

SONOSAX SX-DD2 Audio Specifications

Description

The SX-DD2 is a dual-domain, reference-grade preamplifier that integrates high-resolution A/D and D/A conversion, a powerful headphone amplifier, and intelligent source control within a single machined-aluminum chassis. Its architecture preserves a direct analog-to-analog path when required, while seamlessly bridging to the digital domain through premium converters.

This document provides the complete set of Apx measurements for a SONOSAX SX-DD2 unit.



Volume adjustment

-80dB to +20dB

Connectivity

Analog inputs	Digital inputs	Analog outputs	Digital outputs
1x Phono (stereo, MM/MC)	3x Optical (TOSLINK)	1x RCA stereo (variable)	1x Optical (TOSLINK)
1x RCA (stereo, unbalanced)	3x Coaxial (S/PDIF)	1x RCA stereo (fixed)	1x Coaxial (S/PDIF)
1x XLR (stereo, balanced)	1x AES3 (XLR)	1x RCA stereo (fixed)	1x AES3 (XLR)
1x 3.5 mm front jack (stereo)	1x USB-C Audio Class 2.0	1x RCA mono (fixed, L+R sum)	1x USB-C stereo (USB Audio Class 2.0)
	1x Bluetooth Audio	1x XLR (stereo, balanced)	
		1x 6.35 mm front headphone	

Audio Precision Apx measurement conditions

Master volume = 0 dB; input trims = 0 dB unless noted. All levels are RMS.

Reference scaling:

- **DAC (digital → analog):**
 - 0 dBFS ⇒ **4.00 Vrms** (+14.2 dBu) on balanced XLR outputs
 - 0 dBFS ⇒ **2.00 Vrms** (+8.2 dBu) on RCA outputs
- **ADC (analog → digital):**
 - 0 dBFS ⇒ **4.00 Vrms** (+14.2 dBu) on balanced XLR inputs
 - 0 dBFS ⇒ **2.00 Vrms** (+8.2 dBu) on AUX RCA inputs
 - 0 dBFS ⇒ **0.775 Vrms** (0 dBu) on front jack

Maximum Levels

Input	Max input level
Balanced XLR	8.7 Vrms (+21 dBu)
AUX RCA	3.2 Vrms (+12 dBu)
Front jack	2.8 Vrms (+11 dBu)
Phono MM (1 kHz)	90 mV
Phono MC (1 kHz)	9 mVrms

Output	Max output level
Balanced XLR	7.1 Vrms (+19 dBu)
VAR / FIX / MONO RCA	3.8 Vrms (+14 dBu)

Digital → Analog (DAC)

Balanced XLR outputs (nominal 4 Vrms)

- **THD+N (20 Hz–20 kHz):** 1 kHz @ 0 dBFS 0.0005%; 1 kHz @ -3 dBFS 0.0003%
- **Frequency response:** 0.5 Hz–90 kHz
- **Dynamic range (20 Hz–20 kHz):** 124 dB
- **Dynamic range (A-weighted, ASA-A):** 126 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** ≥120 dB

VAR / FIX / MONO RCA outputs (nominal 2 Vrms)

- **THD+N (20 Hz–20 kHz):** 1 kHz @ 0 dBFS 0.0005%; 1 kHz @ -3 dBFS 0.0005%
- **Frequency response:** 0.5 Hz–90 kHz
- **Dynamic range (20 Hz–20 kHz):** 120 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** ≥110 dB

Analog → Digital (ADC)

Balanced XLR inputs

- **Scaling:** 4 Vrms (+14.2 dBu) ⇒ 0 dBFS
- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.0008% @ 2 Vrms
- **Dynamic range (20 Hz–20 kHz):** 123 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** >100 dB

AUX (RCA) inputs

- **Scaling:** 2 Vrms (+8.2 dBu) $\Rightarrow$ 0 dBFS
- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.0005% @ 1 Vrms
- **Dynamic range (20 Hz–20 kHz):** 123 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** >110 dB

Front jack input

- **Scaling:** 0.775 Vrms (0 dBu) $\Rightarrow$ 0 dBFS
- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.0005% @ -6 dBu
- **Dynamic range (20 Hz–20 kHz):** 120 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** >100 dB

Phono (RIAA)

- **RIAA equalization error:** < ± 0.5 dB (20 Hz–20 kHz)

MM: 44 mV (1 kHz) $\Rightarrow$ 0 dBFS

- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.001% @ 44 mV; 20 Hz < 0.001% @ 4.4 mV
- **Dynamic range (20 Hz–20 kHz):** 106 dB
- **Dynamic range (A-weighted, ASA-A):** 112 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** >106 dB

MC: 4.4 mV (1 kHz) $\Rightarrow$ 0 dBFS

- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.005% @ 4.4 mV; 20 Hz < 0.05% @ 440 μ V
- **Dynamic range (20 Hz–20 kHz):** 86 dB
- **Dynamic range (A-weighted, ASA-A):** 92 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** >96 dB

Analog $\rightarrow$ Analog (Direct Path)

Balanced XLR in $\rightarrow$ Balanced XLR out: 4 Vrms (+14.2 dBu) in $\Rightarrow$ 4 Vrms (+14.2 dBu) out

- **THD+N (20 Hz–20 kHz):** 1 kHz 0.0005% @ 4 Vrms; 0.0003% @ 2 Vrms
- **Frequency response:** 2 Hz–300 kHz (+0 / -0.5 dB)
- **Dynamic range (20 Hz–20 kHz):** 124 dB
- **Dynamic range (A-weighted, ASA-A):** 126 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** ≥ 105 dB

Headphone Output (PHONES)

- **Max output (300 Ω load):** 6.7 Vrms (+18 dBu), 150 mW
- **Max output (33 Ω load):** 6.7 Vrms (+18 dBu), 1.1 W
- **Scaling:** 0 dBFS $\Rightarrow$ 4 Vrms at volume = 0 dB
- **Output impedance:** < 0.15 Ω

At 4 Vrms into 66 Ω : 0.25 W

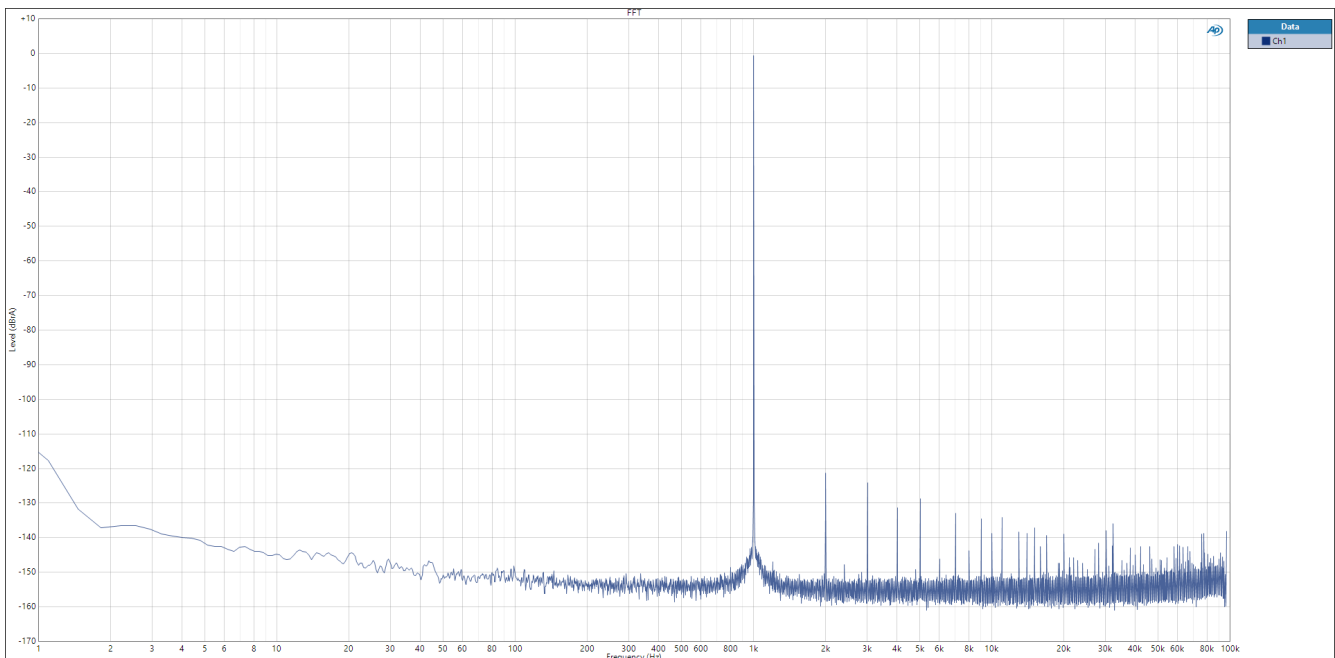
- **THD+N (20 Hz–20 kHz):** 1 kHz < 0.002%
- **Frequency response:** 10 Hz–200 kHz (± 0.2 dB)
- **Dynamic range (20 Hz–20 kHz):** 110 dB
- **Channel separation (crosstalk, 20 Hz–20 kHz):** ≥ 100 dB

Notes

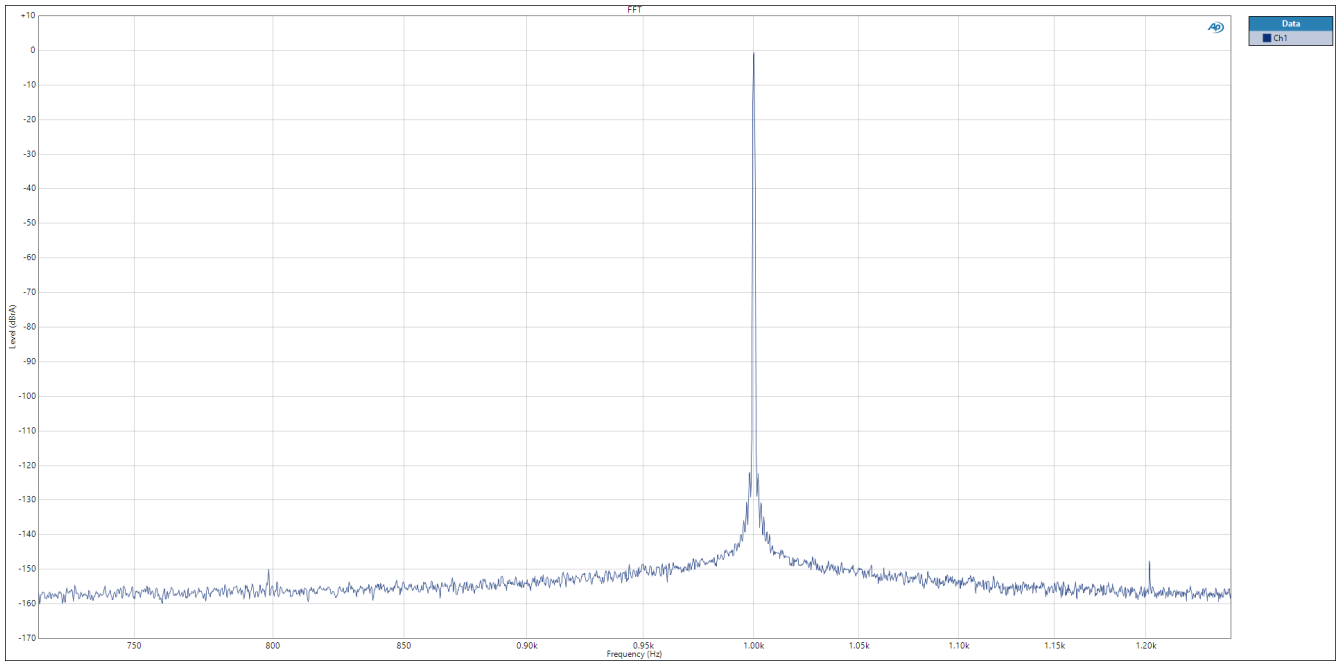
- Unless otherwise specified, THD+N measured with 20 Hz–20 kHz bandwidth; “A-weighted (ASA-A)” indicates A-weighting applied.
- dBu is referenced to 0.775 Vrms.

Audio Precision Apx Plots & Graphs

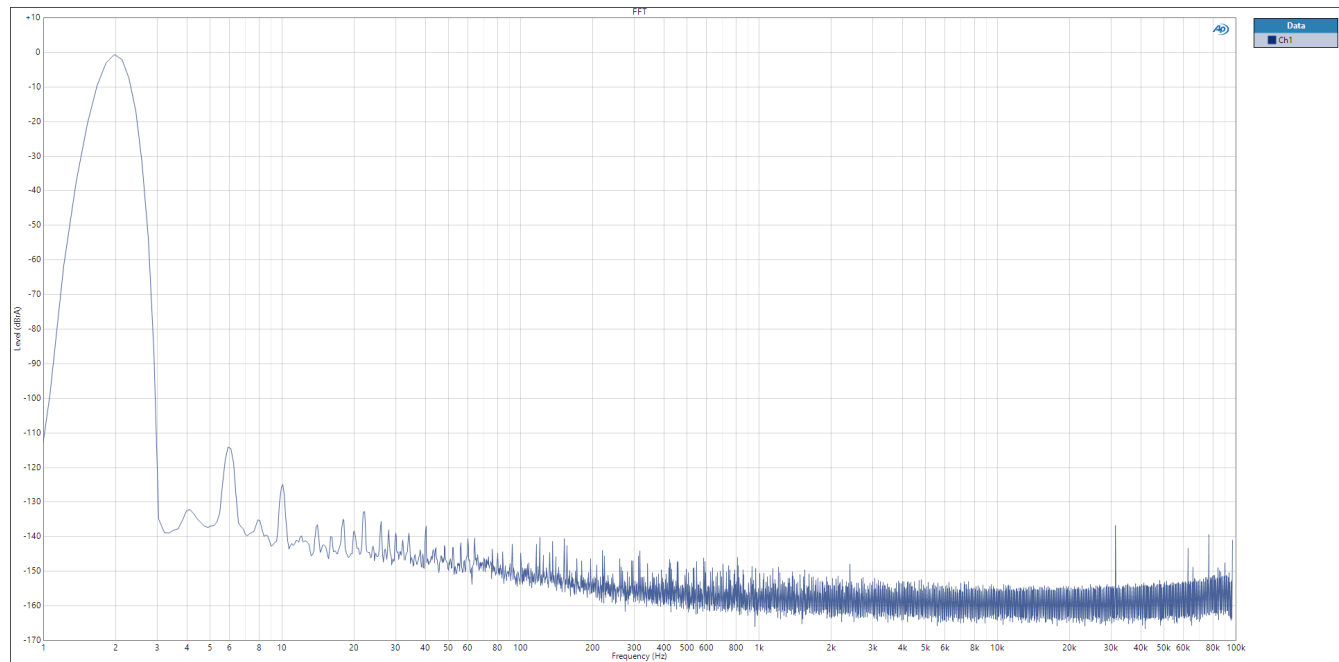
Optical in – Balanced output XLR (DAC) 1kHz @ 0dBFS (4Vrms)



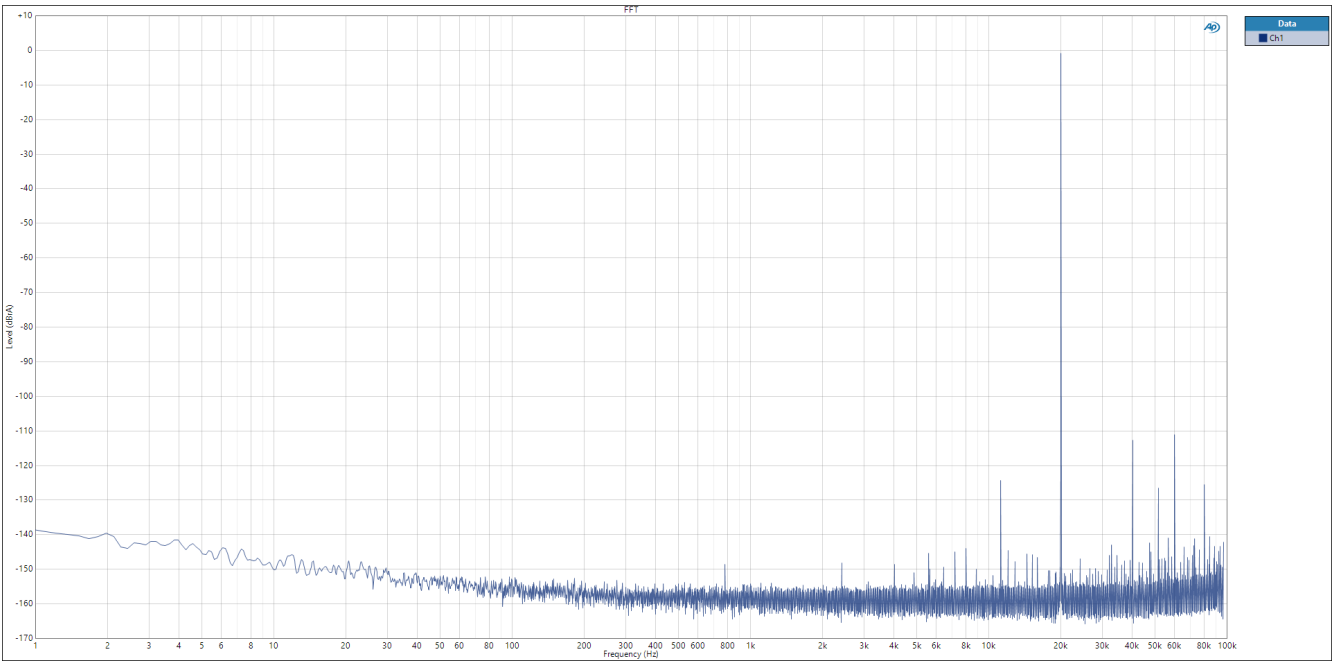
1kHz @ 0dBFS (4Vrms)



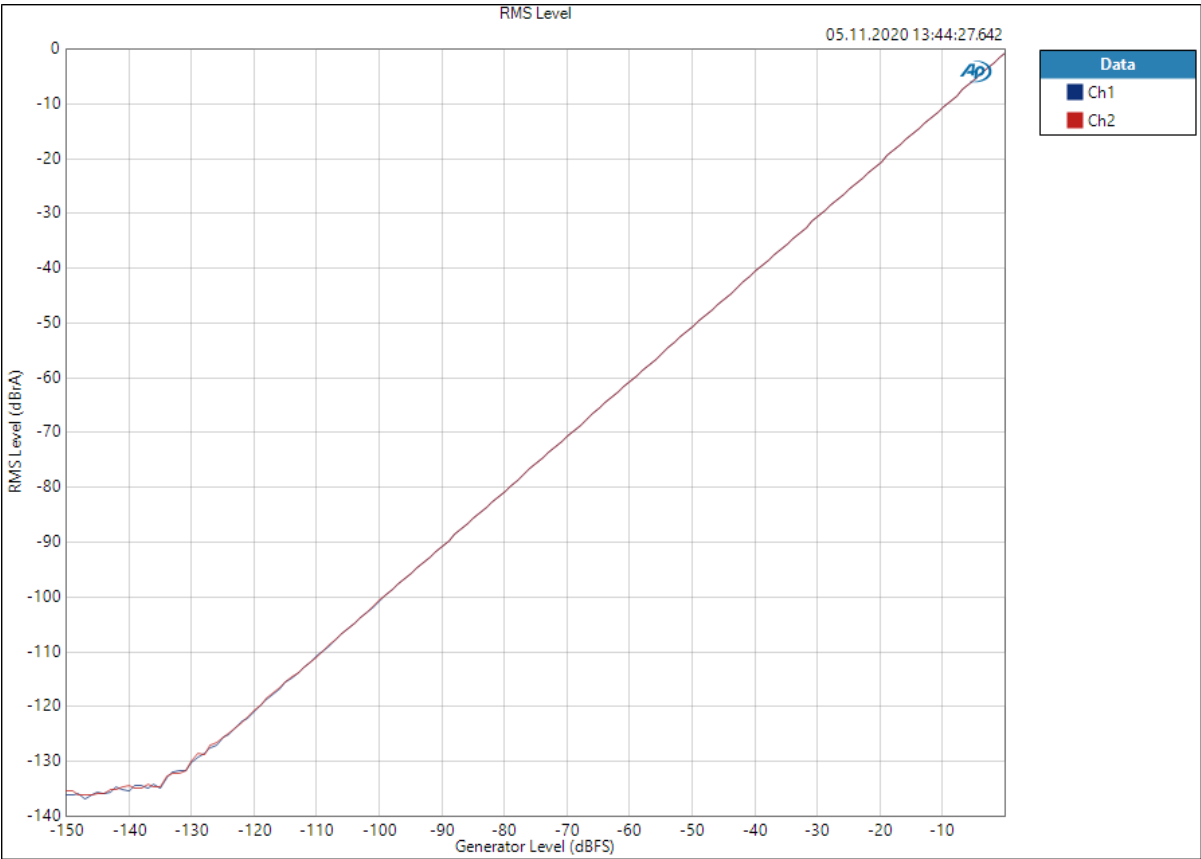
2Hz @ 0dBFS



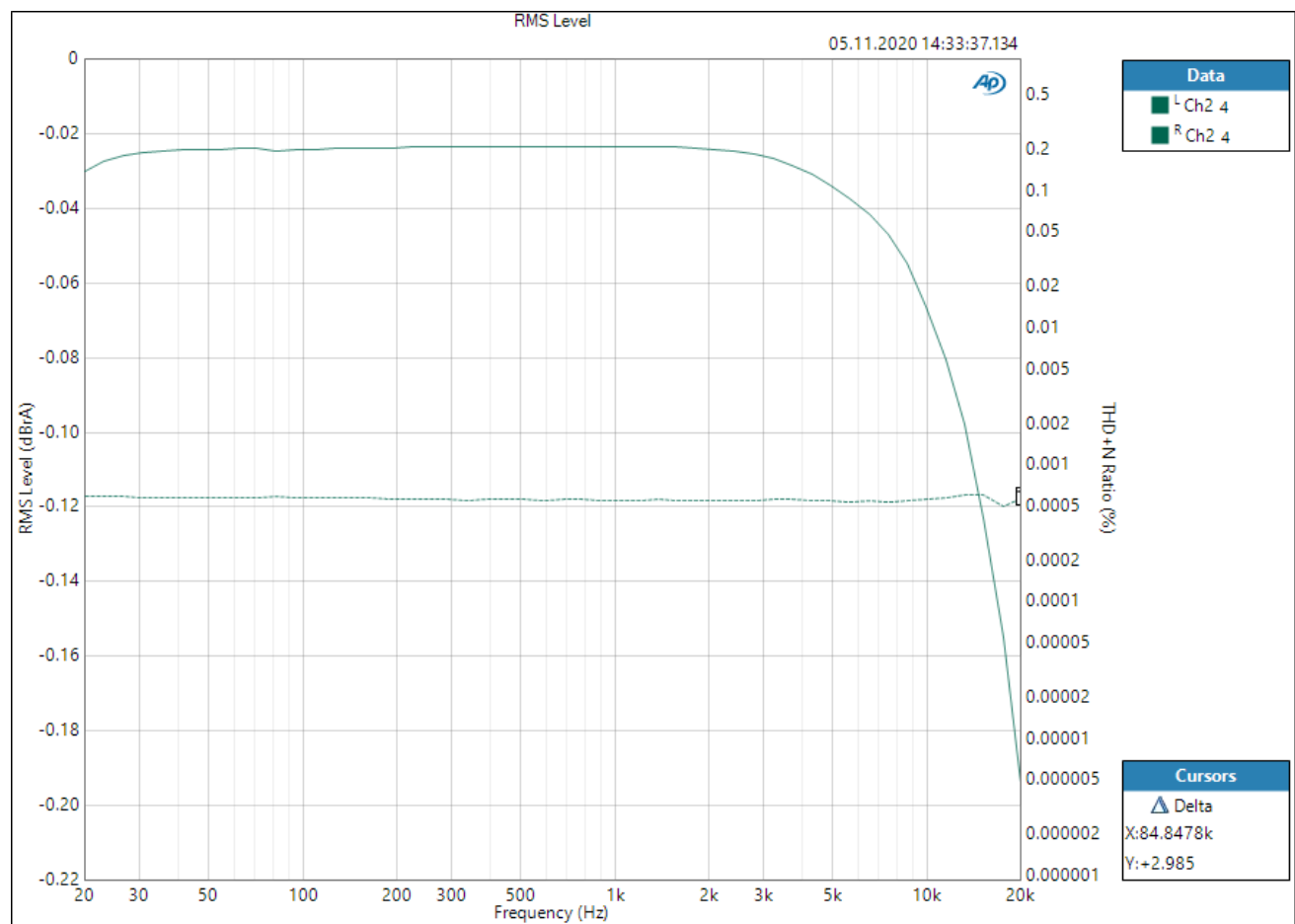
20kHz @ 0dBFS



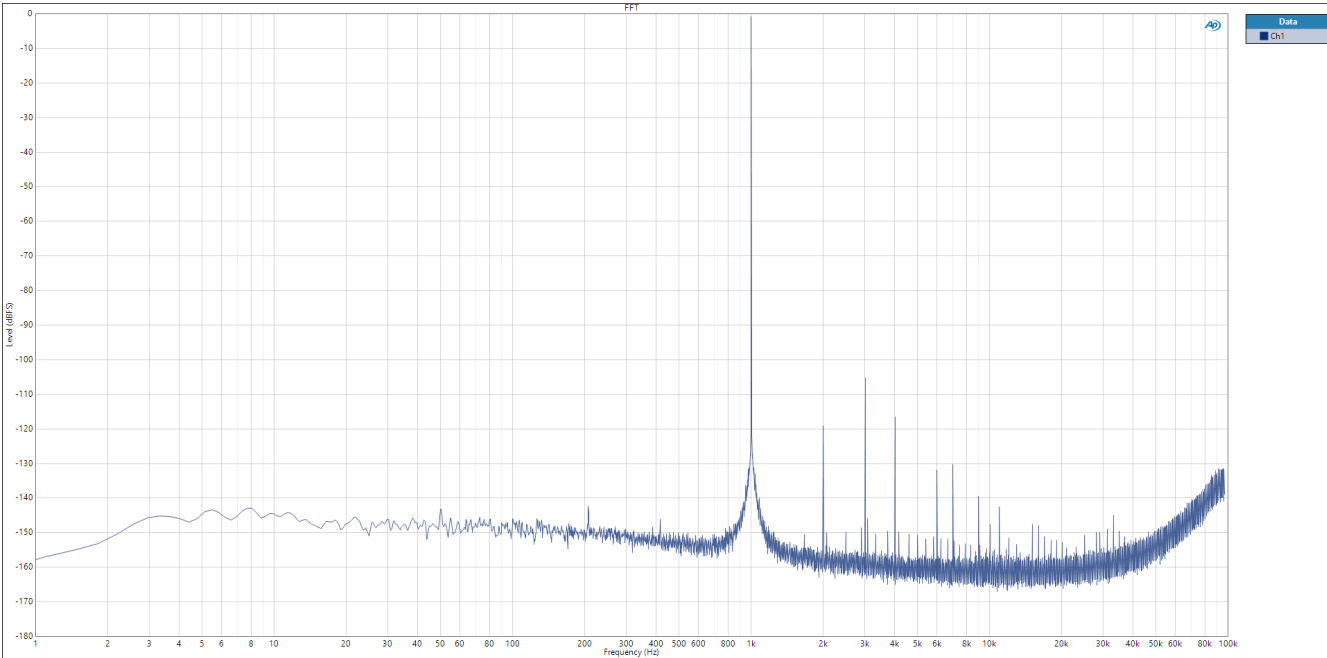
Linearity



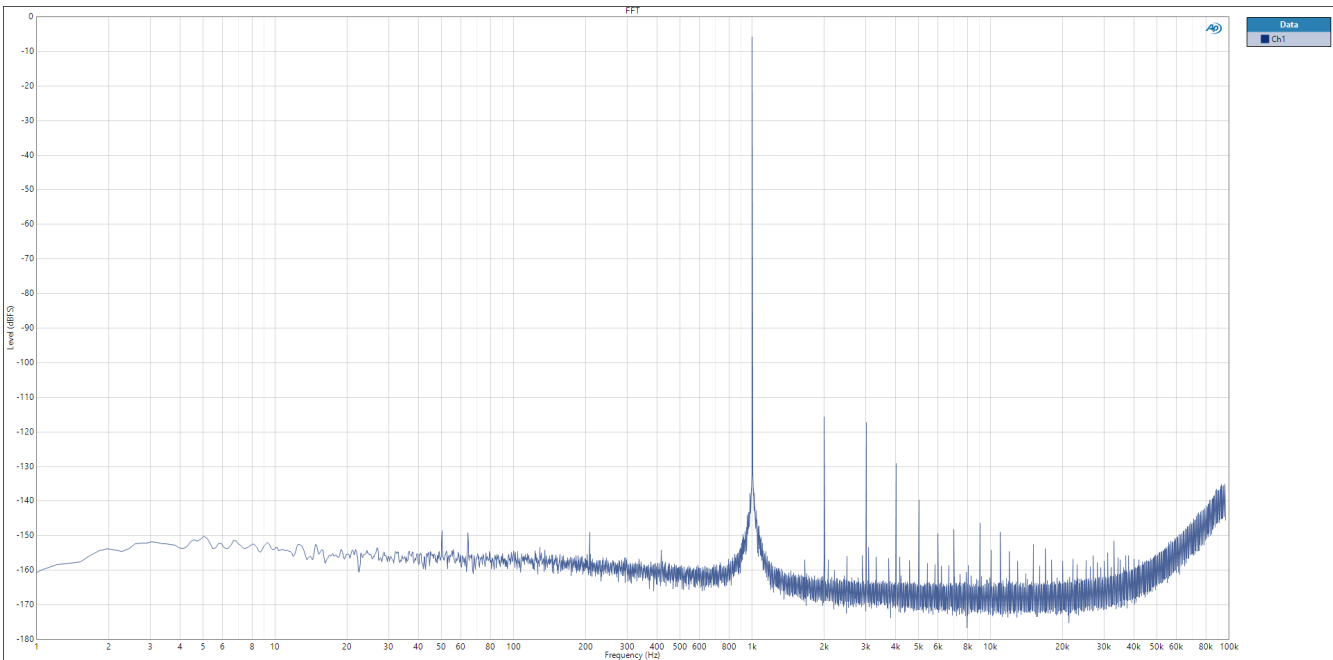
Frequency response and THD+N (0dBrA = 4Vrms)



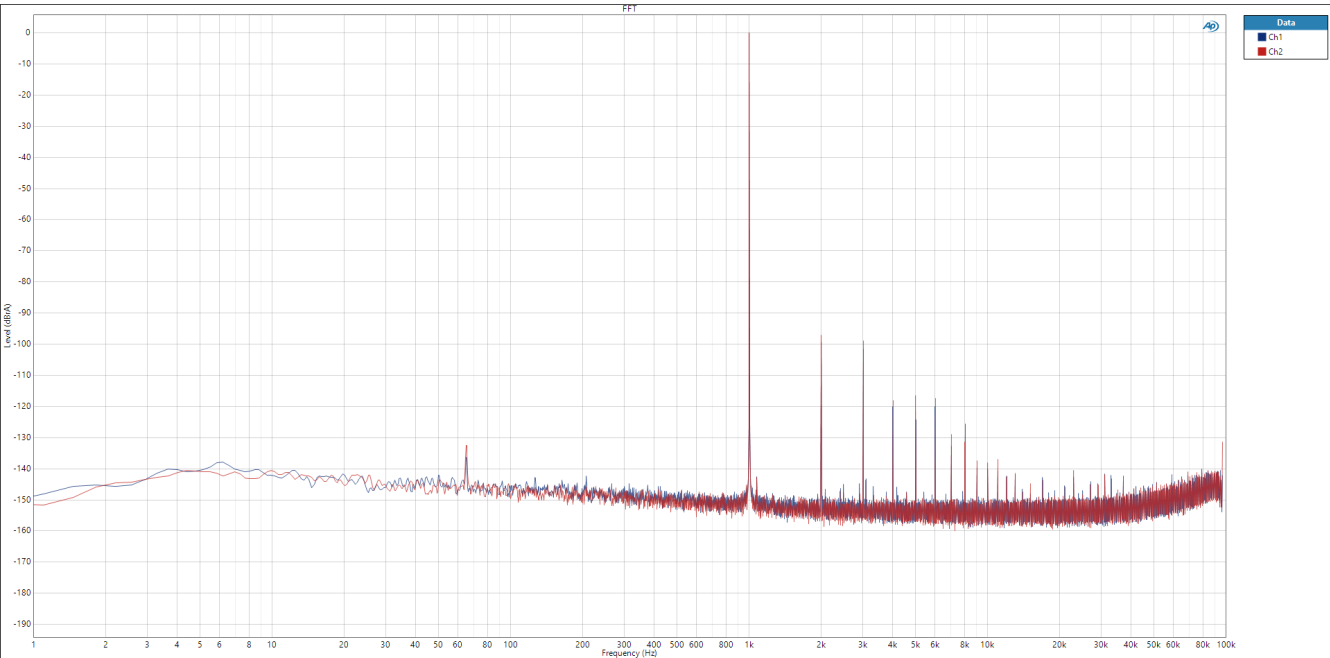
Balanced input XLR - Optical out (ADC)
@ -1dBFS (0dBFS = 4Vrms)



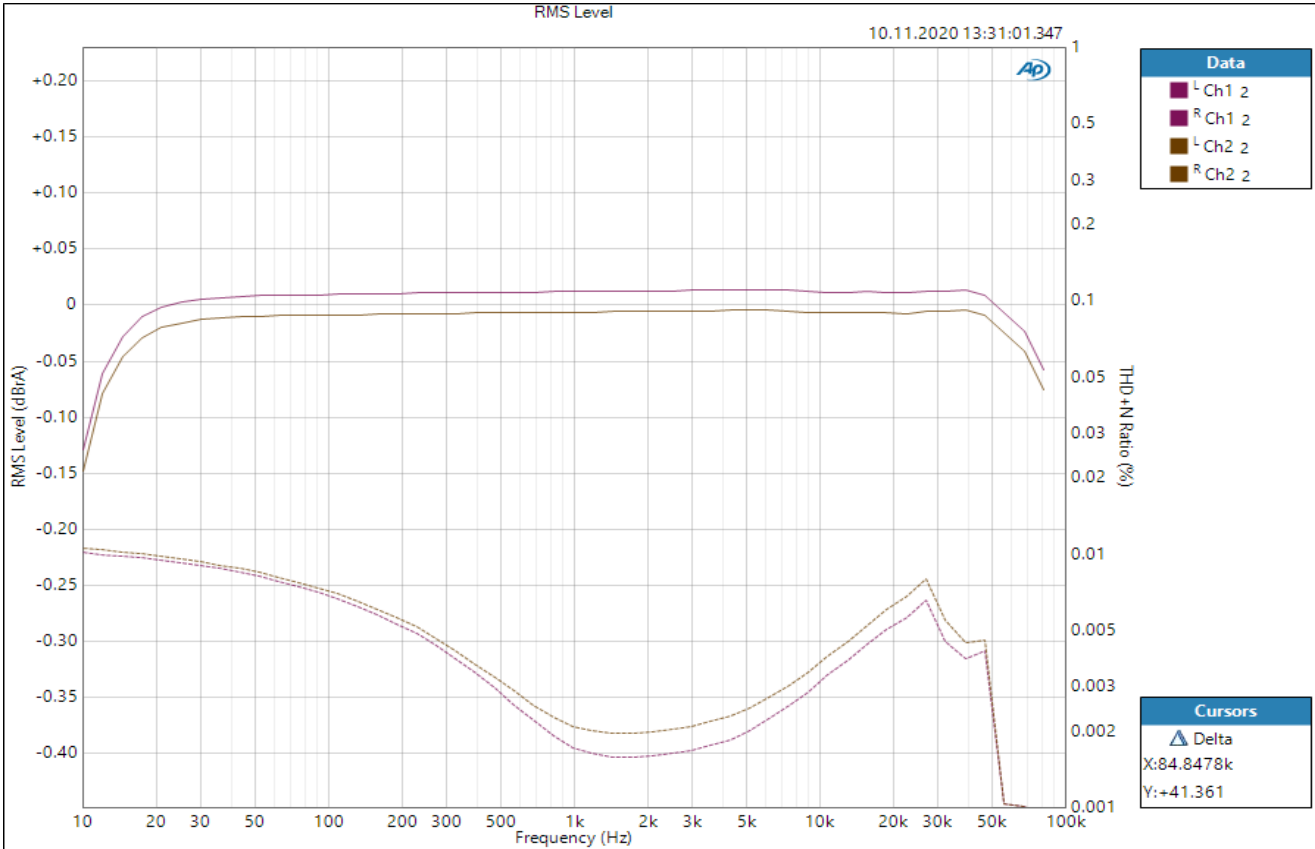
@ -6dBFS



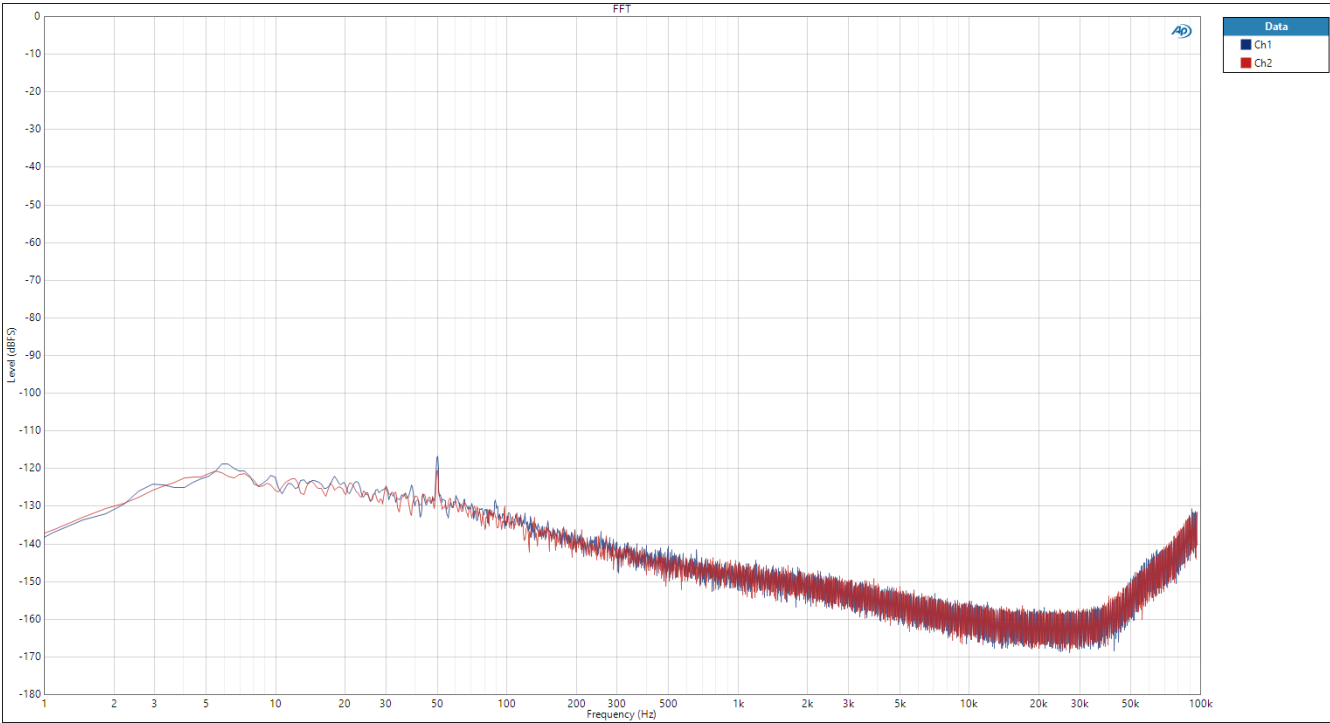
Phones
@ 4Vrms into 66 Ohms 0.25W



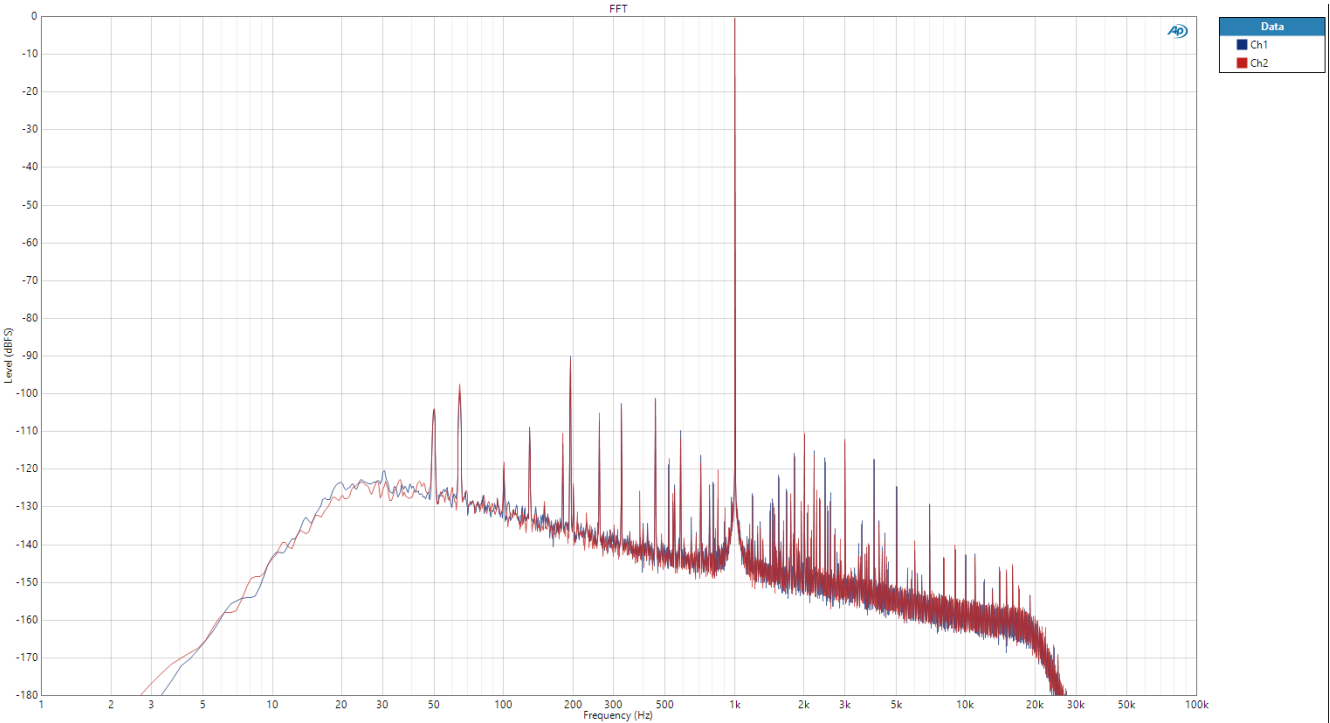
Frequency response and THD+N @ 4Vrms into 66 Ohms 0.25W



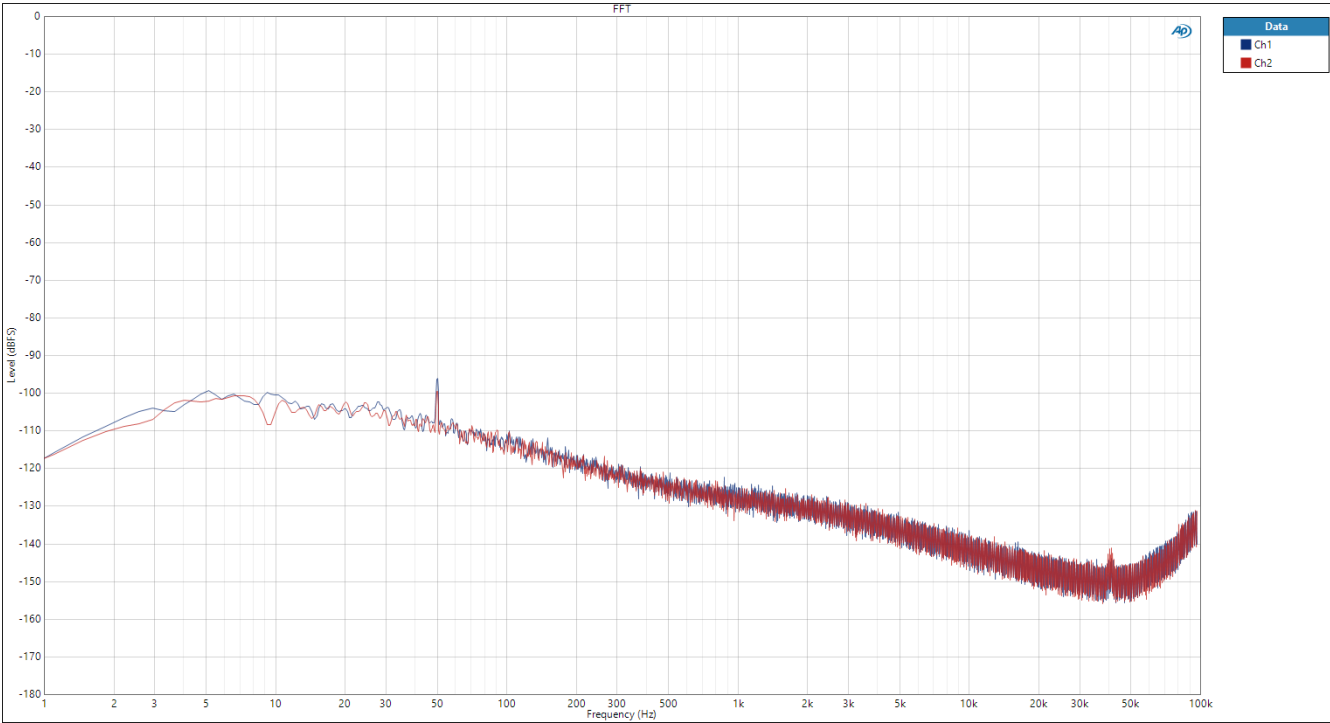
Phono MM
Input C-C



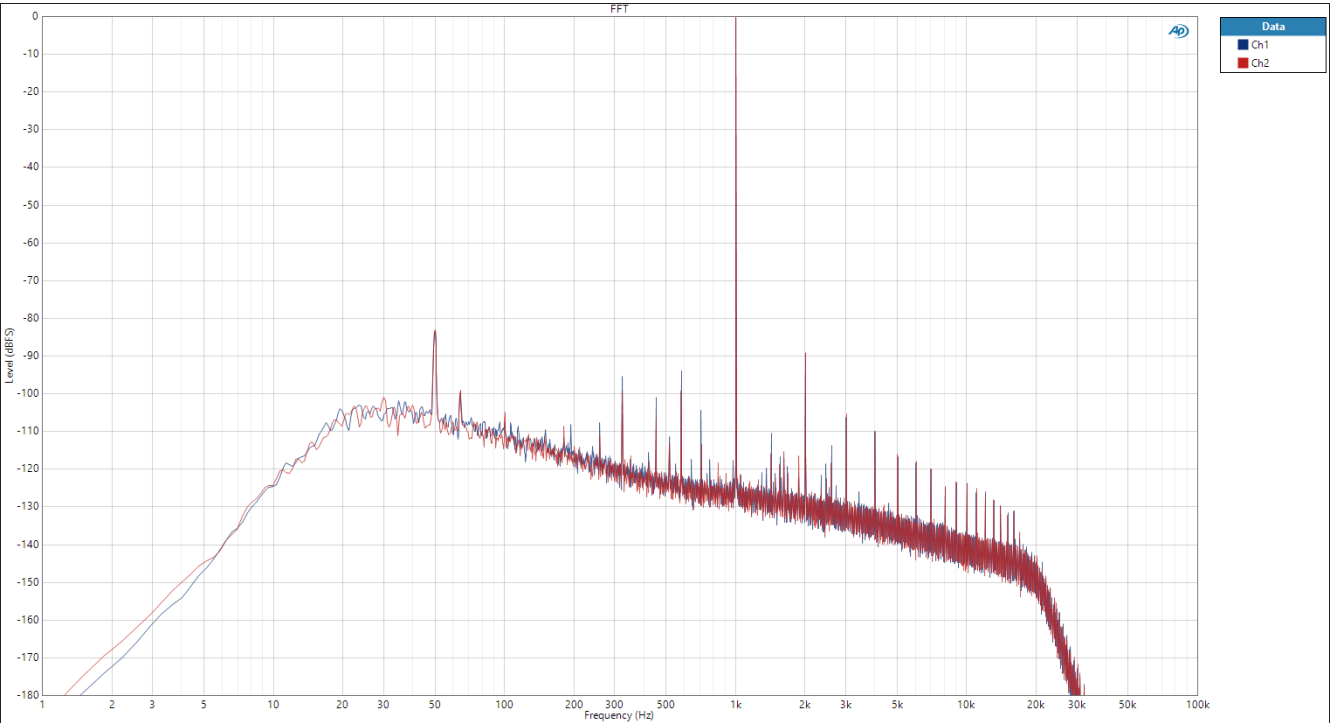
Input 44mV 1kHz



Phono MC
Input C-C



Input 4.4mV 1kHz



Phono
RIAA equalization error

