HearAngel®

How can new technology help stop headphone users suffering from avoidable hearing loss?

Stephen Wheatley – CEO & Co-Founder

Problem

- Not obvious to us when we are harming our ears
- Large sound doses damage our hearing
- Biggest source of sound dose for most is from headphones
- Growth in digital content is driving headphone use, increasing exposure to large sound doses
- 68% of headphone users are aware of dangers but don’t have tools to measure and manage their risk

Current Regulation - Europe

- Smartphones in Europe have warning triggered by the volume setting:
  “Listening at high volume for a long time may damage your hearing. Tap OK to allow the volume to be increased above the safe level”
- The warning is based only on the predicted volume level of the headphones or earbuds supplied with the handset
- It doesn’t take any account of how long you listen or what you listen to
- If adhered to, content is inaudible in many common listening situations
- Warnings are often ignored
- Many listen too loud, for too long, risking permanent hearing damage
International Electrotechnical Commission (IEC)'s new standard IEC 62368-1:2018 replaces early standards on that date. Adopted by Europe (EN) and North America (CSA/UL); others following. Handset manufacturers have the choice to provide:

Either

- Volume-setting-based handset warning (as per current European standard)
- Presentation of calculated sound dose from headphones along with warnings and user options such as automatic protection

**Regulation – From December 2020**

At defined sound dose thresholds, users are prompted with information so they can make effective decisions. A “Fitbit for your ears”

The user may also choose dose-based automatic protection which will gradually intervene should they be in danger of exceeding the recommended sound dose. Enhanced protection for children (recommended by International Telecommunications Union (ITU-T M878)) can be accommodated.

*Matches The World Health Organisation’s recommendations*

**IEC* Recommended Option – Calculated Sound Dose**

Providing users with relevant, individual information is understood to change their behaviour.

For individuals:
- Manage their sound dose using easy to understand information
- Automatically protect themselves, if they wish

For parents or carers:
- Manage their children’s exposure
- Control child’s maximum:
  - Volume level
  - Sound dose
  - Listening period
- Automatically protect them

**Making the best of IEC’s Recommendation**
Challenges for Technology

Volume-setting-based option only works for the headphones supplied with the handset – if any

Sound-dose-based option requires knowledge of headphones; changing them can invalidate the calculations

More than 300 Million headsets sold per annum worldwide and growing

How can these be integrated into an effective protection scheme?

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