

# KSNQ-FM Spurious Emissions Report

Twin Falls, Idaho

Equipment performance measurements were made for broadcast station KSNQ-FM permit file number: BMPH-20091016ABV

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).

KSNQ-FM channel 252 (98.3MHz) is one of two stations sharing a master antenna system at reference coordinates: 42-43-42 North Latitude: 114-24-48 West Longitude, Twin Falls, Idaho. The outputs of the two stations are combined using a "Tee" style bandpass filter combining system (963 type filter) designed and fabricated by Electronics Research, Inc. in Chandler, Indiana.

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 KSNQ-FM 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 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. <sup>1</sup> The result was a measurement noise floor of approximately -78 dBC.

The intermodulation products measured in this report 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.

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

With regards to the KSNQ-FM transmission system, I believe that the station is in compliance with the requirements of Section 47 CFR § 73.317 (b) through (d). 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,



Scot W. Mathews

December 7<sup>th</sup>, 2009

1. Using Peak hold on the analyzer causes the software to malfunction thus resulting in error output. However the result was compliant with the FCC rules. All other measurements are recorded. Unit is being return for repair.

Simmons Media Group

AN940

Serial # 1009

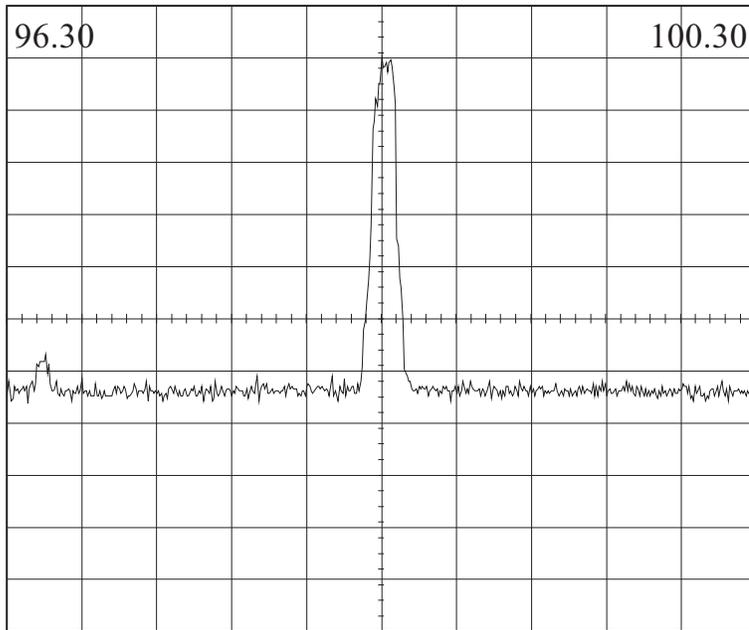
400.0  
kHz/Div

98.30  
MHz

30  
kHz Res

KSNQ with Modulation

dBm  
30  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 98.304

Peak Level: 23.41

Simmons Media Group

AN940

Serial # 1009

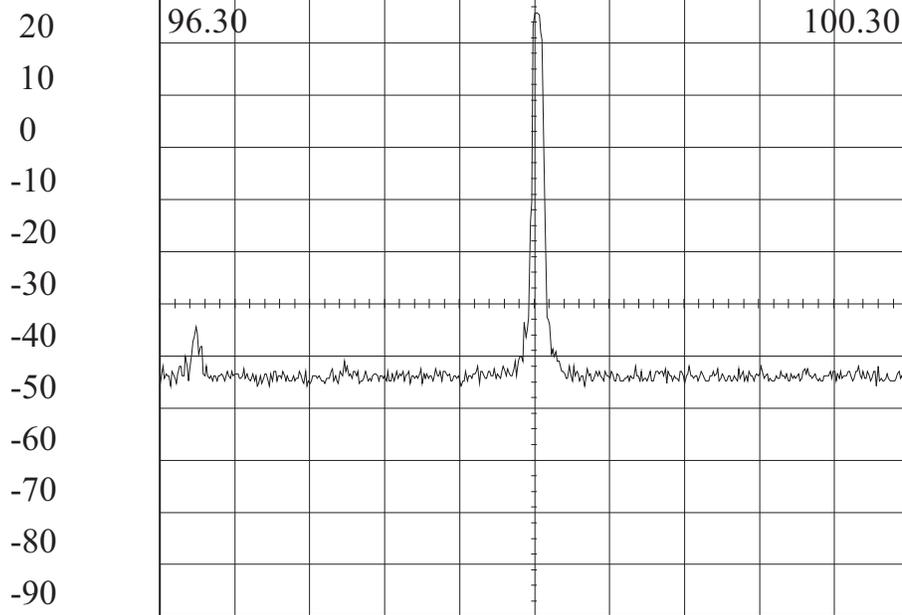
400.0  
kHz/Div

98.30  
MHz

30  
kHz Res

KSNQ without mod

dBm  
30



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 98.304

Peak Level: 27.18

Simmons Media Group

AN940

Serial # 1009

400.0  
kHz/Div

196.60  
MHz

30  
kHz Res

KSNQ 2nd Harmonic

dBm  
30

20

10

0

-10

-20

-30

-40

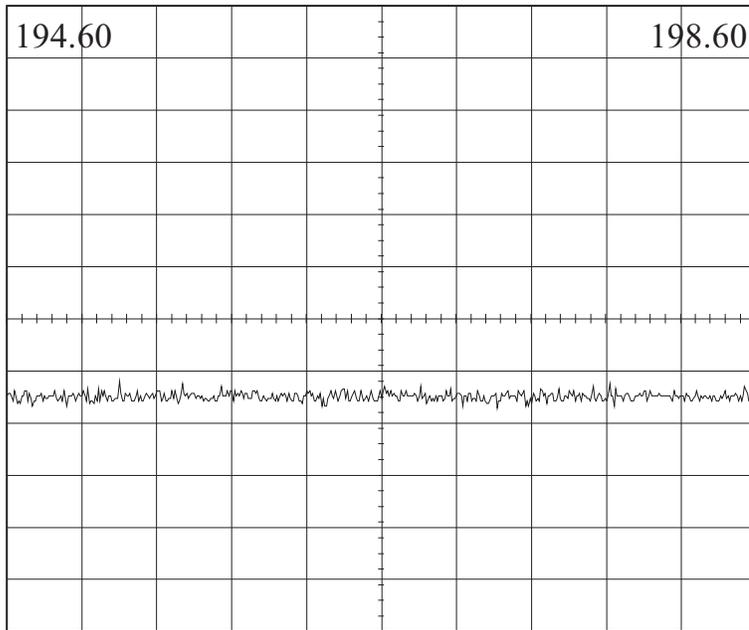
-50

-60

-70

-80

-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 195.2012

Peak Level: -18.



Simmons Media Group

AN940

Serial # 1009

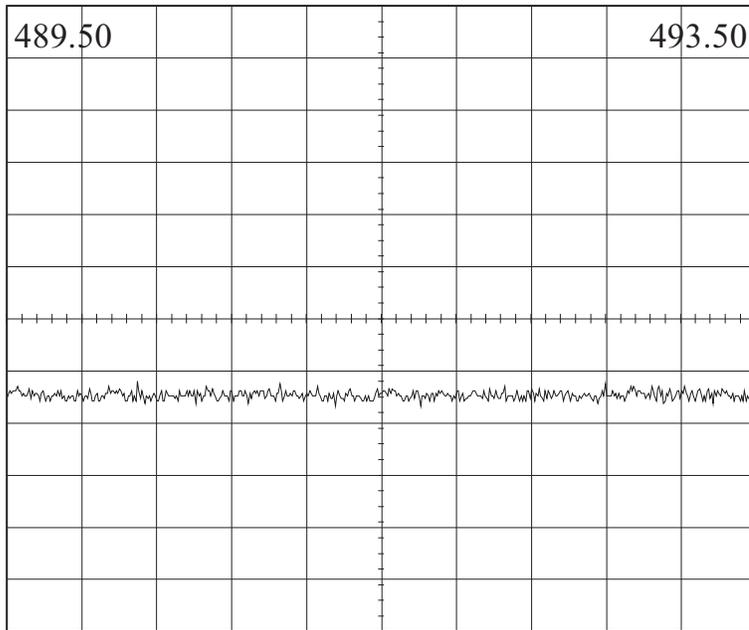
400.0  
kHz/Div

491.50  
MHz

30  
kHz Res

KSNQ 4th Harmonic

dBm  
30  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 490.1974

Peak Level: -18.



Simmons Media Group

AN940

Serial # 1009

400.0  
kHz/Div

688.10  
MHz

30  
kHz Res

KSNQ 7th Harmonic

dBm  
30

20

10

0

-10

-20

-30

-40

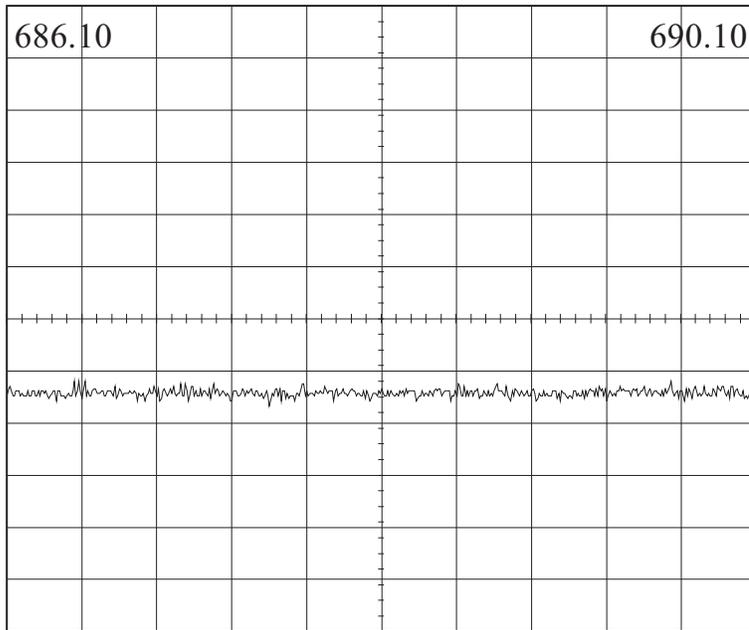
-50

-60

-70

-80

-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 686.4607

Peak Level: -18.

Simmons Media Group

AN940

Serial # 1009

400.0  
kHz/Div

786.40  
MHz

30  
kHz Res

KSNQ 8th Harmonic

dBm

30

20

10

0

-10

-20

-30

-40

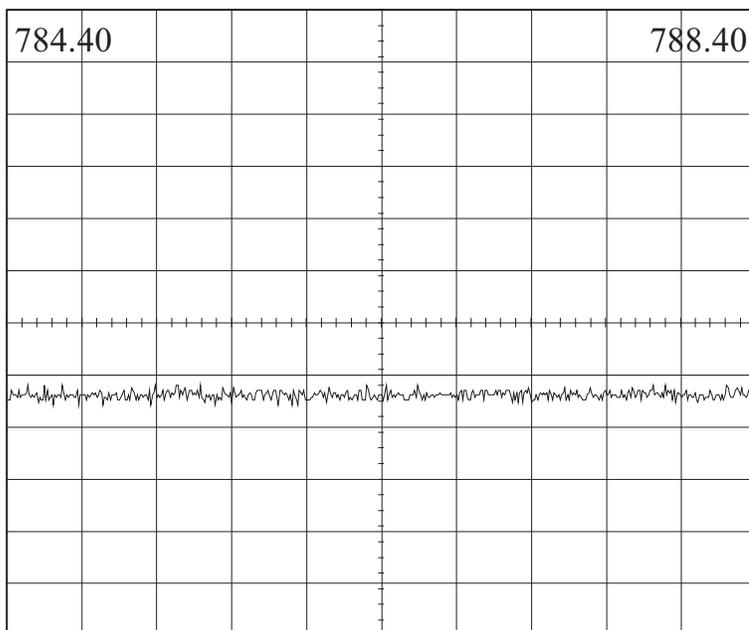
-50

-60

-70

-80

-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 784.5122

Peak Level: -18.

Simmons Media Group

AN940

Serial # 1009

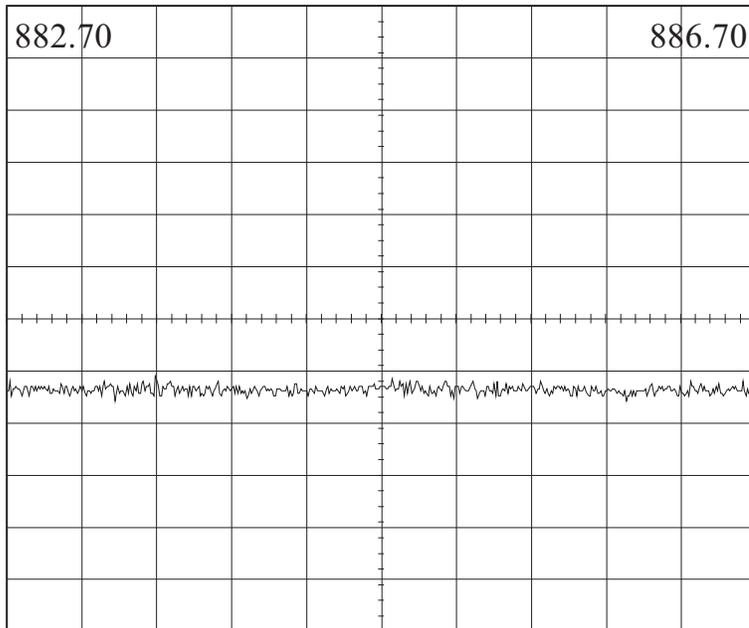
400.0  
kHz/Div

884.70  
MHz

30  
kHz Res

KSNQ 9th Harmonic

dBm  
30  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 883.4936

Peak Level: -17.37

Simmons Media Group

AN940

Serial # 1009

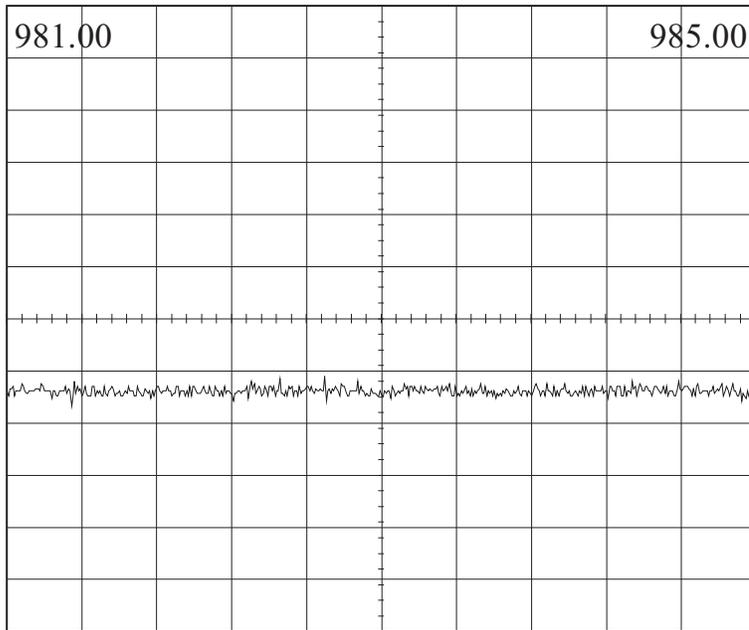
400.0  
kHz/Div

983.00  
MHz

30  
kHz Res

KSNQ 10th Harmonic

dBm  
30  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 982.6994

Peak Level: -17.37

Simmons Media Group

AN940

Serial # 1009

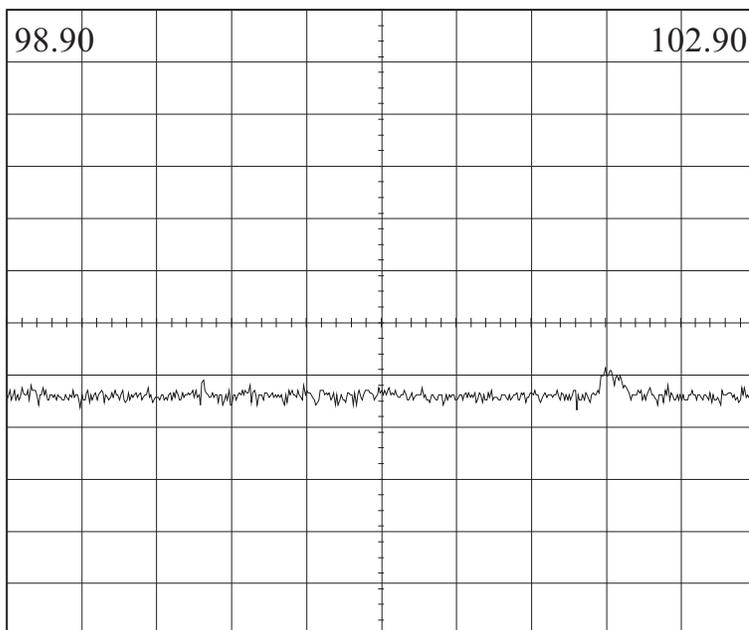
400.0  
kHz/Div

100.90  
MHz

30  
kHz Res

IM Product 100.9

dBm  
30  
20  
10  
0  
-10  
-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90



60 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 102.0984

Peak Level: -15.8