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Article #1: New Insert Earphones for Audiometry

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> Mead C. Killion
> Hearing Instruments, 35(7), 28, 1984
> Article #2: Insert Earphones for More Interaural Attenuation
> Mead C. Killion, Laura A. Wilber, and Gail I. Gudmundsen
> Hearing Instruments, 36(2), 34-36, 1985.

SOMETHING ABOUT MEAD

These two articles introduce Etymotic's TUBEPHONE™ insert earphones, which couple to the ear canal?? via a soft foam eartip fed by a 292-mm length of #16 tubing. In typical Killion fashion, Mead presents "problems" followed by "solutions." For earphones used in audiometry, the problems are: (1) poor low-frequency isolation; (2) poor "cross-head" isolation (interaural attenuation); (3) limited high-frequency response; (4) inaccurate real-ear frequency response; (5) uncomfortable headband force; and (6) electromagnetic interference for auditory brainstem response measurements. Three TUBEPHONE models address the above problems. The ER-1 produces an accurate diffuse-field frequency response* at the eardrum of the average ear. The ER-2 produces a flat frequency response at the eardrum of the average ear. The ER-3 produces a frequency response very similar to that of the TDH-39 for conventional audiometry.

*Note: For decades, Mead has promoted the diffuse-field response (equal sound from all directions) as the one that matters for earphones and hearing aids. Commercial earphones having accurate diffuse-field frequency response have since become the norm for the most sophisticated "high-end" models.

??Note: Promoting the use of the term "earcanal" as a single word is one of Mead's pet projects.

SUMMARIES

Article #1: This report describes two new insert earphones designed for use in subjective and objective audiometry. While not without their own limitations, these new earphones are free of most of the limitations of traditional headphones.

Article #2: Masking presented to an ear with moderate-to-severe conductive loss often masks both ears simultaneously. One solution to this well-known masking dilemma has been to use an in-ear

headphone rather than a traditional supra-aural headphone.

LINK TO ARTICLES AT ETYMOTIC.COM

Article #1:

https://eadn-wc05-4845404.nxedge.io/wp-content/uploads/2021/05/erl-0003-1984.pdf

Article #2:

https://eadn-wc05-4845404.nxedge.io/wp-content/uploads/2021/05/erl-0006-1985.pdf

> Annotated by: Larry Revit