3M Occupational Health & Environmental Safety Division

3M™ Peltor™ X Series

PELTOR™

A new Standard in Design, Comfort and Protection

The Power to Protect Your World.℠

3M

WE LIVE IN A LOUD WORLD

Our key aim is to reduce the number of noise induced hearing loss cases in the workplace through simple and innovative solutions. The development of the new 3M™ Peltor™ X Series ear muffs are our next step to fullfil this ambitious goal. Protection, Comfort and Design are the key pillars to our product development programme. The 3M Peltor X Series ear muffs are based on ground-breaking attenuation techniques never seen before for unparalleled attenuation with a stream-lined design. With our vast experience spanning over 60 years in developing innovative hearing protectors we have taken comfort, style and design to the next level in developing the attractive new 3M Peltor X Series ear muffs to meet the needs of extensive industrial application.

The new 3M Peltor X Series ear muffs offer a wide range of attenuation levels that helps meet majority of industrial application.

3M Peltor X1 ear muffs (SNR 27 dB)
For protection against light industry noise, lawn mowing, power drilling etc.

3M Peltor X2 ear muffs (SNR 31 dB)
For protection against moderate to high noise levels including many industrial application, roadworks, construction etc.

3M Peltor X3 ear muffs (SNR 33 dB)
For protection against noise in forestry industry, airport, heavy engineering etc.

3M Peltor X4 ear muffs (SNR 33 dB in a slim cup)
For use against high noise levels in a wide range of industries.

3M Peltor X5 ear muffs (SNR 37 dB)
For use against extremely high noise environment which often requires double protection, e.g. mining, quarrying, paper mills etc.

www.3M.eu/peltorx

The Physical Agents (Noise) Directive 2003/10/EC requires employers to make hearing protectors available for use when the noise level in the workplace is as low as 80dB(A). The use of hearing protectors is rigorously enforced when the noise level reaches 85dB(A) or above.

The new innovative design coupled with increased comfort featured in the Peltor X Series ear muffs helps the user to wear them at all times when exposed to the noise hazard.

The importance of wearing your hearing protectors

100%

of exposure time

Safety

In order to be effective, a hearing protector should be used 100% of the time in noisy environments. Even taking it off for a short time dramatically reduces its effectiveness and greatly increases risk of hearing damage.

99% usage – Just five minutes carelessness per day significantly reduces the effect of the hearing protector.
90% usage – Virtually no protection.

DESIGN

» Protected wire head band - building on the success design of the current 3M Peltor Optime range
» Light-weight dual mould cups with maximum space inside to help minimise heat and moisture build-up
» Integrated design for more robustness
» Colour coded for ease of selection
» Electrical insulated headband
» Easy to clean

COMFORT

» Easy to adjust the headband
» Wire headband with constant pressure over prolonged wearing periods
» Twin headband design helps reduce heat build-up, provides good fit and balance

PROTECTION

» Streamlined cups without compromising attenuation
» Compatible with a range of 3M eyewear and respirators (validated by internal testing)
» New smart sealing ring

A new Standard in Design, Comfort and Protection

3M™ Peltor™ X Series – A new Standard
DESIGN, COMFORT and ATTENUATION TECHNIQUES.
3M developed the new 3M Peltor X Series ear muffs based on these three pillars. In the addition to simplicity of use and ease of identification the new range ear muffs are now the new reference point in terms of over-the-ear protection.

Our customers are a constant inspiration to help develop new products driving unmatched user experience.

3M Peltor Optime: A market reference
3M Peltor X Series: A new Standard in Design, Comfort and Protection

3M Hearing Protection Solutions made innovately easy


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SNR 27 dB

Standard attenuation, slim design

3M™ Peltor™ X1 ear muffs

Enter the world of the new 3M Peltor X Series ear muffs with the 3M Peltor X1 ear muffs.

» Slim-line cups for good attenuation that meets the needs of most industrial application. SNR 27dB.
» Lightweight design.
» Simple colour coding: green indicating first level of attenuation within this range.

Plus all other features around protection, comfort and design making it highly versatile.

3M Peltor X1A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15,6	11,9	15,4	24,5	34,3	32,8	37,4	37,4
Standard Deviation (dB)	3,6	2,0	2,6	2,6	2,3	3,3	2,5	3,8
Assumed Protection (dB)	12,0	9,9	12,8	22,0	31,9	29,5	34,9	33,5

SNR = 27 dB H = 32 dB M = 24 dB L = 16 dB

3M Peltor X1P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	14,7	11,4	15,8	24,5	32,5	32,0	35,6	35,1
Standard Deviation (dB)	3,3	3,7	2,4	2,9	2,9	3,7	2,5	4,9
Assumed Protection (dB)	11,4	7,7	13,4	21,6	29,7	28,3	33,1	30,1

SNR = 26 dB H = 30 dB M = 23 dB L = 15 dB

Bo Hammar about 3M PELTOR X1 and DESIGN

"The new range, 3M Peltor X, are nice and soft to wear."

Bo Hammar, Steel & Silver AB
Responsible for health/safety/environment

"I remain in constant but moderate noise environment in my work place. I know just a few brands of hearing protectors on the market but I have only ever used 3M Peltor Optime. I prefer to continue using hearing protectors from 3M Peltor. The new range, 3M Peltor X, are nice and soft to wear. I really like the design and the colour. It's an added bonus that they can be used toghether with my glasses. I like all models."


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SNR 31 dB

Medium attenuation, slim design

3M™ Peltor™ X2 ear muffs

3M Peltor X2 ear muffs offer the same characteristics as our X1 version with the addition of the following benefits:

» Yellow colour coding to help select the correct product for moderate to high attenuation.
» Improved attenuation, SNR 31dB.

3M Peltor X2A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	19,0	14,1	22,2	31,1	39,7	36,6	37,0	37,9
Standard Deviation (dB)	4,5	2,2	2,1	2,7	3,2	3,2	3,7	3,4
Assumed Protection (dB)	14,5	11,9	20,1	28,4	36,6	33,5	33,3	34,5

SNR = 31 dB H = 34 dB M = 29 dB L = 20 dB

3M Peltor X2P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15,9	13,8	20,2	30,0	37,7	35,4	34,9	35,8
Standard Deviation (dB)	4,6	2,8	2,1	3,2	2,6	3,0	3,0	4,7
Assumed Protection (dB)	11,3	11,0	18,1	26,8	35,1	32,4	31,9	31,1

SNR = 30 dB H = 33 dB M = 28 dB L = 19 dB


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SNR 33 dB

High attenuation, low weight
3M™ Peltor™ X3 ear muffs

The 3M Peltor X3 are the first of our new ear muffs to utilise a newly designed spacer to help improve attenuation without the need for double cup design thus increasing the space inside the cup for greater comfort and wearability.

What makes the X3 version so special?
» High attenuation from single cup design, SNR 33dB.
» Extremely light-weight and slim compared with similar attenuation products.
» Colour coded red for ease of identification and usage in a high noise environment.

New design brings new benefits which includes comfort and protection.

Zaid Gabro about 3M PELTOR X and PROTECTION

"3M Peltor X Series, give me great comfort and the most important, ideal protection."

Zaid Gabro, Proplate
A young Swedish employer

"At my work, the noise is constantly very high. I'm aware of the need of hearing protectors and I use them all the time at work. I prefer the heavy duty like the X3 version from the new 3M Peltor X Series, they give me great comfort and the most important, ideal protection. The ear muffs are cool, they are not so heavy and feel good to wear all day. The design is okey, but that is not so important, the main reason for me to choose them is the good protection. The extra-slim muffs (X4) feel so light yet so effective which make you wonder whether they really do protect! If they do, I want to try them."

3M Peltor X3A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	21,5	22,8	25,1	27,0	40,0	35,8	38,5	38,9
Standard Deviation (dB)	3,0	2,1	3,1	1,7	2,8	2,2	2,7	2,9
Assumed Protection (dB)	18,4	20,7	22,0	25,4	37,2	33,6	35,8	35,9

SNR = 33 dB H = 35 dB M = 30 dB L = 25 dB

3M Peltor X3P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	18,9	20,0	24,2	27,4	40,1	36,0	39,7	37,0
Standard Deviation (dB)	3,3	2,8	1,7	2,1	3,0	3,0	3,5	3,7
Assumed Protection (dB)	15,6	17,2	22,6	25,3	37,1	33,1	36,2	33,3

SNR = 32 dB H = 34 dB M = 30 dB L = 24 dB


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SNR 33 dB

Extremely slim, high performance

3M™ Peltor™ X4 ear muffs

Historically higher attenuating ear muffs meant large and bulky cups but not anymore. The Peltor X4 ear muffs version can attenuate sound by as much as 33 dB whilst maintaining a sleek, low profile aesthetically pleasing design.

» Special colour coding for ease of selection.
» Extremely slim and light-weight cups provide excellent compatibility when used with other 3M personal protective equipment products.
» Fluorescent yellow-green colour ensures good visibility when working outdoor thus helping improve safety.
» New specially formulated damping pads and innovative foam contained in sealing ring provide excellent acoustic protection, particularly against sounds dominated by low frequencies.

3M Peltor X4A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	19,6	17,8	22,1	30,6	39,5	37,3	43,8	42,1
Standard Deviation (dB)	4,1	2,3	2,5	1,8	2,9	4,1	2,8	4,0
Assumed Protection (dB)	15,5	15,5	19,6	28,8	36,6	33,2	41,1	38,2

SNR = 33 dB H = 36 dB M = 30 dB L = 22 dB

3M Peltor X4P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	16,6	16,8	21,8	30,6	40,1	36,7	43,1	41,9
Standard Deviation (dB)	3,6	2,5	2,1	1,9	2,3	3,7	2,7	4,7
Assumed Protection (dB)	12,9	14,3	19,7	28,7	37,8	32,9	40,4	37,2

SNR = 32 dB H = 36 dB M = 30 dB L = 21 dB


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SNR 37 dB +

Unparalleled attenuation without the need for double protection involving ear muffs and ear plugs.

3M™ Peltor™ X5 ear muffs

New ground breaking technology that has helped achieve exceptionally high performance.
This technology is applied not only to headband version but also to helmet mounted ear muffs.

» Unique attenuation as a result of optimum combination of specially formulated foam technology featured in the cups and sealing rings together with the spacer and cup design.
» Despite the larger cups the product remains relatively lightweight with excellent balance and wearer comfort.
» Colour coded black for ease of use in extremely high noise environment.

3M Peltor X5A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	23,0	22,3	28,8	39,7	44,2	39,8	43,0	40,2
Standard Deviation (dB)	3,1	2,4	2,4	2,7	3,4	4,6	2,8	2,9
Assumed Protection (dB)	19,8	19,9	26,4	37,0	40,9	35,2	40,2	37,3

SNR = 37 dB H = 37 dB M = 35 dB L = 27 dB

3M Peltor X5P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20,4	22,0	26,9	38,2	43,5	38,7	41,0	40,4
Standard Deviation (dB)	3,3	3,1	2,2	2,8	3,4	4,5	2,5	3,3
Assumed Protection (dB)	17,1	18,9	24,7	35,4	40,2	34,2	38,5	37,2

SNR = 36 dB H = 36 dB M = 34 dB L = 26 dB

Magnus Forsblom about 3M PELTOR X and COMFORT

”I don’t care about specific brands, I just want the best. The best? It’s 3M Peltor!”

Magnus Forsblom, Astra Zeneca
Responible for PPE (Personal Protection Equipment) at a factory with 1700 workers.

”The noise at my work is not constant but intermittent and gets higher around specific machines at the industrial floor”. Every single aspect of protection and safety is very important to me. We have specific demands apart from comfort, for example that the earmuffs are easy to clean. It is also very important that there is no risk for loose parts to fall from the earmuffs into the production line.

3M Peltor X are comfortable to wear, I feel no pressure at my head and they are not too tight. They are durable and are easy to clean frequently. I tried the 3M Peltor X2 muffs, they are easy to adjust, has good solid design, look and feel good on – factors that make them very appealing and easier to use more regular.
Compared to other earmuffs, it’s like night and day.

I don’t care about specific brands, I just want the best.
The best? It’s 3M Peltor!”.

A market Reference

Optime – A market reference
The 3M™ Peltor™ Optime series has been viewed as a reference point in the hearing protection industry since 2002. The range includes three earmuffs, Optime I, Optime II and Optime III. From low-weight flexible protection to high performance hearing protection developed for use in extremly noisy enviroment.

3M Peltor Optime offers very versatile protection meeting the needs of majority of workplace application. The wide comfortable sealing rings are filled with a unique combination of liquid and foam, which gives effective sealing and low contact pressure, ensuring good comfort even during long periods of use.

3M Peltor Optime: A market reference
3M Peltor X Series: A new Standard in Design, Comfort and Protection


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3M™ Peltor™ **OPTIME** ear muffs

The 3M Peltor Optime I ear muffs feature a lightweight low profile design which helps improve comfort and wearability. The large space inside the cups helps reduce moisture and heat build-up. These products provide ideal protection that meets the needs of majority of industrial workplace noise hazards. They can also be used for protection against noise from outdoor sports and leisure activities.

Optime I™ - H510A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	14.1	11,6	18,7	27,5	32,9	33,6	36.1	36,8
Standard Deviation (dB)	4.0	4,3	3,6	2,5	2,7	3,4	3,0	3,8
Assumed Protection (dB)	10.1	7,3	15,1	25,0	30,1	30,2	33,2	32,0

SNR = 27 dB H = 32 dB M = 25 dB L = 15 dB

Optime I™ - H510P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	13.1	11,2	13,4	26,9	33,9	32,0	33,5	36,9
Standard Deviation (dB)	2.3	2,0	1,9	1,8	1,9	2,4	1,8	1,8
Assumed Protection (dB)	10.8	9,2	11,5	25,1	31,9	29,6	31,7	35,1

SNR = 26 dB H = 32 dB M = 23 dB L = 15 dB

3M Peltor Optime II have been developed for demanding noise environments particularly where the sound levels are dominated by mid to low frequencies.
The Peltor Optime II helps meet the needs of a wide range of industrial workplace noise including heavy engineering, construction, manufacturing, airport, for example.

Optime II™ - H520A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	16.2	14,6	20,2	32,5	39,3	36,4	34,4	40,2
Standard Deviation (dB)	1.9	1,6	2,5	2,3	2,1	2,4	4,0	2,3
Assumed Protection (dB)	14.3	13,0	17,7	30,2	37,2	34,0	30,4	37,9

SNR = 31 dB H = 34 dB M = 29 dB L = 20 dB

Optime II™ - H520P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15.1	14,1	19,4	32,0	39,9	36,2	35,4	39,2
Standard Deviation (dB)	2.1	2,3	2,7	2,7	2,4	2,6	4,4	2,6
Assumed Protection (dB)	13.0	11,8	16,7	29,3	37,5	33,6	31,0	36,6

SNR = 30 dB H = 34 dB M = 28 dB L = 19 dB

3M Peltor Optime III are designed for protection against high noise levels particularly dominated by low frequencies. Example of application include mining, quarrying, paper mills, gas turbine etc. The product features a double cup design that helps improve attenuation at low frequencies and minimise resonance inside the cup.

Optime III™-H540A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20.8	17,4	24,7	34,7	41,4	39,3	47,5	42,6
Standard Deviation (dB)	3.1	2,1	2,6	2,0	2,1	1,5	4,5	2,6
Assumed Protection (dB)	17.7	15,3	22,1	32,7	39,3	37,8	43,0	40,0

SNR = 35 dB H = 40 dB M = 32 dB L = 23 dB

Optime III™-H540P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20.1	17,1	24,5	34,8	40,2	39,6	46,7	43,1
Standard Deviation (dB)	3.3	2,3	2,8	2,2	2,0	1,8	4,2	2,5
Assumed Protection (dB)	16.8	14,8	21,7	32,6	38,2	37,8	42,5	40,6

SNR = 34 dB H = 40 dB M = 32 dB L = 22 dB

3M™ Peltor™ X1 ear muffs

X1A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15,6	11,9	15,4	24,5	34,3	32,8	37,4	37,4
Standard Deviation (dB)	3,6	2,0	2,6	2,6	2,3	3,3	2,5	3,8
Assumed Protection (dB)	12,0	9,9	12,8	22,0	31,9	29,5	34,9	33,5

SNR = 27 dB H = 32 dB M = 24 dB L = 16 dB

X1P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	14,7	11,4	15,8	24,5	32,5	32,0	35,6	35,1
Standard Deviation (dB)	3,3	3,7	2,4	2,9	2,9	3,7	2,5	4,9
Assumed Protection (dB)	11,4	7,7	13,4	21,6	29,7	28,3	33,1	30,1

SNR = 26 dB H = 30 dB M = 23 dB L = 15 dB

3M™ Peltor™ X2 ear muffs

X2A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	19,0	14,1	22,2	31,1	39,7	36,6	37,0	37,9
Standard Deviation (dB)	4,5	2,2	2,1	2,7	3,2	3,2	3,7	3,4
Assumed Protection (dB)	14,5	11,9	20,1	28,4	36,6	33,5	33,3	34,5

SNR = 31 dB H = 34 dB M = 29 dB L = 20 dB

X2P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15,9	13,8	20,2	30,0	37,7	35,4	34,9	35,8
Standard Deviation (dB)	4,6	2,8	2,1	3,2	2,6	3,0	3,0	4,7
Assumed Protection (dB)	11,3	11,0	18,1	26,8	35,1	32,4	31,9	31,1

SNR = 30 dB H = 33 dB M = 28 dB L = 19 dB

3M™ Peltor™ X3 ear muffs

X3A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	21,5	22,8	25,1	27,0	40,0	35,8	38,5	38,9
Standard Deviation (dB)	3,0	2,1	3,1	1,7	2,8	2,2	2,7	2,9
Assumed Protection (dB)	18,4	20,7	22,0	25,4	37,2	33,6	35,8	35,9

SNR = 33 dB H = 35 dB M = 30 dB L = 25 dB

X3P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	18,9	20,0	24,2	27,4	40,1	36,0	39,7	37,0
Standard Deviation (dB)	3,3	2,8	1,7	2,1	3,0	3,0	3,5	3,7
Assumed Protection (dB)	15,6	17,2	22,6	25,3	37,1	33,1	36,2	33,3

SNR = 32 dB H = 34 dB M = 30 dB L = 24 dB

3M™ Peltor™ X4 ear muffs

X4A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	19,6	17,8	22,1	30,6	39,5	37,3	43,8	42,1
Standard Deviation (dB)	4,1	2,3	2,5	1,8	2,9	4,1	2,8	4,0
Assumed Protection (dB)	15,5	15,5	19,6	28,8	36,6	33,2	41,1	38,2

SNR = 33 dB H = 36 dB M = 30 dB L = 22 dB

X4P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	16,6	16,8	21,8	30,6	40,1	36,7	43,1	41,9
Standard Deviation (dB)	3,6	2,5	2,1	1,9	2,3	3,7	2,7	4,7
Assumed Protection (dB)	12,9	14,3	19,7	28,7	37,8	32,9	40,4	37,2

SNR = 32 dB H = 36 dB M = 30 dB L = 21 dB

3M™ Peltor™ X5 ear muffs

X5A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	23,0	22,3	28,8	39,7	44,2	39,8	43,0	40,2
Standard Deviation (dB)	3,1	2,4	2,4	2,7	3,4	4,6	2,8	2,9
Assumed Protection (dB)	19,8	19,9	26,4	37,0	40,9	35,2	40,2	37,3

SNR = 37 dB H = 37 dB M = 35 dB L = 27 dB

X5P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20,4	22,0	26,9	38,2	43,5	38,7	41,0	40,4
Standard Deviation (dB)	3,3	3,1	2,2	2,8	3,4	4,5	2,5	3,3
Assumed Protection (dB)	17,1	18,9	24,7	35,4	40,2	34,2	38,5	37,2

SNR = 36 dB H = 36 dB M = 34 dB L = 26 dB

3M™ Peltor™ OPTIME I ear muffs

Optime I™ - H510A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	14.1	11,6	18,7	27,5	32,9	33,6	36.1	36,8
Standard Deviation (dB)	4.0	4,3	3,6	2,5	2,7	3,4	3,0	3,8
Assumed Protection (dB)	10.1	7,3	15,1	25,0	30,1	30,2	33,2	32,0

SNR = 27 dB H = 32 dB M = 25 dB L = 15 dB

Optime I™ - H510P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	13.1	11,2	13,4	26,9	33,9	32,0	33,5	36,9
Standard Deviation (dB)	2.3	2,0	1,9	1,8	1,9	2,4	1,8	1,8
Assumed Protection (dB)	10.8	9,2	11,5	25,1	31,9	29,6	31,7	35,1

SNR = 26 dB H = 32 dB M = 23 dB L = 15 dB

Optime I™ - H510B ear muffs - neckband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	13.3	10,9	17,1	25,4	31,5	32,6	36,3	34,8
Standard Deviation (dB)	4.1	3,5	2,8	1,8	2,6	4,3	3,4	3,6
Assumed Protection (dB)	9.1	7,3	14,3	23,6	28,9	28,3	32,9	31,1

SNR = 26 dB H = 30 dB M = 24 dB L = 15 dB

Optime I™ - H510F ear muffs - foldable headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	14.6	12,2	18,7	27,1	32,9	35,0	36,5	34,4
Standard Deviation (dB)	3.8	3,4	3,2	3,0	2,1	4,0	2,9	3,9
Assumed Protection (dB)	10.8	8,7	15,5	24,1	30,8	31,0	33,6	30,6

SNR = 28 dB H = 32 dB M = 25 dB L = 16 dB

3M™ Peltor™ OPTIME II ear muffs

Optime II™ - H520A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	16.2	14,6	20,2	32,5	39,3	36,4	34,4	40,2
Standard Deviation (dB)	1.9	1,6	2,5	2,3	2,1	2,4	4,0	2,3
Assumed Protection (dB)	14.3	13,0	17,7	30,2	37,2	34,0	30,4	37,9

SNR = 31 dB H = 34 dB M = 29 dB L = 20 dB

Optime II™ - H520P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15.1	14,1	19,4	32,0	39,9	36,2	35,4	39,2
Standard Deviation (dB)	2.1	2,3	2,7	2,7	2,4	2,6	4,4	2,6
Assumed Protection (dB)	13.0	11,8	16,7	29,3	37,5	33,6	31,0	36,6

SNR = 30 dB H = 34 dB M = 28 dB L = 19 dB

Optime II™ - H520B ear muffs - neckband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	15.9	14,7	20,4	32,3	39,6	36,2	35,4	40,2
Standard Deviation (dB)	2.1	1,8	2,6	2,5	2,2	2,4	4,2	2,4
Assumed Protection (dB)	13.8	12,9	17,8	29,8	37,4	33,8	31,2	37,8

SNR = 31 dB H = 34 dB M = 29 dB L = 20 dB

Optime II™ - H520F ear muffs - foldable headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	16.1	14,5	20,3	32,6	39,1	35,1	34,7	39,8
Standard Deviation (dB)	2.0	1,8	2,6	2,4	2,5	2,3	2,7	2,5
Assumed Protection (dB)	14.1	12,7	17,7	30,2	36,6	32,8	32,0	37,3

SNR = 31 dB H = 34 dB M = 28 dB L = 19 dB

3M™ Peltor™ OPTIME III ear muffs

Optime III™-H540A ear muffs - standard headband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20.8	17,4	24,7	34,7	41,4	39,3	47,5	42,6
Standard Deviation (dB)	3.1	2,1	2,6	2,0	2,1	1,5	4,5	2,6
Assumed Protection (dB)	17.7	15,3	22,1	32,7	39,3	37,8	43,0	40,0

SNR = 35 dB H = 40 dB M = 32 dB L = 23 dB

Optime III™-H540P3 ear muffs - helmet mounted version

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20.1	17,1	24,5	34,8	40,2	39,6	46,7	43,1
Standard Deviation (dB)	3.3	2,3	2,8	2,2	2,0	1,8	4,2	2,5
Assumed Protection (dB)	16.8	14,8	21,7	32,6	38,2	37,8	42,5	40,6

SNR = 34 dB H = 40 dB M = 32 dB L = 22 dB

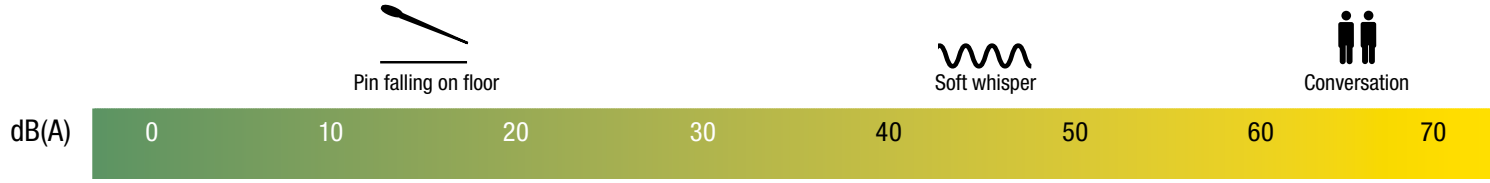
Optime III™-H540B ear muffs - neckband

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Mean Attenuation (dB)	20.9	17,5	24,5	34,5	41,4	39,5	47,3	42,0
Standard Deviation (dB)	3.3	2,3	2,7	2,0	2,2	2,0	4,4	2,8
Assumed Protection (dB)	17.6	15,2	21,8	32,5	39,2	37,5	42,9	39,2

SNR = 35 dB H = 40 dB M = 32 dB L = 23 dB

A new Standard in Design, Comfort and Protection

The 3M™ Peltor™ X Series ear muffs have created a new standard in terms of design, comfort and protection.



A market Reference

3M™ Peltor™ Optime ear muffs have been a reference in the hearing protector industry since 2002.

X1 (SNR 27 dB)
For protection against light industry noise, lawn mowing, power drilling etc.

X2 (SNR 31 dB)
For protection against moderate to high noise levels including many industrial application, roadworks, construction etc.

X3 (SNR 33 dB)
For protection against noise in forestry industry, airport, heavy engineering etc.

X5 (SNR 37 dB)
For use against extremely high noise environment which often requires double protection, e.g. mining, quarrying, paper mills. gas turbines etc.

X4 (SNR 33 dB in a slim cup)
For use against high noise levels in a wide range of industries

3M Peltor Optime I (SNR 27 dB)
Ideal for protection against low to moderate noise levels in a wide range of industrial or leisure activities.

3M Peltor Optime II (SNR 31 dB)
For protection against moderate to high noise levels - particularly suited for noise dominated by high and medium frequencies.

3M Peltor Optime III (SNR 35 dB)
Designed for protection against high noise levels - particularly those dominated by low frequencies.

Hearing Protection Solutions made Innovatively Easy

detection

protection

validation

3M™ is harnessing a chain reaction of new ideas that deliver innovatively easy solutions to complex hearing protection challenges. Detecting and monitoring noise exposures as an integral part of risk assessment in your work environment is the first step in protecting your workers.

Select appropriate 3M hearing protectors that employees are motivated to wear. 3M has a broad selection of hearing protectors for a wide range of environments.

3M E-A-Rfit™ Validation System brings the science of fit to help build confidence in your employee's level of hearing protection as part of training and motivation.

Training and Education
3M can help to educate, motivate and train safety officers and workers around all aspects of the hearing risk.

3M Peltor is a world leader in the field of hearing protectors. Over 50 years of developing and manufacturing hearing protectors has put us at the forefront of safety, comfort, protection and aesthetics. The 3M Peltor hearing protectors are designed with the worker in mind.

Our key aim is to minimize the number of reported case of noise induced hearing loss in the world. Our stated objective is to develop hearing protectors that are comfortable, wearer acceptable and worn for the entire duration of noise exposure period. Innovative design, wide range of attenuation together with increased comfort make it more wearer acceptable.

www.3M.eu/peltorx