

FREQUENTLY ASKED QUESTIONS

ACT TEST

Q: What is the ACT™ test?

A: The Audible Contrast Threshold (ACT) test is a new clinical test that measures binaural spectro-temporal modulation sensitivity to quickly estimate a person's real-world ability to understand speech-in-noise.

Q: Does the ACT test use speech?

A: No. The test stimulus is modulated noise mixed with non-modulated noise. The modulated noise sounds like a siren. The non-modulated noise sounds very similar to white noise. The test requires the patient to indicate when they hear the siren sound. Even though the stimulus is not speech, research has shown that ACT results have good correlations with aided speech-in-noise performance. It is a language-independent test.

Q: What does language independent mean?

A: It means the ACT test can be performed around the world on any patient no matter what their native language may be. In fact, the ACT is the first nonlanguage-based speech-in-noise test.

Q: What do I need to perform the ACT test?

A: To perform the ACT test, the following is required:

- GSI AudioStar Pro™ or GSI Pello™ (with Speech Plus) licensed for the ACT test
- Patient Response Button
- Transducers (inserts, earphones, or circumaural headphones)
- Stored air conduction pure tone thresholds at the required frequencies in both ears

Q: How do I know how loud to present the noise?

A: The intensity level of the non-modulated noise is based on the patient's pure tone thresholds at 250-4000 Hz for each ear and is automatically determined by the audiometer. This means the noise level will vary depending on the degree and configuration of the patient's hearing loss and ensures that the ACT stimuli will be audible for all patients.

Q: What if the patient has normal hearing?

A: If there is normal hearing, a standard signal is presented at a level around 65 dB SPL.

Q: Can I adjust the level of the ACT noise?

A: No. The noise levels are fixed.

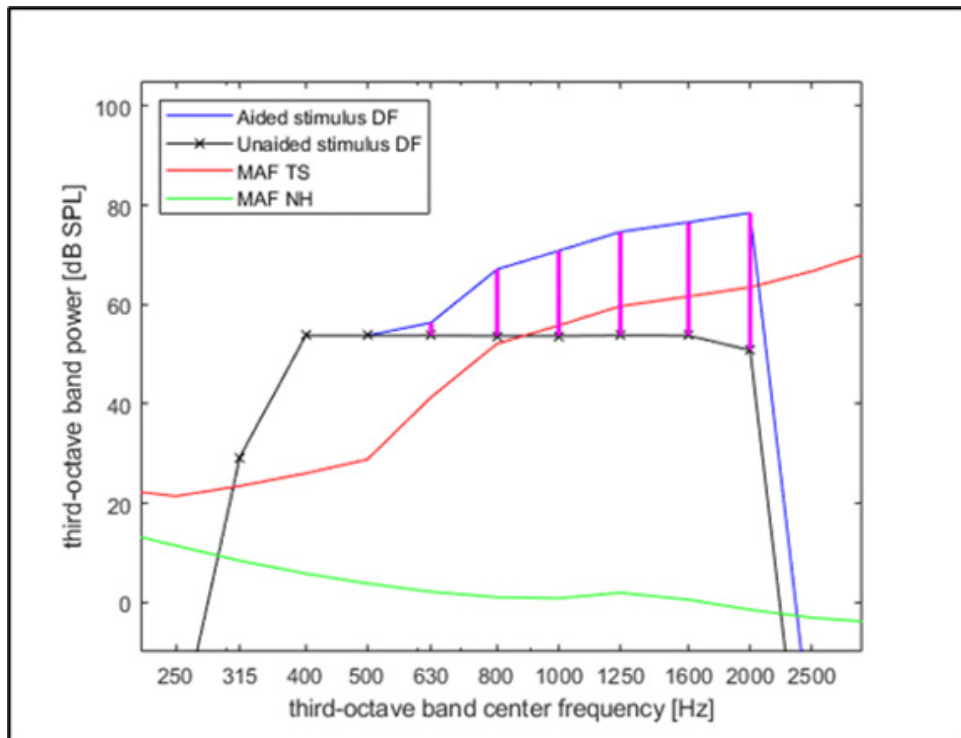
Q: Do I need to mask?

A: No. The ACT test is binaural, and it is not possible to apply masking noise.



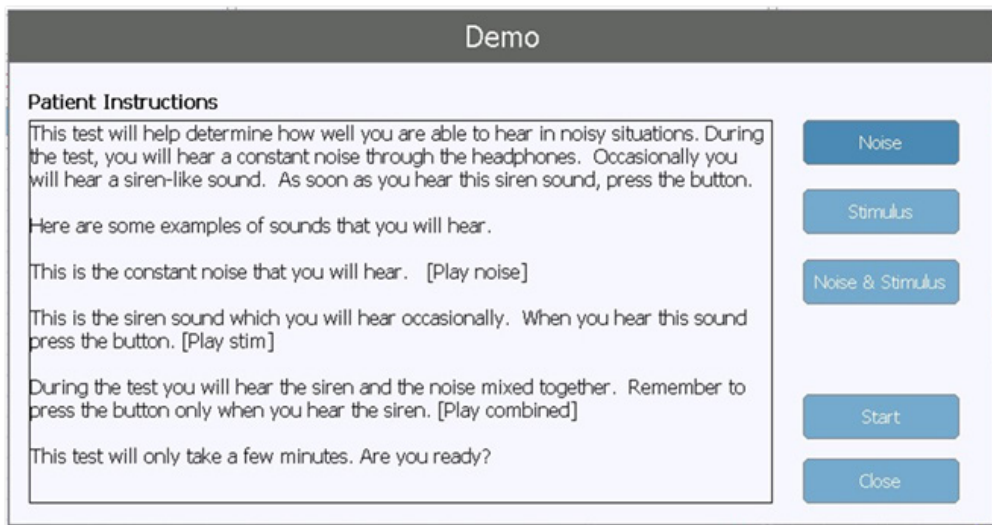
Q: What does audible for all patients mean?

A: In the graph below, the black line shows the ACT noise and red line shows a mild to moderate hearing loss. To ensure the ACT noise is audible for all frequencies, the ACT stimulus is automatically increased in the mid to high frequencies to account for the hearing loss. This is indicated by the vertical pink lines.



Q: How is the test performed?

A: On the audiometer, press the More button and select ACT to launch the test. Patient instructions will appear and include the ability demonstrate the noise, the stimulus, and the noise plus stimulus, so the patient has a clear understanding of the task. The test can begin once the patient is ready.



Q: Can I perform the ACT test on pediatric patients?

A: No. The ACT normative data is based on an adult population.



Q: How long does the test take?

A: About 2-3 minutes depending on the patient.

Q: Is the test automatic?

A: No. Once the test is started, the noise is presented to the patient (interrupt button is on) but the clinician must present the signal by pressing the present bar. The audiometer automatically scores the patient's response on the Tracking Trace graph. Similar to pure tone audiometry, decreasing the signal in 4 dB steps and increasing in 2 dB steps is recommended. The goal is to obtain an ACT threshold.

Q: How is the ACT threshold determined?

A: The ACT threshold is defined as 3 responses at a single contrast level obtained on ascending intensity presentations of 2 dB. The responses must be within 5 turning points or responses. When this criterion is met, the test automatically stops and the ACT threshold will automatically display in the Information section of the display. In the example below, the ACT threshold is 4.5 dB nCL.



Q: What is the ACT Threshold?

A: The ACT test measures the smallest amount of “contrast” in dB that the patient can detect between the noise and the modulated signal. The lower the threshold, the better a person is at detecting speech cues in noise.

Q: What is contrast level?

A: Contrast level is the difference between the non-modulated noise and the siren sound (modulated noise). The higher the dB contrast level, the larger the modulation and the easier the task. For example, the starting point for the ACT is 16 dB nCL, which means the stimulus (siren sound) is presented at the maximum depth of modulation.

Q: What is nCL?

A: The nCL stands for normalized Contrast Level for an adult population.

Q: What does a low ACT value mean?

A: A normal ACT result is between -4 and +4 dB nCL and means the patient can detect the contrast at near normal levels.



Q: What does a high ACT value mean?

A: High ACT results (more than +4 dB) mean the patient detects the contrast at much higher contrast levels than normal. In other words, the signal needs to be greater than the noise compared to normal for the patient to detect the contrast.

Q: How can the ACT results be used?

A: The most effective way to use the ACT threshold is in the hearing aid fitting. The following guide can be used to optimize the adaptive features of a hearing aid such as noise reduction and directionality. With a normal ACT score, minimal adaptive HA features are recommended to preserve natural sounding speech. As the ACT score increases, the poorer the predicted speech-in-noise performance which means more assistance will be needed from the hearing aid to help the patient understand in noisy situation. Hearing aid brands, such as Oticon, will allow for the import of the ACT score for direct guidance on hearing aid settings.

ACT score dB nCL	Contrast Loss	Predicted Aided Speech-in-Noise Performance	Fitting Advice
-4 to 4	Normal	Normal range	Adaptive features set to minimum level – help preserve natural sound in all environments
4 to 7	Mild	Mildly poorer than normal	Adaptive features set to slightly higher than minimum level – help preserve natural sound and improve speech understanding in the noisiest environments
7 to 10	Moderate	Moderately poorer than normal	Adaptive features set to slightly lower than the maximum level – help balance speech understanding while maintaining natural sound in moderately noisy environments
10 to 16	Severe	Severely poorer than normal	Adaptive features set to maximum level – help prioritize speech understanding in even the least noisy environments. Also consider streaming devices and communication training.

Q: Are there other uses for the ACT score?

A: Yes. The ACT can be used for:

- Counselling patients with normal hearing that complain of difficulty when hearing in noise.
- Counselling patients on their prediction of how well they will cope in noisy situations.
- Discussion of listening and communication strategies for noisy environments.
- Recommending assistive listening devices when the ACT score is poorer than normal.

Q: Where can I find more information on the ACT test?

A: More information about the ACT test can be located at:

<https://www.oticon.com/professionals/thought-leadership/act>

