

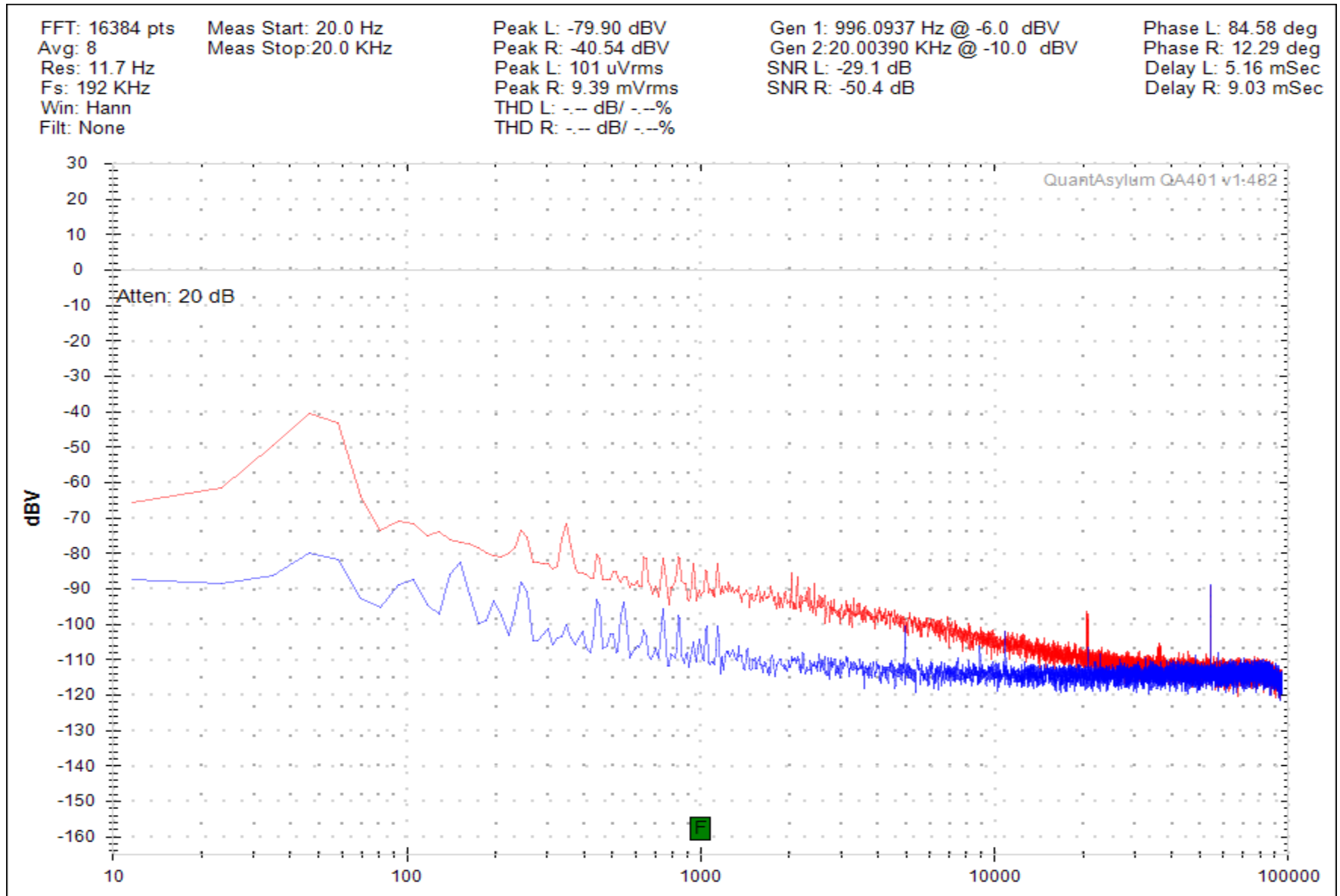
Investigation Into Electrolytic Input Coupling Capacitor Microphonics on an RIAA Amplifier

- All active Op-amp based RIAA equalizer featuring 34dB front end gain at 1kHz, followed by a rumble filter (-0.2dB at 20 Hz and circa -36 dB at 2 Hz) followed by a +16dB amplifier.
- The the volume control was set to max for all tests shown
- The readings were taken with a QuantAsylum QA401 24 bit audio analyzer controlled by a Dell Inspiron 1525
- The QA instrument was set to 24bit/192kHz for the tests and the measurement bandwidth 100 kHz
- All readings were averaged 8x
- Input coupling cap between the cartridge and the op-amp NI input is 100uF Bipolar with 0.47uF film in parallel. The capacitor is loaded on the opamp side with 100k Ohms to 0V and on the cartridge side with 100k Ohms to ground. The notional cartridge load is therefore 50k Ohms.

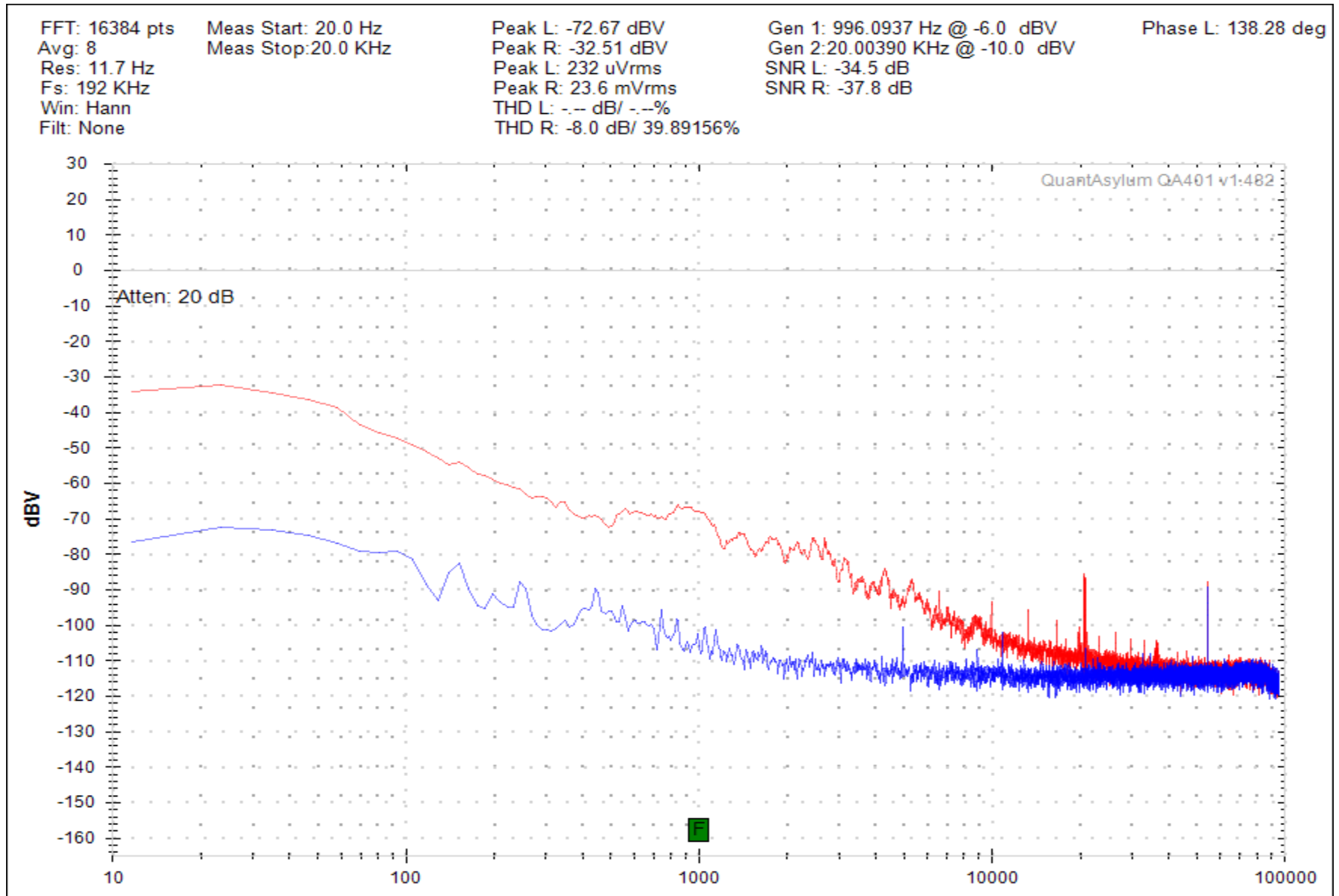
Reference levels with preamplifier powered OFF.



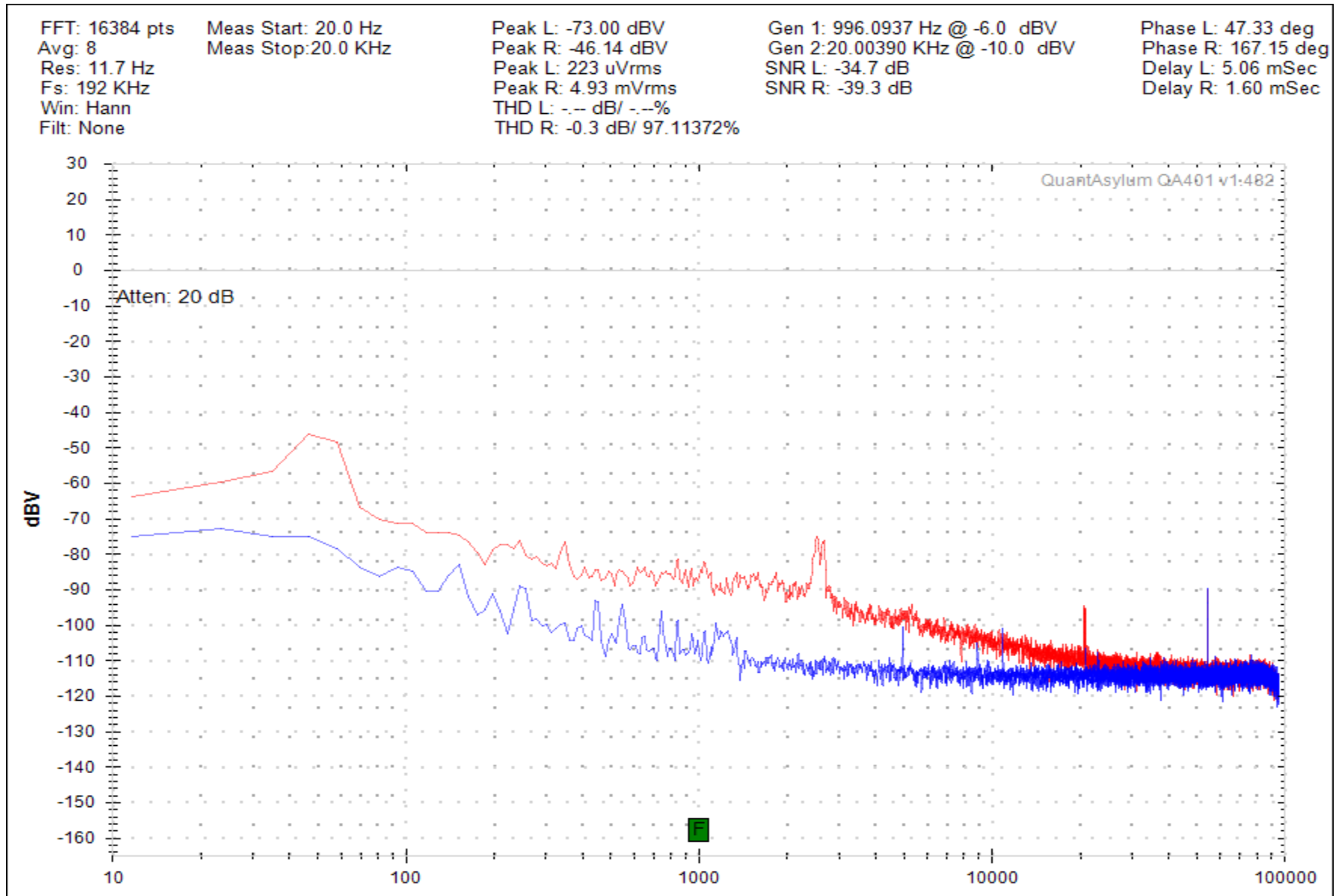
Reference levels with left channel input shorted, right channel open circuit.



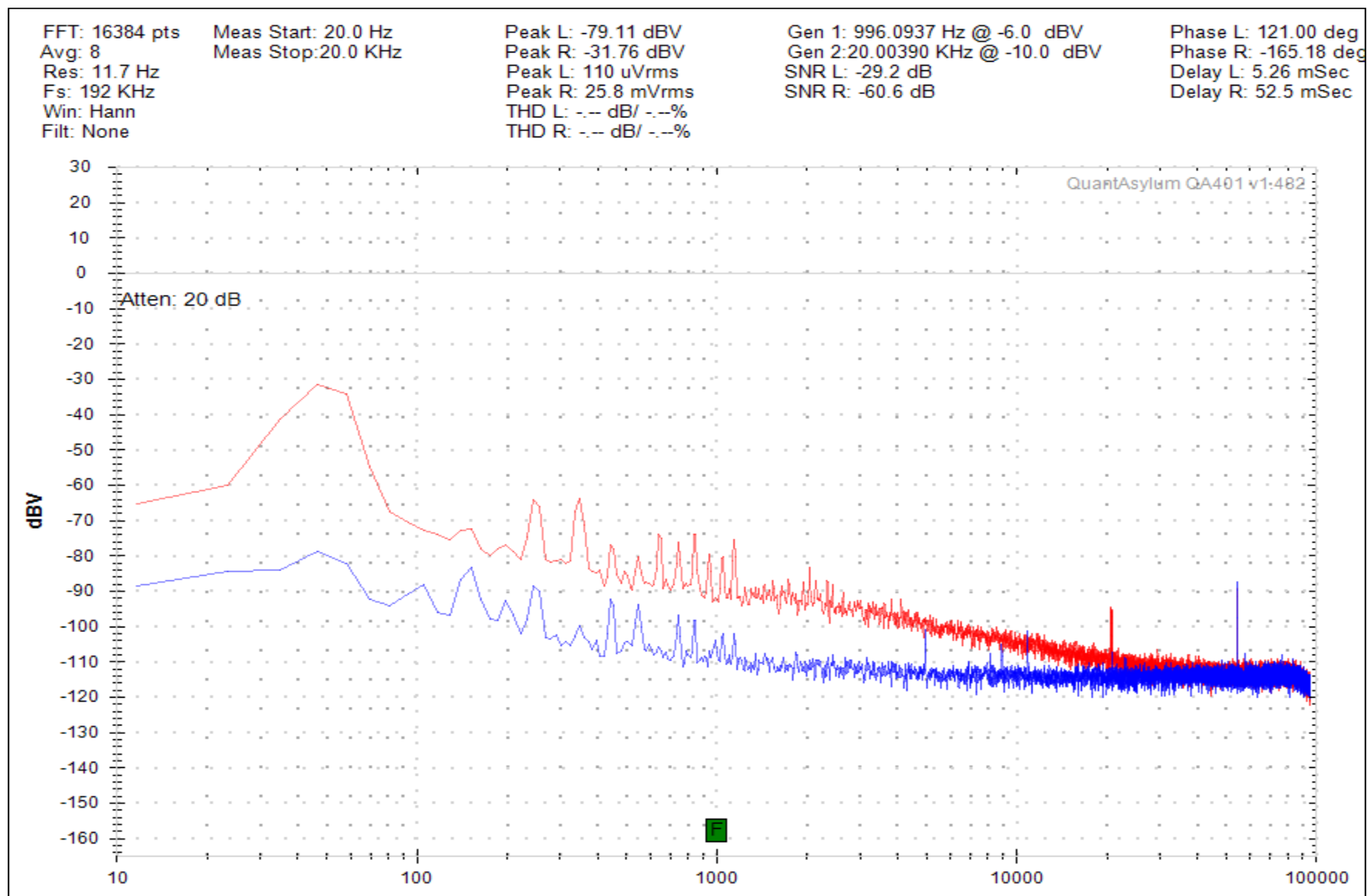
Left channel input shorted, right channel open. Vigorous tapping on the right channel input coupling cap (i.e. the open circuit input coupling cap)



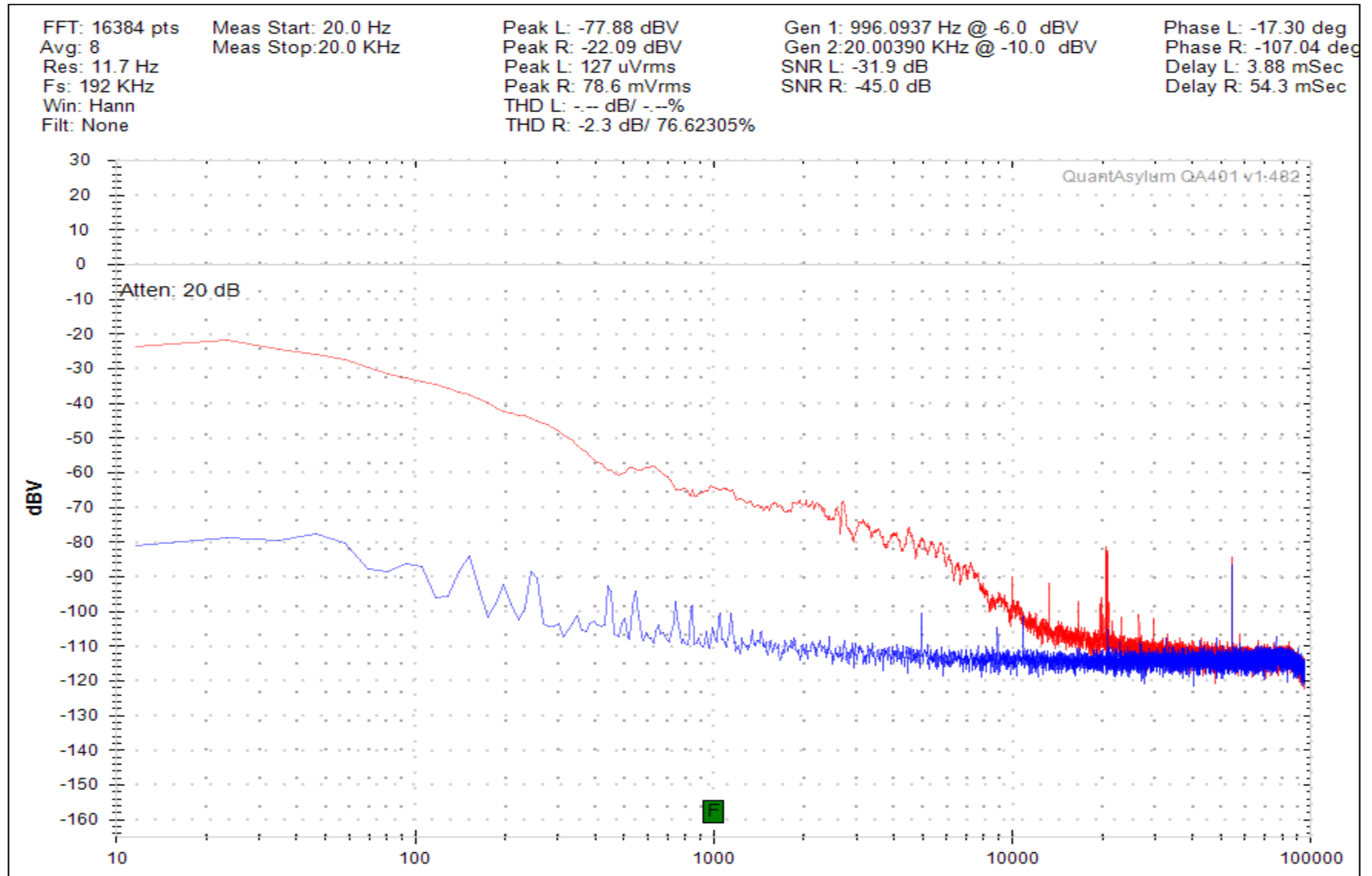
Reference. Left channel input shorted, Right channel open. Vigorous tapping on the left channel input coupling cap (i.e. the shorted input coupling capacitor)



Reference. Left channel input shorted, right channel open. Reference levels with *right hand channel input coupling cap shorted out.*



Left channel input shorted, right channel open. Right channel input coupling cap is shorted out (i.e. the open circuited channel). Vigorous tapping on the *right hand channel* cap



Results

- On short-circuited inputs, microphonics appears to be minimal or non-existent
- On open circuited inputs, tapping vigorously on the input coupling capacitor produces LF noise but not HF noise - probably because of the RIAA EQ profile
- However, if that same input coupling capacitor is shorted out and the test repeated, the results are almost identical.