Audiometry for a New Era

MADSEN® Astera²

audiology systems

Course Outline

- Brief Company Overview
- Brief Product Solutions Overview
- MADSEN Astera² Description
- Overview of Astera² Software
- Performing Tests– Operation in More Detail
  - Tone & Speech Testing
- Special Testing Modules
- Report Features
- Resources

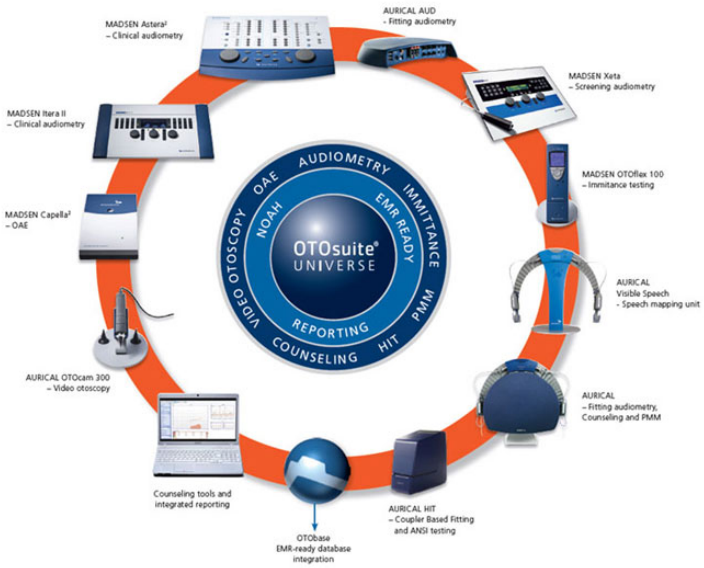
otometrics audiologysystems

- Who Are We?

  Otometrics – Develops, manufactures and markets computer based audiological, otoneurologic & vestibular instrumentation in more than 70 countries globally. Product brands include MADSEN, AURICAL, ICS, & OSCILLA

  Audiology Systems– National partnership of industry professionals, audiologists and local audiology & vestibular experts who work together to distribute products, educate and serve as a resource to our customers

Our Product Line



MADSEN Astera² Description

- The Astera² is a 2-channel, PC-based audiometer
- With Astera² you can perform all the standard audiometric tests including tone and speech testing as well as special tests such as LIPread™, tinnitus evaluation testing, high frequency tone testing and dedicated pediatric testing
- Astera² can be operated from your PC's keyboard or mouse or from the Audiometer Control Panel (ACP) with the OTOsuite® software acting as the display
- Integrates seamlessly with NOAH & is EMR compatible

MADSEN Astera² Description

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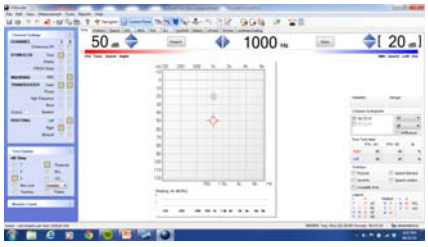
3. 

Three Main Components of Astera²

1. Audiometer Hardware
2. Optional Audiometer Control Panel (ACP)
3. OTOsuite Software

Advantages of a Computer Based Audiometer

- Flexibility – Set up user tests the way you work in the clinic
- Seamless transition of patient test results to EMR minimizing the potential for errors and saving time
- Efficient workflow saves testing time
- Simple digital upgrades to testing capabilities without having to change out hardware maximizing your investment

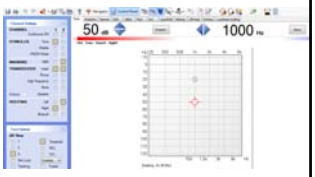
Advantages of a Computer Based Audiometer

- Integrated speech materials that provide a consistent & calibrated test stimulus yet provide a varied choice of materials
- Integrated reports with immittance and speech testing results
- Share audiometric data with other modules such as probe-microphone testing, again saving time and reducing the likelihood of errors

Basic Operation Preferences

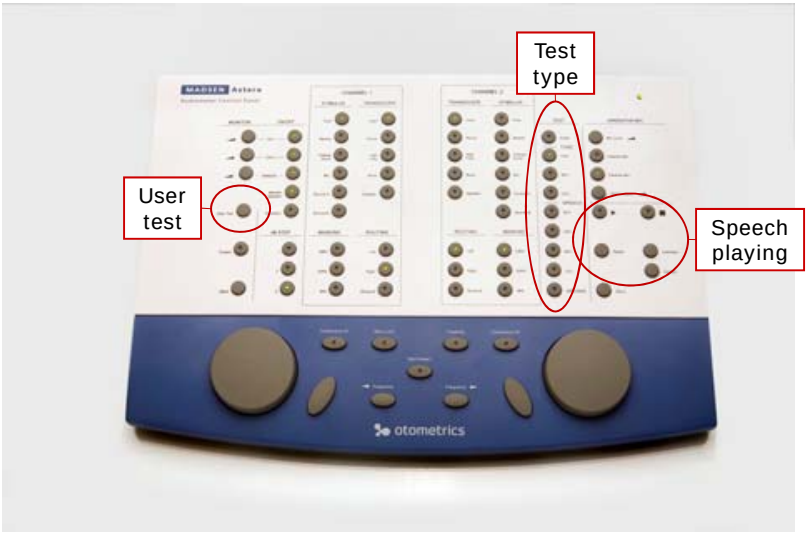
- **Audiometer Control Panel (ACP)**
  – One button = one function

- **Mouse –** On screen controls. Easy functionality of point an click



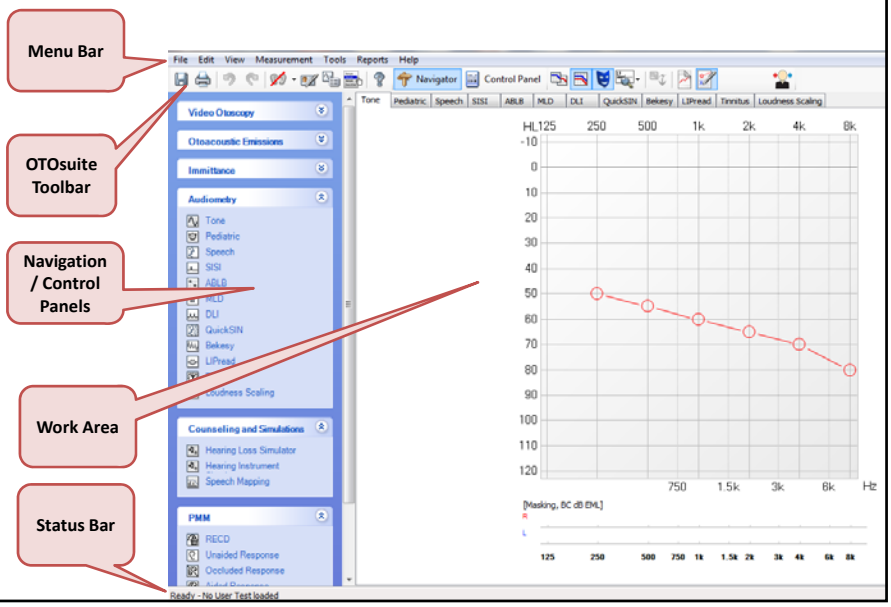
- **Keyboard --** Extensive shortcuts (see handout)

Basic Operation Preferences – ACP



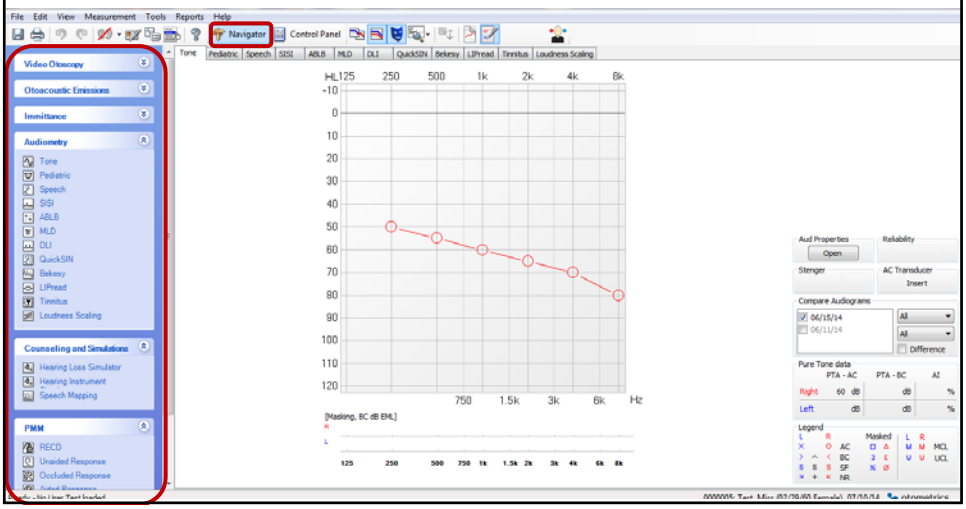
Basic Operation Preferences – Keyboard Shortcuts

Astera² Software– Main Sections



Astera² Software

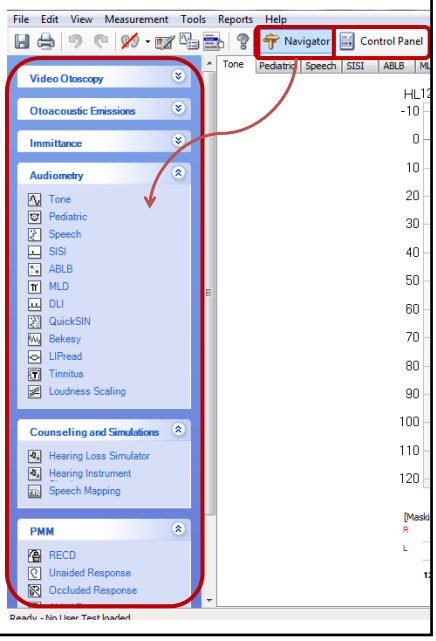
Navigation Panel



Astera² Software

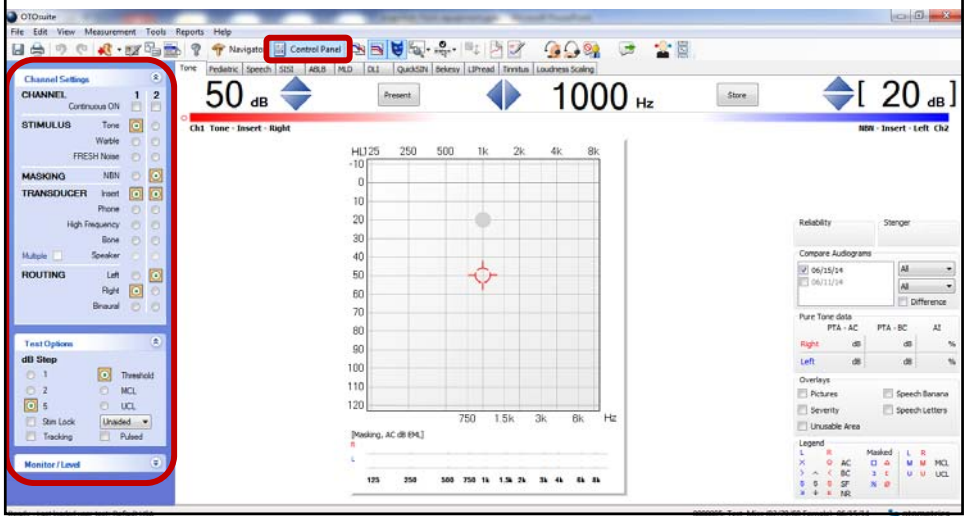
Navigation Panel

- Seamless and efficient workflow between individual hardware pieces
- Choosing a test within "Audiometry" will connect you to your audiometer
- Next step – "Control Panel"



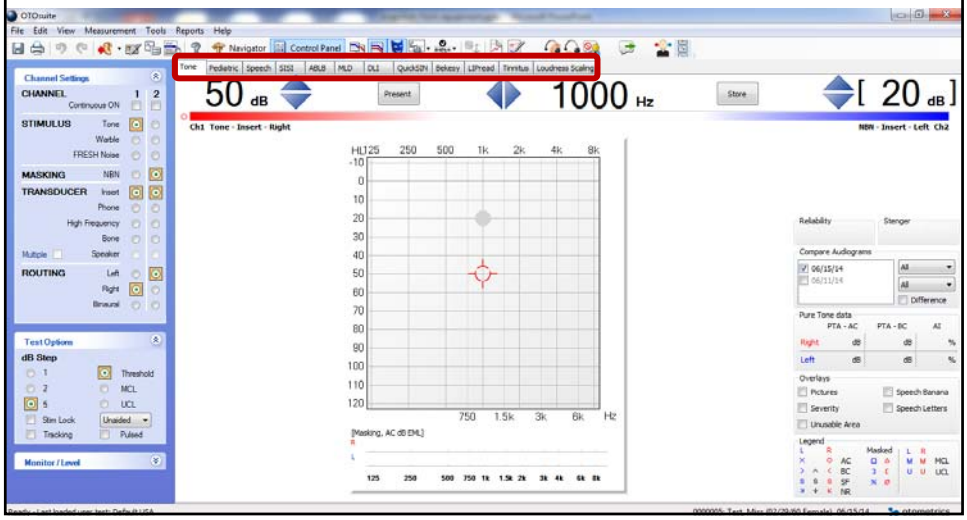
Astera² Software

Control Panel



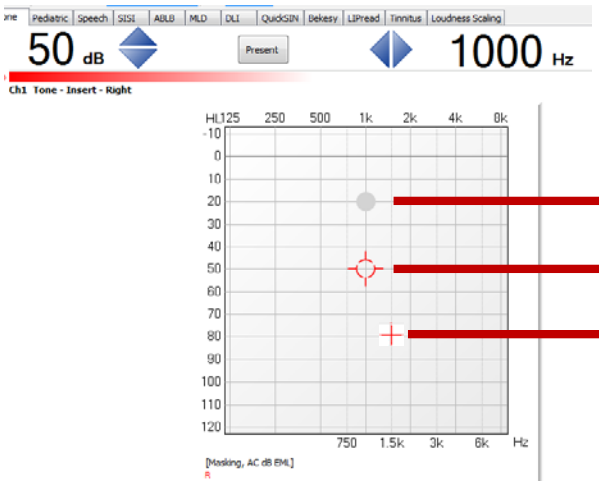
Astera² Software

Control Panel



Astera² Software

Control Panel



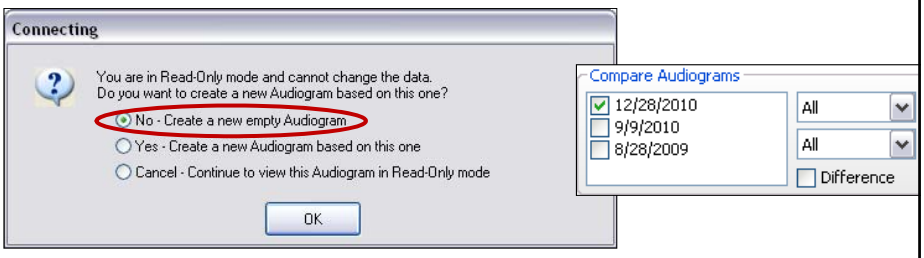
Tips and Tricks

- To store a masked symbol, press **Store** while the masking stimulus is still being presented
- To store "no response" symbols, press & hold **Store** OR right click on the mouse to choose "no response" or "response at limit"
- Press **Store** in the speech testing screen to store the value within the proper test type box (SRT, WRS, etc.)
  - Right click in the field to choose "DNT" or "CNT"

Tips and Tricks

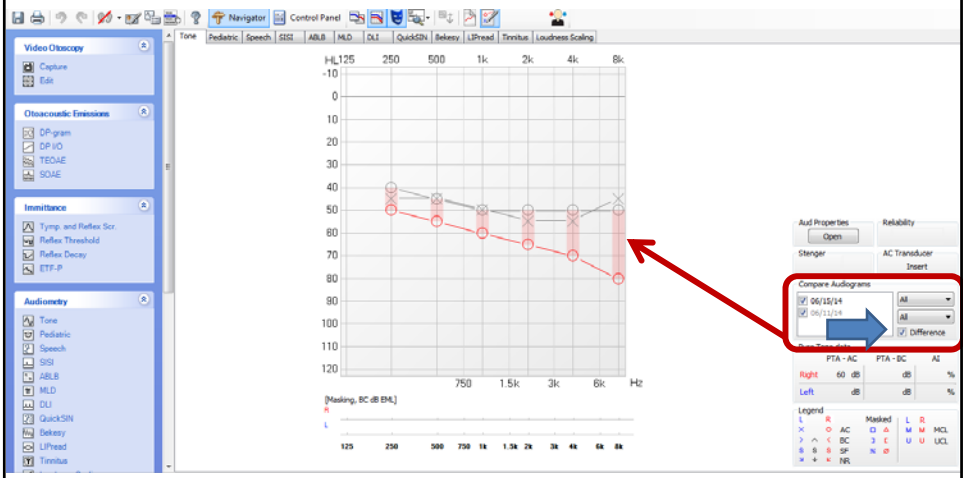
- Utilize "**User Tests**" to quickly change audiometer setups
  - Navigate to "User Test" via test button on ACP, F8 key on keyboard or "Test Selector" icon in software

- Select "**No, Create a new empty Audiogram**" when entering a repeat audio for the same patient
  - Previous tests can be compared with current via the "**Compare Audiogram**" feature



Tips and Tricks

Compare Audiograms



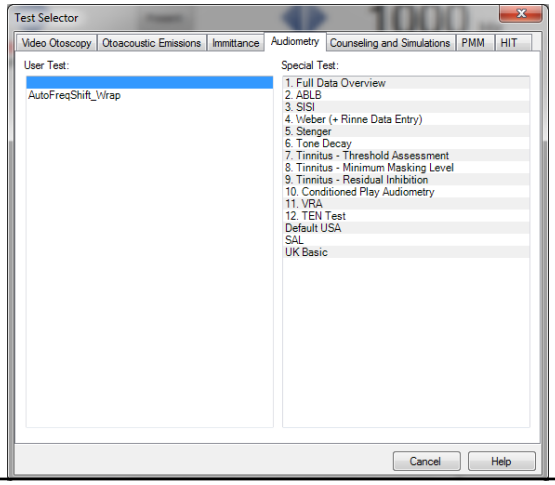
Creating User Tests

- Why? – It makes your testing more efficient and saves time while minimizing possible mistakes
- How? – You can use the various built-in "User Tests" or create your own

  Press and hold **user** test on ACP, or choose **F8** on the keyboard or select "**Test Selector**" icon to select an existing battery

Creating User Tests

- From "Test Selector" choose an already built setup such as "**Default USA**"
  - Choose your test and settings will load automatically



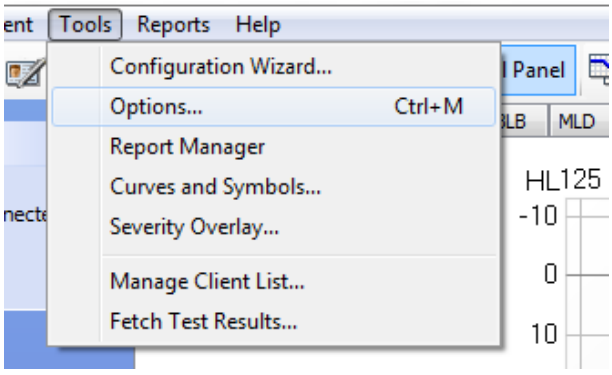
Creating User Tests

Default USA

- Tone testing is setup for traditional behavioral testing
  - Threshold test type, Pure tone, Inserts, NBN masker in second channel
- Speech is set to embedded spondee word list
  - SRT test type, Internal file for word list, Inserts, continuous playback for speech

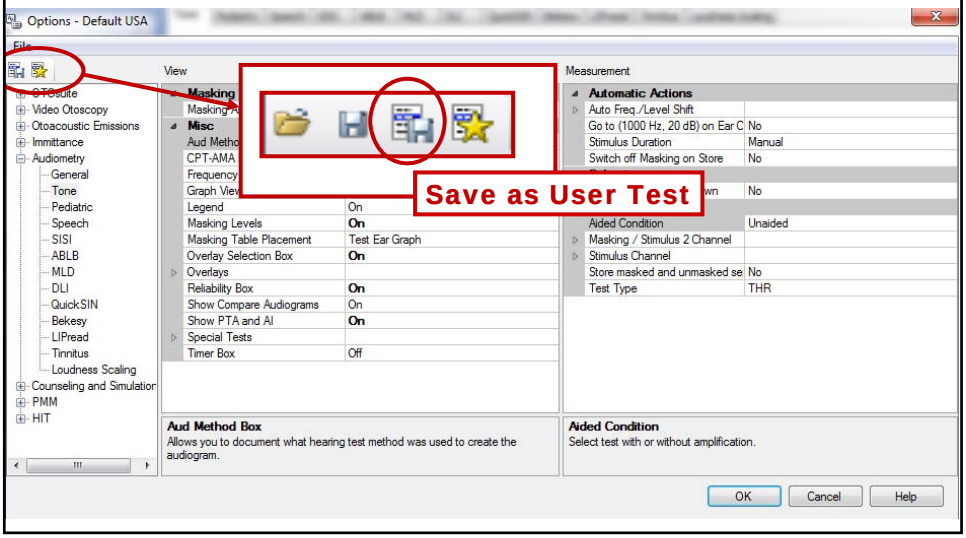
Saving User Tests

- First, choose “Tools” and “Options” OR choose “Set Options” icon OR on your keyboard choose “CTRL M”



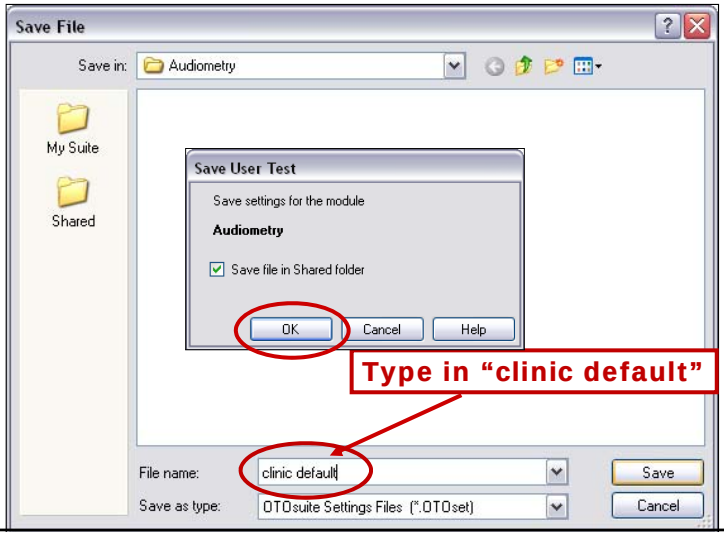
Saving User Tests

- Once you have your test settings the way you like them from this dialogue box simply choose “save”



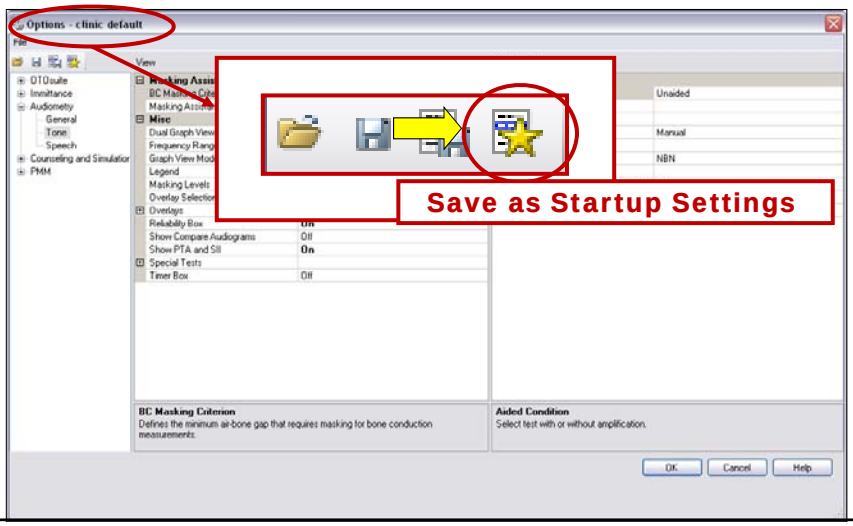
Saving User Tests

- Name the test whatever you like
  - Suggestion: “Clinic Default”



Saving Startup Settings

- Choose “Tools” and “Options” OR choose “Set Options” icon OR on your keyboard choose “CTRL M”



User Tests compared to Startup Settings

- **User Tests:** Save settings for different test types to make navigating between them easy
  - **Examples: VRA, APD tests, conditioned play audiometry, NU-6 word lists, etc.**
- **Startup Settings:** Saves settings for opening software & audiometer module to make getting started fast and easy
  - Tone vs. speech, two graphs vs. combined, etc.

Astera² Software

Icon Descriptions– Tone Audiometry

Menu item	Icon	Description
Combined Audiogram		Click to toggle between viewing both ears in a single audiogram (combined audiogram) or both a left and a right audiogram on your screen.
		Combined View • Click to view both ears in a single audiogram. **Split View** • Click to view separate audiograms for each ear.
Masking Assistant		Enable or disable the Masking Assistant. The Masking Assistant causes an unmasked threshold to flash repeatedly if masking is recommended.

Astera² Software

Icon Descriptions– Tone Audiometry

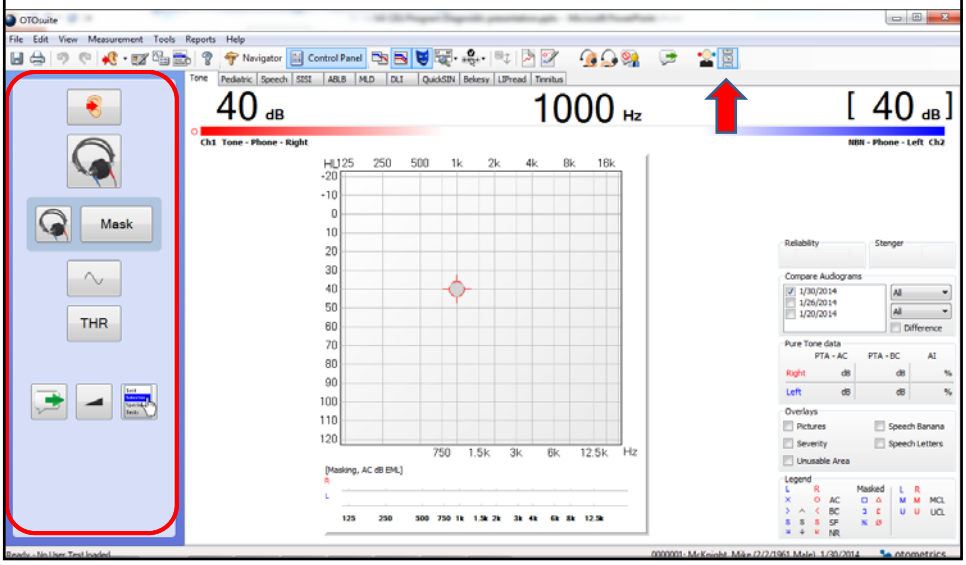
Menu item	Icon	Description
Standard / All / High frequencies		The graph shows up to 20,000 Hz. MADSEN Astera² presents stimulus up to 12,500 Hz. • Click to choose between viewing:
		Standard frequencies Displays the audiogram from 125 to 8000 Hz.
		All frequencies Displays the audiogram from 125 to 20,000 Hz.
		High frequencies Displays the audiogram from 8000 to 20,000 Hz.
New Audiogram		Select new audiogram. You will be prompted to save or cancel current data.
Frequency resolution	1/6 1/12 1/24 1/48 1 Hz	The options for frequency resolutions are 1/6, 1/12, 1/24 and 1/48 octave as well as 1 Hz. Select the different tone stimulus resolutions from the toolbar or from **Tools > Options... > Audiometry > General**. You can store up to 24 points for each audiometry curve. You will be prompted if you try to store more than the maximum number of points.

Astera² Software

Icon Descriptions– Tone Audiometry

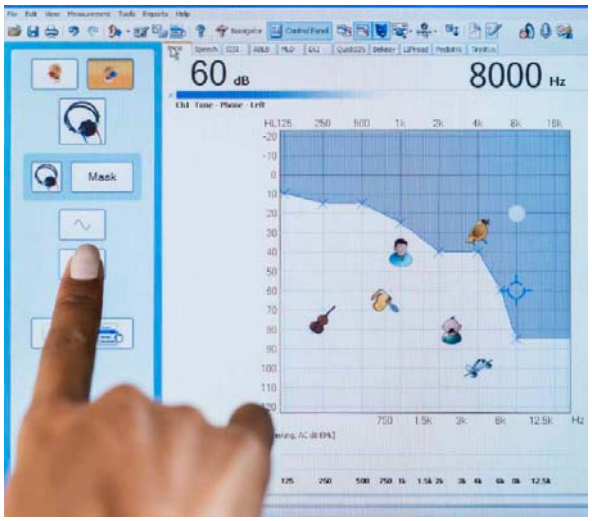
Menu item	Icon	Description
Monitoring		Enables or disables the monitor speaker for monitoring stimuli presented to the patient from the **Stimulus** or **Masking** channel.
Desktop/Headset Microphone		**Toggle microphone types** Click to toggle between the operator headset boom microphones and desktop microphone used to communicate with the patient and/or the assistant. The one displayed is the one currently active.
Talk to Assistant		Click to enable or disable talking to another party (usually a second tester) in the booth.
Talk Forward		Enables communicating with the patient in the sound booth. This will display the **Talk Forward** dialog box, where you can control the talk forward microphone sensitivity and the output level (in dB HL) to the patient.
Select Orientation		Click to select the perspective of the patient's ears as presented on the screen for graph and table views. You can also select the location of the stimulus control.
Select Control Panel		When you have enabled the Control Panel icon on the toolbar, you can choose between using the Classic Control Panel and the Sunshine Panel.

Astera² Software – "Sunshine Mode"



Astera² Software – "Sunshine Mode"

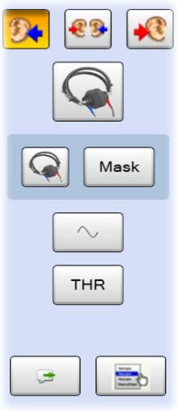
New control panel for intuitive operation



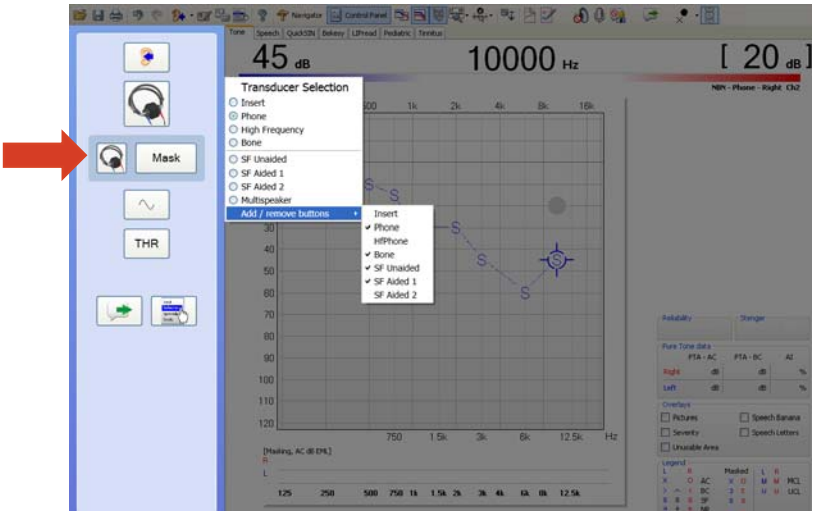
Switch Easily Between the Classic Mode and Sunshine™

Classic mode

Sunshine™

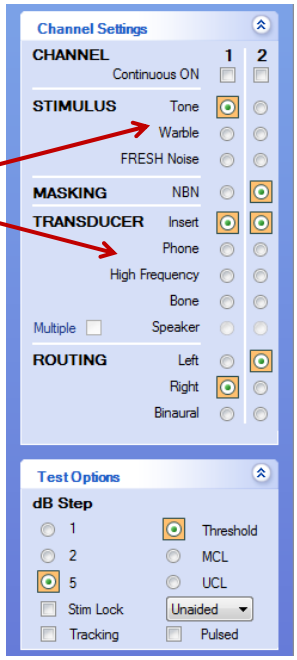


Easily Change Settings with Simple Right Click



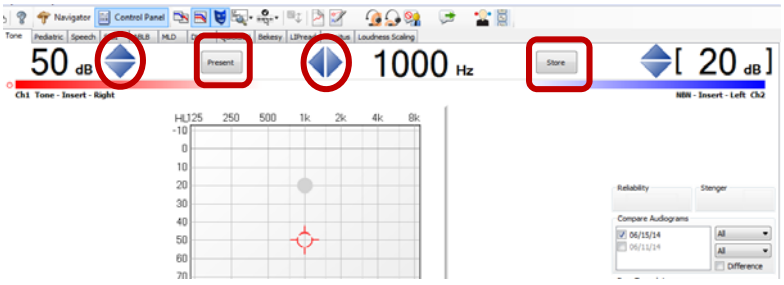
Tone Testing – Step by Step

1. Select the "Tone" Screen
2. Prepare the patient
3. In the "Control Panel" select the test conditions (Example: stimulus type, and transducer)



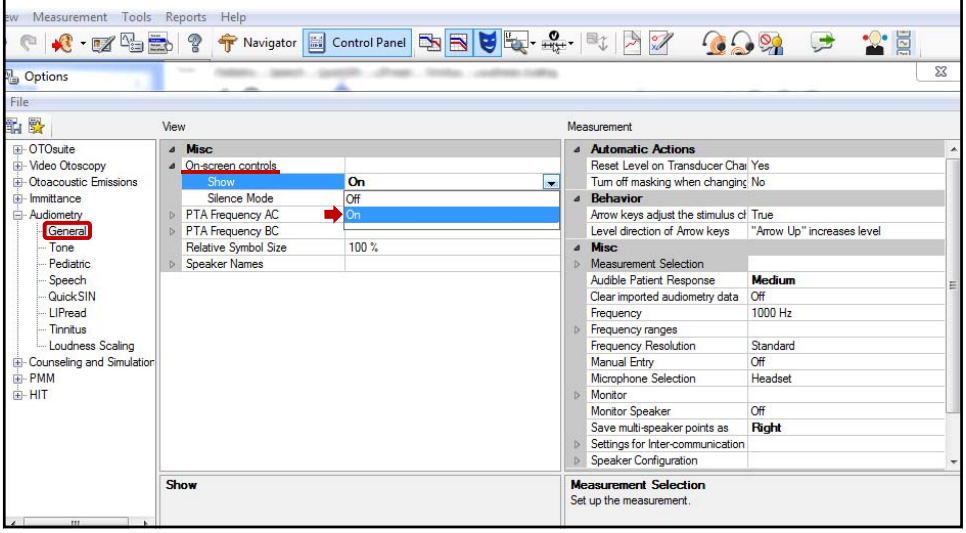
Tone Testing – Step by Step

4. Select the test frequency with the left/right buttons or L/R arrow keys on keyboard
5. Select the stimulus level with the up/down buttons or up/down arrow keys on the keyboard
6. Present the tone with the stimulus presentation button or space bar on the keyboard
7. Store the data point by choosing the store button or the (S) key on the keyboard OR by simply double-clicking with the mouse



Tone Testing – Step by Step

Tools > Options >Audiometry General > Onscreen controls– choose "ON"



Tone Testing

Masking Assistant

- When is masking really necessary?
  - The masking assistant can help you be sure
- Do you know the real inter-aural attenuation of your headphones?
  - Inserts vs phones
- Are you masking more than what is really necessary?

Tone Testing

Masking Assistant

- Problems with unnecessary masking
  - Wastes time as reinstruction of the patient is necessary (often multiple times)
  - Confusing to the patient
  - Can be very fatiguing for some patients

Tone Testing

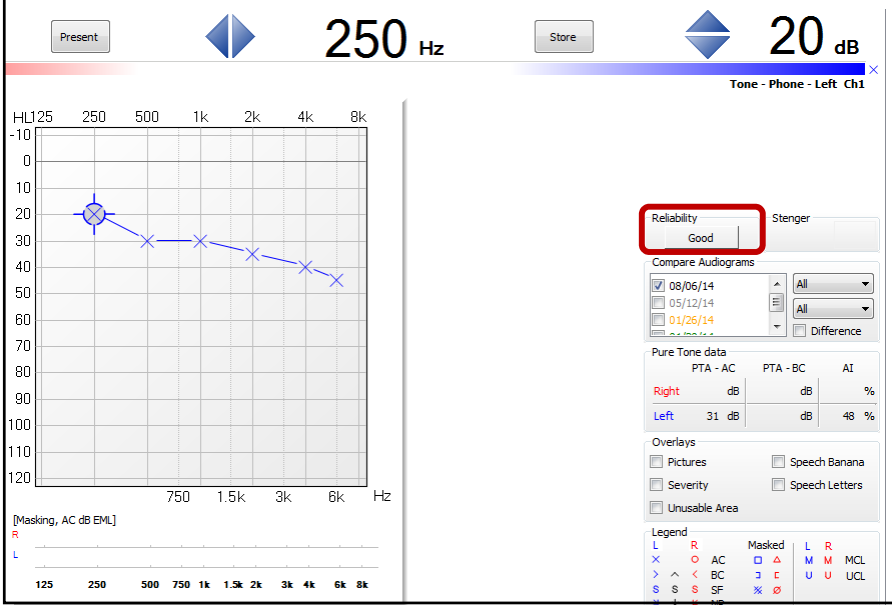
Masking Assistant

- Flashing AC or BC symbol indicates the need for masking
- BC – Clinician can choose gap size (default = 15 dB air/bone gap)
- AC – Interaural attenuation is frequency and transducer specific

ON

OFF

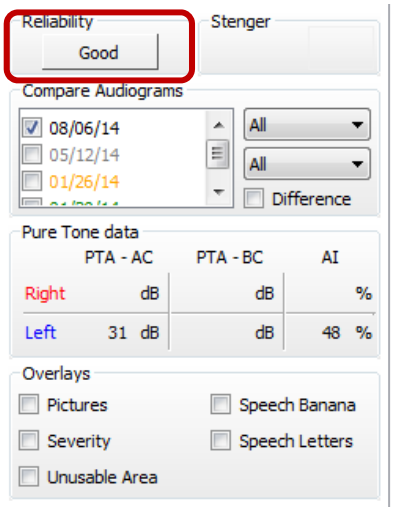
Tone Testing



Tone Testing

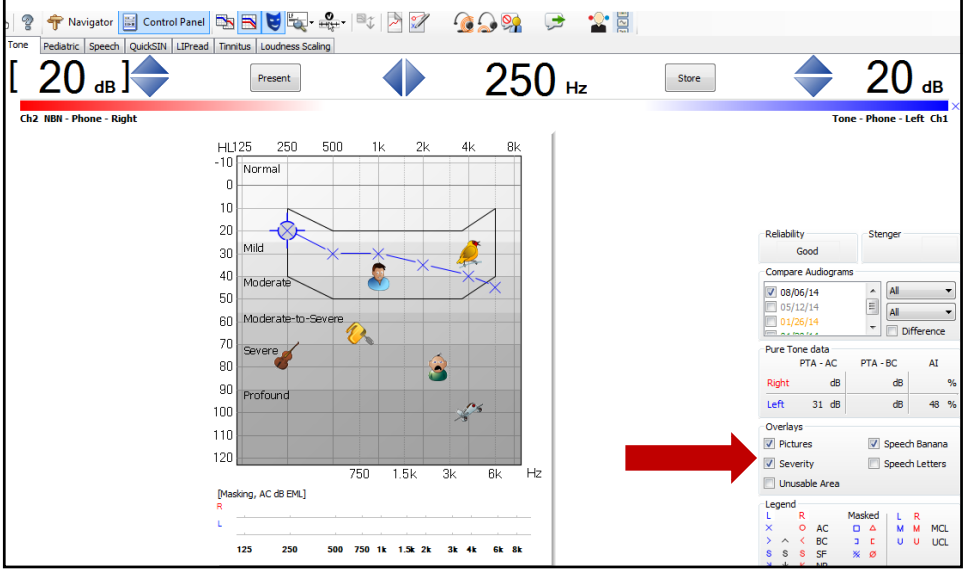
Reliability Notation

- Simply continue to click to toggle through reliability ratings as "Good", "Fair" or "Poor" reliability



Tone Testing

Counseling Overlays



Tone Testing

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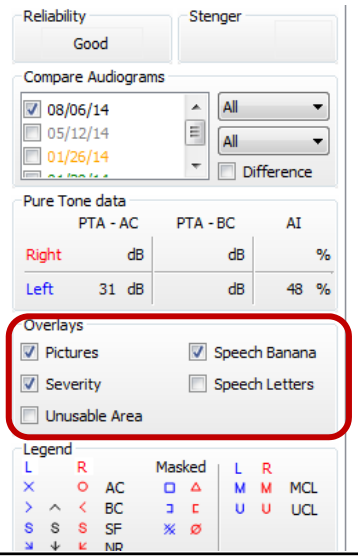


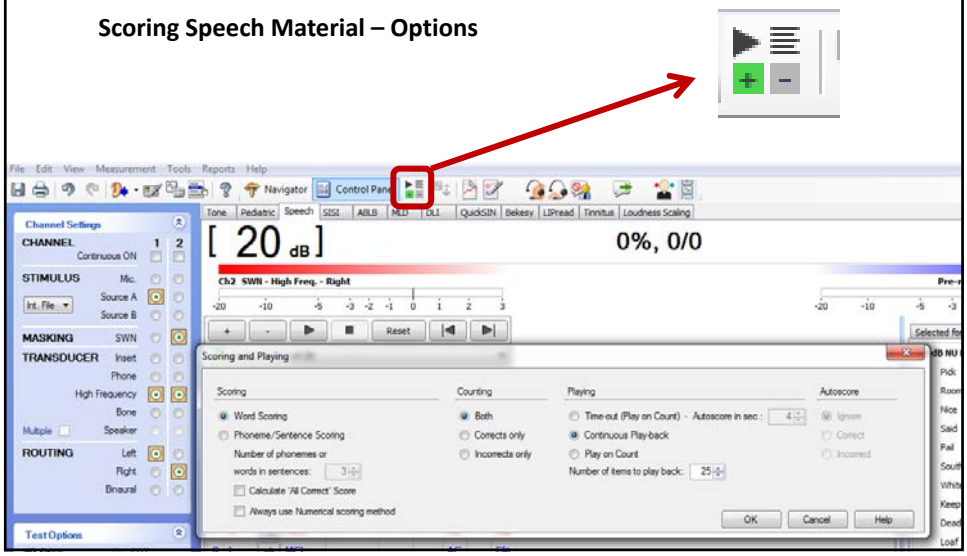
Audiometer– Astera²
Speech Testing

Embedded Speech Materials

- Standardizes testing from one test date to the next for the same patient
- Reduces variability between tests for a single presenter and among different presenters
- No need to calibrate the VU meter
- Saves vocal effort
- Flexible enough to compare with live voice flexibility

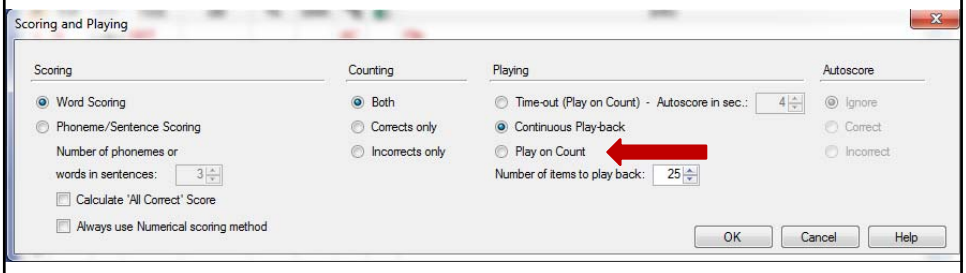
Audiometer– Astera²
Speech Testing

Scoring Speech Material – Options



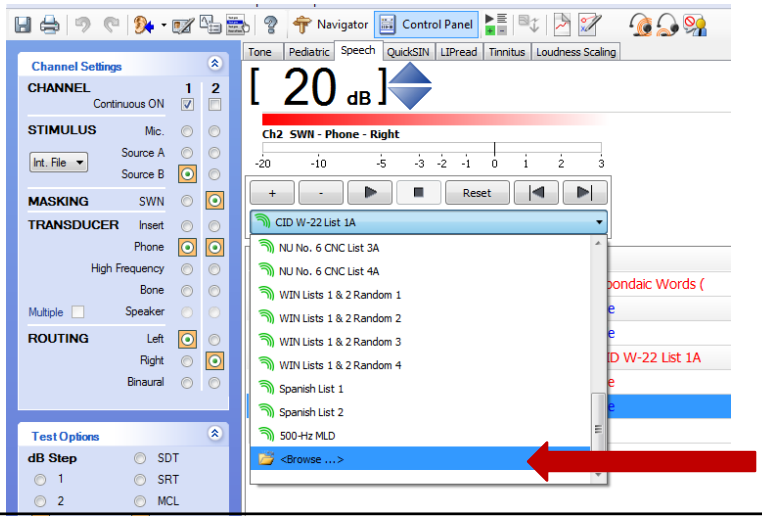
Audiometer– Astera²
Speech Testing

Scoring Speech Material – Options



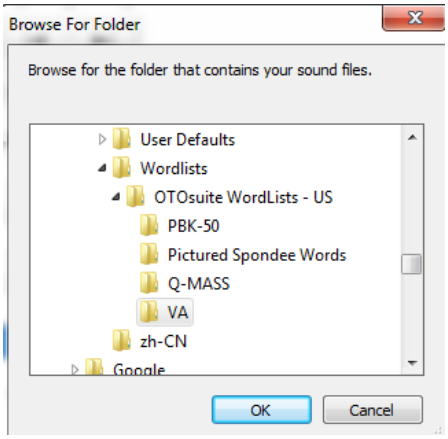
Audiometer– Astera²
Speech Testing & Scoring

- **Choosing Speech Material**



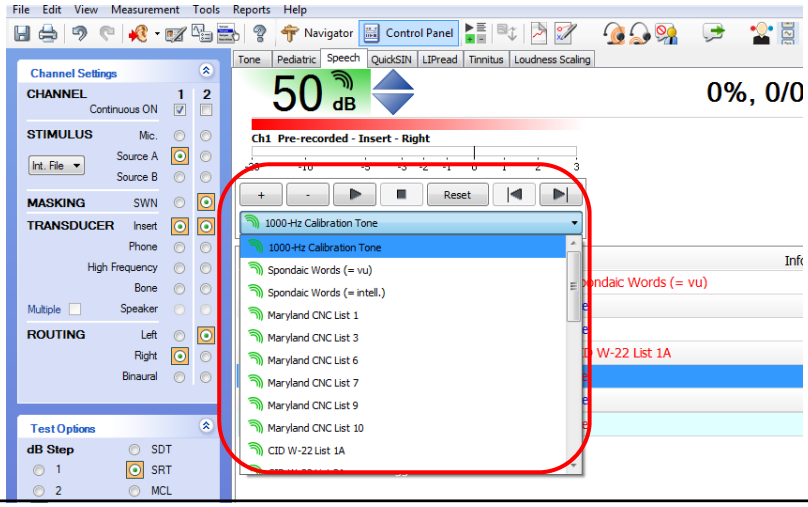
Audiometer– Astera²
Speech Testing & Scoring

- **Choosing Speech Material**



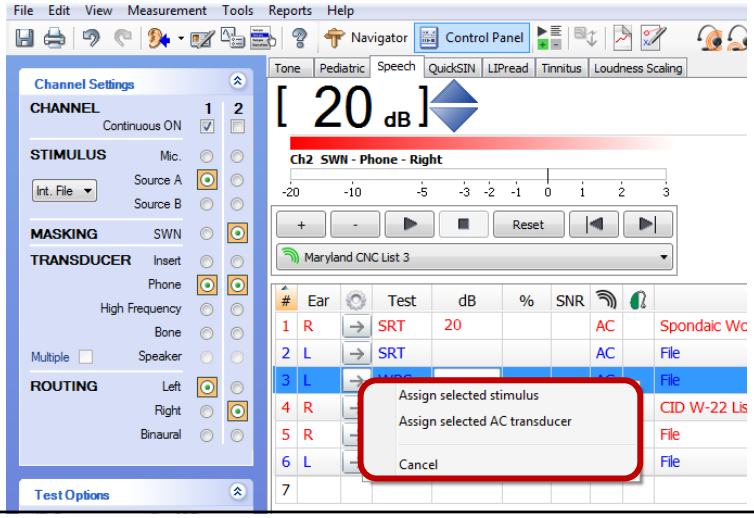
Audiometer– Astera²
Speech Testing & Scoring

- **Choosing Speech Material**



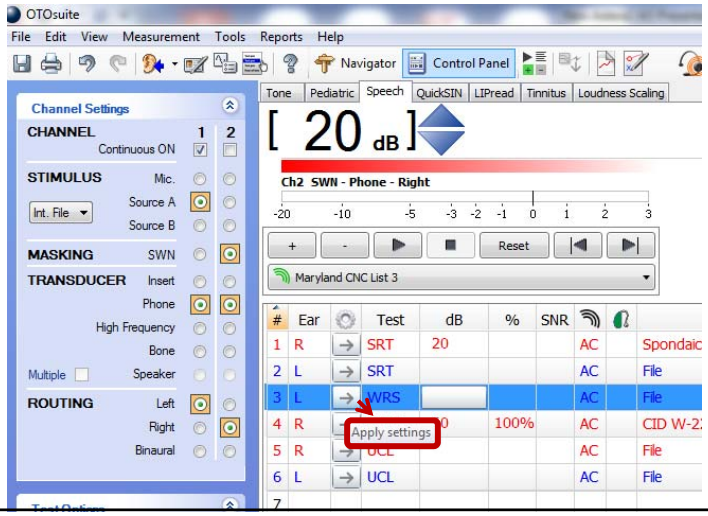
Audiometer– Astera²
Speech Testing & Scoring

- **Saving Preferred Speech Material**

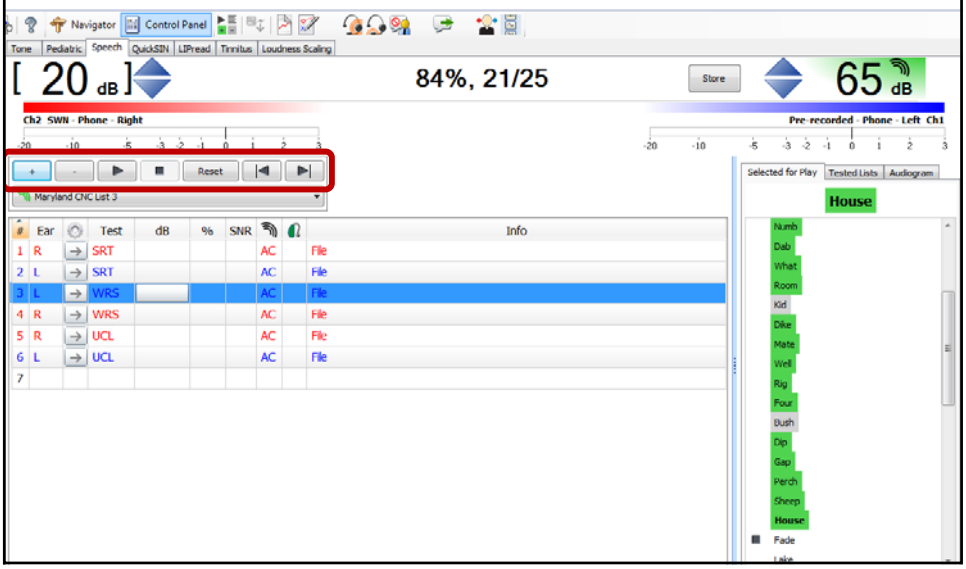


Audiometer– Astera²
Speech Testing & Scoring

- **Saving Preferred Speech Material**



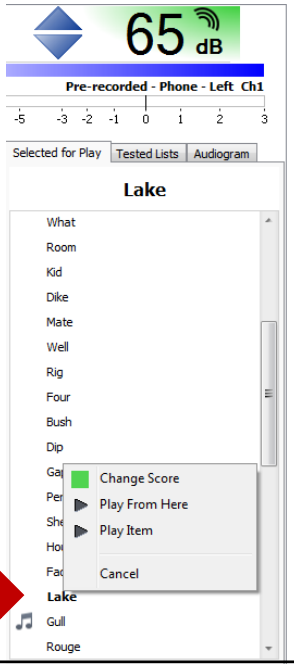
Audiometer– Astera²
Speech Testing & Scoring



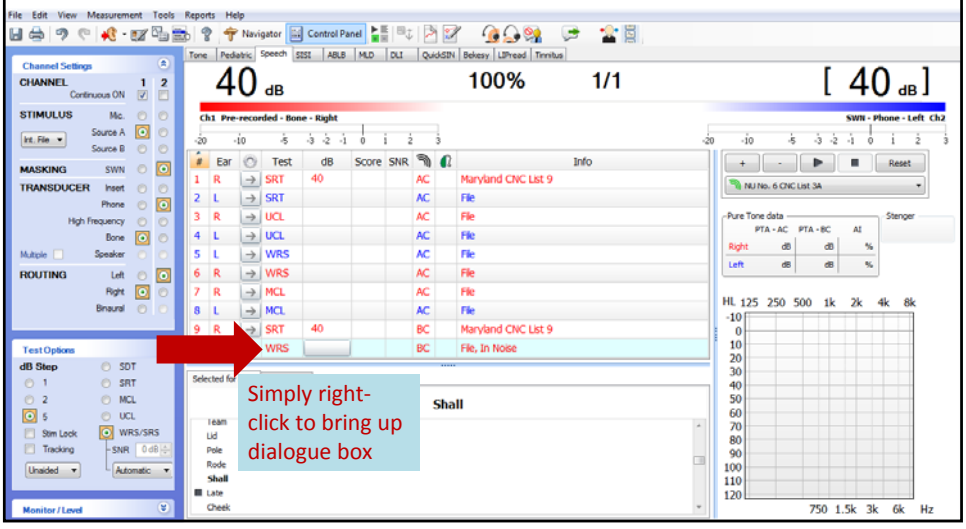
Audiometer– Astera²
Speech Testing & Scoring

- **Options while testing**

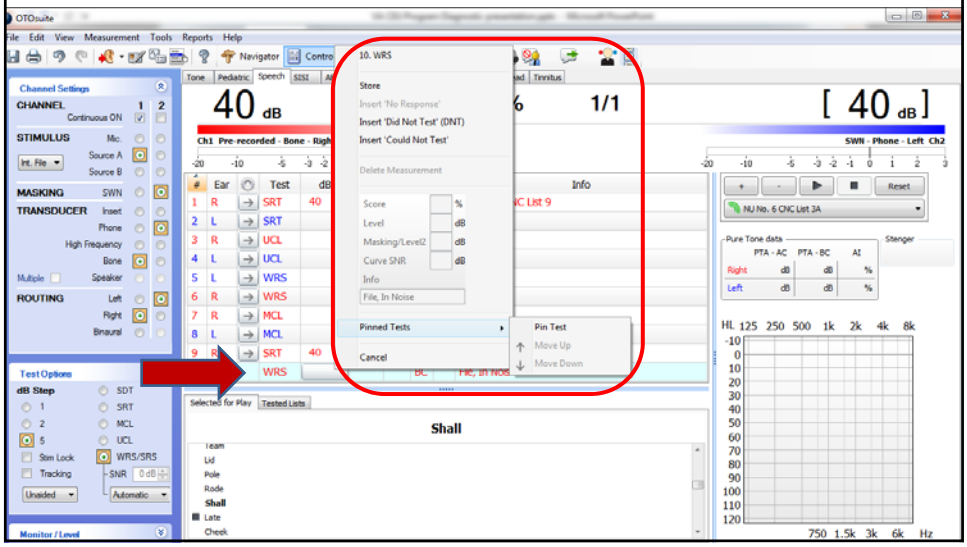
Simply right-click on a word to change score, play from that word in the list, repeat a word, or cancel



Audiometer– Astera²
Speech Testing & Scoring

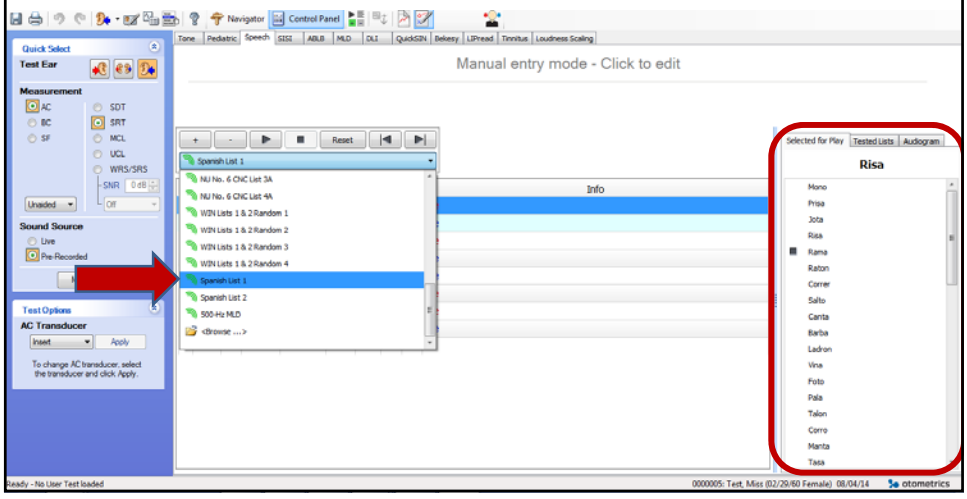


Audiometer– Astera²
Speech Testing & Scoring



Audiometer– Astera²
Speech Testing & Scoring

Spanish Speech Materials

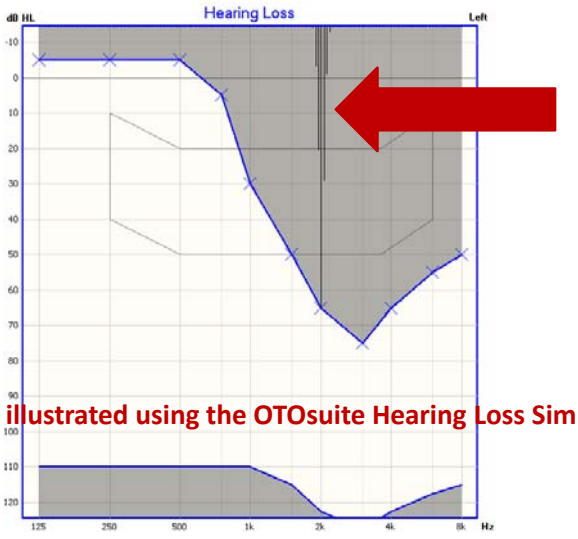


A Quick Note About FRESH Noise

- FRESH noise is a narrow band noise stimulus designed for the purpose of testing hearing thresholds, in particular, for children
- FRESH noise is more frequency specific than the standardly utilized noise choices (ex. Narrow band noise)
- Designed with extremely steep filter slopes so as to not spread beyond the desired test frequency
- Calibrated in dB HL

A Quick Note About FRESH Noise

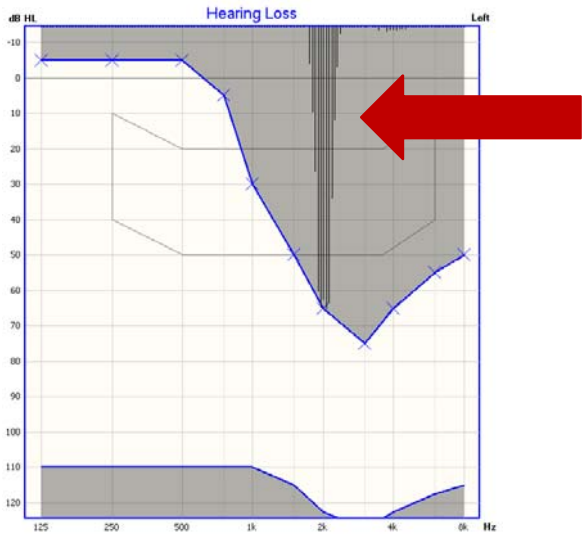
Pure Tone Stimulus Bandwidth



Principle illustrated using the OTOsuite Hearing Loss Simulator

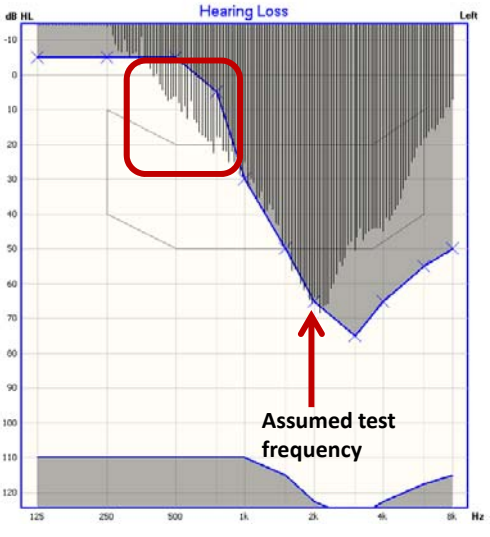
A Quick Note About FRESH Noise

FRESH Noise Bandwidth



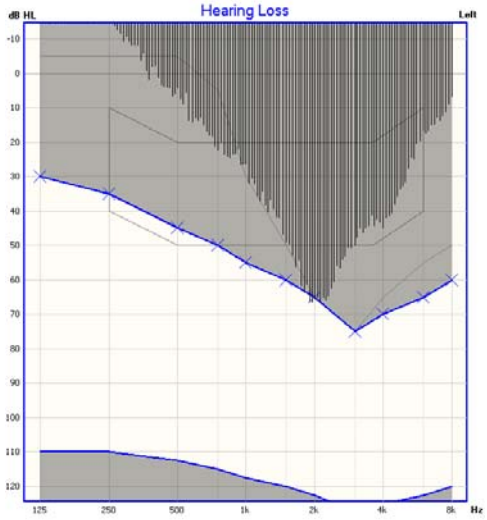
A Quick Note About FRESH Noise

Narrowband Noise Bandwidth



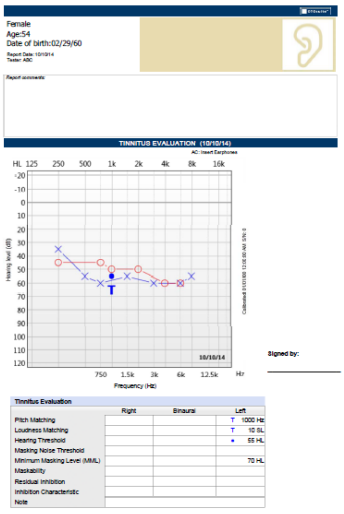
A Quick Note About FRESH Noise

Narrowband Noise Bandwidth



Astera²- Tinnitus Module

- Intuitive and easy to use
- Developed with clinicians in mind
- Standard component in Astera²
- Dedicated tinnitus report



Astera²- LIPread™ Module

- What is it?
- Why would I use it in my clinic?

Astera²- LIPread™ Module

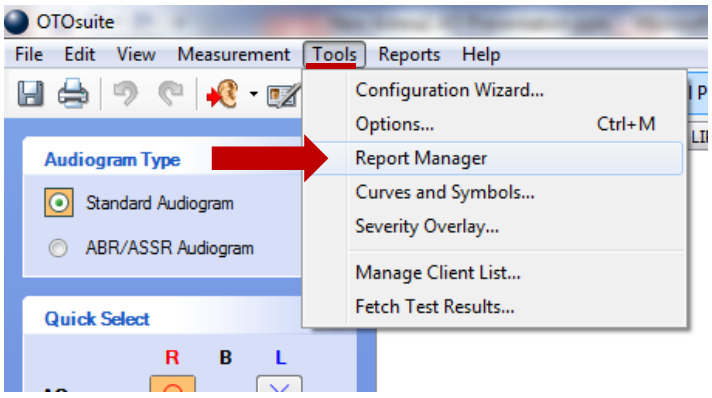
- **What is it?**
  - A new assessment tool designed to evaluate spoken word recognition including contextual & visual cues
  - A speech test that incorporates multi-modality testing (vision + hearing; hearing only, vision only)
- **Why would I use it in my clinic?**
  - The aim is to enhance clinician's ability to estimate real-world listening skills to predict benefit from sensory aid use
  - Set realistic expectations
  - Counsel regarding listening strategies

Astera²- LIPread™ Module

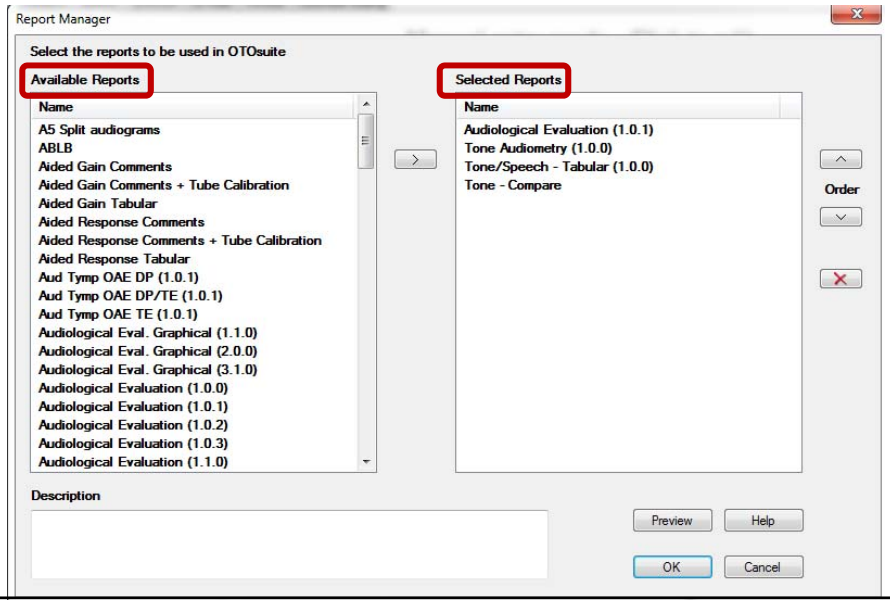
- **Why would I use it in my clinic?**
  - Cochlear Implantation
    - **Establish pre-implant speech recognition baseline**
    - **Evaluate/document CI benefit**
    - **Evaluate language development**
    - **Evaluate/document training needs or improvement over time**
  - Education & Counseling of Significant Others

Report Manager

- The Report Manager helps you arrange report templates available in OTOsuite into a list of your choice
  - Access by choosing Tools > Report Manager

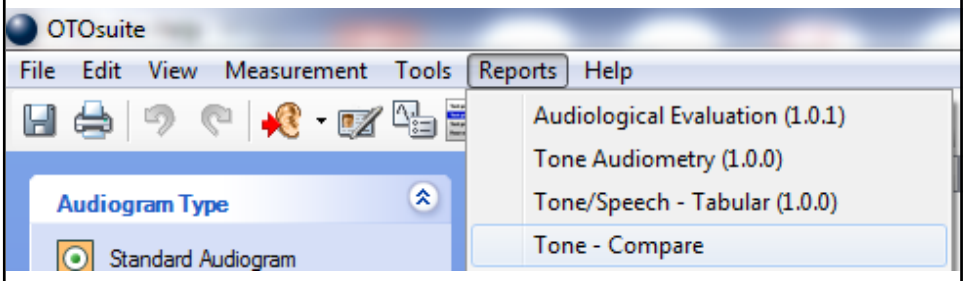


Report Manager

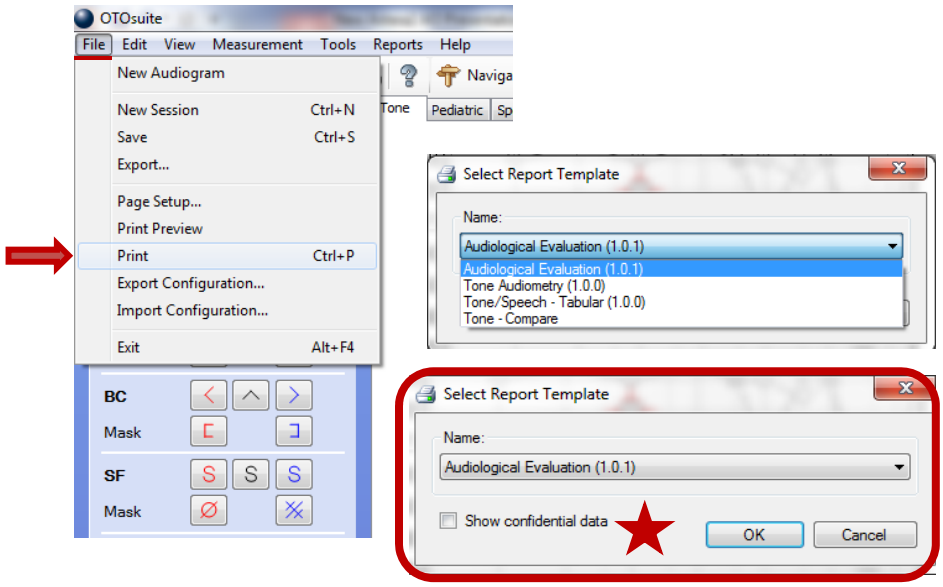


Report Manger

- Selected reports are now part of my “Reports” list and I can choose which one is appropriate for my patient



Printing Reports



Printing Reports

Astera² Summary

- Flexible, computerized audiometer with smooth data integration via OTOsuite and OTObase
- Full range of testing capabilities from established audiometric tests to tinnitus module, LIPread module, integrated questionnaires, etc.
- Updates and software upgrades easily accessible (not need to replace hardware)
- Simple to operate and a fast learning curve

Resources

Please visit us online at:
www.AudiologySystems.com and at www.Otometrics.com

Or please call us at:
855-283-7978

You can also find additional fitting resources at:
http://www.otometrics.com/Knowledge-Center/fitting