



The Journal of the Acoustical Society of America



SUBMIT YOUR ARTICLE

HOME

BROWSE

INFO

FOR AUTHORS



SIGN UP FOR ALERTS

COLLECTIONS

Home > The Journal of the Acoustical Society of America > Volume 133, Issue 5 > 10.1121/1.4805325



< PREV NEXT >

Full . Published Online: May 2013

A case-study on the continuous use of an in-ear dosimetric device

The Journal of the Acoustical Society of America **133**, 3274 (2013); <https://doi.org/10.1121/1.4805325>

Kuba Mazur *and* Jeremie Voix

View Affiliations



• Topics

◦ Topics




- Sound pressure
- Deafness
- Hearing protection

- [Audiometry](#)
- [Auditory fatigue](#)
- [Hearing](#)
- [Acoustic noise effects](#)
- [Machinery noise](#)
- [Acoustic noise](#)
- [Acoustical measurements](#)

ABSTRACT

In order to further understand the combined effects of occupational and recreational noise exposure with regards to noise induced hearing loss (NIHL), an in-ear dosimeter prototype meant for continuous use was developed. The device acts as a hearing protection device (HPD) and can measure and log effective in-ear sound pressure level as well as unprotected levels. To enable its continuous use, this HPD is also equipped with a bypass feature for “transparent” hearing, input for music or communication devices and interfaces with Android smartphones. The proposed device allows for the implementation of an algorithm accounting for the auditory fatigue recovery rate, providing a true representation of the current accumulated noise dose. This allows for 24 h dosimetry and avoids having the user manually reset the dose back to 0% on the next day and thus assuming complete fatigue recovery has occurred. This

paper details the proposed recovery algorithm, presents collected field data, and discusses the benefits as well as real-world challenges of using such a device.

| | | |
|----------------------------|----------------------------|--|
| Resources | General Information | |
| AUTHOR | ABOUT | PRIVACY POLICY |
| LIBRARIAN | CONTACT | TERMS OF USE |
| ADVERTISER | HELP | FOLLOW AIP PUBLISHING: |
| | |    |

Website © 2018 AIP Publishing LLC. Article copyright remains as specified within the article. **Scitation**