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Comparison of Two Hearing Aid Receiver-Amplifier Combinations using Sound Quality Judgments

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> Catherine Plamer, Mead Killion, Laura Wilber, William Ballad
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SOMETHING ABOUT MEAD

Mead got his PhD from Northwestern University in 1979. His doctoral dissertation was titled “Design and evaluation of high-fidelity hearing aids”. It would be an understatement, to say the least, that he was interested in sound quality. As a field, we still have work to do on this front, especially as it relates to music and emotion, but Mead definitely laid the groundwork. We can probably also learn from work in the headphone space.

SUMMARY

The study discussed in this paper compared a class A amplifier to a class D system, with subjects rating sound quality on a 100-point scale. What makes this paper interesting is that the subjects were also required to assign a dollar value to a particular rating. The dollar scale went from 0$ all the way up to $700. Keep in mind this was before DSP hearing aids were released! The sound quality rating results followed an expected pattern, and using coherence as a measure of distortion also tracked the rating results quite well. Not surprisingly, when they adjusted the Class A bias up to an appropriate value the differences vanished, which I think is a nice control. Lastly, they identified that each point on the 100-point sound quality scale was worth $6.75 US. Converting this to Canadian and bringing it up to today’s dollars we get $20 per point. I like how this paper connected user benefit to economic rewards.

> Annotated by: Steve Armstrong