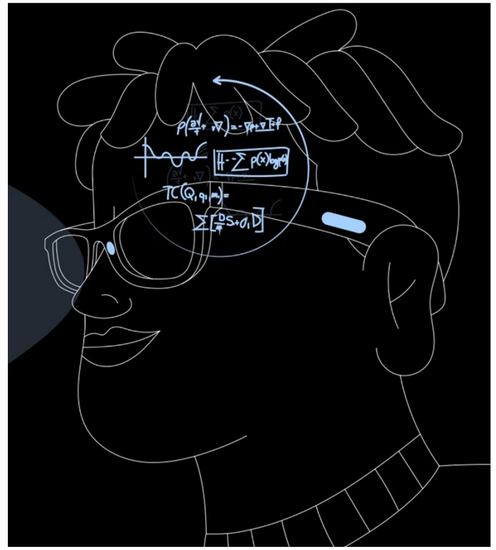
Keeping noise out: neural-network noise reduction

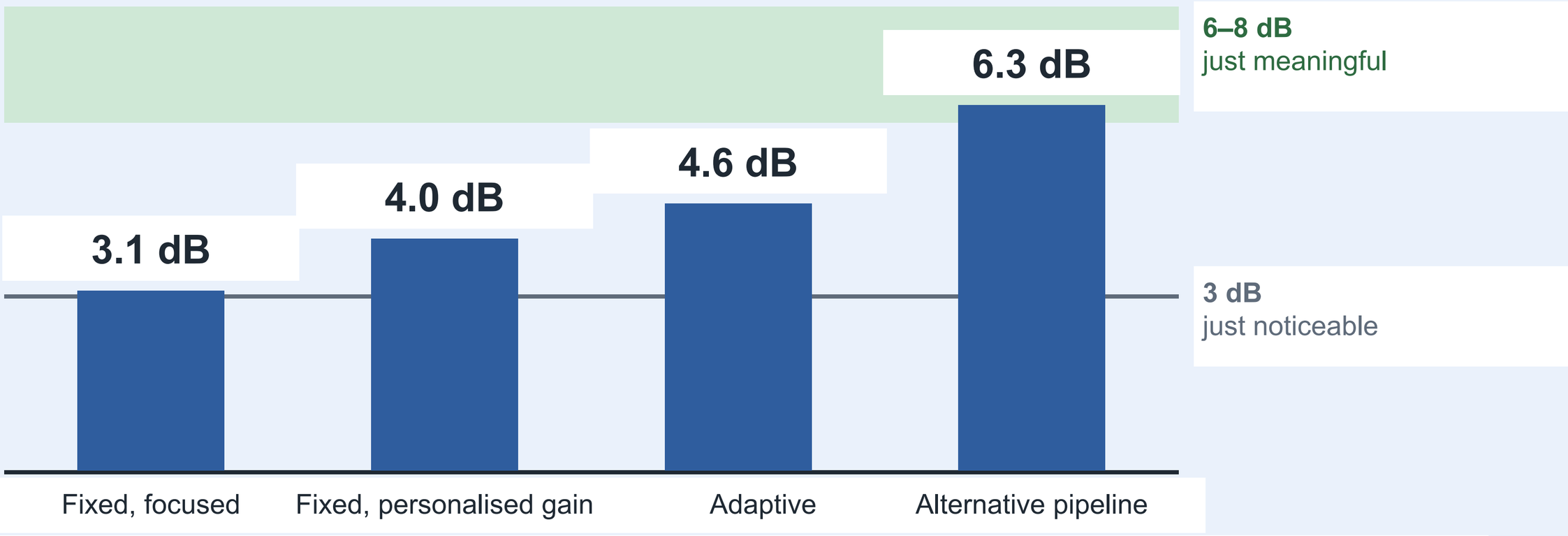
- Machine -Learning (ML) signal processing removes the noise the beam lets through and enhances the speech
- Goal: amplified noise well below the room's own background



Animation: RL Research Audio, Fall 2023 Symposium

RESEARCH · RESEARCH PLATFORMS · NOT THE CLEARED PRODUCT

Same listeners, different processing: 3 to 6 dB



Internal: HE+ Matrix Assessment, final results (Mar 2025). 11 listeners with hearing loss. Matrix sentences from the front, speech-shaped noise at ±90°. SNR-50 vs device off.

“Research on a glasses platform is now delivering, for hearing-impaired listeners, the 6–8 dB that hasn’t been possible with conventional hearing-aid technology.”

03 What we brought to market



Hearing enhancement: what was cleared

- FDA 510(k) K254044, cleared July 13, 2026
- OTC, self-fitting software; US adults 18+ with perceived mild-to-moderate hearing loss
- Pivotal: 142 participants, three US sites, 14-day at-home phase
- Self-fit non-inferior to professional fit on IOI-HA ($p = 0.004$) and QuickSIN ($p < 0.001$)
- Consistent across hearing classification, age, sex and race

Public 510(k) summary K254044. Predicate: DEN230081. Glasses form-factor precedent: K243150. OSPL90 108.6 dB SPL · latency 9.25 ms · 232–7,809 Hz.

What it does not claim

- Non-inferiority is not superiority
- Not a claim about complex or asymmetric losses, or medical pathology
- Nothing outside perceived mild -to-moderate

Indication: K254044. Quoted limitation: Connect public messaging

04 The front end: group solutions, Deaf and Hard of Hearing (DHH), and the standard



Decouple the two jobs

Glasses: the front end

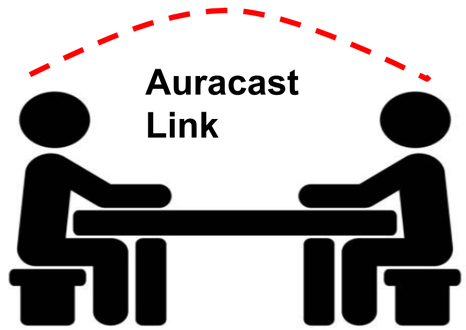
Capture, scene analysis, target selection, beamforming

Hearing aid or cochlear implant

The audibility transform the clinician prescribed, verified and owns

Neither displaces the other.

Stream the cleaned voice directly into a hearing aid or cochlear implant. For the patients this profession finds hardest to help.



The vision: everyone at the table, in the conversation

Each person’s glasses

Pick up each wearer’s voice at the mouth, before the noise gets in

The listener’s hearing aid or cochlear implant

Receives everyone’s cleaned voice as one stream



A loud restaurant, and the person with the implant follows everyone.

Concept: Aurachat for DHH, RLR-A Spring 2026 Symposium. Streaming over Bluetooth LE Audio (Auracast).