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High Resolution Vacuum Tube Audio Systems



Customer Name: ST-70 Outgoing Performance Report

Signal Path1

Signal Path Setup	✔	PASSED
Level and Gain	✔	PASSED
IMD (SMPTE)	✔	PASSED
DIM	✔	PASSED
Signal to Noise Ratio	✔	PASSED
Signal Analyzer	✔	PASSED
Stepped Frequency Sweep	✔	PASSED
Stepped Level Sweep	✔	PASSED

Sequence Result:

Sequence Result: ✔ PASSED

APx Instrument

Instrument ID: 27020
Calibration Date: 9/25/2012
APx Version: 4.2.1.340.101428

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Signal Path1 : Signal Path Setup

Output Connector: Analog Unbalanced
Channels: 2
Source Impedance: 20 ohm
AG52 Generator: Installed
Option:
Output EQ: None
Input Connector: Analog Balanced
Channels: 2
Termination: 200 kohm
Input Bandwidth: AC (<10 Hz) - AES17 (20 kHz)
Device Delay: 0.000 s
Input EQ: None

- References

dBr G: 214.1 mVrms
dBm (Output Power): 600.0 ohm
W(watts) (Output Power): 8.000 ohm
Shared Frequency: 1.00000 kHz
Reference:
dBrA: 1.000 Vrms
dBrB: 1.000 Vrms
dBrA Offset: 0.000 dB
dBrB Offset: 0.000 dB
dBSPL1: 10.00 mVrms
dBSPL2: 10.00 mVrms
dBSPL1 Calibrator: 94.000 dBSPL
Level:
dBSPL2 Calibrator: 94.000 dBSPL
Level:
dBm (Input Power): 600.0 ohm
W(watts) (Input Power): 8.000 ohm

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- DCX

DCX is not detected.

Signal Path1 : Verify Connections

Waveform: Sine
Generator Level: 214.1 mVrms
DC Offset: 0.000 V
Frequency: 1.00000 kHz

Signal Path1 : Level and Gain

Waveform: Sine
Generator Level: 0.000 dBrG (@214.1 mVrms)
DC Offset: 0.000 V
Frequency: 1.00000 kHz

RMS Level

Ch1	1.001	W
Ch2	1.160	W

Gain

Ch1	22.423	dB
Ch2	23.063	dB

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Signal Path1 : IMD (SMPTE)

IMD Type: SMPTE
Waveform: IMD
Generator Level: 0.000 dBrG (@214.1 mVrms)
DC Offset: 0.000 V
Frequency 1: 63.0000 Hz
Frequency 2: 6.30000 kHz
Frequency Ratio: 4:1
IMD Split: False

SMPTE Ratio

Channel	Lower Limit	Value	Upper Limit	Unit	
Ch1		0.293842	1.018648	%	✔
Ch2		0.256088	1.018648	%	✔
Result:		✔	PASSED		

Signal Path1 : DIM

Generator Level: 0.000 dBrG (@214.1 mVrms)
Waveform: DIM 30
Square Freq: 3.15000 kHz
Sine Freq: 15.0000 kHz
Mode: U1...U9
Low-pass Filter: 30 kHz

DIM Ratio

Channel	Lower Limit	Value	Upper Limit	Unit	
Ch1		0.550541	1.021003	%	✔
Ch2		0.337679	1.021003	%	✔
Result:		✔	PASSED		

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Signal Path1 : Signal to Noise Ratio

Waveform: Sine
Generator Level: 0.000 dBrG (@214.1 mVrms)
DC Offset: 0.000 V
Frequency: 1.00000 kHz
Low-pass Filter: 20 kHz
Weighting Filter: Signal Path
High-pass Filter: 20 Hz

Signal to Noise Ratio

Channel	Lower Limit	Value	Upper Limit	Unit	
Ch1	60.155	67.273		dB	🟢
Ch2	60.155	72.013		dB	🟢
Result:		🟢	PASSED		

Signal Path1 : Signal Analyzer

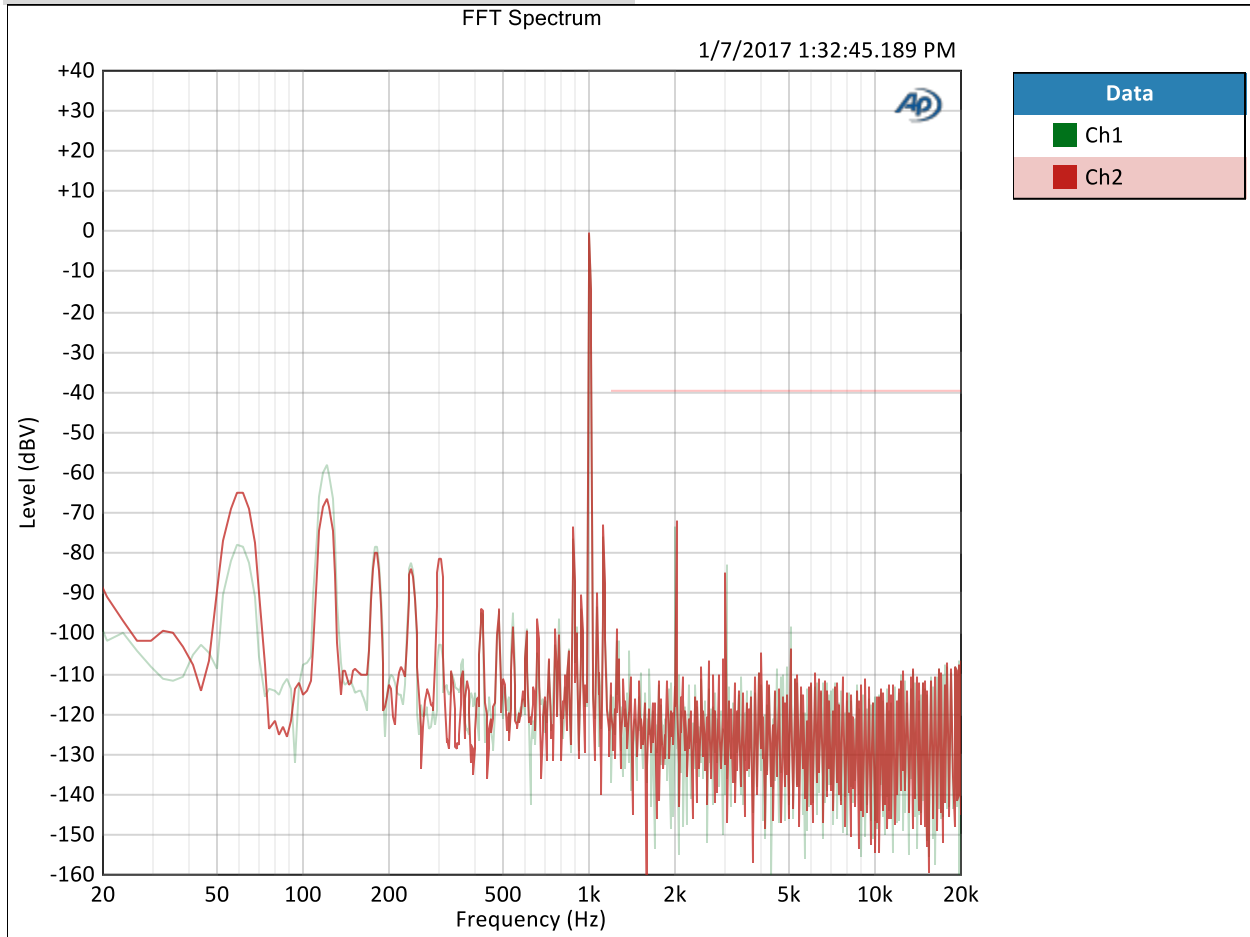
Waveform: Sine
Generator Level: -10.000 dBrG (@214.1 mVrms)
DC Offset: 0.000 V
Frequency: 1.00000 kHz
Secondary Source: None
Measured 1: 1/7/2017 1:32:45 PM
Acquisition Type: Auto
Trigger: Free Run
Delay Time: 250.0 ms
Input Bandwidth: Use Signal Path
FFT Length: 16K
Averaging: Power
Averages: 1
Window: AP-Equiripple
Record Acquisition: False

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FFT Spectrum



Ch1 PASSED
Ch2 PASSED

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Signal Path1 : Stepped Frequency Sweep

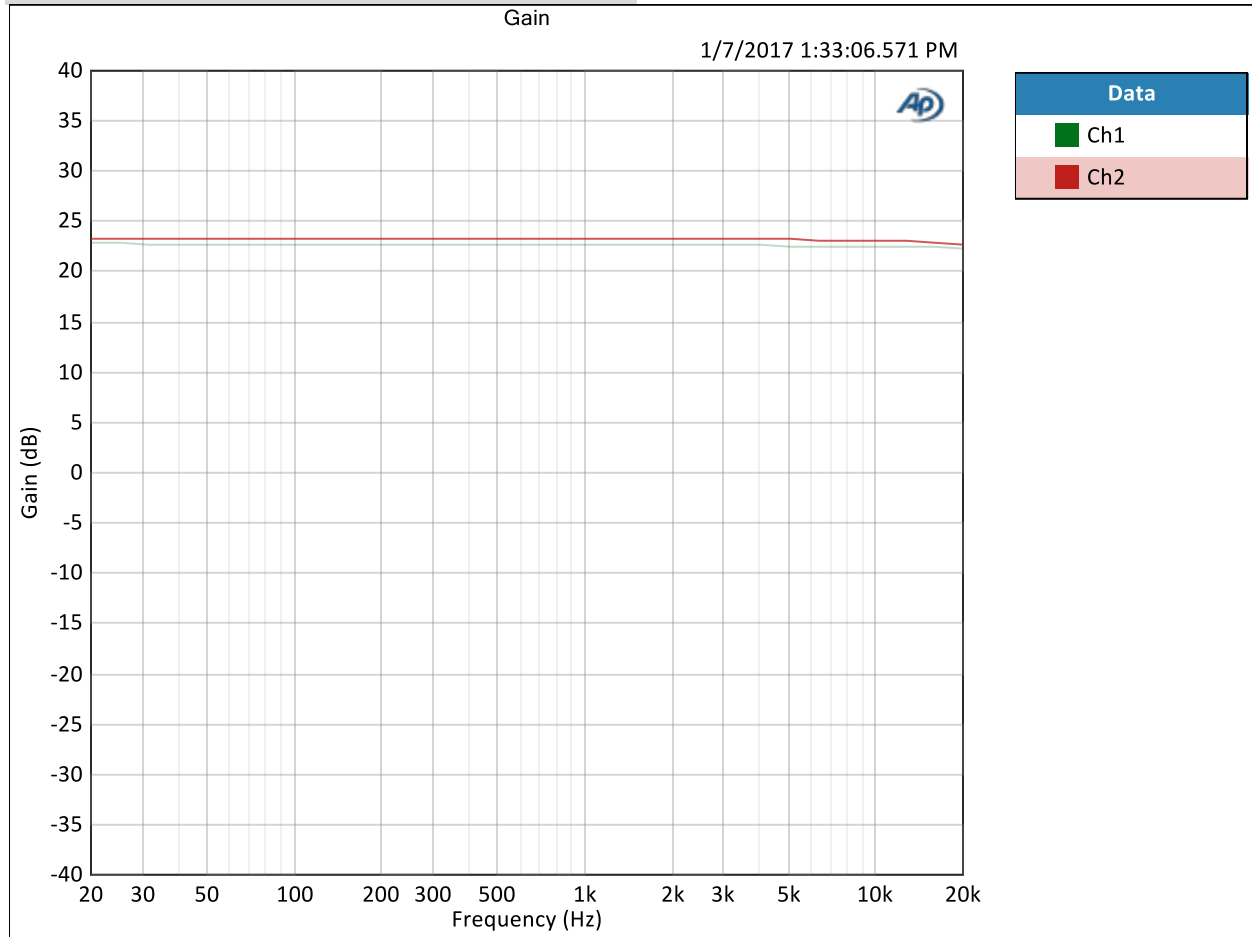
Generator Level:	0.000 dBrG (@214.1 mVrms)
DC Offset:	0.000 V
EQ:	None
Start Frequency:	20.0000 kHz
Stop Frequency:	20.0000 Hz
Step Type:	Logarithmic
Number of Points:	31
Weighting Filter:	Signal Path
High-pass Filter:	20 Hz
Phase Ref Channel:	Ch1
Measured 1	1/7/2017 1:33:06 PM

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Gain

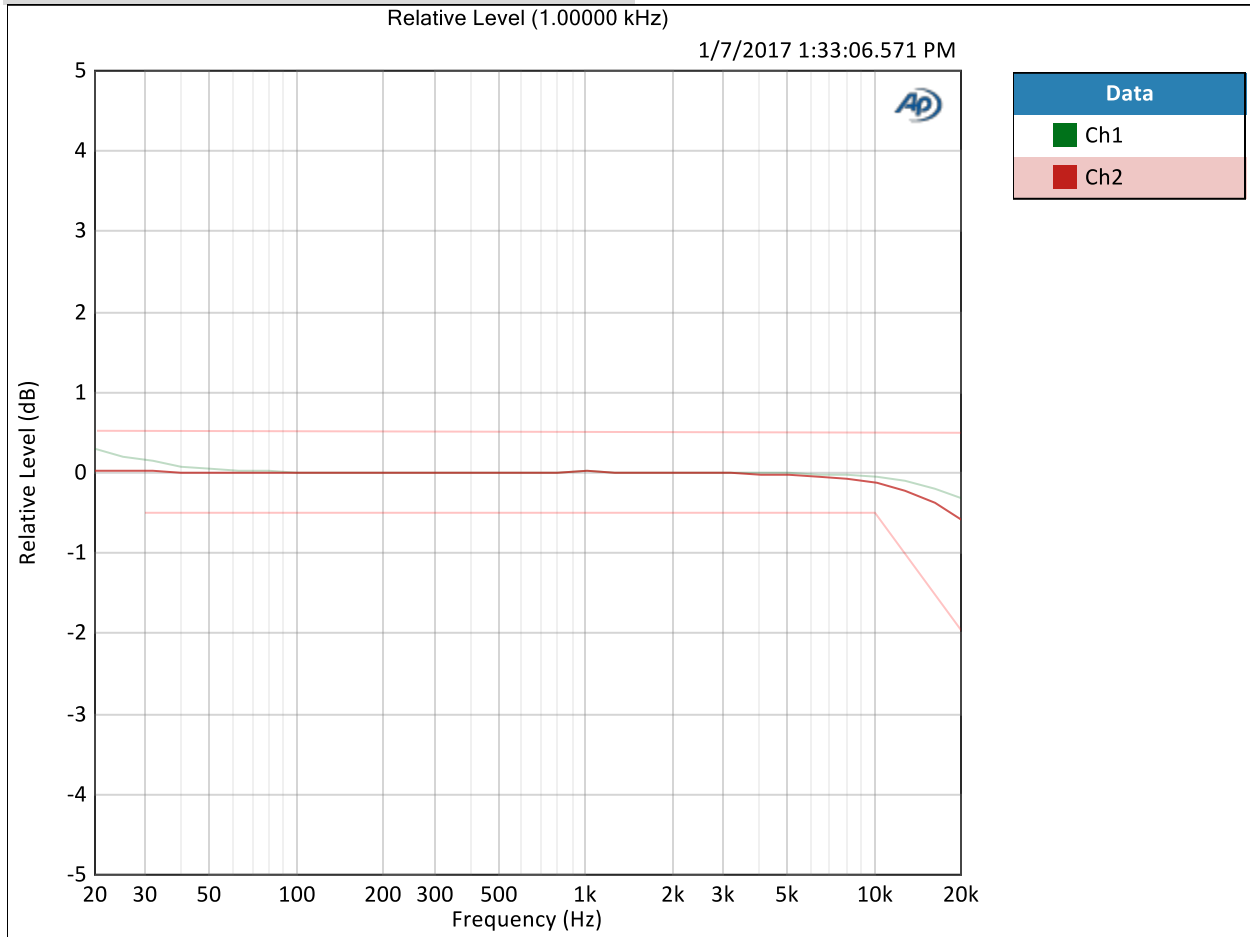


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Relative Level (1.00000 kHz)



Ch1 PASSED

Ch2 PASSED

Relative Level (1.00000 kHz) Parameters

Mode: Normalized at Reference

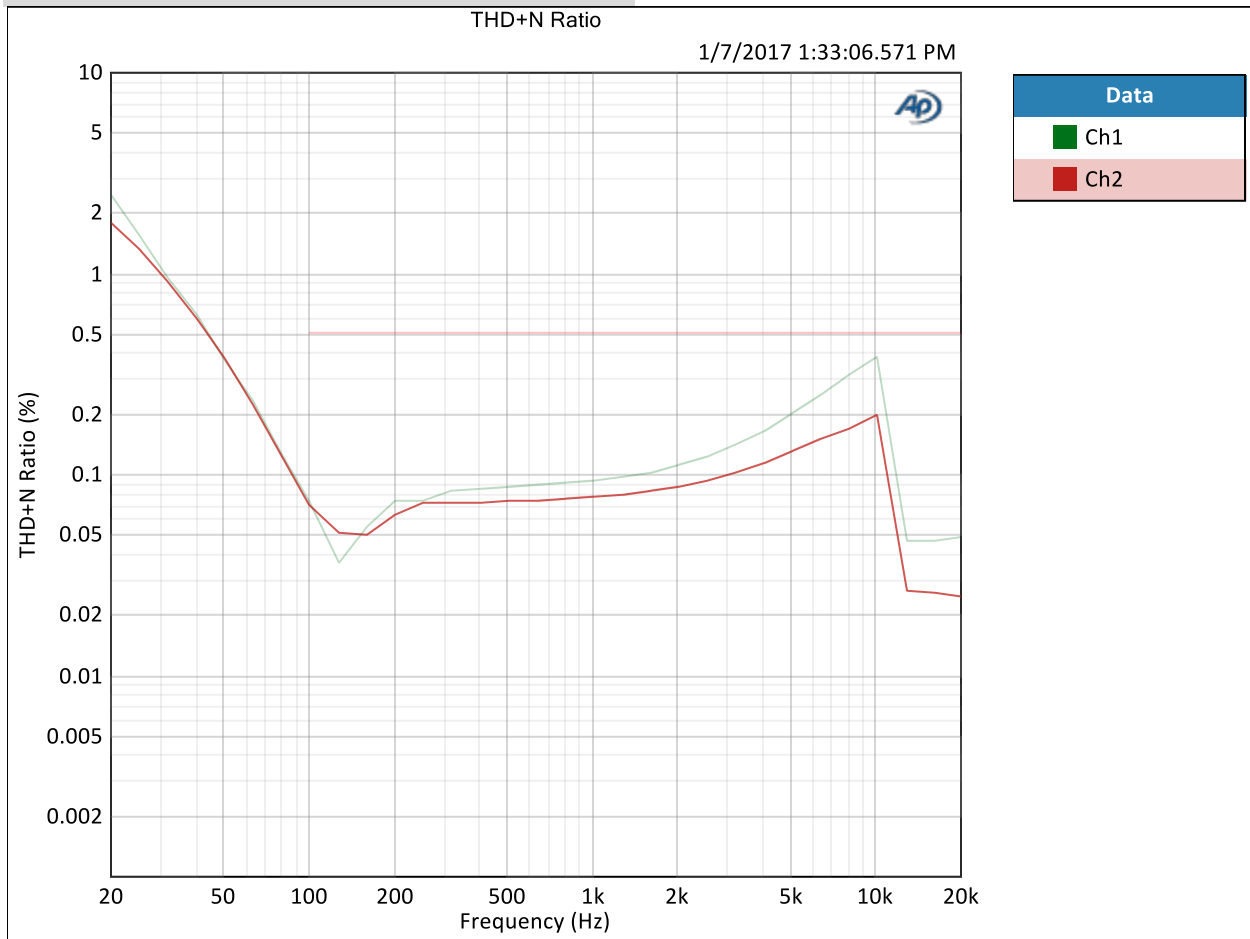
Ref Frequency: 1.00000 kHz

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THD+N Ratio



Ch1 PASSED
Ch2 PASSED

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Signal Path1 : Stepped Level Sweep

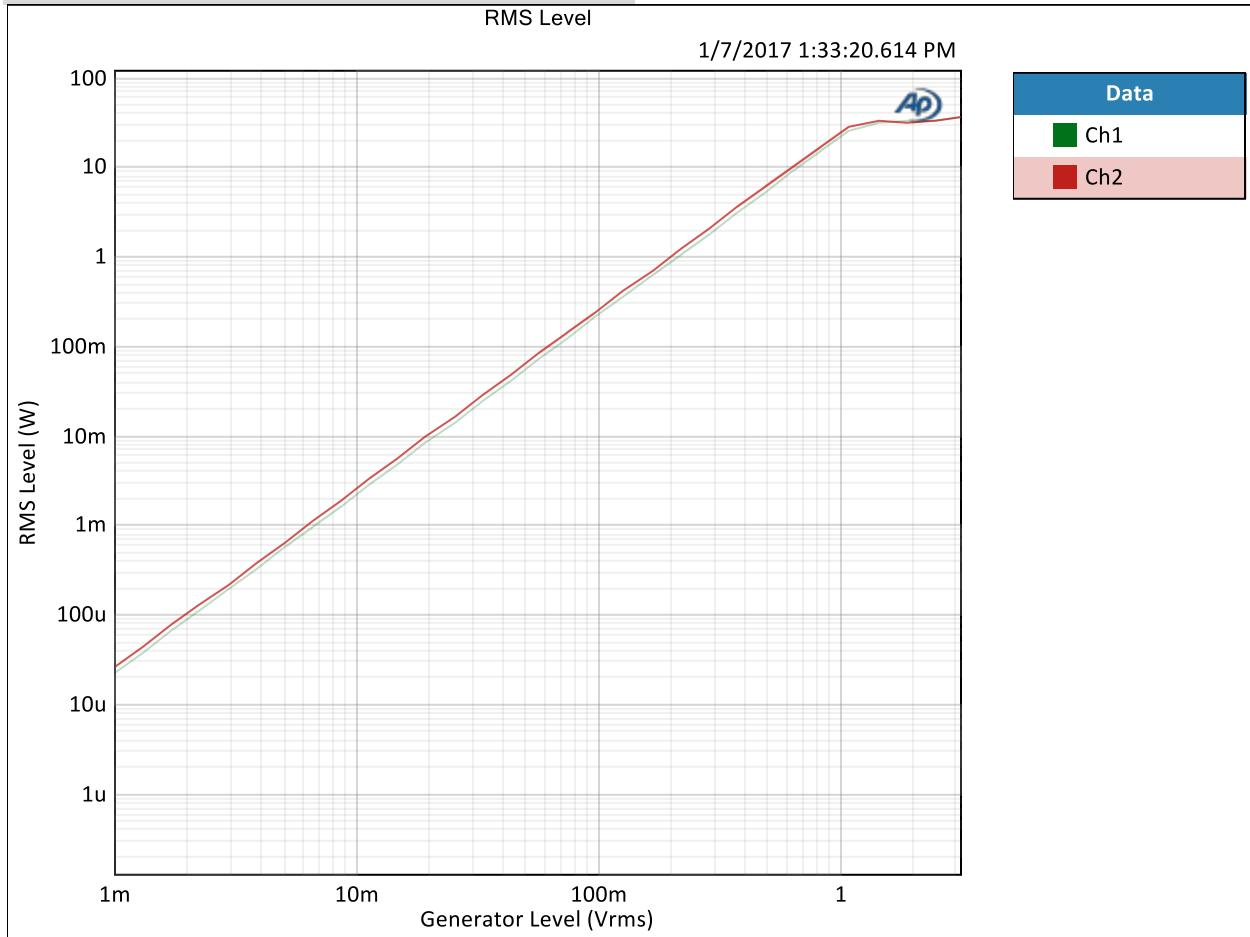
Waveform:	Sine
Generator Level:	100.0 mVrms
DC Offset:	0.000 V
Frequency:	1.00000 kHz
Start Level:	1.000 mVrms
Stop Level:	3.150 Vrms
Step Type:	Logarithmic
Number of Points:	31
Offset:	0.000 V
Low-pass Filter:	20 kHz
Weighting Filter:	Signal Path
High-pass Filter:	20 Hz
Notch Tuning Mode:	Generator Frequency
Measured 1	1/7/2017 1:33:20 PM

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RMS Level

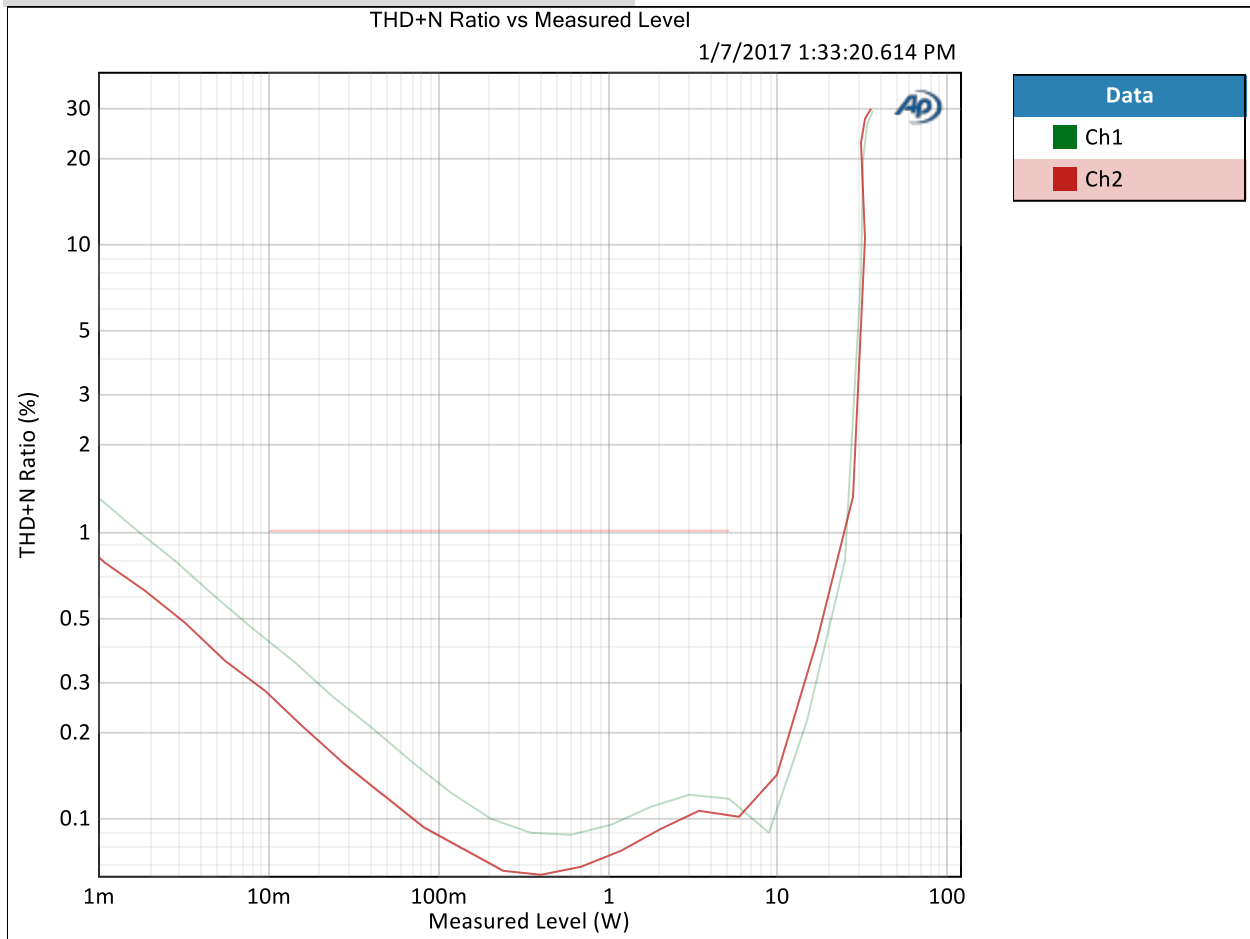


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THD+N Ratio vs Measured Level



Ch1 PASSED
Ch2 PASSED