

The magazine of the
Institute of Sound and
Communications Engineers

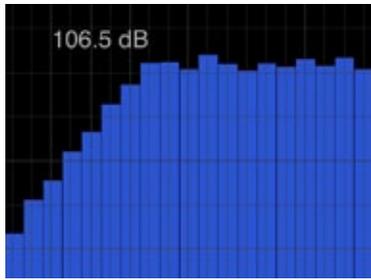
October 2013

ISCE

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ISCEx2014



Join us at ISCEx2014

Networking Dinner

Tuesday 4 March 2014

**Starting at 7pm with
pre-dinner drinks**

ISCE will be hosting a networking dinner on the eve of the exhibition and we would like you to join us.

Why not book a table and invite your customers along, to give them a chance to preview the exhibition in an informal setting. Guests can mingle with the good company of industry friends and colleagues.

Exhibition and Seminar Day

Wednesday 5 March 2014

9.30am–5pm

Mix with the best in the business.

At the most relevant event in the sound industry calendar, you will meet the people that matter most to your business, with informative seminars led by industry experts, running alongside the exhibition.

ISCE

The Institute of Sound and
Communications Engineers

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Introduction from our President

Terry Baldwin *HonComplnstSCE*



W elcome to this, my final message. My four years of tenure as your President are up and how time has flown. The normal number of years is three, but circumstances were such that I was asked to do extra "time".

Such a lot has happened over those years. We've seen the ISCE exhibitions grow beyond belief and they are now the foremost functions specifically for our industry. This year it was in Milton Keynes, next year it will be at the Holiday Inn, Central Birmingham. There is plenty of information on the website, so please pencil in the date. If not, use a pen!

Your Council continues to meet quarterly at The Park Inn, Watford. Ideal for the main railway station and The White Lion Pub! At this point I really must congratulate members of Council, who give their time (and train fares/fuel) at no cost to the ISCE. Thank you to them all.

Coming up in October is Institute Day, together with our AGM. The usual 'out of the box' talk this year is given jointly by Doug Edworthy, Peter Mapp and Gordon Morris and is called *Can you hear me now?*. Do book to come along – details are further on in this journal.

Our website is coming on in leaps and bounds thanks to John Oliver and Jeff Vaudrey. Thank you to you both. You will very soon be able to pay your subs, advertising and training courses online, making it cheaper for you and less hassle for herself. Oh, that's Ros by the way.

I can't thank enough our committee chairmen and members for the work they do in ensuring ongoing interests by way of training, membership, finance and our future. Coupled with the entire movement, is our thanks to Ros Wigmore. We tease her, love her and admire her. She, of course, does the same for us!

I personally hope to see many of you at Institute day and in the New Year at ISCE2014.

I thank you for tolerating me for 48 months and be assured, I will continue to remain on Council for the next three years as Past President, a task which Bryan Robinson has done wonderfully since 2010.

It simply leaves me to welcome Anthony "Tony" Smith as your President until 2016. Good luck Tony and I thank you all.

Terry ♦

Events diary

5–7 October 2013

3rd International Hearing Loop Conference
Eastbourne, UK

6–9 October 2013

PLASA
London, UK

23–24 October 2013

The Showman's Show
Newbury, UK

24 October 2013

ISCE AGM/Institute Day
Watford, UK

12–13 November 2013

BVE North 2013
Manchester, UK

12–14 November 2013

IOA Reproduced Sound 2013
Manchester, UK

4–6 February 2014

Integrated Systems Europe
Amsterdam, Netherlands

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Comments on articles and letters are invited.

The ISCE Ltd does not endorse any of the products or services from contributors that are included in the magazine.

Published by the
Institute of Sound
and Communications
Engineers Ltd

VAT registration number:
GB 781 3372 24

Manager, Secretariat contact details

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BIGGER. BRIGHTER. LOUDER.

Come and
see ISCE on
Stand A77



plasa events

PLASA London will take place at ExCeL London for the first time from 6-9 October 2013.

New products, world-class speakers, co-located conferences & special events, live demo areas and networking.

ExCeL is a world-class venue located 5 minutes from London City Airport. It is within easy reach of Central London via the Jubilee line and DLR train services. For more info on how to get there, check out the interactive guides on our website.

NEW FOR 2013:



audio lab arena

audio lab interactive

audio lab theatre

See website for details www.plasashow.com

plasalondon
6-9 OCTOBER 2013 - ExCeL

PLASA 2013

Since its debut in 1977, PLASA London has been the world's premier platform for pro audio, stage and entertainment lighting technologies. This year's event, held for the first time at ExCel London from 6–9 October 2013, is shaping up to be bigger, brighter and louder than ever.

New for this year is a truly unmissable attraction, AudioLab 2013, that will allow visitors to experience the cutting-edge of pro audio. **The AudioLab Arena** features a purpose-built space for demonstrations.

The AudioLab Theatre presents three programmes of free seminar content covering live sound, installed sound and the sound business, and examining key issues for everyone from senior technical directors to entry-level enthusiasts. Finally, **AudioLab Interactive** is a myth-busting laboratory where visitors will see live experiments on a range of pro audio equipment.

A key part of PLASA London for many visitors is the **PLASA Professional Development Programme**, one of the largest free knowledge sharing events of its kind. Each session features a prominent member of the international pro audio or entertainment technology world, offering their unique perspective.

The show will feature **over 250 exhibitors**, including Clay Paky, Martin Audio, Robe, Roland and many exhibitors will be launching brand new products, technology and services at the show. And it wouldn't be PLASA without its renowned social calendar, providing a host of networking opportunities to connect with friends old and new.

For up-to-the-minute news, visit www.plasashow.com

We look forward to meeting our members at the ISCE stand no. A77. ♦

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LEADING THE WAY TO SAFETY

STEM ambassadors – illuminating futures

Paul Sanders *BEng(Hons) MInstSCE*
Design Engineer at C-Tec

I would like to take the opportunity to say I was inspired to put the following information together after reading the June 2013 ISCE magazine. Helen Goddard's article on apprenticeship was an excellent read, and having completed an apprenticeship and been a big part in helping C-Tec select the next generation of apprentices it is a subject close to my own heart. Continuing the theme, Terry Baldwin's introduction referenced a meeting with a local college to get pupils interacting and interested in audio engineering. This gave me the perfect opportunity to share with you all STEMNET.

What is STEMNET?

STEMNET is a national government-funded organisation represented throughout the UK by a network of 45 organisations, ranging from universities to museums and STEM centres. The aim is to provide knowledge and support to all levels of the UK education system by means of volunteers from industry, higher education or retirement.

Who are STEM ambassadors?

STEM Ambassadors are volunteers from any science, technology, engineering and mathematics backgrounds who are passionate about the subjects and would like to inspire the next generation to continue the study of these subjects.

People from a range of STEM backgrounds, who volunteer their time to help young people see the link between STEM subjects and their 'real-world' applications.

Anyone who wants to inspire young people in the STEM subjects can become a STEM Ambassador. The main qualities that Ambassadors share are enthusiasm and commitment, along with a passion for what they do.

Would I make a good STEM ambassador?

If you have any free time or feel like you would like to give something back to your local community then the answer is yes. I have met a whole host of people from a number of professions and backgrounds during my time as a STEM ambassador and every single one of them has had something to offer the pupils they are interacting with, which makes it all worthwhile.

What do I have to do?

Having STEM Ambassadors visit their school or college enables teachers to make links between the curriculum and how STEM is practiced in the world of work. This illuminates applications of STEM across a vast range of careers.

STEM Ambassadors can contribute both to regular lessons or participate in extra-curricular activities such as STEM clubs, careers days, mentoring and external visits.

More information www.stemnet.org.uk/

My experience as a STEM ambassador

I originally got involved in the program after responding to an advert I saw in my local STEM centre (The Museum of Science & Industry in Manchester) requesting volunteers from an electronics background to get involved with local schools. I have gone on to complete a number of activities through the STEM program but here are some of the highlights.



The Big Bang Fair

“The Big Bang is the largest celebration of science, technology, engineering and maths for young people in the UK. Everything we do is aimed at showing young people (primarily aged 7–19) just how many exciting and rewarding opportunities there are out there for them with the right experience and qualifications.”

My part was to volunteer on the STEM stand and give demonstrations of AFILS and infrared staff attack systems. I created a theme of “technology is everywhere, even if you can’t see it”.

I got the kids to use their mobile phones (always a winner) to firstly play their favourite music through a SigNET PL1 and use the loop listener on an FPRO to pick up the sound. The response was general amazement followed by: How? Why? But? This gave a great lead into explaining some of the science behind how it worked and it got them hooked. The second trick was to use the camera on their mobile phones to pick up the infrared light from C-Tec’s staff attack transmitter and pendants. Again, total disbelief and even more questions.

The highlight of the day had to be a 6-year-old girl helping a biologist on the stand with 20 years experience, fix her microscope. To everyone’s disbelief and later amusement the young lady got the microscope up and running and proceeded to tell us “yes it’s a common fault with this model, you should really be thinking of upgrading”.

More information www.thebigbangfair.co.uk

Primary engineer

“We believe that Science, Technology, Engineering and Mathematics are key subjects in securing positive opportunities and career paths for future generations and that this begins in primary school”

I was honoured to be asked to judge the national final of primary engineers make a car contest. Hosted at the wonderful Manchester Communication Academy, kids from all over the country gathered to pit their hand made wind up cars against each other. After a series of challenges including straight line speed, gradients climbs and technical meetings, a winner was selected but more importantly, the kids went away with foundation knowledge of some of the first laws of physics setting them on their way to a bright future.

Again, the highlight was a young man aged 5, who when I asked why has your car got a gear system? He proceeded firstly to recite the passage all the kids had to learn, but to my amazement he very politely asked to borrow my pen and pad so he could explain the maths to me. We picked the young man out for a special award as he was 5 going on 45 and has a very bright future ahead of him.

More information primaryengineer.com and mca.realsmartcloud.com/

In conclusion

If you have any free time at all, becoming a STEM ambassador is a rewarding, exciting and great way to spend it. So why wait? Sign up today and start helping guide our young people into fulfilling careers in Science, Technology, Engineering and Mathematics. I am a firm believer that it is industry and innovation that put the Great in Britain and I have already seen enough to know the future is in good hands. ♦

Reproduced Sound 2013

Delivering the experience –
from imagination to realisation in audio

12–14 November

Delivering the experience – from imagination to realisation in audio will be the theme of this year's Reproduced Sound (RS) conference, which is being held on 12–14 November.

Organised by the Institute of Acoustics, the main event in Manchester will be preceded by visits to the BBC's R&D facility and the University of Salford's acoustics research unit, both at the nearby stunning MediaCityUK site on Salford Quays.

The conference theme will be based around broadcast audio, with a focus on the art, science and engineering of the route from the imagination of the director and producer to the ears of the radio and TV audiences.

The MediaCityUK visits will take place on 12 November, with the conference itself at the Renaissance Hotel, Manchester, on 13–14 November. On the morning of the 15th, delegates will also have the opportunity to visit the highly regarded Royal Exchange Theatre, Manchester, where there will be a demonstration of the sound facilities.



Paul Malpas, event chairman and ISCE member, said: "Since opening in 2011, the BBC at MediaCityUK has been engaged in a new era of R&D in broadcast. Over the 29 years of our history, RS delegates have followed closely its work in studio design, building acoustics, critical-listening rooms and equipment and virtual studios. RS has also had historically strong connections with the University of Salford, where I studied electro-acoustics in the late 80s alongside students who are now senior staff, including Professor Trevor Cox, the IOA's immediate past-president who has presented regularly at RS. So it was an obvious draw and an exciting prospect to take RS to MediaCityUK and to pick up on the central theme of the technology and environments needed for driving forward the aural part of the experience of TV and radio audiences."

For more information,
visit www.reproducedsound.co.uk ♦

Colin Hulme MInstSCE

CWH Event Engineering

Iwould like to convey to members, valued friends and suppliers that with regret in January this year, I had to wind up Drinkle & Mann Ltd and the company is no longer trading. Commercial pressures and the present climate made it impossible to carry on.

I would like to take this opportunity to thank the trade, friends, colleagues and suppliers who have supported D&M over the years.

I started work at D&M as an apprentice some 44 years ago working under the direction of Walter Drinkle, Doug Mann and Jim Millard (all heavily involved in the APAE). This was a true apprenticeship, which has stood me in goodstead for many years.



When Walter left the business, I became a director, partner and then proprietor for the past few years following the death of Doug Mann - this too is very much like another bereavement.

I applaud those contractors who still hang on in there and especially the more traditional PA guys who put their heart and soul into every event for ever diminishing returns.

My main regret is that the name of D&M hasn't carried on, but hopefully the reputation is still in tact.

As for me, I am in the part time/freelance/grandad world and if I can be of any assistance to any members, you can contact me via the following email address: colinhulme@me.com ♦

ISCE

The Institute of Sound and
Communications Engineers



The ISCE invites you to

INSTITUTE DAY 2013

Thursday 24 October 2013
Park Inn Hotel, Watford

Warren-Barnett memorial lecture

Can you hear me now?

Assistive listening technology explained – and then some

Presented by Doug Edworthy, Peter Mapp & Gordon Morris

The lecture will discuss assistive listening systems from three different perspectives by three of the industry's most experienced practitioners. It will focus on the design, effectiveness and end user requirements of assistive listening systems. The unique perspectives, experiences and lecturing styles

of the three presenters will make this a truly unmissable event for anyone concerned with the installation or testing of AFILS and ALS. Littered with demonstrations, case histories and background information this promises to be one of the most interactive and pragmatic Warren Barnett lectures yet.

Training Courses



Training days

ISCE held the Assistive Listening Induction Loop Systems Design & Installation and Measurement & Certification courses which were presented by Doug Edworthy in Warrington and Tunbridge Wells.

We also ran the Basic training for sound system installers and technicians in Leeds, which was presented by Terry Billau.

All courses were well attended and we received some great feedback from the delegates.



“Excellent day. Doug has superb knowledge of the subject and is happy to pass it on.”

“Doug is a very knowledgeable instructor and made the course easy to understand, both in practice and in theory”.

“Terry has a great level of expertise and is able to explain clearly from previous experiences and projects”.



We aim to give you more details about the following new ISCE training courses over the next few months:

PA/VA Maintenance

Basic Acoustics for Sound Engineers

Room Acoustics for Sound Engineers



RCF networks £38m leisure complex in Bangor



Bangor Aurora Aquatic & Leisure Ccomplex, the new £38m leisure complex in the heart of Bangor, which houses Northern Ireland's first FINA standard 50 metre swimming pool, also boasts an advanced and adaptable site-wide RCF communication network.

This was installed across 15 zones, each with its own autonomy, by ISCE member, Gerry McKeown's MGA Communication, and features well over 200 application-specific loudspeakers from the RCF catalogue to meet all audio and PA/VA requirements. These are driven either by low-impedance HPS1500 amps with PR4092 preamps or 100V line UP2162 (160W) or UP2321 (320W) 100V line amps with ES3160 'combi' mixer amps — all in dedicated local racks.

These are fed from a central distribution hub, based around RCF's powerful DXT7000 management system, from which two further pools, health and fitness suites, multi-discipline sports hall, squash courts, crèche, function rooms and cafeteria all receive distributed sound. Three external 3G synthetic training pitches are served by local IP67 rated cabinets, heat and environmentally protected, to contain the RCF amps, receivers and CD preamps.

Built with the aid of a £15m investment from the Department of Culture, Arts and Leisure (DCAL), the new leisure complex was formally opened at the end of March.

MGA had been introduced to the project by Ivan Humphries, senior electrical engineer at JCP Consulting and won a competitive tender to provide IPTV and IP telephony in addition to the RCF networking and PA management.

MGA had been recommended to the Italian company by a third party. "We needed qualitative and flexible

sound reinforcement throughout the building, and if there was a single portfolio I could draw on, so much the better," Gerry McKeown rationalised.

RCF's Audio Systems Consultant, Daniele Torelli proposed a flexible design offering a high degree of control, efficiency and adaptability, based on his EASE predictive modelling.

The beating heart is the DXT7000's pair of EN54-16 compliant MU7100 digital matrix devices in the central rack room. These feed a combination of 100V line and low-impedance amplifiers in 14 satellite racks, to ensure a high end broadcast signal was distributed to what ended up effectively being 24 zoned areas.

The entire signal path from fireman's microphone to loudspeaker lines is automatically monitored against faults. All properties and functions of the system are specified with Windows® based DXT 7000 configuration software and are downloaded to the 'master' unit through its USB port.

These powerful units incorporate 8-channel high pass filter, 8-channel para EQ in output, digital delay, 8ch comp/limiter and 8 x 80W digital amplifiers — some of which feed the peripheral areas and RCF's BM7624D 24-zone paging mic station at front reception.

"The advantage is the fact that zones can be reprogrammed and new zones added," states McKeown, "while the provision of Cat5/Cat6 cable means that the entire system can be monitored and healthchecked."

Of all the zones, the major challenge facing the installers was optimising the acoustically harsh Olympic-sized pool, on the one hand avoiding slapback from the rear of the audience area while delivering high intelligibility at poolside — all the while retaining the architectural aesthetic.

They specified 16 weatherproof and chemically-protected RCF Acustica P3115T. These 15in coaxial 90° x 60° IP55-rated wide dispersion speakers are mounted in 3 x 4 and 2 x 2 clusters overhead along the existing trunking. Using stainless steel grilles, these provide uniform coverage of speech, gala announcements or background/foreground music and have been tuned to reduce level firing back at the audience of the glass walls encasing the pool, thus neutralising reverberance.

These same speakers are also used in multiples to provide distributed coverage of all the synthetic sports pitches, while elsewhere Acustica C3108's also enjoy heavy usage. From the foyer to the car park to the general public areas, RCF have a speaker for each purpose.

The facility is managed by Serco Leisure Northern Community Leisure Trust, a partnership between Serco Leisure Operating Ltd and North Down Borough Council.

Their technical manager, Lee Cattle, pronounced that he was "delighted" with the technological integration and the high intelligibility offered by the various RCF components. "The whole communications system is functioning extremely well," he confirmed.

And Gerry McKeown added, "It met all our expectations and possibly more," adding with satisfaction comments from the management company that they had rarely seen such a professionally installed and adaptable networked sound system." ♦

New Members September 2013

Member

Colin Foxton
Sarabec Limited

Affiliate Member

Jonathan Park
2020 Lifestyle

Technician

Jonathan Carter
RK Sound Engineering

Bryn Badger
Sarabec Limited

Liam Pickett
Ashdown AV Ltd

Gareth Nicholes
Sound Induction Systems Ltd

Robert Kugler
Kays Electronics

Temporary Member

Terry Biggin
East Sussex Hearing Resource
Centre

Graham Warner
East Sussex Hearing Resource
Centre

Paul Chapman
FirstPoint

Melanie Hills
FirstPoint

Paul Covell
Paul Covell Consultants

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Time to lay down the law for portable appliance testing

By **Joules Newell** *MInstSCE*

Note: No recommendations or advice within these notes may contravene or supersede any legislative requirements, neither locally nor nationally.

Where legislation or local regulations require different procedures or tests those regulations will prevail in all circumstances.

Following many issues raised by ISCE members, where audio equipment and systems have been significantly damaged, badly re-connected or left misconfigured by general electrical testing companies, it is time we put a stop to this largescale dangerous testing of our systems by people lacking the competence and knowledge to correctly test complex audio systems for electrical safety.

It is recommended that such testing should be carried out by industry personnel who understand the nature of the items under test, and who **MUST** be competent, possessing the skill and knowledge to carry out the testing safely and correctly. Bearing this in mind, a general Portable Appliance Test "PAT" operative is not a competent person as required under their own test criteria. It is this lack of competence that often leads the "PAT" tester to continue testing systems they are not competent to test when they fail to understand the complex nature of the systems before them, often mistaking the components for simple domestic type appliances, whilst also attempting to maximise test revenues.

As competent specialists, we should take the lead on this problem by attaching "PAT" test prohibition notices to all our installed racks and consoles. We should use this opportunity to ensure that tests are carried out by persons intimate with the functioning and complexities of these systems, and who are able to identify potential danger and correctly pass or fail the systems where necessary. It is striking that, when the question was put to the ISCE mailing list, it seems that no member reading that list had experienced a reported "PAT" test fault from a third party "PAT" tester at any time, yet many of us do have a few horror stories of what we find out there.

The following recommendations are a basic starting point towards a sensible audio industry electrical testing code of practice and hopefully will help us bring the proper safe and correct testing of our systems back into the hands of us specialist engineers.

Competence

The first requirement for safe testing above all others is the competence of the person performing the test.

At a time where many electrical test devices are as close to fool proof as possible to operate and the abilities of the average test operative are often low, it is probably the most important aspect of correct testing of complex systems that the person testing should be able to fully understand the nature of the task they are performing and what it is they are testing. As 99% of electrical testing operatives are not knowledgeable in professional sound, or AV systems they should be restricted from performing any test without adequate supervision, especially where they may mis-identify equipment, or not be fully aware of the nature of all system operation and connections.

Ideally, an operator should be able to demonstrate this competence by showing either membership of a recognised industry body, learned institution, or through the ability to show industry experience or training. The competent person **MUST** be able to demonstrate correct full function testing of the system.

Electrical safety risk assessment

The original installer, or in the case of previously installed equipment the first competent tester, should determine by means of experienced assessment the necessary test periodicity for various parts of the system. Such assessments should be based upon the likelihood of physical damage, physical wear, physical or electrical degradation of connections, harsh environments, and amount of user interaction. Users should be categorised into high risk non-specialist persons, and low risk persons, such as maintenance staff or specialist engineering staff. Electrical Safety testing frequency should be clearly displayed on, or inside the equipment enclosure.

Items installed in user areas should be tested based on the frequency and nature of use. For example a DJ style music playback console installed in a fixed position in a church hall that is used for half an hour a month by the vicar is not likely to be at as much risk as the same console brought out daily to an outdoor bar used by freelance DJs who are permitted to drink in the vicinity of the equipment.

Only a competent system designer or installer with adequate experience in the industry is capable of correctly specifying test intervals based on actual risk. Similarly, a competent field tester is able to recommend any alteration to test intervals based on any changes of circumstance or wear they may see when performing tests.

System definition

All items interconnected to form a system which processes audio, or in many cases, audio, video and effects lighting, constitute a single integrated item of equipment known as The Sound System, The Sound and Lighting System, or The AV system. Where these systems share audio, video, data or other similar cabling, they are electrically interconnected (often by means of cable screens or drain wires) so must be treated as single integrated systems.

It is worth remembering that parts of the same system may not even be in the same building. In the example of conference centres and football stadia, the systems often spread from building to building yet remain electrically interconnected.

Electrical testing

The purpose of electrical testing is to ensure that the users and their customers are kept safe from any risks associated with the use of electricity. These risks are principally electric shock where a person comes into contact with the mains current, fire where arcing of current between conductors causes a source of ignition (or where a conductor or connection is subject to excessive load so causes thermal failure of the insulation), and equipment failure through loss of electrical current when the system is performing a critical task. Any electrical test should cover the safety of all these areas thoroughly without fail whilst ensuring minimum risk is encountered between testing.

Equipment classification

Under portable appliance testing standards there are two classes of equipment under test. Firstly the default standard item which is general electrical plant and machinery, usually solely consisting of a plug, a cable, a switch and a motor or light. Then there are other electrical items more complex and sensitive, which would be damaged by high current, high voltage testing. This equipment was initially deemed to be computerised equipment and as such the test for this equipment was designated an IT test. This test is actually incorrectly named as the majority of electronic equipment. This is basically anything that includes semiconductors (or other very low voltage components), and is equally as fragile with regard to excessive voltage and current. For this reason everything we use in the audio installation business with the exception of passive power distribution units MUST be designated IT equipment if any "PAT" test device is used for the purpose of testing. This means that no item except a passive power distribution unit may be subject to a high voltage insulation "flash" test or high current earth bond test.

Protective bonding

Where potentially conductive surfaces such as metal are exposed to the person, they should at all times be bonded to earth as required in electrical regulations or adequately isolated as required under Class 2 equipment standards. This bonding should be carried out under current electrical regulations at the time of installation, thus each item of individual electrically supplied equipment must be connected to earth through its own power cable if it is not an item of class 2 equipment. ▶

Insulation integrity

To detect any insulation breakdown and potential arcing, all cables and applicable appliances should be tested for leakage between conductors. In audio systems any significant leakage may be the cause of serious degradation of the audio signal. Often the system will become unusable long before it will become electrically dangerous such is the sensitivity to reference ground interference. As no item of equipment may be flash tested only a high resistance test to chassis can be performed. Due to the sensitive nature of all audio equipment to reference ground currents, it is likely that this test will never yield results on an item that is not already deemed to be malfunctioning or tripping RCD devices. The correct method of testing appropriate to the circumstances must be used.

Cables and distribution

Where power leads and passive power distribution systems are used, they should be subject to standard electrical testing. All BS1362 fuses should be correctly rated for cable and connector ratings only. Leads and distribution strips should be tested for high current continuity, and may also be high voltage flash tested. All items should be visually inspected for suitability and damage. Care should be taken to ensure that the manufacturers original specification of the equipment is still relevant and that no incorrect substitutions have taken place during the life of the equipment.

Supply

Correct and safe operation of any complex and sensitive equipment, such as an audio system, is reliant upon a good clean electrical supply and as low resistance as possible earth path. It is pointless ensuring protective earth bonding within the system if the supply earth is poor or missing.

In large commercial installations the electrical supply systems often suffer far more modification and physical interference than fixed installed audio systems. It is imperative that when testing larger installations the electrical supply integrity is verified as part of the system testing.

Operation

All equipment should be inspected for correct operation and functioning upon completion of the testing. Testing should include a full load test, which should be to maximum safe system output. It should be verified that no circuit protection device should activate here. The tester should ensure that all devices are powered from the intended source circuit and that no device has been wrongly reconnected in the process of testing. Sequential switching and zoned or timed power control should be verified to work as intended. Every input and output device should be verified as correctly working before the test is finally signed off.

Documentation

Upon completion, the customer should be issued with a certificate detailing the tests carried out, the results of the tests, and the duration to the next due test. The customer may well require these documents to produce for licensing, insurance and fire inspection purposes.

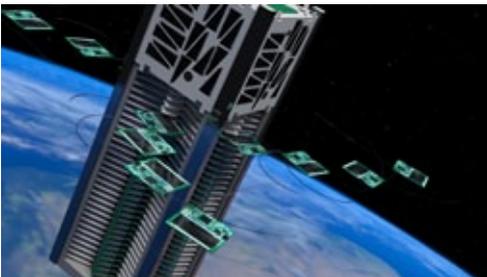
A full copy of this article can be found on the ISCE website www.isce.org.uk/articles/electricaltesting.pdf ◆



ISCE member Jason Williams' scientific and educational charitable company, East Anglian Amateur Radio Observatory (EAARO), has recently been given the green light to establish a radio observatory at a secure rural location near Royston on the Hertfordshire/Cambridgeshire border.

Jason said: "This is the culmination of two years work. We are now ready to go and will be operational within weeks." He continued: "EAARO's purpose is to study the universe, track satellites and use the great space science adventure to inspire young people to pursue science, technology, engineering and mathematics subjects and careers."

The first major project for EAARO will be to function as the primary UK ground-station for the crowd-funded KickSat satellite mission, which is due to launch in January 2014 from Cape Canaveral on a Falcon 9 rocket, piggy-backing on a Space-X resupply mission to the International Space Station.



Working with NASA, the University of Cornell's Spacecraft Design Laboratory, and the British Interplanetary Society, EAARO will track the KickSat cubesat and the hundreds of chip-sized Sprite micro-satellites that it will deploy into Low Earth Orbit. The Sprites have been designed to help NASA study the behaviour of space debris, and they will each transmit a short CDMA-coded message, repeating every second, via an on-board 10mW transmitter.

Jason, a sales engineer at Brahler, has assembled a team including EAARO co-director Jonathan Blay, a technological innovation and marketing specialist, and chief engineer Jeff Lashley, a radio astronomy author and technical officer at the UK's National Space Centre in Leicester.

Jason added: "EAARO has the support of a number of key people in the space research sector including Professor Mike Garrett, director of ASTRON in the Netherlands, cosmologist Professor Paul Davies at the University of Arizona, and Dr Alex Kraus, manager of the Effelsberg Radio Observatory and its 100m telescope at the Max Planck Institute in Germany."

"We also have strong links with the University of Hertfordshire's Centre for Astrophysics and its Bayfordbury Observatory, where we hope EAARO will be eventually located."

Construction of the observatory, consisting of a wide array of radio and data processing equipment housed in a 20-foot shipping container and a pair of converted radio cabins and dish antenna pods from an ex-Royal Signals radar jamming station, will take place over the next few weeks.

Jason has funded EAARO almost entirely from his own pocket and he is keen to attract donations and sponsorship to the charitable company. He said: "I wanted to give something back after 25 years in the sound and communications industry."

EAARO's progress can be followed at www.eaaro.org.uk.

For more information, please contact Jonathan Blay, co-director at EAARO, on 07867 521747 or email jonathan@eaaro.org.uk. Further details are available at www.eaaro.org.uk. ♦

ISCE Closed Mail Group to be changed to Forum

Following a request and subsequent discussions at the 2012 AGM, Council has decided that the ISCE closed mail group will be closed at the end of this subscription year (April 2014).

The mail group will be replaced by a Forum which will be set up in the near future. All the current members of the closed mail group will be migrated to the new system before the end of 2013 unless they indicate that they do not want to be members of the forum. An email will be sent out to the closed mail group to this effect in the near future. There will be no charge for the new system. The two systems will run in parallel until April 2014.

Forum discussions will be divided into two types of topic, public where the content will be viewable by members of the public and casual visitors to the forum and private for members only. Members of the public will not be allowed to post articles or comments.

Any comments or suggestions regarding this change should be directed to the closed mail group for the time being. ♦

ProSound Awards 2013

by **David Howe** *MInstSCE*

Thursday 19 September saw the very first of a new event on the industry calendar, the ProSound Awards, held at London's infamous Ministry of Sound.

The event, organised by Intent Media, gave recognition to audio professionals across all sectors of our industry, from studio to live sound and broadcast to installation. It seems no-one was left out, and hundreds of people from across the industry turned out in force to support the nominees.

This was not your typical black tie, sit down dinner affair. For an industry that knows how to party the setting was ideal. The dress was casual, the beer was flowing and a vintage American Airstream trailer pitched up in the courtyard to serve mouth-watering refreshments.

The awards ceremony was hosted by stand-up comedian Alistair Williams. He did a great job keeping the jokes flowing and didn't have to work too hard making sure the thank you speeches didn't drag on. It seems we all prefer to make the show rather than talk about it!

A total of 12 awards were given across categories covering **Live/Touring Sound** for engineer of the year, tour sound production and after-sales support, **Studio** for engineer of the year, recording production of the year and studio of the year, **Installation** for team of the year, permanent installation project of the year and temporary installation project of the year, **Broadcast** for team of the year, broadcast event of

the year and facility of the year, **Marketing Initiative/Campaign of the Year**, **Rising Star**, **Lifetime Achievement**, and finally **Grand Prix**.

ISCE members Steve Liddle, of Springwell Audio AB, and myself were lucky enough to have been finalists for the 'Installation Team of the Year' award, in conjunction with James Hurst of LBI Projects and Ingmar Olsson of Audio Data Labs. The nomination recognised the work put in by the whole team on the PA and evacuation system for Friends Arena – Sweden's new national stadium. We got pipped to the post by Wigwam Acoustics for their work on church installation projects at Danbury and Manchester, but we all felt a great sense of pride in getting to the finals.

Rising star went to Xavier Stephenson of Metropolis Studios', Lifetime Achievement was awarded to industry veteran, acoustician and studio designer Andy Munro, while the Grid Prix went to BEIRG (the British Entertainment Industry Radio Group) for all the hard work, lobbying and campaigning they have undertaken to keep free spectrum for us all to continue using radio microphones and in-ear monitors post the digital switchover.

Congratulations must go to all the winners and finalists though; it's nice to see that the unsung heroes of our small industry can get some recognition for their professionalism and commitment from time to time.

An exclusive after party concluded the evening and no doubt there were a few sore heads the following day. ♦

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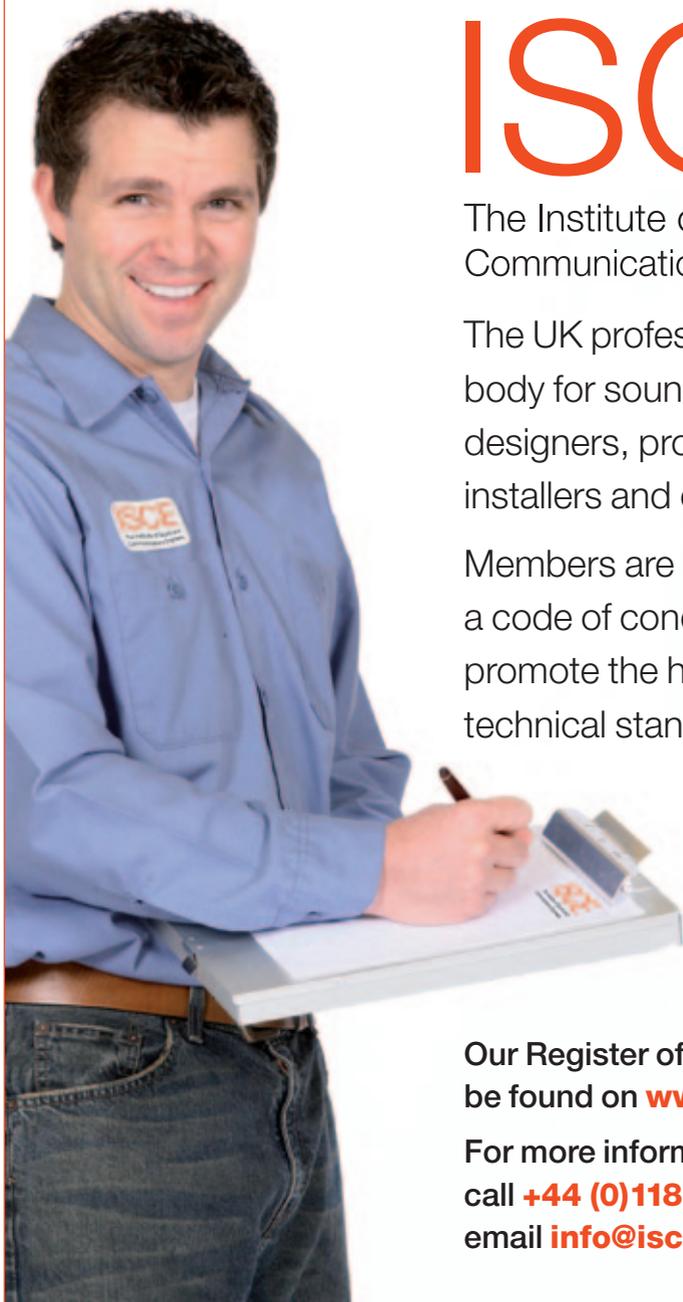
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