The Project

Have you ever wondered if your set of headphones were the best? Or if you always wanted to try those expensive headphones but have never got the money? The Headphone Tester will solve this problem by,

- Correcting the frequency response of your headphones
- Altering your headphones frequency response to sound just like another headphone

With the Headphone Tester, you can test any set of headphones with just your current headphones.

Applications

- Personal use to test different headphones
- Professional use to better mix and master music
- Business use to allow customers get a wider range of headphone simulation

System Overview

Overview of operation after frequency responses of headphones are acquired and attenuated for

Results

As shown to the right in the graphs, the final frequency response is similar to the frequency response of Headphone 1. Variances in this result are due to testing simulation, lack of high precision recording instruments. With a higher budget, better results are to be expected.

Equipment

- TI Zoom TMDSEXPL138 DSP
- Sennheiser HD 650
- Sennheiser Momentum
- Audio-Technica ATR3350iS

- Sampling rate: 44.1kHz
- Bit Depth 16 bits
- Very neutral frequency response
- Widely known and used amongst audio enthusiast communities
- Great entry level headphones
- Bass slightly emphasized
- Small Size
- Inexpensive
- Integrated Amplifier
- Wide Range Receiving Pattern

Testing Frequency Response

- Corrected Frequency Response is taking the inverse of the Frequency Spectrum of the Momentum’s
- Final Frequency Response is played on the Momentum’s recreating the HD650’s frequency response
- Notice Similarities in the frequency responses in headphone 1 and final frequency response graphs