

Inside the EPA's Proposed Change to the Noise Reduction Rating





New Proposed EPA NRR Change

In an effort to bring the Noise Reduction Ratings (NRR) of hearing protection devices more in line with real-world usage, the United States Environmental Protection Agency (EPA) will soon announce a proposed new regulation for the labeling of hearing protection devices (HPD).*

Since rating methods are based upon idealized laboratory testing, the NRR has been criticized for being too generous in its prediction of noise reduction (attenuation). Studies indicate that while some workers in real-world worksites achieve the NRR on the package, many workers do not. This has led to a variety of inappropriate de-rating methods for hearing protectors, and has contributed to much confusion in knowing how to accurately estimate a hearing protector's attenuation.

Under the proposed regulation, a new rating system will be used. While it will still be known as the NRR, it will now represent a range of expected protection, as opposed to a single-number estimate. While the proposed method still uses ANSI-standard lab testing to generate the attenuation ratings, the new Noise Reduction Rating will provide an indication of how much attenuation minimally-trained users (the lower number) versus highly-motivated trained users (the higher number) can be expected to achieve. For some hearing protectors, the spread of this range may be quite significant.

Comparison

	Old NRR	Proposed New NRR
Rating	A single-number estimate of protection	A high/low range of estimated protection
Description of Rating	Estimates the 98th percentile of protection obtained by users when properly fitted	Estimates the 80th and 20th percentile of protection obtained by users
Test Protocol	ANSI S3.19-1974 (Experimenter Fit) 10 subjects for earplugs and earmuffs, HPDs fit by experimenter	ANSI S12.6-2008 Method A (Supervised Subject Fit) 20 subjects (for earplugs) or 10 subjects (for earmuffs), HPDs fit by subject after brief training
Application	Intended for use with dBC noise measurements. Requires a 7 dB correction for use with dBA noise measurements.	Can be applied directly to dBA noise measurements
De-Rating	Various de-rating schemes promulgated by various organizations (including OSHA)	Designed to be used with no required de-rating
Retesting	Currently, no retesting of HPDs required	Periodic retesting of HPDs required

*While the EPA has not made an official announcement about the proposed change to the Noise Reduction Rating, information about the change has been made public in a variety of public meetings, conferences and papers.



Examples of Labels

In addition to a new NRR, the proposed EPA regulation would address for the first time the rating of non-standard hearing protectors, such as Active Noise Reduction or level-dependent (or impact noise) protectors. Under the old labeling requirements, these specialized protectors were rated with a low NRR, simply because they were not tested in the higher noise ranges where their noise reduction capability is activated. The EPA is expected to include these types of hearing protectors in its new labeling regulation so that purchasers can make informed choices.

New Label	Description
Conventional Hearing Protectors	<ul style="list-style-type: none"> Perform lab tests with subjects who fit the protector after brief training Estimates the range of protection achieved by 20% and 80% of users
Active Noise Reduction (ANR) Protectors	<ul style="list-style-type: none"> Utilizes a Microphone-in-Real-Ear (MIRE) method to estimate protection Measured with ANR turned OFF and ON to show the additional attenuation from the ANR
Level Dependent/ Impulse Noise Reduction Protectors	<ul style="list-style-type: none"> Testing will occur over a range of impulse noise levels. Multiple tests to determine lower and upper ranges of impulse noise reduction Will include two ranges to identify attenuation for passive and active modes

How to Apply the New Label

Note: This is an example of how the proposed NRR label might look. This is not the EPA's final or approved version of the proposed label.

Two-number range displays the estimated protection achievable by minimally-trained users (80%) versus proficient users (20%).

Purchasers can be referred to additional training material found on the manufacturer's website.

Noise Reduction Rating

DECIBELS

The Noise Reduction Rating shows the range of protection expected from this protector in normal usage. The lower number is the amount of protection possible for most users (80%) to achieve or exceed. The higher number is the amount possible for a few motivated proficient users (20%) to achieve or exceed. Higher numbers denote greater protection.

XYZ Corporation
Anytown, USA

Model XYZ Foam Earplug

Federal law prohibits removal of this label prior to purchase

EPA

Label required by U.S. EPA Regulation 40 CFR Part 211, Subpart B

A wider range indicates greater variability in the fit of that HPD. Smaller ranges indicate more consistency of fit. For example, ear-muffs will usually have a tighter fitting range than earplugs, and may have a smaller NRR range.

Questions & Answers

Why did the EPA decide to make this change?

Since 1974, the U.S. Environmental Protection Agency (EPA) has used the Noise Reduction Rating (NRR) as its yardstick to measure hearing protector effectiveness in reducing noise levels. But since it is based upon idealized laboratory testing, many studies indicate the NRR can overestimate the protection received by many workers. Like the EPA's new mileage estimation for cars, which takes into consideration a variety of usage factors, the new Noise Reduction Rating will take into better consideration the human factors involved with the use of HPDs — specifically training and fit.

Why is a two-number range part of the new label?

A two-number range on the label is a more realistic indicator of the variety of protection levels achieved by users in the real world, depending on their training and fit. In the past, some safety managers assumed that the attenuation rating on the package would be achieved by most workers, regardless of training or motivation. But the two-number range now clearly shows that employees who do not achieve a proper fit will obtain attenuation nearer the low end of the range, while those employees who do achieve a proper fit will be nearer the high end of the range.

Will the OSHA 29 CFR 1910.95 Occupational Noise Standard change as well?

OSHA has not announced any proposed changes to the Occupational Noise Standard. Although the EPA and OSHA operate independently of each other, OSHA will presumably respond to the revised NRR label by issuing a field directive or technical memorandum, informing its compliance officers how to deal with the new two-number NRR range.

When will the new NRR range take effect?

After the proposed rule goes through public comment and the EPA issues a final regulation, there will be a transition period for manufacturers to re-test and re-label packaging with the new rating.

Will earplugs and earmuffs undergo more frequent NRR testing?

The new regulation requires HPD manufacturers to re-test their earplugs and earmuffs on a periodic basis to ensure accurate attenuation.

Does the new NRR affect the octave band data chart that appears on HPD packaging?

No, the octave band data chart will still appear on HPD packaging, and will remain essentially unchanged.

Will the new ratings favor earplugs or earmuffs?

While a well-fit foam earplug generally has greater attenuation than most earmuffs, earmuffs are inherently easier to fit for most users. There is less variability in the fit of earmuffs, and therefore, the overall range of attenuation for earmuffs will be usually be tighter, and often higher, than earplugs. In a comprehensive Hearing Conservation Program, workers should be offered a choice of earplugs, bands and earmuffs that meet the noise reduction requirements of the work environment.

What should we be doing now to prepare for this change?

Although the new labeling regulation takes effect whenever the final rule is published by the EPA, there are a number of things you can be doing now to prepare. Depending upon the new NRR range of re-labeled hearing protectors, it may be necessary to re-evaluate your hearing protectors to determine whether they are appropriate for your noise environment. Most importantly, you can begin right now to provide better training to your workers in the proper fit of hearing protectors. Sperian Protection offers posters showing the proper fit for earplugs and earmuffs, as well as a variety of other training materials for use in your Hearing Conservation Program

How do I know if the HPDs I currently offer my employees are appropriate?

The new two-number NRR label is a better estimate of real-world performance, but it also raises a critical question for safety managers: how much protection are my workers achieving? If the NRR range is 18–30 dB, are they obtaining attenuation closer to the low end or the high end of the range?

This new change provides you with an ideal opportunity to perform fit testing on your employees' earplugs to determine if they are receiving optimal protection for their noise environment. Howard Leight's new VeriPRO™ fit testing technology makes it easy to get an accurate, real-world picture of your employees' hearing protection. VeriPRO can help you find out whether your employees are receiving optimal protection, require additional training on how to fit their earplugs, or need to try a different model. VeriPRO uses sophisticated software featuring a streamlined, user-friendly interface to find out the Personal Attenuation Rating (PAR) your employees are receiving from their earplugs. Results are captured in easy-to-read reports, and can identify Safe Exposure and Protected Exposure Levels for each employee.

In addition, Howard Leight's online Hearing Protector Selector can recommend earplugs and earmuffs based on your specification, such as noise levels, style and feature requirements. To access the Hearing Protector Selector, please visit www.howardleight.com/selector.

How can fit testing of HPDs fit help my program?

A fit testing system such as VeriPRO can help you determine the actual real-world attenuation your employees receive from earplugs. VeriPRO utilizes subjective testing to measure real-world attenuation of unmodified earplugs. It also includes a training component, allowing users to watch short training videos in the proper insertion of a variety of earplugs.

VeriPRO benefits both safety managers and employees alike. In addition to verifying attenuation, VeriPRO fulfills OSHA's requirements for training with documented results. For your employees, VeriPRO demonstrates the importance of hearing protection in the workplace, and helps them learn how to achieve the best results from their hearing protectors.

More importantly, VeriPRO can take the guesswork out of your hearing protector selection process. The new NRR range makes it difficult for a safety manager to accurately predict whether workers will be adequately protected, underprotected or overprotected from hazardous noise. VeriPRO gives workers the information they need to select hearing protection based upon the most important number — the actual level of protection that particular employee achieves with his or her actual earplugs in his actual work environment.

Where can I turn for more information on this change?

Your Sperian Protection Territory Sales Manager can assist you in answering questions and implementing this change in your Hearing Conservation Program. Sperian Protection also offers a variety of Hearing Conservation resources (posters, DVD, fitting instructions, and training materials) to assist in your Hearing Conservation Program. Downloads of these materials can also be found at www.howardleight.com/bestpractices.



Sperian Hearing Protection, LLC
7828 Waterville Road, San Diego, CA 92154
ph. 800/430-5490 fax 401/232-3110
www.howardleight.com