

# **KEGH-FM2 Spurious Emissions Report**

Bountiful, Utah

On the evening of August 30<sup>th</sup> 2014 equipment performance measurements were made for broadcast booster station KEGH-FM2 permit No. BNPFTB-20131209XEB

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).

KEGH-FM2 (107.1 MHz) is one of nine stations sharing a master antenna system at the Summerwood Communications site located in Bountiful, Utah.

The outputs of the eight 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 KEGH-FM2 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 within current calibration was used to make all measurements. The assigned carrier frequency level was recorded. 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 were calculated as the common  $2 \times A - B$  = 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 KEGH-FM2.

With consideration to the KEGH-FM2 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 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, reading "Scot W. Mathews". The signature is written in a cursive, flowing style with a large initial 'S'.

Scot W. Mathews  
Consultant Engineer

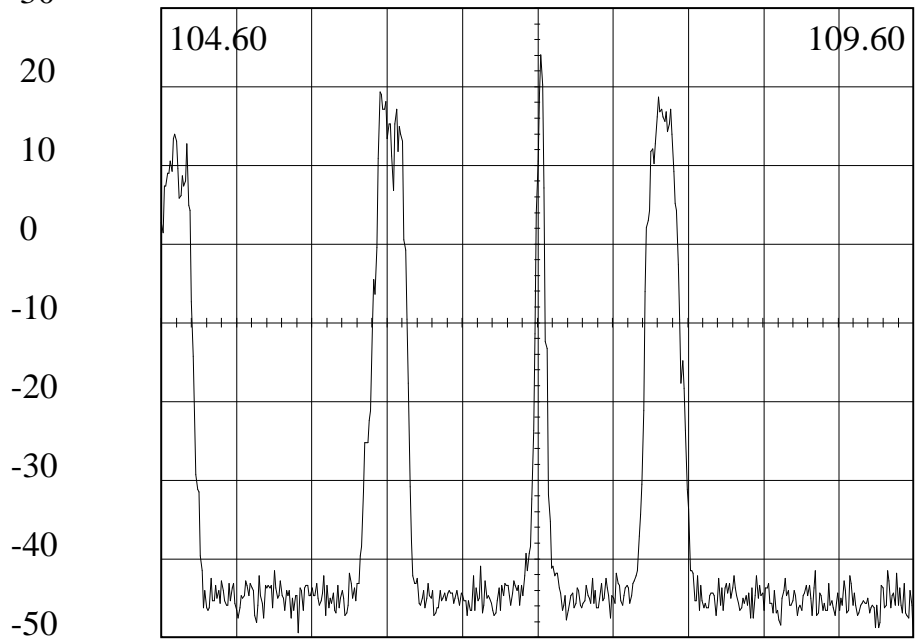
# Spurious Emissions

AN940  
500.0  
kHz/Div

107.10  
MHz

Serial # 1009  
9  
kHz Res

107.1 wtihout MOD  
08/30/2014 07:44:42



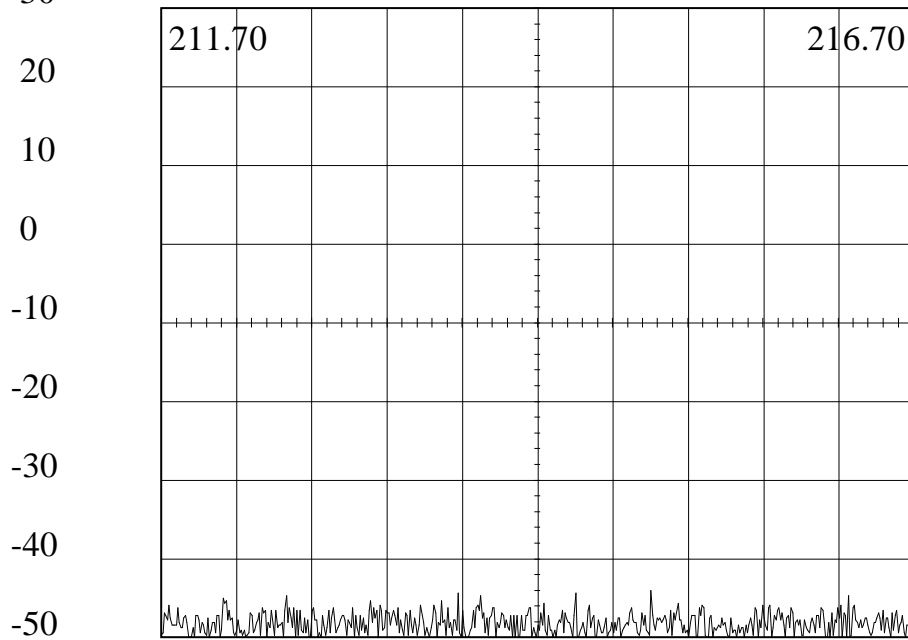
30 dB Attn  
0 dB IF Gain  
Peak Freq: 107.1251

Gen --- dBm  
Video Filter: 1 kHz  
Peak Level: 24.04

50 mSecs

# Spurious Emissions

AN940 Serial # 1009  
500.0 214.20 9 107.1 2nd Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:46:11



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 214.9565 Peak Level: -44.04

# Spurious Emissions

AN940

Serial # 1009

500.0                      321.30                      9                      107.1 3rd Harmonic  
kHz/Div                      MHz                      kHz Res                      08/30/2014 07:46:44

dBm  
30

20

10

0

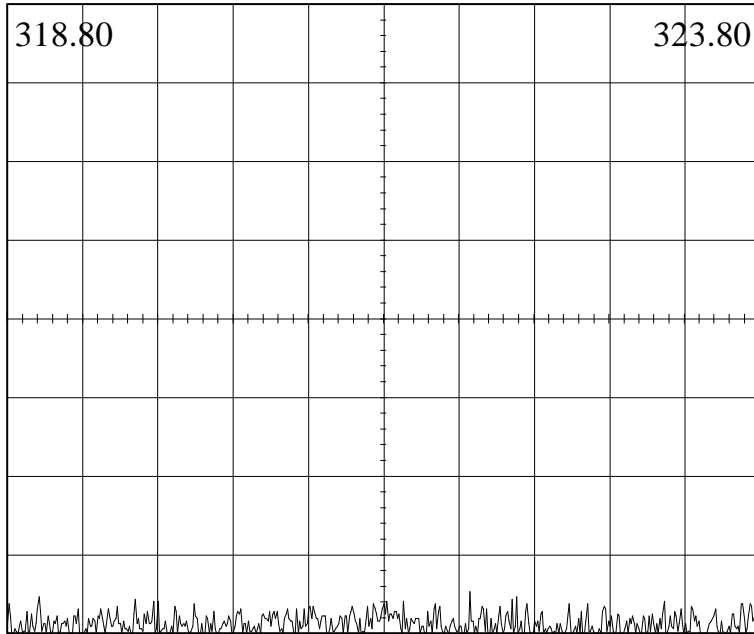
-10

-20

-30

-40

-50



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

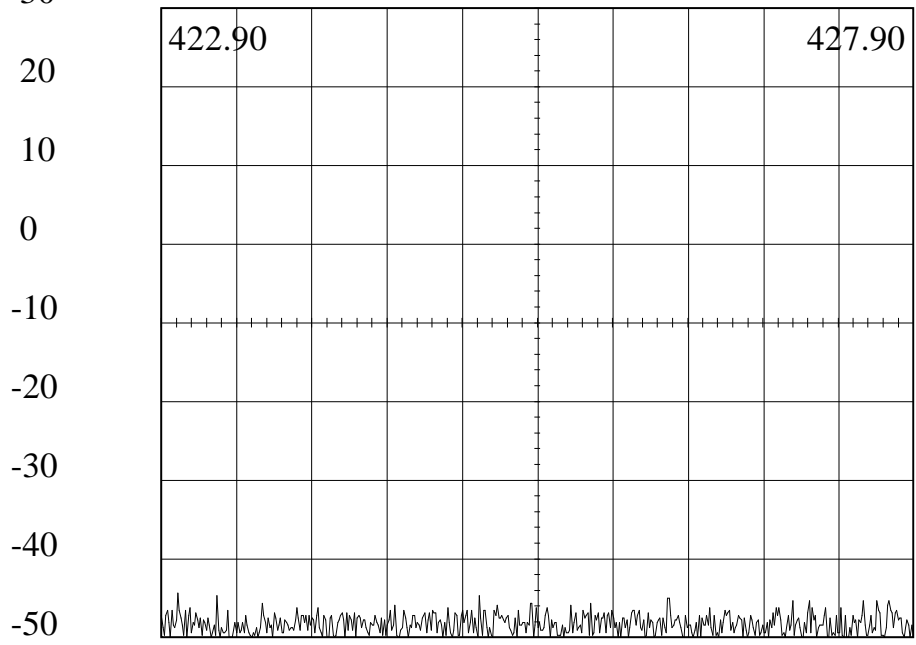
Video Filter: 1 kHz

Peak Freq: 321.8762

Peak Level: -44.67

# Spurious Emissions

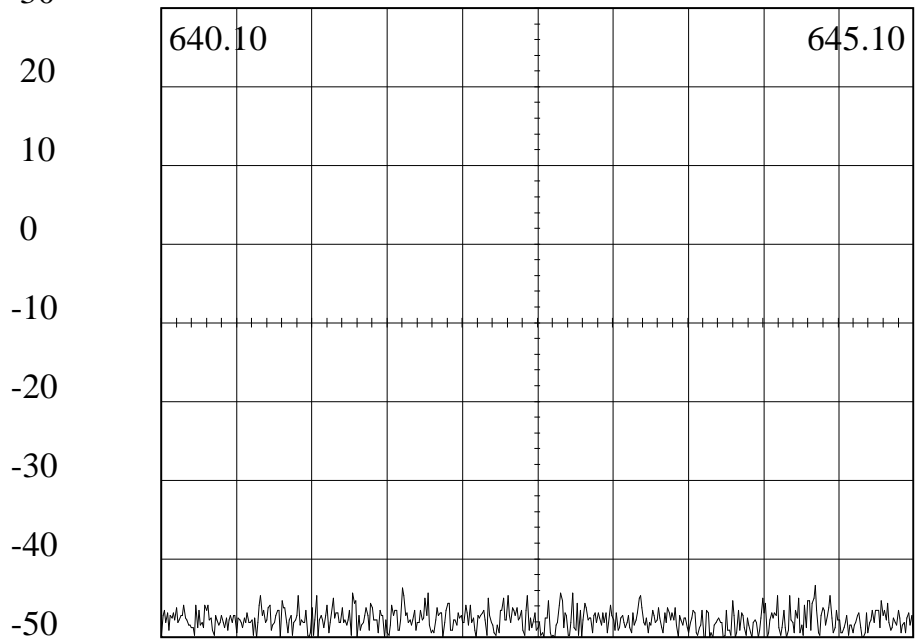
AN940 Serial # 1009  
500.0 425.40 9 107.1 4th Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:47:22



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 423.0102 Peak Level: -44.35

# Spurious Emissions

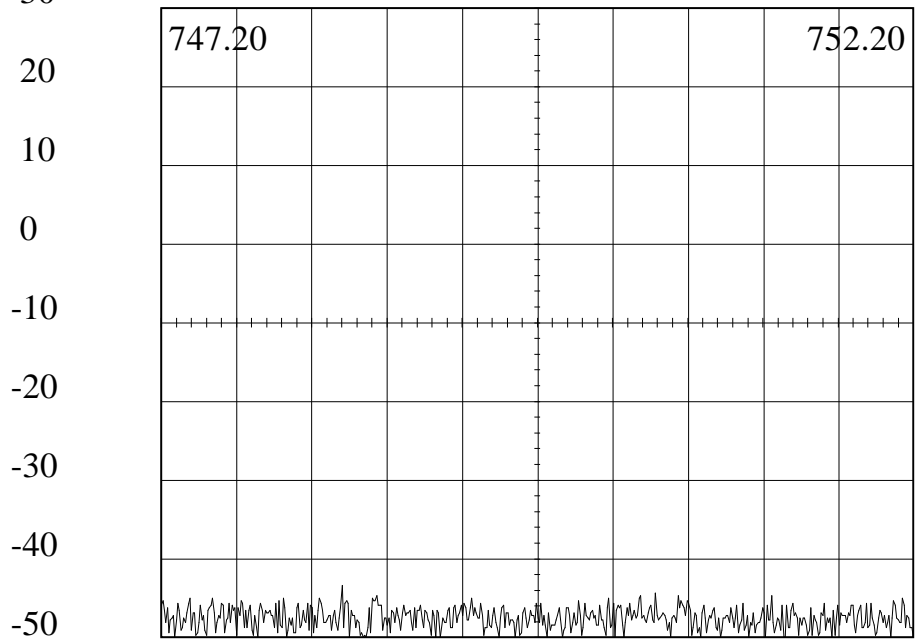
AN940 Serial # 1009  
500.0 642.60 9 107.1 6th Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:51:11



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 644.4487 Peak Level: -43.41

# Spurious Emissions

AN940 Serial # 1009  
500.0 749.70 9 107.1 7th Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:51:50

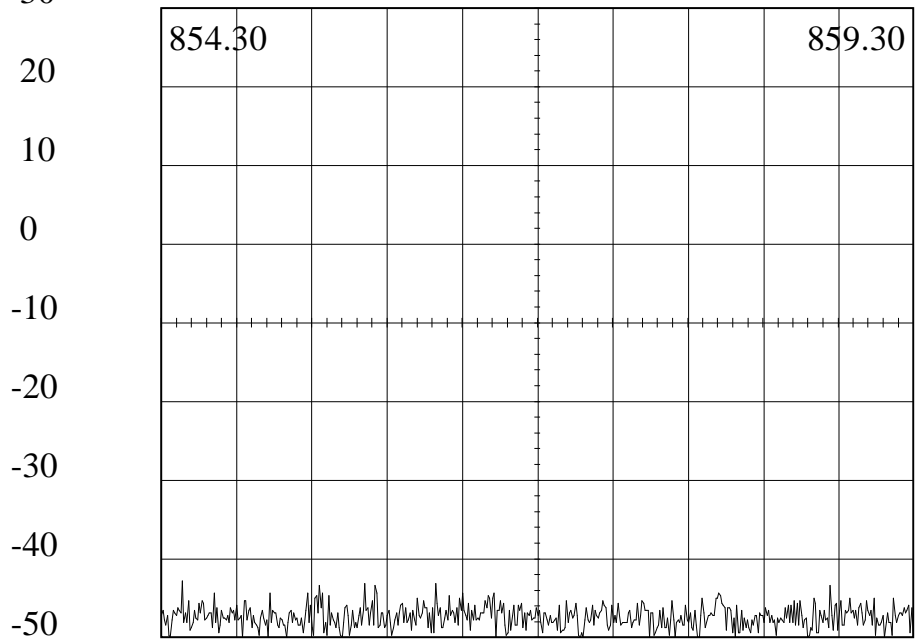


30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 748.4024 Peak Level: -43.41



# Spurious Emissions

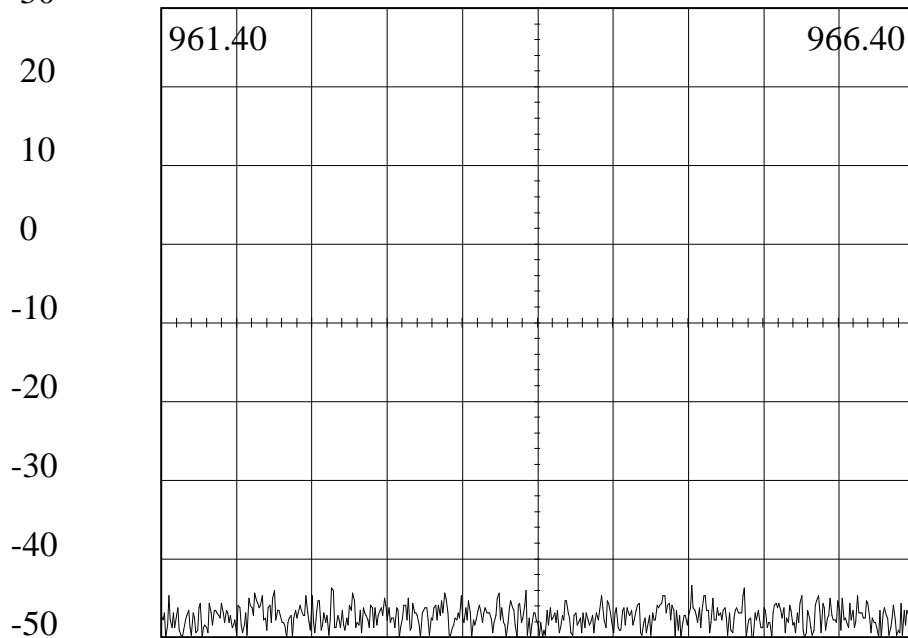
AN940 Serial # 1009  
500.0 856.80 9 107.1 8th Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:52:19



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 854.4403 Peak Level: -42.78

# Spurious Emissions

AN940 Serial # 1009  
500.0 kHz/Div 963.90 MHz 9 kHz Res 107.1 9th Harmonic  
dBm 30  
08/30/2014 07:52:55



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 964.9271 Peak Level: -43.41

# Spurious Emissions

AN940

Serial # 1009

500.0                      1.071                      9                      107.1 10th Harmonic  
kHz/Div                      GHz                      kHz Res                      08/30/2014 07:53:43

dBm  
30

20

10

0

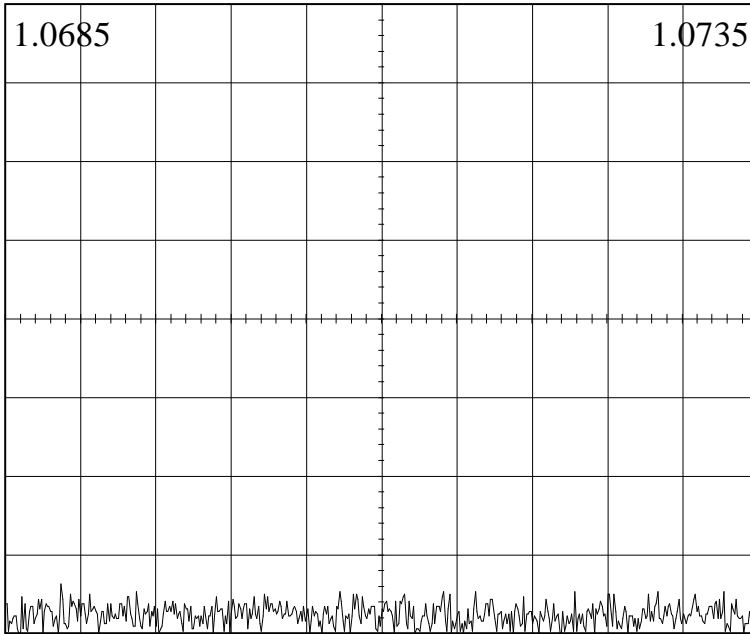
-10

-20

-30

-40

-50



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

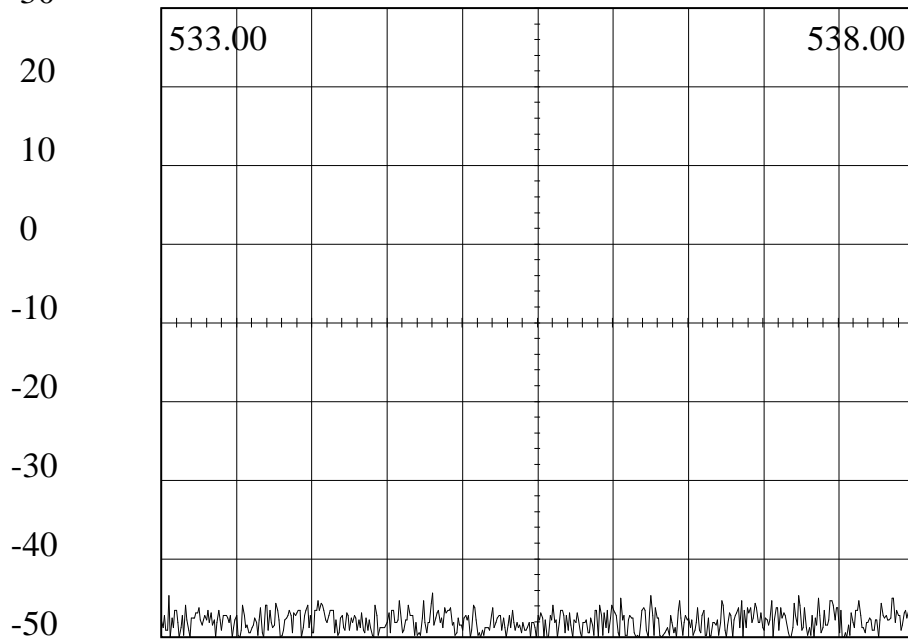
Video Filter: 1 kHz

Peak Freq: 1068.8707

Peak Level: -43.73

# Spurious Emissions

AN940 Serial # 1009  
500.0 535.50 9 107.1 5th Harmonic  
kHz/Div MHz kHz Res 08/30/2014 07:55:33



30 dB Attn Gen --- dBm 50 mSecs  
0 dB IF Gain Video Filter: 1 kHz  
Peak Freq: 534.8036 Peak Level: -44.35