



For everyone

FHAS

Assessing Auditory Fitness
For Duty (AFFD)



Specialist solution



FHAS

Assessing Auditory Fitness For Duty (AFFD)

The first dedicated SiN test designed for assessing Auditory Fitness For Duty (AFFD).

For 90 years Amplivox has worked closely with hearing health professionals to design, manufacture, and develop reliable screening and diagnostic instruments.

By listening to their needs, we've delivered solutions that have not only met expectations, but exceeded them.

FHAS continues this approach, combining standard audiometric testing with AFFD tools, designed for assessing a subject's ability to hear in complex listening environments.

Developed specifically for the military, blue-light and emergency services, FHAS is the perfect solution for reliable, objective and repeatable hearing assessments.

“ FHAS offers a practical, objective and reliable means of assessing Auditory Fitness For Duty, ideally suited for military, blue-light and emergency services personnel.

Dr Daniel Rowan
Principal Teaching Fellow (Audiology)

Institute of Sound & Vibration Research
School of Engineering
University of Southampton



About **the system**

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

The SiN test

The SiN test assesses the effect of sensorineural hearing loss, as well as the subject's auditory processing ability.

It establishes the quietest level the subject can correctly hear a spoken command within background sounds reflective of real-life situations. This is done separately for each ear.

Subjects are tested in two simulated listening scenarios through standard audiometric headphones, with responses entered through a touch screen device.

One scenario simulates natural listening with background talking. The other simulates listening through a radio communication system with the sound of an engine running in the background.

What makes our SiN test different?

Our SiN test has been approved by the College of Policing.

The test is based on the British English Coordinate Response Measure (CRM) test (footnote), representing many police requirements with a simple command structure ("Ready [call sign] [number] go to [colour] now") whilst delivering an objective and repeatable assessment.

It assesses hearing loss and auditory processing using two highly relevant simulated listening scenarios as well as speakers with different accents, ensuring assessments are as accurate to real-life situations.

Footnote: <http://dx.doi.org/10.1080/14992027.2017.1317370>

Key benefits

- 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 increases confidence 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

Developed in partnership

Our 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 our knowledge and expertise is aligned with the latest technology and leading research of police and other command and control organisation requirements.

FAQs

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.

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
Output level range - AC:	-10dBHL to 120dBHL 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
Test types:	Air conduction (manual & automatic)
Test modes:	Self Recording (Bekesy), Computer (Hughson Westlake), Manual, Speech-in-Noise

*AC output level range as this is dependent on frequency

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 touch screen display
- Audiocups (noise-reducing enclosures)
- Audiogram cards
- Disposable headset cushion covers

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
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)



For everyone

Amplivox Ltd, 3800 Parkside, Solihull Parkway, Birmingham Business Park,
Birmingham, West Midlands, B37 7YG, United Kingdom
www.amplivox.com | +44 (0)1865 880846 | hello@amplivox.com

The Amplivox policy is one of continuous development and consequently the equipment may vary in detail from the description and specification in this publication.

EN-ASS42-V2