Hearing Protection Data Sheet

- *The Hearing Protection feature works with AirPods Pro 2 with the latest firmware when paired with a compatible iPhone, iPad, or Mac running the latest operating system. The feature is only available in the U.S. and Canada.*
- *The Hearing Protection feature is not suitable for protection against extremely loud impulse sounds, such as gunfire, fireworks, or jackhammers, or against sustained sounds louder than 110 dBA.*

Learn more about Hearing Protection use

Active Hearing Protection Performance

Total Attenuation and Exposure Limits

Total attenuation, measured in decibels (dB), describes the estimated level of protection provided by the active Hearing Protection feature in real-world use, when the feature is on[1] and used as directed. In sustained environmental noise, the difference between the noise level and the total attenuation is the approximate level of noise that your ears are exposed to. The exposure limit represents the maximum recommended duration for this level of exposure.

Total attenuation may vary by listening mode and environmental noise level. Total attenuation may also vary based on fit of AirPods Pro in your ears with the provided ear tips properly installed. This results in a range of expected performance, shown below as pairs of values for each environmental noise level. The lower total attenuation value and corresponding exposure limit represent the protection level possible for most users to achieve or exceed, whereas the upper values represent the protection level that some proficient users of the feature can achieve or exceed[2].

1. The Hearing Protection feature is off when there is no AirPods Pro battery charge, when the Off noise control setting is enabled, or when Loud Sound Reduction is disabled in Accessibility Settings (this applies to Transparency mode & Adaptive Audio).
2. Total Attenuation estimates are Noise Reduction Statistic values (NRS_A) derived from ANSI S12.68-2007 (R2020). The pairs of values represent statistical estimates of protection that 80% (most) and 20% (proficient) users can expect to receive, when the feature is used as directed.

Transparency mode

Environmental noise level[3]	Estimated total attenuation[2,4]	Corresponding exposure limit[5]	Unprotected exposure limit[5]
90 dB	6 - 9 dB	15 - 31 hours	4 hours
95 dB	9 - 12 dB	10 - 20 hours	1 hour 15 minutes
100 dB	11 - 15 dB	5 - 12 hours	24 minutes
105 dB	13 - 17 dB	2.5 - 6 hours	8 minutes
110 dB	15 - 18 dB	1 - 2.5 hours	2.5 minutes

Adaptive Audio[6]

Environmental noise level[3]	Estimated total attenuation[2,4]	Corresponding exposure limit[5]	Unprotected exposure limit[5]
90 dB	22 - 25 dB	unlimited	4 hours
95 dB	24 - 28 dB	unlimited	1 hour 15 minutes
100 dB	25 - 29 dB	126 hours - unlimited	24 minutes
105 dB	25 - 30 dB	40 - 126 hours	8 minutes
110 dB	25 - 30 dB	12 - 40 hours	2.5 minutes

Active Noise Cancellation

Environmental noise level[3]	Estimated total attenuation[2,4]	Corresponding exposure limit[5]	Unprotected exposure limit[5]
90 dB	25 - 30 dB	unlimited	4 hours
95 dB	25 - 30 dB	unlimited	1 hour 15 minutes
100 dB	25 - 30 dB	126 hours - unlimited	24 minutes
105 dB	25 - 30 dB	40 - 126 hours	8 minutes
110 dB	25 - 30 dB	12 - 40 hours	2.5 minutes

3. Environmental noise levels are A-weighted decibel values (dBA) for sustained noise.
4. Total attenuation is frequency dependent. Noise environments dominated by frequencies above 2000 Hz may result in lower total attenuation.
5. Exposure limits apply over a 7 day period, derived from World Health Organization recommendations.
6. Adaptive Audio total attenuation may vary based on customization settings — default state values are reported.

Passive Noise Reduction

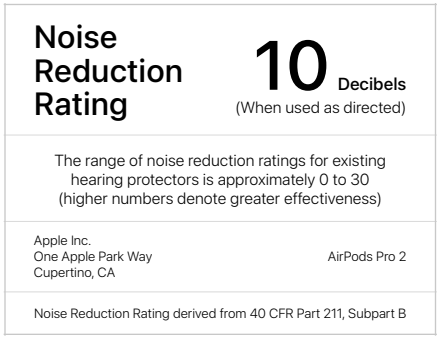
Passive Noise Reduction Rating

The passive Noise Reduction Rating (NRR), measured in decibels (dB), describes the estimated level of noise reduction provided[7] and only applies when there is no AirPods Pro battery charge or when the Off noise control setting is enabled. In each of these two cases, the Hearing Protection feature is off[1] and the level of noise entering your ear, when AirPods Pro 2 are worn as directed, is closely approximated by the difference between the A-weighted environmental noise level (dBA) and the passive NRR.

Example calculation:

- The environmental noise level as measured at the ear is 92 dBA[8].
- The passive NRR is 10 dB. The level of noise entering the ear is approximately equal to 82 dB.

The passive NRR does not apply in Transparency mode, Adaptive Audio, or Noise Cancellation mode. When Loud Sound Reduction is Off in Transparency mode and Adaptive Audio, there may be no noise reduction provided.



Canada Class

Canada Class (CSA Class[9]) is a letter designation that applies only to the passive noise reduction performance of AirPods Pro 2, when there is no AirPods Pro battery charge or when the Off noise control setting is enabled. In each of these two cases, the Hearing Protection feature is off[1].

CSA Class = C

7. Warning: Although hearing protectors can be recommended for protection against the harmful effects of impulsive noise, the passive NRR is based on the attenuation of continuous noise and may not be an accurate indicator of the protection attainable against impulsive noise such as gunfire, fireworks, or jackhammers.
8. Caution: For noise environments dominated by frequencies below 500 Hz, the C-weighted environmental noise level should be used (dBC).
9. CSA Class assignment from CSA Z94.2-14 (R2019), Table 3.

Passive Noise Reduction Data

Passive noise reduction values, measured in decibels (dB), are obtained from real-ear measurements[10] with a panel of test subjects wearing AirPods Pro 2 with no battery charge. When there is no AirPods Pro battery charge, the Hearing Protection feature is off[1].

The mean and standard deviation values from the passive noise reduction measurement dataset are shown below.

Octave band frequency	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Mean	11	11	12	15	23	24	28
Standard deviation	3	2	2	3	3	2	5

Fit, Maintenance & Care

To properly fit AirPods Pro 2, gently press both AirPods Pro into your ears with the stem facing down and angled slightly forward. Your AirPods should feel snug and comfortable. Learn more about fit.

Improper fit of AirPods Pro 2 will reduce the Hearing Protection feature's effectiveness in attenuating noise. Maximum attenuation will only be achieved if your AirPods fit properly and the provided ear tips are properly installed. Replacement ear tips are available from the online store.

Periodic cleaning of AirPods and proper storage in their case are necessary for hearing protection to work as expected. You will not receive the hearing protection benefits if the battery is not charged. Learn more about maintenance and cleaning.

10. Passive noise reduction measured according to ANSI S3.19 - 1974.