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AUDIO • LIGHTS • VIDEO • STAGING • INTEGRATION

CX 82, JUNE 2013 \$5.50

Online Edition



GEARBOX REVIEWS:

- dbx Personal Monitor System
- Rosco Miro Cubes
- JTS US-903DC
- Light Emotion LED Par
- Lightware TPS-TX90 and TPS-RX90

CX NEWS:

- Promotor, Andrew McManis 'troubled'
- Car dealer enters production industry with copy Vertec PA
- 'The Maj' Theatre Perth
- \$90 Million for ABC Melbourne & more

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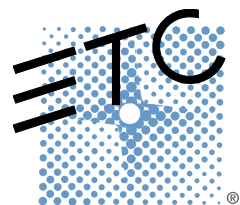
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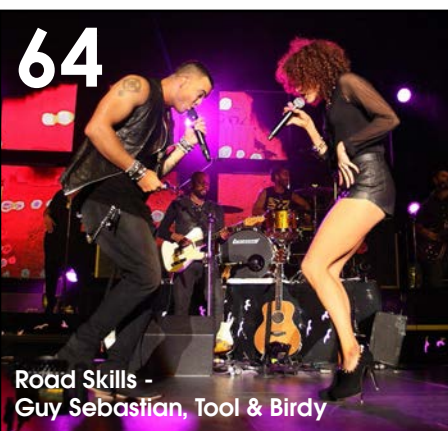
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EDITORIAL BY JULIUS GRAFTON

CHEAP IMPORTED EQUIPMENT

What started as a few counterfeit Shure SM 58 microphones a decade ago has exploded into an avalanche of almost everything, built cheap up the silk road and brought here by users and 'importers'.

Chris Pine commented on our Facebook about the myriad of look alike line arrays at a recent trade fair in China. These pictures look like L-Acoustic and Martin at first glance.



There's nothing illegal about using a PA that looks just like JBL Vertec but has a different badge on the front.

However you get what you pay for. These knockoffs do not and cannot sound like the real thing. The flying equipment supplied is the biggest worry – will the top box support the array? Who did the engineering sign off? Was the sign off a counterfeit itself? Where is the weakest link the chain?

Of all the dodgy stage roofs, trusses, moving lights and copy everything on the market, a line array is the biggest single risk we face due to mechanical failure of the flying system.

The other documented failings we've heard of are chipboard under the baked two pack finish – yes CHIPBOARD.

After the first slightly wet day you'll quickly observe your new line array fall apart.

Weather rated lights are another time bomb – use these outdoors and risk outright failure at best, or electric shocks at worst. Consider the retrieval and replacement cost along with client relationship destruction.

Importers of cheap gear need to know their responsibilities and be very certain of compliance because genuine users, sellers and importers will be very pissed off should any corners be cut. Australian businesses operate under Australian law – assurances or supposed instrument of compliance offered from offshore should be very carefully checked. An opportunity to on-sell some cheap gear to others carries risks and consequences.

As an industry we really need to wake up and take stock. Even grey imported equipment is a huge risk due to cost of failure. An Australian importer will not support something purchased outside the country, no matter how much you huff and puff.

- Julius

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NEWS

CX INDUSTRY NEWS

PROMOTER ANDREW MCMANUS STRUGGLES ON ONE BAD YEAR AFTER ANOTHER

Promoter Andrew McManus of McManus Entertainment sounded sick, tired and probably had a cold when talking to CX. "I'm finished. It's over. It's just f---ed me and my family" he said between sniffing. "My wife hid every knife in the house. Last night I took some sleeping tablets, (now) she's taken every drug out of the house".

If his most recent run of problems started with losing \$1,790,000 on the Guns and Roses tour, it paled with Aerosmith who 'just did not sell tickets'. He says he is in dispute with the Forsyth Barr Stadium in Dunedin New Zealand over a deal he cut to tour Fleetwood Mac, where he claims there is \$200,000 due 'for marketing' because he rolled the booking over to Aerosmith. (The Stadium has not replied to CX.) Fleetwood Mac did not tour for McManus this year, and have signed with Live Nation instead.

"Everything I do, I lose. Blondie, Dwight, Guns ... (competitor) Live Nation are just a monster who force up prices. They don't care if they lose".

"I hate it. The house is on the market. I can't take the beating. I'm stressing out of my mind".

His previous firm, Andrew McManus Presents failed in 2011 owing \$4,247,179.83. Yet some production suppliers caught in that collapse report they were slowly repaid

Andrew McManus and Chris Isaak in happier times



PICTURE FROM KRISTIAN DOWLING, GETTY IMAGES.

by McManus personally since. He was able to restart as McManus Entertainment and retained the trust of some, who are now again owed money.

CX spoke to various suppliers who are owed as much as \$200,000 by the current company and who are appalled that they let themselves get into the same situation. One was offered 30c in the dollar as a settlement. "Of nine we approached, three have come back and agreed to a plan", McManus told CX.

McManus then asked for some time before we published, as he was in the process of obtaining finance. We agreed to his one week suggestion, and then at presstime he said he had obtained a second mortgage from NAB which "would fix everyone up".

STAGING CONNECTIONS APPOINTS DAN LOURENCO AS SYDNEY HEAD OF PRODUCTION

Staging Connections has appointed Technical Director, Daniel Lourenco to the Head of Production, Sydney. Having started with Staging Connections in 1998 as a trainee, Daniel has progressed in his career from a crew member, through to Technical Director, and will now lead the team as Head of Production.

Daniel's career with Staging Connections has seen him work around the world on landmark events for prominent local and international organisations including Telstra, Microsoft, Amway, NRMA, Intel, Westfield and HP.

"I am very excited to be given this opportunity and welcome the challenge going forward" said Daniel. "Having

been on crew for Staging Connections for over six and half years I recognise the expertise and value they collectively bring to the business. A keen focus for me as I take up the Head of Production role is to support, inspire and motivate my entire team, involving them in the way we operate the production department and what they can achieve as a team."

Daniel is thrilled to be taking on the role of Head of Production and hopes that his achievement stands as motivation for the rest of those who are just joining the industry.

Pictured:
Head of Production,
Sydney Dan Lourenco



COPY VERTEC PA SPOTTED CAR DEALER OPENS PRODUCTION CO

Audio and Lighting equipment from China and elsewhere that looks very similar to established brands is nothing new. So at first glance the 8 drop of PA each side at The Kite Festival in Redcliffe (Qld) looked like a regular JBL Vertec. But it was badged CVR - and it sounded different to Vertec.

CX has learned that that the Foundation behind the fund raising event has a link to a new production supply firm that has invested heavily in 'look alike' equipment from little known Chinese suppliers.

The firm doing production at the successful community Kite Festival was OV Entertainment, a new full-service production business managed by audio school graduate Sam Lehane.

Long established, this year the Festival became the primary annual event for a new not-for-profit foundation called Our Village Foundation Ltd. This is a Redcliffe based community organisation that distributes grants to worthy local groups, such as Churches, Schools and social organisations. They have paid out over \$230,000 since the Foundation was registered in June 2012 – an impressive debut.

Behind every successful enterprise is a driving force, and Our Village counts car dealers Village Motor Group and dealer principal Shane Newcombe as its main contributor. Village Motors contributes a set amount from the sale of every vehicle to the Foundation. Presumably this allows sales professionals on the dealer floor to advise car buyers that a portion of the transaction is headed towards local community organisations.

While the Foundation is required to have a board, a constitution, meetings and financial accountability, OV Productions is simply a registered business name behind which is a company, which also controls the car dealership, that has recently invested heavily in equipment.

They claim to have lighting, audio and video equipment and may also have a stage roof system.

According to Foundation Director and Village Motor dealer principal Shane Newcombe, OV Entertainment is simply an arm of the company behind the car dealership and not part of the not-for-profit foundation. "Our Village Foundation has not supplied capital to OV Entertainment" he said in a statement.

"OV Entertainment has currently a relationship with the Eatons Hill Hotel and Function Centre in which it provides services. We plan on growing this relationship in the years to come", he said.

Newcombe says that to date, "all services by OV Entertainment to events associated with Our Village Foundation have been fully sponsored as an additional commitment to the growth of the Our Village Foundation.



Looks like Vertec, but it is not. In use at Kite Festival, Redcliffe.

RENTALPOINT SCAN GEAR USING IPHONE

Rental inventory management just got easier because an iPhone or iPod can now be used to scan gear in and out. RentalPoint Software has just released their first iPhone app which is now available on the Apple App store. This App is called RentalPointToGo and is a barcode scanning App that integrates with the premium desktop version of RentalPoint, to enable users to track equipment as it leaves and returns to their warehouse, plus a host of supporting features such as rack and road case support.

The App which runs on iPhone's third to fifth generations, plus iPods and iPads, can scan barcodes using the built in camera or using an attached barcode scanner such as the Linea Pro (pictured) from Infinite Peripherals.

RentalPoint's premium desktop based system can either run from a cloud server or a traditional Windows desktop.

This Australian company, is now operating from Toronto Canada. The firm was established in Sydney in 1986 - before the Internet, before iPhones, iPads and even before



Windows. The original version ran on DOS (disk operating system, from Microsoft). It ran single user (only one person could access it at the same time).

This age is now referred to as the DOS age, which in computer terms is synonymous with the Stone Age.

Around 1989 it became multi user, 1997 it became Windows based, since then they have added hundreds of features plus offer it now on a cloud server or traditional desktop.

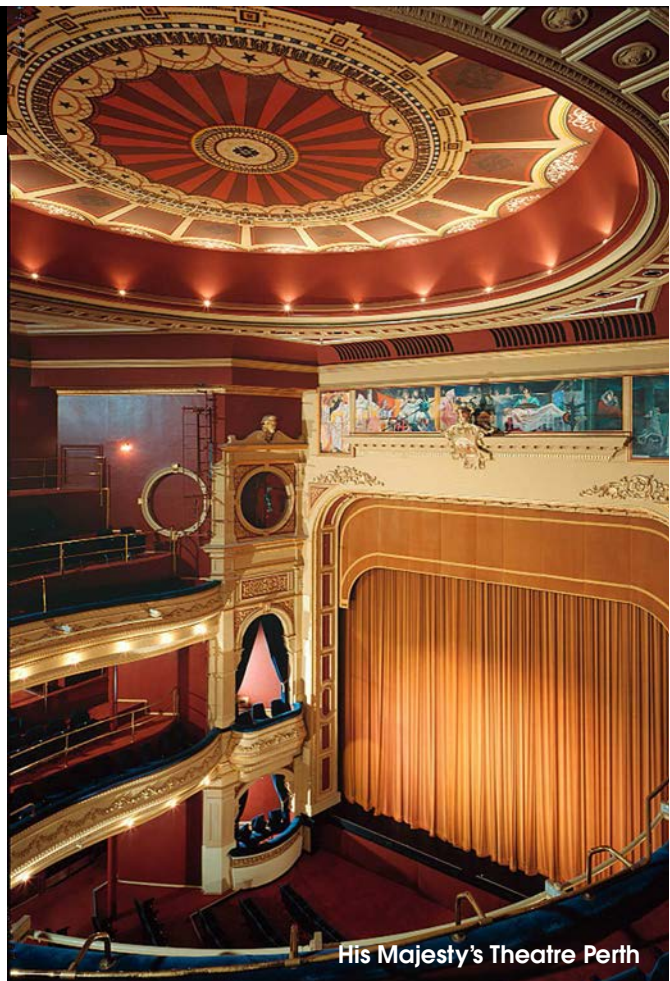
'THE MAJ' THEATRE PERTH INSTALLS ALL-DIGITAL RIEDEL INTERCOM SYSTEM

His Majesty's Theatre in Perth has installed a Riedel digital intercom system. The Riedel solution prepares the facility for the Digital Dividend, with the first spectrum auction having concluded last month.

The new all-digital intercom system at "The Maj" is centrally controlled by a Riedel Artist 32 digital intercom matrix. The theatre has replaced its traditional analogue partylines with the flexible Riedel Performer digital partylines and exchanged its existing wireless system with Riedel's Acrobat digital wireless system.

"The implementation of the Riedel system at His Majesty's Theatre has made vast improvements in the venue's back-of-house operations as its high-level coverage greatly increases the scope of our flexibility and opportunities for communication in both performance and rehearsal modes. We are thrilled with the system," said Rodney Phillips, the general manager of His Majesty's Theatre.

The Acrobat wireless system runs in the DECT spectrum at 1.9 GHz, well clear of other wireless audio systems and completely unaffected by the Digital Dividend. The single CC-8 base station can control up to 18 wireless belt packs, each with two full-duplex channels. Four strategically placed CA-6 antennas ensure complete coverage throughout the facility. Rich interfacing allows the audio team to replace a myriad of paging microphones, combining them directly into the stage manager's 1RU control panel. Four Artist key panels (one rackmount and three desktop) give users high-quality audio and total



His Majesty's Theatre Perth

system control. The user-friendly Director software enables technicians to control conversations — crews only hear what they need to hear — and thus improves the clarity, utility, and safety of theatre communications.

\$90 MILLION NEW HOME FOR ABC MELBOURNE

A new Melbourne headquarters is to be established for the Australian Broadcasting Corporation. Minister for Broadband, Communications and the Digital Economy, Senator Stephen Conroy said the Government would provide the ABC with a loan of \$90 million to assist the construction of a purpose-built facility at Southbank.

"The new headquarters will house the ABC's radio, television and digital production operations, as well as its broadcasting and support services," Senator Conroy said. "The ABC is currently spread across three sites in

Melbourne: two at Elsternwick and one in Southbank. By consolidating operations, it will allow the ABC to achieve operational savings and productivity benefits that will ensure it can continue delivering high-quality content across a broader range of platforms."

He said the ABC had grown into a multi-platform media organisation, which delivered a range of news, current affairs, sport, and entertainment programs that were accessed by millions of Australians every day. "The new facility will help the ABC meet its needs into the future," he said.

Senator Conroy said the loan, to be repaid by 2020-21, would support the construction and fit-out costs of the new facility and the ABC would fund the remaining project costs from its existing resources.

Short Technical Courses in July



Juliusmedia and The Concourse (Chatswood) have partnered to deliver short sharp technical training courses within Sydney's newest performing arts centre. These new CONCOURSES draw from a decade of training experience at Juliusmedia and take advantage of the latest technical equipment installed at Concourse. Concourses are for people interested in developing skills for live production in theatre and venues.

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Crown Casino, Melbourne - west end renovation

EAW SHINES IN CROWN'S WEST END

Melbourne's Crown Casino recently completed a \$50 million renovation of its West End, adding new gaming, dining and entertainment spaces. AV consultants Point of View (PoV) chose to fit out a new night club and lounge/entertainment areas with loudspeakers from EAW (Eastern Acoustic Works). AV integrators Urban Intelligence won the contract to fit out the new Merrywell gastro-pub and The Common Room sports bar/live music venue.

The Common Room, modelled on the latest and funkiest bars in New York, features a 200 inch screen behind the bar, DMX Stage Lighting and custom stage rigging. Designed to cater for live jazz, rock, and acoustic performances, the PA features EAW QX FOH, SBK subs and UX8800 speaker processing.

The QX cabinets consist of 4 x 12" LF Phase-Aligned Drivers with Co-Axial MF & HF horn-loaded drivers enabling audio level to be concentrated on the audience, without spill disturbing the nearby gaming floor. Two SBK250 dual 15 direct radiating subwoofers per side are flown and positioned behind the QX speakers, providing the best possible sound performance in a well-balanced, phase aligned and tuned sound system.

PAVT WELCOME MATT VANCE AS TECHNICAL TRAINING SPECIALIST

Production Audio Video Technology have appointed Matt Vance as their Technical Training Specialist. Matt now heads up PAVT's new dedicated training department and will be handling all of their training offerings including a new Symetrix SymNet course and EAW product training.

Matt is an acoustic engineer who has previously specialised in Architectural Acoustics and Sound System Design. Matt has provided acoustic design for projects in the education, commercial, entertainment and residential markets. He has designed AV systems for universities, corporate offices, art galleries and entertainment venues, while also specialising in the design of AV systems for collaborative learning environments.



All training enquiries can be directed through PAVT's website at www.productionaudio.com.au, or by calling (03) 9264 8000.

Next Month in CX - Proof the coffee is the best at the Bunker. Melbourne office doesn't agree! We ask, *Why is this so!*



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EDITED BY JASON ALLEN

TASCAM DR-60D



TASCAM DR-60D

TASCAM's DR-60D is a new audio recording solution for on-set filmmakers and videographers using DSLR cameras. The DR-60D is a 4-track solid-state recorder utilising high-grade HDDA pre-amps and AD converters, and a durable but lightweight structure and shape. This device will fit snugly under any camera or into any rig, and record up to 96kHz/24-bit high quality audio straight to SD/SDHC media.

Connectivity includes two 1/4"-XLR Locking Combo MIC/LINE Inputs, 3.5mm Stereo MIC Input, Camera In, Camera Out, Line Out and Headphone Out. Both 1/4"-XLR Combo Inputs supply +48V Phantom Power and the 3.5mm Input supplies Plug-In Power for microphones requiring a bias voltage. The body structure, soft-touch keys and dials are designed specifically to help eliminate handling noise. The multiple record modes include 4-Channel Record, Auto Record and TASCAM's Dual Record "Safety Track" Mode.

BOSE PowerMatch

Bose Professional have expanded its PowerMatch amplifier platform with three additional models of configurable power amplifiers - the PM8250, PM4500 and PM4250. The Class-D amplifiers and power supplies are designed to cope with unexpected variations in AC line voltage, rack temperature, and output load conditions. Configurable through the use of QuadBridge™ technology, each amplifier is capable of combining 2 or 4 output channels, creating flexible options to drive different power levels and loudspeaker impedances.

The full PowerMatch amplifier line now includes 8 models, including networkable which enable control and monitoring over standard Ethernet networks. All models are housed in a 2U chassis and require standard AC circuits. All models include onboard loudspeaker DSP, support for both low and high impedance loads (without external transformers), front-panel user interface, and fault detection, plus a digital expansion slot for use with optional audio networking and Bose ESPLink cards. PowerMatch amplifiers are put through Bose's rigorous quality testing procedures and are backed by a 5-year warranty. The PM8250, PM4500 and PM4250 will be available from June 2013.



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Allen & Heath GLD Concert Pack

Technical Audio Group are running a limited package offer on Allen & Heath's mid-size live digital mixer, the GLD. At \$9,900, The Concert Pack includes the GLD-80 surface, two input/output racks with a total of 32in/16out, an 80mtr CAT5 Neutrik cable and winder, a GLD-80 flight case and a 16Gb Apple iPad for remote control via the GLDRemote App.

The GLD live digital mixing system offers up to 48 input processing channels, 8 stereo FX returns, up to 30 configurable buses, 20 mix processing channels, high resolution colour touchscreen, 20 motorised faders, 80 customisable channel strips in 4 layers, 16 DCAs / mute groups, Libraries, Scenes and Show memories with USB transfer and plug-in compatibility with Allen & Heath's ME-1 personal monitor system. The GLD Concert Pack is available while stocks last. For more info contact **Technical Audio Group** on (02) 9519 0900 or email info@tag.com.au

Martin RUSH affordable effect lights

Martin Professional is targeting the installation market with the launch of an all-new, cost-effective line of effect lights – RUSH by Martin. RUSH will comprise a comprehensive range of affordable effect products with the first RUSH lights launched in March at the Prolight + Sound trade show in Frankfurt.



RUSH MH 1 Profile



RUSH MH 2 Wash



RUSH MH 3 Beam

The new product line-up includes the RUSH MH 1 Profile LED profile moving head, the RUSH MH 2 Wash LED wash light with moving head, the RUSH MH 3 Beam moving head, also the RUSH Strobe 1 5x5 white strobe/blinder, the RUSH PAR 1 RGBW LED PAR Can and the RUSH Pin 1 CW LED pin spot.

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Symetrix SymNet Radius AEC



Radius AEC

Symetrix have announced the SymNet Radius AEC, a core acoustic echo-cancelling device for deployment in teleconferencing installations of any size. The 1U rack unit contains 8 mic/line wideband echo cancellers, 8 line outputs, and 4 auxiliary line inputs. Application specific input or output expansion of a single Radius AEC is facilitated with a configurable slot supporting any SymNet I/O card including the recently released 2-Line Analog Telephone Interface.

As a building block in larger systems, Radius AEC uses Dante for network audio connections to additional Radius or SymNet Edge DSPs, and even connection to the cost effective SymNet 12-channel I/O expanders. As with all SymNet DSP products, using Composer open architecture software, Radius AEC supports an array of user controls including the ARC-Web browser, ARC wall panels, SymVue custom user screens, and third party touchscreens.

Radial introduces the PreComp 500 series Combination Preamp and Compressor

Radial Engineering Ltd. has announced a new addition to the 500 series range of processing modules, the PreComp combination preamp and compressor.

The PreComp is a single wide module, designed to fit the popular 500 series "Lunchbox". The design begins with a high performance preamp equipped with Radial's unique Accustate gain control that simultaneously sets the output and sensitivity to maximize signal-to-noise at all levels. A full-feature compressor follows with adjustable threshold, compression ratio and make-up gain control that automatically transitions from soft-knee to hard-knee as compression increases. A simple slow-fast switch makes it easy to set the PreComp for either percussion instruments or smoother tracks such as vocals.

Once connected to a 500 series power rack, I/O connections automatically route to the XLRs for balanced operation. When used with an 8 module Workhorse rack, connectivity increases with 1/4" TRS connectors and D-Subs and the Omniport provides direct patching to the preamp or the compressor, enabling the engineer to use each processor separately.

Other features include 180° polarity reverse, a high pass, 48V phantom power for condenser mics and an IN/OUT switch that lets you quickly compare the original uncompressed signal with the processed result.

The PreComp started shipping in May 2013 and will retail for around \$400 USD.



Radial PreComp



Riedel Artist Input Monitor

The Riedel iOS App "Artist Input Monitor" is now available at the iTunes Store. The Artist Input Monitor is the first application of a new series of utility apps for the iOS platform from Riedel Communications. The Artist Level Meters application can monitor and control up to eight freely assignable audio inputs of an Artist Digital Matrix Intercom system. The app gives the intercom administrator a new way to manage the 4-wire input levels of a system without having to be in front of a computer running the Director configuration software. The Level Meters can be configured wireless directly on the iPad.

The Artist Input Monitor App is available in the iTunes store at:
<https://itunes.apple.com/us/app/artist-input-monitor/id642301513?mt=8>



Waves Audio GEQ

Waves Audio announces the availability of its new GEQ graphic equalizer plugin. Developed primarily for live users, Waves GEQ is a full-featured graphic equalizer plugin with both Classic and Modern mono and stereo components, featuring 30 ISO bands plus high and low pass filters, a high precision floating parametric EQ bell filter, and a real-time analyser.

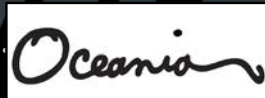
GEQ Classic components use traditional proportional Q filters inspired by the renowned DN series 1/3 octave equalizers, which narrow the filter width as you increase a band's gain; GEQ Modern components utilize special Flat-Top filters, which eliminate the artefacts associated with band interaction, and provide perfect plateau and stair-stepped responses. Users can set band gains one-by-one, or draw their curve via touch-screen or mouse. Finally, GEQ's integrated real-time analyser lets users compare the difference between two sources.

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WSP GROUP – THE MULTINATIONAL ENGINEERING AND DESIGN CONSULTANCY WITH SPECIALIST ICT & AV TEAMS

BY JASON ALLEN



WSP started in 1969 as a building services consultancy in the UK. In 2007, it bought out Australia’s Lincolne Scott, at the time a 93 year old company. In 2012, it merged with Canadian engineering services firm GENIVAR, and now WSP Group is a global engineering and design consultancy with around 15,000 employees in 330 offices, spread across every inhabited continent. Its services cover an amazingly broad range of industries, including aviation, mining, construction, health, telecommunications and marine. It’s widely admired for its environmental engineering and emphasis on sustainability in all of its operations. Australia boasts the head office for WSP Asia Pacific in North Sydney, plus offices in Adelaide, Brisbane, Cairns, Canberra, Melbourne and Perth.

BIOSCIENCES RESEARCH CENTRE, LATROBE UNIVERSITY, BUNDOORA, VICTORIA



AgriBio is a multimillion dollar, world-class facility for agricultural biosciences research and development at La Trobe University's Bundoora campus. WSP's involvement in the project included systems in the seminar suites and meeting rooms with video conferencing functionality, and a speech reinforcement system in the atrium.

WSPs Melbourne office is right in the centre of town, at the corner of Bourke and Swanston streets. You wouldn't know it from the somewhat dull 70's exterior of the Midtown building, but the fifth floor home of WSP is a cutting-edge office space. The company walks the walk when it comes to its sustainable ethos – meeting rooms are decorated with what looks like expensive contemporary art that is in fact recycled industrial offcuts. A yellow shipping container has been repurposed as a meeting room. Natural light dominates throughout, and the little electric lighting that is required even modulates through a blueish “twilight” mode in the evening.

CX sat down with Senior Engineer Duncan Johnston and Engineer Cynthia Suminto in one half of the shipping container to discuss what it's like working as an AV specialist within a generalist multinational. Both Duncan and Cynthia come to WSP with AV and ICT (that's “Information and Communication Technology”) experience. They work as part of WSP's Intelligent Building Group, which is defined as responsible for all the low-voltage services within a

building – ICT, security, intelligent building management systems and AV. The group is run as part of a “virtual office” that shares resources and links Duncan and Cynthia with the three specialist staff members in Sydney and the rest of Asia Pacific. They are now also working closely with WSP's new Asia Pacific Acoustics group. The Acoustics group was recently started by relocating an English WSP specialist to Sydney and now has team members in Melbourne, Brisbane and Auckland, making it part of the largest acoustics team in the world.

Cynthia and Duncan had taken the time to talk to **CX** in the middle of a typically huge project for WSP – The City West Police Complex. The new police “station” in Melbourne's Docklands on Spencer Street is currently under construction. It's a \$230 million project overall, with 12 stories and 27,000 square meters of operational space. WSP are the key consultant and the Intelligent Building Group are tasked with delivering the ICT systems. “There are many different stakeholders”, Cynthia explains. “We're currently consolidating their requirements.”



CENTENNIAL HALL, SYDNEY

WSP were appointed to upgrade the audio routing system for the Sydney Town Hall. The project included modelling the space in EASE 3D electro-acoustic modelling software and providing the files to the market to provide comparative solutions. WSP evaluated a number of proposed solutions and designed the audio patching and routing systems.

THE SMALL TEAM IN THE BIG PICTURE

WSP (and previously WSP Lincolne Scott) have an excellent reputation in the Australian AV industry. They have delivered some of the country's finest designs, including Melbourne Convention and Exhibition Centre, Sydney Town Hall and Sydney University Faculty of Law. Duncan sees the strength of WSP's AV offering in Australia stemming from the team's capabilities here on the ground and its support from the global organisation. "There's a strength in being a standalone AV team in a multidisciplinary firm", he explained. "It's also about delivering on-site. Being able to work with an integrator to get something across the line is very rewarding and makes all the work you do with a client worthwhile."

Cynthia moved across to WSP from another consultancy in late 2012, and was exposed to AV documentations by various firms when taking the role of State advisor in one of her projects. She has observed a point of difference in the quality of WSPs work; "WSP do great documentation", she observed. "The way we do our documentation conveys a clear message to the contractor. There's really detailed schematics. This minimises rectification time and reduces defects."



PICTURED - CYNTHIA SUMINTO

STANDARD BEARERS

As WSP are a company with a global perspective, **CX** asked how Australian integration companies compare internationally; "We're on par with anyone in the world", said Duncan. "Australia is good at taking up new technology and trialling new products. And the equipment manufacturers and distributors do a good job of training". Duncan and Cynthia both agreed however that manufacturer created training does have its limits as a standard for the industry. "Communications or security services have certain standards, and even have to have a Private Security license to secure projects" explained Cynthia. "But in the AV industry, nothing like that is enforced – you can't really assess or control a level of skill at an individual level." Duncan concurred; "In the Australian AV industry people in AV come from a range of backgrounds. It's a mish-mash of different skill sets. But inherently there's a core skill set that should be certified. InfoComm's CTS is a good baseline, but there's certainly scope for further independent certification."



PICTURED - DUNCAN JOHNSTON

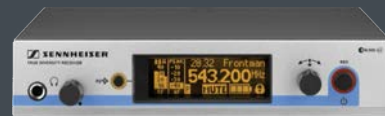


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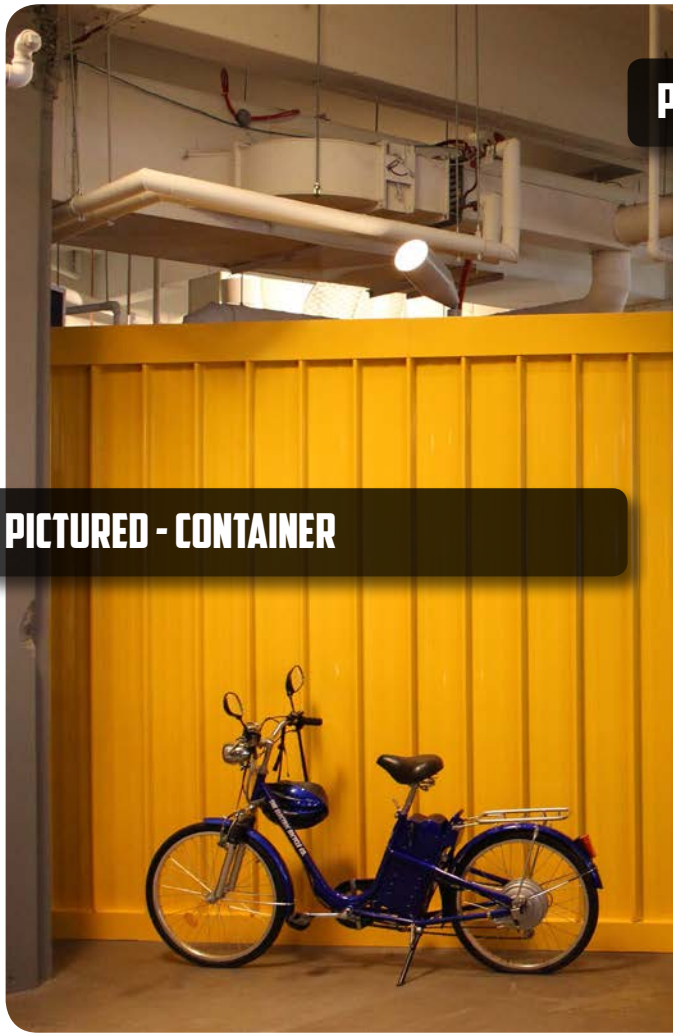
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PICTURED - CONTAINER

INFOCOMM AND THE VALUE OF TRADESHOWS

In an industry where the issues around tradeshow – how many, where, what, how often – are discussed at length by manufacturers, does a company like WSP still see them as useful? InfoComm, as well as running the largest show in the ICT industry, is also the leader in providing a recognised education in AV skills. WSP is currently involved in Infocomm Standards committees and other Infocomm task forces. How does all of this fit with WSP operational requirements? “Comparing apples with apples is the big thing,” said Duncan. “When you go to a tradeshow, you can look at one product, then go to the next stand and look at another - you really get a feel for what’s out there. While we can do that day-to-day, we have to talk to each individual manufacturer and it just takes time. Spending a day or two a year at a tradeshow is efficient. You might see something you haven’t seen before, see potential flaws in some products or see how people are solving different problems.”

As a tradeshow attendee who gains value from their content, Duncan has a clear idea of the direction they should take; “As long as they concentrate on one area, and have all of the key industry players there, it’s worthwhile. A show trying to be everything to everyone is tricky – it becomes too large.”



PICTURED - CONTAINER INTERIOR

DIRECTIONS IN AV TECH – CONSUMER DRIVEN, NETWORK BACKBONE

Keeping a weather eye on new technology through tradeshow and education is major part of the job for the team. WSP are incorporating more and more elements of an install over data networks, with HDBaseT the current dominant format. “We’re seeing a big rise in HDBaseT”, observed Duncan, “but AVB (Audio Video Bridging) is also out there. Its audio side is already happening, but once we see more video equipment manufacturers involved it should become a big market driver”.

In WSP’s perspective, AV and IT have already converged – they’ve already worked on multiple projects where all AV and ICT infrastructure runs on IT networks. “A lot of Universities now require all infrastructure on the same data network so everything can be remotely managed via their data network”, explained Duncan. “IPTV is a good example – both building tenants and building owners distribute free-to-air television via the data network so any PC or display with a network port can be a TV”. Are WSP seeing any push-back from IT departments when AV intrudes on their turf? “We certainly do see resistance”, concedes Duncan, “but it depends on the client. Generally an IT department in a firm has a service requirement KPI and having other techs mucking around on their network can be a challenge.”

The spread of networked technology through the commercial market is already affecting backroom integration, but Cynthia has noticed the same technology influencing the market through another avenue; “Commercial client requirements are becoming more and more driven by consumer products. They want the same functionality in their commercial environment that their iPad provides in their home. In many cases, the functionality that is on the consumer products can be replicated by commercial products, but not all. And the price difference between the domestic and commercial products can be a lot. That’s the customer expectation and perception we’re dealing with”.

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UNIVERSITY OF SYDNEY - LAW BUILDING CONGRESS THEATRE, SYDNEY

The USYD Law Building Congress Theatre was built as a multipurpose venue to enable students to participate in collaborative learning. The AV system in the room also enables the space to be utilised as a large debate or Q&A style space where speakers can be placed in a queue and nominated to speak by a moderator or chairperson.



MUSEUM OF OLD AND NEW ART, BERRIEDALE, TASMANIA

WSP designed MONA's building services systems, including electrical, mechanical, hydraulic, fire and security. The Intelligent Building Group also designed the Theatre and a number of infrastructure AV systems in addition to coordinating the site-wide technology integration across the Moorilla Peninsula.

CHALLENGES – DEVELOPMENT AND DIFFERENTIATION

As WSP work across all major infrastructure projects in Australia, they have a wide view of our economy and conditions. Unsurprisingly, they're also seeing increasing pressures on margin and price, a story repeated throughout AV and production. "The industry has shrunk in terms of the amount of work", said Duncan. "Fees are tight. Keeping good staff and delivering a good product while making money is a challenge." There's also their invaluable international perspective; "Australia is a developed country", Cynthia pointed out. "There's not as much demand for building services here. In developing countries there are still cranes everywhere. Australia's not developing a lot of skyscrapers anymore."

Price pressure for specialist firms such as WSP can often come from generalist services engineering companies.

CX has heard this from more than one specialist business, who face a constant challenge explaining to their potential customers why they charge more for their knowledge and expertise than the cable-puller down the road. "The challenge is conveying to clients the product differentiation", Duncan states. "It's particularly dangerous with AV. There's a perception amongst some general electrical engineers that AV is as simple as some TVs on the wall with some loudspeakers. They have it in their house and so they think they understand it. It's a lot more challenging than that. To provide an integrated solution, you have to be hands-on and know what you're talking about in order to design it, price and get it installed the way you want it."

CX couldn't agree more, and that applies to the industry as whole.



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What-If?

What If something goes wrong and you have to justify your actions???

BY ANDREW MATHIESON

In these articles, we try to discuss topics that give people cause to think and consider what they do in their own venues or businesses and how they could do things a little better and safer. We also try to inform you of your obligations and responsibilities and to generally foster a discussion about improving safety.

Over the last few issues we've discussed Standards and Codes of Practice for chain hoists and controllers, we've discussed the risk management and risk assessment principals that drive these Standards and we've discussed your obligations, both legal and ethical, to do things safely and to provide a safe workplace.

We've avoided using this forum as advertising for our own business and tried instead to inform, discuss and to promote best practice and a robust exchange of ideas, but something came across my desk a couple of weeks ago, and after reading it a couple of times, I thought that it's about time for a good old rant...

As you know, Jands Staging sells chain hoists and controls for chain hoists. We were offering a prospective client a proposal for touring hire stock and the comment came back that our price was double the price offered by "Brand X" hoists.

We had offered the prospective client D8+ hoists (double brakes and 10:1 factor of safety) on the basis that these were for hire stock and would be suspending loads over persons without secondary restraints.

"Brand X" was offering D8 hoists (single brake and 5:1 factor of safety) which are not appropriate for suspending loads over persons unless a secondary tether is used on the load - difficult to guarantee in this particular application. This is the reply we received when we pointed this out to prospective client.

"Spoke to a few people that know and all the "Brand X" hoists in {State} are single brake double clutch motors. Apparently there is no legislation that dictates that a motor must be double braked that I have been informed of. There is also no record of a motor's brake ever failing."

Let's examine those sweeping and courageous ("Yes Minister" kind of courageous) statements...
"There is no legislation that dictates a motor must be double braked..."

To the best of our knowledge, there is no legislation in Australia that mandates that a particular Standard must be used in the design and construction of chain hoists in the same way (for example) that the Electricity Safety Act in NSW mandates that all electrical installations must be carried out to comply with AS/NZS3000.

Having said that however, it is our experience that WHS authorities such as WorkSafe (Vic) WorkCover (NSW) etc. will require that a hoist is designed and certified to the relevant Australian Standard (in this case AS1418). If a hoist is not designed and certified to AS1418 and an incident occurs that causes a WHS authority or other investigating authority to become involved, then that authority will be asking "why not?"

If your answer to "why not?" is that no such hoist exists, or was not reasonably practical to use in this case (and be prepared to justify your answers here - simply stating that a compliant hoist was too expensive will be a good way to become a Star Witness, or even The Defendant) then the next question is most likely to be what alternative Codes of Practice or Standards were used to ensure the machine was as safe as, or safer than an AS1418 compliant machine.

We're talking about selecting between D8 or D8+ hoists here, and the selection and use of such hoists is intended to be made in accordance with VPLT.SR2.0, the German Code

of Practice for Event Technology. This Code is among world's best practice, and you will, in our opinion, be most likely able to robustly defend your choice of machine on the basis that you followed this Code of Practice when you made the decision to select between D8, D8+ or C1 machines.

However, you would be well advised to make contact with your local WHS authority and discuss your machinery selection dilemma with them prior to making a decision, if that decision is to use anything that is not AS1418 compliant

The point of the rant is this...

Your first course of action should always be to select and operate machines that comply fully with the relevant Australian Standard (in this case AS1418).

If you are unable to do this (and be prepared to justify why you are unable) then you must make a decision to comply with an alternative Code of Practice or Standard that is equal to or superior to the Australian Standard, AND once you make that decision, you must follow it diligently. You cannot decide that because no machine exists that complies with an Australian Standard that you are exempt from following ANY Standard or Code of Practice.

If you're choosing hoists with a D8, D8+ or C1 certification, then you have to use them in accordance with the VPLT.SR2.0 Code of Practice. If you're choosing hoists with a BS7905-1 certification, then you have to use them in accordance with BS7905-2 and similarly for hoists to AS1418.

A D8 hoist can ONLY be used with no one under it when it is moving, and you can only allow people to walk under the load AFTER secondary safety tethers have been fitted to the load. If you don't want to, or are unable to fit secondary tethers to the load, then your choices on hoist selection are D8+ or C1 to VPLT.SR2.0, Category A to BS7905-1 or "Special lifting applications" to AS1418.1.

So while there is no legislation in Australia that says you have to use a chain hoist with a double brake, there is plenty of legal precedence and WHS legislation that says you (the person selecting, advising or using these hoists) have a legal obligation to make an informed decision that is as safe as is reasonably possible, and if something goes wrong, then you will have to be prepared to justify your part in the decision making process that led to that something going wrong. So why don't you try this little exercise.

When making decisions relating to safety and risk, test the rationale for your decision by repeating it out loud, dressed in a nice new suit, and finishing every sentence with "Your Honour".

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.

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THE MILL REPORT YOU UPSIZING OR DOWNSIZING?

BY ANDY STEWART

This month I've been mostly producing Ildiko's new album - a talented Melbourne outfit on the march - and now I'm on a mission for instruments, instruments and more instruments.

I've been talking to lots of mates in the music industry over the last few days and I've decided there are only two types of producer/studio owner/engineers: those expanding their equipment list and those downsizing. No-one ever seems content with what they have. One of my best mates was even telling me the other day that he's contemplating selling his house to pay for a studio refit! "Whoa Nelly, now you're starting to sound like a crazy person," I chuckled. He's not normally so susceptible to the romantic side of studio ownership... but today he's right up there on my Top 10 list of studio nutcases.

Like I say, no-one ever seems content with the tools in their shed, and I guess it's no surprise; the audio industry is all about exploration and often the best terrain to explore is new terrain.

TERRA NUTTIEST

The last couple of projects have got me looking under every rock and crevice for everything from old synths and toy pianos to short-wave radios and pretty much anything else that might spark my imagination. Compressors! Pfft... I don't even care about them anymore... maybe I just have too many, who knows. Ask me about them in a few months and they may be back on my wish list. But right now it's all about sounds of all varieties, be they old or new, cutting-edge digital or horse-and-



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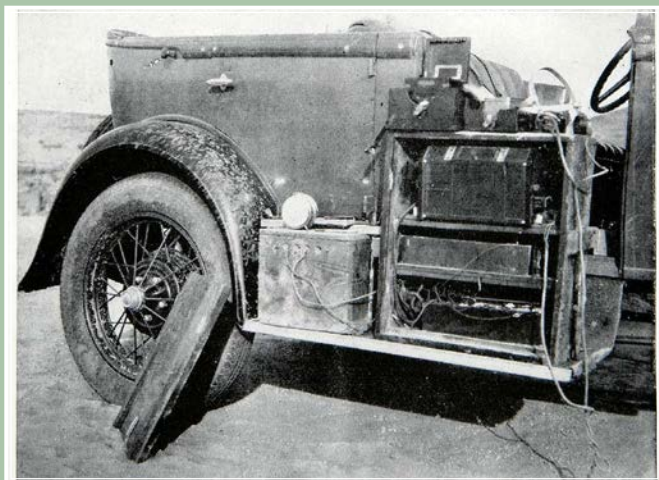
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While looking for a portable shortwave radio recently, I came across this. Hmm... a bit old maybe, but it sure is portable!

I've collected some great sounding stuff, not all of which I'm prepared to even divulge here just yet. And I suspect it's only the beginning.

At the same time I've been to a couple of other studios recently that were quite devoid of anything beyond the standard minimal recording chains and computer equipment. Each to their own I say, but certainly from my current vantage point I find studios that don't encourage musical interaction thoroughly boring. I prefer my place to be a candy store of sonic exploration where anyone involved in the production process can pick up any number of instruments within easy reach and play something. Virtual instruments are all very well, but they're not exactly thrilling to look at. Frankly, half the time I forget they're even there.

buggy analogue. Things that whirl are in, as is anything that picks up garbled sounds from the ether or over the horizon.

TOOLBOX REVIEW

The Audio-Technica AT5040

It's not so much what it does as what it doesn't do that I love most about Audio-Technica's new flagship fixed-cardioid condenser.

What doesn't it do? Part your hair with an on-rush of supersonics the moment sibilance is emitted from a singer's mouth. One of the worst aspects of many side address large diaphragm condensers is their propensity to exaggerate and often distort sibilance. The new Audio-Technica AT5040 is a master of understatement in this crucial regard, better than many vintage classics I've used.

It's one of the primary benefits of the radical four-part rectangular element design courageously (it must be said) built into the 5040 by a company more noted for its conservative good quality, modestly presented, mid-priced condensers.

Apparently in a voluntary act of self-aggrandisement to prove to the world just how great the company was, rather than teeing up yet another circular capsule for the audio market to slice into the bushes, for its 50th Anniversary Audio-Technica decided to take a hard right turn down Esoterica Bvd with the 5040, to produce a mic that genuinely lays down the challenge to anyone looking for a great sounding vocal condenser, by simply asking: "Do you really want great sound, or just a classic badge?" At least that's what it made me think.

The AT5040 is an extremely well balanced, sensitive yet forgiving mic overall despite its foray into this more esoteric unconventional capsule design. Milab used a similar concept to great effect years ago, but very few others have since... most never stray far from convention, and few have ever built a condenser element larger than one inch for a variety of technical reasons: circular capsules become too hard to build, control and balance when they get too big, require too much rigidity to remain sensitive enough in the highs and overall tends to act like giant spinnakers...

Very few have ever strayed this far. The AT5040 is built

around an electret condenser design – up until now the poor brother of the ubiquitous DC-biased design. The element's surface area is enormous – more than double the size of a conventional one-inch diaphragm – but by achieving this with four smaller finely matched components acting as one, the mic captures more signal with greater sensitivity and less side-effects. Not only has Audio-Technica somewhat miraculously nailed its interpretation of this design from the outset, it has produced a unique, high quality, beautifully constructed microphone that competes remarkably with some of my Neumann classics, including the U47 and U67.



It's rich, full and viscous in the bottom end without sounding artificially boosted, it's detailed and sensitive to even the tiniest whispers and it's quiet as a church mouse's footfall. Conversely, it's also capable of copping an SPL beating. It's top end is smooth and clean, and best of all, predictable. This mic is versatile and great sounding... many promise it; few ever achieve it.

The 5040 also requires significantly less preamplification thanks to its unusually high output (yet another side benefit of four capsules summing together as one). This adds further to the overall invisibility of the gain structure required to drive it.

In a true baptism of fire, the first vocalist I placed it in front of was a deathcore lunatic whose voice was more akin to the impact of an Ali haymaker than a singer. If I'd stood where the 5040 had been that evening I'd have been KO'd for sure. Through the speakers, however, the punishment seemed like water off a canvas duck's back. I've used it on countless vocal recording sessions since and it's done a remarkable job each and every time.

Of course this then got me thinking: "Man, this mic is extraordinary. I need to buy one." Assuming the 5040's retail price was around 700 bucks or something, I was a little taken aback to find it retailed at \$3999. No, it's not cheap, and there's some very stiff competition up in that price bracket. Still, in truth it's probably about right. This is a superb mic. Check it out.

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INSTRUMENTS INSPIRE

Of course, if you're running a truly commercial studio, where strangers walk in and out of the place day and night without any meaningful supervision, chances are you won't want fancy trinkets and cool instruments lying about all over the place. I s'pose they'd be out the door faster than you could holler 'eBay listing' if they were.

If, on the other hand, you're more like me, and work with far less people, most of whom are well known to you, the need for 'security' is pretty much nil. In that situation – let's call it the private commercial sector – you're much freer to leave things laying around for people to play and contemplate as an overdub, or as the inspiration for their next hit single. I'm yet to experience a situation where a stereo compressor inspired a hit... but it has happened.

If you're a producer of music you probably already know this but it's worth reiterating. Musicians and instruments make music, not mics and compressors. In fact, without things that encourage musical exploration, recording chains are about as useless as a Penny Farthing in a Dakar rally. Expand your instrument collection I say... chances are the things you add to your stash will be far more likely to inspire music in you and your clients than yet another mic preamp.

SAMPLE & LOOP

I was over at my mate Wally's place the other day... my God he has a small arsenal of instruments. While I sat there playing an old Wurly as my dog Rupee sat beside me panting furiously (having just run around after a ball for half an hour), Wal quickly sampled us both on a new, cheap as chips handheld sampler, looped it and made it into a fascinating little groove in about five seconds flat. It was the perfect example of how a good instrument is one that encourages interaction, quickly and effortlessly. Six hours later I was on eBay searching for one of my own!

My concern at the moment is that a dire falsehood is spreading far and wide that goes something like this: Everything you use in the studio must be repeatable, recallable or virtual. If a synth can be 'soft' rather than physical, great. If a sound can be dragged off a hard drive rather than performed, perfect. Why have a single tambourine when BFD offers 15? If you can reduce your studio to an Eight-Core Mac and some monitors, awesome... The truth is most record productions don't work like that. They require an environment that encourages happy accidents, colourful ingredients and inspiration at every turn. Whether it's an instrument, a photo, a book or a video, every production environment worth its salt I've ever worked in has been the spark in some way or other of countless overdubs, solutions to key melodies or whole songs from scratch.

ACQUISITION SYNDROME

I'm practising what I preach today and heading down to a Vinnies in a country town near here, in search of a decent toy piano and/or a Xylophone (or frankly anything else!). I have a tuner in my iPhone to check any I might find for tuning dramas... toy pianos are always out of whack; that's part of their charm. But a poorly pitched Xylophone is worse than a trip to the dentist in 1850.



Andy Stewart runs The Mill in Victoria. He's always happy to answer questions about recording, mixing or mastering. Contact him here: andy@themill.net.au



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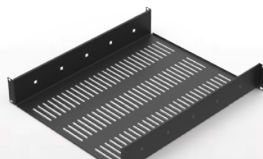
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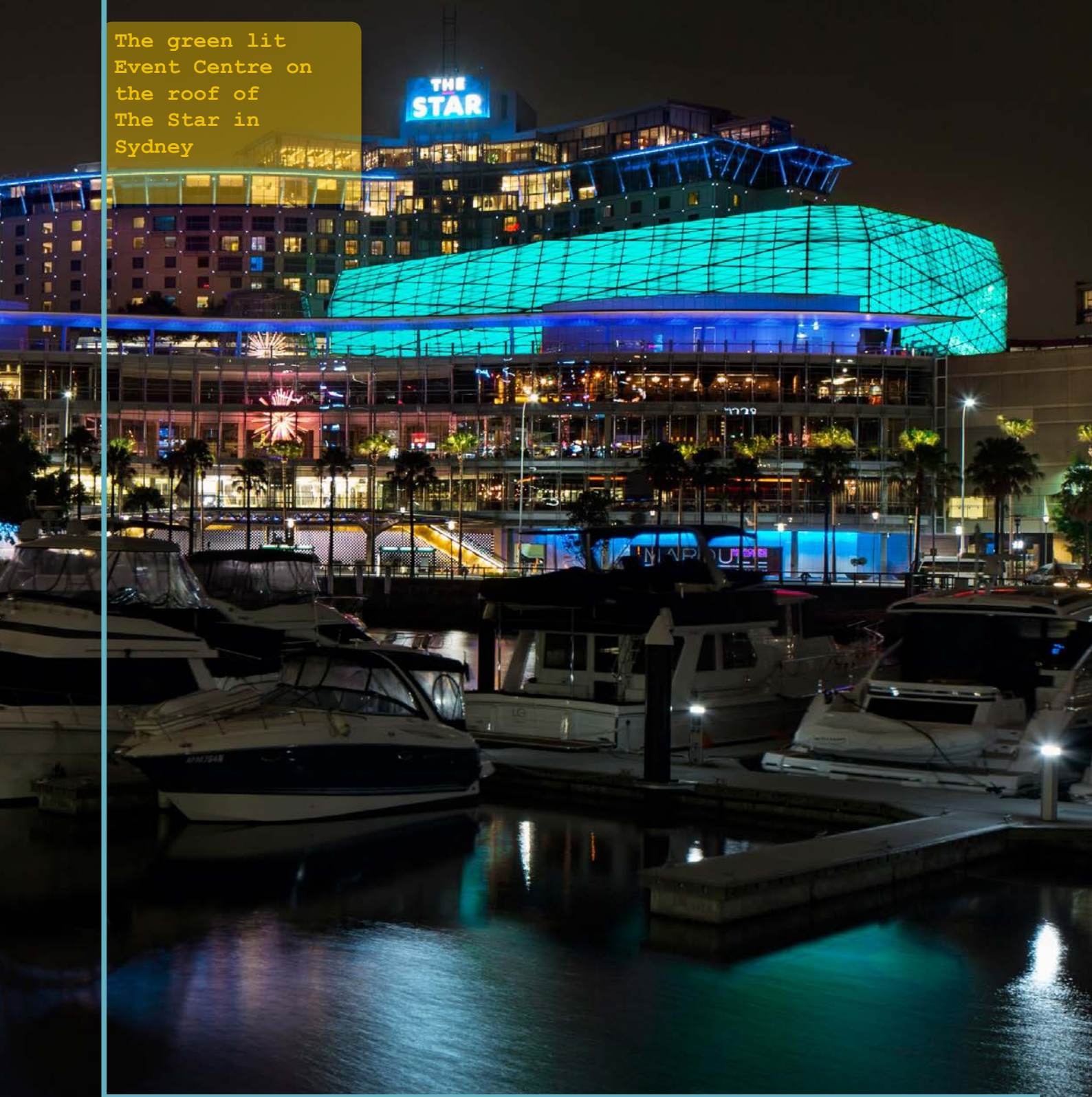
EVENT CENTRE

THE STAR ROLLS OUT NEW VENUE

BY JULIUS GRAFTON

Sydney finally starts to gain desperately needed venue space with the amazing Star Events Centre now fully functional. Australia's largest city is lagging well behind Melbourne, with a shortage of theatre venues. Now Sydney has a 4000 capacity upmarket showroom capable of handling major international acts.

The green lit
Event Centre on
the roof of
The Star in
Sydney



Cleverly built on top of The Star casino in Pyrmont, the external form of the venue is translucent and lit with changing colours. It sits alongside a very large events deck that will easily accommodate 1,000 people, overlooking the city and Darling Harbour.

Located just over the old Pyrmont pedestrian bridge, the venue is almost in eyesight from the much larger (but condemned for demolition) Sydney Entertainment Centre in Darling Harbour.

The Entertainment Centre will eventually be replaced with an 8000 capacity venue, taking the precinct up market.

The Star has now transformed from the old Star City, which had a showroom of around 1,200 seats plus the ongoing and terrific Lyric Theatre, Sydney's leading 2,000 seat proscenium arch theatre venue. The Showroom is no more, although its large stage remains, serving the smaller Sports Bar facility.

Park gig semi here



LOAD IN

We start our tour at the loading dock. Tight but functional, one 48' semi just fits at the dock, with a short push to a goods lift capable of hauling a car or anything weighing up to 7 tonnes.

At the opposite end from the truck dock is the broadcast truck parking area, with extensive tielines and house power.

Up at venue level the lift discharges onto a service link,

which is a bridge over the street below, with glass windows – installed due to nearby resident feedback. This allows natural light into the backstage space, a nice touch for setup hours.

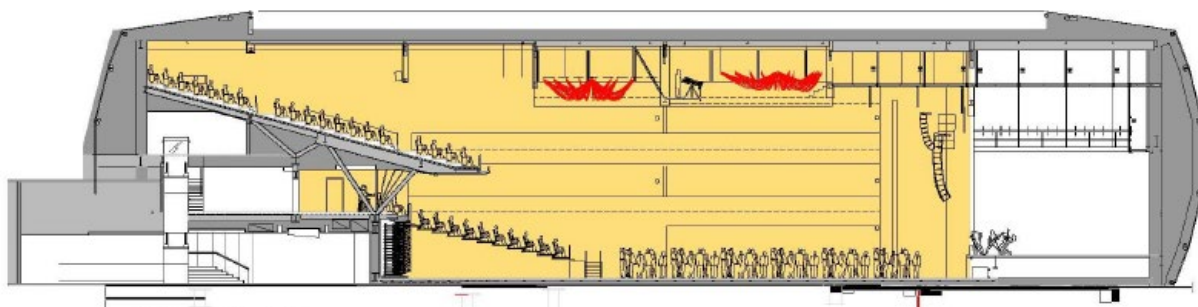
Most dressing rooms are on a lower level, but a star dressing room and associated greenroom is right next to the stage.



Pretty in Pink.
Broadcast truck juice station

HALF STANDING

Half Standing mode, shows the versatility of the venue





THE ROOM

Events Centre is fully equipped, so a show need only bring backline elements. The stage sits 1.5 metres off the flat floor of the venue, and is 19 metres wide by 11.5 metres deep.

Recent concerts by Seal and Garbage have cemented the venue for international concert tours, while TV awards and car launches have demonstrated the versatility of the facility. If a dinner is required, around 1,000 people can be seated at tables.

Down on the flat floor, operable walls can divide the space. This would allow a stage show changeover while a convention occurs down the room.

Happy Ian Brown, head of audio



A clever design feature has a telescoping seating system that extends across the rear section of flat floor. This takes sightlines up, and allows the floor to be standing, or half standing and half seated. A mezzanine level adds fixed seats. Multiple configurations cater for as few as 1,000 (banquet) and as many as 4,000 (standing and mezzanine seated).

The grid over the stage will support 50 tonnes – while motorised grids over the flat floor can be flown in to reduce the scale of the room when used in an intimate mode.

PERFECT MATCH

Some things are truly greater than the sum of their parts. Contemplate the perfect balance achieved when pairing Mackie DL mixers and DLM speakers. Never before have power, technology and portability delivered so much ultra-compact harmonious goodness!



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Miles of d&b D12 amps

264 ETC
dimmer
channelsBen Whatmore
Technical
Manager

TECHNICAL

CX attended a Seal concert at Events Centre. Entering the facility we were directed up escalators into the spacious lobby area, with modern funky bar and concessions. An outdoor deck (suitable for smoking) caters to more than 1,000 people and has harbour views.

Inside the venue the sightlines are world class. Comfort was excellent.

Technical was surprisingly good – we were taken with the room acoustic, not too dead, not very live. The d&b J series line array and flown cardioid subwoofer cluster delivered effortless sound with high headroom.

framed off and two operated for the show we saw.

Lights include 276 channels of ETC dimming, 198 moving light circuits, and a good cross section of digital and moving heads. These include VariLite VL3000, VLX3 wash, and 90 Mac 101. There are four followspots.

The house crew is headed by Technical Manager Ben Whatmore, and includes Ian Brown (Audio head), Bruce Dwyer (Lighting head), and Chris McKay (Rigging and Staging). The Entertainment Manager is Stephen Wickham, assisted by Michelle Lock.

COMMISSIONED!

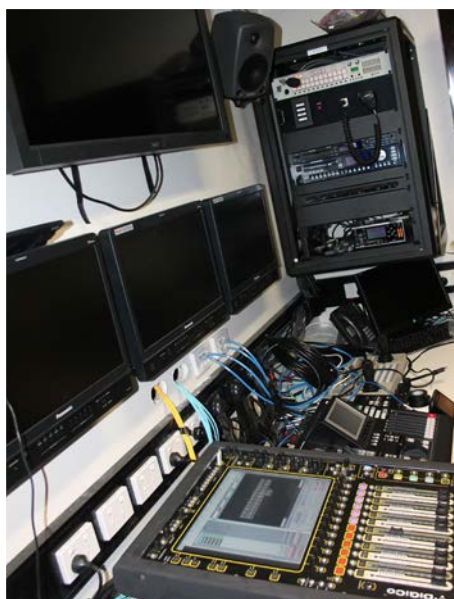
Ben Whatmore says he started two months before the venue was handed over, so he saw the final stages of work. “There are 97,000 terminations in the venue”, he says “with such a low failure rate.” He lauds the connectivity, with fibre, coax and audio tielines allowing “signal anywhere”.

Power is provisioned almost everywhere, with 3 phase outlets all over the venue.

Typical of this are three mix positions, dependant on the multiple audience modes the room is capable of: Full standing, half standing half seated, or all seated.

The house crew are only responsible for the Event Centre, not any of the other entertainment spaces within The Star. Stephen Wickham was formerly the technical manager at The Lyric Theatre, which is located underneath and to one side, on the Southern end of the Casino.

Ben was impressed by the PA installation, which he says



iMag is a great feature, with 2 Christie 20k projectors belting onto a 16 x 9m screen either side of stage.

This should be mandatory at all venues of this size. An additional 24 x 13.5 main screen is available on stage.

The tech dept has four video cameras, with two

Monitor desk



Super Duper followspot



worked almost straight 'out of the box'. There are two hangs of 10 d&b J8, with 2 J12 underhung. The cardioid sub cluster in the centre has 8 JSUB, and there is a centre cluster of 7 Qi7 with one Qi10.

Floor PA left and right is a pair of Q110, and Cardioid infra floor subs come in the form of 6 J-INFRA.

The stage monitor system has Q7 and Qsubs for drum or sidefills, or this can be used as a rehearsal system or DJ Monitors. 8 d&b M2 double 12" wedges do floor duty, and everything is amped from 10 D12 amps racked in pairs. Monitor mix (Digico SD-10) can be from either side of stage.

Lighting control is via a Grand MA2 Ultra Light.

Up above, the world of rigging appears to offer more than most would require, with 40 1 tonne ASM OTTO hoists and 4 2 tonne versions. These and the ASM controller were supplied by Jands.

There are 4 trusses over the stage, 2 at front of house plus the catwalk.

Finally nine motorised pipe grids allow additional hanging possibilities for lights, audio, video, screens or set elements. These can be controlled separately, and lowered for ambience if the venue is in banquet mode.

Our visit to The Star Event Centre was over, and we left a very satisfied crew. There aren't too many careers where you get a brand new venue as well designed as this to play with!

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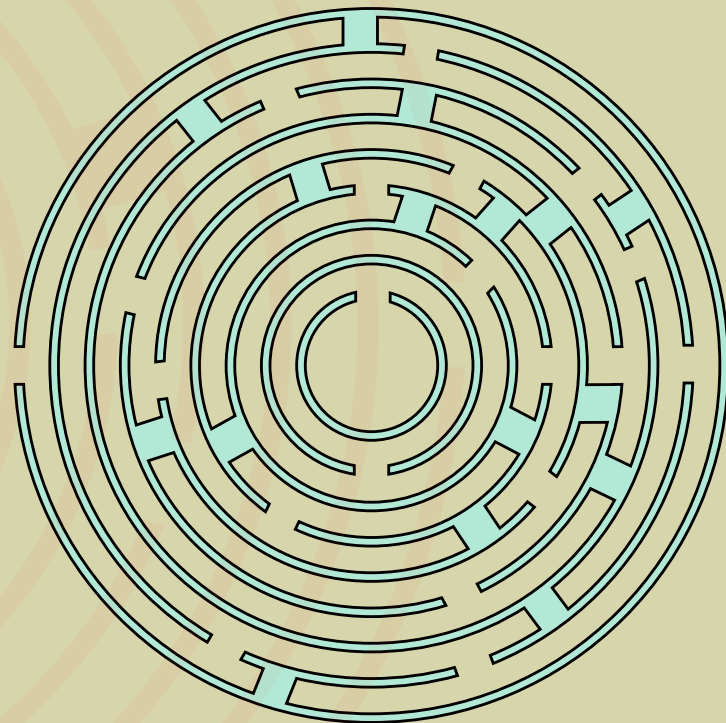


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INSTALL ADVISOR

HOUSES OF WORSHIP

BY JIMMY DEN-ODEN



GET THE MESSAGE ACROSS

CX MET WITH DAVE WATSON OF PRODUCTION AUDIO VIDEO TECHNOLOGY TO TALK CHURCH SOUND. “IT’S NOT ALL BLACK OR WHITE IN CHURCH SOUND, AND DIFFERENT PEOPLE FIND DIFFERENT WAYS OF DOING THINGS. SOME OF THESE SEEM REALLY WRONG TO AN OUTSIDER, BUT IT’S WHAT WORKS FOR THAT CHURCH”. AS DAVE POINTS OUT, THE DEMANDS PLACED ON A CHURCH SOUND SYSTEM ARE VERY DIVERSE.

Whether you’re talking traditional Roman Catholic or modern Pentecostal worship, the most important part of the service is ultimately the message. That’s what parishioners are there to hear. Be it the spoken word of a sermon or lyrics to a song of praise, the words are what matter the most. One of the most important aspects of Church sound is to get the message across.

A number of factors can prevent this happening effectively, so it’s important to anticipate these and take steps to avoid these problems. Let’s take a look at the signal chain, which actually begins before the microphone. Physical placement matters! Dave says “Spill of sound is a big one <Ed: issue> with Church musicians” - for example placing choir mics next to a drum kit won’t work well!

More traditional Churches will tend to rely on fixed microphones on lecterns and altars, which are great for the simple reason that they’re less likely to fail than something which moves around or relies on a wireless transmission path. The downside is that such mics are typically found further from the people speaking into them than handheld or lapel units, so getting sufficient gain from these before

feedback can be challenging. Good PA design and directivity can go a long way to mitigating this issue. Dave agrees that good directivity is important: “Fill the room with sound is something I’ve heard people say, but doing this inherently excites the room with reverberant field, and, too much is not good. Nor is a totally acoustically dead room, which gives no interaction between platform and congregation”.

Add to this the fact that different people speak at different volume levels. Boundary mics are useful for areas where multiple people group together and speak because they have a wide pickup pattern. Typical lectern gooseneck mics tend to have tighter pickup patterns – usually hypercardioid. They’re good for feedback rejection, but they only work well if the person speaking is within the polar pickup area. Sometimes a standard cardioid vocal mic on a boom stand is the most practical and effective choice, even if it looks ugly.

Wireless microphone systems have gained popularity over the years. They’ve been used in Churches for some time, but the current generation of wireless gear is better and more affordable than ever. Handheld wireless mics allow free movement, while lapel or headset kits are great for charismatic preachers who communicate with hand gestures as well as words. The downsides to wireless is the potential for flat batteries, RF interference, and physical damage to fragile parts. If the wireless mic goes down you sure better have a cabled spare mic within easy reach, and equally important make sure the person on wireless knows where to find the spare.

The looming digital dividend means that in a couple of years (or sooner) many wireless mic systems will no longer be legally usable. The big thing about the digital dividend is that nobody really anticipated it until it was announced. While such eventualities are basically unavoidable, choosing wireless systems with wide tuning range is a good way to delay their potential redundancy.

Batteries for wireless mics can be a sore point. While most large productions will use new, high quality batteries for every show, small parishes don't always have the budget for this. Talk of using rechargeables soon surfaces, which is okay if they're part of the mic kit. Cheapo Ni-Cad or Ni-Mh batteries don't tend to work reliably in wireless mics, since they operate at lower voltages than alkalines. They also tend to sit at their specified voltage then rapidly die, unlike alkalines which discharge in a more linear fashion.

Many manufacturers now produce rechargeable battery systems for their mid and high level wireless products, and unlike supermarket Ni-Cads they're actually designed to power wireless mics. They're very affordable, so including one is a no-brainer.

Whatever the mic choice, sooner or later it will hit a mixer of some kind or other. Many churches are staffed with volunteers who don't always have the experience to understand every control on a console. Dave points out "a lot of people are quick to ask for a digital desk in the hope of attaining consistency in sound through scene recall, but really the scope of possibilities digital desks provide also means more scope for varying results".

In these situations, it's wise to keep the user interface as simple as possible. A pre-programmed matrix mixing system allows for filtering of mic channels, and subsequent mixing to the PA system. Using a GPIO trigger with a switch attached to enable mic points for phantom powered mics will avoid nasty pops through the system – users just flip the switch before plugging or unplugging the mic, which mutes the input. A GPIO is a simple input detector on a matrix mixer, the state of which can then be programmed to control features within the matrix.

Talking processing, don't overdo it. The first thing Dave teaches novice operators about compressors and noise gates is "how to find the bypass switch. If you don't understand how it works, you need to know how to make sure it's not in-line". Dave says "preserving the signal chain seems to be the thing that's not done the most, people tend to capture something then attempt to manipulate it to make it sound good".

It's surprising how well many mics will work with only basic EQ – sometimes a simple high pass filter is enough to get good results. Without the right knowledge it's very easy to make an expensive sound system sound very cheap.

The basic laws of physics dictate that we can only achieve so much gain from a mic before it eventually feeds back through the PA system. This reality needs to be clearly explained to end users so they have realistic expectations of the sound system. Making sure the PA is well setup and has a reasonably linear response will go a long way toward meeting these expectations.

In-ear monitoring systems have found popularity in some worship environments, and indeed they can bring some of the benefits associated with quieter stages (less spill off stage, reduced feedback). But be wary – as Dave says "it can help a little, but in most moderate sized Churches, the introduction of in-ears cause more challenges than it rectifies. The advantages and disadvantages need to be weighed up".

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EAW JF10

The MX391 Boundary Mic from Shure is available in three models covering omni, cardioid or supercardioid pickup patterns. Its integral 4m cable allows the pre-amp to be mounted remotely, giving the mic a low-profile unobtrusive appearance. www.shure.com



SHURE MX391

CHURCH VIDEO

THE GREAT THING ABOUT THE CLASSIC HYMN BOOK IS THAT THERE'S NOT REALLY ANY WAY FOR IT TO FAIL. IF YOU CAN'T FIND ONE, YOU CAN SHARE WITH THE PERSON NEXT TO YOU. THING IS THAT THE SEATING CONFIGURATION OF MANY MODERN CHURCHES IS NOW ONE WHERE PEWS HAVE BEEN REPLACED WITH INDIVIDUAL SEATS. THERE'S NOT ACTUALLY A PLACE TO KEEP THE HYMN BOOK ANYMORE, SO WE'RE NOW SEEING MANY HOUSES OF WORSHIP TURN TO ELECTRONIC SOLUTIONS TO PRESENT HYMNS AND OTHER MUSICAL WORSHIP.

Many software choices are available which allow song lyrics to be displayed on a secondary computer video output. The operator sees a screen with upcoming lyrics and manually advances the text – unlike an autocue, the song lyrics snap change from one line to the next. Not only song lyrics can be displayed – most software will allow for display of Bible verses, as well as graphics or special text announcements. Technical requirements for such a system are relatively simple and easy to fulfil – most of the time a basic PC running Windows, and a simple video projector are all that's required.

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MEETS OR EXCEEDS:

International Standard BS EN 13200-3:2005 (Spectator Facilities) Annex A
WA Health Directorate 2004 (Guidelines for concerts, events and organised gatherings)
Crowd Control At Venues And Events, A practical Occupational Health and Safety Guide, WorkSafe (Vic) September 2006
Australian standard AS/NZS 1170 parts 0,1 and 2:2002 (AKA loading codes)
Australian standard AS/NZ 1664: 1: 1997 (Aluminium structures)
Australian Standard AS 4687-2007 (temporary fencing and hoardings)
MCK Metals Pacific. Strength and resistance load testing, November 2006
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Screen brightness is an important matter to address. Unlike corporate presentations which occur in darkened rooms, most worship environments will be well lit. In such situations projector need to be brighter to be seen. The good news is that because projection is now a mature technology, pricing is very competitive. 5000+ ANSI Lumen units are now an affordable reality.

Choosing the right projector is only half the battle. A good quality projection screen will allow you to obtain the best results from whatever projector you choose. Rear projection screens work by transmission rather than reflection, and this makes them better in bright environments. If rear project isn't practical, go with front project. Make sure you check out the lens ratio of the projector and calculate the throw distance before installing the projector mount. Often times a pre-existing rigging point or mounting location will decree which type of lens or projector is needed – that's okay too.

To expand on a basic projection system, the next logical addition is some kind of switching mechanism or image scaler. Simple auto switches allow the in-house computer to connect to the projector until a visitors laptop is connected (taking priority). This is a very user-friendly way to provide video connectivity for guest speakers. Laptop playback also tends to make an appearance at funerals, so best make the video system ready in advance.

Beyond computer video, the humble projector can also be used for IMAG – image magnification. This can be done using a single fixed camera, operated camera, or even a switched multi-camera feed. The level of complexity required depends on the size of the audience, but the availability of cheap video gear certainly brings more possibilities than have been previously available. Perhaps the biggest considerations associated with live IMAG are those of lighting and latency.

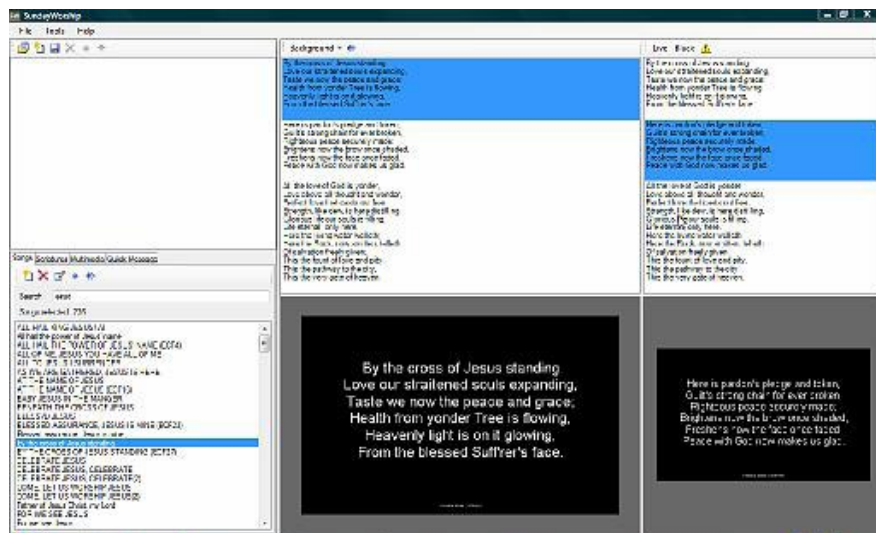
Lighting for IMAG generally requires several sources – a key light, a fill light and a back light. The aim of the game is to provide a flat light field without hot-spots, as these are accentuated on camera. Latency is important to avoid since large delays between action happening live and then on-screen are very obvious. Some switching and scaling devices add latency into your signal path - usually more than 2 frames is when it becomes a big problem.

If a switched video feed is available, then it doesn't take much effort to pair it up with an audio feed and either record the sermon or stream it out live. This is a great way to make services available to parishioners who can't make it to the Church. While latency is a problem for IMAG, it's more forgivable for streaming – just make sure your audio feed is delayed so that it lines up in time with the pictures!

CX SUGGESTS:

The EH7500 WUXGA projector from Optoma is designed for large venue projection, delivering 6500 Lumen output at 1920x1200 resolution. It has dual lamps, loads of connectivity and supports 5 lens choices. www.optoma.com

OPTOMA EH7500



SundayWorship.NET is a very affordable Church song presentation software package, which also displays bible verses and graphics. www.sundayworship.net



VP - 211K

Kramer Electronics VP-211K is a 2 input auto-switcher for UXGA signals, complete with AFV (audio follows video) audio switching. www.kramerelectronics.com

The VR-5 AV Mixer from Roland allows for a selection of input sources to be switched and output as video, as well as having a USB output which can be used for streaming. www.rolandcorp.com.au



ROLAND VR-5



AG - HMC41

The AG-HMC41 from Panasonic is a compact HD video camera that supports a range of output formats from composite through to HDMI. Wide and tele conversion lenses are available, and it's capable of recording internally to SDHC card. www.panasonic.com.au



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LISTEN HERE PHASE = mc^2

BY ANDY STEWART

In last issue's *Mill Report* I spoke about phase in relation to the recording of an acoustic guitar. This issue I thought I'd try and address the topic more generally and provide a few tips on how to spot it, avoid it and cure it when it arises.

Phase is one of the most crucial aspects of audio production to manage. Understanding what it is, how it's generated and how to avoid its undesirable effects is vital to any good sonic outcome. So let's briefly brush up on what phase is in the first place shall we?

Simply put, a waveform that's 'out-of-phase' is one that's out of step with another of the same frequency. Phase is a relative term, meaning that one waveform on its own – it might be a pure sine wave, or a complex sound generated by a voice or instrument – can't really be out of phase in any practical sense. It needs a partner (or partners) of identical (or similar) form to interact with, and it's this interaction that generates the phenomenon we call phase.

To describe it another way, imagine a soldier marching on his own...

You can't really say this guy is out of step if there's no-one marching alongside him. But when there are 10 others all marching in perfect sync, leading with their left foot while he leads with his right, then he can be described as being out of phase *relative* to the group. Indeed, if he's perfectly out of step he can be described as antiphase to the group, and to put him in sync in an audio sense, we'd simply hit the phase button on the channel he's marching down.

THE REAL WORLD OF AUDIO

Where things get more insidious is when there are two or three complex waveform sources creating a sound, and the degree to which they're out of step with one another is subtle. The vast majority of phase issues are of this type. These are harder to hear and more difficult to resolve. Unlike sine waves, which oscillate perfectly and can therefore be phase aligned without necessarily being time aligned (see inset for more on this), real-world sounds generated by voices and instruments are far more complex and rarely if ever behave in such symmetrical fashion.

Most sounds we record, mix, master or reproduce live are made up of a multiplicity of frequencies all oscillating at different wavelengths. Consequently, the only time two identical versions of a complex waveform can be truly in phase with one another is when they start at an identical point in time. That way all the frequencies making up the sound (from very long to extremely short) are phase aligned and supportive of one another. When the two become misaligned in time, even by the smallest amount, phase

problems creep in, and depending on how much they're misaligned, certain frequencies will start to undermine one another more than others as the two versions sum together in the air.

Other elements have an influence over phase coherence even if two complex waveforms *do* share an identical start point. In-the-box processing in particular can wreak havoc on phase coherence, especially if there's no delay compensation on offer, or where processing is applied to only one of the two components. Either of these situations will influence the phase relationship between the two waveforms anywhere from subtly (though sometimes beneficially it must be said) to diabolically.

PHASE ALIGNMENT OR TIME ALIGNMENT?

When a waveform repeats perfectly at 360° intervals – like a pure sine wave for example – it can be locked in phase without being time dependent. Sounds from the real world meanwhile almost never behave this way. They're made up of multiple frequencies combining together to produce mostly asymmetrical waveform shapes. It's for this reason alone that phase alignment of complex waveforms is more strictly about time alignment... otherwise shifting the waveforms in time with respect to one another only puts one frequency into alignment whilst simultaneously putting most of the others partially out by varying degrees. Not ideal!

STEREO TO MONO

Where two identical complex waveforms are *perfectly* out of phase – i.e., 180° out, oscillating in an antiphase manner to one another – that's where you really need to pay attention. These will seem incredibly wide when panned hard left and right, and that can sometimes sound fantastic. Unfortunately, when combined in mono they will null – i.e., equal silence!

See the problem? If neglected or overlooked, stereo sounds of this type will be non-existent on AM radio for instance. Live it's a different story of course. As long as

you're happy with a certain sound being mega wide – again, that might be appropriate or not – it's less critical because the mix is a one-off event coming out of a stereo PA rather than an AM radio... unless of course the L/R feed is going live-to-air on AM or you're recording it for later release. Then the problem is most certainly relevant.

SOLUTIONS

There are several ways to combat phase problems.

The simplest way is to never use more than one input for any given source. If, for example, you're in the studio overdubbing an electric guitar let's say, the best way to protect yourself from phase problems is to use only one mic on the amp, and no D.I., or vice versa. Similarly, if you're mixing an electric guitar that's been recorded with say three inputs, just ditch any two and you'll be fine.

But if, for argument's sake, you want to record an instrument onto three tracks of audio from three separate sources – say two mics and a D.I. – you'll need to make

sure they're phase coherent first. One of the simplest ways to do this is to arm all channels and record a short, sharp sound from the instrument into your DAW before tracking commences. Investigate these waveforms close up, checking that they align, particularly if the recording involves multiple close mics configured as stereo pairs or masquerading as one good 'close' sound. If the waveforms don't line up, adjust the mic positions, record the sound again and re-evaluate.

Room and ambient mics obviously can't be brought into line in this manner – they're often metres away. That's okay. Because they hear such a different version of the sound you're recording, they typically have little or no impact on phase coherence. The further apart they are relative to the source, and the less they have in common sonically, the less relevant their phase relationship becomes.

If you're recording instruments like guitars, drums, basses or synths from a combination of D.I.'d signals and mics, the simplest and most practical approach to their time alignment is to either get a bunch of phase aligning tools like say, the Little Labs IBP, which allows you to fine tune phase rather than simply flip the polarity, or use plug-ins or manual alignment later. If you're doing the latter I find it's best to mute one of the elements during tracking so the phase discrepancies don't drive you nuts.

MIXING TWEAKS

When you're mixing, there are several tricks available to you too. Firstly, you can cut to the chase and simply mute any mics that seem to do nothing but add phase problems. Some sounds are just better off without that second or third mic anyway.

Time align any phase anomalous mics that are very close together and similar in waveform appearance. This may require some patience to get them to settle down. Again, the best way to match the two waveforms up is by panning them hard left and right, listening for the sound growing fuller and more centred in the stereo image as the two waveforms are nudged into line. Remember: a super-wide, thin sound is a sure fire sign something is still not right. The other approach – which I use regularly during mixing – is to turn any phase incoherent recording tracks into assets. Use them to generate spaces and ambience instead, by inserting EQs, compression, reverbs and delays across them. This quickly transforms their waveforms into something barely relevant to the original file, and thus inert with respect to phase problems.

I could go on and on here but I'm already out of space. Don't forget this is all pointless if your speakers aren't in phase. Ditto all your mics and cables as well. Don't assume they're all perfect... even new mics are sometimes manufactured out-of-phase by accident. Check everything.

There are other more technical aspects to phase that I've intentionally neglected to mention here for the sake of brevity and clarity. I'd urge anyone with more questions about phase to do some additional research of their own. To be unsure about phase is to be unsure about audio.

'Til next time.

WHAT TO LISTEN FOR

The most common characteristic of an audio signal with phase problems is that it generally sounds thin, harsh, wide (if the elements are panned) and 'hollow' sounding. Of course, if you like that sort of sound – provided you can still hear it in mono – there's no real technical reason to change it. If you're not sure, reduce the sound to one of its components and listen to how 'solid' it sounds out of just one mic... if it loses some of that weight when you unmute the second channel you know there's a phase problem. Also, buy a phase meter!



Andy Stewart owns and operates The Mill in Victoria, a Grammy Award winning mixing and mastering facility. He's happy to respond to any pleas for recording or mixing help... so what are you waiting for?

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dbx Personal Monitor System

BY JIMMY DEN-ODEN

Personal monitoring systems have been around for a while now, so it's hardly a surprise that dbx, a subsidiary of the Harman Group, has come up with one of their own.

The system is based on the BLU link protocol, so straight away it's compatible with things like BSS Soundweb. The system as we reviewed it comprises the TR1616 I/O box, and a number of PMC16 personal monitor controllers. The basic topology of the system is such that the BLU link network forms a ring, so if one network segment fails the system can keep on running.

The TR1616 is a 16 input, 16 output device. It accepts mic / line level signal inputs on combo jacks, and has individual gain, phase, phantom power, and pad controls for each channel. It then encodes the 16 input channels onto the BLU link stream. It also receives 16 channels from the BLU link stream.

Because BLU link supports up to 256 channels at 48kHz (or 128 at 96kHz), you need to tell the TR1616 which channel banks to transmit and receive on. This is done with stepped encoders, dual 7 segment LED display indicating the bank numbers. If you need more than 16 channels on the network, add up to a total of sixteen TR-1616 units, and link them using the LOOP connectors. The system links using Cat5e cable, and the audio data connectors are all EtherCon, so they lock in.

An additional set of EtherCon connectors is used for "snake" mode – this allows you to use another TR1616 to extract audio signals from the network at line level on XLR. So for instance, you could use four TR1616 boxes to have 32 bi-directional channels between the stage and FOH console. In doing this, you'd be using four banks – the stage units would transmit on banks 1 and 2, and receive returns from FOH on banks 3 and four. The opposite allocation would apply at the other end. In a nutshell what I'm saying here is that you can use the TR1616 not only to feed the PMC16, but also the FOH console.

There's a fantastically confusing diagram in the user manual illustrating how the BLU link snake changeover switching works, but best just start with one of the many example configurations shown and build on that. It goes together very easily.





The PMC16 is designed for musicians on stage. The unit itself has BLU link in and out connectors, DC power input, dual XLR output to feed stereo wedges on-stage, as well as a headphone output. There are some additional ports for firmware upgrades and future expansion. The front panel has an array of controls – basically a button to select each channel, a large data encoder to modify its parameters (level, pan, send to effect), master reverb and level control as well as basic low / high EQ. Additional buttons allow for solo and mute functionality, and there's a 4 segment LED output meter. When the unit is initially plugged in, there's a setup wizard that you run in order to select channel designation and the like.

The PMC16 has PeakStop limiting, designed to curb wild transients and protect not only equipment connected to the unit, but also ears of the person listening. The limiter is setup within the Wizard. A slight annoyance is that the unit cannot be buss powered – you need to run power to each PMC16 individually.

At this price point there had to be a compromise somewhere, and the lack of buss powering is it.

The PMC16 is pretty straightforward to use, and the backlit dot matrix LCD display is easy to see. It feels like the device has inherited some of its navigational style from the dbx DriveRack, but somehow it's more intuitive. For end users it's a doddle to use, and that's important.

Presets can be stored on the PMC16, recalling all necessary parameters. This is good, but there are two downsides. The first is that the default preset defaults to send every channel to the internal Lexicon reverb at -6dB. In my mind the default should be no sends to the reverb. The second is that building the presets takes time, and you need to do it individually on every unit. I'm hoping to see a software utility which allows you to hoover the config off one unit via USB then deploy it to others in the same manner. In practice, most users of systems such as this



will be touring them with the same act for multiple shows, so big config changes are not exactly frequent. Very cool is the possibility to choose any channel on the network for each PMC16.

There's not a lot more to say about the system really. It does its thing, it's well priced, it sounds good and it's easy to use.



BRAND: DBX
 MODEL: TR1616 AND PMC16
 RRP: TR1616 - \$3319.00 INC GST.
 PMC16 - \$829.00 INC GST.
 PRODUCT INFO: WWW.DBXPRO.COM
 DISTRIBUTOR: WWW.JANDS.COM.AU

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Rosco Miro Cubes

BY JIMMY DEN-0UDEN

Miro Cubes are cute, and their tiny form factor belies their true capability. Kind of like a Jack Russell that's had too much Red Bull – you really have no idea what it's capable of...

Miro Cubes are LED fixtures, and while they're technically not cubes (10x10x10.8cm), they're close enough, so we'll let it go. Because of the shape, it's easy to gang multiple cubes together.

Miro Cubes are available in a couple of different models – the 4C (RGB+W) and the WNC, which is a warm, neutral, cool white. Internally they're built with the boards connected together with field-unpluggable connectors, so they're easy to service. You can even convert a WNC to a 4C by swapping the board.

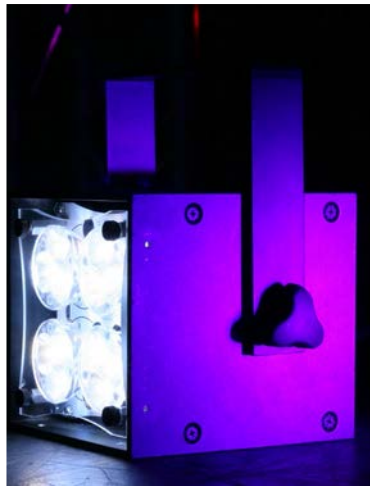
Around the back, both the 4C and WNC models have an LCD screen which allows you to navigate the text based menu system. The menu is very straightforward – no instructions required. Beneath the buttons are DMX input and loop out on 5 pin XLR, and a PowerCon input. There's no PowerCon loop out, but looking at the back of the fixture I don't know where they would have put one. It's pretty tightly populated already, and a flylead isn't the only way to power the unit.



Shot at very tiny aperture and fast shutter speed so you can see the three different colour temperatures

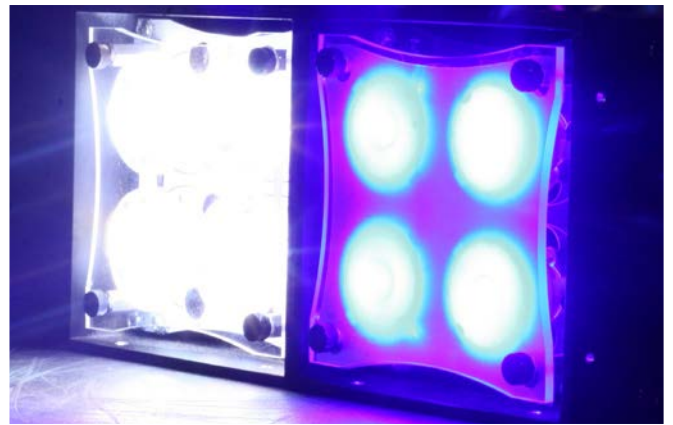


Because the Miro Cubes are designed for not only TV and production situations but also architectural situations, there are a number of popular track mounting options available. Rosco even make a DMX Data track, so there's an adapter for this too. The fixtures pull 50W at maximum output, so you can run a huge number of them from a single 10A circuit.



The 4C uses four 3W quad colour emitters (RGB+W), which are internally homogenized. This means there are no colour artifacts in the beam. The WNC uses 12x Cree XML 4W emitters in three different colour temperatures. It can produce white light in any colour temperature between 2800 and 6500K.

Both fixtures include a set of lenses (20, 40 and 60 degree beam spread), which are easily installed by removing four thumb screws, situating the lens and then replacing the screws. With no lens the default beam angle is a fairly tight 15 degrees, and at this angle the WNC model outputs 3100 Lumens.



There's a "filament mode" which allows the fixtures to mimic the blackout delay of incandescent fixtures, and both models dim smoothly without a trace of flicker. Lots of quality, lots of output, tiny package. **We like.**



BRAND: ROSCO
MODEL: MIRO CUBE
RRP: MIRO CUBE 4C-\$1050 INC GST.
MIRO CUBE WNC-\$1050 INC GST.
PRODUCT INFO: WWW.ROSCO.COM
DISTRIBUTOR: WWW.ROSCO.COM



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JTS US-903DC

BY JIMMY DEN-ODEN



The US-903DC Pro System from JTS is a “bundled” kit including a dual channel receiver, handheld transmitter, and bodypack transmitter with headset mic.

The kit arrived in retail style packaging, and includes a nice solid hard-case in which to store both the transmitters. The receiver has little gold feet on it, which are nice for standalone operation. If you need rack-mount, just unscrew the feet and attach the included rack ears. Dual antennae are provided, as is a local wall-wart type power supply. The receiver is stated to run off anything from 12-18V DC, pulling just under 1A. This means it would be very easy to use in locations where mains power is not readily available. The US-903DC kit includes four 1.2V Ni-Mh batteries, which can be charged by placing them into a drawer on the receiver. The charging drawer runs regardless of the unit's power switch status, which is a good idea too.

The receiver is fairly straightforward to setup. Plug in power, plug in XLR outputs from each channel, set channels and go. There's a mixed output on unbalanced jack, and you can adjust each channel's level using pots on the front of the box. The mix output would be good for users needing to economise on channel usage.

The RF setup is such that you can choose from four groups of 16 channels. Setting these involves holding the “set” button, then using the up and down keys to make a selection. The process is the same on transmitter

and receiver. There's a lock function on both, though the purpose of this on the receiver is a bit unclear. The transmitter also has a gain adjust function – the default position is -10dB which was a bit hot for my big voice. -20dB seemed to yield good results.

The receiver and transmitters display group and channel number, but not actual frequencies. The system does come with a datasheet listing the frequencies for each channel group, so it is possible to look them up if there's other wireless gear in use. Our test kit operated between 638 and 662MHz, so at this stage of the digital dividend game it's still going to be usable three years from now.

I didn't know what to expect from the system when we tested it. I plugged it in and took the handheld for a walk. I was quite surprised by the range it managed to achieve, about 50m through a brick wall! Pretty good for a 10mW transmitter... The mic certainly sounded decent enough once I'd dropped the transmitter gain back, and overall the results were pretty pleasing. The bodypack transmitter is, well, huge. But it's functional enough and even includes a pouch.



Our test kit operated between 638 and 662MHz, so at this stage of the digital dividend game it's still going to be usable three years from now.



Aesthetically there are certainly better looking units out there, but really I'd rather sacrifice looks than functionality. I think what JTS has done is focused on getting the electronics of the system right. If you need something that's simple, functional and attractively priced, the US-903DC system definitely fits the bill.

BRAND: JTS
MODEL: US-903DC Pro SYSTEM
RRP: \$899.00 INC GST
PRODUCT INFO: WWW.JTS.COM.TW
DISTRIBUTOR: WWW.CANNONSOUND.COM.AU

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Light Emotion LED Par

BY JIMMY DEN-ODEN



I've seen enough LED Par cans over the past few years to figure out there are three basic grades. There's the el-cheapo model which just has single diodes sandwiched onto a board, with no optics and no real level of quality or reliability. Typically these run about a hundred bucks on ebay. \$400-800 sees you buying the mid-range version, which uses homogenized RGB or RGBW chips with lenses but still based on a par-can type enclosure. Then there's the top end models with much sturdier housings, more LED colours and actual science based optics. Expect to pay in the order of \$1-2K per unit for these.

The price on the Light Emotion P645QUADB2 (herein referred to as LED Par for convenience) plants it firmly in the mid-range product bracket. The unit arrived in a retail box with a user manual written in very good English. The fixture might be Chinese, but the manual ain't. The back of the manual even illustrates how to build a DMX terminator, and while there are no light output measurements the specifications which are listed seem believable.

The fixture itself looks like every other LED Par in its price bracket. 3 pin DMX in and loop. 1m power lead with (thoughtfully enough) a piggyback plug. While there's a 2A fuse, actual power consumption is listed at 85W, so theoretically you could piggyback 28 units off one 10A circuit. That's easily enough to cover a 10m truss run. The yoke is one of those double-yoke arrangements, the idea being that you needn't use an H stand to place the fixture on the deck. There's a single locking handle for the yoke, which loosens by itself if you tilt the fixture the wrong way. A lot of tension is required to make the double yoke hold the fixture without doing the splits. A strip of gaff or a cable tie between the yokes would solve this.

The back panel has a 4 character LED menu system with four buttons. The menu is easy enough to figure out and in no time at all I was calling up preset colours and effects with varying speeds. DMX control is via 7 channels, with



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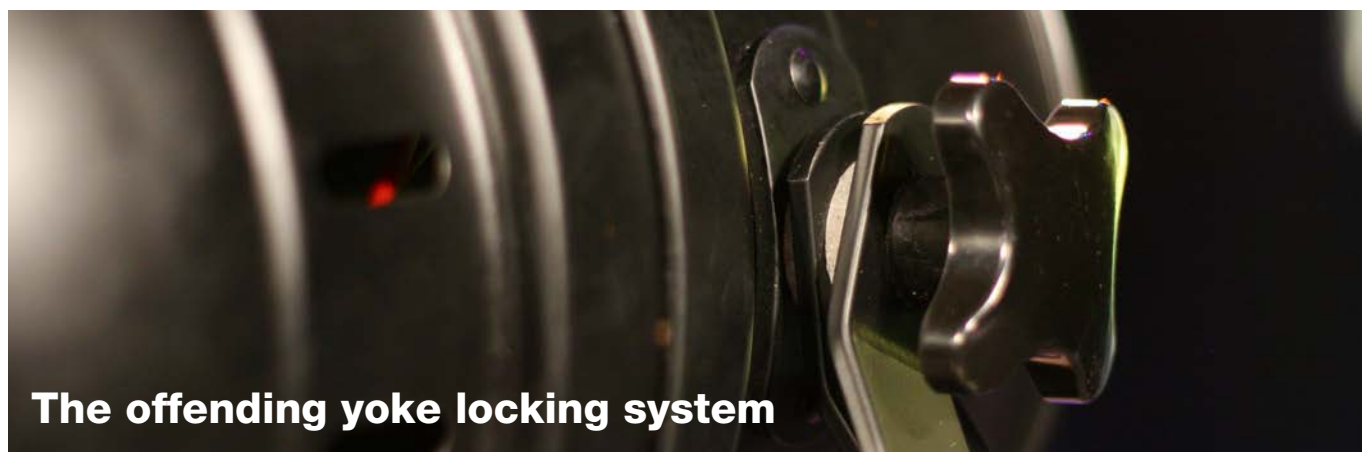
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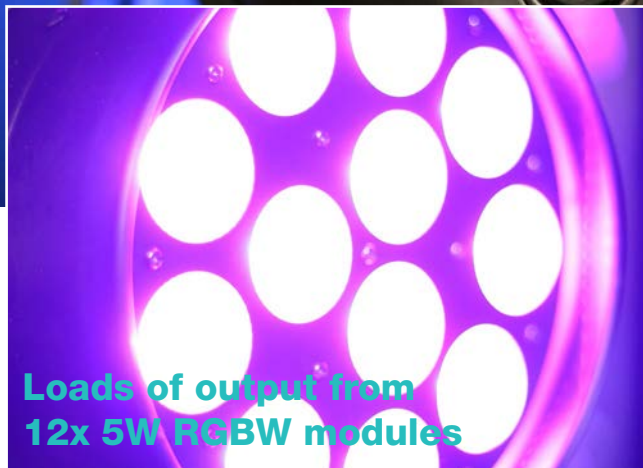
I didn't notice any flicker...



The offending yoke locking system



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BRAND: LIGHT EMOTION
MODEL: P645QUADB2
RRP: \$699.00 INC GST
PRODUCT INFO: WWW.LIGHTEMOTION.COM.AU
DISTRIBUTOR: WWW.LSWONLINE.COM.AU



the first four of these being RGBW level and the fifth overall dimming. Channel 6 is "flash" and mic sensitivity for sound activated mode, and channel 7 picks preset colours and effects. I like that there's a mode called "colour dreaming". Worthy of mention is the white light output of the unit. It actually generates a very believable white light, not the sickly pinkish blue hue so common to fixtures in the low to

mid range market. The rest of the colours aren't bad either, even the yellow looks pretty good and that's usually one of the harder colours to generate from RGB LEDs. I put the Light Emotion LED Par next to a cheapo entry level one and really there wasn't even a comparison – the Light Emotion unit thrashed the other one. The dimming is pretty smooth and I didn't notice any flicker either.



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Lightware TPS-TX90 and TPS-RX90

BY JIMMY DEN-0UDEN

Back in the days of composite video, transmission used to be easy. Get a piece of coaxial cable, punch video down it, job done. Quality was cable dependent. Things are a bit different now – we deal with HD video standards on a regular basis. HD-SDI is a good standard if you're working at a broadcast level, but less common in installation / integration applications. More frequently now we see HDMI as a primary video transmission format.

That's all great, except that HDMI isn't actually specified to travel more than about 5 metres on a cable. This causes something of a problem when you're trying to deliver it throughout a venue or other installation.

The TPS-TX90 and TPS-RX90 are a pair of black boxes from Lightware, and it's a very easy way to solve the HDMI delivery debacle. The TPS-TX90 encodes the HDMI signal to travel over Cat5e, Cat6 or Cat7 cable. The TPS-RX90 then decodes it at the other end of the cable. Simple yes? Add to this bi-directional IR pass-through, bi-directional RS-232 pass-through, and 10/100 Ethernet extension capability.

Both units run from a 12V power supply, and the great part about this is that only one unit need be powered – the Cat5e (or better) cable delivers power to the remote unit.

Max cable lengths with the available firmware versions

Resolution	Pixel clock rate	Cable type: CAT5e	Cable type: CAT7e
1024x768@60Hz	65 MHz	100m / 160 m*	120m / 180 m*
1280x720p@60Hz	73,84 MHz	100m / 160 m*	120m / 180 m*
1920x1080i@60Hz	74,25 MHz	100m / 160 m*	120m / 180 m*
1280x1024@60Hz	108 MHz	100m / 160 m*	120m / 180 m*
1920x1080p@60Hz	148,5 MHz	100m / 150 m*	120m / 170 m*
1920x1200@60Hz	152,9 MHz	100m / NA*	120m / NA*
1600x1200@60Hz	162 MHz	100m / NA*	120m / NA*
1920x1080@120Hz	297 MHz	100 m / NA*	120 m / NA*
2560x1600@60Hz	268,3 MHz	100 m / NA*	120 m / NA*
3840x2160@30Hz UHD	339,57 MHz	100 m / NA*	120 m / NA*



The DC connector on the included power supply twists to lock into the socket

The system supports HDCP pass-through, and can transmit at a number of different image resolutions depending on cable length.

Perhaps the strongest market for a device such as the TSP-TX/RX90 duo is the installation sector. Delivery of high quality signal to remote screens has been a challenge in the past, and adding in control capability saw installers running up to 5 individual cables – some of them pretty expensive. The Lightware kit replaces this infrastructure with a single cable of a kind that's often already installed in the building.

I tested the unit out in the office running a 1080p signal through 100m of Cat5e, with a couple of EtherCon joiners and patch leads added into the mix just to try and confuse things. The devices worked first go – no configuration was required, nor did I notice any latency change between the Lightware kit and just an HDMI cable. That's really cool.



BRAND: LIGHTWARE
MODEL: TPS-TX90 & TPS-RX90
RRP: \$1090 INC GST FOR A PAIR OF UNITS
PRODUCT INFO: WWW.LIGHTWARE.EU
DISTRIBUTOR: WWW.LIGHTWARE.EU

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T.O.D.

Tales from the front line



Technician

On Duty is the catchcry, the issue is whether in-house technicians are a help or a profit centre.

Julius Grafton summarizes the battlefield.....

A brand new venue like Event Centre, Hamer Hall or Concourse comes fully equipped with a highly competent in-house crew and state of the art everything. Most venues now have some form of technical production installed, and sometimes a third party outside audio visual supplier operates as 'in-house' supplier.

Many producers and event organisers accept the in-house deal – some venues (usually theatres) bundle everything into the venue rental. Others operate on a commercial basis, charging production to the venue hirer as a profit centre.

But increasing industry concern revolves around the fee that is charged if an external provider like an AV company or a Lighting /Audio supplier comes into a venue – and runs into a blizzard of fees for use of fixed infrastructure like lifts, power and rigging points. The application of Technician On Duty fees as a form of disincentive has been raised time and time again on csmagblog.

The debate has flared up recently with a call for complaints direct to the ACCC. Some of these comments date back to August 2012, others are fresh at presstime.

The issues broadly are:

VENUE DAMAGE

Adelaide Anon says “Show me the venues that were damaged by loaders crashing cases through the doors. They don’t have TOD fees in South Australia so I suppose you will argue that they have better loaders? I would suggest it’s because key event managers got together and threatened to pull their gigs when the Adelaide Hilton “tried it on”. If a TOD was truly necessary, they would have done it in SA too. The fact that venues don’t get damaged in South Australia is sufficient proof that (TOD’s) are not necessary and (are) designed simply to be a hindrance to free and fair competition.”

THIS IS A BEAT-UP!

“This whole issue is a beat up”, yelled BND. “TOD’s don’t stop any external companies from coming into a venue. It is simply a cost charged by the venue to have a technical resource on hand to make sure that the venue is not damaged and that the visiting crew works safely. Rather than all this negativity and endless bitching perhaps you should make use of the TOD that is being provided and call them before the gig when you are doing your Safe Work Method Statement (SWMS) and risk assessment to see if there are any venue relevant issues you should include. It’s all too easy to whip up a bit of a controversy with a couple of salacious columns from aggrieved people but it’s not responsible of you to do it without offering a counter point either through responsible balanced editorial comment or the right of reply of the slighted parties.”

FINANCIAL IMPOSITION

Ken Burton says: "They make it not viable financially. Maybe some technicians on duty are knowledgeable, but there are just as many that aren't. Yes there are some "fly by night" production companies, but the same goes for some of the larger in-house companies that put a complete learner in as the TOD, because they don't care. They are in-house and their job is safe. We have had large in-house companies providing full production where the on sound engineer doesn't even know their way around a basic mixer...."

WHS: THE SAFETY ANGLE

Rodney asks: "If the TOD is there to ensure a safe working environment, does that mean they carry the liability if anything bad happens? What qualifications does the TOD need to ensure a safe work environment? Would they have done a rigging course or have any real experience with rigging? Surely if they're there to ensure everything is set up safely, they first need the experience to know what isn't safe. In my experience, the majority of the time it's a junior tech with only a few years experience at best."

One poster said: While we, or our client, are being charged for a TOD, that same TOD is in another room setting up for another event and being charged to a another client. This is just "unethical".

Russell Bennett from Microhire says he doesn't want his staff taking on the legal responsibility for OH&S in a venue for a third party. "The minute you use the OHS argument and someone is then paying for it – suddenly your company can be held liable. The fact that the TOD is inadequately skilled makes it even more serious. Leave the OHS enforcement to the venue".

TOD SITS IN A CORNER

"If someone is paying for the TOD, is it unrealistic to expect them to sit in the room the whole time", asks Rodney. "Again, there's been times when the TOD has said they need to go set up another room. I was at a Sydney hotel recently with rooms spread across levels B2 up to level 6, with 1 TOD who was never where he was needed at the right time."

Finn echoes this. "I have been involved in many events where the TOD has been a junior technician who knows very little about the venue. I too was once that junior tech sitting in the corner of the hotel ballroom, just doing what he was told by the boss. It was pretty embarrassing."

Alex Buckle (comment from 2012): "I went into a venue in Melbourne earlier this year and my client was charged for two technicians during periods of the conference. The end

bill was extremely high. However in the spirit of trying to do the right thing I asked if we could utilize the TOD to make our job easier and would be able to drop the labour a bit for my client. I was expressly told "no as he could not supervise properly if he was laying a cable" this begged my response how does your technician supervise himself when laying a cable for your company? He had no answer."

YOU NEED A TECH!

Finn believes that in a lot of venues, a TOD is very necessary, "especially where the external company will be using in-house patching systems. Having someone in a venue with all the answers to the technical questions can save a hell of a lot of time on set ups, and if that person is actually pro-active, helpful, knowledgeable, and happy to 'get their hands dirty', while helping with a setup, then I believe that the TOD fees are money well spent, and I can't see a problem at all."

'S' says: "As an event producer, I continued to be frustrated by this sort – many, many tens of thousands of TOD costs later. Quite recently, for example, we had to pay \$80 an hour for a TOD who sat in the corner of the room watching a video on his laptop while listening to it with closed cup headphones for hours. On querying having to pay for this with the AV company and the venue, we were told that we should feel it was good that he was in the room and keeping an eye on things. I also had to pay \$80 for him to be out of the room having a lunch break, in the 20 hours of TOD fees."

"For balance, I do need to say that we do ask for a tech from the venue when working in some venues as we can benefit from the local knowledge. Similarly, some TOD's really do want to help and do the right thing. It is common nowadays for 10 to 20 percent of a production budget to go on TOD's. The result is that many of my colleagues have no choice but to use the in-house company."

Jedi says "the TOD are there to provide support and knowledge of the venue. As a principal the TOD MUST have knowledge of the venue and area to which they are assigned, any less than this is unacceptable."

LOL agrees. "Firstly as a Technician who worked for many years in venues I can say that at times I was put on as a TOD and it didn't make any sense to me why I was even there. Secondly other times I can say I saved the backsides of outside companies and their show went ahead properly thanks to my assistance."

Darren Russell from Elite Sound and Lighting (ACT) says if you are paying anything from \$60-\$90 per hour for a "Tech on Duty", they should be exactly that, a tech on duty. "They should assist where ever required with the bump in or out, if nothing else, they should be an extremely expensive casual



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crew person. Our culture is exactly that, if we provide a TOD and they can, they will always pitch in and help the outside contractor where ever they can."

COMPETITION

A comment from the field: "It is important that we have a choice in this industry. Competition is good for the industry. It creates quality and high standards, it is good for employee's salaries and most of all, it is good for our clients. Venues must also realize, if they only support only 1 or 2 companies in-house, eventually they will face higher prices and less commissions because they helped create an AV monopoly".

Last month **CX** reported on our Blog at cxmagblog.com:

Venues that collude with 'in house' audio visual providers to lock out external audio visual suppliers face legal action, according to Joe De Abreu, Managing Director of Austage.

"I have spoken to lawyers and after two meetings I feel that they would cost us more than the venues charge. I have also spoken at length to ACCC (Australian Competition and Consumer Commission)".

De Abreu says any event producer or AV supplier faced with excessive Technician On Duty or Supervision Fees levied by a venue or a venue in-house supplier should lodge a complaint with ACCC. He says there is an online form for this.

CX understands that a venue and an audio visual supplier who can be proven to have colluded to limit or eliminate competition may be in breach of The Competition and Consumer Act 2010 (CCA). Given the collusive nature of the arrangement between the venue (often a major hotel) and the internal audio visual supplier, ACCC may be persuaded that a boycott exists.

De Abreu says that his advice is formal complaints should be made using the ACCC online form. Any complaint needs to quantify the potential loss, and the exact nature of the imposition imposed by the venue.



PICTURED: JOE DEABREU

The comments flowed thick and fast:

Tony wants to know this. "If the TOD is to be onsite to ensure that safe practices are followed, then could somebody answer the question as to why it is only AV companies that are charged? Not Catering companies, not Exhibition companies, not Florists, not table decorators."

Andy Taylor: I guess that this will make companies like Microhire and Staging Connections think a little harder before they charge extortionate amounts to provide poorly trained and paid employees to "supervise".

As a freelancer and freelance TD/PM, I avoid recommending their venues because I know that it will help place my quote in the ballpark with the end client. And if they don't like their names being mentioned, I reserve my right to Freedom of Speech. I had a show at (a Melbourne venue) deliberately sabotaged by (a firm) and had to resort to some extreme tactics to get it across the line after they decided to pull the plug on a Fortune 500 company because I refused to translate (they couldn't understand the terminology) an engineering report for them after jumping through a variety of OH&S and "site prerequisite" hoops for three days.. This was simply a poorly veiled attempt to force my client into using their audio-visual services, despite their not having the equipment that was specified in their inventory.

It's about time that the industry rallied and stopped these corporate bullies from ignoring specific legislation under the Trade Practices Act and the Competition and Consumer Act 2010 .

The Staging Connections position

From the 2012 Blog comments area, we had this response from Tony Chamberlain - Managing Director of Staging Connections Group Limited.

Staging Connections provides a Technician On Duty style service (Venue Technical Representative - VTR) to a venue when requested to do so by the venue.

In the majority of venues where Staging Connections is requested to provide a VTR service it is for move in and move out periods only. A minimum four hour call is charged to venues in line with the Live Performance Award 2010 minimum shift requirement for full time staff. I am not familiar with coverage requirements of other venues however I am sure that you can make further enquiries in this regard.

The guidelines under which we provide a VTR service to venues include to;

- ***Be a source of venue technical knowledge for an external audio visual company and provide access and advice on areas such as the in-house patching and cabling;***
- ***Liaise with Hotel departments as necessary and be present in the relevant function room as far as practical;***
- ***Report any damage by an external audio visual company and any work practices regarded as unsafe to the venue.***

We understand the role that a VTR serves in providing advice to external audio visual companies whilst seeking to protect a venues assets. Staging Connections delivers events across Australia and utilises VTR style services charged for by venues where we are not the on-site provider.

END:

BND summed up: "So; its all been a fun debate. We have all thrown our toys around the cot for a bit but what is the end result? Joe (Austage) wants to take someone to the ACCC, we're not sure who yet because it can't be the in-house provider whilst it's the venue raising the charge. It can't be the venue because as far as I'm aware there is no limit to what arrangements they come to with their clients. It's a brave AV company hoping to be welcome in a venue that refers said venue to a statutory body for investigation when the venue can clearly show they are just trying to subscribe to the highest standards of safety for their staff and guests. It will be interesting to see where this one goes."

The CX position

We think there will and should be fair and reasonable TOD charges where a venue has a professionally operated technical production team with installed equipment. If we arrived with a truck full of equipment, and sought to put that in or around already installed gear, the house technician 'TOD' should be there to assist us.

TOD fees should NOT be applied unfairly.

A TOD should be knowledgeable and competent to assist guest contractors deliver the best show for the venue clients.

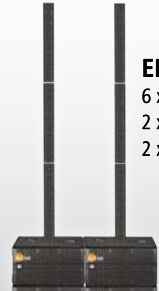
Venues that abuse that principle are abusing their customers. Make this very clear all the way up the line, to the venue manager and be sure it is firm and reasonable, in writing, without emotional overtones.

External contractors, AV firms, Production Suppliers that feel they have been unfairly treated, where the reason is obviously a restraint of trade, should properly document the problem on the ACCC online form at accc.gov.au and search 'small business complaint'.

Those that wish to workshop this may contact Joe De Abreu from Austage at joe.d@austage.com.au

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JUNE
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SKILLS

GUY SEBASTIAN

TOOL

BIRDY

BY CAT STROM

Guy Sebastian PHOTOGRAPHER - Troy Constable

Tool PHOTOGRAPHER - Bob King

Birdy PHOTOGRAPHER - Thomas Goode



GUY SEBASTIAN -

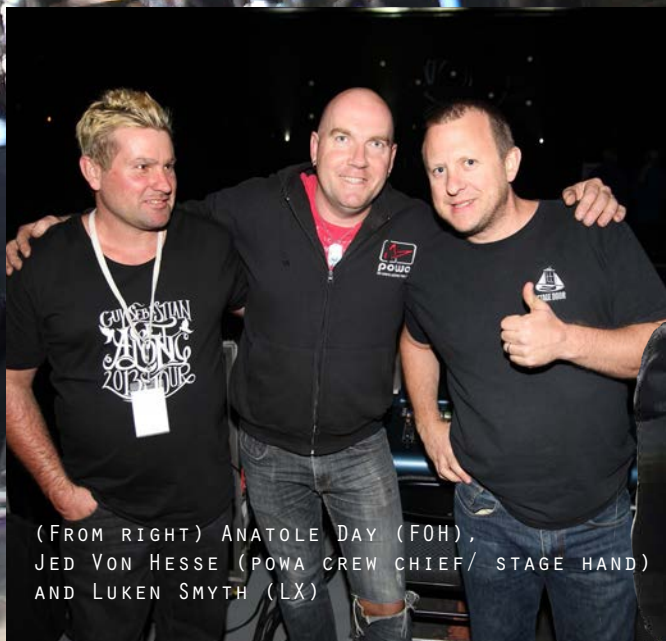
***ALMOST CERTAINLY PLAYING AT A
VENUE SOMEWHERE NEAR YOU!***

GUY SEBASTIAN HAS EMBARKED ON HIS BIGGEST TOUR YET PLAYING NEARLY 50 SHOWS AS PART OF HIS REGIONAL TOUR. AFTER NINE SUCCESSFUL YEARS, GUY HAS EARNED A PLACE IN AUSTRALIAN MUSIC HISTORY AS THE AUSTRALIAN MALE ARTIST WITH THE MOST NUMBER ONE SINGLES. ENTITLED THE 'GET ALONG' TOUR ALL OF THE PRODUCTION HAS BEEN SUPPLIED BY POWA PRODUCTIONS.

Anatole Day is both production manager and FOH engineer on the tour which is carrying an EV X-array, and an EV XLC PA system, however in many of the city venues it's easier to use the in house PA so at Sydney's Hordern Pavilion they used JPJ Audio's L'Acoustics rig.

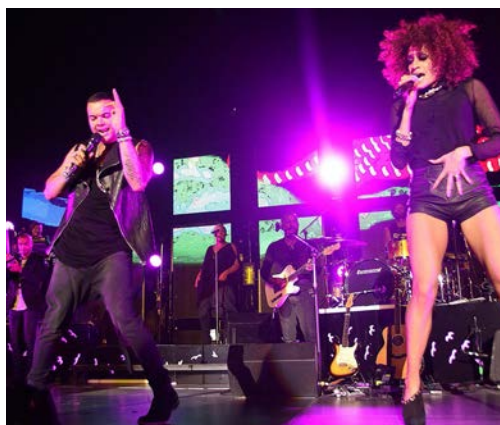
"To pull out the larger PA's in order to install ours causes too many headaches," commented Anatole. "In the regional venues the PA's are usually insufficient. The X-array is good because you can either ground stack it or fly it whereas most line arrays don't sound so crash hot when they are ground stacked. In a lot of the regional venues you just can't fly the PA. However, the XLC array lets us fly the rig when ground stacking is not really an option. Carrying a ground stackable PA as well as a flown line array covers all bases."

GUY SEBASTIAN



(FROM RIGHT) ANATOLE DAY (FOH),
JED VON HESSE (POWA CREW CHIEF/ STAGE HAND)
AND LUKEN SMYTH (LX)

GUY SEBASTIAN



With the FOH console Anatole is not particularly fussy, usually happy to take what is on offer - in fact he is more likely to say what he doesn't want.

"I don't want to specify a particular console as it pushes the price up," he said. "It means we are limited to whatever the production company has but that's usually fine. In this case I have a Midas Pro 2 console, which is great and sounds very nice. Most top line consoles are easy enough to work around and sound pretty decent."

Anatole describes the Midas Pro 2 console as fiddly to set up compared to some other consoles however once it is set up the way you want it, it's actual operation is very easy and it sounds better than most consoles.

"I'm using the internal effects and dynamics as in a lot of these venues there's no space for external outboard gear," he added. "Not that it's really necessary as the internal stuff is good enough for what I want to do anyway. I'm running six effects engines: a reverb dedicated to the drums, a reverb and a chorus dedicated to some of the acoustic instruments and then three effects just dedicated to the vocals."

A Midas Pro 6 takes care of monitors utilising 32 monitor sends whilst everyone except for one guest vocalist uses in ear monitors. As Guy is a Sennheiser endorser, Sennheiser EW300 G3 Ears are used and Guy also uses a Sennheiser microphone with a Neumann KK205 capsule.

"Guy has one of the most powerful and loud voices I have ever worked with so the first step you have to do is make sure that his radio mic isn't going to clip," remarked Anatole. "It's easy enough for me to yell into it and it'll be at a comfortable level but Guy will come along and sing into it a good 3 to 4 dB louder."

As Guy has been working with the same band and crew for so long, production do not find it necessary to have a sound check.

"For FOH mix, it's not a typical rock band where you want the guitars and vocals sitting together; it's more of a pop / soul thing where you want the vocals to be pretty present. I get the band sitting nicely together and then sit his vocal on top. The audience want to hear the vocals, so they can sing along with the lyrics."

Bruce Ramus has designed the set, visuals and lighting for Guy's tour with Luken Smyth out on the road with the

production. Bruce has designed the show around what equipment he knows that Powa Productions stocks.

Central to the visuals are the eighty-four Vuepix M10 mesh LED screens running content via an Arkaos media server. All images are custom made by Bruce including hand drawn animation, photo montages made into videos, folded paper montages and animations using particle generation as well as more traditional video.

"It's a wide range of imagery from figurative to narrative and it's as diverse as Guy's music," remarked Bruce. "There are nine video pieces in the show whilst the rest is lighting and some set pieces we designed for the acoustic section."

Bruce's lighting integrates seamlessly with the video content particularly as there are large gaps in between each screen panel, vertically and horizontally, with lights housed within. Robe Robin MMX spots are used for back and top light, Robe 700AT profiles are on the front truss for front light and Robe Robin 600 LED wash lights are the workhorse of the rig dotted around the video panels.

"The Robe Robin 600 LED wash lights are very bright and have lovely colours," said Bruce. "I really like those fixtures, they're very useful."

The show builds slowly over the first three songs starting with Guy lit only by one Robe Robin 600 for the whole first song. It's a nice tease with the audience having to wait just a little bit longer to see Guy.

"We do that so that the audience can feel him before they see him," commented Bruce.

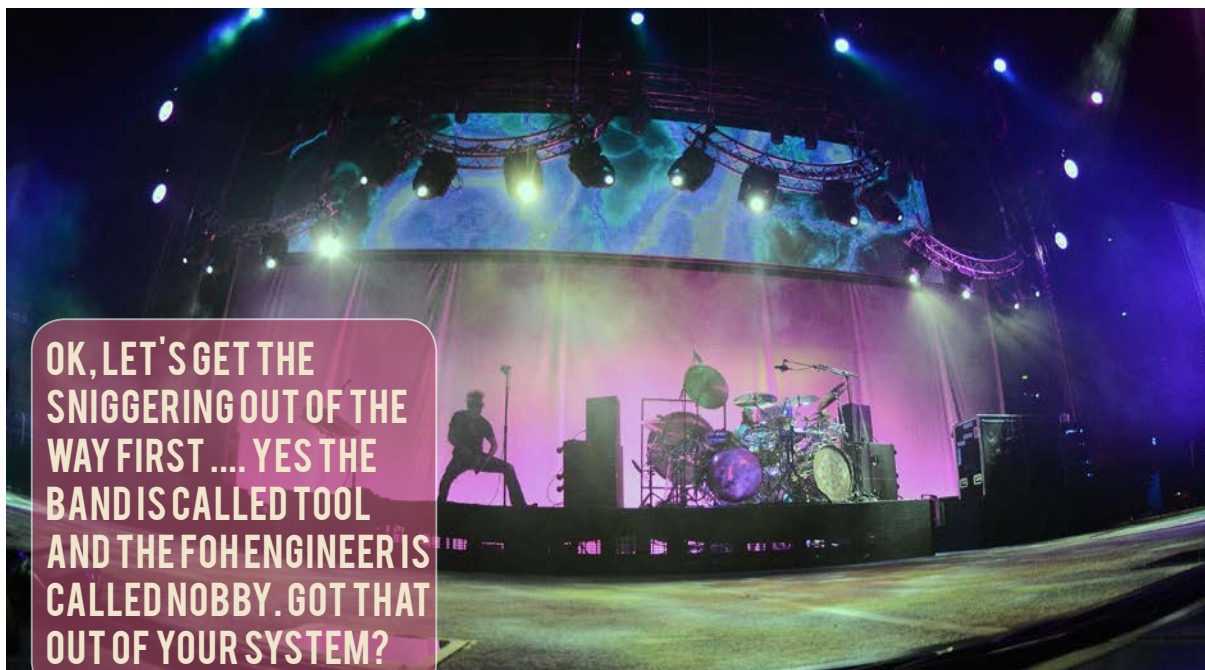
Also in the rig are Martin Atomic Scrollers, LED PARs lighting the doves on the front of the set and thirty-two Pro Shop LED Tubes embedded horizontally and vertically into the LED screens from where they can 'outline' the screens in a sparse pattern.

ETC Source Fours are situated on vertical lighting poles within the gaps between the screens enabling an interesting switch from LED digital to tungsten. Lowell Omni's are used for footlight and 1K nook lights for blinders and a general tungsten vibe. Strings of egg strobes were loomed into strings of festoon lights.

For control a High End Systems Hog4 lighting console, with an Avolite Diamond 4 for back up, was chosen.

"It's the console that made the most sense for this job," added Bruce. "Towards the end of my programming life I was a Hog3 user so it made sense to go that way."





OK, LET'S GET THE
SNIGGERING OUT OF THE
WAY FIRST YES THE
BAND IS CALLED TOOL
AND THE FOH ENGINEER IS
CALLED NOBBY. GOT THAT
OUT OF YOUR SYSTEM?

TOOL

Nobby - aka Alan Hopkinson - hails from the UK and has been in the audio business for a few decades.

Cutting his teeth on artists such as Joan Armatrading, Nobby has somehow found himself working in the heavier side of music with his other regular client being System of a Down.

"It's completely unfair but it happens!" he laughed. Tool's Australia and New Zealand tour was not part of a

world tour, more a foray down under with a couple of dates in Japan. JPJ Audio supplied the gear and crew including Tristan Johnston as the system tech.

"I've known Tristan for years and he's a great system tech," said Nobby. "I always ask for him as he's great at time aligning and that sort of thing. That's the thing with line arrays, they have to be set up properly. In the old days you could stack boxes and as long as its front was together then



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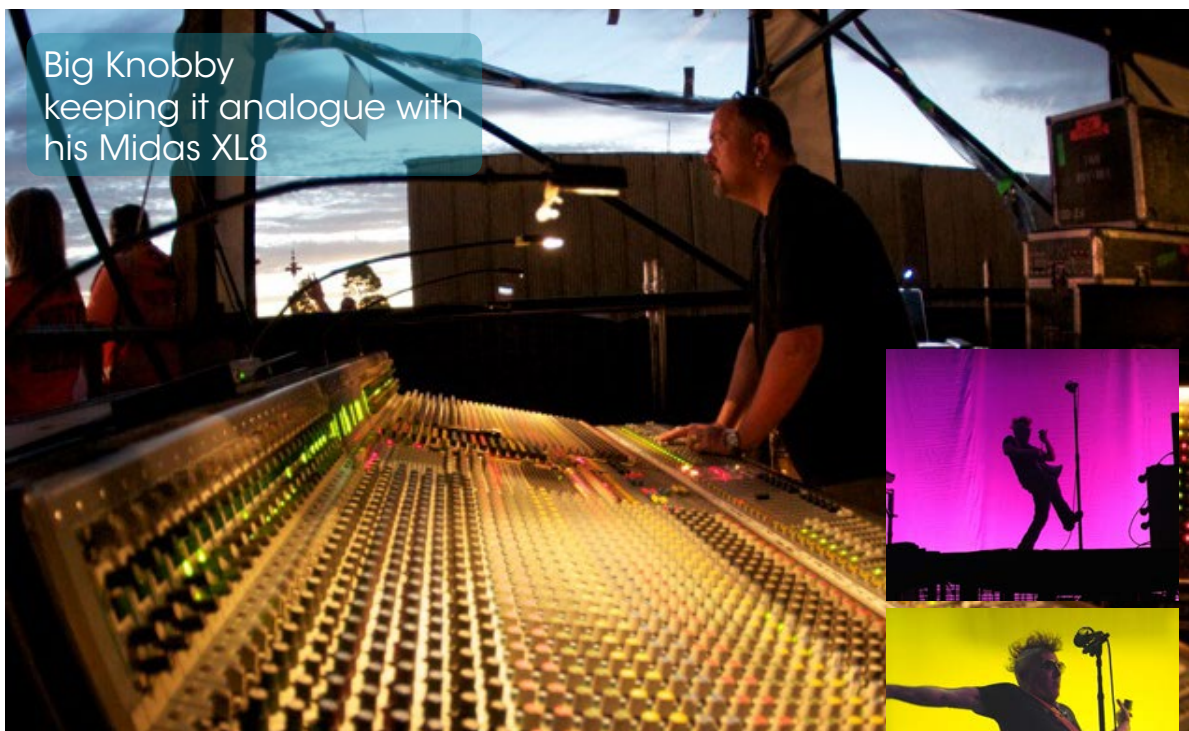
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TOOL

Big Kobby
keeping it analogue with
his Midas XL8



they were in phase. Tristan is very experienced with all line arrays and is used to dealing with every situation and attitude!”

The line array for this tour was the d&b audiotechnik J-Series, Nobby’s favourite at the moment but as he points out this can easily change as new products come onto the market.

“My theory is that you can never stop looking,” he said. “I remember the first time I used a JBL VerTec system in 2001 with Tool in Australia. Jands supplied the cabinets but used their own sub bins that were amazing. However when I first walked into the entertainment centre and saw these eighteen little boxes in the air, I thought there was no way they were going to do what I needed. But I was absolutely stunned, it was the best sounding VerTec system I have ever heard. From there we have evolved and today I prefer the d&b audiotechnik J-Series although I used a L’Acoustics K1 recently and that was great too. Plus I hear Martin’s new system is insane so you never know what I’ll prefer next month!”

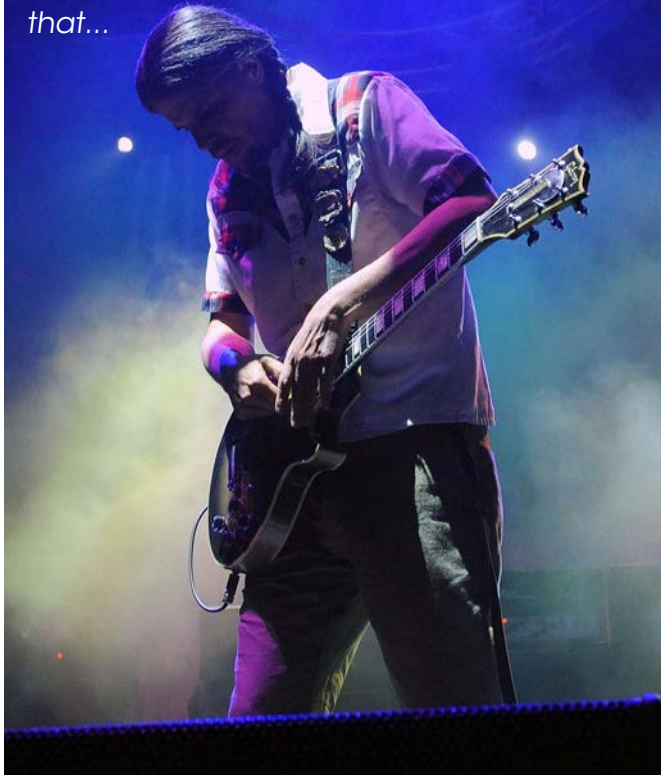
FOH, Nobby was using an analogue Midas XL4 console plus a large list of effects resulting in a FOH layout rarely seen in these digital days.

“We tried using a digital console last year but there were certain areas that just did not sit right,” commented Nobby. “They’re a very percussive band and there’s a lot going on for four people on stage. It’s really important to get the dynamics from the quietest bits to the loudest bits and for some reason, digital just wasn’t right. It was quite frustrating not to be able to succeed with digital.”

As a result Nobby’s FOH set up looks almost archaic with the XL4, Drawmer noise gates, dbx compressor/limiters, an Avalon valve compressor, TC Electronics digital delays, a Klark Teknik graphic equaliser, an Alan Smart compressor, Summit compressors well you get the picture. But it works for the band and that’s what matters. Fortunately the band carry the Midas XL4 console with them so Nobby doesn’t have to dial in his preferences at every gig.



"The biggest compliment I have received whilst mixing Tool was from a punter who said they could feel their kidneys move but still talk to their mate," he said. "I loved that..."



TOOL

Does Nobby mix the band loud? He replies that you'd have to ask everyone else.

"The biggest compliment I have received whilst mixing Tool was from a punter who said they could feel their kidneys move but still talk to their mate," he said. "I loved that. It's pumping through you but you can still communicate with the person next to you even though you don't understand how that is possible. There are many different styles of mixing and there is no one correct way."

Tool's last album featured a song called Jambi which utilised a Talk Box created by Bob Heil in 1973, and has been frequently used by musicians such as Peter Dinklage, Joe Walsh and Richie Sambora, and is still in use today.

"Bob makes his own microphones (Heil Sound) which work on a very large diaphragm theory and we actually use them on kicks, all the guitars and all the bass lines as well," added Nobby. "They're different - very warm and bigger - plus the large diaphragms also reduce distortion. Added to them are some pretty standard microphones- Shure, AKG, Audio Technica - with a lot of overheads."

Not surprisingly the band prefer to use wedges with only the lead singer using Sennheiser in-ears. Monitor engineer Pasi Hara used a Midas PRO9 digital console.



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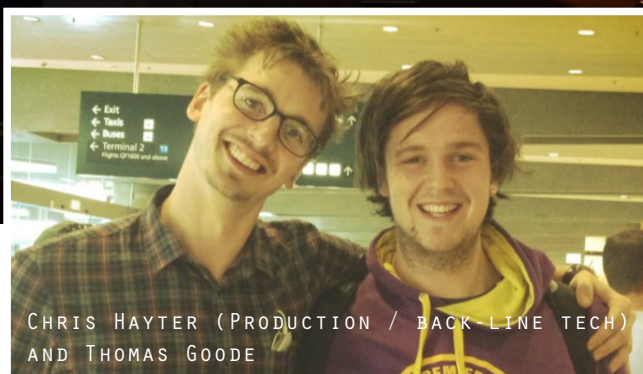
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BIRDY

BIRDY FLIES
iNTO AUSTRALIA

BIRDY, AKA JASMIN VANDEN BOGAERDE, HAS FINISHED HER FIRST TOUR OF AUSTRALIA OFF THE BACK OF THE INCREDIBLE SUCCESS OF HER DEBUT SELF-TITLED ALBUM THAT HAS NOW REACHED DOUBLE PLATINUM SALES. THE PERFORMANCE FROM THE SIXTEEN YEAR OLD BRITISH SINGER WAS VERY FITTING FOR SUCH A SOPHISTICATED AND ELEGANT VENUE LIKE THE SYDNEY OPERA HOUSE.



CHRIS HAYTER (PRODUCTION / BACK-LINE TECH)
AND THOMAS GOODE

Her lighting was designed by Rob Sinclair with Thomas Goode out on the road as lighting director. The rig (supplied by Chameleon Touring Systems) was a larger adaptation of last year's European tour and the most noticeable element was the thirty-two hanging light bulbs that looked beautiful but were tricky to tour.

"When you hang them on the truss obviously the truss is lowered and you have to make sure that people aren't treading on them!" stated Thomas. "They are quite fragile and in Australia we had them just in their cardboard boxes whereas in Europe they had their own flight case. The other problem in Australia was that they were 200 watt bulbs and we were worried that if we used them too much it would melt the bulb holder!"

The hanging light bulbs are not used in every song and tend to 'glow' more than they are on in full, emulating candle light.



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BIRDY



BIRDY

Seventeen Martin MAC Vipers are the only moving lights element chosen for their ability to be placed easily on the floor, their brightness, their fresh gobos and Thomas' favourite feature - their CTO. However there were only two movement effects and three gobo effects throughout the show.

Eight of the Vipers were situated on the floor between the backdrop and the gauze enabling up lighting of the back drop to shine through the gauze. The backdrop (depicting the album cover), legs, and gauze were made to order from UK company Hangman. A gobo of the Birdy logo and one of Birdy herself also travels with them.

ETC Source 4's were on the front truss and also used as back light for each band member from the mid truss. Red heads placed on small Manfrotto stands were scattered around the stage for side lighting.

"The Redheads meant that we could light everyone onstage when the hanging bulbs were in action with no distracting overhead beams," explained Thomas.

For control Thomas used an Avolites Pearl Expert console which he described as being perfect for the Birdy show.

"The show isn't complicated as such but has loads of little fine changes in it, which the Pearl deals with really well," he said. "It's just so easy for what we are doing."

JPJ Audio supplied audio gear for the show including a Midas Pro2C console for FOH engineer Jimmy Nicholson who also had a Klark Teknik DN9650 with Dante module for multi-track recording, Lake processing for system drive and channel insert EQs.

A Midas Pro2 also took care of monitors with a Klark Teknik Rapide GEQ controller, L'Acoustics 115XT wedges and an L'Acoustics dV-Sub.

Birdy and Rosie (BV's) used Neumann KMS104 and KMS105 microphones respectively, and the rest of the stage featured a number of Sennheiser microphones (901, 902, 904, 906, 935/945, KM184) and Avalon U5 DI boxes.



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BIZ TALK

INSURANCE... THE LESSER OF TWO EVILS?

By Julius Grafton

At the height of the GFC I bought a dream home with wife # 3 (now discontinued) with a ridiculously leveraged mortgage - grudgingly extended by a major bank. Two days before settlement they changed the terms. Because they could. Instead of capitalising the mortgage insurance (which means adding it to the value of the loan), they required it be paid up front. A nasty 20 grand surprise, and not a sorry in sight.

That is the first insurance we will detail here. Mortgage Insurance does not protect the buyer. It protects the lender. Only after the loan defaults and the bank throws you and your family to the wolves, does the mortgage insurer wake up and have a look. Then after the place has been sold, and you've been plunged into bankruptcy by your inability to pay any deficit between money raised and mortgage owed, the insurer begrudgingly supposedly pays the bank.

It is the most useless insurance known to humanity. My take on this is the bank owns the insurer and treats it as a profit centre. Banks usually demand this if the valuation at settlement denies them a clear 20% equity buffer. In other words, you didn't have at least 20% deposit clear of stamp duty and costs; AND the purchase price matched or bettered the banks formal valuation. Tough luck if they value the joint a titch under what you pay.

Yes really: you can be jabbed for this if you fall short. In which case sometimes it is better to top up your deposit than pay the useless premium.

Buoyed by my acumen in actually getting the finance, despite operating the amazing loss making Julius Events College at the time, I plunged deep into the insurance pond to protect #3 should I expire prematurely. Us media types have lower life expectancy, what with the booze and the possibility of a hit in a dark alley.

My super fund graciously insured my life for \$2 million. It also bought me disability cover where if I survived The Hit and needed time to recover, I would receive a percentage of my taxable income. Except that my taxable income wasn't enough. Don't ask. So we found a cover that granted a fixed amount per week, sufficient to pay that astronomic mortgage and keep said wife in beer. I needed a medical for both of these, so a nurse rolled up to the mansion at 6.45am on a Saturday to take blood. Strangely they accepted me.

PROFESSIONAL IDEMNTY

Running a college I was required to hold Professional Indemnity insurance. It would fund a defence if I gave bad teaching and a student committed an act of insanity while pleading they were taught by me not to put safety lines on flown gear. Such equipment fell and killed someone. Student sued me.



It never happened of course, since our teaching was so excellent that no one mistook practices or caused mayhem out there. But we were required to hold this expensive, annoying insurance that required a lot of disclosures.

DISCLOSURES AND EXEMPTIONS

Now to the entirely optional world of claim settlements where the loss adjuster has a slow look at everything and they rake over the disclosures on your application. Then they seek to apply the exemptions and exclusions that are nested on page 93 of the terms in four-point type.

One clanger of disclosure is insured value. Imagine we are insuring equipment or business assets. The premium is based on the amount covered. Say you've told them you have \$1 million worth of things in the warehouse. The policy says they will only pay a maximum of \$100,000 for theft, or a million for a fire.

You get cleaned out. You claim. They want to see proof of ownership of everything – that can be a problem! Then they want to see your balance sheet. What's this? The book value of your stuff is \$1.2 million. Hey, you're under insured! We won't pay you \$100,000 (and the thieves stole everything). Because you understated your assets by 20%, we will pay you 20% less than 100 grand! Less the excess. Less the balance of the policy due amount, because you are paying by the month.

Worst of all, it takes five months to get the money. Plus you've PAID for \$1 million worth of cover (fire) but had the payout of a maximum of \$100k reduced!

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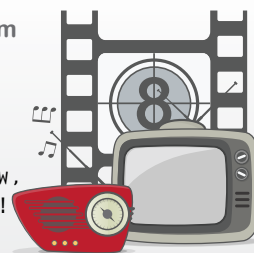
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BLOGBOX

DENIAL OF CLAIM

I once had a truck insured with Union des Assurances De Paris. The broker thought it was a good idea. His commission was higher. The premium was cheaper. We found out why when we made a claim because Brick slammed into a Merc while wide on wakeup powder.

Transpires we inverted the rego number on the claim form – JCN-512 on the paperwork was actually JNC-512 on the truck rego. Claim denied! We took them to court and lost.

An insurance company owes its allegiances to its shareholders. They require the firm mitigate its exposure, and pay as a last resort. There is no real statutory timeframe to settle a claim.

NRMA paid out when son in law took the CX SUV up the beach and became airborne over a washaway. When the thing landed hard, to the excited squeals from daughter and grandkids, the bottom of the radiator was breeched and three minutes later the motor seized. It took many diligent calls to the loss adjusters over eight weeks to get the claim paid and the engine replaced. The policy was clear enough – it was an impact that caused damage, not Nathan missing seeing the temperature light....

The dealership has seen this before, being nearest to that coastal beach with car access. They told us an identical claim was denied by another large insurer, and that a 60 grand 4WD was sitting in the yard while the owners scraped together 15 grand for a new motor.

INSIDIOUS INSURANCE

Pondering the empty retail shops on Darling Street Balmain, our friend advised the culprit was Lease Insurance. Say what?

Landlord could reduce the rent, but chooses to rely on the Lease Insurance. Retailer is evicted, shop sits empty for the duration of the lease with dirty windows and a pile of mail in the door. The 'To Rent' sign is just a formality, since no one will meet the current, insured, rent!

LOSS OF PROFIT

Usually when buying Fire and Theft (premises) and a Marine Policy (goods in transit), the broker may helpfully upsell Loss Of Profit insurance. This supposedly contributes most of the foregone gross profit for your enterprise while you relocate after the fire or meteorite strike.

Good luck quantifying gross profit – your accountant and the loss adjustor team of specialists will butt heads for many expensive days and disagree. You'll be offered a settlement that reeks, and when you refuse to sign face the last resort of court.

Insurers generally know all about your financial position, and when unable to finance court action you are putty in their hands.

Sorry to be such a party pooper, welcome to 'Run Your Own Business', 2013 version.

THE ADVICE GIVEN HERE IS GENERAL IN NATURE.
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Good Safety vs Bad Safety

Isn't all safety good? Not necessarily. Too often safety is being used as an excuse to implement unpopular 'rules' disguised as safety.

Bad safety is where the only important part is the safety of the company's bank account by focussing on avoiding fines and pushing blame elsewhere. Bad safety happens as the result of 'over the top' paperwork or unrealistic work procedures. Who in their right mind can expect any employee to memorise a 600 page 'Safety Manual'? Or follow Safe Work Procedures written by someone in an office who never actually did the job? These things may all look very good and important for the board and the CEO, it doesn't do anything to improve the safety attitude within the company or on the workfloor. Clear examples of such companies are where the paperwork is based on negatives; don't do this and don't do that, rather than providing guidance; do it like this or do it like that. Negatives are always clear indicators that the paperwork only serves compliance.

Bad safety is where the aim is compliance only. Compliance with the WHS legislation is a starting point and should never be the ultimate goal. Likewise the companies who buy an 'off the shelf' Safety Management Plan because they can't be bothered actually spending the time or energy to look at it seriously but they need something to satisfy their corporate clients. And that's how audio companies end up with an asbestos removal policy in their Safety Management Plan.

The problem with these 'template' policies is that it rarely has any relation with the work being done. As a result the policies are usually unworkable and quickly discarded as, rightly, stupid. And that's where things then get messy if anything goes wrong. The company, incorrectly, assumes that they can point to the document and put all the blame in the workers' court. They are in for a surprise. If you work for, or manage, a company with a 'template' Safety Management Plan, please have a read of this link : <http://www.nortonrose.com/au/knowledge/publications/72874/warning-is-your-use-of-an-off-the-shelf-safety-system-compliant-with-the-model-work-health-and-safety-act>

Consultation is one of the core elements of the WHS legislation. And consultation is the basis of a sensible and relevant Safety Management System.

Good safety is based on co-operation between all the people involved. Realistic safety plans are built from the floor up and being nurtured from the top down, never the other way around.

Work Health and Safety Act 2011

47 Duty to consult workers

(1) The person conducting a business or undertaking must, so far as is reasonably practicable, consult, in accordance with this Division and the regulations, with workers who carry out work for the business or undertaking who are, or are likely to be, directly affected by a matter relating to work health or safety.

And if you think about it, it makes perfect sense. If anybody knows how to do a job safely, it will be the people doing the job. Nobody goes to work with the intent to hurt or kill themselves. And by involving the people who have to follow the policies from the start makes it much easier to implement them because people understand where it all came from and what the purpose is. It also means that people can make safe adjustments if circumstances change, as they often will.

Good safety is understanding that safety is a living, breathing aspect of the company that needs to be looked after on a regular basis. It is not enough to have a set of Safe Work Method Statements and Standard Operating Procedures and be done with it. Both the company and the workers have a duty to make sure all this paperwork is relevant and up-to-date.

Good safety is having a system that encourages people to make suggestions about how things can be done better and safer. Good safety is an environment where people feel confident they can raise safety concerns without ridicule or being made a scapegoat.

Work Health and Safety Act 2011

48 Nature of consultation

(1) Consultation under this Division requires:

- (a) that relevant information about the matter is shared with workers, and
- (b) that workers be given a reasonable opportunity:
 - (i) to express their views and to raise work health or safety issues in relation to the matter, and
 - (ii) to contribute to the decision-making process relating to the matter, and
- (c) that the views of workers are taken into account by the person conducting the business or undertaking, and
- (d) that the workers consulted are advised of the outcome of the consultation in a timely manner.

Good safety is about communication and finding solutions. Saying 'No' and mumbling something about health, safety and some Australian Standard number is bad safety. No is usually the response from someone who either doesn't understand the legislation, is too lazy to have a good look at

the problem or utterly inept, or a combination of the above. The only time 'no' can be an acceptable answer is when there isn't the time or the budget to do it safely after careful consideration and consultation.

Good safety encourages people to be creative and together work out a sensible solution. We work in a creative environment with a huge potential for sensible and safe solutions to make just about anything possible. Good safety is nurturing that knowledge and experience to do incredible things. Good safety is looking at things as a challenge rather than a roadblock.

What makes good safety hard is that it is often difficult to find answers to questions. Rarely will there be a straightforward answer, it is more likely that you need to consult several documents, Australian Standards and then try to make some sense out of them. One of the aims of the Event Safety Alliance Australia is to assist in finding those answers. The solution the ESAA is looking at, at the moment, is the Australian adaption of the UK 'Event Safety Guide' commonly known as the Purple Guide. The Event Safety Alliance in the USA has already published the American version and the aim is to have consistent safety solutions around the world. How great would it be when you are on tour overseas or working with an overseas act here and everyone is working with the some guidelines!

As explained above, good safety is based on consultation and that is what we want to do with the Australian Event Safety Guide, consult with everyone who may be affected by it.

The whole Event Safety Guide is available from the Event Safety Alliance Australia website (<http://www.eventsafetyalliance.org.au/purple.html>). You can download the complete guide or any of the chapters separately.

As a member you will have access to the ESAA discussion forum where you can upload changes, suggestions and additions for the Australian Event Safety Guide. If you don't want to become a member yet, but still would like to contribute, send us an email (info@eventsafetyalliance.org.au) with any helpful suggestions.

This is everyone's chance to make a difference in how we can work safely and happily in Australia. Be part of the solution!

The ESAA will host a forum at Entech on Wednesday 24 July at 12:30pm. Please join us and ask all those difficult questions about safety for Events (<http://www.entechshow.com.au/seminars2>)

For Asian readers, Roderick van Gelder will also give a presentation at PALME Asia in Singapore on 18 July about Safety in the Entertainment Industry. (http://palmeseries.com/asia/index.php?option=com_content&view=article&id=103&Itemid=240)

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If it were not so serious you would laugh.....



Australian Commercial & Entertainment Technologies Association

Last month we promised an update on the wireless audio issue.

We can say it has been a pretty big few weeks except if you are Stephen Conroy, the Minister for Broadband, Communications and the Digital Economy, where things didn't go entirely to plan.

During early May the auction for the digital dividend spectrum finally took place but things weren't as he had hoped. The auction yield was nearly \$1 billion less than Minister Conroy predicted, with the sale price being just less than \$2 billion with Telstra, Optus and TPG the only bidders. Vodafone declined the opportunity to bid and neither Telstra nor Optus bid for the maximum amount.

At this stage there remains something like 30MHz (around 25%) of the digital dividend unallocated.

All in all this has to be another disappointment for the Government and the shortfall will just add to the deficit as the value of the spectrum sale, slated in the Forward Estimates at more than \$3 billion, as Conroy predicted, is due to be deposited into Treasury coffers by about September next year. They can now bank on just \$1.96 billion in inflows.

So at a time when we thought all but two or three questions regarding the digital dividend and wireless audio might be resolved, we actually have more questions to deal with.

The obvious ones are:

What happens to the unsold spectrum?

Where precisely is the unsold spectrum?

Can it continue to be used in the interim?

These are three questions the ACMA and the Minister were not expecting to answer.

Unfortunately we don't know the answers yet.

Maybe AWAG's recent efforts haven't helped the Government.

In early March there was an opportunity to object to a small legislative change that would have allowed the successful bidders the opportunity to take possession of parts of the spectrum prior to the completion of the transition, that is prior to December 31st 2013.

As a result of AWAG's objections this otherwise simple piece of legislation was forced to Committee, which is a joint group of Labor, Coalition and Independent politicians.

The Committee asked some of the specialist spectrum management staff from the ACMA and key bureaucrats from the Department of Broadband to provide them with answers to AWAG's objections.

The Hansard of this meeting is too long to re-print here but there were some astonishing interchanges between the Committee and the representative from the ACMA. Such as:

"The wireless microphone operators operate in that spectrum without licensing and in the white spaces, so our primary focus is on the broadcasters". Nerida O'Loughlin, Deputy Secretary, Broadcasting and Digital Switchover, Department of Broadband, Communications and the Digital Economy

Plainly wrong. Wireless audio devices operate under a class licence and have done so for more than a decade. There have been at least nine amendments to the class licence over the years and the misuse of a wireless audio device carries sanctions that can include fines and jail time.

In answering a question on the availability of frequency agile radio mics...

"Yes, absolutely. If any group using such equipment had a concern, I would have expected that their first step—and this is something they could have done over the last two or three years, not even now going forward—would be to contact their suppliers about whether they even have a problem. So the suppliers of the many different kinds of equipment are a key source of information on this." Mr Giles Tanner, General Manager, Digital Transition Division, Australian Communications and Media Authority

What Mr Tanner fails to recognise is that firstly most users do not know they have an issue with these devices because the Government to date has refused to undertake an education or communications plan. Why would they approach their suppliers when they do not know they have a problem?

"Our next step is to work with AWAG and others to make sure we have the right communication in the market about what needs to be done". Ms O'Loughlin again.

Our next step is to work with AWAG. Really? AWAG have been in dialogue with the ACMA and DBCDE since 2007. That is six years, thousands of pages of writing, a meeting roughly every six months and their next step is to work with AWAG? Laughable.

We won't go on any further on this but I think we have made the point. You can look at the full Hansard transcript and the AWAG response by visiting the ACETA website <http://www.aceta.org.au/awag> along with AWAG's original submission and response to the Communications Committee.

More recently we have turned our attention to the telcos, who are the new, or soon to be new, owners of the spectrum currently occupied by up to 150,000 wireless audio devices. Do they know that the spectrum they have just purchased is already occupied? Do they know that the Government, despite taking \$1.96 billion from them for the use of the spectrum from January 1st 2015 has done precisely nothing to encourage or communicate to wireless audio users to vacate that space?

We thought they should know so we wrote to each of the winning bidders, Mr David Thodey of Telstra, Mr David Teoh of TPG and Mr Kevin Russell of Optus.

The link to view the letter to Mr Russell:
www.aceta.org.au/awag

Some in the sector would say that the auction failure will make it harder for the Government to support a communications program, let alone a compensation package. That might be so, but the fat lady hasn't finished singing on this one yet. We have an election four months away and the digital dividend transition is just 18 months away. The problem caused by the Government through lack of attention and consideration to wireless audio users is not going away. Just who gets to fix it though? Conroy or Turnbull? That might be the next big question we need answered.



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GENERAL SERVICES

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Community Services Database
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W: www.crisissupport.org.au/jigsaw

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Centrelink ☎ (8am-5pm)
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Employment Services T: 13 2850
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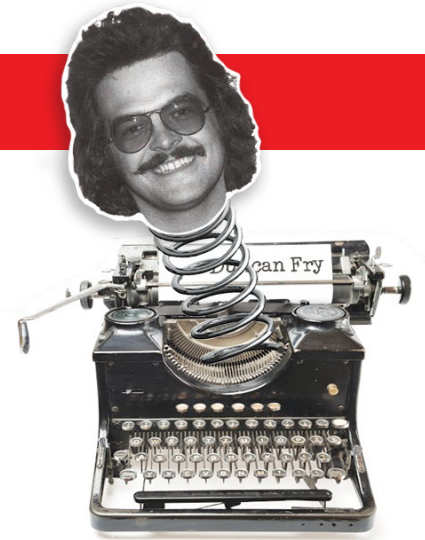
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Body Damage

Bike riding's good for you – as long as you stay on the bike!

I've been lucky with health. Thanks to immunisation I never had any ghastly diseases like diptheria, whooping cough, rubella or polio. As a kid I never broke any teeth, never broke an arm falling off the monkey bars at school, probably because there weren't any! In fact we considered it sheer luxury to even have a small space in which to crouch and play marbles. Cue Monty Python and the Four Yorkshiremen, saying "Looxury – we used to live in paper bag in t'middle of road, etc,etc".

Regular readers of this column (who are they? Ed) might realise that usually around this time of the year I've written a review of the more arcane and humorous aspects of the annual Pro Light and Sound exhibition held in Frankfurt, Germany. Not this year, though, as due to circumstances way beyond my control I wasn't in a fit condition to make it there and back.

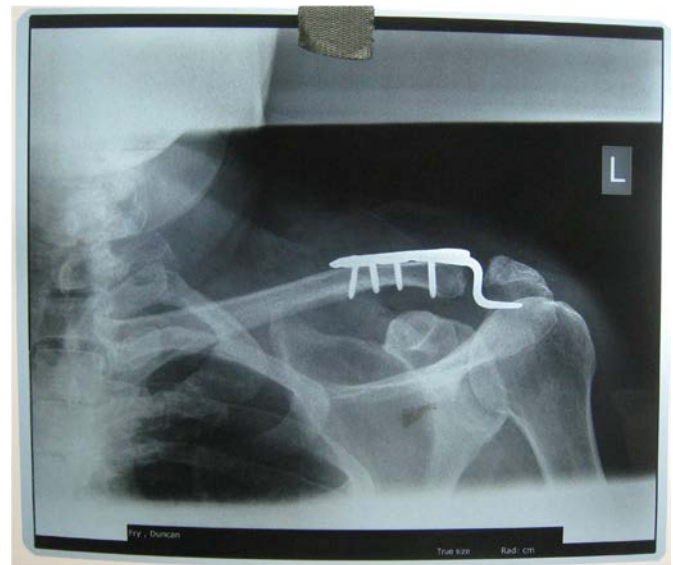
What's this, I hear you say, had old Dunk ingested one too many glasses of lunatic soup and couldn't make it to a vertical position? No, in fact even worse.

On the Saturday two weeks before the exhibition, I was out riding my bike, along with my gf and Andy from work. We were pedalling down to Frankston, a Bayside suburb south of Melbourne (cruelly nicknamed Franghanistan) and then back home again. It's a very popular cruisey bike ride (around 60k) with a nasty hill in Frankston to make it interesting. At 8am the traffic is minimal, apart from other bike riders, and it's a very pleasant way to keep fit.

But as we often say at work, it only takes a millisecond for things to go from good to sh**!

The last thing I remember was sliding into Andy's back wheel when we were a couple of k out of the town. Everything else I only know from being told to me by other people, since I was lying unconscious on the road!

It turns out that suddenly, without any warning at all, a woman ran out onto the road in front of us without looking. She looked around and then saw us, and yelled out "Stop, stop!" We all jammed on the brakes, thinking there must be an emergency, and crashed into each other to avoid her. The



others were bruised and scratched, but I got 'one with the lot' and hit the road as well, head and shoulder first!

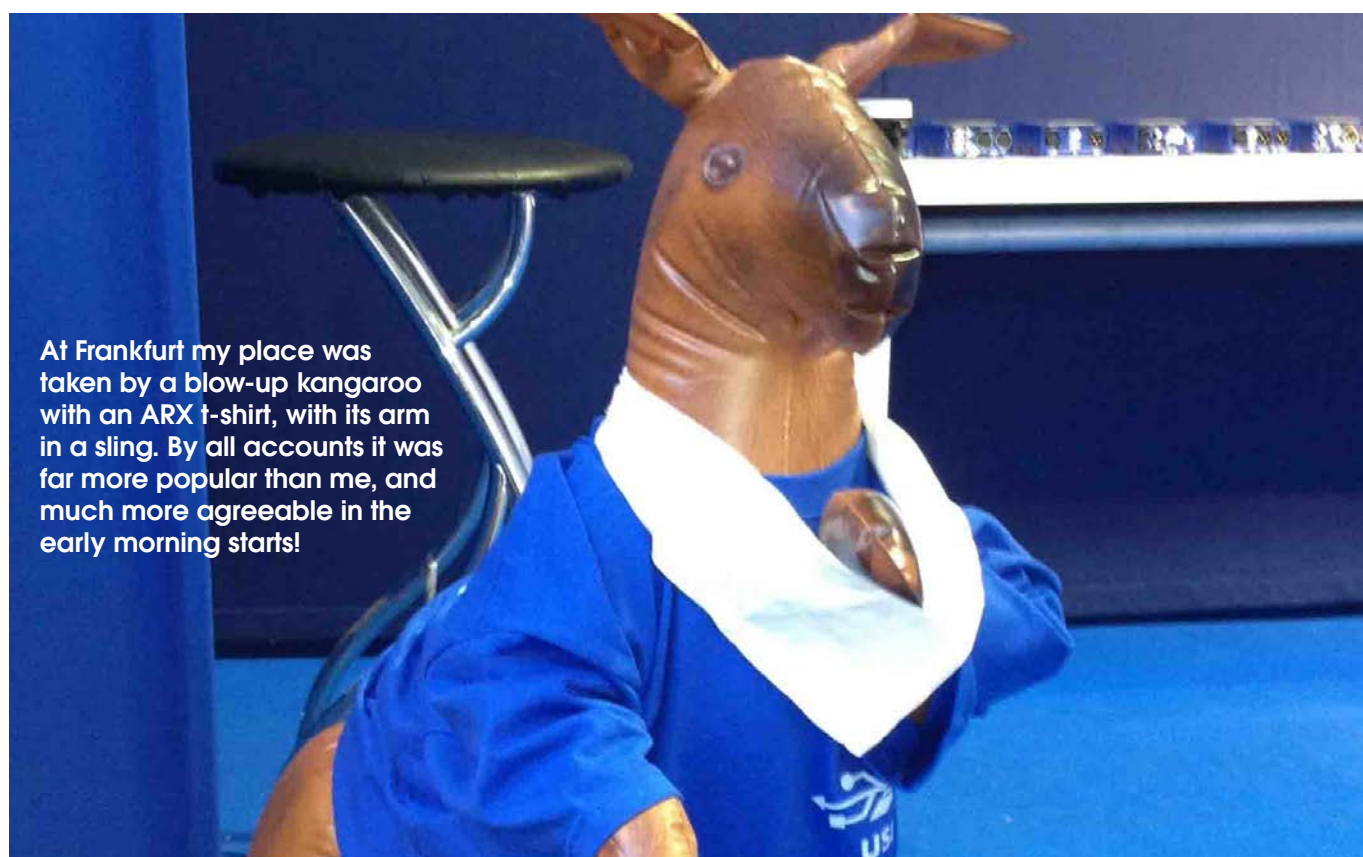
I was unconscious for a few minutes, and only woke up in the ambulance on the way to Frankston Hospital Emergency Dept. Even at 8.30 in the morning, there was quite a bit going on there, including another cyclist who had a broken collarbone. They told me they get about two people like me coming in per day, so I'm not Robinson Crusoe!

Everyone wanted to know "Were you racing?" to which I replied "Racing? At my age? The only thing I race to is the toilet!"

Busy or not, I received very good care and treatment from everyone there. TV and newspapers always have horror stories of being in emergency departments, but I found everyone to be extremely friendly, caring, and conscientious. They took a few x-rays, and since I had been unconscious and kept falling over when I stood up, they gave me a brain scan as well. It's a compulsory minimum three hour wait after a brain scan (all OK - there still was one inside my head) and then they patched me up temporarily, gave me a referral to their orthopedic specialists, and pushed me out the door at 9pm before the Saturday night rush!

Not quite the way I had planned on spending the rest of the day! There was a big crack in my helmet, so that had done its job well. Without the helmet, there would have been a big crack in my head; a sobering thought if you ever think about getting on a bike without wearing a helmet! My

At Frankfurt my place was taken by a blow-up kangaroo with an ARX t-shirt, with its arm in a sling. By all accounts it was far more popular than me, and much more agreeable in the early morning starts!



whole shoulder had been ripped apart internally with torn ligaments, muscles and a collarbone sticking up vertically! Not a good look at all, and very painful!

The technical name for it is an AC joint disrapture Grade 5. Grade 5 being the worst, of course, as I'm not one to do things by halves! You can watch various versions of the operation on the Internet, but I wouldn't call it compulsory viewing for anyone with a sensitivity to seeing holes being drilled in bones and lots of blood slopping around!

Luckily for me (but not for him) a friend of Colin at ARX had exactly the same kind of accident, and could recommend The Shoulder Guru*, an orthopedic surgeon who was a specialist in these operations. Even luckier I could get an appointment Monday afternoon, so I could spend the weekend full of Panadeine Forte and self pity.

The specialist had a good poke around, studied the x-rays, and said I had two options. The first one was do nothing, strap it up and hope all the ligaments manage to fix themselves in the fullness of time.

"Will that work? I asked. He looked at me. "Probably not...at your age!" Funny how everything doctors say these days contains those three little words!

The second option was a rebuild operation. I have to confess I worry about surgeons and their propensity to operate. When the only tool you have is a hammer, then everything looks like a nail!

So I asked him "What would you do if it was your shoulder?"

"I'd operate," he replied "And I'd do it straight away while it's all fresh and floating in a big pool of blood and juices". Mmmm – tasty!

I couldn't see the point in paying for expert advice and not taking it, so that's what I did. The stitches came out last week. They had put in a stainless steel device that looks for all the world like one of those curtain rod holders that you screw into window frames (sadly it cost a bit more than \$2.45 at Bunnings). This was screwed to my collarbone to

hook the whole shoulder in place, and then all sewn together to let the ligaments and tendons grow back. He said I'm making a very good recovery, and he should be able to take it out again in six to eight months.

But I couldn't go to Frankfurt though. The shoulder and arm were still ultra sore, and the Doc advised that 24 hours stuck in an economy plane seat only two days after the operation was tempting Deep Vein Thrombosis "at your age"! There's that phrase again.

After the operation I was a bit disappointed that I didn't get packed into a Carry on Nurse full body cast, just a very neat scar on top of my left shoulder.

When I went back to have the stitches out, the nurse told me that I could apply lots of Vitamin E cream on it to minimise the scar.

"Minimise it? No way." I replied. "I want it to stand out. It's the cyclist's version of a Heidelberg duelling scar!"

Finally, a Question: What was so important that it made the woman run out on the road without looking? Answer: She wanted to pick up her mobile phone! Lucky for her we weren't a semi-trailer, otherwise she would be a hood ornament on a Kenworth by now.

*Not his real name!



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