

CALIBRATE THE TEST EQUIPMENT

1. Present 1000 Hz calibration tone (this will be a track on your recorded test materials) and adjust the VU meter to zero on EXT A and EXT B.
 2. Present speech-shaped calibration noise (a track on the recorded test materials) through the loudspeaker intended for testing
 3. Situate the sound level meter (SLM) in the location to approximate a patient’s head when seated, one meter from the speaker at 0 degrees azimuth
 4. Set SLM to “A-weighted” and “Slow” setting
 5. Present the calibration noise from the desired loudspeaker
 6. Adjust the HL dial on the audiometer until the sound level meter reads desired presentation level (e.g., 60 dBA). Note: The HL dial level reading is irrelevant, provided that the VU meter is not clipping, and the sound level meter reading equals 60 dBA in response to speech-shaped calibration noise.
 7. Consider presenting a couple of words and sentences to ensure that the presentation levels for the target stimuli match the measurement with calibration noise. (Switch from a slow to a fast setting on SLM to capture the rapid fluctuations in running speech)
- *See Manual for additional considerations regarding Calibration.

TEST & ROOM SET-UP

1. Loudspeaker placed in corner of booth or on side wall
 2. Patient seated 1 meter from the loudspeaker (consider marking the ceiling or floor for consistency)
 3. Patient at 0° azimuth facing the speaker
 4. Speech and noise collocated at 0° Azimuth (for AzBio Sentences)
- *Consider a second speaker at 45 degree angle for noise testing for SSD candidates.

UNAIDED AUDIOMETRIC TESTING	COMPLETED
<ol style="list-style-type: none"> 1. Recommended if: <ol style="list-style-type: none"> a. Testing has not been performed within the past six months b. Clinician has any concerns regarding the reliability of previous test results c. There are concerns of recent change in hearing • Testing at 125 Hz can provide useful information for device selection and aid in post-operative treatment for candidates with good low frequency hearing. • Pre-operative unaided word recognition testing should include recorded materials, when possible. 	<p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p>

<ul style="list-style-type: none"> Perform acoustic reflexes (ipsi and contra) and OAEs, as warranted <p><u>Guidelines for Manual Pure-Tone Threshold Audiometry, as published by the American Speech-Language-Hearing Association, should be used for unaided audiometric testing.</u></p> <p>*Refer to insurer’s requirements for unaided hearing thresholds. See Manual for additional information regarding interpretation of audiometric findings.</p>	
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HEARING AID VERIFICATION	COMPLETED
<ol style="list-style-type: none"> Prior to performing aided speech recognition testing to evaluate CI candidacy, hearing aid verification should be performed to ensure that the hearing aids used for testing are meeting targets (as close as possible) based on the patient’s hearing loss. If best-aided results can be better achieved using clinic loaner hearing aid(s), they are programmed, verified and used for aided testing. 	<input type="checkbox"/>

AIDED SPEECH TEST BATTERY	COMPLETED
<p>Purpose: The CNC monosyllabic word test is used as the clinical basis for determining candidacy. The AzBio Sentence Test is obtained for the ear to be implanted in the <u>best-aided condition</u> as a basis for insurer’s requirements, as needed.</p> <ul style="list-style-type: none"> Administer all tests using calibrated recorded material whenever possible The <u>best-aided condition</u> is defined as the speech recognition scores for the ear to be implanted using an optimized hearing aid For patients with residual hearing in the non-test ear (NTE), careful consideration should be given to effectively isolate the test ear by: <ol style="list-style-type: none"> Plugging & placing circumaural phone over NTE (Plug & muff may be optimal for patients who struggle to process signal from masking noise) Use of effective masking in NTE If testing a non-English speaker, use word or sentence tests in the patient's native language, when possible <p>*See Manual for additional information regarding isolating the test ear.</p>	
<p>CNC Quiet: The CNC Monosyllabic Word test is used to evaluate each ear separately in the <u>best-aided condition</u> (see above definition) and is a basis for determining candidacy.*</p> <ol style="list-style-type: none"> Administer one 50-word list to right ear at 60 dBA Administer one 50-word list to left ear at 60 dBA Compare scores to determine better versus poorer ear and to aid in determination of ear to be implanted 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

AIDED SPEECH TEST BATTERY	COMPLETED
<p>*In addition to aided speech recognition, determination of ear to be implanted should include consideration of hearing history, demographic info, patient motivation and expectations, lifestyle, etiology of hearing loss and other factors.</p>	
<p>AzBio Sentence Test: The <u>best-aided</u> AzBio sentence score is obtained for the ear to be implanted administered in quiet or at an appropriate signal to noise ratio and is used as a basis for insurer’s requirements, as needed.</p> <ol style="list-style-type: none"> 1. Administer one list at +10 signal-to-noise ratio (SNR) (Sentences presented at 65 dBA, Noise at 55 dBA) for the ear to be implanted. This represents the <u>best-aided condition</u> (see above definition). <input data-bbox="1328 619 1372 667" type="checkbox"/> 2. If the ear to be implanted has not been determined using aided CNC word scores, administer AzBio sentences presented at +10 SNR (Sentences presented at 65 dBA, Noise at 55 dBA) <ol style="list-style-type: none"> a) In the right ear <input data-bbox="1328 798 1372 846" type="checkbox"/> b) In the left ear <input data-bbox="1328 846 1372 894" type="checkbox"/> c) Compare scores to determine better versus poorer ear and to help define the ear to be implanted. If the score for the ear to be implanted meets clinic’s and insurer’s indications, this score represents the <u>best-aided condition</u> * <input data-bbox="1328 894 1372 942" type="checkbox"/> 3. If additional information is needed regarding patient’s performance and hearing ability pertaining to candidacy determination and insurer’s requirements, consider: <ol style="list-style-type: none"> a) Test AzBio sentences in quiet (Sentences presented at 60 dBA) if +10 SNR is too difficult (floor effect) <input data-bbox="1328 1123 1372 1171" type="checkbox"/> b) Test AzBio sentences in a +5 SNR (Sentences presented at 65 dBA, Noise at 60 dBA) if +10 SNR is too easy <input data-bbox="1328 1207 1372 1255" type="checkbox"/> 4. Administer AzBio sentences in patient’s bilateral <u>everyday listening condition</u> (non-occluded, unilateral or bilateral hearing technology) for post op comparison using same SNR as your most difficult ear to be implanted condition. <ol style="list-style-type: none"> a) For SSD/AHL candidates test at 0 SNR (Sentences presented at 65 dBA, Noise at 65 dBA) <input data-bbox="1328 1407 1372 1455" type="checkbox"/> <p>*See Manual for additional information regarding optional SSD/AHL pre-operative testing conditions.</p> <p>*In addition to aided speech recognition, determination of ear to be implanted should include consideration of <u>other factors</u> including: hearing history, demographic info, patient motivation and expectations, lifestyle, etiology of hearing loss and other factors.</p>	<p>As Needed:</p> <p>As Needed:</p>

FUNCTIONAL OUTCOMES	COMPLETED
<p>Purpose: Questionnaires are used to further evaluate CI candidacy, document pre-operative hearing difficulties, and serve as a baseline for post-operative functional improvements.</p>	
<ol style="list-style-type: none"> 1. Administer the CI-QoL 10 (The Cochlear Implant Quality of Life (CIQOL)) 2. Administer SSQ-12 (Speech, Spatial and Qualities of Hearing Scale) 3. When significant tinnitus is reported, administer the Tinnitus Handicap Inventory <p>*See Manual for additional information regarding functional outcome questionnaires.</p>	<input type="checkbox"/> <input type="checkbox"/> As Needed: <input type="checkbox"/>

OPTIONAL COGNITIVE SCREENING	COMPLETED
<p>Purpose: Although cognitive screening is not specifically included in the MSTB-3, if a clinician chooses to perform cognitive screening, the tool should be chosen based on validity, specificity and sensitivity.</p>	
<ul style="list-style-type: none"> • Results of the cognitive screening tool should not be used to exclude a patient from cochlear implantation <p>*See Manual for additional information regarding optional cognitive screening tools</p>	

Glossary:

- Best-aided Condition: speech recognition scores for the ear to be implanted using an optimized hearing aid
- Everyday Listening Condition: testing with the optimized hearing configuration typical of a patient’s everyday listening (e.g., unoccluded, unilateral hearing aid or bilateral hearing aids)
- Other Factors: audiometry, medical, radiological, cognition, patient motivation and preference, etiology, expectations, patient support
- NTE- Non-Test Ear
- SNR- Signal to Noise Ratio
- DAI- Direct Audio Input
- EAS- Electric Acoustic Stimulation
- SLM- Sound Level Meter