

ReSound Nexia: Welcome to the Next Era of Hearing

Tammara Stender, Au.D.
Director, Global Audiology External Relations
GN Hearing

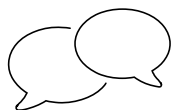
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Learning Outcomes

- After this course, participants will be able to list the three main advancements of the ReSound Nexia, be able to describe the change to first time user settings, and define how ReSound directionality supports a natural hearing experience for the user.
- After this course, participants will be able to detail the difference between CROS and BiCROS fittings.
- After this course, participants will be able to explain the opportunities provided by Bluetooth Low Energy Audio and Auracast.

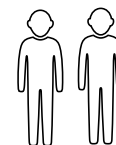
Hearing well in noise is still the biggest challenge we face



Hearing conversations in noise is the main reason for purchasing hearing aids¹



Hearing in noise is the #1 driver of hearing aid satisfaction and the biggest unmet need for current users²



Nearly 1 in 3 Hearing aid users are unsatisfied with their ability to hear conversations in noise³

1. Manchaiah and colleagues, 2021

2. Picou, 2020

3. MarkeTrak, 2022

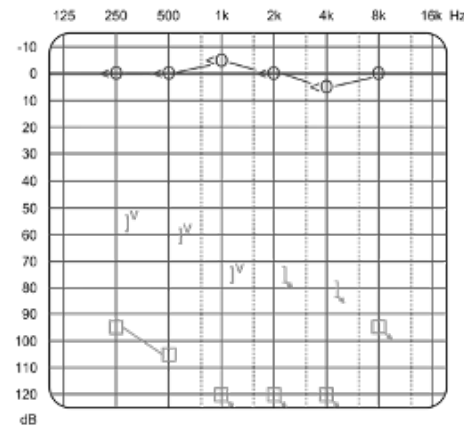
ReSound Nexia Headlines

ReSound GN

- 1 Smallest RIE
Micro RIE



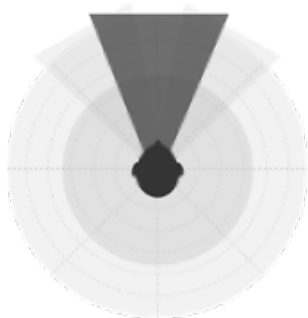
- 2 CROS/BiCROS



- 3 First Time User
Onboarding



- 4 Unmatched Directionality



- 5 The Future of Connectivity

 **Bluetooth®**
Bluetooth® LE Audio
 **AURACAST.**
A BLUETOOTH® TECHNOLOGY



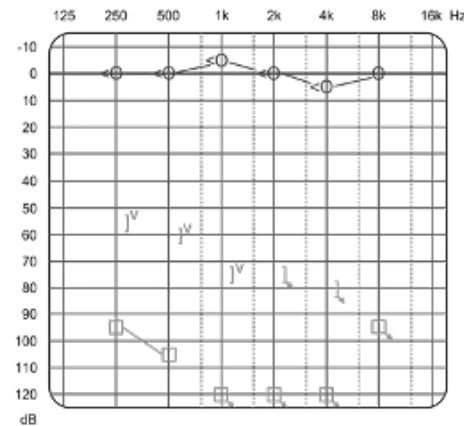
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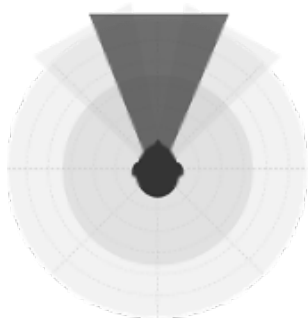
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Discretion and style matters



Discreetness, appearance
& fit in ears are top 3
when exploring hearing
aid options¹

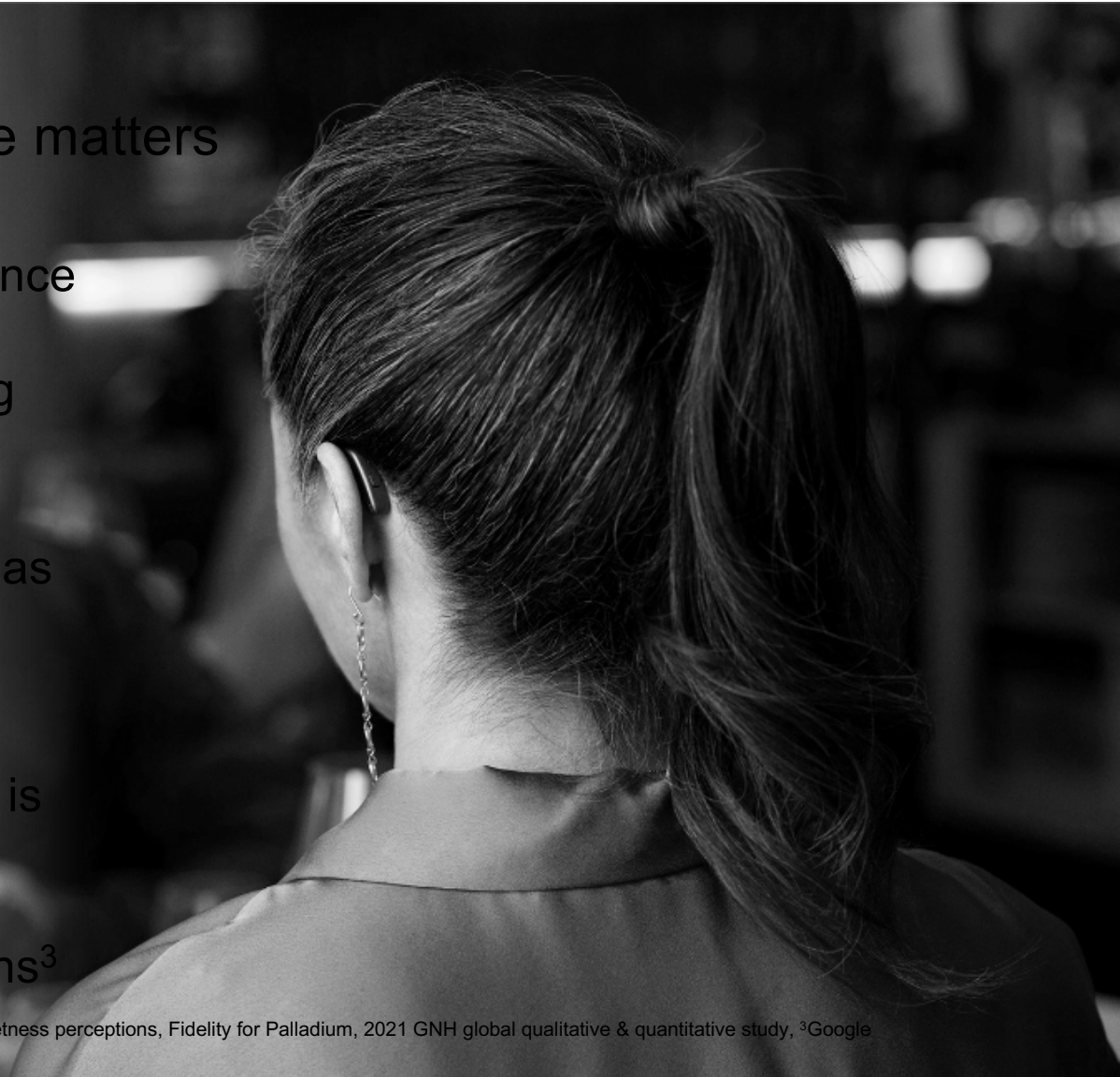
30%

Consider discreetness as
the most important
perceptual aspect²



“Invisible hearing aids” is
most searched
combination online by
people seeking solutions³

¹MarkeTrak 2022 & GN Hearing Customs / ITE Quantitative study, 2020, ²Discreetness perceptions, Fidelity for Palladium, 2021 GNH global qualitative & quantitative study, ³Google



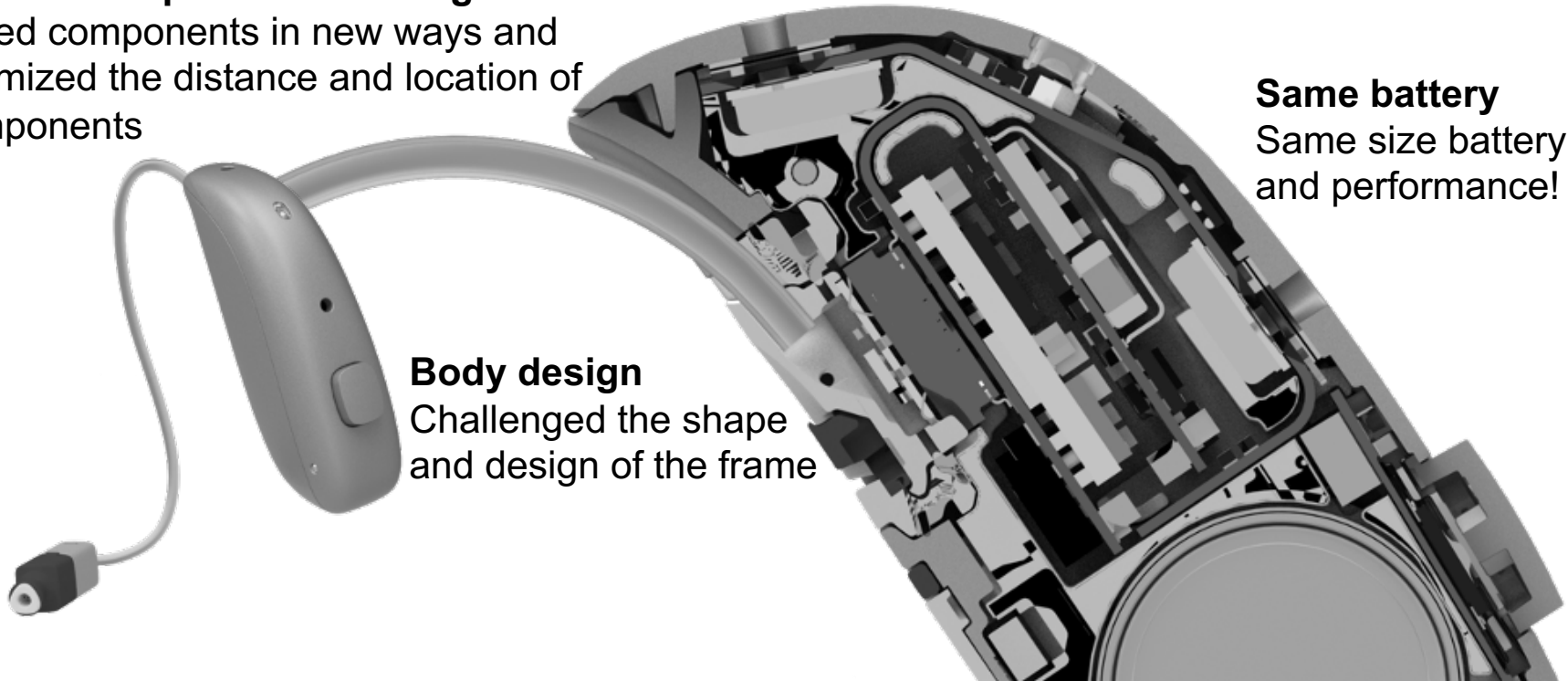
A practical game of Tetris...

Internal component re-arrangement
folded components in new ways and
optimized the distance and location of
components

Microphone ports optimized
Minimized the size requirements
of the microphone components
and position

Same battery
Same size battery
and performance!

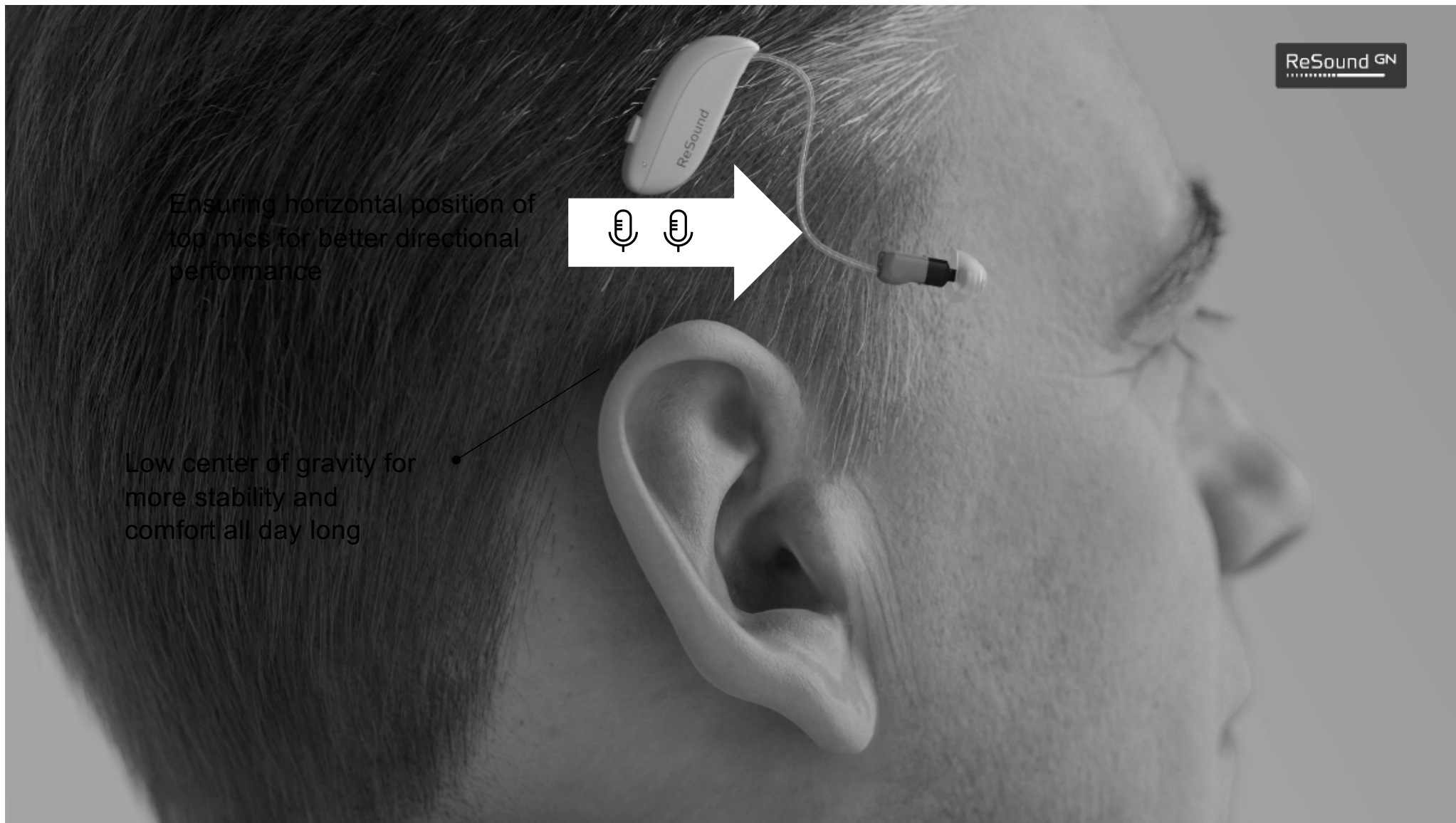
Body design
Challenged the shape
and design of the frame



Ensuring horizontal position of
top mics for better directional
performance



Low center of gravity for
more stability and
comfort all day long



Small. Uncompromised. And...

Same **150%** hearing in
noise performance as
ReSound OMNIA™

Same natural hearing with
M&RIE

Same battery and
processing power



25% smaller design

Accelerometer for easy
TapControl

CROS/BiCROS
Transmitter

New Connectivity
paradigm with BTLEA and
Auracast

Style options

TapControl



NX60S -DRWC

Micro RIE

Rechargeable



NX61 -DRW

NX62 -DRW

Standard RIE

312, 13 battery

In technology levels 9, 7, 5

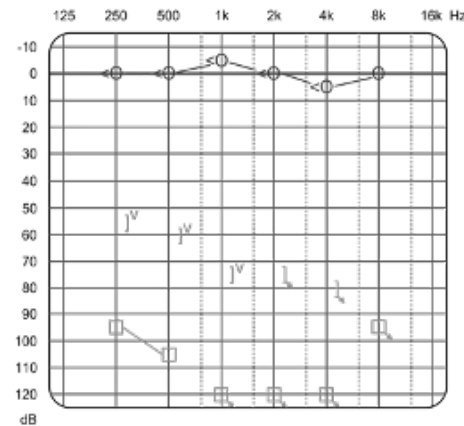
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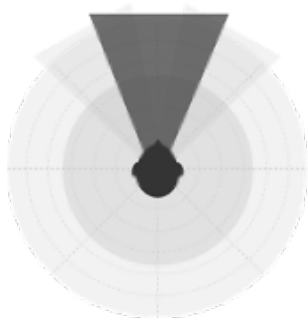
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New CROS transmitter

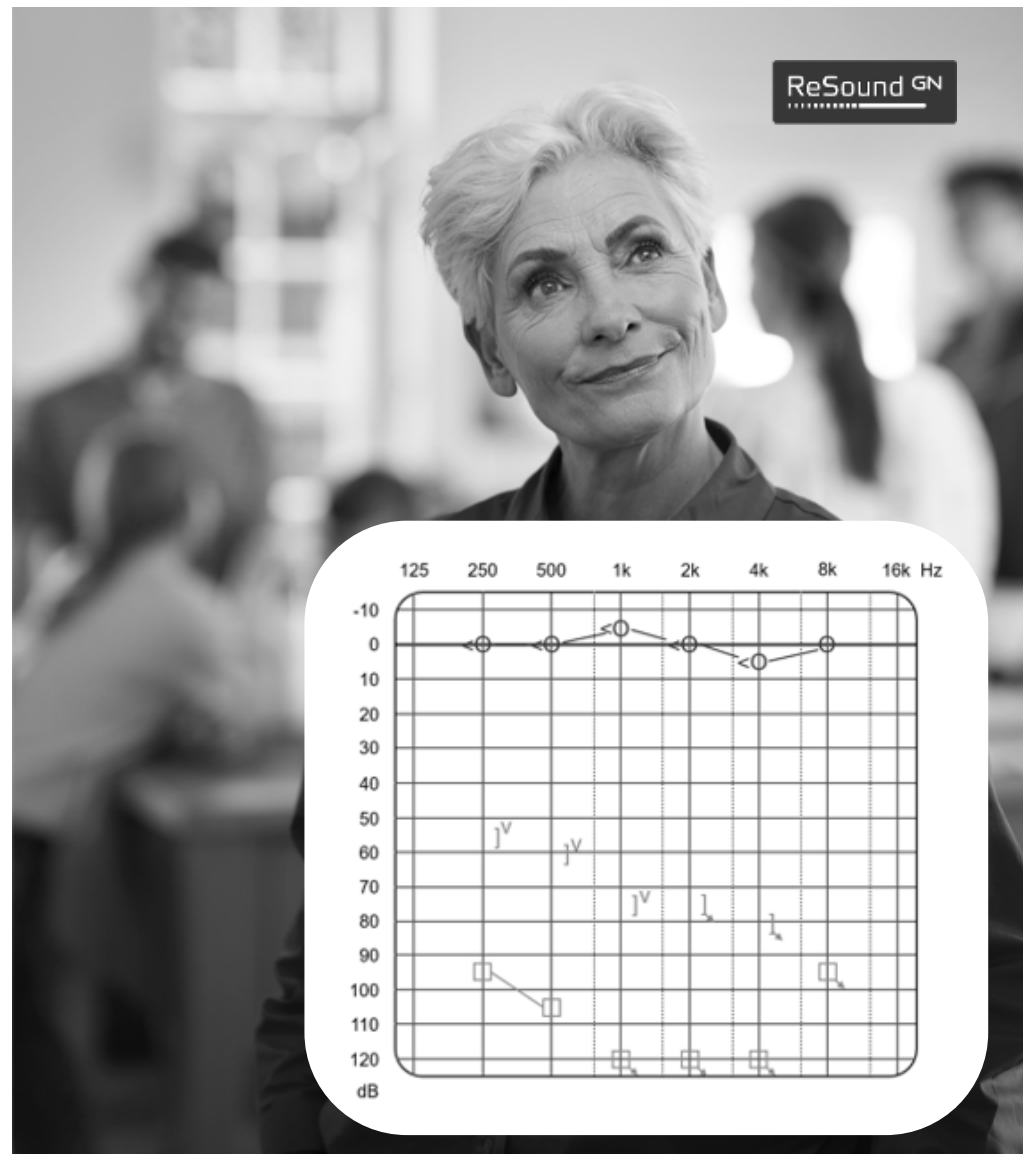


CX160S-DRWC



16h

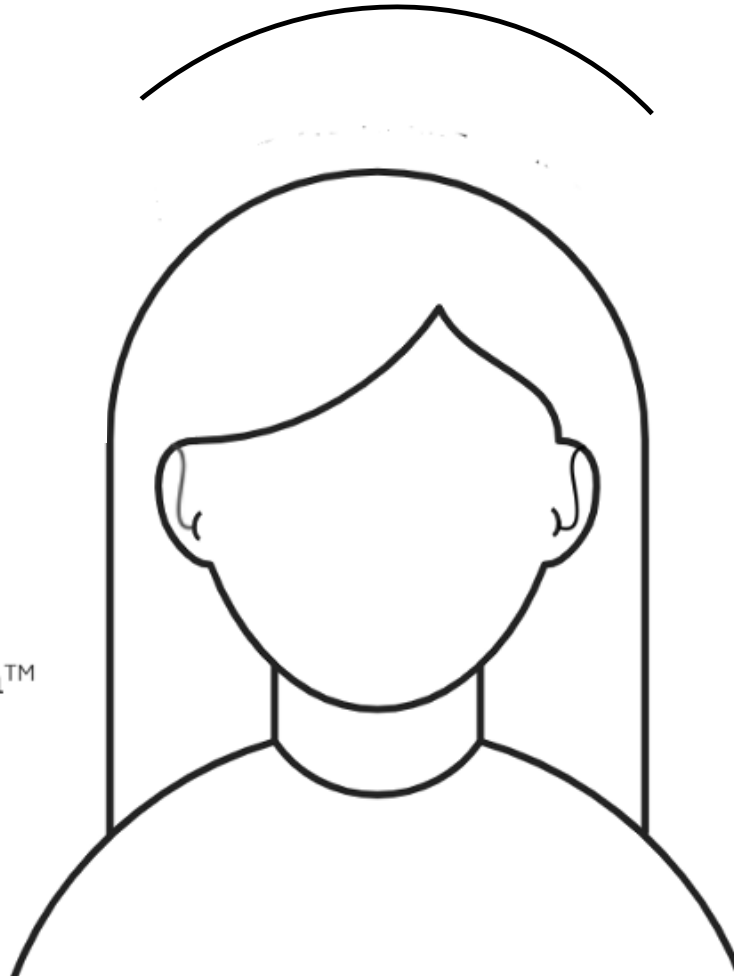
Battery life when
streaming audio to
the opposite ear



Contralateral Routing of Signal CROS

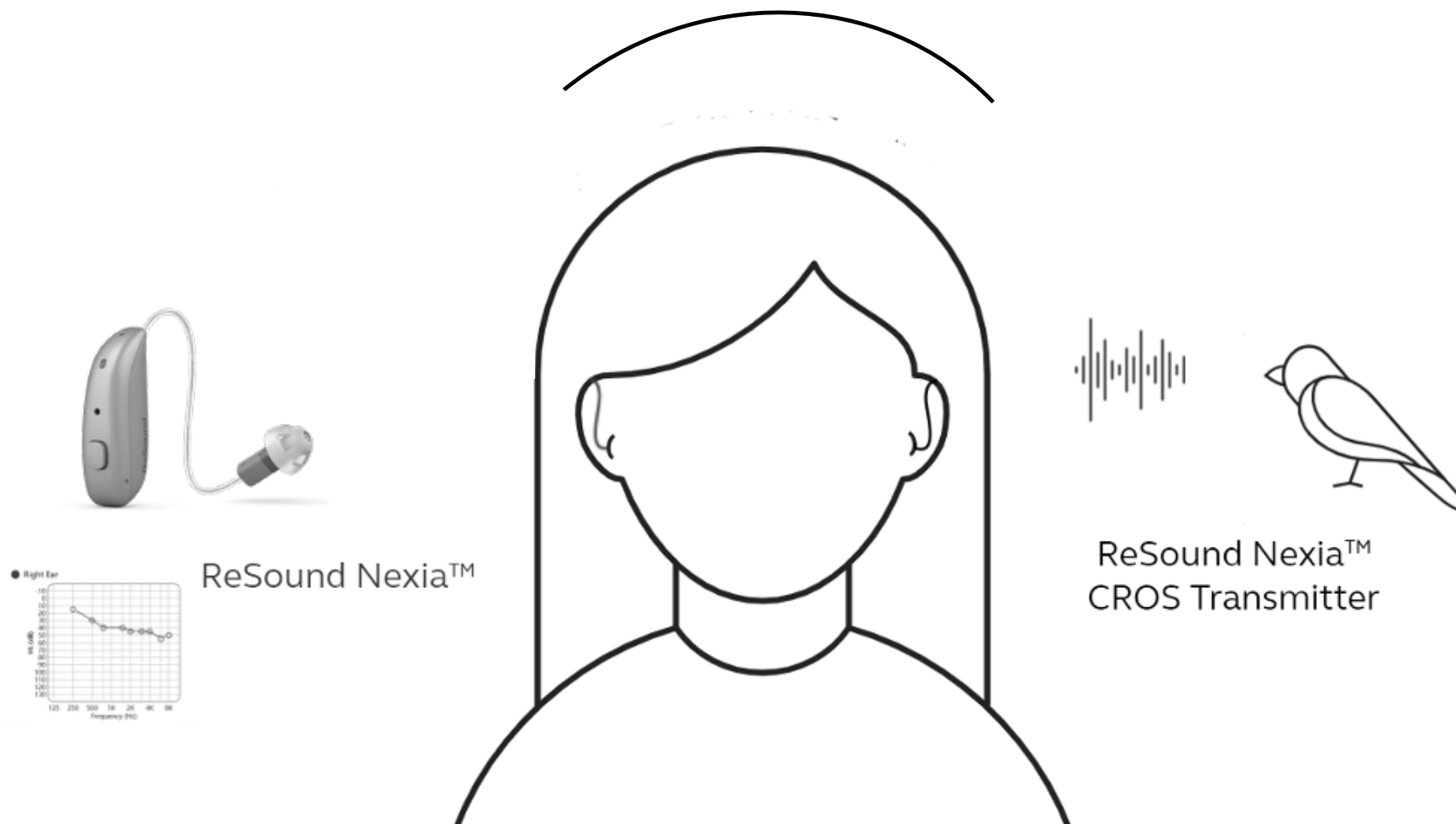


ReSound Nexia™



ReSound Nexia™
CROS Transmitter

Bilateral Contralateral Routing of Signal BiCROS



What is single-sided deafness (SSD)?

SSD is the significant or total loss of hearing in one ear

Main consequences



Hearing speech from the impaired side



Poor sound localization



Understanding speech in noise



Auditory fatigue



ReSound GN

Normal hearing
(PTA $\leq$ 25 HL)

Severe or worse
(PTA $>$ 70 HL)

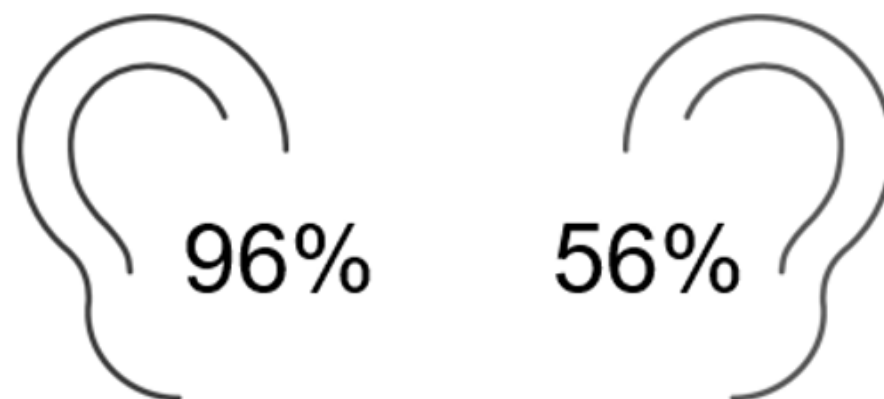
Did you know?

In USA, the prevalence of SSD is estimated at 0.14%, amounting to nearly 350.000 people

Unaidable is not always deaf

Those who have little-to-no usable hearing in one ear could have SSD and a "deaf" ear or they could have bilateral hearing but have poor word recognition in one ear. Either way, these patients may not benefit from amplification in the poorer ear.

With this in mind, one could think of those with an unaidable ear as people with single-sided hearing!



Ears with "poor" or "very poor" word recognition scores may also be considered unaidable

CROS Charging System



Premium Charger



Standard Charger



Desktop Charger

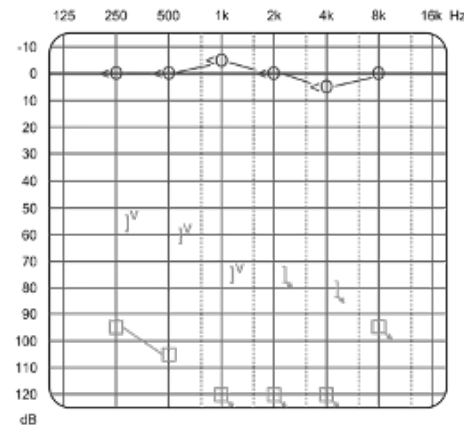
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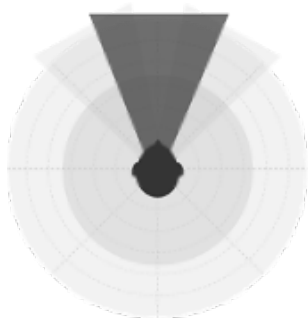
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New First Fit to Optimize Comfort

95% of first-time users
report challenges
getting started



Immediate acceptance is
important to acclimate



New hearing aid users
need an adjustment
period

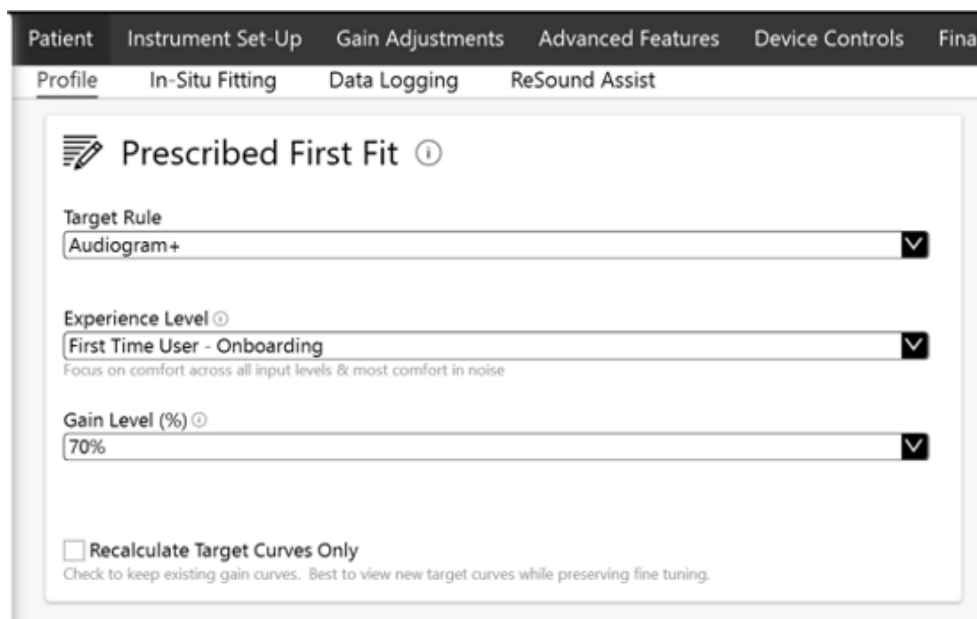


ReSound Smart Fit 1.17

Onboarding your patients
has never been easier



New user profile for patients who prefer a more comfortable sound experience at first fit



The screenshot shows the 'Prescribed First Fit' settings in the ReSound GN software. The interface has a dark header with tabs: Patient, Instrument Set-Up, Gain Adjustments, Advanced Features, Device Controls, and Final. Below the header, there are sub-tabs: Profile, In-Situ Fitting, Data Logging, and ReSound Assist. The 'Profile' tab is selected, and the 'Prescribed First Fit' section is active. It contains three dropdown menus: 'Target Rule' set to 'Audiogram+', 'Experience Level' set to 'First Time User - Onboarding' (with a sub-note: 'Focus on comfort across all input levels & most comfort in noise'), and 'Gain Level (%)' set to '70%'. At the bottom, there is a checkbox labeled 'Recalculate Target Curves Only' with a sub-note: 'Check to keep existing gain curves. Best to view new target curves while preserving fine tuning.'

First-time User - Onboarding

Sets gain level to 70% of the prescribed target level, reducing overall loudness.

Sets "Impulse Noise Reduction" in Advanced Features to "moderate"

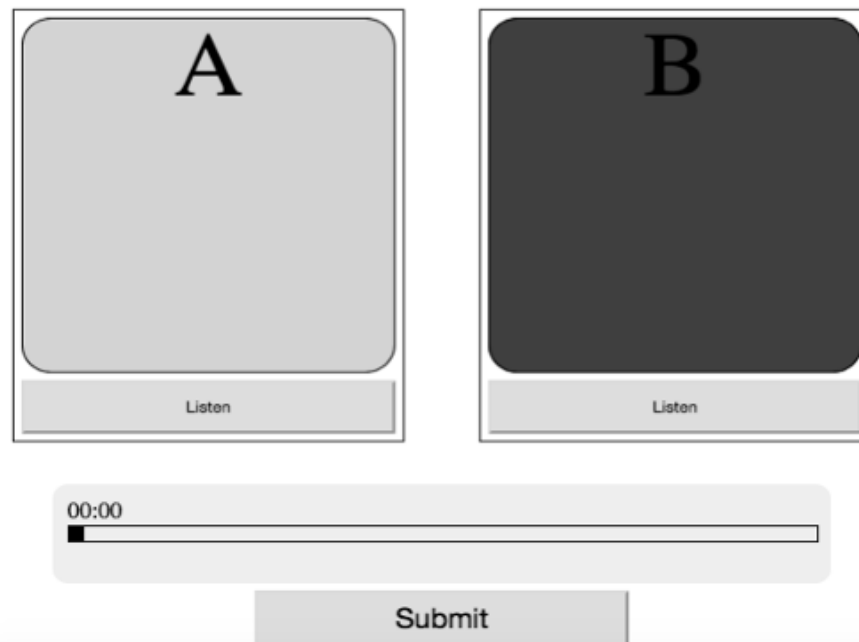
Replaces the profile "Comfort User", now with a more significant reduction in perceived loudness

First-Time User - Onboarding

- Listening test compared the new First-time user – Onboarding settings to two other manufacturer's first-time user settings.
- **The First Time User – Onboarding option was judged more positively or the same in all tests**
- New prescription settings can further support immediate acceptance of amplified sound.

Listening Test

Which sample of piano music is most comfortable?



The interface for the listening test consists of two main panels, A and B, each containing a large square area for audio playback and a 'Listen' button below it. Panel A has a light gray background, while Panel B has a dark gray background. Below these panels is a progress bar with a '00:00' timer on the left and a 'Submit' button on the right.

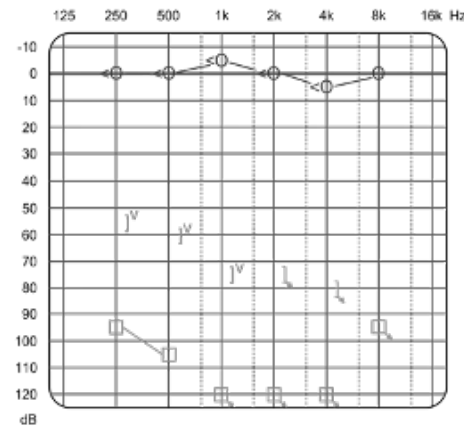
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ReSound GN

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Micro RIE



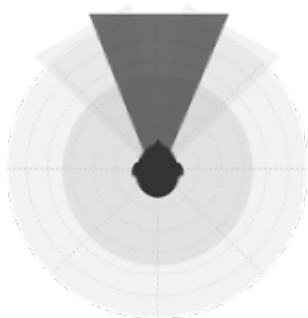
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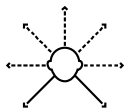
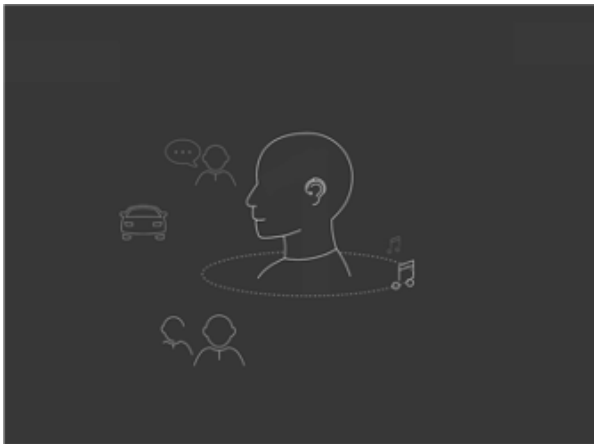
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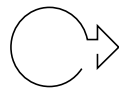


360 All-Around

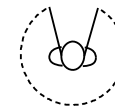
ReSound GN



Wider sound
environment
mapping



Faster detection,
selection and adaption
to environments

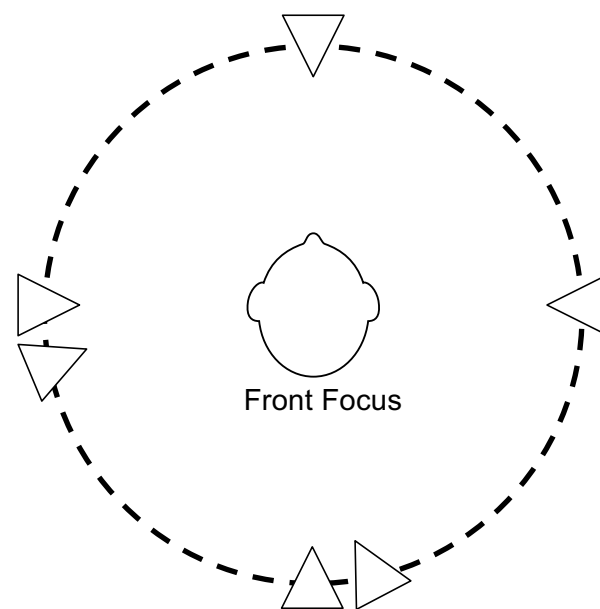


More precise beamforming
for best speech clarity in
any environment

Off-Axis Hearing

Industry best access to surrounding conversations

- Comparison to 3 other premium brands claiming access to sound all around
 - 4-microphone beamforming **or** conventional directional combined with strong noise reduction



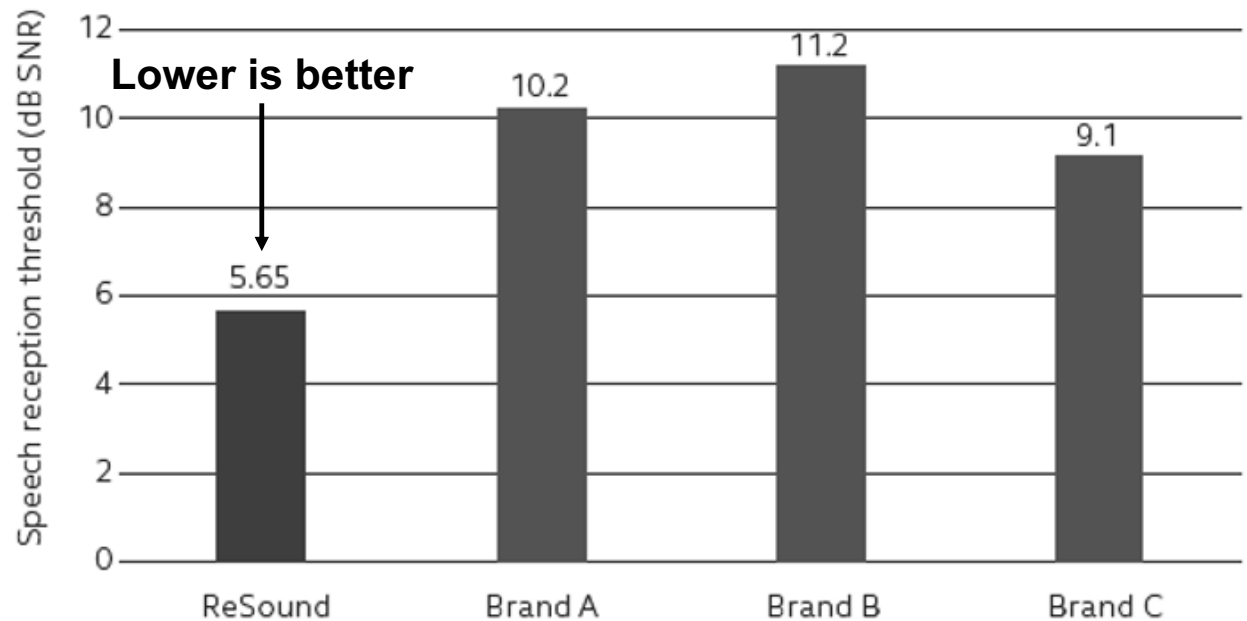
▷ Target
▷ Masker
▷ Noise

Groth et al (2023)

GN

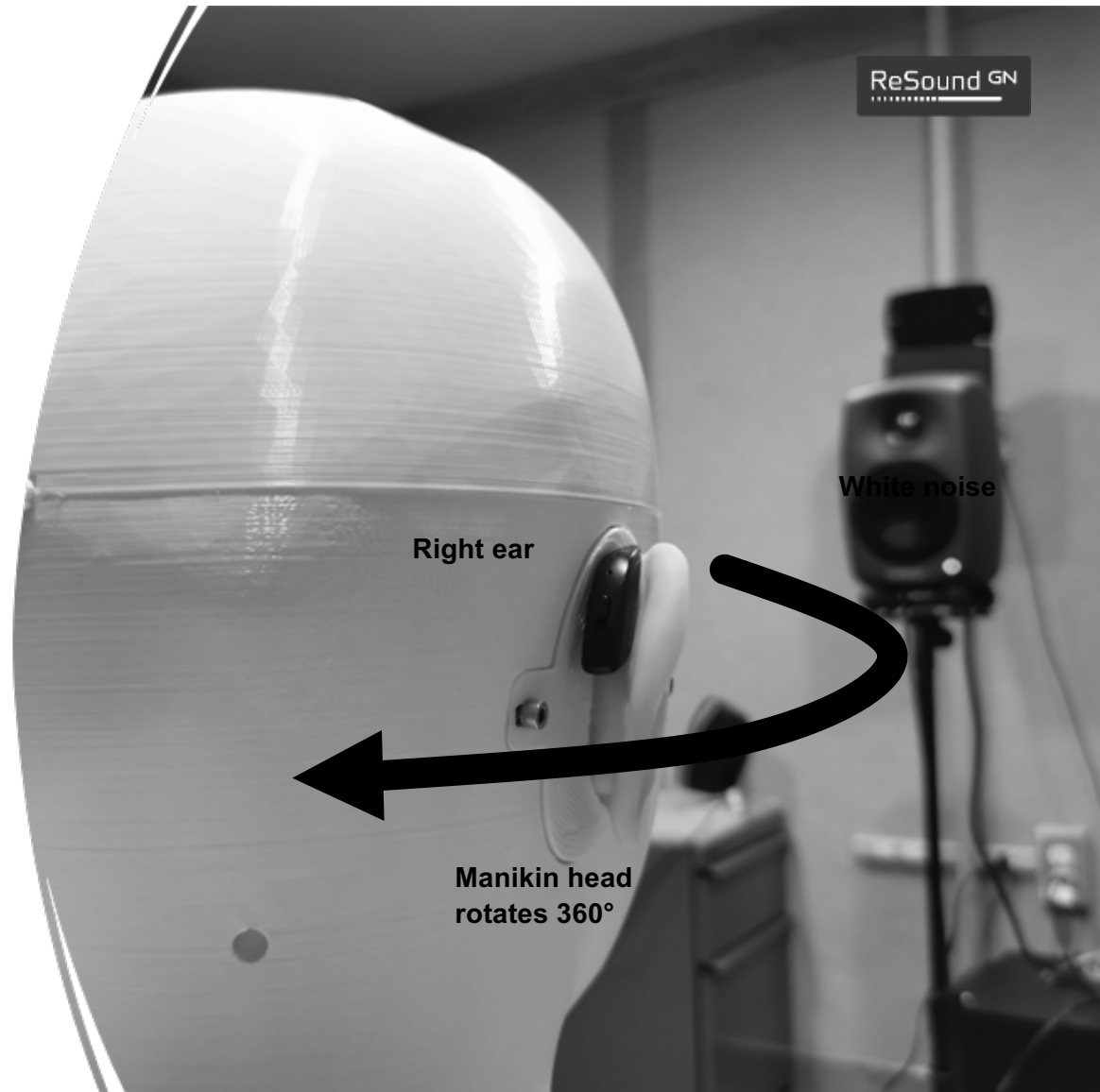
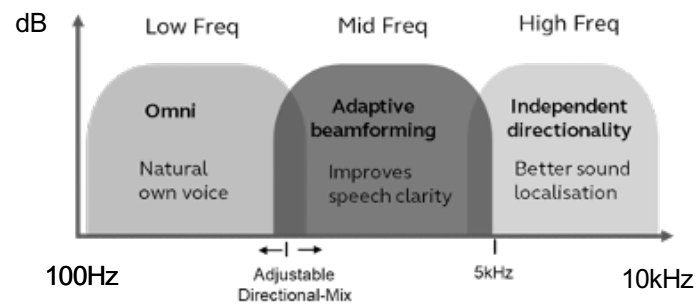
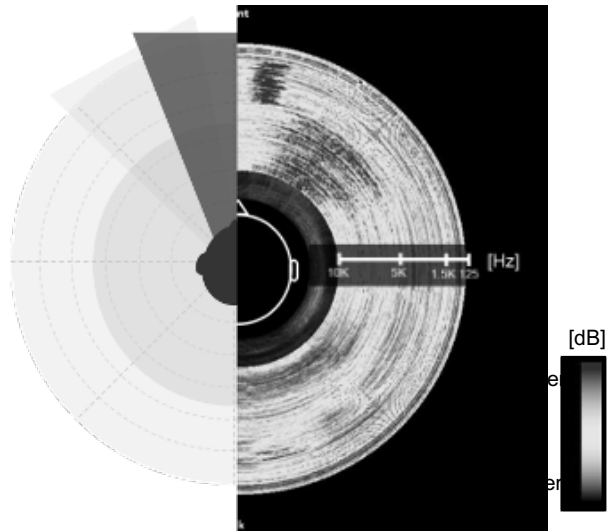
Results

- ReSound performs better than other brands when needing to access conversation from behind
- Average improvement in SNR was 4.4 dB
- **ReSound was at least 2 dB better in 88% of trials!**



Groth et al (2023)

Front Focus

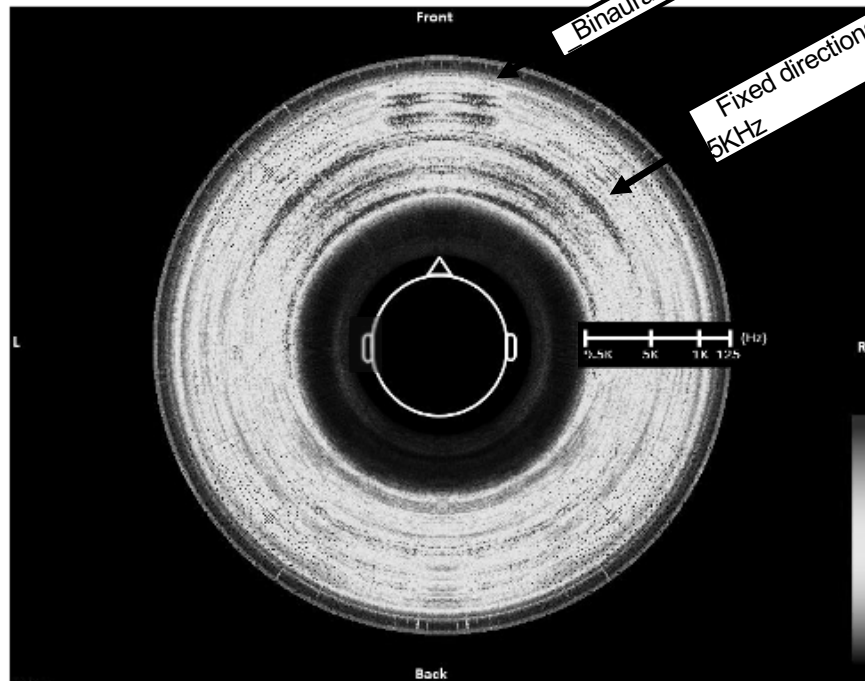


Directionality in Noisy Environment – Binaural

Center to edge of plot: High frequencies to low frequencies

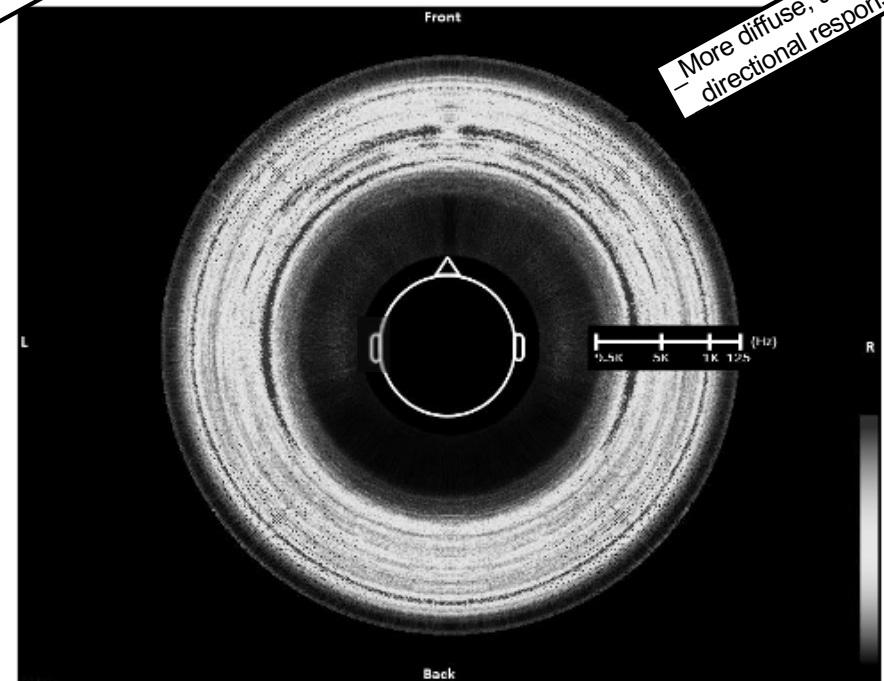
ReSound

Front Focus



Another Manufacturer

Binaural beamforming directionality

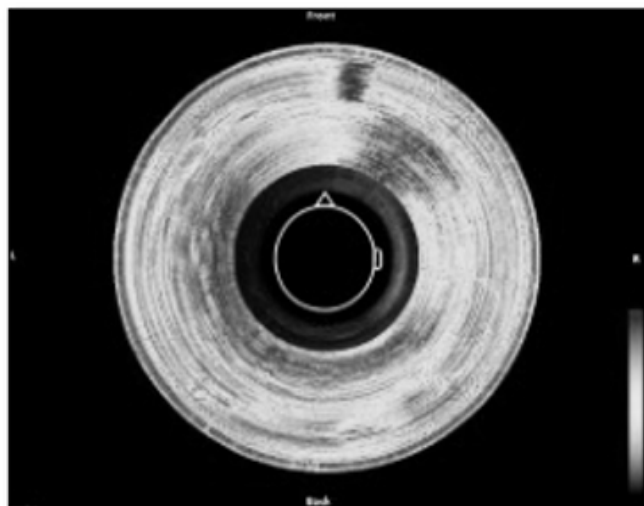


Note: More focused beamforming and multiband directionality

GN Making Life Sound Better

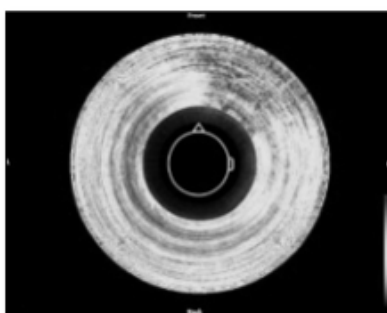
Spectrograms of Strongest Directional Settings Per Manufacturer

ReSound Nexia

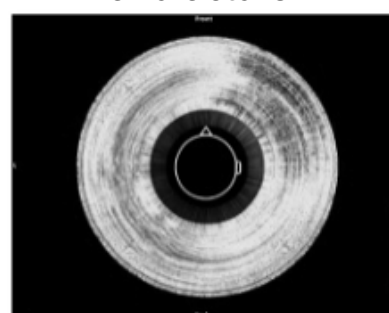


2 mic directionality systems

Manufacturer 1

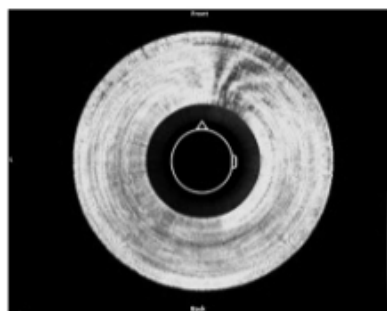


Manufacturer 2

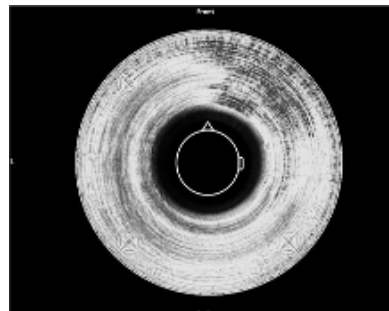


4 mic directionality systems

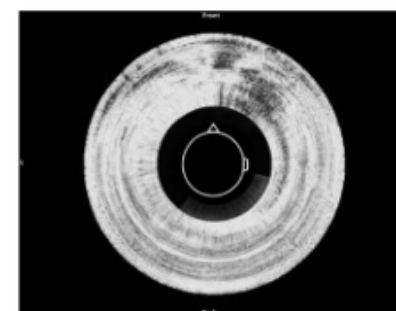
Manufacturer 3



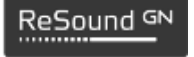
Manufacturer 4



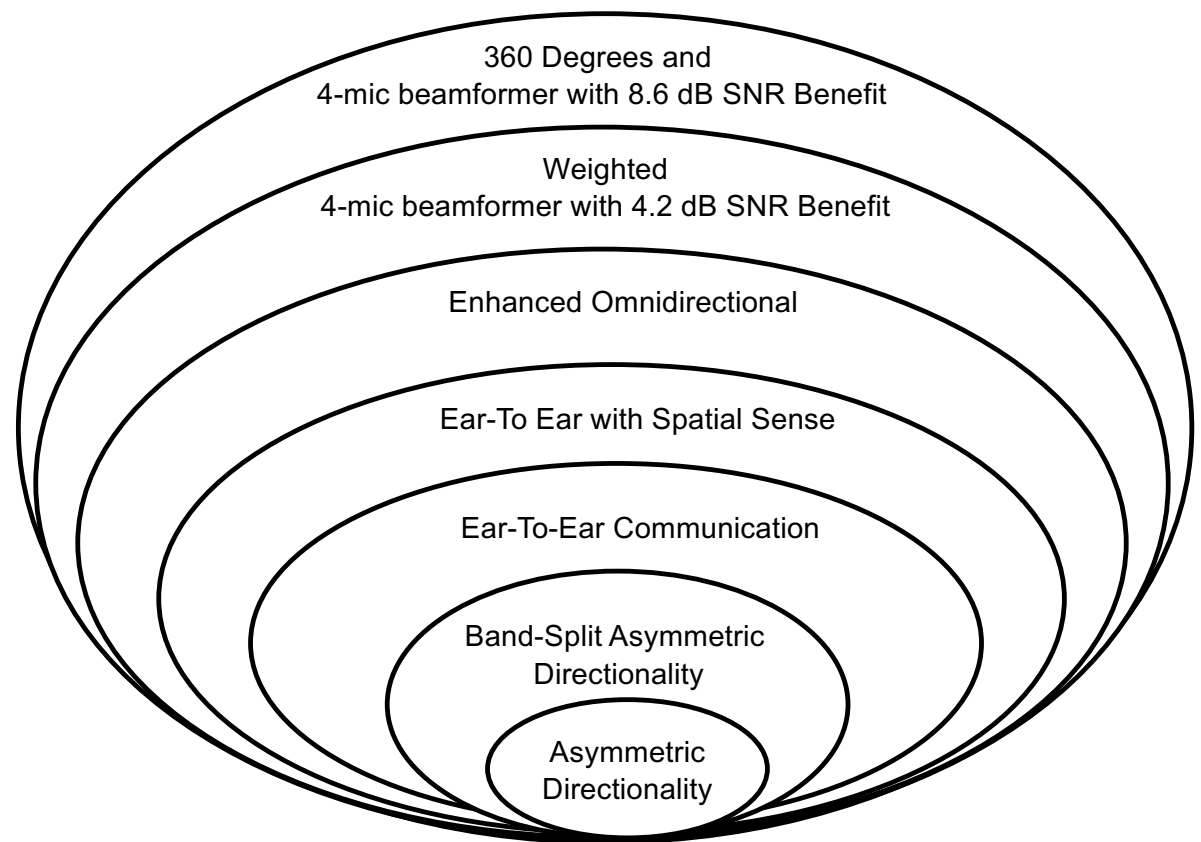
Manufacturer 5



360 All-Around is our 7th generation of directionality providing directional benefit without being cut off from the rest of the environment



OMNIA, Nexia	360 All-Around
ONE	All Access Directionality
LiNX Quattro	Binaural Directionality III
LiNX ² , LiNX 3D	Binaural Directionality II
Verso, LiNX	Binaural Directionality
Alera, Live	Natural Directionality II
Azure	Natural Directionality



ReSound GN

Download on the
App Store

GET IT ON
Google Play



Hear in Noise

Noise
filter

Speech
focus

Hear
everyone

Sound Enhancer

Home

Status

New Hear in Noise program

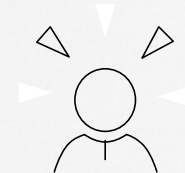
For clearer guidance when using the app



Restaurant



Ultra Focus &
Front Focus



Hear in Noise

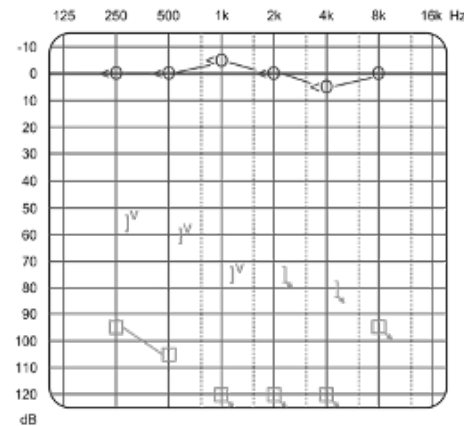
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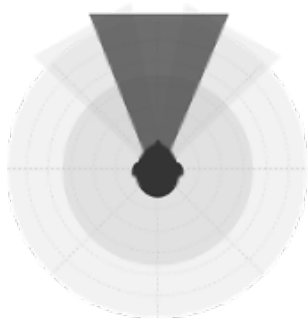
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Bluetooth® LE Audio

Calls and streaming from device



Direct connectivity to smartphone, tablets and computers for calls and streaming using Bluetooth Low Energy

Broadcasting



Stream sound to hearing aids using new TV streamer with Auracast technology and ready for Auracast Public Transmission

TV Streamer +



Current landscape

Did you know?

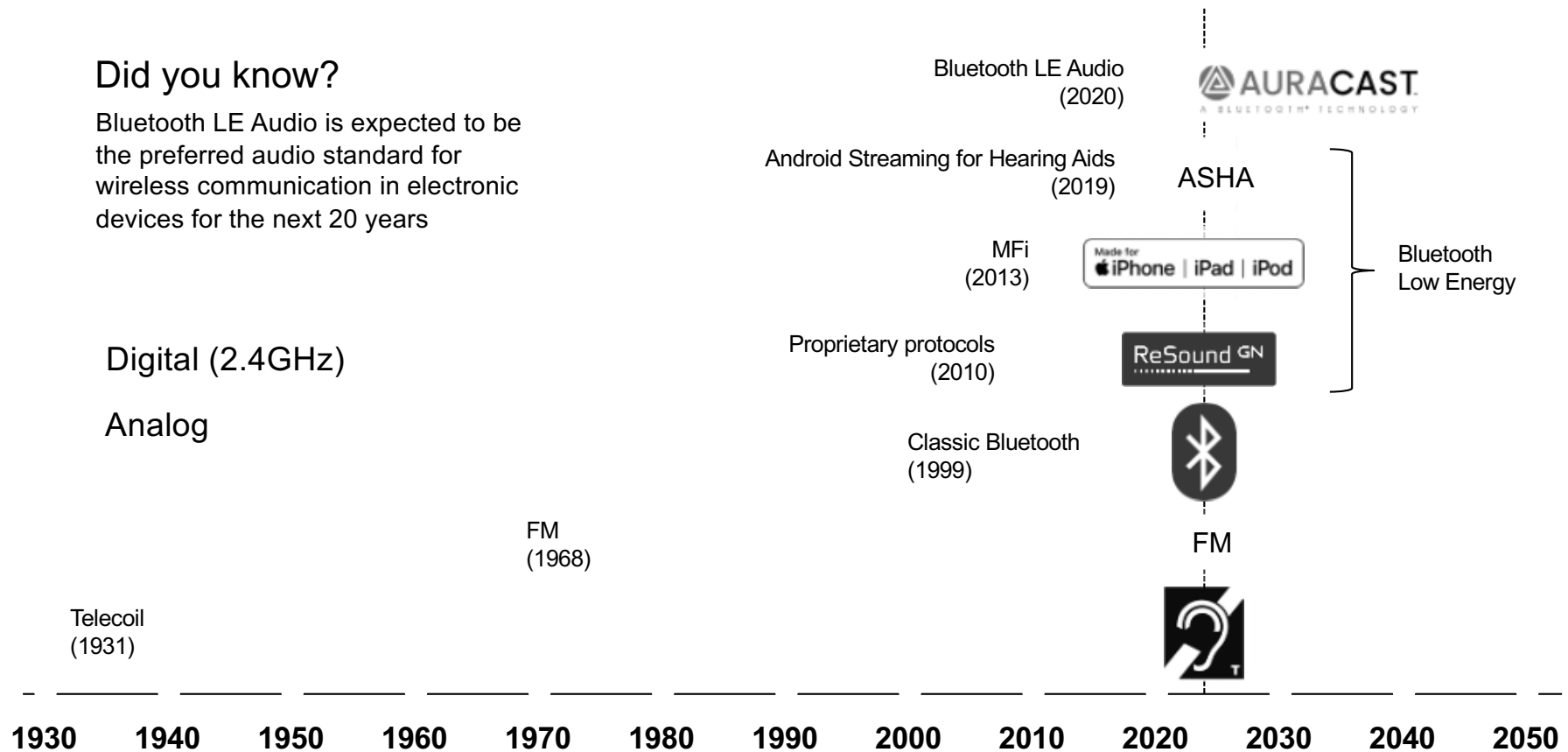
Bluetooth LE Audio is expected to be the preferred audio standard for wireless communication in electronic devices for the next 20 years

Digital (2.4GHz)

Analog

Today

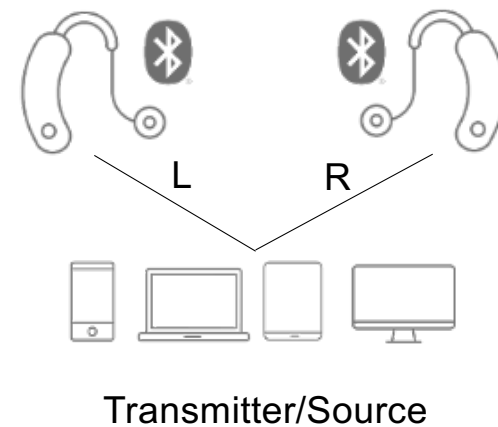
ReSound GN



The Solution: Standardization

Standardized Bluetooth LE Audio protocol

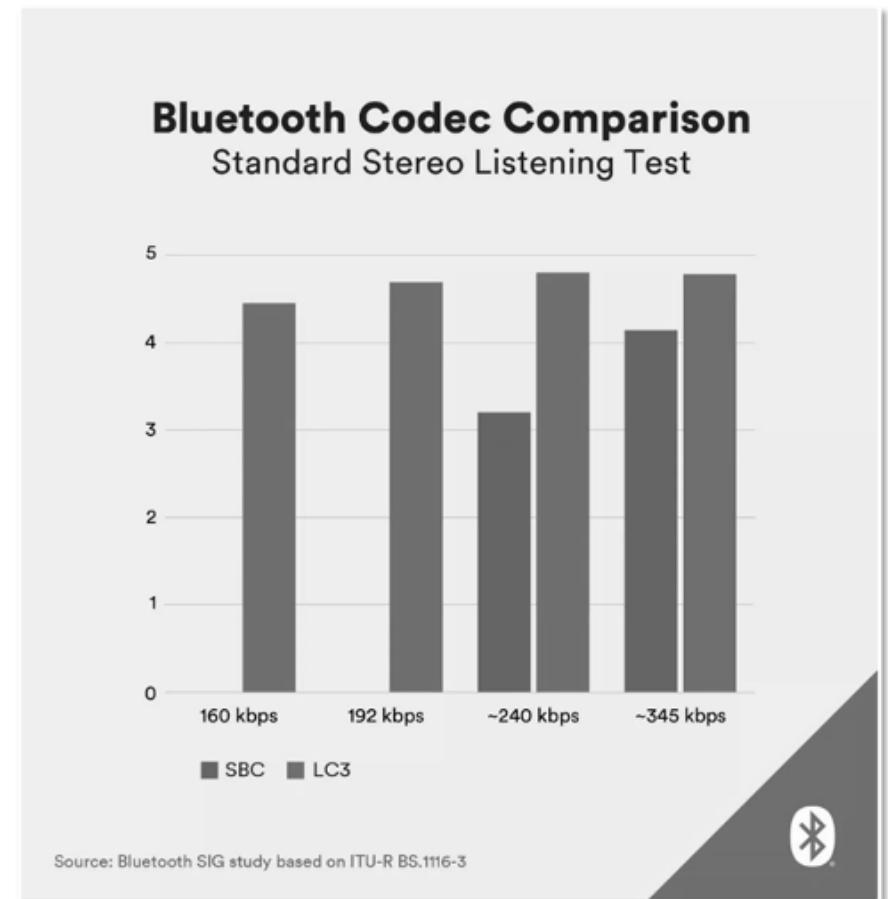
- New standardized profile for hearing aids (HAP)
- Better performance (quality, latency, power)
 - Low energy radio
 - New modern codec
 - Multi-streaming / binaural
- True, global interoperability
- More selection, choice, and accessibility



Better Sound Quality

Improved streaming audio quality at a lower bit rate

- LC3 codec will be compressing the audio
 - The degradation of audio quality will be imperceptible
 - Lower latency than any other form of Bluetooth®

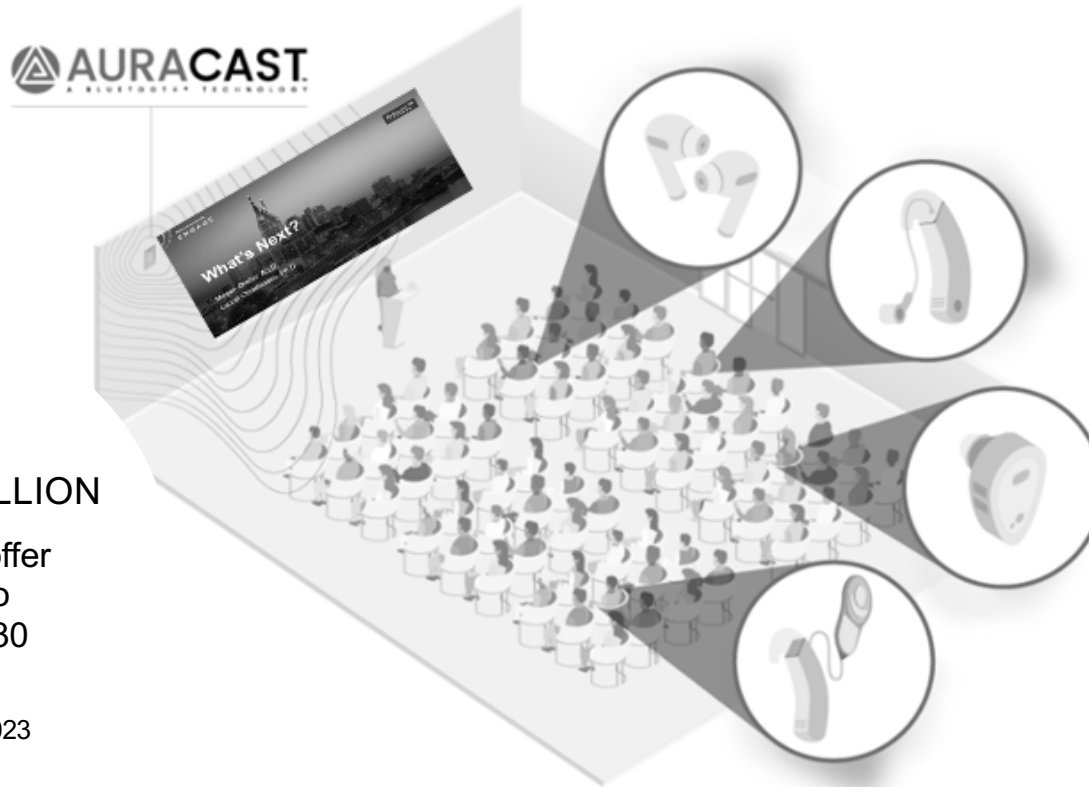


Broadcasting

2.5 MILLION

locations will offer
Auracast audio
globally by 2030

ABI Research, 2023



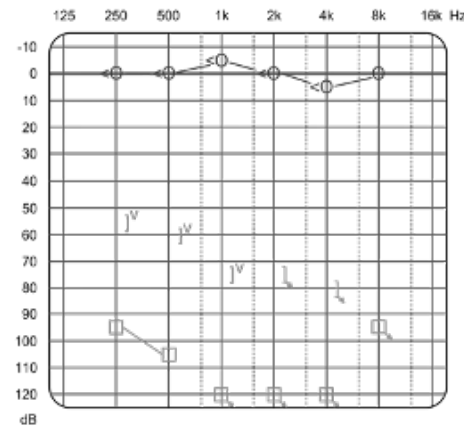
What did we learn about today?

ReSound GN

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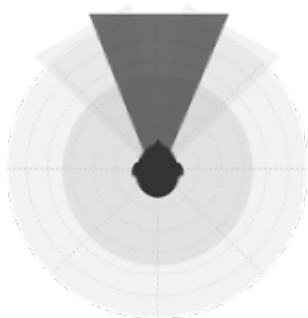
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ReSound GN

ReSound Nexia

Next-era Hearing

Top-rated for hearing in noise.
Smaller than ever. Ready for
Auracast™. And...

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