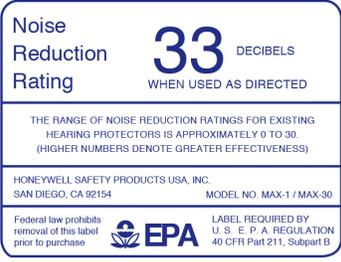
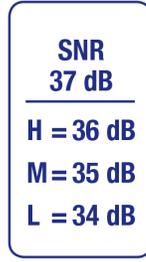




UNDERSTANDING RATINGS

In addition to NRR, the hearing protector packaging displays other rating numbers (SNR and SLC_{80}). What do these rating numbers mean?

Howard Leight® hearing protectors are packaged to be shipped throughout the world. While customers in the U.S. are familiar with the Noise Reduction Rating (NRR) labeling regulated by the Environmental Protection Agency, they may be a bit confused by packaging that includes other rating numbers. All of the rating numbers are based on laboratory tests designed to estimate the attenuation (noise-blocking) of the hearing protector -- not to predict the amount of protection individual users will achieve. Higher numbers represent a greater potential for the protector to attenuate noise, when tested under laboratory conditions. The following summary explains the rating numbers seen on Howard Leight packaging:

NRR 33 / Canada Class A(L) / SLC_{80} 26, Class 5 / SNR 37		Size 6-12 mm	
			

NRR [Noise Reduction Rating] – This rating is used in the United States, and is accepted for use in a variety of other countries. Published by the U.S. Environmental Protection Agency in 1979,¹ the NRR labeling requirement is a standardized format for all hearing protectors distributed in the U.S. The EPA defines the type-face size, font, wording and placement on the package for the NRR label. The chart showing mean attenuation values and standard deviations at each of the seven test frequencies (from 125 Hz through 8000 Hz) is also part of the labeling required by the EPA. The label must also include the EPA's example of how to use the NRR.

Canada Class – The Canadian standard uses a classification system that divides hearing protectors into Class A, B or C, based upon attenuation levels. Class A protectors offer the highest protection, and may be used in 8-hour time-weighted average noise levels up to 105 dBA, Class B up to 95 dBA, and Class C up to 89 dBA. Additionally, the suffix 'L' is added to the class designation for hearing protectors that have at least 20 dB of protection at 125 Hz. For example, an earplug that offers maximum protection and also performs well in low frequencies would carry the designation of Class A(L).

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SNR [Single Number Rating] – This rating number is used by the European Union and some other countries.² Tests are conducted at independent testing laboratories using test frequencies that are slightly different than those used for the NRR. In addition to an overall rating, the SNR further rates protectors in terms of the particular noise environments in which they will be used: H for high-frequency noise environments, M for mid-frequency, and L for low-frequency. Note that the HML designation does not refer to noise level, rather the spectrum of the noise. For example, a protector might be designated with SNR 26, H = 32, M = 23, L = 14. The estimated attenuation changes according to the noise spectrum of the environment in which the protector is to be worn.

SLC80 [Sound Level Conversion] – The SLC80 is a rating number used in Australia and New Zealand.³ It is an estimate of the amount of protection achievable by 80% of the test subjects in laboratory testing. Depending on the level of attenuation in the SLC rating, a classification is assigned to a protector: a Class 1 protector may be used in noise up to 90 dBA, a Class 2 protector to 95 dBA, a Class 3 protector to 100 dBA, and so on in 5 dB increments. Packaging will often show the SLC80, followed by the classification (i.e. SLC80 27, Class 5).

Table 1. Rating numbers commonly used for hearing protectors

Symbol	Definition	Where Used
NRR	Noise Reduction Rating	United States
A, B or C	Canada Class	Canada
SNR	Single Number Rating	European Union
SLC ₈₀	Sound Level Conversion	Australia / New Zealand

Each rating number is based on differing test standards, test frequencies, and calculation methods, and any given hearing protector generates different numbers depending on the rating method used. For example, the Howard Leight LaserLite® single-use earplug displays the following ratings:

NRR 32
 CAN Class A(L)
 SNR 35 (H=34, M=32, L=31)
 SLC₈₀ 25.0 (Class 4)

It is critical to note that the rating number is a population estimate only -- not a predictor of an individual's protection level in actual use. Individual fit-testing is the best method for measuring how much protection a particular user achieves with a particular hearing protector.

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Since the NRR is the only rating method in the U.S. currently recognized by OSHA, customers are advised to only use the NRR for OSHA-compliant hearing conservation programs.

References

1. The EPA labeling standard is defined in Code of Federal Regulations (CFR) 40, Part 211, Subpart B – Hearing Protective Devices.
2. Canada Class is defined in Canadian Standards Association Z94.2-02 Hearing Protection Devices - Performance, Selection, Care & Use
3. The SNR rating and HML descriptors are defined in ISO 4869-2, Acoustics – Hearing Protectors
4. The SLC80 is defined in Australian/New Zealand Standard 1270:2002, Acoustics – Hearing Protectors.

Sound Source is a periodic publication of the Hearing Conservation team of Honeywell Safety Products, addressing questions and topics relating to hearing conservation and hearing protection.

WARNING: This document does not provide important product warnings and instructions. Honeywell recommends all users of its products undergo thorough training and that all warnings and instructions provided with the products be thoroughly read and understood prior to use. It is necessary to assess hazards in the work environment and to match the appropriate personal protective equipment to particular hazards that may exist. At a minimum, a complete and thorough hazard assessment must be conducted to properly identify the appropriate personal protective equipment to be used in a particular work environment. FAILURE TO READ AND FOLLOW ALL PRODUCT WARNINGS AND INSTRUCTIONS AND TO PROPERLY PERFORM A HAZARD ASSESSMENT MAY RESULT IN SERIOUS PERSONAL INJURY.

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