amplivox

For everyone

Functional Hearing Assessment System

Designed for safety-critical hearing tests

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Our dedicated SiN test has been incorporated into a Functional Hearing Assessment System (FHAS) for assessing Auditory Fitness For Duty (AFFD). FHAS combines standard audiometric testing procedures, automated workflow management, and class-leading technology to deliver a bespoke and comprehensive hearing assessment system.

Key features

- Objective and auditable, making it ideal for key decision making
- Provides a potential reduction in medical referral costs
- Minimises absence from work due to immediate functional hearing test results
- Offers a fully automated test and referral system which improves accuracy when recording results and issuing appropriate guidance
- Enables employers to meet hearing acuity and ability measurements according to relevant industry standards (Pre-placement, CoP, HSE, PULHHEEMS)
- Operational expertise can be retained within the organisation, especially for experienced and highly trained officers

The full Functional Hearing Assessment System (FHAS)

The system is developed for safety critical hearing surveillance programmes to ensure Auditory Fitness For Duty (AFFD).

It has been proven as a reliable and repeatable predictor of hearing ability in complex listening environments. It also enables users to differentiate between hearing ability levels for normal and hearing-impaired subjects.

FHAS combines standard pure tone audiometry (computer / self-recording) along with automatic results categorisations including HSE, College of Policing, PULHHEEMS, in addition to the Speech-in-Noise test.

Our FHAS builds on our reputation of delivering solutions for the occupational health industry which help them to save time and be more efficient - improving their capabilities to provide a better service to patients.

How does the Amplivox SiN test work?

As part of the FHAS, the Amplivox SiN test assesses hearing ability in environments that have been replicated from real-life situations that police officers and service personnel might operate in.

The test establishes the quietest level at which a subject can repeatedly hear and understand a command in a complex listening environment, reflective of real-life situations.

It consists of two parts which assess the effect of sensorineural hearing loss as well as auditory processing ability.

Commands are given within a relevant background noise through standard audiometric headphones, and the subject is required to enter their selection of variables through a visual display unit (VDU) such as a touchscreen tablet.
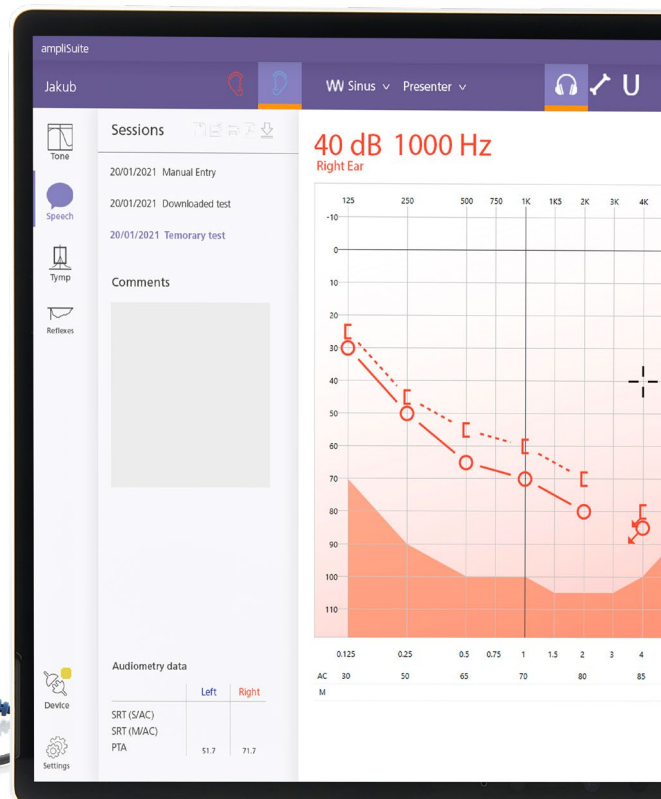
What makes our SiN test different?

Our Speech-in-Noise (SiN) test is based on a unique Coordinate Response Measure (CRM) test. This particular SiN test has been developed because of its ability to represent many police requirements with a simple command structure, whilst delivering an objective and repeatable assessment.

Alongside hearing and auditory processing, it also assesses tests within a variety of communication formats, ensuring assessments are made based on complex listening environments which reflect real-life situations.

Working in partnership

The Amplivox SiN test has been developed in partnership with the Institute of Sound and Vibration Research (ISVR) at the University of Southampton and the Civil Nuclear Constabulary (CNC).

The team at ISVR have been working in the field of Auditory Fitness For Duty (AFFD) since 2012, with a focus on developing evidence-based tools that better predict hearing ability for safe and effective job performance.

Working in partnership ensures the knowledge and expertise of the Amplivox team is combined with the latest technology and leading research to meet the operational requirements of the police force and other command and control organisations.other command and control organisations.

Frequently asked questions

Q ## What are the limitations of pure tone audiometry?

A Many sensorineural hearing loss issues (that is hearing loss caused by damage to the structures in your inner ear or your auditory nerve) cannot be identified through pure tone audiometry alone.

Whilst it is a great tool for measuring hearing acuity, it has been demonstrated as a poor predictor of hearing ability in complex listening environments, which is especially important in safety critical roles. It is also not as effective in predicting hearing ability, therefore additional testing is often required.

Q ## Why use a practical or functional hearing test?

A A practical or Functional Hearing Test (FHT) measures hearing ability in a real-world scenario. For example, police officers are often exposed to a barrage of sounds happening at once from different sources and different directions. They need to be able to hear and understand a command whilst exposed to this level of noise, so an FHT would look to mimic this.

This is why police forces and other services will often use functional hearing tests in addition to pure tone audiometry to accurately determine someone's ability to perform a role, or as part of a risk assessment. However, some practical hearing tests require a lot of operational time and expense to conduct in the right way. The challenge therefore, is that they can sometimes be deemed subjective, or unreliable (where results are not repeatable).

Q ## What are the different types of Speech-in-Noise (SiN) tests?

A Many different tests and tools exist to analyse and assess SiN ability, such as Hearing-in-Noise Test (HINT), Quick-Speech-in-Noise (QuickSiN), Words-in-Noise (WiN), the Triple Digit Test (TDT) and the Coordinate Response Measure (CRM).

The CRM test has been chosen to assess hearing ability for the police and other command-and-control type organisations because of its similarities to real world environments (high face validity), clear focus on auditory skills, and ability to differentiate clearly between hearing abilities.

Q ## What is a normal speech hearing test score?

A A normal speech hearing test score depends on the speech test that is being performed as well as the application of the test.

The classification and definition of 'normal' will also depend on the role of the person being tested as well as other considerations such as any hearing aids that a person might be using. SiN testing, for example, can be used to assess the performance of hearing aids in different countries who might have different authorities and regulations, and therefore would have a different definition of 'normal'.

The ability to hear speech is also impacted by other factors such as language, words used, (normal words or phonemes) and the spectrum of the background noise (noise or babble-noise), so these all need to be taken into consideration.

Functional Hearing Assessment System (FHAS)

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Output / input data

Outputs:	Left AC, Right AC, Left BC, Right BC
Frequency range - AC:	125, 250, 500, 750, 1K, 2K, 3K, 4K, 6K, 8K
Frequency range - BC:	250, 500, 750, 1K, 2K, 3K, 4K, 6K, 8K
Output level range - AC:	-10dBHL to 120dBHL maximum
Output level range - BC:	-10dBHL to 70dBHL maximum
Output level range - Freefield:	Up to 90dB
Output level step size:	1dB / 5dB
Presented tone types:	Single, Pulsed or Warble
Masking signals:	Narrow bands at test frequencies and FHAS module
Communication:	Integrated talkover
Languages:	English
Optional printer:	Designated thermal printer
Test types:	Air conduction (manual & automatic) Bone conduction (manual & automatic)
Test modes:	Self Recording (Bekesy), Computer (Hughson Westlake), Manual, Speech-in-Noise

Physical data

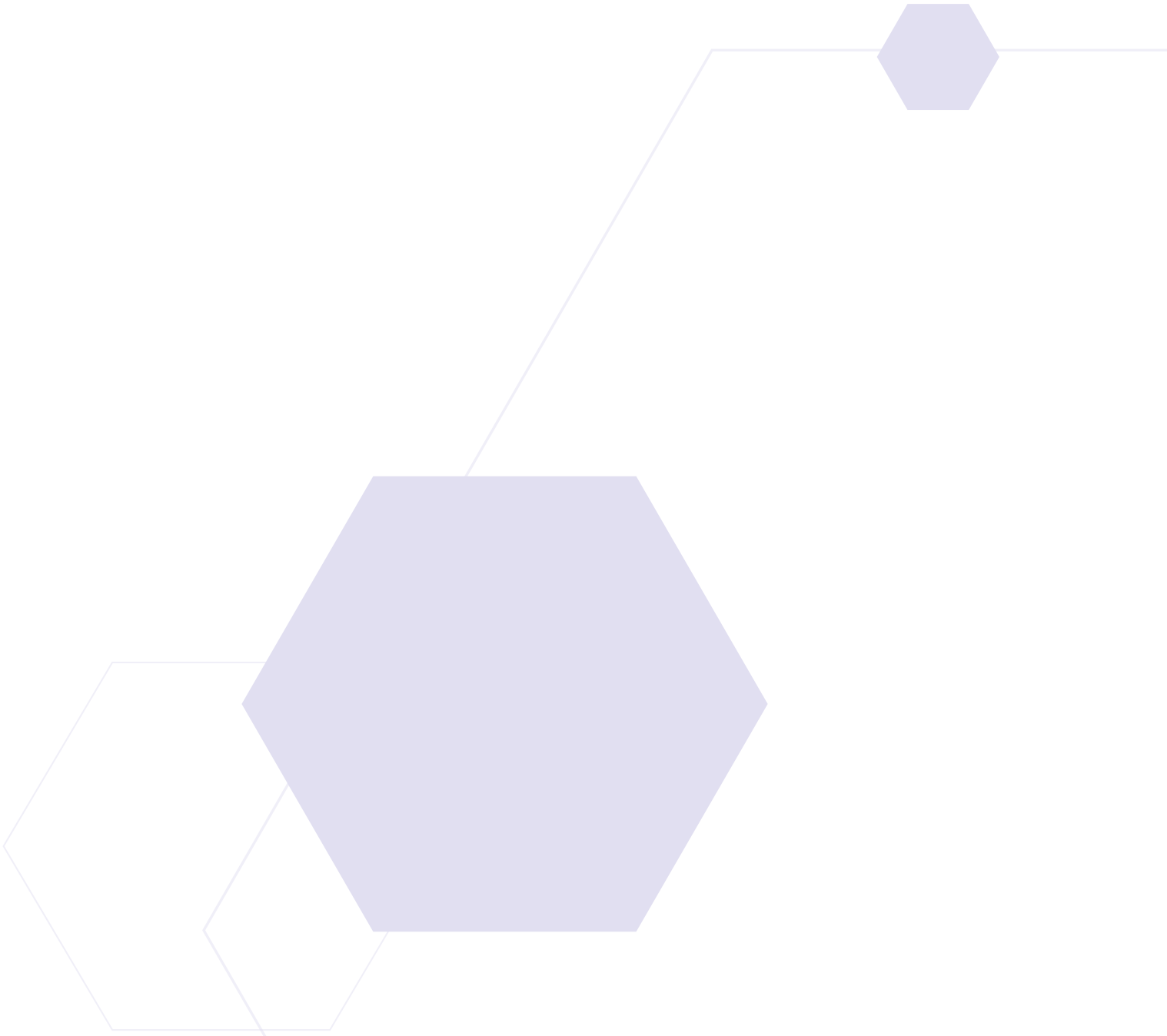|	
Operating temperature:	+15°C to +35°C / +59°F to 95°F
Protection against electric shock:	Powered via SELV Class II mains adapter
Display:	2 lines of 24 characters
Dimensions (L x W x H):	175 x 270 x 68mm
Dimensions for SiN Module:	68mm x 115mm x 22mm
Weight for Audiometer	735g
Weight for SiN Module:	22g

Safety and standards

Type:	Audiometer Type 4
Safety:	IEC 60601-1 (plus UL, CSA & EN deviations)
EMC:	IEC 60601-1-2
Performance:	IEC 60645-1/ANSI S3.6
Class:	Class IIa device
Mains power (UK):	240V ac; 50/60Hz; 0.5A
CE Mark:	Complies to EU Medical Device Regulation (MDR 2017/745)

Standard equipment

- Air conduction (AC) headset
- Amplisuite SiN/sw
- SiN Module
- Patient response switch
- Audiogram cards (50)
- Operating manual
- Mains adaptor
- Software & integration modules
- Carry case

Optional equipment

- Personal computer
- External touchscreen display
- Audiocups (noise-reducing enclosures)
- Audiogram cards
- Disposable headset cushion covers

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