

NRR,SNR,SLC80

حسین عقیفه زاده کاشانی
کارشناس ارشد بهداشت حرفه ای

- **NRR [Noise Reduction Rating] *ANSI S3.19**
- **SNR [Single Number Rating] *ISO 4869**
- **SLC80 [Sound Level Conversion] *AS/NZS 1270**

Table 1. Rating numbers commonly used for hearing protectors.

Symbol	Definition	Where Used
NRR	Noise Reduction Rating	United States
SNR	Single Number Rating	European Union
SLC ₈₀	Sound Level Conversion	Australia/New Zealand

What is NRR?

- **NRR** در واقع میزان کاهش صدا است که تمامی وسایل حفاظتی شنوایی در ایالات متحده باید مقدار **NRR** لوازم خود را ذکر کنند.
- در واقع **NRR** می تواند به عنوان یک تخمین برای سطح صدا برای حفاظت های شنوایی استفاده شود.

CALCULATE

-
- OSHA A $L_{\text{prot}} = L - (\text{NRR} - 7) / 2$
-
- C $L_{\text{prot}} = L - \text{NRR} / 2$
-
- NIOSH A $L_{\text{prot}} = L - (\text{NRR} - 7)$
-
- C Foam Earplugs: $L_{\text{prot}} = L - (\text{NRR} * 0.5)$
- Other Earplugs: $L_{\text{prot}} = L - (\text{NRR} * 0.3)$
- Earmuffs: $L_{\text{prot}} = L - (\text{NRR} * 0.75)$

- [OSHA](#)

Dual Protection

■ [OSHA](#)



Occupational Noise Calculators

TWA & Dose % Protector - NRR Protector - HML Protector - Octave Help

Hearing Protection Calculator - NRR Method

These calculators estimate the sound level at the ear when wearing hearing protection. The noise must be measured using a suitable sound level meter and the details of the hearing protectors in questions must be available too. There are three methods available:

NRR Method The NRR (Noise Reduction Rating) method is usually the least accurate but easiest way to assess a hearing protector's performance. You need an "A" or "C" weighted sound level meter and the protector's NRR figure.

HML Method The H-M-L method is usually the second most accurate method. You need a sound level meter that measures the "A" weighted and the "C" weighted Sound Level. You also need the protector's HML values.

Octave Band This is the most accurate way to calculate the level at the ear. Use this if you have a sound level meter with Octave Band Filters. You also need the hearing protector's APV values.

Protector NRR

Sound Level or TWA dB(A)
 dB(C)

Method OSHA

Calculated Level dB

Noise at Work Calculator

LEP,d LEP,w Protector - Octave Protector - HML Protector - SNR HELP

Hearing Protection Calculator - SNR Method

These calculators estimate the sound level at the ear when wearing hearing protection. The noise must be measured using a suitable sound level meter and the details of the hearing protectors in questions must be available too. There are three methods available:

- Octave Band** This is the most accurate way to calculate the level at the ear. Use this if you have a sound level meter with Octave Band Filters. You also need the hearing protector's APV values.
- HML Method** The H-M-L method is usually the second most accurate method. You need a sound level meter that measures the "A" weighted and the "C" weighted Leq. You also need the protector's HML values.
- SNR Method** The SNR method is usually the least accurate but easiest way to assess a hearing protector's performance. You need a "C" weighted sound level meter and the protector's SNR figure.

Protector SNR
C Weighted Sound Level dB(C)

Calculated Level dB Level at the ear to ISO 4869-2:1995

Real World +4dB dB Allowing for real-world factors

Summary

SNR

- Wearer's estimated exposure (dBA') = workplace noise level (dBA) – SNR
- Wearer's estimated exposure (dBA') = workplace noise level (dBC) – SNR

Simplified guidance on selection of hearing protection



A-weighted noise level (dB)	Select a protector with an SNR of ...
85-90	20 or less
90-95	20-30
95-100	25-35
100-105	30 or more

SLC80

TABLE II – Determination of the AS/NZS Class and specification of allowable noise levels*

SLC ₈₀	Class	May be used up to this noise level (dBA)
10 to 13	1	90
14 to 17	2	95
18 to 21	3	100
22 to 25	4	105
26 or greater	5	110

از طریق آنالیز فرکانس

- جمع فشار صوت و انحراف معیار گوشی و در نهایت منهای میانگین افت انتقال

The End

**Thank you for your
attention**