



UNDERSTANDING RATINGS

In addition to SNR, the hearing protector packaging displays other rating numbers (NRR, SLC80, CSA). What do these rating numbers mean?

Bacou-Dalloz hearing protectors are packaged to be shipped throughout the world. While customers in the European Union are familiar with the SNR labeling, they may be a bit confused with packaging that includes other rating numbers. The following summary explains the rating numbers seen on Howard Leight® and Bilsom® packaging:

NRR [Noise Reduction Rating] – This rating is used in the United States, and is accepted for use in a variety of other countries. The NRR is an estimate of the amount of protection achievable by 98% of users in a laboratory setting when hearing protectors are properly fitted. The current range of NRRs available in the U.S. market extends from 0 to 33 decibels. 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 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 EPA.

SNR [Single Number Rating] – This rating number is used by the European Union and affiliated countries.² Tests are conducted at independent testing laboratories, using test frequencies which are slightly different than those used for the NRR rating. 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 attained by 80% of users in well-managed hearing protector programs, based upon laboratory testing of inexperienced users. 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 dB, a Class 2 protector to 95 dB, a Class 3 protector to 100 dB, 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
SNR	Single Number Rating	European Union
NRR	Noise Reduction Rating	United States
SLC ₈₀	Sound Level Conversion	Australia/New Zealand

Customers should not be concerned when they see several different attenuation ratings on a package. Each rating number is based upon 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
SNR 35 (H=34, M=32, L=31)
SLC₈₀ 25.0 (Class 4)



Since the SNR is the only rating method currently recognized for compliance in the EU, customers are advised to only use the SNR for hearing conservation programs in those locales.

– Brad Witt, MA, CCC-A
 Audiology & Regulatory Affairs Manager
 Bacou-Dalloz™ Hearing Safety Group

Footnotes:

- ¹ The EPA labeling standard is defined in Code of Federal Regulations (CFR) 40, Part 211, Subpart B – Hearing Protective Devices.
- ² The SNR rating and HML descriptors are defined in ISO 4869-2, Acoustics – Hearing Protectors.
- ³ The SLC₈₀ is defined in Australian/New Zealand Standard 1270:2002, Acoustics – Hearing Protectors.

Sound Source is a periodic publication of the Bacou-Dalloz Hearing Safety Group, addressing questions and topics relating to hearing conservation and hearing protection. **⚠️WARNING:** It does not provide important product warnings and instructions. Bacou-Dalloz 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, ILLNESS OR DEATH.** For further information on this or other hearing conservation topics, contact Technical Support at 800/977-9177. © 2005 Bacou-Dalloz Hearing Safety Group