

The THRESHOLD

A T K GROUP PUBLICATION DEVOTED TO OCCUPATIONAL HEARING LOSS PREVENTION AND PROGRAM MANAGEMENT

On The Inside

Frequency And Intensity
Page 2

Keep Dosimetry Current
Page 3

Test Rejections
Page 4

Get

MyTKGROUP

**Call Us For Free
Access Today!
815.332.3460**

Sending Data Electronically To T K Group-Please Remember...

T K Group has a portal with the address of datacenter@tkontheweb.com in which you may electronically send test data for analysis. This portal is specifically dedicated to receive audiometric test data only. *Please do not send Extended Questionnaires (for Work Relatedness Determination) to datacenter@tkontheweb.com*

If you are sending an Extended Questionnaire(s) AND test data, please address the email to determinations@tkontheweb.com Staff will forward the test data portion to data processing for analysis.

If you are sending an Extended Questionnaire(s) only, please address the email to determinations@tkontheweb.com OR directly to robertwilliams@tkontheweb.com

By following this protocol, our email boxes become less bogged down and resources are better utilized by not having to forward and re-forward emails to the appropriate person(s).

T K Group appreciates your cooperation and assistance.

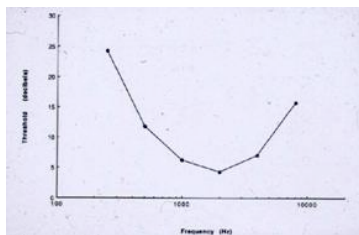
January 2015 CAOHC Course Announced

T K Group will be conducting a Full and Renewal CAOHC course on January 7.8.9, 2015. If you require renewal or initial CAOHC certification to become a certified Occupational Hearing Conservationists, please contact Chris Bennett at 815.332.3460. Courses tend to fill quickly so please plan accordingly.

Frequency and Intensity

T K Group has been receiving numerous questions pertaining to what the numbers mean and how they are generated on audiometric test results. Audiograms indicate (test) **Frequency** and **Intensity** (Threshold).

Clinically, audiologists define audiometric threshold (in a pure tone air conduction hearing test) as *the level at which a test subject responds to a test signal (tone) 50% of the time on ascending trials*. In simpler terms, threshold is the hearing level at which the test stimulus (tone) is just barely audible. The range of potential sound pressure levels audible to the human ear is vast and in fact logarithmic. Because of this, it became necessary to compress the immense range of sound pressures into a more manageable scaling unit called the “decibel”. Most often, sound measurements are conveyed using the dB SPL scheme; dB stands for “decibel”, while “SPL” refers to “sound pressure level”. An arbitrary, measurable pressure level of 20 micropascals serves as the dB SPL reference point corresponding to a sound pressure level barely audible to the human ear, at the most sensitive frequency to human ear. Scientists developed normative human threshold values (in dB SPL) using normal and healthy young adult ears at all frequencies audible to the human ear. This normative data known as the “human curve of audibility” (shown below):



(Courtesy University of Minnesota-Department of Psychology)

Each point of the curve is a normative threshold level at the selected test frequency; all curve points possess a corresponding sound pressure level (SPL). By definition, each point of the threshold curve becomes 0 dB **HL**. *It is important to note that 0 dB HL does not refer to absence of sound; 0 dB HL corresponds to a measured normative sound pressure level in humans at a particular test frequency.* Clinical instruments have the capability to measure threshold levels down to -15, -20 dB **HL**. To the layperson, minus (-) dB **HLs** may simply be thought of as very acute hearing. For practical purposes, normal hearing ranges from 0 to 25 dB **HL**. The scale extends to 95, 100, or 105 dB **HL** depending on the output limit of the audiometer. T K Group audiometers have a maximum output of 95 dB **HL**. *When no response is made after numerous 95 dB HL signal presentations, a “no response” (NR) level is recorded. Minus (-) thresholds received are entered as 0 dB HL by T K Group.*

Keep Dosimetry Current

Accurate and recent dosimetry is the keystone to complying with 29 CFR 1910.95. While area noise assessment is valuable, personal dosimetry provides a more complete picture; many regulatory actions rely upon knowledge of individual dosimetry. “Knowing your noise” is not only vital for compliance, but also helpful when selecting effective hearing protectors for workers with fluctuating noise exposure levels.

Issues related to Compensation Review and Determination of Work Relatedness additional reasons to acquire and maintain dosimetry records.

Compensable Hearing Loss Litigation: When an employee submits a hearing loss compensation claim and you have accurate and recent dosimetry on that person indicating a noise exposure level below 85 dB (8 hour TWA), little foundation for basis of the claim exists, barring documented evidence of work related trauma to the ear or exposure to a blast). Noise exposure levels below 85 dB are considered insufficient to affect occupationally related hearing loss. High levels of hearing loss should also reflect high exposure levels if noise is the cause. When noise and degree of hearing loss are inconsistent, certain hearing loss claims are unwarranted.

Work Relatedness Determination: T K Group requests accurate employee dosimetry. In the absence of dosimetry, an attempt to determine work relatedness will be made only if applicable cases demonstrate clear non-noise induced loss patterns.

Please contact T K Group if your company needs to conduct or update your facility noise exposure assessment.

If you are new to T K Group, or if you are simply interested in receiving email notification of new newsletter postings, please email robertwilliams@tkontheweb.com and type “Add to Newsletter” in the subject line.

Clients and associates of T K Group are permitted to reproduce all or part of this publication for private or corporate use. Parties not associated with T K GROUP, INC without the expressed written consent of T K GROUP, INC may reproduce no part of this publication. For reprint permission, please contact Dr. Robert Williams at robertwilliams@tkontheweb.com

The Threshold is written by Robert Williams, A.uD.

Audiologist Review: Test Rejections

A frequent question posed to T K Group’s audiological staff is “Why did the reviewing audiologist “reject” the baseline test for John Doe?”

Pursuant to our customary and professional review of all data processed, the reviewing audiologist will reject a baseline in cases where it is apparent that a (baseline) test collected by a previous vendor was invalid or in cases where proof of a poor test is evident as demonstrated by later tests.

Invalid Test Rejection

Occasionally, T K Group receives historical data collected by previous vendors whereby one or multiple test frequencies necessary for OSHA related analysis was omitted (not tested). The most frequent test frequency omission is the 3000 Hz test frequency. Most often, the 3000 Hz omission occurs when employees are tested by personnel at clinics who are not aware of OSHA testing protocols. More often, tests are rejected when a “poor” (baseline) test is apparent. Reasons for poor baseline tests include: poor vendor testing technique, excessive noise, acute ear related pathology at time of testing, inadequate test instructions, or examinee variables (test variability inherent with audiometric testing, waning attention span and/or interest).

Example:

500	1000	2000	3000	4000	6000	8000		5000	1000	2000	3000	4000	6000	8000
05	05	10	05	00	05	10		05	10	05	05	00	05	10
05	10	05	05	05	05	10		10	05	05	10	05	10	05
05	10	05	10	05	05	10		10	05	10	05	10	05	10
10	10	05	10	05	10	05		05	05	15	10	10	05	10
10	15	30	30	25	15	10		10	15	35	30	30	10	15

In this example, the bottom line represents the baseline test. When later tests are considered, it is clear and reasonable to conclude that the indicated baseline threshold values (in bold print) are not representative of this employee’s true condition, as is proven *consistently* on later tests. Audiologists at T K Group have two primary objectives:

1. *To protect employees against sustaining noise-induced hearing loss (occupationally related or not).*

If “poor” baselines similar to that demonstrated above are allowed to remain in annual test comparisons, early identification of noise induced hearing loss may be significantly delayed. Hence, this type of baseline rejection must occur.

2. *To identify hearing loss patterns consistent with potential underlying ear related pathology and make the appropriate medical referral.* Failure to reject “poor” baselines may delay identification of acute, chronic, and/or emergent ear related pathologies.

When tests are rejected, the rejected test remains in the database; however, the test is no longer used in annual test comparisons.