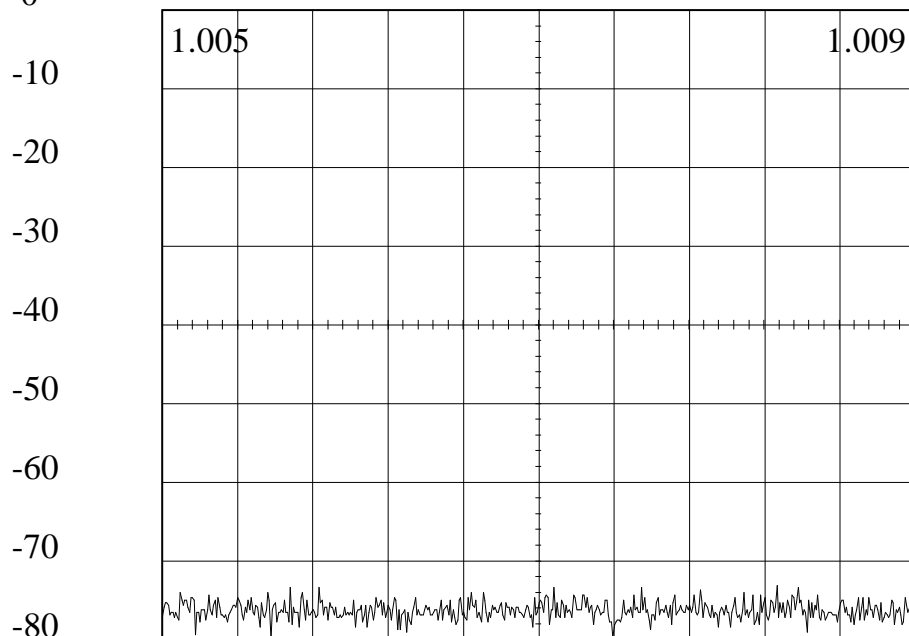
dBm  
0

kHz/Div

GHz

kHz Res

11/21/2010 23:50:12



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 1008.2705

Peak Level: -73.1

# Simmons Media Group

AN940

Serial # 1009

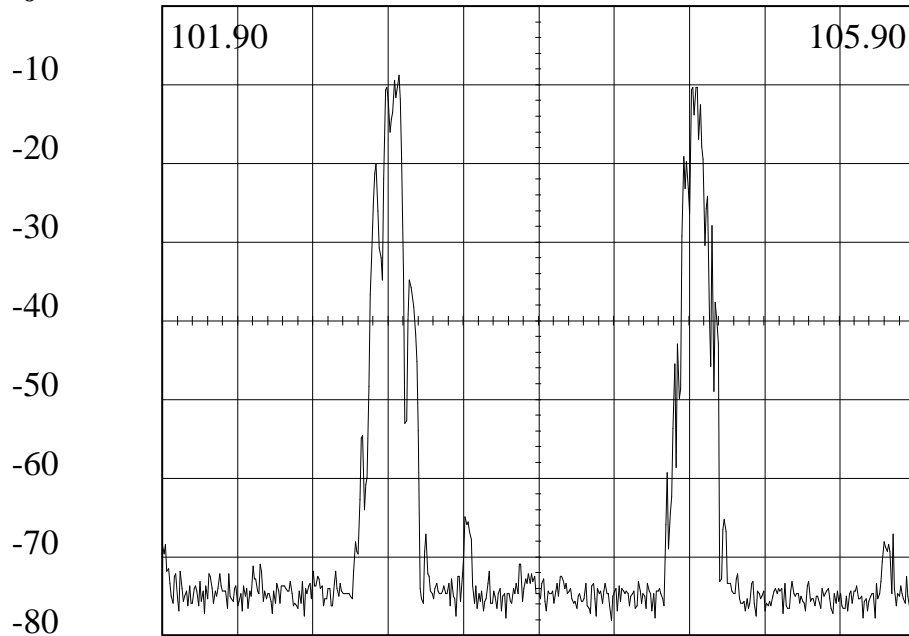
dBm  
0

400.0  
kHz/Div

103.90  
MHz

9  
kHz Res

IM with 97.5  
11/21/2010 23:51:28



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 103.1585

Peak Level: -8.78

# Simmons Media Group

AN940

Serial # 1009

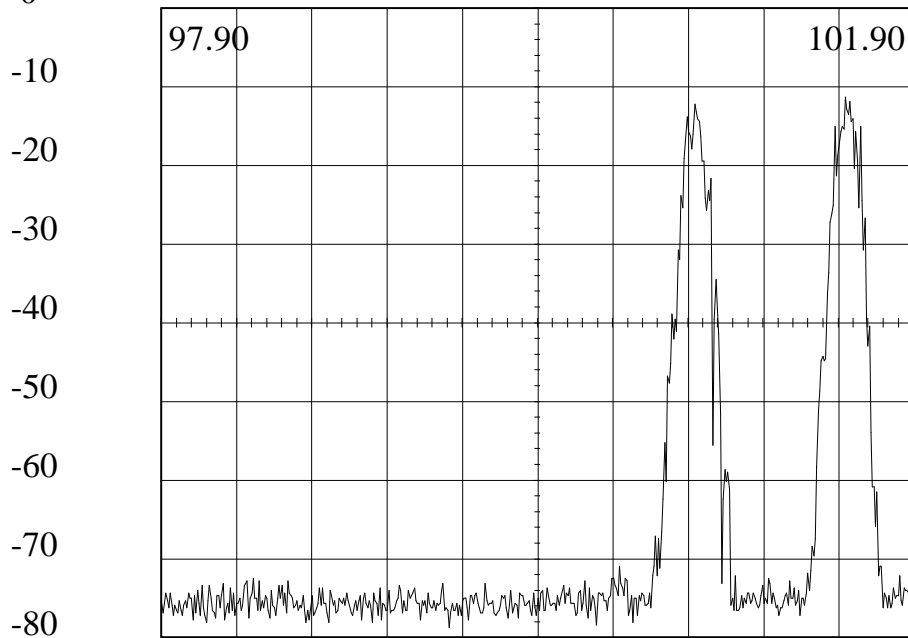
dBm  
0

400.0  
kHz/Div

99.90  
MHz

9  
kHz Res

IM with 101.5  
11/21/2010 23:52:04



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 101.5393

Peak Level: -11.29

# Simmons Media Group

AN940

Serial # 1009

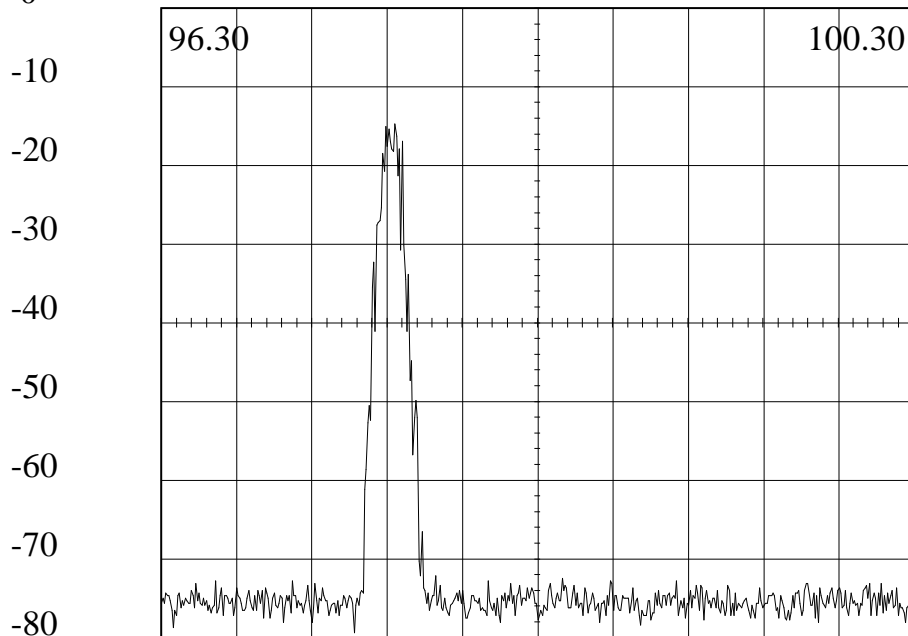
dBm  
0

400.0  
kHz/Div

98.30  
MHz

9  
kHz Res

IM with 103.1  
11/21/2010 23:52:43



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 97.5425

Peak Level: -14.75



# Simmons Media Group

AN940

Serial # 1009

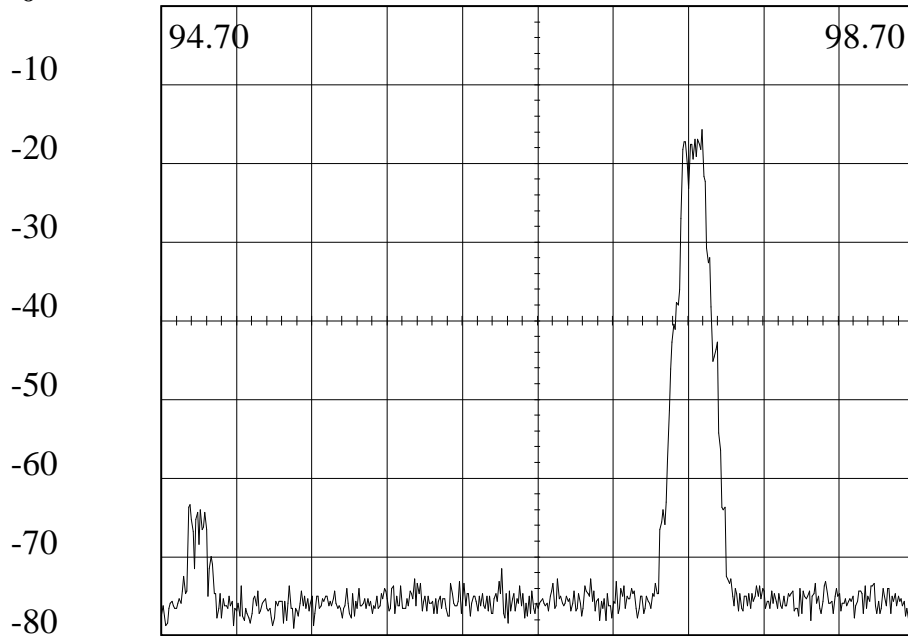
dBm  
0

400.0  
kHz/Div

96.70  
MHz

9  
kHz Res

IM with 104.7  
11/21/2010 23:53:27



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 97.5778

Peak Level: -15.69