

OSHA Letter of Interpretation on Hearing Protection Fit Testing

Description

A Letter of Interpretation was recently issued by OSHA's Directorate of Enforcement Programs about how hearing protection fit testing can be used to comply with the requirements of OSHA's Noise Standard 29 Code of Federal Regulations (CFR) 1910.95. In light of the new OSHA interpretation, this Regulatory Update explains some important points that employers need to know when they use hearing protection to reduce hazardous noise. Specifically addressed are the OSHA expectations concerning the attenuation and choices of hearing protector devices (HPDs).

Key takeaways about the use of hearing protector fit testing

Employers must use one of the methods listed in Appendix B of the Noise Standard to estimate the adequacy of hearing protectors before offering hearing protectors to employees. Hearing protector fit testing is not a method included in Appendix B.

After a method included in Appendix B has been used to determine which HPDs may be offered to employees, employers must ensure the proper initial fit and correct use of the selected hearing protector. OSHA supports the use of hearing protector fit testing to meet these requirements.

Employers may use hearing protector fit testing in their efforts to meet training requirements.

Use of the Noise Reduction Rating (NRR)

Hazardous noise exposure must be reduced to levels indicated in the Noise Standard. This can be done through engineering noise controls, administrative controls, or through proper use of adequate hearing protection devices (HPDs).

The first step in determining "adequacy" of HPDs must be done before offering HPDs to employees by using one of the methods outlined in Appendix B of the Noise Standard, titled Methods for Estimating the Adequacy of Hearing Protector Attenuation. All of the methods included in Appendix B use the attenuation of the HPD and the noise exposure information of the particular workplace. In essence, if the HPD provides enough attenuation to reduce noise at least to the stated noise limits, then the HPD is considered to be adequate.

One of the most widely used methods in Appendix B is the application of the Noise Reduction Rating (NRR). The NRR is supplied by the HPD manufacturer and is found on the HPD packaging. The NRR is the value that represents the attenuation characteristics of a given HPD according to standardized testing done in a laboratory. The requirements for testing and labeling HPDs are specified by the US Environmental Protection Agency (EPA) 40 CFR 211.

An example of using the NRR according to one of the methods in Appendix B is provided below:

If the employee's noise exposure is measured using a dosimeter set to an A-weighted filter, a 7-dB correction factor is applied to the NRR, and the resulting value is subtracted from the noise exposure.

Example calculation:

Factors:

Noise exposure = 92 dBA TWA

NRR = 29 dB

Correction Factor = 7 dB

Equation:

Noise exposure – (NRR – Correction Factor) = Protected Exposure

92 dBA – (29 – 7) = 70 dBA

The estimated protected exposure of 70 dBA is less than the permissible exposure limit, therefore this HPD is considered to be adequate to offer to this employee. Additional examples of estimating adequacy of HPDs can be found in the OSHA Technical Manual, Chapter V, Appendix E. https://www.osha.gov/dts/osta/otm/new_noise/index.html#appendix.

OSHA emphasizes in the recent Letter of Interpretation that it would be a violation of Section 1910.95(j)(1) for employers to use any method other than those listed in Appendix B of the Standard to determine the adequacy of the HPDs offered to its employees. Hearing protection fit testing was not commercially available when the Noise Standard was promulgated, and it was not included in the regulation. Therefore, it cannot be used in the initial phase of determining adequacy before offering HPDs to employees. However, OSHA states in the Letter of Interpretation that fit-testing may be used to determine the attenuation that the individual worker achieves when using the HPD.

Use of the Personal Attenuation Rating and HPD Fit Testing

The second step is that the employer is required to ensure the proper initial fit and correct use of the HPDs for each employee (Section 1910.95 (i)(5)). This is a performance-based requirement. OSHA states that the employer may use a hearing protection fit testing system, such as 3M™ E-A-Rfit™ Dual-Ear Validation System, to meet this requirement.

For example, an employee is offered an earplug with an NRR determined to be adequate for the noise in the work area. A hearing protection fit test is done and the Personal Attenuation Rating (PAR) is too low: the HPD does not reduce the noise to the permissible exposure limit. If after retraining and retesting, the worker is not able to achieve enough noise reduction with the first HPD, then a second HPD should be tried. With fit testing, the PAR can validate if the proper initial fit has been achieved for each individual worker.

Another mandated step is the performance-based requirement that employers must provide employee training specific to hearing protection. Paragraph 1910.95 (i)(4) outlines that training is required on the use and care of all HPDs provided to employees and paragraph 1910.95 (k)(3)(ii) specifies that employees must be informed on the purpose of HPDs, the advantages, disadvantages, and attenuation of various types, as well as the instructions on the selection, fitting, use, and care of HPDs. OSHA recognizes that hearing protection fit-testing may be used toward satisfying these requirements.

Additional Related Topics Regarding Suitable HPDs

Beyond the guidance provided in the OSHA Letter of Interpretation, two additional topics concerning the suitability and estimated attenuation of HPDs are worth mentioning. One is the practice of applying a safety factor to the NRR when estimating the field attenuation of HPDs. Commonly known as a 50% derating of the NRR, this practice is recommended by OSHA when estimating the field value of attenuation, particularly when HPDs are used instead of noise controls. Applying a 50% derating is not required by OSHA when employers are determining the adequacy of HPDs that may be offered to employees and is not one of the methods listed in Appendix B. However, it is often used by OSHA enforcement officials when comparing the relative efficacy of hearing protection and engineering noise controls. For more information about NRR derating, go to the OSHA Technical Manual, Chapter V, Appendix E.

https://www.osha.gov/dts/osta/otm/new_noise/index.html#appendix

The second related topic is that employers must allow employees to choose HPDs from a variety of suitable options. A previous OSHA Letter of Interpretation explains that OSHA does not require employers to offer a specific number of HPDs. Note that a variety of suitable options does not mean that employers must provide options from different manufacturers; instead, employers should provide enough hearing protector choices so that the employees can select an adequate and comfortable HPD. OSHA advises employers to offer at least one style of earplug and one style of earmuff.

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=19154

Implications to Employers

OSHA, NIOSH, and the National Hearing Conservation Association have recognized hearing protection fit-testing as a best practice in hearing conservation since 2008. Now, the recent OSHA Letter of Interpretation establishes that hearing protection fit-testing can be used to help employers comply with specific responsibilities of the OSHA Noise Standard. While the NRR, (or another method included in Appendix B), must be used to initially evaluate the adequacy of HPDs to reduce noise, the NRR by itself does not indicate whether a given HPD provides adequate attenuation for the individual worker. The employer is also required to ensure the proper initial fit and correct use of HPDs. Hearing protector fit-testing, such as 3M™ E-A-Rfit™ Dual-Ear Validation System, can be used to help employers and employees identify appropriate HPDs for each individual.

Regarding employee training, research has demonstrated that hearing protector fit-testing can be an effective employee training tool (Smith et al, 2014; Murphy et al, 2015). Employers can be confident that OSHA recognizes hearing protector fit-testing as a tool to deliver required elements of hearing protection training.

In summary, the recent OSHA Letter of Interpretation specifies that hearing protector fit-testing can be used towards complying with these performance-based OSHA requirements:

Hearing Protectors 1910.95(i)(4)

The employer shall provide training in the use and care of all hearing protectors provided to employees.

1910.95(i)(5)

The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

Training Program 1910.95(k)(3)(ii)

(The employee shall be informed on) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.

References

1. Alliance, NIOSH/NHCA/OSHA. 2008. Best Practice Bulletin: Hearing Protection - Emerging Trends: Individual Fit Testing. OSHA. www.osha.gov/dcsp/alliances/niosh_nhca/niosh_nhca.html.
2. Murphy, W.J., Themann, C.L., and Murata, T.K. (2016) Hearing Protector Fit Testing with Off-Shore Oil Rig Inspectors in Louisiana & Texas. International Journal of Audiology 55 (11), 688-698.
3. Smith, P.S., Monaco, B.A., Lusk, S.L. (2014). "Assessing Attitudes Toward Use of Hearing Protection Devices and Effects of an Intervention Based on Results of Fit Testing." Workplace Health & Safety 62 (12), 491-499.
4. U.S. Department of Labor. (1983). "Occupational Noise Exposure: Hearing Conservation Amendment; Final Rule," Occupational Safety and Health Administration, 29 CFR 1910.95; 48 Fed. Reg., 9738-9785. 4078-4179.



Reply to the attention of: DEP/OHE/LAM/28256

OCT 20 2017

Laurie Wells, Au.D.
3M Personal Safety Division
3M Center, Building 0235-02-E-91
St. Paul, MN 55144-1000

Dear Dr. Wells:

Thank you for your June 13, 2017, letter to the Occupational Safety and Health Administration's (OSHA) Directorate of Enforcement Programs. Your questions concerned OSHA's Occupational Noise Exposure Standard, 29 CFR 1910.95, and its requirements related to hearing protection device (HPD) adequacy for selection, as well as determining initial proper fit and training. This reply letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not detailed in your original correspondence. We've summarized your background information, below, and paraphrased your questions, followed by our responses.

Background: Your letter states that currently available field fit-testing technologies, such as the 3M™ E-A-Rfit™ Validation System, permits real-time determination of HPD attenuation on individual workers, and your company purports this newer technology to be more accurate than the laboratory-determined Noise Reduction Rating (NRR) method, referenced in Appendix B to 29 CFR 1910.95. You assert that real-time or personal fit testing can also allow employers to improve their training of workers on the proper wear of their HPDs.

Question 1: If employers use a personal fit-testing system, such as 3M's E-A-Rfit, on individual employees, to evaluate the adequacy of HPD attenuation, would this comply with the OSHA Noise Standard?

Reply: As a preliminary matter, while OSHA has always embraced newer technology that enhances workplace safety, you should know that OSHA is prohibited from formally testing, evaluating, certifying, or approving of products, processes or programs.

Under OSHA's Noise Standard, the employer must reduce noise exposure through engineering controls, administrative controls, or HPDs to attenuate the occupational noise received by the employee's ears to within levels specified in Table G-16 and Table G-16A of 29 CFR 1910.95(b)(1). Initially, per paragraph 1910.95(j)(1), employers must provide adequate HPDs to employees based on the specific noise environments in which they will be used, and the product's attenuation evaluated using a method described in the standard's Appendix B, *Methods for estimating the adequacy of hearing protector attenuation*. One method in Appendix B¹

¹Appendix B to 29 CFR 1910.95 also allows employers to evaluate the adequacy of HPD attenuation by using one of three methods developed by the National Institute for Occupational Safety and Health (NIOSH). See, *List of Personal Hearing Protectors and Attenuation Data*, HEW Publication No. 76-120, 1975, pages 21-37.

specifies the U.S. Environmental Protection Agency's (EPA) laboratory testing requirements for HPDs, as set forth at 40 CFR 211. As you are aware, the EPA requires HPD manufacturers to include the NRR on the HPD packaging. The NRR describes the average sound level reduction (attenuation) provided by the HPD under laboratory test conditions regulated by the EPA (the higher the NRR, the greater the noise reduction).

Regarding your question, whether an employer may use a personal fit-testing system and remain in compliance with the OSHA Noise Standard, this would depend on how the employer uses the system. As stated above, per paragraph 1910.95(j)(1), employers must evaluate the adequacy of attenuation for HPDs before providing them as options for employee use. The standard specifies using a method described in the standard's Appendix B. A violation of Section 1910.95(j)(1) would exist where an employer does not use a method included in Appendix B.

Be mindful that once the employee selects an HPD from a variety of adequate options, paragraph 1910.95(i)(5) requires the employer to ensure proper initial fitting and correct use of all hearing protectors. The means and methods that employers use to ensure proper initial fitting is a performance-based requirement, so employers may use any means that are most suitable and effective, which may include the use of a personal fit-testing system. For example, if a personal fit-testing system indicates that a proper initial fit is not possible for an employee using the selected adequate HPD (i.e., has an adequate NRR), the employer and employee should select another adequate HPD from the variety of options provided.

Question 2: Can a personal fit-testing system method for HPD evaluation be added to 29 CFR 1910.95, Appendix B: *Methods for Estimating the Adequacy of Hearing Protector Attenuation*?

Reply: If new audiometric technologies, such as personal fit testing of HPDs under field conditions, provide justification for OSHA to consider regulatory acknowledgement of an alternate protocol for determining the attenuation of HPDs, any such regulatory change would need to be conducted through notice and comment rulemaking. Although a change to the Noise Standard is not currently on the regulatory agenda, OSHA will take your suggestion under consideration for future planning.

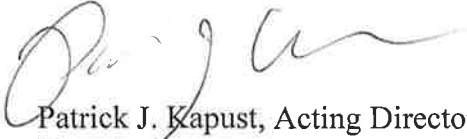
Question 3: Can employers use a personal fit-testing system to provide training to employees in the use and care of hearing protector devices?

Reply: Yes. OSHA's Noise Standard requires employers to provide training in the use and care of all hearing protectors provided to employees, per paragraph 29 CFR 1910.95(i)(4). Paragraph (k)(3)(ii) is the requirement to inform employees on the purpose of hearing protectors, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care. The means and methods that employers use to provide this training is a performance-based requirement, so employers may use any means that are most the suitable and effective, which may include the use of a personal fit-testing system.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards, and regulations. Our

interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can continue to consult OSHA's website at www.osha.gov. If you have any further questions, please feel free to contact our Office of Health Enforcement at 202-693-2190.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick J. Kapust", written in a cursive style.

Patrick J. Kapust, Acting Director
Directorate of Enforcement Programs