



# AUTOMATED AUDIOMETRY TESTING



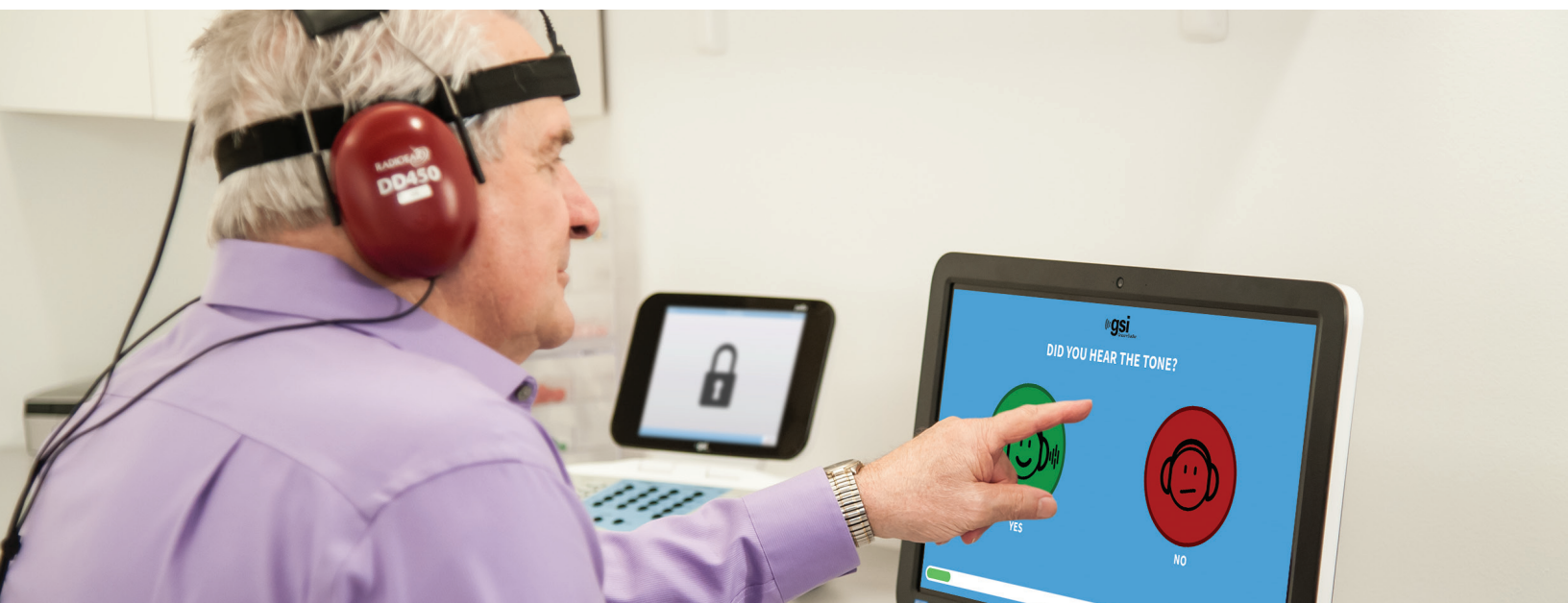
— GSI AMTAS —



# BY AUDIOLOGISTS, FOR AUDIOLOGISTS

## VALIDATED AND ACCURATE

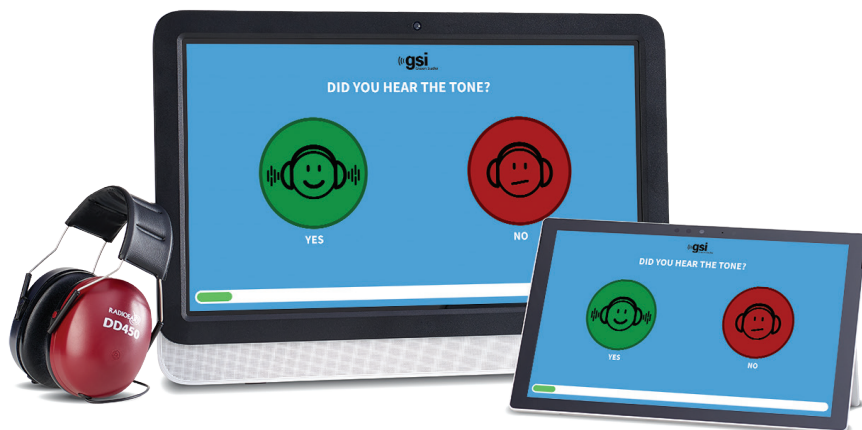
GSI AMTAS™, or Automated Method for Testing Auditory Sensitivity, is a patient directed evaluation tool that uses patented test methods and accuracy algorithms to obtain diagnostic audiometry. **With over 25 years of research and development**, the validity of GSI AMTAS has been proven through comprehensive studies.



## FOCUS ON PATIENT CARE

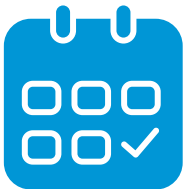
GSI AMTAS was created as a resource for clinicians to help manage their busy schedules and promote an efficient office environment. Most importantly, GSI AMTAS frees up the clinician, allowing more time to focus on patient care.

GSI AMTAS automated audiometry is available in two versions: GSI AMTAS Pro™, which runs through a computer connected to a compatible GSI audiometer and GSI AMTAS Flex™, which is a stand-alone solution. Both versions provide diagnostic air, bone, and speech testing in a patient-driven testing format.





## 3 KEY BENEFITS



### **APPOINTMENTS ARE STREAMLINED**

In a busy practice, GSI AMTAS helps the clinician manage more than one patient at a time. Basic diagnostic testing can be completed with one patient using GSI AMTAS while the clinician can tend to the needs of other patients.



### **STORE AND FORWARD**

GSI AMTAS can be used off-site for asynchronous teleaudiology. The patient works through the AMTAS evaluation independently and the results are stored and forwarded to the clinician for review.



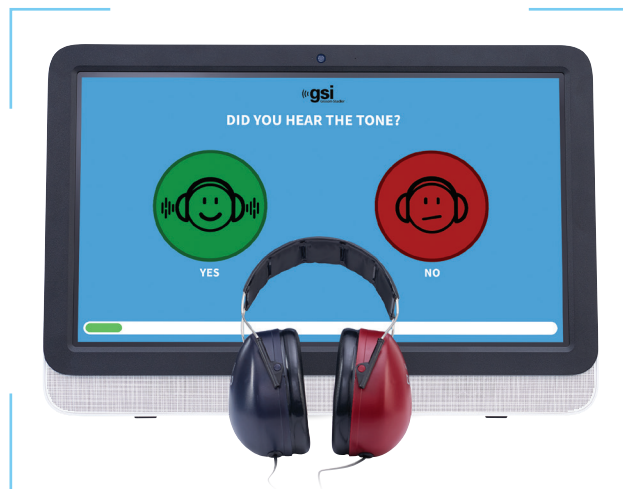
### **INTERPRET RESULTS WITH CONFIDENCE**

Quality indicators and the classification of audiometric findings give clinicians the tools required to determine the most appropriate next steps in testing and follow up.

# CONFIGURATION OPTIONS

## GSi AMTAS PRO

GSi AMTAS Pro offers diagnostic air conduction, bone conduction, and speech (SRT and WRS) testing with masking. GSi AMTAS Pro is operated through a computer connected to a compatible GSi audiometer, allowing seamless integration into your diagnostic practice.



## GSi AMTAS FLEX

GSi AMTAS Flex is stand-alone and does not require an audiometer. In addition to basic diagnostic air conduction, bone conduction, and speech testing, GSi AMTAS Flex includes a room noise monitor and the option for video otoscopy.

## REPORTING

GSi AMTAS generates two report formats. The Clinician Report includes the audiogram and the quality assessment table with the quality indicators, AMCLASS™ audiogram classification, and a comprehensive speech audiometry table. The Patient Report includes easy-to-understand overview of audiometric findings, including a description of the hearing loss.

## AUDIOGRAM CLASSIFICATION

GSi AMTAS includes a patented method of classifying audiometric findings, called AMCLASS, which summarizes the audiogram based on configuration, site of lesion, and severity. This provides further insight to the clinician on how to proceed with counseling and follow up testing if needed.



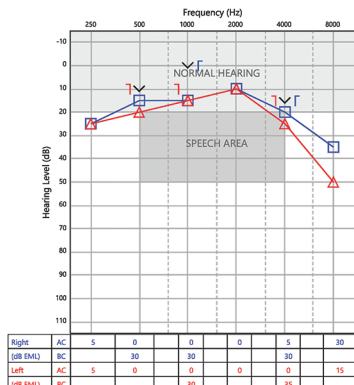
# REPORTING OPTIONS

## CLINICIAN REPORT



GSI AMTAS™ Hearing Report

Test Date: 3/30/2026



| QUALIND™      |       |      |
|---------------|-------|------|
| Quality       | Value | Rank |
| Indicators    | 5 dB  | 0    |
| Accuracy      | 0 %   | 0    |
| Masker Alert  | 0.3 s | 5    |
| Response Time | 0 %   | 0    |
| False Alarm   | 2 dB  | 23   |
| Test-Retest   | 5 %   | 52   |
| Check Fail    | 0     | 0    |
| ABG > 35      | 0     | 0    |
| ABG < -10     | 0     | 0    |

| Legend          |   |   |
|-----------------|---|---|
| Masked Air      | △ | □ |
| Masked Bone *   | 1 | f |
| Unmasked Bone * | ↓ |   |
| * Forehead Bone |   |   |

|                   |      |
|-------------------|------|
| Distraction Alert | NONE |
|-------------------|------|

| AMCLASS™ Audiogram Classification |          |                     |                |                    |
|-----------------------------------|----------|---------------------|----------------|--------------------|
| Ear                               | Severity | Configuration       | Site Of Lesion | Bilateral Symmetry |
| Right                             | Mild     | Peaked Hearing Loss | Conductive     | Symmetric          |
| Left                              | Mild     | Flat Hearing Loss   | Conductive     | Symmetric          |

| Speech Recognition |                |              |                  |             |
|--------------------|----------------|--------------|------------------|-------------|
| Ear                | PTA 3<br>dB HL | SRT<br>dB HL | Word Recognition |             |
|                    |                |              | Correct %        | Level dB HL |
| Right (512)        | 15             | 15           | 100              | 55          |
| Left (512)         | 13             | 15           | 100              | 53          |

| Ear         | Masking<br>dB HL | List  | Auditory Dist. |
|-------------|------------------|-------|----------------|
| Right (512) | 35               | NIJ-1 | Low            |
| Left (512)  | 33               | NIJ-4 | Low            |

Correction added to bone threshold @ 4000 Hz: 15 dB.

## PATIENT REPORT

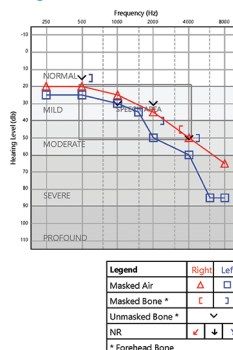


Patient Name:  
Patient ID: GSI-2013

Your Hearing Report

Test Date: 5/10/2024

### Audiogram



The audiogram is a graph that shows what sounds you are able to hear and what sounds you cannot hear. Each mark on the audiogram is the softest sound you can hear - your threshold - for a particular frequency or pitch. Normal hearing people hear sounds that are 20 decibels (dB) or less at all the frequencies.

Hearing loss can be described by the degree of loss - how loud sounds have to be for you to hear them - and the pattern of the thresholds shown on the audiogram. The degree of loss can be mild, moderate, severe, or profound.

The speech area represents the sounds that make up everyday conversational speech. If your thresholds are all above the speech area, you hear all the sounds that are important for understanding speech. If your thresholds are all below the speech area, you hear none of the sounds in normal speech. If some of your thresholds are in or below the speech area, you are missing some of the sounds that are important for understanding everyday conversation.

Hearing loss is a symptom of a problem somewhere in the ear. It can be in the outer ear, the middle ear, or the inner ear. Some of these conditions can be treated with medication or surgery. Many people with hearing loss are helped by hearing aids. It is important to find out the cause of the hearing loss so that the appropriate treatment can be provided.

### Right Ear

Your audiogram shows that the hearing in your RIGHT ear is a mild to moderate, sloping hearing loss.

A sloping hearing loss is one where the thresholds for the low frequencies (the left side of the audiogram) are better (higher) than the thresholds for high frequencies (on the right side of the audiogram). Your hearing for low frequencies is in the speech area so you probably don't hear some of the low pitches in speech (like vowel sounds). Your hearing at high frequencies drops below the speech area so you probably have difficulty hearing some of the high pitches in speech (like s, p, t, th). This usually causes some difficulty understanding speech in quiet conditions and more difficulty when there is background noise, a soft speaker, or a reverberant room. A hearing aid may be very helpful for you.

### Left Ear

Your audiogram shows that the hearing in your LEFT ear is a mild to severe, sloping hearing loss.

A sloping hearing loss is one where the thresholds for the low frequencies (the left side of the audiogram) are better (higher) than the thresholds for high frequencies (on the right side of the audiogram). Your hearing for low frequencies is in the speech area so you probably don't hear some of the low pitches in speech (like vowel sounds). Your hearing at high frequencies drops below the speech area so you don't hear most of the high pitches in speech (like s, p, t, th). You probably have difficulty understanding speech in quiet conditions and more difficulty when there is background noise, a soft speaker, or a reverberant room. A hearing aid may be very helpful for you.





# QUALITY INDICATORS



## **PREDICTED ACCURACY**

Summary measure that categorizes the accuracy of the audiogram as Good, Fair, or Poor.



## **PREDICTED ABSOLUTE AVERAGE DIFFERENCE**

The predicted difference between automated and manual thresholds based on research studies.



## **MASKER ALERTS**

The thresholds where masking levels may have been too high or too low.



## **TIME PER TRIAL**

The average time it took the patients to respond to the stimulus.



## **FALSE ALARM RATES**

The number of times the patient responded "yes" when no stimulus was presented, divided by the total number of times no stimulus was presented.



## **AVERAGE TEST-RETEST DIFFERENCE**

The average difference between the initial 1000 Hz threshold and the second (retested) 1000 Hz threshold obtained for the right and left ears.



## **QUALITY CHECK FAIL RATE**

The number of times the patient did not respond to stimulus above threshold, divided by number of measured thresholds.



## **NUMBER OF AIR/BONE GAP >35 DB**

The number of air/bone gaps that exceed 35 dB.



## **NUMBER OF AIR/BONE GAP <-10 DB**

The number of air/bone gaps that are less than -10 dB.



# ■ WHAT YOU SHOULD EXPECT FROM OUR DEVICES

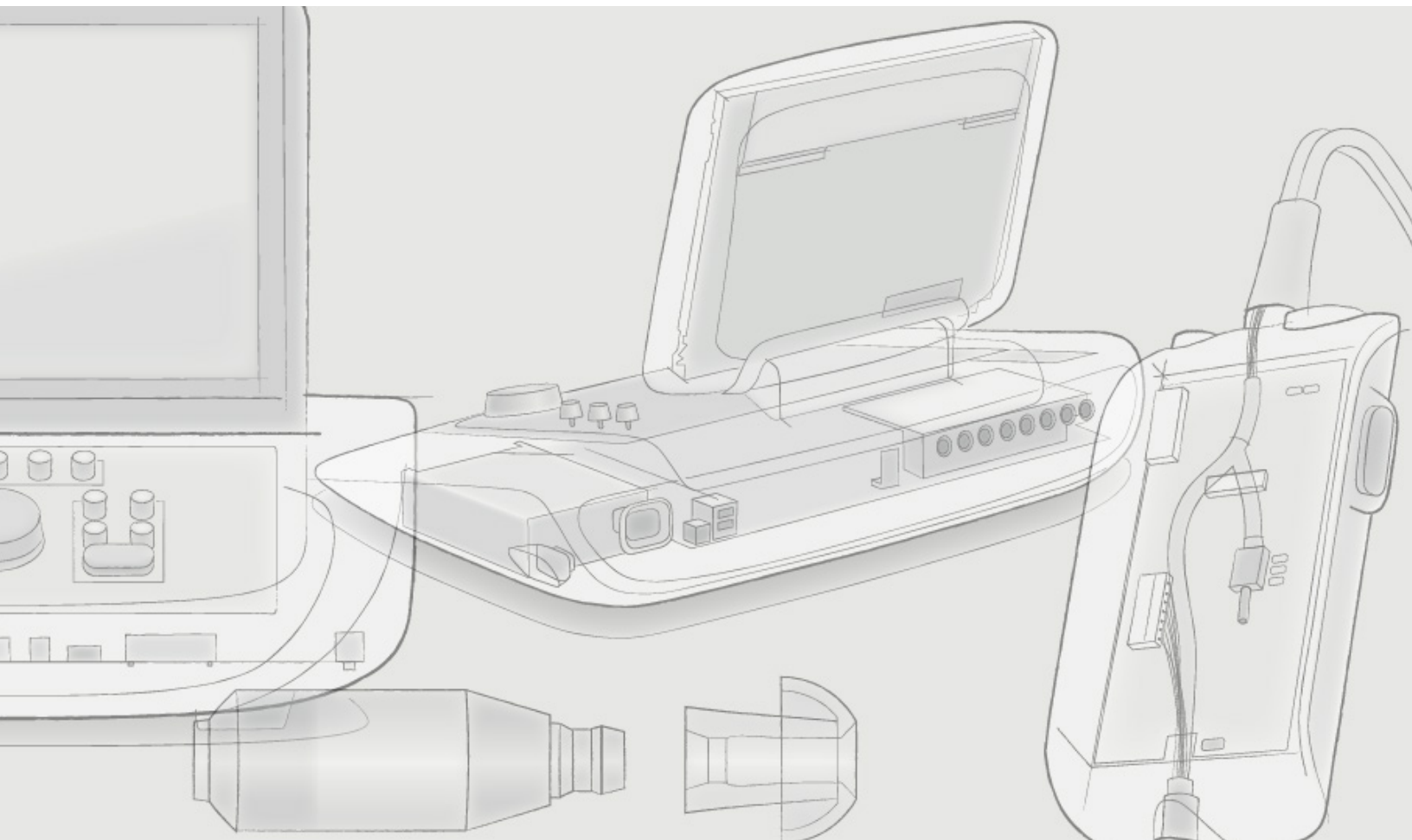
## WORLD LEADER IN AUDIOMETRIC SOLUTIONS

GSI is a world leader in audiometric assessment instrumentation and carries a full line of audiometers, tympanometers, otoacoustic emissions (OAE), and auditory evoked potential instruments. From research facilities to school screenings, GSI instruments have been the equipment of choice for audiological assessments throughout the world for over 75 years.

## DESIGNED SMART, BUILT STRONG

Our motto is Designed Smart, Built Strong. GSI devices are Designed Smart with the audiologist in mind, providing superior ergonomic design and navigation with one button, one function accessibility. Built Strong, our devices can take on the most routine to complex testing scenarios in any environment.

**Quality, Reliable, and User-Friendly** are the three core attributes that are the backbone of the GSI brand. These attributes are what you should expect from any GSI product.



# GSI AMTAS

## TECHNICAL SPECIFICATIONS

High Frequency range available with the DD450 configuration

### PURE TONE STIMULI

#### Air Conduction Screening:

- Frequency Range: 250 – 8000 Hz
- Screening Level: 15 – 40 dB HL

#### Air Conduction Frequency Range:

- 250 – 8,000 Hz (DD65v2)
- 250 – 16,000 Hz (DD450)

#### Bone Conduction Frequency Range:

- 250 – 4,000 Hz (B81)

#### Level Range:

- 0 – 100 dB HL (DD65v2, DD450, frequency dependent) AMTAS Pro
- 0 – 90 dB HL (DD65v2, DD450, frequency dependent) AMTAS Flex
- 0 – 75 dB HL (B81, frequency dependent)

#### Masking:

- Narrowband Noise: 250 – 16,000 Hz
- Level Range: 10 – 70 dB

## PREREQUISITES

Before installing the software confirm that the computer meets the minimum requirements.

### GSI AMTAS Software Requirements

- Microsoft Windows® 11 Pro
- Microsoft .NET Framework version 4.7.2

### GSI AMTAS PC Minimum Requirements

- CPU: 2.0 GHz, Intel i5 (dual or quad core) or better
- RAM: 8 GB or greater
- Hard Disk: 256 GB or larger
- USB Ports: 1 minimum
- Display: 19" or larger recommended (10" or greater if using tablet PC)
- Resolution: 1920 x 1080 minimum
- Touch screen or mouse/trackball
- USB for software installation
- Network LAN Card (if connecting to database via a network)

### GSI AMTAS Pro Audiometer Requirements

- GSI AudioStar Pro, GSI AudioSol, or GSI Pello
- GSI AMTAS License
- Bone conduction Oscillator: B71, B81
- Headphones: HDA200, DD450

