



## Ear Protection Through Noise Attenuation

Attenuation is the reduction in noise that ear defenders give. Attenuation should neither be too high or too low and ear defenders should be chosen for comfort, areas of usage and the type of noise that is to be protected against. The important thing is to be under 85dB but not to a level that cuts off all sound as this can be dangerous and often results in the ear defender being lifted which exposes the ear to the noise that is being protected against. This Product Guide contains a range of ear defenders that give differing levels of protection so that there is a choice to suit differing work environments. The details on each model include a table which shows the noise reduction applicable to that model and an SNR (single number rating) or average attenuation. The table below shows typical noise levels in different environments, by deducting the SNR rating from the dB level shown in the table you can select the ear defender that gives a predicted noise level of 85dB or below. You should note, however, that this is a simplified calculation method which does not take account of the characteristics of the noise and at levels above 95dB an accurate noise assessment should be made.

### Some examples of noise over 85dB A weighted sound level

120-150	Airports, jet motors, race tracks	100-110	Road work
115-130	Mines	100-110	Ship's machine room
110-120	Pneumatic drills	100-110	Rivet hammer
105-120	Forestry machinery	95-105	Heavy tractor
105-115	Cargo machinery	90-105	Sheet metal shop, general workshop noise
100-115	Concrete industry	85-100	Hand held electric power tool
100-115	Textile industry	85-95	Lighter tractor
100-115	Smithery	80-85	Light industry, working with children, etc.

The predicted noise level is calculated by taking the measured noise level (or as a guide from the table shown above) minus the SNR shown in the individual item tables. The resulting number is the predicted noise level which should be below 85dB for the ear defender to give adequate protection. Please note that this is a simplified calculation that gives an indication only, for a more accurate result noise levels should be measured correctly and a calculation made using a method that takes account of different octave levels.

### Detecting Harmful Noise

Harmful noise is a combination of sound level and the length of time one is exposed to the noise. For example, exposure to 100dB A weighted sound for 15 minutes is the equivalent to 8 hours exposure to 85 dB A weighted sound. It is, therefore, important to have an understanding of how much noise exists in the work place.

At 80dB prolonged exposure can cause slight hearing loss and ear protectors are recommended. At 90dB prolonged exposure can cause moderate to severe hearing loss and ear protection should be carefully selected to suit the noise type and level. At 100dB and above even short exposure can cause permanent hearing loss and the correct choice of ear defenders is even more important.

### Recommended Noise Ratings

Against each item in this section of the Product Guide there is shown a colour coded system that makes it easier to make the correct selection for different noise levels.



RNR  
<85 dB(A)



RNR  
<83 dB - 93 dB(A)



RNR  
<87 dB - 98 dB(A)



RNR  
<94 dB - 105 dB(A)



RNR  
<95 dB - 110 dB(A)

The RNR or Recommended Noise Rating that is shown gives an indication of the correct choice for different noise levels but in environments where the noise level is above 95dB an accurate noise assessment needs to be made.

Products marked with a green or yellow box are not suitable for use in low frequency noise environments.

### EU Noise Directive

The Noise Directive 2003/10/EEC is one of a series of directives designed to ensure that employees are protected from physical as opposed to chemical hazards. Hearing loss is one of the most common industrial injuries and, despite some success in reducing it due to earlier legislation, continues to cost industry dearly whilst making retirement a misery for many. Noise induced hearing loss is totally preventable using techniques and products which are readily available in this catalogue.





**Optime I A Ear Defenders**

Individually sprung stainless steel wires with wide, softly padded headband, comfortable even when worn for extended periods of time. A lightweight, all round protection device. A low external profile combined with generous ear space makes the earmuff easy to combine with additional personal protection equipment. Suitable for environments with light industrial noise. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

Frequency Hz	63	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	14.4	11.6	18.7	27.5	32.9	33.6	36.1	35.8
Standard attenuation (dB)	4.5	4.3	3.6	2.5	2.7	3.4	3.0	3.8
Assumed attenuation (dB)	9.9	7.3	15.1	25.0	30.1	30.2	33.2	32.0

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
32dB	25dB	15dB	27dB

Stock No.	Original number	Application	Colour	Weight g	Price
466100112	H510A	Earmuff	Yellow	180	£14.50

Optime IA →



**Optime II A Ear Defenders**

Step free height adjustment, designed for demanding noise environments with maximum attenuation for even low frequency noise. The ear cushions are filled with a unique combination of liquid and foam. Suitable for environments with heavier industrial noise. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

Frequency Hz	60	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation (dB)	16.2	14.6	20.2	32.5	39.3	36.4	40.8	34.4	39.0	40.2
Standard attenuation (dB)	1.9	1.6	2.5	2.3	2.1	2.4	2.9	4.0	2.5	2.3
Assumed attenuation (dB)	14.3	13.0	17.7	30.2	37.2	34.0	37.9	30.4	36.5	37.9

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
34dB	29dB	20dB	31dB

Stock No.	Original number	Application	Colour	Weight	Price
466100211	H520A	Ear muff	Military green	210	£18.00

Optime II A →



**Optime III A Ear Defenders**

Extra wide, soft headband for optimal comfort even during long wearing periods. Designed for use in extremely noisy environments. Dual cup design minimises resonances in the system and gives a smoother attenuation over the whole frequency range. The space between the cups is acoustically coupled to the space in the inner cup. This means that the hearing protector performs like a cup with the volume of the outer shell, providing optimal low frequency attenuation. The cups have different resonances and are separated by a compressed layer of special foam material which provides a good fit and low pressure. In accordance with PPE directive 89/686/EEC and applicable sections of European Standard EN 352.

Frequency Hz	63	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation (dB)	20.8	17.4	24.7	34.7	41.4	39.9	38.0	47.5	46.3	42.6
Standard attenuation (dB)	3.1	2.1	2.6	2.0	2.1	1.5	3.9	4.5	2.9	2.6
Assumed attenuation (dB)	17.7	15.3	22.1	32.7	39.9	37.8	34.1	43.0	43.4	40.0

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
40dB	32dB	23dB	35dB

Stock No.	Original number	Application	Colour	Weight g	Price
466100351	H540A	Earmuff	Black	285	£20.70

Optime III A →





### Optime I Hi Viz Ear Defenders - high tones (high volume)

The Peltor Hi Viz has a signal colour, giving wearers the added safety of high visibility. For workers who need to protect their hearing and be extra visible - on road construction sites or other high risk work places. Low profile combined with generous internal depth. The collapsible headband ensures that the hearing protector takes up little space even when not in use. Optime I gives good attenuation, especially at high frequencies. The attenuation properties of the hearing protector afford excellent communication capacity. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

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 attenuation (dB)	3.8	3.4	3.2	3.0	2.1	4.0	2.9	3.9
Assumed attenuation (dB)	10.8	8.7	15.5	24.1	30.8	31.0	33.6	30.6

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
32dB	25dB	16dB	28dB

Stock No.	Original number	Application	Colour	Weight g	Price
466101102	H510F-459-GB	Earmuff	Hi Viz	180	£21.40

Optime I Hi Viz →



### Optime II Hi Viz Ear Defenders - lower tones (higher volume)

The Peltor Hi Viz has a signal colour, giving wearers the added safety of high visibility. For workers who need to protect their hearing and be extra visible - on road construction sites or other high risk work places. The larger shell volume ensures not only better comfort during long hours of use, but also better attenuation of lower frequencies. The thin, comfortable headband can be worn under headgear and is also small and convenient when not in use. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

Frequency Hz	60	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation (dB)	16.1	14.5	20.3	32.6	39.1	35.1	40.3	34.7	39.2	39.8
Standard attenuation (dB)	2.0	1.8	2.6	2.4	2.5	2.3	2.8	2.7	2.4	2.5
Assumed attenuation (dB)	14.1	12.7	17.7	30.2	36.6	32.8	37.5	32.0	36.8	37.3

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
34dB	28dB	20dB	31dB

Stock No.	Original number	Application	Colour	Weight g	Price
466101110	H520F-460-GB	Earmuff	Hi Viz	210	£25.10

Optime II Hi-Viz →



### Optime III Hi Viz Ear Defenders - basetones/extremely high volume

The Peltor Hi Viz has a signal colour, giving wearers the added safety of high visibility. For workers who need to protect their hearing and be extra visible - on road construction sites or other high risk work places. The Optime III Hi Viz is a super attenuator, developed for use in extremely noisy environments and environments with a low frequency noise range. This protection is based on double shell technology, which minimises resonance in the shell. In accordance with PPE directive 89/686/EEC, and applicable sections to European Standard EN 352.

Frequency Hz	63	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation (dB)	20.8	17.4	24.7	34.7	41.4	39.3	38.0	47.5	46.3	42.6
Standard attenuation (dB)	3.1	2.1	2.6	2.0	2.1	1.5	3.9	4.5	2.9	2.6
Assumed attenuation (dB)	17.7	15.3	22.1	32.7	39.3	37.8	34.1	43.0	43.4	40.0

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
40dB	32dB	23dB	35dB

Stock No.	Original number	Application	Colour	Weight g	Price
466101128	H540A-461-GB	Earmuff	Hi Viz	285	£23.50

Optime III Hi-Viz →





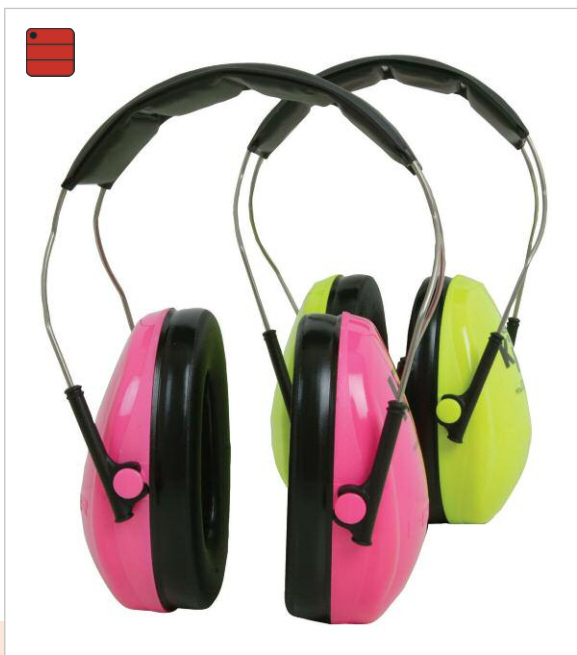
**Childrens Ear Defenders**

A hearing protector for children. Low profile with no protruding parts, two point attachment, stepless height adjustment, extra wide headband, compact exterior, spacious interior, wide soft sealing cups. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

Frequency Hz	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	18.9	24.1	30.7	36.8	32.1	38.4	40.0
Standard attenuation (dB)	4.6	2.6	2.6	3.4	3.4	3.0	2.3
Assumed attenuation (dB)	14.3	21.5	28.1	33.4	28.7	35.4	37.7
Noise Reduction Frequency							
High	Medium	Low	SNR (average attenuation)				
32dB	29dB	22dB	31dB				

Stock No.	Original number	Application	Colour	Weight g	Price
466107992	H510AK-442-GBRE	Childrens earmuff	Neon pink	150	£15.90
466108156	HK510AK-442-GB	Childrens earmuff	Neon green	150	£15.90

Childrens Ear Defenders →



**Ear Defenders with active volume, AM/FM radio and telephone/com radio connectivity**

The Peltor Alert is an active volume hearing protector that listens to the surroundings. The unit has a built in AM/FM radio receiver that can be connected to a telephone or com radio for complete two way communication. Alert has an advanced AM/FM radio as standard. The sound is reproduced in stereo with a bass that does the music justice. The short, flexible antenna provides excellent reception with no annoying interference, even in harsh conditions. The sound level of the radio never exceeds 82 dB(A). If the reception signal is too weak, the electronics automatically switch to mono for the best possible quality and comprehension, without interrupting the sound. In accordance with PPE directive 89/686/EEC, and applicable sections of European Standard EN 352.

Frequency Hz	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	19.7	25.4	31.0	34.6	32.2	38.7	42.1
Standard deviation (dB)	3.4	2.5	3.4	1.8	3.6	3.8	3.6
Assumed protection (dB)	16.3	22.9	27.6	32.8	28.6	34.9	38.5
Noise Reduction Frequency							
High	Medium	Low	SNR (average attenuation)				
31dB	29dB	24dB	32dB				

Stock No.	Original number	Application	Colour	Weight g	Price
466100039	M2RX7A	Burgundy	Burgundy	400	£142.40

Ear Defenders With Active Volume →



**Ear Defenders with FM radio and MP3 stereo jack**

Inbuilt FM stereo radio with 3.5 mm stereo jack for connection to MP3 player. The extra wide, padded parietal band distributes the weight. Two point connection contributes to low pressure after extended use. Lead for MP3 player connection is included. Battery life about 200 hours. Complies with PPE directive 89/686/EEC as well as relevant sections of European standard EN 352.

Frequency Hz	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	17.6	26.2	34.9	37.7	33.3	35.7	36.8
Standard deviation (dB)	2.9	1.8	2.5	2.6	3.4	2.1	3.3
Assumed protection (dB)	14.7	24.4	32.3	35.0	29.9	33.6	33.5
Noise Reduction Frequency							
High	Medium	Low	SNR (average attenuation)				
32dB	31dB	23dB	32dB				

Stock No.	Original number	Application	Colour	Weight g	Price
466101474	HTRXS7A3-01	Radio headset	Burgundy	340	£82.00

Ear Defenders With FM Radio & MP3 Stereo Jack →





### Ear Defenders with FM radio, digital display and MP3 stereo jack

FM radio, 5 presettable stations, digital tuning display, bass boost, MP3.

With Peltors digital FM radio hearing protector you can protect your hearing and at the same time listen to FM radio. The hearing protector is particularly suitable for indoor and outdoor activities where noise can be problematic. Peltors Digital FM radio gives you six functions in one protector:

- A digital search function in combination with an easy to read LCD display enables favourite channels to be found quickly and easily.
- A built in memory with the ability to store up to five channels, enables the user to quickly switch between favourite channels.
- For users wanting more bass, there is a special "Bass Boost" function.
- Newly developed speakers that give a more dynamic sound and more bass
- Built in stereo FM radio with 3.5mm stereo jack for connecting an MP3 player.
- An effective and comfortable hearing protection.

Cable for MP3 connection is included. Battery life approx 50 hours.

Complies with PPE directive 89/686/EEC

and applicable sections of European standard EN352.

Frequency Hz	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	12.0	18.0	29.5	36.0	37.0	44.5	43.5
Standard deviation (dB)	3.1	2.9	2.2	2.4	2.9	2.7	3.2
Assumed protection (dB)	8.9	15.1	27.3	33.6	34.1	41.8	40.3

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
36dB	26dB	16dB	29dB

Stock No.	Original number	Application	Colour	Weight	Price
466101441	HRX520A 533-ST-ST	Radio headset	Black	380	£104.10
466101458	HRX520A-550-VT-ST	Radio headset	White	380	£104.10
466101466	1081	Battery cover	-	-	£3.40
466102035	HY79	Hygiene kit	-	-	£11.00
466102472	FL6CC/1	3.5mm cable for MP3	-	-	£7.40

### Ear Defenders With FM Radio, Digital Display & MP3 Stereo Jack →

### Ear Defenders with AM/FM radio, MP3 and bluetooth

Peltor's wireless communication headset with an inbuilt Bluetooth circuit which creates wireless connection to another Bluetooth entity up to 10 metres away. No more untangling cables and connectors. Immediate connection on synchronisation. Possibility of full duplex in accordance with a world wide standard. The Peltor WS4 Alert headset provides you with five functions in a

single protective entity: MP3 - Listen to your own choice of music wirelessly by streaming MP3 files. The stereo sound gives a pleasant musical experience even in noisy environments. A wireless telephone headset for noisy environments. The headset effectively dampens external noise even with high noise levels. This is not only important to protect hearing but also to ensure reliable communication in extremely noisy environments. Level dependent monitoring. This means that the microphone compensates for noise, which prevents the surrounding noise from disturbing the communication. Inbuilt FM/AM receiver with stereo sound. Effective and comfortable hearing protection. Complies with PPE directive 89/686/EEC and EMC directive 89/336/EEC and applicable sections of European standard EN 352. Peltor WS headset is adapted for Bluetooth standard

Frequency Hz	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	19.7	25.4	31.0	34.6	32.2	38.7	42.1
Standard deviation (dB)	3.4	2.5	3.4	1.8	3.6	3.8	3.6
Assumed protection (dB)	16.3	22.9	27.6	32.8	28.6	34.9	38.5

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
31dB	29dB	24dB	32dB

Stock No.	Original number	Application	Colour	Weight g	Price
466204104	M2RX7AWS4	Wireless headset	Burgundy	400	£489.30

### Ear Defenders With AM/FM Radio, MP3 & Bluetooth →

### Classic Ear Plugs

Classic ear plugs made from a soft energy absorbing polymer foam which provides excellent hearing protection and all day comfort. Ideal for use wherever noise is a problem, either in work or leisure activities. 250 pieces included as well as acting as a dispenser. In accordance with EN 352.

Frequency Hz	63	125	250	500	1000	2000	4000	8000
Mean attenuation (dB)	22.3	23.3	24.6	26.9	27.4	34.1	41.6	40.4
Standard deviation (dB)	5.4	5.3	3.6	5.4	4.8	3.1	3.5	6.4
Assumed protection (dB)	16.9	18.1	20.9	21.5	22.6	30.9	38.1	34.0

Noise Reduction Frequency			
High	Medium	Low	SNR (average attenuation)
30dB	24dB	28dB	28dB

Stock No.	Original number	Price per piece
012300059	PP-01-070	£0.18



### Classic Ear Plugs →

