

KUDD 107.9 FM

Spurious Emissions Report

On the morning of February 21st 2014, I made equipment performance measurements on behalf of radio station KUDD 107.9 FM Woodruff, Utah. These measurements were made as a condition of the Construction Permit File Number BMPH-20140206AJU.

KUDD is one of nine stations sharing a master antenna system at the Humpy Peak transmitter site in the Uinta Mountains, south of Evanston, WY. The outputs of the nine stations are combined using a constant impedance balanced band pass filter combining system Model 2540 designed and fabricated by Shively Labs of Bridgeton, ME.

Measurements were made while all stations were broadcasting program material typical to its daily operation. KUDD operates stereophonically and has no subsidiary communications services. All stations were operating into the combined antenna system at the full permitted power during the measurements.

Section 73.317 (b) and (c) require that all signals between 120 and 240 kHz removed from the carrier be attenuated below the level of the carrier by at least 25 dB, all signals between 240 kHz and 600 kHz removed from the carrier be attenuated by at least 35 dB below the level of the carrier, and that all signals greater than 600 kHz removed from the carrier be attenuated by at least 80 dB below the level of the carrier.

In the case of the KUDD transmission system, the measurement equipment was fed 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 10th carrier frequency harmonic was tuned to look for any unusual emissions. (See exhibits)

The intermodulation products measured in this report were calculated as the common $2X A - B =$ 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 KUDD 107.9(FM).

With regards to the KUDD 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 that reads "Scot W. Mathews". The signature is written in a cursive, flowing style.

Scot Mathews
Consulting Engineer

Spurious Emissions

AN940

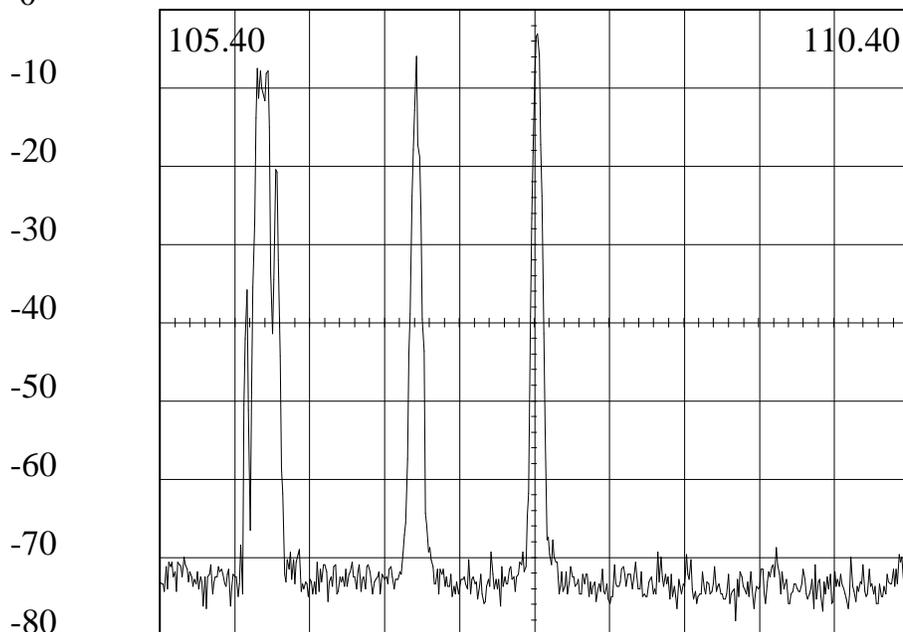
Serial # 1009

dBm
0
kHz/Div

107.90
MHz

9
kHz Res

107.9 w/o Mod
02/21/2014 11:32:14



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 107.9251

Peak Level: -3.14

Spurious Emissions

AN940

Serial # 1009

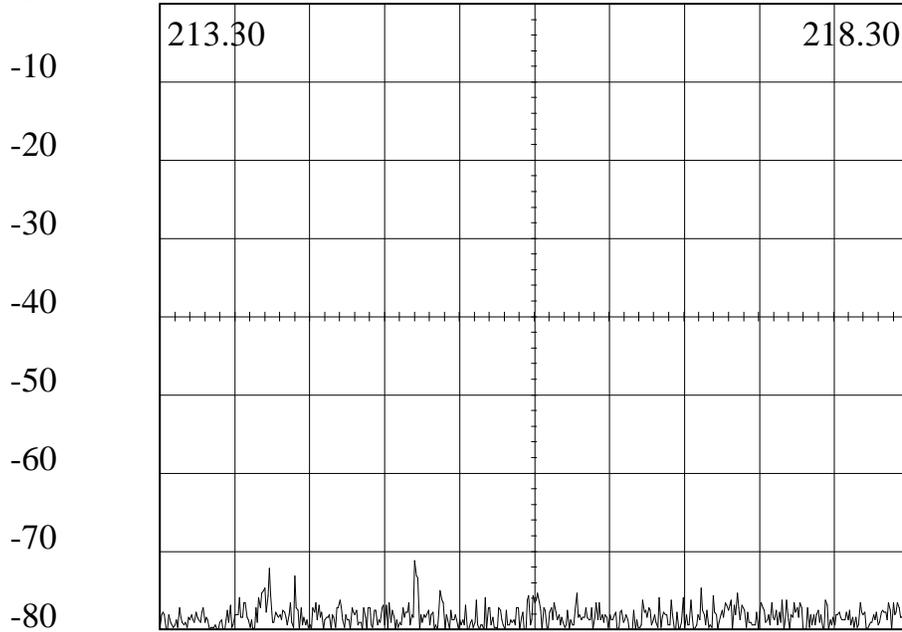
500.0
kHz/Div

215.80
MHz

9
kHz Res

107.9 2nd Harmonic
02/21/2014 11:34:33

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 215.0034

Peak Level: -71.22

Spurious Emissions

AN940

Serial # 1009

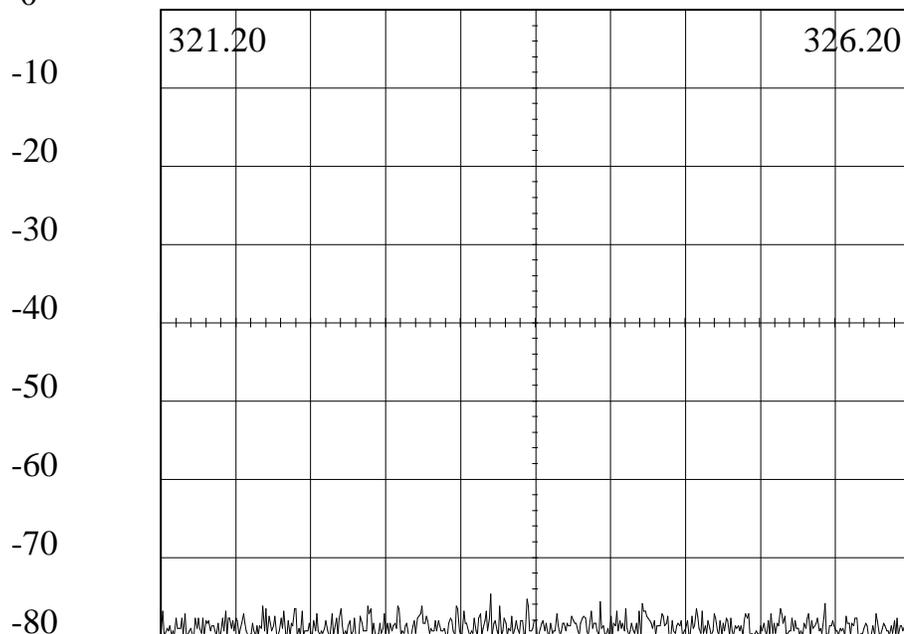
500.0
kHz/Div

323.70
MHz

9
kHz Res

107.9 3rd Harmonic
02/21/2014 11:36:19

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 323.4044

Peak Level: -74.67

Spurious Emissions

AN940

Serial # 1009

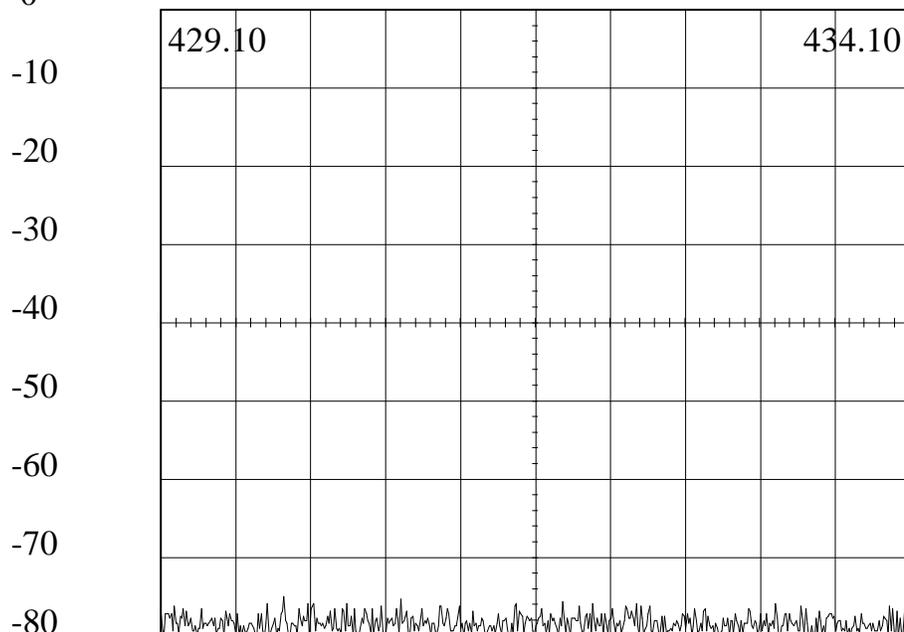
500.0
kHz/Div

431.60
MHz

9
kHz Res

107.9 4th Harmonic
02/21/2014 11:37:53

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 429.9216

Peak Level: -74.98

Spurious Emissions

AN940

Serial # 1009

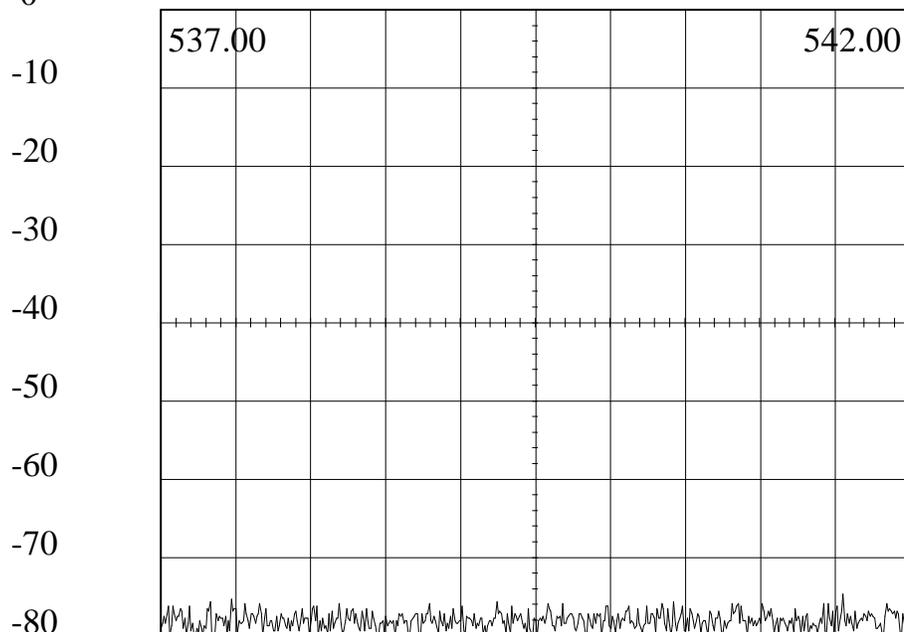
500.0
kHz/Div

539.50
MHz

9
kHz Res

107.9 5th Harmonic
02/21/2014 11:38:45

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 541.5591

Peak Level: -74.67

Spurious Emissions

AN940

Serial # 1009

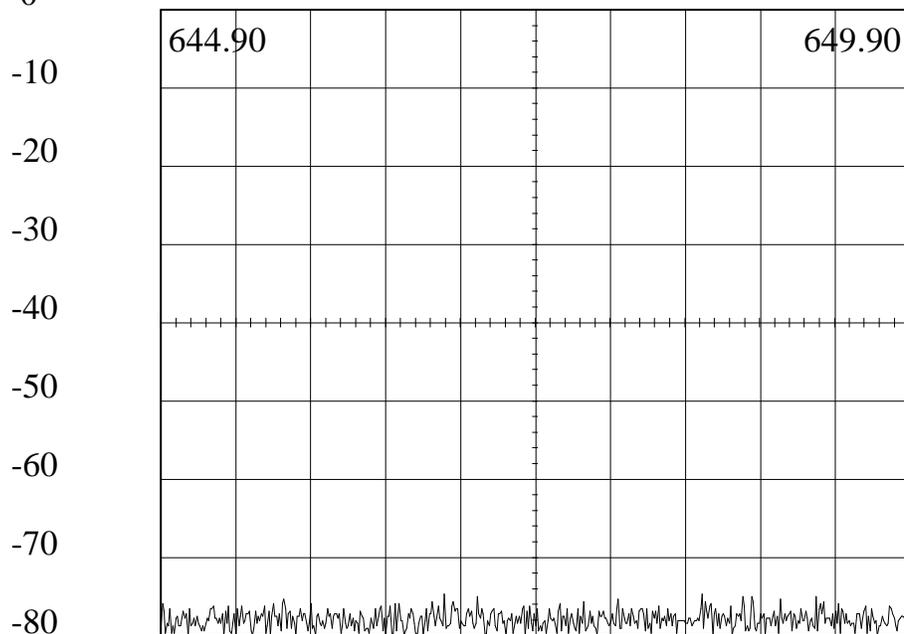
500.0
kHz/Div

647.40
MHz

9
kHz Res

107.9 6th Harmonic
02/21/2014 11:39:14

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 646.7938

Peak Level: -74.67

Spurious Emissions

AN940

Serial # 1009

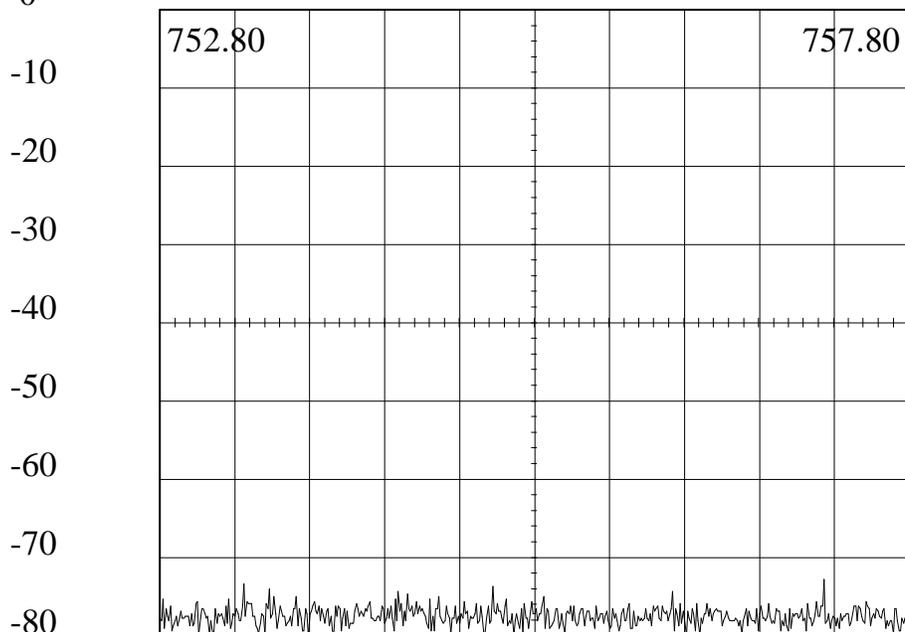
500.0
kHz/Div

755.30
MHz

9
kHz Res

107.9 7th Harmonic
02/21/2014 11:40:24

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 757.2389

Peak Level: -72.78

Spurious Emissions

AN940

Serial # 1009

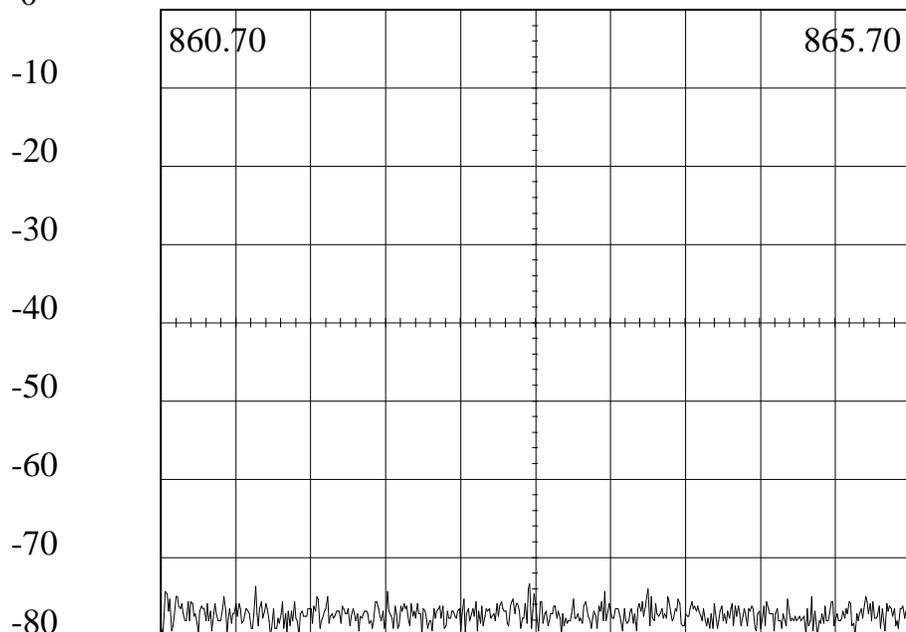
500.0
kHz/Div

863.20
MHz

9
kHz Res

107.9 8th Harmonic
02/21/2014 11:41:19

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 863.1649

Peak Level: -73.41

Spurious Emissions

AN940

Serial # 1009

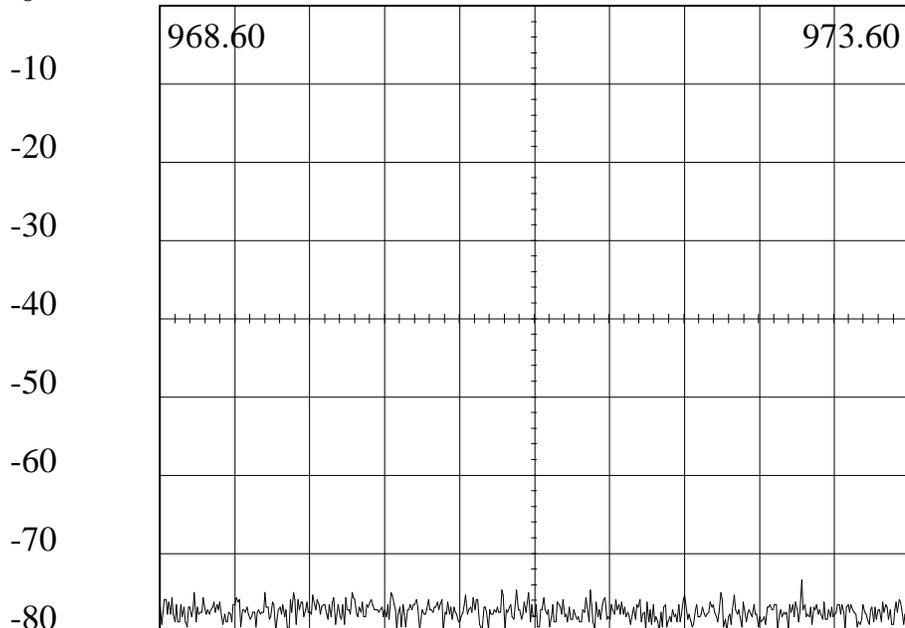
500.0
kHz/Div

971.10
MHz

9
kHz Res

107.9 9th Harmonic
02/21/2014 11:41:59

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 972.8886

Peak Level: -73.41

Spurious Emissions

AN940

Serial # 1009

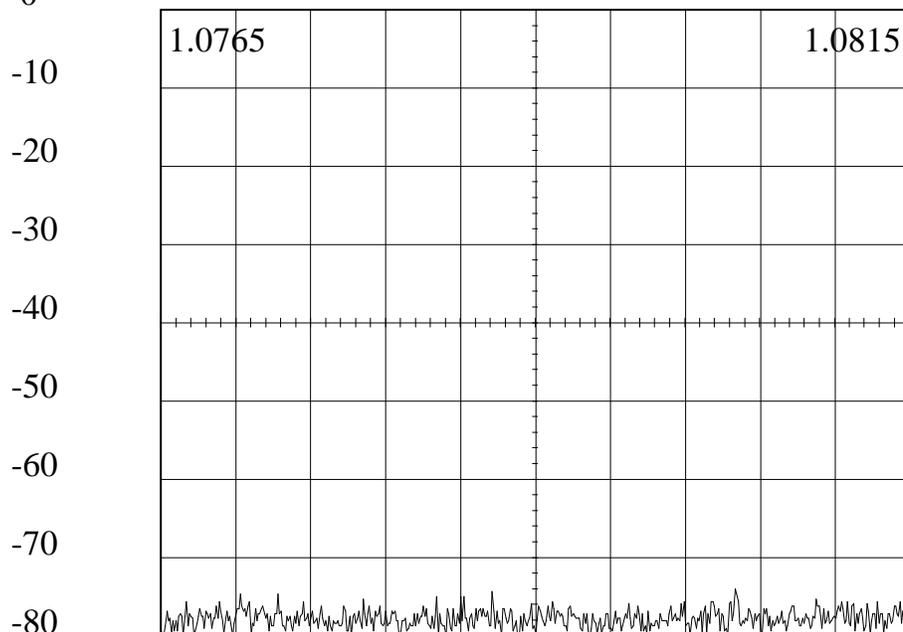
500.0
kHz/Div

1.079
GHz

9
kHz Res

107.9 10th Harmonic
02/21/2014 11:42:40

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 1080.3377

Peak Level: -74.04

Spurious Emissions

AN940

Serial # 1009

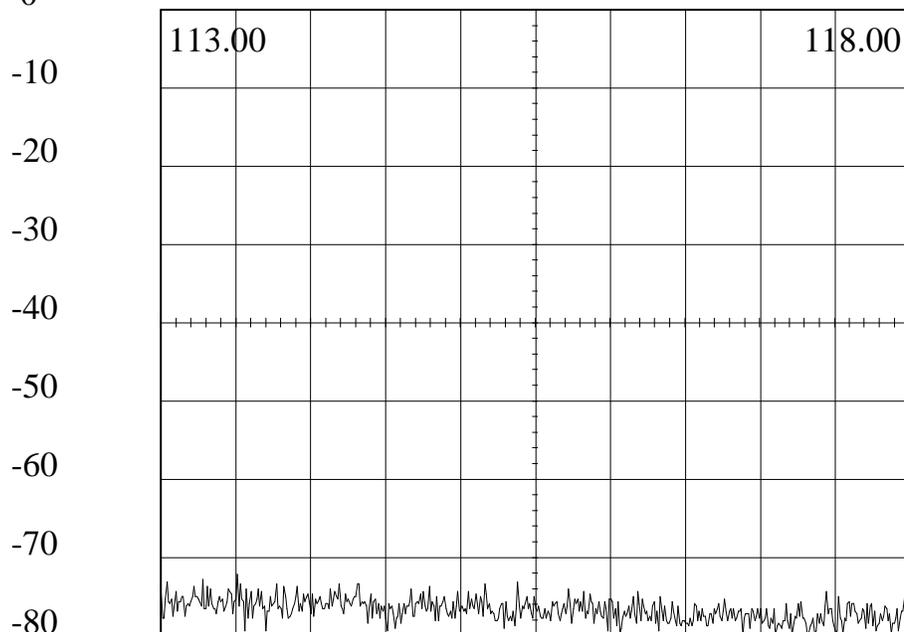
500.0
kHz/Div

115.50
MHz

9
kHz Res

107.9 IM with 100.7
02/21/2014 11:50:27

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 113.511

Peak Level: -72.16

Spurious Emissions

AN940

Serial # 1009

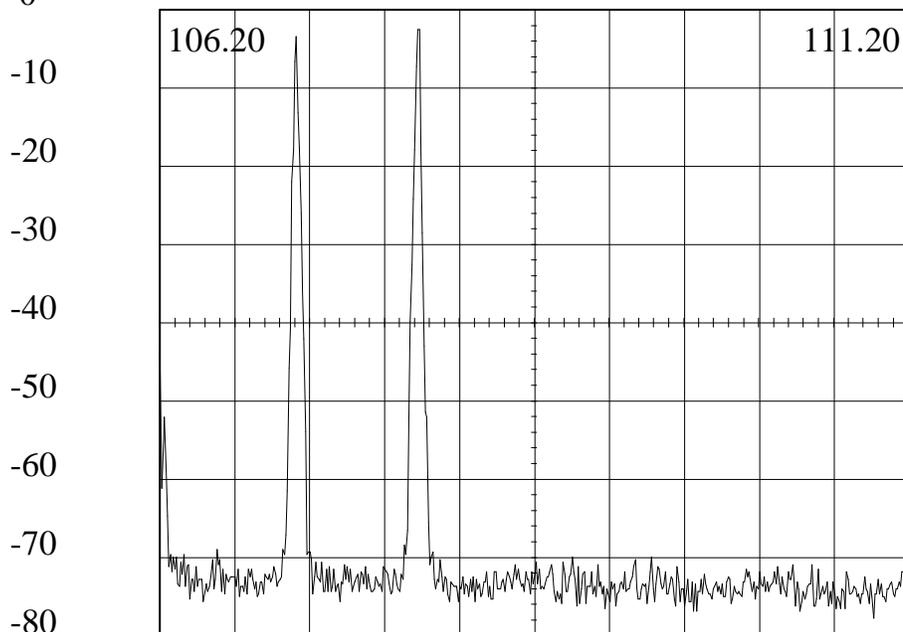
dBm
0

500.0
kHz/Div

108.70
MHz

9
kHz Res

107.9 IM with 107.1
02/21/2014 11:43:45



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 107.9234

Peak Level: -2.51

Spurious Emissions

AN940

Serial # 1009

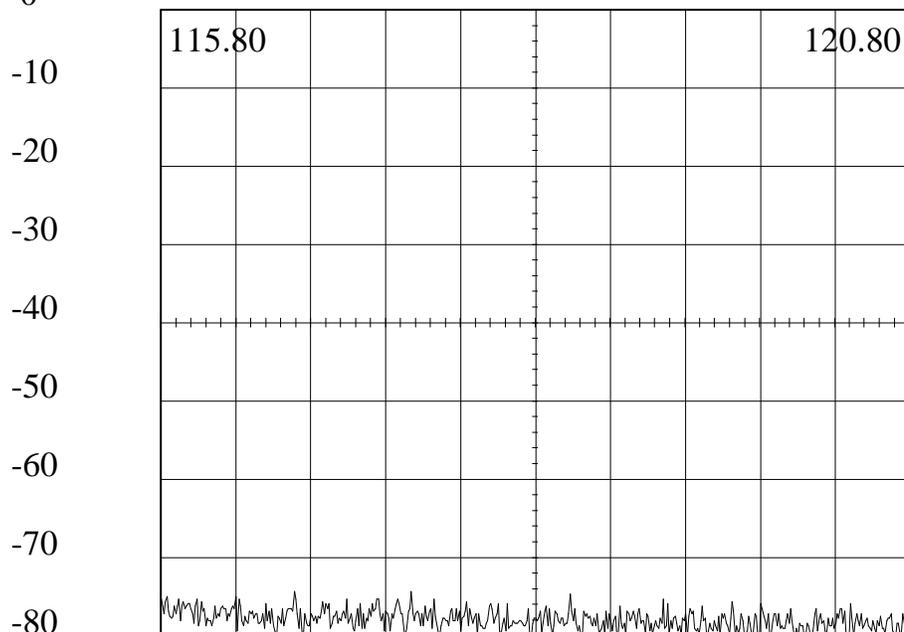
500.0
kHz/Div

118.30
MHz

9
kHz Res

107.9 IM with 97.5
02/21/2014 11:44:42

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 116.6918

Peak Level: -74.35

Spurious Emissions

AN940

Serial # 1009

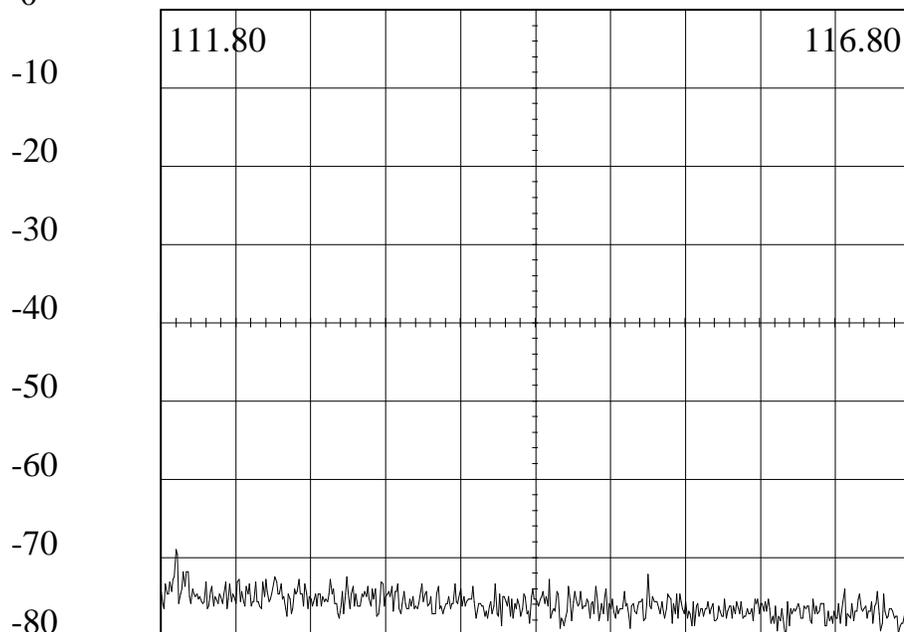
500.0
kHz/Div

114.30
MHz

9
kHz Res

107.9 IM with 101.5
02/21/2014 11:45:34

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 111.9002

Peak Level: -69.02

Spurious Emissions

AN940

Serial # 1009

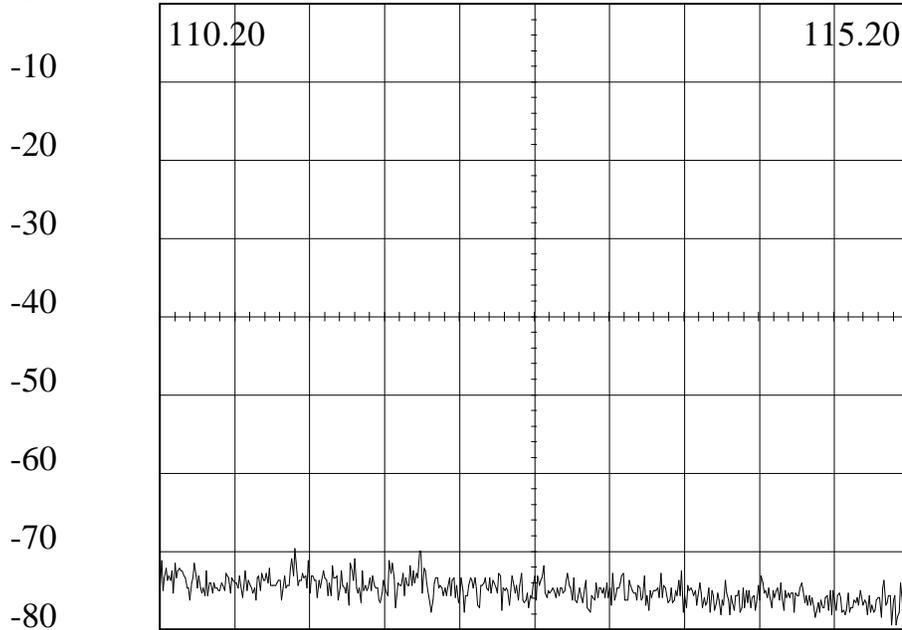
500.0
kHz/Div

112.70
MHz

9
kHz Res

107.9 IM with 103.1
02/21/2014 11:47:07

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 111.1018

Peak Level: -69.65

Spurious Emissions

AN940

Serial # 1009

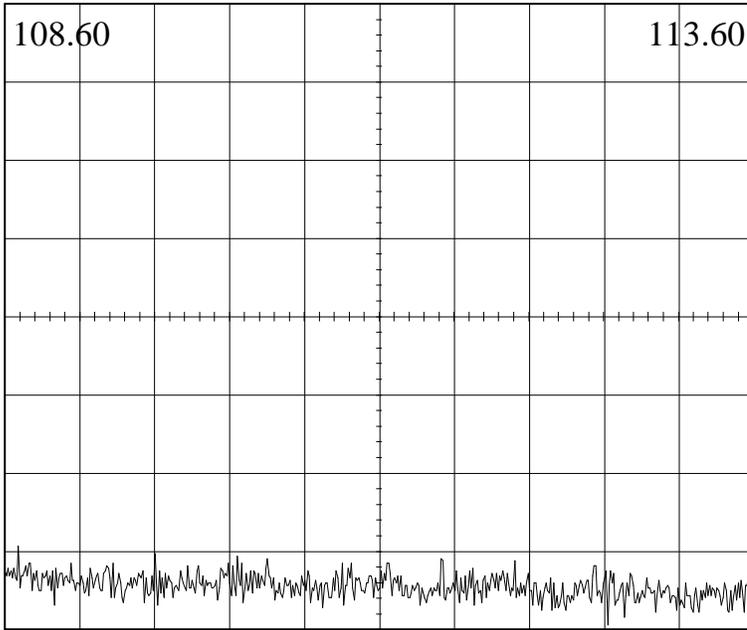
500.0
kHz/Div

111.10
MHz

9
kHz Res

107.9 IM with 104.7
02/21/2014 11:47:38

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



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 108.6902

Peak Level: -69.33

Spurious Emissions

AN940

Serial # 1009

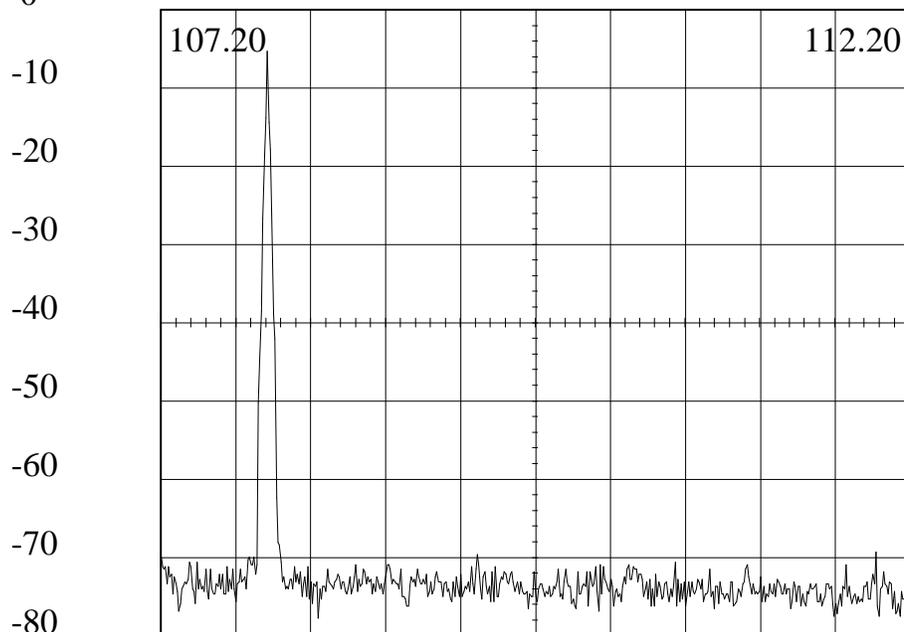
500.0
kHz/Div

109.70
MHz

9
kHz Res

107.9 IM with 106.1
02/21/2014 11:48:29

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 107.9114

Peak Level: -5.33

Spurious Emissions

AN940

Serial # 1009

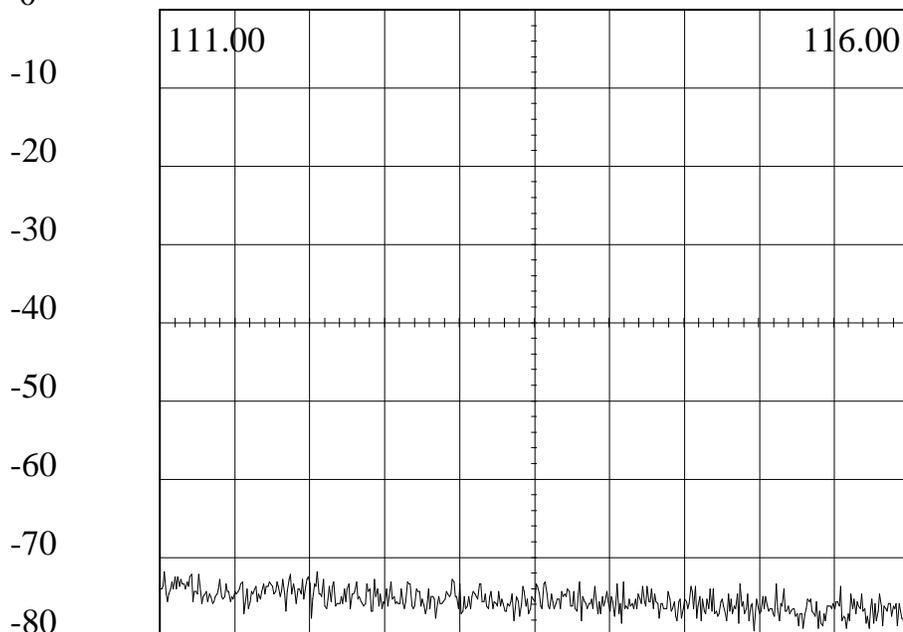
500.0
kHz/Div

113.50
MHz

9
kHz Res

107.9 IM with 102.3
02/21/2014 11:49:14

dBm
0



30 dB Attn

Gen --- dBm

50 mSecs

0 dB IF Gain

Video Filter: 1 kHz

Peak Freq: 111.0301

Peak Level: -71.84