

IntelligentVRA



Automated Visual Reinforcement Audiometry

IntelligentVRA is an audiometric tool for automated behavioral hearing screening and testing of infants, children, and difficult-to-test patients.

Quality, Flexibility, and Simplicity

"Let our ingenuity make your testing easier."



 **INTELLIGENT HEARING**
S Y S T E M S

Many Options, One Smart System

IntelligentVRA

Three automated and flexible test routines in a single system.

CAST™

Classification of Audiograms by Sequential Testing

Fast, efficient hearing screening that is based on scientifically and clinically proven techniques. The routine selects the best-fitting audiogram from a database of nine audiometric patterns.

OHTA™

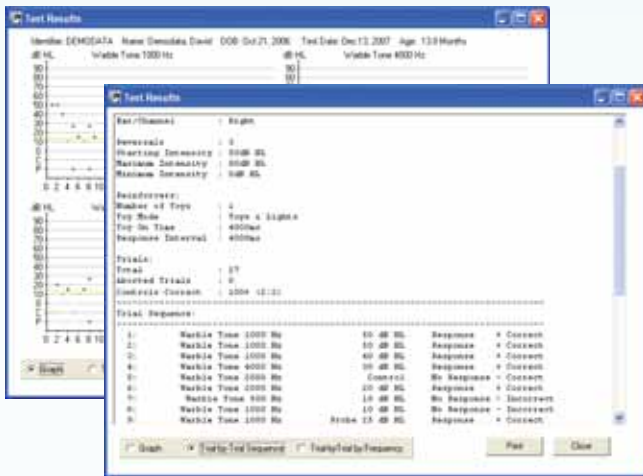
Optimized Hearing Testing Algorithm

Provides a four-frequency threshold audiogram in a single test session while interleaving up to four selected test frequencies.

Standard VRA

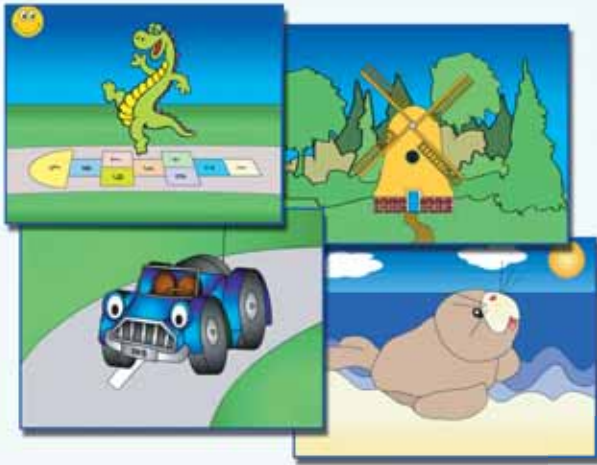
Standard Visual Reinforcement Audiometry

An automated 'step-up, step-down' intensity staircase procedure for testing thresholds at up to four selected frequencies, one at a time (500, 1k, 2k, and 4k Hz).



- Automated routines allow a single examiner to administer an accurate VRA test efficiently.
- Start a training session before testing to condition a patient to the head turning task.
- Probe Trials are automatically administered to maintain engagement of the patient while testing near threshold.
- Control Trials are automatically administered and allow you to determine the reliability of a test.
- Concise reports include threshold information for each of the frequencies tested .
- Trial-by-trial reports include detailed information for each test sequence administered including tests which were stopped prematurely.
- Ability to select the patient response interval and reinforcer activation times.
- Choose the number of intensity direction reversals and the minimum and maximum testing intensity levels.
- Use automated routines or administer your VRA test manually.





- Includes a large variety of predefined stimuli of the most commonly tested audiometric frequencies (500, 1k, 2k, and 4k Hz.)
- Import your own custom sound files, including speech sounds.
- Create your own sets of stimuli to use with any of the automated test routines.
- Deliver sounds via sound-field speakers, insert earphones, headphones, or bone vibrator.



Options

- Up to four toy reinforcer cabinets
- Video monitor reinforcer* with up to four clips at a time.
- VRISD (Visual Reinforcement Infant Speech Discrimination)
- Talk forward microphone
- Patient activated push button
- Centering hand puppet

*See computer requirements.

Reinforcer Variety

- Choose to activate lights and toys or lights only.
- Pair specific stimuli to a particular toy.
- Wide variety of animated figures to keep the patient's attention.
- Option to reinforce with video clips.
- Choose from many of the included video clips or use your own video clips as reinforcers.



Intelligent VRA Is Part of an Integrated Suite

At any time, add additional functionalities as you need them, all of which share the same integrated patient database and report generation functions.

- SmartEP (Diagnostic Evoked Potentials)
- SmartEP-ASSR (Auditory Steady State Responses)
- SmartDPOAE (Distortion Product OAE)
- SmartTrOAE (Transient Evoked OAE)
- SmartAudiometer (PC Based Audiometer)
- PetScreener (ABR Based Animal Screener)
- SmartEP-CAM** (Continuous Acquisition EP Module)
- SmartUSB-ActiveX** (User Programmable Controls)

**Advanced research tools.

Smart Features

Software

- Accurate, quick, efficient, and cost-effective hearing screening and testing.
- Automatic testing procedures allow a single examiner to easily administer the test and be free to focus on patient behavior.
- Default parameters provide fast start-up and testing.
- Built-in automated test routines:
 - Fast screening using the CAST™ (Classification of Audiograms by Sequential Testing) algorithm.
 - Built-in four frequency threshold detection audiogram using the OHTA™ (Optimal Hearing Threshold Algorithm)
 - Standard Clinical VRA, a '5-up/5-down' test procedure.
- Automated VRA testing routines provide reliability and validity measures not available in manual testing.
- Control trials are distributed on a random basis within the test.
- Probe trials (15dB higher in intensity), which allow the patient to re-focus, are automatically presented.
- CAST™ screening technique quickly identifies hearing losses.
- Option to automatically administer a selected testing routine after the training routine has been completed.
- Toy cabinets and videos can be activated manually from the computer keyboard or the response box.
- The use of video reinforcers provides unlimited reinforcers.
- Includes an automated training routine to orient the patient to the head turn task.
- Text and graphical reports.
- Print reports to any Windows supported printer.
- Keeps track of client demographics and past test results.
- Integrated, shared database with all other IHS programs.
- Built-in stimulus calibration module.
- Can be upgraded to include Intelligent VRISD for infant speech discrimination testing.
- Built-in screening audiometer functionality with selectable intensity step sizes (1, 2, 5, 10 dB HL).
- Advanced, user-protocol scripting language allows you to automate your own testing sequences.

Stimulus Specifications

- Supplied stimulus files for 500, 1k, 2k and 4k Hz:
 - Warble Tone
 - Narrow Band Burst
 - Small Band Burst
 - Broad Band Burst
 - Gaussian Burst
 - Pure Tones
- Automatic generation of pure tones from 250 to 16k Hz.
- Convert your own stimulus files for use with IVRA.
- Intensity range of -10 to 100 dB HL.
- Continuous or burst presentation.
- Masking.
- User-modifiable, frequency-specific SPL-to-nHL conversion table.

Computer Requirements

- Windows® based computer.
- Minimum 4 GB RAM.
- Minimum 5GB available hard drive space.
- Minimum XGA display (1024x768 screen resolution).
- Two free USB ports.
- Removable media, network drive, or secure internet storage site for data backup recommended.

Hardware

- Connects to any Windows® computer via a USB Port.
- Use toy cabinets or video reinforcers.
- Optional auditory transducers:
 - Insert earphones.
 - Headphones.
 - Bone vibrator.
 - Sound Field (with external amplifier and speaker).
 - OAE Probe.