
Hear How You Like To Hear Citizen Science Research



Photo: Peggy Sylopp, CC BY-NC-SA

Peggy Sylopp, Project Manager
Berlin, 2019-11-09



CITIZEN AS SCIENTIFIC CO-RESEARCHERS

- Online survey
 - Hearables: Your wants and needs
- Soundwalks
 - Liketohear in daily life
- Open Source publishing
 - Make your own liketohear box
- Hack4ears
 - Participatory tech and design – see today 😊



Photo: Peggy Sylopp, CC BY-NC-SA

ONLINE-SURVEY

- Thanks for submitting
- Time Frame: June to October 2019 – survey still running till end 2019
- Target Group: People of all ages with and without hearing restriction
- **553 (!) submitted questionnaires**



ONLINE-SURVEY (STILL RUNNING)

What we ask

- Age
- Experience and contentments with hearables and hearing aids
- How often headphones are worn
- Expectations on the hearables of the future
- Importance of invisibility of hearing aid
- Hearable as fashion accessory
- ...

<https://ww3.efs-survey.com/uc/HHYLTH/>

ONLINE-SURVEY

***** FIRST INSIGHTS *****

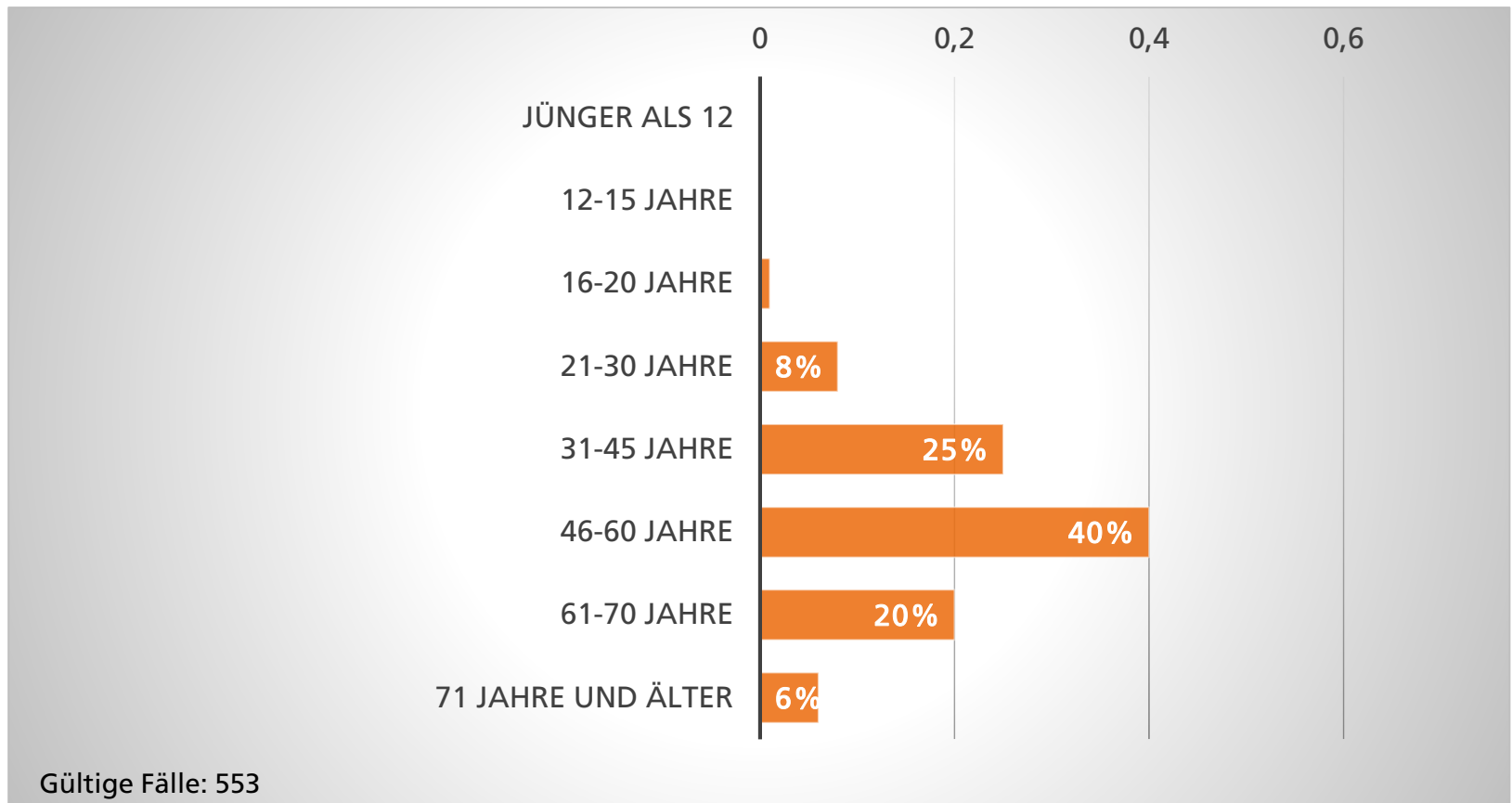
- drum roll please -



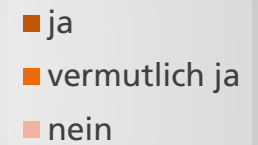
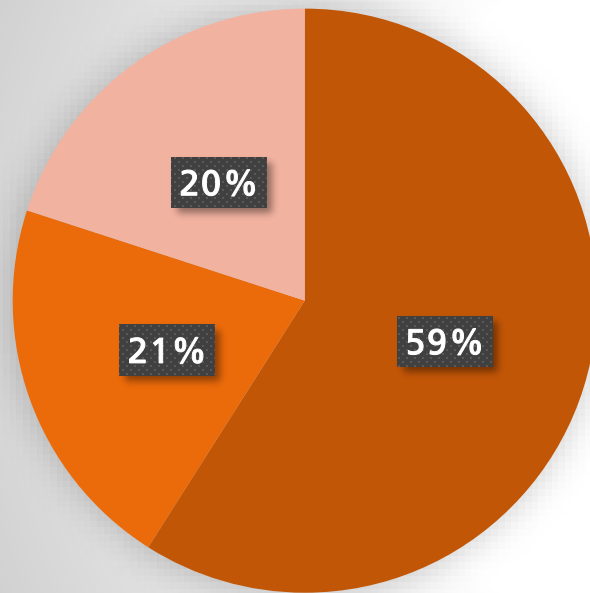
Hear How You Like To Hear

<https://ww3.efs-survey.com/uc/HHYLTH/>

How old are you?

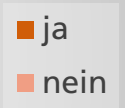
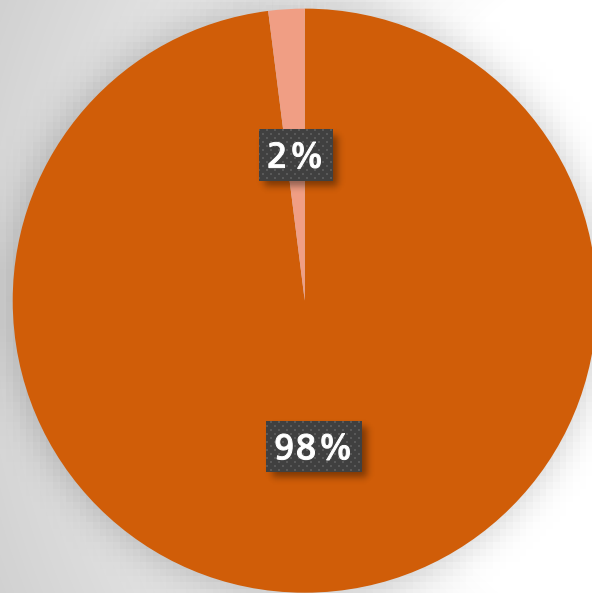


Do you have a hearing restriction?



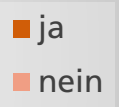
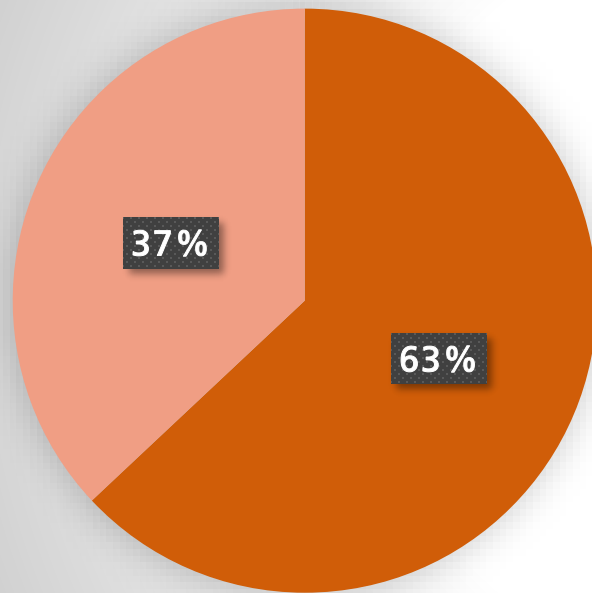
Gültige Fälle: 552

Has your hearing been tested?



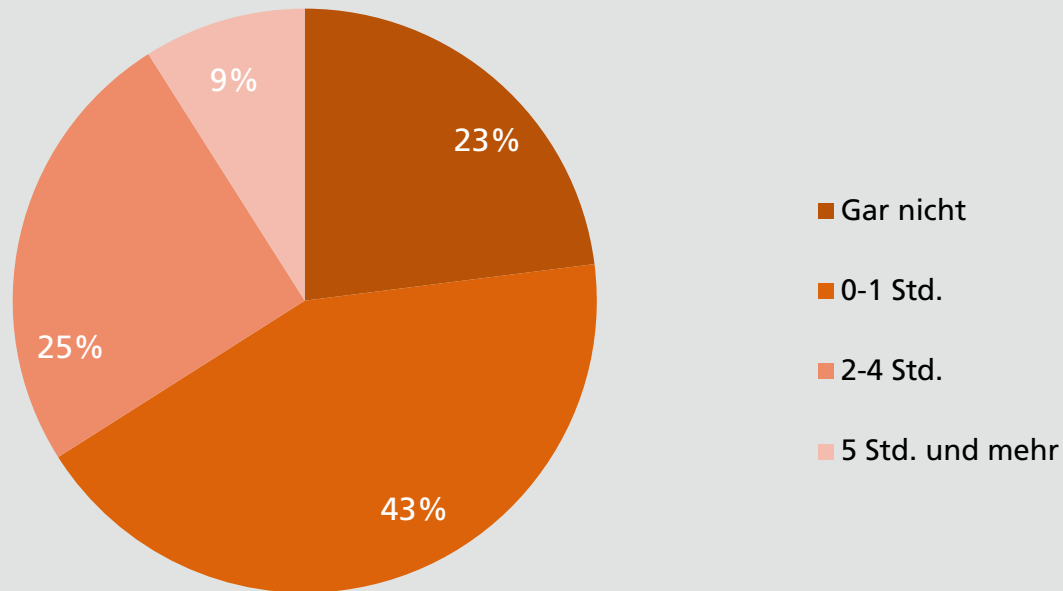
Gültige Fälle: 325

Would you like to know more about health aspects of hearing?



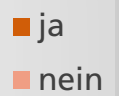
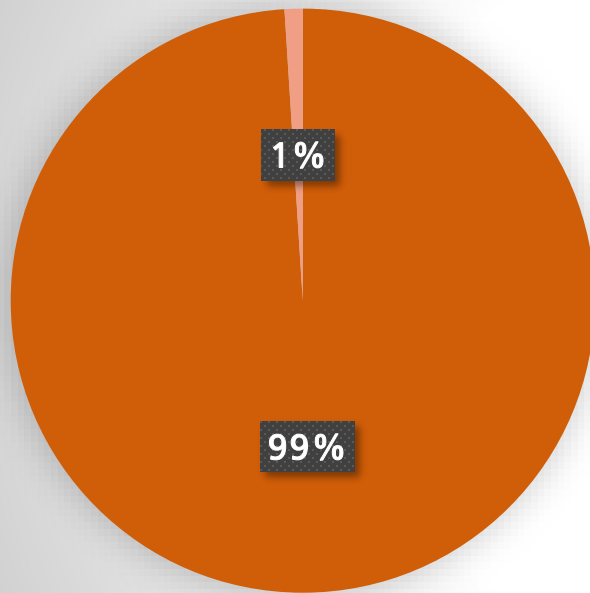
Gültige Fälle: 529

About how much time daily do you use headphones privately?



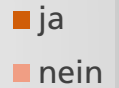
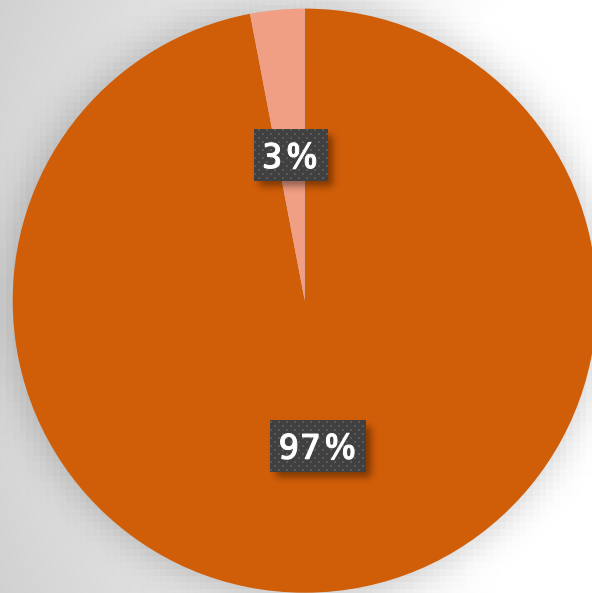
Gültige Fälle: 550

Would you be prepared to respond to the needs of people with hearing impairment?



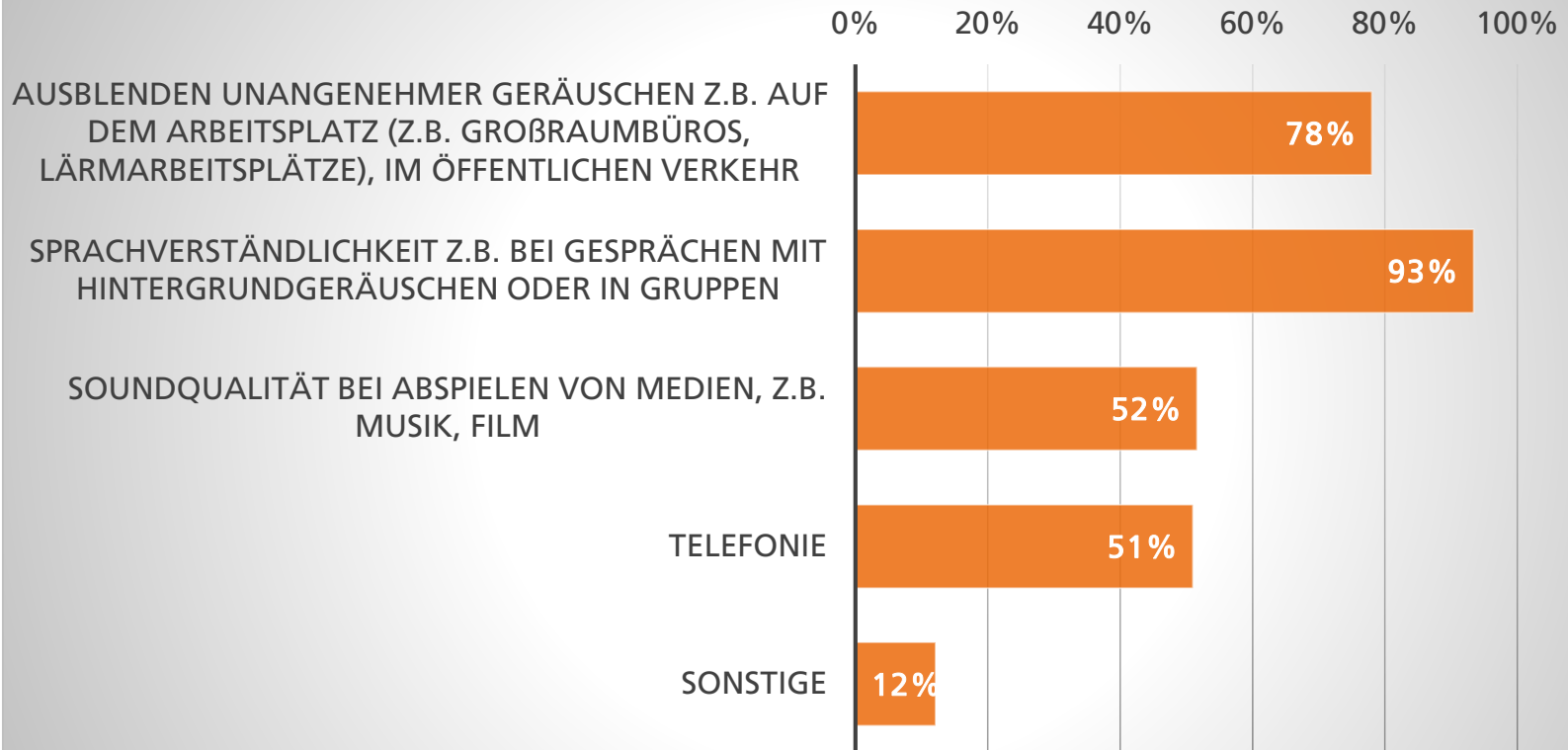
Gültige Fälle: 544

Can you imagine that a Hearable facilitates difficult and unpleasant listening situations for you?



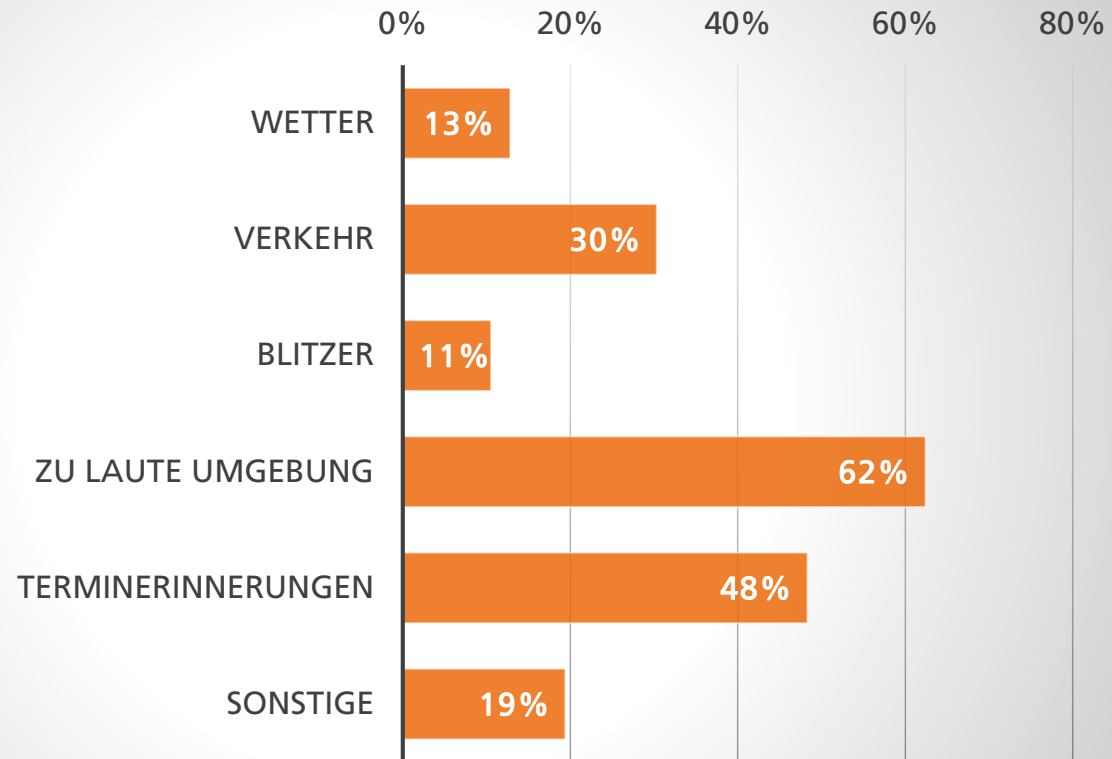
Gültige Fälle: 550

Which listening situations would that affect?



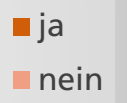
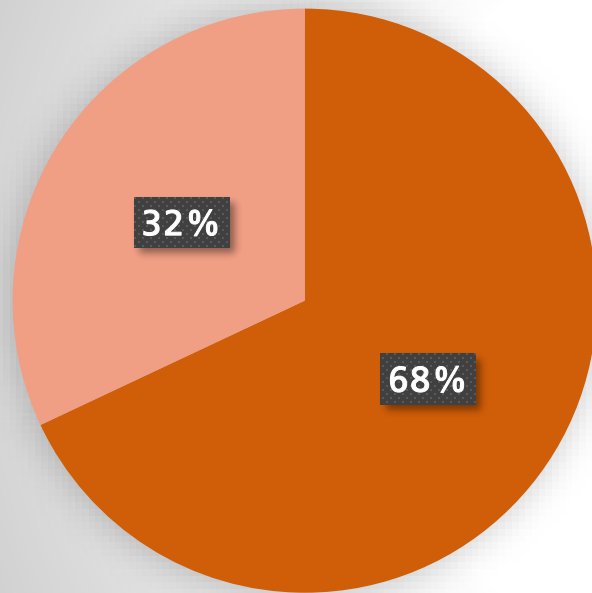
Gültige Fälle: 551 | Anzahl der Nennungen: 1519 | Prozentwerte beziehen sich auf die Anzahl aller gültigen Fälle (551)

Which events should a Hearable indicate?



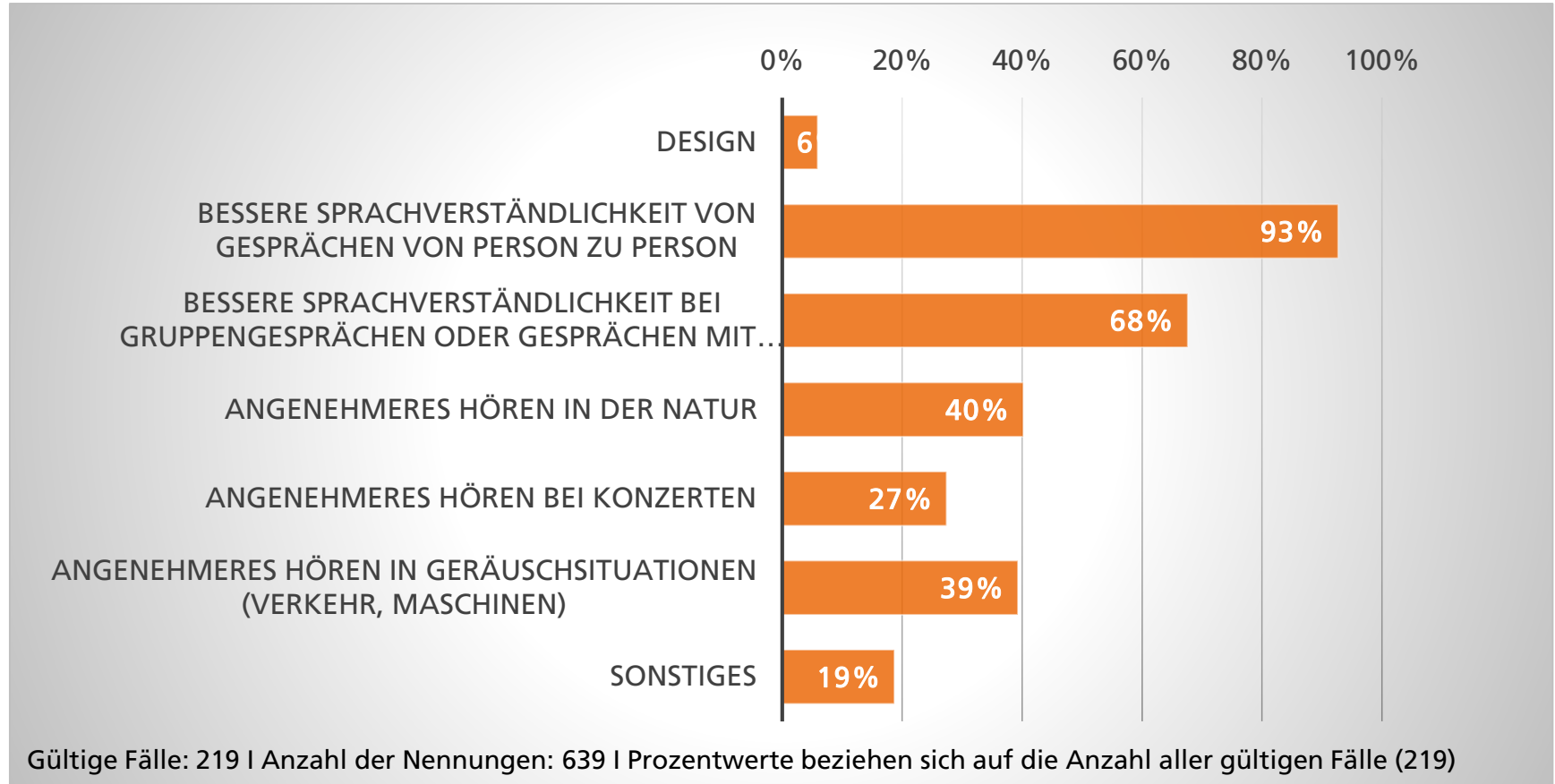
Gültige Fälle: 551 | Anzahl der Nennungen: 1519 | Prozentwerte beziehen sich auf die Anzahl aller gültigen Fälle (551)

Do you wear a hearing aid?

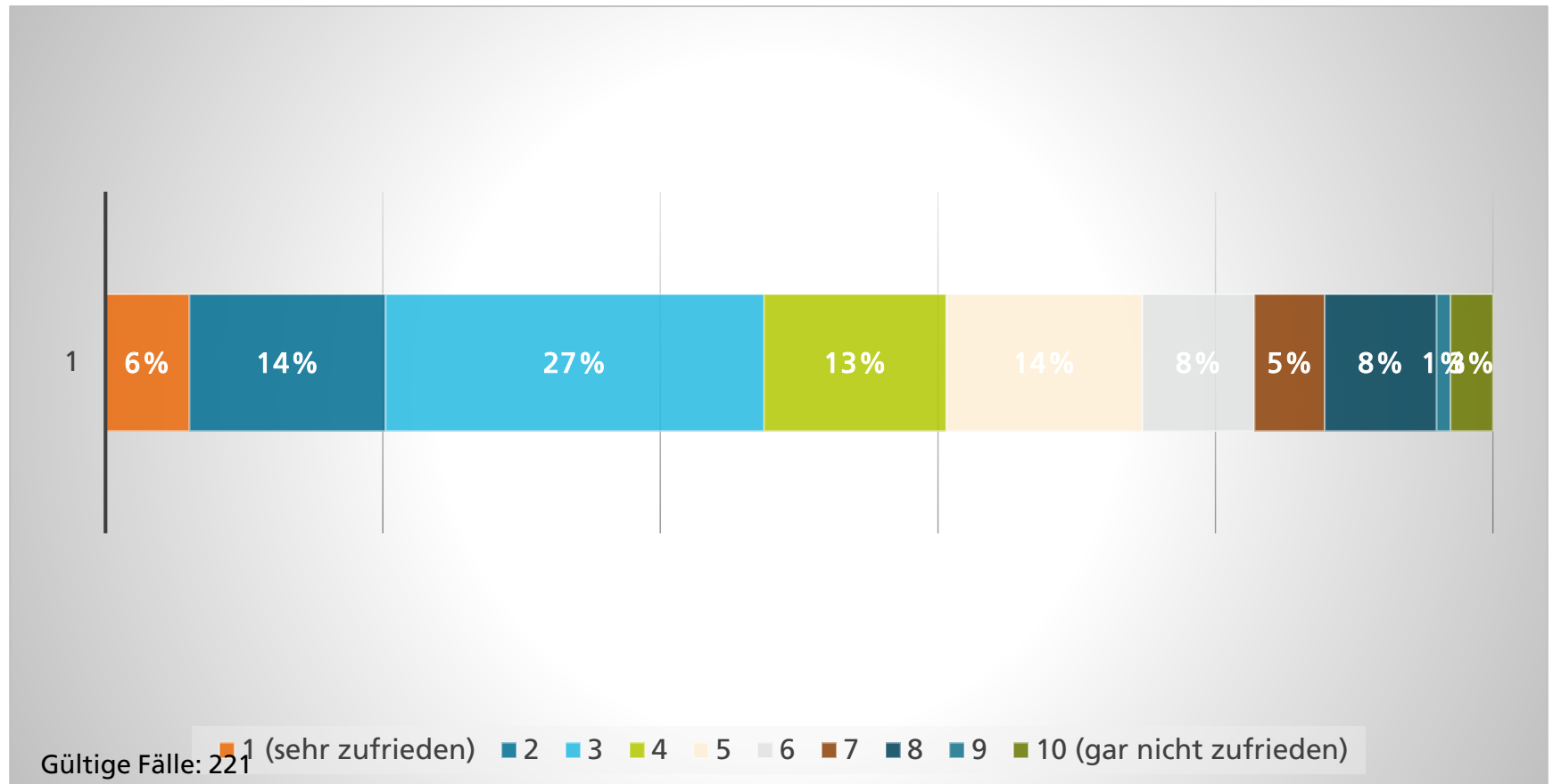


Gültige Fälle: 325

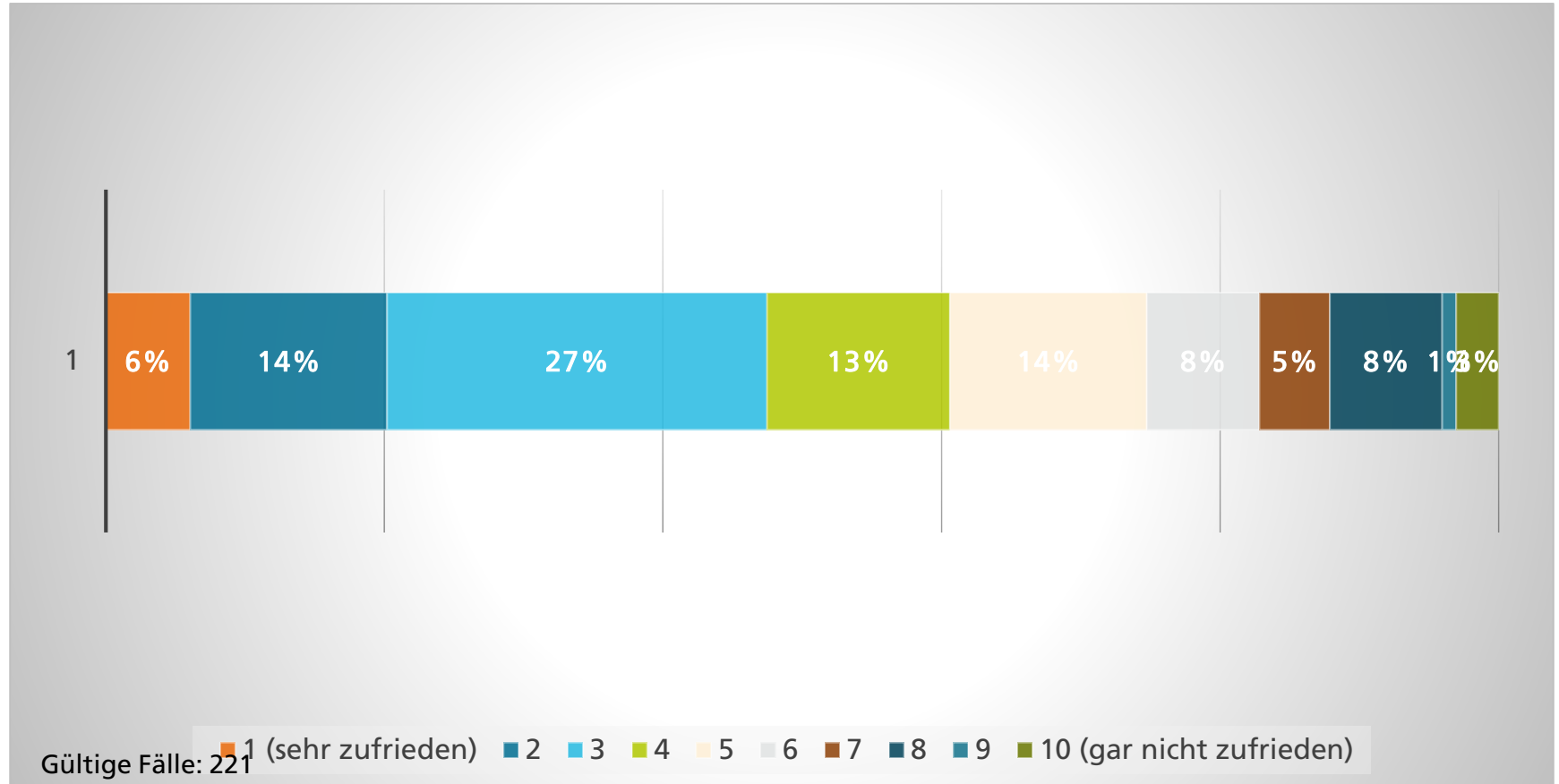
What do you appreciate most about your hearing aid?



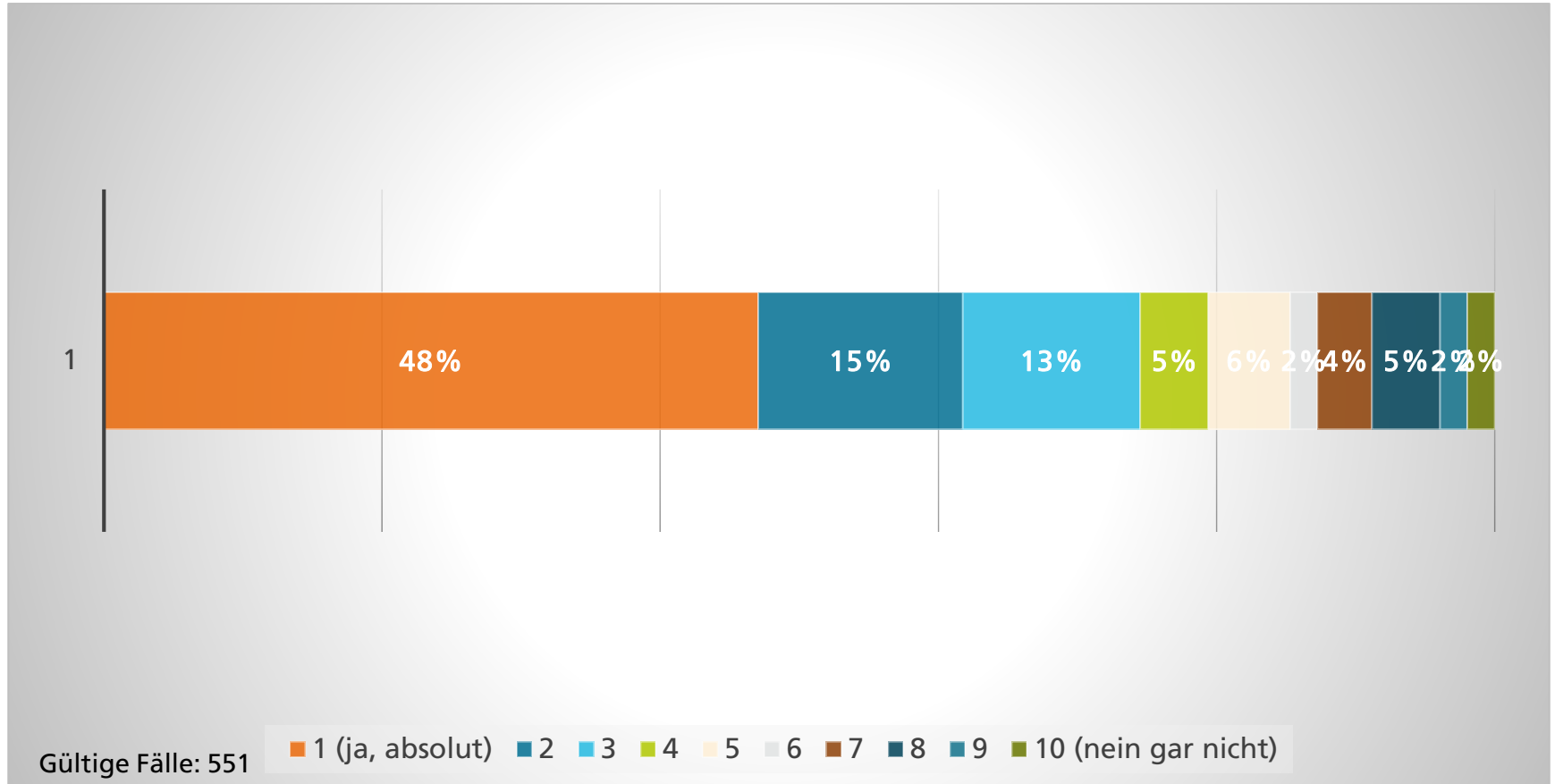
How satisfied are you with your hearing aid?



How important is the invisibility of the hearing aid?



In principle, can you imagine wearing a "Hearable" as a fashion accessory?



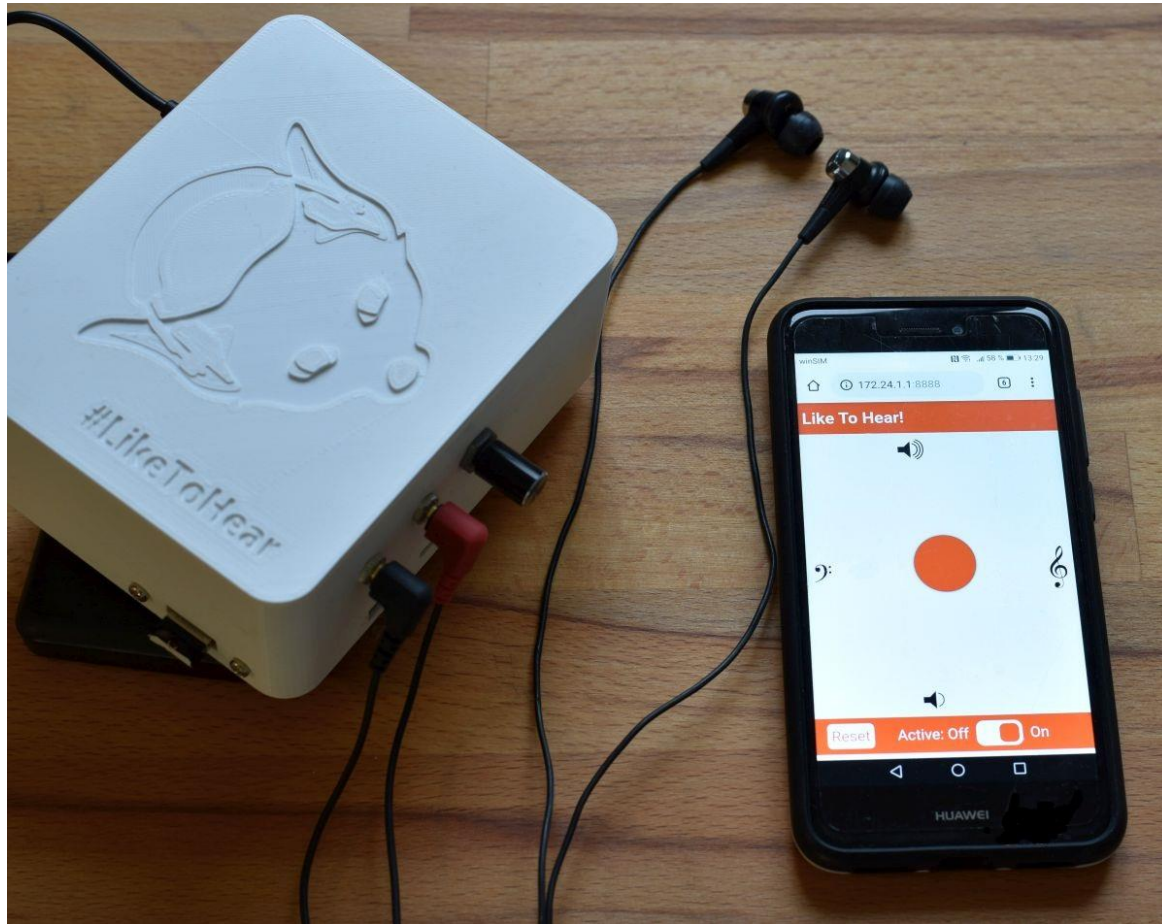
ONLINE-SURVEY

survey is still running:

<https://ww3.efs-survey.com/uc/HHYLTH/>



SOUNDWALKS



Photos Peggy Sylopp,
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SOUNDWALKS



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SOUNDWALKS DATA- FIRST INSIGHTS

Cooperation with Jörn Malich, PRAGMALAB GmbH

- Very noisy data sets
- No correlation between loudness and amount of amplification
- Very diverse user behaviour
- User characteristics are noticeable

SOUNDWALKS DATA- PLOTS

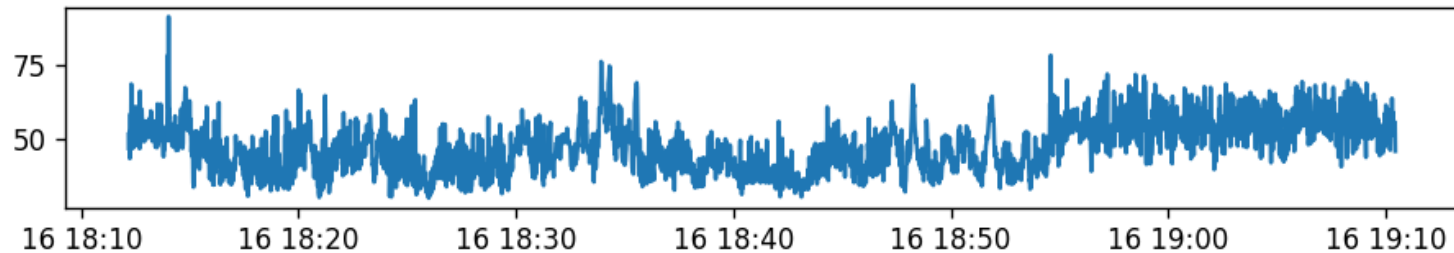
Inputs:

Spectrogram data of environment
and processor

Properties:

- Multiscaled time series
- Noisy

Spectral Intensity [dB] - Channel 5



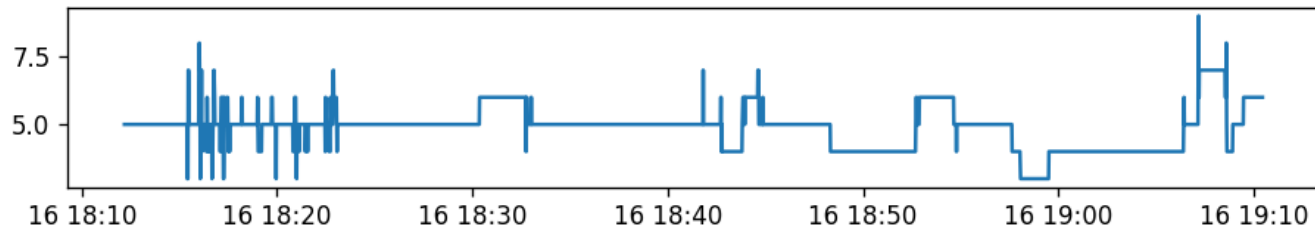
Outputs:

- Signal X (tonal color)
- signal Y (loudness)

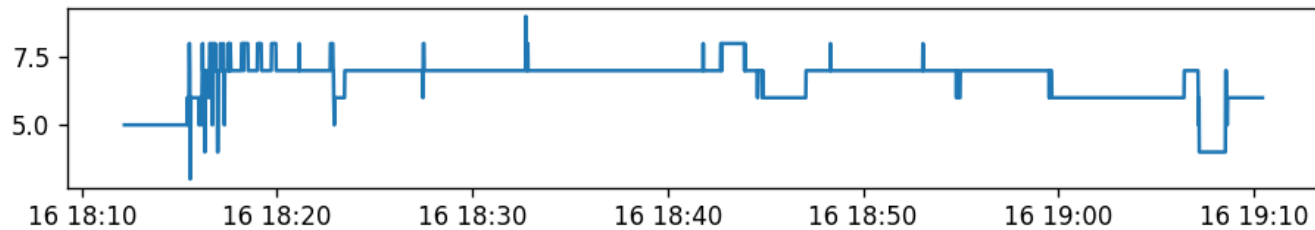
Properties:

- Seem to be correlated
- Behavior on different time scales.
- Time series can be decomposed into multiple components

X Value



Y Value



SOUNDWALK

Book your soundwalk- appointment:

<https://www.terminland.de/like2hear/>

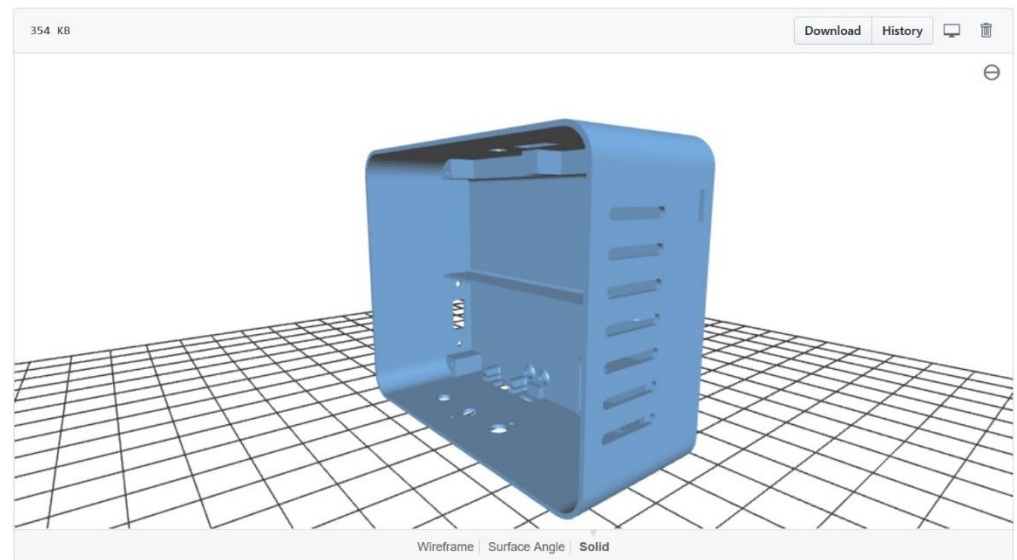


LIKETOHEAR

First Open Source Project from Fraunhofer IDMT

Find „liketohear“ on github: <https://github.com/liketohear/liketohear>

- Tutorial from scratch inclusive app, you need basic knowledge about Raspberry Pi setups
- Complete hardware list
- 3d case stl files
- ToDo list



Screenshot: https://github.com/liketohear/liketohear-3dcase/blob/master/MHA_case_2.0_main.STL

LIKETOHEAR

HowTo Contribute to liketohear at hack4ears

- Follow our tutorial on github to setup your own liketohear-box
<https://github.com/liketohear/liketohear/wiki>
- Join Tobi and me for the liketohear ToDo-list
<https://github.com/liketohear/liketohear/wiki/ToDo>
- Overwork the 3d file and print a stylish 3d case
<https://github.com/liketohear/liketohear-3dcase>
- Visualize the data sets of the soundwalks (contact Peggy and Jörn)
- ... your ideas are welcome

YOUR CHALLENGES

