KUDD-FM1 Modification

Simmons-SLC, LS, LLC. Licensee of KUDD is requesting a modification of licensed facility BLFTB-20090414AGR as it prepares to move its current facilities to fulfill construction permit BMPH-20140206AJU. As such the Commission is requiring a modification to bring the facility into compliance with Section 74.1232 (f). The follow is the documentation of compliance being submitted with the 302-FM application for license.

The following will demonstrate new compliance for KUDD-FM1 and will show the new operating parameters for: Spurious Emissions, Radio Frequency Radiation, Transmitter power output calculations, antenna type, model, etc.

40-48-29 N (NAD27)
111-53-23 W (NAD27)
ERP 2.1 KW
AMSL – 1827m
AGL – 17m

Relative Field values for directional antenna. Pattern Rotation: 130.00

0° 1.000	60° 0.240	120° 0.120	180° 0.150	240° 0.120	300° 0.200
10° 0.960	70° 0.140	130° 0.120	190° 0.140	250° 0.110	310° 0.340
20° 0.850	80° 0.090	140° 0.120	200° 0.130	260° 0.100	320° 0.510
30° 0.700	90° 0.090	150° 0.130	210° 0.130	270° 0.090	330° 0.690
40° 0.540	100° 0.100	160° 0.140	220° 0.120	280° 0.090	340° 0.840
50° 0.370	110° 0.110	170° 0.140	230° 0.130	290° 0.130	350° 0.950

Exhibit #1 demonstrates the transmitter power output for KUDD-FM1

Exhibit #2 shows the new contour for the KUDD-FM1 within the 60 dbu contour of the main facility. The new ERP for the auxiliary will be 2.1kw with an azimuth of 130 degrees.

Exhibit #3 RFR study of proposed modifications

Exhibit #4 Spurious Emissions Report

Exhibit #1

KUDD-FM1 Salt Lake City, UT

Transmitter Power Output Calculations

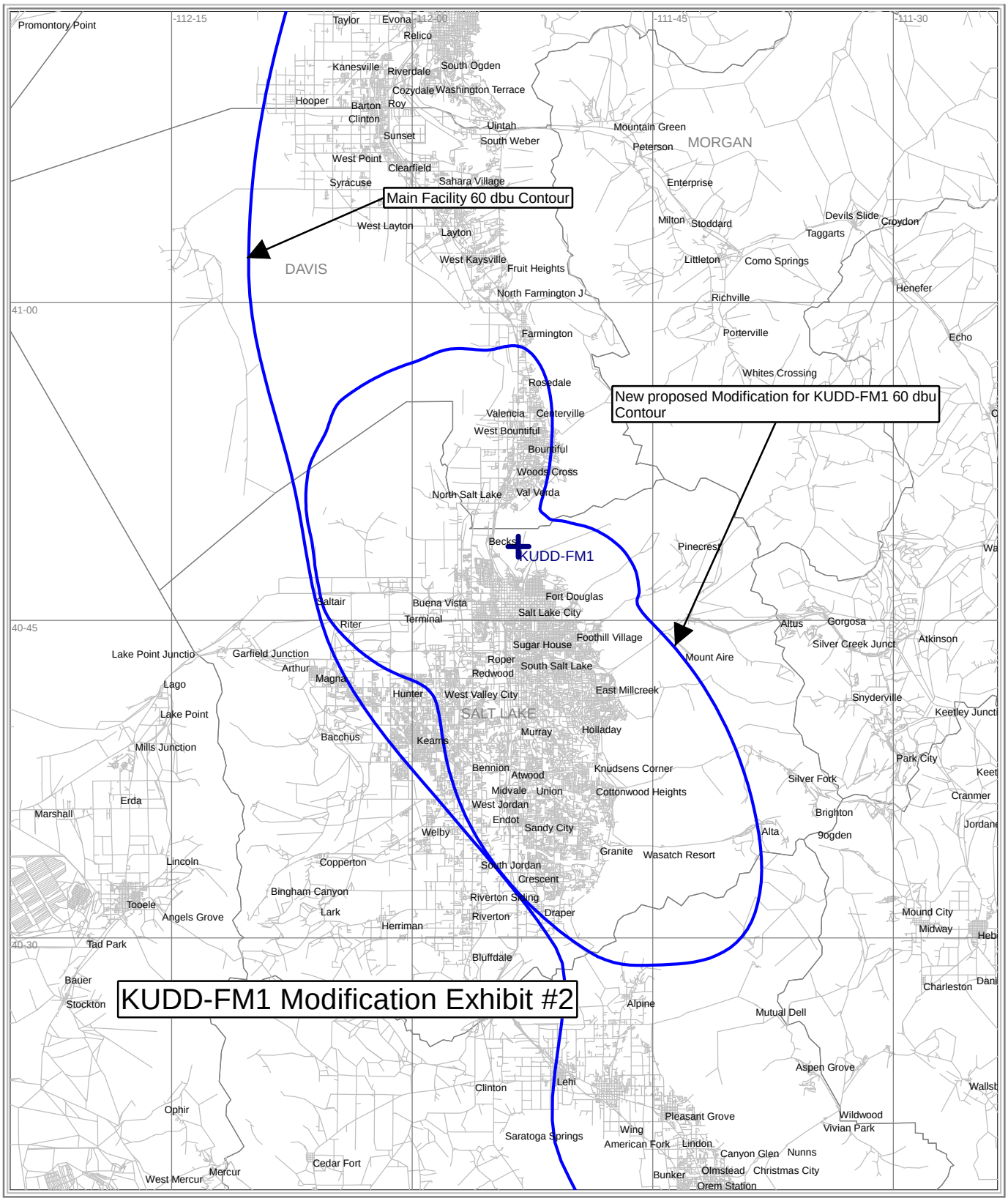
This exhibit has been included to explain the basis for the transmitter power output utilized to achieve the authorized effective radiated power 2.1 kW. The antenna system consists of a circularly polarized Shively 6016/2 Antenna. The antenna has a power gain of 6.089 at 107.9 MHz. Therefore, an antenna input power of 345 watts is required to achieve 2.1 kW ERP.

To get the signal from the transmitter to the antenna, it must pass through 7 meters of Andrew HJ4-50 (1/2") transmission line (0.22 dB loss), a Jampro RCCC.8 Balanced Combiner (0.8 dB loss), and 30 meters of Andrew HJ7-50 (1 5/8") transmission line (0.24 dB loss). Total insertion losses encountered between the transmitter and antenna are 1.17 dB yielding an efficiency of 74.89%. Therefore, a power of 461 watts is required at the transmitter output to achieve the authorized effective radiated power.

PO Calculations:

$$\frac{\text{Effective Radiated Power}}{(\text{Antenna Power Gain} * \text{Feed System Efficiency})} = \text{TPO}$$

$$\frac{2.1 \text{ kW}}{(6.089 * 74.89\%)} = \textbf{0.461 kW TPO}$$



Proposed modifications for facility 2100 watts 130 degrees

Exhibit #3

Ensign Peak RFR Study

This Engineering Statement was prepared on behalf of Ensign Peak Communications Site located in north of Salt Lake City, Utah. The facility constructed is an established communication Site. The area coordinates are 40° 48' 29.00" N Latitude 111° 53' 23.00" W Longitude (NAD 27) With an AMSL of 1823 meters as this statement provides the radio frequency electromagnetic exposure measurements for the purpose of compliance for radio station booster KUDD-FM1 107.9 FM and was conducted in accordance of the FCC Guidelines (OET Bulletin No. 65 edition 97-01 August 1997) Radiofrequency Electromagnetic Exposure.

A radiofrequency electromagnetic field survey was completed in the vicinity of the multi tower site know as Ensign Peak, as detailed in this document, it ensures radiofrequency exposures do not exceed the FCC guidelines for human exposure to RF fields.

On the evening of March 16th, 2014 using a Narda SRM-3000 narrow band radiofrequency measurement test set with a 300 KHz–3 GHz three axis probe designed for E-field measurements, the meter was set to "Safety Evaluation mode" this function allows for a summary analysis of the site and is divided into nine frequency ranges that are labeled and measured. With the meter set to a "MAX AVERAGE" this allowed for a "worse case scenario". 30 measurements were conducted at various locations from 5 to 150 feet. The following is the RF percentage table of the FCC General Population percentage.

- FM Radio 21.1%
- TV channels 7-13 .997%
- TV channels 14-69 .916%
- SMR tx 0.03%
- AMPS tx 0.0436%
- ESMR 0.0255%
- GSM Tx 0.0449%
- PCS Tx 0.0925%
- Others 5.806%

Total 29.06%

After completion of the "Safety Evaluation" the meter was then set to analyzer mode and scanned for the highest RF emitter. Measurements commenced around the tower to look for any "Hot Spots" that may cause concern. All measurements were made using the percentage table of the FCC General Population (OET Bulletin No. 65 edition 97-01 August 1997) a table of the measurements with the high RF signals is noted: NONE

The radiofrequency environment at Ensign Peak is considered an occupational/controlled environment. This is a remote mountain top site at 1823 meters above mean sea level. The area is

off limits to the general public and is protected by 2 lower gates at the road entry. The locked gates prevent general public from accessing the site. Additionally, the access road is not serviceable during 6 months of the year due to deep snow base. A snow vehicle or helicopter is required to access the site during that time of the year. No general public resides within several miles of the site. Warning signs are posted in accordance to FCC rules and regulations. The measurements made do not exceed Limits for Maximum permissible exposure (MPE) Ensign Peak can be considered a controlled radiofrequency environment.

I Scot Mathews preformed the radiofrequency field survey. A Narda SRM-3000 narrow band radiofrequency measurement test set with a 300 KHz–3 GHz three axis probe designed for E-field measurements was employed. Manufacturer calibration is in accordance to the device and operates correctly. I also state that the Guidelines for human exposure to RF field measurements of the FCC Guidelines (OET Bulletin No. 65 edition 97-01 August 1997) taken with Narda Model SRM-3000 with current calibration on the 20th day of March 2014 are true and accurate to the best of my knowledge.

Respectfully Submitted,

Scot W. Mathews

Scot Mathews
Contract Engineer

KUDD-FM1 107.9 FM

Spurious Emissions Report

On the morning of March 16th 2014, equipment performance measurements were made on behalf of radio station KUDD-FM1 107.9 FM Salt Lake City, Utah. These measurements were made as a condition of the Construction Permit File Number BMPH-20140206AJU.

KUDD-FM1 is one of seven stations sharing a master antenna system at the Alpha Communications transmitter site on Ensign Peak, north of Salt Lake City, Utah. The outputs of the seven stations are combined using a constant impedance balanced band pass filter combining system Model RCCC.08 designed and fabricated by Jampro Antenna, Inc.

Measurements were made while all stations were broadcasting program material typical to its daily operation. KUDD-FM1 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-FM1 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 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 KUDD-FM1 107.9(FM).

With regards to the KUDD-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.

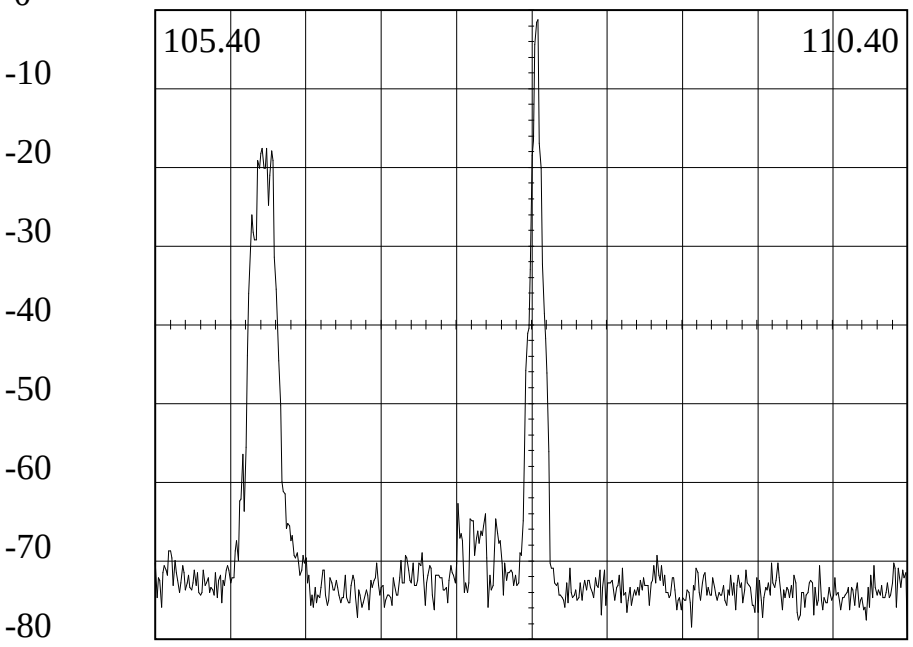
Respectfully Submitted,

Scot Mathews
Consulting Engineer

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 107.90 MHz | 9 kHz Res | 107.9 without Mod | 03/16/2014 01:09:26



30 dB Attn | Gen --- dBm | 50 mSecs

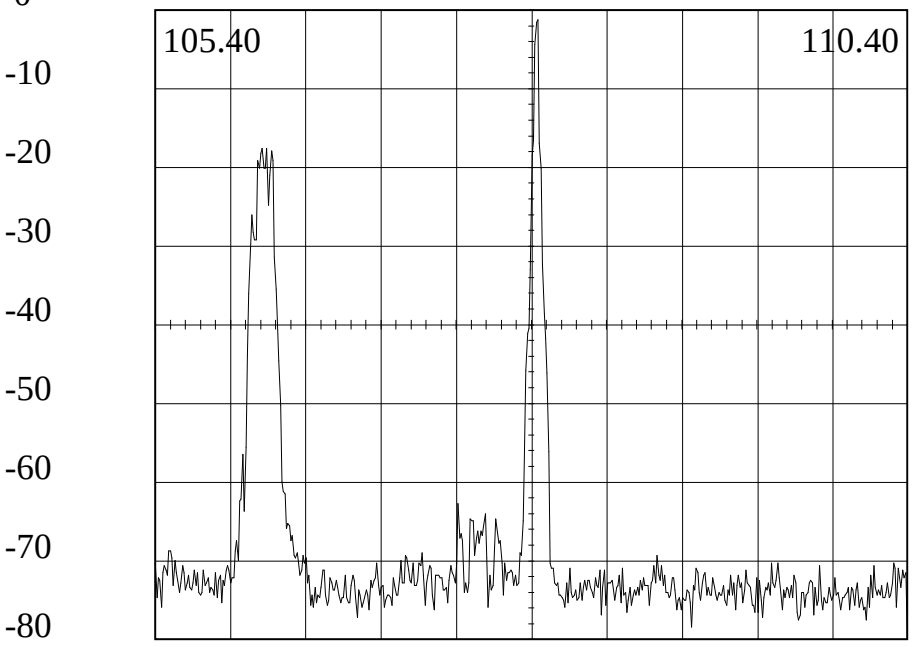
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 107.9451 | Peak Level: -1.25

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 107.90 MHz | 9 kHz Res | 107.9 without Mod | 03/16/2014 01:09:26



30 dB Attn | Gen --- dBm | 50 mSecs

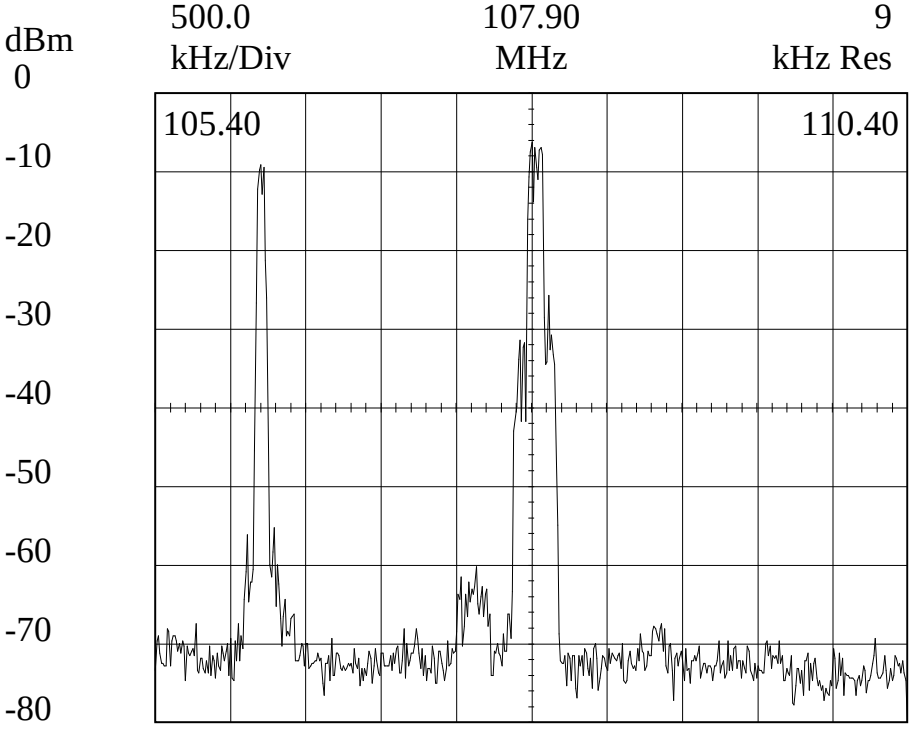
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 107.9451 | Peak Level: -1.25

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 107.90 MHz | 9 kHz Res | 107.9 with Mod | 03/16/2014 01:12:27



30 dB Attn | Gen --- dBm | 50 mSecs

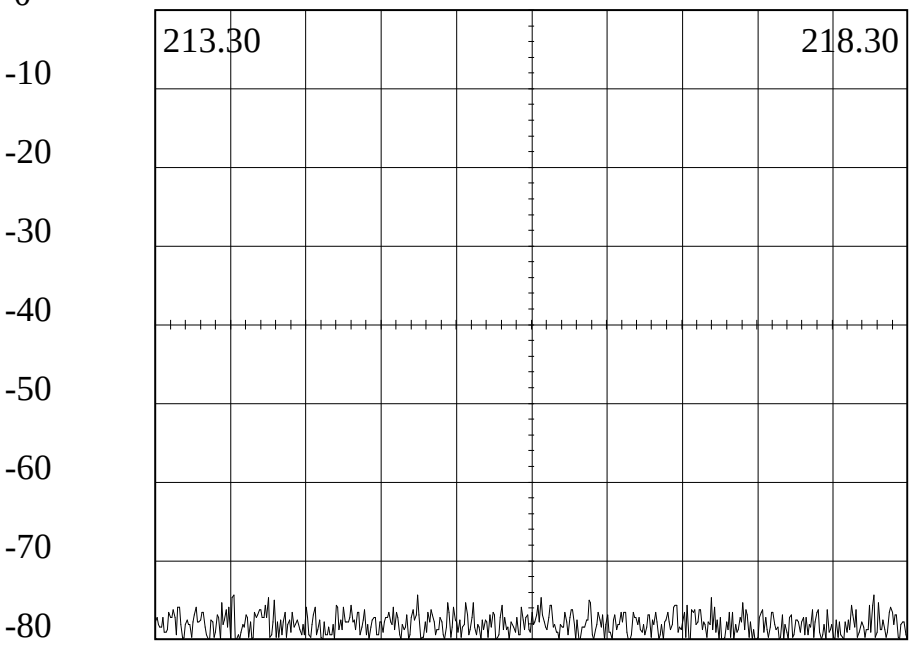
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 107.905 | Peak Level: -6.27

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 215.80 MHz | 9 kHz Res | 107.9 2nd Harmonic | 03/16/2014 01:14:18



30 dB Attn | Gen --- dBm | 50 mSecs

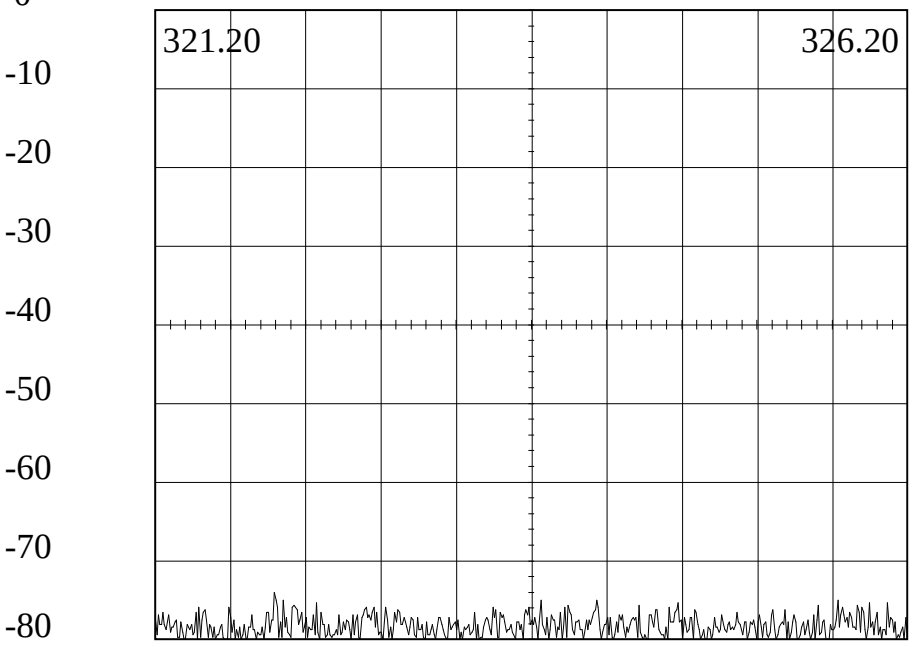
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 213.821 | Peak Level: -74.35

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 323.70 MHz | 9 kHz Res | 107.9 3rd Harmonic | 03/16/2014 01:15:11



30 dB Attn | Gen --- dBm | 50 mSecs

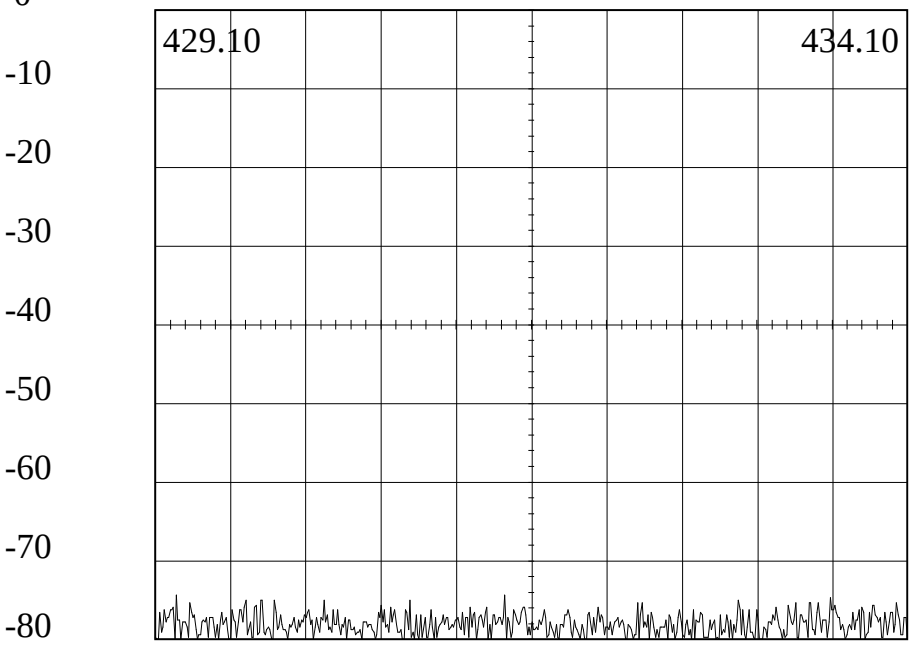
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 321.9916 | Peak Level: -74.04

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 431.60 MHz | 9 kHz Res | 107.9 4th Harmonic | 03/16/2014 01:15:56



30 dB Attn | Gen --- dBm | 50 mSecs

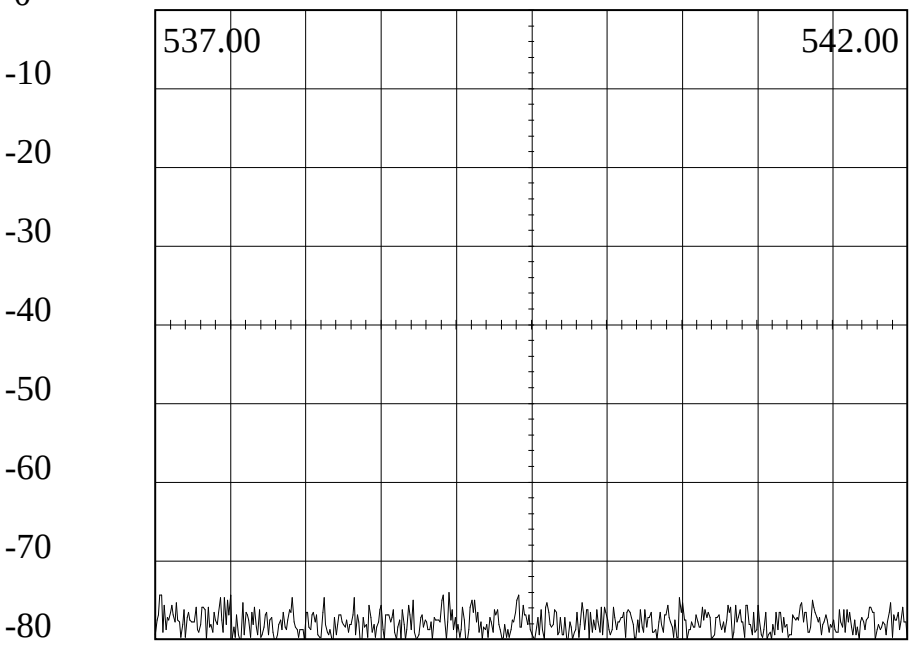
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 429.2403 | Peak Level: -74.35

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 539.50 MHz | 9 kHz Res | 107.9 5th Harmonic | 03/16/2014 01:16:53



30 dB Attn | Gen --- dBm | 50 mSecs

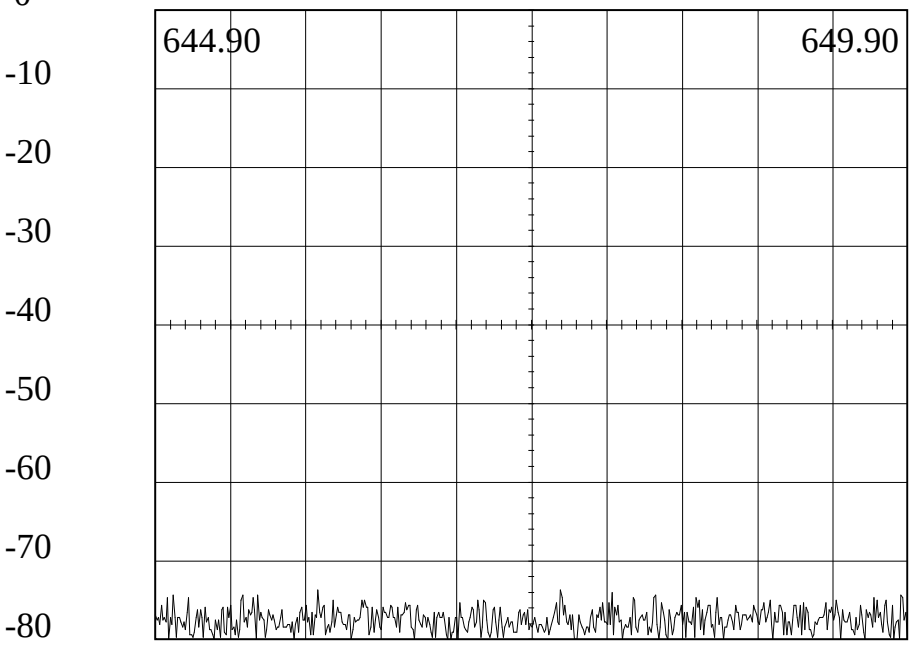
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 538.9539 | Peak Level: -74.04

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 647.40 MHz | 9 kHz Res | 107.9 6th Harmonic | 03/16/2014 01:17:52



30 dB Attn | Gen --- dBm | 50 mSecs

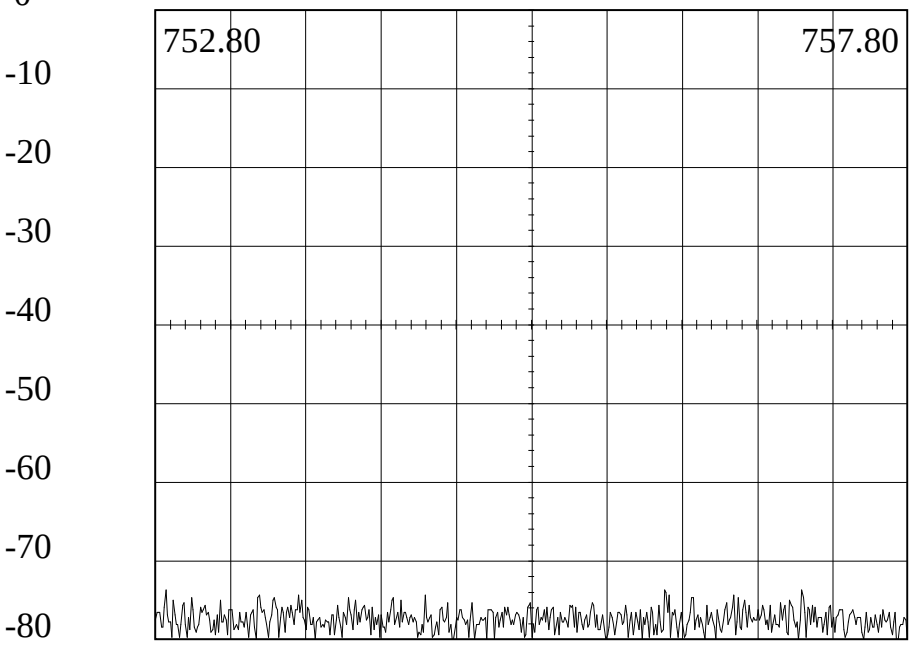
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 645.9822 | Peak Level: -73.73

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 755.30 MHz | 9 kHz Res | 107.9 7th Harmonic | 03/16/2014 01:18:30



30 dB Attn | Gen --- dBm | 50 mSecs

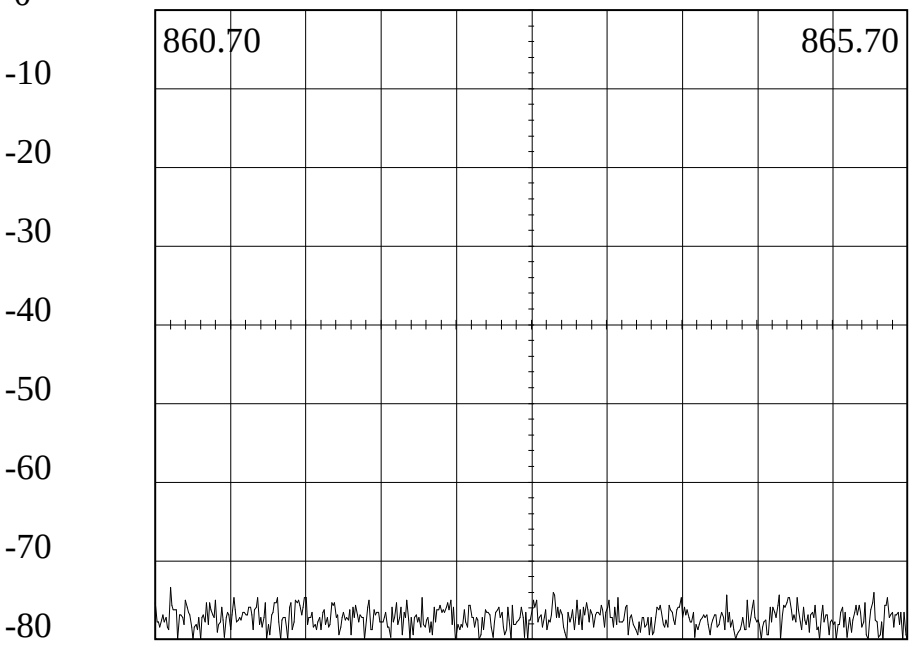
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 752.8701 | Peak Level: -73.73

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 863.20 MHz | 9 kHz Res | 107.9 8th Harmonic | 03/16/2014 01:19:55



30 dB Attn | Gen --- dBm | 50 mSecs

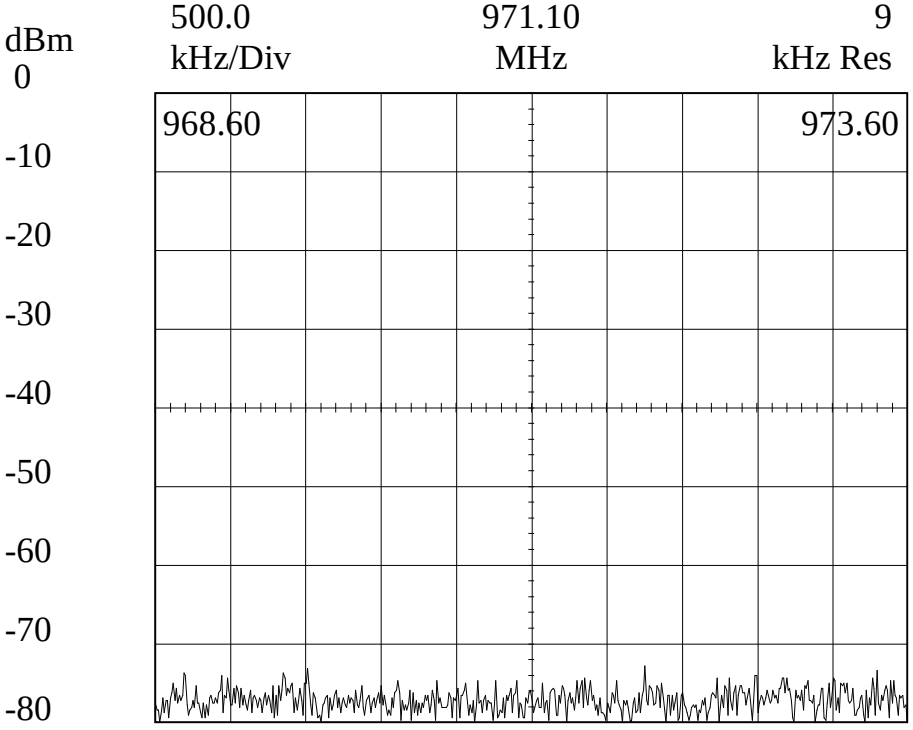
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 860.8002 | Peak Level: -73.41

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 971.10 MHz | 9 kHz Res | 107.9 9th Harmonic | 03/16/2014 01:20:40



30 dB Attn | Gen --- dBm | 50 mSecs

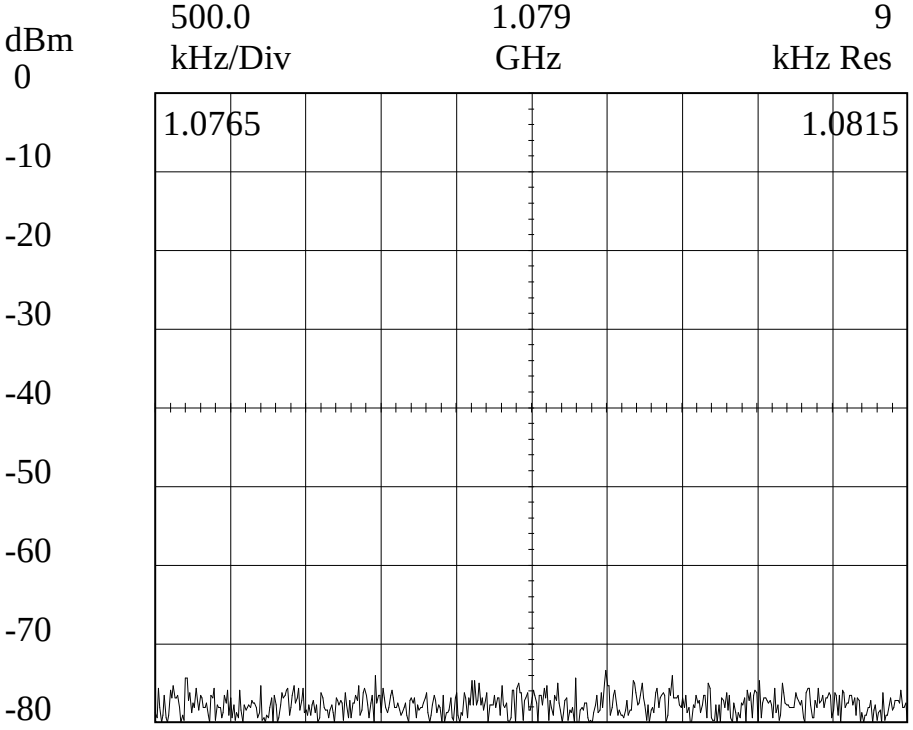
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 971.8565 | Peak Level: -72.78

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 1.079 GHz | 9 kHz Res | 107.9 10th Harmonic | 03/16/2014 01:21:23



30 dB Attn | Gen --- dBm | 50 mSecs

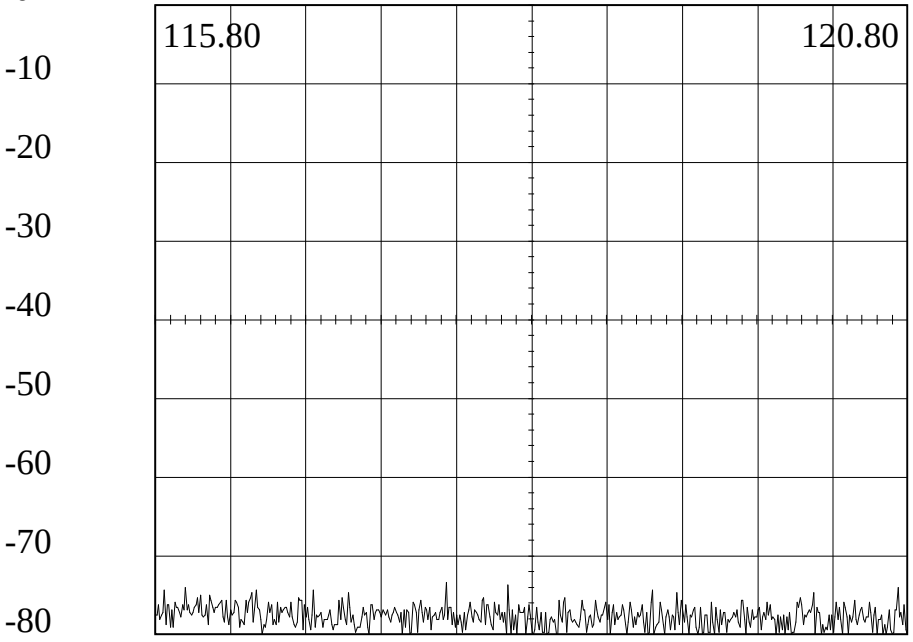
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 1079.496 | Peak Level: -73.41

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 118.30 MHz | 9 kHz Res | IM Product with 97.5 | 03/16/2014 01:22:35



30 dB Attn | Gen --- dBm | 50 mSecs

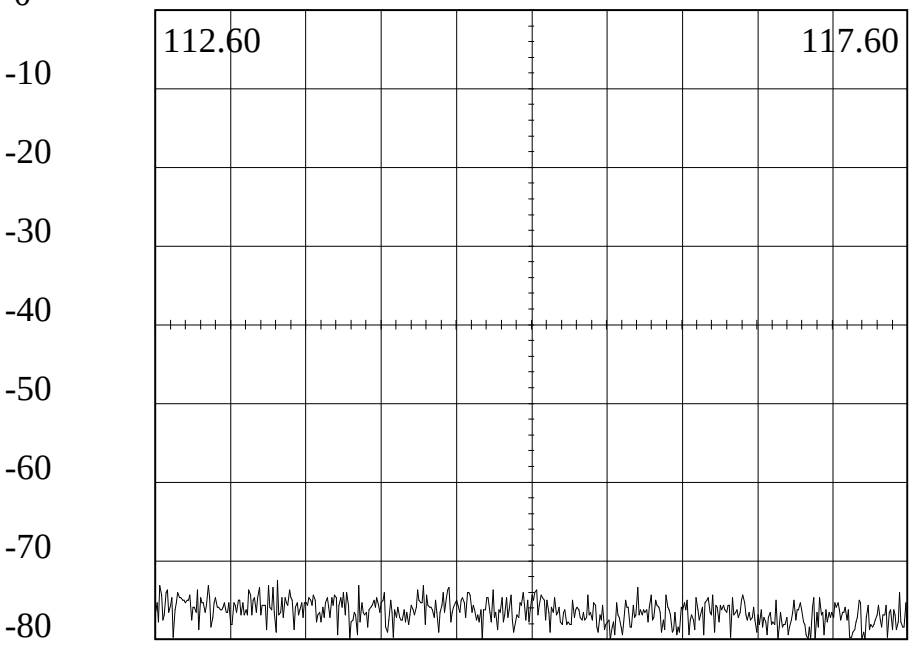
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 117.7339 | Peak Level: -73.41

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 115.10 MHz | 9 kHz Res | IM Product w/ 100.7 | 03/16/2014 01:23:53



30 dB Attn | Gen --- dBm | 50 mSecs

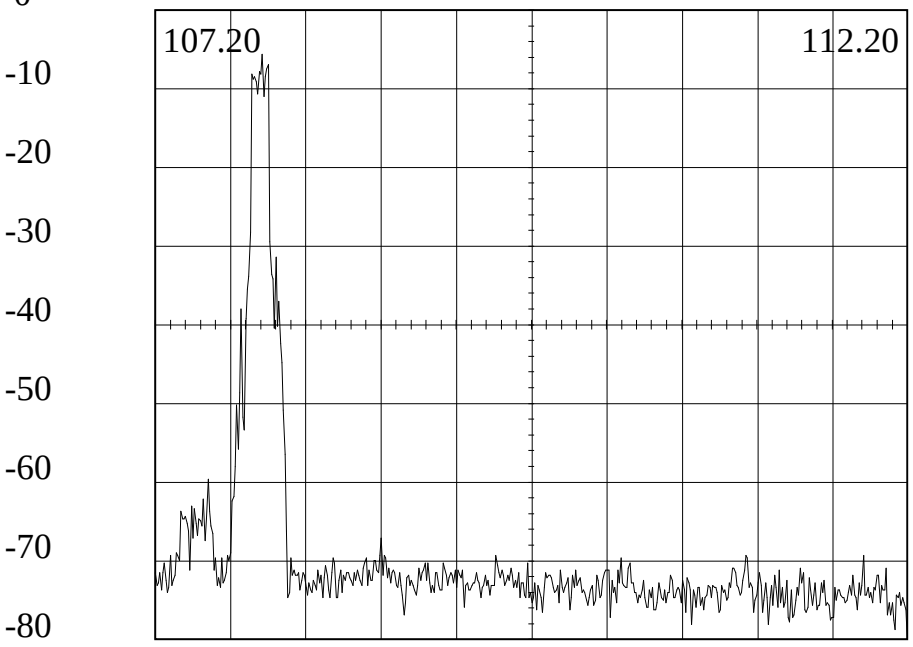
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 113.4116 | Peak Level: -72.47

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 109.70 MHz | 9 kHz Res | IM Product w/ 106.1 | 03/16/2014 01:26:06



30 dB Attn | Gen --- dBm | 50 mSecs

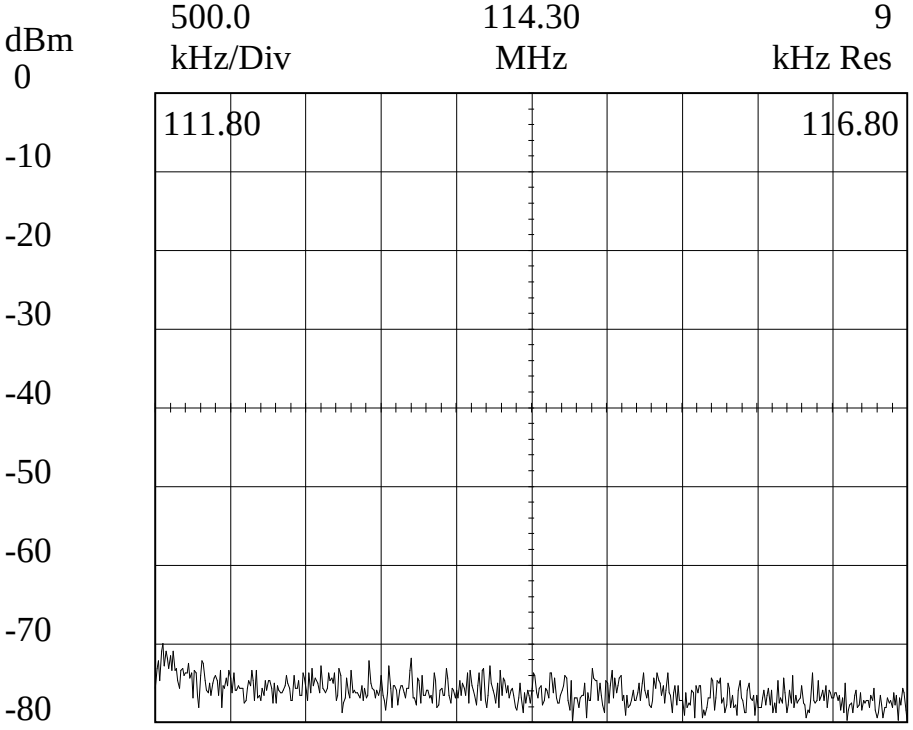
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 107.9114 | Peak Level: -5.65

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 114.30 MHz | 9 kHz Res | IM Product w/ 101.5 | 03/16/2014 01:26:56



30 dB Attn | Gen --- dBm | 50 mSecs

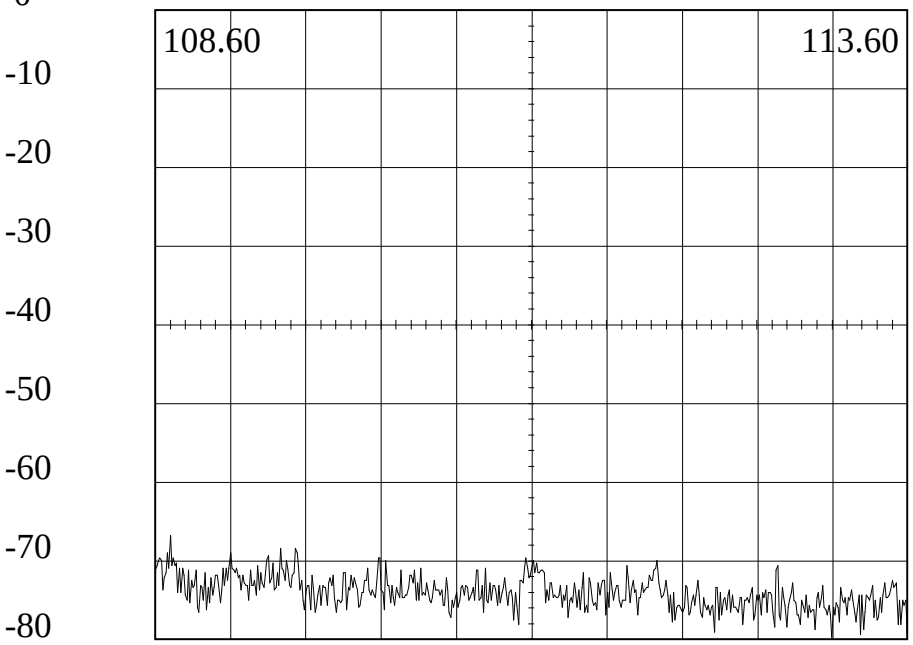
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 111.8501 | Peak Level: -69.96

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 111.10 MHz | 9 kHz Res | IM Product w/ 104.7 | 03/16/2014 01:27:35



30 dB Attn | Gen --- dBm | 50 mSecs

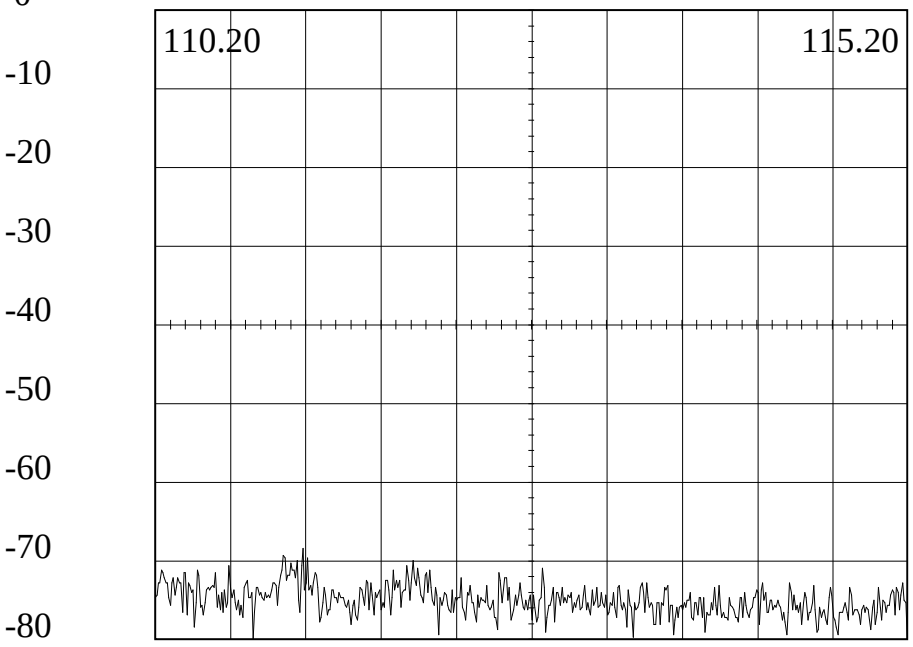
0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 108.7002 | Peak Level: -66.82

Spurious Emissions

AN940 Serial # 1009

500.0 kHz/Div | 112.70 MHz | 9 kHz Res | IM Product w/ 103.1 | 03/16/2014 01:28:29



30 dB Attn | Gen --- dBm | 50 mSecs

0 dB IF Gain | Video Filter: 1 kHz

Peak Freq: 111.182 | Peak Level: -68.39