About 20 dB, in noise above 75+ dBA

≈20 dB

−8 dB → +12 dB

unaided SNR → with the group system ≈20 dB SNR improvement

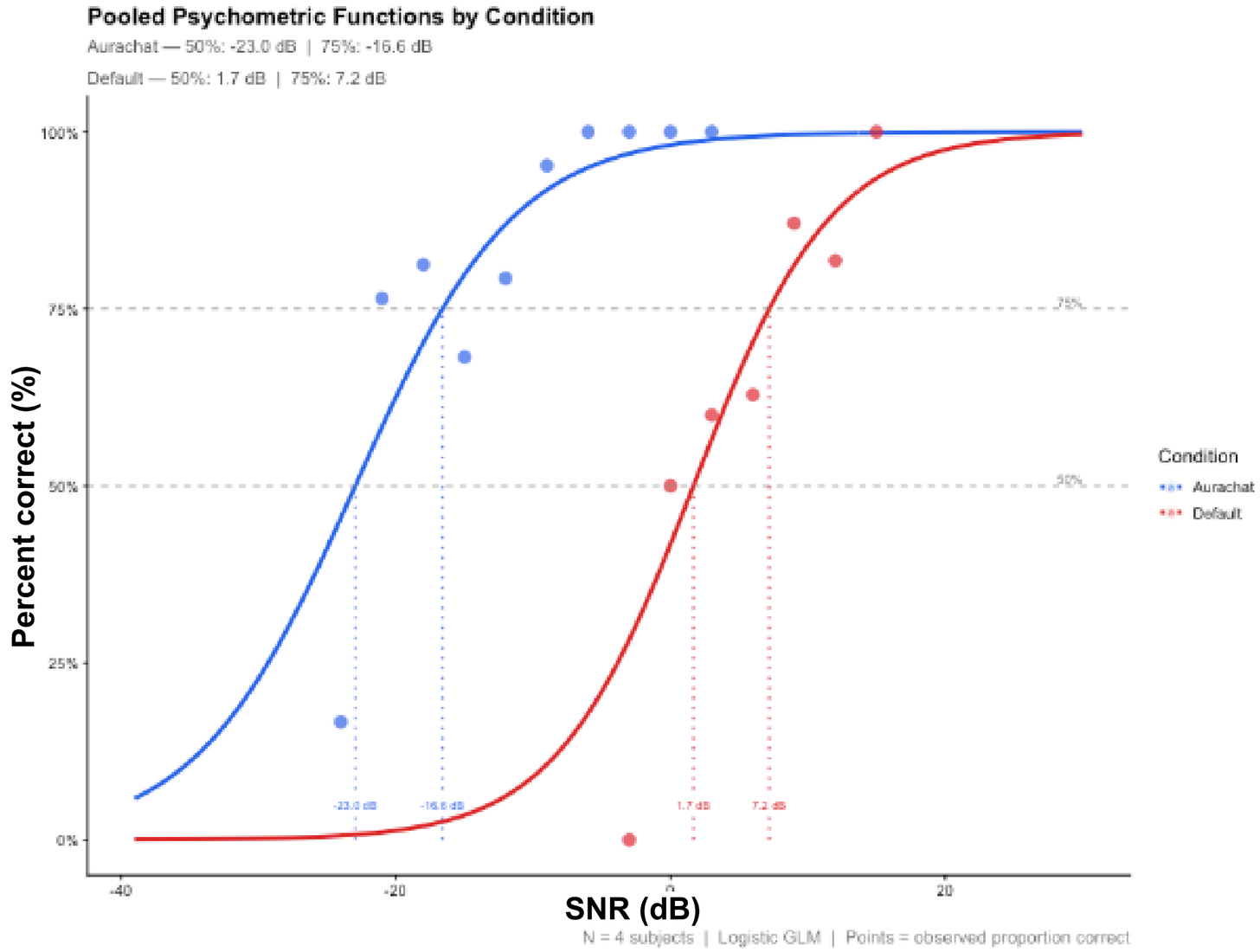
Receiver: hearing aids, CI or noise - cancelling hearables, with Auracast

Hearing aids and CI processors are open or vented. Extending this to them is what the standardisation work is for.

Hearables can contribute about 20 dB of noise attenuation in the scene as sealed devices.

Internal: Comfortable Conversation / Aurachat on Hearables (May 2025 symposium).

Initial study on a small number of CI users



Standardising it: Group Voice Chat at the Bluetooth SIG

- Meta is leading the standardisation
- Feature Requirements Document approved by the Hearing Aid Working Group; now with Core Specification
- Architecture meets all requirements; v2 specification completed August 2026
- Target adoption October 2028
- Demonstrated to chipmakers, Bluetooth SIG leadership and six hearing aid companies

Internal: Wireless XFN / BT -SIG updates; DBIG v2 specification (Aug 2026).

A remaining problem in quiet situations, said out loud

- Every group who has tried it, hearing aid companies included, reports audible echo when talking to someone less than two metres away in quiet, however in noise the direct path is inaudible so the net gain is +20 dB in noise
- A latency artefact: the requirement targets under 40 ms end to end

05 Open problems for the field

Every improvement in audibility and SNR raises the value, but more is needed for a successful user, the bar raises

- Communication strategies
- Managing the device
- Hearing health education
- Involving family

e.g. Humes et al. (2024) A Perspective on **Auditory Wellness** : What It Is, Why It Is Important, and How It Can Be Managed. Trends Hear

Existing measures like IOI-HA and QuickSIN were designed for traditional form factors, fit in a traditional clinical environment.

How should we measure benefit across hundreds of scenes and weeks of wear, against what the person was trying to do?

Open problems the field is best placed to lead

Outcomes for all-day devices

Measures that capture benefit across real scenes and weeks of wear: EMA, scene information, data logging

Fitting and verification for new form factors

Personalising beyond the audiogram (including AI-assisted adjustment), verifying open-ear devices, and the complex cases that stay clinical

Interoperability and shared research

Standards that work with the devices you fit, open research platforms, published results

Audibility was the 20th-century problem.

SNR is becoming an engineering problem.

Getting benefit that matters to every patient, including those hardest to help, is work for this room.

THANK YOU


Meta

Backup

For Q&A only

The Glasgow study: nuances and limits

- Listeners who had never tried a hearing aid: just -meaningful difference (JMD) ≈ 4 dB; experienced users ≈ 6 dB, so experienced users are harder to impress
- At favourable reference SNRs the JMD exceeded 8 dB, the largest change tested
- Limits: speech-shaped unmodulated noise, diotic headphones, no spatial separation, judgements over 2–3 seconds
- The authors flag that what is meaningful over hours, days and weeks may differ greatly

McShefferty, Whitmer & Akeroyd (2016). The just-meaningful difference in speech-to-noise ratio. Trends in Hearing 20:1–11. doi:10.1177/2331216515626570

More results that were unexpected

- Hearing Enhancement v1 (Feb 2024): no change at ±3 dB SNR, improvement at 0 dB, a significant decline at −6 dB
- An early enhancement build: intelligibility 10.5% lower and self-reported effort 10.8% higher than off
- Blinded study: 96% preferred the feature on, but participants often could not tell whether it was on

Internal: HE v1 perceptual evaluation (Feb 2024); enhancement benchmarking (Aug 2024); blinded preference study.

Aided vs unaided: 4.8 dB, in the public record

- Within-participant speech-in-noise benefit: 4.8 dB (SD 5.3) with self-fitting
- Stated in the public 510(k) summary (p. 11) and in the Instructions For Use
- REM confirmed equivalent insertion gains for self-fit vs professional fit at 50, 65 and 75 dB SPL

Public 510(k) summary K254044, p. 11 · Instructions For Use, doc 1000144 (Rev 2–6).

Technical Architecture

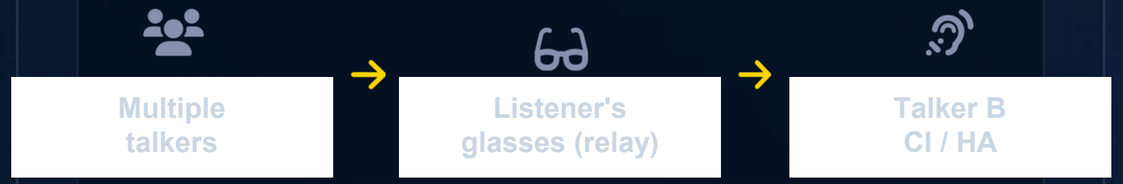
Two Approaches to Audio Delivery

1-Hop (Direct)



- **Lowest Latency:** Direct transmission minimizes delay.
- **Simplicity:** Fewer points of failure in the connection.
- **Limitation:** Supports 1-to-1 conversations and 1-to-many listening only scenario.

2-Hop (Relay)



Smart glasses act as relay: decode multiple streams → mix → encode → stream to CI/HA

- **Capability:** Support group conversation including CI/HA users.
- **Complexity:** Higher latency due to decoding/mixing/encoding steps.

Performance Targets

Key Metrics for DHH Success



+20 dB

SNR IMPROVEMENT

Achieved via beamforming at capture + direct Auracast streaming, bypassing acoustic noise.



~67 ms

SYSTEM LATENCY

End-to-end latency from speaker capture to listener delivery (latest test results).

Target: <80 ms

Research: can LLMs make fitting and adjustment low-friction?

An assistant that lets someone adjust their hearing settings by saying what is wrong

“Everything sounds tinny.”

“I can’t hear my grandson in the car.”