


 AUSTIN PUBLIC SAFETY WELLNESS CENTER POLICY AND PROCEDURE			POLICY C201-
SUBJECT: AUDIOMETRY		EFFECTIVE DATE: 5/21/2015	RESCINDS:
APPLICATION: FIRE, EMS			PAGE: 1 of 7
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I. PURPOSE

To have a reference document that outlines the standards and procedures by which to perform hearing screening exams and to ensure consistency and accuracy of those results.

II. BACKGROUND

Public safety workers are considered to be at risk for occupational hearing loss due to possible long term exposure to loud noise. Audiometry is a portion of the medical exam conducted both pre-employment to establish a baseline for candidates, as well as annually for incumbents as a screening tool to identify hearing loss.

III. POLICY

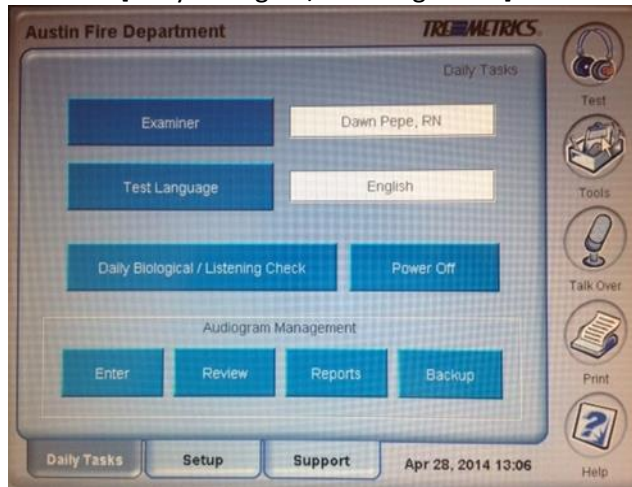
1. According to section 6.5 of the National Fire Protection Association (NFPA) 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments 2013 Edition, audiometric testing must be done as a part of the "Medical Evaluation of Candidates" and the audiometric device must be calibrated according to the American National Standards Institute (ANSI) document Z24.5.
2. According to section 7.7.3, "hearing thresholds shall be assessed annually in each ear at each of the following frequencies:"
 - A. 500 Hertz (Hz)
 - B. 1000 HZ
 - C. 2000 Hz
 - D. 3000 Hz
 - E. 4000 Hz
 - F. 6000 Hz
 - G. 8000 Hz
3. According to section 7.7.3.1, "The fire department physician or other qualified medical evaluator shall compare audiogram results obtained during yearly evaluations with baseline and subsequent test results.

IV. PROCEDURE

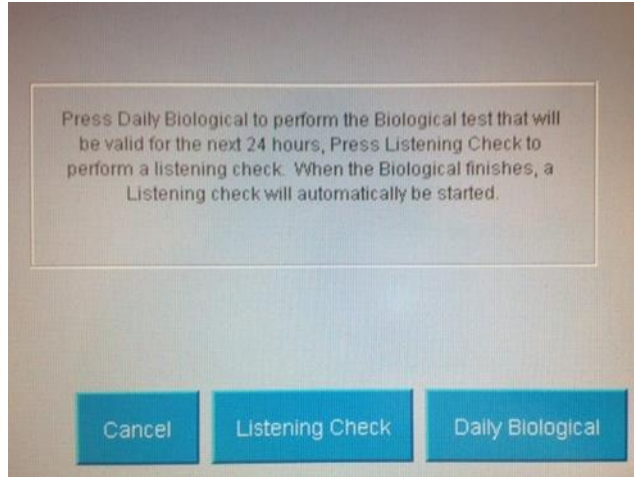
1. Calibration
 - A. Annual Calibration-A complete electroacoustic calibration must be performed annually by a Tremetrics or other qualified technician, and stored in the audiometry log book.
 - B. Daily Calibration-A visual inspection and biological listening check must be conducted daily to verify the equipment performance before use and stored in the audiometry log book.
 - i. Unplug the fan from the wall from the electric outlet.
 - ii. Place headset on Oscar 6 Electro-Acoustic Ear (Oscar) inside hearing booth.
 - iii. On the Oscar, match the red earphone to red holder and similarly, match the blue earphone to the blue holder.
 - iv. Tilt headset downward.
 - v. Power “on” the Oscar.



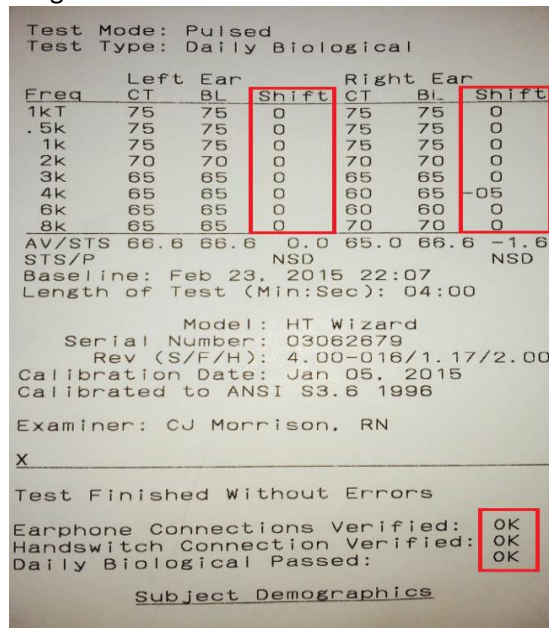
- vi. Close the hearing booth door.
 - vii. Using the touchscreen on the computer, press the [Tools] button.
 - viii. Press the [Daily Tasks] tab in the default screen.
 - ix. Press the [Daily Biological/Listening Check] tab.



- x. Press the [Daily Biological] tab from the pop-up screen to start the calibration check.

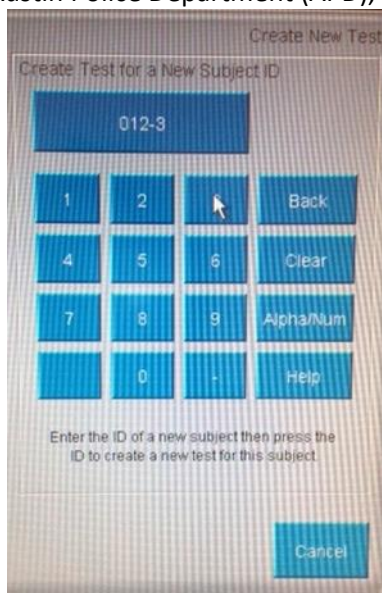


- xi. When the Daily Biological is complete and the report has printed, press either [Passed] or [Failed] on the screen.
 - a. On the report, if the “shift” in any column or row is greater than +/-5, the daily biological has failed.



- b. Troubleshooting - if the daily biological fails
 - 1. Ensure the fan was removed from the wall and that the headset fits securely into the Oscar. If the fan was not removed, remove it at this time. Additionally, if the headset did not fit securely into the Oscar, refit it at this time and then perform a second daily biological.

2. If the daily biological still fails, contact a Tremetrics technician and do not perform any hearing tests until the machine has been calibrated.
 - c. Sign the printed report and affix it to the audiometry log book.
 - d. Turn off the Oscar.
 - e. Return the headset to the hook to be ready for use.
 - f. Plug the fan back into the wall outlet.
2. Environment-The use of sound-isolated rooms or booths is viewed as a standard practice.
 3. Infection Control-Instruments that have come into physical contact with examinee must be cleaned and disinfected after each use.
 4. Preparation-The technician should instruct the examinee to remove hats, headbands, eyeglasses, earrings, or anything that may interfere with proper positioning of the earphones on the ears.
 5. Administering the Test
 - A. On the computer, press the circular [Test] button in the upper right hand corner which has a symbol of a pair of headphones.
 - B. Ensure you are under the [Test] tab which should be the default screen.
 - C. Press the examiner name box to change the test administrator to the appropriate personnel then press [Accept].
 - D. Press [New Test] to automatically advance you to the next screen.
 - E. Enter New Subject identification (ID) which is the automatic pop-up screen.
 - i. For Austin Fire Department (AFD) candidates, the applicant number is used as the subject ID.
 - ii. For Fire incumbents, enter 10+his or her 4-digit ID number, also known as a "TXFIR."
 - iii. For Emergency Medical Services (EMS) candidates, enter 20+the last 4 digits of his or her social security number.
 - iv. For EMS incumbents, enter 20+his or her ID number which should also be 4 digits. For the Austin Police Department (APD), enter 30+Badge Number which is a 4 digit number.

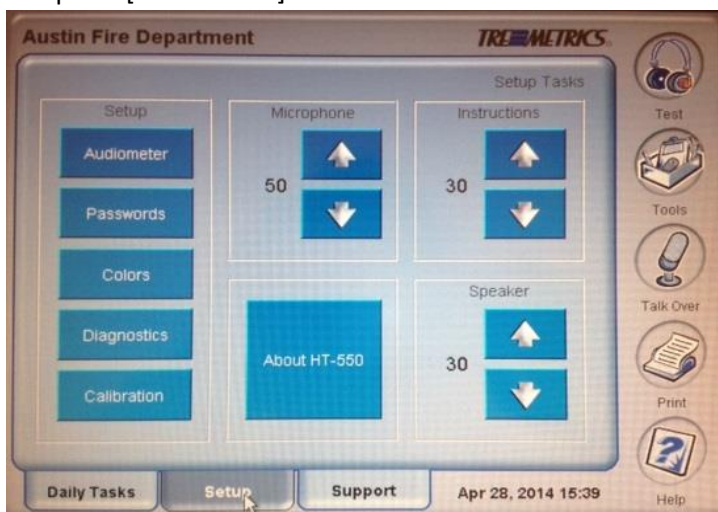


- F. Once the ID has been entered, select the same box in which the ID has just been entered.
- G. Wait for the computer to process. During this time, it may read "preparing for new test, one moment."
- H. Once "Ready to Start New Test" is visible, press [Run].



- I. During the Test
 - i. If the examinee presses the answer button excessively, a verbal warning will be issued by the computer.
 - ii. If this action continues, the test will be paused.
 - iii. Press [Run] to restart the same test.
 - iv. Error codes
 - a. If error code “EE” appears in any of the audiogram columns, it signifies there is no response by the examinee for that frequency. The subject is automatically retested at the end of the test. No operator intervention is required.
 - b. For all other error codes, please refer to the Tremetrics HT Wizard Operation Manual
6. Record Keeping
 - A. When the test is complete, wait for the report to print.
 - B. Affix the report to the appropriate vision form.
 - C. Manually transcribe all values onto the Audiometric Record Form.
 - D. Include the date, time, and the examiner’s initials.
7. Interpretation-The occupational health physician will interpret and initiate a referral for further testing when test results are questionable or when related medical problems are suspected.
8. Data Dump
 - A. There is no current method to backup data from the HT Wizard.
 - B. A “data dump” must therefore be performed to ensure speed of the software.
 - C. It is recommended this be done monthly however no record or documentation of this procedure is necessary.
 - D. Procedure
 - i. On the computer, press the [Tools] button.
 - ii. Select the [Setup] tab.

iii. Then press [Audiometer].

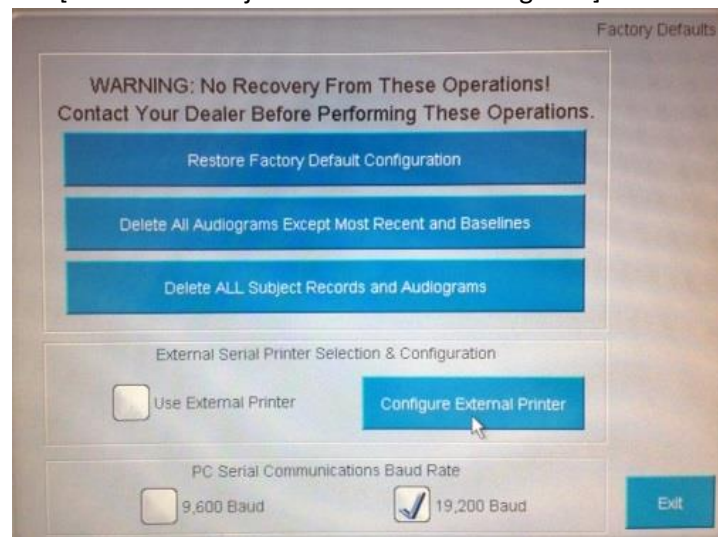


iv. Enter password (password is “setup”), then press [Accept].

v. Press [Factory Defaults].

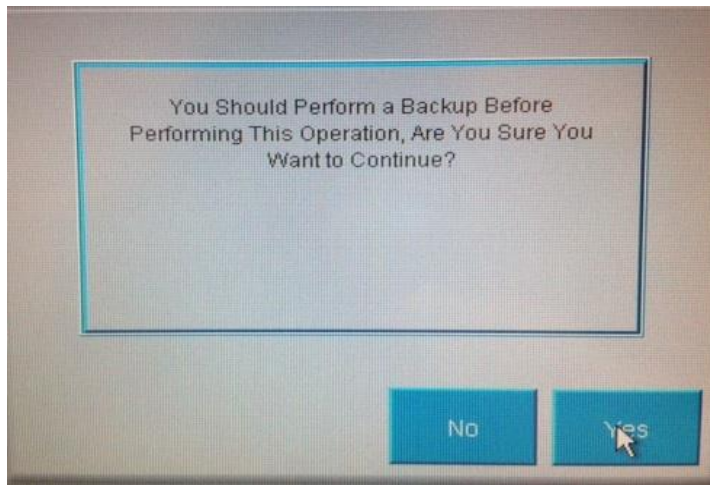


vi. Press [Delete ALL Subject Records and Audiograms].

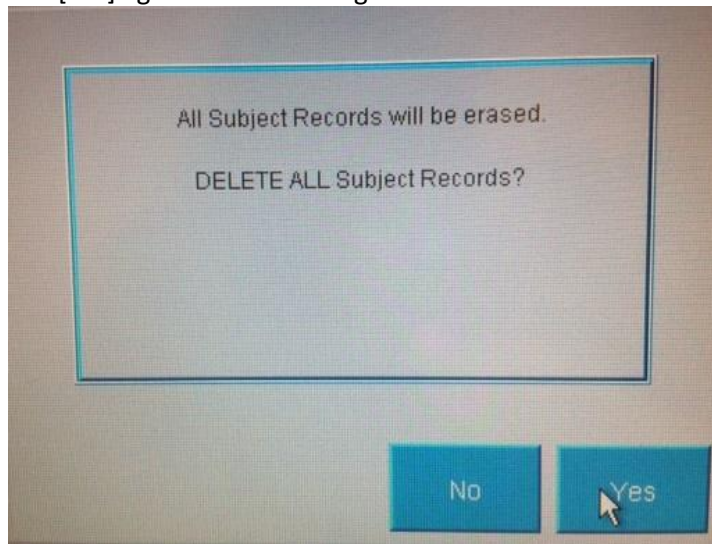


vii. Enter the password “setup” then press [Accept].

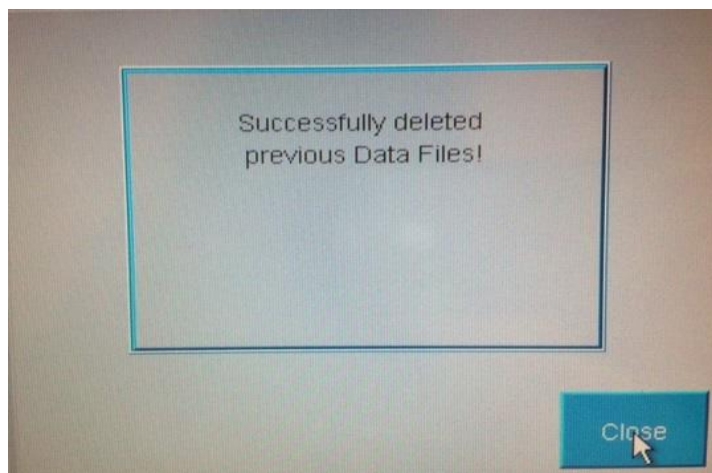
- viii. Press [Yes] after receiving the warning below.



- ix. Press [Yes] again to the warning below.



- x. Press [Close].



- xi. Press [Exit].

V. DEFINITIONS

1. American National Standard Institute (ANSI): The voice of the U.S. standards and conformity assessment system which oversees the creation, promulgation and use of thousands of standards and guidelines that directly impact businesses in nearly every sector.
2. Audiogram: A hearing test that measures a person's ability to hear different sounds, pitches, or frequencies and may be displayed graphically.
 - A. Annual Audiogram: A hearing test done yearly to detect any decreases in hearing ability compared to the original baseline test.
 - B. Baseline Audiogram: A hearing test done before employment, against which subsequent audiograms can be compared.
3. Audiometer: An electronic device for testing hearing.
4. Audiometric Record Form: A form on hard construction paper in which annual hearing results are recorded in a table.
5. Audiometry: The testing of a person's ability to hear various sound frequencies using increasing and decreasing volumes.
6. Audiometry Log Book: A three ring binder in the audiometry room in which the Daily Biological Reports are attached to and saved for future reference.
7. Daily Biological Listening Check: A test done daily to check the quality of the audio electronic tones by means of a receiver, specifically the Oscar 6 Electro-Acoustic Ear.
8. Calibration: The act of checking or adjusting the accuracy of a measuring instrument by utilizing a standard for comparison.
9. Candidate: A person who seeks or is selected by others for a job.
10. Data dump: The practice of deleting or transferring some or all saved records from a database to increase the processing speed of the application.
11. Error Codes: Displayed as alpha-numerical codes. Some codes are immediate warnings, including both an onscreen visual and auditory signals. Some error messages have an audio feedback message played to the subject.
12. Frequency: The number of cycles per second of anything that oscillates.
13. Hearing threshold: refers to the lowest volume of a tone/frequency that can be detected by normal hearing when there are no other interfering sounds present.
14. Hertz (Hz): is the unit of frequency in the International System of Units (SI) and is defined as one cycle per second.
15. HT Wizard-The hearing testing program used at the Wellness Center to perform audiograms.
16. Incumbent: One that currently occupies a particular position or job.
17. Infection Control: Refers to policies and procedures used to minimize the risk of spreading infections from person to person.
18. National Fire Protection Association (NFPA): is an international nonprofit organization that advocates fire prevention and acts as an authority on public safety.
19. The Occupational Safety and Health Administration (OSHA): An agency of the United States government under the Department of Labor with the responsibility of ensuring safety at work and a healthful work environment.
20. Oscar 6 Electro-Acoustic Ear (Oscar): The audio electric receiver used to perform the Daily Biological calibration test.
21. Referral: The process of directing or redirecting an employee to an appropriate specialist or agency for definitive treatment.
22. Standard on Comprehensive Occupational Medical Program: This standard outlines an occupational medical program that will reduce risks and provide for the health, safety, and effectiveness of fire fighters operating to protect civilian life and property.
23. Tremetrics: The Company that designs and manufactures hearing testing equipment including the HT Wizard.
24. TXFIR: The four digit employee number given specifically to firefighters and those employed by AFD.

VI. APPENDIX

[Not Applicable]

V. REFERENCES

[American National Standard Institute](#)

[American Speech-Language-Hearing Association](#)

[Merriam-Webster Dictionary](#)

[Occupational Safety and Health Administration](#)

Tremetrics HT Wizard Operation Manual

[WHO: Hearing Measurement Section 8](#)

[U.S. National Library of Medicine](#)