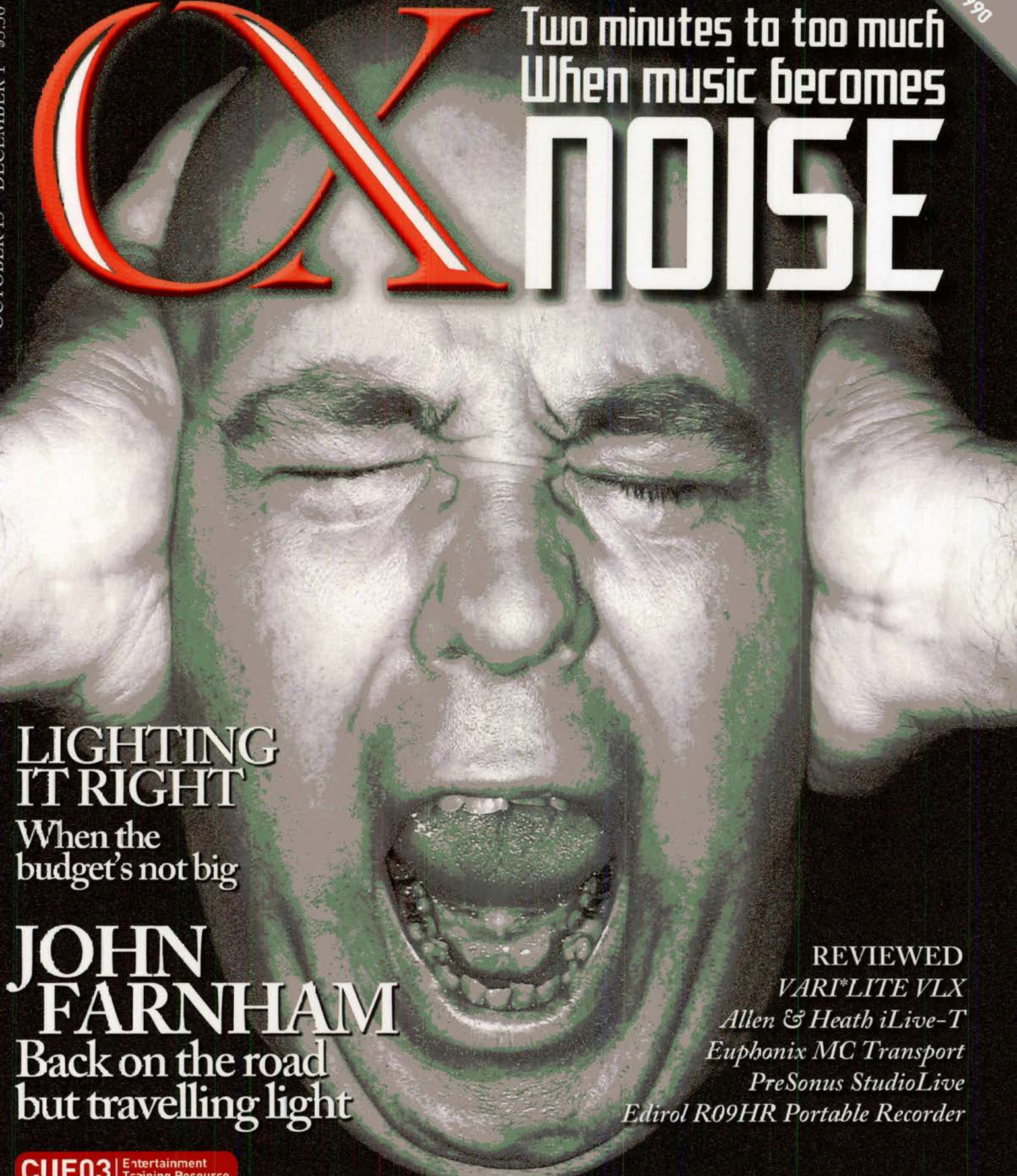


NOISE

Two minutes to too much
When music becomes



LIGHTING IT RIGHT

When the budget's not big

JOHN FARNHAM

Back on the road but travelling light

REVIEWED

- VARI*LITE VLX
- Allen & Heath iLive-T
- Euphonix MC Transport
- PreSonus StudioLive
- Edirol R09HR Portable Recorder

CUE03 Entertainment Training Resource

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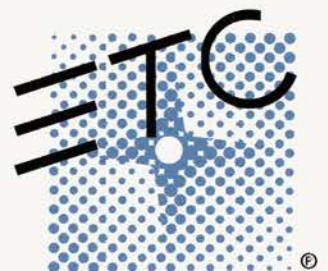
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INSIDE THIS ISSUE

NEWS

8

AUSTRALIAN SUPPLIERS TO FORM PEAK BODY

- 8 ENTECH postponed!
- 8 Mystery photo?
- 10 Idol buys EMA
- 10 PreSonus Studio Live 16.4.2
- 10 Moves
- 10 TTOC collapse a blow for TV tech training
- 12 QPAC Lyric Theatre chooses Protrac
- 12 Technology investment pays off for cutting edge OB's
- 14 Sony upgrades wireless systems
- 14 Epson launch flagship venue projectors
- 16 Queensland Theatre Company chooses ETC Ion
- 16 Shure Super 55 packs modern muscle in a vintage body
- 16 Big LED at Parklife
- 18 Production Audio Services to distribute Sabine
- 18 Robe Robin debuts at largest outdoor dinner in Darwin
- 18 Melbourne Convention Centre first for 6 green stars
- 18 Turbo expand FlexArray
- 20 Beyoncé tours with Sennheiser and Neumann
- 20 500 mountain bikes in a forest

OH&S AGONY AUNT

21



FEATURES

22

JOHN FARNHAM

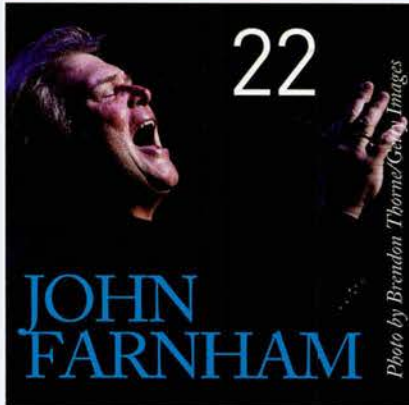
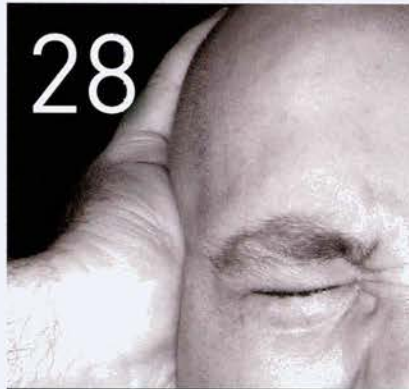


Photo by Brendan Thorne/Getty Images

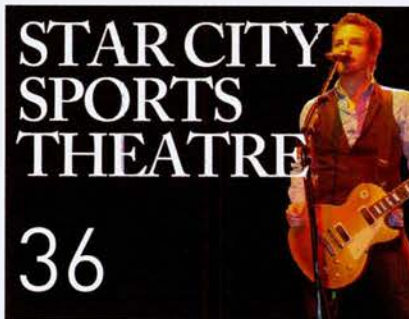
28

NOISE!



STAR CITY SPORTS THEATRE

36



CX'S NOISY NIGHT OUT

38



CHEAP LIGHTS

40



48

OUT STUDIO



OX MEGA TEST

VARI*LITE VLX

54



iLIVE-T 112 DIGITAL CONSOLE 56



EUPHONICS MC TRANSPORT 60



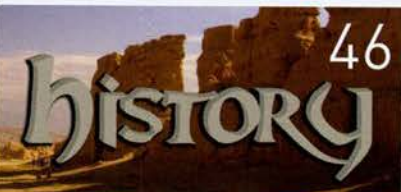
PRESONUS STUDIO LIVE 16.4.2 62

EDIROL R-09HR DIGITAL RECORDER 64

REGULARS

- 34 Richard Cadena
- 44 Duncan Fry
- 52 Dr Danger!
- 66 Classifieds

WAY BACK WHEN



46 history

EXPERIENCE MORE .. METALLICA ..

"I love Audio-Technica mics. You can definitely tell an Audio-Technica gig as soon as you walk into it. The vocal mics sound stunning."

-Big Mick Hughes



Metallica's legendary front-of-house & monitor engineers, Big Mick Hughes and Paul Owen, rely on Audio-Technica microphones tour after tour, year after year. Mick puts it simply: "I love Audio-Technica mics." Paul adds: "The AE2500 is one of the best mics that has ever come into this business." On everything from voice to drums & guitars, Audio-Technica mics have stood tough across the stage with Metallica for a decade & counting. Wherever your passion for music takes you, experience more. audio-technica.com

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AT4053a Hypercardioid dynamic condenser microphone — *snare bottom, hi hat*

ATM350 Cardioid condenser clip-on microphone — *toms and cymbals*

AT4050 Large-diaphragm multi-pattern condenser microphone — *miscellaneous*

5000 Series Frequency-agile true diversity UHF wireless systems — *vocals*

More info? Contact your favourite Audio-Technica dealer or TAG E. info@tag.com.au Ph. (02) 9519 0500.



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CUE03

Entertainment Training Resource

This magazine contains much information which is a direct resource for anyone studying from the new Entertainment Training Package, named CUE03. From 2006 we will start to map certain articles direct against the relevant Unit of Competency within the package. This makes CX magazine a very cost effective resource for schools, colleges, and universities. Note that we offer a copyright release where articles in CX Magazine may be photocopied and distributed to students within an accredited course.



EDITORIAL

CONTROVERSY

It seems to find us here at CX. But this month we went looking for it, having debated the issue on and off for a long time. That issue is Noise, and the problem with us writing the way we have done in this issue is that regulators may get new ideas about enforcement.

What spurred us along is the pathological ignorance of many professional sound engineers as to standards and risks, and the ongoing actions of a handful of idiots who simply turn it all up to 11.

Blame me, not our writers, since the buck always stops here with Julius. It's time to be fully aware of the small window of exposure before limits are breached, and the consequences of ignorance under the law. OH&S laws say that ignorance is not a defence.

Venue owners and audio professionals: be careful, and be worried, because later on you could well see ambulance chaser lawyers advertising 'Hearing damage at a nightclub? No win no fee'.

Naturally I expect some anonymous snarking and frankly if I don't get some I'll be disappointed. Not that I read those emails anyway - well, not always!

COUNTDOWN TO 20

Next August isn't that far out, and it's when we break all kinds of records by actually publishing almost the same magazine for twenty fantastic years! Because I enjoy a party there will be one - hopefully with some retrospectives from the highs and lows of reporting on our industry.

AND FINALLY-

We are bummed out about ENTECH being postponed from next February to the July after. But there is a lot happening underneath the surface, and I've resolved to stay quiet and let others do the talking for now. Suffice to say, when ENTECH-INTECH and SMPTE stage a mega show in 2011, it will be even better as the technologies merge. CX is in the box seat as old school recording, old school film and TV, and new school everything becomes one happy audio visual mash. Viva the new reality!

Julius

OLD GEAR

Cleaning out under the house the other day, I came across my old early 1980s racing bike. 'Brilliant!' I thought, 'this is an awesome bike. I will fix it up and ride it always.'

So I cleaned it up a bit, pumped up the tires and went for a ride. It sucked. But my memories of it were so good. How could this be? So I pushed on for a little while, and gradually got the feel for it again, even remembering how to enjoy it a bit - before shoving it back under the house for next time.

Then I got back on my new technology bike and found that not only was it a whole lot nicer to ride, but I appreciated it more for the contrast and a bit of time on a more limited ride had sharpened up my skills. Interesting.

The parallel is obvious. Production technology was comparatively primitive until comparatively recently, and we all had the skills to get the best we could out of the technology we had. The better the gear, the easier it is to get dependant on it and lose the skills we once had.

So why not make your life better? Go and do some gigs with some clunky old gear, polish up the old skills a bit and get a reminder to appreciate how easy we have it now. It feels good.

OLD STORY

Sydney's 'iconic' Hopetoun Hotel has closed. Gone forever, crushed under a mass of over-regulation from various anti-music fascists around the place. Or so it would seem, based on some of the stuff doing the rounds of the net etc.

My finger isn't totally on the pulse on this one, but as I understand it the owners of the venue chose to close down in the face of mounting debts including a number of unpaid fines for things like insufficient security on duty, inadequate disabled access and fire sprinklers, bla, bla, bla.

And of course, the usual cry goes up 'It's not fair! [Insert name here] was an iconic venue of massive significance!'

And maybe it was, but that doesn't mean it's exempt from the laws. Just because you don't like it doesn't mean it's not fair.

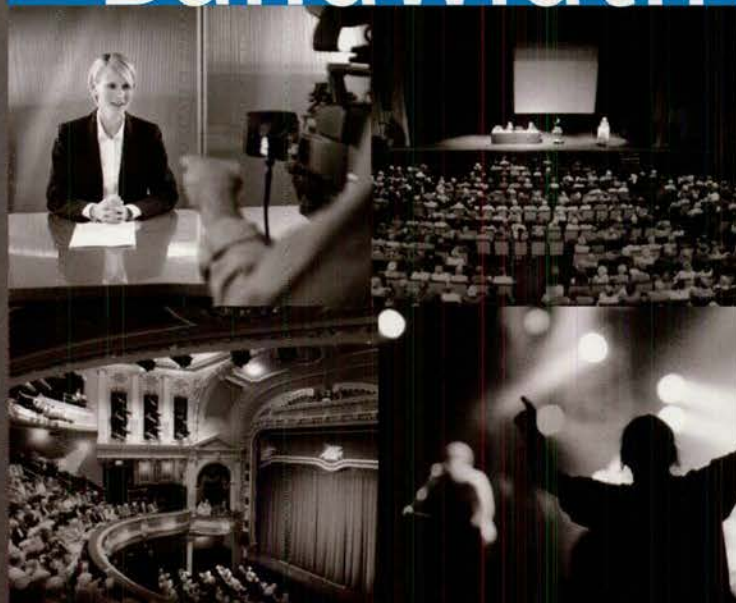
If the place was really that important, why didn't anyone try to save it before it went belly up?

Andy

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CXNEWS

DEVICES, PEOPLE AND CONCEPTS

AUSTRALIAN SUPPLIERS TO FORM PEAK BODY

Suppliers to the Australian Professional Audio, Lighting, Vision & Staging industries found themselves attending the 4 trade shows held in July and August. It was felt attendance at these shows was down and there were informal discussions.

10 of the larger suppliers wrote an open letter to the industry canvassing meetings which were held in Melbourne and Sydney, attended by around 30 companies with apologies from another 10 or so.

Those at the meetings decided to form a Peak Body to represent the interests of Australian suppliers to the Professional Audio, Lighting, Vision & Staging market.

This is overdue when you look at other industries around Australia; all of whom have associations to represent them. A great example is the Australian Music Association (AMA), which has been going for well over 20 years and through a full time secretariat and unpaid committee has provided invaluable assistance, lobbying and promotion for its members and the industry.

In Europe the industry has the Professional Light and Sound Association

(PLASA), which has just merged with the Entertainment Services & Technology Association (ESTA) in the USA, forming one very large association.

Both the Melbourne and Sydney meetings decided that the formation of a Peak Body to represent our industry was long overdue. Areas where a Peak Body could assist the industry are: standards, approvals, legislation, counterfeiting, gray marketing, market development and associated activities.

During these meetings a large percentage of suppliers indicated they had determined they would not be participating in trade shows in 2010. They also noted with the merging of technology in our industry and the widening interests of our customers, all would benefit from a larger and more diverse show. It seems some trade show organisers also identified this need and responded with the co-location of SMPTE and Entech in 2011.

Any supplier or associate who may be interested joining such a Peak Body should register with Jodie Archer at Jands, email: jarcher@jands.com.au

ENTECH POSTPONED

Exhibitions and Trade Fairs (ETF), the organisers of ENTECH INTECH have announced the postponement of the February 2010 event and the immediate launch of the 2011 mega-event which is due to take place from the 19th - 21st July 2011 alongside SMPTE.

"The more people we spoke to the more obvious it seemed to us that the industry wants to have a major say and consolidate trade fairs, which we have done with SMPTE in 2011," said ETF Managing Director, Matthew Walton.

Event Director Robby Clark said that he was disappointed with the outcome, however felt sure the 2011 event would be the biggest and best the industry had ever seen. "It's disappointing to move the 2010 event as a lot of great initiatives had been put in place for a great show but with this comes the birth of a bigger and better show in 2011," said Clark. "We are really looking forward to working with Expertise Events and SMPTE to create a must-attend show for exhibitors and visitors alike."

ETF also said that it will ramp up its efforts to embrace the integration market in 2011 and will continue to evolve the INTECH brand as a major part of the mega show in 2011.

Continued page 10 •••••➤



MYSTERY PHOTO?

Another from the Bob King archive, this time circa 1976. To win you need to identify WHO these people are, and WHAT is going on here. You need to identify the underlying band, and if you can name the truck brand and model then you'll be a history brainiac/tragic.

• *Last issue:* The guy was Scrooge Madigan, the band was Richie Blackmore's Rainbow. Photographed at the Hordern Pavilion in 1976. Our winner was Phil Dracoulis.

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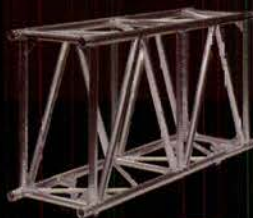
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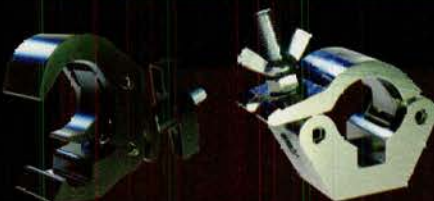
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Continued from page 8


In terms of the educational program, ETF and their program partners, Julius Events College, will simply be shifting the program to 2011 and continuing to create a program that is bigger and better than ever before.

To book space at ENTECH INTECH 2011 contact John Garfi on 03 9321 6752 or email jgarfi@etf.com.au. 




IDOL BUYS EMA

We noticed EMA's new generic In Ear Monitors used by finalists on Australian Idol recently. These were the clear models reviewed in CX recently.

It transpires Idol actually paid for the Ears- they are not part of a sponsorship. 

MOVES

Smart Digital Australia has moved to new purpose built premises in Bayswater Melbourne. The address is Unit 8 52 Corporate Blvd Bayswater Vic 3153. Phone remains unchanged at 1300 365 015. Smart Digital is the distributor of large inflatable movie screens and systems.

Meyer Sound Australia has moved to Ground Floor Unit 7, Pulse Business Park 459 Tufnell Rd., BANYO QLD 4014. Toll free numbers remain the same: Australia 1 800 4 MEYER (63937) New Zealand 0 800 3 MEYER (63937). 



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BEHIND PRESONUS STUDIO LIVE 16.4.2



Jim Odom and Studio Live 16.4.2
Jim Odom and Studio Live 16.4.2
Jim Odom and Studio Live 16.4.2

CX recently had a visit from Jim Odom, the President and Chief Strategy Officer at PreSonus. And what a gentleman he is.

Jim explained the thinking behind the Studio Live 16.4.2 console, (reviewed on page 62 of this issue). Three words headed his description of the thinking: 'Make it simple'. "There are no menus – just the setup parameters and reverb settings", he said.

"It's modelled on the analogue stuff we like. Part of the goal was to make sure it would react with the rest of a live sound system the same way an analogue desk would. These days the sound guy is the fifth member of the band. We saw these things (studio and live) converging."

"For example, the Firewire flip buttons – you had to be able to do this", he said as he ran his finger along the row of buttons, arming each channel instantly.

"Everyone can do awesome recordings at home and everyone has sounds downloaded, even professional samples".

The Studio Live desk lets users bang

recorded program back into selected channels, even straight after a take.

This is where PreSonus have spent a lot of research and development time; they have crafted 'Capture' software that is shipped with the console. "It is designed for live guys who have never opened a DAW (Digital Audio Workstation). We created a hard disk recorder in your laptop – hook it up with Firewire to the desk, arm the tracks, hit record. It's insane!"

We saw how easily this works, "you need a relatively fast hard drive in your laptop", but that's it – no hardware interface, you get a console and plug in your laptop and you are recording and playing back your gig in real time.

We were seriously impressed, and love the way the studio bedroom recordist is also the sound guy (or girl) these days, at least according to PreSonus. They've hit a big score in the quest for democratized audio, by throwing out the divide between studio and live.

www.presonus.com 


TTOC COLLAPSE A BLOW FOR TV TECH TRAINING

Global Television has pulled the plug on its Television Technical Operators College, less than two years after it started with a \$7.5 million government grant. At presstime the college was in 'advanced discussions' with North Sydney TAFE to absorb its activities.

Across the 2008 and 2009 training years the college trained 50 crew who were utilised across a wide range of broadcasts, not only for Global but also with operators like Gearhouse Broadcast. The industry cautiously supported TTOC which was an initiative aimed at addressing a double edged problem in broadcast technical.

Firstly Global identified a 10% annual departure rate from its freelance

workforce, which numbers around 800. Secondly the firm identified the specialisation of crew as a problem: "Most camera operators can't operate camera control units and videotape operators can't operate a server. By multi-skilling we can get more scope out of the freelance market," said then Global CEO Chris McMillan at the time the college was launched.

It is understood that Global TV and the government could not continue to fund the college, which provided training at no cost to students. Aside from the 50 fulltime students, the college provided significant numbers of short training programs. 



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QPAC LYRIC THEATRE CHOOSES PROTRAC

Queensland Performing Arts Centre (QPAC) in Brisbane recently completed a major \$34 million redevelopment. Included were upgrades to its auditoriums, stages and public areas including the addition of new bars and cafés. The 2000 seat Lyric Theatre included substantial upgrades in improved acoustics, superior facilities for patrons with disabilities (PWD), new seats and carpeted flooring and improvements to the venue's lighting and staging systems.

The lighting bars in the Lyric Theatre were replaced. Specialised Stage Engineering submitted the Protrac batten from Prolyte Products in the Netherlands as the ideal product for this project. As an essential part of the theatre's flying systems it gives extremely high load capacity with no deflection in the batten even at full capacity. The total load capacity of the lighting bars is actually determined by the capacity of the counterweight flying system it is hung from as the bar is capable of supporting 264kg/m in each 3.3m span for a grand total of nearly 5000kg distributed along the 19m bar.

The innovative design of Protrac allows it to be used as a scenery batten for set pieces and fixed drapes, a tab track curtain or moving set piece by utilising the lower profile with an integrated Helm track, or as a lighting bar capable of handling large lighting rigs of conventional and moving lights with full engineering and load charts



(Left to Right) Nick Rowland – SSE, Tony Maher – QPAC, Doug Brimblecombe – QPAC.

to provide peace of mind for the end user.

SSE fitted the standard Protrac batten with 36 20amp lighting circuits each fed by 6 Socapex looms which terminate at the end of the batten for connection to the existing looms. The cable management for such a large number of circuits and the attendant extension cables, data cables and power leads posed a considerable challenge. In any theatre the clearance between lighting bars and scenery and curtains that are invariably flown nearby means that any cable management needs to be as compact as possible to avoid obstructions. SSE and the QPAC team collaborated to design a custom, modular cable tray system that straddles the upper profile of the Protrac bar. The downstage side of the tray handles the Socapex looms feeding the bar while the upstage side has two trays to separate data from power cables. Each tray fixes

between the circuit outlets and is attached to the upper profile with a captive nut and bolt allowing them to be removed if needed.

The final product weighed in at 247kg for a 19m bar with circuits, looms and cable trays included.

Doug Brimblecombe, QPAC Manager - Lighting, said "It is refreshing to be able to have an idea and find a company that will work with us to realise the product. SSE and their Prolyte partners have been fantastic at getting our ideas into an excellent working lighting batten. The compactness of the batten was integral in the design as we wanted a batten without lots of screws, plates and bits added on. The simplicity of the trays works. The battens are slim, sleek and very useable structures that will last for many years."

www.stageengineering.com



TECHNOLOGY INVESTMENT PAYS OFF FOR CUTTING EDGE OB'S

The 2009 AFL Grand Final is Australia's premier Outside Broadcast (OB) event and a major production for AFL Films and

Network Ten. This year Cutting Edge put its recently installed Riedel Artist intercom system to the test, joining multiple OB trucks and multiple sites.

Cutting Edge recently upgraded their entire HD OB fleet to the Riedel Artist system along with the new Motorola Hybrid Digital radio talkback system, also from Riedel. The new system utilises fiber optic technology to connect Riedel frames between OB trucks, which minimises the cost and the effort of setting up large scale OB's and also offers the ability to quickly change the configuration of the entire network. Cutting Edge Managing Director, Michael Burton says that "The challenge of changing to new technology is that it's often difficult to get real value straight away when so many people are used to one system."

Communications Engineer for the AFL 2009 Grand Final, Rod Herbert, had this to say about the new system, "I arrived on Tuesday for a Saturday Grand Final to overview the Riedel system. My job was done by that afternoon! Usually with other communications systems there is a mad dash the night before Kroning, patching, 4 wires, fault finding, panic.... The 12 hour

on-air day went without one problem".

Tony Walker is External Facilities Manager for Network Ten; "No doubt the flexibility of the Riedel system allowed options for integrating trucks in many ways not available in the past. From an operator's point of view the panels are easy to understand and operate and are of excellent sonic quality, our favourite option being the ability to mix levels on one's own panel."

Michael Burton adds "We always knew our investment was going to pay off, but we were pleasantly surprised to the extent in which it has paid off so quickly. The Riedel has proven to be extremely user friendly and our clients comment on how clear it sounds. Now that we've added the new Digital Hybrid radio systems we can offer the best comms solutions on the market."

With many large OBs on the horizon for Cutting Edge the team are excited about further utilising its capabilities. Rod Herbert sums it up, "In 35 years of Comms/Audio experience, I have never been involved with equipment that handled such a massively complicated setup with ease. In fact the Riedel goes much further... we have not even scratched the surface of its capability"



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SONY UPGRADES WIRELESS SYSTEMS

Sony recently updated its UWP Series of UHF wireless microphone systems, first introduced in 2003. Since then, the UWP Series has been widely adopted for a variety of applications such as entertainment, live events, conferences, news-gathering, interviewing and professional video production, to name just a few.

All the components of the series – body-pack transmitter, microphones, portable receiver and tuner unit – are housed in robust metal chassis.

Each of the four systems on offer is a complete package containing a transmitter, receiver and accessories.

The UWP-X7 kit includes a unidirectional lavalier microphone and compact body-pack transmitter, together with a plug-in diversity receiver module designed to fit an MB-X6 base unit or integrate with Sony's SRP-X700P or SRP-X500P AV mixers. The base unit can hold up to six receivers, while the AV mixers each have slots for two receivers. An optional ECM-322BMP headset microphone can be added to the system.

The UWP-X8 kit substitutes a handheld dynamic unidirectional wireless microphone for the body-pack transmitter, also including a plug-in receiver module as in the UWP-X7.

The UWP-V1 and UWP-V2 packages are designed for use with Sony



professional camcorders, but can equally be used with camcorders from other manufacturers, or stand-alone.

The UWP-V1 kit includes an omnidirectional lavalier microphone and body-pack transmitter, together with a compact battery-powered diversity receiver module ideally suited

to mounting on a camcorder, or used separately.

The UWP-V2 kit substitutes a handheld dynamic unidirectional wireless microphone for the body-pack transmitter, also including a compact receiver unit as in the UWP-V1.

www.sony.com.au/production



EPSON LAUNCH FLAGSHIP VENUE PROJECTORS

Epson's two new high end projectors carry a four year warranty, as the firm seeks to dominate venue and education installation sales.

The 6000 lumen EB-Z8000WU's WUXGA resolution provides a broad on screen work space that can display A3 pages in full or two A4 pages side by side, show in full wide screen software such as image editing programs complete with side bar menus and high resolution images, and project full HD content without any image distortion or scaling.

The EB-Z8050W, available in January, features 7000 lumens Light Output and offers WXGA (1280 x 800 pixels) format.

With the backing of Epson's long experience in creating software that accurately interprets and renders colours through its inkjet printers, the EB-Z8000WU and EB-Z8050W faithfully reproduce all the tones within the Digital Cinema Initiative's (DCI) broad colour gamut set as the standard for Digital



Cinema images.

The EB-Z8000WU and EB-Z8050W deliver claimed reliability, thanks to Epson's hybrid liquid / air cooling system, long life LCD panels and 10,000 hour maintenance free electrostatic air filter.

Epson's Business Marketing Manager for Projectors Brad Darch said: "We have such confidence in the reliability of the EB-Z8000 series that we have backed them with a comprehensive four year (or 10,000hrs) product warranty and one year (or 750hrs) lamp warranty."

The EB-Z8000 series projectors' unique design allows flexible installation options

in a variety of positions including up to +/- 30 degrees off-axis horizontal and +/- 10 degrees off-axis vertical installation. The choice of six lenses with different throw lengths ensures that the EB-Z8000 projectors can be installed effectively in even the most challenging of locations. The centrally located lens features powered focus, zoom and lens shift of up to +/- 70% vertically and +/- 20% horizontally.

The WUXGA EB-8000WU is available now with an RRP of \$25,995 and the WXGA EB-Z8050W will be available in January 2010 (no price available at present).

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- ◆ Mains failure battery backup
- ◆ HME Spectrum Friendly™ Technology

The HME DX121 is a highly portable and versatile system that can be plugged directly into the headset jack of any intercom station or into a four-wire connection of a device such as a digital matrix intercom. From one to four wireless belpacs may be used with the DX121.

The 2.4 GHz frequency-hopping, Spectrum Friendly™ Technology allows up to eight DX121s to be used together to support multiple channel applications. Compatible with the entire HME DX200 and DX100 series of digital wireless intercom products and accessories.



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QUEENSLAND THEATRE COMPANY CHOOSES ETC ION

After many years of dutiful service in their Bille Brown Studio, Queensland Theatre Company sent their ETC Expression out to pasture, replacing it with a groovy new ETC Ion 1000 console.

The Bille Brown Studio is a 228 seater black box venue in South Brisbane that hosts theatrical-based main stage production and educational shows. The venue houses a stock of generic lighting fixtures although intelligent lighting is occasionally hired in.

"We looked at a lot of the mainstream consoles that are in use in the industry at the moment," said Daniel Maddison, Technical Coordinator, Queensland

Theatre Company. "We did a lot of liaising with other venues in Brisbane in particular La Boite Theatre and Gardens Theatre which also own ETC Ion consoles and we decided that with the ease of programme facilities that the Ion offers, it was the one to go with."

Daniel liked the fact that the Ion platform was very recognisable in terms of what he was used to and that was a major attraction in deciding upon the console.

"I also really like the touch screens," he added. "It was something I wasn't used to but they have certainly made things a lot easier. The remote focus unit is a god send; the Expression had a lead that we used to have to drag everywhere and we don't miss that! Generally, the Ion is a very steady platform and we all love it."

www.jands.com



SHURE SUPER 55 PACKS MODERN MUSCLE IN A VINTAGE BODY

Once in a great while, a product transcends its basic function and becomes an icon – a cultural artifact. Most fade away as they are eclipsed by new technology or changing tastes, but some make such an indelible mark that their appeal never wanes. The Shure model 55SH Series II Unidyne® Microphone is one such icon; it's the professional audio industry's answer to the '65 Ford Mustang or a pair of Levi's 501 blue jeans.

It's been 70 years since the original Unidyne – the first single-element unidirectional microphone -- debuted in 1939. Now, the model once advertised as 'The Microphone That Needs No Name' is getting an upgrade. Shure has taken the iconic 55SH body that has been in production since 1951, dropped in a new supercardioid motor, and added some vibrant blue color. The resulting hot rod has the same retro-cool look as the original when parked on a mic stand but with a contemporary upgrade in performance.

The new model probably doesn't need a name either, but it has one: the Super 55 Deluxe Vocal Microphone. The Super 55 enters the lineup sporting a high-output, vocal-friendly sound, supercardioid polar pattern, and a robust shock mount.

www.jands.com.au



BIG LED AT PARKLIFE

If a festival doesn't have decent LED screens, punters get testy. Parklife set a good example, the festival this year headlined by Empire of the Sun.

TDC supplied systems, LED panels of P18 were designed to stand in three increasingly larger arches, with Lighthouse R16 up stage of the P18 creating a big look.

Content consisted of 3 Macbook Pros running Modul8 and a single hot head camera – all switched via 2 VPs of Encore. Encore allowed multiple ways of presenting the same content. Presets were created to make the content look like one image across all the LED walls, whilst other presets doubled up the content to emphasize the depth of the LED arches.

"The Water Stage LED was very impressive and dominated the stage look. It could be easily seen from 200m away across the other side of the park. The new P18 is very easy to work with. It's a good



sized, light weight tile which is simple to rig. The image from the tiles looks good with high brightness, the SMD LEDs used in this product make a big difference"

said Tim Jones, TDC Senior LED Tech.

TDC also supported the visuals on the Air Stage with a Vuepix P25 LED wall.



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Part No. [^]	Kit Description	Kit Price*	Total if purchased separately [^]
SB168-KIT1	16x8 Digital Multicore Kit	\$ 9,000 RRP	\$ 12,200 RRP
SB168-KIT2	32x16 Digital Multicore Kit	\$ 17,000 RRP	\$ 22,200 RRP
SB168-KIT3	48x24 Digital Multicore Kit	\$ 25,000 RRP	\$ 32,200 RRP
SB168-KIT4	64x32 Digital Multicore Kit	\$ 33,000 RRP	\$ 42,200 RRP

[^] Kit specifications:

- SB168-KIT1 (\$9,000 RRP) includes: 1 x SB168-ES unit and 1 x MY16-E564 card.
- SB168-KIT2 (\$17,000 RRP) includes: 2 x SB168-ES units, 1 x MY16-E564 card and 1 x MY16EX card.
- SB168-KIT3 (\$25,000 RRP) includes: 3 x SB168-ES units, 1 x MY16-E564 card and 2 x MY16EX cards.
- SB168-KIT4 (\$33,000 RRP) includes: 4 x SB168-ES units, 1 x MY16-E564 card and 3 x MY16EX cards.

Individual component pricing (if purchased separately):

- SB168-ES: \$9,000 RRP • MY16-E564: \$3,200 RRP • MY16EX: \$1,000 RRP

* All offers in this promotion are valid only between 1st October 2009 and 31st December 2009 at approved Yamaha Professional Audio dealers. Subject to stock availability. The prices referred to in this promotion are recommended retail prices only and there is no obligation for dealers to comply with this recommendation or the effective program dates. The Yamaha Professional Audio dealers eligible for this promotion may not have sold these products in the past and where they have sold these products they may have sold them at less than the RRP. Dealers may or may not sell them at the RRP. All prices quoted are inclusive of GST. Errors and omissions excepted.

Single SB168-ES digital stage box pictured. Digital mixing console and cabling not included.



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ROBE ROBIN DEBUTS AT LARGEST OUTDOOR DINNER IN DARWIN


Total Event Services in Darwin is the first event production company to take delivery of the new Robe ROBIN 300E Wash fixtures in Australia.

Head of Lighting, Rick Bishop (pictured) had a lot to say when receiving these new fixtures, as this was the first time he actually had been able to get hands on with the new Robe ROBIN 300E Wash.

Says Rick, "My initial reaction to these units was simply surprise. The first surprise came when I picked up the first fixture - I'm used to hauling around heavier fixtures, so I was expecting something with a bit of weight to it, but these units are amazingly light at only 20kg! Finally we have a light light! Even the boss' wife could easily pick one up!"

The boss' wife was unavailable for comment.

Total Event Services first gig with the Robe ROBIN 300E Wash's was for the Qantas Darwin Turf Club Gala Ball, Australia's largest outdoor seated dinner event, with an attendance of 3,800 people. The Gala Dinner is set beside the ocean, amidst tropical gardens and under the stars. "Setup with these units is very fast and painless," says Rick, "Especially because of their very low power consumption. 4 units happily run off a 10amp 240v circuit with room to spare".

www.ula.com.au 

MELBOURNE CONVENTION CENTRE FIRST FOR 6 GREEN STARS

Melbourne Convention Centre is the first convention centre to be awarded a '6 Star Green Star' environmental rating by the Green Building Council of Australia.


A main feature of the Melbourne Convention Centre is its Plenary, an amazing space that can either stand alone as a 5553 seat auditorium or, by deploying two 16.8m high operable walls, be reconfigured into three self-contained, acoustically-separate auditoriums, one with the capacity for 2569 guests and two for 1507 each.

The Plenary's lighting inventory, which is shared with other rooms within the centre, incorporates 4 Rua Performer Series Followspots, 36 Acclaim Fresnels, 36 Rama Fresnels, 24x Arena 2kW Fresnels, 16 Aurora Cys and 24 Pacific 7.5-19 Zoomspots with 1200W 80V power supplies.

MCEC's Plenary Manager Leon Dark said: "The usual quality of Selecon equipment was evident at commissioning and the high light output and narrow beam angle range of the energy-efficient low voltage Pacifics is appropriate for the



Pic by MECC

long throws from our front-of-house lighting bridges. The 2k Arena Fresnels are exactly what we need overhead for our 18 x 12m stage." 



TURBOSOUND FLEXARRAY FOR ACP

Australian Concert Productions (ACP) in Brisbane has purchased a Turbosound FlexArray system with Lab.gruppen PLM amplifiers.

Mick Privitera (Director of ACP), stated: "I've always had a soft spot for Turbosound and was keen to take a look at Flex. I was hearing good things about the system from a number of engineers and the fact it can be used as a line array or a point source system really appealed to us."

Flex was put to the test at a few shows and "ticked all the boxes" with the team

at ACP. The first show was an outdoor festival for 6,000 people. The system was flown with £ per side over 4 double 18" (Turbosound TSW-218) subwoofers. The festival featured a number of top acts including Eskimo Joe, Faker, Bliss n Eso and The Potbelleez.

ACP have taken delivery of 16 x TFA-600H FlexArray elements, 8 x TSW-218 dual 18" subwoofers, Flex flybars, ground-stack bars and roadcases. The package also includes 8 x Lab.gruppen PLM amplifiers spread across two racks allowing the system to be split into two for smaller shows, or used with a rack per side at large events.

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BEYONCÉ TOURS WITH SENNHEISER AND NEUMANN

Beyoncé's world tour is making extensive use of Sennheiser wireless microphone and personal monitoring equipment, and in a first for Beyoncé, Neumann and Sennheiser wired microphones.

Beyoncé is singing through a Sennheiser SKM 5200 handheld mic with an MD 5235 capsule. Horace Ward, front-of-house engineer with Beyoncé since she began touring solo, recalls that she initially used the Neumann KK 104 capsule. "Then Sennheiser came out with the 5235 capsule. I tried it out and I said, 'that's it!' That's the one we're going to use." Ward applies minimal EQ. "It's pretty smooth. All I do is roll off a high-pass at 200 Hz and dip 200 Hz on the console channel about 5 dB, because she has unusual power in the low range of her voice."

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500 MOUNTAIN BIKES IN A FOREST

Sydney based Production Company GUZ BOX design + audio were recently engaged to provide the audio systems for the 2009 UCI Mountain Bike and Trials World Championships held in the Stromlo Forest Park near Canberra.

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Follow the link below for full details. We expect to be adding to the list as we assess further the requirements of the group so I encourage you to keep watching if you are interested.

http://www.norwestproductions.com/exhire_for_sale.html

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OH&S AGONY AUNT

With Julius Grafton...



SCHOOL: DO I NEED A RIGGER?

Commonly asked question. This time the teacher had purchased four moving lights from (of all places) a music store, which arranged 'professional installation'. The movers were doing what they do, allowing focus and colour changing up high without ladder access. According to the teacher 'they are noisy'.

Teacher asked whether the installer needed a rigger, reasoning the things moving around on the FOH bar were possibly a hazard if they fell onto the students or dismantled themselves mid move.

"How do you KNOW that the FOH bar is load rated to hold the movers?" I asked. "I relied on the installer", said the teacher. A common answer, but once you become aware of the risk you can't keep relying on someone else, because we all have a duty of care under law when it comes to safety.

"Get an engineer out there as soon as possible", I advised, 'they need to inspect and certify the FOH bar is indeed secure enough to handle the load, including the dynamics of the movement of the lights.'

More generally, no one should hang anything without absolute clear knowledge of the condition of the hanging point. That's where riggers come in, and they usually have an engineer on call to further investigate and issue a ruling.

At our college, we teach that if you go into a venue and a placard says "Bar rated to 150kg" then that is useless unless the venue has a relatively recent engineer certificate clearly identifying that bar and expressing how it may be used. Failing that, use ground support or call the rigger and engineer and be prepared for an invoice between 1 and 2 grand.

TEST AND TAG FOR O/S ACTS

A note from a production company head:

"Reading literally the standards it does require a company that 'Hires' equipment is subject to test and tag every 3 months. There appears to be NO REQUIREMENT for international touring companies bringing equipment into Australia to have it tagged or tested, or is this just venues turning a blind eye? Why should foreign companies be exempt, whilst taking revenues away from Australian companies?"

They are not exempt. We suggest every production manager and promoter advise incoming acts that their equipment MUST be safe for use in Australia and must also carry evidence of Test and Tag. Once again, if you know this has not been done, then you are guilty of a breach of 'duty of care' in the event something goes wrong.

There's plenty of anecdotes about touring backline gear going bad due to lack of love and attention. Any venue observing overseas equipment that doesn't display evidence of test and tag will be in a difficult position. I would not enjoy explaining legislation to a jetlagged crew from overseas, or rushing around to arrange an expensive test and tag marathon that would probably kill off the time needed for a sound check.

Got an OH&S question you'd like help with?
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FARNHAM PUTS THE BAND BACK TOGETHER

Photo by Brendon Thorne/Getty Images

He is easily Australia's best known and most popular performer, and his comeback tour of more intimate venues is a success. So how does the band sound, now it's been put back together? The last time the ten-piece band played behind John Farnham was a corporate gig more than two years ago, and they had not performed with him for a year before that.

Everything came to a head when the Sound Relief benefit was held earlier this year, and Coldplay teamed with Farnham to do his number one song. He was nervous about the young crowd – and then they rose to acclaim the performance. Where a Farnham audience is aging, he crossed over – if only that one time so far.

Now he's back on the road, we saw the show at Sydney's Lyric Theatre. There are no risks – it is golden hits, played to grey nomads. An easy step back to the live stage.

Farnham has a really funny line of stage patter, he wasted no time explaining he was on stage for 'another bloody comeback', and said while his manager had been away (much laughter, since Glenn Wheatley did time in jail) he (Farnham) had been hanging around restaurants. "Wheat made me a present while he was inside. A filleting knife carved from a toothbrush", he said, before offering that his gift in return was soap on a rope. You get the idea.

Behind him were much the same line-up you would have seen for more than a decade, but looking very neatly arrayed on the stage at Sydney's Lyric Theatre. Where Farnham did arena tours every year before resigning, a theatre tour brought the band into tighter focus. Music director and keyboardist Chong Lim was placed centre stage directly in front of drummer Angus Burchall. Three performers were laid out each side rear, with a guitarist either side at the front. Neat.

It's not hard to see why Farnham sticks with the same line-up. They fit his sound like a glove, and the three backup vocalists harmonise with Farnham in a truly magical way. Great vocal ensembles are the cornerstone of pop music; think Eagles, Little River Band, Doobies and Bee Gees.

TOURING ISSUES

"We are not touring production", explained tour and production manager Adrian Smith. "These are mainly residencies (in theatres) so there's no point paying for interstate crews to sit around in a hotel for days on end." By this he means system engineers from the lighting and the sound firms. So the production companies have provided local tech minders for the east coast shows. "I made it clear I was prepared to hire local production, we are not trucking interstate or flying or accommodating crew."

This produced a slight shift in fortune for the band accustomed to arena touring with all those frills. They were advised: "We will travel with ALL instruments, pedal boards, the odd keyboard, stage clothes, percussion etc. We may be charged by the various airlines an excess baggage fee but it's cheaper than trucking."

In fact "it's only been Virgin & Jetstar that have charged us the fees to date, not Qantas Group", said Ada.

There are two backline techs on the road, so it wasn't as dire a scene as when Farnham appeared with Tom Jones some years back. They discovered he (Tom Jones) requires his band to actually do without backline tech!

As to the production, long time Farnham supplier Jands provided a V-Disc system for the Sydney run at Lyric, the Hunter Valley Winery show, QPAC Lyric theatre in Brisbane and the Palais theatre in Melbourne shows. Likewise Bytecraft provided lights, with 'an arrangement' made between them and Smith regarding repositioning

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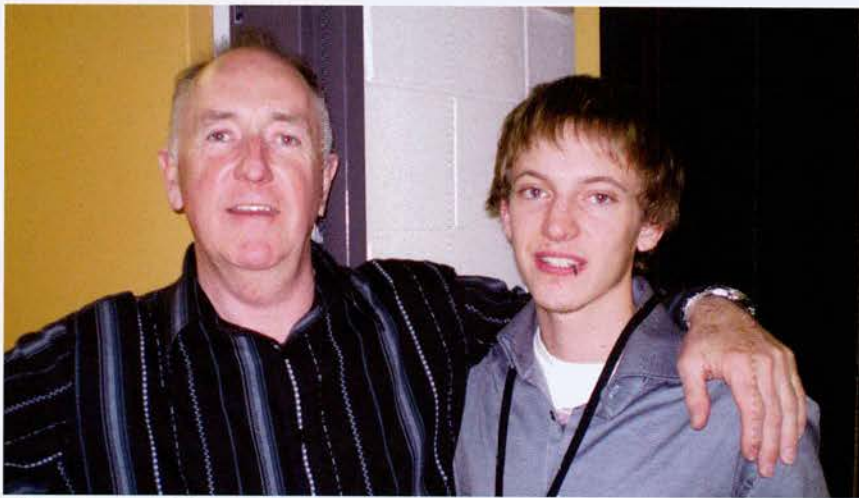
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Adrian Smith with James Farnham.



John Henderson, David Richardson and Michael Wilkinson.



Aviom makes monitors easier.

equipment and system techs between cities.

In Adelaide for the Barossa Valley Winery show the tour used Novatech, AAA in Perth at the Burswood Theatre, and Production Works at the Entertainment Centre in Hobart. Because front of house, monitors and lighting are all modern digital solutions, files travelled and consoles didn't. A small kit of hardware accompanied the tour, mostly the Aviom personal monitoring system that the band have become enamoured with through their other work on TV shows.

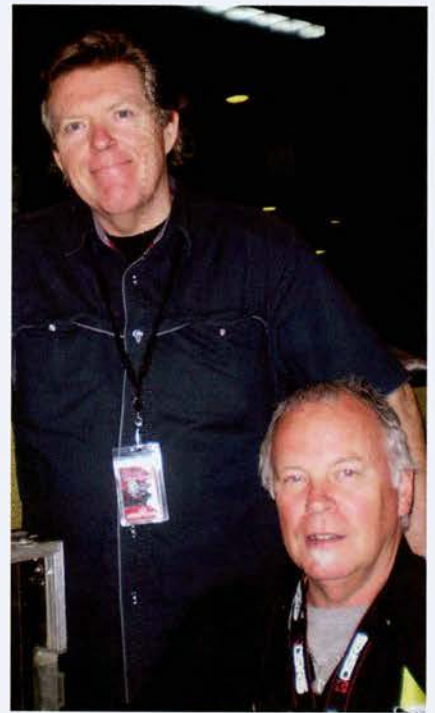
SPEAKING OF MONITORS:

John Henderson has been the personal engineer of Farnham for a very long time. With the advent of in-ear monitoring this decade, the role has changed technically – a lot. But it all comes back to mixes for members, and there are ten in the band plus the boss.

Eleven people all have different needs – position on stage, instrumentation and individual hearing all come into play. "I've got tinnitus", Farnham told me, before explaining that his latest choice of ear monitors are the best yet. He uses a four-way ear monitor called Fi Fi Quad, made by Ear Monitors Australia.

"The boss is a very generous man", said Henderson, "when he got his Hi Fi Quad's, he got me a set too." This makes good sense, a monitor engineer always prefers to listen to the money through the same device that the star uses. But not all performers will invest in this manner.

When Farnham went 'in ear', the big thing was the immediate disconnect from the audience thus caused. This tour, a regime of ambience microphones has



Grant Walsh and Pat Richardson.

been introduced which is centred on a Pressure Zone Microphone (PZM) placed stage centre. "It gives a general ambience, whereas the microphones facing the audience tend to pick up certain areas", Henderson says.

"I spend the show riding the ambient mic's", he continues. This has been made easier because seven band members have their own Aviom mixing systems, where they can do their own ear mix of 16 channels. These 16 have been submixed by Henderson on the Yamaha PM5D console. (See side box).

Although everyone on stage has in-ear monitors, there's also a pair of foldback wedges in front of Farnham, and sidefill. "This is to beef up the stage ambience", says Henderson, "otherwise all they are getting is the house sound back from the rear wall. Plus if someone pops up for a special guest appearance, like a Jimmy Barnes, there is monitoring for them."

Which brings to mind a funny story. There is a lot of laughter onstage and off with Farnham, which is another reason people like the guy so much. One night in a previous tour, singer Venetta Fields visited side stage and asked Henderson to "patch her into John" from his desk mic. "I'm gonna whip your white ass", she yelled to a startled Farnham. Doubtless the audience wondered what was cracking him up.

One final nuance of the in-ear system: "When the boss 'goes under' in the dressing room (meaning he puts his ear monitors into his ears and becomes deaf to the world outside) I put a lavalier mic and belt pack on him. This is patched

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The Boss with Hendo.

back into his ear mix, so he can hear whatever is said in the room or backstage. That lavalier and pack are discarded as he walks on stage."

OUT AT FOH

Chris Newman worked with Farnham in the Little River Band days, and thinks he's heard and lit *The Voice* (top single) about 2,000 times. In the stadiums he had a crew and up to 15 followspots to call. Here he has two.

"Theatres are slower to get in, bars to load up, but the stage depth is better. The arena's try to fit extra seats, the stage depth can get pushed. Plus in theatres I have more positions to play with."

At least there are not 15 followspots to call. "I had to bite the bullet and teach myself Grand MA before the tour", Chris continues. "It makes it easier, because I can clone fixtures quickly". In the eastern states he has 34 Mac 700 wash and the same number of profiles as his main fixtures.

Chris has a Catalyst server to feed video out to the five vertical screens cued off the lighting desk, and uses a lot of original content designed by Leo Lipp, a video producer. "I use a little bit of catalyst generic, but everyone knows what

Tom Jones. Cliff Richard. John Farnham. One of these has an audience that has webbed out and become younger. Jones has kept the old audience as well, so there are complaints at his shows about the volume.

At Farnham it's a safe 91 decibels, A weighted. Which means not too loud, but not thin and whippy like Cliff Richard's mix has become. Sir Cliff has the oldest audience on the planet, and they really don't like hip, fat, funky or loud stuff.

that looks like", he says.

There's predicable stuff, like fire and flames in 'Hearts On Fire', but also some really cool cubes and shapes in bright colours later on. The translucent nature of the screens means lights are behind them as well, adding depth and dimension.

Watching Newman light Farnham is not unlike watching a Billy Joel show. The lights are almost ahead of the cues, the big looks are in the right places, it goes tight for the ballads. There's a synchronicity between designer and artist. Everyone is lit right, at the right times. There isn't a contest between lights and the act.

Then there is the sound, again by a long serving engineer, Grant 'Tosh' Walsh. In this theatre it sounded better than I've heard Farnham before. Mixed on a Digidesign Profile system the plug ins made for a more satisfying reverb sound, maybe it was the venue acoustic that helped. Farnham sings into a Shure KSM 9 on a Shure JR wireless system.

Senior Jands System Engineer Pat Richardson was on hand when we visited. "We haven't even switched on the subs", he said. There were nine V-Dosc and three DV-Dosc boxes a side, in one array. "In earlier times we would fly some for the gods, stack some on the ground, and align them all in. Now I'm finding this design better, it gets more bass upstairs".

The system is run with the bottom end extended at the processor, so the 15" speakers in the V-Dosc boxes extend lower than 70Hz rather than crossing out to the subs. For this show it certainly did have more than enough punch, and yes – the lows made it upstairs.

As always, Jands systems come very neatly packaged and well engineered.

CREW ON THE ROAD

A new addition to the party is James Farnham who was assisting Henderson



Chris Newman.

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| 3. Kick | *The Brett Vocal |
| 4. Bass | is because he is |
| 5. Gtr 1 | the one player |
| 6. Gtr 2 | who sings and |
| 7. Trumpet | who has an |
| 8. Sax/harp | Aviom. The BV |
| 9. Playback L | (backing vocalists) |
| 10. Playback R | are all getting a |
| 11. Keys L | mix generated |
| 12. Keys R | direct from the |
| 13. Acoustic | PM5D and are |
| 14. Brett Vocal* | not on Aviom. |

and learning audio. Two stage tech's (Frank Iskra and Michael Wilkinson) share the backline, Chris Newman handles lights, Grant 'Tosh' Walsh mixes front of house, and Emma Bell manages the prompter system. Farnham joked about this, so it's fair to write about it. "I know a thousand songs, I just don't know them all the way through!"

Aside from Lee Anne Meyer in wardrobe, and Manager Wheatley looking after the Boss, that's it on the road.

Jands and Bytcraft and the regional suppliers provide system techs to get the sound and lights going, Massteknik have hired the tour five Barco Mitrix LED panels which are a flexible and semi transparent screen with a 24mm dot pitch.

At presstime the tour had 36 shows across exactly two months, and the ten shows at the Palais Theatre in Melbourne were all but sold out. Then the next page in the Farnham story will be revealed – will he make a new album? Collaborate with new people? Get funky like Tom Jones? **CX**

CORE STRENGTH

It's incredible to think that this little black box is capable of mixing any gig - big or small - at FOH, monitors, or both. Whether you choose a fixed I/O IDR-32 or the modular IDR10, all of Allen & Heath's MixRacks have the same IDR-64 RackExtra DSP mix engine, with full processing and mixing for 64 channels and 32 configurable mix buses, as well as 8 stereo FX engines.

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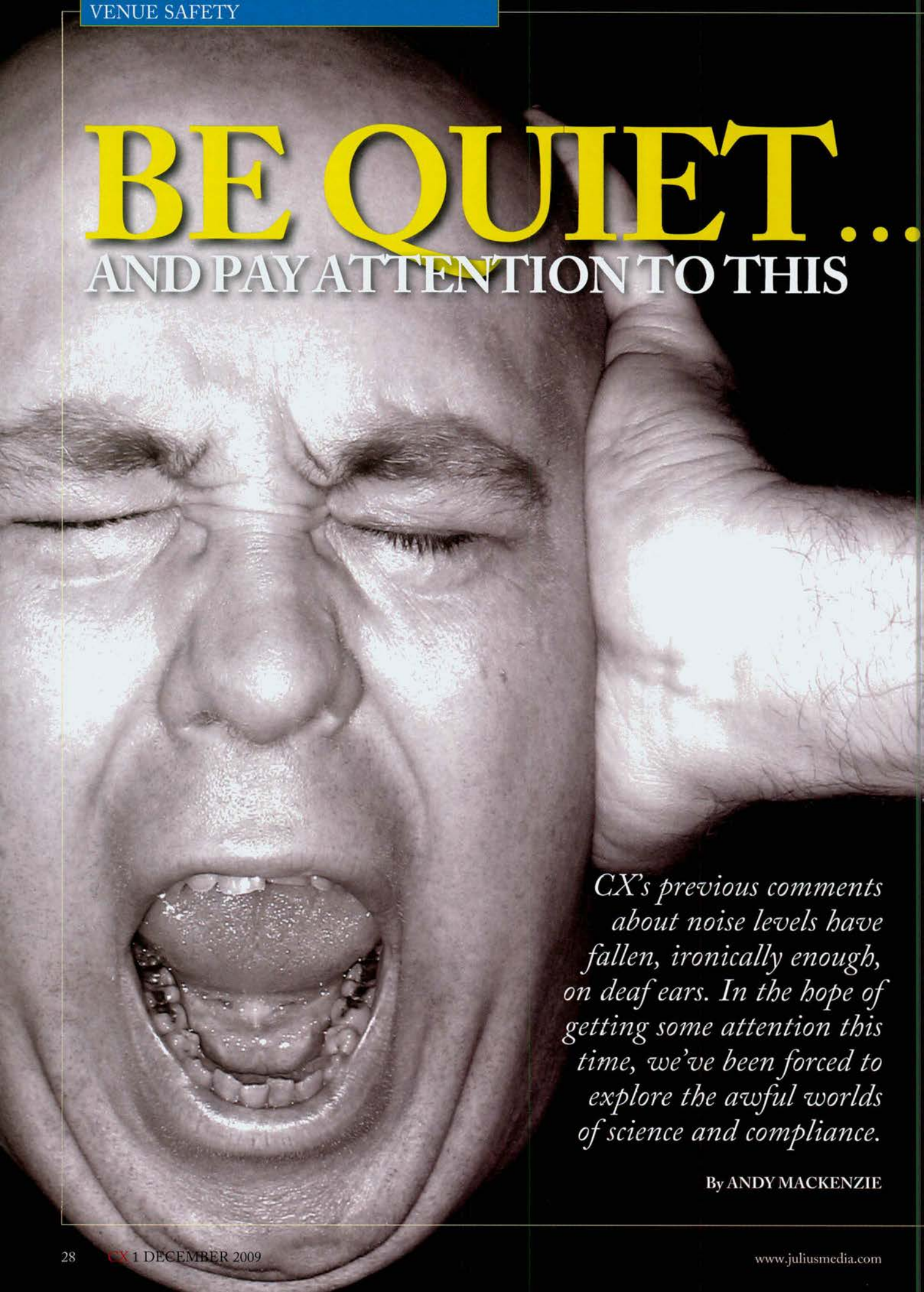


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BE QUIET...

AND PAY ATTENTION TO THIS



CX's previous comments about noise levels have fallen, ironically enough, on deaf ears. In the hope of getting some attention this time, we've been forced to explore the awful worlds of science and compliance.

By ANDY MACKENZIE

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Since the dawn of time, the biggest noise issue facing the production industry has been how much we could make before the cops turned up and gave us a talking to. In more recent times, there have been plenty of DAs that only got approval after applicants made undertakings to keep the nuisance to the neighbours under control. But it's always been about us pissing off the people outside.

But there's a sleeping giant in this whole noise issue, and it has the potential to bring plenty of people plenty of trouble.

Forget the people outside. What about the ones who are in here with you?

Workplace safety has been a legislated requirement in Australia for long enough now that most people have got the message, at least to some extent, but there are a few points that people may not be getting.

DUTY OF CARE

So here's me, freshly returned from trawling through the OH&S Acts of every state and territory in the country, along with the current draft of the new national legislation, ready to report that there are some very obvious similarities between all of them.

The most obvious of these is the concept of duty of care - prosecutions under these laws are not based on accidents, illnesses or injuries caused, but on whether sufficient steps have been taken to prevent them from occurring. In other words, nobody has to prove injury - just that the conditions were right for injury.

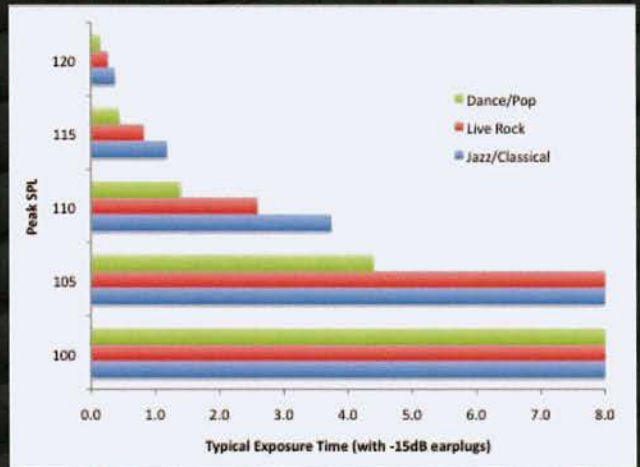
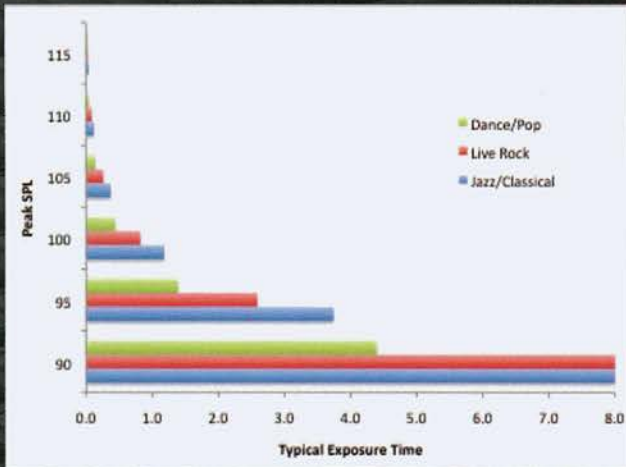
And the duty of care isn't restricted to the people at work. All the legislation requires appropriate steps to be taken to ensure the safety of all people in the workplace - including the punters. As John Kirby at Workcover NSW puts it: "You are responsible for people on your site, whether you employ them or not". Peter Adams of Safework SA reminds me that there have been previous prosecutions under the relevant section of the Act in SA.

The draft national law is pretty typical, so I'll quote it: "A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking."

But what constitutes 'reasonably practicable'? I'm glad you asked. Essentially it means you need to have considered the risks and what you can do about them before doing everything that can reasonably be done.

SOUND ADVICE

The various Acts tend not to have much to say about specific safety issues - it's not really their purpose. All the specific stuff gets dealt with under various Regulations, Codes of Practice and so on. Each state and territory makes its own reference to noise



PEAK VS AVERAGE SPL

One of the toughest things about dealing with noise issues in this business is that, unlike most industrial noise, sound levels are not consistent or predictable. Most industrial noise issues involve machinery of some kind, and machines tend to make the same amount of noise whenever they're working.

Our machinery, on the other hand, is purpose-built to produce unpredictably variable SPL. This means that while it's a simple enough thing to measure instantaneous SPL peaks, these peak levels have very little to do with the average SPL over time.

A far greater contribution is made by dynamic range – a bigger dynamic range means more time spent at lower SPL, which pulls the average down. And averaging SPL values is not as mathematically simple as you might think. Because the dB scale is a logarithmic representation of SPL, peaks can represent truly staggering bursts of energy and it can take a lot of low level stuff to pull the average back down.

The graphs here show some ballpark estimates of safe exposure time to different musical styles at different peak SPL. Key point is that these are estimates based on assumptions – maybe useful as a guide, but no substitute for measurements. For the record, these are the assumptions: Dynamic range for dance/pop 6dB, for live rock 12dB, for jazz/classical 18dB; in each case I assumed 10% of the time each at peak and minimum SPL, 40% half way between, 25% below halfway and 15% above. One graph shows times for unprotected ears, the other for ears protected with properly fitted -15dB earplugs.

and, once again, they're pretty consistent across the board. The National Standard for Occupational Noise, published by the National Occupational Health and Safety Commission, is the basis for this consistency and it's pretty clear about what's expected of you.

It states, quite simply, that "The

national standard...is an eight-hour equivalent continuous A-weighted sound pressure level, LAeq,8h, of 85dB(A). For peak noise, the national standard is a C-weighted peak sound pressure level, LC,peak, of 140dB(C)."

And there's no special rules for entertainment venues – as the man at

Workplace Health and Safety Queensland says, "...it doesn't matter if you're a nightclub or the factory across the road. It's all in the legislation."

So in order to discharge your legal obligations, you need to be doing everything reasonably practicable to ensure that noise exposure for both punters

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"The national standard... is an eight-hour equivalent continuous A-weighted sound pressure level, LAeq,8h, of 85dB(A). For peak noise, the national standard is a C-weighted peak sound pressure level, LC,peak, of 40dB(C)."

and crew doesn't exceed the standard. And however much the loudness freaks complain, turning down the master fader counts as 'reasonably practicable'.

PLUG IT UP

Of course you can supply hearing protection – earplugs or earmuffs – and require your crew, bar staff, and so on to wear them. But can you apply the same strictures to the patrons? "Hi, welcome to the club. If you're planning to stay longer than two minutes you'll need to wear these. Just wait over there and our safety guy will teach you how to use them correctly."

That's the other side of the protective equipment deal – you have an obligation to supply all required protective equipment and train people in its correct use.

So a bucket of disposable earplugs on the bar probably doesn't cover it.

SO WHAT DO WE DO?

Well, why not start with the blindingly obvious. If your SPL is peaking anywhere over about 105dB(A), it probably won't do anyone any harm to turn it down a bit. Most people encountering 105dB peaks will think it's plenty loud – as long as they're not comparing it with something even louder.

Provide some quiet areas – maybe put the bar in another room or just have some

areas around corners or similar that can provide a refuge from the noise. This could be beneficial for the staff as well, as you have a quieter workspace you can rotate them through.

As long as the punters are conditioned (as they are currently) to the idea that louder is better, they'll keep wanting loud. Retrain them (slowly) to the idea that loud enough is even better than too loud...

WHAT'S IN IT FOR ME?

You get to feel really good about yourself and everybody likes you more.

Seriously though, you're likely to see better staff retention thanks to the reduced fatigue and the majority of your patrons will probably appreciate it once they get used to it. Your power bill will go down, along with your emissions. And you can cultivate a reputation for social conscience and progressive thinking.

AND THEN THERE'S THE STICK

If you decide you're above or otherwise outside the law, then one day the law might just come along to remind you that you can't opt out.

All it takes to bring an inspector out is a complaint, and anyone could make one – remember that no-one needs to prove injury, just that you're not discharging your

A? C? L10? WTF?

The terminology hurled about in any discussion of SPL measurement can be confusing, so here's a very quick guide to what some of the more common mean:

A-weighted: measurements are taken with a meter that applies some EQ to the sound before measuring it. This provides a frequency response somewhat similar to that of the human ear – much more sensitive in the midrange, falling away dramatically as frequency increases above about 6kHz or drops below about 1kHz. A-weighting is most commonly used for measuring long-term averages.

C-weighted: measurements are also EQ-treated before measurement, but the filtering is less savage – C-weighting is pretty much flat response between about 100Hz and 3kHz, so it will almost always read higher than A-weighting. At high SPL, C-weighting is closer to human hearing response than A-weighting. Because of this, C-weighting is commonly used in measuring peak levels.

L10: is a method commonly used in dealing with traffic noise due to the continuously variable nature of the noise. Its usefulness in describing entertainment noise lies in the fact that our noise is also continuously variable. It refers to a level which is exceeded for 10% of the specified time. For example, if we were limited to 94dB(A) L10 over a one hour period, we could not exceed 94dB(A) for more than six minutes of that hour.

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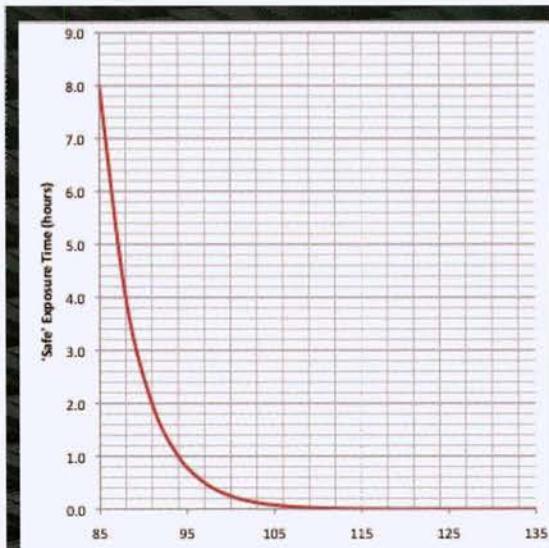
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The graph shows how rapidly 'safe' exposure time falls away as SPL increases.

TIMING IS EVERYTHING

Every bit of documentation I could find on workplace noise was focused on two values – 140dB(C) peak, and 85dB(A) average over eight hours. The peak level is not such a big issue as there are very few people in the audio business daft enough to let things get that loud (having level controls gives us an edge over other industries in this respect).

85dB, however, weighted whatever way you like, is not real loud. Plenty of venues would be floating around 85dB just on the basis of lots of punters hanging around chatting to one another. The issue of averaging is dealt with elsewhere, but it's pretty clear straight up that any extra noise (a band, for example) is going to pull the average over 85.

This is where time comes in. The shorter the exposure, the higher the average SPL can be. The method for calculating exposure time is based on an equivalent energy model – double the intensity, you need to halve the time it's delivered for in order to deliver the same total energy. 3dB represents a 50% change in intensity: 3dB extra means twice the intensity, which reduces the exposure time by half, 3dB less doubles the time.

So minimising exposure time means the average SPL can be higher – but big SPL knocks the time down sharply.

duty of care. And if you're exceeding the specified SPL without taking all reasonably practicable steps to minimise the problem, you could find yourself in a fair bit of bother.

Penalties vary between jurisdictions, but they're all gonna hurt. Maximum penalties can include fines into the hundreds of thousands, prison terms and criminal convictions.

With the introduction of the national legislation, expected to happen in the next twelve months or so, we can expect to see the penalties standardised – but don't expect to find an easy way around the fact that many entertainment venues are too loud much of the time.

There's also a pretty substantial web of liability here, because employees have their own duty of care defined in the various Acts – so "but the boss said I had to" isn't going to hold water. Nor is the boss blaming staff for acting without authority – they're your staff, it's up to you to control their behaviour. What if the perpetrator is a visiting or touring engineer or DJ? Then the net spreads that much wider.

The laws exist.

Ignore them at your peril.



MEASURING AND CALCULATING AVERAGE SPL

There are a number of ways of measuring the average SPL exposure a person or environment is subjected to and, while there are disadvantages to the fact that you can't finalise the results until after you've done the exposure, you can build up a reasonably clear picture of what's going on over a period of time. This is particularly true if you're working with a regular act or venue.

DOSIMETERS: are a purpose built device designed for logging SPL exposure in industry. The dosimeter is attached to the worker whose exposure is to be measured and takes a continuous sequence of readings, which can later be used to calculate the total dose of noise they copped. This could be handy, but they aren't cheap and they aren't any use for anything else. If you're going down this road you might be better advised to rent them, or hire a noise consultant who'll bring their own. **SPL METERS:** have come a long way since the invention of the digital. In the olden (analogue) days, SPL meters were good for instantaneous readings but did nothing else – and you had to choose your weighting in advance. Modern meters will measure A and C weightings, record peaks and do averaging, depending on the one you buy. Just make sure you get the right one...

For those trapped in the dark ages, it is possible to do a rough and ready calculation based on a series of samples. I've taken the liberty of preparing a calculator that will do it for you, once you take the samples and punch them in. The more samples you take, the more accurate your figures are going to come out. You can download the calculator at www.juliusmedia.com. Follow the link to CX then Forums. Find the SPL tool!

KEEPING IT DOWN

So what can we do to keep the noise at a manageable level? Quite a few things, actually. Just for a start:

- **BACK OFF THE COMPRESSION** – worry less about peak limiting, and more about reducing long term averages.
- **BACK OFF THE LEVEL** – run things as quietly as you can, not as loudly. Use in-ear monitoring and get the performers to turn down their stage gear (or bury the amps backstage). Give the drummer a set of hot rods or brushes. Less stage noise to compete with means the PA can run quieter and the mix can sound cleaner.
- **KEEP THE BACKGROUND MUSIC DOWN** – if you can keep the noise down between sets, the average gets skewed down a bit. And people can have conversations without shouting. And the band sounds louder in comparison, which is good since you've turned them down.
- **SPREAD OUT THE SOUND** – judicious use of delays and distributed systems can make a huge difference in terms of the evenness of coverage in the venue. This means less 'hot spots' where the suffering of listeners is increased.
- **TIME** – shorter shows have the option of running louder. But not ridiculously so. Remember that halving the length of the show only gives you 3dB more.
- **EDUCATE PERFORMERS** – teach your musicians, DJs and whoever else needs to learn that louder is not always better and running against the limiters all night achieves nothing (other than making everyone's ears hurt, shortening the system's lifespan and making it sound crap even while it does still work).
- **EDUCATE PUNTERS** – start by just easing the level back a bit each night. We know that lots of punters will complain about it not being loud enough if you turn it all the way down in one go but if you go in small enough increments, chances are the regulars won't even pick it. They may even notice that it sounds cleaner and they don't have ringing ears and rattling brains the next day.

If you're looking for more information about any of this stuff, try your local regulator or the national site:

Australian Capital Territory	www.oshc.hosting24.com.au/index.php
New South Wales	www.workcover.nsw.gov.au
Northern Territory	www.worksafe.nt.gov.au
Queensland	www.deir.qld.gov.au/work/acc/index.htm
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To read the strange tale of the CX team's ad hoc adventures checking SPL in some of Sydney's venues, turn to page 38...



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TROUBLESHOOTING DMX512

Oil and water mix better than DMX and audio cable testers



There once was a lighting consultant who received a call from a theatre who wanted help. The theatre had just purchased its first automated lights and they asked the consultant to help them program the console. The lighting consultant was happy to comply, but he made several requests of the theatre in order to make the best use of the time. The first was that all the fixtures should be tested and the DMX512 addresses set before they were rigged and flown. The second was that the fixtures should be rigged, powered, and connected to the DMX512 network before the programming started. The theatre thought the requests were reasonable and they complied.

When the consultant arrived he saw that all of the fixtures were hanging in the air and he proceeded to test them. First he checked the status indicators on the fixtures. The power indicators were on solid but the data indicators were not. Since the console was not on yet, that was normal. He also looked at the DMX512 addresses and saw that they were all set correctly.

Next, he went to the console, fired it up, and went into the setup menu to patch the new fixtures. He found the

fixture profiles, loaded them into the patch, and configured the DMX512 addresses correctly. Then he got out of the setup menu, selected all of the new fixtures, and homed them. But instead of all of the fixtures going to the home position, some went off in odd directions, some started wiggling out, and some did nothing. Based on what he saw, the consultant said that there must be a bad data cable.

The theatre techs were in disbelief. "We built and tested all of the data cables ourselves," they said. "What could possibly have gone wrong?"

After a bit of detective work, the consultant knew exactly what went wrong.

BUILDING AND BLESSING IN CABLELAND

When the techs built the data cables, they had a young intern solder all of the terminations. After the cables were built, they tested and blessed each one of them before they installed them. But because they were audio techs too, they used an audio cable tester, not a data cable tester.

An audio cable, which is designed

to carry analog signals of relatively low frequency, is very different than a data cable, which is designed to carry high frequency digital signals. By the same token, an audio cable tester is very different than a data cable tester. An audio cable tester typically uses a DC source, like a 9V battery, and checks for continuity. But a DC voltage might act very differently than a high frequency square wave, which is what a digital data signal is. Only a data cable tester can tell you with any amount of certainty whether or not a cable is good for carrying digital data. Why?

First of all, if the cable exhibits characteristics of a capacitor then it will render a digital signal indecipherable. And a cold solder joint can act like a capacitor to a high frequency data signal. So can a microphone cable because it's constructed differently than a data cable.

Second of all, a cold solder joint represents a change of impedance, which can cause data signal reflections. For an audio signal that may or may not result in audible distortion but to a data signal is can cause signal cancellation or corrupt the data.

REAL DATA TESTERS FOR REAL DATA

A continuity checker may or may not find problems that a digital data signal will. There are DMX512 testing devices made by several manufacturers including Artistic Licence, Doug Fleenor Design, Goddard Design, and Swissson, each of which has a cable test mode. Artistic Licence's Micro-Scope, for example, is a battery or wall-powered handheld device that performs a variety of DMX tricks including testing cables. In cable test mode there are three different methods of operation. In the double-ended cable test, both ends of a data cable are connected to the tester and it verifies that there is AC continuity between corresponding pins on either end of the cable and that there are no shorts. In the single-ended test mode only one end of the data cable is connected to the test and it verifies that there are no short circuits between pins 2 & 3, which carry the data signal and its complement.

The network test mode is the most sophisticated of the three test modes. It uses a special function of DMX512-A, which is the latest version of the standard,

to send a test packet of data for the purpose of analyzing the integrity of the network. It is sent by a transmitter and analyzed by the receiver to make sure the information was received correctly. With the Micro-Scope, the tester is connected on the console end of the cable and another on the receiving end receives the DMX512-A test packet, analyzes it, and indicates whether or not the data is good or bad. This not only insures that every component in the link is working but that it is maintaining the integrity of the data.

Goddard's MiniDMXter and Doug Fleenor Devices' Gizmo are two more examples of battery-operated, handheld DMX testers. Both check for continuity on pin 1 between both ends of the cable (indicating that the cable is plugged in) and then sends short bursts of DMX512-like data. If the data is received properly it confirms the proper pin connections at the other end of the cable. If the cable has pins 2 and 3 reversed or if there is high capacitance it will tell you so.

Swisson's XMT-120 is yet another option for testing DMX data cable. Like the other testers, the XMT-120 can transmit and receive DMX512 data for a variety of reasons. If you want to check an operating DMX512 network you can start at the end of the data link and plug in the tester. It will display any channel of the incoming data in percentage from 0 to 100%, decimal values from 0 to 255, or in hexadecimal from x0 to xFF. If you start at the end of the run and find that the data is corrupt or missing, then you can start working back to the console and insert the tester between each successive data cable and the previous fixture until you find the problem cable.

MY FRIEND FLICKER FINDER

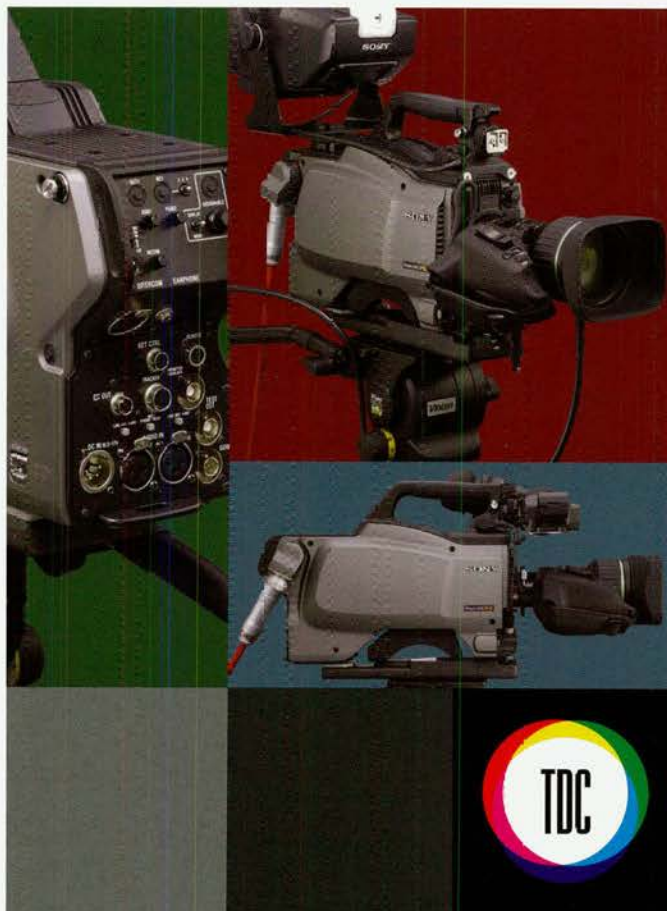
Some of these testers, including the family of DMXters (MiniDMXter, Lil'DMXter, and the DMXter4 RDM), the Micro-Scope, and the Gizmo have a "flicker finder," which allows you to find intermittent problems in a data network. In flicker finder mode, the tester is plugged in somewhere in the data link and receives DMX512 data. The console has to be set to output the same channel values and it can't change. If there is a change in the value of the data the tester will indicate that an error has occurred. This is helpful for testing the integrity of the data over time. But the console has to be in one cue and cannot change any DMX512 values in order for this to work. Therefore, it cannot be used during a show. If it's important to monitor the integrity of a DMX512 network during a show you can insert a tester somewhere near the start of the DMX512 network and it will interleave test packets along with the DMX512 data. By plugging in another tester at the end of the data link you can monitor the network live during a show.

These DMX512 testers vary in price and feature set, but they are invaluable for troubleshooting DMX512 networks. Many of them have so many more features and functions that the cable tester is just scratching the surface. For more advanced troubleshooting some of these devices will find parity errors, framing errors, break and mark after break timing errors, and overflow errors.

If these terms are foreign to you then you should immediately seek help. It can be found in such books as "Control Systems for Live Entertainment" by John Huntington, "Practical DMX" by Nick Mobsby, or "Recommended Practice for DMX512, 2nd Edition," by Adam Bennette.

You wouldn't use an audio amplifier for DMX data distribution so why would you use an audio cable checker to test a data cable?

Check Richard Cadena's data connection at rcadena@austin.rr.com.



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STAR CITY MORPHS SHOWROOM INTO SPORTS THEATRE



By JULIUS GRAFTON

As Sydney's casino is remodelled, an early improvement was to convert the under-used Showroom into a new venue. Retaining the proscenium stage and the large stage lifts which were installed for a Lido style revue that never eventuated, most of the rest of the venue was gutted and reconfigured.

Now open to the gaming floor, the venue operates 24 hours a day, seven days a week.

The 'theatre' title comes from the 12m-wide mega screen powered by two 12k HD Panasonic projectors which is flanked by two 3.4m smaller screens. These are lit with 5k standard def Panasonic projectors. There are 225 stadium-style seats from which to watch the action. Entertainment varies from projected sports through to live bands. Boxing matches, fashion parades and DJ/VJ's all feature.

The heart of Sports Theatre is Halo Bar, which is Australia's longest, with a circumference of 46.5m. They offer 15 beers on tap, including Tiger, Pure Blonde, Coopers Pale, Tooheys New,

Heineken, Carlsberg, Asahi, Stella and Cascade Light with 30 types of bourbon,

On top of the theatre offering, there are an additional 47 x 50inch LCD screens that are set in clusters and hang from the roof of the bar. A food outlet operates from 11am until late.

Video, audio and lighting were installed by Video Plus, with Dean Maxwell responsible for the video system. Along with lighting, it routes through a Crestron system so non technical staff can select 'Boxing' as a preset, and have overhead lights come on. Two stage modes are programmed, one in front of the proscenium and one for the conventional (existing) stage.

New moving lights from DTS and Clay Paky were chosen by designer Colin Baldwin, who selected a Chamsys lighting console which is also interfaced with the Crestron system. "The moving lights work 24/7", Baldwin told CX. "So half the rig operates 12 hours, then lamps down as the other half works". It's a gruelling workout.

Audio needed to cater to bands without intruding out onto the gaming floor. "We put in 2 700HP subwoofers over

Eskimo Joe perform.

the proscenium", said Steve Devine from Meyer Sound Australia. "They are out of phase, one in front and 1 metre apart. It's called an 'end fire' cardioid array. 4 UPQ2P and 2 UPQ1P make up the rest. It's all run from a Galileo controller.

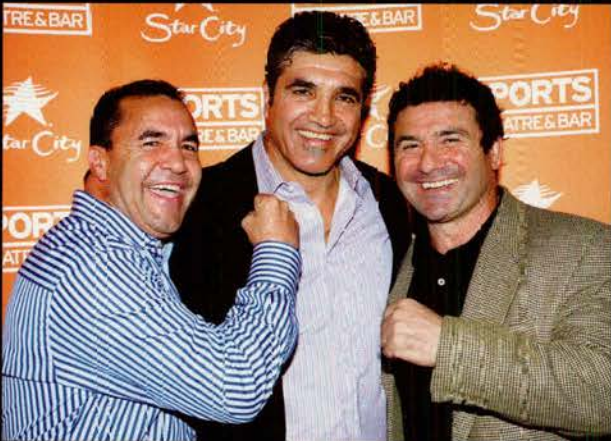
CX attended the opening and spoke with Bieci Henderson the General Manager - Entertainment, and John Thomson - Entertainment Services Manager. They were excited about the new venue, and we saw and heard it at work with the band Eskimo Joe. It sounded and looked great - and the sound did not spill out to the gaming floor. CX



Dammit man I just want a beer. What are they doing?



John Thomson and Bicci Henderson.



Jeff Fenech, Mario Fenech and Benny Elias



Sports Theatre

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EARPLUG QUEST

We talked about it and we decided to put the theory to the test. How loud are some mainstream venues, and how does the earplug issue get dealt with in real life out there? The CX adventure team went to find out.

By THE CX TEAM

BAR # 1: OPERA BAR

Like all good media outlets we don't look too far to find some staff that can imbibe, first stop was one of our favourite Sydney water holes, the Opera Bar. By day you can sit and watch the ferries, at night they have music. We had some good bar food, and several beers.

JULIUS: I like this place, watching the tourists and opera house patrons walk past.

MONIQUE: The atmosphere was chilled and comfy, with a healthy mix of punter. It was primarily groups catching up.

JIMMY: Opera Bar provided a great viewpoint for the lightning storm outside. The changeover from background music to the band was seamless, and the distributed sound system is good.

EARPLUGS: Not seen on bar staff, not seen at bar, not available when asked for.

EXPOSURE: The noisefloor in the venue sat at around 88dbA, and this was essentially just the sound of people talking with very low background music. Once the band started there was virtually no change in level. You will exceed guideline exposure limits after 3.1 hours here.



Our intrepid audio adventurers suffer the deprivations of another tough night on the job...



The Arrebato Ensemble at The Basement.

BAR # 2: THE BASEMENT

Sydney's iconic and valued live music venue, where we've enjoyed many varied and different live acts. Tonight we wouldn't normally have paid the \$20 to go inside, as the genre was not very CX. The Urban Gypsies were supported by the Arrebato Ensemble, made up of flamenco guitar, cello/guitar/mandolin, drums and percussion, double bass and saxophones/harmonica.

MONIQUE: It was chilled and funky. We could have done with less chill, or had more seating. The crowd were primarily jazz freaks, but I also felt the wispy air of try-hard-sophisticate.

JULIUS: Love this place, the PA system works really well although it's time for an overhaul. But this was not my kind of night – everyone looked like they were at a tutorial, not enjoying music! This was by far the quietest band I've seen here – I've usually gone home from here with ears roaring.

JIMMY: I appreciated the really good FOH mix. Security at the front door were friendly, and the crowd seemed totally absorbed in watching the band.

EARPLUGS: See above.

EXPOSURE: The band managed to

peak at 96dB very occasionally but mostly it hovered below 80dbA – using the CX Average SPL Calculator (available free on our website) we make 11+ hours before you are out of guidelines here.



Groovin' at The Ivy.

BAR # 3 IVY

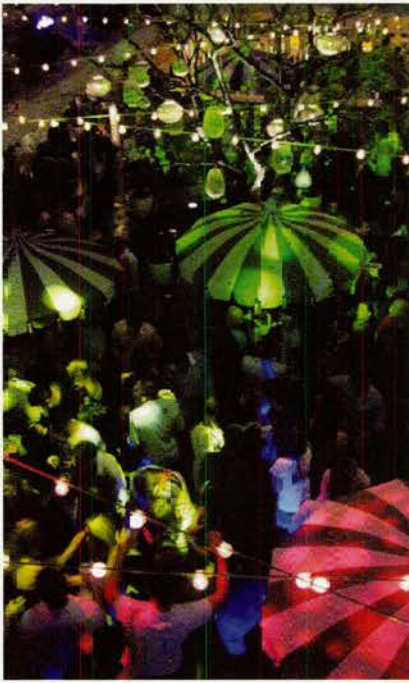
Yeah baby, as we walk up to the barricade the door person opens the rope for us. Check out the photo – why wouldn't you? Up the stairs, and the kind of open aired area surrounded by hip bars is a giant DJ zone.

MONIQUE: Most eyes of intent were fixed upon scoping out a worthy pick up. The venue is impressively grandiose, and bopping through the streams of people was marginally enjoyable. High energy is the name of the game! Lots of pretty and well dressed people.

JULIUS: My date Karen had the hard word put on her twice as we walked through, so at least she had the option open. She stuck with me though!

JIMMY: Colourful yet dark and steamy with an almost tropical vibe afforded by the open roof. Cool venue.

EARPLUGS: None sighted, but it was impossible to get near a bar, let alone order a drink. We were in and out of IVY. It was way too crowded.



Jungle Party at The Ivy.

EXPOSURE: Noise level was around 95dB in the main part of the venue and fairly tight dynamic range since it was recorded music. This one is approaching hearing damage if you stay too long. 38.1 minutes puts you outside the guidelines,

so a night here would be detrimental without earplugs.

BAR # 4 MARBLE BAR

This survived the rebuild of the Hilton Hotel, and was well worth saving. It has amazingly ornate ceiling features and theming, although by midnight on Friday all this was irrelevant to the punters. The band Brown Sugar were having a break, so we walked in to very loud DJ music.

MONIQUE: A bizarre hodge podge.

The venue is impressive: ornate ceilings, arches and marble pillars give the impression of partying in a church, which makes you feel a bit hip and naughty. But it was small, and the crowd confusingly disparate: a Paris Hilton look alike with cottonwool hair extensions, a lone old man doing laps, devastatingly-daggy dancing, even sing-alongs! Unpretentious and anything goes (even 80's music!). It was very high school disco. Good, bad and awkward.

JULIUS: Just all about bad flashbacks, and wow – this crowd made us look like glamazons. Honestly, there were people older than me trying to look younger.

JIMMY: Never been here before.

Finding the loo requires you to navigate a maze of corridors and gates something



All for one...secret handshake of the plugsketeers.

akin to a medieval fortress. Didn't get into it.

EARPLUGS: Not spotted in use, not sighted at bar, and the bar guy could not comprehend me when I asked for some. It was hard enough ordering a beer.

EXPOSURE: The band were not on, but we measured 100dBA plus or minus 2dB, pretty well the whole time. Bad. 14.4 minutes in here and you are out of guidelines. As to where damage happens, it depends on your hearing. **CX**

To learn more about the issue of protecting punters from noise, turn to page 28...

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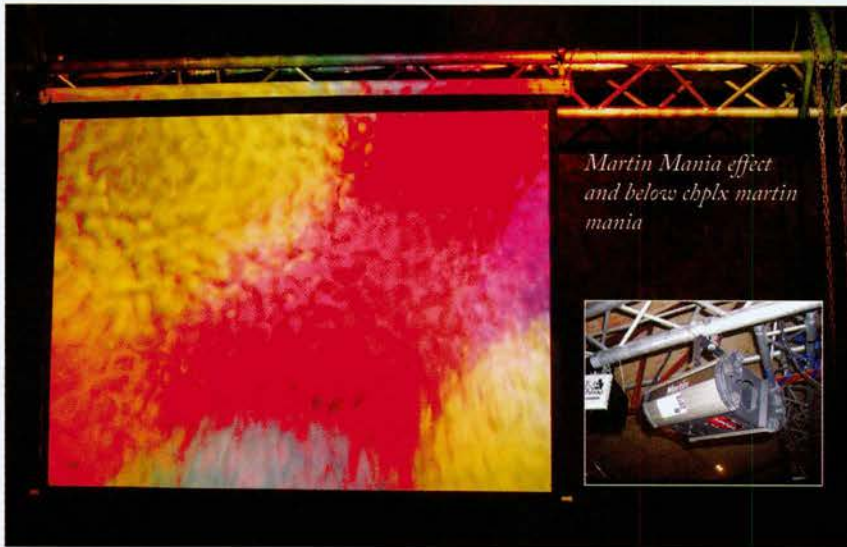
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**PHILIPS
Selecon**

Little Budget, BIG LOOK

Is Don, is good. CX delves deep into the roadcase to find inexpensive solutions to common daily problems. It's a bit like MasterChef making a burger, but humour us.....



Martin Mania effect and below cbplx martin mania

HALLUCINATION 'By Wild Tech'. "It came with a little moving mirror head thing that I don't turn on so it doesn't throw light where I don't want it. Great on a cyc to silhouette a dancer, or on the roof and back wall of a school disco. Lights the kids without them thinking they are lit!"



Hallucination

By JULIUS GRAFTON

Don Jones is a lighting aficionado with quite some experience. And he likes it cheap. Not to say Don is a cheap kind of guy, it's just his client base are the bread and butter variety, schools, churches and regional gatherings.

Recently The Don was hosting a lighting course here at our campus, and his display of daggy effects caught our seasoned professional eyes. After we finished scoffing about how we would use professional ellipsoidal luminaires and \$10k+ programmable automated robot lights to generate the same effects, The Don mentioned that nothing he had with him carried a target acquisition cost of more than \$250. That's what we pay for drinks after work on Friday!



Inferno

INFERNO. 'Wild Tech by ACME' reads the badge on the back, and the 250w lamp powers a thing that just makes a flame effect. "But you can put one either side of a drummer and for those hot dance scenes they are really great", Don says.



Inferno effect

MARTIN DC1 MANIA.

"I think there are newer versions now, but I got this for \$250 and look: a watery, rotating effect with different colours and speeds!"



Hallucination effect

SHIMMER OR MOON

FLOWER. "The reflector is covered in little bits of mirror – just like an inside out mirror-ball! Comes in plain white or multicolour. Great on a rear truss down a curtain. Really good through fog. It has an audio trigger function too."

STAGE WASH. "Really crappy design but it works – it came with 3 x 500 watt halogen linear lamps, I changed them down to 300 watts. Basically it is 3

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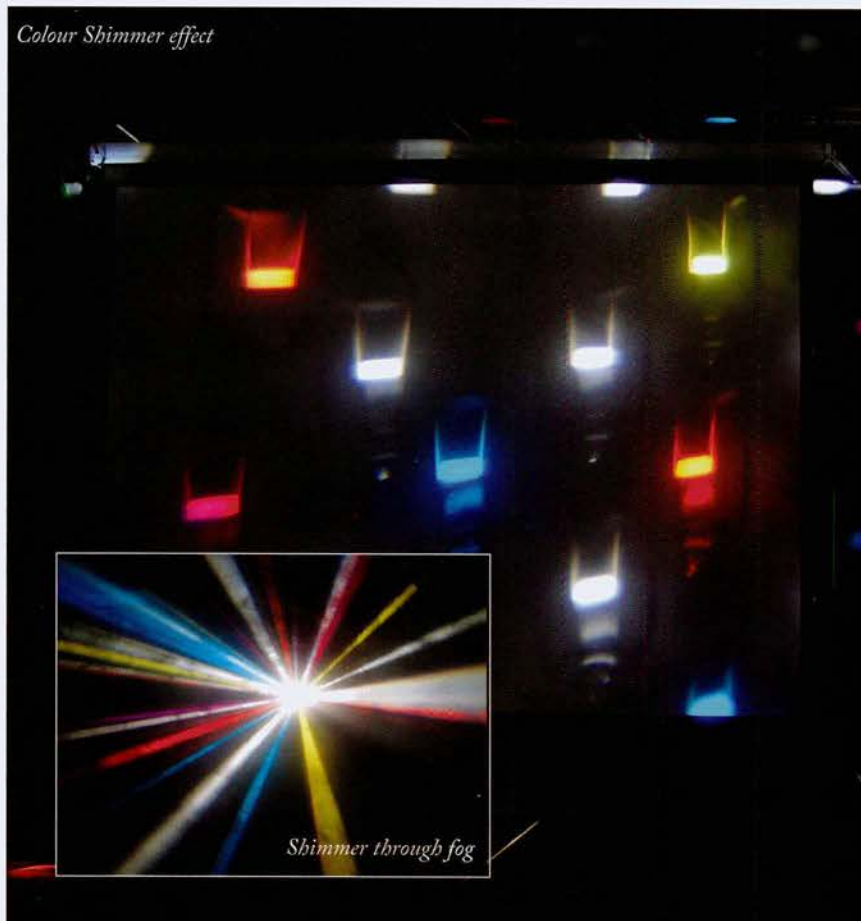


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LED pars



Don Jones

suspects. But Don is enthusiastic. "Put them anywhere, light anything", he said before explaining the frost filter on the second unit was actually just a piece of white paper. Perfectly reasonable when you consider the LEDs burn cold. "They have an audio function as well", he said. The LED par can be found for as little as \$100.

THE REST! There's plenty more. The do-it-yourself plastic gobos in a Selecon Pacific profile spot has changed the world, since you can print the thing on a common printer. Old fashioned things like mirror-balls and ultra violet lights always add a lot of mood. It's all about mood, baby!

Don has some little cans with Par 38 flood globes inside, a neat way to get a controlled pool of light from a Par kind of can with a colour gel on the front as well.

Why not use smaller, lower powered lights? We often dim down lights that are too bright, so using a larger number of smaller lights (more even coverage and less lumens) can be a better look and the side issues of heat and power usage are better managed. CX



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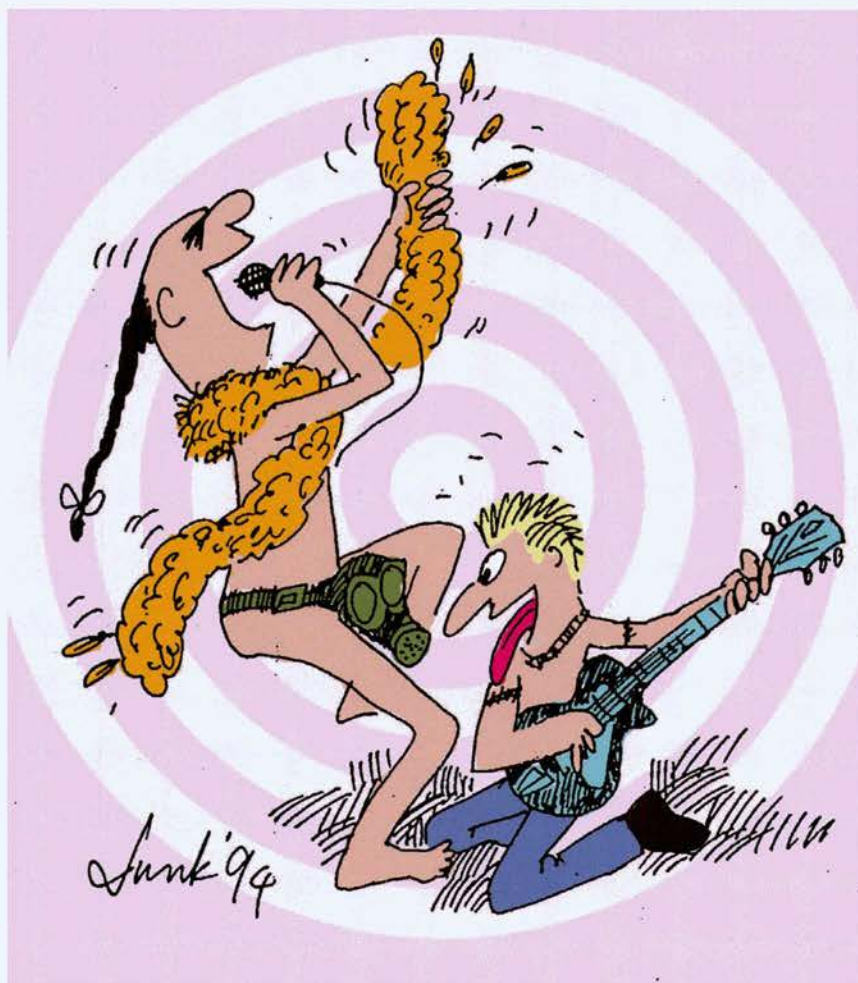


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THE FIRST GIG I EVER MIXED &



By **DUNCAN FRY**

The first gig I ever mixed was a night I'll never forget. It was at a pub in some town on Victoria's South West coast. I remember the gig but not the town. Must be old age catching up with me or the fact that the gig was

so ratshit that I've mentally blocked out where it all happened. Originally, the plan was that all I had to do was drive the truck down there, load in, hang around, load out and then drive back at the end of the night. The band was supplying their own guy to do the mixing. What you would probably call a delivery and

babysitting gig. But as I was rapidly to learn, things rarely went to plan at the grass roots level of the PA business.

For a start, we ended up with a lopsided system, with only half the bottom end on one side. I'd had a fair amount of experience loading, but I had been lumbered with an assistant we'll just call John, who was doing his first (and last) loading gig. Just as we were tipping one of the bass bins out of the truck into our hands, he suddenly decided to scratch his nose! Crash, the box hit the concrete with a sickening thud while he stood there watching it with a finger up his nose! "Oops - was I supposed to hold that?" he asked.

When we plugged it in to check it out, there was a deafening silence from the box. In fact, the only sound you could hear was my heavy breathing, trying to stop myself from strangling the stupid bastard on the spot!

Anyway, somehow we got it all set up. I plugged everything together, made sure it all worked, and then waited for the band and their Front of House guy to arrive. His name was Charlie, although everyone knew him as Chuck Chunder, his stage name from earlier days when he played in a band himself. Well, the band arrived and set their stage gear up, but ten minutes before showtime, there was no sign of the elusive Chuck Chunder. The minutes ticked away, and the crowd was becoming noisier and restless. Then one of the band came over to me and said that Chuck has just phoned to say his car had broken down miles away, so could I mix? Shit, talk about being dropped in the deep end!

I quickly checked out the mixing console, got the echo working and some noise coming out of the monitors, and

that was it as far as soundchecks went. With a crash of cymbals the band appeared and launched into their first song. They were called 'The Nicest People', and if that conjures up in your minds the image of a neatly dressed band doing covers, well you couldn't be further from the truth. There were no cover songs, only originals played to a fast reggae/ska music beat. And if the relatively conservative country crowd had found it a little hard to come to grips with the music, then they were totally devastated by Ken, the lead singer.

For a start he was totally bald except for a long pigtail. That was OK, they'd seen people with no hair before. He was also totally naked, except for a feather boa and a World War 2 gas mask tied around his family jewels, and he cavorted around the stage like a monkey on speed! Before the show I had been chatting with him in the band room, as he had seemed to be quite a serious sort of person, totally unlike the popular concept of a rock musician. He was into some Eastern religion, and I was a bit apprehensive as to how such an unassuming guy was going to handle being the frontman for a band.

I needn't have worries. Once onstage, he was a totally different person. It was like Dr Jekyll and Mr Hyde. He leapt across the stage, jumped over the other musicians, even climbed on their backs and wiggled his World War 2 souvenir at the crowd, all the while singing in a throaty roar.

When the guitarist knelt down to perform simulated fellatio on Ken's gas mask during one of the songs, the audience was horrified!

And who did they complain to? That's right, me! Like every audience at every gig around the world, they somehow assumed that since I was the person mixing, I had a telepathic link to the band, and could get them to do anything just by willing it. So, I got my first lesson in keeping a pub crowd happy. "They're f***n horrible". "Tell 'em to play something good or get off". "What a bunch of poofs"! I shrugged my shoulders. "Look mate, I'm only mixing. Talk to the band, not me".

Well I was nearly right. I was trying to mix. But to tell truth I was at my wits end as to how to keep everything under control. It was like the musical equivalent of riding the mechanical bull, stuck on 10!


I just couldn't keep the levels from running away from me. Things would alternately be too loud or soft, but by the time I'd moved the appropriate fader the situation would change. And so it went on through the night, jumping around all over the place pushing things up and down. I despaired of ever getting things together - the sound was all over the place.

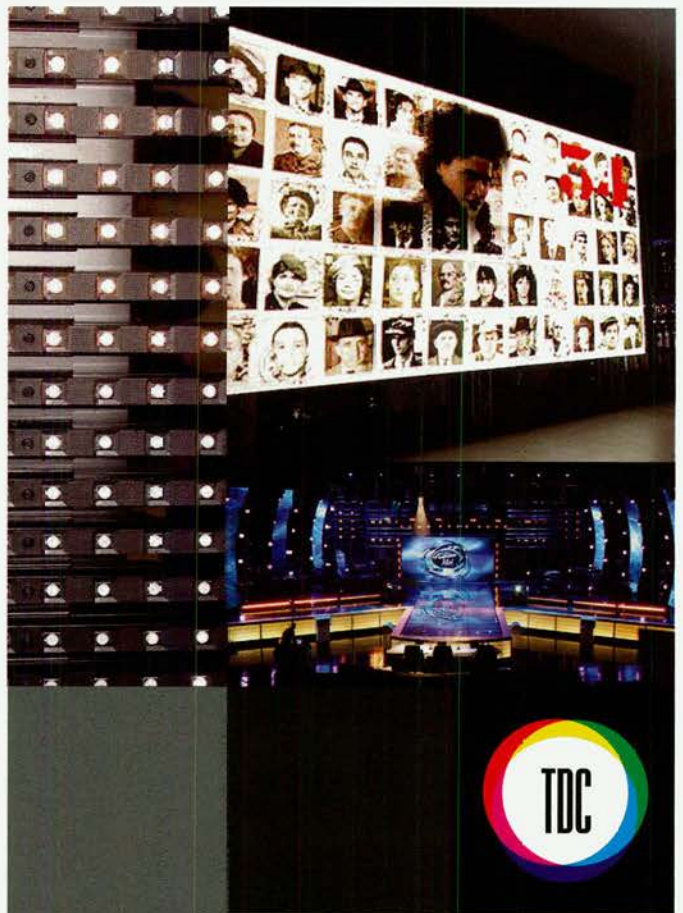
At the end of the night I felt relieved that it was over, and also a bit cheated. Whatever happened to the other guys that I'd watch mixing, just sitting back looking cool and casually adjusting a level here and there? If this was mixing, then it was hard work!

Of course, the minute the last note was played and the band disappeared off stage, who should arrive but Chuck Chunder, having fixed his car and all set to mix a couple more brackets.

He seemed unable to grasp the fact that the band had started and finished without him. I said he was quite welcome to help us load it all back into the truck if it helped him feel like he had contributed something to the evening, but oddly enough he wasn't so keen on the idea!

Still, the band was happy. And surprisingly enough, so was the audience. Once they had warmed up and got nicely plastered, they ended up singing and dancing along with the band, and complained bitterly when the final song was over.

A philosopher might say it was a case of music transcending all barriers. Me, I just think it's very rare for a band to be so bad that it can't keep a roomful of drunks happy! 



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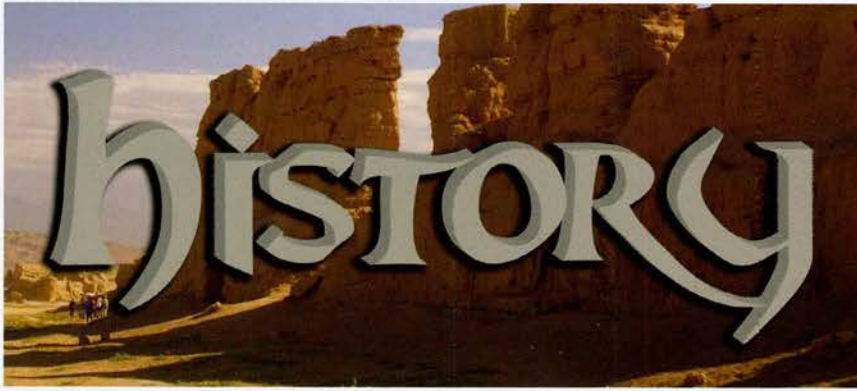
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The way we were, a place where you can stop what you are doing now and laugh about how much harder/easier it was, ten or fifteen years ago. You know that saying, 'the good old days'? Well, we're here to refute the 'good' and reinforce the 'old', because generally going back through our archives only produces shudders, not to mention cringes about our fabulous lack of sub editing back then.

15 YEARS AGO – CONNECTIONS NOVEMBER 1994

Pretty green cover, not. I still remember the dilemma every time deadline rolled around, 'what will we put on the cover?' So what's changed today? I think to myself.

DEFAMATION!

Our first writ landed while we were overseas, causing great confusion in the office. This led to a phone call that

arrived at 4am in London, 'we are being SUED!' Not having enjoyed this kind of thing before, we were a little worried. Turns out Connections had technically defamed a street press publisher who was in the business of technically phoenixing his wretched music rag. He wanted a payout, we didn't play ball, and after 18 months in and out of the Supreme Court, it was no billed.

FIRST ENTECH

We were reporting the wrap up of the first show: 3,150 visitors, 1,612 seminar seats sold and a list of ENTECH Award Winners. Grant Walsh was the Live Sound Engineer of the year for John Farnham, and L.D. was Chris Newman (also for Farnham).

KEVIN BLOODY WILSON

Six shows per week, six weeks in Sydney, \$20 per seat. Grossing over \$12,000 per week 15 years ago. Wow that was good business!

DISCO EFFECTS

This magazine had more adverts for more disco equipment than ever before or since. Disco World, DMC, Black Express, Martin (Roboscan was a hybrid disco/live device) and Abstract all ran full page adverts. Come to think of it, there were also 5 pages of moving light adverts as well.

NEW IN 1995

Martin Wavefront loudspeakers arrived, as did the Spirit Folio little mixer from Soundcraft. Gemini and Pioneer advertised new CD digital turntables. Strand launched the 430 console, Jands launched the Jands Hog.

WHAT WE PAID:

This month we venture through the print classified adverts (remember them?) A Tascam M3500 24 channel, 8 group recording console was yours for just \$6,950 in excellent condition. These days expect to find one twelve feet under acting as an artificial reef somewhere.

- Golden Scan 3 from Clay Paky (new) \$9,499.
- MA Lighting Scan Commander desk (new) \$12,500.
- Mackie 24E console (new) \$6,995.

10 YEARS AGO: CONNECTIONS NOVEMBER 1999

Wow it was just weeks until the end of the millennium and the expected descent into doom with the millenium bug. Remember that little problem? All the computers in the world would all stop working, aircraft would drop out of

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MAC **PROFIT**

the sky and microwave ovens everywhere would stop working. All because the year would flip from 99 to 00. What a crock, the I.T. industry had us all by the short and curlies.....

This magazine came with an austere black and white cover, and an artistic photo. The photo reproduction was finally acceptable – before this time, we had poor rendering of photos to print.

I really enjoyed reviewing this mag for this page this month – I think Connections ten years ago was enjoying a 'high time', in the pure sense of the term. We had a national network of writers at the time too, something hard to pull together.

It was the calm before the storm – once 2000 clicked in, so much changed in our world here at JuliusMedia.

SUPERDOME COMMISSIONED

It was of course the countdown to the Olympics, and we reported the first concert gig at what is now Acer Arena – a double header, Alanis Morissette and Garbage. 64 Clair Brothers S4 boxes did the hard lifting, with a Midas XL4 console. This was the heavy metal of PA systems, nothing before or after would weigh as much as this combination!

Fitting the times, the lights were a mash of Vari*Lites, Studio Colors, cans and colour changers and 101 other bits.

LAKE TO FLOAT

The Australian audio technology innovators Lake Technology were to float and raise \$5.5 million. We reported they

were established in 1991 and had waged a brave and determined battle to bring new concepts to market. History has been very kind to Brian Conolly and David McGrath – Lake went on to be part of Dolby.

YAMAHA PM1D DETAILED

Due to be discontinued in 2010, this really was a flagship console for Yamaha. It didn't sell in large numbers, but it was never supposed to. Instead it set the top benchmark in many ways for a concert digital live console.

FAIRLIGHT MOVED TO LA

The big overseas push was on, and Fairlight was looking great. The firm

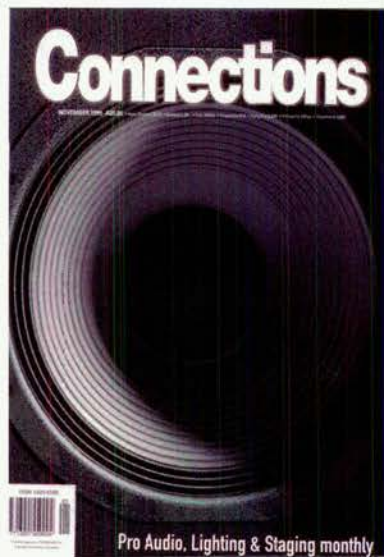
continues today, in its third iteration after collapsing twice in two decades.

HAPPY DAYS THE ARENA MEGA MUSICAL

I reported on this show, but try as I might I just can't remember ANY of it. This was an era of 'arena mega musicals' and thankfully the idea faded away fairly fast. My review said there was no storyline. Maybe that's why I can't remember it.

WHAT WE PAID:

- Light Processor Q Commander console \$6,695.
- JEM Club Smoke System 20. \$2,458.
- Panasonic SV-3800 DAT deck \$2,275.
- Mackie FR 2600 amplifier \$2,995. **CX**



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LEARNING IN THE GASWORKS

Queensland University of Technology's new recording facility is dedicated to teaching more than just ProTools

QUT music production student Brianna Campbell during Big Jam.

By **STEPHEN BRUEL**

A Guinness World Record attempt in non-stop recording and performance was recently undertaken at the Queensland University of Technology's (QUT) new Brisbane-based recording studio QUT Gasworks Studio (QUT is still waiting for official confirmation from Guinness). Located in Newstead near an old gasworks tower, the studio hosted the QUT Big Jam, which involved a roster of 900 musicians improvising across a number of genres, performing and recording non-stop for 150 hours. With such a unique and creative launch and led by a highly respected international team of academics/music producers and musicians (including one mentored by Beatles' producer George Martin), the new studio is an impressive set up featuring both analogue and digital recording options that closely models 'real world' practice.

Gasworks Studio was originally known as Jumpstart Productions, a music production and film & television post facility. QUT acquired the studio in early 2009 to serve as the home of the Independent Music Project (IMP), a research and development arm of QUT's Creative Industries department, and was conceived and founded by Professors of Music at QUT Andy Arthurs and Julian Knowles, and Professor of Media and Communication Phil Graham. The studio is central to the A & R Lab, the part of the IMP that focuses on developing artists



and creativity among those art.sts.

Arthurs' background reads like a who's who of the English contemporary music scene. After becoming one of the first people in the UK to graduate with a Bachelor of Music with Honours (Tonmeister) in recording back in the early 1970s, Arthurs began a four-year stint at AIR London studios, where George Martin mentored him leading Arthurs to produce and engineer artists and bands including Paul McCartney, Bryan Ferry, Marc Bolan, Harry Nilsson, Cat Stevens, ELO, Tod Rungren, and Peter Sellers.

"History has shown that if you put creative people with creative people with more creative people sparks will fly," said Arthurs. "We are still developing the site to include more studios and rooms where creative people can collaborate. We hope all these sparks at the QUT Gasworks are going to mean some big explosions of talent and music."

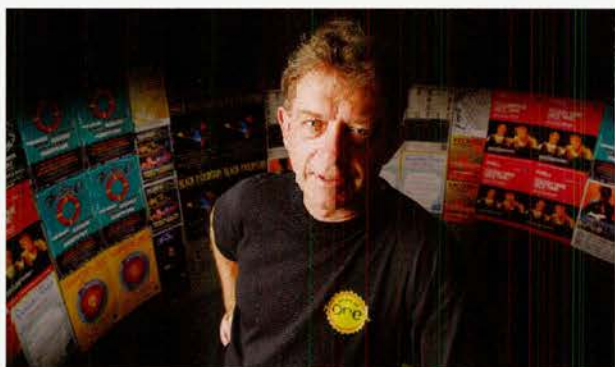
Knowles has been involved in the independent music scene in Australia and the UK since the mid 1980s having played with and produced records for a number of bands and labels including Even As We Speak. The band had three top 10 hits in the UK charts and was one of five

Australian bands to be invited to record sessions for legendary Radio 1 DJ John Peel. Graham has a 20-year background as a professional musician and composer in Australia

"We are interested in supporting original music and connecting with audiences in the 'new' music industry environment," said Knowles. "I have just led the development of a new Bachelor of Music degree that focuses on the nurturing of new original talent. Students will connect with other creative people under expert development mentorship. The students get the kind of critical perspectives on music that you would expect from a university level course."

To complement the new course with a 'real world' teaching environment, Knowles and Graham designed the studio around a model able to undertake teaching, research and commercial activity at the same time while maintaining meaningful relationships with one another. And that includes providing state of the art equipment for students also.

"I have lost count of the number of these 'teaching' studios built around a control surface, ProTools and minimal hardware/outboard – all of which ignore the lessons learned from the history of



Andy Arburs




Julian Knowles

music production and which simply don't model the way in which people approach serious music production in 2009," said Knowles. "Many of the studios look to me like overblown project studios, rather than the kind of studio that a professional might want to use."

Studio A has AMEK Media 5.1 console with a modified backplane to lower the noise floor and another modification to allow full equalisation to be applied to a flipped input at the direct output stage of a channel. It has a two-inch 24-track tape machine running from the buss outputs of the console so they can track to tape and take advantage of reactive analogue media. They then run 32 inputs and outputs into a ProTools HD3 system (with Aurora Lynx interfaces) from the direct outputs of the console so they can dump tracks to and from tape or select an analogue or digital recording medium with minimal patching. The AMEK console also has VCA automation and channel snapshot facilities if needed, full 7.1 monitoring capability and Rupert Neve designed pre-amplifiers and equalisers. For Studio B, QUT recently purchased a fully reconditioned 32 channel 24 buss MCI 600 series classic console complete with wood panelled sides.

"As far as possible, we retain traditional media approaches along with the new," said Knowles. "We have valve equipment alongside solid state equipment: at all points along the signal chain from microphone to tape/disk so that a maximum range of colours and qualities is available. The signal path can be used to really shape the sound from the source and each user of the studio can define how they want to work and not have the studio dictate that back to them."

The studio has a comprehensive set of microphone preamplifiers covering both solid state and valve paths. Some highlights include Chandler Germanium 500s, Abbey Road TG2s, eight channels of AMS Neve 4081s, six channels of Vintech X73s (Neve 1073 preamp/eq copies) and A-Designs P1 Quad Eight copies. Additionally, they have a whole suite of Joe Malone's (Brisbane audio designer) range including JLM Audio TG500, Dual 99v, a rack of TMP8s and their VM2 dual valve model. They also use complete channel paths including



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Mike Howlett in the control room.

AMEK Pure Path Channel in a Box units and Universal Audio LA610 MkII tube channels.

They also have a wide selection of microphones including standards such as Neumann U87s and KM184s, AKG414s and 451s, DPA 4006 omnis, Sennheiser 421, Beyers M88, Beta 57s and EV RE20s. Furthermore there are more specialist microphones available including Schoeps Collettes, Royer R121 ribbons, and valve microphones SE Electronics Geminis and Rode NTKs.

For dynamics processing the studio is equipped with a number of the classic re-issue units such as Purple Audio MC77s (Urei 1176), Teletronix LA-2As and an Empirical Labs ES8 (a Fairchild 660 valve limiter clone). There are also Retro Instruments Sta-Level valve compressors (a reproduction of the original Gates model) and a Vintech 609CA – a class A version of the classic Neve 33609 class A/B stereo compressor/limiter available. Modern dynamics processors consist of a pair of Focusrite Red compressors, an Alan Smart C1 buss compressor, and a pair of Empirical Labs EL8X distorsors with British modification. Outboard effects include a TC Electronics System 6000 multi-fx, a Fulltone Tube Tape Echo and a Thermionic Culture 'Culture Culture' valve distortion processor.

"We chose this combination of gear to represent and gather in one place the very best aspects of the various eras of music and sound production," said Knowles. "It's a place where you can experience first hand the differences between different signal paths and media and appreciate the various debates which are alive and well in the industry. The reality is that the average university student these days is way too young to have encountered a two-

inch analogue tape machine. Every recent audio program talks about analogue processes, so having high end analogue gear allows students to experience the medium first hand and learn about it in practice."

For Knowles, audio production at a tertiary level differs from on-the-job training in that it explores the deeper, more conceptual aspects of the work at hand as opposed to the more immediate, utilitarian objective of training. Having been involved in both, Knowles is in a good position to debate this topic.

"I don't think teaching audio production is very useful when it is divorced from the act of creating content, and say that from the perspective of considerable time spent teaching in this area," said Knowles. "I think we have well and truly reached an age when producers need to be 'creative' and play a role in originating content, especially when the music 'value chain' is turning into the music 'value web' and all the traditional industry roles are being redefined.

For Knowles, there is also a significant difference in the role of tertiary education as opposed to private colleges.

"We differ from private providers in that we don't have the same pressures to run an immediately profitable business, and this provides us with an incredible freedom to focus on some unprofitable, but powerful educational outcomes," said Knowles. "At a university there is an obligation to expose students to the conceptual underpinnings of the subject of study as well as the more functional skill aspects."

For Arthurs, the role an education facility's recording studio plays, as compared to a commercial studio, is vastly different. Away from the financial pressures associated with commercial

operations, education facilities and campuses can focus purely on the creative process, practice and outcomes.

"It is not merely a studio for hire, it attempts to add value for all participants by including internships for QUT students as engineers, producers and other creatives (in time we hope to broaden this to non-tertiary students) and become a creative hub for other artists," said Arthurs. "We focus on creative practice and use this as the driver of all activity. Tomorrow belongs to the creatives, and those who are driven by enquiry and creativity tend to not only know the rules but also break them for artistic excellence."

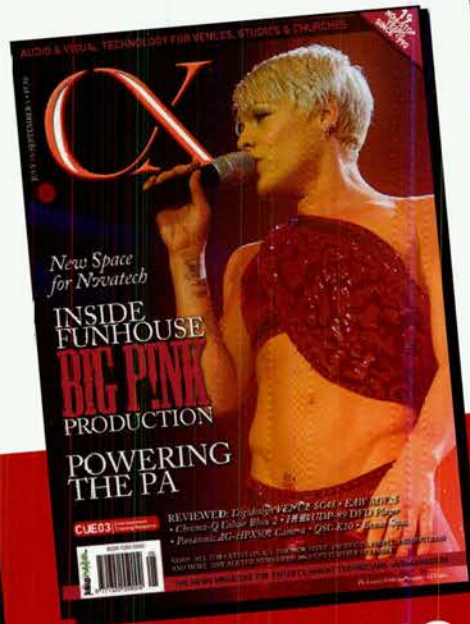
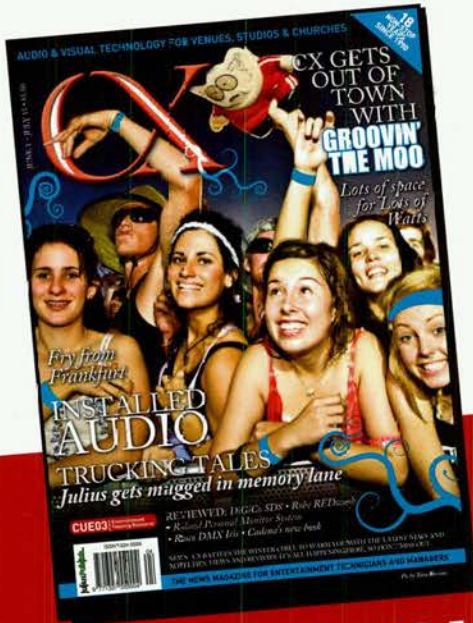
Apart from the QUT Big Jam, which according to Arthurs involved "...10 million notes played over 9000 minutes," the IMP is about to commence a vodcast project with Internode - a major internet service provider - which will take the form of an online music show featuring emerging acts and touring bands 'in session' at the studio. They are also in the process of planning some producer master classes with some of the biggest names in this area in the country and from overseas.

The IMP team are also currently working with a range of other highly talented people at QUT including new QUT Head of Music Mike Howlett (Grammy Award winning producer whose credits include Martha and the Muffins, Flock of Seagulls, OMD and many others) and local legend John Willsted (the Go-Betweens and AFI award winning sound designer). Furthermore, the IMP has a range of partnerships with organisations including Sounds Like Brisbane (a collective comprising all the main independent record labels in Brisbane), Chaos Music, QMusic and the Music Council of Australia. 

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A big hello to all you science buffs out there, and welcome back to...

Dr Danger's WORLD OF DISCOVERY



By DR NIGEL SHORTCIRCUIT

Let me preface my dissertation today with some important advice. Don't do this at home. Don't do it at your friend's home. Or anyone's home. Or anywhere. Don't. At all. I did it under very tightly controlled conditions with Science Boy and a clamp meter and two RCDs and there was still potential for... DISASTER. This experiment is not for you. Got it? Good.



THE BASIC PREMISE

Everybody reading this has been at one of those tremendous outdoor events that happen all over the country every summer. In the course of these cheerful summertime undertakings, I'm sure that everyone has been exposed, at some point, to the idea that if you turn the lights on when the rain comes they won't fill up with water and become a hazard.

I think (the origins of this quaint custom are lost in the mists of time) that the general idea is that hot lights will vaporize any water that comes near, thus

protecting them from wetness – a principle that appears to operate quite effectively for volcanoes and bushfires.

But does it work for lights? I wanted to know, so I decided to find out. After some thinly veiled threats, Science Boy decided he was keen to help. Gardening trousers on, we headed into the CX grounds.

THE (VERY) SCIENTIFIC METHOD

Setting up a lighting rig then hanging about with a notebook waiting for rain seemed impractical and unnecessarily time consuming, so instead we decided to run a simulation.

We hooked up a PAR56 can (borrowed under false pretences) to an RCD protected power source via some clever current measuring hardware we borrowed. When energized, the can did exactly as expected – it got hot and light came out. While all this was happening, it was drawing pretty close to the 1.25A we expected it to. Phase one successfully completed.

Phase two involved simulating rain.

We decided to go with three grades of 'rain': the first would be a gentle shower, simulated using the spray bottle Mrs Danger has for watering her cactus; the second we would step up to a watering can, simulating typical summer rain. The final 'rainstorm' would simulate a late afternoon thunderstorm – a fifteen litre bucketful upended over the can.

THE RESULTS

Well, let's start with the easily observable.

First up, the idea that the heat will keep the can dry doesn't hold water. The can itself doesn't either. Even the little bit of water from the cactus sprayer was enough to get the thing good and wet, but the water pretty much ran straight through from end to end.



This state of affairs continued in the heavier rain, but the heavier the rain got, the longer it took for the water to drip out – obviously it was pooling inside somewhere because the vents weren't big enough to let it all out any faster. Nonetheless, light continued to shine forth so it certainly looked like the can was unaffected by its ordeal.

SCIENCE BOY'S CONTRIBUTION

Science Boy, hunched over his instruments with a concerned look plastered over his head, told a slightly different story.

When the can was wet, it drew more current.

Considerably more when it was actually full of water – up to about six times what it should. So obviously a partial short was dragging extra current through the active-neutral path, without drawing enough to trip any breakers or shorting to earth.

Interestingly, the RCD did eventually trip, but not till we were all standing around congratulating ourselves on some excellent science. So obviously there are some bits of the can where water takes longer to get – and it gets there whether it's on or not.

AND IN CONCLUSION...

I'd like to say that I doubt turning the lights on when it rains is likely to achieve anything other than adding a whole lot more energised cables and kit to a situation which is already less than ideal. Water's still going to get in, it's still going to seep all over the place and it's still going to sometimes end up where you don't want it.

Email Dr Danger your stupid ideas at dangerousnutter@gmail.com.





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HOT TOPICS

We all heard about the White Kittens on a Persian Rug and no brown M&M's on concert riders, right? Rapper Jay-Z's management proves there is still no reality when drafting these idiotic demands. In this case, a client stood up to them. [Read here.](#)

Best House System in Australia! Once again it's on CrewSpace, so you need to join to read. But if you're a tech, you should join. [More here.](#)

Video Sharing – a basic but handy article, and a whole lot more besides is at HowStuff-Works. [More here.](#)

Classic story: The Problem With Music, by Steve Albini. Funny but real. If you wrestle with musicians, managers and record company flunkies, [Go Here.](#)

Video Sharing – a basic but handy article, and a whole lot more besides is at HowStuff-Works. [More here.](#)

FEATURE DEVICE OF THE WEEK

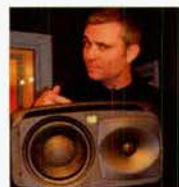


Cop this baby from RADIAL: the JDI Duplex. Probably the most versatile DI box on the market. Now distributed in Australia by Amber... [More here!](#)

PRODUCT REVIEWS



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INDUSTRY DEBATES TRADE SHOWS

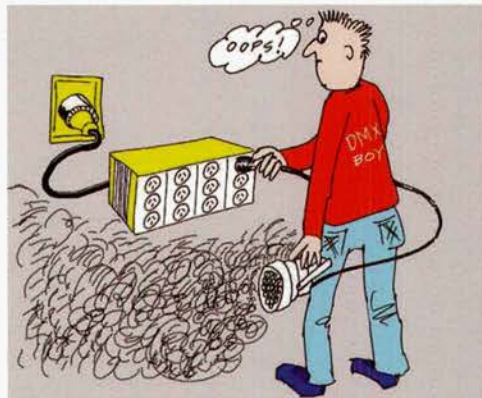
The Australian Audio, Lighting, AV and Staging suppliers have united for the first time to call for a debate on the trade show landscape, following three trade shows staged in Sydney in July. The addition of an annual Integrate trade show in Sydney, at a time of economic downturn, has polarized the industry. Despite this around 80 firms exhibited at the Integrate event. [More here!](#)

SOUND GUY SHOT DEAD

It happened when Tom Pfaffle put his key in the wrong hotel room door. The guy inside opened fire through the door at the Blue Spuce Hotel in upstate Washington. The sound engineer died outside waiting for a medivac. [More here!](#)

CEDIA ANNOUNCE ENTECH TRAINING

The Imaging Science Foundation seminar hosted by CEDIA and designed by Joel Silver, attracts attendees of differing backgrounds. From broadcast executives, AV dealers and distributors to video systems engineers, each person will come away with a new perspective on electronic imaging. Only at ENTECH 2010, February. [More here!](#)



CX MYSTERY PHOTO



OK, just like last week only different. Who is this band, and where are they performing? Hits: It is in Australia, and it is in the 1970's. The winner gets a prize! Email juliusmedia@me.com

Last week's picture (LINK TO CXN1) WINNER! Pete Sneddon correctly identified NARARA ROCK FESTIVAL in NSW as the gig. The 200 Par Cans and not a mover to be seen anywhere kind of sets the scene. Pete has won this fantastic prize, Pro Headphones from AT valued at \$135. [More headphone info is here!](#)



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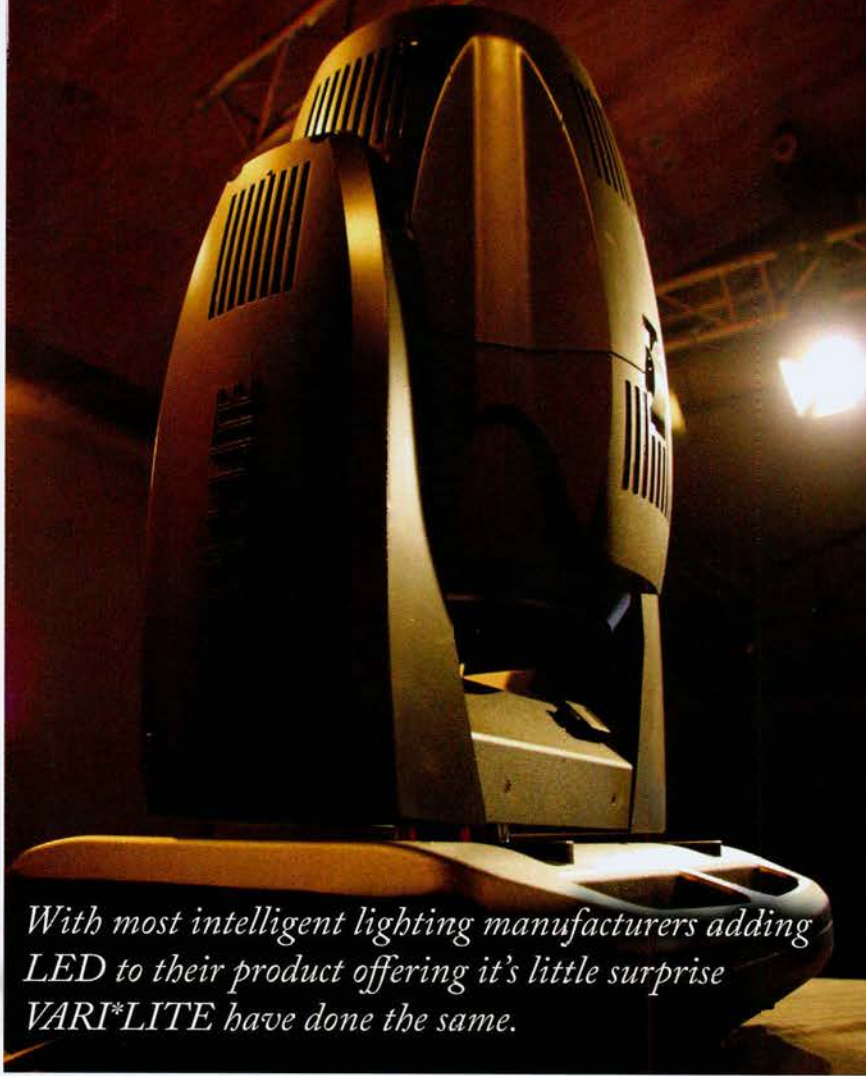
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VARI*LITE VLX



*With most intelligent lighting manufacturers adding LED to their product offering it's little surprise VARI*LITE have done the same.*

By **ANDY MACKENZIE**

Serious LED fixtures have been filtering onto the market for a couple of years now, so in some respects it's surprising that it's taken this long for VL to release their offering. It turns out that sometimes taking the time to get things right pays off – the VLX gets it right.

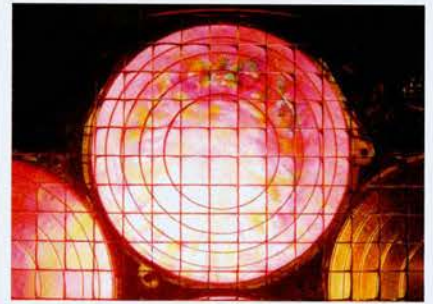
THE BASICS

The VLX is a moving yoke wash luminaire which is powered by 7x 120 watt RGBW LED chipsets. It is capable of beam angles between 22° and 60°, and its movement range is fairly common at 540° pan and 270° tilt. It has a 5 pin XLR DMX input with loop through, as well as a USB port built into the yoke to permit software updates. There's also a knock-out to accommodate a planned future Ethernet port. Power delivery is on a single PowerCon.

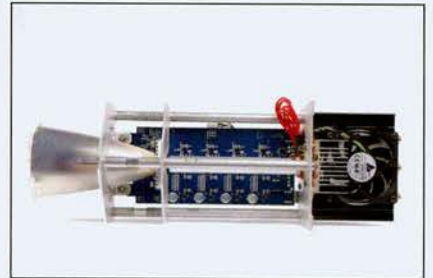
DMX control is 16 bit for everything, and the fixture occupies 23 channels in the stream – a couple of these are reserved for future use. Setup is done by way of a large backlit LCD screen with simple menu/up/down/left/right /enter controls.

A big surprise was the number of fans in the unit – I counted 8, but there could well be more. If you pause to consider how much heat is produced by a discharge fixture of comparable output then it starts to seem more reasonable. Whoever first came up with the idea that LEDs don't make heat obviously wasn't dealing with seriously high powered ones! Regardless, the unit didn't seem unduly noisy. I'm also advised that the next firmware release will incorporate a 'quiet mode' for the fans, so it should be even less noisy.

Unlike many LED units, the VLX doesn't have the LEDs right at the front. Instead, the monster LED chips



Looking down the barrel of a collimating tube.



VLX Light Engine.

are each coupled to a 'collimating tube' which increases the beam's coherence and rids us of many of the multiple source/multiple shadow colour artifacts produced by less coherent fixtures.

BRIGHTNESS & COLOUR

At over 800 watts the output of the fixture is much as you might expect, staggeringly high. We took the unit on a field trip out to the carpark and fired it at a brick wall in full magenta, and the beam was clearly visible. Just for a laugh we shifted the lens to put it into 60° mode and the colour was still visible on the wall. It's very bright, so you'd want to avoid looking directly into the beam.

The colour rendering index of a light source defines its ability to accurately reproduce colours of objects in comparison with that of natural light. Natural light (daylight) has a CRI of 100, though anything with a CRI between 85 and 90 is considered to be capable of very good colour rendition. The CRI of the VLX is reported to be 93, which makes it about the closest we've seen an LED source get to perfect colour rendition. On paper the spec indicates that it does colour well, and everything I've seen backed that up.

OTHER FACTORS

Being as how the VLX doesn't need to re-arrange its innards to change colour, it's capable of doing this very quickly. Instantly in fact – colour snaps are clean and responsive. For those wanting a more subtle approach there's equally good news – VARI*LITE have got the dimming really well controlled so the

jumpiness we're used to seeing from some LED sources is not an issue.

Probably the only real gripe about the VLX is that using it in manual mode is a time consuming process because it's very slow to change parameter values within manual mode in menu. There are 65535 values for each parameter rather than 256, so scrolling through this takes some time. There is a wraparound function, so if you're already on 0 you can press the down button once to get to 65535. I discovered this after going all the way through one parameter and wrapping around onto 0.

The transport locks are spring loaded and work well. This is true of all the mechanical aspects of the unit. I guess VARI*LITE have been doing this a long time, and their reputation for build quality has always been good, so I shouldn't be surprised. And on the subject of build quality, this doesn't feel like a lot of LED fixtures – it's built like a real light.

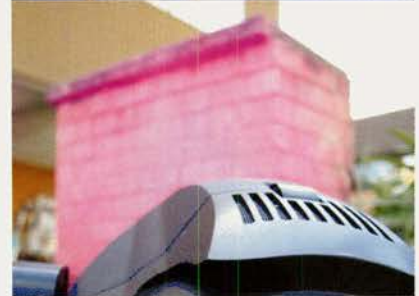
AND IN CONCLUSION...

I like it. A lot. I play with a lot of lights, and generally I find that things are great for the purpose they were designed to



VLX minus front cover.

meet. Given its performance however, I'm reasonably hard pressed to think of a purpose this won't meet. It's robust, quiet, bright and does colour extremely well. Throw the longevity of LEDs into the mix and the VLX locks like a serious contender in the washlight market. Certainly you could hand me a rig full of these and not get any complaints. CX



Outdoors - Top, beam tight. Below, Beam widest

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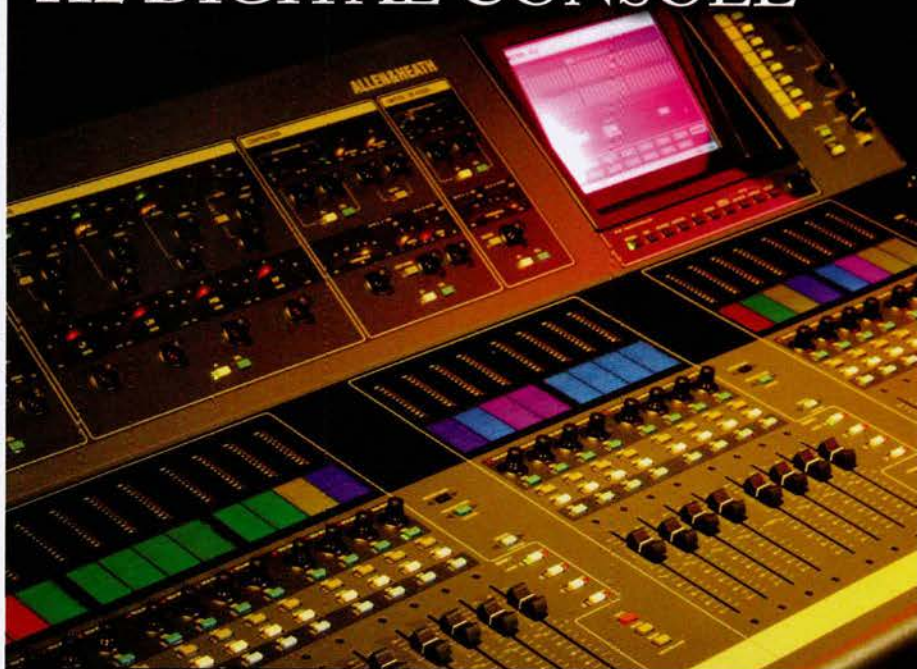
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ALLEN & HEATH iLIVE-T 112 DIGITAL CONSOLE



Allen & Heath entered the digital console market with the original iLive console some years ago. They've since put it on a diet, with the new iLive-T112 cutting out some of the fat and adding some more muscle.

By **JIMMY DEN-OUDEM**

The mix architecture of iLive is 64x32 (configurable), and the system is available in several variations: The T112 surface has 28 faders, while the T30 is smaller at 20. The audio itself is handled within a mix rack – compatible units including the IDR-48 (48 in 24 out) and the IDR-32 (32 in 16 out). Both racks are equipped with ACEnet and Ethernet, as are the control surfaces. A PL-Anet port is also available to connect other A&H PL-Anet devices such as personal monitoring mixers. ACEnet is probably the other most noticeable change between this and the previous generation iLive, which used 2x Cat5 cables (Ethersound and control) between the rack and surface. A card slot on the mix rack allows expansion options including Ethersound, MADI, and redundant ACEnet.

We tried out the T112 surface & IDR-48 combo. You can re-configure the buss structure within the setup screen, including defining how many mono/stereo auxiliaries, groups, matrix and effect sends. Up to 8 on-board effects are available. In a new move, A&H have included local I/O ports on the back of

the console (how many depends on the surface) – previously this required the addition of an expansion card. The local I/O is on TRS and RCA sockets, and the SPDIF is on a single RCA. Audio processing all happens within the mix-rack, which means if you lose your data link to the console surface it will continue to pass audio. It takes the console about 10 seconds to realise it's lost the link, and once you reconnect it and re-start the surface's network side of things it works out around the 30 second mark till you get control back.

THE BIGGEST LOSER

It always strikes me that digital consoles seem to weigh more than they really should these days. Probably the most immediately noticeable feature of the iLive-T is that it weighs less. Less than the original i-Live and many other comparable consoles. I managed to carry it around the office quite comfortably by myself. The mix-rack is lighter than its predecessor too. The console looks quite good, and it's definitely got enough different coloured LEDs to impress.

The T112 surface is laid out into 3 banks of faders (12/8/8), each switchable across 4 layers or pages. Above the faders

are SELECT, MIX, PFL and MUTE buttons and an LCD display with variable colour backlight. Above the fader strips, there are a fixed set of controls which roughly represent a channel strip (minus auxiliary sends) laid out horizontally. To the right there's a touchscreen, with hot-keys below to access different menu sections including routing, output patch, and utility functions. Further right are user definable keys, controls for monitoring, talkback and dimmers for screen and backlight.

FADER BANKS

Each fader strip in each layer can represent whatever you want it to, and you set this up through the "SURFACE" setup key in conjunction with the touchscreen and rotary encoder beneath. So you could for instance have a bunch of channels, then a DCA or two, some groups, a few auxiliary masters, and then a couple more channels. You can set the name and colour of each strip independently. It's a cute feature, but I think most people will probably just use the more conventional default layout. If you're going to change colours, do it in blocks rather than channel by channel. It's faster and the individual channel version of the process seems to make the



As well as using the rotaries, you can change some parameters by dragging on the touch screen.

touchscreen lag.

Modifying channels is largely the same process as on most digital consoles – select the channel then change the parameter you want. Each channel has gain, pad, phase reverse, sweepable HPF, gate/expander, 4 band PEQ, Compressor, and a De-Esser/Limiter. There's also an assignable insert function which allows you to process individual channels with external gear. The system allows you to

“steal” an input port on the mix rack to use as an insert return, but won't let you steal it back to use as a channel input without first un-assigning it from the insert. Having a constant set of rules for how stuff behaves would be a more logical choice (you can either steal the port all the time or not at all) – the present system makes it harder for users to learn as the rules change.

Channel dynamics work reasonably

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Focus and intensity effects built-in



Auto timing on compressor.



iDR Mix Rack - ACElink does everything on one cable.

well, and there's even an auto attack/release function on the compressor which is uncommon for digital consoles. This would make dynamics processing a lot simpler for novices, and it can be switched to manual mode easily enough. The other channel processing functions all seem to do what they're supposed to and I really like that there's a pad function available for the pre-amp (something lacking from many consoles). I loaded up a pile of channels with every processing function I could until I got bored and there was no noticeable degradation to audio performance. You can hit the pre-amps pretty hard without digital distortion. A small but niggling point was that varying the Q control on the EQ changed the intensity of the LEDs which represent it – the more LEDs go on the dimmer they become.

MIXING IT UP

It's all about the MIX buttons on the iLive-T. Press "MIX" on a mix bus fader,

and your channel faders then control the level at which each channel passes into that bus. Kind of standard "sends to fader" type action. Pressing "MIX" on a channel then allows you to use the bus faders to control how much of that channel runs into each bus. There are rotary encoders above each channel, and while you can use these to adjust aux send level this must first be set up on the routing page for the aux send. Their default function is pan, with a "rotary shift" button switching them into "direct out level" controls.

DCA/mute group assignments are easy enough to figure out, choose the DCA you want to assign stuff onto, then hold the "ASSIGN DCA" key and press the "MIX" buttons on whatever you want to add to the DCA. Using the group for mutes requires that you go into a menu to set the DCA fader locked at unity. You can assign the mute group on/off function to the user assign keys, as well as a bunch of other functions including DCA nudge

up/down.

The touchscreen on the iLive-T didn't work well with my fingers. I seem to encounter the same problem with most touchscreens on most consoles. An option to use a mouse would be good, though a stylus would probably do the job just as well. My other gripe about the touchscreen is that it's not very intuitive – things aren't where I expect them to be. Thankfully the in-built help function works well and is quite comprehensive. It explains how to get to various functions and is laid out such that you can quickly find whatever it is you want to know about.

Each output has a graphic EQ, and there's an EQ on fader function which is very easy to get to. Choose the mix bus, then press the EQ ON FADER button. The EQ runs from 63Hz – 16kHz, so while it's not a full 31 band job it covers everything you're likely to need. There are a range of in-built effects (of which you can run up to 8 simultaneously), including reverbs, delays, and even a sub-harmonic processor. The RTA plugin which was recently released for the previous generation has also made it into the iLive-T. All this stuff works pretty well and is relatively easy to find.

SUMMARY

There are some really smart ideas about the iLive-T. The PL-Anet system reads really well according to the documentation included, and I do think A&H have tried to come up with a very flexible system which can be used in a number of different ways. There's even an application diagram which shows how to use it without the control surface (just a mix rack and laptop) for applications where space is at a premium. I like the channel ganging which lets you select which elements you want to gang (fader, EQ, mute, pan, etc).

I don't mind the sound of the console itself – it's quite pleasant to mix on when you're just pushing faders. I think with a bit of work on the software the iLive would be comparable to anything else in the same price bracket. The good news is that the hardware itself seems right, and word has it that Allen & Heath are quite approachable regarding software revisions and feature requests. **CX**

BRAND: ALLEN & HEATH

Model: iLive-T112 + iDR48

RRP: \$39,995 inc GST

Product Info: <http://ilive-digital.com>

Distributor: <http://tag.com.au>

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EUPHONIX MC TRANSPORT



More commonly associated with large scale consoles, Euphonix has recently released their artist series of media controllers. The newest addition to the family is the MC Transport – we took a look.

By JIMMY DEN-OUDEM

The MC range of controllers by Euphonix initially included the MC Mix and MC Control units – these were Ethernet based controllers designed to work with both digital audio and video workstations. More recently, the MC Colour and MC Transport have found their feet on the same platform, and all the units are designed to fit together to form a complete control solution.

INITIALLY

Pulling the MC Transport out of the box it appeared reasonably sturdily put together. Normally we like to pull stuff apart to see what's inside, however the torx screws in the base proved adequately discouraging. I imagine it's probably full of smoke the same as all electronic devices are.

Ports on the unit are simple – power and Ethernet. The layout of the controller itself is simple enough that with a little practice you'd find your way around it easily enough without needing to look. The main jog/shuttle wheel is big and tactile, surrounded by 7 backlit soft keys. The backlight can change colour, and the soft keys change function depending on the program which is currently active. There are an additional 6 soft keys above the main section, with an OLED display above these. A numeric keypad fills out the top of the controller. A shift key on the lower right corner of the device allows all the other keys to take on a secondary programmable function.

EUCon is Euphonix' alternative to USB or MIDI control. It runs over standard Ethernet, and was chosen for its superior speed and resolution. Multiple EUCon devices can be connected together using a standard Ethernet switch or hub.

INSTALLATION

I installed the supplied software onto an iMac running Final Cut Pro, and then connected the MC Transport using an Ethernet cable. The iMac automatically figures out what's happened and puts the port into uplink mode, so no crossover



MC Transport features OLED display.

cable was needed. No network settings were made on anything. I ran Final Cut and noted that the MC Transport display had changed to say "Final Cut". I loaded up a project, and spun the shuttle wheel. It spooled. I pressed play, and it played. I inserted some in and out points, and this worked too. So it worked, and response time was indeed better than on other controllers I've previously used. Perhaps the most impressive thing was how functional it was out of the box – save for the jog wheel everything worked with no config beyond installing the software and plugging it in.

It was time to get creative, so I got in and had a play with the software – it turns out you can control basically anything you like with the MC Transport once you set it up right. The EUCon software cleverly finds all the compatible devices on the network and allows you to set each one up individually to replicate key strokes,

EUCon and other functions. So I turned the numeric keypad into a cursor pad and played around in Front Row for a while.

Native support is available for EUCon on the following software packages: Apogee - Maestro for Duet, Ensemble & Symphony 64, Apple - Final Cut Pro & Logic Pro & Soundtrack Pro, Metric Halo - MIO Console, MOTU - Digital Performer, Steinberg - Cubase & Nuendo.

All up the MC Transport is a nice package – well finished and beautifully designed. I think if you have the time to configure it, and a good idea of what you want, you'd get even more out of it. **CX**

BRAND: EUPHONIX

Model: MC Transport

RRP: \$699 inc GST

Product Info: <http://www.euphonix.com>

Distributor: <http://www.tag.com.au>

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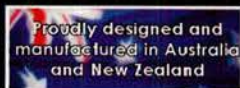
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PRESONUS STUDIOLIVE 16:4:2

There's plenty of choice in the mid to high end of the digital console market, even with a modest budget of \$50K you've got plenty of options. Drop down however to 10% of this and the choices are seriously limited, though now the StudioLive looks set to add another option to the mix.

By JIMMY DEN-OUDEM

The StudioLive from PreSonus is the console which had to happen. Things to know about it: It's digital, but there are no motorised faders. It's not expensive, but it doesn't sound cheap. You can use it for live and recording purposes simultaneously, but you don't need to buy any other interfaces to do this. It's really good.

TAKE IT FROM THE TOP

The StudioLive arrived unassumingly on the doorstep and sat unobtrusively in a corner where I ignored it for several days before curiosity finally got the better. It does this because it's compact – I'm reckoning almost rack mountable. Opening the brown outer cardboard box revealed the inner colourful cardboard box. Within this sat the console itself, a firewire and power lead, and an instruction book.

The unit is nice and solid and it looks really good too. Build quality is typical of the other PreSonus gear I've used – tank like. That said one person could lift one of these consoles easily. Probably even two, consoles which becomes relevant a little later on...

The console appears outwardly much like analogue units around the same price. 16 inputs (with XLR connectors for mics, and TRS for line and inserts), 4 subgroups plus stereo output, 6 auxiliary sends, 2 stereo aux returns, tape send and returns. Then there's a pair of firewire ports, which is a bit less common. The StudioLive is not the only small format mixer around with a firewire interface, but it's the first one I've seen which lets you easily use this to return signals from your recording device back into the console track by track. Each channel has a firewire key just below the gain pot – pressing this bumps the channel between the analogue input and the firewire return.

IN THE WORDS OF TIM SHAW

But wait, there's more! The firewire ports serve another purpose. You can link a second StudioLive into the first and turn it into a 32 channel console. In fact, you can link up to 4 units for a total of 64 inputs. The recording feature still works, and the included Capture software just recognises it as a bigger one of the same thing. PreSonus make a joining plate which allows you to physically link two consoles together, then the bussing joins up over a single firewire lead. This makes the StudioLive a very viable option for users who mostly need a small console, but occasionally want something bigger. You can buy two small consoles and effectively get a big one out of it for the cost of a firewire link lead. Actually the link lead is included. You still only get 6 auxiliaries and one stereo out, but you common up or split the subgroups which is a nice touch.

HANDS ON

Straight out of the box you can plug the StudioLive in and use it much like many other digital consoles. The default setup assigns all the channels to the Left/Right output, so even with a basic knowledge of audio you'd get sound out of it very quickly. "Big centre channel" style operation means choosing the channel you want to modify then making changes using a set of keys and encoders above. Everything's clearly labeled and easy to figure out. Want to link channels? Choose the channel you want and press the LINK button – it automatically joins to the adjacent channel up if you're on an odd number or down if you're on an even.

The StudioLive isn't customisable the same way as so many other consoles are – you can't route input 7 to fader 1 for instance. If you plug a signal into input 7 it will show up on fader 7. For the price of the unit I really don't see this as an issue

– if I really want the signal on fader 1 I'll move the XLR plug to the matching socket. There are no motorised faders either, which seems strange for a digital console but looking at the pricepoint becomes pretty understandable. There's a recall system which uses the LED bargraphs to indicate if you need to push the fader up or down to make it line up with what's stored in the scene. It's a bit fiddly, but it works. The other point is that the non-motorised fader is likely to last a lot longer than its flying counterpart.

Channels are all equipped with dynamic processors (gate and compressor) as well as a 4 band quasi parametric EQ. There's one of those on the main output too, as well as a 31 band graphic. Accessing the graphic is done via the menu screen and rotary encoders, with the LED bargraphs again indicating boost or cut for each band. Again, it's a bit fiddly but it is functional. I'd be inclined just to use the parametric EQ anyway – speaker technology has come so far that very few PA systems actually require the excessive amounts of EQ some people find it necessary to apply. A parametric EQ is often satisfactory for sorting out room resonance problems. Preamp gain is not recallable, but it does have a wide range and the preamps sound quiet and tonally good.

Recording is dead simple – install software, connect firewire lead, press go. I made it work without reading the instructions or even using the right software, though using the real software brings some niceties my dodgy free thing off the internet didn't.

While I didn't read the manual I think it would probably be worth doing. I may find out there is an easily accessible solo cancel function – something my random button mashing didn't turn up. There is however a solo in place button, which you have to hold to activate. Very nice.

The 2 on-board effects are pretty simple, but the upside to this is that it makes using



StudioLive with Macbook Pro running Capture software.




Parametric EQ adjustment:



Input stage - analogue or firewire?

them simple and quick. Sending to an effect is as easy as hitting the "MIX" button for the effect you want then turning up the rotaries above the channels you want to effect. Return is one knob, with a route button. Sweet.

WHAT'S THAT YOU SAY?

Sweet! Even for twice the price I can't think of anything which even matches it in terms of sound or functionality. The StudioLive isn't a vastly configurable large format digital console, but it's not trying to be. It's just trying being itself, and doing a damn good job of it. Can I keep it? 

BRAND: PRESONUS

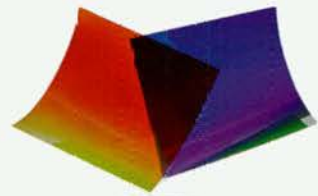
Model: StudioLive 16:4:2

RRP: \$4250 inc GST

Product Info: <http://www.presonus.com>

Distributor: <http://www.rodemic.com>

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EDIROL R-09HR DIGITAL RECORDER



With the weather at outdoor gigs making the wax cylinder recording a largely impractical thing, CX took a look at a better way of doing it.

console. Whatever goes through the PA is what makes it to the recording, which works pretty well when you run your stage quietly (as I tend to).

The real problem with this is data compression. MiniDisc is a digital format, and it uses a format called ATRAC to compress the digitised audio to fit more onto a disc. The problem is that (as with all audio compression) depending on how much you squish it, you can hear this in the quality of the audio. Also, should you ever want to get the recording onto a DAW to do something useful with it later (I'm too lazy, but the need may take some folk) you need to dub it across in real time. Which takes time.

For the money I paid 5 years ago I've been really happy with the MD recorder, but it was getting on time for me to catch up. So I tried something new...



R-09HR in action.

By JIMMY DEN-ouden

Some years ago I took to recording my live mixes for later self critique. I think it's an important tool for personal development – figure out what worked and what didn't. Over the years I've tried doing this a number of ways, but have defaulted to a MiniDisc recorder hanging off a matrix / record output of the

BRING IT ON

The R-09HR is a handheld 2 track digital audio recording device which can record either from its in-built stereo condenser mic, or from an external line level input. It's pitched not only at the live audio market, but also journalists, researchers, and even the law enforcement sector. Recordings are made in uncompressed WAV format at up to 24 bit 96kHz,

though if your priority is really long record time you can choose MP3. You can choose whichever sample rate you like, and the unit records directly to SD or HCSD (which just means >2Gb) media cards. Recordings can be transferred over USB2.0 out of the R-09HR, or you can just stick the card directly into a reader if your computer is so equipped. There's even a little speaker built into the back of the unit which lets you check that you've recorded

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what you think you recorded.

I took the R-09HR to an outdoor gig (in the rain) to see how well it worked. I picked up the unit on a Thursday afternoon and took it home to unpack. Presentation is good, and the recorder includes a 240v power supply so you don't have to run it off battery. If you choose to, you'll need a pair in AA. I was a bit underwhelmed by the size of the R-09HR actually, it's smaller than I expected. It's a comfortable hold in the hand, and weighs bugger all.

I plugged the unit into a -10dBV record output on the console I was using and pressed record. A big red LED flashes to indicate record standby, then when you hit play to actually start the record the LED goes solid. I set the input level at a point I was happy (it appears you can actually gain the input up as well as attenuate it), then forgot about it for a while. After the gig I pressed stop, took the unit home and plugged it into the stereo to have a listen. I didn't notice compression artifacts, clipping, audio compression or anything else. Nor did I hear any apparent noisefloor – it's really quiet. It left me free to focus on the content rather than the delivery mechanism.

Edirol have put some effort into separating the digital and analogue sections of the device, both electronically and physically. The microphone assembly is mounted on a separate board. The mic has a low cut and sensitivity adjustment too, so it should deal with high SPL pretty well (if that's your thing). I did some recordings with the mic and this works pretty well too, so it should serve quite well for those wanting to do simple stereo room recording.

NEED TO ACCESSORISE?

The kit loaned to CX included the case & stand pack, as well as the windsock. There's no mic stand thread adapter built into the unit, if you want to mount the R-09HR onto a stand then you need to put it into the case which has a thread for same. It may be a minor design oversight, or more believably a deliberate choice made to de-couple the unit from the stand to reduce vibration. Another way handling noise is minimised is via the inclusion of an IR remote, which can be used to start/stop the recorder and set input level. I didn't check effective range on the remote since you'd usually be close enough to see the VU meters anyway.

THE GOOD, THE BAD, ETC...

The R-09HR doesn't like low batteries – mine arrived with some semi-flat batteries included and the unit abruptly shut down when I pressed stop on the recorder. This didn't give it a chance to write the end of the wav file, so that file couldn't be read afterwards. I'm inclined to forgive this on the basis that if you were to shut down your computer in the midst of writing a wav file the same thing would likely happen.

Overall the R-09HR did exactly what I wanted it to do. The OLED display is brilliant and self-dims after a period of inactivity. It operates really intuitively and with no need for laborious reading of instruction manuals. It addressed all the deficiencies of my previous method: metering and data compression, as well as media transfer. Plus I figured out every feature on the thing without reading the manual. It's great! **CX**

BRAND: EDIROL BY ROLAND

Model: R-09HR

RRP: \$799 for the R-09HR, \$45 for the windshield, and \$69 for the case/stand combo. All prices include GST.

Product Info: <http://rolandcorp.com.au>

Distributor: <http://rolandcorp.com.au>

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ADVERTISING INDEX CX47 • 1 DECEMBER 2009

Amphenol.....	41	R & R Recordings.....	64
Audio Products Group.....	21, 37, 49	Rentalpoint.....	66
BS Sound	66	Riedel	31
Cases.com.....	33	Roland.....	IB
Chameleon Touring Co.....	46	Rosco.....	63
Clarke & Severn.....	66	Selecōn	39
Ear Monitors Australia	47	Setwear.....	66
Epson	13	Smart Digital.....	32
ETF.....	11	Sony	23, 29
Eventquip.....	61	Soundcorp	19
Factory Sound	25	SSE.....	9
Forefront Productions	42	Staging Rentals.....	66
HES	61	Subscriptions	51
Jands.....	IFC, 3, 55, 57	Syntec International	7, 43, 65
Julius Events College.....	59	TDC.....	35, 45
Matrix Productions	66	Technical Audio Group	5, 27
Mobile Image.....	65	The Resource Corp.....	63
Murray Tregonning.....	15	ULA.....	56, BC
Norwest Productions.....	20	Yamaha.....	17
Production Audio Systems.....	30	Ying Wei Lighting.....	32

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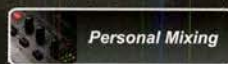
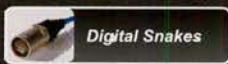
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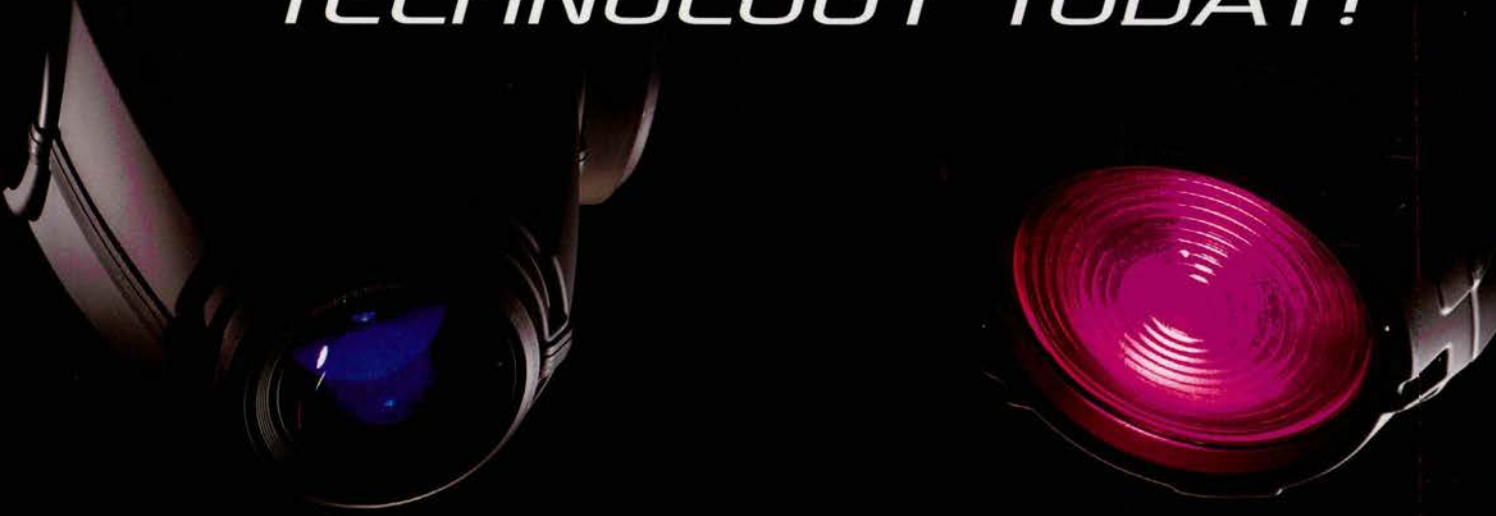


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