

# KEGH-FM1 Spurious Emissions Report

Provo, Utah

On the Morning of September 7<sup>th</sup> 2006 equipment performance measurements were made for broadcast booster station KEGH-FM1 permit file number: BNPFTB-20060411ABP

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-FM1 (100.7 MHz) is one of 5 stations sharing a master antenna system at the Spirit Hill Communications site located in Provo, Utah. The outputs of the 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.

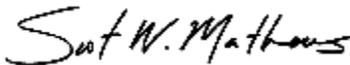
In the case of the KEGH-FM1 transmission system, the measurement equipment was feed by a directional coupler at the combined output. Measurements were made on the station's carrier frequency for reference purposes and to look at occupied bandwidth for any spurious emissions. The calibration of the IFR 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.

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 KEGH-FM1.

With regards to the KEGH-FM1 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,



Scot W. Mathews  
Director of Engineering

Simmons Media Group

AN940

Serial # 1009

200.0

100.70

1

100.7 w/ Mod

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:08:33

-20

-30

-40

-50

-60

-70

-80

-90

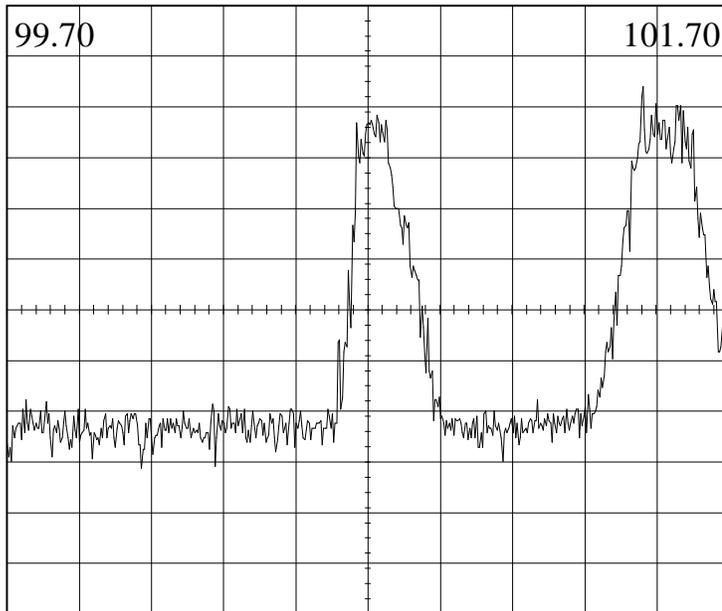
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 101.4635

Peak Level: -30.67

Simmons Media Group

AN940

Serial # 1009

200.0

100.70

1

100.7 w/o mod

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:14:23

-20

-30

-40

-50

-60

-70

-80

-90

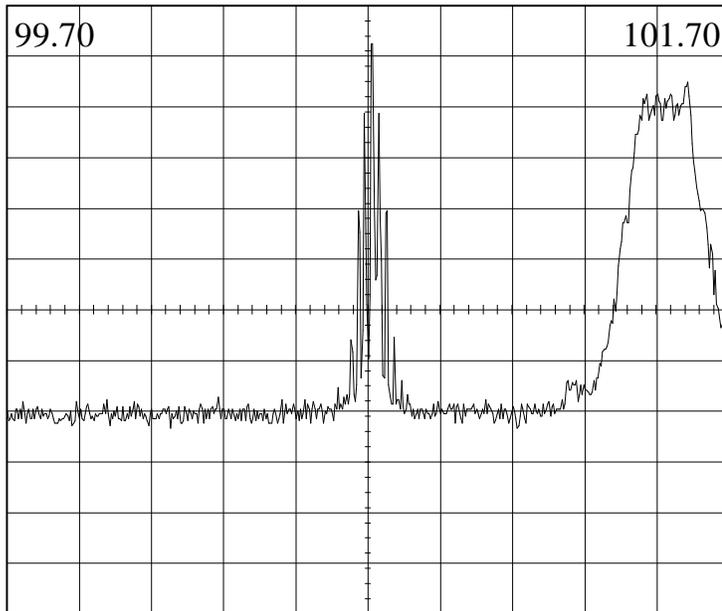
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

1000 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 100.71

Peak Level: -25.02

Simmons Media Group

AN940

Serial # 1009

200.0

201.40

1

100.7 2nd Order

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:18:44

-20

-30

-40

-50

-60

-70

-80

-90

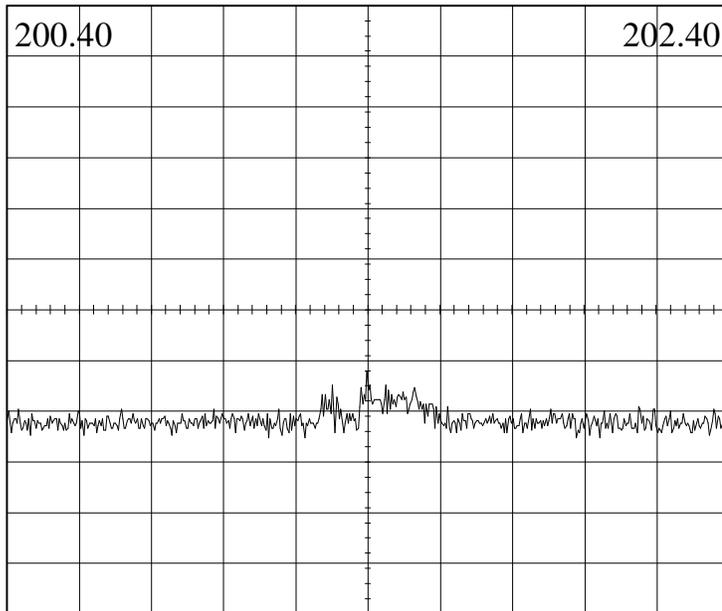
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 201.398

Peak Level: -68.

Simmons Media Group

AN940

Serial # 1009

200.0

302.10

1

100.7 3rd Order

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:19:40

-20

-30

-40

-50

-60

-70

-80

-90

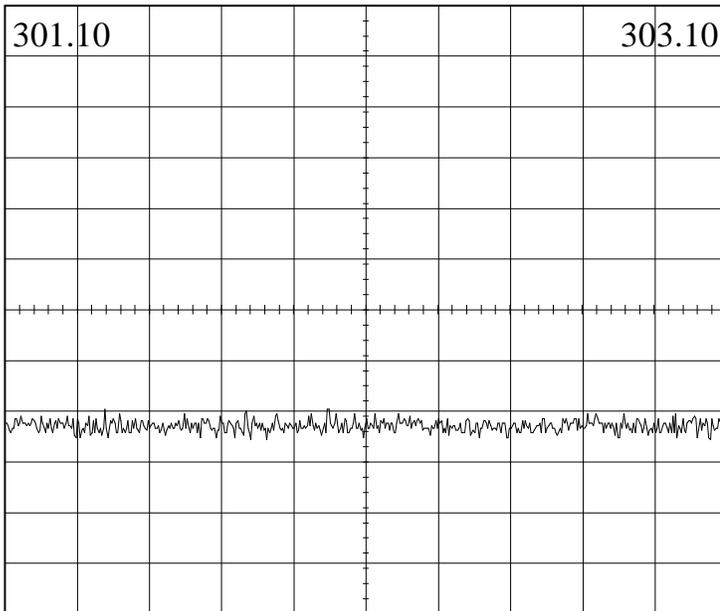
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 301.3766

Peak Level: -73.02

Simmons Media Group

AN940

Serial # 1009

200.0

402.80

1

100.7 4th Order

kHz/Div

MHz

kHz Res

09/07/2006 00:20:42

dBm

-20

-30

-40

-50

-60

-70

-80

-90

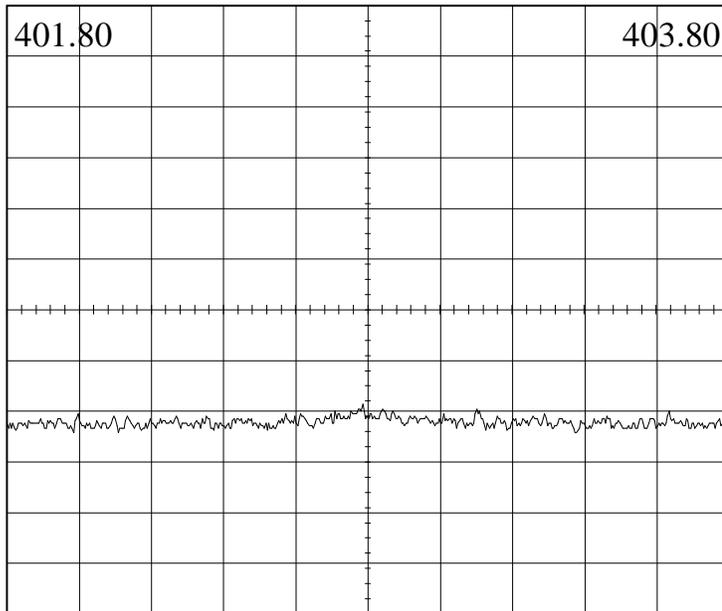
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 402.786

Peak Level: -72.39

Simmons Media Group

AN940

Serial # 1009

200.0

503.50

1

100.7 5th Order

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:21:49

-20

-30

-40

-50

-60

-70

-80

-90

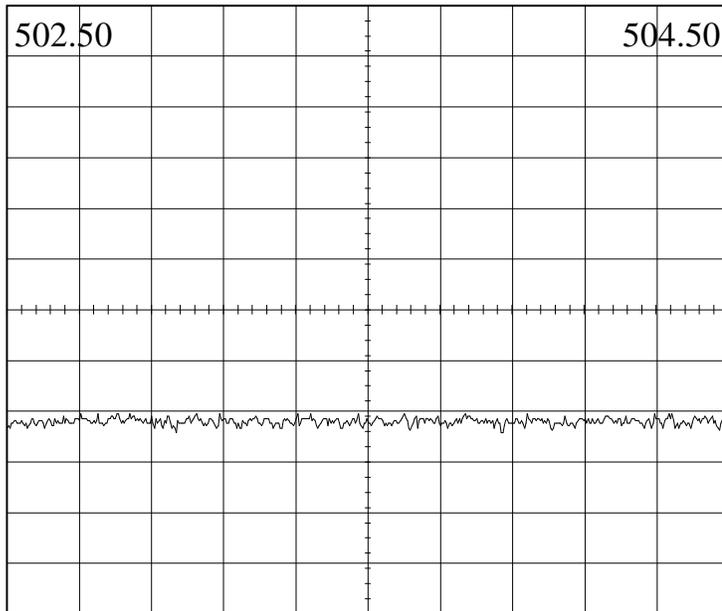
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 502.7044

Peak Level: -73.65

Simmons Media Group

AN940

Serial # 1009

200.0

604.20

1

100.7 6th Order

kHz/Div

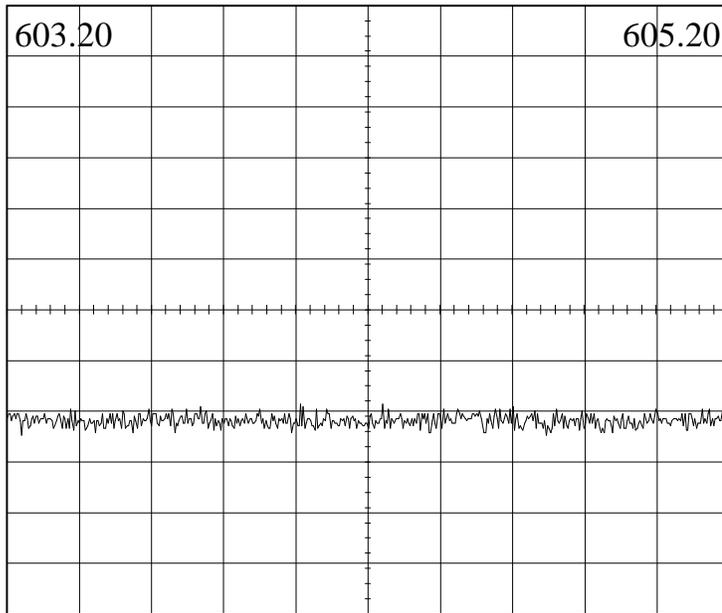
MHz

kHz Res

09/07/2006 00:22:58

dBm

-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90  
-100  
-110  
-120  
-130  
-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 604.0136

Peak Level: -72.39

Simmons Media Group

AN940

Serial # 1009

200.0

704.90

1

100.7 7th Order

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:24:17

-20

-30

-40

-50

-60

-70

-80

-90

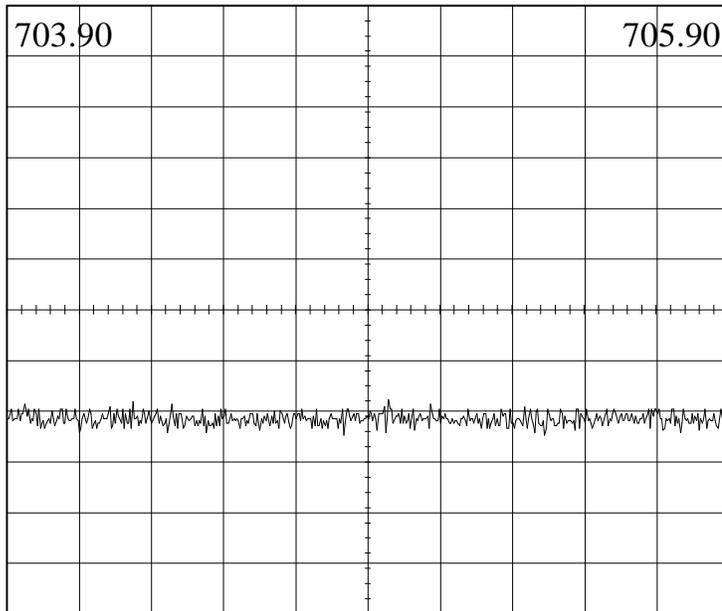
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 704.9581

Peak Level: -71.76

Simmons Media Group

AN940

Serial # 1009

200.0

805.60

1

100.7 8th Order

kHz/Div

MHz

kHz Res

09/07/2006 00:25:27

dBm

-20

-30

-40

-50

-60

-70

-80

-90

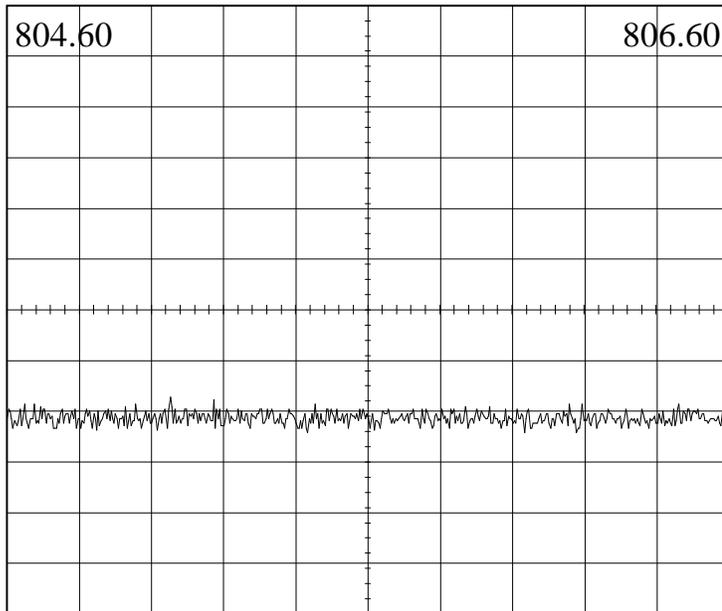
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 805.0529

Peak Level: -71.45

Simmons Media Group

AN940

Serial # 1009

200.0

906.30

1

100.7 9th Order

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:26:24

-20

-30

-40

-50

-60

-70

-80

-90

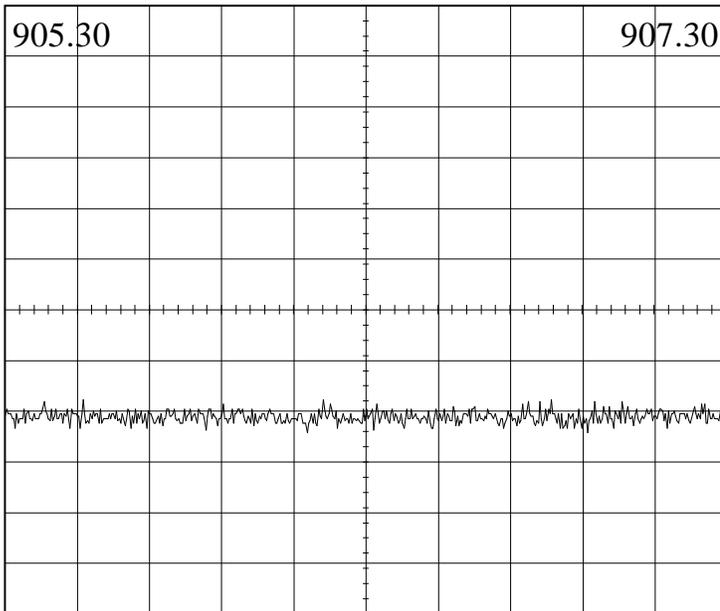
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 905.5164

Peak Level: -71.76

Simmons Media Group

AN940

Serial # 1009

200.0

1.007

1

100.7 10th Order

dBm

kHz/Div

GHz

kHz Res

09/07/2006 00:27:17

-20

-30

-40

-50

-60

-70

-80

-90

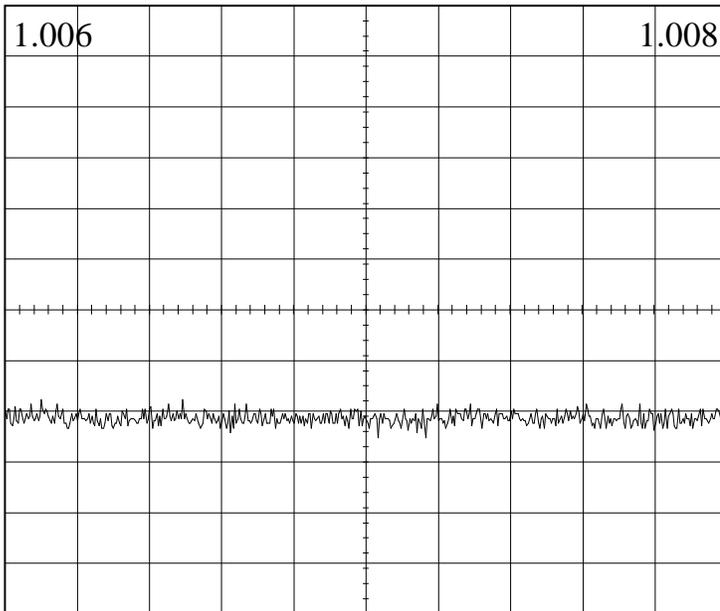
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 1006.1002

Peak Level: -71.76

Simmons Media Group

AN940

Serial # 1009

200.0

99.90

1

IM Prod. with 101.5

dBm

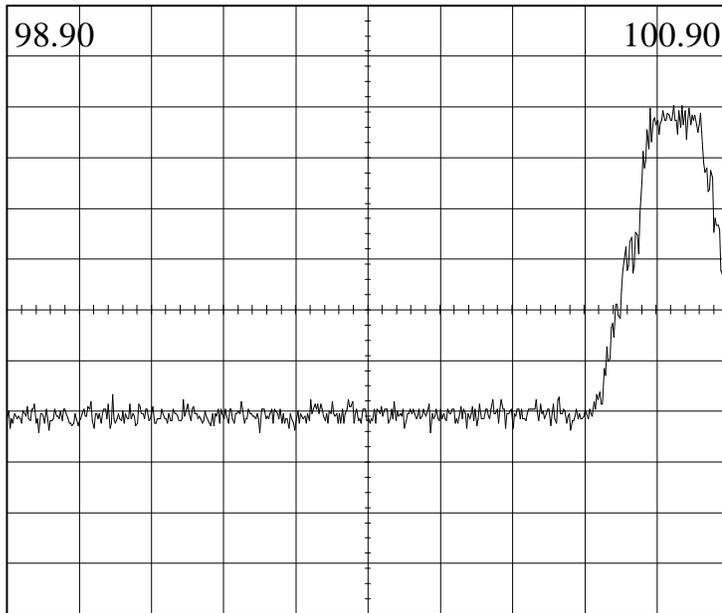
kHz/Div

MHz

kHz Res

09/07/2006 00:29:02

-20  
-30  
-40  
-50  
-60  
-70  
-80  
-90  
-100  
-110  
-120  
-130  
-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 100.7477

Peak Level: -33.18

Simmons Media Group

AN940

Serial # 1009

200.0

98.30

1

IM Prod. with 103.1

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:29:57

-20

-30

-40

-50

-60

-70

-80

-90

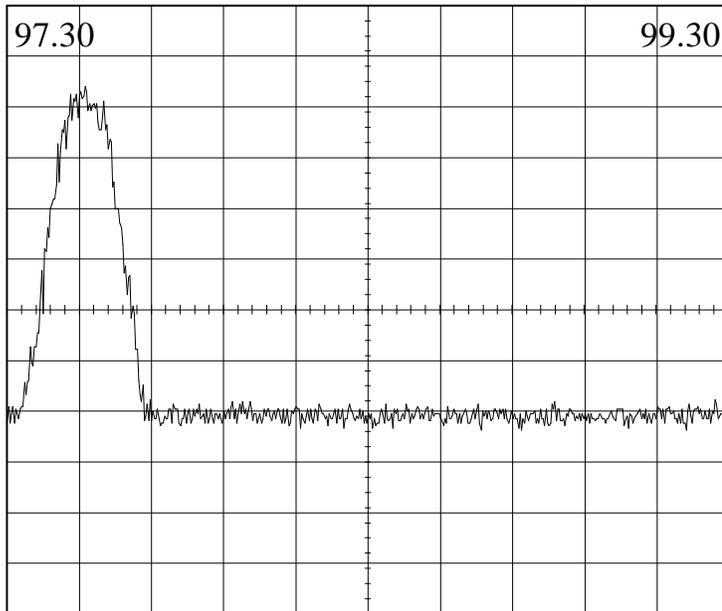
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 97.5164

Peak Level: -30.67

Simmons Media Group

AN940

Serial # 1009

200.0

103.90

1

IM Prod. with 97.5

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:31:40

-20

-30

-40

-50

-60

-70

-80

-90

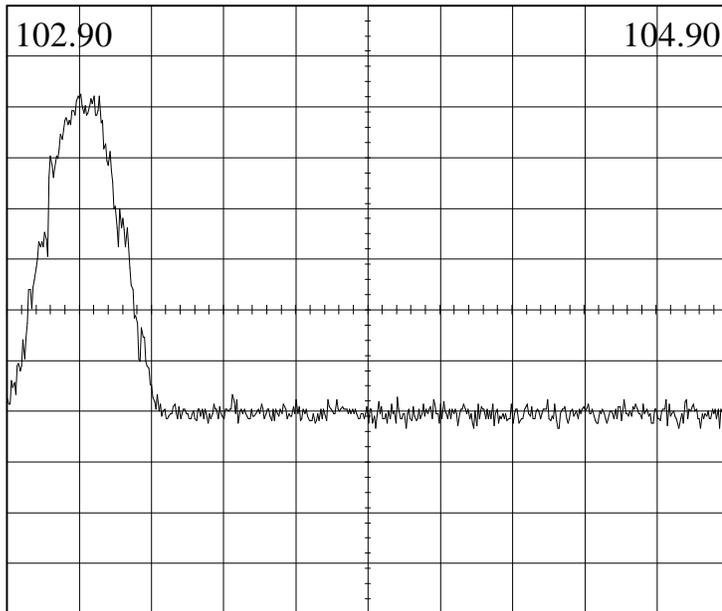
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 103.1044

Peak Level: -31.61

Simmons Media Group

AN940

Serial # 1009

200.0

95.30

1

IM Prod. with 106.1

dBm

kHz/Div

MHz

kHz Res

09/07/2006 00:32:39

-20

-30

-40

-50

-60

-70

-80

-90

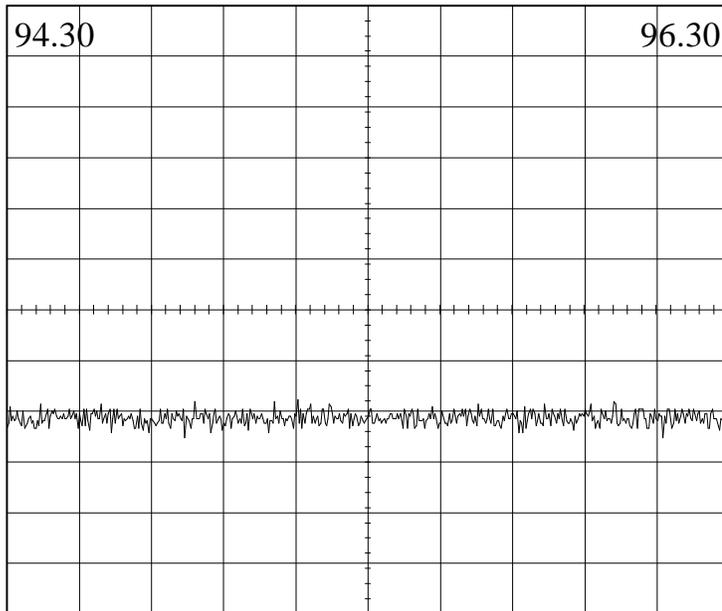
-100

-110

-120

-130

-140



10 dB Attn

Gen --- dBm

100 mSecs

0 dB IF Gain

Video Filter: 10 kHz

Peak Freq: 95.1056

Peak Level: -71.76