KRIEG

THEMIS

Audio Headphone Amplifier and Preamplifier

Datasheet and measurements

See www.krieg.tech for the product page

Test and equipment

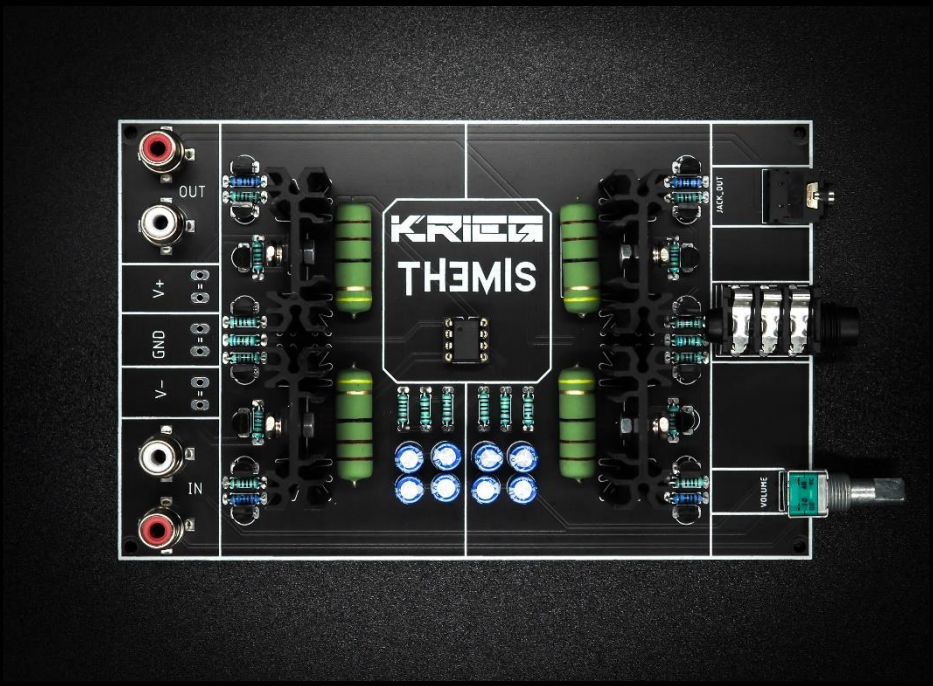
EQUIPMENT:

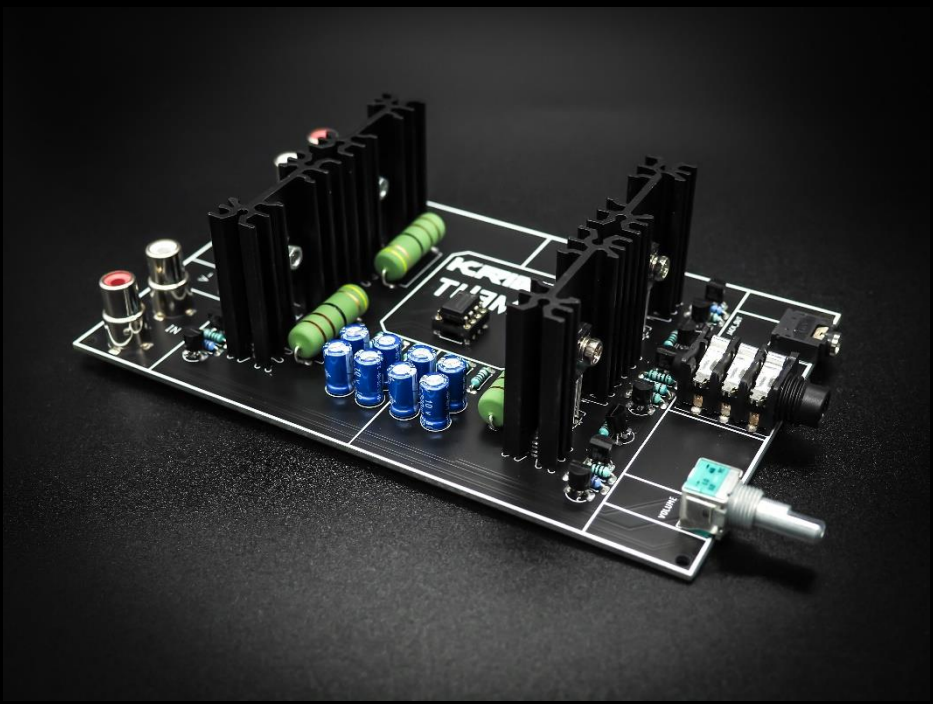
- QuantAsylum QA401
- Hantek DSO5102P (Software: 3.40.0)
- TACKlife DM01M
- Signal generator: DDS 200MSa/s 12bit 20Mhz
- Power supply: 2 x PS-305D
- 20W non-inductive 32 Ohm load
- Test conducted at supply voltage: **+- 15V**

TEST APPLIED:

- Large frequency response
- Audio spectrum frequency response (20Hz – 20kHz)
- THD and Intermodulation THD (IMD with 11 tones) at max output
- Noise Floor and SNR
- Output DC offset
- Damping factor
- Slew rate test
- Square wave response

***NOTE:** All test have been done in a normal environment and at an average temperature of 27°C, with the pre-mounted core NE5532 operational amplifier.


KRIEG
THEMIS
OUT
V+
GND
V-
IN
JACK_OUT
VOLUME

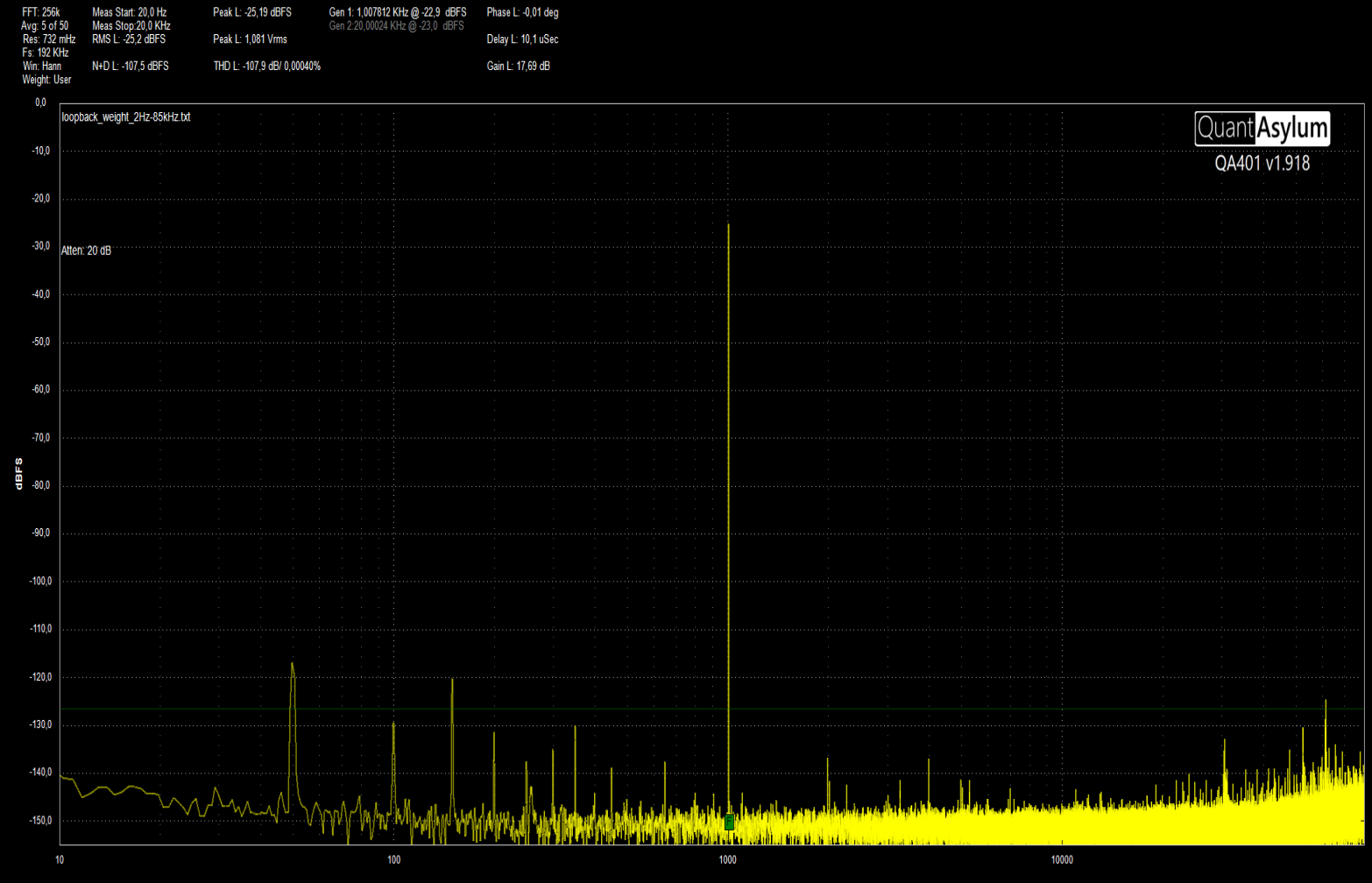


Datasheet – THEMIS | NE5532 op-amp core

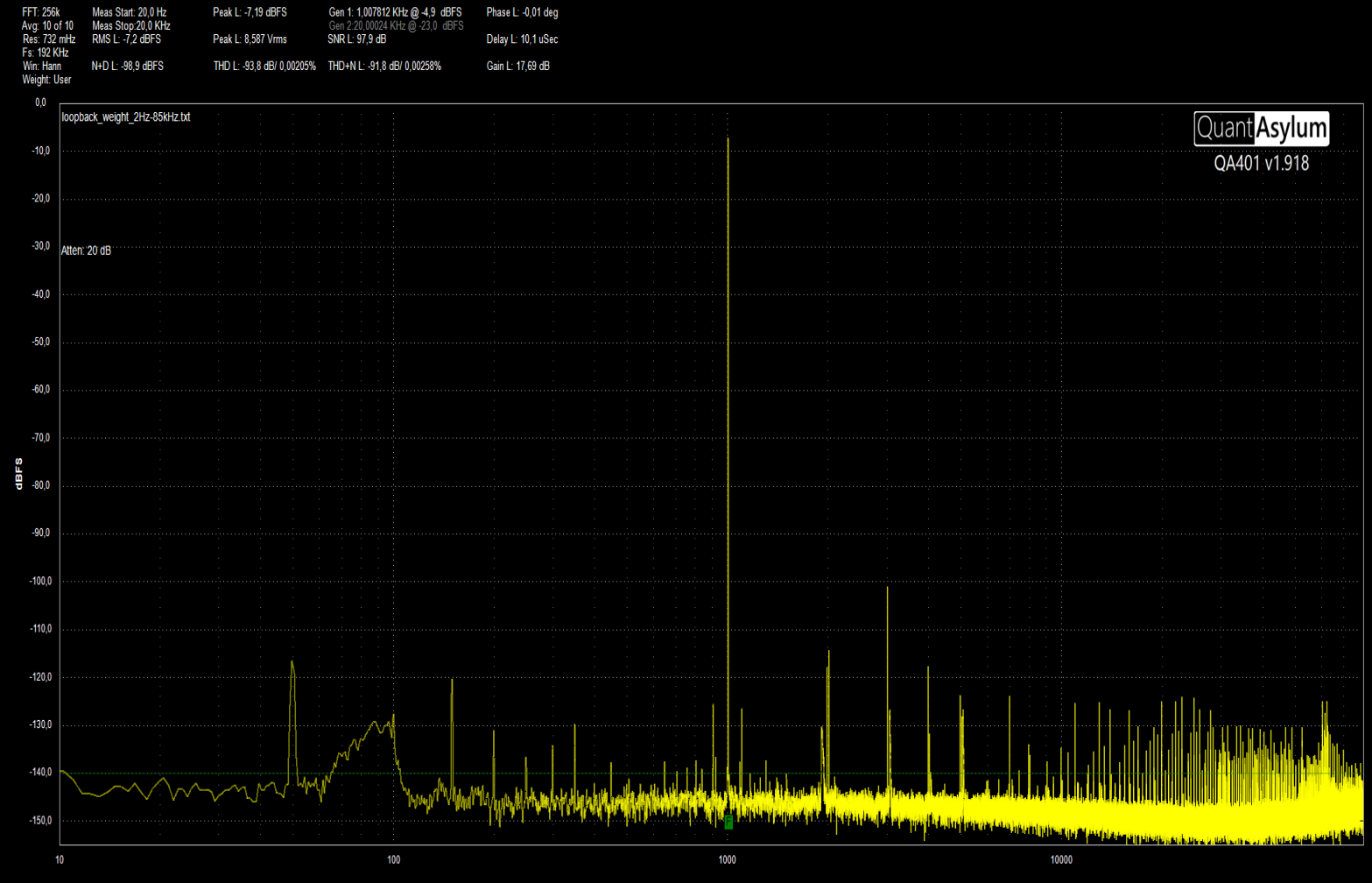
MEASURED DATA AND SPECIFICATIONS	
Rated Power (AES) – 32 Ohm	10 W
Amplifier gain	+ 23.5 dB
Operation Class	AB
Min supply voltage	+- 2.5 V (dual power supply)
Max supply voltage	+- 22 V (dual power supply) (core-limited)
Regular supply voltage	+- 15 V (dual power supply)
Standby power consumption	1.2 W
Nominal output current (Safe Operating Area)	0.95 A
Minimum load nominal impedance *Minimum load is referred to amplifier stability, be careful with output current	8 Ohm
Frequency Response (-3dB)	3 Hz – 570 kHz (core-limited)
20Hz – 20kHz max deviation	+- 0.01 dB
THD - 32 Ohm load:	
THD + N @ 1kHz – before clipping	0.002 % (-93dB)
THD + N @ 20kHz – before clipping	0.002 % (-93dB)
Intermodulation THD (11 signals)	0.001 % (-97dB)

SNR (non A-weighted)	98 dB
Noise floor	- 110 dB
CrossTalk	- 112 dB
Output DC Offset typical	~ 3 uV
Output DC Offset worst	~ 10 uV
Slew rate	7.5 V / uS (core-limited)
Damping Factor:	
32 Ohm Damping Factor	9100
32 Ohm Output impedance	0.0035 Ohm
Board size	156 x 99 mm

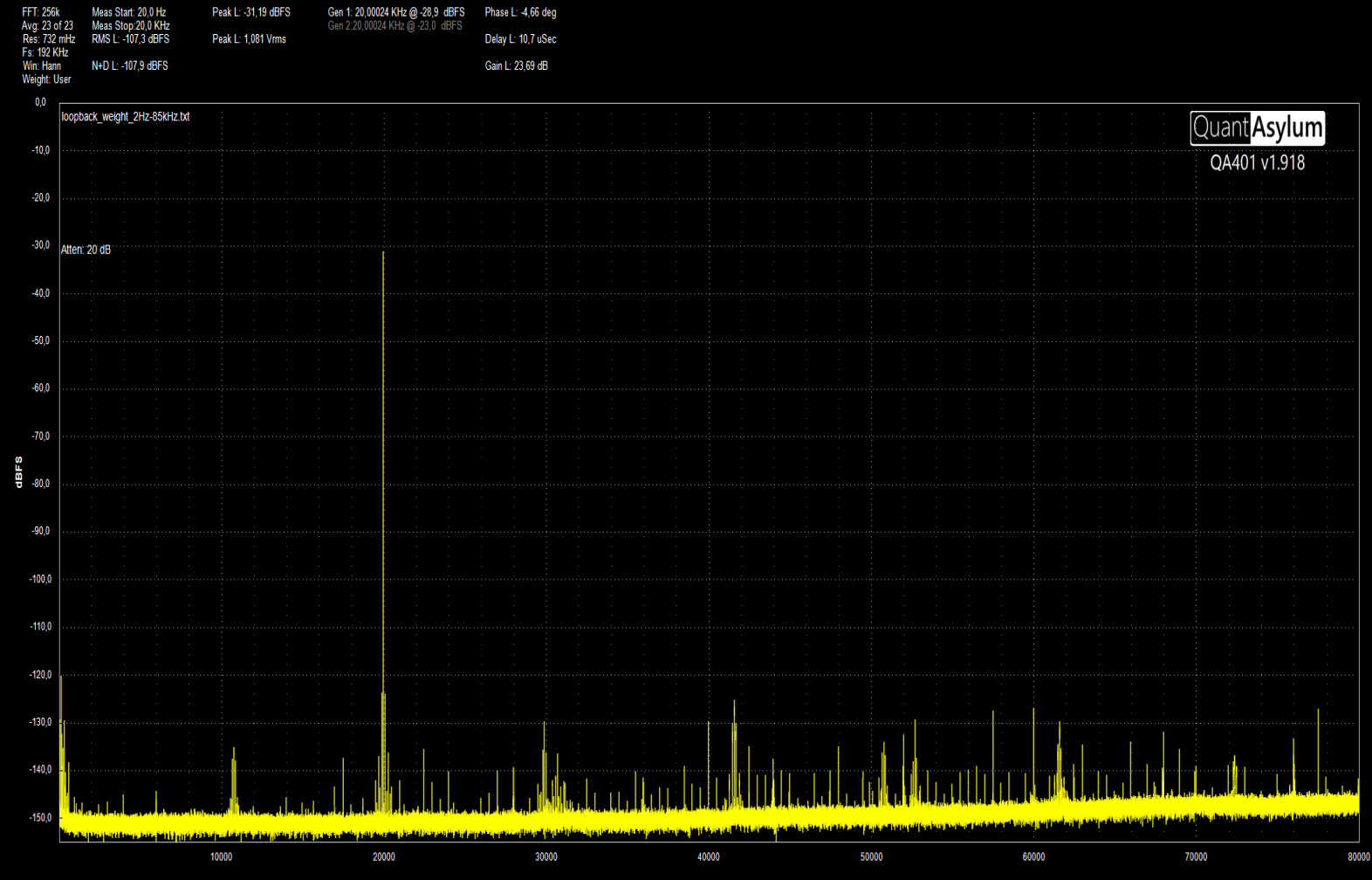
Measurement – 1 Vrms @ 1kHz (+- 15V supply)



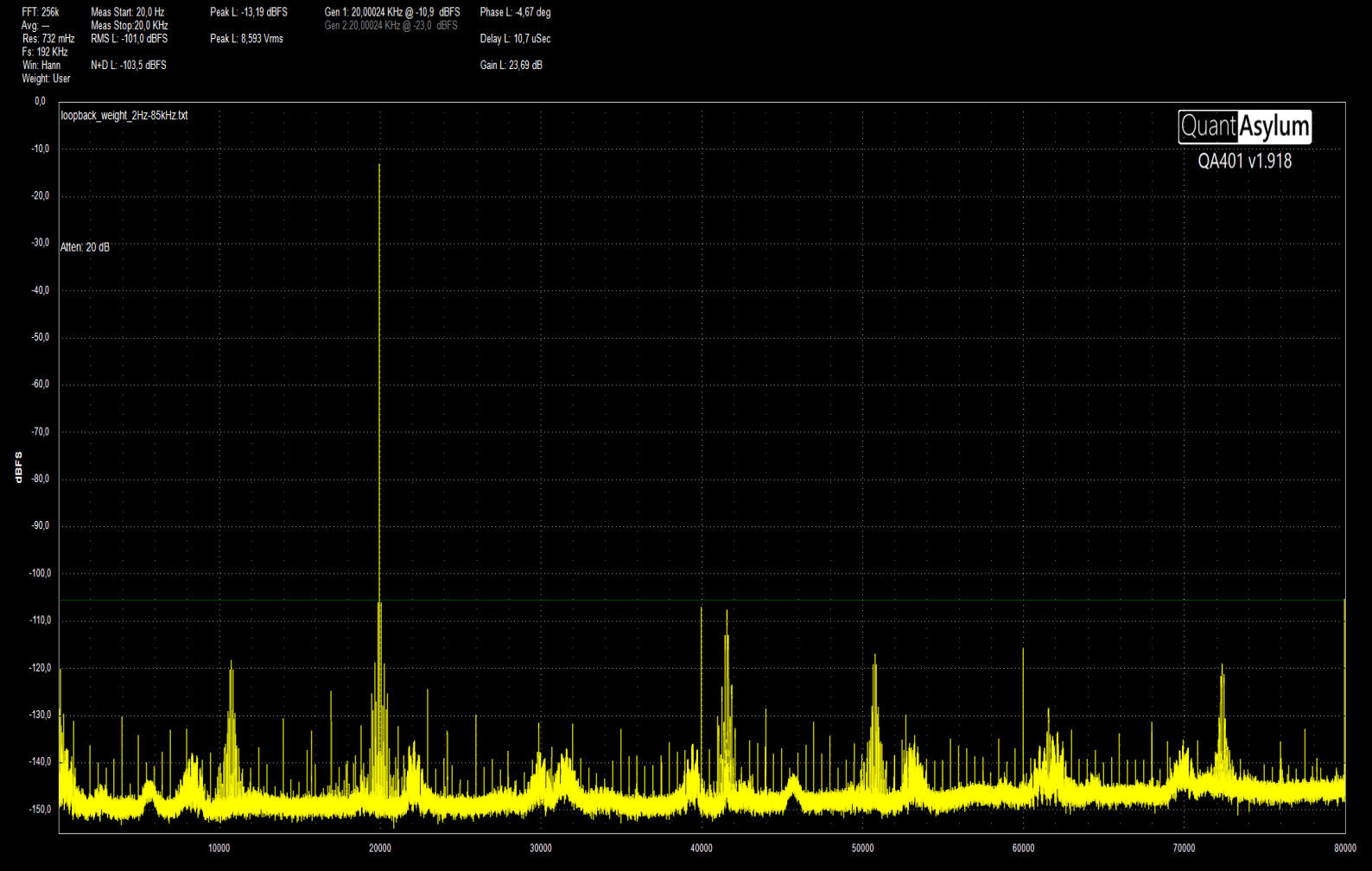
Measurement – max out @ 1kHz (+- 15V supply)



Measurement – 1 Vrms @ 20kHz (+- 15V supply)

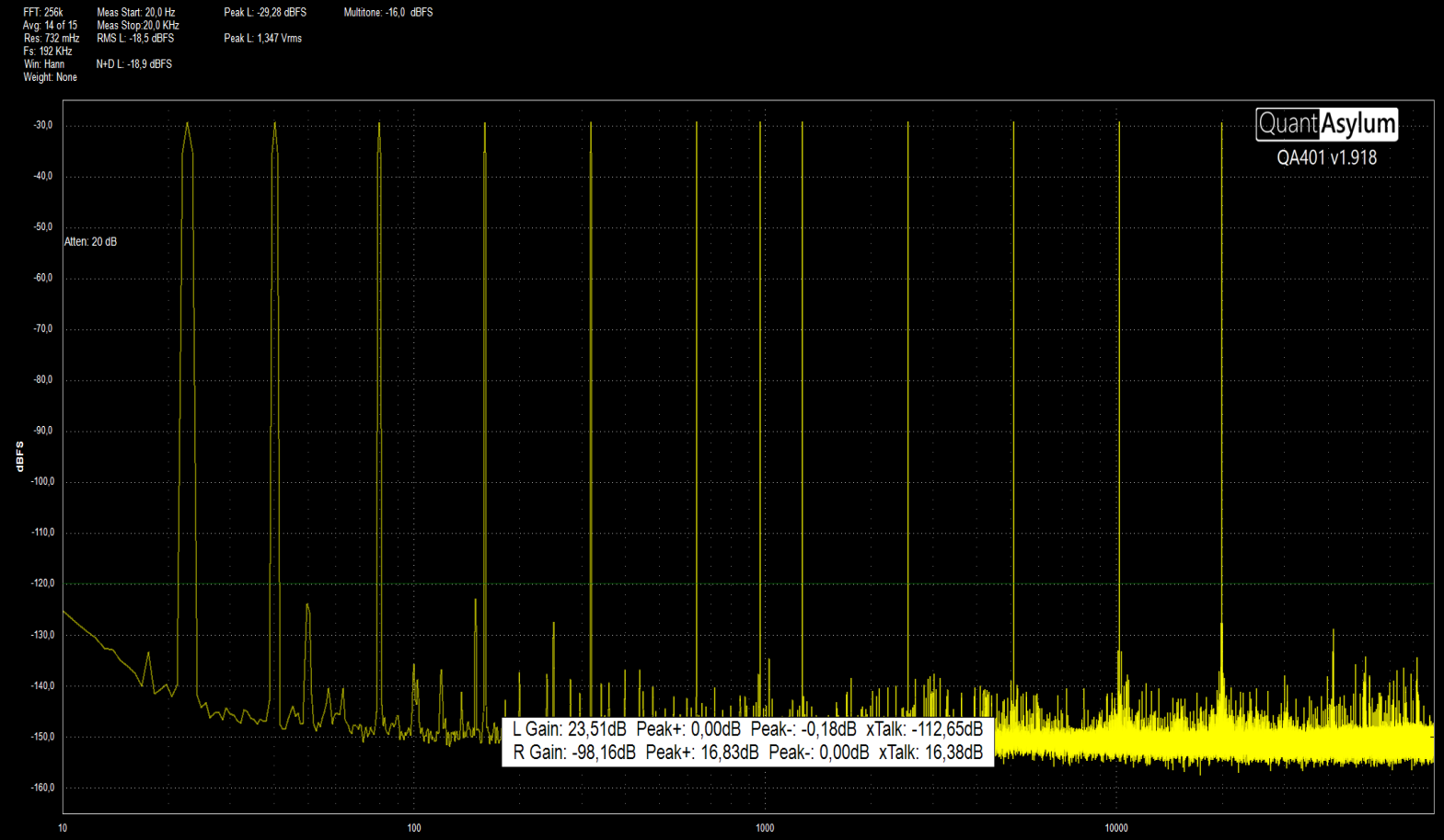


Measurement – max out @ 20kHz (+- 15V supply)



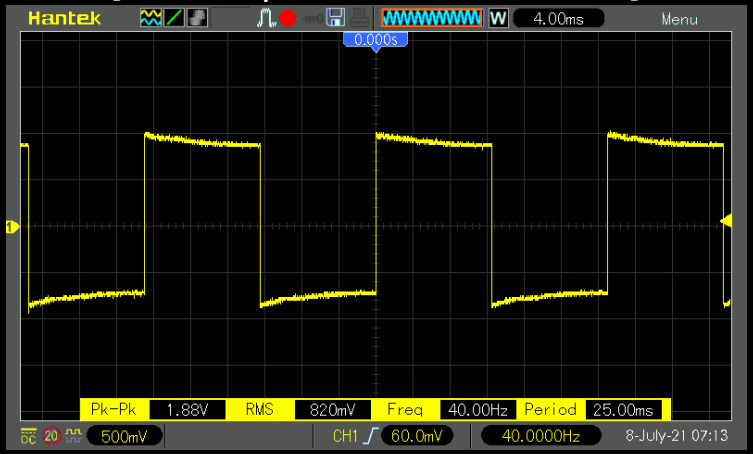
Measurement – max out IMD THD (+- 15V supply)

[Note: analyzer 50Hz supply ripple present]

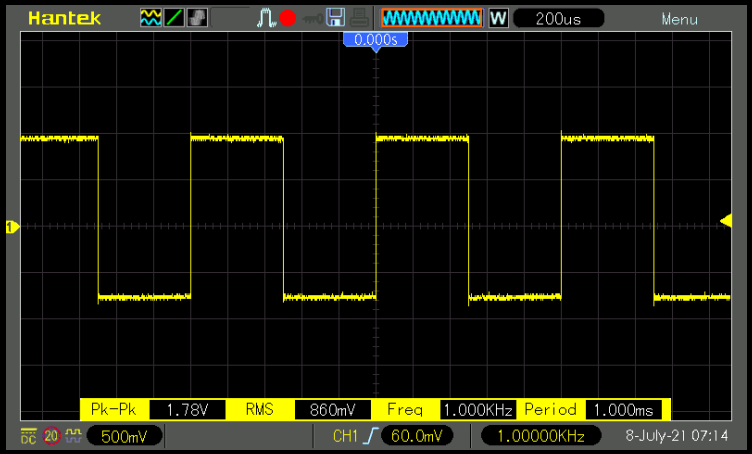


40 Hz – Square wave 32 Ohm

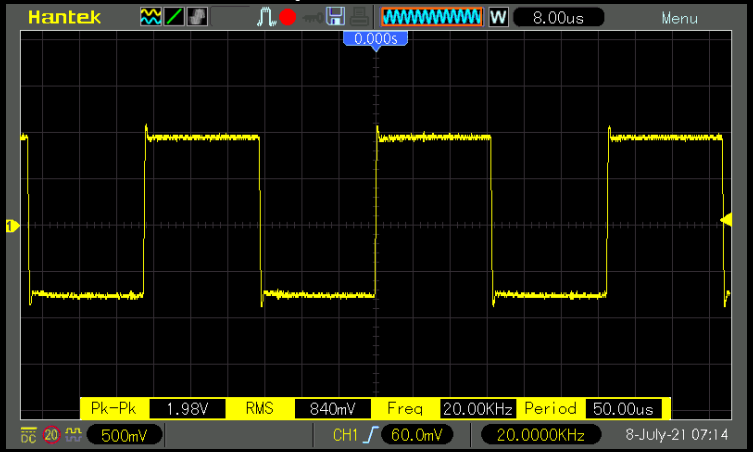
[Note: input DC filter included]



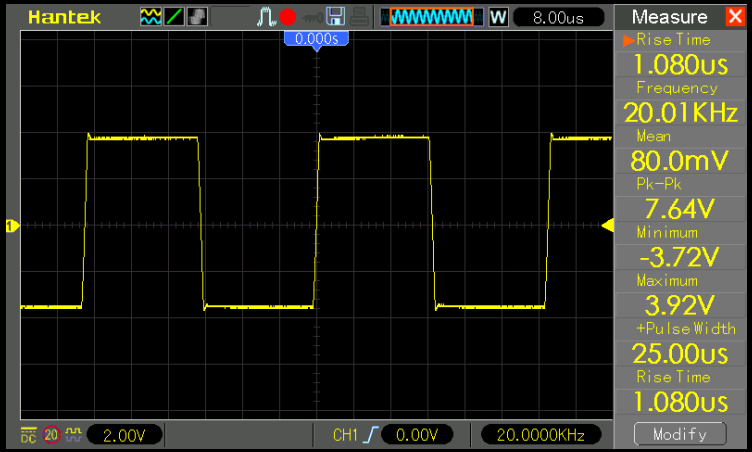
1 kHz – Square wave 32 Ohm



20 kHz – Square wave 32 Ohm

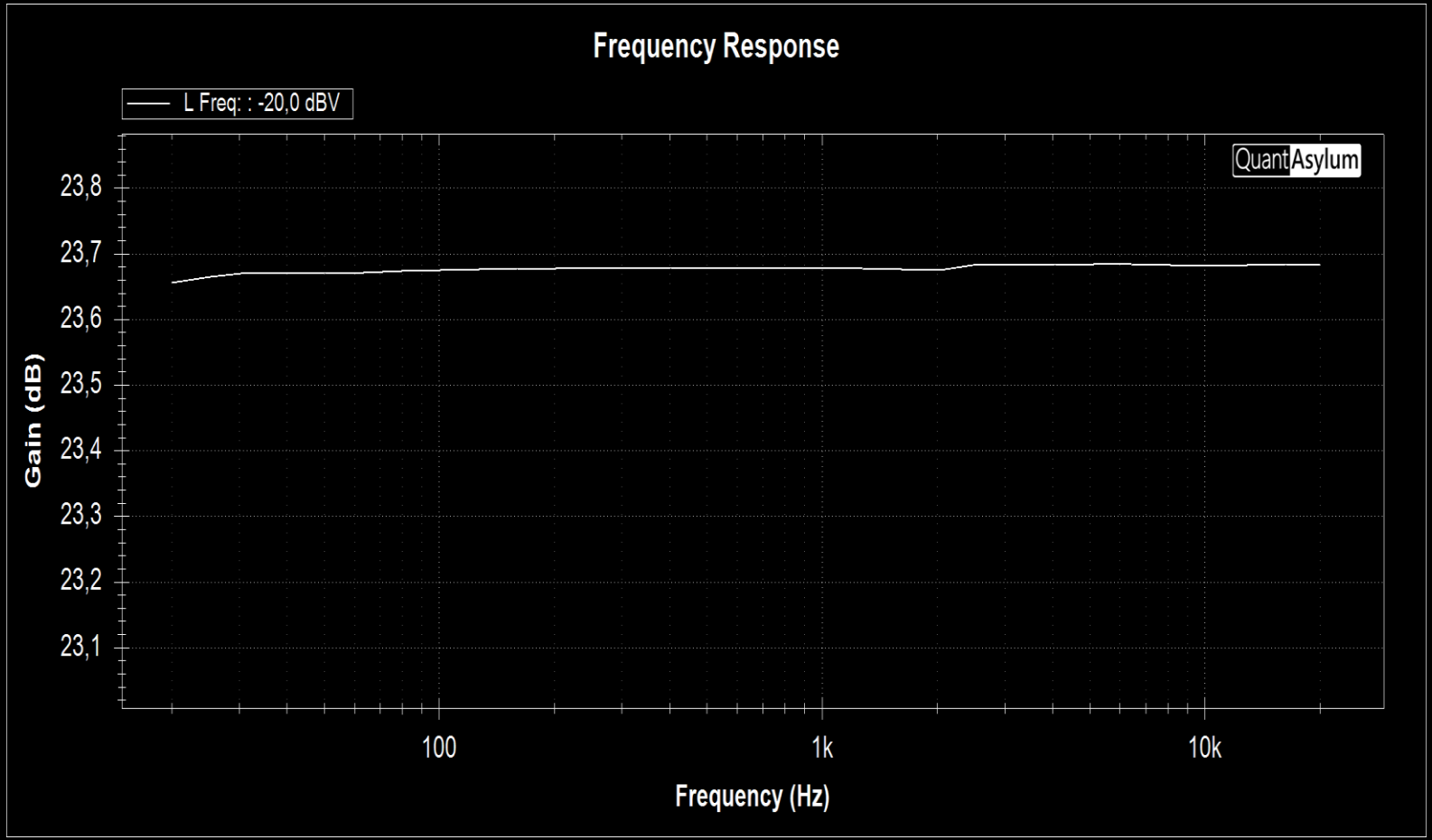


20 kHz – Slew rate



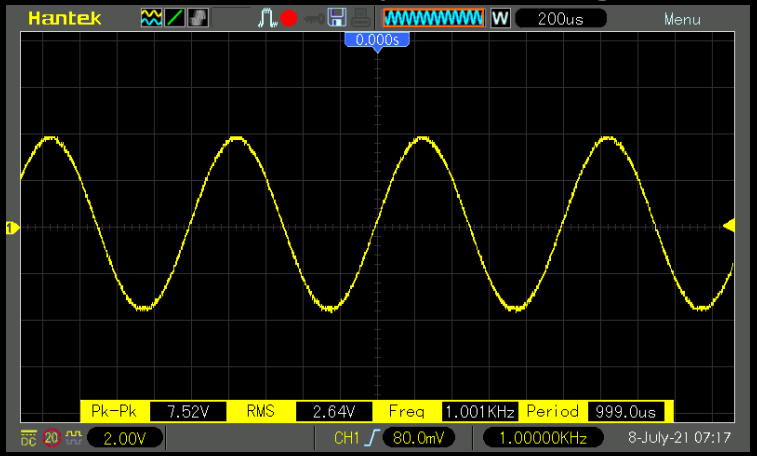
Measured 20 Hz – 20 kHz Frequency Response

[Note: amplifier input DC filter included]



Measured Bandwidth: 1 Vpk input

1 kHz – output voltage



570 kHz – output voltage