

Nuance Audio Hearing Glasses

BY GARETH SMITH AND JOSEPH BLACKABY

EssilorLuxottica's Nuance Audio is the latest entrant to the over-the-counter (OTC) market in hearing devices. This device comes with a marked difference from the rest of the market offering.

Nuance Audio is a pair of glasses with an integrated hearing device, taking a multi-mic, beamforming approach to delivering the sound to the open ear. Shunning the hearing aid attached to the frame temples or using bone-conduction tips, Nuance Audio features speakers embedded directly into the temples, aligned with the tragus of the pinna to deliver a fully-open ear experience.

Having launched in the US, Nuance Audio is now making its debut to the European markets. Supplied in the UK via Vision Express, there are two frame shapes available – Panthos and Audio Square – and these both come in black or burgundy options. The frames can be supplied with plano, transition lenses or the wearer's own prescription. For the purpose of this review, we were supplied with the Panthos 48 model in black.

Out of the box, you are supplied with a charging pad, USB-C charging cord, the Nuance Audio glasses with plano lenses, cleaning cloth, quick-start guide and full user manual.

Onboard controls include on / off, volume control via quick presses and a programme change button via a touch-sensitive area on the temple.

The Nuance Audio app is available for Android and iOS. We paired the device with a Samsung S24 and app version 1.3.2 downloaded from the Play Store. App and glasses were quick to pair and the app

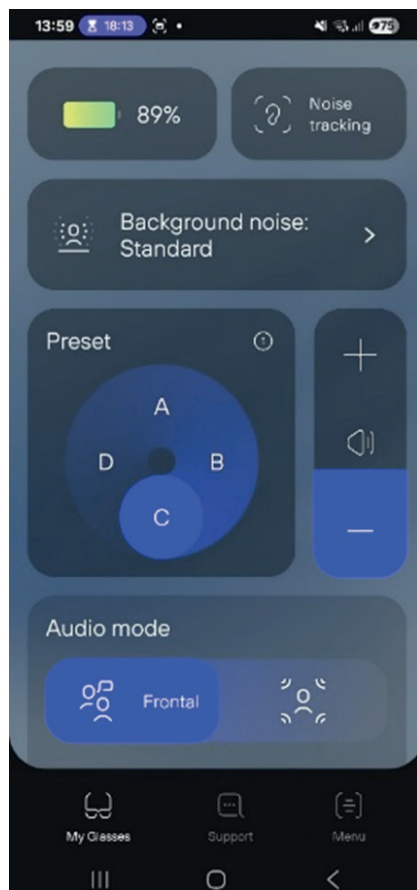


Figure 1: Screenshot of app.

offered instructions, including sections on how to use the app and how to use the glasses. Within the app, there is a volume control, battery status tracker, background noise adjustment option, directional / omni-directional option and four preset audio conditions with narrative descriptors (Figure 1).

It's worth coming back to that open-ear design at this point. The Nuance offers a truly open-ear experience. There are no wires or tubes coming off the frames, nor any need for pressure on the mastoid as in bone-conduction. It solely relies on the speakers mounted on the frame, which are in alignment with the open ear canal. By fully utilising the design of the frame, the Nuance Audio team has also cleverly used the space available to create multiple microphone points, ensuring directionality is a key feature of the technology.

In the clinic, we took the Panthos through a clinical real ear-measurement (REM) approach to verifications (using Audiotdata Primus Pro). This would not be something expected through the current OTC delivery model, but we were keen to understand the amplification being delivered via the open-ear approach. NAL-NL2 was selected as the prescription method, with the open-ear settings selected for the measurements. The first author's ears were used. Given there is no audiometric data supplied either in the booklet or the app, an ISO 7029 audiogram for the 50th percentile of a 70-year-old male population was created within NOAH (Figure 2). The authors recognise the limitations of this approach but were keen to look at the gain modelling within the device's presets.

REM match, using option B (described as 'sloping mild hearing loss') was performed at 65 dB and 80 dB, both of which demonstrated a high level of gain in the high frequencies (Figure 3), with output significantly above the predicted prescription curve. The same procedure was completed using option C (described

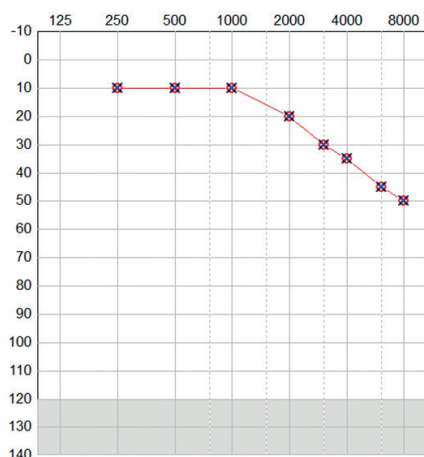


Figure 2: Audiogram used for REM measurement.

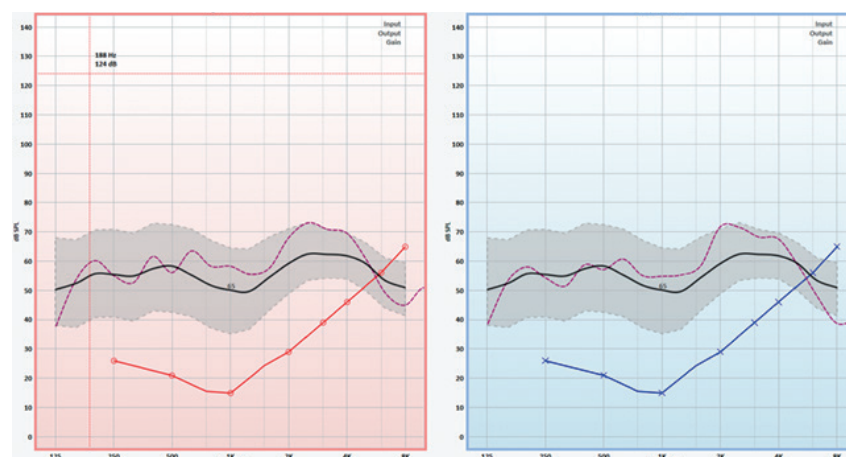


Figure 3: Profile B, 65 dB input level.



Nuance ambassador, Martin Kemp, wearing the frames.

as 'sloping moderate loss'). This time there was little change in the high frequencies but some additional gain in the mid frequency (Figure 4).

The premise of the device is OTC, so we wanted to see how the glasses worked in the real world. A colleague with mild, bilateral sensorineural hearing loss joined the first author in the hospital canteen so we could assess the speech in noise function. The scenario was multiple talkers surrounding us and a face-to-face, one-to-one conversation, without lipreading. We spent a short amount of time with orientation, working through live conversational speech and the app



options to see which suited the colleague. We then used live voice without lipreading to conduct the test. The test subject was not familiar with BKB lists. BKB list five was used unaided, scoring 80%. This was followed by BKB list seven aided, which scored 84%. Whilst the percentage increase was small, anecdotally it was noted that response times were much faster in the aided conditions, therefore indicating a reduced listening effort.

There are limitations which may be considered for future versions: there is no option to perform an onboard audiogram. In-situ audiometer is a feature of many OTC devices and should be considered for future releases. Due to the open-ear approach, feedback was noted on several occasions, even in the lower-gain settings. To preserve battery life, Bluetooth functionality is limited to remote control options with the app. Given that so many devices are able to stream audio, this felt like a real limitation to the device. Finally, it's worth noting the weight of frames. Even with plano lenses, due to the thick nature of the frames to accommodate the tech, they are heavy.

Overall, the Nuance Audio technology is one to watch for the future, it will certainly appeal to a market of people with mild hearing loss who are looking for an open feel and a cosmetically appealing solution.

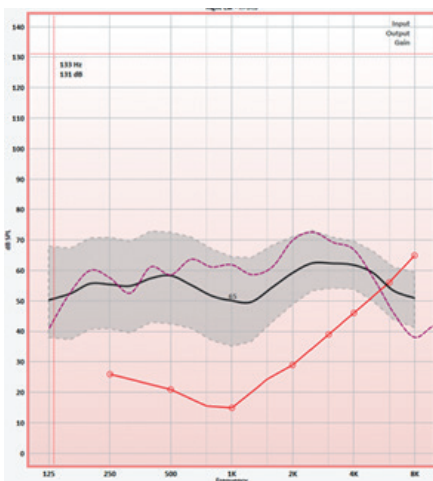
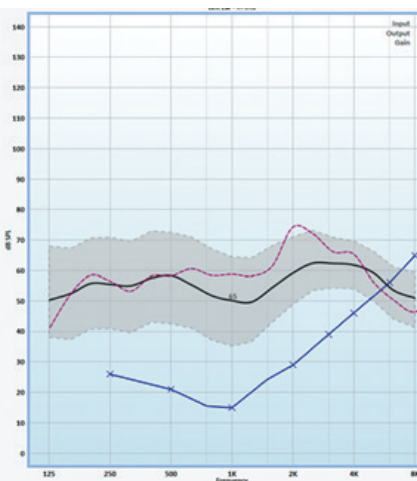


Figure 4: Profile C, 65 dB input level.

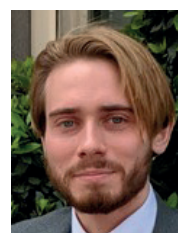


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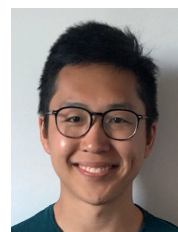


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