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# the Measure

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Keeping you up-to-date with the world of **noise measurement**

## Welcome

Welcome to the Autumn issue of *The Measure*, the newsletter from Cirrus Research.

It has been a busy few months since our last newsletter with plenty of activity in our R&D department. We will keep you updated over the coming months on exciting developments that are happening right now.

We have some great articles for you to read, as well as a packed calendar of events highlighting where Cirrus Research will be appearing or exhibiting over the next 12 months.

**Focus on...** introduces an interesting case study that took place at Ilmor Engineering in Northampton where Health and Safety advisors used our Optimus Red and doseBadge to assess noise risk after new machinery needed to be installed to meet a big contract. As one of the world's top engine design and manufacturers, Ilmor Engineering's noise levels are an everyday issue that have to be constantly monitored and addressed, so we were delighted that it was Cirrus Research equipment that was chosen for this important piece of research and data collating.

On a lighter note, Cirrus Research was also asked to be the official noise monitors for a Guinness World Record attempt in Bridlington over the summer for the World's Loudest Shout. Go to the back page to see whether Bridlington Town Crier David Hinde was successful with his loudest ever shout out!

Don't forget, if you've missed a previous issue of *The Measure* they are available to download from the Cirrus website at [www.cirrusresearch.co.uk/library](http://www.cirrusresearch.co.uk/library).

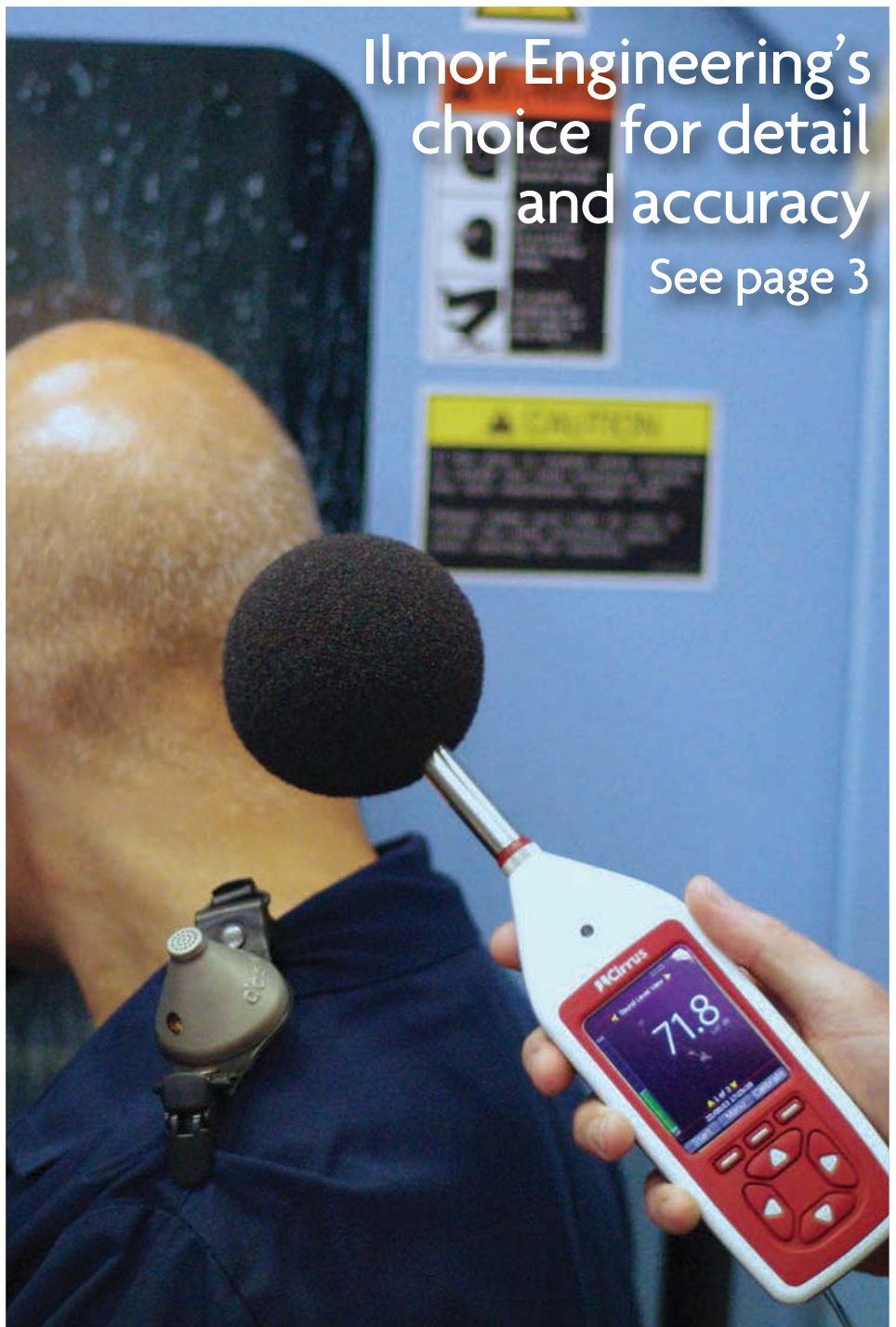
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### Did you know...?

The average noise level in some hospital wards not only impedes healing, but could legally require hearing protection.

Ilmor Engineering's  
 choice for detail  
 and accuracy

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## Have you heard...?

... about our 15 year warranty?

Cirrus Research is delighted to announce that we are still the only UK manufacturer to offer a 15 year warranty on all our new noise measurement products.



The exceptional cover starts with a two year 'return to base' warranty against all faults but can be extended, one year at a time up to a maximum of 15 years, as long as the products are calibrated annually by Cirrus Research.

The guarantee covers all noise measurement and acoustic equipment and is available at no additional, upfront, cost.

*"It doesn't matter if the damage has been caused accidentally or by some kind of failure, we will mend or replace it,"* says Marketing Manager James Tingay.

The Warranty's full Terms & Conditions are available online at [www.cirrusresearch.co.uk](http://www.cirrusresearch.co.uk)

# The Optimus Red sound level meter – in a class 2 all of its own

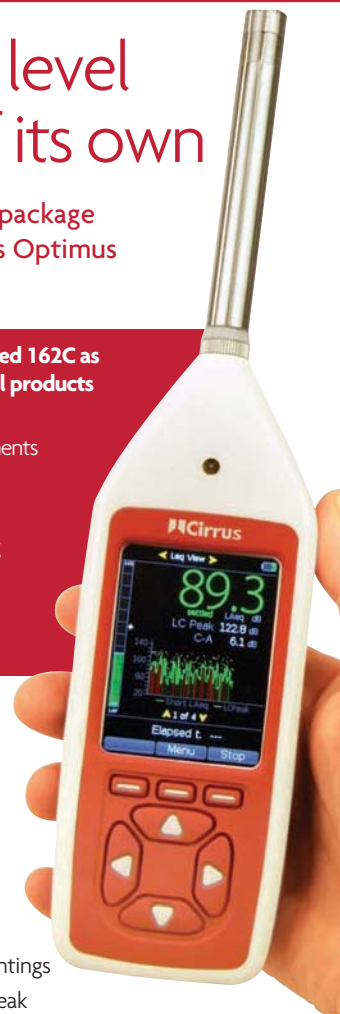
Cirrus Research is offering a 'One Product/One Price' package that covers all Noise at Work requirements through its Optimus Red noise measurement meters.

With no hidden extras and no hidden costs, the Optimus Red can claim to be the industry leading product that covers ALL areas of UK and European Noise at Work legislation, giving you peace of mind when you're looking for a Class 2 sound level meter.



Included in the Optimus Red 162C as standard but on other rival products as 'extras' are:

- Data logging of measurements and calibration records
- 1:1 octave filters
- Voice Tag audio recording
- Single Timer
- TWA/Dose



Other advantages offered by the Optimus Red range include:

- 15 year 'no quibble' warranty that also covers accidental damage
- Membership of the Cirrus Research dBAdvantage card scheme with over £1,000 of extra benefits and training over three years\*
- Three independent integrators for every function to meet UK, EU, OSHA, MSHA or ACGIH – all at the same time
- Real-time 1:1 octave band filters (C version)
- Simultaneous measurement of dB(A), dB(C) and dB(Z) frequency weightings
- 120dB measurement span all the way up to 140dB(A) and 143dB(C) peak
- 4GB memory capable of storing hundreds of measurements (B, C and D versions)
- Licence free installation of the NoiseTools software with free, lifetime updates

\* Terms and conditions apply



## Did you know...?

The dBAdvantage card is back!

Due to popular demand, Cirrus Research is relaunching its dBAdvantage card, offering more than £1,000 of benefits to its' clients.\*

The scheme, with its' distinctive 'credit card', allocates each customer a unique PIN number which can be used to claim hundreds of pounds of free services and discounts each year. Membership lasts for three years and can then be renewed after that if you are still an existing Cirrus Research customer.

The dBAdvantage card now entitles the members to 50% off the platinum calibration service, 10% off calibration of your Cirrus equipment and a FREE product training course each year worth £250.



\* Terms and conditions apply

## Ask The Noise Doctor...



What is...  $L_{AE}$ ?



Two of the questions that we've been asked recently are "What is this function that I see on my sound level meter?" and "Where has the SEL gone?"

Modern sound level meters, such as the Optimus, are designed to meet the latest standards such as IEC 61672-1 Edition 2 2013-09 and in these standards there are definitions for the different parameters that we show on the instrument.

Older sound level meters would usually have shown Sound Exposure Level as SEL but in the new standards, this has been replaced by  $L_{AE}$ .

Although this looks a little less clear, it is in fact a better way of showing what the function is. We can see that the measurement was the  $L_E$  (Sound Exposure Level) and in this case, we are looking at the Sound Exposure Level using A-weighting. This gives us the  $L_{AE}$  descriptor.

If we were looking at the Sound Exposure Level using C-weighting, this would be shown as  $L_{CE}$ .

We'll be starting a series of "What is..." on the Cirrus blog shortly so keep a look out and make sure you are subscribed to get blog updates.



Follow the Noise Doctor on Twitter @TheNoiseDoc





## Focus on... The doseBadge and Optimus Red

# Ilmor Engineering's choice for detail and accuracy



As one of the world's top racing engine design and manufacturers, noise levels in the workplace have always been an issue for Ilmor Engineering. But when they won a large contract with the US giant General Motors to design and manufacture a new turbo-charged V6 racing engine for the 2012 IndyCar championship, its managers knew immediately this would result in significantly increased production as well as noise levels across the manufacturing and testing departments.

At the time, the company's existing noise management system split the factory into 'Zones' based upon the noise exposure levels. The main machine shop was mostly Zone 0 – or where noise levels are below action level 1 / 80dB(A).

The new contract meant additional machine tools had to be installed in the main machine shop adding to the noise background levels. These additions also speeded up the production rate but had the potential to 'tip' some of the machine operators working in Zone 0 into exposure above 80dB(A).

Nick Phillips, Ilmor Engineering's Manufacturing Manager explained: "When employees are loading and unloading work into the machine, an air gun is used to blow the swarf and excess cutting fluid from the machine. This generates very high levels of noise, albeit of short duration, so hearing protection was used by our operators to control their levels of exposure to noise."

To determine whether Ilmor Engineering workers were being exposed to noise levels above 80dB(A) a repeat occupational noise exposure survey was carried out using a Cirrus Research doseBadge®.

"The doseBadge is a wireless personal noise dosimeter, ideal to be used to carry out noise measurements in occupational and industrial hygiene and so provide a unique solution to these applications," added Nick.

By using a doseBadge, accurate measurements and recording of employees' long term exposure to noise were tracked and analysed as that poses the greatest risk to an employees' hearing and physical state.

The doseBadge can be set up to meet almost every occupational or industrial hygiene noise measurement standard, as well as the EU Physical Agents Directive and the 2005 Control of Noise at Work Regulations (UK).

From the measurements taken during the workers' shift at Ilmor Engineering, it was found that there were several points throughout the day where their noise exposure levels would greatly exceed that of 80dB(A), for example, at one point their noise exposure reached 110dB(A).



As an interim measure, Ilmor issued immediate instructions to those operators directly affected to wear their existing hearing protection for the complete shift, not just when loading and unloading work.

After analysing the graphical traces produced by the doseBadge, it was also suspected that the principle reason for the rise was due to the increased use of the air guns and associated high levels of noise they produce.

A more detailed investigation into the noise generated by air guns was undertaken using a Cirrus Optimus Red sound level meter which enabled measurements to be taken of the instantaneous peaks and at a range of different frequencies.

By using a doseBadge, accurate measurements and recording of employees' long term exposure to noise were tracked and analysed.

The Optimus Red was ideal for this manufacturing environment with a clear, high resolution OLED colour screen, a wide 120dB measurement span, up to 140dB(A) and 143dB(C) Peak and simultaneous measurement of all available parameters.

The results gathered from the Optimus sound level meter survey were relatively similar to those previously recorded but the main difference was the fact that there were significantly more occurrences of the air gun being used per shift and the noise was affecting nearby operators.

Due to the logarithmic nature of noise exposure, it only takes a few extremely high levels of relatively short bursts of sound, lasting for seconds not minutes, to make a significant impact on an operator's overall daily exposure. For example, exposure to noise levels of 107dB would mean an operator would receive their daily dose in little over 3 minutes. So, the increased exposure levels recorded by the doseBadge were directly caused by the increased rate of production and directly attributable to the increased use of air guns.

### Accuracy

Thanks to the very detailed and accurate information provided by both the doseBadge and Optimus Red sound level meter, Ilmor Engineering was able to investigate and modify its manufacturing processes, taking noise levels back down to previous levels.

Nick Phillips concludes: "Without the use of Cirrus Research's noise measuring equipment, we wouldn't have been able to find out the extent of the levels of noise our employees were being exposed to. The equipment was easy to set-up and use and, of course, gave the readings and results that we needed to manage the workforce's noise exposure and to implement appropriate hearing protection. The Optimus Red and doseBadge contributed to us fulfilling our responsibility towards the environment and employees, ensuring noise produced by our activities was minimised."

As an industry leader, all of its products are manufactured in the UK and are used in a wide range of different applications within the construction, transport, aviation, manufacturing and leisure and sport sectors.

Cirrus is part of the British Safety Industry Federation's Registered Safety Supplier Scheme, identifying its organisation and products as 'genuine and safe', assuring customers that the products supplied are genuine, properly tested and certificated. Cirrus Research is an ISO 9001:2008 and ISO 14001:2004 Registered Company.

For more information please visit:

[www.cirrusresearch.co.uk](http://www.cirrusresearch.co.uk)



# Oyez! Oyez!

## Cirrus records loudest cry

**Cirrus Research were called upon to record a Guinness World Record (GWR) bid for the World's Loudest Shout recently with ear splitting results!**

Bridlington Town Crier David Hinde was aiming for the record of the World's Loudest Shout, currently held by Northern Ireland school teacher Annalisa Flanagan, shouting the word 'Quiet' at 121 Decibels (dB).

David asked Cirrus Research to be his official independent verifiers on the day and we used the

Optimus Green sound level meter; ideal for the job.

The current record of the loudest town crier has been held since 1991 by Gloucester Crier Alan Myatt recorded at 112.8dB. GWR has since changed its criteria so unfortunately this defunct category can no longer be challenged.

Whilst David didn't quite manage to break the existing loudest shout World Record, he can claim to be the loudest town crier in the UK, beating the old 112.8dB record with an ear splitting 114.8dB!

[www.cirrusresearch.co.uk/blog](http://www.cirrusresearch.co.uk/blog)

## Health and Safety North

The sales and marketing team had a great event at this year's Health and Safety North at The Bolton Arena Oct 9-10. The Noise Doctor advisory service was particularly popular offering a three-step remedy for noise monitoring issues.

The Noise Doctors themselves – in their distinctive white medical coats – were on hand to answer questions directly from delegates as well as showcasing a general range of advice, products and support services.

Attracting a lot of attention was the Optimus range of high performance sound level meters, as well as the doseBadge, the original wireless personal noise dosimeter for occupational noise.



### Events in 2013-14

**November 5-8, 2013**

A+A Safety, Security and Health at Work, Düsseldorf, Germany

**February 25-28, 2014**

SiCUR 2014, Madrid, Spain

**June 2-4, 2014**

AIHce 2014, San Antonio, Texas

**June 8-11, 2014**

ASSE 2014, Orlando, Florida

**June 17-19, 2014**

Safety & Health Expo 2014, Excel, London

**September 15-17, 2014**

NSC 2014, San Diego, California

**November 16-19, 2014**

Internoise 2014, Melbourne, Australia

## UK's noisiest job

Ever wondered which were really the noisiest jobs in Britain today? New research has revealed some surprising results.

Whilst some jobs such as airport ground staff are right in there in the No 1 slot, other not so obvious noisy careers have featured in the Top Ten.



### UK's noisiest jobs

1. Airport ground staff – 140dB
2. Formula 1 drivers – 135dB
3. Construction workers – 120dB
4. Nightclub workers – 115dB
5. Rock stars – 110dB
6. Factory and farm workers – 105dB
7. Classical musicians – 95dB
8. Motorcycle courier – 90dB
9. Commuter music – 85dB
10. Nursery worker or teacher – 85dB

The research was conducted by Echo Barrier.



### Cirrus Product Training Courses

**Thursday 10th October 2013**  
Castle Combe Circuit, Wiltshire

**Wednesday 23rd October 2013**  
Oulton Park Circuit, Cheshire

**Tuesday 12th November 2013**  
The East Midlands Conference Centre

**Tuesday 19th November 2013**  
Brands Hatch Circuit, Kent

**Cirrus Research plc**, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire YO14 0PH United Kingdom



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