

JABRA SAFETONE™ - NOISE PROTECTION



Headsets are designed not only for sound quality and comfort, but also to protect the hearing of those who use them. This white paper is about the various sound levels, the personal protection offered by Jabra headsets and amplifier solutions with built-in SafeToneTM protection, and the standards and regulations that apply

NOISE PROTECTION

Contact center and office staff using headsets and who are on the phone for many hours each day face two potential hazards:

Sudden loud sounds
Sudden, very loud sounds from the headset can be
caused by disruptions in the telephone network. Users of
headsets without appropriate protection, can experience
so-called acoustic shock that can be very disturbing and
even affect their hearing.

A too high volume level in a users headset during a working day can lead to tiredness and stress, resulting in a drop in productivity and concentration.

EXAMPLES	SOUND PRESSUR LEVEL (DB
Jet aircraft, 50 m away	140
Threshold of pain	130
Threshold of discomfort	120
Chainsaw, 1 m distance	110
Disco, 1 m from speaker	100
Diesel truck, 10 m away	90
Kerbside of busy road, 5 m	80
Vacuum cleaner, distance 1 m	70
Conventional speech, 1 m	60
Average home	50
Quiet library	40
Quiet bedroom at night	30
Background in tv studio	20
Rustling leaf	10
Threshold of hearing	0

Fig.1: Typical sound levels from familiar sources.

JABRA SAFETONE™ -HEARING PROTECTION

JABRA OFFERS ACTIVE HEARING PROTECTION

Jabra delivers headset and amplifier solutions that protect the hearing and comfort of the headset user by eliminating sudden high levels of noise and by preventing a too high volume level during the working day.

SAFETONETM

Hearing protection

Jabra products with built-in SafeTone hearing protection offer PeakStop and Intellitone technology, enabling the user to find a comfortable level that ensures maximum benefit from the headset while ensuring a safe listening level.

PEAKSTOP™

Active removal of sudden loud sounds

All Jabra Contact Center and Office (CC&O) headsets are fitted with PeakStop that eliminates potentially harmful sound spikes. Based on an electronic gateway or transistor that reacts instantly, PeakStop actively protects the user by keeping the absolute sound level and the energy of the peak in the safe zone at all times, thus preventing potentially harmful sound from reaching the ear.

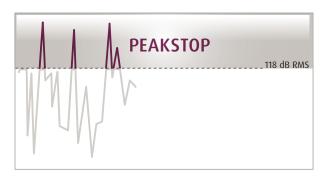


Fig. 2: PeakStop continuously monitors the sound flow and actively reduces critical sound peaks to a safe level.

INTELLITONE™

Keeping average noise exposure at a safe level

Jabra products with built in SafeTone technology offers Intellitone setting of the noise exposure control. The level of hearing protection offered by Intellitone ranges from PeakStop only, to levels assuring maximum exposure from the headset, to be safe and below levels defined in Noise at Work regulations for 1 hour on the phone per day - up to a full working day of 8 hours.



MEASURING NOISE EXPOSURE

Noise exposure for telephone users is defined as the sum of background noise plus signals received via the phone. Background noise in contact centers, however, does not contribute significantly to total exposure. This means that headset users normally experience only the output from the headset. One of the pitfalls, however, is that a contact center agent or employee may turn up the volume to counteract background noise. This means that attention should be paid to the general sound level in the contact center or office environment. When focusing on protection against extremely high sound levels, the two most important measurements are 'Maximum absolute peak value' and 'RMS' value.



ABSOLUTE PEAK VALUE

Jabra products operate well within global requirements for sound level exposure known as 'instantaneous maximum level in absolute peak value'.

Absolute peak value is the maximum level of sound that the earphone or receiver can deliver to the ear. Internationally, 140 dB(C) is accepted as the absolute peak value limit that the ear should be exposed to. All professional Jabra headsets conform to a maximum of 122 dB absolute peak value, which is significantly below the international standard.



Fig. 3: International and Jabra accepted peak values

RMS VALUE

RMS means 'Root Mean Square', an expression of the effective energy in the sound waves. The RMS value is used to define a standard for continuous sound as opposed to sudden sound peaks.

Leading EU and US authorities agree that 118 dB (RMS value) should be the maximum level for total sound exposure from a continuous sound. Built-in PeakStop™ technology means that all Jabra headsets meet this requirement limit.



Fig. 4: International and Jabra accepted peak value

ALL JABRA CC&O HEADSETS MEET LEGAL REQUIREMENTS

All Jabra headsets for Contact Centers and Offices (CC&O) meet legal requirements from national authorities and health authorities as well as recommendations from telecommunications specialists. Experienced acoustic experts from Jabra play an active role in acoustic safety specification work in international standardization organizations, such as the International Telecommunication Standardization Sector (ITU-T) and the European Telecommunications Standards Institute (ETSI).

STANDARDS AND REGULATIONS



In theory, noise exposure for telephone users is defined as the sum of background noise + signals received via the phone. In practice, the background noise in contact centers does not contribute significantly to total exposure, and exposure for headset users equals the output from the headset. However, it must be recognized that background noise can make a contact center agent turn up the volume in order to counteract the background noise. Therefore, attention should be paid to the general sound level in the office or contact center environment.

Exposure to noise levels much lower than defined as maximum peak value limits, can also affect your hearing if the exposure time is long enough. It is important to differentiate between the instantaneous peak levels and the long-term effect of the time weighted average exposure. This latter is measured over an 8-hour workday. The term average is important. A worker can be exposed to an average of 90dB for 1 hour every day with peak levels at 100dB without any problems, if he/she, for the remaining part of the day sits in an office with an average noise level of e.q. 75 dB.

EU noise at work directive "Directive 2003/10/EC) enforces an upper max exposure limit of 87 dB(A) (time weighted average over a full working day). And leading US authorities recommend the time-weighted average exposure limit for a working day not to exceed 85 dB(A) (time weighted average over a full working day).

According to the EU regulation, the upper exposure action value is also defined at 85 dB(A). If the upper exposure action value of e.g. 85dB(A) is exceeded, instant action must be taken. In a contact center, this could be done by providing the agent with a headset amplifier designed to help assuring a maximum average exposure below 85 dB(A) from the headset.

AUSTRALIAN REGULATIONS AND GUIDELINES

The mandatory regulatory requirements in Australia for telecommunications equipment can be found in AS/CA S004. This follows the international guidelines for maximum sound pressure levels: 118 dBA SPL (RMS) at ERP. And 123 dB SPL peak at ERP.

Australian research and standardization work within audio and telecommunication has focused a lot on avoiding hearing damage. This has – beside the regulatory requirements – let to publication Industry Guideline G616. The guideline does not provide any mandatory requirements. As such compliance with G616 cannot be claimed as it is only providing guidance and is not a Standard.

The publication describes guidelines and test specifications for telecommunication equipment that further protects the health and safety of persons. In the case of headsets, the publication recommends an Acoustic Shock Protective Device Limit at 102 dB SPL RMS measured at DRP for all frequencies.

WP_SAFETONE_50144_V03_1503

ACTIVE IN INTERNATIONAL STANDARDIZATION

Jabra is an active partner in the international standardization of acoustic safety in telecommunication equipment. Our experienced acoustic experts are invited by international standardization organizations such as the International Telecommunication Standardization Sector (ITU-T) and the European Telecommunications Standards Institute (ETSI) participate actively in acoustic safety specification work.

Our participation helps to ensure that pertinent requirements serve and protect headset users and correspond to recommendations agreed upon by health authorities and hearing experts.

Jabra professional headsets comply with - and often surpass - the strictest regulations and standards in the world.

FIND OUT MORE

Different working environments demand different hearing protection solutions. The Jabra range of headsets for Contact Centers and Offices offers a wide choice of hearing protection technology covering virtually any requirement.

To find out more about which Jabra headset solutions and hearing protection technologies are relevant for specific working environments, please contact Jabra at one of the following touch points:

Contact online:

http://www.jabra.com/ServiceMenu/contact

 Website:
 www.jabra.com

 Phone:
 +45 4575 8888

Address: Lautrupbjerg 7, DK-2750 Ballerup

For more information about noise at work regulations and directives, please visit these web sites:

Jabra product portfolio with PeakStop, SafeTone and G616:

http://www.jabra.com/hearingprotection

European Agency for Safety and Health at Work: http://osha.europa.eu/en/publications/magazine/8

An Introduction to Noise at Work:

http://osha.europa.eu/en/publications/factsheets/56

ABOUT JABRA

Jabra is the brand of GN Netcom, a subsidiary of GN Store Nord A/S (GN) - listed on NASDAQ OMX. Jabra employs approximately 950 people worldwide and in 2014 produced an annual revenue which amounted to DKK 2,871 million. Jabra is a world leader in the development, manufacturing, and marketing of a broad range of communications and audio solutions. With a reputation for innovation, reliability, and ease of use that goes back more than two decades, Jabra's consumer and business divisions produce corded and wireless headsets, plus mobile and in-office speakerphones that empower individuals and businesses through increased freedom of movement, comfort, and functionality.