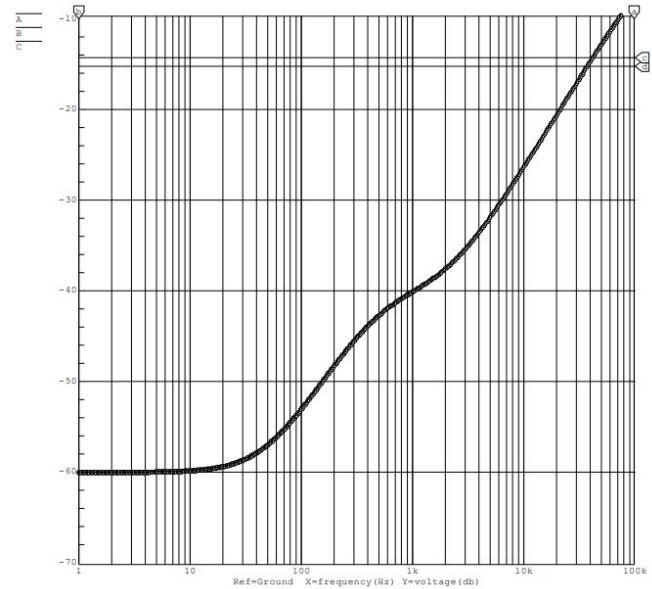
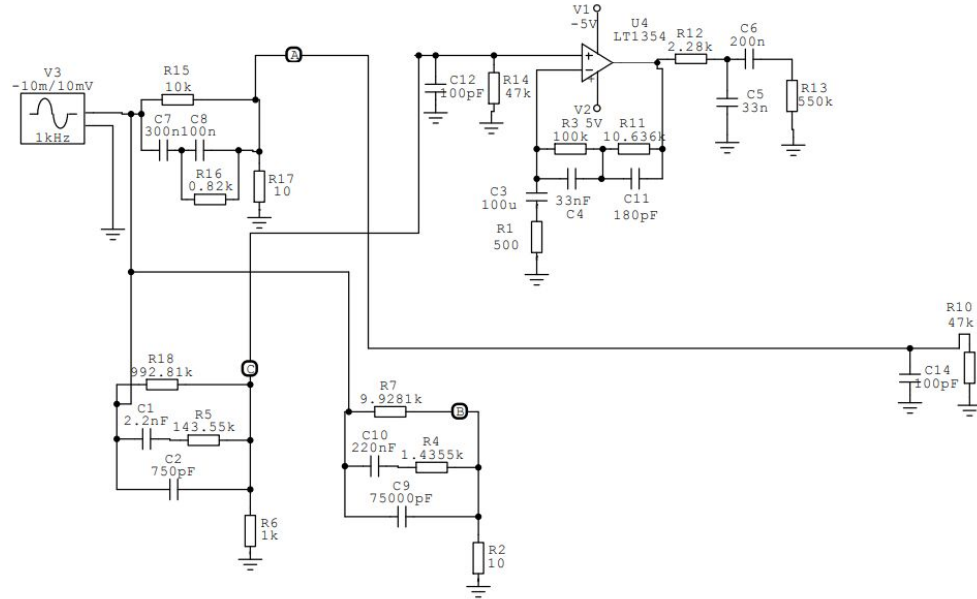


RIAA Pre-amp

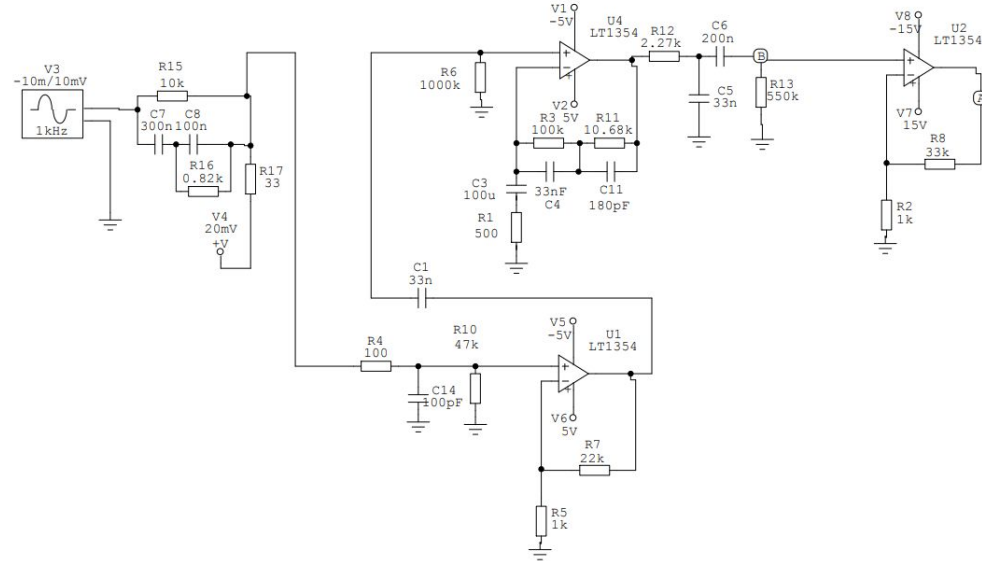
Design Notes

RIAA Source Comparison

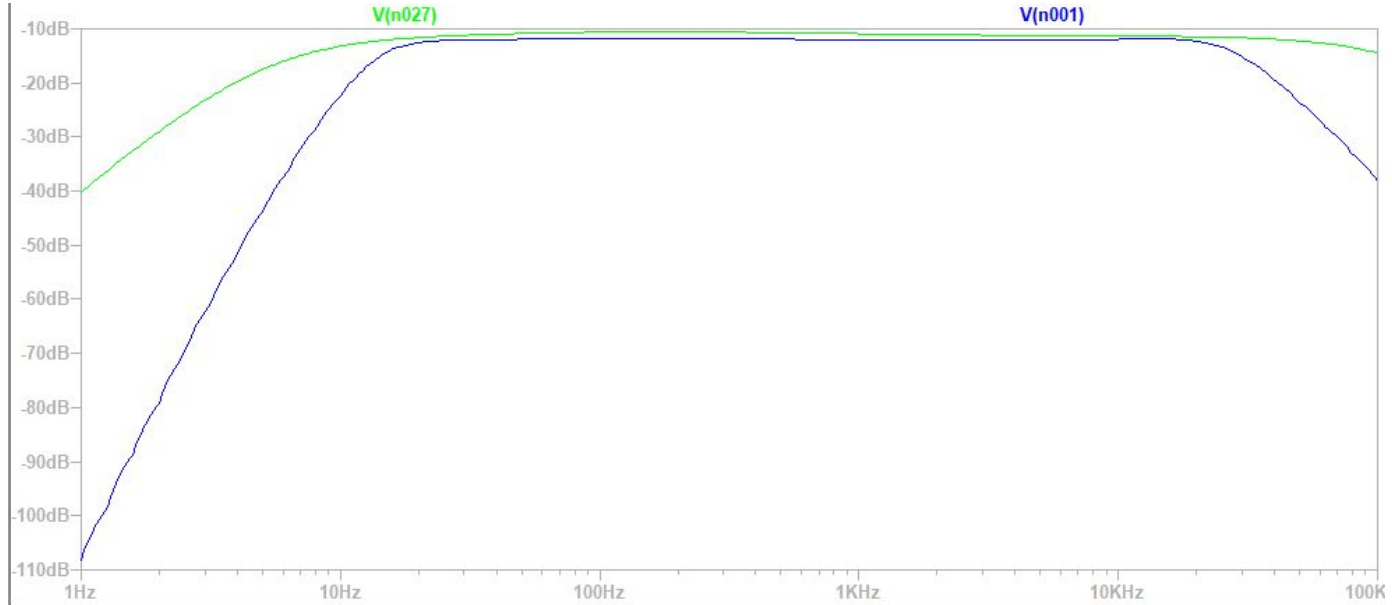


Three RIAA source networks were modelled, and showed identical frequency response

Pre-amp response driving with RIAA source



Addition of Combined Sub-Sonic/Ultra-Sonic Filter



Additional filtering reduces out-of-band gain response

Notes

- Additional gain provided by instrumentation amp at input
 - INA163 chosen due to low noise and distortion, although relatively power hungry, $\sim \pm 30\text{mA}$ @ $\pm 12\text{V}$
 - 1kHz: $1\text{nV}/\sqrt{\text{Hz}}$
 - 1kHz, $G=100$: $\text{THD+N} = 0.002\%$
- OPA2209 similarly low noise
 - $2.2\text{ nV}/\sqrt{\text{Hz}}$