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Notch Therapy

Quick Guide

Leanne Power, Au.D.

Rebecca Herbig, Au.D.

Notch Therapy

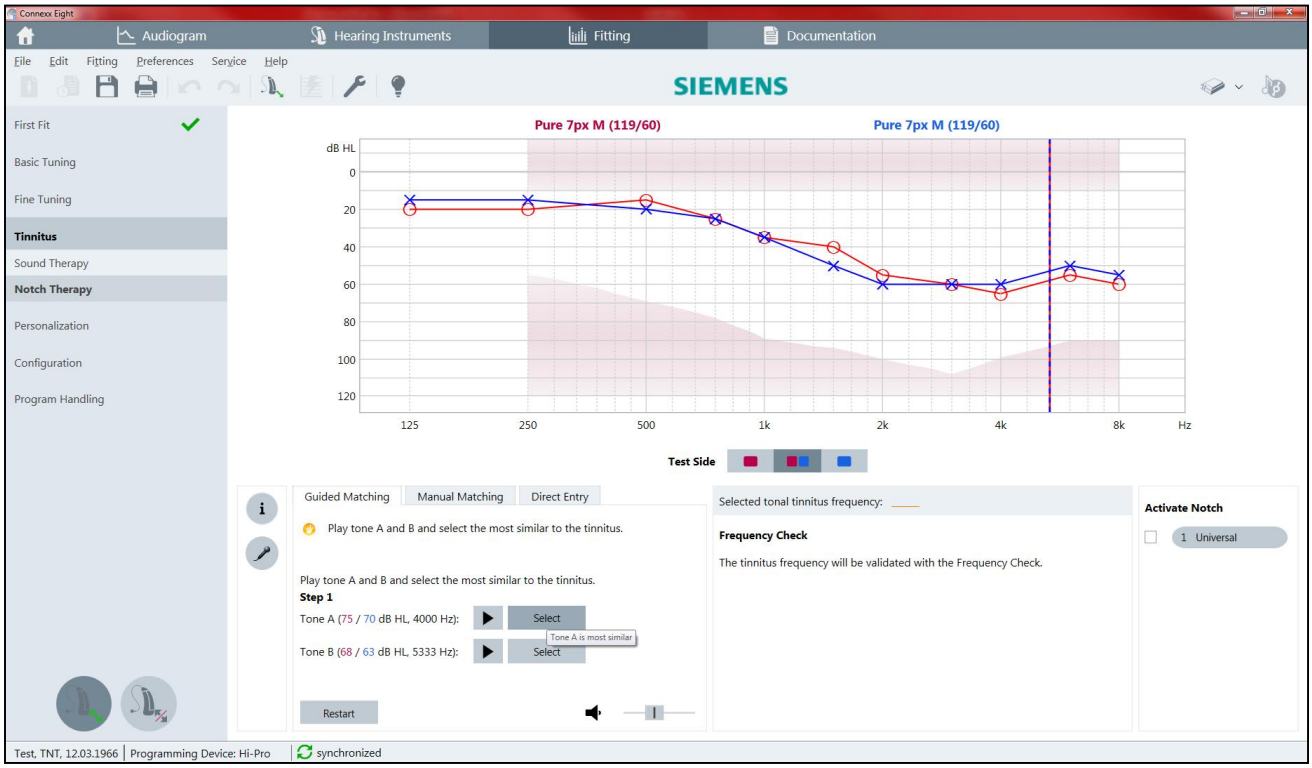
A new therapy approach clinically proven to reduce the annoyance of tonal tinnitus

Tinnitus management through acoustic therapy is the treatment method of choice for many hearing care professionals. Tonal tinnitus, which includes all types of pure-tone like whistling, ringing or humming, is the most common form of tinnitus.[1] New research shows rather than using traditional noise therapy that treats the effects of tinnitus, spectral notching can treat tonal tinnitus from its anatomic origin. The therapeutic effects of spectral notching can be achieved by wearing hearing instruments featuring Notch Therapy.

Unlike traditional sound therapy which introduces another acoustic stimulus to the patient, Notch Therapy is inaudible and works in the background to relieve the annoyance of tinnitus. Based on the concept of "re-attracting" lateral inhibition[2], Notch Therapy uses spectral notching and applies it to traditional amplification with hearing instruments. It aims to attack tinnitus on two fronts: 1) enhancing the auditory environment by amplification, 2) suppressing the tinnitus associated neural hyperactivity with enhanced lateral inhibition.

A double-blind study showed that when compared to control subjects who used hearing aid amplification alone, those who used hearing aids with Notch Therapy exhibited a clear improvement in as few as three weeks and maintained the benefit past six months.[3]

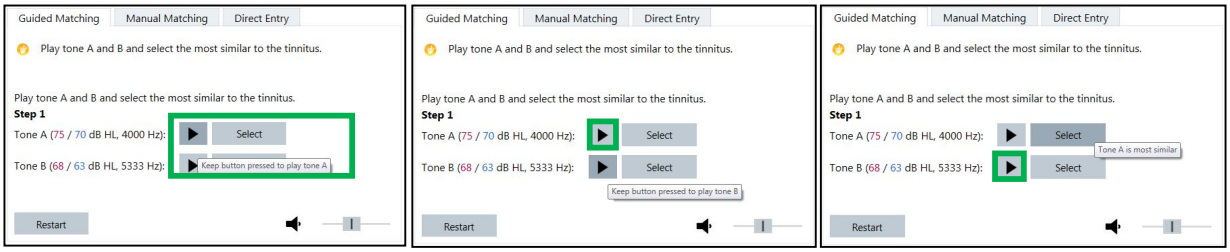
1. Turner, J.S. (1990). Auditory dysfunction: Tinnitus. In H.K. Walker, W.D. Hall, & J.W. Hurst (Eds.), *Clinical methods: The history, physical, and laboratory examinations*. Boston: Butterworths.
2. Teismann, H., Okamoto, H., & Pantev, C. (2011). Short and intense tailor-made notched music training against tinnitus: The tinnitus frequency matters. *PLoS ONE, 6*(9).
3. Strauss, D.J., Corona-Strauss, F.I., Haab, L., & Hannemann, R. (2015). Notched environmental sounds: a new hearing aid-supported tinnitus treatment evaluated in 20 patients. *Clinical Otolaryngology.*



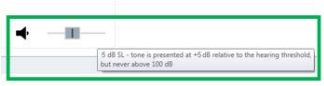
How to fit Tinnitus Notch Therapy - step-by-step using guided matching

To implement Tinnitus Notch Therapy for patients using primax hearing instruments, first perform a First Fit using the Connexx fitting software, and fine tune the settings as you would for any patient. Fine tuning should be completed, including programming any additional listening programs if required, prior to setting up Tinnitus Notch Therapy.

Next, open the **Tinnitus** tab on the left-hand navigation bar, and select **Notch Therapy.**
Guided Matching: The Tinnitus frequency is determined using a simple A-B comparison. All the user has to do is to play ▶ Tone A and Tone B, compare both and then decide via Select which one of both is more similar, i.e. closer in pitch to the perceived Tinnitus:

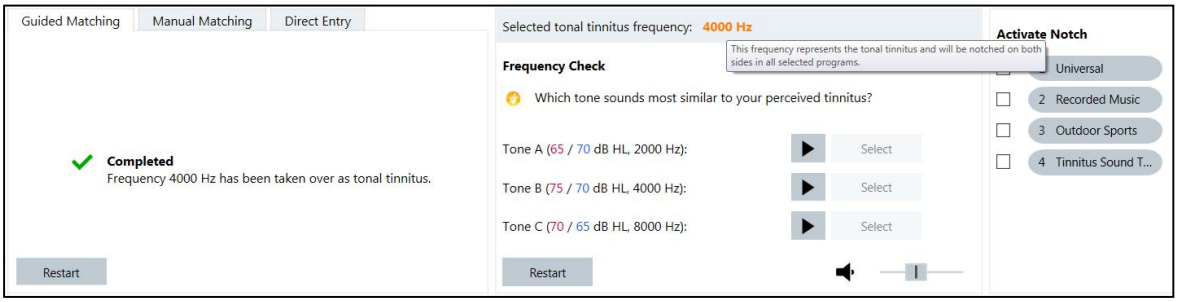


The underlying algorithm will automatically calculate the next adequate step based on the patients' selection. Test tones will be played at an initial loudness of 5 dB SL, based on the underlying Audiogram. In case the estimated individual loudness should not be suitable, it may be adjusted using the slider on the lower right:

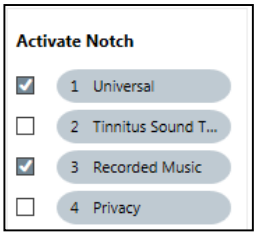


The procedure will automatically terminate as soon as the required amount of steps has been reached, depending on the feedback given. The determined frequency is then automatically taken over (and can be directly used to activate the Tinnitus Notch for the desired listening programs).

Frequency Check: This procedure is a final step during tinnitus pitch matching. It can correct a misjudgment of pitch by octaves, also referred to as octave confusion, a common problem with pitch matching. The Frequency Check is very similar to the Matching procedure. Play Tone A, Tone B, and additionally Tone C, if available. Ask the patient to compare these three, and then choose via the tone most similar, i.e. closest in pitch, to the perceived tinnitus.



Activate Notch: The Tinnitus Notch can be activated in all compatible listening programs, as desired, via checkbox:



If the patient reports a difference in tinnitus perception between ears, the notch should be set to the ear with more severe tinnitus. It is recommended to place the notch in the universal program and for the patient to spend most of their wear time in a notch program.

If necessary, the guided matching procedure described above can be repeated in 3 to 4 months to verify the previously determined notch frequency, and adjust it accordingly.

Leanne Powers, Au.D.

Dr. Powers is an Education Specialist for Signia at Sivantos Inc. in USA. She trains customers and staff on products, software, and services. In this role, Leanne has given several lectures at AudiologyNOW! and numerous state conventions on a variety of topics. Leanne practiced in a variety of hearing healthcare settings for 16 years prior to joining the Signia team. Most recently, she operated two hearing aid offices in the Chicago area. Leanne received her undergraduate degree from Northern Illinois University, her graduate degree from RUSH University in Chicago, and her doctorate from A.T. Still University of Health Sciences in Arizona.

Rebecca Herbig, Au.D.

Rebecca is Manager & Editor of Scientific Marketing for Signia at Sivantos Inc. in USA. She previously spent five years with Sivantos GmbH (then Siemens Audiology Solutions) in Germany and prior to that worked as a clinical audiologist in northern Virginia. Rebecca earned her B.S. in Audiology from the University of Texas in Dallas and an Au.D. from Gallaudet University in Washington, D.C.

Signia GmbH
Henri-Dunant-Strasse 100
91058 Erlangen
Germany

signia-hearing.com