WING_DL_DLBLUE

1 TABLE DES MATIERES

2 INTRODUCTION

The purpose of this document is to provide professional measurements of ADCs and DACs of the following devices:

- Behringer Wing Compact
- Midas DL16
- Midas DL155 (Blue box)

The measurements are done with an Audio Precision APx555.

When measuring DACs, the input signal is fed through the AES3 of the Wing Compact in order to stay in the digital domain from the APx up to the DACs.
When measuring ADCs, the output is taken from the AES3 output of the Wing compact in order to stay in the digital domain from the ADCs up to the APx.

The link between inputs/outputs and AES3 is done on the routing matrix of the Wing Compact to avoid any computation on the samples. The link is therefore direct with no channel processing at all.

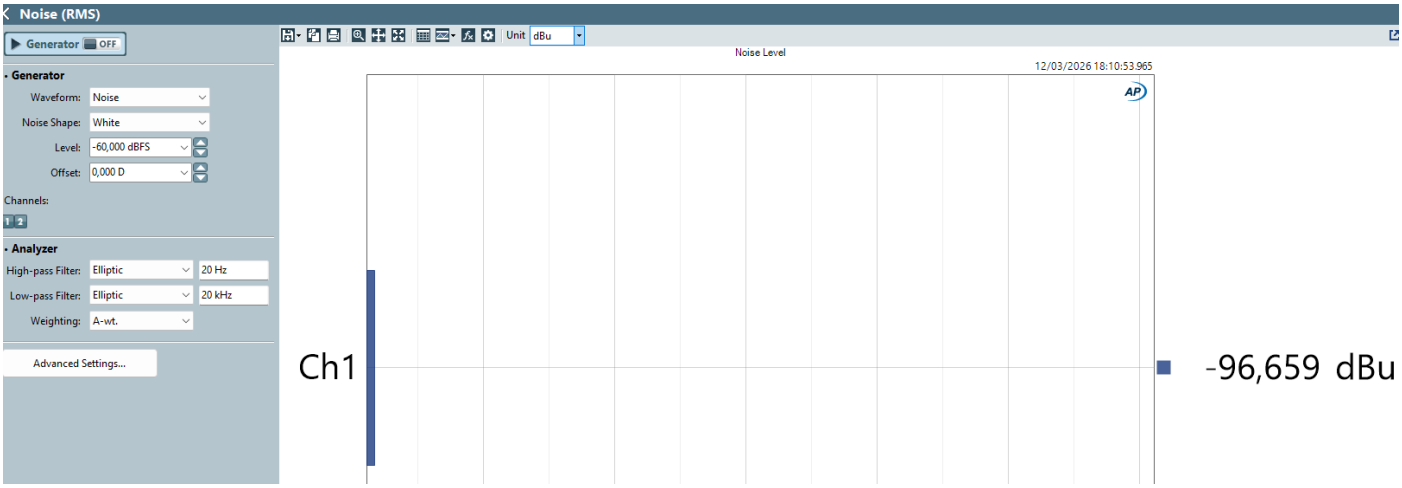
The measurements are done in ambient temperature, around 22°C.

3 BEHRINGER WING COMPACT

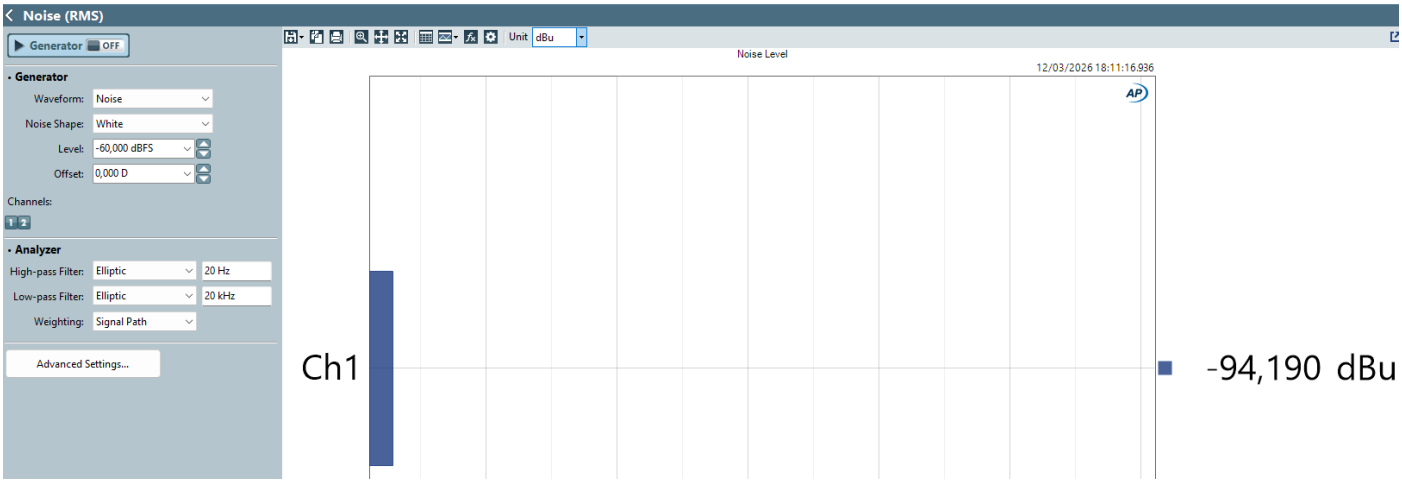
3.1 DACS

3.1.1 NOISE

A-weighted, 20Hz-20kHz

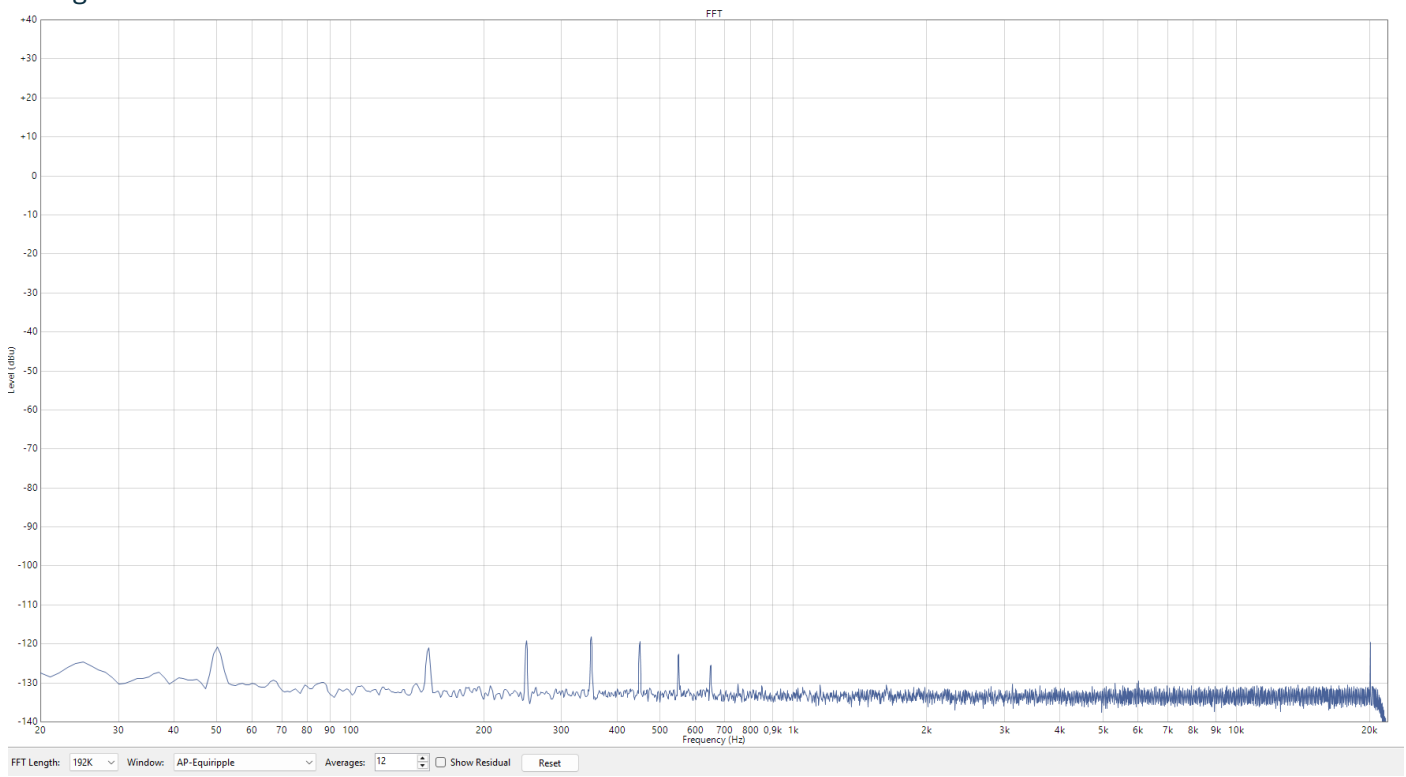


Unweighted, 20Hz-20kHz



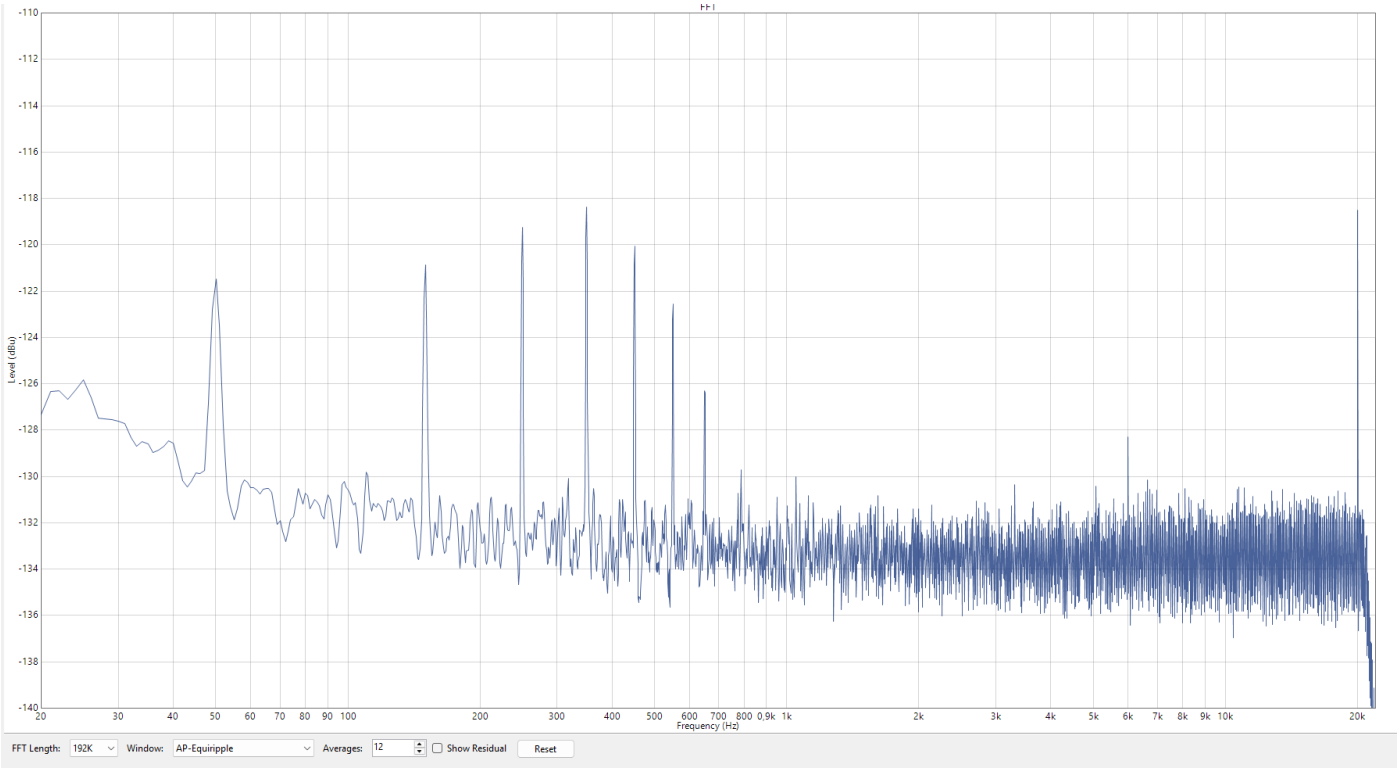
3.1.2 FFT

No signal.



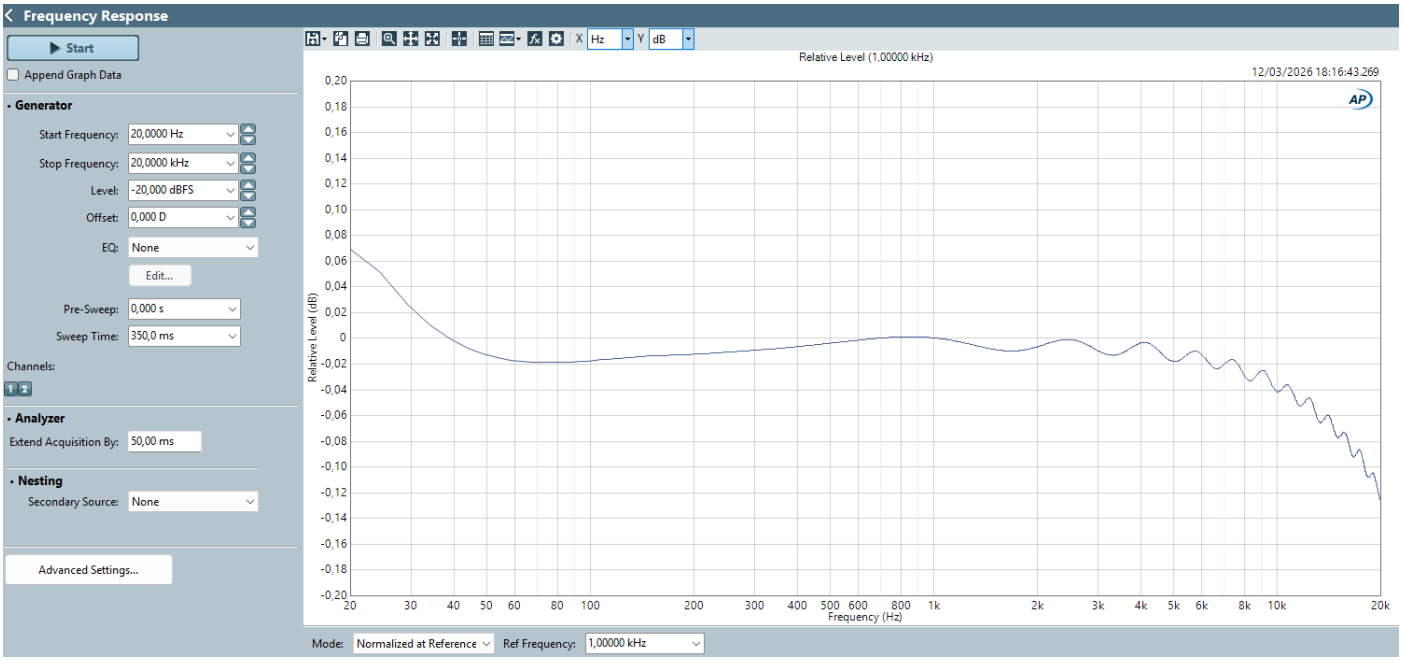
We can see some pics above the noise floor. Not very clean.

Zoom :

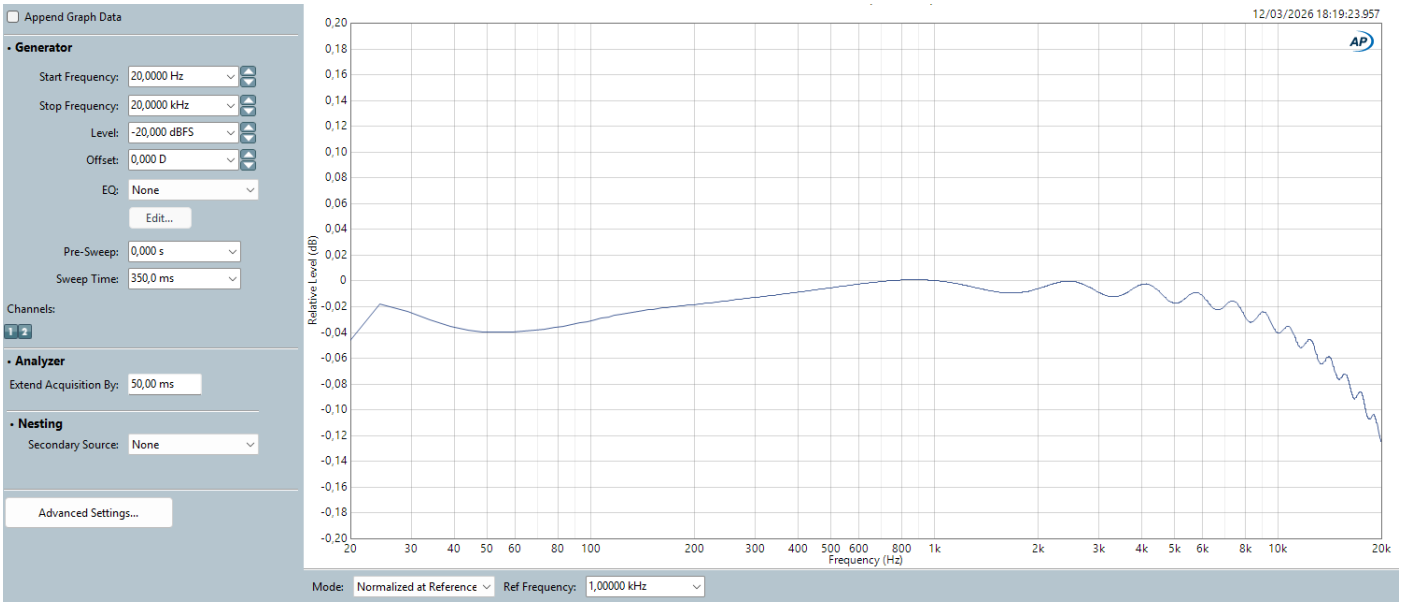


3.1.3 FREQUENCY RESPONSE

200 kOhm loaded.



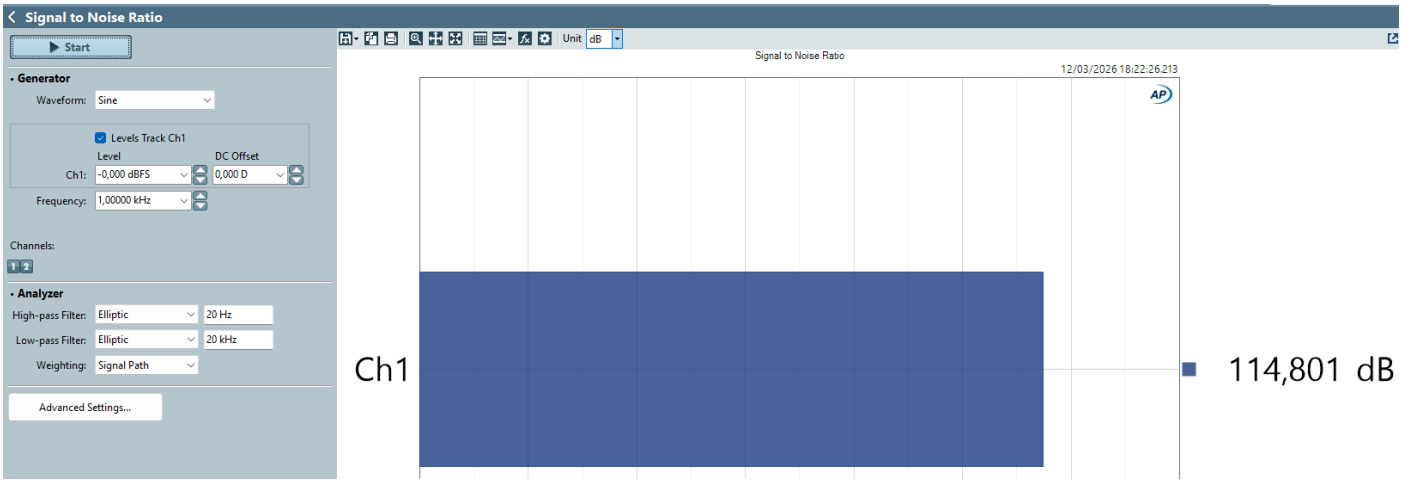
600 Ohm loaded.



We can see that the frequency response is almost flat. Small normal deviation at the limits.
We can see a small pre-ringing on the higher frequency range probably due to the chosen internal filter of the DACs.
We can see a little difference on the low frequency range according to the load but nothing huge.

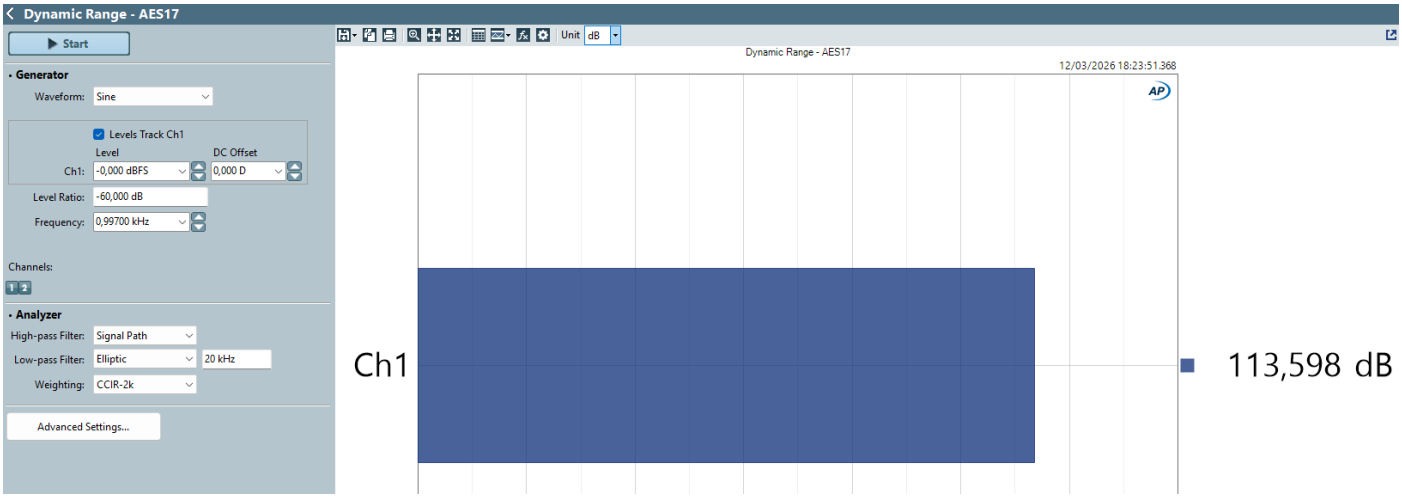
3.1.4 SNR

0 dBFS input.



3.1.5 DNR

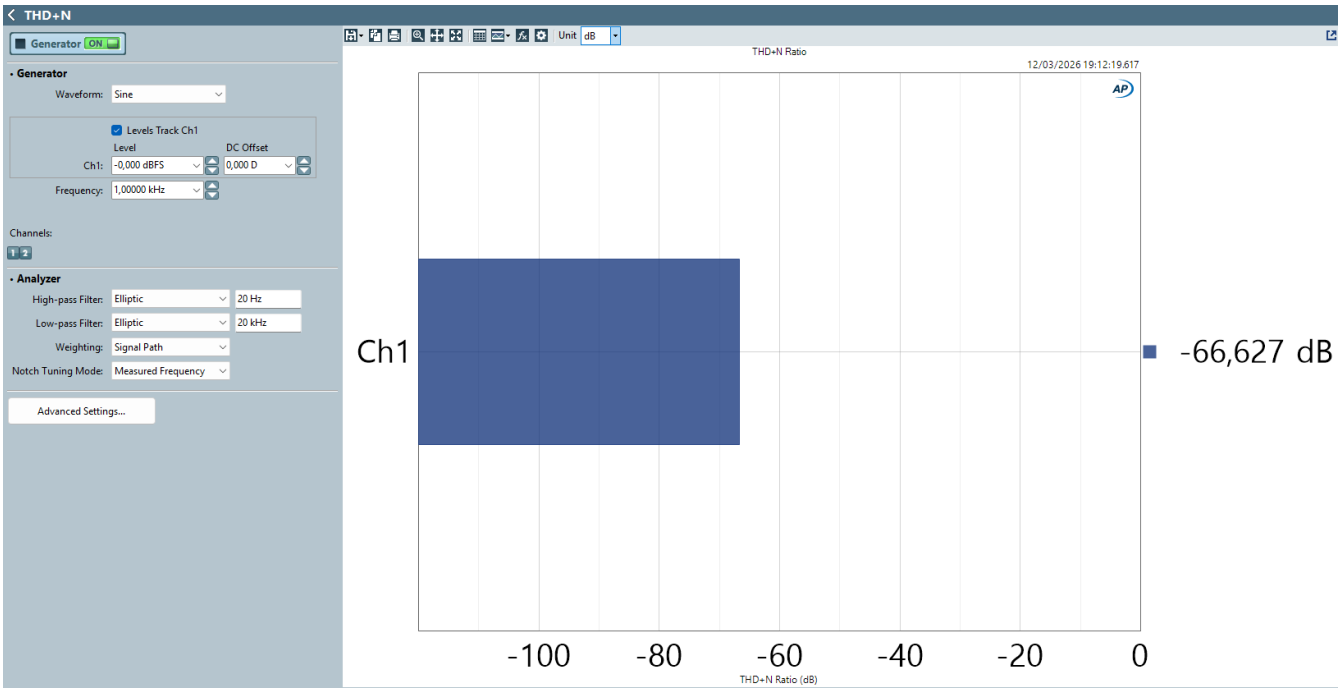
0 dBFS input.



3.1.6 THD+N RATIO

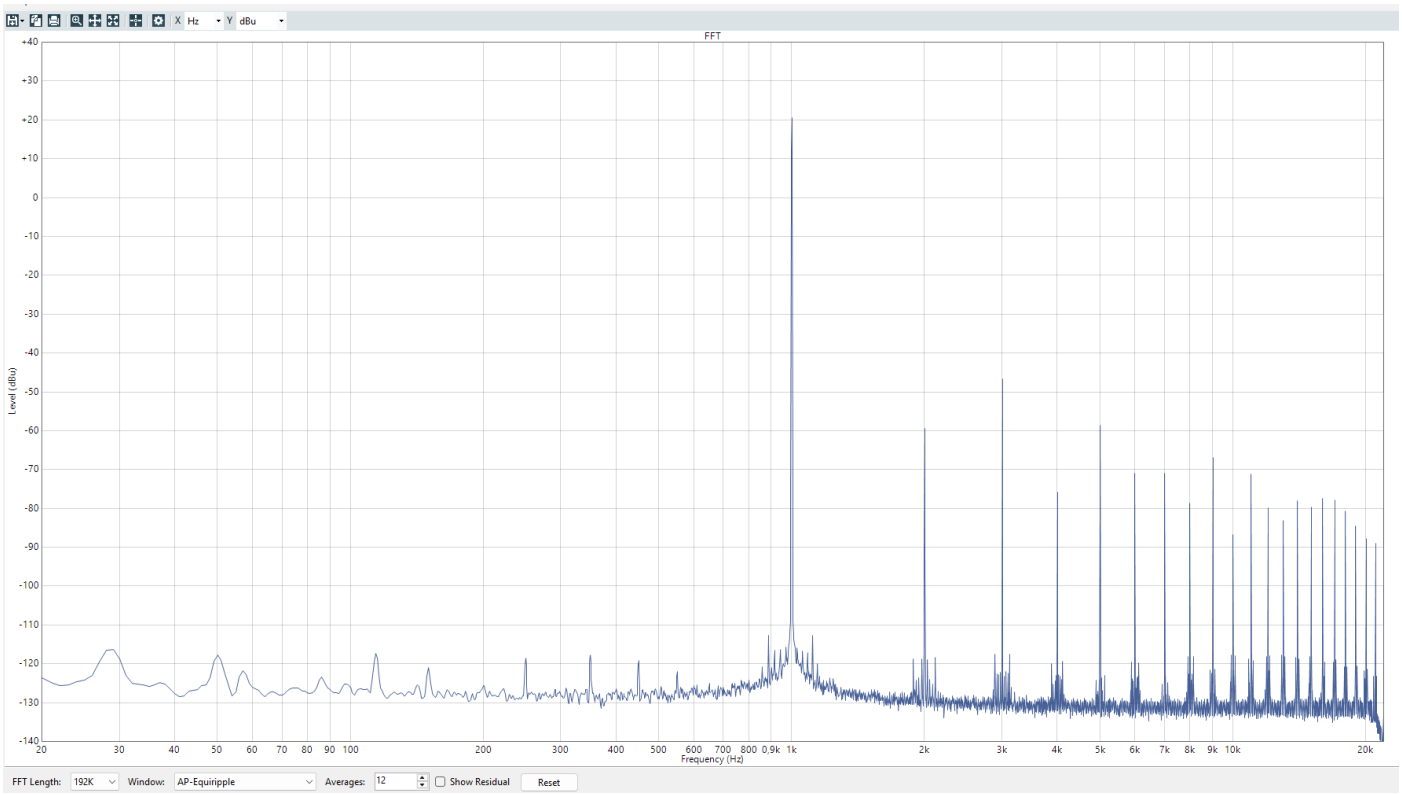
3.1.6.1 200 KOHM

0 dBFS, 1 kHz

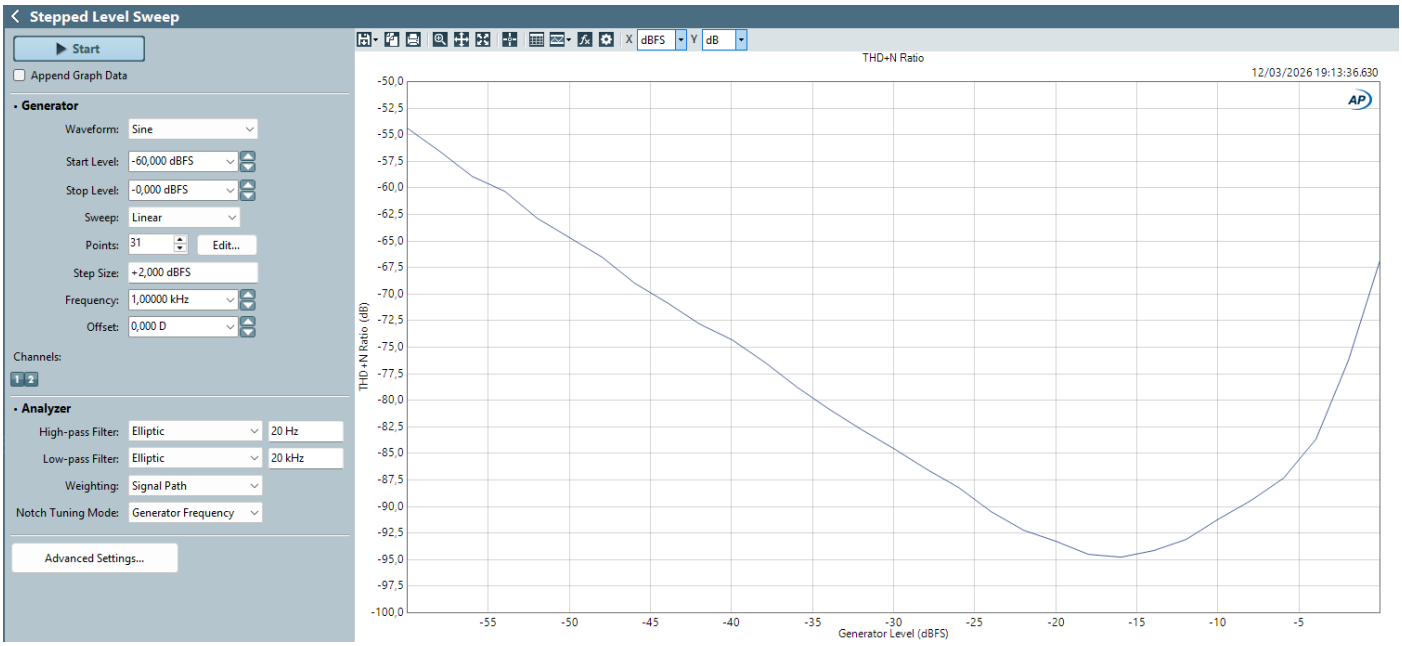


This result is not very good. There is a lot of THD+N here.

FFT :

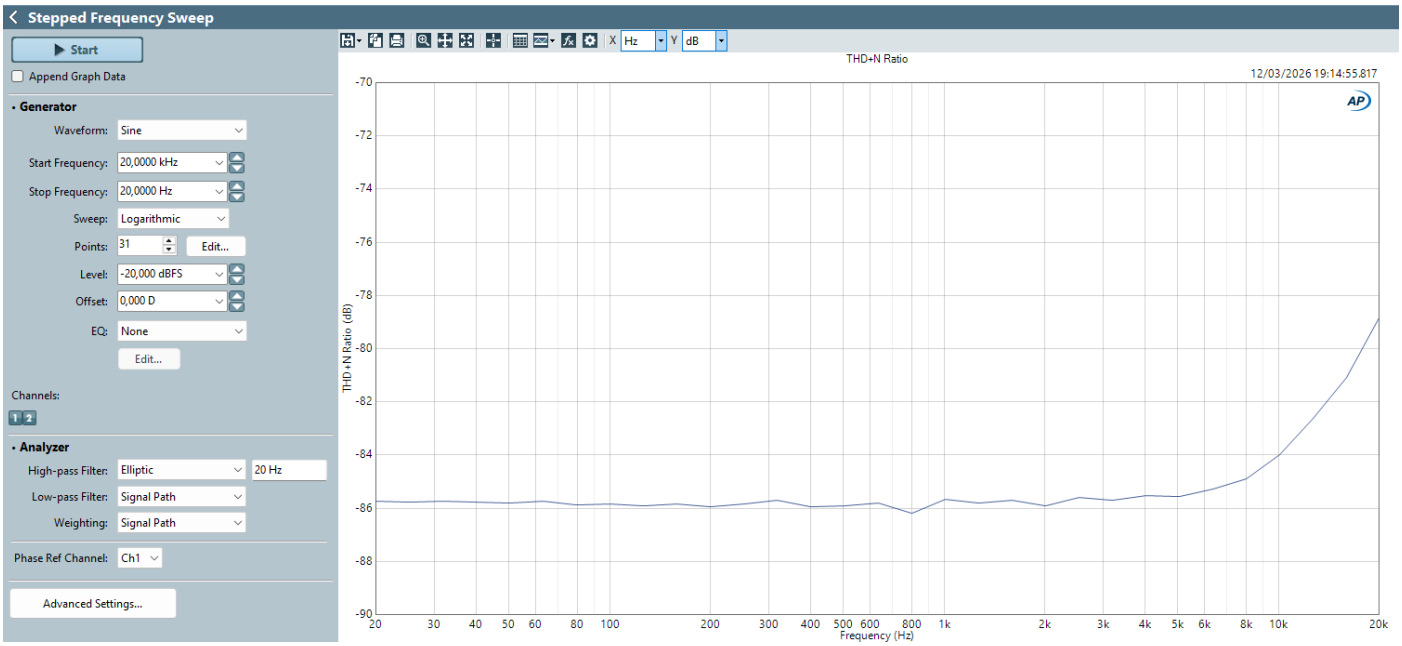


We can see that the base of the 1 kHz pic is not clean. This is probably due to jitter.
Ideally, we should see a flat base and clean pics.
We can see intermodulation.
We can see a quite huge level of harmonics.



We can see that the THD+N rises well below the full scale...

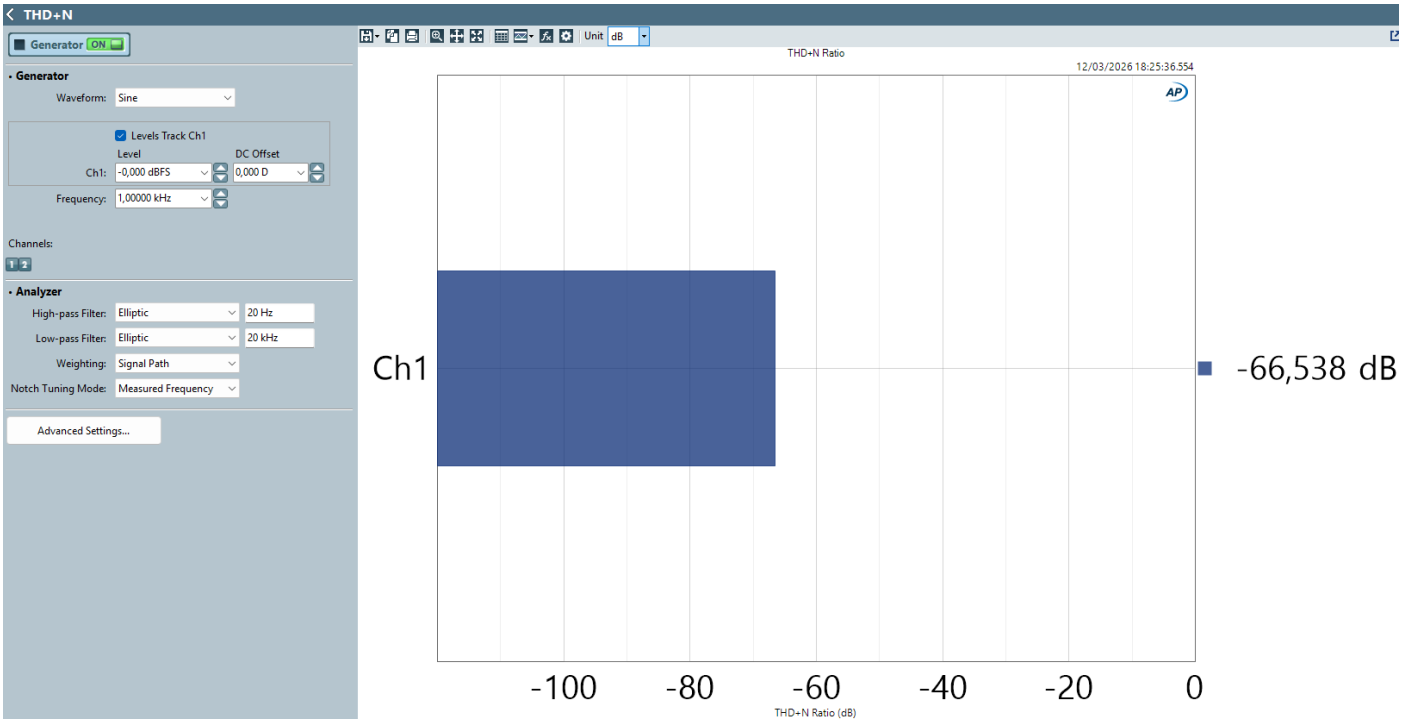
At around -17dBFS, we can see the THD+N rising. This shows that something is wrong with the design.



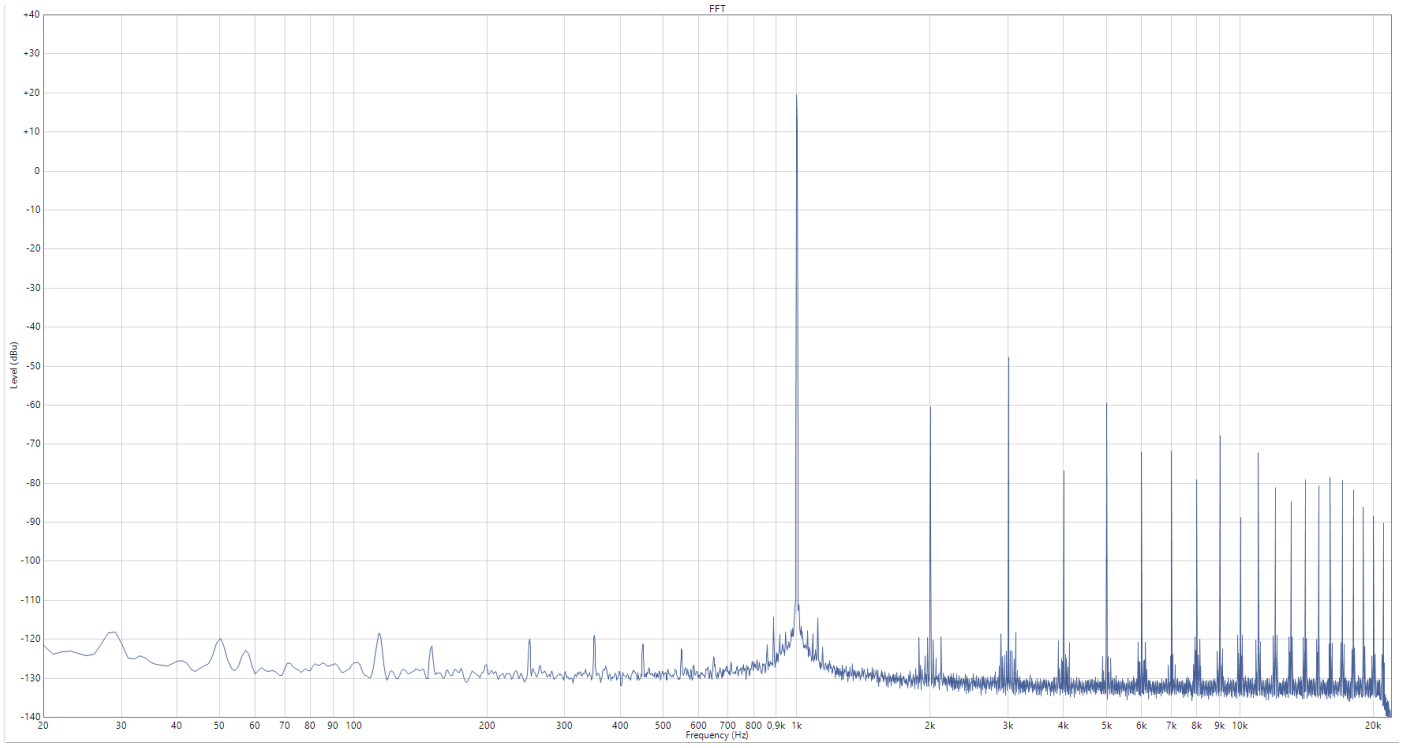
The THD+N rises at higher frequencies, even before 10kHz...

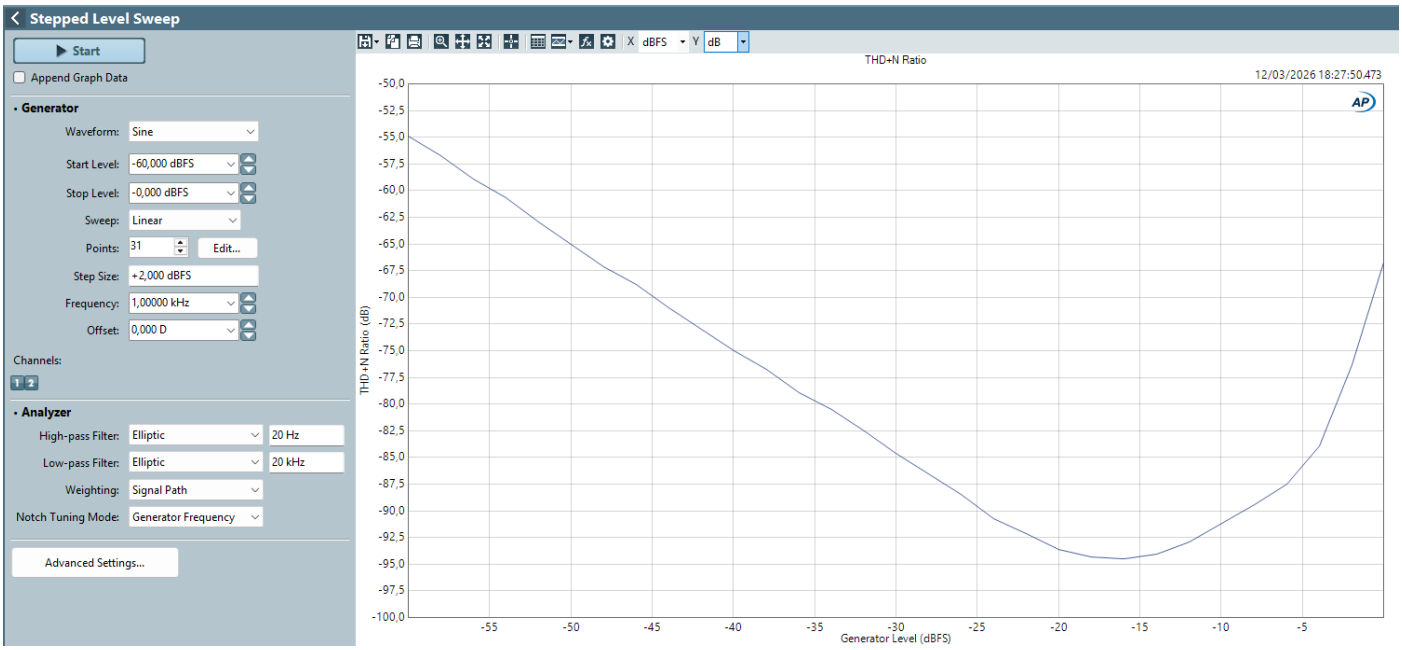
3.1.6.2 600 OHM

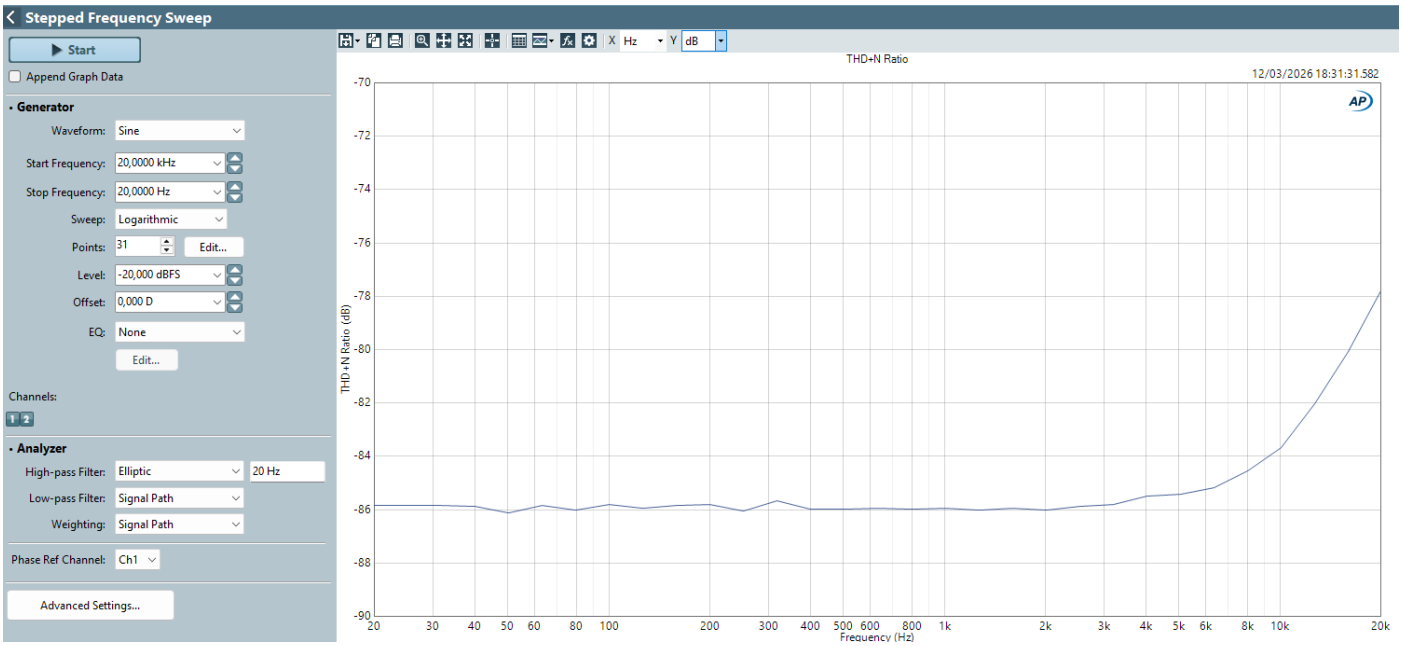
0 dBFS, 1 kHz



FFT :

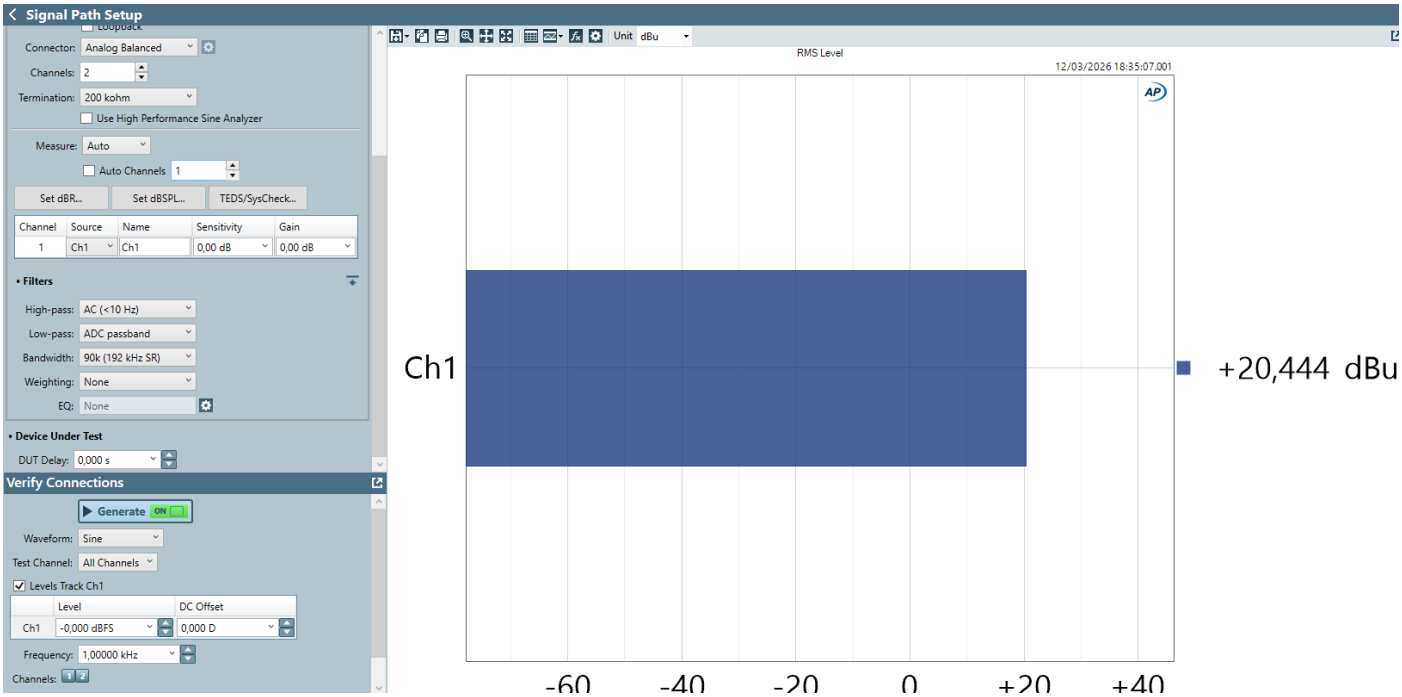



Stepped Level Sweep
Start
Append Graph Data
• Generator
Waveform: Sine
Start Level: -60,000 dBFS
Stop Level: -0,000 dBFS
Sweep: Linear
Points: 31
Edit...
Step Size: +2,000 dBFS
Frequency: 1,00000 kHz
Offset: 0,000 D
Channels:
1 2
• Analyzer
High-pass Filter: Elliptic 20 Hz
Low-pass Filter: Elliptic 20 kHz
Weighting: Signal Path
Notch Tuning Mode: Generator Frequency
Advanced Settings...
X dBFS Y dB
THD+N Ratio
12/03/2026 18:27:50.473
THD+N Ratio (dB)
Generator Level (dBFS)


Stepped Frequency Sweep
Start
Append Graph Data
• Generator
Waveform: Sine
Start Frequency: 20,0000 kHz
Stop Frequency: 20,0000 Hz
Sweep: Logarithmic
Points: 31
Edit...
Level: -20,000 dBFS
Offset: 0,000 D
EQ: None
Edit...
Channels:
1 2
• Analyzer
High-pass Filter: Elliptic 20 Hz
Low-pass Filter: Signal Path
Weighting: Signal Path
Phase Ref Channel: Ch1
Advanced Settings...
X Hz Y dB
THD+N Ratio
12/03/2026 18:31:31.582
THD+N Ratio (dB)
Frequency (Hz)

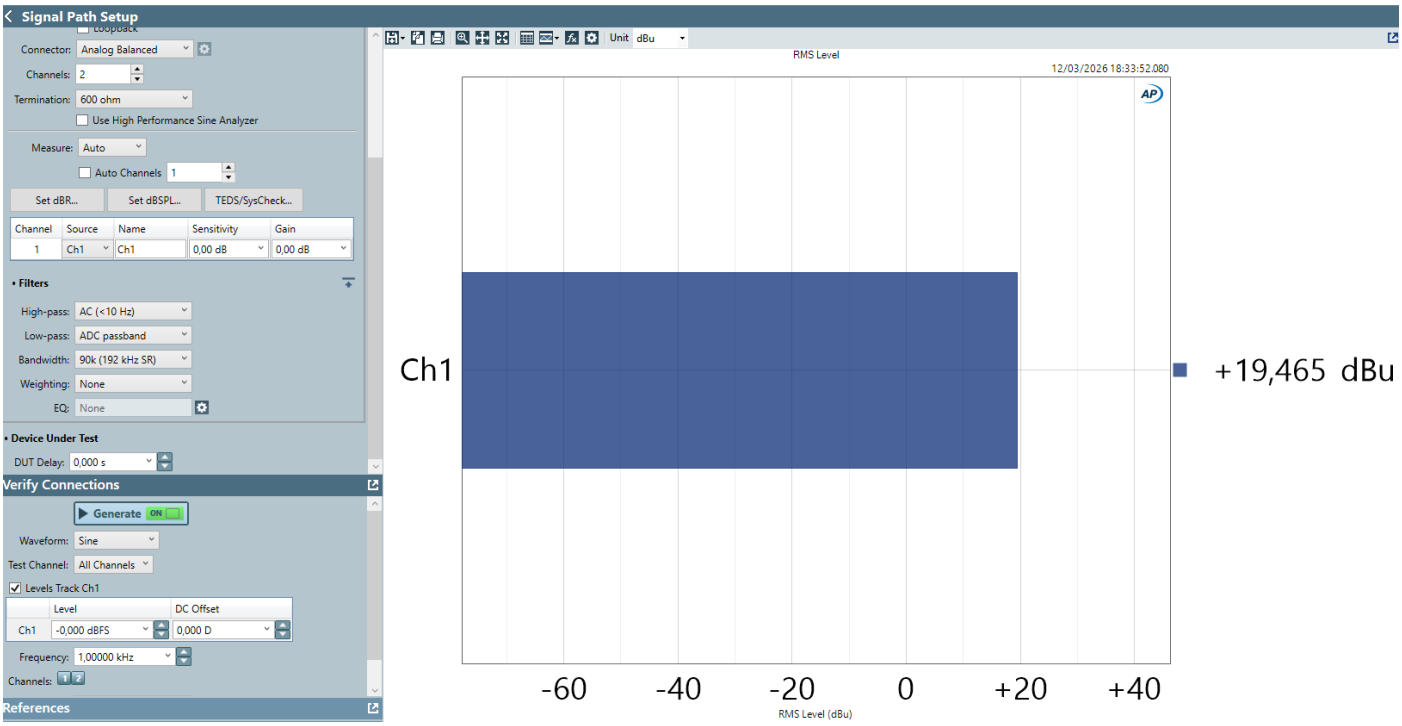
3.1.7 OUTPUT LEVEL

200 kOhm :



We can see that the full-scale output is quite low even at 200kOhm load.

600 Ohm :



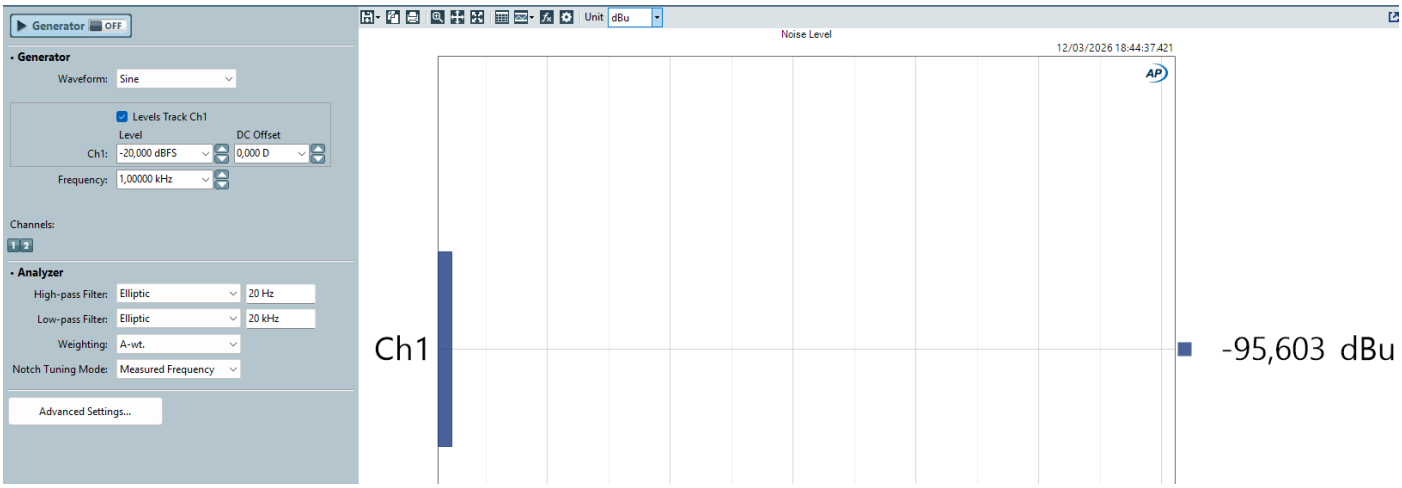
The full-scale output is low.

4 MIDAS DL155

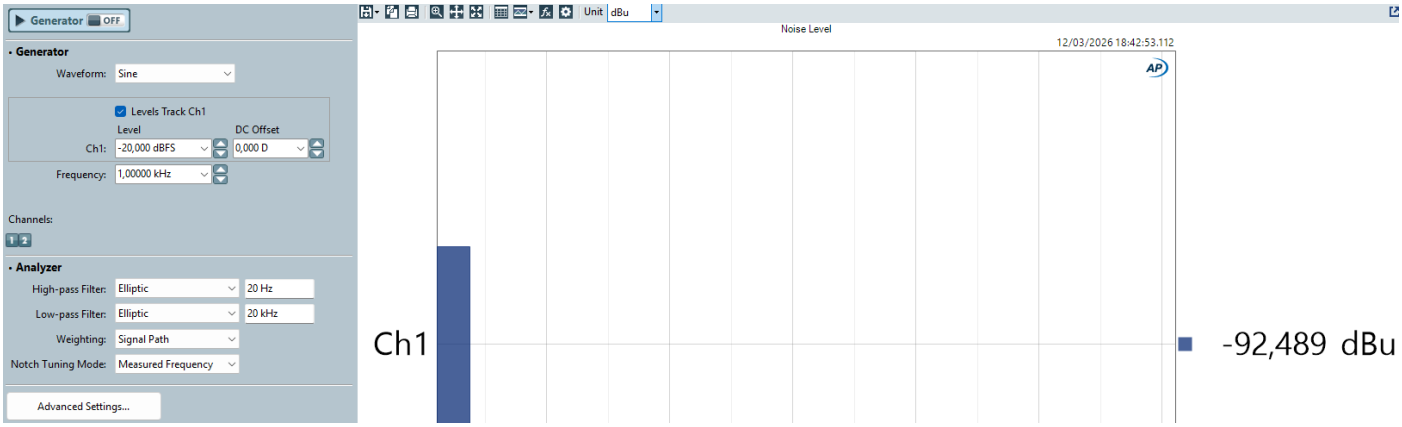
4.1 OUTPUT

4.1.1 NOISE

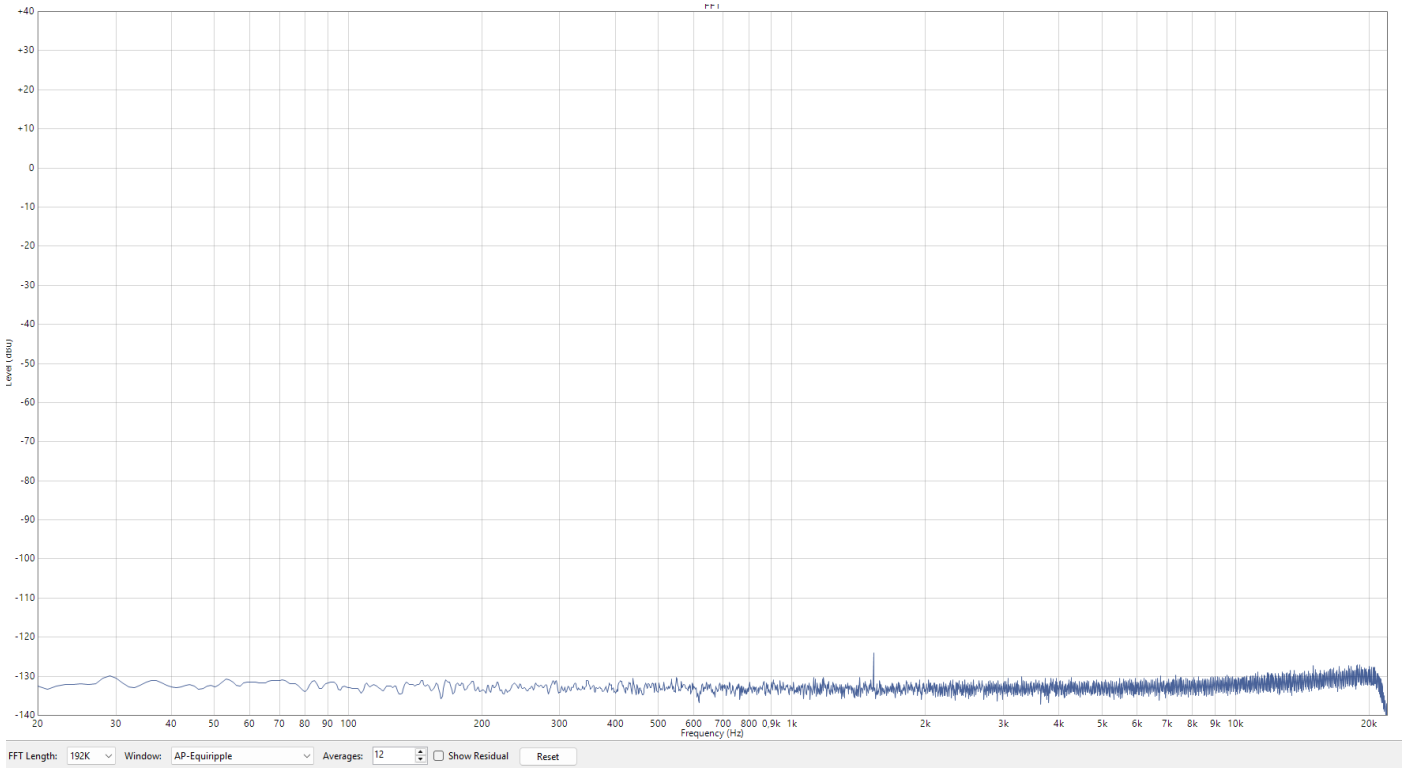
A-weighted, 20Hz-20kHz



Unweighted, 20Hz-20kHz

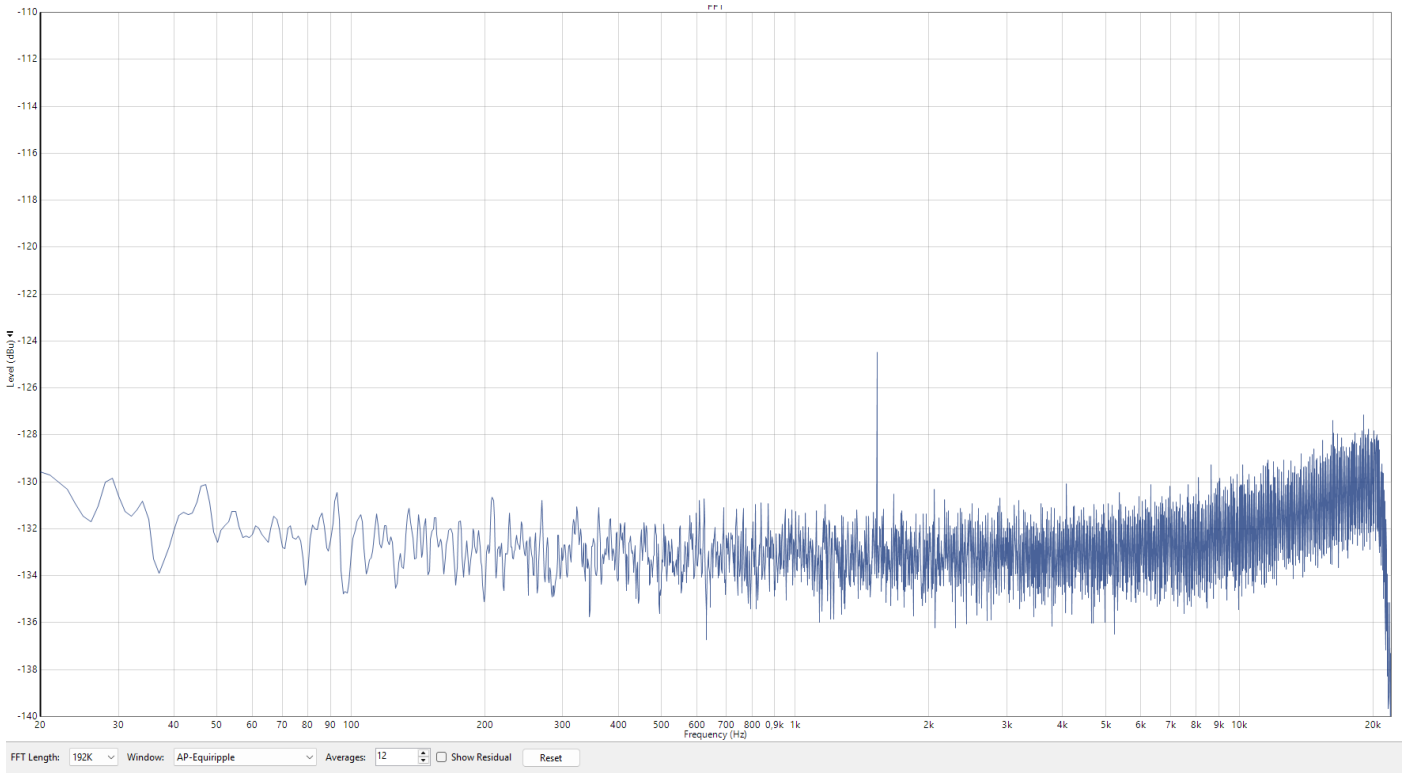


4.1.2 FFT



Almost very clean FFT. A small pic is present between 1 kHz and 2 kHz.

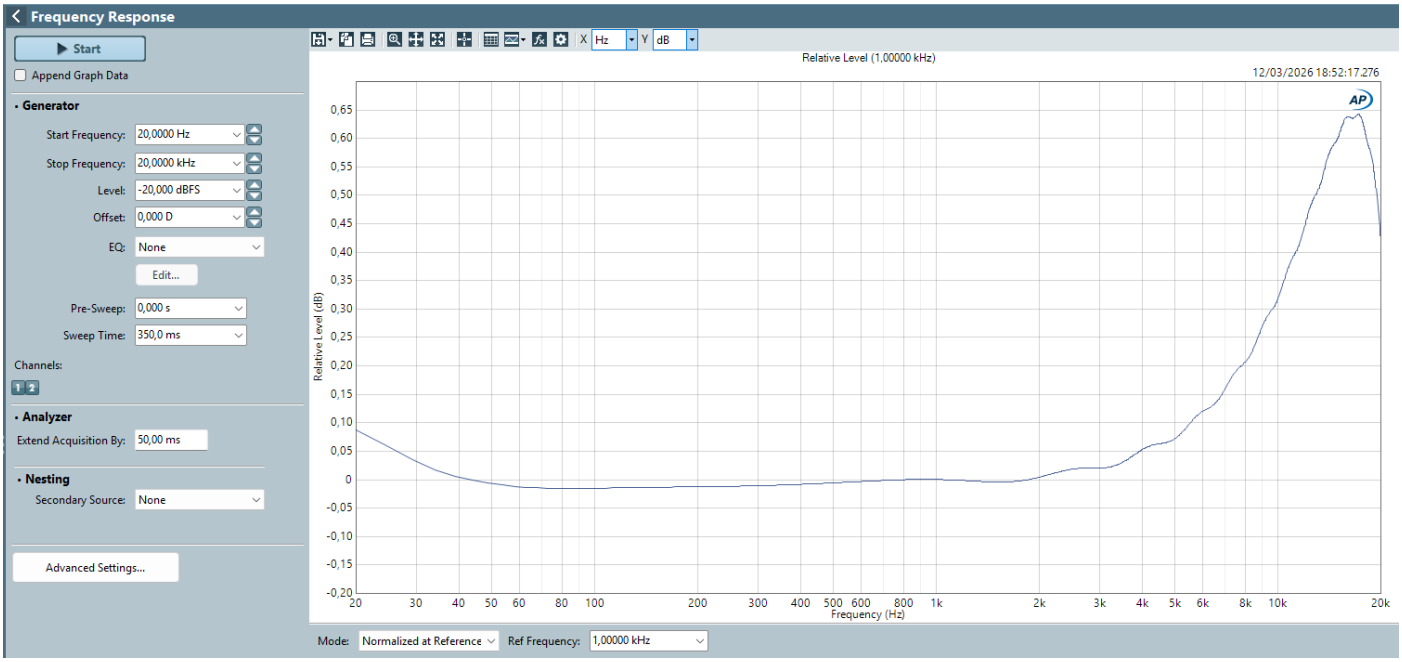
Zoom :



There is more noise on the high frequency range compared to the Wing. However, once we apply the A-weighting, this becomes insignificant.

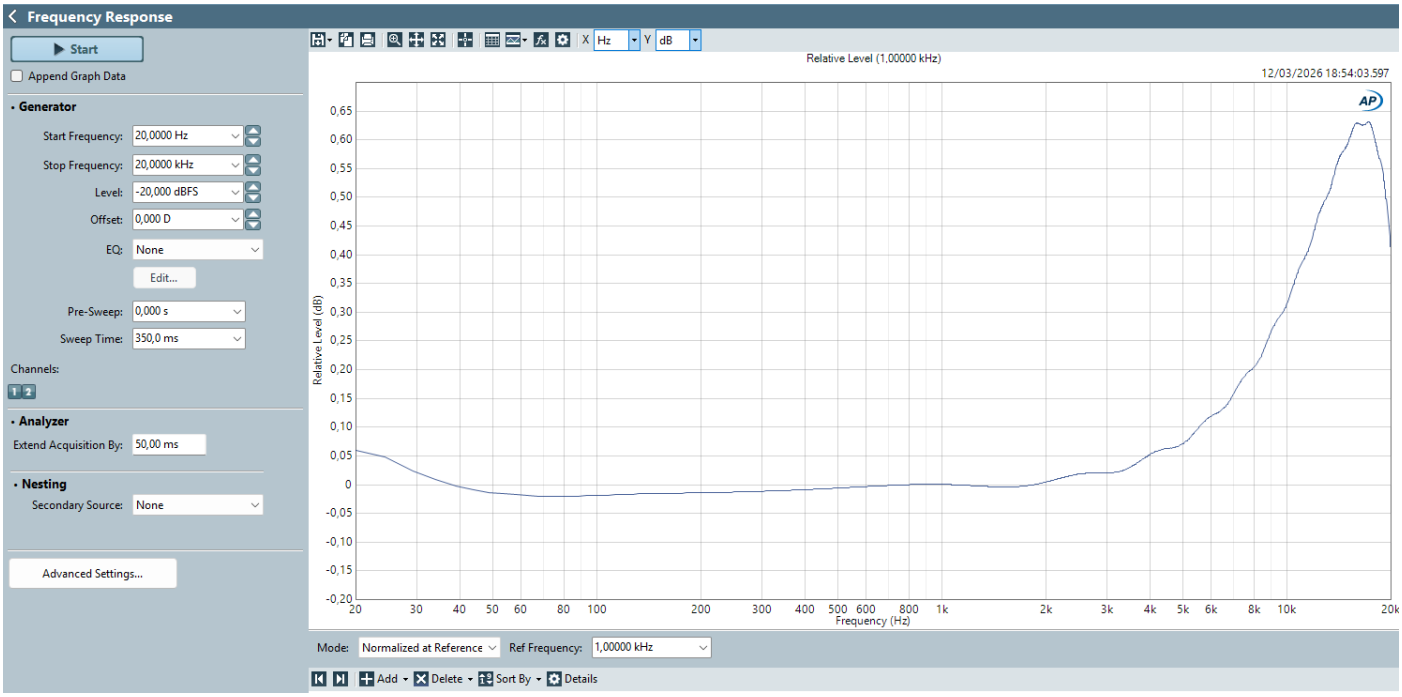
4.1.3 FREQUENCY RESPONSE

200 kOhm loaded.



We can see that the frequency response rises on the higher frequencies. This is a design choice. Maybe to pre-compensate for HF cable losses?

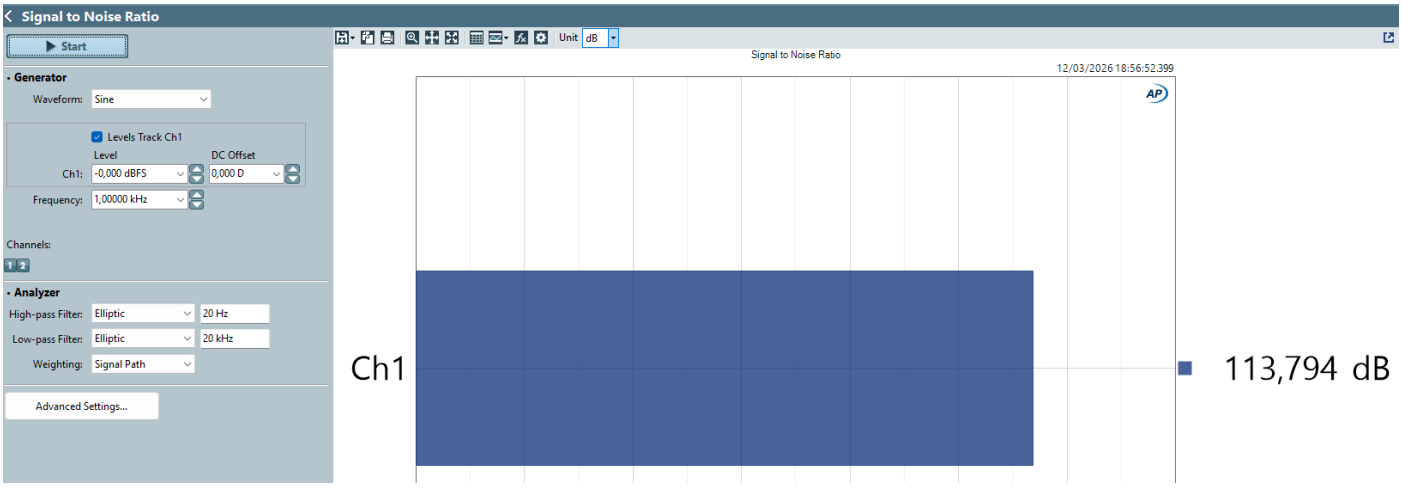
600 Ohm loaded.



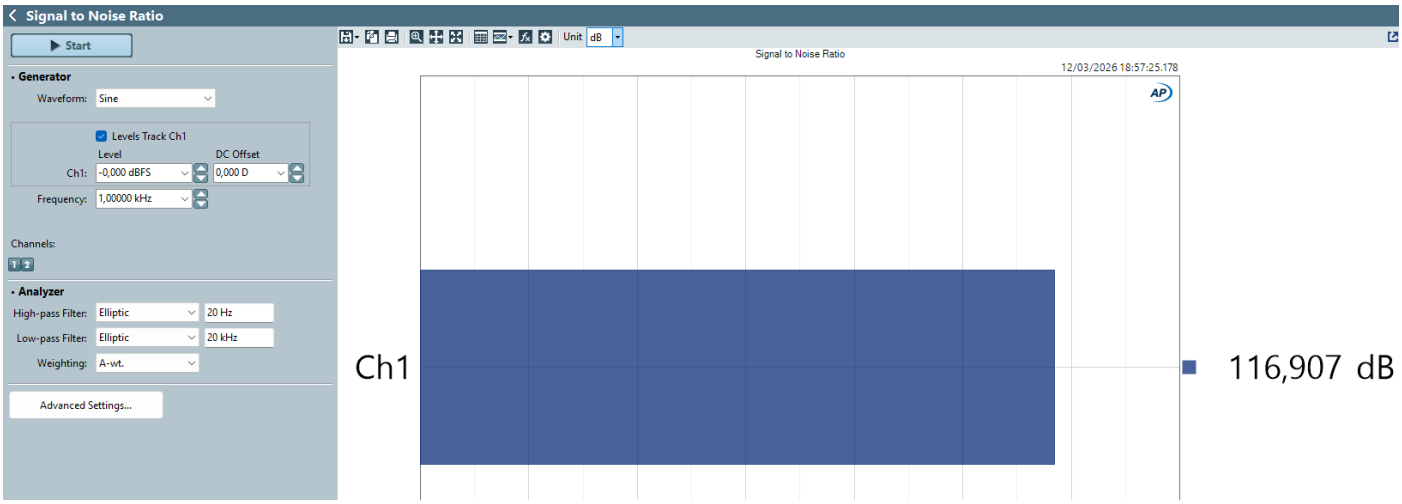
Almost no change with the load. Strong driving of the line.

4.1.4 SNR

0 dBFS input. Unweighted.

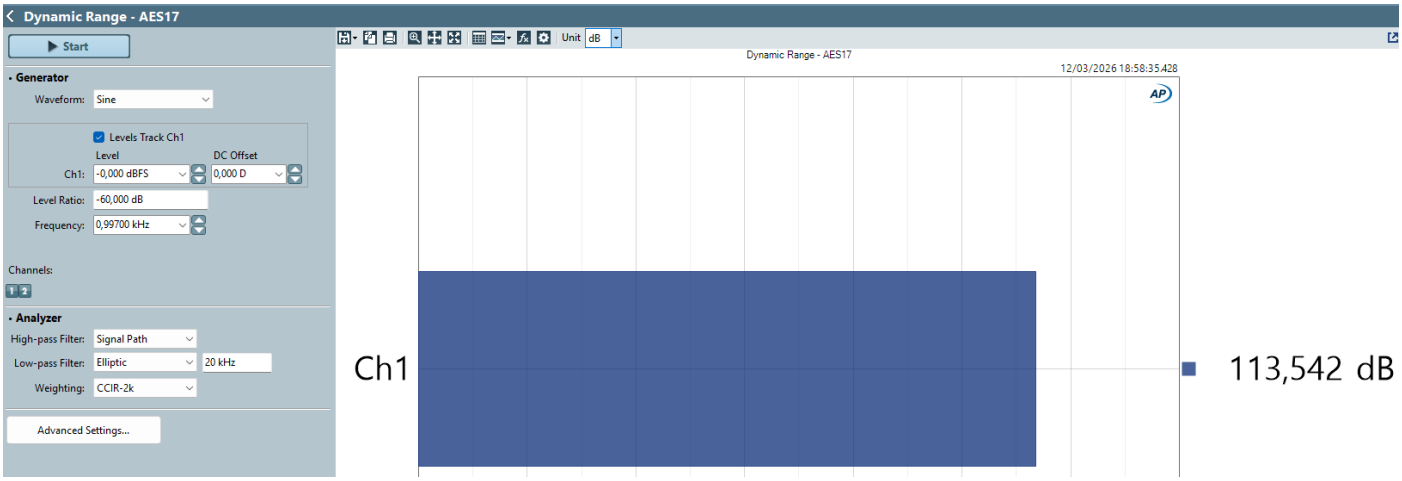


0 dBFS input. A-weighted.



4.1.5 DNR

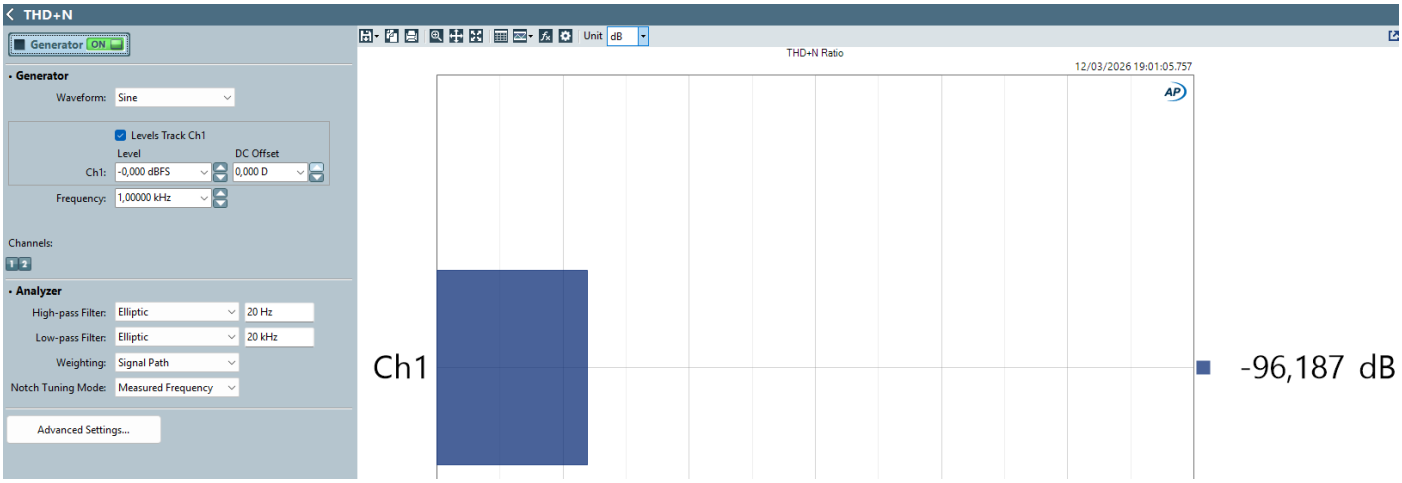
0 dBFS input.



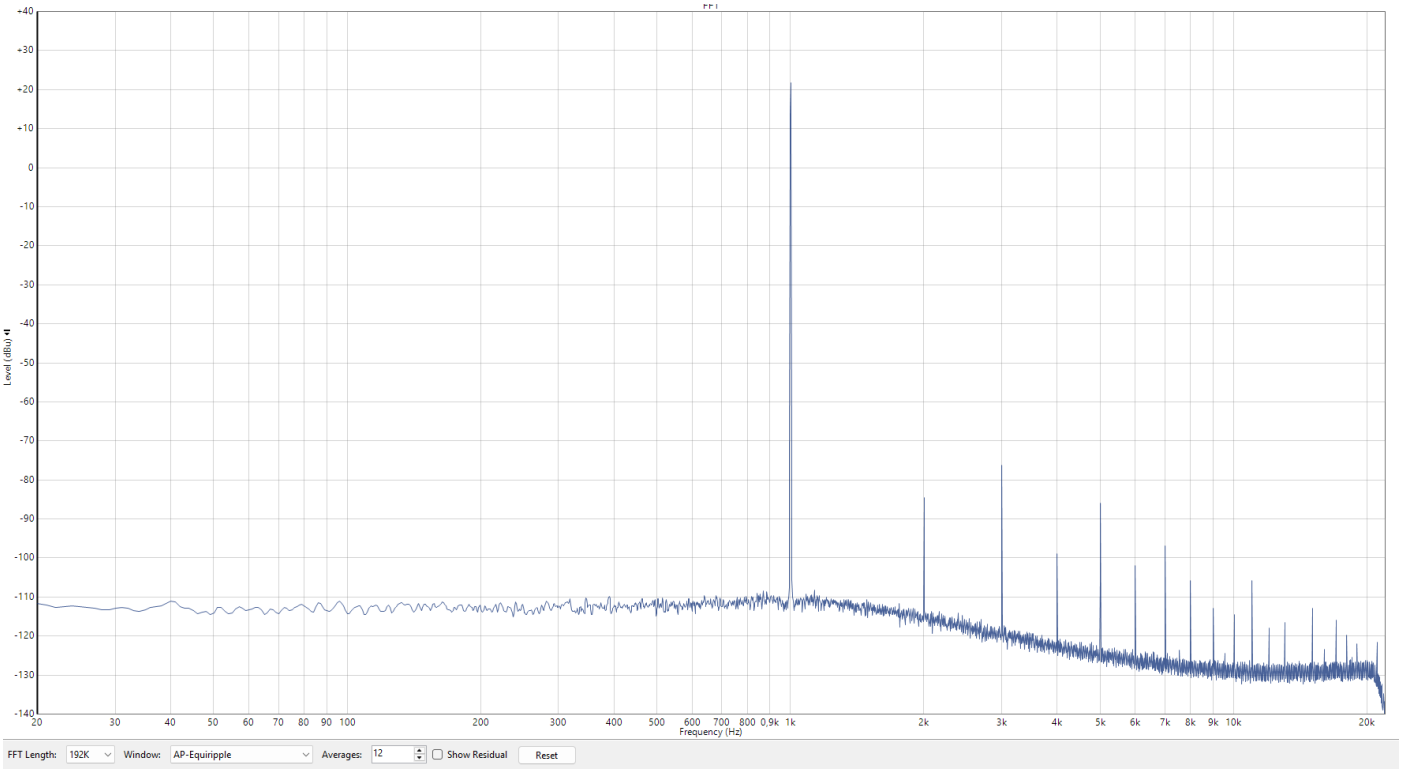
4.1.6 THD+N RATIO

4.1.6.1 200 KOHM

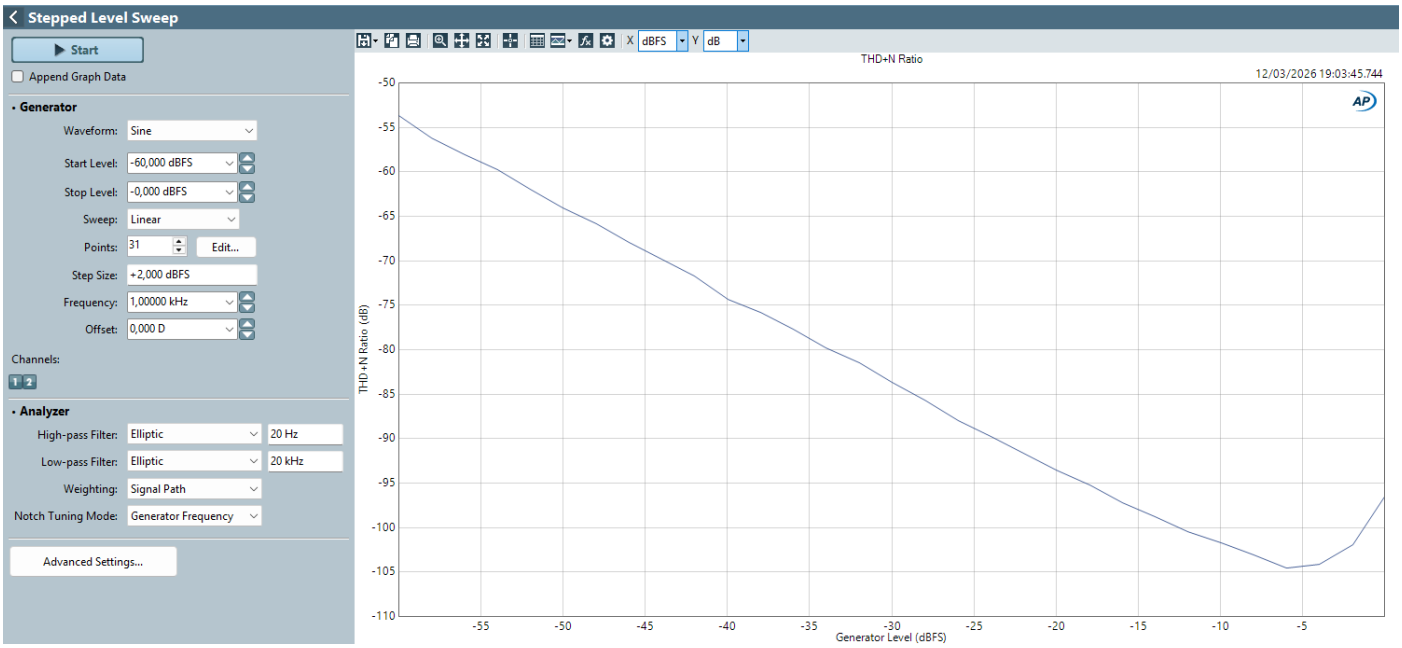
0 dBFS, 1 kHz



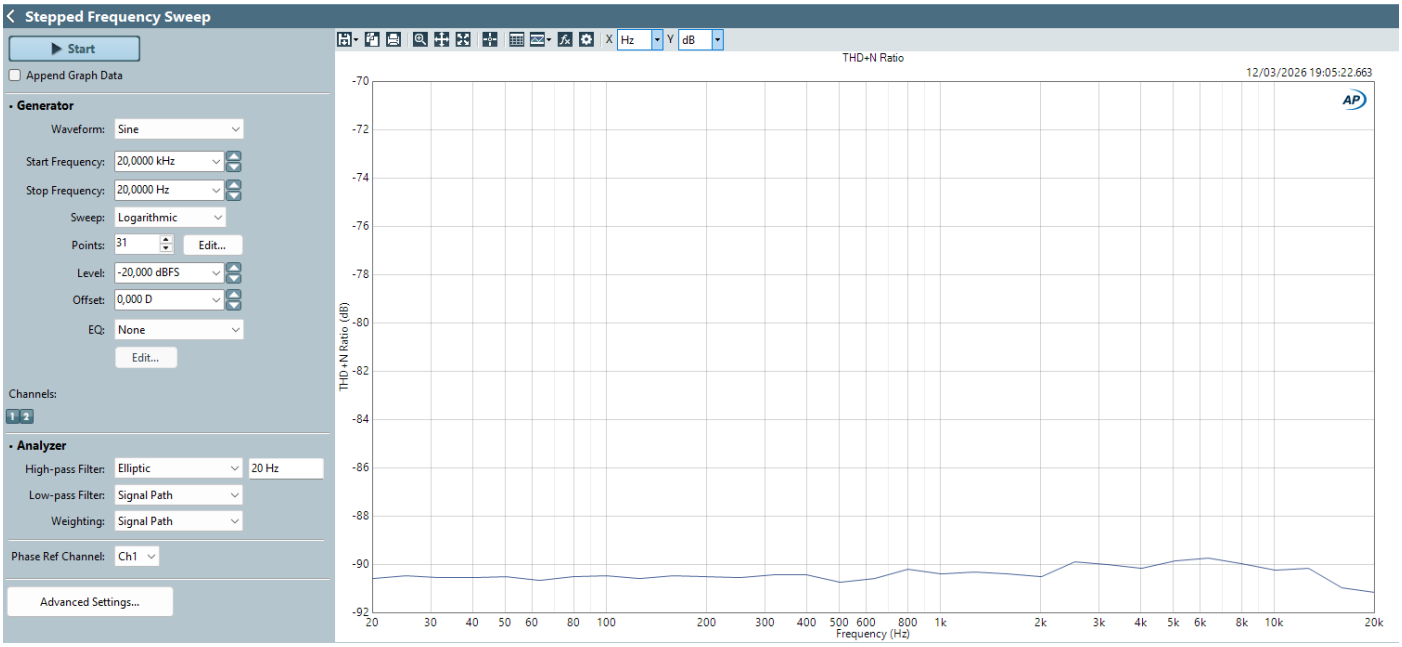
Good result here. Huge difference compared to Wing Compact. ~30dB difference!



Extremely clean FFT at full-scale.
The base of the FFT is flat! The pics are very sharp! No jitter here! Probably due to very clean board design, clocks quality etc...
Much less THD+N compared to the Wing Compact.



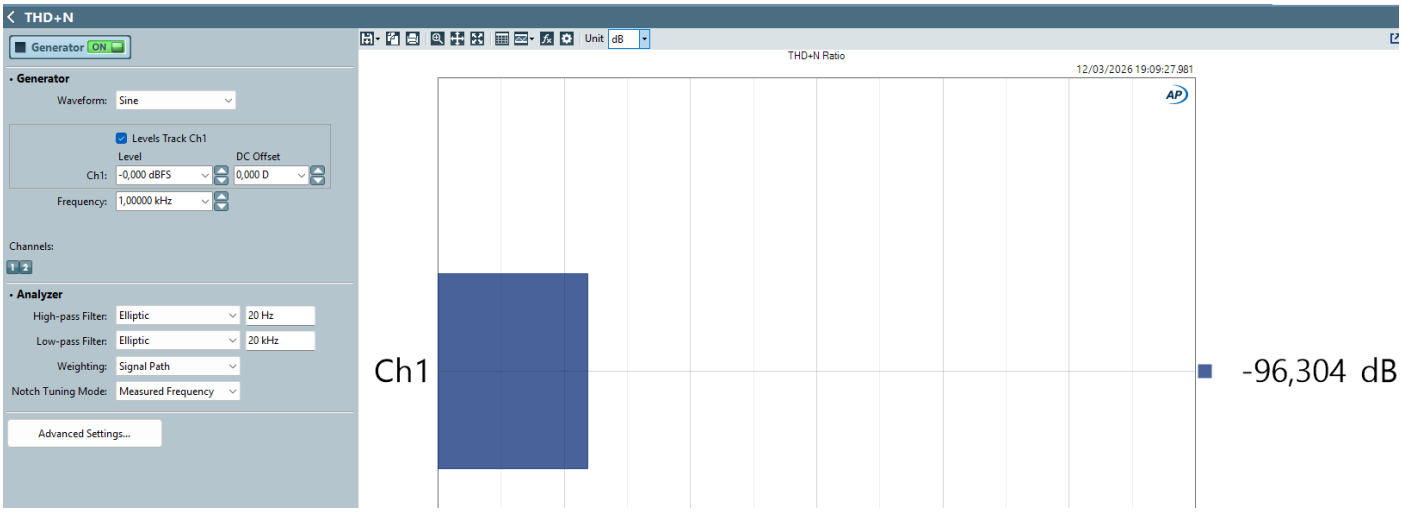
The THD+N ratio drops until around -5dBFS. This is pretty good. This means that we can push the design to a high-level output to get dynamic without increasing to much the THD+N.
Good design.

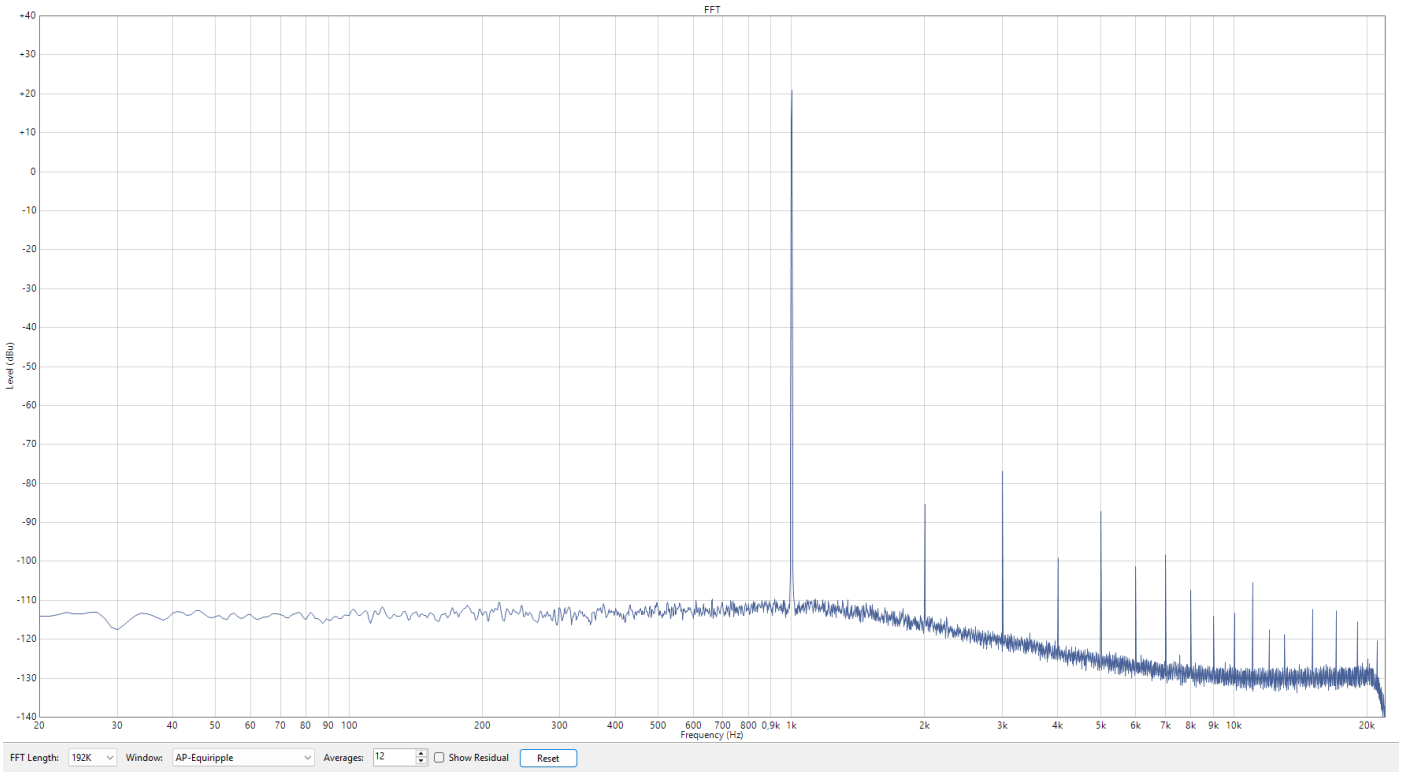


We can see that the THD+N is flat versus frequency.

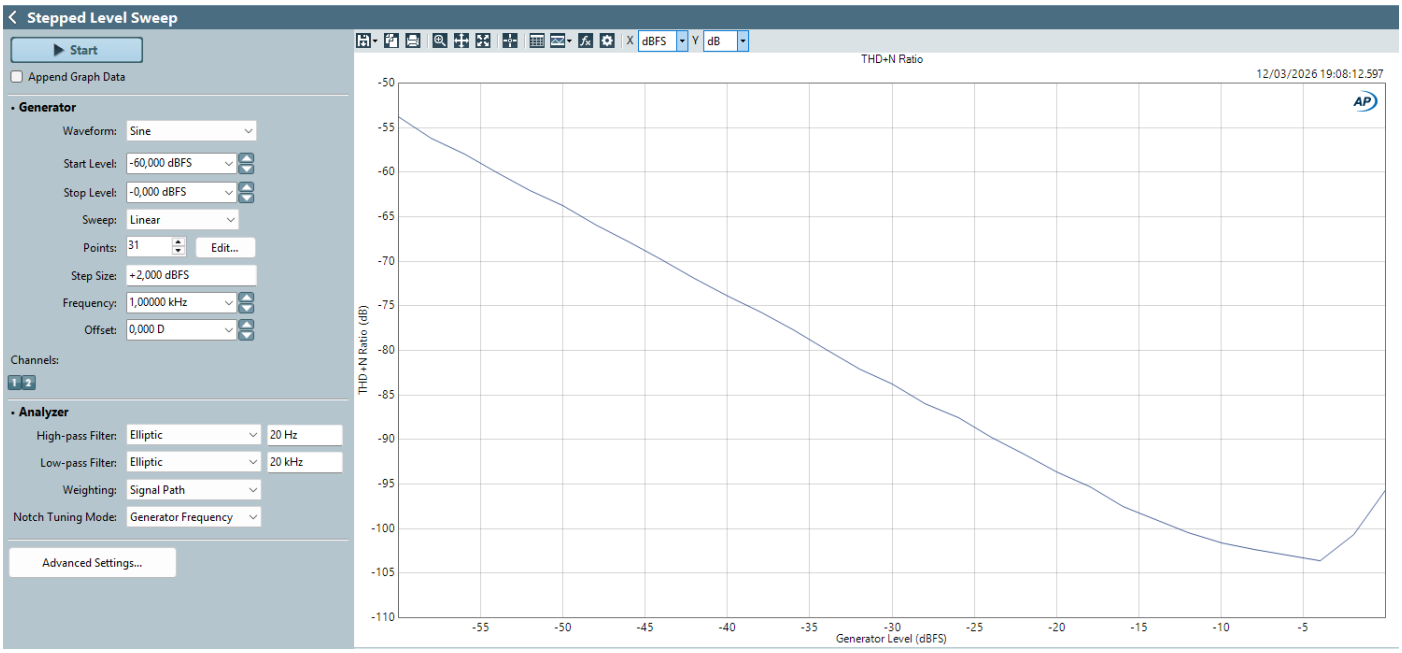
4.1.6.2 600 OHM

0 dBFS, 1 kHz

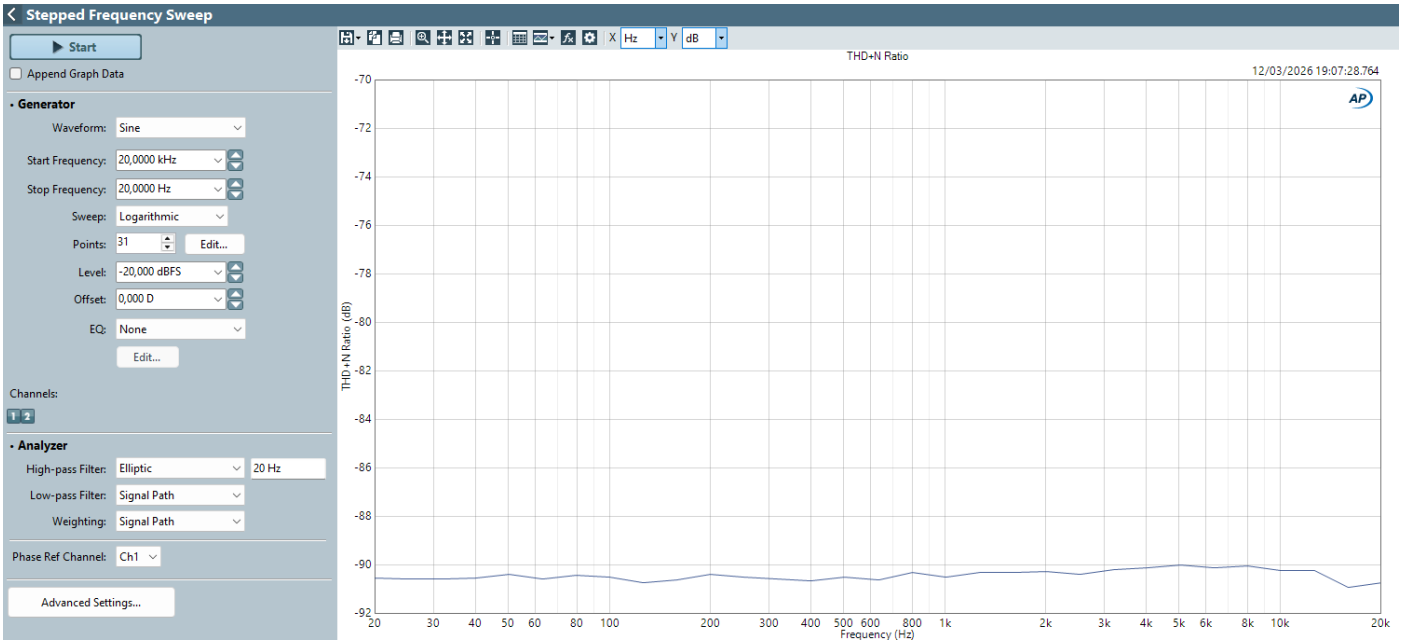




Still excellent.

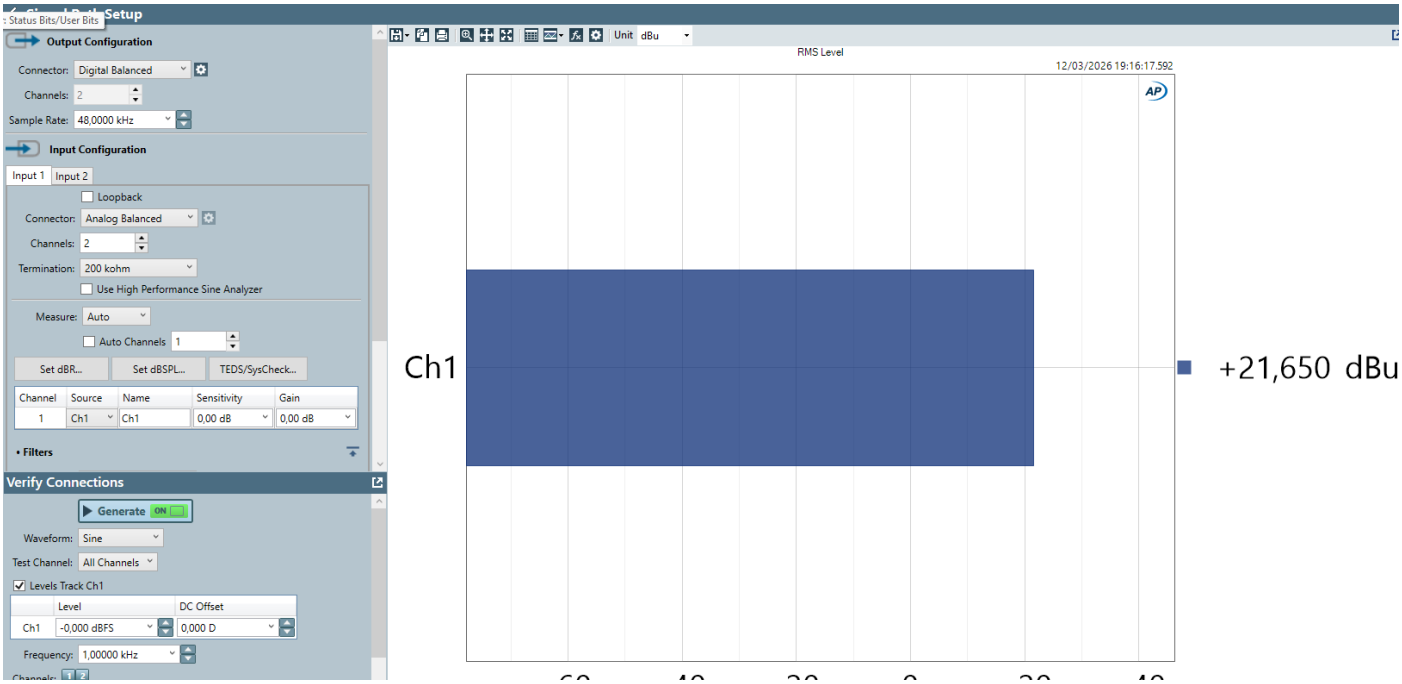

Stepped Level Sweep
Start
Append Graph Data
Generator
Waveform: Sine
Start Level: -60,000 dBFS
Stop Level: -0,000 dBFS
Sweep: Linear
Points: 31
Edit...
Step Size: +2,000 dBFS
Frequency: 1,00000 kHz
Offset: 0,000 D
Channels:
1 2
Analyzer
High-pass Filter: Elliptic 20 Hz
Low-pass Filter: Elliptic 20 kHz
Weighting: Signal Path
Notch Tuning Mode: Generator Frequency
Advanced Settings...
X dBFS Y dB
THD+N Ratio
12/03/2026 19:08:12.597
THD+N Ratio (dB)
Generator Level (dBFS)

Good.


Stepped Frequency Sweep
Start
Append Graph Data
Generator
Waveform: Sine
Start Frequency: 20,0000 kHz
Stop Frequency: 20,0000 Hz
Sweep: Logarithmic
Points: 31
Edit...
Level: -20,000 dBFS
Offset: 0,000 D
EQ: None
Edit...
Channels:
1 2
Analyzer
High-pass Filter: Elliptic 20 Hz
Low-pass Filter: Signal Path
Weighting: Signal Path
Phase Ref Channel: Ch1
Advanced Settings...
X Hz Y dB
THD+N Ratio
12/03/2026 19:07:28.764
THD+N Ratio (dB)
Frequency (Hz)

4.1.7 OUTPUT LEVEL

200 kOhm :



Almost +22dBu. Good but could be better.

600 Ohm :