World Health Organization 75 HEALTH FOR ALL

Make Listening Safe

WHO Initiative & Workstream

Mark Laureyns

Thomas More University College – Antwerp

Amplifon Centre for Research and Studies – Milan

AEA – European Association of Hearing Aid Professionals

Member of the WHO World Hearing Forum

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IFOS

Tâm Anh Hospital

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The MLS Initiative (2015)

World Health Organization

Technical Expert Group
Reports and Standards

The focus is on non-occupational (leisure) aspects of safe listening

MLS LinkedIn Group (2020)

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WORLD HEARING FORUM

Stakeholders and Communication

Create a world where nobody's hearing is put in danger due to unsafe listening

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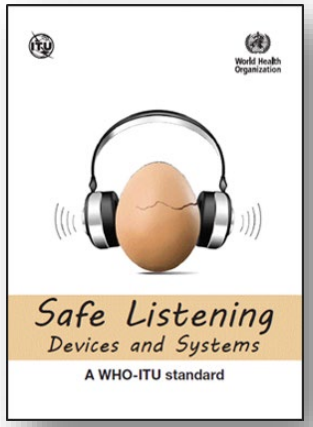
non-occupational (leisure) sound & noise exposure



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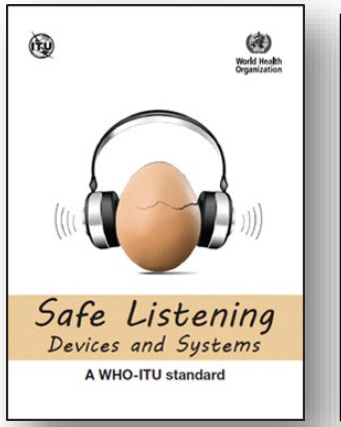
non-occupational (leisure) sound & noise exposure

+

occupational sound & noise exposure

+

environmental sound & noise exposure



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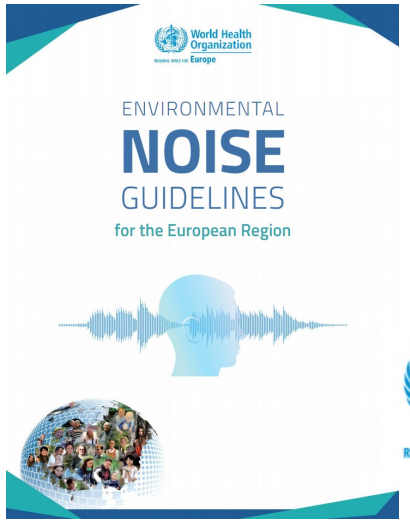
PREVENTING DISEASE THROUGH A HEALTHIER AND SAFER WORKPLACE

World Health Organization



World Health Organization
REGIONAL OFFICE FOR Europe

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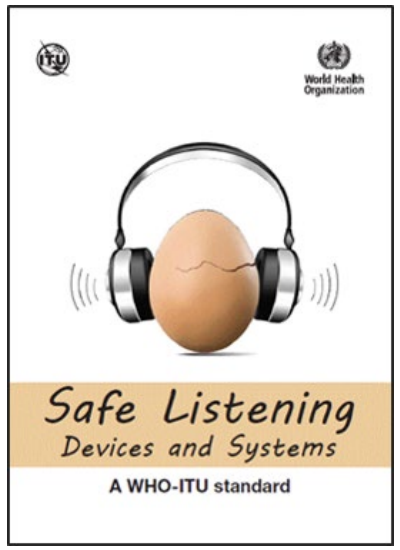

WHO/ITU SL Devices & Systems	ITU H.870 SL Devices & Systems	ITU H.871 SL Personal Amplifiers	WHO Venues & Events	ITU & WHO Video gameplay & sports
2018	2018/2022	2019	2022	WHD 2025?

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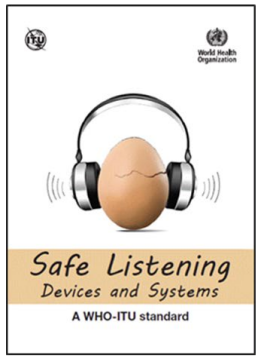
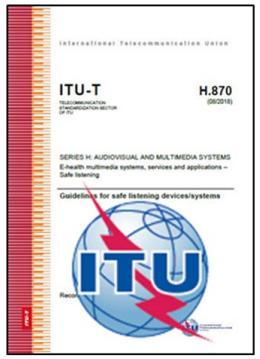


WHO/ITU SL
Devices & Systems



ITU H.870 SL
Devices & Systems

ITU H.871 SL
Personal Amplifiers

ITU H.870 SL
Conformance Test

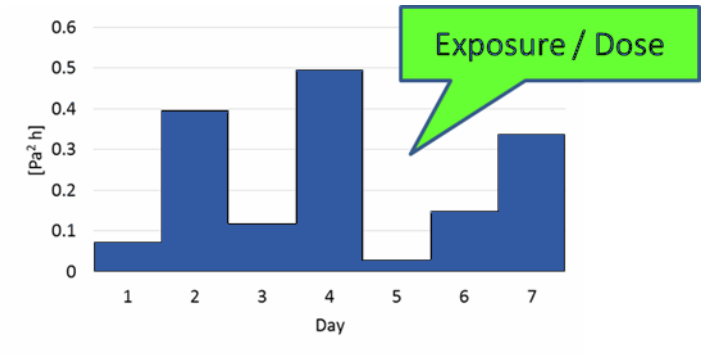


Figure – Example of accumulation of dose over 7 days, constituting in total 1.6 Pa²h, hence 100% CSD

Practical relevance of sound allowance: 100% weekly sound allowance is equivalent to the weekly reference exposure, based on the mode selected. The time required to use 100% of sound allowance depends on the average sound intensity. Table 1 and Table 2 set out examples of weekly listening time duration based on sound allowance for the modes above.

Mode 1: 80 dBA – 40h/week

dB(A) SPL	Weekly (1,6 Pa²h)
107	4.5 minutes
104	9.5 minutes
101	18,8 minutes
98	37,5 minutes
95	75 minutes
92	2,5 hours
89	5 hours
86	10 hours
83	20 hours
80	40 hours

Tabel 1 - ITU-WHO Weekly safe listening time - energy equivalence principle - standard safety level

Mode 2: 75 dBA – 40h/week

dB(A) SPL	Weekly (0,51 Pa²h)
101	6 minutes
98	12 minutes
95	24 minutes
92	48 minutes
89	1 hours 36 minutes
86	3 hours 15 minutes
83	6 hours 24 minutes
80	12 hours 20 minutes
77	25hours
75	40 hours

Tabel 2 - ITU-WHO Weekly safe listening time - energy equivalence principle - higher safety level

For sensitive users:

- Children
- People with Diabetes
- People with Tinnitus or Hyperacusis
- Etc …

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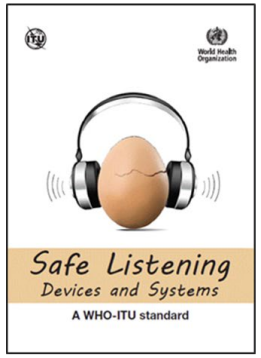

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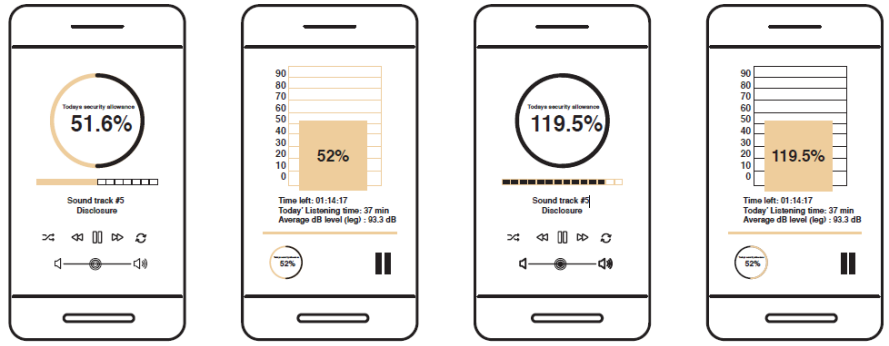
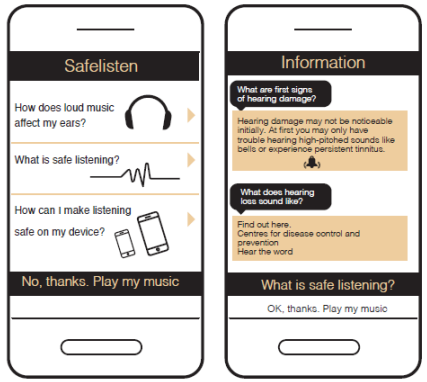


Figure 2: Examples of information provided on a smartphone visual interface for safe listening. (Reproduced with kind permission from ITU H.870)

Provide information:

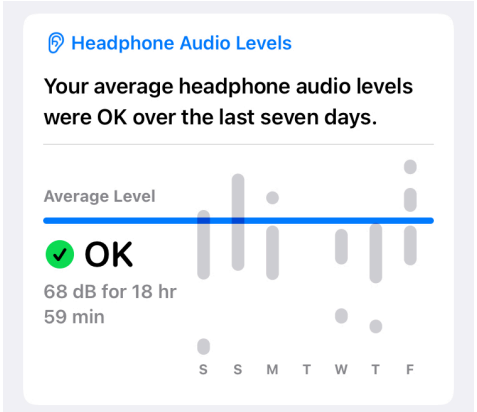
- My current weekly dose
- What is safe listening?
- How to use the safe listening features?



There should be a tutorial informing users about:

what is meant by safe listening;
the risks of unsafe listening;
the device's safe listening features, and how to use them.

The screens should also include links to relevant webpages where the user can find more information. Figure 5 gives an example of screens linking to information on safe listening and external links.



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ITU H.871 SL
Personal Sound Amplifiers

Requirements for safe listening for personal sound amplifiers

It is recommended that PSAs follow the requirements listed below:

R1: It is required that weekly maximum sound dose needs to be less than 1.6 Pa^2h, which corresponds to 80 dBA for 40 hours. … [ITU-T H.870].

R2: **When these devices do not have the capacity to measure weekly sound dose, the maximum output of the device needs to be permanently limited to 95 dBA**; a user then is unlikely to use the device at a level higher than 80 dBA since the dynamic range of speech has a crest factor of 12 to 17 dB.

R3: personal sound amplifiers need to provide adequate warnings ….

PSAP = Personal Sound Amplification Product

PSAA = Personal Sound Amplification APP

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ITU H.871 SL
Personal Sound Amplifiers

Check your headphone levels on iPhone

While using headphones with iPhone, you can check whether the audio level is OK by viewing the Hearing control in Control Center. In the Health app 💌, you can review the history of your headphone listening habits.

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ITU H.871 SL Personal Sound Amplifiers

SAMSUNG

SAMSUNG SOFTWARE REVIEWS

SamMobile has affiliate and sponsored partnerships. If you buy something through one of these

Samsung One UI tip: Keep your ears safe with Volume Monitor

SONY

Listen safely with Sony | Headphones Connect app

Check how safely you're listening to music by comparing sound pressure data recorded by your headphones with guidance of the World Health Organisation (WHO). Receive OS notifications when listening levels are too high. LinkBuds S also feature intuitive touch control settings. [9] You can assign your own functions to each earbud using the Headphones Connect app. [10]

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World Health Organization 75 HEALTH FOR ALL

WHO
Venues & Events

1. Limiting sound levels

A maximum limit of 100dB $L_{Aeq\ 15\ minutes}$* is imposed, keeping sound safe and enjoyable for the audience.

2. Monitoring sound levels

Live monitoring and recording of sound levels using calibrated measurement equipment by designated staff members.

3. Optimizing venue acoustics and sound systems

The sound system and venue acoustics should be optimized to ensure enjoyable sound quality and safe listening levels for all.

WHO Global Standard for Safe Listening Venues & Events– 3rd of March 2022

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WHO
Venues & Events

4. Making personal hearing protection available

Hearing protection such as earplugs should be available to audience members, with instructions.

5. Access to quiet zone(s)

Quiet zones allow members of the audience the opportunity to rest their ears and decrease the risk of hearing damage.

6. Provision of training and information

Staff and audience members should be informed about practical steps they can take to ensure safe listening.

WHO Global Standard for Safe Listening Venues & Events– 3rd of March 2022

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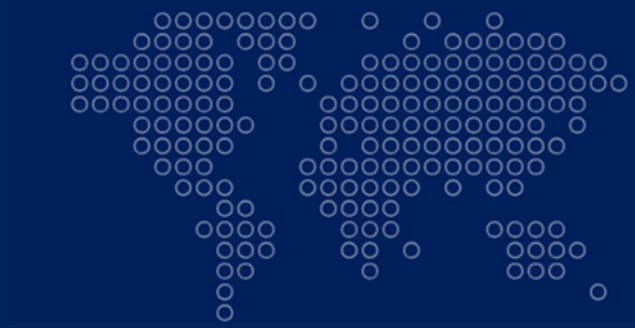
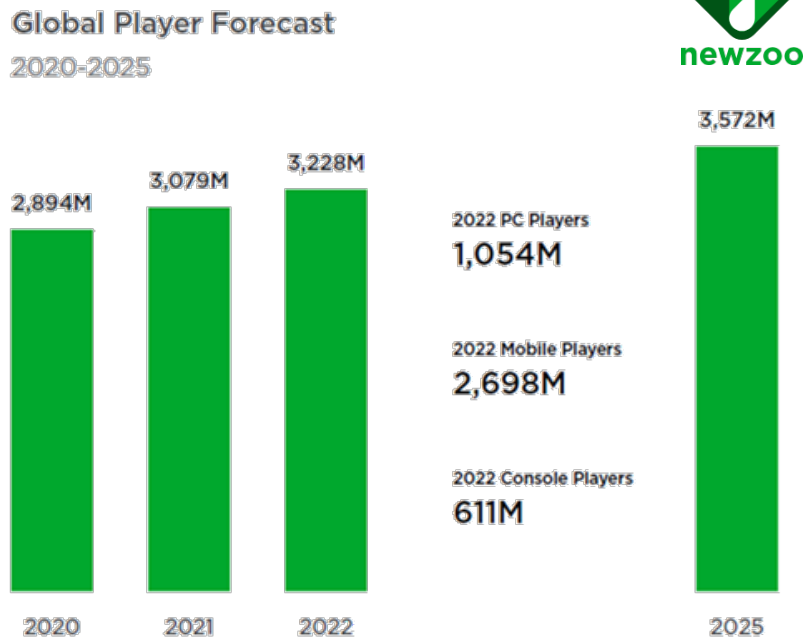
Video gaming and e-sports have surged in global popularity, captivating up to **3 billion enthusiasts worldwide**. With a user base of 600 million on console platforms and 1.1 billion on personal computers





In the WHO report, the number of video gamers worldwide is estimated at 3 billion players. The Newzoo report, conforms this and projects that in 2025 this number will rise to more than 3,5 billion players

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The systematic scoping review, published in the WHO report shows in samples of children, gamers:

- Had **6% higher likelihood of self-reported hearing loss** compared to non-gamers.
- Had **52% higher likelihood of self-reported tinnitus** compared to non-gamers.
- Were more than **twice as likely to have measurable high-frequency hearing loss** compared to non-gamers.

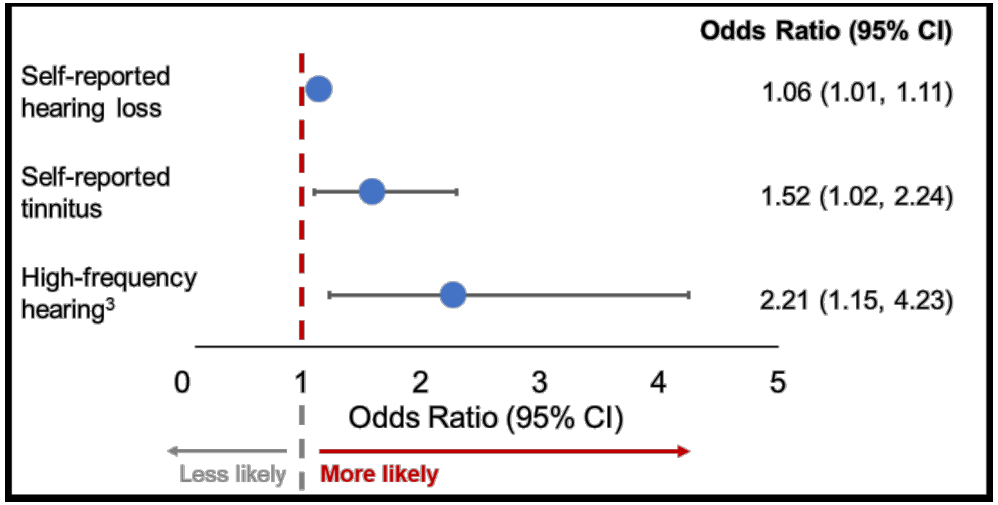

Figure 1. Odds ratios of auditory symptoms in samples of gamer children vs non-gamers4 (Rhee 2019, 2020, Wicaksono 2018, Zhang 2019; Dehnert 2015, Dreher 2018, Wicaksono 2020, Shin 2005, Yu 2016)

World Health Organization 75 HEALTH FOR ALL

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Stakeholders and Communication

Create a world where nobody's hearing is put in danger due to unsafe listening

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Create a world where nobody's hearing is put in danger due to unsafe listening

Objective 1:

Increasing awareness on the importance of safe listening and change behaviour for the target group (young people)

Make Listening Safe

Motivate, inform and encourage the use of hearing protection at concerts

School-programs and information in schoolbooks on how to enjoy music safe

Musicians talking to young people in the afterparty & promoting safe listening

"Make Listening Safe" Wikipedia Page

"Make Listening Safe" digital campaign:

"Make Listening Safe" LinkedIn group:

MLS Promotion Group

Make Listening Safe

WORLD HEARING FORUM

Make Listening Safe

"Make Listening Safe" Social Media Actions

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Create a world where nobody's hearing is put in danger due to unsafe listening

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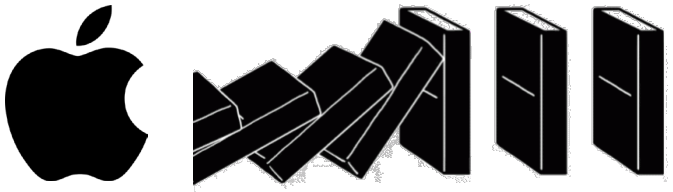
Convince Smartphone Manufacturers



Convince "Smart Headphone" manufacturers

SAMSUNG

SONY

Align different standards

ITU ISO IEC CENELEC

Objective 2:

Convince Smartphone and Headphone and Game Manufacturers to implement the WHO_ITU global standard for safe listening devices

Convince "Game" manufacturers

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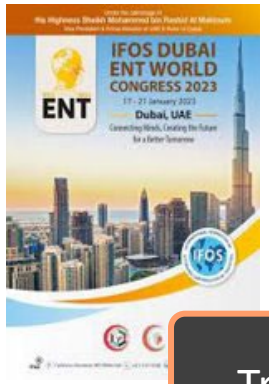

OTORHINOLARYNGOLOGY CONFERENCE AND TRAINING

Training sessions on "advocating for #safelistening"

Objective 3:

Educate and Advocate with governments and policy makers on the importance of safe listening regulations

Create "Make Listening Safe" sessions at conferences and large events

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Create a world where nobody's hearing is put in danger due to unsafe listening

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FESTIVAL DE CANNES

Promote good sound designed venues and events

THE UNESCO'S WEEK OF SOUND

UNESCO
United Nations Educational, Scientific and Cultural Organization

Week of Sound UNESCO

HELA = Healthy Ears Limited Annoyance

Audio Engineering Society Joining forces

Celebrate good examples … they are our hero's!

Objective 4:
Inform sound engineers, event organizers, musicians, music industry, recording companies and others about the WHO safe listening standards and guidelines

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World Health Organization 75 HEALTH FOR ALL

Come and join the "Make Listening Safe" LinkedIn group!

https://www.linkedin.com/groups/13903493/

Come and visit the "Make Listening Safe" Wikipedia page!

https://en.wikipedia.org/wiki/Safe_listening

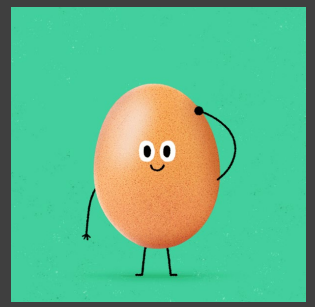
Come and join the "WHO World Hearing Forum"

Promoting the World Hearing Forum (who.int)

We need a lot of dynamic hands to get the job done ;-)

How can you help us?

Thank you ☺



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