

# NENA

## Hearing Standards for Public Safety Telecommunicators



NENA Hearing Standards for Public Safety Telecommunicators  
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Sub-Committee

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**Operational Standard/Model Recommendation**

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## 1 Executive Overview

This document is provided to assist public safety answering points (PSAPs) in establishing Americans with Disabilities Act (ADA)-compliant hearing standards for public safety telecommunicators. It is a function of the public safety telecommunicator to receive and process audible information from various telecommunications devices. Therefore, the following standard has been created to assist managers in developing minimum hearing standards required to perform this basic and essential function of the public safety telecommunicator position.

This standard includes information including:

- Telecommunicator position requirements
- Audiometric testing of candidates and employees
- Audiology
- Americans with Disabilities Act as it relates to employment

## 2 Introduction

### 2.1 Purpose and Scope

This Hearing Standards for Public Safety Telecommunicators standards document is a tool for PSAP managers to use in the development of minimum hearing standards for public safety telecommunicators. It defines standard hearing requirements and audiology necessary to perform the basic functions of the telecommunicator position.

### 2.2 Reason to Implement

This standard will be helpful to PSAP managers by providing reasonable and defensible industry accepted minimum hearing standards for public safety telecommunicators.

### 2.3 Benefits

Use of this “Hearing Standards for Public Safety Telecommunicators” standards document provides PSAP centers with:

- A nationally accepted minimum hearing standard for the public safety telecommunicator position;
- Means by which to assess the hearing of potential candidates or current employees in the public safety telecommunicator position;
- Recommended audiometric testing policies.

### 2.4 Technical Impacts Summary

Not applicable.

## 2.5 Document Terminology

The terms "shall ", "must" and "required" are used throughout this document to indicate required parameters and to differentiate from those parameters that are recommendations. Recommendations are identified by the words "desirable" or "preferably".

## 2.6 Reason for Reissue

NENA reserves the right to modify this document. Whenever it is reissued, the reason(s) will be provided in this paragraph.

## 2.7 Costs Factors

Cost factors affecting PSAPs will include the costs associated with audiometric testing and any reasonable accommodations necessary for persons with hearing impairment.

## 2.8 Cost Recovery Considerations

Local funding sources will generally be utilized for cost factors associated with audiometric testing and/or reasonable accommodations. PSAPs may have access to local government occupational health centers or be able to partner with neighboring PSAPs/agencies to help reduce costs associated with audiometric testing.

## 2.9 Acronyms/Abbreviations

The acronyms/abbreviations used in this document have not as yet been included in the master glossary. After initial approval of this document, they will be included. Link to the master glossary is located at:

[http://www.nena.org/media/files/NENA00-001April2006\\_1\\_1.pdf](http://www.nena.org/media/files/NENA00-001April2006_1_1.pdf).

<b>The following Acronyms are used in this document:</b>	
dB	Decibels
Hz	Hertz

<b>The following Definitions are used in this document:</b>	
Decibel	A unit for expressing the relative intensity of sounds on a scale from zero for the average least perceptible sound (near total silence) to about 130 for the average pain level. A sound 10 times more powerful than 0dB is 10 dB. A sound 100 times more powerful than near total silence is 20 dB. A sound 1,000 times more powerful than near total silence is 30 dB. In normal, non-laboratory situations an average human ear can only detect a changes of at least 3 dB.
Hertz	Hertz (abbreviated Hz) is a unit of frequency (of change in state or cycle in a sound wave, alternating current, or other cyclical waveform) of one cycle per second. It replaces the earlier term; cycle per second (cps). In acoustic sound,

	the range of average human hearing is from 20 Hz to roughly 20 kHz (20 thousand Hertz). The pitch of middle C on a piano is 263 Hz.
Otolaryngologist	A physician specialized in diagnosing diseases of the head and neck especially those involving the ears, nose, and throat (ENT).

### 3 Hearing Standards for Public Safety Telecommunicators

#### 3.1 Position Requirements

The public safety telecommunicator position requires the acquisition of auditory information from citizens and other public safety entities requesting public safety services or assistance as well as to provide telephone support. Examples of some of these activities are as follows:

- Receive and process, from multiple sources, information requiring public safety services including other telecommunicators, field units or electronic devices.
- Transmit emergency and administrative messages over communications systems.
- Dispatch emergency services by radio and electronics and coordinate response activities.
- Receive and transmit orders and instructions.
- Monitor security, fire, medical and emergency management alarms and warning systems.
- Monitor multiple radio frequencies for coordination and information.
- Monitor teletype system.

#### 3.2 Medical Evaluation

Medical evaluation shall only be conducted in order to determine a candidate or current employee's fitness to perform essential job tasks and shall not be conducted in an attempt to identify disabilities which do not affect job performance, regardless of need for reasonable accommodation.

### 3.2.1 Evaluator Credentials

Any person conducting audiometric testing shall be a trained technician and/or licensed or certified as an audiologist or medical doctor.

*Commentary:*

*Any hearing conservation programs or follow-up exams for hearing loss should be conducted by a medical doctor (preferably an otolaryngologist) or a certified audiologist.*

### 3.2.2 Candidates for Employment

Audiometric testing shall be performed on each candidate in order to detect any physical or medical condition that could adversely affect the candidate's ability to safely perform all essential job tasks. This evaluation shall be conducted prior to the candidate entering a training program or participating in departmental activities. Any medical evaluation, including audiometric testing, required of candidates should be provided at no cost to the candidate.

### 3.2.3 Current Employees

PSAPs shall develop policies and procedures for audiometric testing of employees in order to determine continued fitness to perform job tasks. These policies and procedures shall ensure that employees undergo audiometric testing, at least, on an as needed basis; when a potential hearing related problem is noted by the employer or employee. Any medical evaluation, including audiometric testing, required of employees shall be provided at no cost to the employee.

*Commentary:*

*Although not required, it is recommended that employees undergo annual audiometric testing to identify any deterioration in hearing ability as early as possible and determine continued fitness to perform job related tasks.*

### 3.2.4 Medical Records

Many states have laws concerning the placement of medical evaluation records in an employee's personnel file. In the absence of such laws, PSAPs shall maintain any medical evaluation records in a file separate from the employee's personnel file. If annual audiometric tests are conducted, records shall be kept for the duration of employment.

*Commentary:*

*The separate medical records file may be a second file folder in the employee's personnel file, or housed separately in a completely different location than personnel records. PSAPs should ensure they are in compliance with any applicable state and local laws.*

## 3.3 Audiology

Public safety telecommunicators must quickly and accurately receive and process auditory information in an environment that includes various background noises such as telephones ringing,



multiple frequency radio traffic, and general conversation. Generally, the noise level in PSAPs is moderate, but requires that telecommunicators be able to differentiate various verbal and non-verbal auditory cues at variable intensities.

### 3.3.1 Sound

Sound is composed of three variables: frequency, intensity, and duration. The frequency of sound waves gives the sound pitch. Normal human conversation falls between 500 to 3000 Hertz (Hz). Sound intensity is akin to loudness and is generally measured in decibels (dB). Human hearing sensitivity generally ranges from -10 to 25 dB. Therefore, a person who cannot hear a sound until its intensity is higher than 25 dB is considered to be experiencing hearing loss.

[http://www.atlasaviation.com/medical/hearing\\_and\\_noise\\_in\\_aviation.htm](http://www.atlasaviation.com/medical/hearing_and_noise_in_aviation.htm)

### 3.3.2 Hearing Thresholds

Audiometric testing shall assess hearing thresholds in each ear at each of the following frequencies:

- 300 Hz
- 500 Hz
- 1000 Hz
- 2000 Hz
- 3000 Hz
- 4000 Hz
- 6000 Hz
- 8000 Hz

[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9735](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9735)

### 3.3.3 Audiometric Speech Discrimination

In order to perform the essential job tasks of the public safety telecommunicator, a person must be able to hear and differentiate speech at various intensity levels. Therefore, public safety telecommunicators shall have no uncorrected hearing loss, in either ear, greater than those depicted below:

	500 Hz	1000 Hz	2000 Hz	3000 Hz
Better Ear	35 dB	30 dB	30 dB	40 dB
Worst Ear	35 dB	50 dB	50 dB	60 dB

<http://www.leftseat.com/FAAforms.htm>

### 3.3.4 Hearing Conservation

Once a public safety telecommunicator is determined to have some hearing loss there are steps that can be taken to slow and/or help protect against further hearing loss. PSAPs should obtain specific advice on hearing conservation from trained professionals (i.e. Medical Doctor). Assistance may be available from local physicians, employee assistance programs, and the Occupational Health and Safety Administration. General suggestions include:

- Avoid, as much as possible, exposure to noise levels higher than 90 dB at any frequency, especially any exposure that occurs daily.
- Utilization of noise reduction headsets.
- Noise canceling engineering including consoles and wall and floor coverings.

*Commentary:*

*Individual or issue specific measures should be sought in consultation with affected persons and a trained professional (i.e. audiologist, Medical Doctor). The Occupational Safety and Health Administration can also be of assistance.*

<http://www.osha.gov/dts/osta/otm/noise/hcp/index.html>

## 3.4 Americans with Disability Act (ADA): Employment

The ADA prohibits discrimination on the basis of disability in employment. It prohibits discrimination in recruiting, hiring, promotions, training, pay, social activities, and other privileges of employment.

### 3.4.1 Reasonable Accommodations

Public entities are required to make reasonable modifications to policies, practices, procedures, and equipment where necessary to avoid discrimination, unless they can demonstrate that doing so would fundamentally alter the nature of the service, program, or activity being provided. Examples of reasonable accommodation include:

- Headsets with built in amplification.
- Hearing aids.

*Commentary:*

*Individual or issue specific measures of accommodation should be sought in consultation with affected persons and a trained professional (i.e. audiologist, Medical Doctor).*

### 3.4.2 Job Task Necessity

It is essential to the life and safety of the community and Public Safety Responders for Public Safety Telecommunicators to meet the hearing standards set forth in this document.

## 4 References

FAA Medical Standards, Protocols and Forms

New Mexico Statutory Authority (NMSA 1978, Section 29-7C-3)

NFPA Hearing Standards for Firefighters (1582-8; Chapter 3)

Occupational Safety and Health administration (OSHA 3074)

<http://en.wikipedia.org/wiki/Decibel>

[http://www.kemt.fei.tuke.sk/Predmety/KEMT320\\_EA/web/Online\\_Course\\_on\\_Acoustics/hearing.html](http://www.kemt.fei.tuke.sk/Predmety/KEMT320_EA/web/Online_Course_on_Acoustics/hearing.html)

<http://www.audioholics.com/techtips/roomacoustics/physicsofhearing.php>

<http://en.wikipedia.org/wiki/Sound>

## 5 Exhibits

None.