



MONTHLY TECH NEWS
For Entertainment and Broadcast

CX 67, FEBRUARY 2012 . \$5.50

STILL STANDING

Elton and the Yamaha connection

WORLDS BIGGEST

40,000 people inside a video screen at Doha

LIVE

Dolly and Church

LOUDNESS

TV + adverts = confusion!

ISSN 1320-5595



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NEWS AND VIEWS:

Roadshow tours this month! / Dutch theatre rigging shows way / Micro-hire step up / Liquidators get extra power / Billy Hyde stores in trouble / Pictorial: Soundcorp party

REVIEWED:

Martin Mac Aura / AJA KiPro HD Recorder / Rosco Gobo Rotators / Shure PSM 1000 ear monitors / Roland VC-30HD Video Converter / Fane and Interlink Speakers

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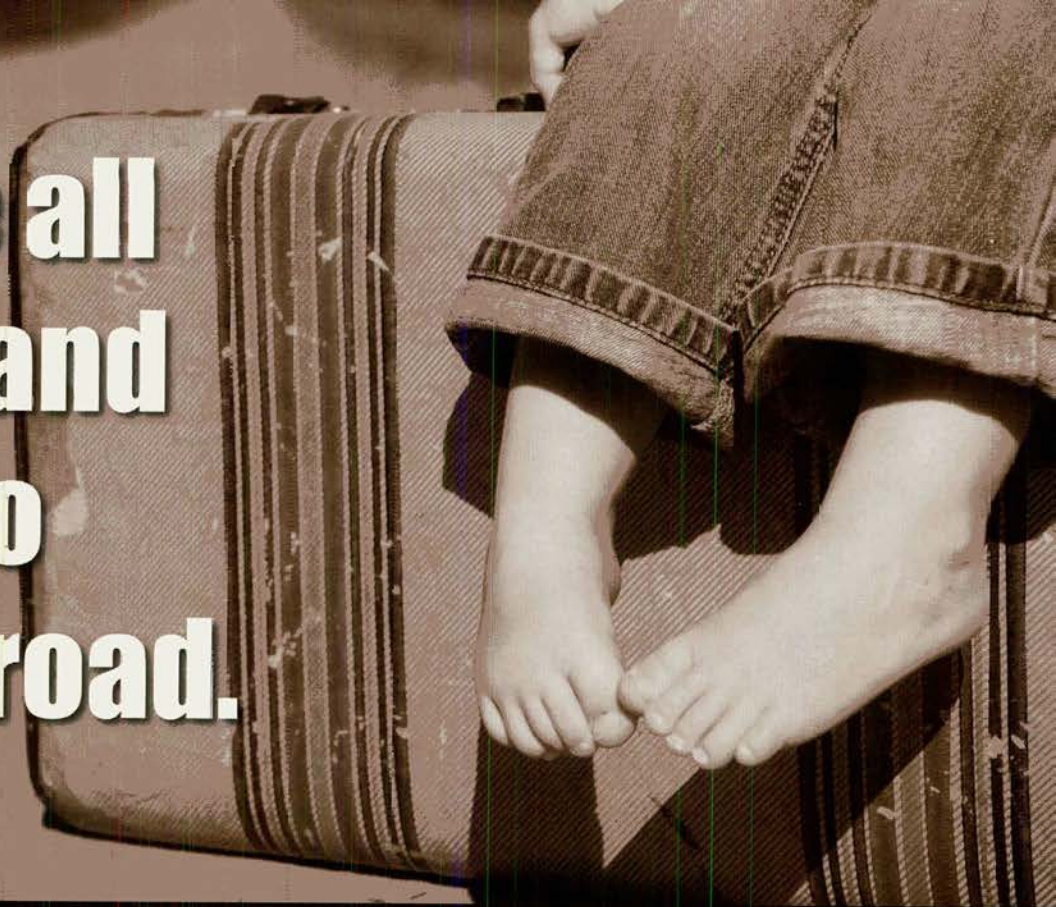
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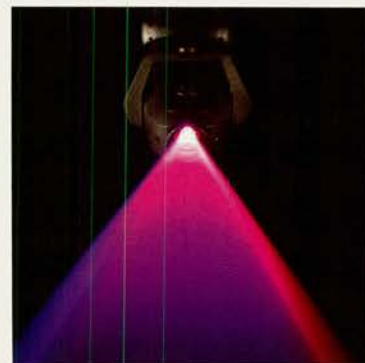


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BULLIES

"On my count, blackout. NOW! What the F—k? You IDIOT! I said BLACKOUT". Kev the lighty had jerked the faders too fast, so it was a clunk not a fade. It was a very good show, nonetheless.

The show caller, at a major bank product launch in the Sofitel (then The Regent Hotel) on Collins Street had just balled up the court because there was no count. But he was putting the blame squarely on my innocent lighting op, Kevin.

Earlier that year (1983) I'd done a support band gig for The Church at Macquarie Uni. "You weren't here for the loadin", yelled the sound guy in an absolute state. This triggered a situation since support bands and loadin's were a daily topic of angst in the Isuzu cab. We were assured and guaranteed by our band manager that this one had been squared with a payment because of our schedule and of course it was messed up. But down in the ranks at the gig, the Church guy was super hyper angry. Several lines of speed had rendered him almost psychopathic, like someone on crack. It was the most angry and obstructively dumb gig I've ever done. The temptation to sort him with a mic stand was so powerful.

CX EDITORIAL

'You are an idiot' is almost a term of endearment to me, but not when sprayed angrily in my face by a munted noob who worked for a long forgotten crewing agency at a gig on Chapel street in Prahran. Again the temptation was to kick his druggy arse out onto the street so a tram could chowder his bones.

I'm able to take care of myself, but Kev the lightie took it hard. Oh sure, he did the gig, and the load out, and the next run of dates. But he had his confidence whacked, and the rest of the crew did heaps to assure him that the show caller was indeed the idiot.

The other day at our editorial meeting (Willoughby pub happy hour), the talk turned from beer appreciation to bully approbation. Seems there are still a cluster of them in corporate AV, on concerts, and in broadcast. We made a list of names, to keep a watch-out. Word does travel, you know.

Let's hope in 2012 the new Australian industrial relations focus on removing workplace bullies finally kicks in.

- Julius



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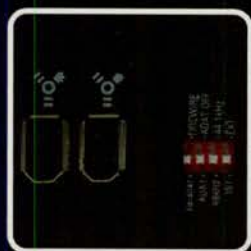
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- 10.45 am: Understand and solve the Loudness challenge, with Thomas Lund
- 11:40 am: Risk Management for live broadcast with Julius Grafton
- 12:00 pm: Networking lunch
TRADE SHOW OPEN
- 1:00 pm: Digital Lighting – the revolution explained: Jimmy Den-Ouden
- 3:30 pm: Digital Audio Routing: Jimmy Den-Ouden
- 5:00 pm: SMPTE meeting (open to all)
- 5:30 pm: Happy Hour.



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MAJOR TECHNICAL TOPIC 2012: LOUDNESS

Thomas Lund will describe how international broadcast is moving towards loudness measurement and normalization for more predictable control of audio in DTV. Thomas will present the guidelines from ITU-R BS.1770, and will describe the extended loudness and true-peak level toolset of EBU R128. He will discuss transparent normalization of commercials, differences between OP-59, ATSC A/85 and R128, and EBU's strategy for cross-platform broadcast is discussed. This session will demystify LUFs, LKFS, LU, Program Loudness, Loudness Range, Max Loudness, Short-term Loudness and True-peak level. If you are involved in broadcasting, live sound, post production this is a topic that you cannot afford to misunderstand.

John Maizels is a media versatile, with broad and deep experience across technology and operations - in radio and TV. He appears on-air and reports for CX-TV. His skill set flows



from microphone and camera, and through to transmitter. He has designed and operated audio for more than 30 musical theatre productions. John joined the SMPTE board in 1990, and now represents SMPTE as Director of International Sections. He is a SMPTE fellow.

Thomas Lund started his professional life as a musician and recording engineer. Between 1985 and 1992, Thomas studied medicine at University of Aarhus, Denmark, specializing in perception and statistics. His current position is HD



Development Manager at TC Electronic, responsible for the development in areas such as spatialization, mastering, true-peak detection and loudness. Thomas has published around 30 technical papers; and contributed to standardization work in Scandinavia, within AES, ITU, EBU and ATSC.



Jimmy Den Ouden is the technical editor for CX Magazine, a qualified tertiary technical trainer, and a current practitioner of live and broadcast technology. He hosts technical segments on the Gearbox channel of CX-TV, and has extensive AV installation experience.



Julius Grafton has almost forty years experience in technical management for live events. He is a practicing live audio engineer, and has published CX Magazine since 1990. Julius established a technical training college for the Live and TV industry in Sydney in 2002, and holds numerous qualifications in management and training.

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Wed Feb 29
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PERTH

Tues March 6
Hyatt Regency
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NEWS

INDUSTRY NEWS



Music Link, Billy Hyde and Allens owe \$60m Collapse would refuel struggling M.I. industry

When Borders closed, bookshops across Australia immediately gained many new customers. The same possibility has music retailers showing signs of excitement after years of revenue decline due to price deflation. Having competition from around 30 Allens and Billy Hyde stores go away is a guaranteed boost for the other 90 major retail

stores nationally. Some stores are franchised, and may continue to operate.

National Australia Bank is weighing up options for Australian Music Group, which contains distributor Music Link along with the stores. The group, with over 400 staff is saddled with debt and unable to satisfy the bank. The Australian Financial Review reported at press-time that the National Australia Bank may seek to liquidate \$20 million in stock.

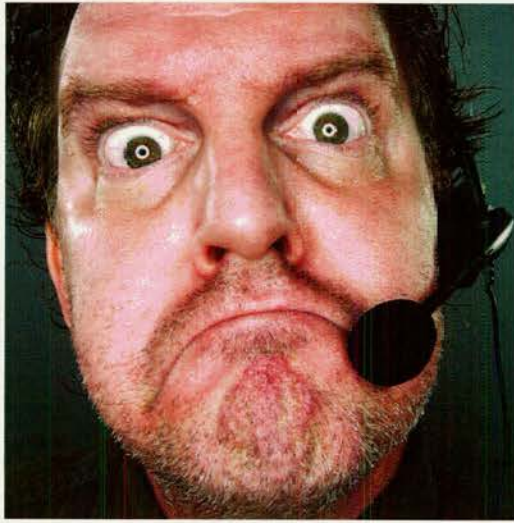
Music Link faces competition with other importers lobbying manufacturers for their lines at the NAMM convention at Anaheim. Management issued a statement promising a refinancing solution. Music Link represents brands including Mackie, Zildjian, Pearl, D'Addario, Korg, Line 6, Ludwig, DW, Remo, and more.

An industry insider summed up: "The original owners cashed out. The suits came in. Suits don't understand our industry."



GREY DAYS

It may well continue, but just now things are subject to bank approval.



New Law threatens install and rental co's

Liquidators have new tool to seize assets

The Personal Property Securities Register (PPSR) is a national registration system for assets that you own, but can't always control. The PPSR started in Australia in February with widespread ignorance of its existence and ramifications.

Imagine you have equipment on a site or in a venue – which suddenly goes into liquidation. The liquidator will seize everything, lock the doors and potentially sell the lot. Having a hire contract, and equipment labeled as yours, is not protection enough. Your inventory must be registered against the job, on the PPSR. Many suppliers and installers rely on retention of title in the conditions of sale until they are paid in full. This title provision appears overtaken by the new legislation.

Suppose you have hired equipment to a third party such as a club, and they fail. Unless you can point to your gear specifically listed against the job on the PPSR, your equipment – even if financed by lease – probably will be seized. In any case, the liquidator will ignore your calls unless you have the gear listed. PPSR has been welcomed by the growing insolvency industry, as it gives them a green light to seize and sell anything not listed.

The Hire and Rental Industry Association say the legislation is "exceedingly complicated" and contained some risks for hire businesses. "Under hire contracts, the equipment must be identified as belonging to the hire company," they say.

• **CX Dirty Money Seminar details 101 ways other people can send you broke. Book now, nationally at CX Summer Roadshow. www.cx-tv.com**

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In our Blog right now:

These guys can't know what they're doing!

A cringeworthy tour of what went wrong at ENTECH when we ran it.



Angelina Ballerina's Big Audition by The Royal New Zealand Ballet

Reviewed by Mikayla ('KK') Jewell McLean, aged 3

Poppy took me to Angelina's house to see her. I wanted to touch her! She is so pretty. I can dance too! We had chippies. Poppy is nice. I like her! I got a book.

Translation: Julius took granddaughter Mikayla to a matinee in the Sydney Opera House concert hall. At \$40 each, this is how the other people live. Program: \$20. At least it had activities inside!

Lunch was at the Opera Bar, one of our fav places. KK had chips and a water. I had a gourmet burger and fizzy water. That was \$39. The car parking (hey, this is Sydney) was another \$30.

At 25 minutes per half, the show was mercifully tuned for little ones, and that concert hall was full of yummy mummies, chooks, kids – and me. KK loved it, she spent half the show standing in front of my seat, the other half on my lap.

On the way home she fell into a deep sleep. I sighed with pleasure.

CHECKLIST:

Lights: Yes there were. The curtain had lit up 'ears', according to KK. To me it looked like two lights, but I am not the target audience for this mouse chick.

Scenery: One fake piano, chairs, backdrop. Bits and pieces. Easy!

Sound: Backing music only, no dialogue. So why the big line array?

Venue: Started late, nice ushers, unbeatable ambience.

Bottom line: I want shares in this franchise, baby!

Microhire on the march

Steady growth pushes AV firm into top five

With 150 staff, Shayne Liddell has come a long way from renting computers in the late 1980's. Now Microhire corporate event services operate in four states, six venues and recently acquired Durham Audio Visual in Melbourne.

"At the start we were just a computer rental company", Shayne told CX. "We went into supplying internet cafes, then the events industry. And the events business needed IT based solutions for speaker presentations in the meeting and events market, then we looked to supply screens and pro-

jectors. It's been organic and opportunistic growth, under the radar".

"We've partnered with venues since 2007. I'd been talking about convergence of technology, analog verses digital. I've seen clearly the traditional AV backbone be analog where the IT environment was digital. So once you get to that point, the solution to distribute a signal comes from an IT box or an AV box. With Cat 5 or 6 cables".

Microhire steadily moved into the conference market, putting AV services on an IT backbone. "An example - five years ago, we had a client with a plenary session and four breakouts. So we brought it all back to one central control spot, with cctv camera in each room. The organizer could see what was happening, so if room 3 breaks early, you see it as it occurs".

"There are other things we use to get a niche position or a point of differentiation. Our challenge is to be accepted more broadly across the events industry as a credible supplier for mainstream events. Our turnover has risen 25% each year. Once you go past that you need other methods of funding other than reinvesting profits. But we've picked markets and segments carefully".

Microhire has been privately held since 1994 by the same partners - Grant Moffatt (CFO) and Shayne's brother Craig Liddell who set up and ran Sydney for 15 years.

"We are reasonably unique - we have four markets we focus on - the exhibition, venue, conference and event and general office market. If one part died, we would pick up something else. We spread our risk, where others had a single market strategy".

As to Durham AV: "I knew David Hendel (owner since 2008) through an associate. He wanted to pursue other business. It had struggled a little since before the GFC. Durham works in similar parts of the exhibition market and the smaller venues. So we bolt the business on, save on rent, save on insurance, a whole lot of efficiencies".



Shayne Liddell at MicroHire HQ in Melbourne as Durham AV is acquired

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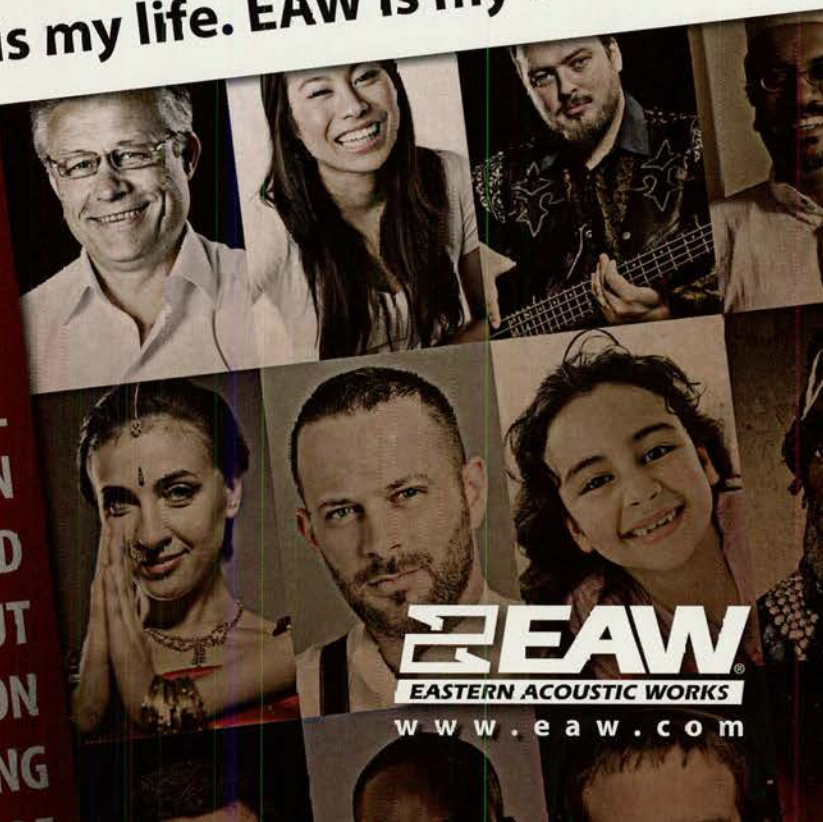
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BYTES and BITS

Festivals Struggle against rising costs

Big Day Out were forced to run extra advertising with some shows selling slower than a year before. Woodford Folk Festival almost didn't happen this year until Moreton Bay Regional Council purchased their site, to save the event. And Falls Festival at Marion Bay have asked the Tasmanian Government for a considerable increase in the contribution paid.

Festival ticket prices

The ticket cost of Australian music festivals has risen 76 per cent over ten years compared with the 50.2 per cent growth in weekly earnings, says consumer watchdog Choice. But the arts have not changed much in price, despite a rise in operating costs, according to Live Performance Australia. Theatre recorded one of the lowest price increases. A ticket to one of Sydney's best theatre companies costs \$1 more than it did in 2002.

Behringer appoint Galactic

Music Group have appointed Galactic Music as the sole Australian fulfillment partner for the Behringer and Bugera brands. The general manager of Galactic, Paul Goldsmith, said the move will offer greater margins to Behringer and Bugera retailers. "Although suggested selling prices will rise slightly overall, dealer costs will largely remain the same to deliver better margins to retailers". www.galacticmusic.com.au

Bad electric shock

George Langley Jr has recovered from a 36 thousand volt shock while setting up a 100v line PA system for the cycling Australia Road National Championships in Ballarat. George was on the top of the van, and a colleague chucked up a string of figure 8 which then hit the high voltage line above.

Thomas Lund for CX Roadshow

Keynote speaker Thomas Lund (Denmark) will describe how international broadcast is moving towards loudness measurement and normalization for more predictable control of audio in DTV. Thomas will present the guidelines from ITU-R BS.1770, and will describe the extended loudness and true-peak level toolset of EBU R128. He will also detail transparent normalization of commercials, differences between OP-59, ATSC A/85 and R128, and EBU's strategy for cross-platform. More at cx-tv.com



Alan Graham retires from LSC



LSC Lighting Systems has announced retirement of Alan Graham. Alan joined LSC in 1988 and will be known to many in the lighting industry as the front man for LSC export sales from the early 90s until 2004 when he relinquished the position to concentrate on internal matters and move away from the constant travel.

Gary Pritchard, LSC's CEO commented "The contribution that Alan has made to the growth and success of LSC over very many years is significant and his input will be surely missed. I am sure he will be able to look back at his time at LSC with fondness even though the company has been through both good times and bad over the years. He will certainly be able to stand back and look at LSC with pride and say 'I helped build that'. I join with the rest of the LSC staff and wish Alan all the best for his future."

Alan's initial plans are to take a year off, build another house and take a long holiday in Europe. Although he is leaving full time employment with LSC he will continue on as a director of the company.

Rigging – who and what if?

Melbourne rigging industry leader Tiny Good takes exception to Andrew Mathieson's article on Rigging (What If?) in the December edition of CX

"Firstly I take exception to Andrew recommending people contact a "staging" company for rigging advice. There are specialist RIGGING companies in every state and all of us are happy to help to keep our industry safe and instruct people with regards to all things rigging. It is my experience that most staging companies do not advise on rigging, and those that do generally get it WRONG.

"Secondly. The operation of a multiple hoist lift must be done under the direction and control of an intermediate or advanced rigger according to Work Safe high risk work legislation. The operation of the hoist control can be done by anyone who has a working knowledge of the controller, safety stops, and communications system from the rigger. The assessment, direction, and responsibility for the loading and truss movement must be undertaken by a ticketed and experienced intermediate or advanced rigger.

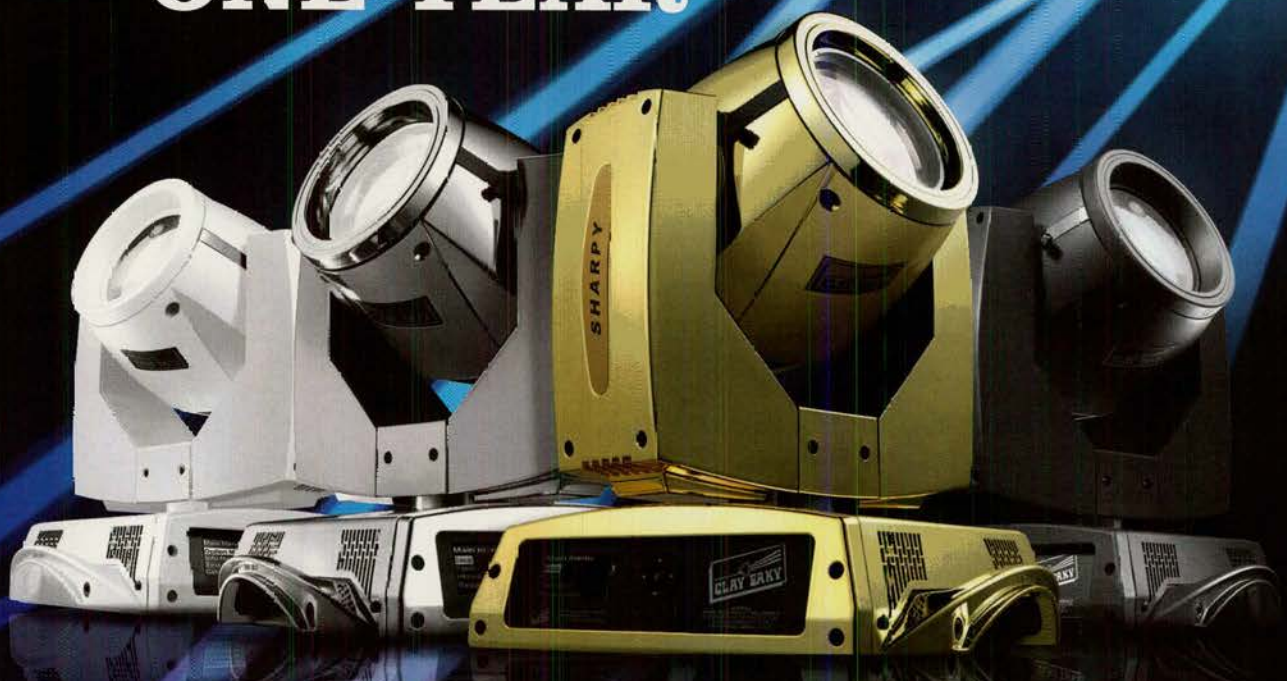
"The use of high tech hoists or controllers, groupings, load monitoring and other devices does not negate this regulation without written exemption from the local Work Safe authority, and I am yet to see one."



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5 ★★★★★

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ROADSHOW

TOURS THIS MONTH

The first ever CX national roadshow will hit the five main capital cities of Australia starting February 20th. Reflecting a trend away

from large single city tradeshows towards more cost effective events, the Roadshow sold its exhibition space very quickly.

Twelve firms will show new equipment, including a host of brand new releases that came late January at the NAMM trade

show in Anaheim. Although just one day in duration, the suppliers involved pledge it will be a tradeshow worth attending, and have invested considerable effort and expense.

Educational seminars are a hot ticket in each city, with one national program replicated at each event. A total of 15 ticketed events will be held in six adjoining meeting rooms at each venue. Leading the way is the one day National Broadcast Techni-

cal Conference 2012.

From 5.30pm a social event will be held on the floor, with free drinks and two competitions at 6pm. The first offers an iPad as a giveaway to someone pre-registered who is actually in attendance for the draw. The second competition is to find Australia's smartest AV tech, and suppliers have assembled a great assortment of valuable prizes for state and national champions.

The trade show opens at 12 midday, and is free to attend. Register here: http://www.cx-tv.com/cx_sr_registration.asp

FOR FULL LIST OF 11 MORE FREE SEMINARS, GO TO WWW.CX-TV.COM

PROGRAM

NATIONAL BROADCAST TECHNICAL CONFERENCE 2012

10:00 am: Keynote with John Maizels
 10:45 am: Broadcast Loudness. Thomas Lund and others
 11:40 am: Risk Management for live broadcast. (Julius Grafton)
 12:00 pm: Lunch
 13:00 pm: Digital Lighting – the revolution explained (Jimmy Den-Ouden)
 15:30 pm: Digital Audio Routing (Jimmy Den-Ouden)
 17:00 pm: SMPTE meeting (open to all)
 17:30 pm: Happy Hour. Win an iPad 2!

SEMINAR 1: THE CX (BLACK) MONEY SEMINAR

9.30am – 10.45am: All cities
 Julius details how businesses restructure and make legal arrangements to avoid paying YOU. This is a journey into the secret dark side of (legal) company law. Learn the tricks of Administration, Receivership, Liquidation and Bankruptcy. This seminar could save you a lot of money – it could even save your house and marriage. Insider info, and everything is legal...

SEMINAR 2: OUT DOOR EVENTS: THE SAFETY SEMINAR

11.00am – 12.15pm: All cities (arrive at 10.45: for morning tea and networking with Seminar 1 people)
 An industry briefing on how to run a safer event outdoors. After recent disasters overseas, local safety specialists and production managers have had extensive dialogue with CX. This seminar details the laws, legislation and the practical steps necessary to minimize risk. How exposed are you? Session suitable for event managers, venue managers, production suppliers and anyone associated with an outdoor event of any size. Hosted by Julius Grafton.

SEMINAR 3: DIGITAL LIGHTING: THE REVOLUTION (EXPLAINED)

1pm – 2.30pm: All cities
 Thanks to the light emitting diode, the future has arrived with theatre and studio luminaires that run cool and dramatically affect economics. With five years or more of service life, lamp replacement is a thing of

the past. This session will bring you right up to date with:

- The players and the products in the market now
- An index of CX and CX-TV reviews of recent product releases
- Cost matrix, including running cost and acquisition costs and savings
- Some of the technologies behind the light sources.

Hosted by Jimmy Den Ouden, this session is for technical and tech managers everywhere.

SEMINAR 4: DIGITAL AUDIO SNAKES: GETTING SIGNAL HERE AND THERE (EXPLAINED)

3.30pm – 5pm: All cities
 There's a bit more happening here than just replacing a 20 pair multicore with some Cat 5 cable! Now you can route audio where it is needed, and quickly patch complex systems. But there are a myriad of standards at work here. Which manufacturer uses what, why, and how can this benefit you? This session is in plain English with a minimum of acronyms.



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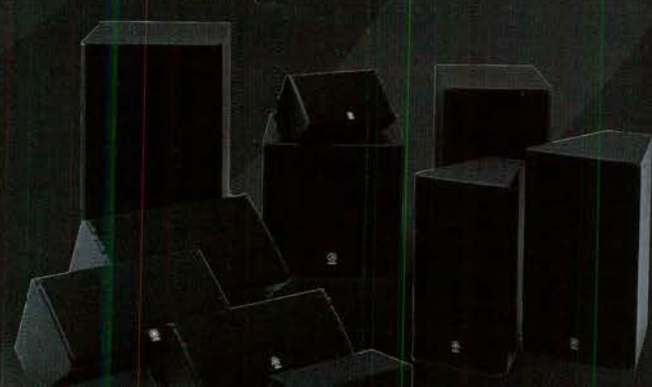
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ON AIR*Church
Production
News*

Audio Firm blesses outback Church

Seven years ago, when George Mann began to build a new church and community centre in Bourke, he knew only one thing for sure. He had to start work -- and the rest would follow.

George and his wife Shelly have been leaders of the Bourke Full Gospel Family Church, an Apostolic Church, since 1989.

Situated 800km inland, Bourke has a reputation of being an easy-going outback town but, over the years, George and Shelly identified some glaring gaps in the facilities available for the local population, about a third of whom are Indigenous Australians.

They foresaw a facility arising out of community need and desire. It was the right call. Beginning with the laying of the concrete slab on which the building has been built, materials, money, labor, fit-outs and furnishings have just kept rolling in. George calls it a series of "Divine connections".

On a family visit to Bourke earlier this year, Technical Audio Group marketing manager Maxwell Twartz became one of George's divine connections. A chance

meeting through a friend led to a tour of the building, which by then was nearing completion. "It became immediately apparent that George was no ordinary man" Max said. "His vision was backed by solid engineering, a huge amount of hard work and remarkable attention to detail."

"We've been around a lot of community projects over the years in various guises but most recently with TAG Cares (through which TAG makes irregular charitable donations)," explained Max. "Finding worthy causes is easy. Finding people of the quality of George and Shelly who can implement is much, much harder. So it was a no brainer."

TAG shipped up to Bourke a set of Audio-Technica microphones, 32-way multicore cable, connectors and a pair of QSC KW153 3-way, 1000w powered speakers.

"The quality of George's vision left us no choice but to professionally install the multicore with split front and rear of stage wall boxes and cable tray it back to the mix position." Said Max. "For this I was lucky enough to roll back

time and get on board my brother Peter Twartz (Jands Logistics Manager). He co-opted his son, and freelance audio engineer, Christopher Twartz and along with George and his work gang we ran cable, soldered, drilled holes, tested and got the install done in one long Saturday."

By late afternoon on that Saturday word was out that the centre was getting some serious audio and members started drifting in - many of them musicians. So it wasn't long before playing and singing started as the testing and labeling was being finished.

After spending some time explaining how best to use what had been installed it was nearing sunset when the tech team left.

Max Twartz
with George Mann



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Michael Rutledge at right, and guests



Peter Grisard, Sue Mullholand, Jeff Bolt, Paul Mullholand from Jands and Julics.



Joanne Brierley from Hills SVL, Cam from Canohm, and Holly Egglestone



Mike Lasa, Jamie Payet from Plastique, Shane Myers from Hills SVL



Les Godding from GT and publishing magnate Chris Holder

Soundcorp & Rutledge Party

A brilliant Melbourne dusk at The Beach pub set the scene for a nice end of year drinkfest. Hosted by the Soundcorp and Rutledge empire, a hoard of key suppliers, clients, technical gurus and company folk drank the bar dry and enjoyed very nice finger food. A DJ did something in a corner, ignored by all. CX was shown to the door at the end, and poured into a taxi.



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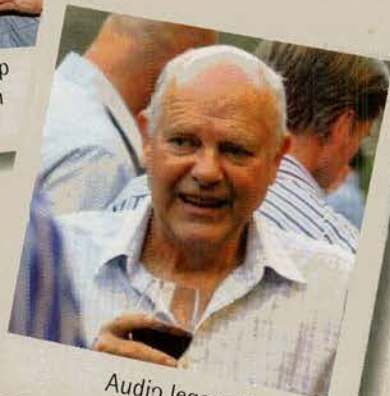
Andrew Morrice from Rutledge and guests



Mark Ladewig & Les Godding from Group Technologies



Scott Jamieson from Soundcorp with Chris King & partner from Victoria Arts Centre

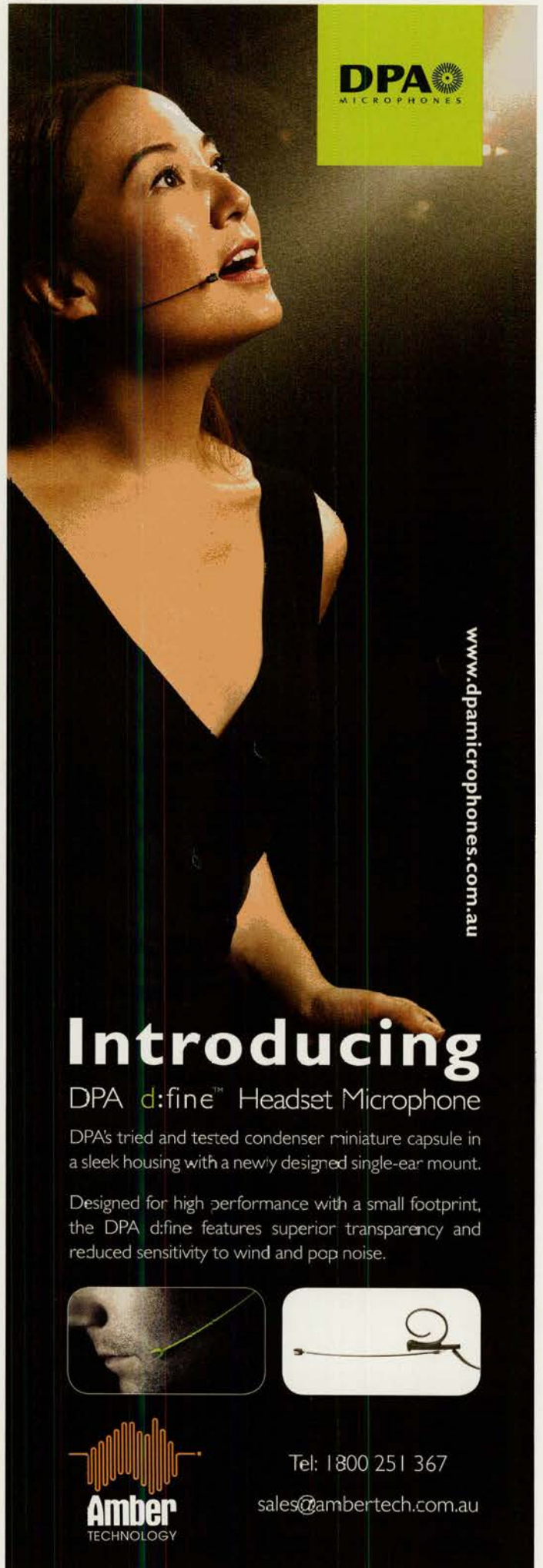


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Neil Harrison from TRC, David Park and Duncan Fry from ARX

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Arab Games DOHA

Australians deliver for massive opening ceremony

Singapore 2000 turned an overnight success into an export industry for many of the Ceremonies team. It was the turning point for mega spectator event ceremonies, and the 12th Arab Games in Doha raised the bar yet again.

David Atkins Enterprises were commissioned to steer the creative for the Opening, which was held before 40,000 people and televised live. 200 DAE crew led a cast of 700, 750 contractor staff, 2,500 athletes and an orchestra of 40.

The event had a theme of Inspiration: Journey to Light, and was broken into segments that created the world's largest Stadium LED screen and the brightest stadium projection ever attempted. With 120 tonnes of lighting and major scenic

elements including a monster and a giant horse, there was a lot that could go wrong.

With a lot of Australian technical crew in major roles, the opening achieved great acclaim across the Arab world, and raised the stakes for the next Games in 2015.

BIG TECHNICAL

The Opening Ceremony marked two 'world firsts'. With 86 projectors video mapping the field of play, the show set a world record with the brightest stadium projection surface attempted in history.

Also for the first time in stadium entertainment, the 40,000-strong audience was integrated into the display surface to form a giant LED 'screen'

made up of 62,000 individual pixels. This extended the display surface by 41,500 square meters to encompass the entire stadium bowl, adding the audience to the vast canvas of visual content.

The lux level projected on the field of play (stage) was over 300 lux from 86 Christie projectors, giving lighting designer Trudy Dagleish much more freedom in mixing projection with light.

Instead of projecting the FOP from 2 sides and blending at the FOP centerline, the entire FOP was covered from both sides of the stadium. This allowed the creation of two layers of projection that overlapped 100%. They achieved a "virtual moving light" effect: the split of the projection image into two layers, which not only created the projection image, but

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allowed for the creation of light directions. It enabled backlight and/or front light on various locations as well as cast which reduced the need for conventional lighting and created a more 3D appearance in the projection.

The entire projection system was designed with a "full redundancy concept" and set up with a "no single point of failure" system from the main computer and display right through to the electronic input cards on all the projectors.

Thus there were two sets of feeds - the 86 needed were doubled to total 172 video feeds.

REDUNDANCY

In keeping with the most excellent reputations of all concerned, in order for nothing to go wrong some serious planning and technical redundancy were

called for.

Enter Norwest Productions, who supplied audio under the direction of Sound Designer Scott Willsallen. Norwest have become global leaders in spectacles and gala openings since the Sydney Olympics, and are instrumental in the audio provision for the forthcoming London Olympics.

In Doha a system utilizing 250 speakers on 19 audio nodes was installed, hung off 7km of cable. A surround sound system was deployed to the entire western side of the Stadium. The fibre network carried audio data at a rate of 3GB per second.

The Communications system, supplied by Riedel Communications was also heavily protected from failure, with dual redundant digital communications matrix frames feeding out to 254 two way radios, 24 base stations, 42 communication panels

and 55 beltacks.

Staging and scenic elements accounted for over 300 tonnes of scaffold, 7 containers of floor covering, and 35,000 Hexideck tiles. The 11 tonne Monster stood 30 feet tall and contained 6 scenic puppet hydra heads. Flame effects that went 60 feet up where installed in the FOP to complement the scene. Likewise the Horse element was internally lit through its 18 foot long structure.

SHOW ELEMENTS

In Journey to Light a key character is Dignity, who represents the mother, the nation and the earth. Dignity enters the story on horseback after travelling through the desert, which has been created by the recitation of a poem. This trinity—the Horse, the Desert and Poetry—are essential elements of Arabic civilisation.



Worlds biggest led screen

The Monster is the story's villain and symbolises the sins of man, the tyranny of oppression and the fear that existed before freedom. In Arab mythology, the Monster is a distortion of human nature. Here, the Monster appears with six serpent heads which represent evil and the sins of human nature (including corruption, intolerance, selfishness and envy).

A Torch and Cauldron Lighting Sequence embodied the journey from darkness to light, and from ignorance to knowledge. Finally the Celebration Song celebrated the unity of the Arab people. The imagery that accompanies it is a collection of famous icons that celebrate Arabic history and culture.

David Atkins and his team polished off a seamless spectacular that was an extravagantly visual storytelling exactly in tune with its audience.

KEY PERSONNEL

- H.E. SHEIKH SAOUD BIN ABDULRAHMAN AL-THANI
Chairman of the Organising Committee
- AHMAD AL-MAWLAWI
Vice Chairman of the Organising Committee
- ABDULLA Y. AL MULLA
Director of Ceremonies & Media
- DAVID ATKINS, OAM
Executive Producer and Artistic Director
- ANNA MAIDON
Producer
- NOEL DAVIS
Associate Producer
- DREW ANTHONY
Associate Artistic Director
- DOUGLAS PARASCHUK
Head of Design
- JANET HINE
Head of Costume
- SCOTT WILLSALLEN
Sound Designer
- TRUDY DALGLEISH
Lighting Designer
- CYRIL MEUSY
AV Content Producer
- ROBBIE KLAESI
Creative Director Digital Content
- DAVE PIERCE
Music Director
- DI LYNN
Protocol Director
- SIMON FRANCIS
Broadcast Director
- JAMES LEE
Technical Director
- LIZ GOODYER
Operations Director
- BRETT HEIL
Executive Producer, Visual Content
- STEVE JEFFERYS
Equestrian Consultant
- MICHAEL CURRY
Consultant, Monster & Horse

KEY SUPPLIERS

- Lighting: Neg Earth Lights
- Audio: Norwest Productions
- Communications: Riedel Communications
- Projection: ETC
- LED: Creative Technology
- Content: Digital Pulse
- Staging: Stage One Creative Services
- Cauldron: FCT Flames
- Pyrotechnics: Howard & Sons Pyrotechnics Displays



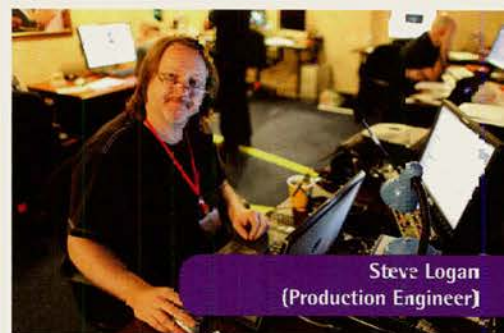
Trudy Dalglish (Lighting Designer) & Jason Fripp (Associate Lighting Designer and Programmer)



Patrice Bouqueniaux International Sales & Marketing Manager, ETC.



Justin Arthur from Norwest, Scott Willsallen (Audio Designer) centre and Steve Lutley visiting from Delta Sound



Steve Logan (Production Engineer)



Ian Stappcott (FOH Audio Engineer)

DOLLY PARTON EXCEEDS

Just another tour becomes Epic



By Julius Grafton





Monitor Engineer
Jason Glass

Cugg Entertainment find upcoming bands and take a loss to bring them to Australia. On the other hand, they are chosen by fantastic performers to arrange a tour. Sometimes these tours go viral!

Dolly Parton, legendary country performer of a certain age had shows added in Australia and ended her world tour in Melbourne on a high. Across from Perth to the eastern states, the tour hit Sydney and Melbourne twice, for encore dates in the largest venues.

The reviews were consistent – a great show featuring multi-instrumentalist Ms. Parton over 2.5 hours. Tellingly in Perth, a review said that the sound was great, in the acoustical shell that is the Eurswooc Dome – the dome-of-audio-ceath.

"Well, I have a theory about venues", draws FOH mixer and production manager Mike Fechner. "That is, that every room has its sweet spot. So you have to get the SPL under that."

That said, the show ticks over at a healthy (and safe) 95 to 100dbA, measured slow.

Touring engineer
Patrick Johnston and
Coda engineer
Des O'Neill

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Coda Meyer hangs

Accurate

They tour with Meyer Sound – the number one live audio brand in the United States. Australia's largest Meyer live sound rental firm, Coda Audio got the call from Thunder Audio in Detroit. "We just answered the request", says Coda boss Michael Wilkie. "It didn't even come through the promoter – it just came".

Specifically Coda supplied 36 Milo and 32 Mica, with twelve 700HP subs. Then there were the new MJF212 powered (all Meyer has onboard amps and processing) wedges. The act would bring consoles and wireless. Coda were to do the 'racks and stacks' in the old-speak.

Milo is a compact 4 way line array cabinet, with a unique driver arrangement. Low frequency up to 300Hz is supplied from two 12" drivers – but the low/mid band from 300 to 560Hz is fed to one of the two 12" speakers alone. Then the midrange runs from 560Hz to 4.2kHz, supplied from a compression driver. Over 4.2kHz runs out of an ultra high-end array of three small drivers.

The Mica system is smaller but similar – dual 10" drivers also do the low and

low-mid split, with two compression drivers delivering high and ultra high. As with Milo, internal amplifiers feed each section. Meyer are one of only a few manufacturers who build amplifiers and digital processors into their speaker systems which guarantees consistent performance because system engineers are unable to change settings or substitute amplifier types.

Front end

But it's out at front of house the completeness of the Meyer package becomes evident. Touring engineer Patrick Johnston and Coda engineer Des O'Neil showed CX how the system was calibrated to the vast space that is Allphones Arena in Sydney.

Back to the start, the trucks were tipped at 8am, and the power distribution system was rolled out. Coda request 200 amps of 3 phase, although the entire rig barely pulls 60 amps. Good mains power headroom guarantees reliability. "We give them (the Parton crew) a 63 amp transformer for their gear", says Des, referring to the touring Midas Pro 6 (FOH) and Pro 9 console systems plus wireless and out-

board gear.

While lighting (PRG) and video (LMG, from Nashville) get sorted, the audio guys line up the Meyer on the ground, and pre-wire the mains and signal feeds. Once there is space in the air, the system is flown around lunchtime.

Then the high tech part starts, with a SIM 3 Audio Analyzer pressed into service to measure the system performance in the auditorium. The crew used three reference microphones to feed the SIM, which also took a console output and the system drive outputs from two Galileo Loudspeaker Management systems (one each for Mica and Milo).

With pink noise running, the SIM displayed the response, and the crew quickly optimized the system. With Compass software on a MacBook Pro and also a PC tablet, the crew can walk the room and tweak elements of the system as needed.

Turn it down!

While FOH dles along in the happy zone under 101dB(a), the monitors kick air because Ms. Parton is not partial to ear moni-

tors. "I have eight wedges along the front, run in left and right pairs", Monitor Engineer Jason Glass explained.

These are new Meyer MJF 212A models, of which Coda have just added 14. They are the 'Metallica' wedges, best known for cutting through that battle zone of loud rock.

MJF 212A are loaded with two 12" drivers, and a conical 50 degree high frequency horn. A three channel amplifier is onboard. "The only complaint I get is that they are too loud!" says Jason.

All up he has 35 outputs running from his Pro 9 system - with 32 channels of wireless (stereo ears for the eight musicians, and wireless returns from mics and packs).

"I run 'Signal Hound' from Rational Waves which is connected to my laptop by USB", he says, "and in less than three seconds I know what frequencies may be problematic in the venue. It is a great device!" He scans from 470 to 698 MHz to find white space.

Out front, the 700HP subwoofers are idling, the show I saw at Allphones Arena only utilized four each side - run in a Cardioid front/back arrangement to cancel unwanted low end going to the backstage.

Mixing Ms Parton

"I have 52 inputs from stage - there are a lot of multi-instrumentalists", says FOH engineer Mike Fechner. "The nightly challenge I have is to get it in the pocket", he says, referring to that sweet spot where the mix is happy in the space, and the show builds.

Like many performers, there are two different vocal channels set up - one for song and one for speech. Ms. P. sings into a Countryman headset or a handheld Shure KSM 9, which was custom gold plated by the monitor engineer before the tour. Some of the song dynamics have the star reduced to a whisper. "I slam everything with an outboard Empirical Labs Distressor, an Auto Gain Control (AGC) device.

"I'd heard of Robert Scovill using the same technique with Tom Petty and it works well - two different settings".

The show starts strong, and then ventures into a Bluegrass section. At some gigs, Mike is competing against the fans who stand and sing and yell so much it competes with the sound system. "Then I have to give it a little extra gas", he says.

The road winds on

In Australia the tour planning hit a large red tape obstacle when Chugg Entertainment got a big NO from various arms of Government, opposed to temporary import of two custom tour busses. "She spends a lot of time in there", Mike Fechner says. "They are built for her - a home away from home. In Australia we use a private jet from city to city because of distance, so the coaches leap frog from gig to gig". At one stage, the viability of the tour was under threat because of the inability of Chugg Entertainment to get consent for the left hand drive, oversized and overweight busses to enter the country, and be driven on all state roads. But they arrived.



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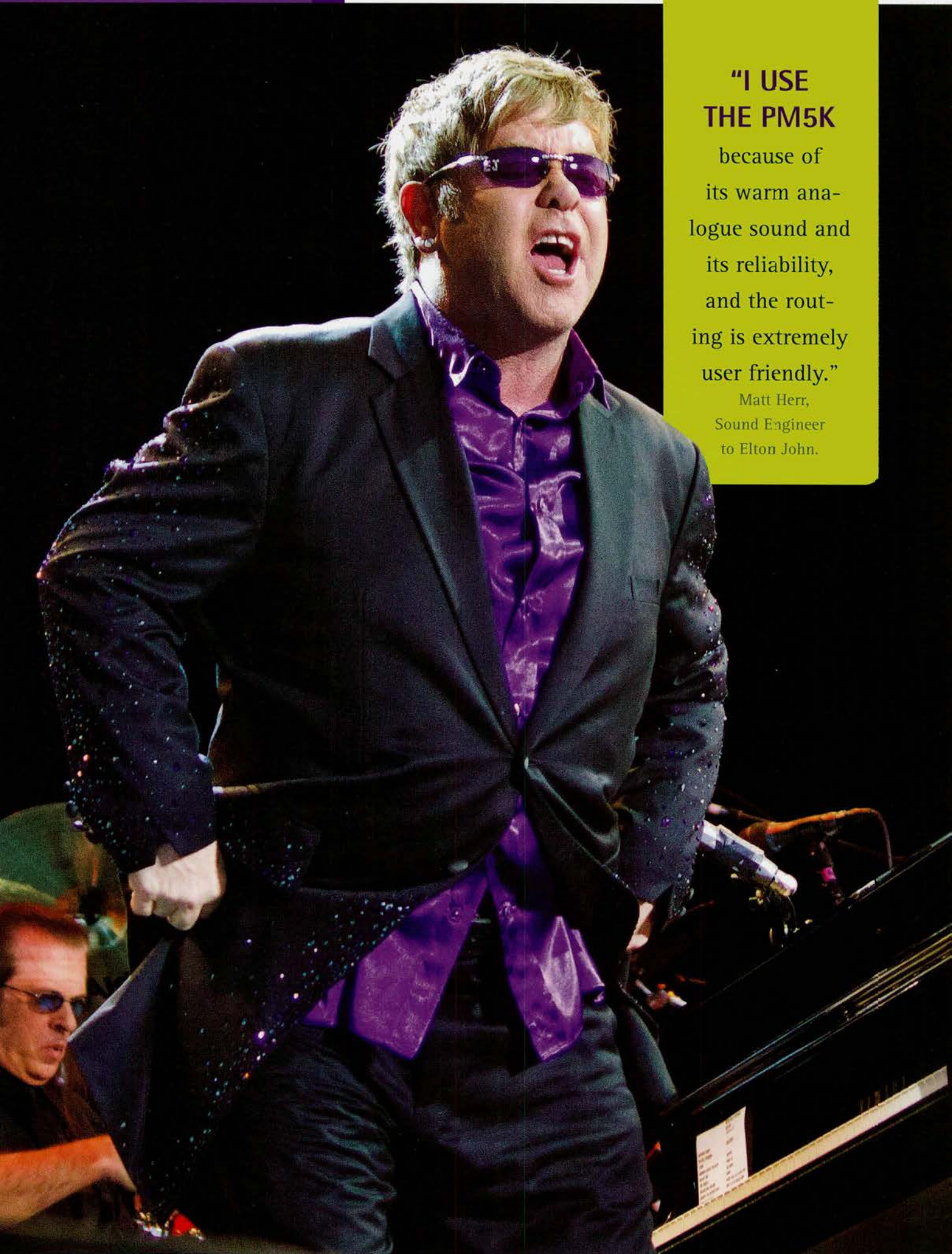
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Matt Herr,
Sound Engineer
to Elton John.



ELTON JOHN: STILL STANDING

Flagship of Elton John's touring control equipment must certainly be the Yamaha PM5000-52C analogue console. And whilst an analogue mixer might not necessarily be an anachronism in today's digital world, how about a mess of racked-up vintage DBX 160 VU compressor limiters circa 1976?

It's important to stress though that with virtuoso sound engineer Matt Herr at the helm these designs are neither nostalgic nor cosmetic, and the proof is in what is ultimately emanating from the Clair i-5 speaker arrays--and that pristine sound absolutely delighted the fans at the Home Estate winery in the NSW Hunter on this palmy December Saturday evening.

Yamaha analogue console

The touring cargo of Yamaha PM5000 analogue consoles and speciality Yamaha grand pianos are impressive armaments in the Elton John arsenal, and Matt Herr was forthcoming in explaining the maestro's enduring bond with Yamaha.

"Elton has a very great relationship with Yamaha," Herr told CX, adding, "the global support is second to none."

Matt Herr had been Elton John's system engineer for some 3 years in the days when long-serving audio engineer Clive Franks was the FOH technician, and Herr still tunes the arrays at every concert today.

"Since 2004 I've been one of two engineers for Elton. The other, Clive Franks had retired a couple of years ago," said Herr.

Elton John's first tour of Australia in 1971 actually preceded the release of Yamaha's first PM 1000 console in 1972. But its progeny the PM5000 is a far more advanced innovation, which incorporates an amalgam of digital features including moving faders and scene memory, whilst retaining the nuances of

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analogue microphone pre-amplification.

"I use the PM5K because of its warm analogue sound and its reliability, and the routing is extremely user friendly," said Herr.

Yamaha grand piano

There are actually 4 Yamaha grand pianos that circumnavigate the globe to accommodate Elton John on tour. All the grands are basically set up with a combination of midi that triggers sound sampling modules, and the acoustics of the pianos are captured with analogue microphones.

"The pianos do use a midi system along with 2 EV 408 mics mounted inside. The mics add a small amount of natural ambience to the midi sound. The piano sound is very big... huge actually. I use two stereo sound modules blended with the mics to create a larger than life piano sound that you can actually feel. You wouldn't be able to achieve this with using a conventional method of just miking an acoustic piano," said Herr.

FOH effects and monitors

Along with the DBX 160 compressors Herr uses an economy of outboard effects.

"I use a Lexicon 480 for vocals and the piano, a Bricasti M7 for drums and percussion, a TC 2290 DDL and an Eclipse Harmonizer to spread the sound of the backing vocals a bit," said Herr.

Monitors are handled by veteran technician Alan Richardson who has worked with some of the world's foremost acts including the late Frank Sinatra, who reportedly referred to him as 'the kid'.

Richardson employs Clair 12AM wedges powered by the Lab.gruppen PLM (Powered Loudspeaker Management) series amplifiers. Elton has a dedicated pair of Clair 12AM wedges and also a pair of Clair i212-i line arrays. Herr explains that the foldback is mixed somewhat like the FOH.

"Working with Alan is fantastic! He has been Elton's monitor engineer for close to 15



years and is extremely good at what he does. Elton's monitors are very loud and it's not an easy task to get them to that point. They are always super stable and sound fantastic. Elton likes a full band mix in his wedges, which Alan mixes like a FOH mix," said Herr.

Richardson uses Yamaha's PM1D digital console for the foldback, and Herr explains that another of Yamaha's digital consoles, the PM5D, is also his own choice for FOH at certain shows.

"I've used the PM5D on a number of occasions for solo shows. I like being able to see all of my inputs in front of me without fumbling through layers of pages to find what I need. Having said that, digital consoles have come along way in their basic layouts and are becoming more analogue-like in their functionality," said Herr.

Matt Herr has toured and mixed for some of the greats in the business including U2, Michael Jackson, Madonna, Bon Jovi, Steely Dan, Billy Joel, and all the Face 2 Face Elton John, Billy Joel concerts.

"Working with Elton and the band is great. We do over 100 shows a year with the band, solo or with Ray Cooper. I would say that the most difficult part would be doing gigs in smaller type venues where the monitors play a factor. What Elton needs in his wedges frequency-wise, isn't necessarily what the room may want or need. They are loud!"

Sound reinforcement

Herr also has a long association with Clair, so it was no surprise to see the behemoth Clair i-5 arrays flying at Hope Estate.

"I'm coming up on 20 years working for Clair Bros., and have been touring for close to 19 years," Herr told CX.

For the tour Jands dispatched their i-5 aficionado Nick Giameos as audio crew chief for the production.

The i-5's mids and highs were powered by Crest amplifiers and QSC took care of the low end. Whilst Jands supplied the Yamaha PM5000 console, which was used in Dunedin, NZ, there was another control package waiting when the crew arrived in

Sydney. Giameos explains:

"We flew directly from the Dunedin show into the Lyric Theatre (Sydney) show, where we used (the tour's) B-rig, which came out of Switzerland," said Giameos.

In fact the entire console and monitor package was supplied by Swiss based Audio Rent, which is a division of Clair Global. Giameos pointed out that given the amount of shows that Elton John does annually there needs to be more than one production package in global transit.

"You can't always guarantee that the same equipment ends up in a particular place at a given time. So there are up to four different PA and control packages that can leap-frog each other at any one time," said Giameos.

Giameos was assisted at Hope Estate by PA / Monitor technicians Brendan Keane and Glen Duncan, and the consensus was that the i-5 delivered a rock solid sound, in fact Giameos was somewhat elated about its performance.

"There's a lot of product out there competing to be top dog. I speak very highly of K1 and V-DOSC (L'Acoustics), but i-5 is the one that I use the most--it's my bread-and-butter, and when it's done right it can sound as good if not better than its competition.

"As you can see the i-5 is pretty big, so you could argue that it's big and heavy and a lot to fit in the truck. But you could also argue that it moves a lot of air. You look up at it in awe and think that's a lot of public address system, and then you hear it and it's like...wow!" exclaimed Giameos.



Nick Giameos, JPJ



Kevin 'Stick' Bye



Matt Herr



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The show

From the moment Elton John approached the piano at Hope Estate the 13,000 strong crowd erupted into euphoric festivity. And the master didn't disappoint, delivering a larger than life presentation that you sometimes had to pinch yourself to believe. And panning the stage to see musicians like Davey Johnstone and Nigel Olsson, who played on the Goodbye Yellow Brick Road album, added to the surreality. Other band members on this tour were percussionist John Mahon, bassist Bob Birch, keyboard player Kim Bullard, and backing vocalists Lisa



Banks, Jean Witherspoon, Tata Vega and Rose Stone. And the recently discovered Croatian support act 2Cellos, Luka Šulić and Stjepan Hauser joined Elton and the band for some 13 numbers. The Elton John tour was a Chugg Entertainment production. Bruce Pollack, who was the publicist for the tour told CX, "The tour's been fantastic. It's been highly successful and it's had great reviews. Elton has been in a great frame of mind and he's been well received by the public. You couldn't ask for anything better," said Pollack.



Elton and Davey Johnstone



Elton from back

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Mid size Line Array

How does a new system stack up against first generation line arrays?

This wasn't a gear shootout – we haven't done one of those since a time when we were called Connections magazine. This was a listening session, with a brand new design line array against two previous generation systems.

It was on an overcast Melbourne day that we met up at sparrows fart in the carpark at CMI Music & Audio. They were setting up a blind comparison – the idea being that the participants wouldn't know what they were listening to until the reveal. Three line arrays (referred to only as system A, B, and C) were rigged on a rather nice

trussing system provided by CLS, then an acoustically transparent black scrim was rolled out in front. A black drape behind completed the process of removing the identity from the various systems.

The systems were all setup and run off a group output of a Tascam digital console. Using pink noise and an SPL meter they first matched the SPL across all three systems by attenuating the outputs. This way, they could just assign the various sources to the relevant mix bus to send it to each array at the same SPL. Note that that's a very different thing from 'apparent loudness'!

Score sheets were handed to participants, with a selection of common criteria on which each system would be scored. They looked at things like tonal balance of the systems, coverage of HF and MF, vocal rendition, how well the subs and arrays "stack" together, as well as overall impressions of the systems.

The evaluation was conducted on the basis of Jimmy Den-Ouden talking through a new SM58, in addition to a selection of musical tracks, carefully selected to assist participants in completing their evaluations. They ran most of it relatively quiet, but once everyone wandered up to the

back of the carpark (some 70m away), then the levels were punched up a bit. They switched between the arrays with the tracks running, the active array indicated by a Par56 can in front of the scrim. Scoring was a simple 1-5 system (1 being disgraceful, 5 being outstanding).

The results were collected, and the scores across each category averaged to provide a result out of 5. The first three categories had very little between them, merely half a point separating the lowest and highest score. So on vocal rendition, coherence between low and high frequencies, and smoothness of frequency response the verdict is that all the systems were fine. The remaining categories (pleasing tonality, HF coverage, MF coverage, coverage consistency across varying SPL, and overall impression of the system) saw System A take a stronger lead ahead of the others. Why was this the case?

System A was the new dB Technologies T12 active line array (revealed, top left).

The mid-high to sub ratio was 2:1, while the System B and System C had a mid-high to sub ratio of 4:1. This was due to



the two comparison systems coming direct from two rental firms, who chose to package them with less low end than the dB system.

System B was specified to throw 30m, and for technical reasons on the day they couldn't reconfigure it. Both the B and C systems were running off external amps and processors, whereas the dB Technologies rig is internally processed and each

Gain matching SPL, systems hidden

driver individually amplified (rather than passively crossed over).

In conclusion the generation gap really showed that technological developments lead to improvements in speaker performance which is hardly surprising. Different things are right for different people, so the variation we saw was somewhat expected.

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FUTURE – PAST – PERFECT

THE CHURCH LIVE AT NORWOOD



O

ne of Australia's iconic bands – The Church – is currently touring Australia with the Future Past Perfect tour.

This is a band that has been around for over 30 years and are still going strong with their take on good quality, intelligent Aussie rock. This show is a celebration of this band and its music, as they play 3 of their best albums in a 3 ½ hour show. The band consists of Steve Kilbey, Marty Willson-Piper, Tim Powles, Peter Kopples, with special guest Craig Wilson.

The venue that they picked in Adelaide was the historic Norwood Concert Hall. This is a rather beautiful Art Deco venue, with a pretty live sound. This venue can also be a challenge for a bump in as the hall is on the first floor. You can either

GOING MORE THAN 30 YEARS

and then The Church

play in Stephen

Dean's hometown.

He reports from

Adelaide....

carry the gear up a few flights of stairs, use the disabled lift, or a ride a cage up the side of the building.

Set Up

This tour the band travelled light, picking up PA's in each of the places they visited. In Adelaide they used the services of Australian Lighting and Audio Technology to supply a system that was perfect for the venue. The band is supported by a small travelling crew that consisted of: Tiare Helberg – Tour Manager, Robin Danar – FOH Engineer, Wes Gregorace – Stage Manager, Aaron Giffen – Stage Tech, Shaun Gaida – Drum Tech, and Trevor Johnstone – Lighting Tech.

The local crew were Marie Docking – Norwood's venue tech, Peter Aztatlos –

system owner/tech and Chris Stedman – fold-back engineer.

This system supplied was an EAW KF 73C Line Array with SB730 subs. In addition to the SB subs there were also 4 ARX KA118 subs to cover the middle of the venue. The whole system was run as a 4 way system. These were controlled with EAW UX8800 processors via the U-Net protocol driving a whole bunch of Powersoft K10 and K6 amplifiers. There were also 2 lip fill speakers and this duty was done by a pair of EAW JFX260i boxes driven by another UX8800 and a Powersoft 4004 amplifier.

Foldback was taken care of by 8 ARX215 boxes with modified horns; these were driven by another pair of EAW UX8800 processors using Powersoft K6 and 4004 amplifiers. The drummer also wore a set of in ear monitors.

The FOH task was completed on an Allen and Heath iLive T112 driving (via a digital snake) an IDR 48 and the foldback desk used was an Allen & Heath GL2800M-48. The whole PA was ground stacked as there are no rigging points in the venue for flying a line array. The mics were a pretty standard affair of: Kick – Beta 52, Snares – SM57's, Toms – Audix D2's and D4's, OH & HH – Audix F15's, Guitar cabinets – Audix D3's, Vocals – Beta 58's & OM 5's and various DI units the band bought with them.



SOUNDCHECK
was smooth. A far cry from the old days when the band had 'form'

So how did it sound?

Well it sounded great. The audio that Robin pulled from this system was stunning. The PA sounded great anyway and had been really well tuned by Chris before Robin arrived. But in Robin's hands it was a magical sound. When you look at Robin's credentials you will see why The Church picked him. He is a guy that understands their music and aurally it showed. The audience that were present had a real treat.

The Church as a band has a unique sound and the mix captured it. The audio was crisp and none of the voices or instruments was masked. This is a show about the music; you could close your eyes and let the sound wash over you. The mixing was one of the best I have heard, the musicians were

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Robin Danar – The Church Engineer

Robin was picked by the band for his credentials. He has mixed for the likes of Cyndi Lauper, Lauri Anderson and Bonnie Raitt to name a few.

He says he has found it interesting to work with these guys as they are a dynamic group, so mixing is not just a set and forget job. He attributed this as: 'almost like jamming with the band'. He feels his task is to blend the band, and trying to achieve a slightly more edgy and powerful sound than the CD's. The music does not remain static; it is continually evolving. It is not necessarily the quality of the console that is important, but the music. It is the arrangement and structure; and capturing what the musicians are trying to communicate to the audience, and then getting that across to the audience, whether it is live, an MP3 or CD.

On this tour since they are not carrying a console it is a cold walk up every day, with a new console to learn. This was his first time using an Allen & Heath iLive Console. Because every console is different (especially digital consoles), he found it great to have someone on hand to assist. Robin likes to lay out his console in a certain way. He also carries copies of all of the show files from the various digital consoles that he has used. This gives him a reference point from where to start. He finds that when working with people that putting in that extra effort is really valuable and they are helping with his process of mixing. More time is required to set up his working surface and this is where he finds that a venue or system tech that knows the gear is worth their weight in gold. He certainly appreciates the effort other people put into a gig to make his task easier, and he does let them know. Robin also feels that digital consoles are great, but the time needed to set them up can often be more than analogue consoles. And if the unmentionable happens and the console loses everything then it is going to take a long time to get a show up and running again on a digital console.



WELCOME TO I-LIVE!

Every console is different.
Especially the digital variety!

Robin Danar gets the big picture

on fire, and Robin picked up on this and the room rang with the amazing sound that is The Church. They cover 3 albums from 3 eras that all had different sounds. A l music styles were handled well and came across to the audience at Norwood who were very appreciative. It was also mixed at a "nicely" loud volume without tearing your head off. You felt it without pain.

The lighting was traditional in that there were no moving lights. It was based on par cans, fresnels and profiles. The lighting by Trevor was a natural complement to the music, not flashing patterns and sweeps into the audience. It was there to illuminate the music and the band, to create moods. Understated but striking. The lighting was designed and operated in a manner so as not to distract from the music. The lighting desk used was the venues own Theatrelight console and it certainly was up to the job.

So if you get a change at any time and The Church is playing near you, I suggest you open the wallet and fork out a few bills to see them. It is worth your while.



▲ Back of monitor desk

▼ Allen & Heath GL2800M

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Loudness:

Sure we're at war - but with whom?

So the real 1941 war, the one that isn't over, had begun. It is and was the never-ending battle between viewers who want free-TV funded by ads they don't have to watch, and advertisers who need to get as much ear and eye time as is technically possible. It's called: "The Loudness War". Most likely you've been out there as one of the troops, or an officer, or both.

Live sound engineers work hard to provide an experience that is compelling and engaging, without being life threatening. Loudness is a drug that audiences crave and every FOH engineer has experienced that zone where faders just magically creep up over a couple of songs until everything is louder than everything else and the amps are clipping and speakers are melting and the house is buzzing. TV audio is a bit more measured, and broadcasters expend a heap of energy pursuing the grail that balances your listening experience with the needs of transmission technology and the desires of the people who pay the bills.

If you'd like the executive summary right now, then here it is:

All soundies would like to create the right listening experience, one without unwanted distortion, pain or complaint. We all think we understand how loudness works. A bit of experiment shows that few people really do understand loudness or how to measure it. We (at CX) figure that understanding of loudness is pretty fundamental, which is why we've made it a major thread of the CX Roadshow. In Australia, TV audio levels are measurably all over the place, which is not to say that the industry doesn't care: they do and a lot of good people lose much sleep over getting it right. TV engineering isn't deliberately

THE FIRST TV ADVERTISEMENT

went to air in 1941 during a baseball game. Viewers immediately complained it was too loud.

John Maizels adds volume to the debate...

set up to make ads louder. (Trust me on this.) TV promo departments and advertisers habitually create processed material that can't be made softer by engineering or presentation. We measured some TV audio and what we saw supports all of the above.

Let's look at some history, so we know where this started and why. In the analogue days, the broadcaster's job was to keep sound level as consistently high as possible (to optimise their signal-to-noise ratio) while brick-wall audio peaks at 100% transmitter modulation (to optimise their relationship with the broadcast regulator. The Broadcasting Control Board of old was rather zealous about such things). As far as our ears go, there's a heap of difference between the concepts of peak level (a maximum signal point managed by a limiter or AGC ahead of the transmitter), and loudness (which is the attribute that drives listener complaint).

Today, digital audio resolves most signal-to-noise problems before they start, but we have 70 years of legacy audio practice based on the analogue world. Only an unwise person would claim that we can now

forget concerns about level management. Maybe we have to worry even more.

Loudness is not an easy thing to manage. For a start, forget benchmarks and absolutes. Loudness is about perception, a characteristic which is curiously human and subjective. Your perception of loudness will be different to mine, and both of us will have a different opinion to Mrs TheMaiz, to whom everything at normal viewing volume is too loud. It doesn't matter how often I trot out the "83dB SPL is the perfect listening level" argument, or produce the instruments that measure such things, it's "can we turn that down". But after many studies and household standards committee sessions, we've compromised on a locally agreed loudness practice which accommodates our mutual desire to have and appreciate good TV sound. It's vaguely related to magic numbers.

Your listening environment is important. Of course, the people who create your sound - broadcasters and CD masterers - have no control over that at all. Depending on speakers, amps, furnishings, program material and the extent to which you might be tired and emotional, a given piece of audio might be too loud, too soft, just right or unintelligible. Feel free to read up on Fletcher and Munson's groundbreaking work on equal loudness contour, for instance. In 1933, Fletcher and Munson did the research which shows that at low volumes we're not as sensitive to bass and treble. If you invert this observation, it says that a given sound has more bass and treble if it's louder. More phons equals more flatness. That fact hasn't been lost on Hifi Salesmen who quickly discovered that they could sell Loud, and somewhere along the line a clever amp designer invented the loudness button that has been misused ever since.

> continued



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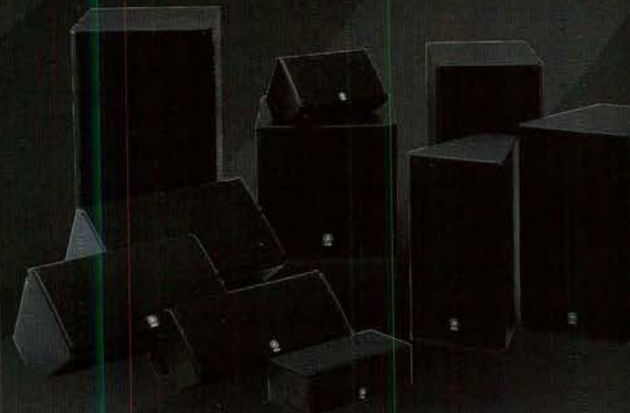
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Shouldn't loudness management be easier? In part, the broadcast industry has created a rod for itself. Once upon a time the loudness knob was the same as the level knob, and was manually adjusted during and between program elements by trained and (dare I say?) sensitive technicians and presentation operators. This was back in the day when broadcasters were prepared to ensure that staff were trained, and when the operators had time and encouragement enough to care. Today the transmission volume knob is pretty much under total control of machines that can't tell the difference between the soundscape of Test Cricket and an Ah-Bra ad, and don't remember the sensation of "too loud" when the ad was last played. The machines don't even watch the ad.

So what's the shape of TV audio today? We have program material with wide dynamic range in 5.1 surround. That program wraps around ads and promos that have been processed within an inch of their life and have no dynamics. Internationally there is a range of standards for what loudness should be. And managing this is a collection of broadcasters who are guided in absolutes by a curious mix of physics, convention, agreements and law (and standards that are way easier to write than to implement).

The test

Over the holiday break Julius challenged me to prove to him that TV stations don't deliberately make the ads louder. We listened to some TV stations, and sure enough many of the ads seemed louder to us than the surrounding material – but has that been done by deliberate engineering? I've worked in enough broadcasters to know that's a crazy concept, but it's popular opinion. And why else would TV Loudness be the subject of legislation in so many places? The US CALM Act was signed into law on 15 December 2010, and there's a wonderful soundbite of President Obama who said "When I'm watching the game I don't want those ads to come on loud".

The first thing you learn when you try to measure loudness is that the ear does a better job than any instrument. Where you can get two VU meters that tell you the same thing, it's not so simple to invent a device which translates ITU-R BS 1770 or EBU R128 into identical readings from a common source.

By the way, one of my challenges was

to create a test regime which you might be able to try for yourself. The answer was simple and elegant: you can create a consistent and repeatable source of program with nothing more complex than a cable FOXTEL iQ box and a DVD player. Feed those into a passive audio selector fed from the (S/PDIF) coaxial digital audio outputs of the sources. Why cable? Telstra's distribution takes MPEG transports from the TV stations, remaps the PIDs into new multiplexes, and sends them out again. What's important is that the FTA audio on cable FOXTEL isn't reprocessed, and should precisely match the FTA output from a DTV off-air receiver. We confirmed that with listening tests against two DTV boxes, and moved on. Finally, to provide an accurate lineup reference, load the DVD player with your trusty copy of the APD (the Alan Parsons/Stephen Court Audio Test Disc).

The output of the selector switch, a digital audio signal, was fed through a distribution amp (DA) to a variety of test gear and audio analysis devices, which included:

- Dolby LM-100 Loudness Meter
- RTW TM-7 Touchmonitor analyser
- TC Electronic LM2 Loudness Meter
- Potomac Instruments QA100 Audio Program Analyser (analogue)
- Benchmark Media Systems DAC2004 dual 20bit precision decoder
- Several calibrated analogue VU meters (and digital equivalent)
- Calibrated BBC Peak Program Meter

That's a serious array of gear, with a lot of pedigree and acceptance.

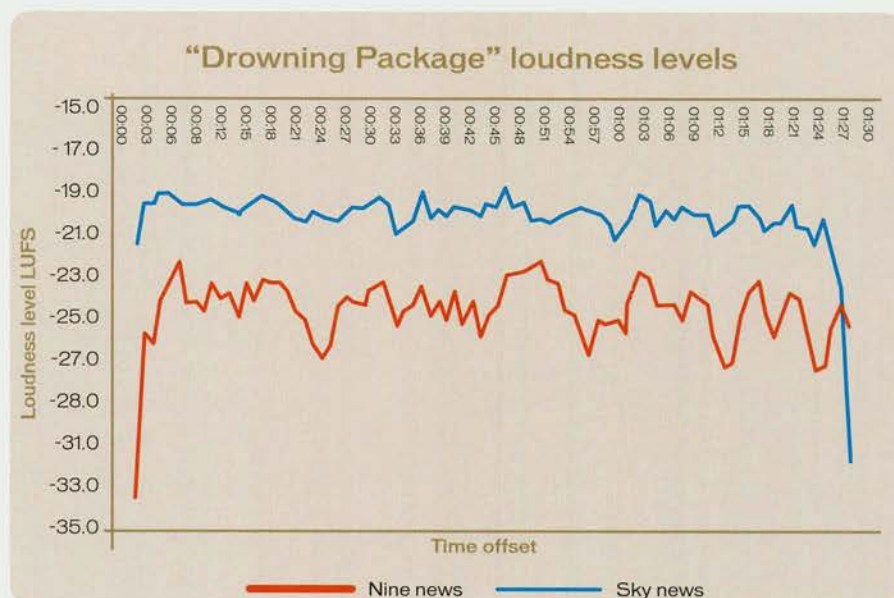
Fortunately, none of the professional digital devices seemed to care whether the incoming digital feed was S/PDIF

or true AES, and they all locked up very quickly in the presence of PCM audio from the domestic devices. The Dolby LM100 confirmed correct calibration by showing -14dBFS for the APD -14dB reference track, and I finally found a use for the APD 0dBFS track (the one which blows your speakers out when you play it). It measured 0dBFS, and confirmed that we were tracking correctly.

Loudness assessment is about observation and comparison, not absolutes. Taking a path completely contrary to our own advice, and with SO much excellent test gear at our disposal, I figured we'd head off and see if some absolutes would leap out anyway. You're probably thinking that in the middle of testing there would be a cry of "Eureka!" and we'd find a consistent series of numbers and a consensus loudness position.

I won't bore you with the number of days we spent listening to TV channels and looking for the obvious. I also won't claim that we found the yellow brick road. More than anything else, this has convinced me how much I'm looking forward to the Loudness Sessions that we're running as part of the CX Roadshow, and how good it's going to be to have some global loudness gurus on the panel. But while we didn't find nirvana, there's plenty that does come out of the observations we did.

As it happened, luck dealt us a news package which ran on both Channel Nine and Sky News. This gave us identical and varied content over a 90 second period, and the difference in audio processing became quite visible. Using data collected by the TC Electronics LM2, I produced the chart (below), after aligning playback of the two audio tracks.



Straight away you can see how the sound from Nine has significantly more dynamic range and averages about 5LU lower than Sky News. According to the Dolby LM100, the Nine News signal peaked at -12dBFS, and sat around -25LKFS. Compare that to Sky News where the same audio, processed by a different chain, peaked at -9dBFS and sat around -21LKFS. So it's pretty obvious that the Sky News audio has been processed much more severely.

The off-air listening test backs this up. The Sky News sound was more pumpy, with less dynamics and it's noticeably louder. But how much of that is due to the signal processing used, and how much is due to a difference in absolute level at the encoder? Much harder to tell and was not a comparison that I could do accurately with the equipment available.

Surprisingly, there was a short audio grab between 00:43 and 00:48 where the microphone went into bad clipping. You'd expect that to show as high loudness, or at least look nasty on the graph. In fact, it doesn't really show at all on either trace. However something weird happened between 00:45 and 00:57, and that will be subject of further ruminations.

Understand that this is just a measurement. We're not being critical of either

signal; it's useful to get an objective view that describes what we're hearing.

For the main evaluation, for each of the Free To Air and five FOXTEL channels we compared grabs which include program material and an intervening ad break.

Grab bag

I can now say there's no special consistency between the various Free To Air TV channels. There's also not good correlation between the FTA channels and the FOXTEL channels, or between many FOXTEL channels. Is that a surprise? No, everyone involved in engineering a ready knows that levels are different, which is not to say that every channel change requires a grab for the remote. FOXTEL makes a valiant effort to manage loudness across the platform, but their programming originates from the four corners of the earth - literally - and it's a tough job to get all those channels to the point of being even roughly equivalent loudness. They do well.

We observed many channels where signals with low dynamic range but high average level sound louder than signals with higher dynamic range and occasional quite high peaks. I don't think there's a way to simplify that sentence, so feel free to read it again. Put another

way, if the signal is compressed and peak limited, especially if the compressor has fast attack and fast recovery times, then it will almost certainly sound louder than signals which have wide dynamics still in place.

So why do commercials sound louder than surrounding program? Well largely because today's TV programs are designed to have significant dynamics. Interstitial material is created in a way that makes it louder than everything around it, and that's the case before it gets anywhere near the TV station. This disparity leads to a challenge which is only partly fixable with Technology. As far as I can tell, nothing is going to change until everyone who creates audio for a channel plays the exactly the same loudness game, and everyone understands what they are doing with the loudness knob. The engineers to whom I've talked indicate that they don't have much luck convincing their production colleagues to be less brutal.

So the Loudness War continues. It would be great to have a cease-fire sometime soon, but maybe there will never be peace except for those fractions of a second when the picture dips to black.





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The Maiz

Qantas

There's nothing like actually being embroiled in a corporate trainwreck to raise interest in how it plays in the news. So after being caught in LA during the Qantas grounding mess, I was intrigued to see how it played out in the press back home. Unsurprisingly, most of the footage shown played to anger, frustration, and bitching. Much wrath. And if I believe all



those people who were doorstopped at the airport, nobody is going to fly with the Kangaroo ever again. That would be wonderful if it happened, because I really like getting that coveted row of four empty seats which provides a vague alternative to the pointy end of the plane. But it isn't happening. Every plane I've taken recently has been packed.

From where I stood, Qantas was unquestioningly supportive of impacted passengers, and there were lots of nice touches in the days after the planes started flying again. Everyone I know who has put in a claim has had it paid very promptly, including a mate of mine who sent an invoice for freelance income that he lost because he was stranded, and couldn't recover.

The Alan Parsons Test Disc

My copy of the Alan Parsons – Stephen Court Sound Check Professional Audio Test Disc, purchased not long after initial release, has ©1993 on the label so I guess I've had it a long time. It goes with me to most gigs, and can be a lifesaver. Apart from test tones, channel checks and calibrated sweeps, it has instrumental and vocal tracks which are worth their weight in gold. At a pinch, you can use the very dry vocal to set up a passable reverb mix even if the lead singer hasn't arrived for the soundcheck. The drum runs should sound like drums out front, and the tambourine track will alert you very quickly to impending system overload.

But here's a recent surprise: the Lissajous display on the RTW Touch-Monitor alerted me to something I'd never noticed, which is that the



baseband and phase tracks (5 to 8 on the Version 1 CD) are up on the left channel. By the way, I'm not quibbling about a gnat's hair here; the difference is maybe 1.5dB high on left even though the voiceidents are dead equal. So it was mastered that way, and 1.5dB error is a pretty significant discrepancy in a test signal. It's enough to clearly show on a meter. Except that when I saw this clearly on a pair of meters, I figured the meters were at fault (obviously the disc couldn't possibly be wrong and meters can easily be wrong). Well, call me a bozo and strike me down. Good thing I checked again, because I was going to recalibrate the meters.

It's so easy to ignore an obvious truth in favour of something more conveniently believable. Moral: check, check, and check again. My faith in the Alan Parsons test disc isn't shaken to the core, but I'm going to be more careful with it now.

iPhone flight mode

Most people I know have had the battery go flat at an unwanted moment. I don't know why this wasn't sorted out during development. There seem to be many so ways to suck the life out of an iPhone and I've been the victim of several of them. The big advice is to turn off Location Services, and shut down any programs that you don't need to be actually running. But here's one I hadn't expected: the phone part of the iPhone can go feral. After a trip to New Zealand in November, my CX iThingy carried a 2Degrees SIM

(NZ carrier, very good for data!) while the prepaid month of credit and cheap Australian roaming ran out. The expiry date passed and the network stopped allowing me make calls. Fair enough. Then a few days later it stopped allowing me to receive calls, and you'd have to expect that too. But then... the battery started going flat inexplicably. Seems that an expired SIM isn't a good thing to have in an iPhone, even for the pleasure of being able to make emergency calls and use the SIM's phone book.

It might be that everyone on the planet except me knows this tip, but in case there's someone who doesn't: even though there's no "phone off" on an iPhone, you can turn off the GSM bit but still use everything else very simply: set



Airplane Mode to ON.

Voila, no transmission and a particularly useless lump of electronics. But once you turn on WiFi (and Bluetooth if you like) it's back to biz. Works just wonderfully, and of course that's exactly what you want in a WiFi-enabled plane. By the way, I'm still waiting for Siri to do something truly useful, and in a couple of weeks I'm going to have another go at getting an Australian iPhone to support a dataplan on AT&T's network. I'll let you know how I go.

Education

All of us in The Bunker are pretty serious and passionate about training – it's not just Julius. We hear things about training, but mostly about the lack of it, and the lack of skilled people. Given the closure of the College, that's an annoying irony. So maybe four or five times a week I listen to a conversation which runs like this:

"The young people on the team don't know enough to do the job. They think they do and they don't. They say they want to learn but there are no industry courses available. The boss whines that the people aren't trained, but the company doesn't invest in training. Nobody ensures that the freelancers know what they are doing. Management says that they're not going to train anyone because all that happens is the employees take the training and then go somewhere else for more money".

And on it goes: various permutations of the same themes. Um... am I the only one who can see something wrong with this picture?



How about I make myself unemployable with the suggestion that the responsibility sits with management? This is not an unsolvable problem, but it is a problem that requires effort and resource and – gasp – investment. OK, read "money". Yes education costs money, which does have to be paid by someone, most likely the customer, and that would be the same person who has just screwed you down on price so that you don't have the margin to invest in training.

It's a vicious circle but it's a circle which CAN be broken. In fact, shoot me down if you disagree or if you're at odds with available training. And if you have an internal training program running, drop me a line via juliusmedia@me.com. I'd like to know how you're going and whether you've found a correlation between training on one hand, and morale, salaries, customer satisfaction and staff retention on the other. Up or down?

And in the next few months, I have a few thoughts about training and this industry that I'd like to share with you. Over a beer at the CX Roadshow, anyone?

FEEDBACK: themaiz@maizels.nu

"Your eyes won't believe your ears"

- Lou Mannarino, Live Engineer for the New York Philharmonic Orchestra



K-array Redline Series

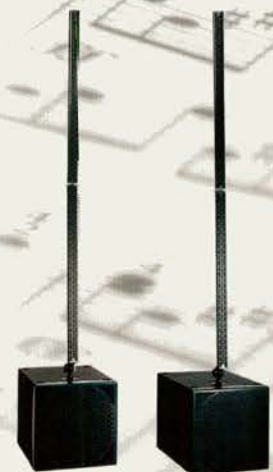
- Dedicated software allows for remote control of the system from a PC
- An internal DSP module provides control pre-sets
- High power up to 127dB continuous and 133dB peak
- Unique performance-to-size ratio
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KR100 ultra-slim line array satellite speaker

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The KR200 compact and efficient portable powered PA/stage monitor system

Containing two 32 x 2" neodymium transducers in strong 5.5cm x 7cm stainless steel chassis, offering coherent 120° x 7° coverage. The 18' long-excursion speaker of the KL18ma sub section employs a neodymium magnet and 3" voice coil. applications.



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www.syntec.com.au



By Jimmy Den-Ouden

SHURE PSM1000 Personal Monitor System

Smarter, better In Ear Monitors are not only a win for artists, but also the humble monitor engineer...



Ever had a really awful monitor gig? I haven't but I've heard stories... I recently spoke with the lead guitarist of an international touring act immediately after they got off stage. Turns out his ears had stray RF busting in on them through the whole set – not that anybody knew. I guess you just can't keep a good muso down. Shure recently introduced the PSM1000 range of in ear monitor systems, which is set to put the industry another step (or several) away from such disasters.

The P10R transmitter is a single rack unit, dual stereo transmitter. The Australian version operates between 596 and 668 MHz, and power output can be switched between 10, 50 and 100mW. Interestingly enough, Australia joins the Philippines as the only two countries in which the 100mW option is available. The transmitter is networkable, so you can link it into other networked Shure wireless gear. All your wireless equipment can then be man-

aged via the Shure Wireless Workbench software. You can even lock out front panel controls (including the RF on/off switch) to make the system more resistant to tampering. Various directional antenna and combiner options are available for users wanting to run multiple systems, and there's a headphone socket with source select and output level on the front panel. The headphone level control is a little too close to the power switch for our liking,

but that said most users are likely to monitor off a console or belt pack.

The P10T transmitter is also compatible with PSM900 series receivers; so staggered upgrade is an option for existing users. The PSM1000 transmitter can run in point-to-point mode in conjunction with a UHF-R series receiver. So if for example, you needed to get audio from one side of a river to the other you could use this combination of gear as a nice RF transmission solution, which won't run out of battery mid-gig. That's extremely cool.

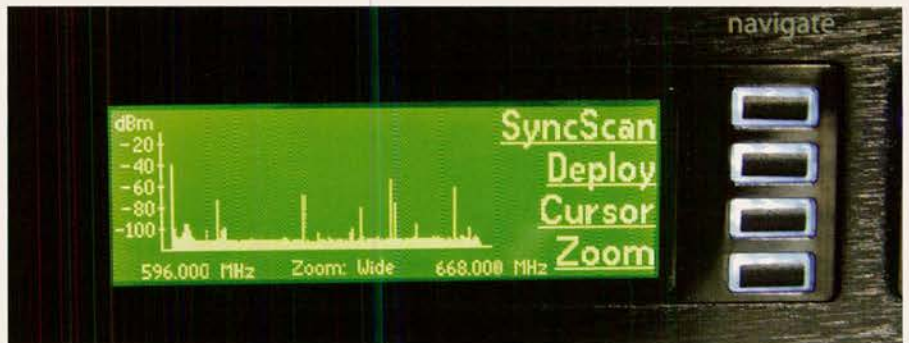
Not only the transmitter gets an upgrade – the P10R series belt pack receivers are all new. The most obvious change is that they run full diversity – there are 2 antennae – so you can position the belt pack virtually any way, anywhere you want. The packs can do a full spectrum scan, and represent the resultant findings on the backlit dot matrix LCD display. Whilst you can zoom in on the info to see where the spikes are, it's easier just to sync

Brand: Shure
Model: PSM1000 Personal Monitor System
RRP: P10T Transmitter – \$4,789 inc GST. P10R Receiver – \$1,259 inc GST.
Product Info: www.shure.com
Distributor: www.jands.com.au

this info back to the PSM1000 transmitter via IR and look at it on the larger display. So networked frequency deployment is a snap. Once the transmitter frequencies are assigned, just sync the belt packs via IR.

There was a time when putting rechargeable batteries into wireless systems was akin to waving a red flag at a bull. Technology has since improved, now making rechargeable systems a practical and cost effective option. The P10R can run from rechargeable, and you can even interrogate the battery to find out its health level and number of charge cycles. Properly managed, it's a good way to go. Another cost saver is the cue mode on the pack. This allows the monitor engineer to sync their pack with up to 20 transmitters, then cycle through them using the up/down buttons on the front panel. This makes it easy to hear exactly what the musicians on stage are hearing, without needing extra console outputs or another transmitter to do so. It also saves you some RF space too if you think about it.

I only spent a relatively short time playing with the PSM1000 system before deciding I'd happily take it to a gig. Sound quality is great, and its simple user interface belies what is, underneath it all, quite a complicated and intelligent system.



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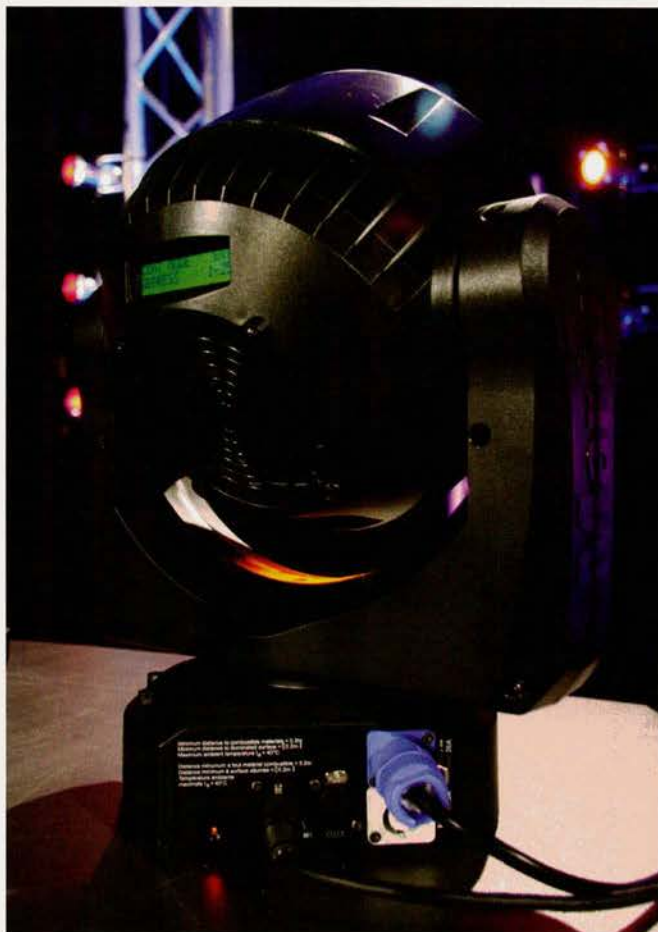
M1

MAC Aura

MAC 301

MAC 101





Martin Mac Aura

Two moving lights in one convenient package

The Mac Aura is one of the latest additions to the LED product line for manufacturer Martin. It's very compact and lightweight, sitting on the same base as the Mac 101 and weighing in at only 5.6kg. It's one of the breed of LED fixtures one of my mates calls "jaffle makers" – owing to the fact that the heads look like the jaffle irons of old.

The "jaffle maker" design has become a popular one over the past year or so – perhaps because the "disc" style head is a lot easier to throw around quickly. It's also smaller, which means that you can fit more units in a case or on a lighting truss at once. Lots of units gives you lots of effect but sooner or later you wind up with too much light on stage, and the audience start reaching for their sunnies. The good

By Jimmy Den-Ouden

news about the Mac Aura is that you can use as many as you want.

The Mac Aura works in two ways. First up, it's an RGBW LED wash light, capable of producing a beam ranging from a super narrow 11 degrees, through to a very respectable 58 degrees at full wide. Output is stated at 3850 Lumens, and testing it out in the studio it's certainly bright – we had to dial the output WAY down to shoot it on video. The Mac Aura uses 19x integrated RGBW modules – so there are no colour shadow artifacts. The resultant light field is nice and uniform, and there was no LED flicker evident on camera when we tested it.

The white output can be varied in colour temperature from 2500K right up to 10000K, so you can match it to almost any fixture imaginable. There's a virtual colour wheel for the beam, so you can call up an

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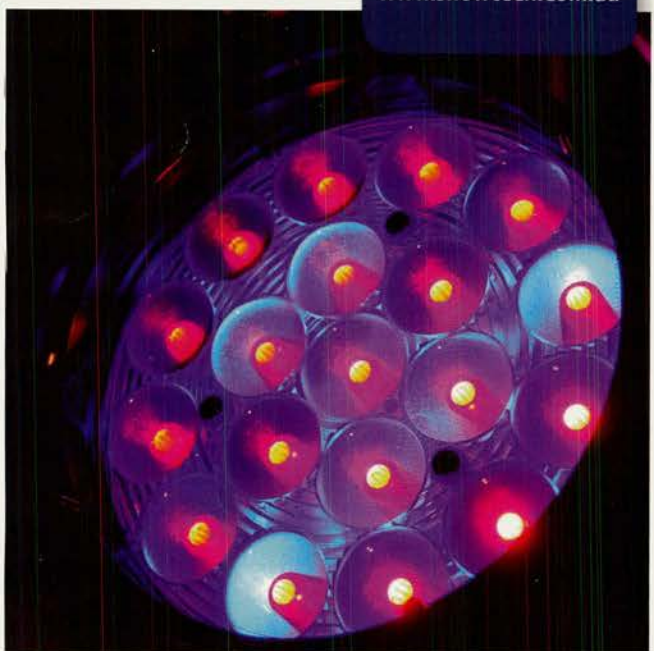


array of preset colours as well as manually mixing your own. This makes programming a lot of fixtures much faster. Pan and tilt are 540 and 232 degrees respectively, and as movement goes it does this very fast. The zoom is pretty fast too. All of this is very usable and nice, but there's more yet...

In addition to the RGBW beam, the fixture has secondary RGB illumination for the lens surface. So you can illuminate the lens in one colour, while the beam is a different colour. The lens illumination is nowhere near as bright as the beam – but it's not supposed to be. It's designed as eye candy – something to make the fixture look interesting in its own right. Where it starts to get really cool is using the integrated macro channel, which allows synchronized effects with the beam and the aura. So you can for instance have a strobe effect which does 3 flashes on the beam, then 3 on the aura. Level for each is independently adjustable.

At 1A power consumption, multiple Mac Aura units can be easily daisy chained using the inbuilt PowerCon and 5 pin XLR loop throughs for power and DMX. The unit also supports RDM. It is controlled using 25 DMX channels, or with slightly abbreviated functionality you can do it on 19. The onboard menu is a 2 line backlit LCD affair, with simple navigation buttons. A nice touch is that the backlight flashes on and off when the unit loses DMX – good for quick fault finding. There's a cooling fan integrated into the back of the head, but having left the unit running for a while we came back to it and couldn't discern any obvious cooling noise. The movement functions are relatively quiet too. The Mac Aura isn't exactly on the cheap end of the scale, but in a sea of LED fixtures it does do something different from the others, and does it well.

Brand: Martin
Model: Mac Aura
RRP: Single Mac Aura in cardboard box - \$7,999 inc GST. 6 units in roadcase - \$49,999 inc GST.
Product Info: www.martinpro.com
Distributor: www.showtech.com.au



DVA T12 3-way Active Line Array



Active Line Array Module 12"/6.5"/1" 1400 W

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S-10 Active 18" Sub-Woofer
S-20 Active 2 x 18" High Power Sub-Woofer
S-30 Active Bass Reflex 2 x 18" High Power Sub-Woofer

For more information: www.cmi.com.au

By Jimmy Den-Ouden

FANE loudspeakers & Interlink System Solutions Harmonic PA boxes



We wanted to see how a local manufacturer would fare

FANE is a UK transducer company with a long Australian distribution lineage. Recently they returned, so I asked them for some speakers to review. Originally the J man and myself planned to dust off the theory and rev up the rip saw. But we compared notes. Plus Julius has at least one finger and who knows what else re-sewn. Plus I value my digits.

I built some speaker cabinets one time. I was 12 or something, and some friendly neighbor had given me an old pair of car speakers. Being a resourceful young chap I found a sheet of ply, drew my panels on, cut them all out with a jigsaw (why I had access to a jigsaw at age 12 I can't even hope to explain), and assembled the boxes with tech screws, unconcerned by the varying size of the gaps between the panels.

So we needed someone else to do the job – someone who actually knew how, and someone whose body parts could be exposed to the The Saw.

Enter Phillip Brainwood of Interlink System Solutions and dB Sound (Rydalmere, NSW). He's been building speaker cabinets for some 30 odd years. He agreed to build a few boxes so we could evaluate the FANE drivers in some kind of meaningful way.

Several weeks later, Phillip delivered the finished Interlink System Solutions speaker boxes, loaded with FANE drivers. Five boxes in fact, all looking very real and very serious. The range includes three full range boxes and two bandpass subwoofers. Phillip was so happy with the performance that he's planning to expand it with more models.

10" 12" and 15" models

These are trapezoidal boxes, with Rock-ard paint finish. This is a bonus when re-



furber times comes along, whereas some other finishes require specialist panel work. On the downside, the Interlink grille finish is just mesh and screws. But again, easy and cheap to replace.

The H005 10" \& horn model has a FANE Sovereign 10-300 driver, and will handle up to 300W RMS. Frequency response is 45Hz – 18.5kHz at -6dB, with an efficiency rating of 97.5dB 1W @ 1m. All good.

The H012 12" \& horn model measures

40Hz – 18.5kHz at -6dB, with a power handling capacity of 500W RMS. A FANE Colossus 12MB driver handles low end. Sensitivity on this model is a little higher, at 98dB 1W @ 1m – the same as the H007 15" \& horn model.

Up at top size, the 15" derived box has similar frequency response characteristics and a higher power rating of 800W RMS, and is founded on the FANE Sovereign Pro 16-600LF driver.

Brand: FANE / Interlink System Solutions
 Model: Sovereign & Colossus range in
 Harmonic Series Enclosures
 Pro User Pricing: H005 - \$809.10, H012 - \$836.10,
 H007 - \$917.10, H006 - \$1187.10, H015 - \$1448.10
 - all prices include GST.
 Contact: FANE Drivers - www.penn-elcom.com
 Contact: Harmonic Series Speaker Boxes - www.interlink-systemsolutions.com.au

All three of the composite boxes have custom passive crossover networks that Philip builds, and these are of course irbuilt. Across the range HF dispersion is a very usable 90 x 50 degrees (HxV). The whole range voices very similarly, and even without any EQ applied they're very usable. I'd probably find myself notching a little 1k6 out on a g g, just to suit my personal preference of how a PA should sound.

Both the full range boxes and the subs are equipped with dual NL4 connectors, wired in parallel on both circuits. All boxes run on pin 1+/- so if you want to run separate amp channels to the subs and top boxes, this can be achieved with a simple crossover linking lead. But you might not need to do this...

Bandpass

The subs are both bandpass designs which means there is a natural roll-off at both the low and high end of their frequency response curves. This means you can effectively power both the sub and the full range box from a single amp channel WITHOUT an external crossover.

It might not be common, but for users looking to make the most of their audio budget this would certainly save some dollars on amplifier channels. We've tried this configuration with all the boxes, and my favorite variation was the 12' cabinet with the 18" sub - and the best results were obtained when the sub was wired reverse phase to the top box.

So far as sub specs go, the H005 15" unit is good from 40Hz - 500Hz at -6db, and will deal with anything up to 600W RMS. Efficiency is high, at 101dB 1W @ 1m and the transducer of choice is the FANE Colossus 15XE.

The larger H015 sub is an 18" unit powered by the FANE Colossus Prime 18XS driver (the biggest, meanest driver they make), and will handle input levels up to 1200W RMS. This translates to a frequency response of 40Hz - 25kHz, with an impressive efficiency score of 105dB 1W @ 1m.

So what's the verdict? The verdict is good, both for FANE and Interlink System Solutions. FANE speakers are distributed in Australia by Penn Elcom, or if you'd like to buy some already in boxes then speak to Interlink System Solutions.

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JDI Duplex™ stereo direct box "The Swiss Army Knife DI"

Hit it hard and the JDI Duplex smooths out the digital edge to deliver a smooth natural tone. Ideal for digital piano, drum machines and just about anything else you can toss at it.



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Time align two signals for fat rich tones!
The Radial Phazer™ is a line level phase alignment tool that lets you bring two sound sources together so that the fundamentals play in sync. The Phazer is designed from the ground up for optimum sound quality.



SGI™ studio guitar interface "Happy Artist = Happy Crew"

The Radial SGI studio guitar interface allows a guitar signal to travel 100 meters (328 feet) over a standard balanced XLR mic cable. On large stages, the SGI allows a guitar signal to travel from the wireless system to a pedal board and amplifier.



J+4™ balanced line driver

"Like power steering on your car"
The Radial J+4 takes consumer level devices and kicks out enough gain to drive your power amp into clipping. Clean, transformer isolated circuit with 120dB of dynamic range.



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By Jimmy Den-Ouden



Roland VC-30HD Video Converter

Many readers will be aware of Roland audio products, but fewer will know of their range of video gear.



There's something to be said for reading the manual. In the context of the VC-30HD Video Converter, it's worthwhile. Even if you think everything you could ever conceivably need to know is nicely screen-printed onto the top panel.

The VC-30HD is essentially a pair of analogue to digital converters, with a choice of 6 inputs. It's an extremely well laid out piece of gear actually – all the inputs are on the front save for the XLR audio sockets. The outputs are on the back panel, and this is kind of reminiscent of the associated workflow really. The device is designed with two purposes in mind: digi-



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tizing content into an NLE (non linear editor), as well as web streaming. You can in fact do both at once.

The VC-30HD has a choice of 6 different input formats – 3 analogue and 3 digital. Analogue video inputs include composite, S-Video, and component video. Audic for these (as well as the digital inputs) can be input either on unbalanced RCA, or balanced XLR line level. The XLR inputs can also be switched to accept AES on one input, and Timecode on the other. The analogue audio inputs have a front panel sensitivity adjustment, along with LED indicators for S-Video and Peak.

Digital video input options include Fire-

wire and HDMI. The device will accept HD formats such as 1080i or 720p with no hesitation. You can also choose to use the audio embedded in the HDMI stream rather than have separate inputs. Selecting your preferred input option is done via small pushbuttons on the front pane, which you need to hold for a second or so to make the change – presumably to avoid accidental changes.

Output format is selected in much the same manner, and you have a choice of DV, HDV, or MPEG-2. Once the format is selected, you'll have the converted video available in both USB and Firewire on the back panel. Both the input and output LEDs blink when there is no device connected. Very simple yes?

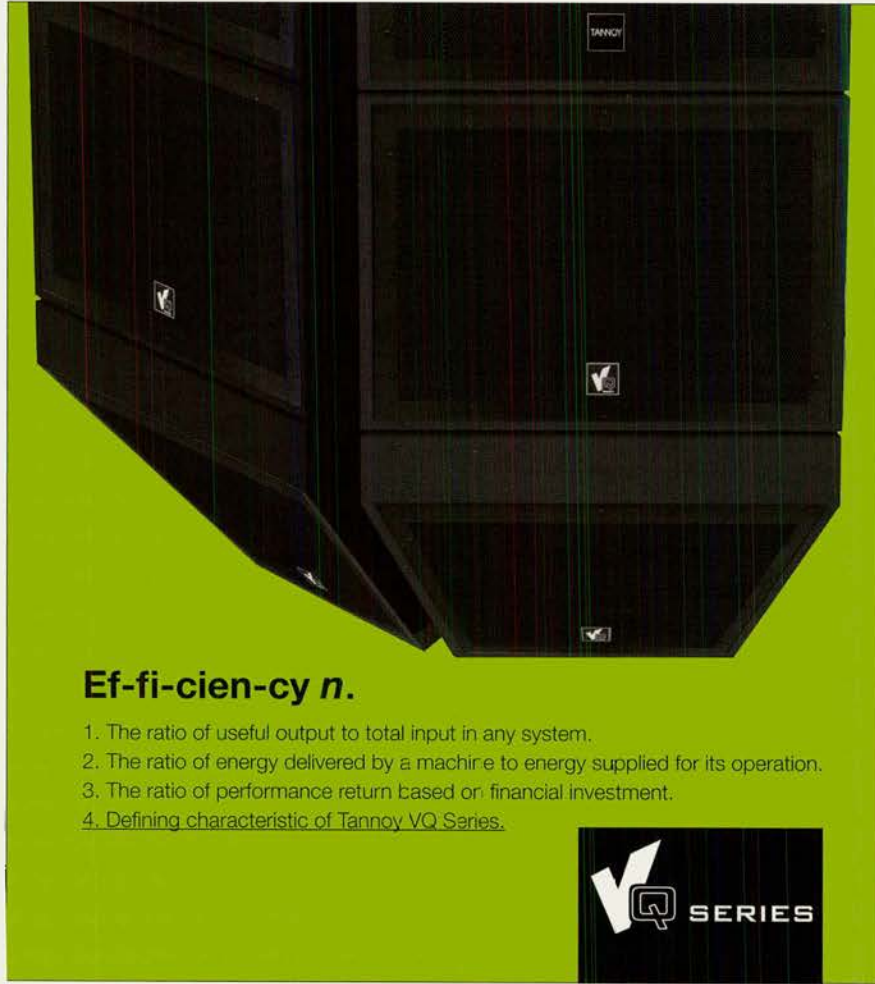
Doing some research leads you to discover the RCS software, which is available for PC and Mac. This software allows you to get into the converter and adjust various parameters in more depth. You can set an audio delay (up to 30 frames) to compensate for video delays associated with upstream framestores and switching devices, as well as various streaming



Brand: Roland
Model: VC-30HD
RRP: \$2795.00 inc GST
Product Info:
www.rolandsystemsgroup.com.au
Distributor:
www.rolandsystemsgroup.com.au

software. You can adjust the speed of the front and rear Firewire ports. You can also adjust the bitrates for MPEG2 compression. The software reveals that what outwardly appears quite a simple device actually has a lot more going on than you'd think.

The power supply is external, and the unit has a lug to secure the cable into the back panel. The video connectors are BNC sockets, and physically it's all built right in general. I would have loved to have this device a year back when I needed to digitize some Betacam SP footage. I wanted to do it in component video, but since my iMac doesn't have a suitable slot I couldn't use an expansion card based solution. I was left using a Firewire device which only accepted composite input, thus losing quality. The VC-30HD would have solved this. Similarly, for users who want to simultaneously do live streaming and make a record of the stream, it can do that too. There are some good application diagrams on the Roland Systems Group website – also well worth checking out. The VC-30HD is a solid little unit, which is well priced within the market.



Ef-fi-cien-cy n.

1. The ratio of useful output to total input in any system.
2. The ratio of energy delivered by a machine to energy supplied for its operation.
3. The ratio of performance return based on financial investment.
4. Defining characteristic of Tannoy VQ Series.



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By Jimmy Den-Ouden

Rosco Gobo Rotators

For 20 years Rosco has made gear driven gobo rotators – so why have they now shifted to belt drive?

Better polymers and smoother operation is the short answer. Way back when I was young and a 12 channel dimmer was 6RU high, the belts we had access to wouldn't stand up to the high temperatures inside lighting fixtures. Now belt drive is smoother and also quieter than gear drive.

So why a gobo rotator anyway? One application instantly sprang to my mind – perhaps not the one Rosco would like but it's certainly valid... I was at a festival gig recently – the kind of gig which is supported by major sponsors. Such sponsorship deals often require massive branding of relevant company logos on the site. Rotating gobos is one way to do this – and indeed this festival had plenty of them, all installed into moving lights. Thing is, the moving lights weren't actually moving. They were acting as simple gobo rotators. While this works fine, doing it with a conventional fixture and a gobo rotator offers several advantages: 1) no programming or DMX feed is required, 2) potentially much higher light output due to better optics, and 3) option to put that part of the client budget into improving the show in other ways. A rotator is a lot quieter than a moving light – so in theatre applications

For video of this GEARBOX review, click here in the interactive CX-E version of the magazine. If reading print, please visit juliusmedia.com to find this review.



there's no distracting fan noise.

All three rotators are belt driven units, compatible with an array of common theatrical fixtures including ETC Source Four, ETC S4 Zoom, Selecon Pacific, Selecon Pacific Zoom, Stranc SL, and Altman Shakespeare. The units accommodate "B" size gobos (80-86mm OD, 0.1 – 3.5mm thick), using thread-ec collars to secure the gobos in place. Internal power supplies on the SimpleSpin and RevoPro models operate from 100 to 240 v.

Display backlight and indicator LEDs can all be blacked out for theatrical use. All the rotators have dual holders, but these operate in different ways across the range. High

Brand: Rosco
Model: Gobo Rotators
RRP: SimpleSpin – \$440,
 Revo – \$560 (no power supply),
 RevoPro – \$630 (All inc GST).
Product Info: www.rosco.com
Distributor: www.rosco.com

torque stepper motors combined with the belt drive system means the rotators can operate at very slow speeds without stalling.

SimpleSpin is the entry level model rotator, and it does just that. The two holders always rotate in opposite directions to each other, however direction can be flipped between clockwise and counter-clockwise with a simple toggle switch. Speed is controlled with a potentiometer, and will run from 0.5RPM up to 24RPM at maximum. An alternative speed control is available via "dimmer control" – again selected via toggle switch. In this mode, the SimpleSpin unit is connected to a dimmer channel, and speed varies depending on the dimmer output level. If you can't get a DMX signal to your rig then it gives you a control option where before there was none.

Revo and RevoPro are dual indexing units. This means each holder can operate independently from the other, and full position recall is available on both. 7 modes of DMX control offer control options from simple through to advanced position recall, with up to 1.45 or 0.005 degree precision (for 8 and 16 bit modes respectively). DMX operation requires 2, 4 or 6 channels depending on the control mode selected.

The Revo model uses a 24 volt external power supply which also accepts the DMX input. From here, a 4 pin XLR connector runs to the rotator, and this carries both power and DMX. A loop through connector on the Revo allows up to 10 units to be cascaded when using the 200W power supply. This makes wiring a bunch of rotators together much more simple and efficient. The RevoPro is similar in operation, but is designed as a standalone unit. Power input is via IEC, and DMX in and loop through are 5 pin XLR. When running in the higher control modes, these units both take a moment to calibrate themselves when powering up. Both the Revo and RevoPro units also offer standalone operation modes.

In operation the units all do exactly what it says they do on the box. The position recall on the Revo units is excellent, and you can choose how fast you want the unit to drive the gobo to get to there. The RevoPro will also power up in whatever mode it was last used in. A word of warning – dodgy DMX will make itself apparent on the rotators. We had the RevoPro exhibit some strange jumpiness in movement which initially concerned us, but it was traced to a bad DMX cable.

Clearly belt drive has its advantages.



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AJA KiPro HD Recorder

A new way to acquire and manage HD content

Here at CX we've been keeping our ears to the ground for ways to make HD video production easier, smarter, and more cost effective. The KiPro from AJA is all three of these.

The KiPro is a drive based device which records to removable hard drives. It's compact, lightweight, and has a whole bunch of smarts inside. Input options include analogue component video, as well as SD/HD SDI and HDMI. These formats are also available on outputs, along with good old composite video. The unit records in 10 bit Apple ProRes 422. What does all this mean?

By Jimmy Den-Ouden

Okay here's the lowdown: You can plug any HD source into the unit, hit record, and the KiPro will convert the signal on the fly – so you can input a 720p signal which is then recorded in 1080i and so forth. This means no matter your source content format, you can unify your record format. Better yet, because it's recorded onto a drive which plugs straight into a computer there's no time consuming ingest process involved. Even better than this, the Apple ProRes 422

files can be dropped directly into a Final Cut timeline with no rendering required. Anyone who's spent time waiting for HD files to render will know that this is a massive time saver.

Since the changeover to HD can be an expensive process, it's nice to see AJA has anticipated users wanting to stagger the process. The composite output means you can use any boring old video monitor to view the output of the KiPro. Translation: cost

saving. Analogue audio is covered too, with both balanced XLR and unbalanced RCA inputs and outputs, as well as embedded audio. The XLR inputs can be switched between line and mic level, and you can even enable +48v on them (as a pair) for phantom powered microphones.

The KiPro operates from a 12v power source, such as the included mains adapter. Power is input on a 4 pin XLR, so you can also run the unit from a battery. Combine this with the optional exoskeleton accessory and some rails, and you can even mount the unit between a camera and a tripod for easy field recordings, direct to ProRes 422. Let's not forget, there are a lot of cameras around which have beautiful imaging quality which is then limited by their own internal recording compression mechanisms. LTC in and out means you can sync multiple units to a common timecode source, allowing for easy synchro of multiple files in the post studio.

Brand: AJA
Model: KiPro
RRP: Starting at \$4,807 inc GST with 250Gb HDD, up to \$6,248 inc GST with 300Gb SSD
Product Info: www.aja.com
Distributor: www.adimex.com.au

Just about every device has Ethernet on it in some form or another these days, and the KiPro is no exception. Inbuilt RJ45 and WiFi connections allow you to get one or more KiPro units onto a LAN, and this enables you to control the unit from a web interface. You can even control it from an iPhone. Our resident broadcast guru John Maizels really likes the web interface - he feels it gives you better feedback and more info than the front panel display, and I agree with him.

Speaking of control, tape operators will like the familiar VTR like interface. There are play, stop, record, rewind and fast forward buttons surrounding the 2 line illuminated display. Configuration and menu surfing is accomplished via sensibly labeled select and adjust up/down arrow keys. The one thing to look out for here is the record function - rather than pressing Record+Play, you just press Record twice to start recording. Not quite standard!

Level controls on the front allow you to adjust audio input levels on the dual 7 segment level meters. There's no indication of scale on the metering which bothers us - you get 4 green, 2 amber and 1 red LED per channel. You can change the input and output reference level - from +24dBu, to +18, +15, and +12dBu to allow for variations in the gain structure of external equipment, but zero should still be indicated somewhere on the meters. On this note, you can record 2 tracks of analogue audio (analogue or digital), but inputting embedded audio bounces this capacity up to 8 channels.

Because of the way the KiPro writes files to disk, it has difficulty closing the file if it loses power while recording. It is a good incentive to run the unit from a UPS if you have the option.

In the event of a power loss, just stop the recorder and dismount the drive and your data will be fine. Indeed before any shut down, you need to dismount the drive correctly.



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What If the price seems too good to be true?

By Andrew Mathieson

Continuing on the theme of the recent spate of rigging accidents in the news, we thought we might start the New Year with some thoughts along the lines of "you get what you pay for" and present a rogue's gallery of questionable staging machinery and rigging installations.

We're all very much aware that the current economic climate is tough and the market is driving prices and margins in a decidedly downward direction, and it seems that in such a climate, basic engineering practice and safety can get ignored in the interests of getting the very cheapest price.

Competition should be about driving innovation, both technically and commercially, and while we never like losing a bid on a prospective job, when your competitor finds a more innovative technical solution, or comes up with a more efficient

BAD STAGING

Bad rigging

Bad ideas

Bad service

Bad installation

Bad standards.

Nowhere do these things come together worse than overhead. So sit back and admire this catalogue of dumbness.

way of sourcing good quality components and installing a machine, then you need to graciously concede defeat and look to trumping them on the next bid.

When competition becomes a contest to see who can cut the most corners and offer

a price which is so low as to seem too good to be true, then you need to ask yourself exactly what you'll be getting.

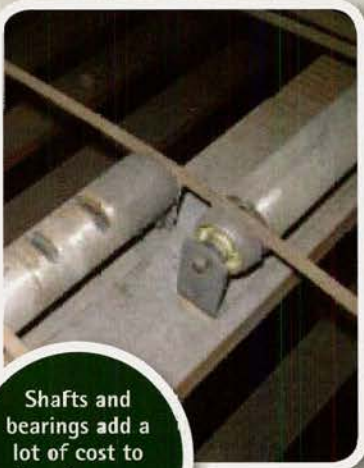
There is a baseline cost to doing a job right and doing it safely, no matter who is bidding. Experienced and qualified site staff, good quality components, experienced engineering & design, supervision, quality control and 3rd party professional certification all costs money, and if you're asking yourself 'what are they leaving out to do it so cheap?' then the answer is generally some, if not all of the aforementioned items.

So, on that note, to start the New Year off let's have a look at a few examples of what you can get for your dollar when you ignore all the warning signs and accept that bid that is half the price of any other.

Many thanks to JR Clancy's "Scary Rigging Photos" page on Facebook for the pics.

This article forms general opinion only and must not be relied on without a detailed, professional risk assessment undertaken specific to your situation. Consult a professional staging company every time you consider anything that may involve risk with flown objects or people.

JANUS
Staging



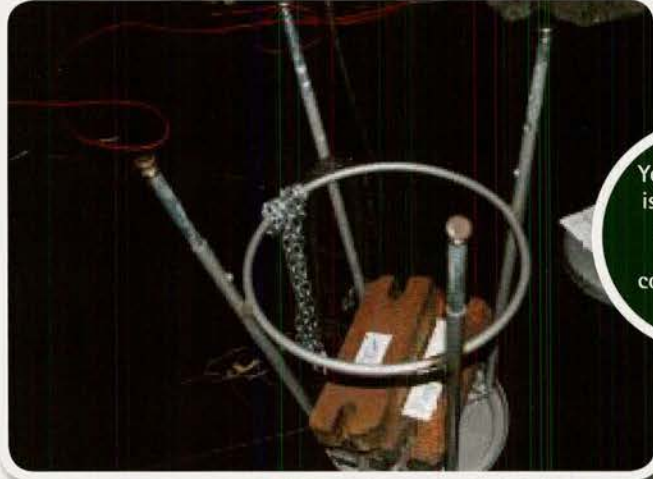
Shafts and bearings add a lot of cost to diversions you know...



It's hard to think of a caption for this one - the picture says it all.



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ACETA NEWS

aceta



Australian Commercial & Entertainment Technologies Association

Aceta Business Action Plan 2012

A

s we begin the New Year, the ACETA Board of Management has identified various issues needing address, and in re-

sponse has developed a Business Action Plan for 2012. No doubt there will be new initiatives placed on the table, therefore this plan as it stands, will alter with the passage of

time. In no particular priority order the top eleven issues to be addressed are as follows (normal management procedures and infrastructure development are not included):

TIME FRAME

AUSTRALIAN COMMUNICATION and MEDIA AUTHORITY Ongoing

ACETA will continue to lobby and work with ACMA to ensure our industry interests are heard, understood and (hopefully) met in terms of Federal Government policy and legislation. ACETA will actively support ACMA in the enforcement of product compliance legislation. The support and management of the Australian Wireless Audio Group (AWAG) will continue under the auspices of ACETA.

TRADE EVENTS Ongoing

Following the recent direct engagement with industry trade event visitors and exhibitors through the ACETA Trade Event Questionnaire, a clear sentiment was identified and a consequent position

developed by ACETA. Moving forward, ACETA intends to work collaboratively with all current trade event owners and managers to achieve a sustainable trade event schedule, and one that best serves all sectors of the contemporary market place. One goal is to realise the most compelling trade event destination possible, namely all relevant trade event brands in the one place at the same time. The next goal is to ensure the content and presentation of such an event meets the needs of the industry in particular the visitors.

INDUSTRY GUIDELINES June 2012

A framework for the Industry Guidelines has been established and authoring has commenced. This is a major undertaking that will elevate the health and well-being of our industry. The first draft is scheduled for publication by June 2012.

SKILLS SHORTAGE April 2012

The issue of available industry skill or lack of it, and what to do about it is unclear. However ACETA has begun networking with various interested parties, including educators and industry training organisations. Our first step is to ascertain if ACETA needs to participate, directly or indirectly, and at what level, relative to our capability at a given point in time. The notion of a mentoring program has been mentioned, and will be explored.

RECRUITMENT AND/OR EMPLOYMENT BUREAU April 2012

Relative to the issue of skills shortage, an initiative that may assist members is the development of a recruitment or industry employment bureau. This could be as sim-

ple as providing members with a data base of suitable candidates upon request and possibly a screening capability. This could be operated directly by ACETA's management team or a third party. It could be free to members and for a fee to non-members.

▶ MANUFACTURER FOCUS

Aug 2012

A data base of Australian manufacturers has now been established. Whilst the magnitude of this sector is currently unclear, there is indication of significant activity and growth, possibly not understood by the broader industry. As the industry's Peak body, it has been identified that ACETA has the potential to participate in the elevation of this sector's technology development and manufacturing capability. In the first instance, it will unite the various participants (strength in numbers) secondly it would develop relationships with potential local, state and federal promotional and

funding bodies, then going forward, establish resources and programs relative to our capability and the exhibited needs of our manufacturing sector. Our first task is to consolidate a sub-committee that will develop initiatives for the ACETA Board of Management to approve and action on behalf of its membership.

INDUSTRY STATISTICS

Nov 2012

A framework has been established to facilitate the collection of statistics across the various industry sectors. There is more work required, however by year end members should be able to access a statistical data base that gives them industry unit and fiscal size by product sector. For the first time the industry will be able to determine a number of important factors including market trends. This service will be free to members and available to non-members for a fee.

▶ MEDIA INITIATIVE

July 2012

Throughout 2011 a number of members (and non-members) proposed that ACETA consider the creation of an industry publication that educates and informs, in essence a newsletter. Many feel the Australian industry is not as well served as it could be in this area. The relevance of an on-line, hard copy or both forms of such a publication will be considered. At this point ACETA could not resource such an initiative, however if it had merit, another party (media organisation) could be encouraged without any resourcing commitment from ACETA.

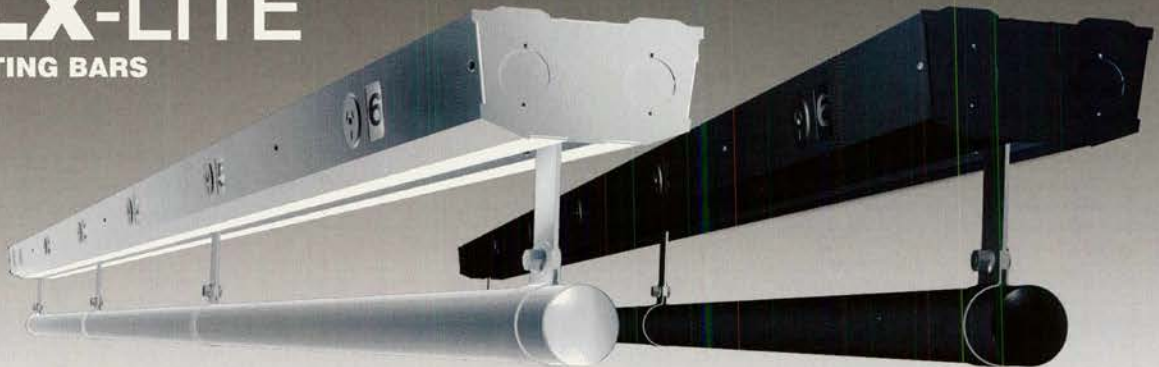
SPECIFIC MEMBERS BENEFITS

These could include travel, foreign exchange, insurance, freight forwarding and possibly a central credit bureau facility.

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Clubs and Pubs keep shouting DJW Projects work around the clock in Sydney



KEEPING AROUND 100 CLUBS GOING

is a non stop job for the team at DJW Projects. Julius went to Kings Cross to meet Dave Coxon, owner and chief troubleshooter.

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CX-TV NEWS

Monthly newscast hosted by Meg Mackintosh, usually 8 minutes duration. Channel manager: Julius Grafton

November – example keywords: Staging Connections, Tony Chamberlain, Workcover, Doltone House, Michael Orland, Concourse, Technical Audio Group, Martin PA, Jands, Staging Out door event safety conference, CX Summer Roadshow, Production Works, Midas XL8, Mighty Rack, ACETA, SMPTE, EN-TECH, Integrate, PRG, John Maizels, & more.



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The Loudness War (11,000+ views. From CX Oct 2011)

Web streaming of live events (New, from Nov CX 2011)

The Camera Panel (New, from Dec CX 2011)



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- Airbase
- Arkaos
- Blackmagic Design Smart View Duo
- Blackmagic Hyperdeck Shuttle
- Christie MicroTiles
- Chroma Q
- Clay Paky Sharpy
- Clearcam DX210
- Coemar Ledko
- DVA line array dB Technologies.
- EAW KF200 powered 3 way speaker
- ETC Fire and Ice LED
- ETC Source Four Fresnel
- EV DX46 digital loudspeaker processor
- EV RE320 mic
- EV X Live powered speaker
- HK Elements PA
- iPad Prompt-IT
- iPad Studio Live remote
- iPad swatch
- Jands HPC
- Jøeco Blackbox recorder
- Martin M:1 Lighting Console
- Martin Mac101
- Meyersound Constellation
- Panasonic AW HS 50A video switcher
- Perceptive Pixel AV touch screen
- Phonic PAA6
- Phonic Summit digital mixer
- ProTools 9
- Robe Robin 300 LED wash
- Roland M480 digital audio desk
- Roland R-1000 recorder
- Rosco Lite Pad System
- RTS Comms Panel
- Selecor PL3
- Shure Axient wireless system
- Sony HXR MC1500P HD camera
- Soundcraft Si Compact
- SSL Nucleus audio work surface
- Streambox
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Dave Coxon walks into the Empire Hotel on a summer afternoon, wearing his white company shirt with DJW Projects on the pocket. The publican greets him warmly, as the poker machine bar is moved. "Do you need some screens moved?" Dave asks the guy.

Empire is but one of many installations that DJW Projects have looked after in recent years, with business steadily expanding as clubs and pubs start to reinvest. A period of chaos saw many NSW clubs and pubs go broke after the finance industry dustup in 2008, but that brought DJW Projects some extra business when competing installation and integration firms in Sydney shut down.

But it's the clubs in Kings Cross that DJW Projects don't do work for that interests CX. We hear of all kinds of colourful characters and underworld figures running various 'famous' clubs and bars up and down the strip of sin. Dave will not talk.

The irony of this topic is that the reputable and successful Empire Hotel, in which we sit and talk, was once Les Girls – gay review nightclub and HQ of the Abe Saffron kingdom. Abe was Mr. Sin himself, and had a small coterie of cronies like Todor Maksimovich and Dawn O'Donnell. Together they did some bad things, and sometimes people got hurt.

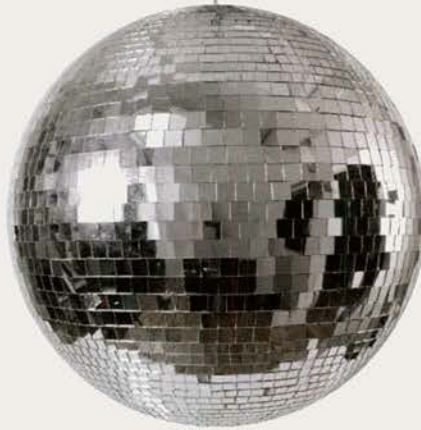
DJ or AV?

DJW Projects started from DJ Warehouse, when Dave sold his partnership to concentrate on installations. "A lot of DJ operators do an installation, but they can't sustain it with service and maintenance", he says. "Everything that goes wrong happens out of hours, at 1am on a Sunday morning".

Like other successful installers, DJW Projects operate on call, so someone will answer a mobile and attempt to quickly resolve the panic. "You can't predict. There will be weeks where no one calls, and then you get four in a row", Dave laments.

The quality of the high end products is such now that the failure rate of hardware is very small with a majority of the after

By Julius Grafton



hours issues caused either by an "Air Gap" in the signal chain or a problem caused by the "organic" section of the system interface.

Dave dislikes the all too common philosophy of MPTAT – 'Minimum Possible to Avoid Trouble, used within the AV industry and figures that if you specify and install properly you don't need to do expensive remedial work later on.

How a job evolves

These days the nightclub and hotel industry is beset by new laws and environmental considerations. Case in hand: the Empire moved its gaming machines up to the adjoining area, freeing a space that could now be used as a bar. Or an outdoor smoking area, once expensive modifications were done to comply with those laws. Or failing that, walled off and rented out as a retail shop. "We'll put in a development application and see how we go", says the licensee.

Dave says he works more often with larger operators at the planning end of a project, where advice about noise leakage and movement of crowds is appreciated. "One hotel group talk to me before they talk to the architect these days, which helps", he says. "If a venue uses our services before they build, or build from the ground up, it's easier for everyone".

"But still there are a lot of operators who fuss over architecture, interior design, fittings and then – sound is an afterthought. And some places you see a very live room with multiple point sources and no delay zones". One major Sydney iconic nightclub springs to mind, not one that DJW Projects did.

Details, details

At Empire Hotel, the upstairs DJ area is funky in daylight, like all busy dance clubs there is a nice worn ambience, sticky carpet and certain sweaty aftermath. The speaker system is EAW Avalon, which Dave recommends because it is voiced for dance clubs and in his experience bullet proof.

Two subwoofers sit suspended in a steel cage, with shock absorbers to ensure the



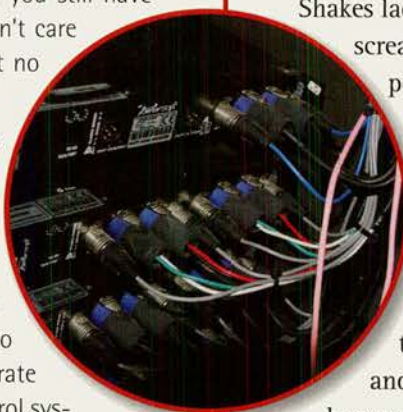
Dave with an EAW Avalon subwoofer in a custom suspended frame, to keep low end out of the apartments above.

low frequency energy is directed into the dancers and not up the building framework to the apartments above. That's another example of correct design and anticipation, rather than the installer saying 'that's outside the agreement, let's do a variation to fix it'.

Amplifier choice is Powersoft, and processors by Symetrix, which Dave votes as 'most reliable'. The processor is the part of the system that is most mission critical, according to Dave. "You can do clever programming and system design to ensure there are two DSP's in each room, so worst case if one goes down you still have some sound. People don't care if some lights stop, but no music - that's death!"

Aside from audio, DJW Projects also do lights and video, and get everything talking and playing together. They hold an electrical contractor license, to connect up and integrate CBus and Dyalite control systems.

Dave's phone rings. Some of his eight staff need guidance, so he heads off into the afternoon. "I have another audio design to do for tomorrow, and I did one this morning", he explains. "And we support almost a hundred venues now".



Abe and Dawn set Sydney club scene

As a young lighting guy, my mentor Roger Barratt was above questioning. When he told me we would install a lighting rig in the dodgy Jools Nightclub on Crown Street in 1978, I just got on with the logistics. He was in charge of gay politics, I was (and remain) resoundingly not gay.

Two months later, he sent me down there to pull it all out due to non payment. I walked past the reception desk and was atop the ladder trying to unhook the 16" mirrorball when proprietor Dawn O'Donnell materialized at the bottom of my ladder.

Shakes ladder. "Get the f--k out of my club you little c--t", she screamed. Shaking the ladder even more, I am now cradling the poor mirror ball in both slippery hands and praying the mirror ball motor will hold my weight when the ladder falls, leaving me swinging like a circus clown high over the dance floor.

"OK, OK", I stammer, and when she stops trying to kill me, I descend and run off like a coward, unable to deal with the glowering, furious and stocky woman who looks ready to rip me a new one. Later on, Roger sorts her out somehow, and we put another rig into another club - which strangely burns down a few weeks later.

Dawn seemed very unlucky - her clubs caught fire when unoccupied. She had a kind of co-op of quirky cohorts such as Abe Saffron and Todor Macsimovich. She also had an alter-ego. A 'Dawn Irwin' called up one day to rent lights for a lesbian club. "That's her", hissed Barratt. "Bloody diesel dykes, I've had enough of them!"

Smokin Joe breaks world DJ record

Smokin Joe Mekhael sat in the Empire for 132 hours and 30 minutes to become champion of the world in the category of Longest DJ Set.

The epic saga was done without chemical enhancement, the DJ said. "At about 55 hours I was reviewing the rules," Mekhael explained, "and I found out that for every hour I played I can rest for five minutes, and that had accumulated into more than four hours. So I rested for a bit", he told Themusic.com.au

Day and night, with hallucinations and crowds that varied from massive to almost no one, Joe spun on. And on. And then he broke the record, and kept going. The amps and processors were monitored remotely from time to time by venue AV firm DJW Projects.

Eventually, the gig came to an end, and the venue was powered down for a break.



The Flying Dutchmen

Gerbrand Borgdorff reports.

New approach to automated flying in the Netherlands



Picture 1

In the Netherlands, counterweight systems are becoming obsolete. Health and safety regulations forbid the use of manually operated flybars for drop loads over 75 kg. All stage machinery in more than a hundred and twenty Dutch theatres has been mechanised and computerised.

New Rules

In Dutch theatre there is a system of intensive touring; most of the productions do one night stands. No rules applied and

if they did, people could just bend them, with an excuse of artistic freedom. Health and safety inspectors respected that independence.

Ten years ago this changed drastically when the Dutch inspectors decided that it was time for theatres to respect existing and new rules. First they started with the safety of luminaires such as the much-used Par 64. It was considered electrically unsafe. After that, a standard was made about the use of ladders and stairs.

Then attention was drawn to the manually operated counterweight flying systems.

New thinking

Theatre consultant Louis Janssen of theateradvies bv in Amsterdam was one of the first to recognise the possibilities of a new approach. Automating a flying installation is an expensive task that had better be done right the first time. The renovation of the Stadsschouwburg Amsterdam, the municipal theatre of the city of Amsterdam is a good example of his approach.

The Stadsschouwburg Amsterdam is a classic horseshoe theatre that hosts some 300 different performances each season, including ballet, drama, opera and festivals. Both the interior and the exterior are

protected due to historical interest.

The stage tower had 66 counterweighted flybars, 4 motorised flybars (fixed speed), 8 point hoists (fixed speed) and no chain hoists. Furthermore, there are galleries at three levels, a moving lighting bridge, tormentors and a fire curtain.

The roof of the stage tower is sloped with a large beam at the peak on which the headblocks were fitted. All of the cables of the flying system were distributed from this central beam to the single pulleys across the floor of the flyloft. This made the flyloft a maze of steel cables; beautiful for pictures, but terrible as a working space.

The floor of the flyloft consisted of grating. Flybars were 18 cm apart between structural roof trusses. Under these trusses, there were none, creating gaps in the hanging plot. The maximum load was 300 kg per bar whereas nowadays 500 kg is considered standard. The point hoists were hardly useful. Only limited areas of the stage could be reached and the hoists themselves, were mechanised, but not automated. Synchronised use was not possible. The iron fire curtain was an old fashioned affair that used up space between the proscenium wall and the lighting bridge, thus making the distance between actor and audience larger than necessary.

Fi(b)re Curtain

Janssen chose an integral approach. He suggested that the old fire curtain be replaced with a fibreglass one. The old one was no longer certifiably safe and had to be removed. The fibreglass curtain is rolled up in a cassette that can be fitted in a very small space, so the first fly-bar can be placed closer to the auditorium. This en-

larges the effective size of the stage and diminishes the distance between actor and audience. Contrary to conventional steel curtains, one made of fibreglass is certified and proven to last more than two hours. Because the cassette is small, the whole system can easily be concealed.

Wireless Flyloft

Secondly, he demanded that the flyloft become cable free. In theatres across the world one can see that pulleys are either located on the floor or suspended from the roof. When placed on the floor, cables run some 10 cm above it. Negotiating your way across the floor can prove to be a difficult task. Placing anything on the floor, let alone a sizable point hoist, becomes practically impossible. In other theatres where the pulleys are located above one's head, the floor is free of cables, but one finds seven or eight 'curtains' of steel cables (making their way down to the stage). Neither is acceptable. The only alternative to this is to locate the pulleys and cables under the floor.

However, two new problems arise from this new situation. Firstly, easy access of cables and pulleys is necessary for maintenance and secondly hooks on the point and chain hoists may become entangled with the steel cables they pass on their way down to the stage. The latter is solved by placing a steel c-channel floor instead of the traditional floor grating (diagram)

The steel cables occupy a total width of 10 to 12cm. The steel channels are 14cm wide and are centred above the cables, and thereby they prevent the hooks from meeting the steel cables. Since all bars are 20cm apart, the gap between two profiles

is 6cm. This is just enough for a standard hook on a point- or chainhoist. Walking on the floor is much less frightening because the floor is visually closed and kneeling will cause less harm to the knees. The use of hinges along one side of the c-channel allows larger hooks to go through and also allows access to the cables.

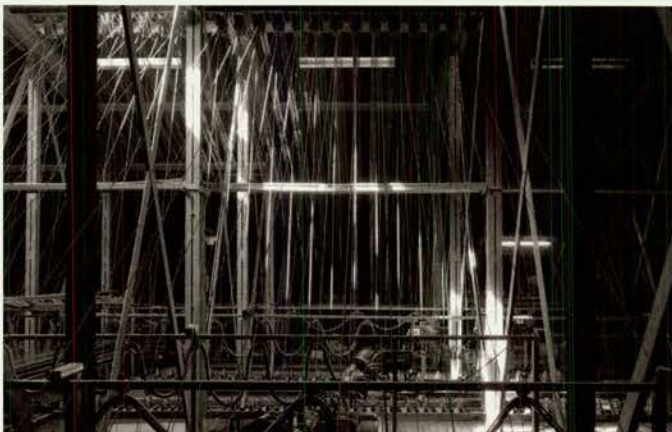
Slow/Dumb or Fast/Smart

The next task was the positioning of pointhoists and chainhoists. Most chainhoists are slow and dumb, but strong. In recent years some intelligence has been added to some chainhoists, but the speed is still relatively low and the noise level too high. Chain hoists are thus not a good solution for fast scene changes, but perfect for hanging large and heavy equipment such as lighting grids, for which a fixed speed of 8 m/min is enough.

For the chainhoists, a system of crane tracks was designed. The roof trusses go from left to right, dividing the flyloft into five sections. Between the trusses, crane tracks with trolleys and chainhoist can be moved from left to right. Chainhoists can easily be moved from one crane track to the next by means of transfer points.

Point hoists are not used for heavy loads, but should have the same characteristics as standard fly bars. A point hoist should be operated with the same control as the normal flybars and must allow for synchronised use. One should be able to use a pointhoist from anywhere above the stage.

In the Stadsschouwburg, the new pointhoist was designed by Trekwerk, the contractor of the stage machinery. With this hoist a drop load of 250 kg can be moved with a variable speed of up to 2 m/s.



Picture credit: Jan Theun van Rees

Bread and Butter

Building for the **Big One!**



By Paul Matthews

There's a lot more to running a PA contracting business than just fixing and installing PAs. In this game you can waste lots of time on a customer who will never yield profits for your business whilst at the same time missing golden opportunities as they pass you by.

In capital city markets you're competing with other companies and big dollars while in regional areas competition generally doesn't exist but neither does the cash. In every place you seek work you're main aim is to get to decision makers and make them feel warm inside so they trust you. Some times you have to carefully nurture a customer for many years before the big dollar moment comes.

The crucial thing all your customers will be looking for is stability. They want to know that if they make an investment with you, that you're going to be there for them. So build your business in terms of five and ten year plans – not six month ones.

Again and again we read (often in CX) of how such-and-such supposedly "unknown" company has won some huge contract against another supposedly more established one. Probably the best example of this was the now decade old race for the prestigious 2000 Olympics contract where both the stadium install work and the production were won by smaller, more personal alternative suppliers against a multitude of major stalwarts who all thought

they would naturally be chosen because of their size, might and CV.

Recently our business was awarded a substantial contract for a new soccer field in western Sydney. It's not a huge contract in terms of the big jobs – it's in the "under \$50k" category. However many regional installers would consider this a major job. Let's explore how this happened – because it's typical of how large contracts are won many years after small seeds are sown.

Ten years ago an athletics field was built in an outer suburb and used mainly as a training ground for the 2000 Olympics. It was then handed over to the local council so the public could get some use from the facility. At that stage it had no PA and the Council did what councils do best –

nothing. Naturally this led to a string of PA hires.

In the end the Council

themselves hired it from us almost daily – whenever they had a client use the site. This went on for a year or so during which we easily billed them for more than a new install would have been worth.

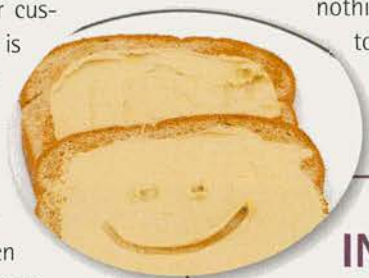
The PA they got was all BOSE in a world where squawky horns were the norm. Just about every local sporting club decision maker found themselves at this ground for various reasons during this time – and so started calling us up to hire rigs for their own finals and presentation gigs.

Ironically the Council themselves eventually also asked us to quote a permanent system for the site. Despite the wishes of several council employees we lost the job – to an original contractor with a quote more than double ours. They had installed other PAs elsewhere on the same site a few years earlier.

Why? Because this other firm already had a relationship with the crucial decision maker in the council. They felt that having one contractor on call for the whole site would be "more stable". The firm went belly up a year later and the site has been in turmoil since.

But we were happy. At least three new customers were still hiring and new relationships were building. These customers were the kind you want – customers who call you first and wouldn't dream of playing you off with the next guy for price. We looked after them, kept prices reasonable and service levels high.

One of these customers has been saving for decades and has now finally moved to new purpose built grounds and asked for



IN EVERY PLACE YOU

seek work you're main aim is to get to decision makers and make them feel warm inside so they trust you.

a quote. Instead of getting a PA specified in the building contract and let to tender, they decided to go with our design and quote on the understanding that the job be done directly for them and not through the builder. Why? Because ten years of trust outweighs ten pages of gobbledygook from an architect.

Since the customer is using their own money and not a government grant, they don't need to go through all that tedious mucking about getting multiple quotes. They just order from the guy they can trust – and in this case that's us. Touche'.

So the business lessons here are;

Never lose sight of the big picture. As a PA contractor you're all about service to your customer – not sale of equipment. Your customer doesn't care what gear you use. They just want something that works. You never know who's watching or listening and today's kids are tomorrow's decision makers.

Apart from the alcohol drenched club industry (which tends to turn over gear every 3 to 5 years to remain on the "cutting edge") virtually all the clients you will ever work for are looking for PA systems that will last between ten and twenty years in service. There's a good chance that when it does require service YOU will be the one doing it. So NEVER specify equipment you are not absolutely satisfied will last and which you are not confident that you will be able to service well into the future without having to replace it.

Customers hate being ripped off. They hate it even more than gear that doesn't work. A sure fire way to piss off a customer is to turn around to them and tell them that a piece of gear you sold them only a few years earlier, is now junk and needs to be replaced. Unless you absolutely need it, avoid anything that relies on computers or interfaces. The computer world survives on the need to upgrade.

And remember – to most of your customers the PA system ranks about 145th amongst the 150 to 1 most important things in their business. If you push too hard then the money will always go elsewhere.

Finally remember the golden rule. Customers never observe the worth of a business by what they do right. You will always be judged by what you do when things go wrong. And in PA that's usually while everyone else is listening.

....YOUR CUSTOMER DOESNT CARE what gear you use. They just want something that works.




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of the way down the room, where most of the audience would be sitting at tables.

Oh, and did I mention they would be sitting under the balcony, an area that tends to lose all top end and leave nothing but mids and lows.

OK, I'll just push up the top end a bit to get down there, I reasoned.

Wrong. I should also mention that the age of the audience ranged between thirty-ish and eighty-ish! And of course it's the eighty-ish ones who sit way down the back under the balcony and complain they can't hear the voices, and then complain it's too loud when they get up on the dancefloor in front of the band!

We had time for a bit of a soundcheck before the doors opened, so I said to the band "Let's run through a couple of numbers to see how things sound" and crossed my fingers. They launched into a song and it was horrible. A wall of sound drenched in reverb hit me.

Halfway through the number I waved my hands for them to stop. It was time for 'The Little Chat!'

"How did that go?" they chorused.

"Jeez if it sounds like that when you start then they'll throw you out after the first song!" I said.

Their faces fell.

"Look, there's nothing wrong with your playing," I replied, "It's really good, but in here it just sounds like noisy audio porridge. Everything is jumbled, there's no definition and you can't hear any of the words."

"Shit, what are we going to do?" they asked. So I told them!

"For a start, turn everything down. A lot. Only one of you can be up front at any one time. Guitarists - turn up for a solo and then back down again to nearly nothing for the verses. Work it out between you and take it in turns. Keyboards - the same for you. Stay in the background and bring it up only for intros and solos. Watch him (I pointed to the singer). When he sings, you'll have to be just playing gently in the background. Drums and bass - just keep it down to a dull roar, OK? Take your cues from the level of everybody else. With any



***** RT60 – FOR ALL NON-AUDIO people – this indicates the time it takes in seconds for a signal to decrease by 60dB from its original level.**

luck you'll get through the night just fine, these old grogans'll be happy... and we'll all get paid!"

So, they ran through the song again, and this time it sounded a lot better. Not perfect, but listenable. I slapped them all on their backs, told them to keep it just like that, and everything would be fine.

Then I jumped in the car, turned my phone off (no point in tempting fate too much!) and went home to watch TV.

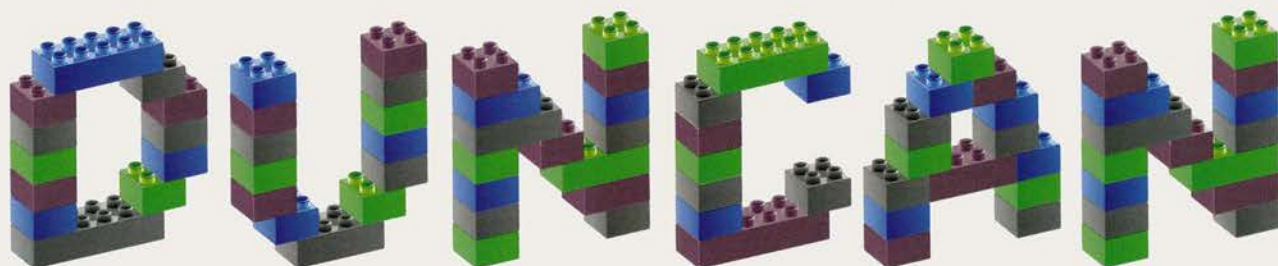
I returned about an hour before they finished, to see how things were going, and luckily all was well. Still an enormous amount of reverb everywhere, but at least the band could be heard clearly, and so could the vocals.

The promoter was happy, most of the audience was happy too. A few of the old-

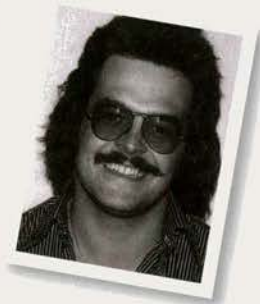
ies had gone home saying it was too loud and their hearing aids had melted (no, just kidding - but they had gone home. Just shows you can't please everybody).

The only real complaint was that the audience couldn't see the band very well since they weren't on stage but in front of it. So I agreed that next time they'd be on the stage, but I'd still have the PA in front of the stage, with the speakers about level with the stage height. This way all the audio was in the same vertical plane, and amps, drums and PA were all aiming at the same spot in the hall, from just about the same horizontal line source. Not perfect, but it worked. And everybody was happy from then onwards.

Except for the singer. As he wandered on stage for the last bracket he said to me "My vocals sound a bit dry in the monitors. Could you put some reverb on them?"



FRY



When good reverb goes bad Taming turn of the (last) century town halls

© 2012 Duncan Fry

There nothing like a truly lush sounding reverb, is there? It's an effect with a multiplicity of uses: it can add excitement and massive depth to any drum kit; it can add quality and tone to the most average of singers, it can instantly create a music genre to guitars, or pull individual instruments out of the mix – the list goes on.

It all depends how much you add in. Too much and it can be overpowering and muddy, too little and you might as well have not bothered.

But what if you had no control over the reverb effect? What if it was 100% on all instruments and voices, 100% of the time?

Just recently I had to put together a small system for a series of dinner-dance gigs in a beautiful old town hall. Nothing mega in the way of production; a mixer, some mics and a couple of 12" and horn boxes, complemented by a couple of Dave Park's pocket rocket 8" wedges. Just four vocal mics; an easy 'Set and forget and pick it up at the end of the night' gig? Hah – I wish!

It was a very attractive old Victorian era hall filled with the typical features of those places – a polished hardwood floor, hard plaster walls, mouldings and ceiling, plus a balcony.

Beautiful to look at, painstakingly (and probably very expensively) restored to its original design, but a disaster to put any amplified live sound system into, because all those hard surfaces reflect any sound

you make in there, taking on a life of its own, reverberating around and around seemingly for ever.

It sounded like the love child of your favourite large public toilet and an empty Zeppelin hangar! No idea what the RT60*** was, but it was big.

This amount of room gain was fine back before we had PA systems of any kind, or even electricity, come to think of it! These halls – and there are lots of them

too. Nowadays if it doesn't have the sparkle and clarity of the studio recorded CD that they listened to in the car on the way there, then they're not happy, Jan!

Into this hectare of potential audio mush I had to put a five piece band – two guitars, keyboards, bass and drums – and somehow make it all sound acceptable. Several bands had been there in the preceding weeks, and in terms of successful audio had crashed and burned!

*....REVERBERATING AROUND AND AROUND SEEMINGLY FOR EVER. It sounded like the love child of your favourite large public toilet and an empty Zeppelin Hangar! No idea what the RT60*** was, but it was big.*


– were designed so that one person with a tolerably loud voice could fill the hall. Think Dame Nellie Melba, maybe a political rally, an auctioneer, or a solo musician.

If you stood in the middle of the stage, which was about a metre and a half higher than the floor, you could launch your voice into every corner of the room without too much effort. Pretty well everyone in the audience would have been able to hear something, at least.

It might not have been perfect, but people's expectations of sound were less then,

So no pressure, then!

I decided to set the band up in front of the stage, on the floor. I figured that the closer to the audience they were, the better the ratio of direct sound to reflected sound would be. I put the speakers up on stands at around head height, and aimed them at a central point about two-thirds

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