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Title:

Modelling the ISO 226:2023 equal-loudness-level contours by standardized loudness methods

Author:

Roland Sottek, Thiago Lobato, Julian Becker

Abstract:

ISO 226 specifies combinations of sound pressure levels and frequencies of pure continuous tones that are perceived as equally loud by human listeners. These equal-loudness-level contours are part of the foundation of psychoacoustic research and are constantly evolving. The recent third version of this Standard, ISO 226:2023, contains some minor corrections to the second version, ISO 226: 2003. In this paper, we describe these changes and evaluate how well current standardized algorithms perform in generating the new ISO 226:2023 curves. To this end, we compare the loudness methods published in ISO 532-1:2017 (Zwicker method), ISO 532-3:2023 (Moore, Glasberg and Schlittenlacher method), and the Sottek Hearing Model Loudness method published in ECMA 418-2 2nd edition (2022). It should be noted that the Zwicker method aims to match the equal-loudness-level contours of the first edition of ISO 226:1987, whereas the other methods aim to match the data of the second version, ISO 226:2003.

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