



# 5 Steps to Controlling Workplace Noise

## Pulsar Instruments' Guide for Employers

**According to the HSE, over one million employees in Great Britain are exposed to levels of noise which put their hearing at risk.**

### How does it affect you?

Noise induced hearing loss (NIHL) is one of the most prevalent, but often ignored, risks in the workplace and employees must, by law, be protected.

Once noise-induced hearing loss has taken place, it is irreversible. Clearly prevention is the most sensible option here as, currently, 1 in 7 of the UK population are either deaf or hard of hearing.

The increasing 'claim culture' dictates that employers must comply with their legal duties as detailed in the 'Control of Noise at Work Regulations 2005'. These regulations reduced the previous action levels and also introduced 'Legal Limits' for daily noise exposure. These changes were driven by a European Directive in a long term attempt to eliminate noise induced hearing loss in the workplace. It is worth noting that in 2011, 150 new claims for Noise-Induced Hearing Loss disablement benefit were assessed. (IIDB)

This brief provides some very basic guidance for companies who are making efforts to control their own noise problems.

### What are your duties as an employer?

#### Step 1

Firstly, you need to establish whether there are any noise hazards within your workplace.

This can be achieved through a combination of your knowledge of work practices, making straightforward observations and taking some simple noise measurements in areas you suspect may present a risk.

Even at this stage you should use an Acoustic Calibrator to calibrate your sound level meter before and after each measurement session and record your measurements.

#### Step 2

Having found out which areas may be a noise hazard, you need to identify all employees who could be at risk.

Evaluate how harm may occur, for instance damage to hearing, deafness, tinnitus, impaired communication and inability to hear audible alarms.

Also, take into consideration susceptible employees or those that already have an existing hearing condition.

#### Step 3

Talk with the employees to find out their typical work routine. A more detailed series of individual noise measurements is required to determine the typical exposures of those at risk.

You then have a choice of measurement methods.

#### Integrating Averaging Sound Level Meter

The person carrying out these measurements should have sufficient skills to be competent for the task and use a suitable sound level meter. Ideally, it should be compliant to BS EN 61672-1:2003 Class 1 or Class 2 and from a reputable manufacturer.

Representative 'A' weighted average noise level readings (correctly written as LAeq) are taken for each 'task' undertaken by an employee and then, using either software, mathematical formulae or the HSE exposure calculator spreadsheet (available from [www.hse.gov.uk/noise/calculator.htm](http://www.hse.gov.uk/noise/calculator.htm)), determine an individual's exposure level.



In Figure 1 below, all of the exposures have a value of 80dB(A) but the duration of the respective 'tasks' has varied greatly. The 80dB(A) exposure equates to an exposure that just puts the worker into the Lower Action Level category.

**Figure 1 – Noise levels and their exposure levels relative to time**

Noise Level dB(A)	Duration	Exposure Level dB(A)
80	8 hours	80
83	4 hours	80
86	2 hours	80
89	1 hour	80
92	30 mins	80

The 'A' frequency filter is applied by sound measurement instruments in an attempt to replicate the response of the human ear to noise so that we can accurately determine the level of risk rather than the actual true noise level itself.

### Personal Noise Dosimeter

If a handheld meter is not the right option for your organisation, a dosimeter can be worn by a worker during their entire shift.

The dosimeter is usually worn on the shoulder of the person being monitored and measures the noise levels they are exposed to throughout their working day.



This methodology is particularly effective for workers with unpredictable shift patterns, those constantly on the move, or people working in confined or difficult to access areas (vehicle cabins, emergency services, construction workers, mining industry or maintenance staff for example).

Often forgotten is the necessity to assess the risk from any impulsive noise (sudden very loud bangs and crashes) which is done by making a 'C' weighted Peak measurement (LCpeak). Most modern sound level meters and dosimeters will measure both the LAeq and LCpeak simultaneously.

Having made and evaluated your measurements, a Noise Control Action Plan is required. This plan is the most important part of the whole survey process and should demonstrate that you are taking the necessary steps to control the identified risks.

Once an action level has been reached, a corresponding set of actions need to be implemented. Refer to the publication 'Controlling noise at work' by the HSE for full information or contact Pulsar Instruments plc directly for a summary sheet. Contact details are at the end of this article.

The action levels for impulsive noise are 135dB(C) and 137dB(C) respectively with the legal limit being 140dB(C). See Figure 2 below for more information.

Your plan should include a list of prioritised actions to solve immediate risks and to give consideration to your general duty to reduce noise levels in the workplace.

Where noise can't be reduced at source, suitable hearing protection is required which must be made available to all workers at risk.

Arrangements must be made to provide information, instruction and training to both management and workforce with respect to the risks and how to minimise and control them.

For any levels where exposures of 85dB or above are Likely, a programme of health surveillance must be introduced to monitor the hearing condition of the employees involved.

**Figure 2 – Current levels and limits of an 8 hour period**

Current Levels of Limits	dB(A)
Lower Exposure Action Values	80 daily or weekly <sup>1</sup>
Upper Exposure Action Values	85 daily or weekly <sup>2</sup>
Legal Limit	87 daily or weekly <sup>3</sup>

<sup>1</sup> Peak sound pressure of 135dB

<sup>2</sup> peak sound pressure of 137dB

<sup>3</sup> peak sound pressure of 140dB

### Step 4

All the above findings should be used to create a clear report which should be in a style and format that could be easily referenced in the future. This will provide permanent evidence of the decisions you have taken to comply with the law.

- Document findings of survey (including noise measurements)
- Identify extent of Noise Hazard Areas
- Details of placement of warning signs
- Prescription of suitable hearing protection where required
- Details of Education / Training program for the workforce
- 'Buy Quiet' purchasing policy Health Surveillance records
- Company Noise Policy
- The prioritised measures to be taken to control noise levels themselves rather than reliance on PPE.
- (Engineering solutions, enclosures, breaking noise transmission paths, use of absorptive materials etc).

## Step 5

The effectiveness of your noise control programme should be regularly reviewed. This will be necessary if new equipment has been introduced or there have been changes to the 'shop floor' layout or working hours.

For those companies with workers receiving exposures of 85dB(A) or above, your health surveillance programme should highlight any workers whose hearing deteriorates due to inadequacies in your noise control programme.



Given the brief nature of this document, we can only give very basic guidance. For those requiring more in depth information or indeed training on this matter, please contact Pulsar Instruments.

A variety of high quality competency courses are regularly presented by organisations such as IOSH and the Institute of Acoustics. Shorter focused one day courses are available for those wishing to get a solid introduction to noise risk assessments or to reinforce or revise their existing skills.

### Contact details:

Pulsar Instruments plc, the Evron Centre, John Street, Filey, North Yorkshire, YO14 9DW.

Tel: + 44 1723 518011

Fax: +44 1723 518043

Email: [sales@pulsarinstruments.com](mailto:sales@pulsarinstruments.com)

Website: [www.pulsarinstruments.com](http://www.pulsarinstruments.com) Twitter: @PulsarMeters



## Case Study

An instrument technician who endured years of tinnitus and partial deafness blasted businesses which fail to take steps to prevent workers from suffering noise-induced hearing loss after winning a battle for compensation.

The man who also worked as an electrician for the same company was not given protective equipment until 2000.

He was awarded a four-figure payout after he was fitted with hearing aids in both ears.

He said: "[For years] The working environment was always so noisy as there was about 40 to 50 people working on the factory floor all operating heavy machinery at once.

"It was impossible to hear someone over the racket if they were speaking normally and I always had to shout and raise my voice to communicate with anyone.

"During my employment I started to suffer from tinnitus at least a few times a week, which is really painful and stops me in my tracks until it subsides.

"My wife also started to notice because I was regularly turning the television up loudly, I was constantly missing what people were saying, or the phone ringing."

