Issue07: Autumn 2014

the Measure

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

In This Issue:

Cirrus Research plc
dedicated to noise measurement

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Welcome

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

There have been a lot of developments taking place across Cirrus Research this year and we have some new faces to welcome to the business. As a result, I am now going to be moving into a new role on the product development side of the business so this will be my last newsletter as Editor. I am, however, delighted to introduce Thomas Shelton as the new Marketing Manager of Cirrus Research and new *The Measure* Editor.

The main article in this issue is an in-depth look at how the Optimus® Red sound level meter, along with the doseBadge, helped the noise experts at Glastonbury Festival keep a lid on acoustic issues at the world famous event. This was just one of several UK festivals where Cirrus products led the way on noise monitoring but they don't come any bigger than Glastonbury!

We have a brief look at the proposed changes surrounding the BS4142 British Standard and what it may mean for noise consultants in the future. We also have the round up of the latest training and exhibition dates to look forward to for the rest of 2014.

I hope you enjoy this issue and I am sure Thomas will have some new topics to highlight in our next newsletter later this year. 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.

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Did you know...?

22.5 million Europeans suffer from hearing impairment.

doseBadge® and Optimus® Red – experts in their field!

See page 3

Did you know...?

Prevention is better than cure!

On average 20% of European workers are exposed to preventable noise within their workplace and in the US a staggering 30 million workers are exposed to hazardous noise according to official figures.

FACTFILE:

- 22.5 million Europeans suffer from hearing impairment
- 2 million are profoundly deaf
- The financial cost for Europe on hearing impairment is 78bn euros per year
- Around 15% of workers in EU new member states are estimated to be exposed to noise so loud that they have to raise their voices to talk at work
- Hearing loss is the third most common chronic disability after arthritis and hypertension.

When does artistic licence become noise nuisance?

An interesting debate has come to light on noise nuisance with an unholy row brewing in Bath of all places.

Visitors to the historic city have been complaining about the noise created by street musicians in and around the ancient Bath Abbey and the Council is now stepping in – and not so lightly either.

It seems the ancient tradition of the choral evensong service was halted after buskers could be heard above the sound of the Bible reading and threatened to disrupt the choir.

The Rector of Bath Abbey claimed the buskers and their battery-powered amplifiers had been infringing the rights, not only of worshippers but the entire city, to a bit of peace and quiet. The Council then joined in and now threatens to use new anti-social behaviour laws coming into force to try to ban amplified music around the abbey.

Bath and North East Somerset Council hope the Anti-social Behaviour, Crime and Policing Act, which comes into force later this year, may help dim the din.

So, it seems the busking battle lines are being drawn but who and how can you decide if the love of one type of music should take precedence over another?

We have started a Twitter debate on the issue and would like to hear your views – go to **@cirrusresearch** to join in.

Ask The Noise Doctor...

Q BS4142 – Are there changes coming to this British Standard?

A In Britain, the British Standard BS4142 is the primary tool of noise consultants in determining potential noise effects on residential areas from industrial activity.

The proposed changes that were circulated earlier this year could have a profound effect on the future outcome of a BS4142 assessment, as key elements centre around calculations and predictions of complaints due to industrial noise emissions when compared to background noise.

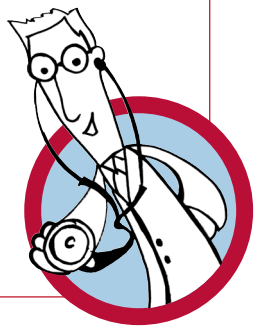
Currently the rated noise level is a combination of the noise solely emitted by the industrial noise source being investigated and an acoustic penalty is applied for specific noise characteristics; including whether it is tonal, impulsive and irregular enough to attract attention.

The difference between the rated noise level and the background noise level is used by the Standard to indicate the likelihood of complaints with a difference of 10dB or more indicating that complaints are likely.

The proposals included:

- An increase in scope to include the assessment of new sensitive receivers in proximity to existing industrial operations.
- Separate tonal and impulsive characteristic penalties (up to 6dB and 9dB respectively) which are applied in combination for the maximum correction of up to 15dB. This is compared to the 5dB in the previous BS4142 revision.
- Detailed methods to determine whether noise emissions are tonal or impulsive elements.

If implemented, the proposed changes will significantly increase the complexity of a B4142 assessment method.



Follow the Noise Doctor on **Twitter @cirrusresearch**

Focus on... The doseBadge and Optimus Red

doseBadge® and Optimus® Red – experts in their field!

The largest greenfield festival in the world posed a challenge where innovative tactics were employed to ensure that noise measurements were accurate and valid.

End user

Richard Willson, Noise at Work Consultant for TESS, The Event Safety Shop.

Richard is one of the UK's most experienced festival noise specialists having worked on some of the UK's most prestigious events such as Glastonbury, Latitude, Leeds & Reading Festivals, Festival Republic and BBC events.

Location

2014 Glastonbury Festival, Pilton, Somerset.

Application

To ensure that noise levels were monitored and that the 2005 Control of Noise at Work Regulations and site noise limits were adhered to, safeguarding the well-being of festival employees and concession staff during the 5 day music and performing arts festival.

Issues

The sheer size of Glastonbury covering some 900 acres as the largest greenfield festival in the world, posed a challenge with Richard employing some innovative tactics to ensure his noise measurements were accurate and valid. With 200,000 festival goers and approximately 60,000 staff on site, Richard also had to use all of his negotiation skills to enforce compliance and understanding of noise levels as a serious health issue.

The project in Richard's words

"Recent changes to the Noise at Work regulations meant that they now apply to festivals so my work begins with a visual survey of the site to pinpoint where we see a need for ear protection in noise hot spots and estimate how many staff will need ear plugs or other protection. We aim to have over 70% compliance as a general rule of thumb at any one time and this would cover everyone from festival staff, traders and concession employees.

Using the data, we create a noise map of the site and then work up red, amber and green zones which range from constant noise levels that require mandatory ear protection to be worn, through to warnings of intermittent excess noise or low risk areas.

One of the top 5 noisiest jobs

You have some areas that are obvious red zones such as The Pit at the front of the stage where security and medical staff are based. Normally, a festival will start around 11am and go through to maybe 1am the following morning. There is some down time when the roadies are changing sets but other than that there will be very high noise levels in this area and anyone based there will be suffering from long term exposure. Fortunately the security staff are very experienced and understand the risks. Roadies and the musicians are also at risk, so much so, their jobs are listed as one of the top 5 noisiest in the UK – that's alongside jobs such as airport ground staff and construction workers.

The awareness of noise is increasing but we still have issues persuading other personnel on the site of the risks of noise levels for their staff, for example, with some of the bar concessions further away from the main stage but who have their own sound and PA systems in confined spaces.

We understand that they want to have the music on loud to create an ambience and attract people in but they also have to understand the damage it can cause to people's hearing. Hearing damage and loss is a very serious condition and sufferers of tinnitus have been known to commit suicide because of the misery it causes. With this kind of situation we have to negotiate and persuade, but we also understand it is problematic if bar staff wearing ear plugs can't hear the customers properly. The data we collect from the doseBadge® and using the Optimus® Red sound level meter gives us the evidence we need to make the case and we are able to show the high level readings and come up with a solution.

At this type of festival, you can regularly expect noise levels to exceed 110 dBA and you need to understand the risks that brings. Having said that, you also need to be aware of the variances expected during a festival day or weekend. You wouldn't expect Dolly Parton on the main stage who would be quite mellow to be as loud as, say, Metallica. There has to be a lot of common sense applied.

Challenges

But every festival is different and the sheer size of Glastonbury poses a problem. It might take me two hours just to walk around the site to put the doseBadges® in place. We then need at least six hours of recordings and then it would take me another two hours to go around and collect them all in again before we can download and analyse the results.

Fortunately, having used the doseBadge® and Optimus® Red for several years now I know they are very robust and they have never failed on me. I have to leave the doseBadges® in all kinds of places around the site, but they work in all weathers – very handy with the British summers! The screens and readings are easy to see, whether it is during the day or getting on into the evening; which is important as we take readings at all times of the day and night. The software is also very user friendly and simple to operate which is important as you need a really quick way to get the job done, often working at breakneck speed.

> "I have to leave the doseBadges® in all kinds of places around the site, but they work in all weathers."

Overall, festival management are becoming more aware of the Noise at Work regulations and how it applies to their event. They need to be able to understand the data we collate and see it as clear evidence. The same applies for Local Authorities who are pushing compliance more and more at these type of events as they take place within their region."

Pictured: James Tingay with Hearing Dog Nina at their training centre in Bielby, North Yorkshire.

Cirrus' £250 donation sets tails wagging

Cirrus Research Marketing Manager James Tingay was delighted to send a cheque for £250 to Hearing Dogs for the Deaf recently.

The money was raised through a 'Noise Challenge' on the Cirrus Research stand at the SHExpo in London earlier this summer. For every delegate who entered the noise-based quiz, £1 was donated to the company's chosen charity.

Hearing Dogs for Deaf People is a national charity that trains dogs to alert deaf people to important sounds and danger signals in the home, work place and public buildings. This allows them greater independence, confidence and companionship throughout their lives.

Said James: "We had an amazingly busy time at the SHExpo this year over the three days and it helped to translate into a sizeable donation for The Hearing Dogs. This is the second year we have supported this superb charity and we hope to be making further donations to them over the coming months to support their superb work."

Noise Pollution – more than just an inconvenience

A raft of new global studies are all pointing to how noise pollution can seriously affect your health – and you don't need to be living directly under a flight path to be affected.

Separate studies carried out over recent years claim to have found links that noise pollution can affect everything from your waist size to the weight of unborn babies and even the recovery rate of ICU patients.

In a four-year project published recently researchers in Sweden found that the louder the traffic noise to which people in different parts of Stockholm were exposed, the greater the increase in their waist size – nearly a 1cm increase for every 10dB rise in the noise levels.

A similar study last year by the Imperial College London found that being exposed to higher levels of aircraft noise around Heathrow raised the risk of admission to hospital for heart disease by 20 per cent.

Increasing evidence is now emerging that shows this damage isn't just to our ears, but to our blood vessels and hearts as well. Nor is this just a problem for people who live near busy roads or under flight paths.

Of course, the most common response to noise exposure is annoyance. But while this may be limited to making you feel stressed or exhausted, a major review published in the Lancet last year showed it can also disturb sleep and increase the risk of hypertension and cardiovascular disease.

At night, heavy traffic is a major cause of insomnia, with all the knock-on effects of missing out on the restorative phase of sleep, such as depression, weight gain, raised blood sugar levels as well as daytime sleepiness. The result can be an increased risk of type 2 diabetes and heart disease.

The effect of noise stress isn't just limited to making us physically ill, it can also make it harder to concentrate, especially for children. The background noise in the classroom shouldn't be more than 35dB, but that can be doubled by cars passing by or planes overhead. Research shows heavy traffic or being under a flight path is linked with learning more slowly. The children pay less attention or become more annoyed.

Events in 2014

October 7, 2014
CIEH National Conference & Exhibition
Nottingham, UK

October 8, 2014
Health & Safety North 2014
Bolton, UK

October 15, 2014
Institute of Acoustics 40th Anniversary Conference NEC, Birmingham, UK

November 17, 2014
Internoise 2014 Melbourne, Australia

November 27, 2014
OSH India Mumbai, India

Cirrus Product Training Courses

The next available courses are:

Thursday, 2 October 2014
The East Midlands Conference Centre

Thursday, 23 October 2014
Oulton Park Circuit, Cheshire

Thursday, 6 November 2014
Castle Combe Circuit, Wiltshire

Wednesday, 26 November 2014
Brands Hatch Circuit, Kent

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Designed and printed by ICM Creative Communications