

X-Altra Mini II Measurements

Preliminary

13 March 2022 on fully assembled unit sans MC/MM Phono stage

Load on all outputs 10k Ohms. All measurements are dBV unless otherwise noted.

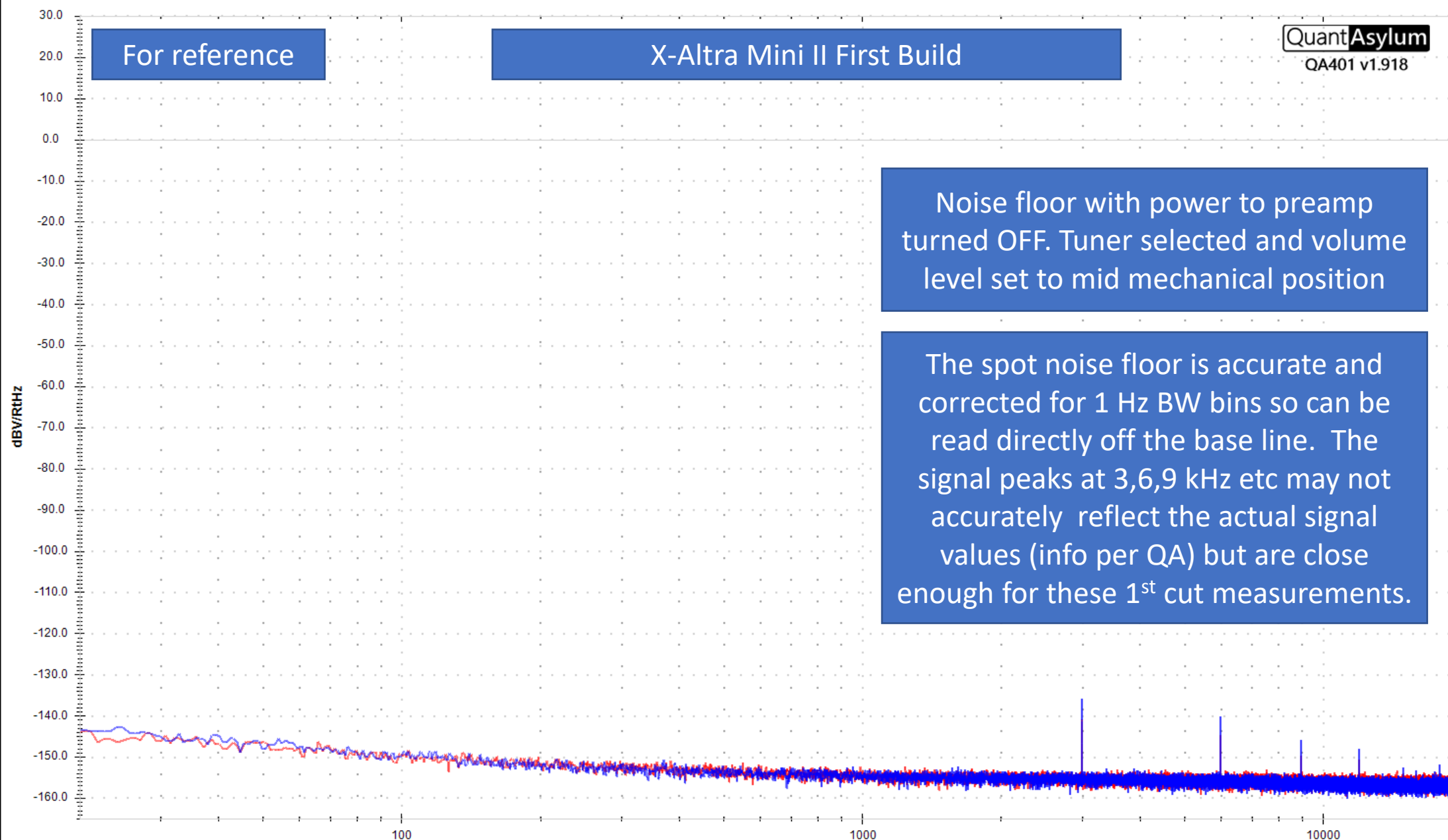
www.hifisonix.com

FFT: 256k
Avg: 28 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: -128.36 dBV
Peak R: -126.47 dBV
Peak L: 381.8 nVrms
Peak R: 474.7 nVrms

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 20.00024 KHz @ -8.5 dBV



FFT: 32k
Avg: 50 of 50
Res: 1.46 Hz
Fs: 48.0 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak R: -107.15 dBV

Peak R: 4.392 uVrms

THD R: -- dB/ --%

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 19.99951 KHz @ -8.5 dBV

SNR R: -37.1 dB

THD+N R: -- dB/ --%

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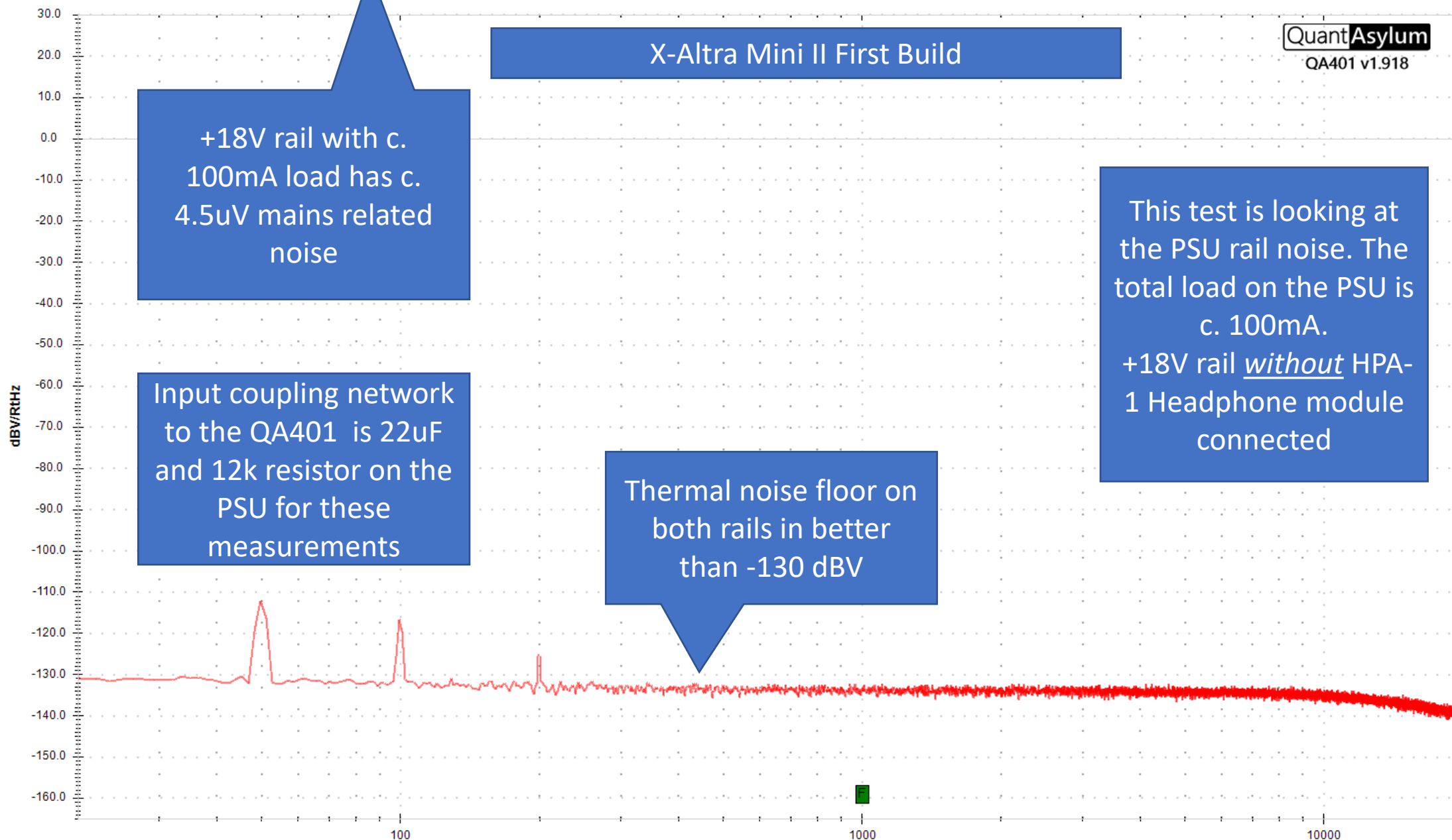
X-Altra Mini II First Build

+18V rail with c.
100mA load has c.
4.5uV mains related
noise

This test is looking at
the PSU rail noise. The
total load on the PSU is
c. 100mA.
+18V rail without HPA-
1 Headphone module
connected

Input coupling network
to the QA401 is 22uF
and 12k resistor on the
PSU for these
measurements

Thermal noise floor on
both rails is better
than -130 dBV



FFT: 32k
Avg: 50 of 50
Res: 1.46 Hz
Fs: 48.0 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak R: -89.03 dBV

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 19.99951 KHz @ -8.5 dBV

Peak R: 35.34 uVrms

SNR R: -38.8 dB

THD R: dB/ --%

THD+N R: dB/ --%

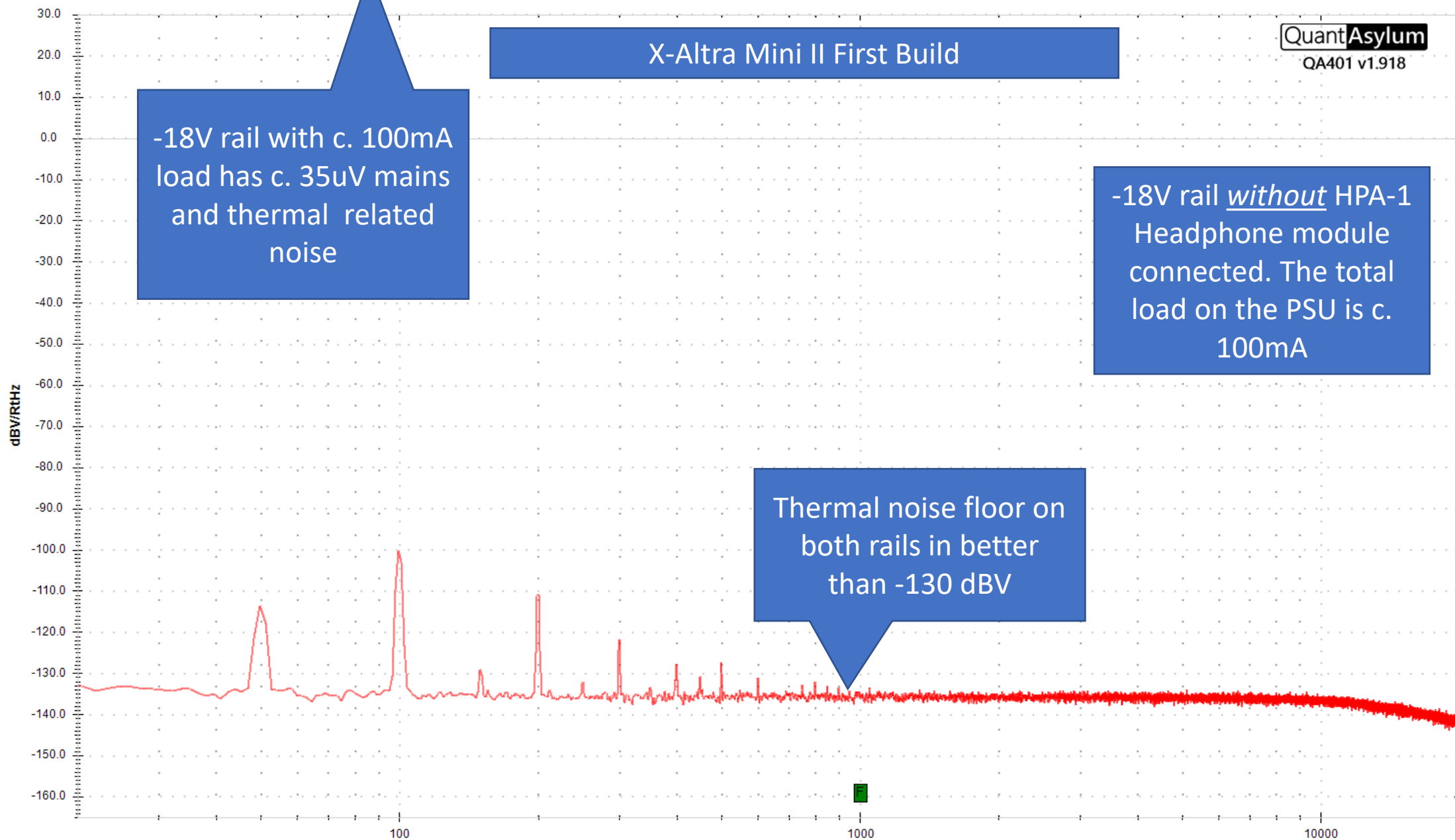
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X-Altra Mini II First Build

-18V rail with c. 100mA
load has c. 35uV mains
and thermal related
noise

-18V rail without HPA-1
Headphone module
connected. The total
load on the PSU is c.
100mA

Thermal noise floor on
both rails is better
than -130 dBV



FFT: 32k
Avg: 50 of 50
Res: 1.46 Hz
Fs: 48.0 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak R: -97.25 dBV

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 19.99951 KHz @ -8.5 dBV

Peak R: 13.72 uVrms

SNR R: -38.3 dB

THD R: --- dB/ ---%

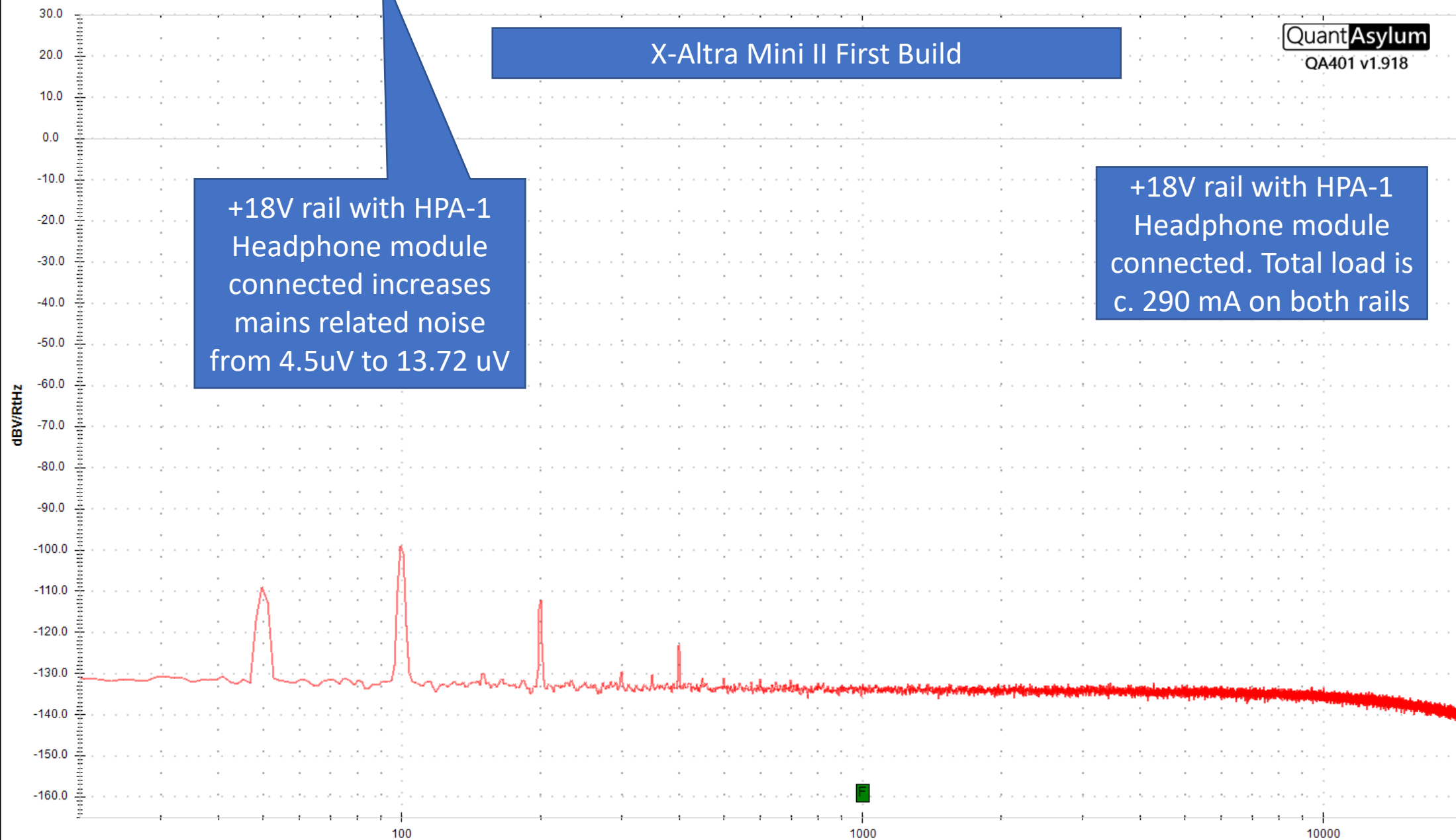
THD+N R: --- dB/ ---%

X-Altra Mini II First Build

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+18V rail with HPA-1
Headphone module
connected increases
mains related noise
from 4.5uV to 13.72 uV

+18V rail with HPA-1
Headphone module
connected. Total load is
c. 290 mA on both rails



FFT: 32k
Avg: 50 of 50
Res: 1.46 Hz
Fs: 48.0 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak R: -85.66 dBV

Peak R: 52.13 uVrms

THD R: --- dB/ ---%

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 19.99951 KHz @ -8.5 dBV

SNR R: -44.5 dB

THD+N R: --- dB/ ---%

X-Altra Mini II First Build

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-18V rail with HPA-1
Headphone module
connected increases
noise from 35 uV to 52 uV

-18V rail with HPA-1
Headphone module
connected



FFT: 256k
Avg: 50 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: -123.15 dBV
Peak R: -124.73 dBV
Peak L: 695.8 nVrms
Peak R: 579.9 nVrms

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 20.00024 KHz @ -8.5 dBV

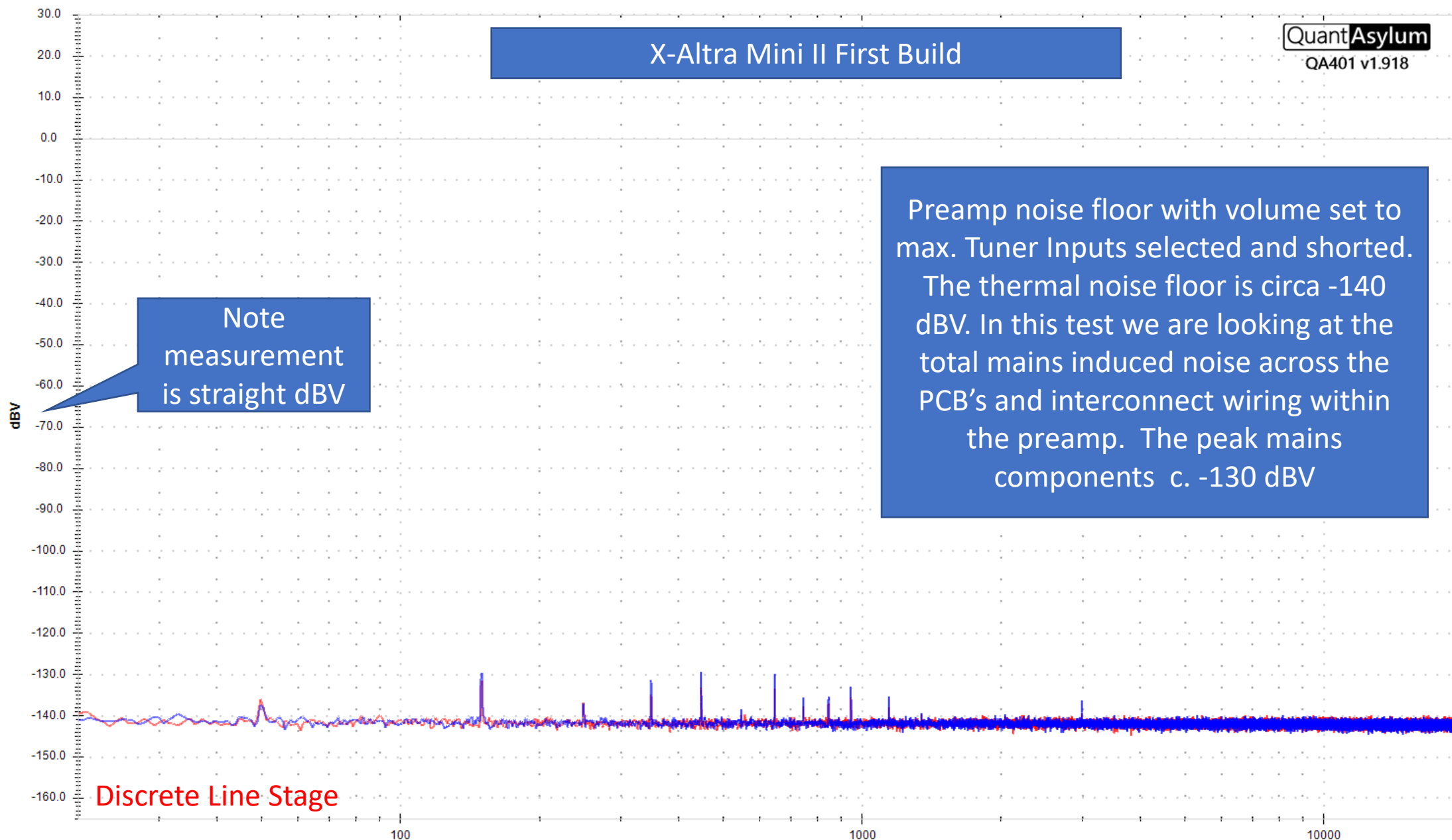
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Note
measurement
is straight dBV

Preamp noise floor with volume set to max. Tuner Inputs selected and shorted. The thermal noise floor is circa -140 dBV. In this test we are looking at the total mains induced noise across the PCB's and interconnect wiring within the preamp. The peak mains components c. -130 dBV

Discrete Line Stage



FFT: 256k
Avg: 37 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: -121.06 dBV
Peak R: -125.51 dBV
Peak L: 884.9 nVrms
Peak R: 530.5 nVrms

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 20.00024 KHz @ -8.5 dBV

X-Altra Mini II First Build

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Preamplifier noise floor with volume set to
min. CD input selected and open.
Source R is 2.2k Ohms
The spot noise floor is -140 dBV

dBV/RTHz

Discrete Line Stage

100

1000

10000

FFT: 256k
Avg: 33 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: -122.75 dBV
Peak R: -126.20 dBV
Peak L: 728.8 nVrms
Peak R: 489.5 nVrms

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 20.00024 KHz @ -8.5 dBV

X-Altra Mini II First Build

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Preamplifier noise floor with volume set to min. Tuner input selected and shorted.
The spot noise floor is -140 dBV

dBV/RTHz

Discrete Line Stage

100

1000

10000

FFT: 256k
Avg: 24 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

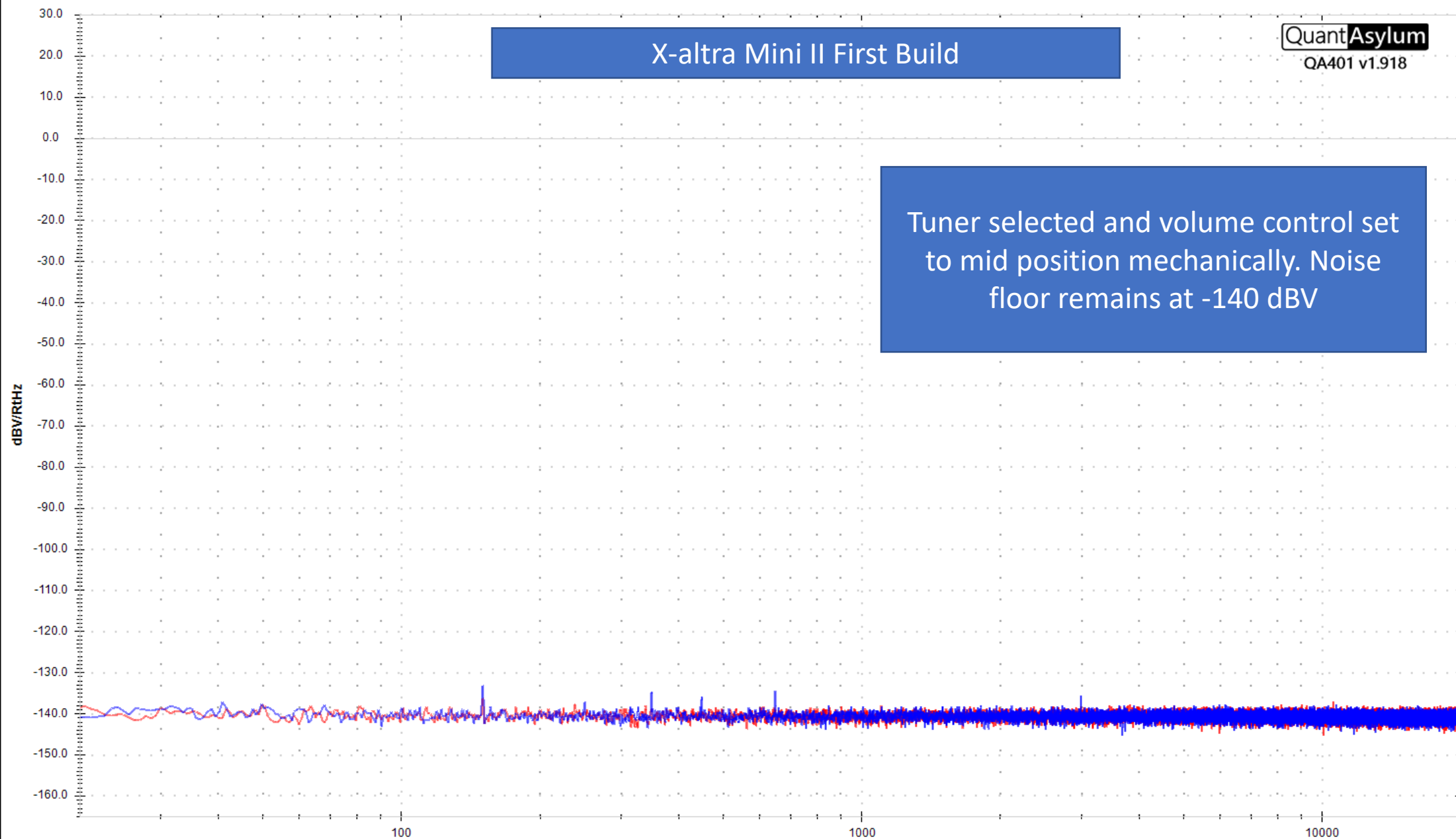
Peak L: -122.71 dBV
Peak R: -124.11 dBV
Peak L: 732.2 nVrms
Peak R: 623.2 nVrms

Gen 1: 1.000488 KHz @ 3.0 dBV
Gen 2: 20.00024 KHz @ -8.5 dBV

X-altra Mini II First Build

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Tuner selected and volume control set
to mid position mechanically. Noise
floor remains at -140 dBV



FFT: 256k
Avg: 19 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

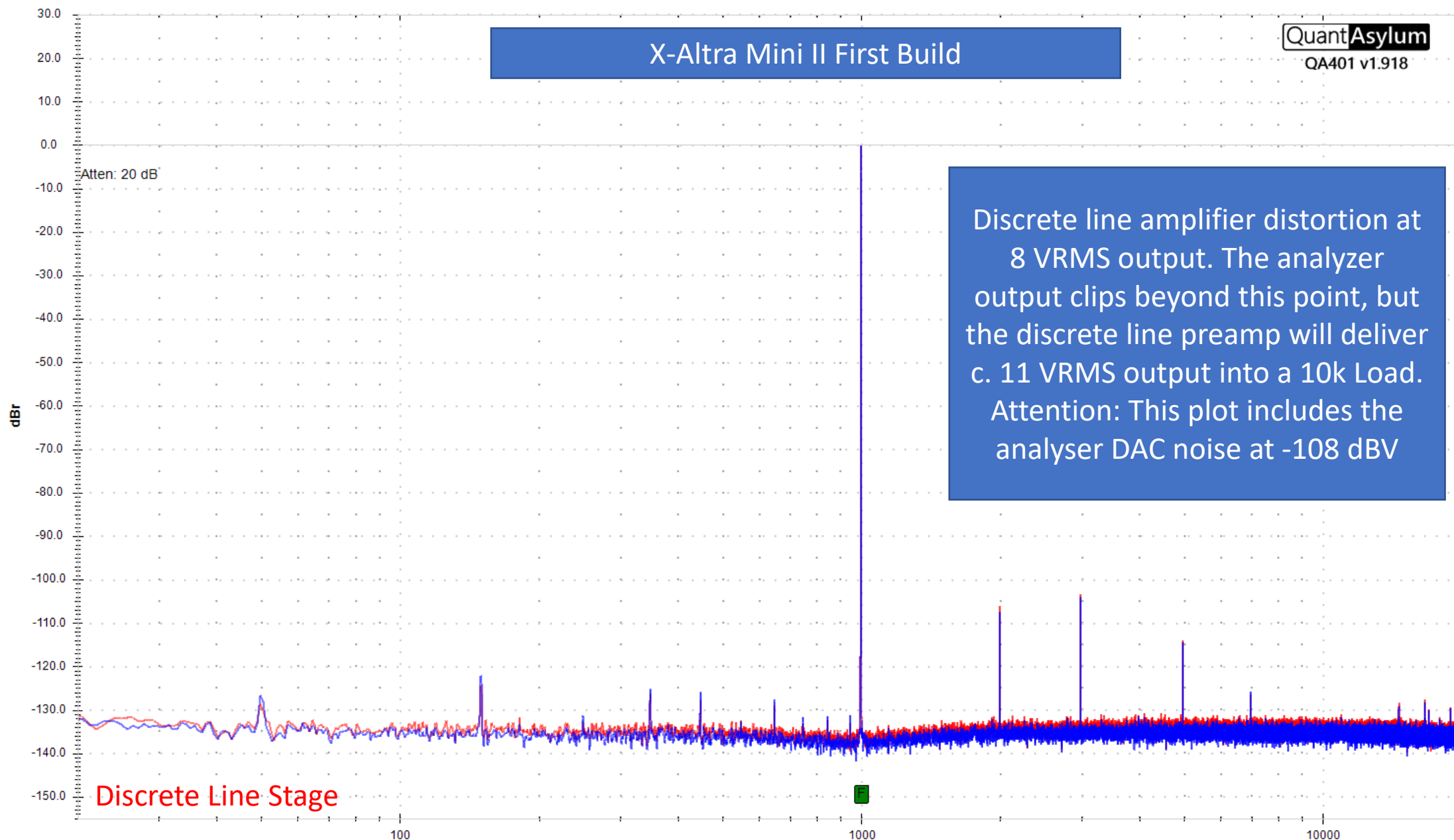
Peak L: -0.16 dBr
Peak R: -0.16 dBr
Peak L: 8.233 Vrms
Peak R: 8.235 Vrms
THD L: -102.1 dB/ 0.00079%
THD R: -101.2 dB/ 0.00087%

Gen 1: 999.0234 Hz @ 5.9 dBr
Gen 2: 20.00024 KHz @ -7.0 dBr

Phase L: 0.01 deg
Phase R: -0.02 deg
Delay L: 10.0 uSec
Delay R: 10.1 uSec
Gain L: 13.95 dB
Gain R: 13.95 dB

X-Altra Mini II First Build

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FFT: 256k
Avg: 30 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: -0.41 dBr
Peak R: -0.40 dBr
Peak L: 1.384 Vrms
Peak R: 1.385 Vrms
THD L: -97.2 dB/ 0.00139%
THD R: -95.4 dB/ 0.00171%

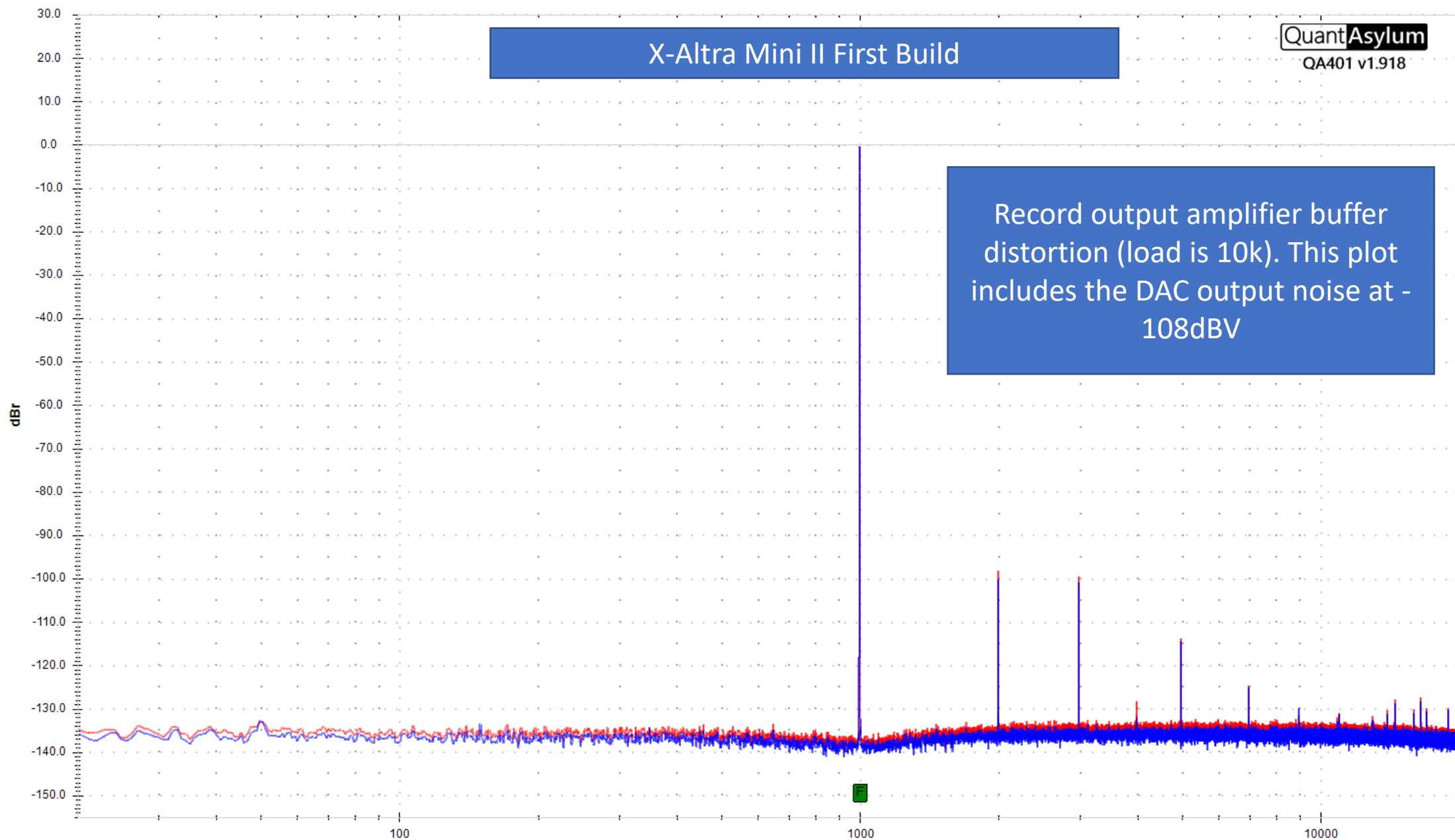
Gen 1: 999.0234 Hz @ 0.6 dBr
Gen 2: 20.00024 KHz @ -11.7 dBr

Phase L: -0.32 deg
Phase R: -0.33 deg
Delay L: 10.9 uSec
Delay R: 11.0 uSec
Gain L: -1.04 dB
Gain R: -1.03 dB

X-Altra Mini II First Build

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Record output amplifier buffer
distortion (load is 10k). This plot
includes the DAC output noise at -
108dBV



FFT: 256k
Avg: 24 of 50
Res: 732 mHz
Fs: 192 KHz
Win: Hann
Weight: None

Meas Start: 20.0 Hz
Meas Stop: 20.0 KHz

Peak L: 0.00 dBr
Peak R: 0.01 dBr
Peak L: 2.205 Vrms
Peak R: 2.208 Vrms
THD L: -93.3 dB/ 0.00216%
THD R: -92.0 dB/ 0.00250%

Gen 1: 999.0234 Hz @ -3.9 dBr
Gen 2: 20.00024 KHz @ -15.4 dBr

Phase L: -0.41 deg
Phase R: -0.40 deg
Delay L: 11.2 uSec
Delay R: 11.2 uSec
Gain L: 3.88 dB
Gain R: 3.89 dB

X-Altra Mini II First Build

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OPA1642 Line output. The distortion is about 6 dB higher than the discrete line stage and the noise floor is about 5 dB higher. This output would typically drive a sub bass. This plot includes the DAC noise floor at -108 dBV

