

Notes:

This is a test of a representative sample. Small differences between channels at low levels are due to tube variance, and are typical of tube products. If you want certainty, go solid-state. If you have measurements that differ significantly from these, first check your analyzer and setup carefully, and (ideally) see if you can replicate the results on another analyzer. If the odd results persist, contact info@schiiit.com so we can have a look.

Summary

Passive

Level and Gain	✓ PASSED
DC Level	✓ PASSED
Signal Analyzer	✓ PASSED
Frequency Response	✓ PASSED
Signal to Noise Ratio	✓ PASSED
THD+N	✓ PASSED
IMD Level Sweep (CCIF)	✓ PASSED
IMD Frequency Sweep (CCIF)	✓ PASSED
Crosstalk, One Channel Undriven	✓ PASSED
Stepped Level Sweep	✓ PASSED

Tube

Level and Gain	✓ PASSED
DC Level	✓ PASSED
Signal Analyzer	✓ PASSED
Frequency Response	✓ PASSED
Signal to Noise Ratio	✓ PASSED
THD+N	✓ PASSED
IMD Level Sweep (CCIF)	✓ PASSED
IMD Frequency Sweep (CCIF)	✓ PASSED
Crosstalk, One Channel Undriven	✓ PASSED
Stepped Level Sweep	✓ PASSED

Sequence Result:

Sequence Result: ✓ PASSED

APx Instrument

Instrument ID: 11571
Calibration Date: 5/8/2018
APx Version: 5.0.0.105.133644

Passive : Signal Path Setup

Output Connector:	Analog Unbalanced
Channels:	2
Generator Mode:	High Performance Sine Generator
Source Impedance:	20 ohm
AG52 Generator Option:	Installed
Output EQ:	None
Input Connector:	Analog Unbalanced
Channels:	2
Termination:	100 kohm
High Performance Sine Analyzer:	Enabled
Input Bandwidth:	AC (<10 Hz) - 22.4k (48 kHz SR)
Device Delay:	0.000 s
Input EQ:	None
• References	
dBr G:	100.0 mVrms
dBm (Output Power):	600.0 ohm
W(watts) (Output Power):	8.000 ohm
Shared Frequency Reference:	1.00000 kHz
dBrA:	1.000 Vrms
dBrB:	1.000 Vrms
dBrA Offset:	0.000 dB
dBrB Offset:	0.000 dB
dB SPL1:	10.00 mVrms
dB SPL2:	10.00 mVrms
dB SPL1 Calibrator Level:	94.000 dB SPL
dB SPL2 Calibrator Level:	94.000 dB SPL
dBm (Input Power):	600.0 ohm
W(watts) (Input Power):	8.000 ohm
• DCX	
DCX is not detected.	
• Clocks	
Output Rate:	Track Output SR
Sync Out Level:	3.300 V
Sync Out Polarity:	Normal

Timebase Reference: Internal
Jitter: Disabled
• Triggers
Source: Off
Input Logic Level: 3.300 V
Edge: Rising

Passive : Level and Gain

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 1.000 Vrms
Frequency: 1.00000 kHz

RMS Level (5/21/2019 2:34:52.843 PM)

Ch1 0.997 Vrms
Ch2 0.997 Vrms

Passive : DC Level

Waveform: Sine
Generator Level: 0.000 Vrms
DC Offset: 0.000 V
Frequency: 1.00000 kHz
Delay Time: 100.0 ms
Acquisition Time: 333.0 ms

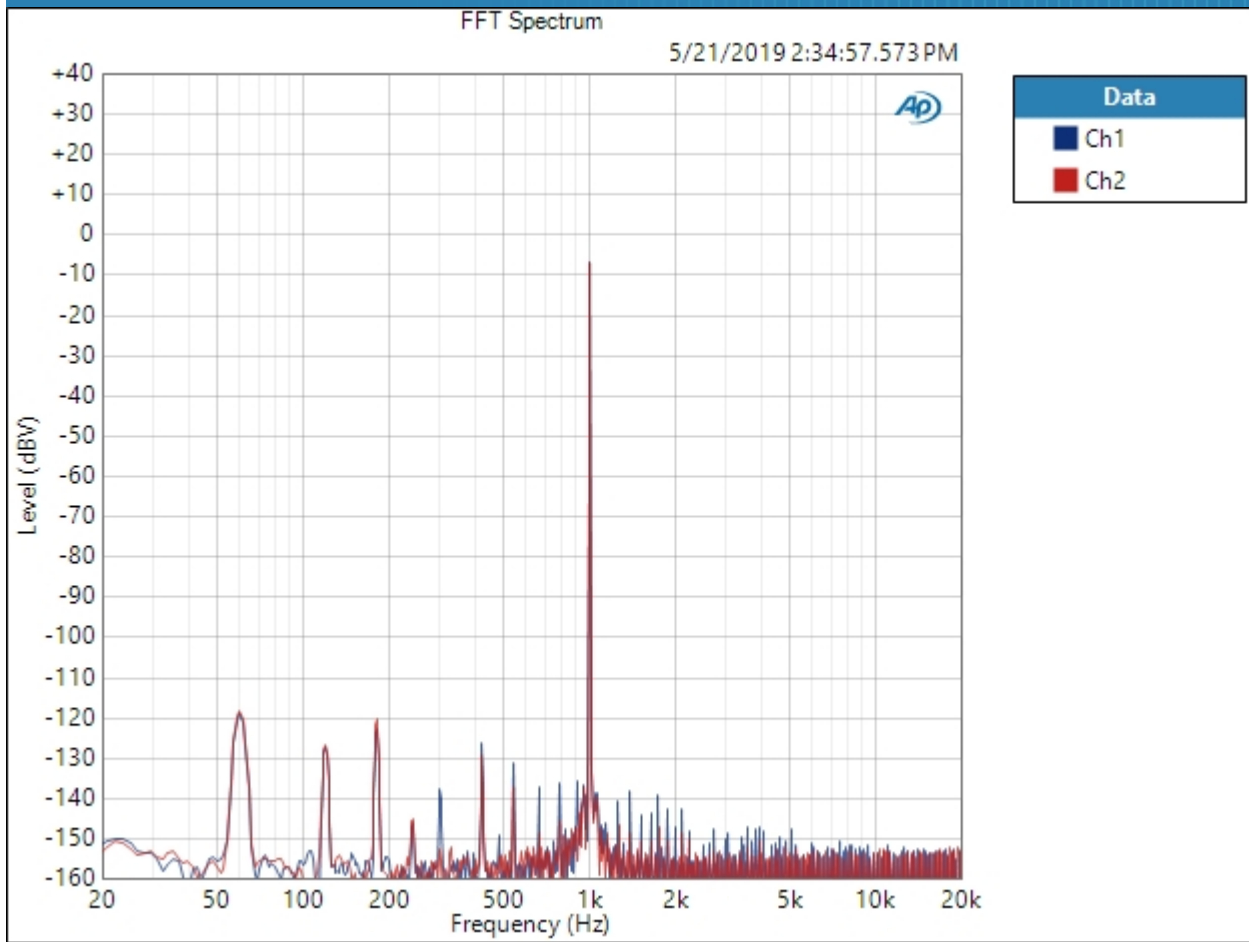
DC Level (5/21/2019 2:34:53.939 PM)

Ch1 -106.7 uV
Ch2 53.52 uV

Passive : Signal Analyzer

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 450.0 mVrms
Frequency: 1.00000 kHz
Secondary Source: None
Measured 1 5/21/2019 2:34:57 PM
Acquisition Type: Auto
Trigger: Free Run
Delay Time: 250.0 ms
Input Bandwidth: Use Signal Path
FFT Length: 32K
Averaging: Power
Averages: 3
Window: AP-Equiripple
Record Acquisition: False
Recording Type: Multiple Mono PCM (.wav)

FFT Spectrum (5/21/2019 2:34:57.573 PM)

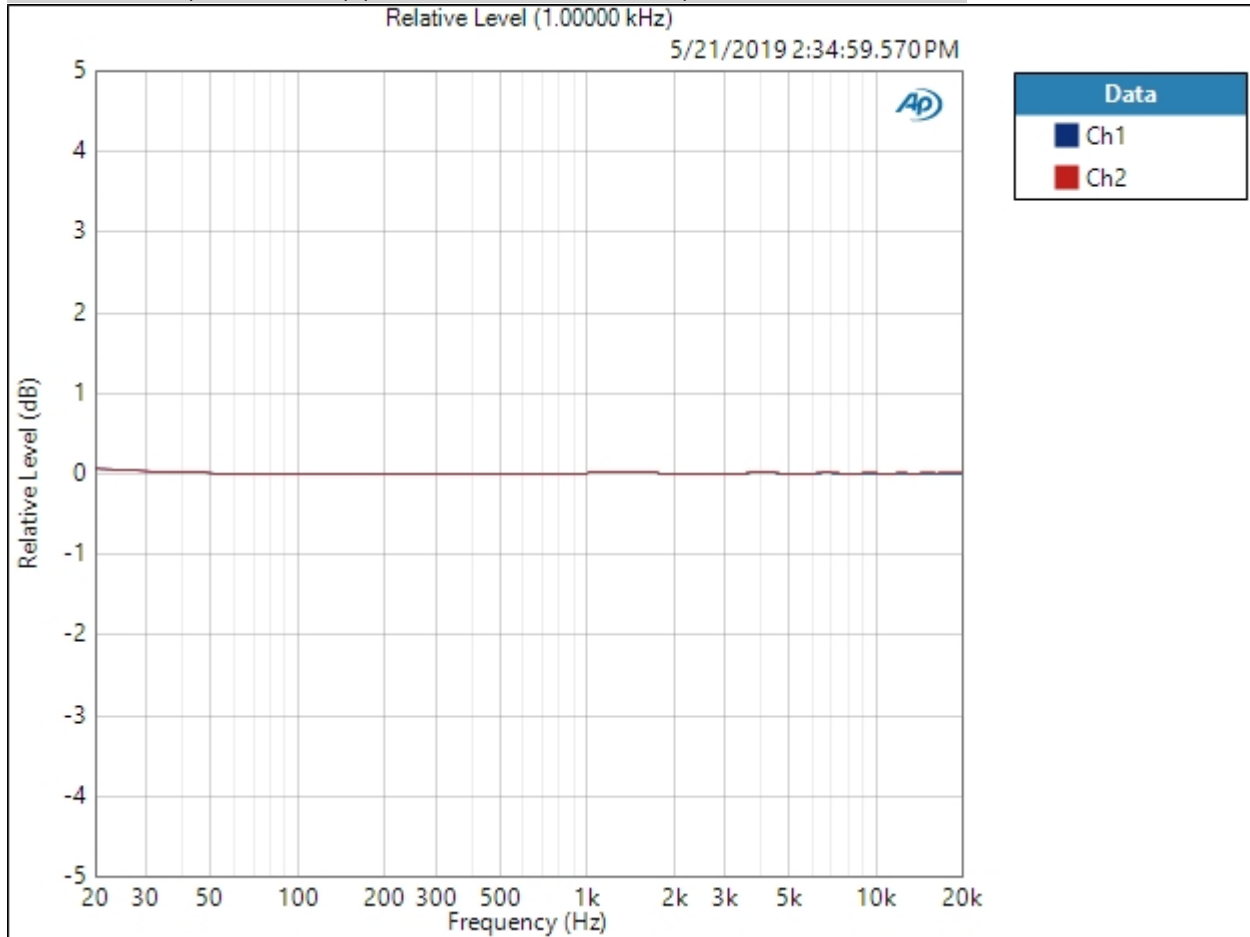


Result:  PASSED

Passive : Frequency Response

Start Frequency: 20.0000 Hz
Stop Frequency: 20.0000 kHz
Generator Level: 1.000 Vrms
DC Offset: 0.000 V
EQ: None
Pre-Sweep: 100.0 ms
Sweep: 350.0 ms
Extend Acquisition By: 50.00 ms
Secondary Source: None
Measured 1 5/21/2019 2:34:59 PM

Relative Level (1.00000 kHz) (5/21/2019 2:34:59.570 PM)



Relative Level (1.00000 kHz) Parameters

Mode: Normalized at Reference

Ref Frequency: 1.00000 kHz

Result:  PASSED

Deviation (20.0000 Hz - 20.0000 kHz) (5/21/2019 2:34:59.570 PM)

Ch1 ± 0.038 dB

Ch2 ± 0.038 dB

Deviation (20.0000 Hz - 20.0000 kHz) Parameters

Min: 20.0000 Hz

Max: 20.0000 kHz

Passive : Signal to Noise Ratio

Waveform: Sine

Generator Mode: High Performance Sine Generator

Generator Level: 1.000 Vrms

Frequency: 1.00000 kHz

Low-pass Filter: 20 kHz

Weighting Filter: A-wt.

High-pass Filter: 20 Hz

Signal to Noise Ratio (5/21/2019 2:35:01.495 PM)

Ch1 120.935 dB

Ch2 122.429 dB

Passive : THD+N

Waveform: Sine
 Generator Mode: High Performance Sine Generator
 Generator Level: 1.000 Vrms
 Frequency: 1.00000 kHz
 Low-pass Filter: 20 kHz
 Weighting Filter: Signal Path
 High-pass Filter: 20 Hz
 Notch Tuning Mode: Measured Frequency

THD+N Ratio (5/21/2019 2:35:03.780 PM)

Ch1 0.005398 %
 Ch2 0.005037 %

THD Ratio (5/21/2019 2:35:03.780 PM)

Ch1 0.000018 %
 Ch2 0.000017 %

Noise Ratio (5/21/2019 2:35:03.780 PM)

Ch1 0.000192 %
 Ch2 0.000204 %

Distortion Product Ratio (5/21/2019 2:35:03.780 PM)

Channel	F	H2	H3	H4	H5	H6	H7	H8	H9	H10
	1.000k	2.000k	3.000k	4.000k	5.000k	6.000k	7.000k	8.000k	9.001k	10.00k
Ch1	-0.00	-151.79	-147.27	-144.29	-150.92	-147.85	-147.69	-148.90	-147.93	-148.13
	1.000k	2.000k	3.000k	4.000k	5.000k	6.000k	7.000k	8.000k	9.001k	10.00k
Ch2	-0.00	-146.22	-152.24	-146.33	-148.81	-147.51	-149.70	-148.84	-152.65	-148.06

Distortion Product Ratio Parameters

Frequency Unit: Hz
 Ratio Unit: dB

Passive : IMD Level Sweep (CCIF)

IMD Type: CCIF

Waveform: IMD

Generator Level: 4.000 Vrms

DC Offset: 0.000 V

Mean Frequency: 12.5000 kHz

Diff Frequency: 80.0000 Hz

IMD Split: False

Start Level: 1.000 mVrms

Stop Level: 4.000 Vrms

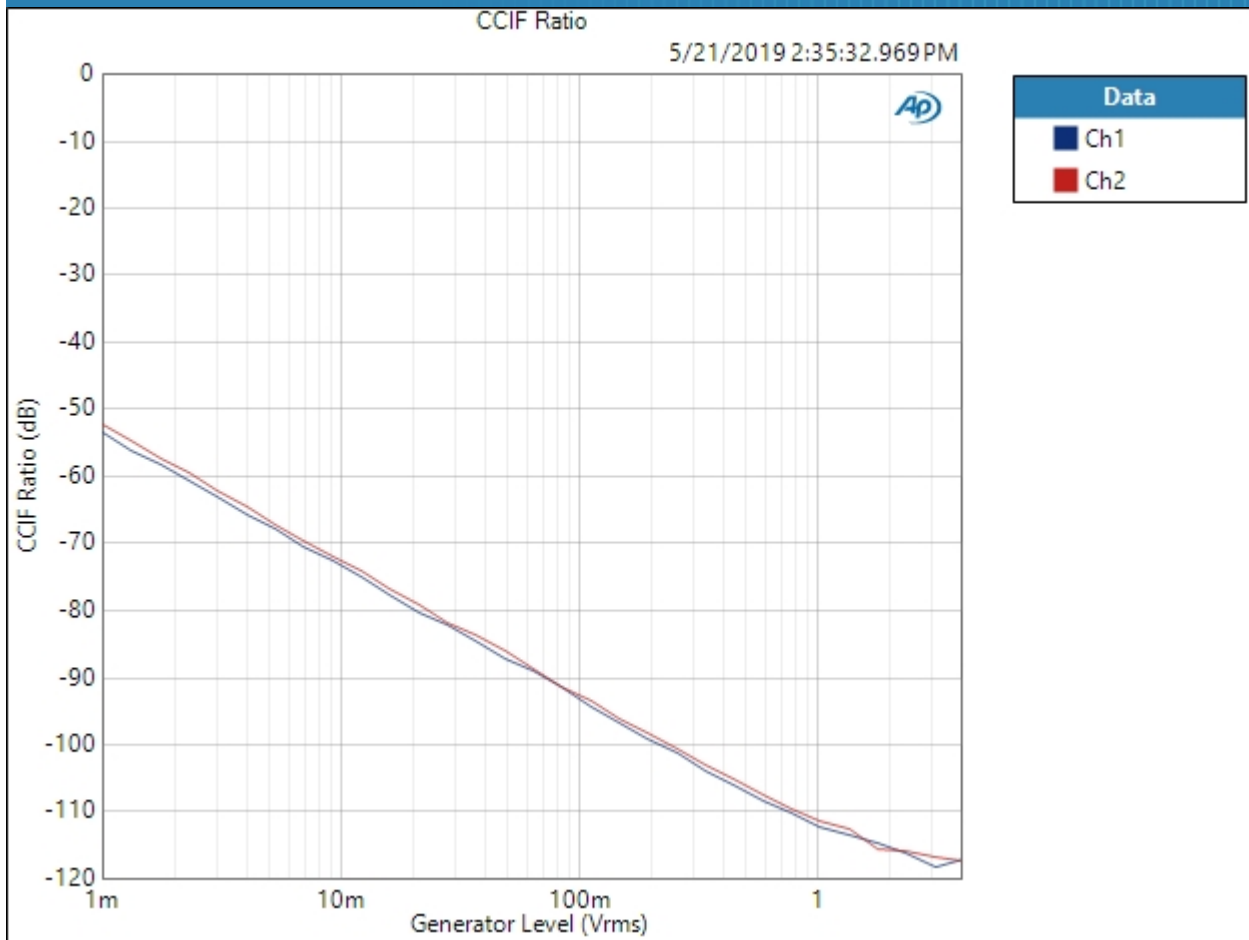
Step Type: Logarithmic

Number of Points: 31

Mode: d2+d3

Measured 1 5/21/2019 2:35:32 PM

CCIF Ratio (5/21/2019 2:35:32.969 PM)

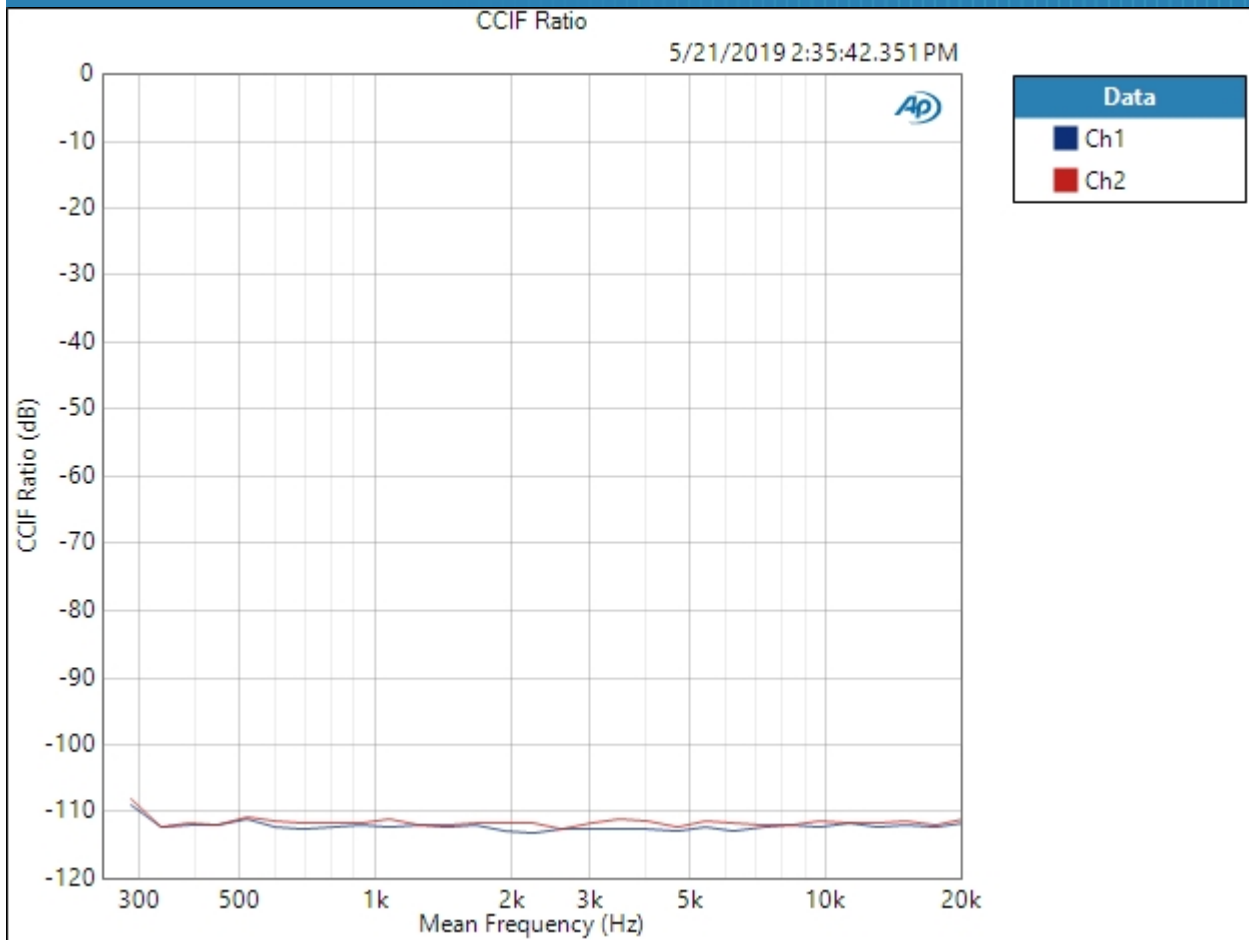


Result: PASSED

Passive : IMD Frequency Sweep (CCIF)

Generator Level: 1.000 Vrms
DC Offset: 0.000 V
Sweep Frequency: Mean Frequency
Mean Frequency: 12.5000 kHz
Diff Frequency: 80.0000 Hz
IMD Split: False
Start Frequency: 20.0000 kHz
Stop Frequency: 250.000 Hz
Step Type: Logarithmic
Number of Points: 31
Mode: d2+d3
Measured 1 5/21/2019 2:35:42 PM

CCIF Ratio (5/21/2019 2:35:42.351 PM)



Result: PASSED

Passive : Crosstalk, One Channel Undriven

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 1.000 Vrms
Frequency: 10.0000 kHz

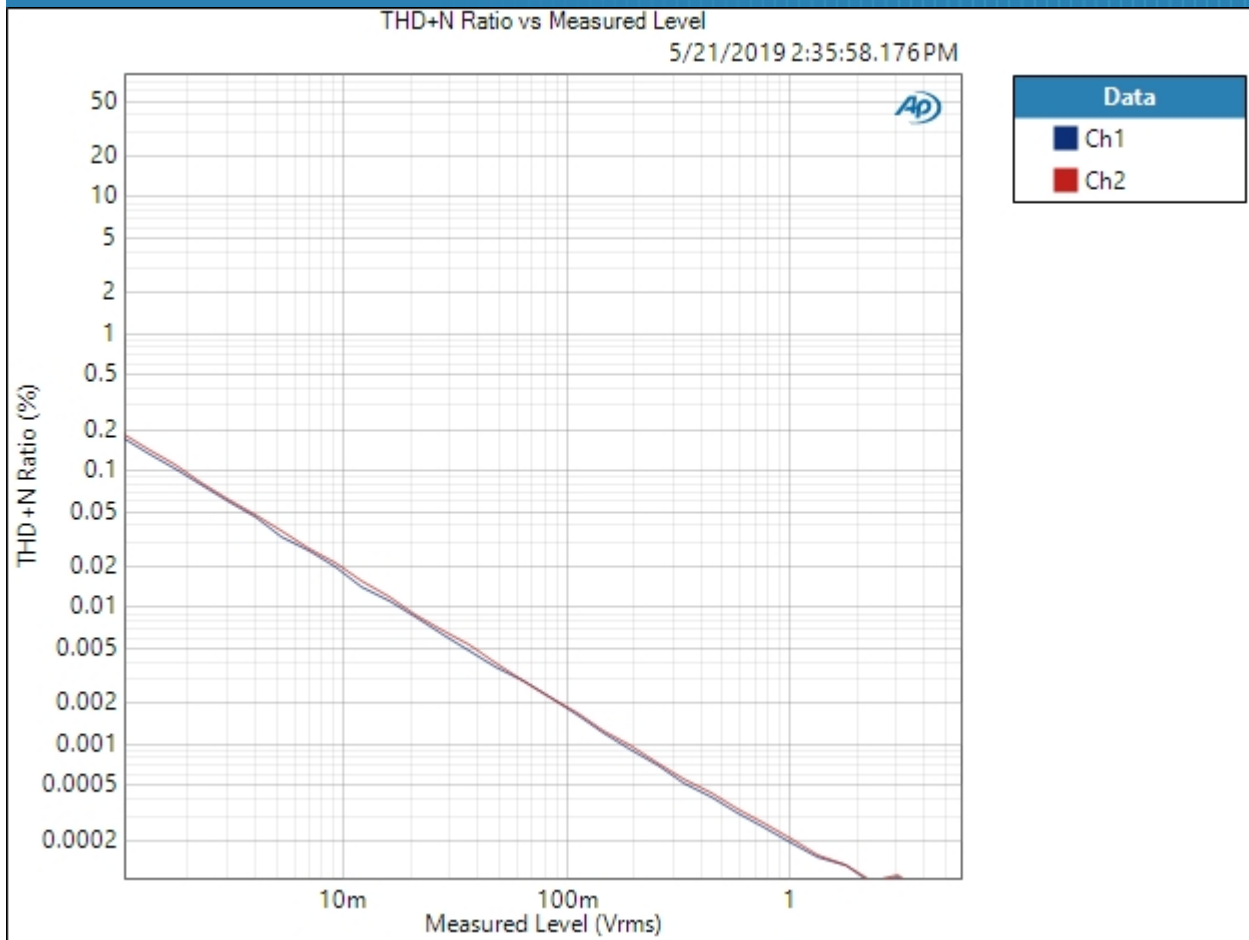
Crosstalk (5/21/2019 2:35:43.543 PM)

Ch1 -101.183 dB
Ch2 -102.504 dB

Passive : Stepped Level Sweep

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 100.0 mVrms
Frequency: 1.00000 kHz
Start Level: 1.000 mVrms
Stop Level: 4.000 Vrms
Step Type: Logarithmic
Number of Points: 31
Low-pass Filter: 20 kHz
Weighting Filter: Signal Path
High-pass Filter: 20 Hz
Notch Tuning Mode: Generator Frequency
Measured 1 5/21/2019 2:35:58 PM

THD+N Ratio vs Measured Level (5/21/2019 2:35:58.176 PM)



Result: PASSED

Tube : Signal Path Setup

Output Connector:	Analog Unbalanced
Channels:	2
Generator Mode:	High Performance Sine Generator
Source Impedance:	20 ohm
AG52 Generator Option:	Installed
Output EQ:	None
Input Connector:	Analog Unbalanced
Channels:	2
Termination:	100 kohm
High Performance Sine Analyzer:	Enabled
Input Bandwidth:	AC (<10 Hz) - 22.4k (48 kHz SR)
Device Delay:	0.000 s
Input EQ:	None
• References	
dBr G:	100.0 mVrms
dBm (Output Power):	600.0 ohm
W(watts) (Output Power):	8.000 ohm
Shared Frequency Reference:	1.00000 kHz
dBrA:	1.000 Vrms
dBrB:	1.000 Vrms
dBrA Offset:	0.000 dB
dBrB Offset:	0.000 dB
dB SPL1:	10.00 mVrms
dB SPL2:	10.00 mVrms
dB SPL1 Calibrator Level:	94.000 dB SPL
dB SPL2 Calibrator Level:	94.000 dB SPL
dBm (Input Power):	600.0 ohm
W(watts) (Input Power):	8.000 ohm
• DCX	
DCX is not detected.	
• Clocks	
Output Rate:	Track Output SR
Sync Out Level:	3.300 V
Sync Out Polarity:	Normal
Timebase Reference:	Internal

Jitter: Disabled
• Triggers
Source: Off
Input Logic Level: 3.300 V
Edge: Rising

Tube : Level and Gain

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 1.000 Vrms
Frequency: 1.00000 kHz

RMS Level (5/21/2019 2:36:06.699 PM)

Ch1 0.950 Vrms
Ch2 0.950 Vrms

Tube : DC Level

Waveform: Sine
Generator Level: 0.000 Vrms
DC Offset: 0.000 V
Frequency: 1.00000 kHz
Delay Time: 100.0 ms
Acquisition Time: 333.0 ms

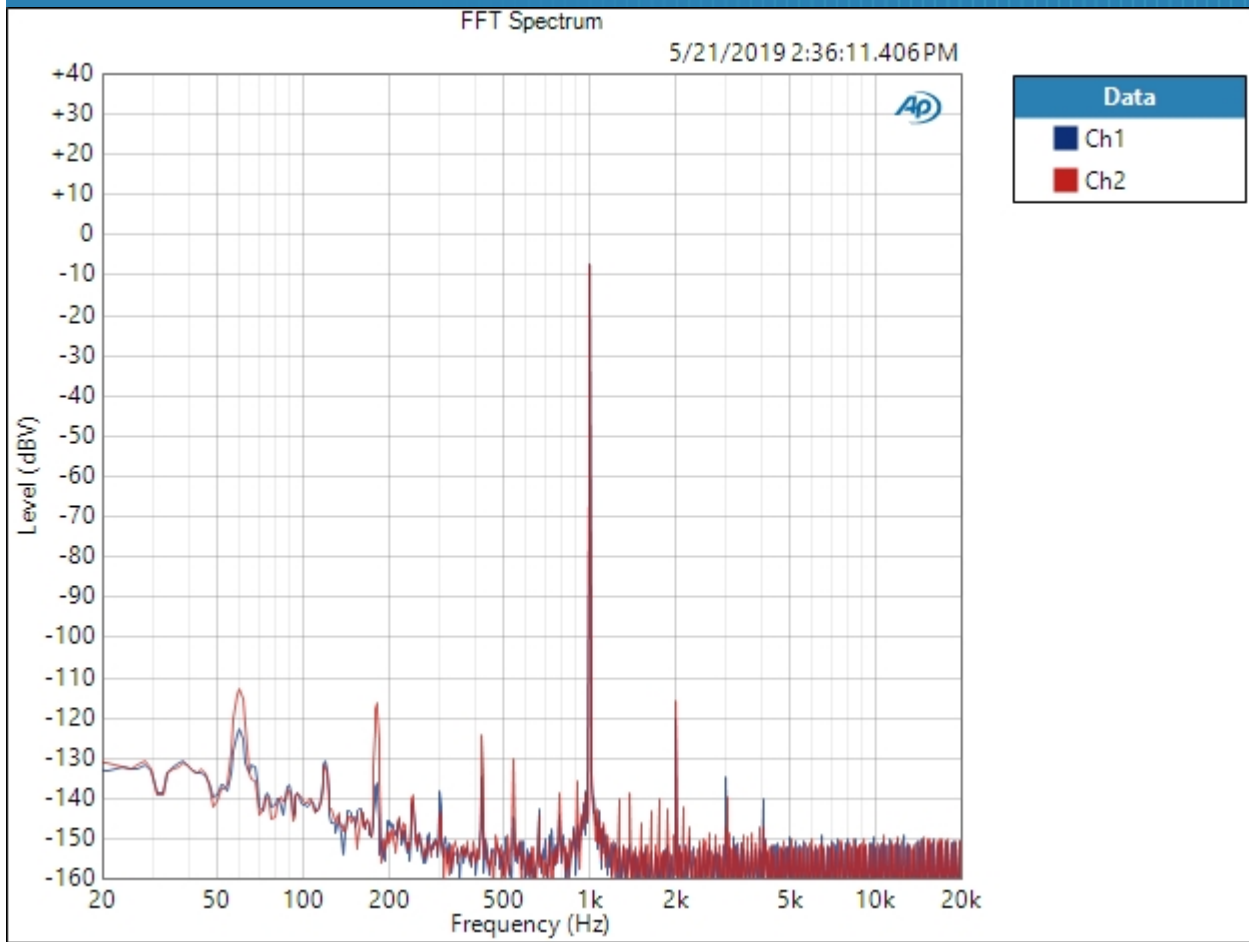
DC Level (5/21/2019 2:36:07.773 PM)

Ch1 -2.921 mV
Ch2 -1.720 mV

Tube : Signal Analyzer

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 450.0 mVrms
Frequency: 1.00000 kHz
Secondary Source: None
Measured 1: 5/21/2019 2:36:11 PM
Acquisition Type: Auto
Trigger: Free Run
Delay Time: 250.0 ms
Input Bandwidth: Use Signal Path
FFT Length: 32K
Averaging: Power
Averages: 3
Window: AP-Equiripple
Record Acquisition: False
Recording Type: Multiple Mono PCM (.wav)

FFT Spectrum (5/21/2019 2:36:11.406 PM)

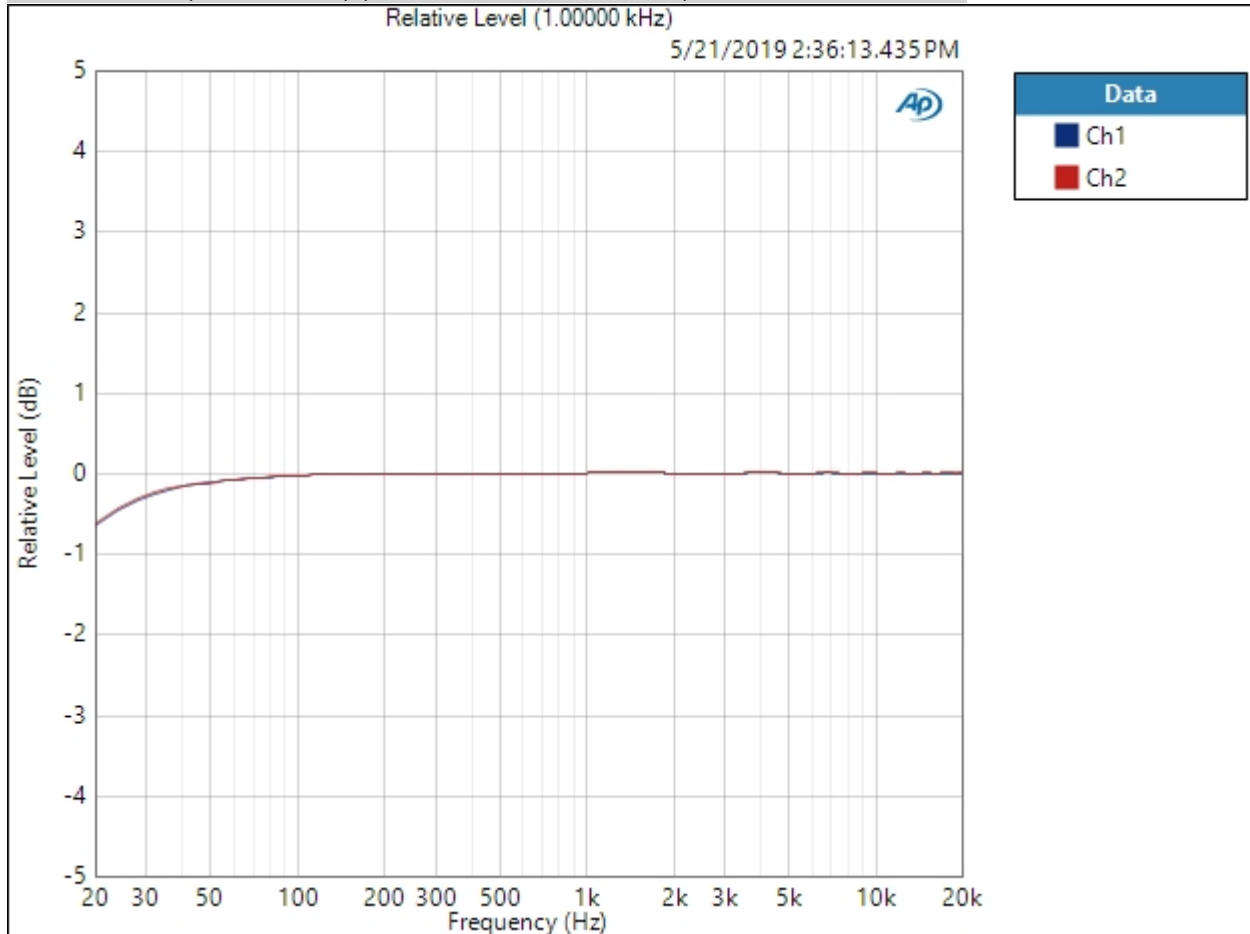


Result:  PASSED

Tube : Frequency Response

Start Frequency: 20.0000 Hz
 Stop Frequency: 20.0000 kHz
 Generator Level: 1.000 Vrms
 DC Offset: 0.000 V
 EQ: None
 Pre-Sweep: 100.0 ms
 Sweep: 350.0 ms
 Extend Acquisition By: 50.00 ms
 Secondary Source: None
 Measured 1 5/21/2019 2:36:13 PM

Relative Level (1.00000 kHz) (5/21/2019 2:36:13.435 PM)



Relative Level (1.00000 kHz) Parameters

Mode: Normalized at Reference

Ref Frequency: 1.00000 kHz

Result:  PASSED

Deviation (20.0000 Hz - 20.0000 kHz) (5/21/2019 2:36:13.435 PM)

Ch1 ± 0.324 dB

Ch2 ± 0.308 dB

Deviation (20.0000 Hz - 20.0000 kHz) Parameters

Min: 20.0000 Hz

Max: 20.0000 kHz

Tube : Signal to Noise Ratio

Waveform: Sine

Generator Mode: High Performance Sine Generator

Generator Level: 1.000 Vrms

Frequency: 1.00000 kHz

Low-pass Filter: 20 kHz

Weighting Filter: A-wt.

High-pass Filter: 20 Hz

Signal to Noise Ratio (5/21/2019 2:36:15.357 PM)

Ch1 120.156 dB

Ch2 118.340 dB

Tube : THD+N

Waveform: Sine
 Generator Mode: High Performance Sine Generator
 Generator Level: 1.000 Vrms
 Frequency: 1.00000 kHz
 Low-pass Filter: 20 kHz
 Weighting Filter: Signal Path
 High-pass Filter: 20 Hz
 Notch Tuning Mode: Measured Frequency

THD+N Ratio (5/21/2019 2:36:17.387 PM)

Ch1 0.000629 %
 Ch2 0.000878 %

THD Ratio (5/21/2019 2:36:17.387 PM)

Ch1 0.000602 %
 Ch2 0.000817 %

Noise Ratio (5/21/2019 2:36:17.387 PM)

Ch1 0.000189 %
 Ch2 0.000341 %

Distortion Product Ratio (5/21/2019 2:36:17.387 PM)

Channel	F	H2	H3	H4	H5	H6	H7	H8	H9	H10
	1.000k	2.000k	3.000k	4.000k	5.000k	6.000k	7.000k	8.000k	9.000k	10.00k
Ch1	-0.00	-104.64	-118.39	-127.00	-129.08	-136.65	-140.20	-144.73	-148.60	-144.53
Ch2	-0.00	-101.77	-131.35	-133.65	-140.43	-137.32	-147.14	-145.86	-143.00	-145.52

Distortion Product Ratio Parameters

Frequency Unit: Hz
 Ratio Unit: dB

Tube : IMD Level Sweep (CCIF)

IMD Type: CCIF

Waveform: IMD

Generator Level: 4.000 Vrms

DC Offset: 0.000 V

Mean Frequency: 12.5000 kHz

Diff Frequency: 80.0000 Hz

IMD Split: False

Start Level: 1.000 mVrms

Stop Level: 4.000 Vrms

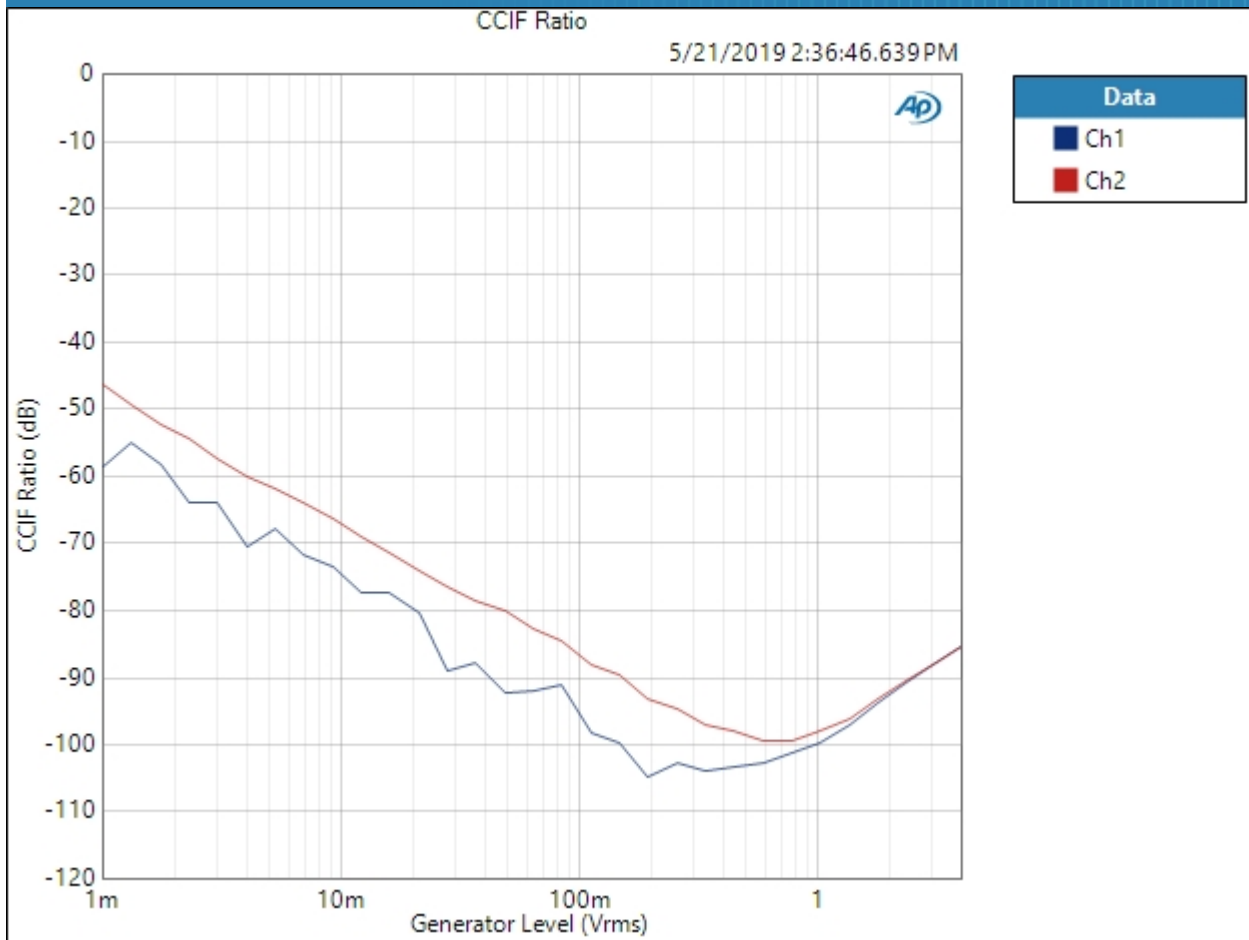
Step Type: Logarithmic

Number of Points: 31

Mode: d2+d3

Measured 1 5/21/2019 2:36:46 PM

CCIF Ratio (5/21/2019 2:36:46.639 PM)



Result: PASSED

Tube : IMD Frequency Sweep (CCIF)

Generator Level: 1.000 Vrms

DC Offset: 0.000 V

Sweep Frequency: Mean Frequency

Mean Frequency: 12.5000 kHz

Diff Frequency: 80.0000 Hz

IMD Split: False

Start Frequency: 20.0000 kHz

Stop Frequency: 250.000 Hz

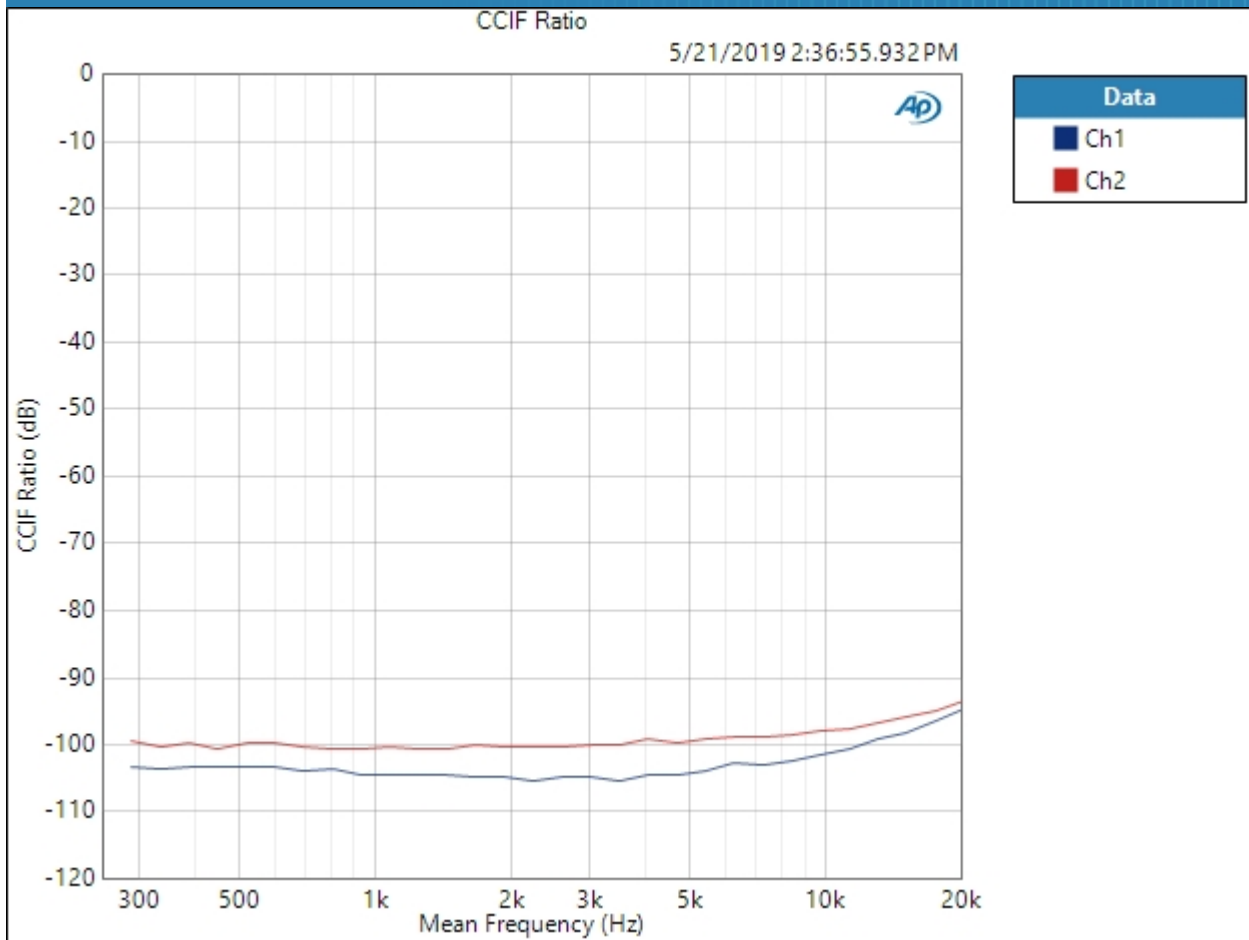
Step Type: Logarithmic

Number of Points: 31

Mode: d2+d3

Measured 1 5/21/2019 2:36:55 PM

CCIF Ratio (5/21/2019 2:36:55.932 PM)



Result: ✔ PASSED

Tube : Crosstalk, One Channel Undriven

Waveform: Sine
 Generator Mode: High Performance Sine Generator
 Generator Level: 1.000 Vrms
 Frequency: 10.0000 kHz

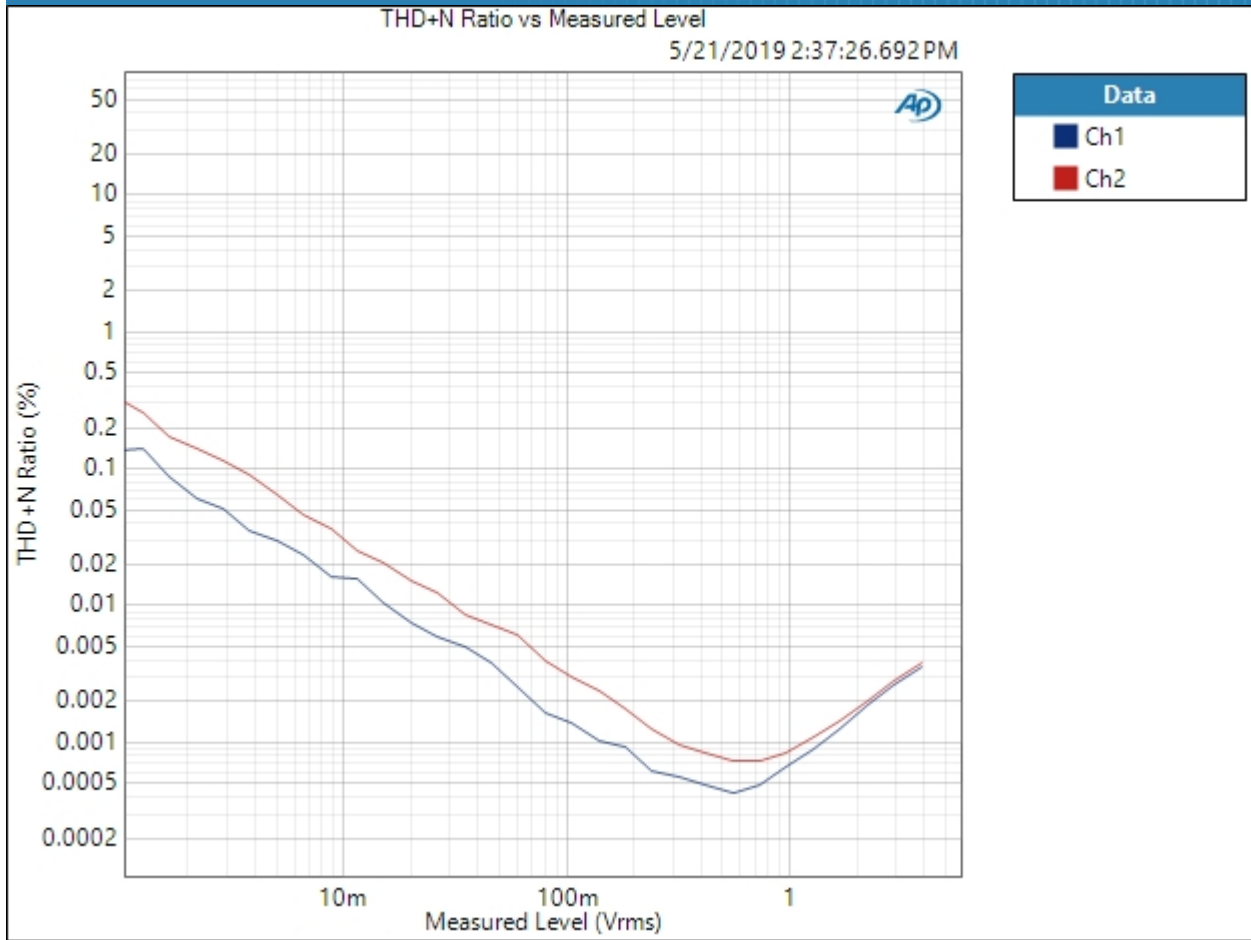
Crosstalk (5/21/2019 2:36:57.104 PM)

Ch1 -78.975 dB
 Ch2 -82.551 dB

Tube : Stepped Level Sweep

Waveform: Sine
Generator Mode: High Performance Sine Generator
Generator Level: 100.0 mVrms
Frequency: 1.00000 kHz
Start Level: 1.000 mVrms
Stop Level: 4.000 Vrms
Step Type: Logarithmic
Number of Points: 31
Low-pass Filter: 20 kHz
Weighting Filter: Signal Path
High-pass Filter: 20 Hz
Notch Tuning Mode: Generator Frequency
Measured 1 5/21/2019 2:37:26 PM

THD+N Ratio vs Measured Level (5/21/2019 2:37:26.692 PM)



Result: PASSED