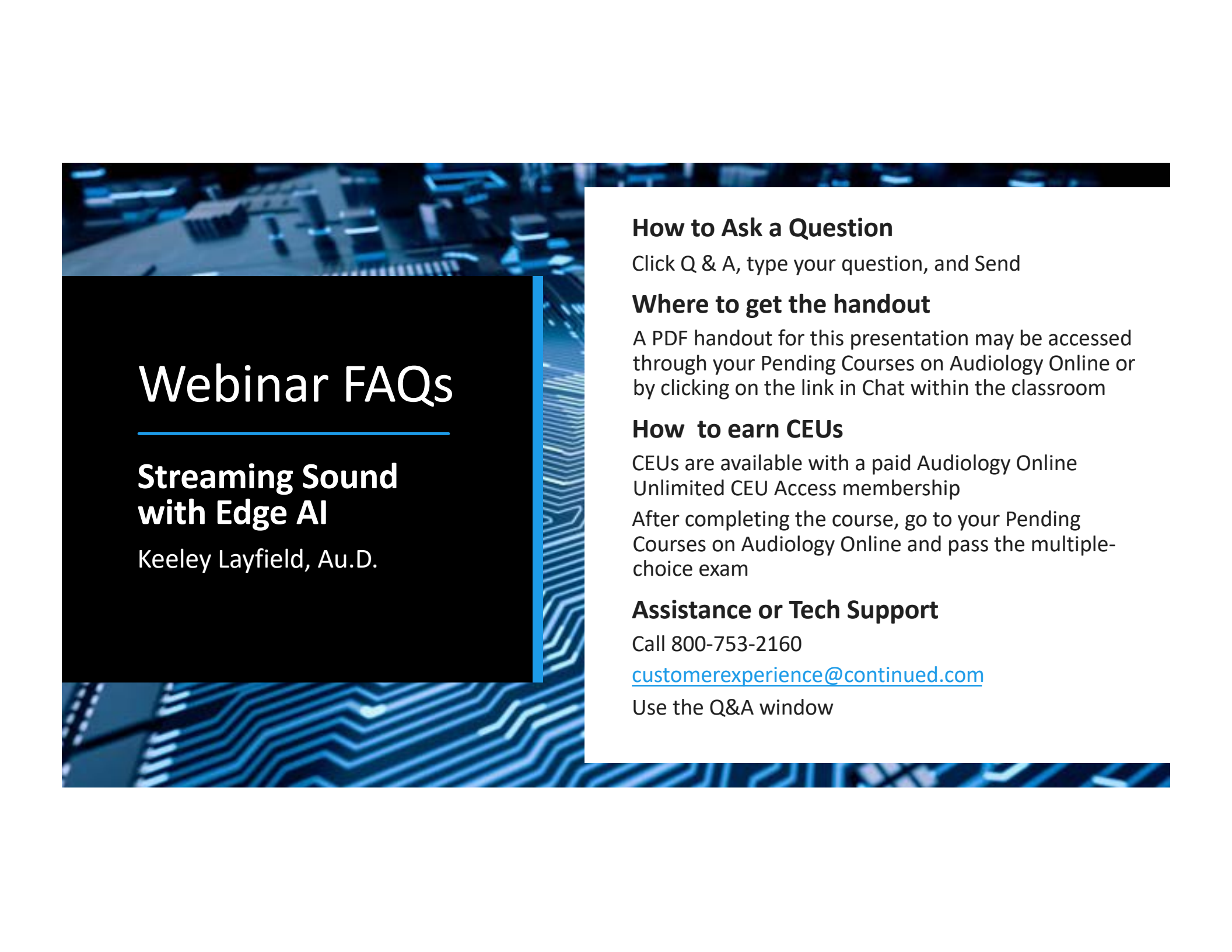




5TH ANNUAL

Industry Innovations Summit

presented by **AudiologyOnline**



Webinar FAQs

Streaming Sound with Edge AI

Keeley Layfield, Au.D.

How to Ask a Question

Click Q & A, type your question, and Send

Where to get the handout

A PDF handout for this presentation may be accessed through your Pending Courses on Audiology Online or by clicking on the link in Chat within the classroom

How to earn CEUs

CEUs are available with a paid Audiology Online Unlimited CEU Access membership

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Use the Q&A window



Risks and 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.

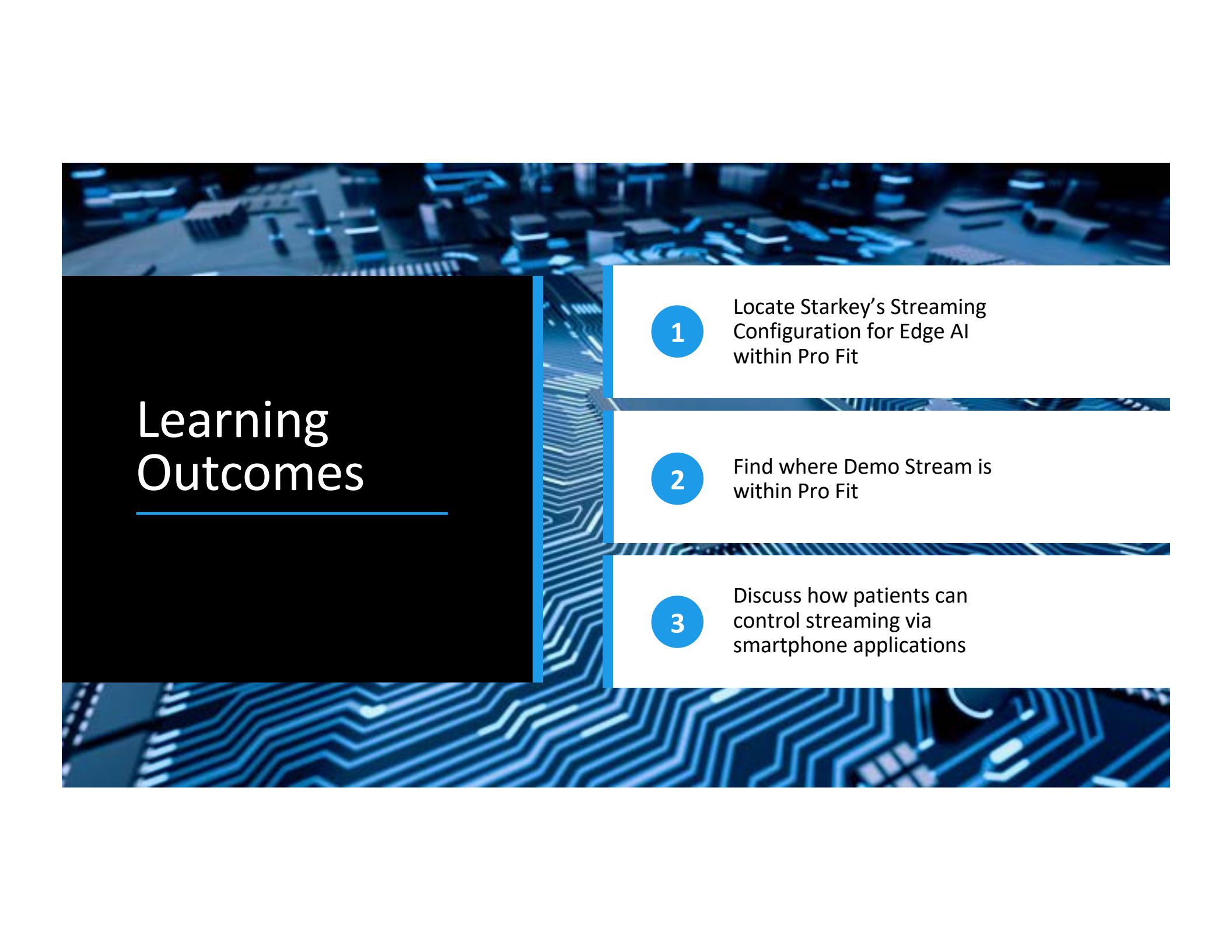
The interventions discussed in this course may be limited in generalizability, requiring practitioners to consider specific individual and population factors.

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 screening 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.



Learning Outcomes

1

Locate Starkey's Streaming Configuration for Edge AI within Pro Fit

2

Find where Demo Stream is within Pro Fit

3

Discuss how patients can control streaming via smartphone applications



Streaming Sound with Edge AI

Keeley Layfield, Au.D.

Education & Training Audiologist





EDGE^{AI}



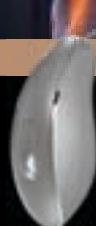
CIC



ITC/HS R



ITE R



mRIC R



RIC RT

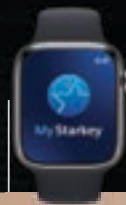
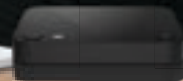


RIC 312

Tech tiers
24 | 20 | 16

EDGE^{AI}

Seamless connectivity for
hearing aids and accessories
with the next generation
2.4 GHz Radio with LE Audio



What is Bluetooth Low Energy?

Bluetooth Low Energy (BTLE) was designed to use even less power than Bluetooth Classic



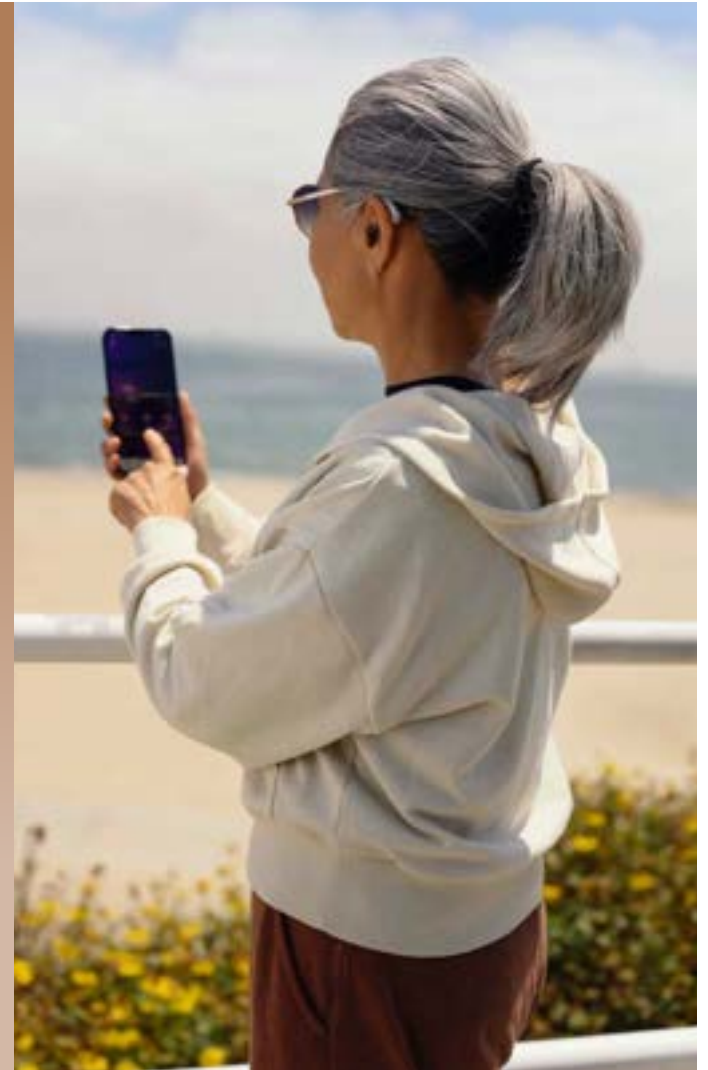
BTLE provides more flexibility in communication between devices



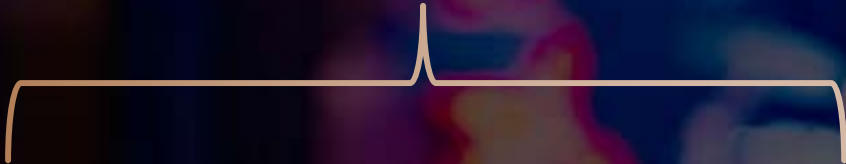
Used for data transfer and some audio streaming



Provides precise indoor location services



Bluetooth® Audio

A diagram consisting of a horizontal line with a small vertical line extending upwards from its center. From the left end of the horizontal line, a bracket extends downwards and to the left. From the right end, a bracket extends downwards and to the right. These brackets point towards the 'Classic Audio' and 'Bluetooth Low Energy (BTLE) Audio' sections respectively.

Classic Audio

Traditional Bluetooth technology which has been used for years for audio streaming, transferring files, and connecting devices like speakers and headphones

Bluetooth Low Energy (BTLE) Audio

The Next Generation of Bluetooth® Audio that improves data transmission fidelity, multi-stream support, and broadcast audio

Bluetooth® Audio

Classic Audio

BTLE Audio

Proprietary BTLE

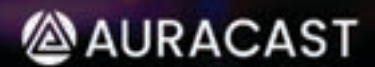
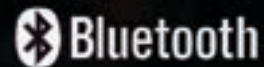
LE Audio

LEA 2

ASHA

Unicast

Broadcast

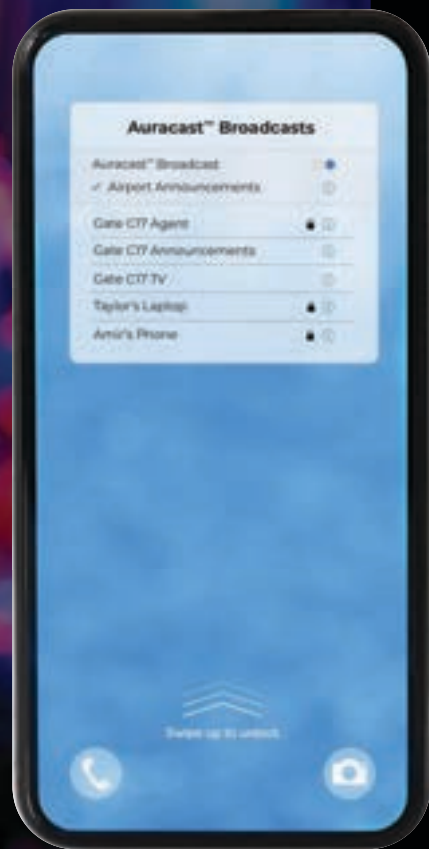


LE Audio Unicast

Enables direct streaming from a variety of device types including smartphones, tablets, and personal computers

Improved wireless range and streaming sound quality





LE Audio Auracast™

Enables direct streaming from a variety of broadcast sources using a native user interface on a smartphone for discovering and joining broadcasts

Streaming Options

Edge AI supports

Apple's LEA2 streaming protocol

For both iPhone and compatible Mac computers

Android's ASHA streaming protocol

For compatible Android phones

Bluetooth LE Audio streaming

Streaming from LE Audio-compatible devices

- e.g. compatible Windows 11 PCs, iPhone and Android phones (when released)

Enhanced 2-way Audio and handsfree operation are supported with compatible products

Auracast™ enabled broadcast devices

Starlink Edge TV Streamer; public broadcast system

Expected to be commercially available in 2025

2-Way Audio

Users can accept, end and decline calls with the hearing aid user controls

The hearing aids' microphones also pick up and stream the voice directly back to the smart device, providing a seamless hands-free experience

Now available for Apple and Android devices*

*LE Audio-enabled Android devices only





Wireless Connectivity Basics

Programming

First Connection Builds Relationship

Bluetooth MUST be off to establish a relationship

Bluetooth may remain on for future sessions



Programming

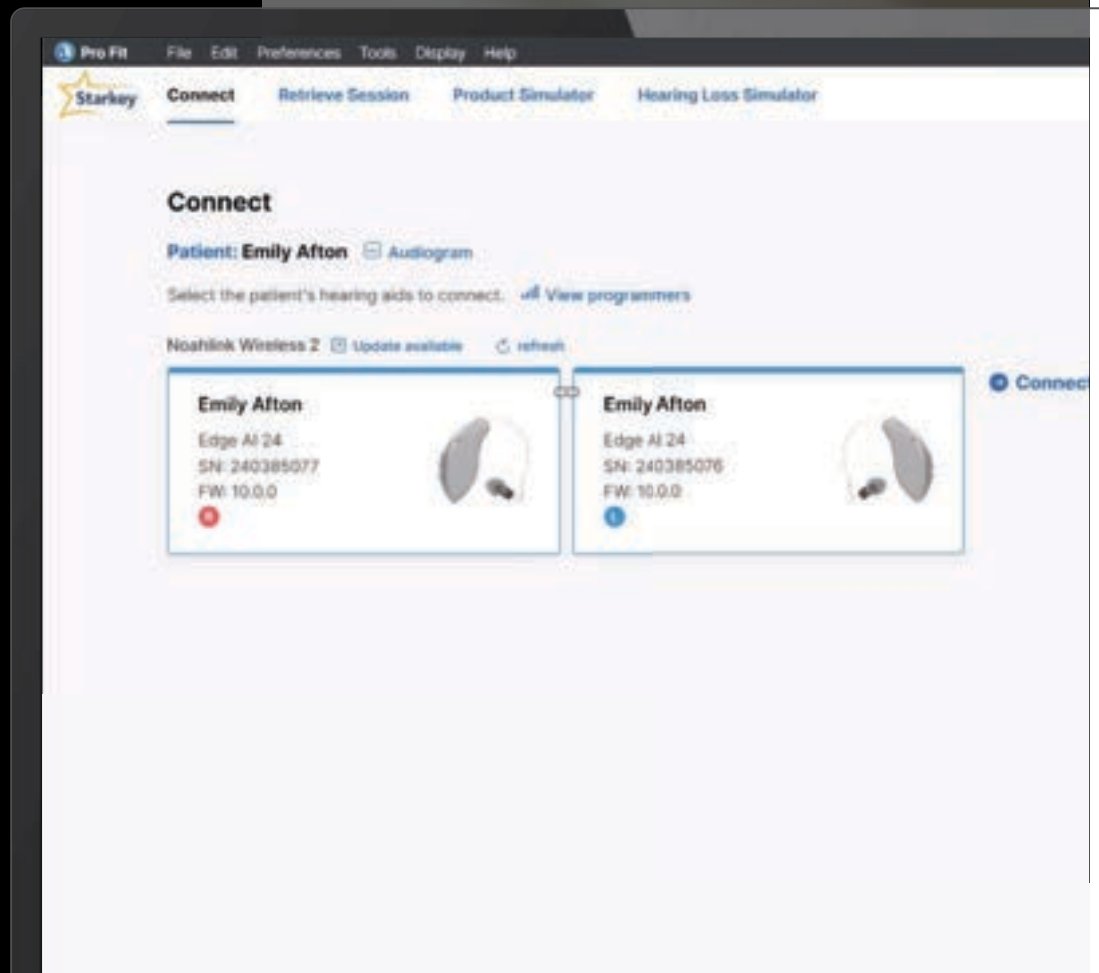
Bluetooth can suppress the following:

Hearing aid identification assistant

Hearing aid card flags

Pairing of accessories

**Once established Bluetooth should not interfere with programming*



Streaming

What is streaming?

Receiving audio from
an electronic source

Phone calls

Media

Music, podcasts, etc.

Accessories

Apple and Android have proprietary
streaming protocols for their systems

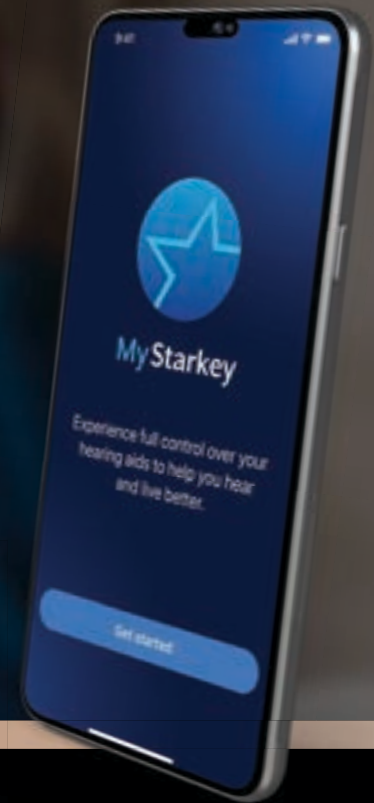
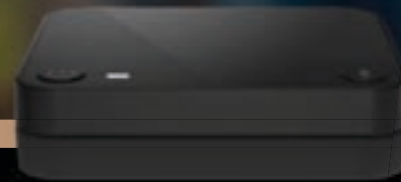
Low Energy Audio (LEA)

Apple

Audio Streaming for
Hearing Aids (ASHA)

Android

**Once established Bluetooth should not interfere with programming*



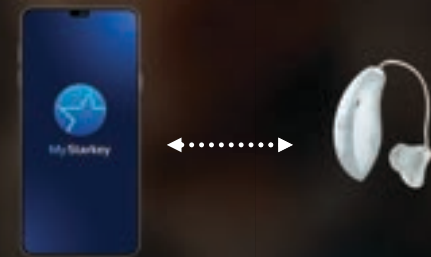
Basics of Pairing



Edge AI hearing aids
can be paired with
up to 5 streaming devices
in any combination



Edge AI supports
multiple simultaneous
Bluetooth connections



Edge AI supports
only **one active stream**
at a time

Pairing/Discovery Mode

Hearing aids must be put into pairing mode for different situations

When aids are powered on, they go into pairing mode for 3 minutes

Why don't we want aids in pairing mode all the time?



Streaming Process



Different Music Processing Strategies



Starkey's Music Proprietary Fitting Formula

Unique music-centric fitting prescription with a 10 kHz bandwidth

Shaped gain according to hearing loss for quiet music

Music Program adjustments are not tied to speech program adjustments



Streaming Processing with Edge AI

Frequency response configuration built specifically for streamed signals

Shaped gain according to hearing loss and acoustic coupling

Audio Streaming adjustments are not tied to any hearing and program adjustments



***Streaming Controls
made *simple* with
Starkey Pro Fit***



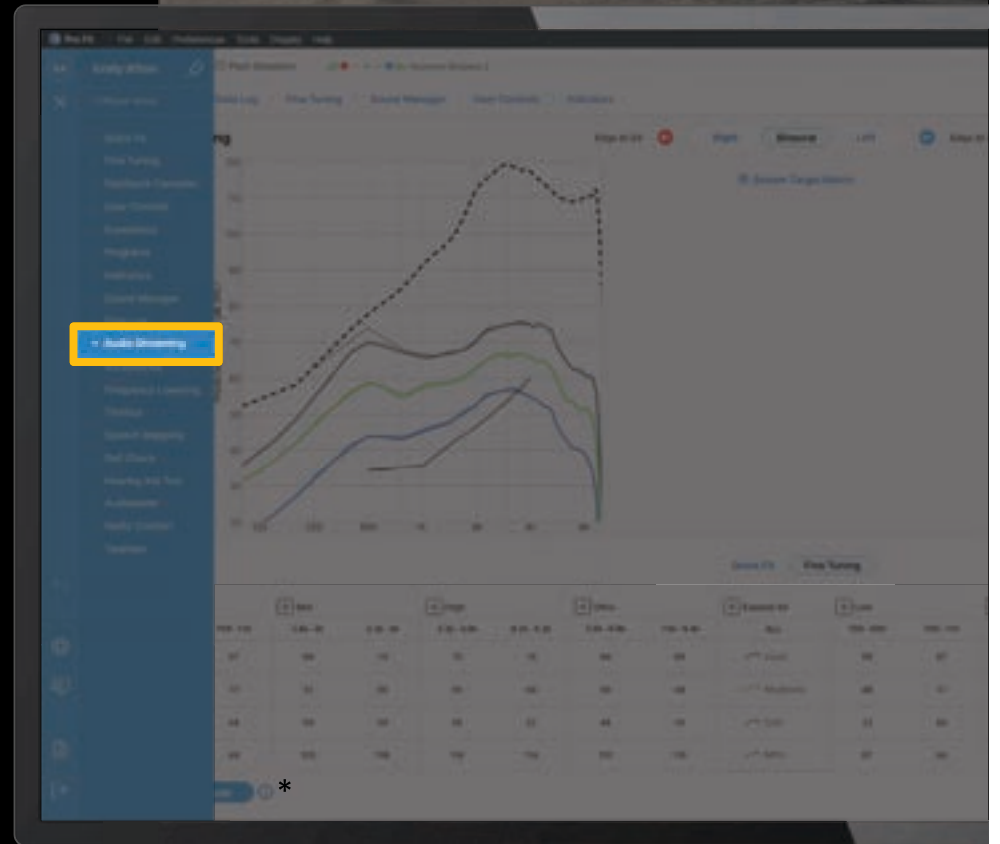
Best-in-class Streaming Sound Experience

Streaming configuration
for all streamed inputs

Customize the streaming
frequency response through
Pro Fit or the My Starkey App

Pro Fit Audio Streaming Configuration

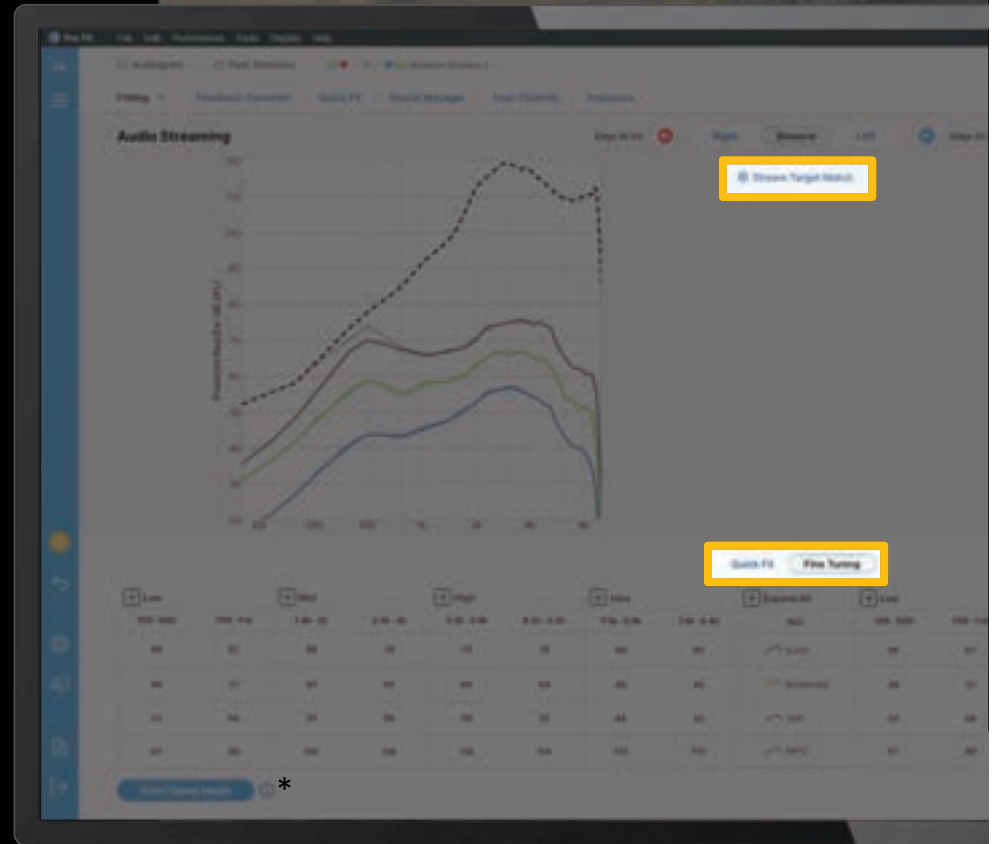
Located on the Flyout Menu



Pro Fit Audio Streaming Configuration

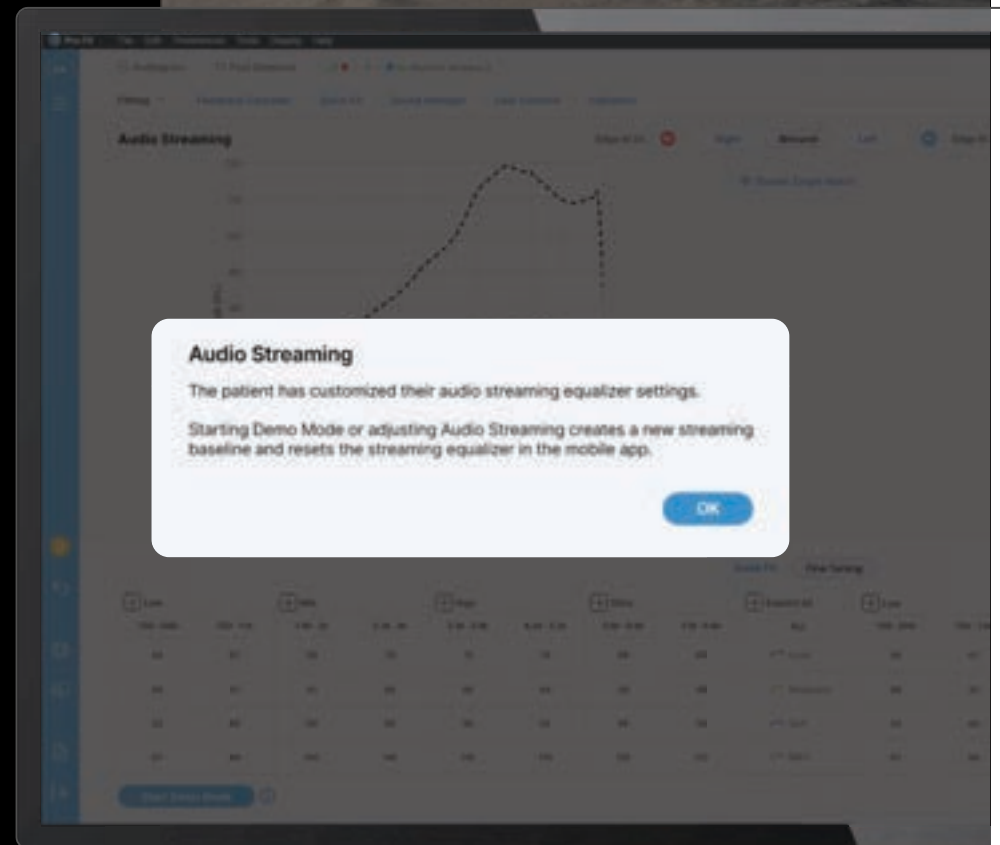
Quick Fit and Fine Tuning Controls

Stream Target Match Controls



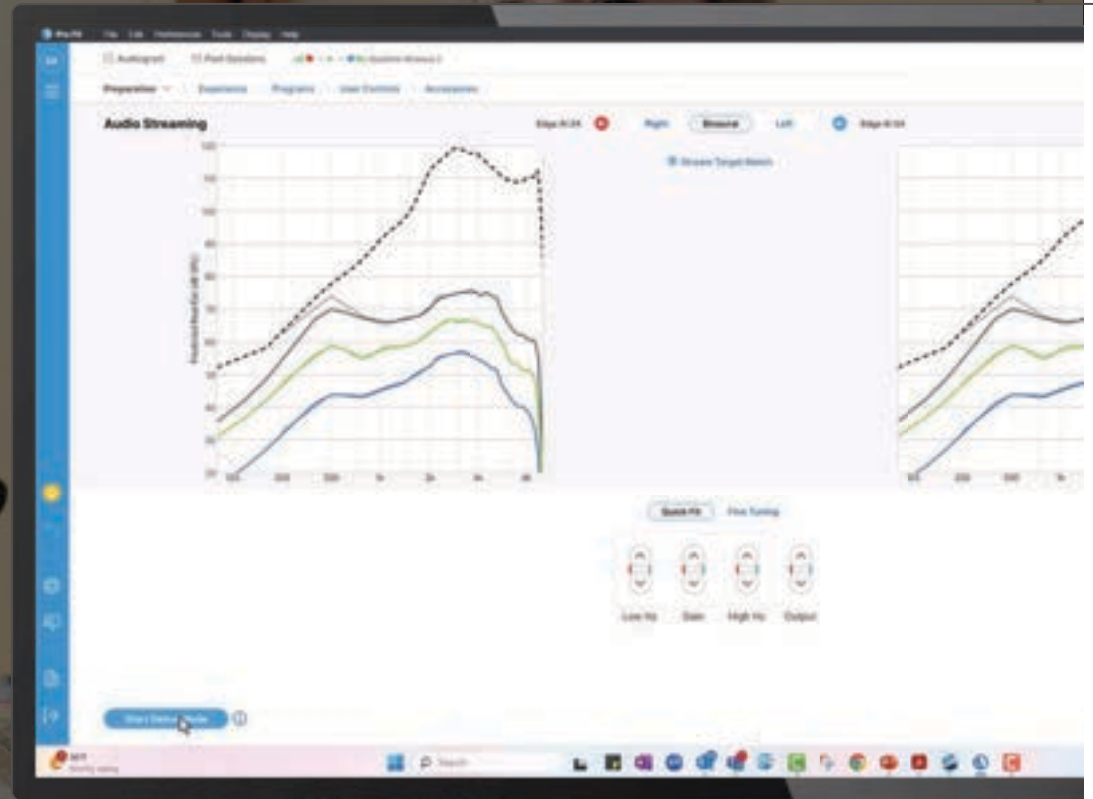
Audio Streaming Configuration

When Audio Streaming is manipulated within Pro Fit, Equalizer settings within My Starkey will be overridden



Demo Stream

Stream from a paired mobile phone or paired TV Streamer while connected to Pro Fit and customize the streaming frequency response while actively streaming



Good to Know Demo Stream

For best results, ensure the stream from the phone is set to a comfortable volume

While in Demo Stream, My Starkey cannot communicate with the Hearing Aids

Hearing Aid user controls are disabled during Demo Stream



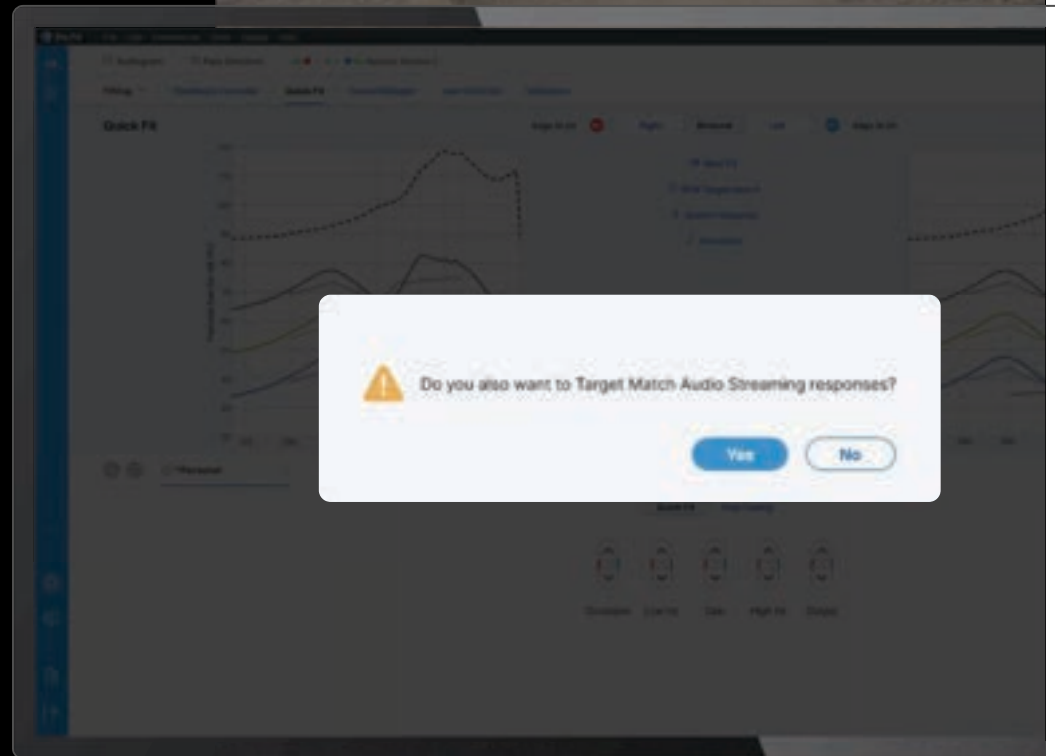
Tips & Tricks

Acoustics and Streaming

It is recommended to Best Fit/Target Match when acoustic changes are made

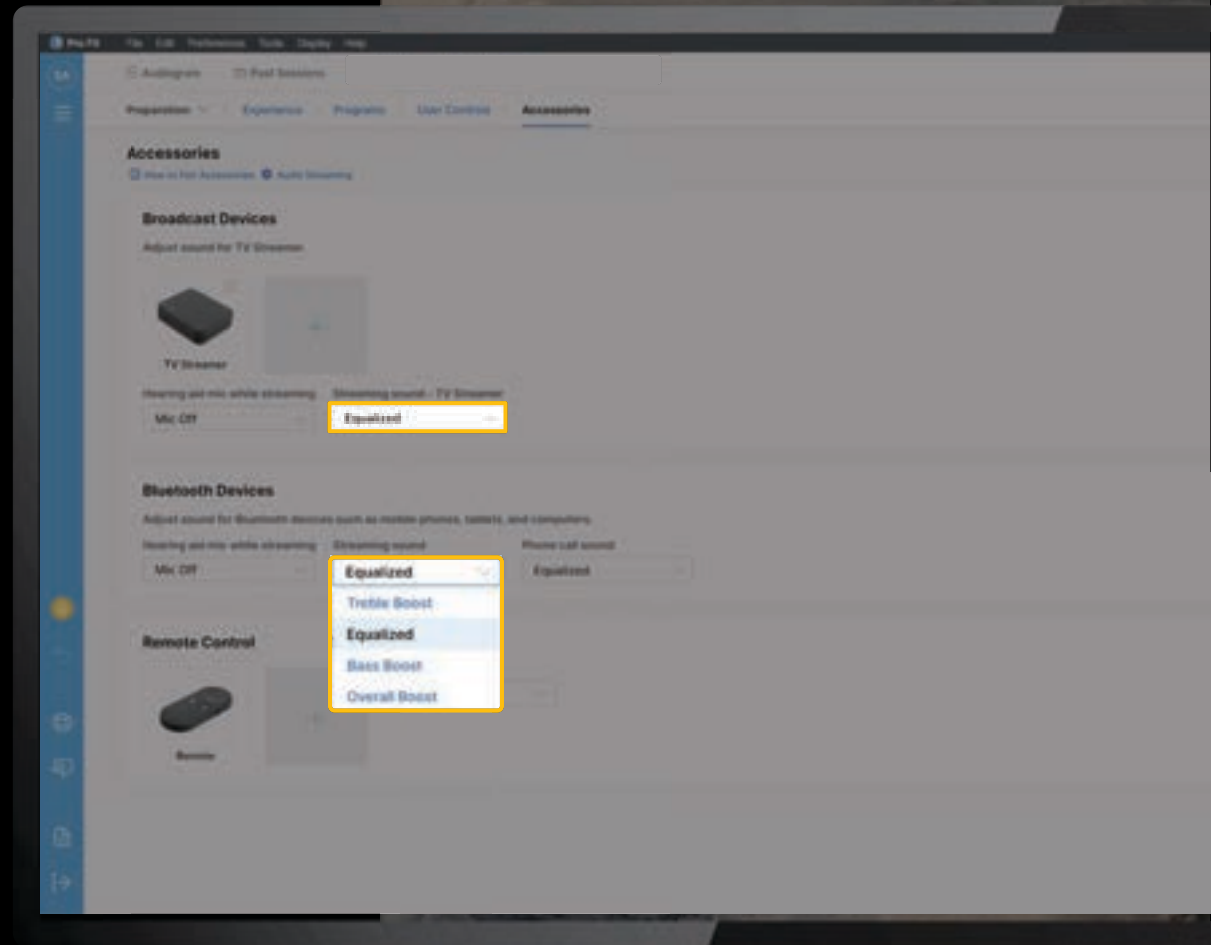
Best Fit/Target Match All Programs
will update all programs and
streaming configuration

Best Fit/Target Match Current Program
will prompt the choice to update audio
streaming responses



Streaming Behavior

Streaming sound allows for customization of the streaming frequency response for Bluetooth and Broadcast devices



Equalizer Rules

The Equalizer Controls within My Starkey will be reset in the following scenarios:

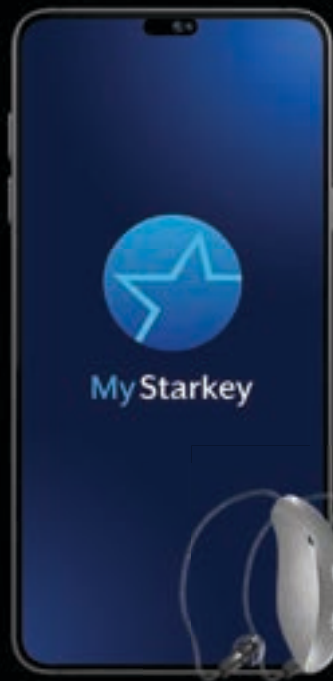
- 1 When demoing a streamed signal within the audio streaming configuration screen
- 2 When the audio streaming configuration is changed within Pro Fit
- 3 When Best Fit or Target Match for **All Programs** is performed





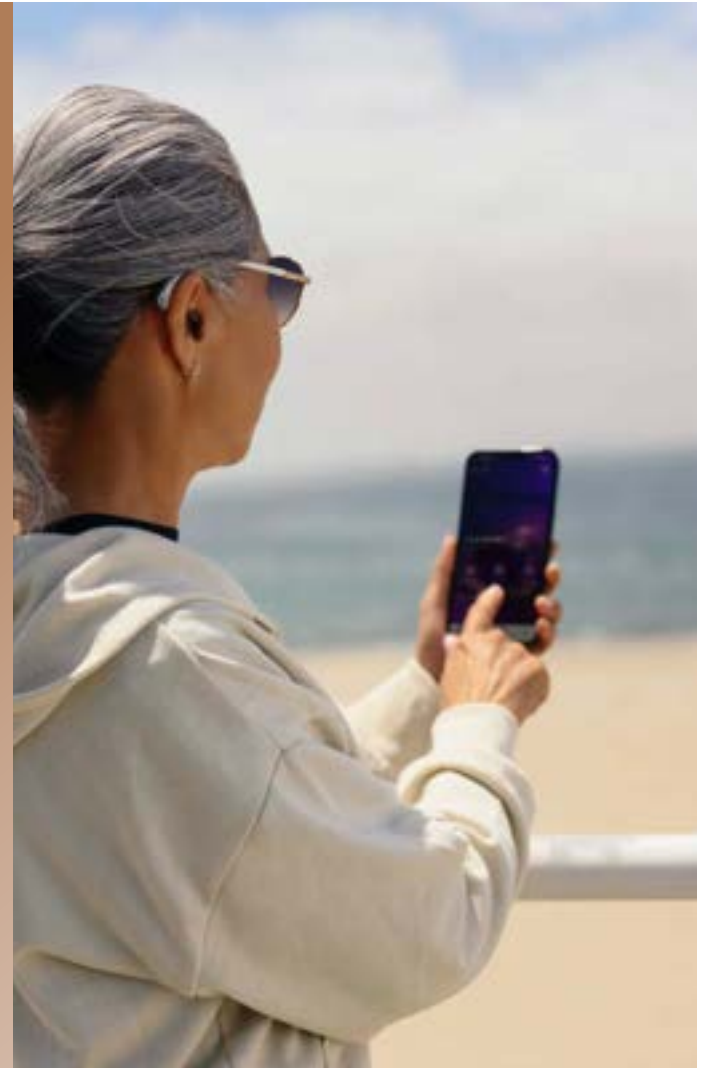
Streaming Controls within My Starkey

MyStarkey + EDGE^{AI}



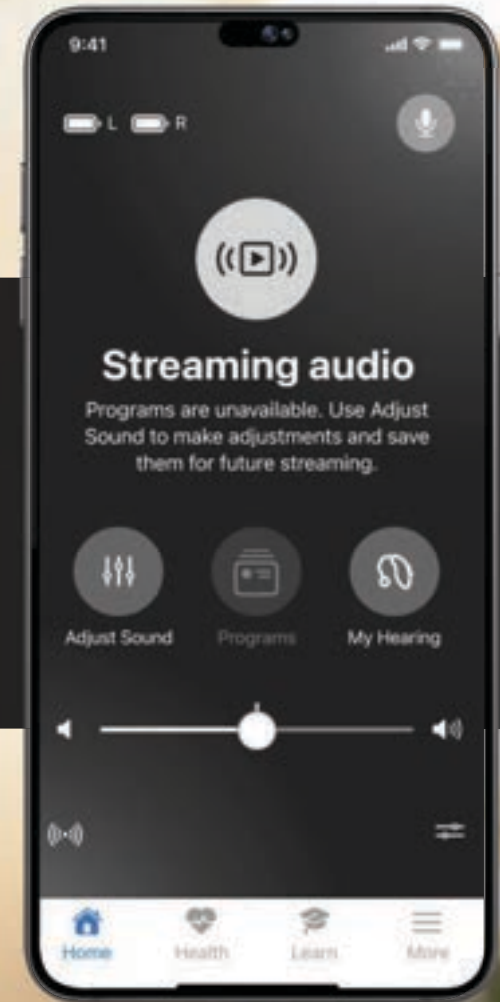
Bluetooth LE Audio Streaming

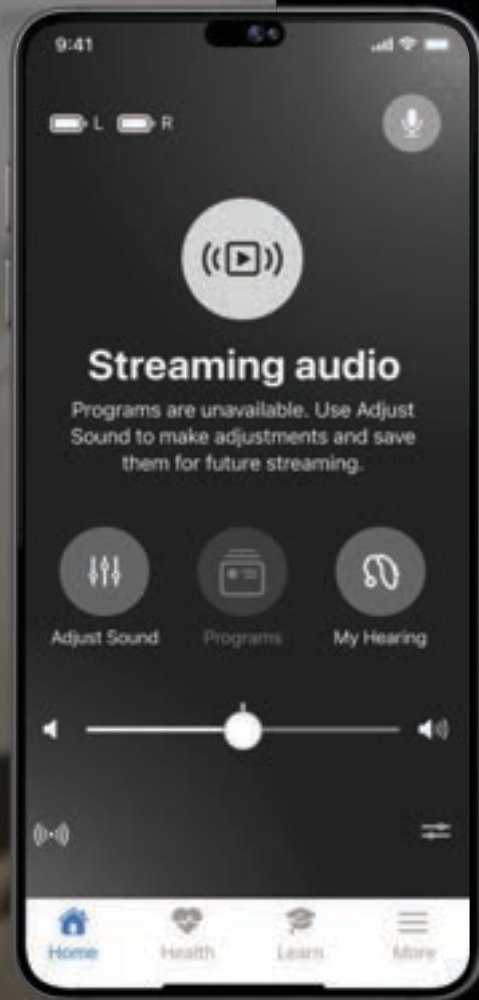
Available with all 2.4GHz styles and technology tiers
iOS and Android compatible



Best-in-class streaming sound for music, movies, and more

Automatically switches to the new streaming
configuration for all streamed inputs



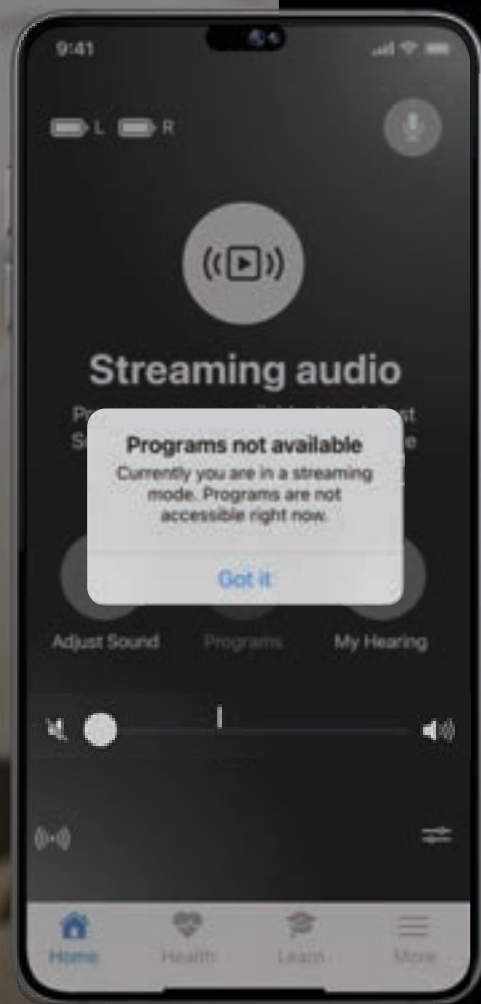


Edge AI Streaming Options

When Streaming:

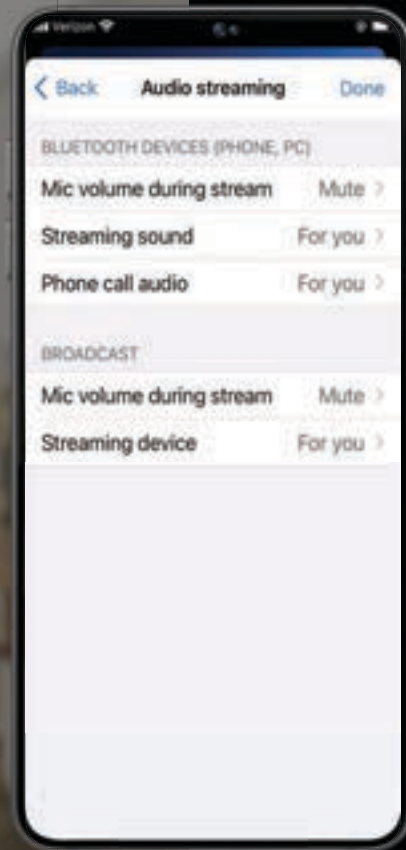
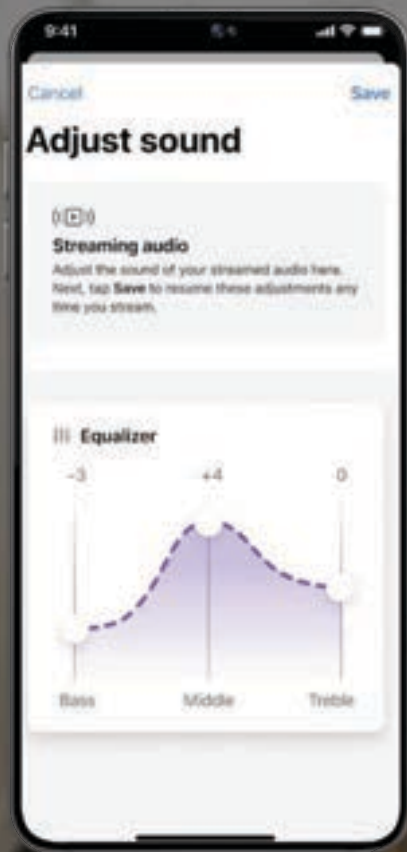
Home Screen → Streaming Audio

Allows access to Adjust Sound,
My Hearing, and hearing aid volume



Edge AI Streaming Options

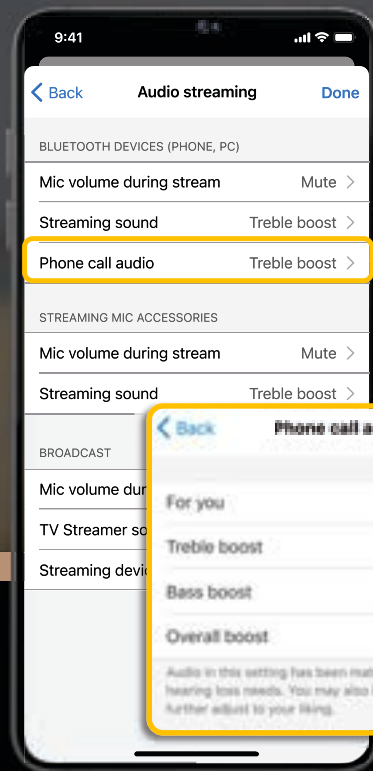
Changing programs through
My Starkey is not available while
actively streaming



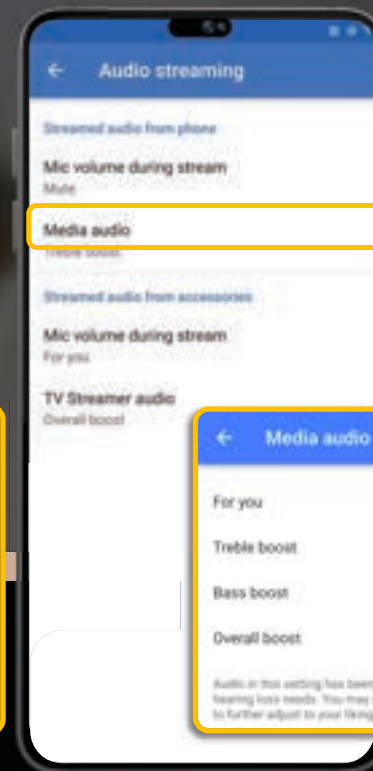
Edge AI Streaming Options

Streaming EQ and Boost options
remain accessible

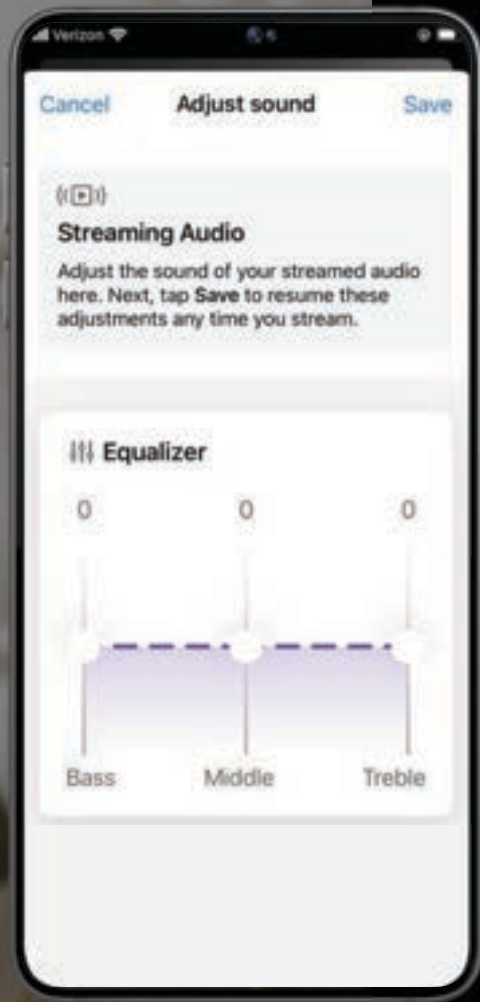
Audio Streaming with My Starkey



iOS



Android



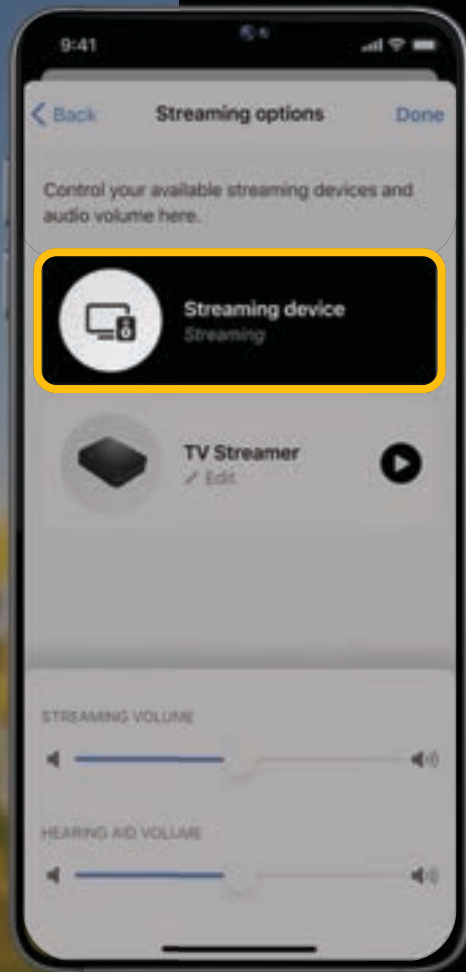
Edge AI Streaming Options

Streaming EQ in My Starkey will reset when the following Pro Fit changes are made:

Any change in Audio Streaming

Demo Mode is started

“Best Fit or Target Match All Programs”
is performed



Edge AI Streaming Options

Start and stop TV Streamer audio

Independent adjustment of streaming
and hearing aid volume

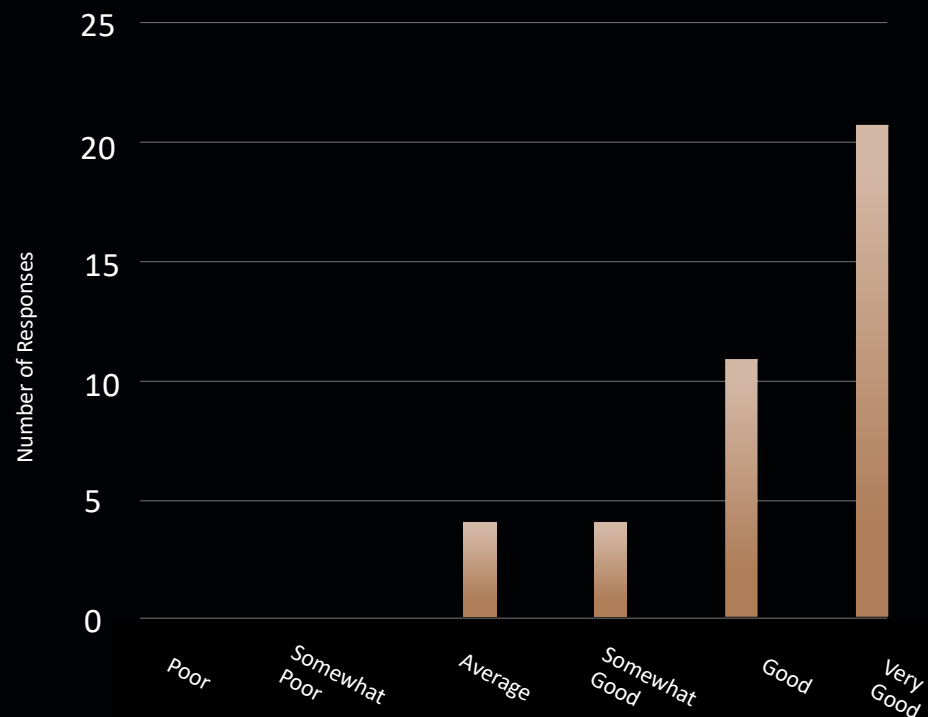
Patient Satisfaction

45 Participants with varying styles of Edge AI devices were encouraged to use Edge AI streaming features and rate their satisfaction

Results found that Edge AI stands out for its ability to deliver a superior streaming experience, allowing users to seamlessly switch between acoustic and streamed audio without compromising sound quality

*For more information, reference [Advancing Streaming Technology in Hearing Aids: Optimizing User Experience with Edge AI](#)

Sound Quality of Streamed Music or Videos



Sound quality ratings of streamed music or videos, gathered after participants trialed the Edge AI hearing aids for approximately 6 weeks.



Listen with
Ease

**Dedicated Music
Processing**

**Pro Fit Streaming
Controls**

**Unique Streaming
Experience for All**

EDGE^{AI}

| Better hearing
for all



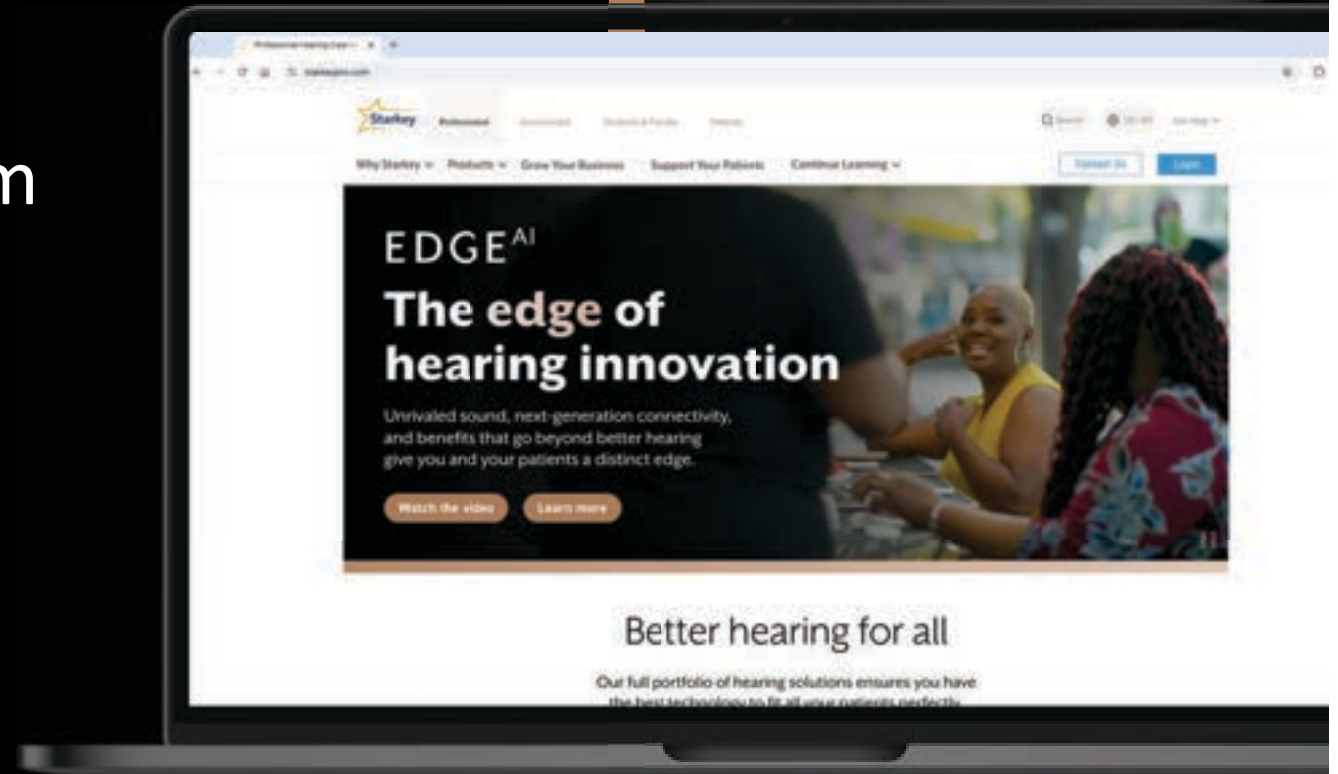
Starkeypro.com

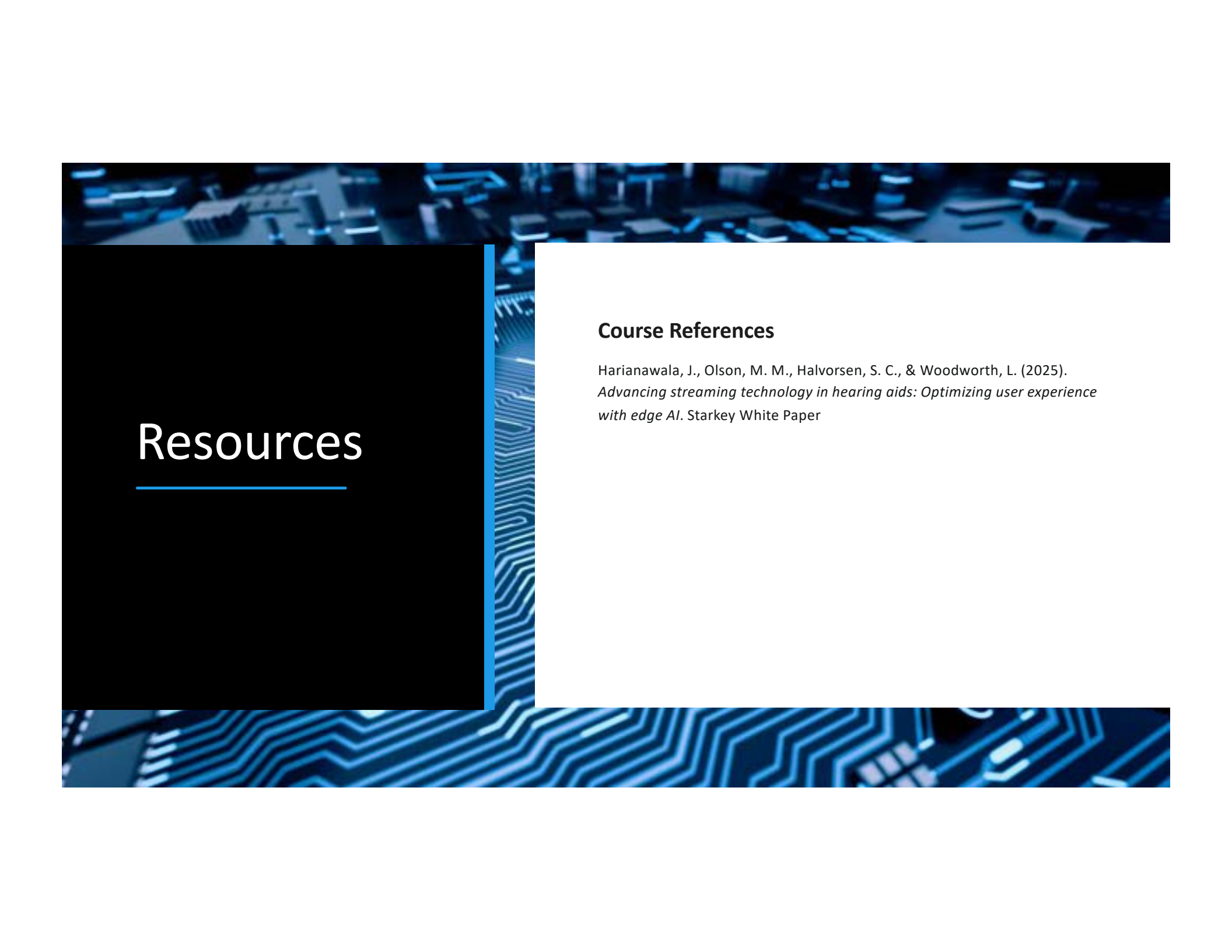
White Papers

Quick Tips

Videos

Training Opportunities





Resources

Course References

Harianawala, J., Olson, M. M., Halvorsen, S. C., & Woodworth, L. (2025). *Advancing streaming technology in hearing aids: Optimizing user experience with edge AI*. Starkey White Paper



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