Hearing Protection

Excessive noise is dangerous for your hearing

Hearing Conservation Solutions

Don’t turn a deaf ear!

Noise-induced hearing loss rarely happens overnight. Rather, it accumulates over time with every unprotected exposure to hazardous noise. We are born with around 20,000 hair cells in each ear. Above 80 decibels (for 8 hours), noise can destroy these hair cells and gradually lead to deafness. This deafness is sadly irreversible, but it is entirely preventable.

To help HSE managers to develop and deploy effective and suitable hearing conservation programs for their environment, Howard Leight offers a wide range of solutions: innovative products, advice, educational and training tools, and on-site fit testing to ensure that hearing protectors fit the wearer. The Howard Leight brand is a global leader in passive and intelligent hearing protection solutions, and the founder of the HearForever® hearing conservation initiative.

Let’s put an end to hearing loss! Choose the hearing protection that suits you best and that you can wear comfortably 100% of the time when you are exposed to noise.

Experts in preventing occupational hearing loss for more than 30 years.

Howard Leight developed the first polyurethane foam earplug and the first banded earplugs more than 30 years ago.

Today, Howard Leight has several accredited acoustic laboratories, with international teams of engineers and hearing aid specialists. With its expertise in preventing occupational hearing loss, Howard Leight has developed technologies that make it the world leader in the field:

• Innovative patented technologies to bring a constant improvement in comfort and easy fitting of the hearing protector.

- Polyurethane foam: its patented technology (semi-open cell structure) makes it easy to insert into the ear canal for increased comfort.

- Conforming Material Technology™: body heat softens the material to make it more flexible and exert less pressure in the ear canal.

• A wide variety of shapes, sizes and colors to allow users to choose the protector that suits them best. Users can choose the product that they find most comfortable and that they are happy to wear 100% of the time they are exposed to noise. We offer options according to the choice of comfort and/or compatibility with other PPE.

• Ultra-innovative communication system:
- In-ear communication system
- Automatic fit testing
- Integrated dosimetry
- Active Noise Reduction
- Improved communication

Hearing Conservation

Effective hearing protection is not simply a product offering the highest attenuation value, but the best protection for each employee in his or her environment. It is about reducing hearing loss associated with noise and thus improving safety.
Howard Leight helps HSE managers to meet the challenges of a good Hearing Conservation program:

- Reducing costs/complaints
- Monitoring “at risk” employees
- Choosing the most suitable product(s)
- Providing the best protection for every employee
- A good balance between protection and communication
- Training

Howard Leight provides training materials to support you in your daily hearing conservation efforts. Please ask us for these materials to raise awareness among your employees of the various risks associated with noise-induced hearing loss and the use of PPE in noisy environments.

A Howard Leight® initiative | hearforever.org

HearForever™

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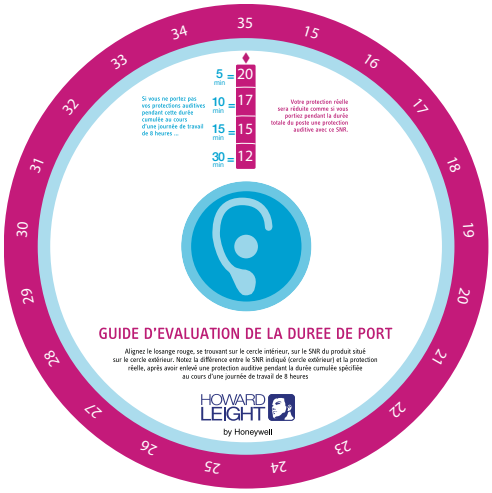

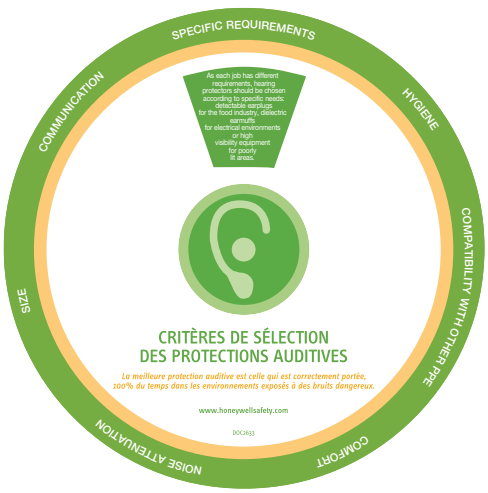

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HOWARD LEIGHT by Honeywell

Hearing Conservation

VeriPRO®

A personal approach to Hearing Conservation

VeriPRO® makes it easy to get a clear and accurate idea of your employees' hearing protection. Find out whether they are receiving optimal protection, require additional training on how to fit their earplugs, or need to try a different model. VeriPRO® uses sophisticated software in a user-friendly format to calculate the Personal Attenuation Rating (PAR) your employees are receiving from their earplugs.

VeriPRO® provides a precise, real-time image of the effectiveness of your earplug and can identify whether the employee:

- Has been given the best possible protection
- Needs additional training
- Needs to try a different earplug (shape, size, etc.)
- A unique tool to measure personal attenuation
- Allows you to monitor and document whether your employees know how to wear their earplugs properly
- Works with any earplug

For more information on VeriPRO®, please contact us.

EU DIRECTIVE 2003/10/EC

	Daily exposure of 8 hours	Peak exposure
Hearing protectors to be provided to every employee	80 dB*	135 dB
Hearing protectors to be worn	85 dB*	137 dB
Exposure limit value	87 dB*	140 dB

*dB = decibels

PPE DIRECTIVE 89/686/EC. Main standards relating to hearing protection.

STANDARDS	
EN 352/1	Earmuffs
EN 352/2	Earplugs
EN 352/3	Cap-mounted earmuffs
EN 352/4	Level-dependent earmuffs
EN 458	Recommendations for the selection, use, care and maintenance of personal protective equipment (PPE)

Earplugs

Single-Use

These earplugs are an economical solution, ideal for work situations that demand a high degree of comfort, frequent changes or where hygiene conditions prohibit reuse.

All single-use uncorded earplugs are supplied: in boxes of 200 pairs or cases of 2000 pairs. All single-use corded earplugs are supplied: in boxes of 100 pairs or cases of 1000 pairs (except Bilsom 304).

THE H M L DATA FOR ALL OUR PRODUCTS CAN BE FOUND ON PAGES 40, 41, 43 and 44.

BILSOM 303/304®

Energized for personal comfort and performance.

FEATURES AND BENEFITS

SNR 33

- Tapered design for ease of insertion.
- Leight Stripe™ formula: a slick blend of yellow and white polyurethane foam that feels soft to the touch and in your ear.
- Easy to roll and insert correctly: Resists tendency to back out of the ear canal. Less expansion pressure for long-term comfort.
- Smooth, soil-resistant skin prevents dirt build-up on earplugs.
- Available in two sizes to ensure a perfect comfortable fit.

Ref.	Description	Packaging
10 050 73	Bilsom 303 large (L)	Box of 200 pairs*
10 050 74	Bilsom 303 small (S)	Box of 200 pairs*
10 071 92	Bilsom 303 large (L)	Box of 200 pairs**
10 071 93	Bilsom 303 small (S)	Box of 200 pairs**
10 001 06	Bilsom 304 large (corded) (L)	Box of 100 pairs***
10 001 07	Bilsom 304 small (corded) (S)	Box of 100 pairs***

* In polybag, case of 2000 pairs
** Pocket pack of 10 pairs, case of 2000 pairs
*** In polybag, case of 500 pairs

MAX®

High SNR attenuation index and optimum comfort.

FEATURES AND BENEFITS

SNR 37

- The world's most-used polyurethane foam earplug.
- Improved shape for easy insertion and a better fit.
- Bell shape for maximum in-ear comfort.
- Smooth, soil-resistant skin prevents dirt build-up.

Ref.	Description	Packaging
33 011 61	Uncorded	Box of 200 pairs, case of 2000 pairs
33 011 30	Corded	Box of 100 pairs, case of 1000 pairs

Max Lite®

Guaranteed comfort for smaller ear canals.

FEATURES AND BENEFITS

SNR 34

- Ideal size for people with smaller ear canals.
- Low-density foam which expands gently for ultra-comfortable long-term wear.
- Contoured T-shape for easy handling and fit.

Ref.	Description	Packaging
33 011 20	Uncorded	Box of 200 pairs, case of 2000 pairs
33 011 21	Corded	Box of 100 pairs, case of 1000 pairs

Laser Lite®

Colorful protection.

FEATURES AND BENEFITS

SNR 35

- Bright colors make the Laser Lite visible and appealing.
- The foam expands to mould to the shape of virtually every ear.
- Contoured T-shape for easy insertion and removal.

Ref.	Description	Packaging
33 011 05	Uncorded	Box of 200 pairs, case of 2000 pairs
33 011 06	Corded	Box of 100 pairs, case of 1000 pairs

MULTI MAX®

One product, two sizes.

FEATURES AND BENEFITS

SNR 35

- Provides an exceptional fit while simplifying inventory management.
- Smooth, soil-resistant skin prevents dirt build-up.
- The foam expands to mould to the shape of virtually every ear.

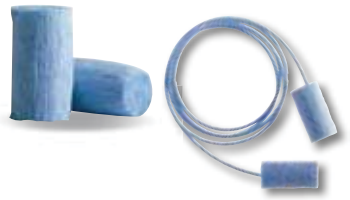
Ref.	Description	Packaging
33 011 09	Uncorded	Box of 200 pairs, case of 2000 pairs

MATRIX®

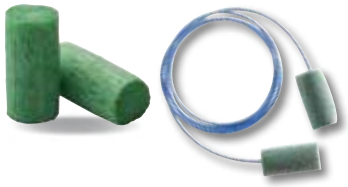
“no-roll” foam.

MATRIX ORANGE SNR 29

MATRIX BLUE SNR 23



MATRIX GREEN SNR 27



FEATURES AND BENEFITS

- Patented no-roll design makes insertion fast and easy.
- Smooth outer skin and reduced diameter provide long-term comfort.
- Instant protection: no need to wait for the foam to expand.
- Three attenuation profiles: suitable for every possible application (orange SNR 29, green SNR 27, blue SNR 23).
- Uniform attenuation for good communication.

Ref.	Description	Packaging
10 112 36	Matrix Orange uncorded	Box of 200 pairs, case of 2000 pairs
10 112 37	Matrix Green uncorded	Box of 200 pairs, case of 2000 pairs
10 112 38	Matrix Blue uncorded	Box of 200 pairs, case of 2000 pairs
10 125 21	Matrix Orange corded	Box of 100 pairs, case of 1000 pairs
10 125 20	Matrix Green corded	Box of 100 pairs, case of 1000 pairs
10 127 20	Matrix Blue corded	Box of 100 pairs, case of 1000 pairs

PILOT™

Simple insertion for a permanently good fit.

FEATURES AND BENEFITS

SNR 26

Easy to insert.

The innovative stem of the Pilot earplug provides instant protection as soon as it is fitted. So there’s no need to wait to be protected. The stem helps the Pilot to slide into your ear canal, eliminating the need to roll the earplug. This non-invasive stem does not extend beyond the end of the earplug, providing protection against all other risks.

Enhanced comfort.

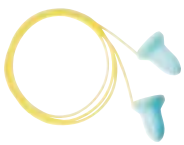
Thanks to our patented Max® polyurethane foam and the bell-shaped design, the Pilot earplug exerts minimal pressure and eliminates the unpleasant sensation of a blockage in the ear canal, while providing a comfortable and pleasant seal in the ear.

Reliable protection.

The Pilot offers constant SNR 26 protection, which makes it ideal for most slightly or moderately noisy environments. The shape and the design of the Pilot are crucial for maximizing noise attenuation for your employees.

Can be used for several days in a row.

Box of 100 pairs, case of 10 boxes.



Ref.	Description	Packaging
10 288 51	Uncorded	Resealable bag, box of 100 pairs
10 288 52	Corded	Resealable bag, box of 100 pairs

Earplugs — Multiple-Use

NEUTRON™

New

Open yourself up to the world. Protect yourself against noise.

In an increasingly interconnected world, Neutron allows people who wear earplugs—because they are exposed to noise that could damage their hearing—to hear and talk to their colleagues without having to take them out. With Neutron, you'll miss nothing while ensuring that you stay protected against the moderate noise levels encountered in the modern workplace.

FEATURES AND BENEFITS — SNR 20

- Proven protection.
- Modern design in the shape of earphones.
- Everyday comfort.
- Unique detachable cord system.
- HearPack™ storage case.

Ref.	Description	Packaging
10 298 10	Corded	Box of 50 pairs, case of 500 pairs

SmartFit®

A revolution in terms of fit.

FEATURES AND BENEFITS — SNR 30

- CMT technology: malleable material that utilizes body heat to adapt to the shape of the ear canal.
- Superior comfort and an individual fit.
- Simplified inventory control - a single product fits almost every user.
- Unique detachable cord system.
- HearPack storage case.

Ref.	Description	Packaging
10 112 39	Corded	Box of 50 pairs, case of 500 pairs

Fusion®

Total protection, exceptional comfort and a perfect fit.

FEATURES AND BENEFITS — SNR 28

- Central FlexiFirm® stem for easy fitting.
- SoftFlanges™ for superior comfort and fit.
- Unique detachable cord system.
- HearPack storage case.

Ref.	Description	Packaging
10 112 82	Corded, standard size	Box of 50 pairs, case of 500 pairs
10 112 81	Green corded, small	Box of 50 pairs, case of 500 pairs

Earplugs — Multiple-Use

CLARITY® 656

Clarity™ technology in an earplug.

FEATURES AND BENEFITS — **SNR 22**

- Patented design with an integrated ultra-thin membrane for moderate, linear attenuation.
- Filters out harmful noise but allows speech through.
- Ultra-flexible rings for a perfect fit and enhanced comfort.
- Rigid central stem for ease of insertion and removal.
- Practical plastic storage case.

Ref.	Description	Packaging
10 053 29	Corded, large	Box of 10 pairs, case of 100 pairs
10 053 28	Corded, small	Box of 10 pairs, case of 100 pairs

AirSoft®

Air flow for optimum comfort.

FEATURES AND BENEFITS — **SNR 30**

- Earplugs with air cushion and internal noise-blocking flanges.
- Four flanges for a better seal in the ear canal.
- Elongated shape for a better fit.
- Integrated stem for ease of insertion and removal.
- Supplied in pairs in a practical plastic storage case.

Ref.	Description	Packaging
10 306 10	Uncorded	Box of 50 pairs, case of 500 pairs
10 306 11	White nylon cord	Box of 50 pairs, case of 500 pairs
10 306 12	Red PVC cord	Box of 50 pairs, case of 500 pairs

Quiet®

Easy handling, better fit.

FEATURES AND BENEFITS — **SNR 28**

- Patented no-roll design is easy to handle and fit.
- Contoured shape provides a close fit in the ear canal.
- Integrated stem makes insertion quick and easy.
- Supplied in pairs in a practical plastic storage case.

Ref.	Description	Packaging
10 284 56	Uncorded	Box of 50 pairs, case of 500 pairs
10 284 57	Corded	Box of 50 pairs, case of 500 pairs

Earplugs

Detectable

All our detectable earplugs are designed for high visibility and detectability. They are available in two versions: single-use or reusable earplugs. They have been specially designed for working environments where contamination from foreign objects is unacceptable.

Laser Trak®

The highest attenuation rate in its class.

FEATURES AND BENEFITS **SNR 35**

- The foam expands to fit virtually every ear.
- Non-ferrous metal grommet and bright colors easily detected by visual and magnetic inspection.

Ref.	Description	Packaging
33 011 67	Corded	Box of 100 pairs, case of 1000 pairs

SmartFit® Detectable

Detectable earplugs for long-term comfort.

FEATURES AND BENEFITS **SNR 30**

- Delivers superior comfort and a truly individual fit.
- Simplified inventory management: a single product fits almost every user.
- Blue color to aid detection.
- Easily detectable metallic cord and ring.

Ref.	Description	Packaging
10 125 22	Corded	Box of 50 pairs, case of 500 pairs

Fusion® Detectable

Protection, comfort and enhanced fit for reusable and detectable earplugs.

FEATURES AND BENEFITS **SNR 28**

- Patented dual-material design.
- Central FlexiFirm® stem for ease of insertion, SoftFlanges™ for exceptional comfort and fit.
- Easily detectable metal cord and stem.
- Product washable in lukewarm water; lasts for several weeks.

Ref.	Description	Packaging
10 112 34	Standard size, corded	Box of 50 pairs, case of 500 pairs
10 112 35	Small, corded	Box of 50 pairs, case of 500 pairs

HOWARD LEIGHT by Honeywell

Earplug dispensers

Save time and space and reduce waste. Whatever the use of the earplugs, dispensers offer an economical, hygienic and user-friendly solution to hearing protection.

DISTRIBUTEUR Leight® Source 400 (LS400)

FEATURES AND BENEFITS

The Leight® Source 400 dispenser can be fixed to a wall or placed on a table or workstation. Entirely transparent, it can be refilled before it runs out. This system dispenses earplugs with a twist knob, and can hold 400 pairs of Howard Leight single-use earplugs, such as Max, Max Lite, Laser Lite, MultiMax, Matrix and Bilsom 303.

Ref.	Description		
10 130 40	Leight® Source 400 dispenser (supplied empty)		
10 062 02	Leight Source 400 dispenser, supplied with 400 pairs of Bilsom 303 L	**10 062 03**	Leight Source 400 dispenser, supplied with 400 pairs of Bilsom 303 S
Refill for Leight® Source 400: Refill box of 200 pairs, case of 2000 pairs:			
10 130 46	Max	**10 130 42**	Matrix Orange
10 130 48	Max Lite	**10 130 41**	Matrix Green
10 130 47	Laser Lite	**10 129 11**	Matrix Blue
10 130 45	MultiMax	**10 061 86**	Bilsom 303 L
		10 061 87	Bilsom 303 S

LS400

Refill bag Laser Lite

DISTRIBUTEUR Leight® Source 500 (LS500)

FEATURES AND BENEFITS

The Leight Source 500 earplug dispenser is made of anodized aluminum and is designed to be mounted on a wall. This system dispenses earplugs with a twist knob. Ideal for large factories and processing plants with a zero-tolerance policy when it comes to packaging waste, the LS-500 dispenser can hold 500 pairs of Howard Leight single-use earplugs, such as Max, Max Lite, Laser Lite, MultiMax, Matrix, Quiet and Bilsom 303.

Ref.	Description		
33 012 73	Leight® Source 500 dispenser (supplied empty)		
Refill for Leight® Source 500: Refill box of 500 pairs, case of 2000 pairs:			
33 011 65	Max	**10 127 23**	Matrix Orange
33 012 72	Max Lite	**10 127 22**	Matrix Green
33 012 71	Laser Lite	**10 127 21**	Matrix Blue
33 012 61	MultiMax	**10 175 73**	Bilsom 303 L
33 012 75	Quiet (200 pairs)	**10 175 74**	Bilsom 303 S

LS500

Refill Max

Leight® Source 100 POUR BILSOM 303 (LS100)

FEATURES AND BENEFITS

Box of 100 pairs of Bilsom 303 earplugs

Ref.	Description
10 058 52	Bilsom 303 large
10 058 50	Bilsom 303 small

HOWARD LEIGHT by Honeywell

Banded Earplugs

We offer a whole range of high performance features, including a patented band design that prevents pods from touching dirty or contaminated surfaces when they are put down. These banded earplugs are especially recommended for managers and for use in environments with intermittent exposure to noise.

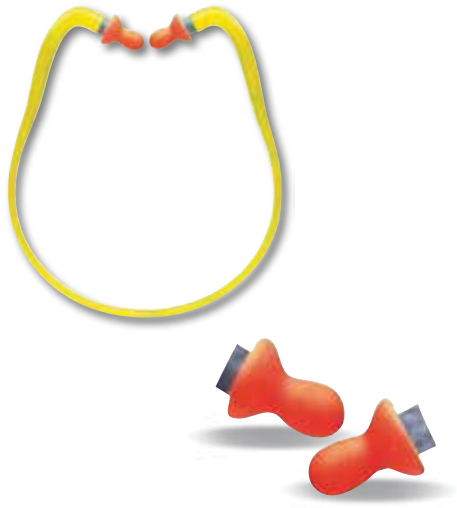
QB1® HYG

In-ear protection.

FEATURES AND BENEFITS **SNR 26**

- Smooth, ergonomic pods for maximum protection.
- Patented band design prevents pods from touching dirty or contaminated surfaces.
- Lightweight and portable, designed especially for environments with intermittent exposure to noise.

Ref.	Description	Packaging
33 012 82	QB1HYG®	Box of 10 pairs
33 012 81	Replacement pods	Box of 50 pairs



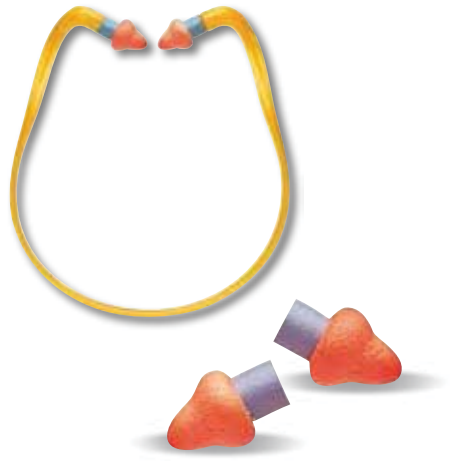
QB2® HYG

Supra-aural protection.

FEATURES AND BENEFITS **SNR 24**

- Soft pods rest partially in the ear to combine comfort and protection.
- Patented band design prevents pods from touching dirty or contaminated surfaces.
- Light and portable.

Ref.	Description	Packaging
33 012 80	QB2HYG®	Box of 10 pairs
33 011 81	Replacement pods	Box of 50 pairs



Banded Earplugs

QB3® HYG

Semi-aural protection.

FEATURES AND BENEFITS **SNR 23**

- Super-soft lightweight cushions rest outside the ear canal for unparalleled comfort.
- Patented band design prevents pods from touching dirty or contaminated surfaces.
- Light and portable: ideal for occasional use.

Ref.	Description	Packaging
33 012 79	QB3HYG®	Box of 10 pairs
33 011 83	Replacement pods	Box of 50 pairs

PerCap®

Comfortable, lightweight and flexible banded earplugs.

FEATURES AND BENEFITS **SNR 24**

- Super-soft, lightweight semi-aural pods rest outside the ear canal for unparalleled comfort.
- Multiple positions: over-the-head, under-the-chin or behind-the-neck wear.
- Compact, folding design for easy storage in pockets.
- Ideal for users exposed to intermittent noise.
- Lightweight, just 10 grams.

Ref.	Description	Packaging
10 059 52	Bilsom PerCap	Case of 10 pairs
10 059 80	Replacement pods	Box of 10 pairs

Noise-blocking earmuffs

OUR TECHNOLOGIES

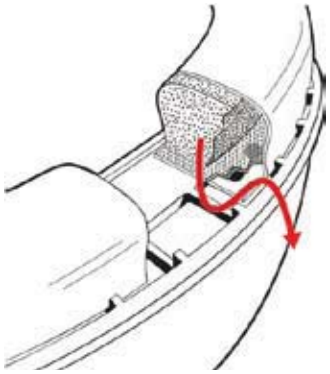
Noise-blocking earmuffs are a simple and effective way of protecting yourself. But they can be heavy and awkward or even place great pressure around your head. Howard Leight has taken these major comfort factors into account in offering a range of earmuffs with patented technologies.

AIR FLOW CONTROL™ TECHNOLOGY

Patented Air Flow Control™ technology provides optimal attenuation across all frequencies and snap-in ear cushions for easy maintenance.

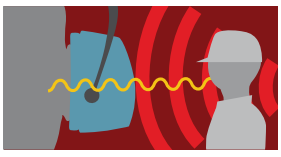
Noise-blocking earmuffs traditionally attenuate very well at high frequencies, but poorly at low frequencies.

With our patented Air Flow Control (AFC) technology, we found a way to deliver superior low-frequency attenuation and more consistent performance across the whole frequency range without increasing the size or weight of the earmuff.



How it works:

Inside the snap-in AFC ear cushion, a series of holes allows the ear to “breathe” more effectively and channels the air out of the base of the cushion, much like a car shock absorber. This controlled flow of air dampens low-frequency vibrations while maintaining excellent high-frequency attenuation. Air Flow Control is a standard feature on all noise-blocking earmuffs in the Sync, Leightning, Thunder, Viking and Impact ranges.



SOUND MANAGEMENT TECHNOLOGY™ (SMT)

AFC technology enables excellent sound processing and so provides for clear communication with the environment.

Staying protected while remaining connected to the environment.

Noise-blocking earmuffs

Sync™

New

Listen to your music in complete safety.

Most radio earmuffs provide some level of hearing protection, but often sacrifice sound quality for attenuation. That's why we created Sync, the latest generation of passive earmuffs for active lifestyles. These stereo radio earmuffs protect your hearing, offer high-quality sound, and allow you to listen to the radio and personal audio devices safely at work and at home.

Sync™ Stereo

FEATURES AND BENEFITS

The Sync has no volume knobs or power switches and no batteries to replace. The ease of use of the Sync Stereo is enhanced by maintaining volume and power control through the MP3 player. Plus, the Sync Stereo's state-of-the-art bass chamber enhances bass sounds that are typically sacrificed in traditional industrial stereo earmuffs.

The Sync™ Stereo Volume Management Technology (VMT™) maintains sound levels from portable audio equipment at safe levels.

SNR 31

Audio device not included

Ref.	Description	SNR
10 301 11	Sync Stereo earmuffs (supplied in blister pack)	SNR 31

HOWARD LEIGHT by Honeywell

Noise-blocking earmuffs

Sync™ with digital AM/FM radio

SNR 29

FEATURES AND BENEFITS

- 10 preset stations and volume memory can be personalized for each user.
- Lightweight slim ear cup design, more comfortable to wear during the working day.
- LCD display.
- All Sync earmuffs feature a 3.5 mm AUX input jack and connection cable.

Ref.	Description	SNR
10 303 30	Sync Digital AM/FM radio earmuffs (supplied in blister pack)	SNR 29

Sync™ high visibility with digital AM/FM radio

SNR 29

FEATURES AND BENEFITS

- Light green/yellow ear cups provide high visibility and contrast, and the reflective headband illuminates under light for increased visibility and safety.
- All Sync earmuffs feature patented Air Flow Control™ technology, delivering optimum attenuation across all frequencies without increasing ear cup size or weight.

Ref.	Description	SNR
10 303 32	Sync Hi-Vis Digital AM/FM radio earmuffs (supplied in blister pack)	SNR 29

Sync™ Electo®

SNR 29

FEATURES AND BENEFITS

- Separate knobs adjust volume for radio and sound amplification.
- The Sync Electo® is available in headband and helmet models. Helmet model includes a set of adapters for use with the most popular hard hats.
- Built-in microphones reproduce ambient sounds, retaining sense of direction.

Ref.	Description	SNR
10 303 33	Sync Electo earmuffs	SNR 29
10 106 31	Electo-H ear cups (NB: analog technology)	SNR 27

Noise-blocking earmuffs

Clarity™

Using Howard Leight's patented Sound Management Technology™ (SMT), Clarity series earmuffs improve employee safety by blocking harmful noise while allowing voice and signal frequencies to be heard more naturally.

FEATURES

Advanced sound processing technology for enhanced communication in the workplace.

- Blocks noise but helps you to hear the people around you, as well as alarms and other warning signals.
- Does not isolate the user from the environment, but offers increased safety particularly in sensitive environments.
- Dielectric construction suitable for all workplaces, especially electrical environments.
- Uniform headband pressure for all head sizes, providing better comfort for long-term wear.
- Ventilated inner headband minimizes pressure on the head and guarantees increased breathability in warm/humid climates.
- Non-deforming outer headband withstands rough treatment in the toughest workplaces.
- Quick-click height adjustment remains fixed during wear.
- Snap-in ear cushions make replacement quick and easy.

Clarity™ EARMUFFS

FEATURES AND BENEFITS

- Comfortable over-the-head design ideal for many applications.
- Ventilated inner headband reduces pressure on the head and guarantees increased breathability in warm/humid climates.
- Non-deforming outer headband withstands rough treatment in the toughest workplaces.

Ref.	Description	SNR
10 111 42	C1	SNR 25
10 111 46	C3	SNR 33

C1 SNR 25

Clarity™ MULTI-POSITION EARMUFFS

FEATURES AND BENEFITS

Allows the wearer to select position: over-the-head, behind-the-neck or under-the-chin.

Ref.	Description	SNR
10 111 45	C2	SNR 30

C2 SNR 30

HOWARD LEIGHT by Honeywell

Noise-blocking earmuffs

Clarity™ FOLDING EARMUFFS

FEATURES AND BENEFITS

- Convenient folding design for easy storage.
- Belt storage case also available.

Ref.	Description	SNR
10 111 43	C1F	SNR 26

Clarity™ EAR CUPS

FEATURES AND BENEFITS

- Ear cups snap in place during use and swing back when not in use.
- Ear cups work with a wide range of hard hats.
- Pair of 3711, 3712 & 3721 adapters included.

Ref.	Description	SNR
10 112 62	C1H	SNR 26
10 112 64	C3H	SNR 30

Leightning®

With its steel construction, the Leightning series delivers high performance and durability that withstands daily wear and tear without compromising comfort.

FEATURES

- Patented Air Flow Control™ for optimum attenuation across all frequencies, without increasing size or weight.
- Snap-in ear cushions make replacement quick and easy.
- Padded foam headband for long-term comfort with minimal pressure on the head.
- Multiple attenuation levels for attenuation targeted at different environments.
- Telescopic height adjustment ensures that the earmuffs remain fixed during use.
- Superior comfort - the ultra slim L0 models are ideal when compact earmuffs, reliable protection and a high degree of comfort are required.
- HV (high visibility) and reflective models which illuminate under light for enhanced visibility and safety. Ideal for wearing at night and in inclement weather conditions.

Leightning® EARMUFFS

FEATURES AND BENEFITS

Comfortable over-the-head design ideal for many applications.

Ref.	Description	SNR
10 109 22	L1	SNR 30
10 109 23	L2	SNR 31
10 109 24	L3	SNR 34
10 109 41	L3HV	SNR 34

Noise-blocking earmuffs

Leightning® FOLDING EARMUFFS

FEATURES AND BENEFITS

- Folding headband for easy storage.
- Belt storage case also available.

Ref.	Description	SNR
10 134 61	L0F	SNR 25
10 119 97	L2F	SNR 32
10 139 42	L2FHV	SNR 32
10 002 51	Folding earmuff belt case	

L2FHV SNR 32

L0F SNR 25

Leightning® HEAD STRAP EARMUFFS

FEATURES AND BENEFITS

- Sleek behind-the-neck design for use with face shields, visors, hard hats and other PPE.
- Includes attached elastic headband strap for better positioning.
- The L0N features ultra-slim, lightweight ear cups, ideal for use with welding masks.

Ref.	Description	SNR
10 134 60	L0N	SNR 22
10 119 94	L1N	SNR 29
10 119 95	L2N	SNR 31
10 119 96	L3N	SNR 32

L1N SNR 29

Leightning® EAR CUPS

FEATURES AND BENEFITS

- Ear cups snap in place during use and swing back when not in use.
- Ear cups work with a wide range of hard hats.
- Pair of 3712, 3711 & 3721 adapters included.

Ref.	Description	SNR
10 125 39	L1H	SNR 28
10 125 41	L3H	SNR 31
10 150 21	L1HHV	SNR 28

L1HHV SNR 28

L1H SNR 28

Noise-blocking earmuffs

Thunder®

The Thunder series is designed with everyday comfort in mind. Its dielectric construction withstands use and abuse, while protecting employees in electrical environments. Patented Air Flow Control™ technology provides optimal attenuation across all frequencies and snap-in ear cushions for easy maintenance.

FEATURES

- Dielectric construction suitable for all workplaces, especially electrical environments.
- Patented Air Flow Control™ for optimum attenuation across all frequencies, without increasing size or weight.
- Uniform headband pressure for all head sizes, providing better comfort for long-term wear.
- Non-deforming outer headband withstands rough treatment in the toughest workplaces.
- Quick-click height adjustment remains fixed during wear.
- Snap-in ear cushions make replacement quick and easy.

Thunder® EARMUFFS

FEATURES AND BENEFITS

- Comfortable over-the-head design ideal for many applications.
- Ventilated inner headband minimizes pressure on the head and guarantees increased breathability in warm/humid climates (T2 and T3 only).

Ref.	Description	SNR
10 109 28	T1	SNR 30
10 109 29	T2	SNR 33
10 109 70	T3	SNR 36
10 158 20	T2HV	SNR 33

T2HV SNR 33

T3 SNR 36

Thunder® FOLDING EARMUFFS

FEATURES AND BENEFITS

- Convenient folding design for easy storage.
- Belt storage case also available.

Ref.	Description	SNR
10 116 00	T1F	SNR 31
10 002 51	Folding earmuff belt case	

T1F SNR 31

Thunder® EAR CUPS

FEATURES AND BENEFITS

- Ear cups snap in place during use and swing back when not in use.
- Ear cups work with a wide range of hard hats.
- Pair of 3712, 3711 & 3721 adapters included.

Ref.	Description	SNR
10 125 33	T1H	SNR 29
10 125 34	T2H	SNR 30

T1H SNR 29

Noise-blocking earmuffs

Viking® MULTIPLE POSITION EARMUFFS

Adjustable headband.

FEATURES AND BENEFITS

- Adjustable headband allows wearer to select position: over-the-head, behind-the-neck or under-the-chin.
- The alternative to ear cups fitted to hard hats: compatible with hard hats, face shields, breathing masks and other PPE.
- Ventilated inner headband minimizes pressure on the head; breathes more easily in warm/humid climates.
- Non-deforming outer headband withstands rough treatment in the toughest workplaces.
- Snap-in ear cushions make replacement quick and easy.
- Elastic headband strap for better positioning.
- Dielectric construction suitable for all workplaces.
- Now with Air Flow Control™ technology.

Ref.	Description	SNR
10 109 25	Viking V1	SNR 30
10 111 70	Viking V3	SNR 32

V1 SNR 30

V3 SNR 32

MACH™ 1

Economical protection for short-term use.

FEATURES AND BENEFITS

- Economic design offers good protection at a low price.
- Extremely light earmuffs.
- Dielectric construction.

Ref.	Description	SNR
10 104 21	Mach 1	SNR 23

Mach 1 SNR 23

QM24+®

Ultra-lightweight, multiple-position, dielectric earmuff designed for extended wear at an affordable price.

FEATURES AND BENEFITS

- Adjustable headband for over-the-head, behind-the-neck or under-the-chin wear.
- An alternative to cap-mounted earmuffs when using other PPE.
- Dielectric construction suitable for electrical environments.

Ref.	Description	SNR
33 021 52	QM24+	SNR 26

QM24+ SNR 26

Noise-blocking earmuffs

Impact®

Impact earmuffs enhance the perception of certain sounds through advanced sound amplification technology. Wearers hear important sounds in their environment – co-workers, alarms and warning signals – at a safely amplified level. Helps eliminate the feeling of isolation.

FEATURES

- Amplification of ambient sounds limited to a safety level of 82 dB – response technology reverts to passive hearing protection if the noise reaches 82 dB.
- Sound amplification increases communication and awareness – employees can hear alarms/warning signals, co-workers' voices.
- Directional stereo microphones amplify and enhance sound for more natural hearing.
- Snap-in ear cushions make replacement quick and easy.
- Impact Sport and Impact Pro have the basic features of the Impact range, with added features designed for sport shooting and field use.
- Can be connected to MP3 players and smartphones.
- Ideal for recreational and professional shooting, both indoors and outdoors.

Impact® Sport FOLDING EARMUFFS

FEATURES AND BENEFITS

- Patented Air Flow Control™ technology for optimum attenuation across all frequencies.
- Convenient folding design for easy storage.
- Automatic shut-off after 4 hours.
- Includes 2 AAA batteries for 350 hours of use.
- Belt storage case also available.

Ref.	Description	SNR
10 135 30	Impact Sport	SNR 25

Impact® PRO EARMUFFS

New

FEATURES AND BENEFITS

- Impact earmuffs with excellent sound amplification and best attenuation on the market: SNR 33
- Amplifies low volume sound and conversation (4 times as loud).
- Easy to use: just one volume control button.
- Includes 2 AAA batteries.
- Can be connected to MP3 players and smartphones.
- Ideal for recreational and professional shooting, both indoors and outdoors.
- Patented Air Flow Control™ technology for optimum attenuation across all frequencies.

Ref.	Description	SNR
10 189 53	Impact PRO	SNR 33

Impact® EAR CUP HEADBAND

FEATURES AND BENEFITS

- Ear cups snap in place during use and swing back when not needed.
- Ear cups work with a wide range of hard hats.
- Pair of 3711, 3712 & 3721 adapters included.
- Includes 2 AA batteries for 140 hours of use.

Ref.	Description	SNR
10 103 76	Impact	SNR 28
10 106 32	Impact ear cups for fitting to hard hats	SNR 27

HOWARD LEIGHT by Honeywell

Intelligent hearing protection and communication system

QUIETPRO® QP100 EX

Protection and communication in high-noise environments.

Developed in conjunction with the international energy company Statoil, the QUIETPRO® QP100EX is the only intelligent hearing protection and communication system that provides smart personal hearing protection, verifiable personal noise exposure measurement, and the clearest communication throughout a full range of work environments. The QUIETPRO® QP100EX transforms a worker's hearing and ability to communicate clearly from a point of vulnerability to a productivity advantage.

FEATURES AND BENEFITS

- Personal real-time noise monitoring to prevent hearing loss.
- Clear communication even in rapidly changing, high-noise environments.
- Intrinsically safe for potentially explosive environments.
- In-ear headset.
- Fully adaptive hearing protection.
- Digital Active Noise Reduction.
- Exclusive in-ear dosimetry.
- Superior digital processing.

Contact us for more information about QUIETPRO.

Kits

Designed for forestry and landscape gardening work, our new Forestry and Garden Kits offer users a turnkey solution for hearing and head protection.

FORESTRY KIT

FEATURES AND BENEFITS

- Forestry kit fully equipped with:
  - Leightning L1H ear cups,
  - bright orange polythene helmet
  - mesh face shield (ref. 10 178 00) : flexible, durable and easy to adjust; detachable peak/sun visor; integrated neck guard providing protection from debris and sun/rain.

Ref.	Description	SNR
10 172 91	Forestry Kit	SNR 28

GARDENING KIT

FEATURES AND BENEFITS

- Gardening Kit fully equipped with:
  - Leightning L1 headband
  - clip-on visor with brow guard (pre-assembled for convenience)
  - mesh face shield (ref. 10 178 00) : flexible, durable and easy to adjust; detachable peak/sun visor.

Ref.	Description	SNR
10 172 92	Gardening Kit	SNR 30

SPARE PARTS FOR FORESTRY AND GARDENING KITS

FEATURES AND BENEFITS

Ref.	Description
10 178 00	Mesh face shield complete with visor
10 172 93	Mesh face shield
10 172 94	Clear face shield

Accessories

BELT CLIP

FEATURES AND BENEFITS

A simple and convenient solution for attaching earmuffs to a belt or pocket when not in use. Lightweight, low profile design.

Ref.	10 167 30

OPTISORB®

FEATURES AND BENEFITS

Washable, 100% cotton sleeve slides over ear cup to absorb sweat or conserve warmth. Optisorb provides optimum comfort and hygiene in all weathers. Fits all Howard Leight earmuffs.

> Box of 50.

Ref.	33 021 01

HYGIENE KITS

FEATURES AND BENEFITS

For extended earmuff performance and life as well as improved hygiene, snap-in ear cushions and foam inserts should be replaced every 6 months, or more often with heavy use. Each kit comes with one pair of ear cushions and one pair of foam inserts.

Ref.	Description	Ref.	Description
10 060 80	Clarity® C1/C1F/C1H	**10 119 99**	Leightning L2/L2H/L2N/L2F/L2FHV
10 060 81	Clarity C3/C3H	**10 120 00**	Leightning L3/L3H/L3N/L3HV/Viking V3
10 109 74	Thunder® T1/T1H/T1F	**10 080 00**	Radio/Radio HV/Electo®/Electo H/Impact®/Impact H
10 109 75	Thunder T2/T2H/T2HV	**10 152 80**	Impact Sport/Sync Radio/Sync Radio HiViz/Sync Electo
10 109 76	Thunder T3/T3H	**33 012 83**	QM24+®
10 119 98	Leightning® L1/L1H/L1N/L0N/L1HHV/Viking® V1	**10 302 20**	Sync/Impact PRO

BILSOM COOL II EAR CUSHIONS

FEATURES AND BENEFITS

Absorbent ear cushions to improve overall comfort and hygiene. A dermatologically tested material absorbs 15 times its weight in moisture and keeps ears warm in cold climates. Bilsom® Cool ear cushions fit most makes of ear cup on the market.

Ref.	Description
10 003 65	Box of 5 pairs
10 003 64	Box of 100 pairs

HELMET ADAPTERS

FEATURES AND BENEFITS

Howard Leight offers a large selection of snap-on adapters to fit a variety of hard hats. The durable plastic and metal styles withstand demanding conditions.

Ref.	Description	Ref.	Description
10 002 40	3702 Universal adapter	**10 002 47**	3716 Schubert
10 002 41	3710 Bolt-on adapter	**10 002 48**	3717 JSP Mark II & Mark III & Invincible
10 002 42	3711 Old Centurion model	**10 002 49**	3718 AO, Bullard, MSA V-Guard, North
10 002 43	3712 New Centurion model, Balance, Bullard, JSP Mark IV & Mark V, MSA, Voss, Opus, Auboueix Iris & Kara, Peltor G22 & G3000	**10 002 50**	3719 JSP
10 002 45	3714 Protector tuffmaster	**10 052 92**	3721 Protector 300/600/650, Sofop oceanic II & Oryon, Petzl Vertex
10 002 46	3715 Auboueix Brenus & Carolyn		

Polar Hood®

FEATURES AND BENEFITS

Hood provides protection from cold while maintaining optimal attenuation and high visibility. Patented side panels help eliminate gaps between ear cup and ear, reducing exposure to hazardous noise. For use with all Howard Leight earmuffs. Fits under most hard hats.

Ref.	Description
10 168 71	Size S/M
10 168 70	Size L/XL

FOLDING EARMUFF BELT CASE

FEATURES AND BENEFITS

Durable nylon with belt loops and easy-to-open Velcro® flap. Folds flat.
Fits Leightning® L2F, Leightning® Hi-Visibility L2FHV,
Thunder® T1F, Clarity® C1F and Impact® Sport earmuffs.

Ref.	**10 002 51**

AUDIOMETRIC CABIN

FEATURES AND BENEFITS

The cabin is supplied in separate panels, which are quick and easy to assemble.
The window and door can be placed on the left or the right for greater flexibility.
Excellent sound attenuation particularly in the critical 500 Hz band for reliable hearing tests. External dimensions: 950 mm (width), 1,050 mm (depth), 2,100 mm (height).

Ref.	**10 003 63**

Attenuation data

Single-use earplugs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Bilsom 303/304	Mean	28.4	37.3	37.9	39.1	36.0	34.6	42.5	46.4	33	32	29	29
	SD	6.4	9.0	9.2	9.7	7.9	4.6	4.9	4.7				
	APV	22.0	28.3	28.7	29.4	28.1	30.0	37.6	41.8				
Max	Mean	34.6	37.1	37.4	38.8	38.2	37.9	47.3	44.8	37	36	35	34
	SD	3.0	4.5	4.3	w3.7	3.5	4.0	3.5	7.2				
	APV	31.6	32.6	33.1	35.1	34.7	33.9	43.8	37.6				
Max Lite	Mean	-	35.5	36.7	39.0	37.4	33.8	41.9	43.3	34	32	32	31
	SD	-	6.3	7.1	6.6	6.0	3.7	3.8	4.7				
	APV	-	29.2	29.6	32.4	31.3	30.1	38.1	38.6				
Laser Lite	Mean	33.4	34.1	35.5	37.6	34.9	35.7	42.5	44.1	35	34	32	31
	SD	4.6	4.7	4.6	4.1	5.0	2.8	2.9	4.2				
	APV	28.8	29.4	30.9	33.5	29.9	32.9	39.6	39.9				
Multi Max	Mean	34.5	37.7	37.8	39.8	36.2	35.9	41.5	42.9	35	33	32	32
	SD	6.7	7.6	6.7	6.8	5.1	3.9	4.2	6.1				
	APV	27.8	30.1	31.1	33.0	31.1	32.0	37.3	36.8				
Matrix Blue	Mean	11.9	14.8	17.4	22.9	25.5	30.3	36.7	37.5	23	26	20	15
	SD	3.2	4.5	4.8	6.2	4.4	5.0	5.1	6.4				
	APV	8.7	10.3	12.6	16.7	21.1	25.3	31.6	31.1				
Matrix Green	Mean	17.3	21.0	24.5	27.3	27.9	33.8	36.1	40.8	27	29	23	20
	SD	5.4	5.3	6.7	6.6	4.8	3.7	5.2	6.5				
	APV	11.9	15.7	17.8	20.7	23.1	30.1	30.9	34.3				
Matrix Orange	Mean	17.6	21.8	26.1	28.7	29.5	34.9	37.2	39.8	29	31	25	22
	SD	5.1	4.7	5.4	5.2	5.3	3.8	2.7	4.0				
	APV	12.5	29.4	20.7	23.5	24.2	31.1	34.5	35.8				
Pilot	Mean	23.4	23.5	23.1	24.9	27.2	32.3	40.9	42.3	26	29	23	19
	SD	8.4	7.8	6.2	5.1	4.8	3.9	5.6	5.5				
	APV	15.0	15.7	16.9	19.8	22.4	28.4	35.3	36.8				

Multiple-use Earplugs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Neutron	Mean	18.8	18.8	17.8	19.3	25.3	29.1	25.6	20.3	20	21	18	14
	SD	8.6	8.4	6.4	5.1	5.1	3.8	4.7	3.0				
	APV	10.2	10.4	11.4	14.2	20.2	25.3	20.9	17.3				
SmartFit	Mean	30.9	31.4	28.8	32.5	33.8	35.6	39.3	41.9	30	32	27	23
	SD	6.2	7.3	8.9	8.1	7.3	4.3	6.0	5.0				
	APV	24.7	24.1	19.9	24.4	26.5	31.3	33.3	36.9				
Fusion	Mean	24.6	28.3	28.6	27.9	29.4	31.0	40.0	40.9	28	29	25	24
	SD	6.0	5.1	5.6	5.0	5.6	3.7	5.6	5.5				
	APV	18.6	23.2	23.0	22.9	23.8	27.3	34.4	35.4				
Clarity 656	Mean	23.3	23.0	21.3	21.5	24.3	30.8	28.6	39.4	22	24	19	17
	SD	5.4	5.9	6.2	5.3	5.5	3.9	6.3	6.4				
	APV	17.9	17.1	15.1	16.2	18.8	26.9	22.3	33.0				
AirSoft	Mean	31.0	29.8	28.6	30.5	32.5	33.6	35.4	39.1	30	29	27	25
	SD	4.6	5.0	5.6	5.5	4.3	4.2	7.2	4.6				
	APV	26.4	24.8	23.0	25.0	28.2	29.4	28.2	34.5				
Quiet	Mean	26.1	29.0	28.8	29.1	29.5	33.1	43.3	44.5	28	29	25	23
	SD	6.1	6.9	6.4	7.2	5.1	5.3	6.9	3.4				
	APV	20.0	22.1	22.4	21.9	24.4	27.8	36.4	41.1				

Attenuation data

Detectable earplugs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Laser Trak	Mean	33.4	34.1	35.5	37.6	34.9	35.7	42.5	44.1	35	34	32	31
	SD	4.6	4.7	4.6	4.1	5.0	2.8	2.9	4.2				
	APV	28.8	29.4	30.9	33.5	29.9	32.9	39.6	39.9				
SmartFit Detectable	Mean	30.9	31.4	28.8	32.5	33.8	35.6	39.3	41.9	30	32	27	23
	SD	6.2	7.3	8.9	8.1	7.3	4.3	6.0	5.0				
	APV	24.7	24.1	19.9	24.4	26.5	31.3	33.3	36.9				
Fusion Detectable	Mean	24.6	28.3	28.6	27.9	29.4	31.0	40.0	40.9	28	29	25	24
	SD	6.0	5.1	5.6	5.0	5.6	3.7	5.6	5.5				
	APV	18.6	23.2	23.0	22.9	23.8	27.3	34.4	35.4				

Banded earplugs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
QB1HYG	Mean	24.8	28.1	26.5	24.5	25.1	31.7	42.5	40.9	26	28	22	21
	SD	4.3	3.2	5.6	5.7	3.3	4.0	1.8	4.7				
	APV	20.5	24.9	20.9	18.8	21.8	27.7	40.7	36.2				
QB2HYG	Mean	22.5	24.7	22.7	18.7	22.5	30.8	35.8	34.6	24	26	20	19
	SD	5.4	4.4	4.8	1.8	3.6	4.9	3.8	5.8				
	APV	17.1	20.3	17.9	16.9	18.9	25.9	32.0	28.8				
QB3HYG	Mean	23.5	22.3	20.6	16.8	22.7	30.6	34.2	33.7	23	25	19	17
	SD	4.3	4.2	3.7	2.4	4.0	3.5	3.8	6.1				
	APV	19.2	18.1	16.9	14.4	18.7	27.1	32.4	27.6				
PerCap	Mean	21.4	22.5	21.5	19.0	22.6	30.3	35.7	38.8	24	27	20	18
	SD	4.8	3.5	3.6	2.9	2.7	3.1	4.2	4.3				
	APV	16.6	19.0	17.9	16.1	19.9	27.2	31.5	34.5				

Noise-blocking earmuffs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Sync													
Sync Stereo	Mean	19.2	21.2	23.1	28.1	31.7	34.1	38.5	39.3	31	32	28	23
	SD	3.0	3.4	2.4	2.4	3.1	3.1	2.4	3.7				
	APV	16.2	17.8	20.7	25.7	28.6	31.0	36.1	35.6				
Sync Radio	Mean	19.0	22.6	26.3	29.8	29.0	37.2	37.3	-	29	29	27	23
	SD	3.0	2.3	2.0	1.5	2.3	2.7	3.7	-				
	APV	16.0	20.3	24.3	28.2	26.7	34.5	33.6	-				
Sync Electo	Mean	19.0	22.6	26.3	29.8	29.0	37.2	37.3	-	29	29	27	23
	SD	3.0	2.3	2.0	1.5	2.3	2.7	3.7	-				
	APV	16.0	20.3	24.3	28.2	26.7	34.5	33.6	-				

Attenuation data

Noise-blocking earmuffs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Clarity													
Clarity C1	Mean	12.6	15.7	23.9	27.8	23.3	25.8	29.0	31.0	25	24	22	20
	SD	4.5	3.3	2.7	2.8	2.9	2.0	3.0	2.6				
	APV	8.1	12.4	21.2	25.0	20.4	23.8	26.0	28.4				
Clarity C3	Mean	21.1	25.6	33.3	37.5	34.9	32.2	38.8	33.5	33	31	32	29
	SD	4.1	3.1	2.5	2.9	2.9	1.9	4.0	4.4				
	APV	17.0	22.4	30.8	34.6	32.0	30.3	34.8	29.1				
Clarity C2	Mean	16.9	20.7	29.5	32.2	31.0	32.1	35.8	31.1	30	30	29	25
	SD	4.4	3.1	3.2	2.3	2.7	2.0	3.5	3.8				
	APV	12.4	17.6	26.3	29.9	28.3	30.0	32.3	27.3				
Clarity C1F	Mean	12.8	14.9	24.2	27.7	25.2	28.6	29.3	28.7	26	25	24	19
	SD	4.0	3.8	3.8	2.6	2.1	2.9	3.4	4.2				
	APV	8.8	11.1	20.4	25.1	23.1	25.7	25.9	24.5				
Clarity C1H	Mean	12.9	15.3	22.1	24.6	24.5	29.5	29.3	33.5	26	26	23	19
	SD	4.0	3.0	3.0	2.3	2.6	2.9	2.7	3.2				
	APV	8.9	12.3	19.1	22.3	21.9	26.6	26.6	30.3				
Clarity C3H	Mean	15.4	22.8	27.4	31.3	30.5	28.2	35.0	34.6	30	28	28	24
	SD	3.5	4.3	3.2	2.8	1.8	2.3	3.6	3.0				
	APV	11.9	18.5	24.2	28.5	28.7	25.9	31.4	31.6				
Leightning													
Leightning L1	Mean	17.9	20.3	22.9	28.3	32.9	32.3	39.3	35.1	30	31	28	23
	SD	5.3	2.5	2.8	1.7	2.9	3.8	2.8	4.0				
	APV	12.6	17.8	20.1	26.6	30.0	28.5	36.5	31.1				
Leightning L2	Mean	30.0	20.1	24.5	39.3	34.4	32.4	35.9	35.6	31	31	29	23
	SD	4.5	4.0	2.9	3.2	2.6	3.0	2.6	3.2				
	APV	15.5	16.1	21.6	26.1	31.8	29.4	33.3	32.4				
Leightning L3	Mean	23.6	24.6	27.8	32.6	37.4	35.2	38.8	35.8	34	33	32	27
	SD	6.4	3.6	2.0	2.0	3.3	3.2	3.1	3.3				
	APV	17.2	21.0	25.8	30.6	34.1	32.0	35.7	32.5				
Leightning L3HV	Mean	23.6	24.6	27.8	32.6	37.4	35.2	38.8	35.8	34	33	32	27
	SD	6.4	3.6	2.0	2.0	3.3	3.2	3.1	3.3				
	APV	17.2	21.0	25.8	30.6	34.1	32.0	35.7	32.5				
Leightning L0F	Mean	-	13.2	19.7	21.7	25.0	29.1	35.1	40.0	25	27	21	17
	SD	-	3.0	3.7	2.8	3.5	2.5	2.3	2.6				
	APV	-	10.2	16.1	18.9	21.5	26.6	32.8	37.4				
Leightning L2F	Mean	19.6	21.1	25.8	30.5	35.7	33.6	37.8	37.3	32	32	30	24
	SD	4.3	3.6	2.1	2.6	3.0	3.1	2.7	3.6				
	APV	15.3	17.5	23.7	27.9	32.7	30.5	35.1	33.7				
Leightning L2FHV	Mean	19.6	21.1	25.8	30.5	35.7	33.6	37.8	37.3	32	32	30	24
	SD	4.3	3.6	2.1	2.6	3.0	3.1	2.7	3.6				
	APV	15.3	17.5	23.7	27.9	32.7	30.5	35.1	33.7				
Leightning L0N	Mean	-	10.7	17.2	19.9	22.0	26.6	35.6	39.9	22	24	19	14
	SD	-	4.3	4.1	1.8	3.5	4.4	3.1	3.0				
	APV	-	6.4	13.0	18.1	18.4	22.1	32.5	36.9				
Leightning L1N	Mean	18.3	17.9	21.9	27.9	32.7	32.1	35.4	35.8	29	31	27	21
	SD	5.5	3.5	3.2	3.0	2.9	2.9	3.5	3.8				
	APV	12.8	14.4	18.7	24.9	29.8	29.2	31.9	32.0				
Leightning L2N	Mean	18.3	18.0	24.3	29.8	35.4	34.9	35.3	34.5	31	31	29	22
	SD	3.9	2.9	2.9	1.8	2.8	4.4	3.0	4.4				
	APV	14.4	15.1	21.4	28.0	32.6	30.5	32.3	30.1				
Leightning L3N	Mean	21.0	21.6	37.8	32.1	36.5	32.4	38.3	37.4	32	31	31	26
	SD	3.5	3.2	2.8	2.3	3.0	3.6	4.1	5.0				
	APV	17.5	18.4	25.0	29.8	33.5	28.8	34.2	32.4				
Leightning L1H	Mean	14.3	17.6	21.6	25.1	32.6	32.9	36.6	35.5	28	31	25	19
	SD	4.1	3.8	3.9	4.4	3.4	3.1	4.8	3.9				
	APV	10.2	13.8	17.7	20.7	29.2	29.8	31.8	31.6				
Leightning L3H	Mean	17.5	22.3	25.3	29.0	34.9	31.8	37.9	34.6	31	30	29	24
	SD	3.6	3.6	2.6	2.6	3.0	3.2	4.3	3.6				
	APV	13.9	18.7	22.7	26.4	31.9	28.6	33.6	31.0				
Leightning L1HHV	Mean	14.3	17.6	21.6	25.1	32.6	32.9	36.6	35.5	28	31	25	19
	SD	4.1	3.8	3.9	4.4	3.4	3.1	4.8	3.9				
	APV	10.2	13.8	17.7	20.7	29.2	29.8	31.8	31.6				

Attenuation data

Noise-blocking earmuffs

Frequency in Hz		63	125	250	500	1000	2000	4000	8000	SNR	H	M	L
Thunder													
Thunder T1	Mean	16.4	18.3	23.3	26.6	32.9	33.8	36.0	37.9	30	32	28	21
	SD	5.4	4.3	2.7	2.6	2.3	2.9	2.3	3.2				
	APV	11.0	14.0	20.6	24.3	30.6	30.9	33.7	34.7				
Thunder T2	Mean	20.3	20.5	28.0	31.9	38.5	37.1	37.6	38.0	33	34	31	25
	SD	4.2	3.6	2.8	3.5	2.7	3.4	3.1	5.2				
	APV	16.1	16.9	25.2	28.4	35.8	33.7	34.5	32.8				
Thunder T3	Mean	21.5	23.6	30.8	34.6	40.3	38.3	43.1	40.3	36	37	34	26
	SD	3.6	5.3	4.5	3.0	2.2	3.4	3.4	3.6				
	APV	17.9	18.3	26.3	31.6	38.1	34.9	39.7	36.7				
Thunder T2HV	Mean	20.3	20.5	28.0	31.9	38.5	37.1	37.6	38.0	33	34	31	25
	SD	4.2	3.6	2.8	3.5	2.7	3.4	3.1	5.2				
	APV	16.1	16.9	25.2	28.4	35.8	33.7	34.5	32.8				
Thunder T1F	Mean	17.6	19.9	25.3	28.6	34.3	35.7	37.4	37.8	31	33	28	22
	SD	4.9	4.7	4.7	4.7	3.1	2.9	3.4	3.8				
	APV	12.7	15.2	20.6	23.9	31.2	32.8	34.0	34.0				
Thunder T1H	Mean	15.9	18.7	22.5	23.4	32.4	34.4	35.5	37.9	29	32	26	20
	SD	2.7	3.8	3.9	2.5	2.2	2.3	2.3	4.7				
	APV	13.2	14.9	18.6	20.9	30.2	32.1	33.2	33.2				
Thunder T2H	Mean	16.9	20.1	24.9	25.4	34.0	33.9	36.2	38.1	30	32	28	23
	SD	2.9	3.3	2.8	2.4	2.3	2.9	3.2	4.6				
	APV	14.0	16.8	22.1	23.0	31.0	31.0	33.0	33.5				
Viking													
Viking V1	Mean	17.9	14.1	20.6	25.8	32.0	32.1	33.7	34.4	30	32	28	21
	SD	2.4	2.3	3.1	2.5	2.8	2.5	3.1	2.5				
	APV	15.5	11.8	17.5	23.3	29.2	29.6	30.6	31.9				
Viking V3	Mean	16.3	20.0	24.6	29.8	36.0	33.9	38.3	37.3	32	33	30	24
	SD	2.9	2.3	1.6	2.1	2.8	2.9	2.3	4.0				
	APV	13.4	17.7	23.0	27.7	33.2	31.0	36.0	33.3				
Mach 1													
Mach 1	Mean	14.4	13.3	11.7	17.6	31.8	30.9	34.7	31.4	23	29	20	13
	SD	3.8	2.9	1.8	2.4	2.9	2.8	2.4	4.9				
	APV	10.6	10.4	9.9	15.2	28.9	28.1	32.3	26.5				
QM24+													
QM24+ Worn as a headband	Mean	14.0	10.6	16.2	24.1	31.2	31.4	31.4	35.4	26	29	23	15
	SD	3.9	2.9	2.5	3.2	3.2	2.7	3.0	3.6				
	APV	10.1	7.7	13.7	20.9	28.0	28.7	28.4	31.8				
QM24+ Worn behind the neck	Mean	10.5	11.3	15.9	24.3	32.6	32.9	32.5	34.5	25	30	23	14
	SD	4.5	3.8	2.6	2.7	4.3	3.7	3.9	3.3				
	APV	6.0	7.5	13.3	21.6	28.3	29.2	28.6	31.2				
QM24+ Worn under the chin	Mean	13.4	11.3	16.1	23.3	29.7	32.5	32.6	33.9	25	30	22	14
	SD	5.4	4.6	3.0	3.9	2.5	2.6	3.4	3.9				
	APV	8.0	6.7	13.1	19.4	27.2	29.9	29.2	30.0				
Impact													
Impact Sport	Mean	15.1	15.7	19.1	22.9	27.0	24.4	38.4	40.9	25	30	25	20
	SD	4.5	3.0	3.1	2.9	2.3	3.3	3.0	3.4				
	APV	10.7	12.7	15.9	20.0	24.7	21.1	35.4	37.5				
Impact Pro	Mean	21.1	22.6	26.9	32.0	37.1	33.8	35.6	38.0	33	32	31	26
	SD	5.5	3.5	2.3	1.8	1.7	3.6	2.9	3.2				
	APV	15.6	19.1	24.8	30.2	35.4	30.2	32.7	34.8				
Impact	Mean	-	15.5	21.6	29.7	28.5	30.5	39.3	42.7	28	30	25	20
	SD	-	2.1	2.8	3.8	3.6	2.7	4.6	3.7				
	APV	-	13.4	18.8	25.9	24.9	27.8	34.7	39.0				
Impact H	Mean	13.3	14.7	20.7	29.8	27.7	27.1	36.4	39.2	27	27	25	19
	SD	4.0	3.6	2.3	2.9	2.7	2.6	3.3	5.1				
	APV	9.3	11.1	18.4	26.9	25.0	24.5	33.1	34.1				