

A woman with short blonde hair, wearing a yellow sleeveless top and large hoop earrings, is smiling broadly. She is sitting at a table with a salad bowl in front of her. The background is a blurred outdoor setting with warm, bokeh lights, suggesting a restaurant or cafe at night.

EDGE^{AI}

Innovations in Sound Management

*Using Starkey ProFit software's
Sound Manager tools to optimize the
sound quality experience.*

.

**Innovations in
Sound
Management: *Using
Starkey ProFit software's
Sound Manager tools to
optimize the sound
quality experience.***

Michele Hurley, Au.D.

Webinar FAQs

How to Ask a Question:

- Click Q & A, type your question, and Send

Where to get the handout:

- Resources in the classroom and under Pending Courses in your account

How to view captions:

- Click Live Transcript CC Button
- Click Show Subtitle

How to earn CEUs:

- After the webinar, go to your Pending Courses and pass the multiple-choice exam

For assistance or tech support:

- Call 800-753-2160
- customerservice@audiologyonline.com
- Use the Q&A window

Risks/Benefits

- The applicability and accuracy of the course content may vary by the clinical, geographical, and cultural context, you should evaluate the course accordingly
- As healthcare is rapidly evolving, new findings may change the validity of the information presented in this course. Providers should always consult the latest research and guidelines from professional associations
- The interventions discussed in this course may be limited in generalizability, requiring practitioners to consider specific, individual and population factors
- The course may not cover all possible risk factors, diagnostic methods, or treatment options, and complex cases may require additional considerations
- Healthcare providers should apply cultural competence and sensitivity to ensure effective and respectful care based on their patients' diverse needs
- Providers should always evaluate the limitations of diagnostic and screen tools, considering their potential for false results as well as any ethical implications
- It is the responsibility of course participants to critically evaluate the evidence from multiple sources to guide professional practice

Learner Outcomes

Upon completing this course, participants will be able to:

1

Describe the Sound Enhancement tools available on the Sound Manager screen.

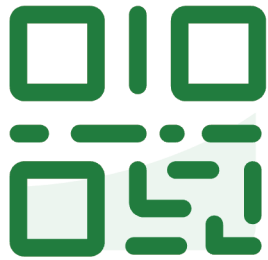
2

Describe the Directionality options available in the Sound Manager screen.

3

Identify where in Pro Fit to find educational resources related to optimizing the Sound Manager tools.

Do not edit
How to change the design



**Join at slido.com
#3801189**

① The Slido app must be installed on every computer you're presenting from

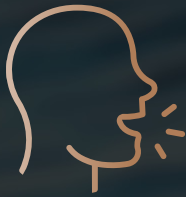
slido

A photograph of a woman with short, light-colored hair, wearing a bright yellow sleeveless top, sitting at a table in what appears to be a restaurant or cafe. She is holding a mobile phone to her ear with her right hand, which has yellow nail polish. She is also wearing a gold watch with a blue face and a ring. In the background, other people are seated at tables, and a sign is visible on the wall. The overall atmosphere is casual and social.

Sound quality is *key*

Top Drivers

of Hearing Aid Performance and Sound



Natural Sounding
Rich and Clear



**Comfort for
loud sounds**



**Minimize
background noise**



**Ability to
tell direction**

Hearing Aid Satisfaction



Satisfaction with *physical aspects* of hearing aids (fit, comfort, size, appearance, reliability, etc.)



Satisfaction with *sound quality* of hearing aids (noise reduction, naturalness, clarity, feedback, etc.)

Least satisfied with noise reduction capability (**77%**)

Picou EM. Hearing Aid Benefit and Satisfaction Results from the MarkeTrak 2022 Survey: Importance of Features and Hearing Care Professionals. Semin Hear. 2022 Dec 1;43(4):301-316.

Understanding speech in difficult listening environments remains a challenge for hearing aid users

Percent of hearing aid owners satisfied with ability to hear in each listening situation

Picou EM. Hearing Aid Benefit and Satisfaction Results from the MarkeTrak 2022 Survey: Importance of Features and Hearing Care Professionals. Semin Hear. 2022 Dec 1;43(4):301-316.

1:1 conversation	83%
Workplace	82%
Small group conversation	78%
Outdoors	77%
Shopping	77%
Car	76%
Large group conversation	72%
Conversation in noise	72%
Large lecture hall	72%
Classroom	70%



Most modern hearing aids use an acoustic environmental classification feature to identify and classify the current listening environment, and automatically apply environment-specific changes to gain, microphone, compression, and noise reduction settings

But how does the classifier know what the listener *WANTS* to hear?

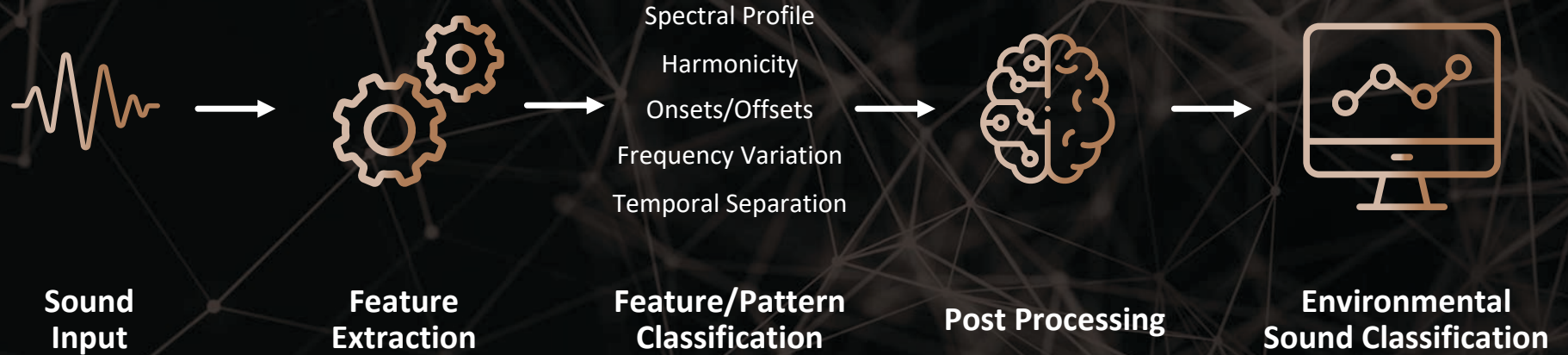


AI-based Sound Classification



Machine Learning

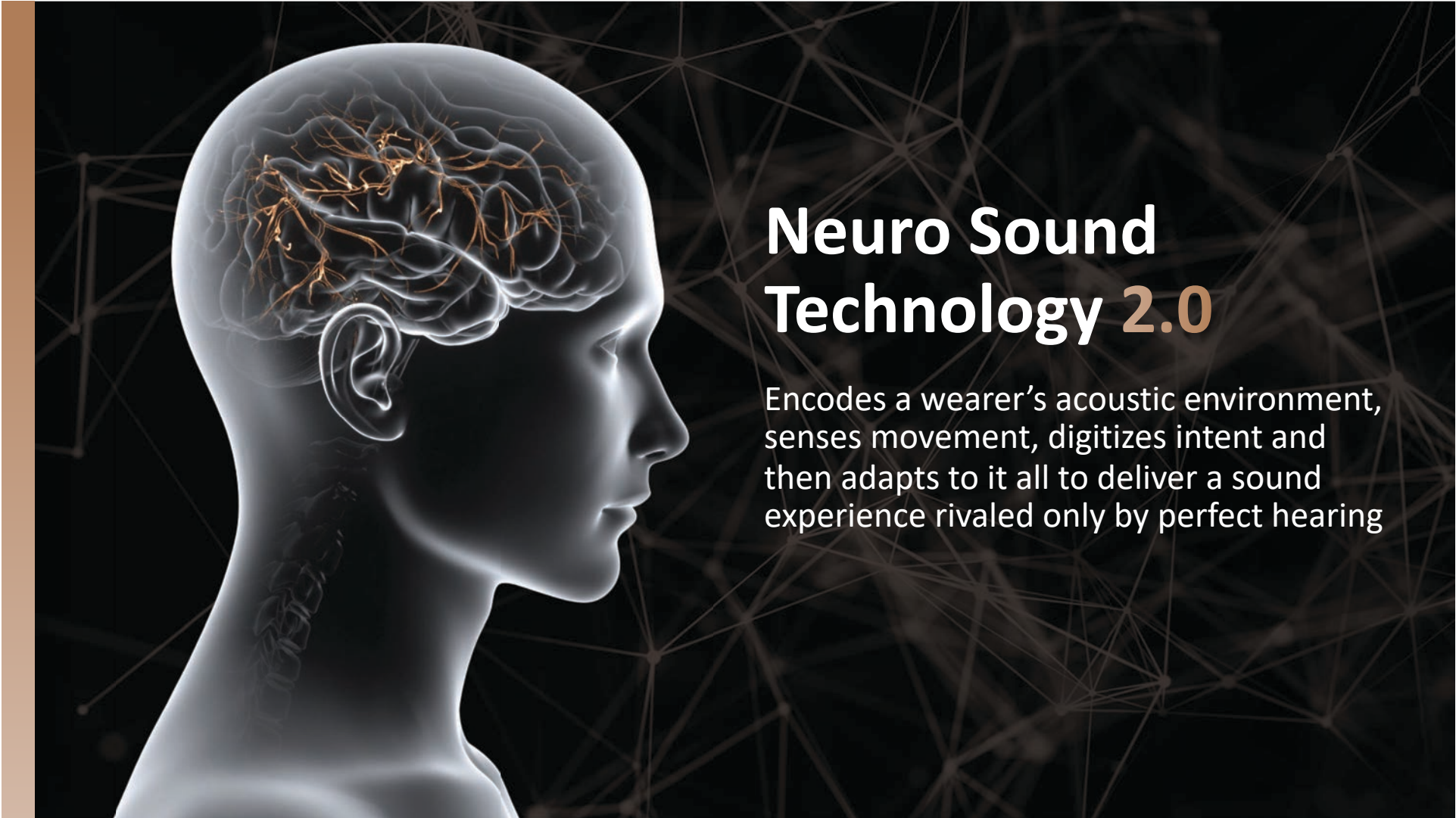
Acoustic Environmental Classification System





Listen with *ease*

Enjoy every little sound
that matters

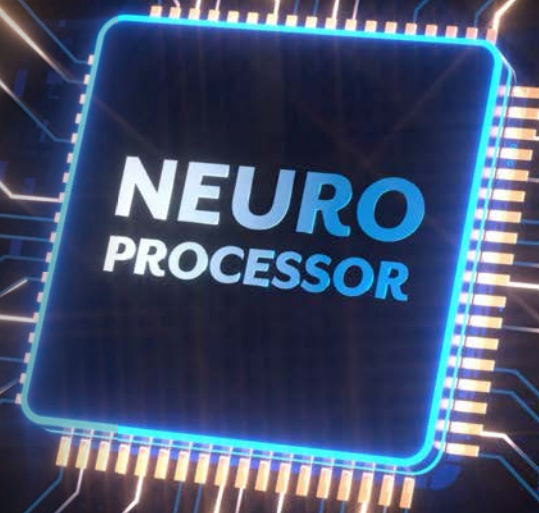


Neuro Sound Technology 2.0

Encodes a wearer's acoustic environment, senses movement, digitizes intent and then adapts to it all to deliver a sound experience rivaled only by perfect hearing



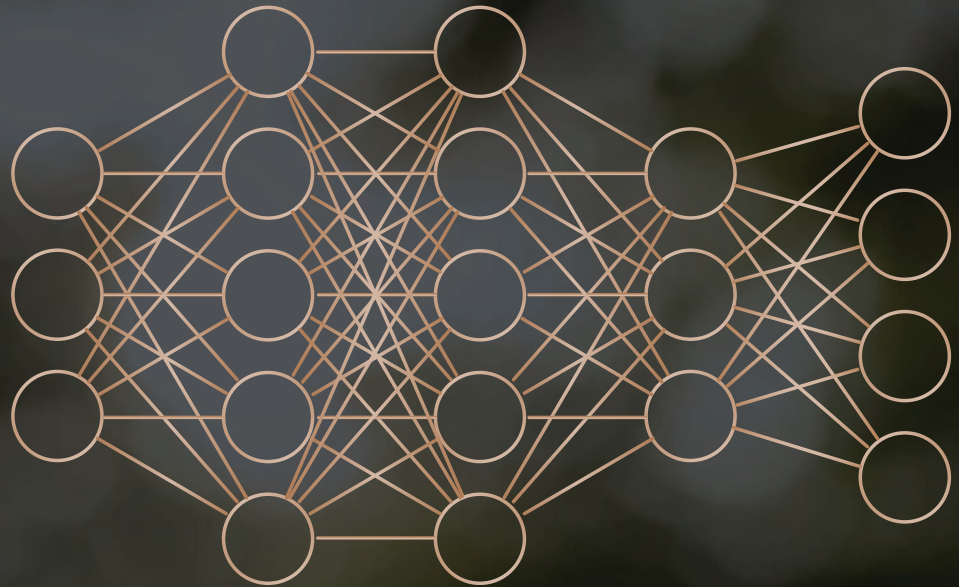
Integrated
Neural Processing Unit
embedded in the chip



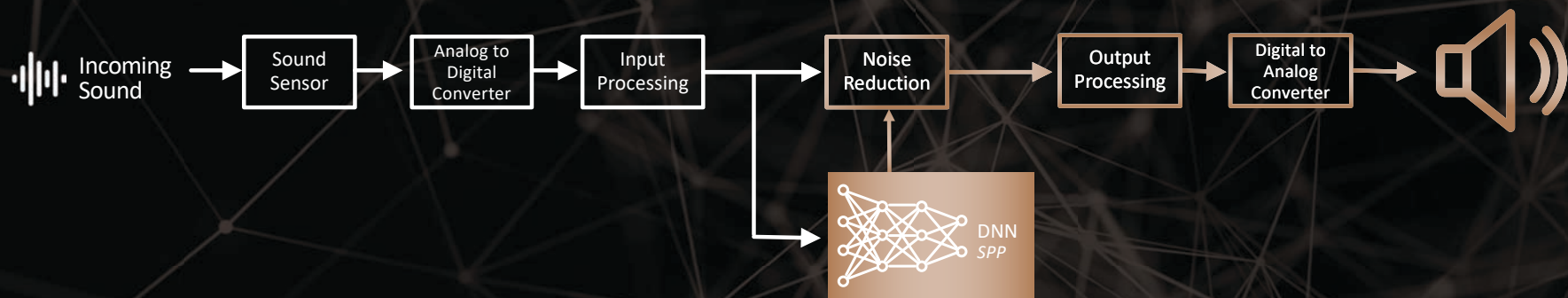


Starkey's Deep Neural Network

DNN processing runs parallel with the sound management system for more efficient processing — both in speed and battery life



Conventional EDGE Noise Reduction





30%

MORE ACCURATE
AT IDENTIFYING SPEECH

6dB

ADDITIONAL
REDUCTION
IN LOW-LEVEL NOISE

APPROPRIATELY CLASSIFIES
MULTI-TALKER BABBLE

13 UP TO **dB SNR**

IMPROVEMENT
IN NOISY ENVIRONMENTS

CLEANER

PURER SIGNAL

Starkey **Pro Fit**

Making the Complex Simple

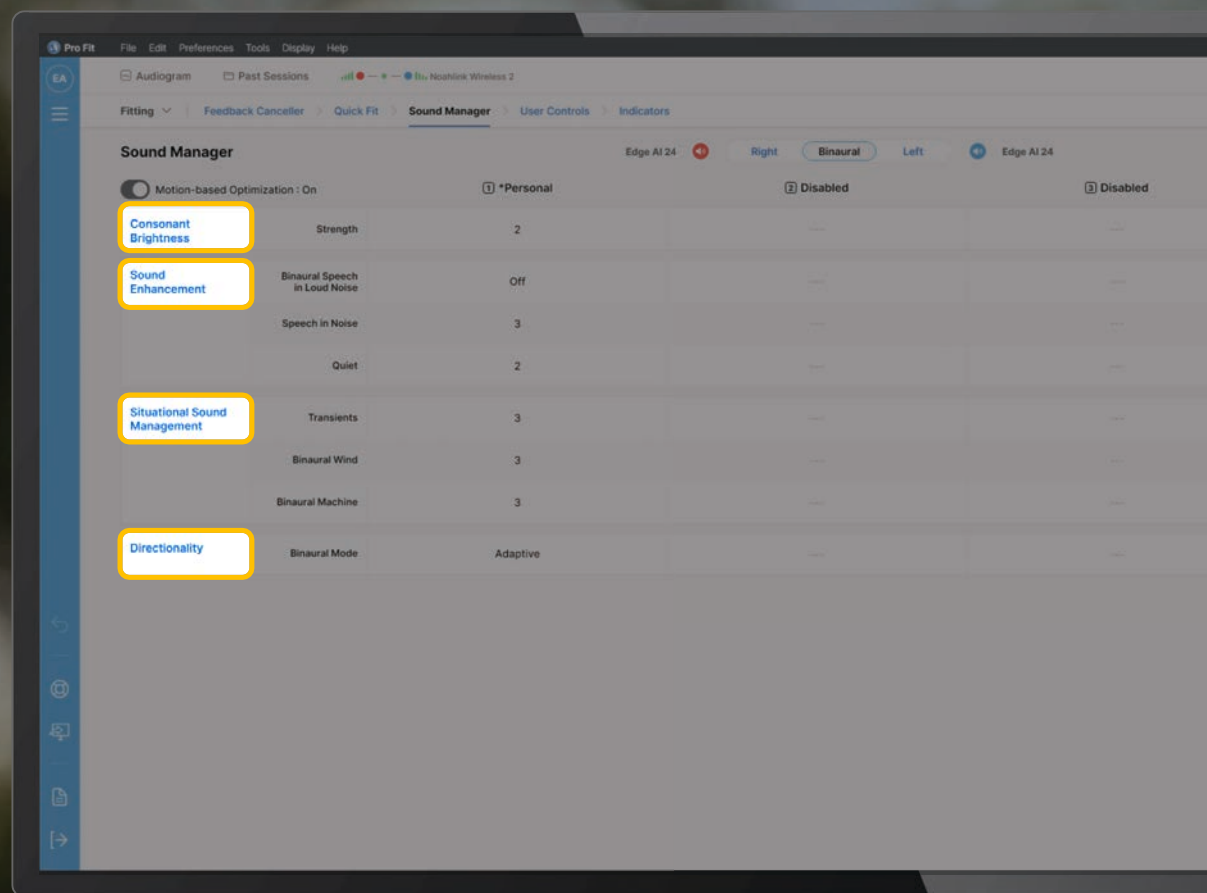


Making Better Hearing a No-Brainer

Enhancing sound processing
with DNN capabilities



Sound Manager Screen





Motion-Based Optimization

Motion detection adaptations improve sound quality and increase spatial awareness

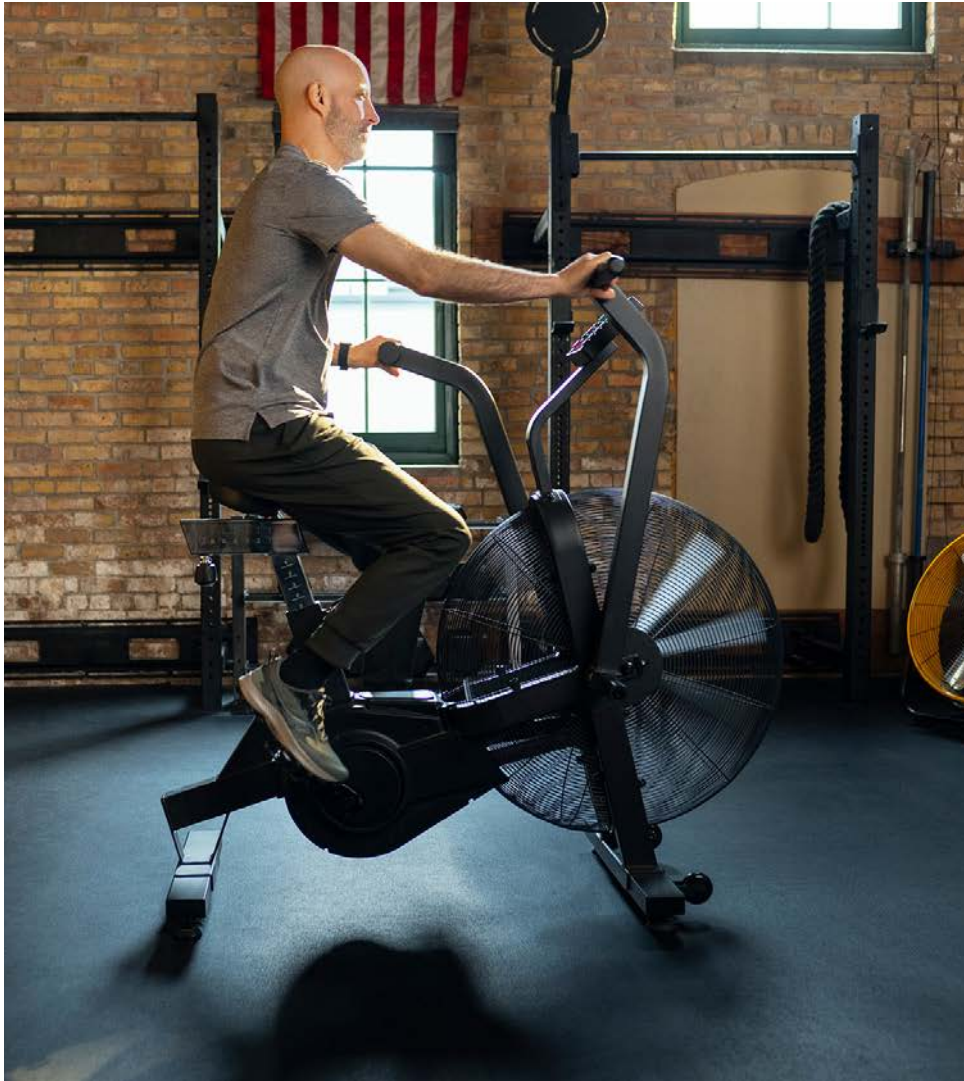


Motion-Based Optimization

When activity-based motion, like walking or running, is detected, the microphones will switch to omni-directional to ensure more situational awareness and the best listening experience

Technology Tiers

24 | 20



Motion-Based Optimization

Small movements that impact the hearing aid placement, like chewing or putting on glasses or a hat, will activate our renowned feedback cancellation system to be at its most aggressive

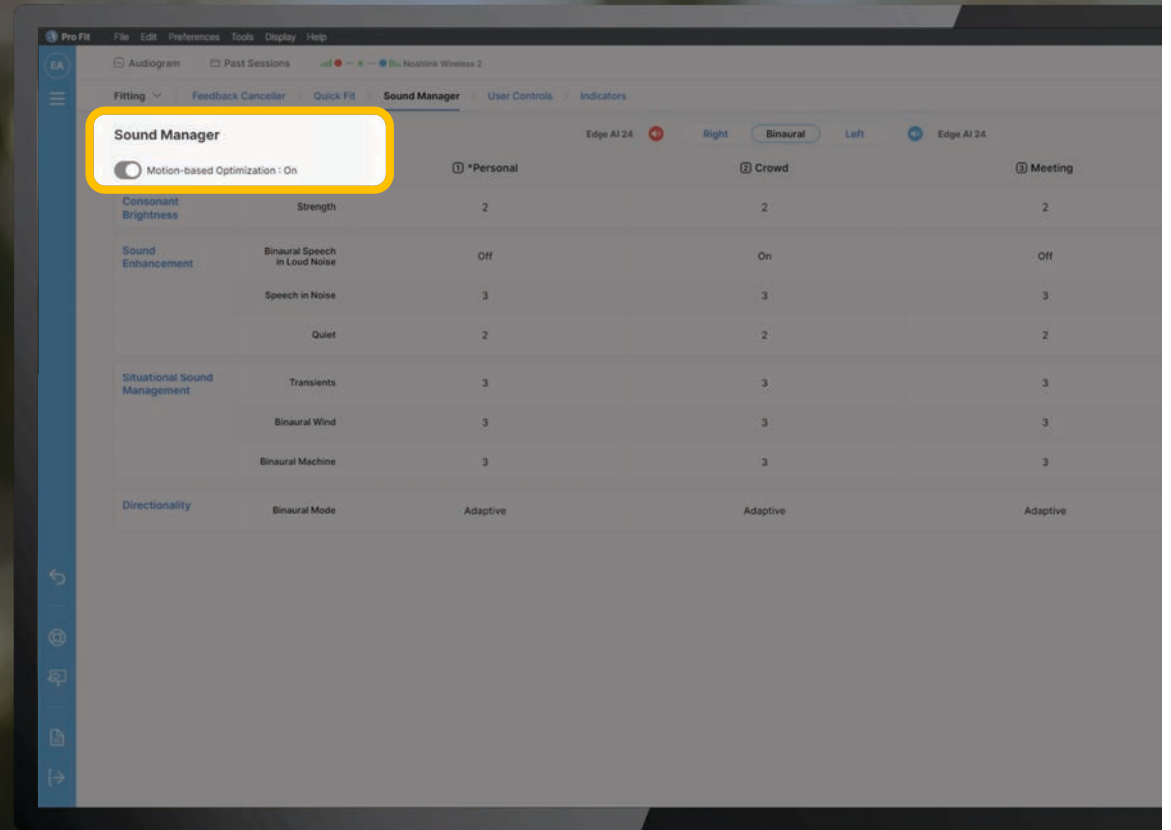
Technology Tier

24

Motion-Based Optimization

Defaults ON

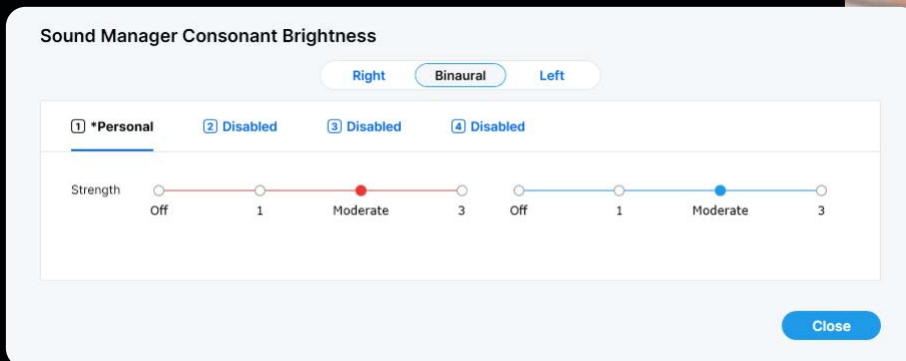
Global control to turn OFF in Sound Manager for all programs



Control of the fast compressor

Move towards 3 **increases**
fast compressor

Move towards 1 **decreases**
fast compressor



Sound Manager
Consonant
Brightness

Consonant Brightness

24

TECHNOLOGY TIER

Try a different setting

Turn OFF if necessary

20, 16 and 12
TECHNOLOGY TIERS

Turn OFF

Adjust when:

Patient cannot accept occasional hearing aid fluctuations or volume changes

May occur when a transient sound occurs in the presence of steady background noise

May be more common with greater degrees of hearing loss where fast compression gain changes are more substantial

Sound Manager Controls

Sound Enhancement

Binaural Speech in
Loud Noise
Speech in Noise
Quiet

Situational Sound Management

Transients
Binaural Wind
Binaural Machine

Directionality

Adaptive
Dynamic
Directional
Omni



Speech in Loud Noise

Compatible Products:
Edge AI RIC RT, RIC 312

Reduces steady-state and dynamic background noise

Reduces interfering sounds from the sides

Preserves interaural level differences for localization

Speech in Loud Noise Defaults

Test Patient

Quick Fit

Fine Tuning

Feedback Cancellor

User Controls

Experience

Programs

Indicators

Sound Manager

Data Log

Audio Streaming

Accessories

Frequency Lowering

Tinnitus

Speech Mapping

Self Check

Hearing Aid Test

Audiometer

Verify Comfort

TeleHear

Audiogram

Past Sessions

e-STAT 2.0

TeleHear

Preparation

Experience

Programs

User Controls

Accessories

Sound Manager

Edge AI 24

Right

Binaural

Left

Edge AI 24

Motion-based Optimization : On

1 *Personal

2 Crowd

3 Restaurant

4 Outdoors

Consonant Brightness	Strength	2	2	2	2
Sound Enhancement	Binaural Speech in Loud Noise	Off	On	On	Off
	Speech in Noise	3	3	3	3
	Quiet	2	2	2	2
Situational Sound Management	Transients	3	3	3	3
	Binaural Wind	3	3	3	4
	Binaural Machine	3	3	3	3
Directionality	Binaural Mode	Adaptive	Adaptive	Adaptive	Omni

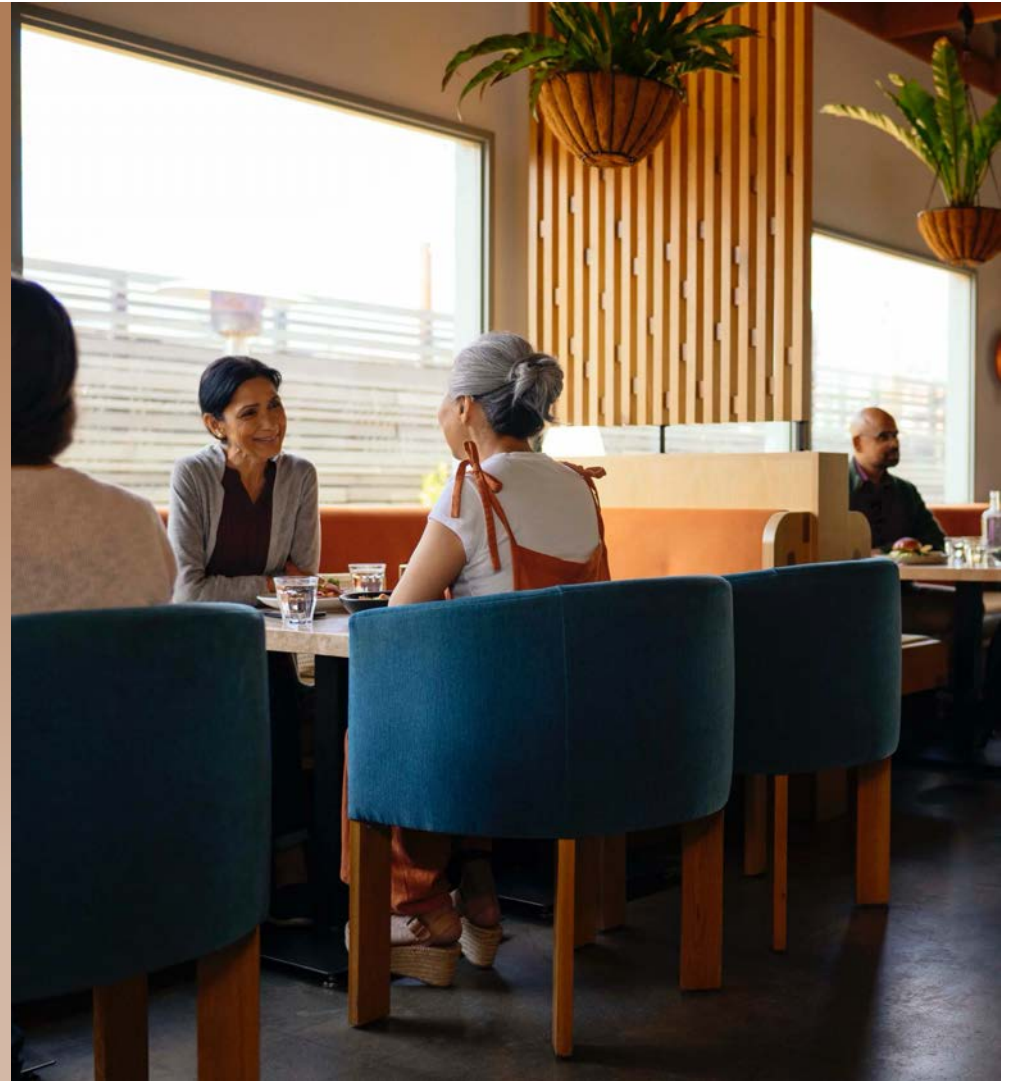
Speech in Noise

Fast-acting digital noise reduction to
**instantly track and reduce noise even
between the pauses of speech**

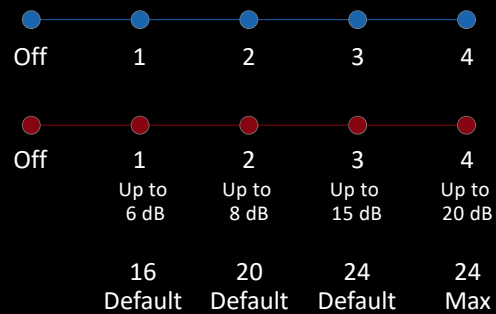
Active 100% of the time

Very quick decisions over
a wide range of input levels

Recognizes speech vs. noise patterns



Speech in Noise



System Settings with
Premium Technology



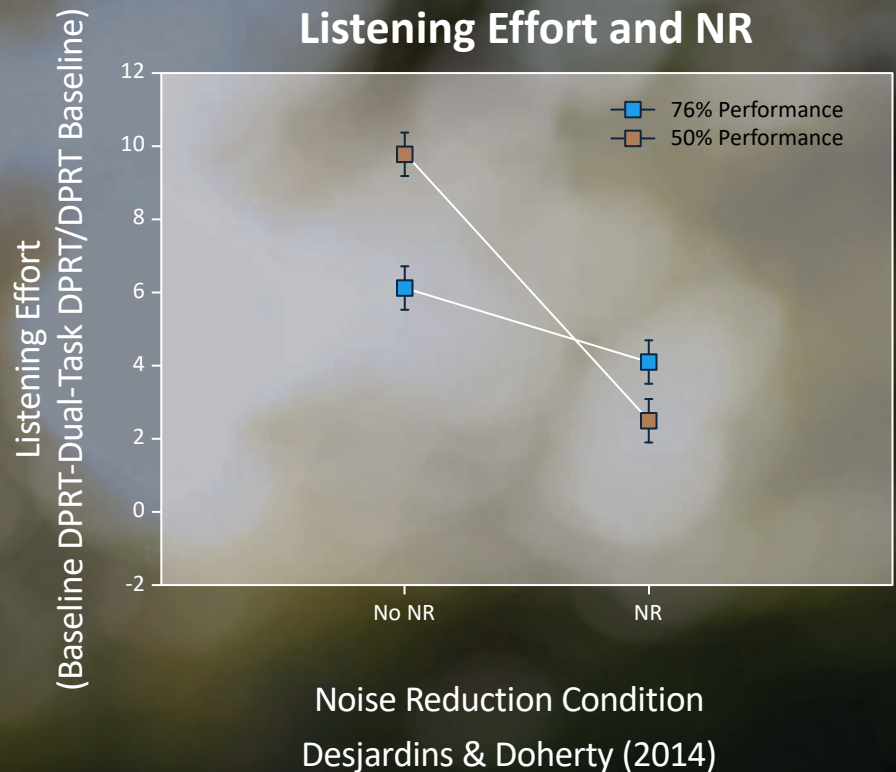
Starkey's Speech in Noise Feature

Modifies channel gain to reduce listener effort

Significant cognitive benefits/
reduced listening effort

Less fatigue

Starkey has the most well researched digital noise reduction algorithm in any hearing aid





The Next Big Thing in Sound

Deep Neural Network Enhanced Speech in Noise

Industry's first Speech Probability Predictor

30% more accurate
at identifying speech

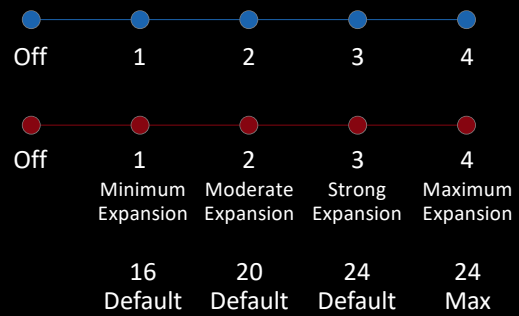
Quiet

Expansion and Low-Level Noise Reduction

Normal-hearing subjects reported more noise reduction with Acuity Quiet than through the use of Expansion alone



Quiet



System Settings with
Premium Technology



Sound Manager Situational Sound Management

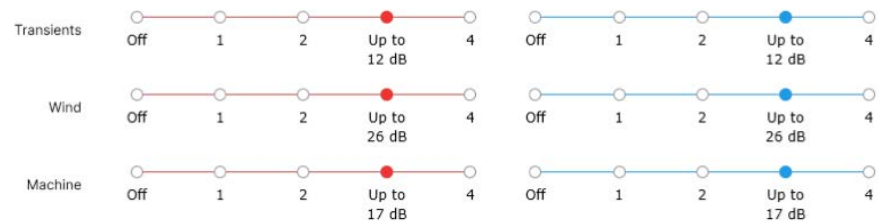


Transients
Binaural Wind
Binaural Machine

Sound Manager Situational Sound Management

Right Binaural Left

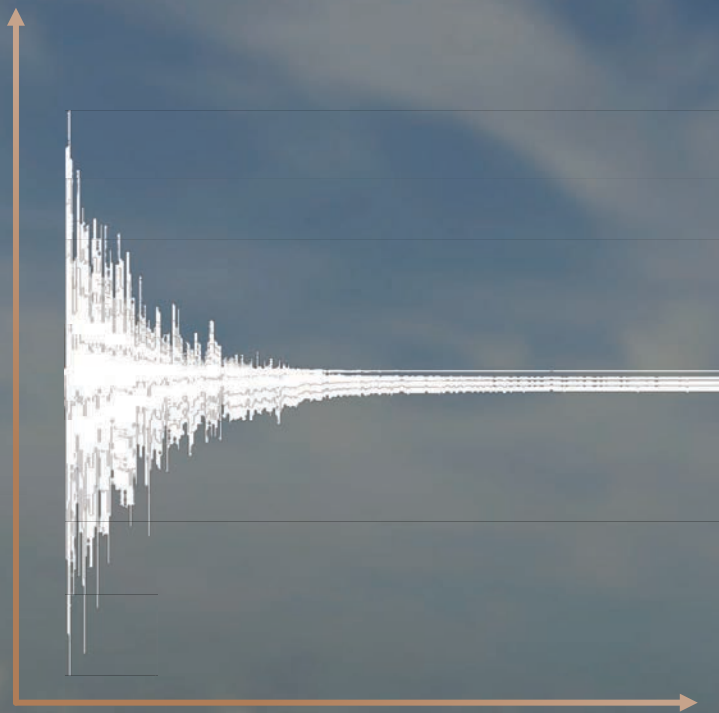
① *Personal ② Disabled ③ Disabled ④ Disabled



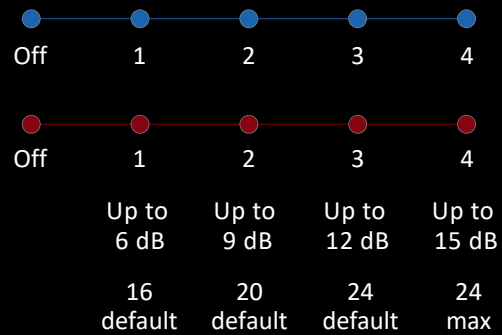
Close

Transients

Made to combat sharp, sudden sounds



Transient



System Settings with
Premium Technology

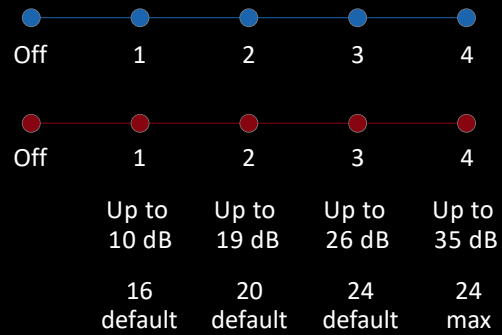


Wind

Designed to keep patients comfortable in windy environments



Wind



System Settings with
Premium Technology

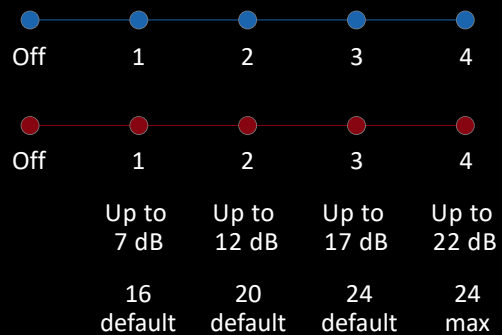


Machine Noise

Designed to deliver comfort for loud steady state noise



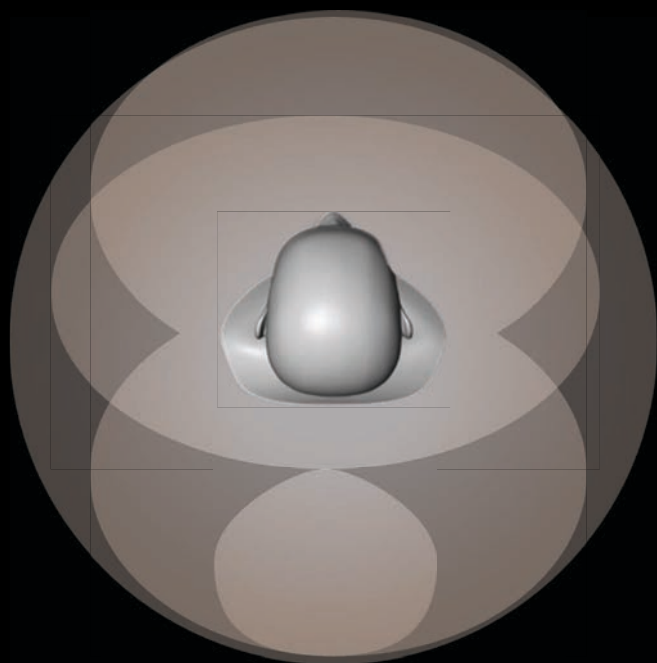
Machine Noise



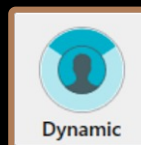
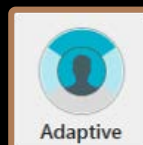
System Settings with
Premium Technology



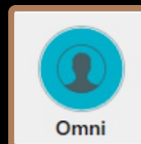
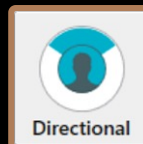
Directionality



Automatic



Fixed

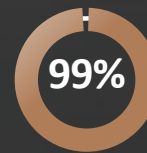


Sound Manager Defaults

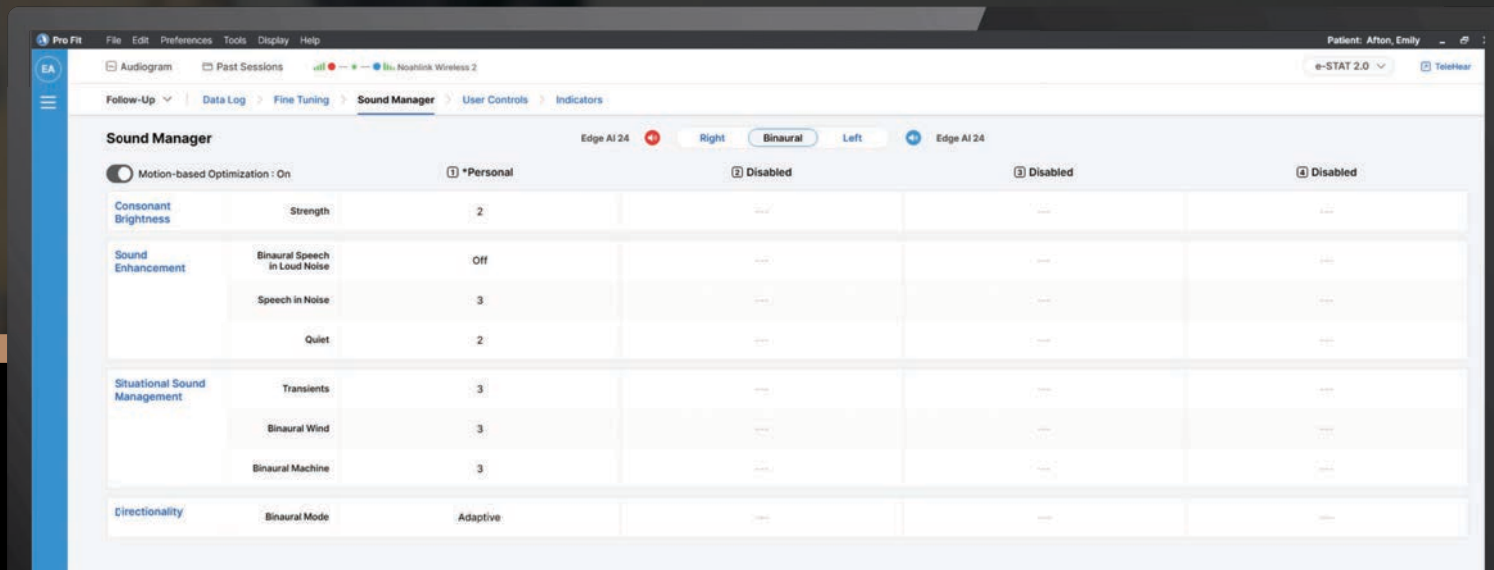
First fit = Best fit



of professionals
leave Sound Manager
settings at the default



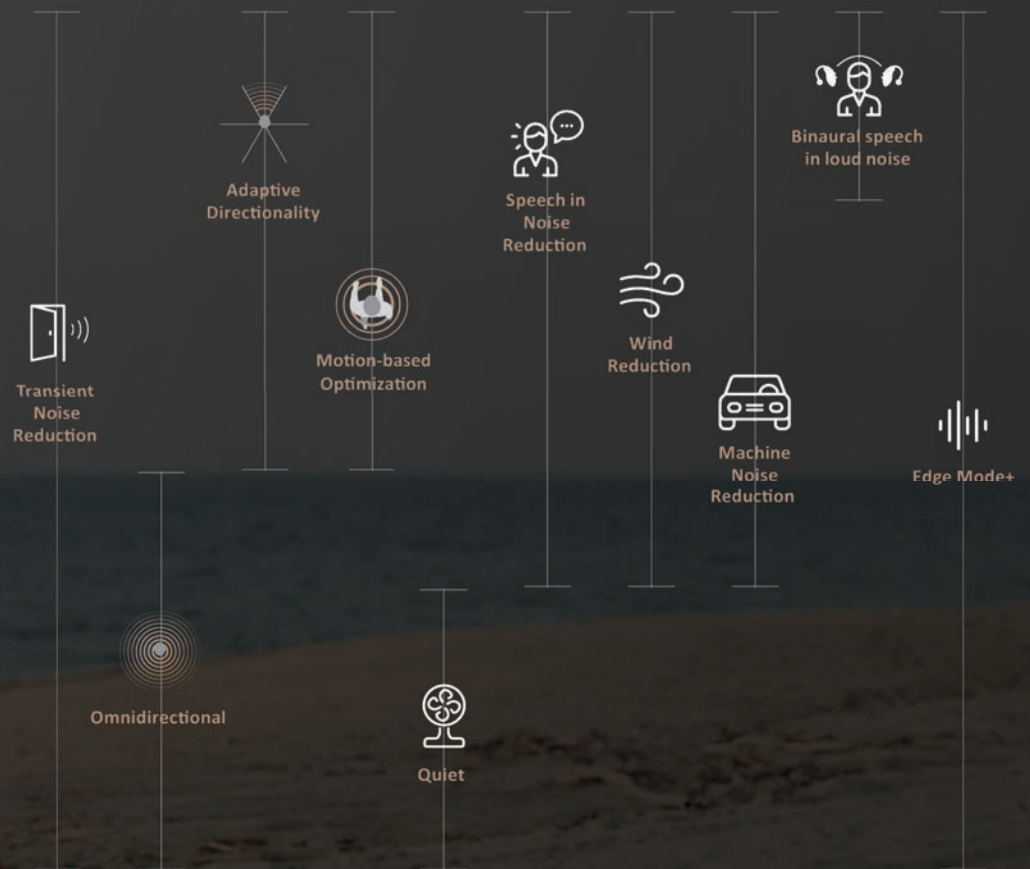
of professionals
leave directionality
at the default

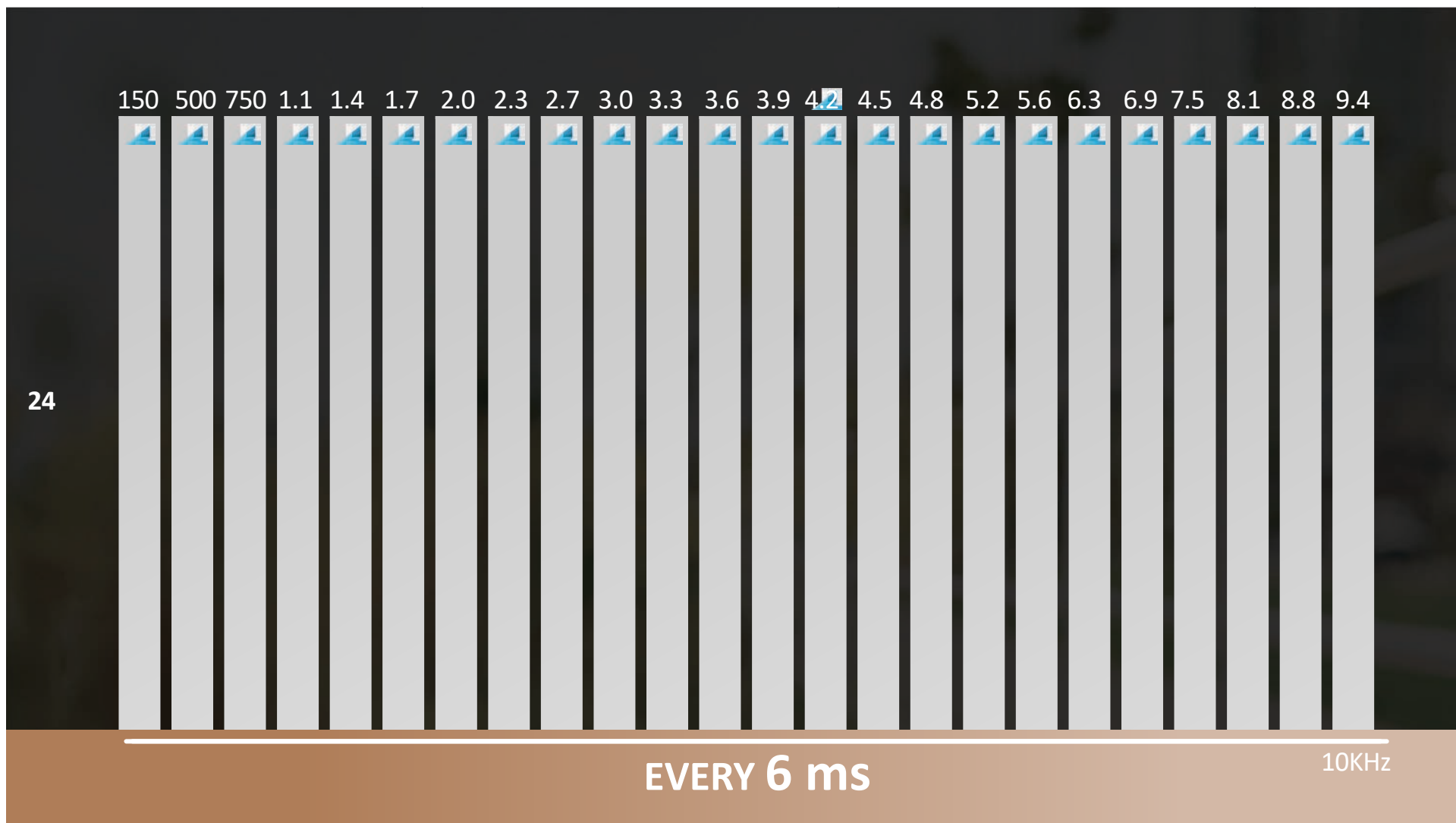


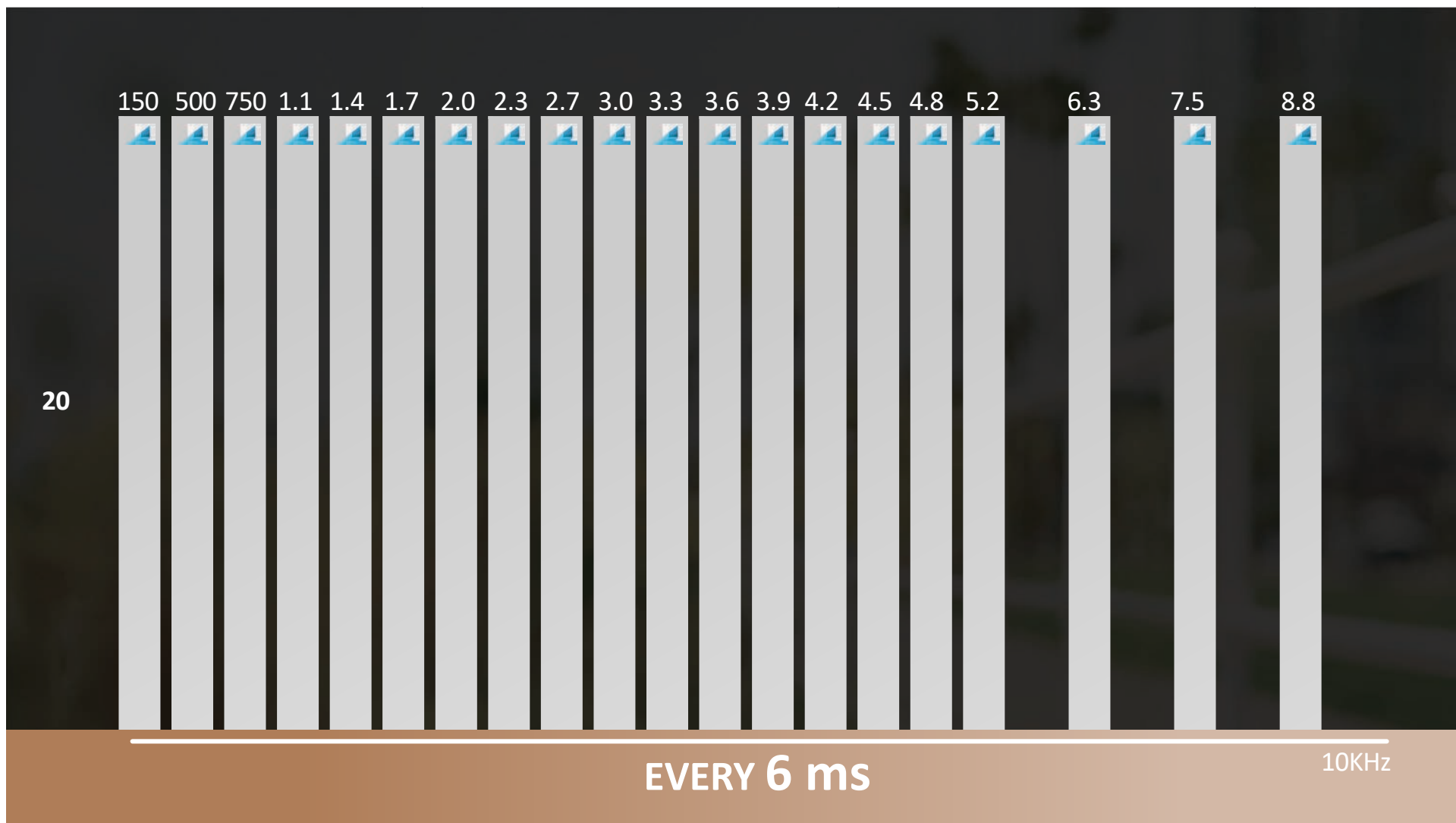
Sound Manager

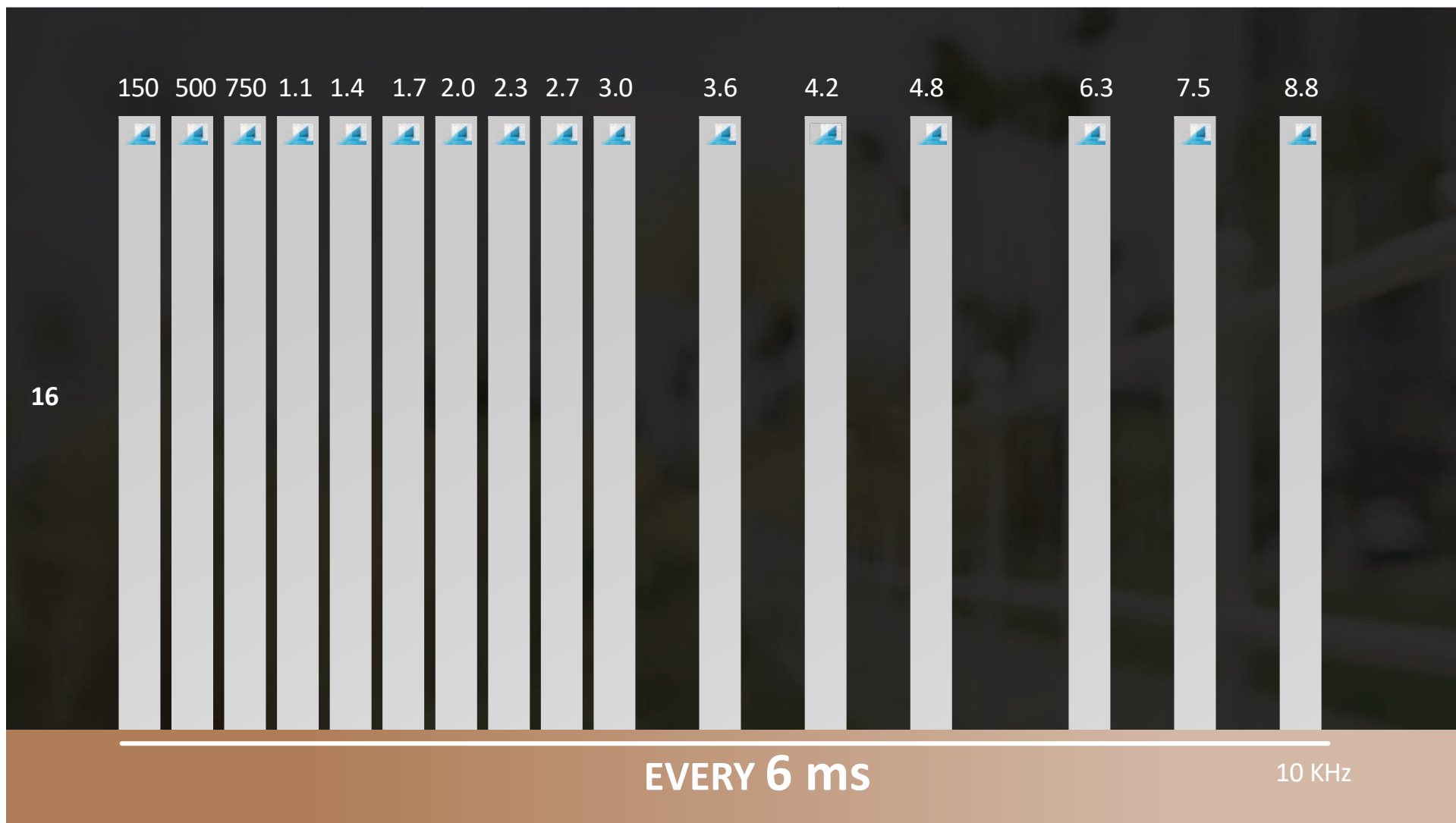
Louder, more
challenging
listening
environment

Quieter, easier
listening
environment





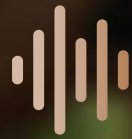




A photograph of two women sitting at a table in a restaurant. The woman on the right is older, with grey hair, wearing a white t-shirt and an orange apron, smiling. The woman on the left is younger, with dark hair, seen in profile. The table has plates of food, glasses of water, and a smartphone. The background shows a restaurant interior with wooden beams and hanging lights.

Edge Mode+

On-demand ability to zero-in on
speech in challenging environments



Edge Mode+

Our first use of Deep Neural Network (DNN) noise reduction algorithms in the hearing aid

Exclusively 24, 20 & 16 Technology

Real-time analysis of environments for advanced level of comfort and clarity

Unique adaptation for any environment when engaged

Settings are fixed once engaged

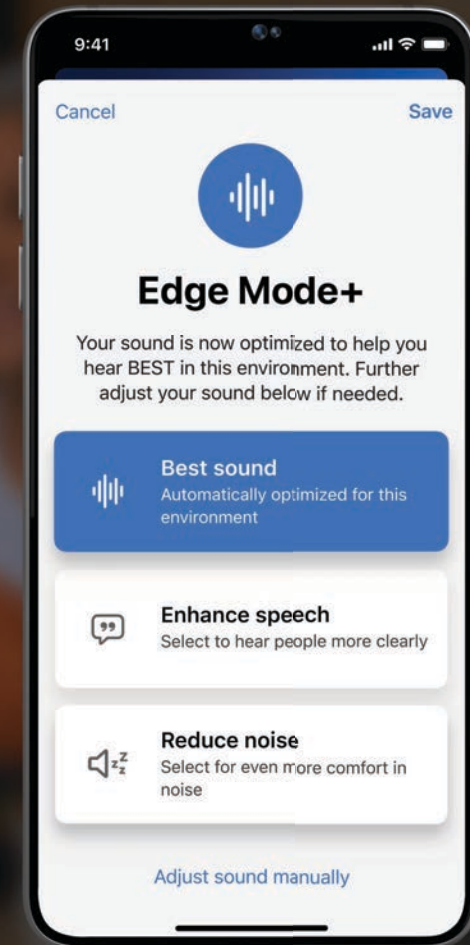
Disengage and engage to accommodate changes to listening environments



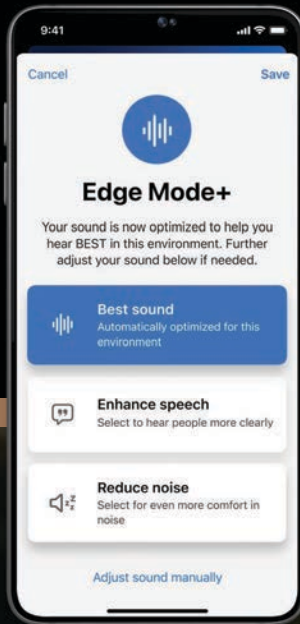
Automatic Edge Mode+

Continues to scan, adapt and optimize as the acoustic environment changes, ensuring the most appropriate settings are always applied in a dynamic world

OVER
80% of patients report
benefits from Edge Mode+
in everyday listening environments

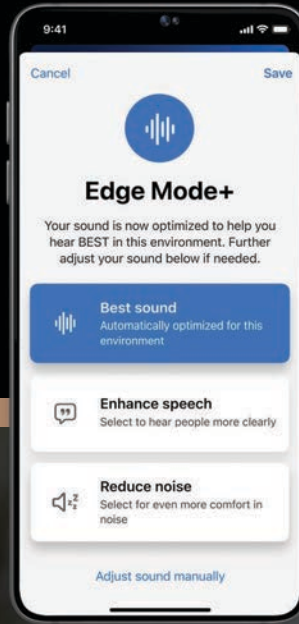


Edge Mode+ Tech Tier Differences



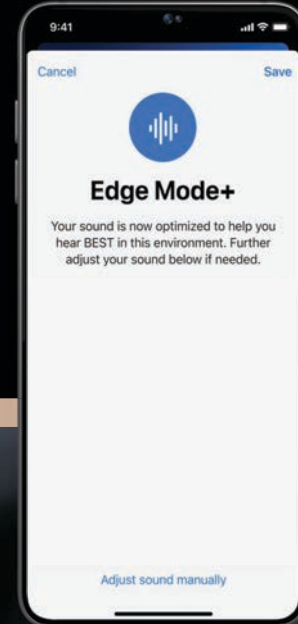
Edge AI 24

Automatic Edge Mode+ with additional patient-driven controls



Edge AI 20

Edge Mode+ with additional patient-driven controls



Edge AI 16

Edge Mode+
No further adjustments available

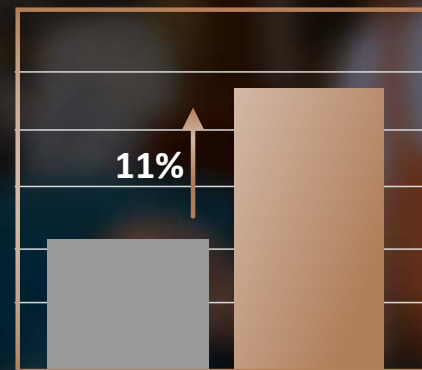
Edge Mode+

Utilizes the integrated NPU to process the environment and uses AI to select the best settings based on that sound scene

The user can further clarify their intent to enhance speech or reduce noise

Edge Mode+ has been shown to improve speech recognition and decrease listening effort

Word Recognition Score



Default Settings Edge Mode+ Enhance Speech

Listening Effort SNR



Default Settings Edge Mode+ Enhance Speech

What Would You Do?

Considerations for Sound Manager

A photograph of a man, Chuck Tabor, standing on a golf course. He is wearing a light blue polo shirt, khaki pants, a white baseball cap, and white golf gloves. He is holding a golf club and has his arms crossed. The background shows a lush green golf course with trees and a clear sky.

Chuck Tabor

Chuck Tabor

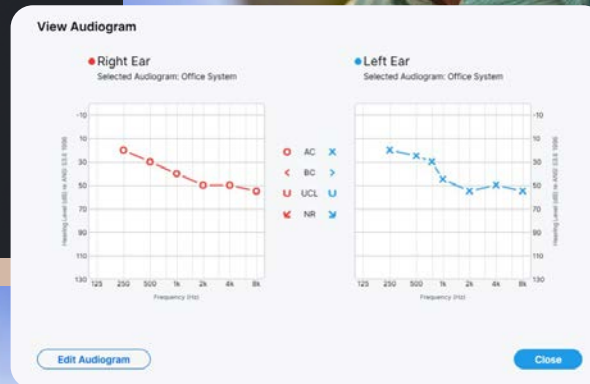
Lives alone with his dog Trinity

Golf Instructor

Struggles hearing students on the golf course as well as playing partners

Struggles at times hearing players while staffing the golf shop counter

New to hearing aids





What features that we've discussed would be important to consider for Chuck's lifestyle?

① The Slido app must be installed on every computer you're presenting from

slido

Do not edit
How to change the design



Which Edge AI technology tier would you recommend for Chuck?

① The Slido app must be installed on every computer you're presenting from

slido

	Premium 24	Advanced 20	Select 16
Edge Mode+			
Automatic	●	○	○
User Control	●	○	○
Personalization	●	●	○
App Control	●	●	●
Sound Manager			
Consonant Brightness	●	●	●
Motion Based Optimization	●	◐	○
Quiet 	 Maximum Expansion	 Moderate Expansion	 Mild Expansion
Machine Noise Reduction 	 Up to 22 dB of reduction	 Up to 12 dB of reduction	 Up to 7 dB of reduction
Speech in Noise Reduction 	 Up to 22 dB of reduction	 Up to 10 dB of reduction	 Up to 8 dB of reduction
Transient Noise Reduction 	 Up to 15 dB of reduction	 Up to 9 dB of reduction	 Up to 6 dB of reduction
Wind Reduction 	 Up to 35 dB of reduction	 Up to 19 dB of reduction	 Up to 10 dB of reduction



A photograph of Betty Williams, a woman with short grey hair, smiling and holding a tablet. She is wearing a grey long-sleeved shirt and red overalls. She is standing in a pottery studio with wooden shelves in the background filled with various pottery items, including bowls, vases, and containers. In the foreground, there is a wooden workbench with a laptop, a blue water bottle, a container of brushes, and some pottery pieces.

Betty Williams

Betty Williams

Pottery artist and instructor
Fit with Edge AI 20 mRIC's

Returns for follow-up:

“The pottery wheel can be too loud”

“Struggle hearing some students when the wheel is running”



Do not edit
How to change the design

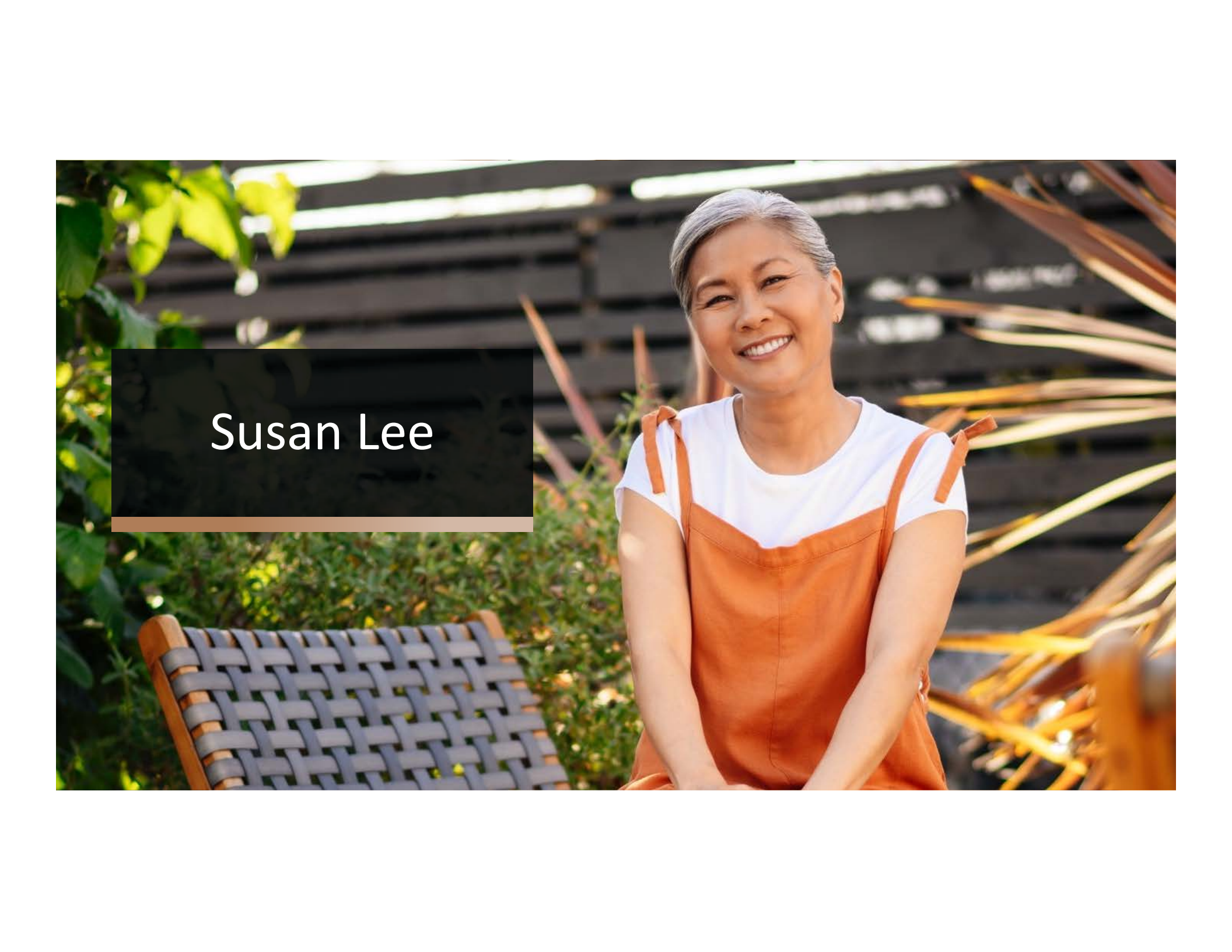


**What features that we've discussed would you consider to address Betty's concern?
Select all that apply.**

① The Slido app must be installed on every computer you're presenting from

slido





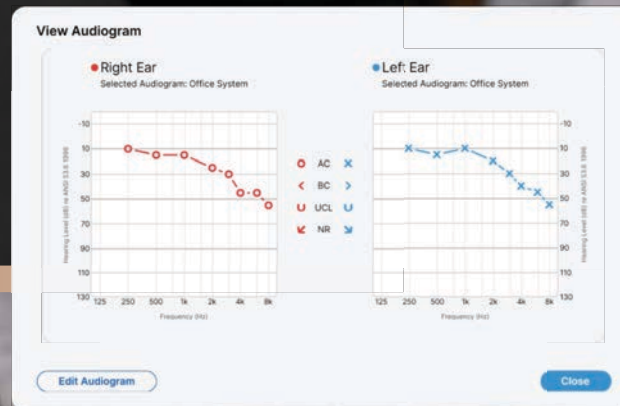
Susan Lee

Susan Lee

Retired high school teacher

Fit with Edge AI 16 mRIC's, open earbuds

“During weekly lunches with friends,
I sometimes don't hear
like I think I should”



Do not edit
How to change the design



How would you approach Susan's concerns?

① The Slido app must be installed on every computer you're presenting from

slido



A photograph of a computer monitor displaying the GitHub repository page for 'Polymer/bold-0.10.0'. The page shows the repository name, description, and a list of files including 'bold-0.10.0.js' and 'bold-0.10.0.min.js'. The monitor is a large, dark-colored display on a stand.

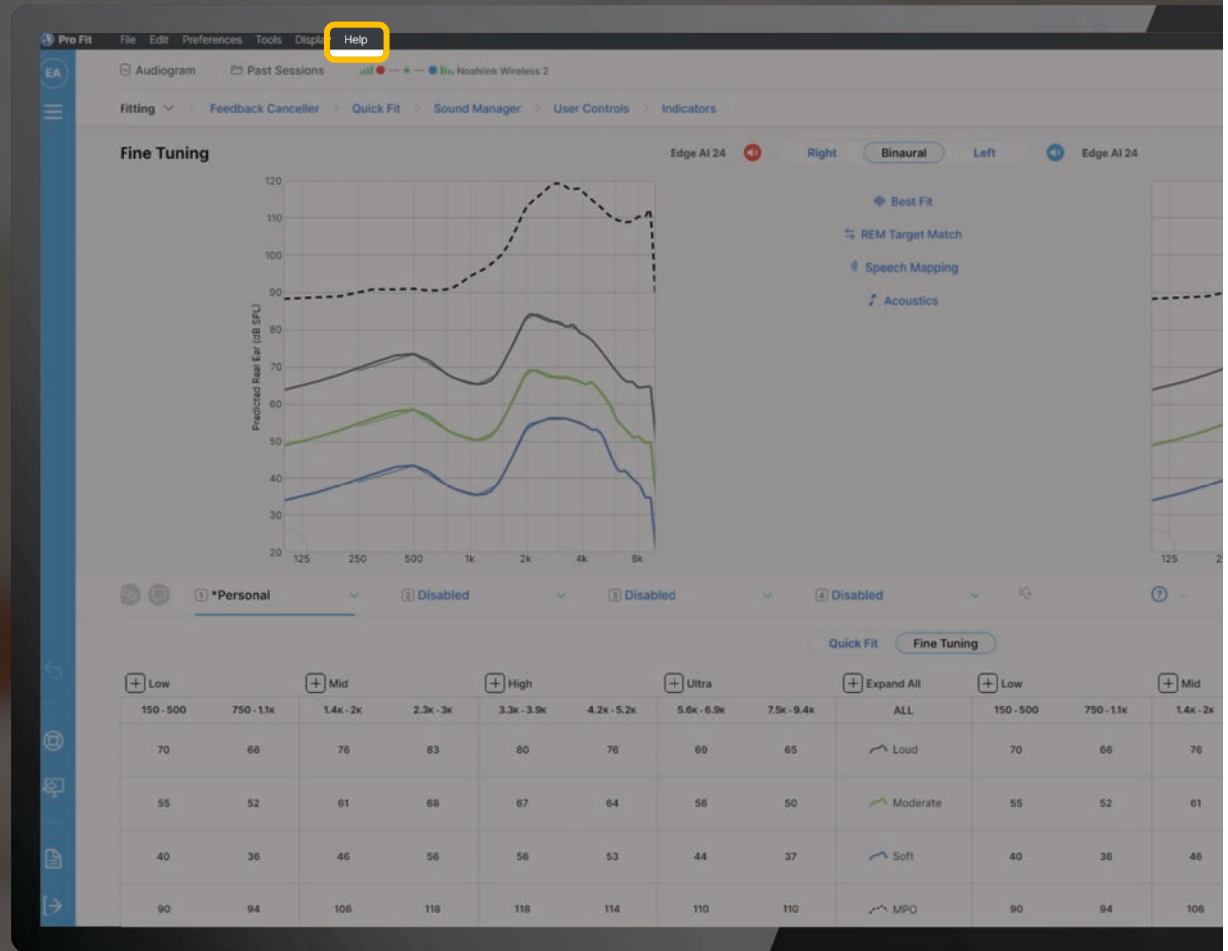


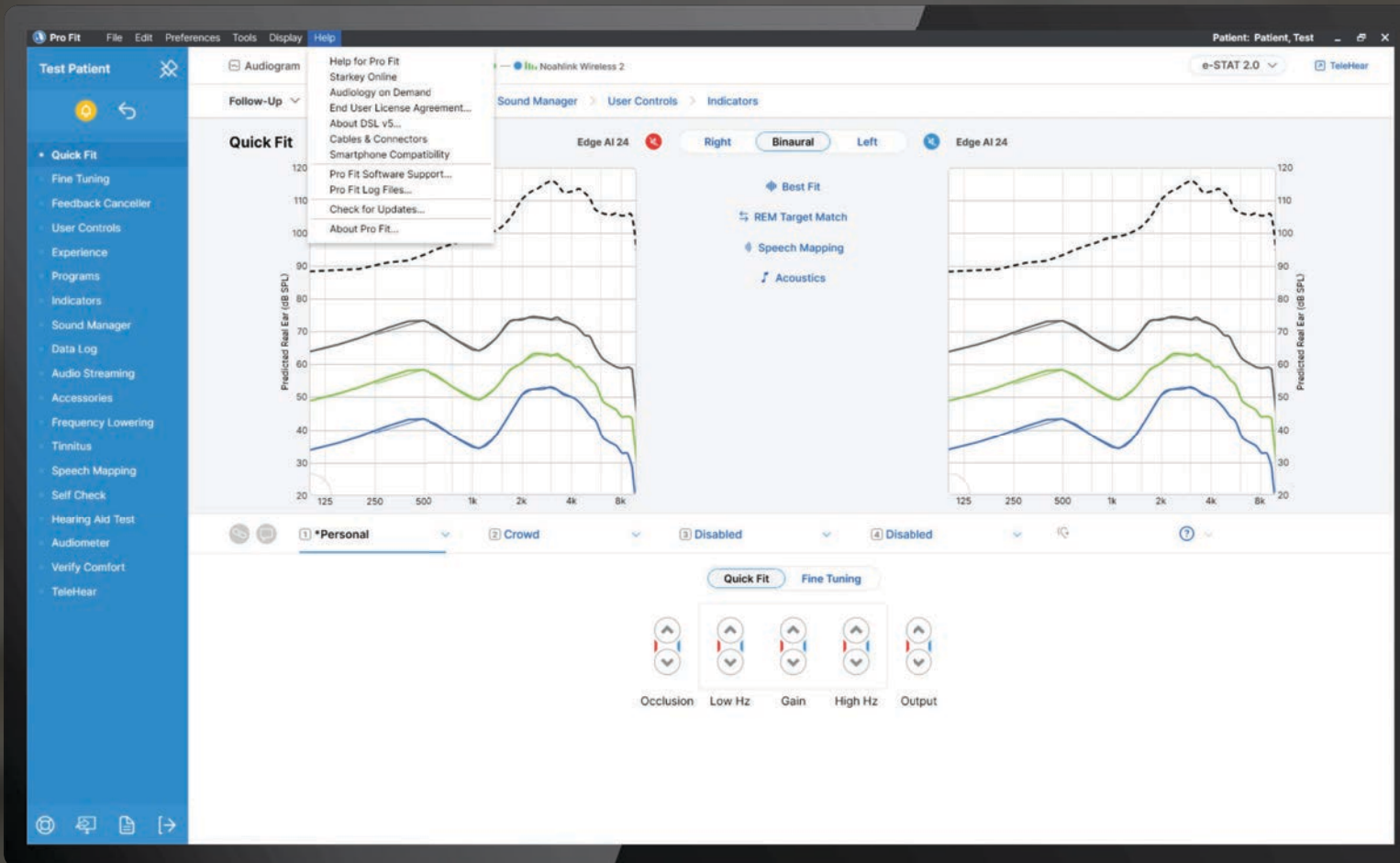
Help Menu

Help for Pro Fit

Available from
every screen

Access Online help
for Pro Fit





EQ Cheat Sheet: Ho...Starkey One - HomeExpenses HomeG23 Bug Jam - - Pr...GoAnywhere Web C...Vanish - Hide Your...FAQ - Find Answers...Sign in to Concur [...]

Starkey Hub - HomeExpensesmonday - Home

Pro Fit

ContentsIndexGlossary

Expand AllFavoritesPrintShare

Best Fit

Clear Settings and Reset Device

CROS/BICROS

Data Log

Experience

Feedback Canceller

Fine Tuning

Fitting Formula

Fitting Summary

Fitting Tips and Tricks

Frequency Lowering

Hearing Aid Test

Indicators

Media Player

Pediatric

Programs

Quick Fit

REM Target Match

SCIF Mode

Self Check

• Sound Manager

Speech Mapping

Swap Fit

Tinnitus

User Controls

Verify Comfort

Wireless

Menus/Toolbars

Donate

Sound Manager

Sound Manager prioritizes speech in noise by making discrete adjustments per program to a variety of environments and directionality. The activity level and directionality (Omni, Directional, Dynamic, and Adaptive) settings can be selected independently per program environment.

[Consonant Brightness, Sound Enhancement, and Situational Sound Management](#)

[Directionality and Ear to Ear](#)

1. Connect and select the desired hearing aid(s) to adjust via [Connect](#).

2. Click **Connect**.

3. Click **Sound Manager** from the [Left Navigation Menu](#).

4. Pro Fit automatically defaults to a binaural **Binaural** view if applicable. To adjust only the right or left hearing aid, click **Right** or **Left**.

5. Enable or disable motion-based optimization. If enabled, the hearing aid will automatically change directionality to omni, and Feedback Canceller to Strong Adaptation (premium only), when the patient is in motion.

Note: This feature is only available for select products. If fitting binaurally but viewing monaurally, the setting selected is automatically assigned to the opposite ear side if supported because the state of this feature must match between devices.

6. To increase or decrease the consonant strength or amount of adaptation in a specific environment, or change the directional setting, click on the cell to adjust and then click  or , or click [Consonant Brightness](#), [Sound Enhancement](#), [Situational Sound Management](#), or [Directionality](#) and a pop-up window displays.

7. Click on the specific program to adjust if applicable.

8. Click on the radio button or mode representing the desired amount of adaptation or directionality, respectively, in each environment.

9. Click **Close** to close the pop-up window.

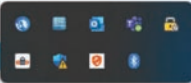
QuickTIPS

Previous

Next

In this Topic

[• Sound Manager](#)

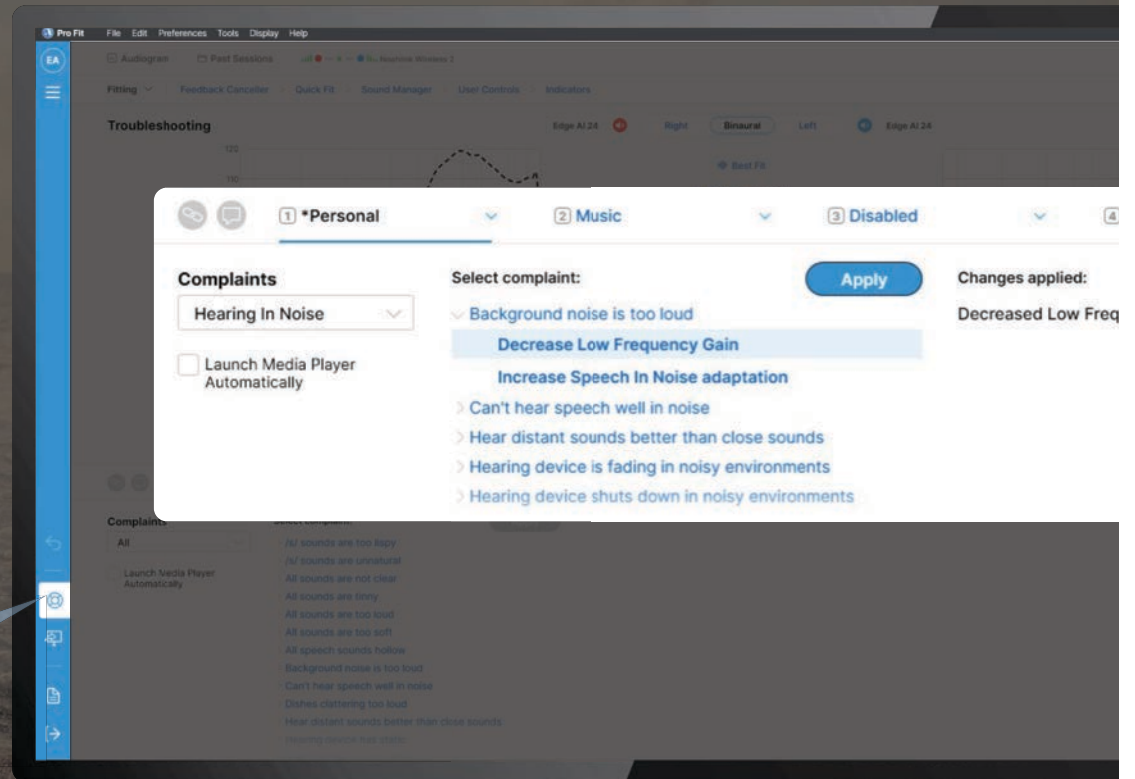


Next

Troubleshooting

‘Troubleshooting’ is available from every screen

Apply and undo changes



Audiology on Demand

Link directly to the Audiology on Demand webpage

Available from every screen



Live Remote Assistance

Do you need a quick solution to a technical problem? With our live remote-assistance tool, a member of our support team can view your desktop and share control of your mouse and keyboard to get you on your way to a solution.

How To Get Support

A member of our support team will talk with you first to determine the nature of the problem. You will find the answers to security questions and system configuration requirements on our [FAQ page](#).

How It Works

- 1 Call a support team representative.
- 2 Once you are on the phone with a member of our support team, you will be directed back to this page to initiate the screen-sharing session by entering the 7-digit PIN code.
- 3 You are prompted to download a small virus-free plug-in.
- 4 With your permission, your support representative can view your screen and share control of your mouse and keyboard.
- 5 You are in full control of your computer at all times. You always have overriding control of your mouse and keyboard, and you can end the screen-sharing session at any time.

Connect with a representative

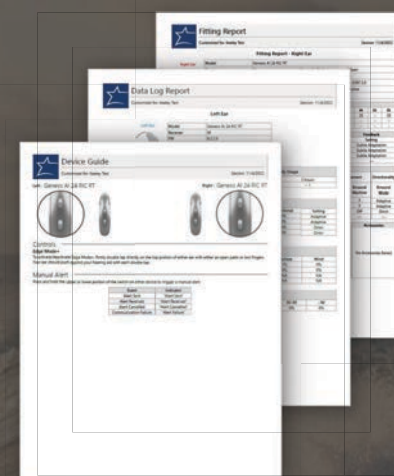
Please contact your support team at (800) 328-8602 for your 7-digit PIN code.

PIN Code:

Submit



Quick Tips



Reports

Resources

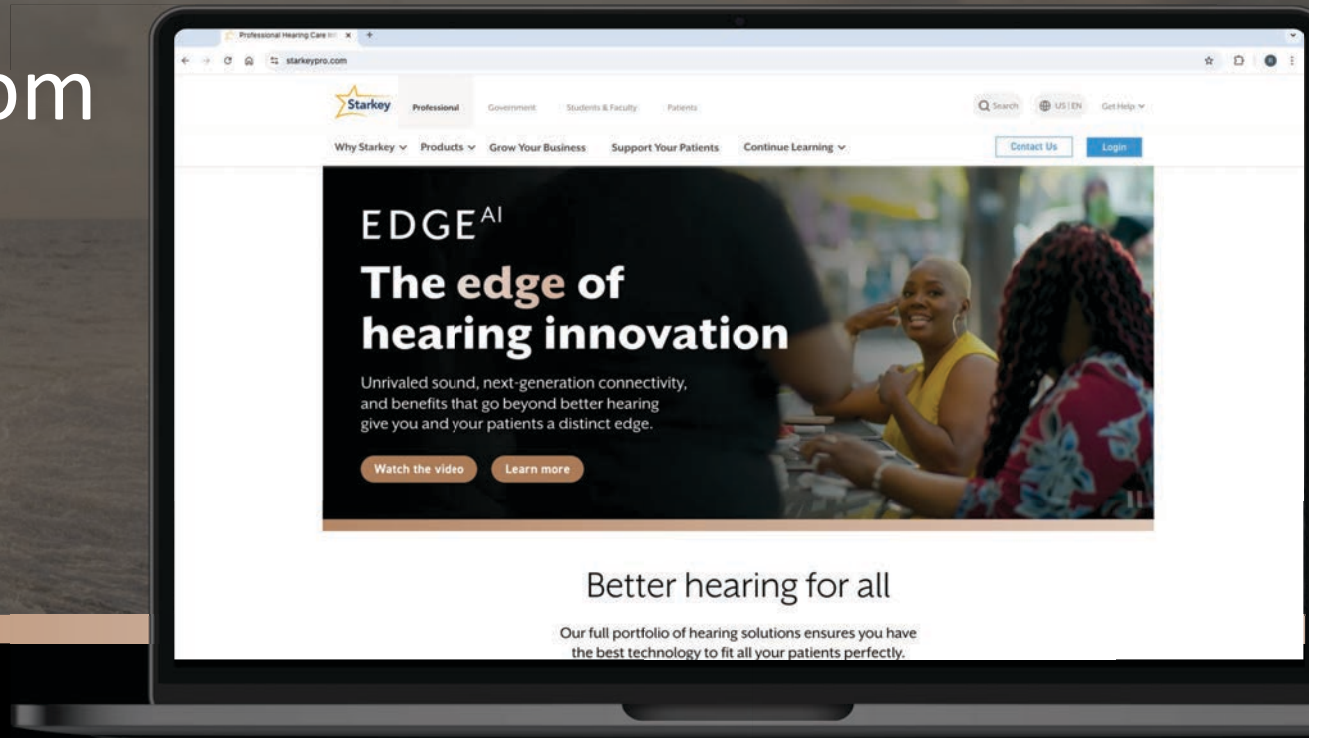
Starkeypro.com

White Papers

Quick Tips

Videos

Training Opportunities





Better hearing *for all*

Science that Speaks Volumes

Neuro sound 2.0 mimics how
a normal hearing brain
processes information

Listen with Ease

Enjoy every little sound
that matters

Unrivaled Sound Experience

Unparalleled speech
enhancement, noise reduction
AND battery life





Resources

Course References

MarkeTrak 10 / Hearing Industries Association, 2019

Picou EM. Hearing Aid Benefit and Satisfaction Results from the MarkeTrak 2022 Survey: Importance of Features and Hearing Care Professionals. *Semin Hear.* 2022 Dec 1;43(4):301-316.

DeJardin J., Dougherty, K., The Effect of Hearing Aid Noise Reduction on Listening Effort in Hearing-Impaired Adults. *Ear and Hearing.* 2014 Nov/Dec (35) (6) 600-610.