

# CUE

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AUSTRALIA & NEW ZEALAND

## U2 The Full VERTIGO Production Report

SATELLITE  
BROADBAND IS  
HERE

ENTECH  
Showguide Inside

BYTECRAFT LIGHTING  
WITH ALTITUDE

Testing PATs



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**CUE03** | Entertainment Training Resource



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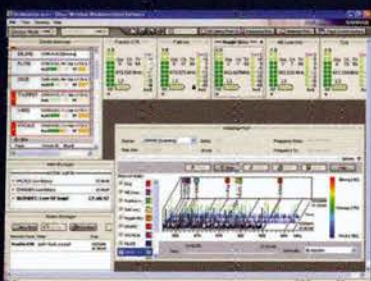
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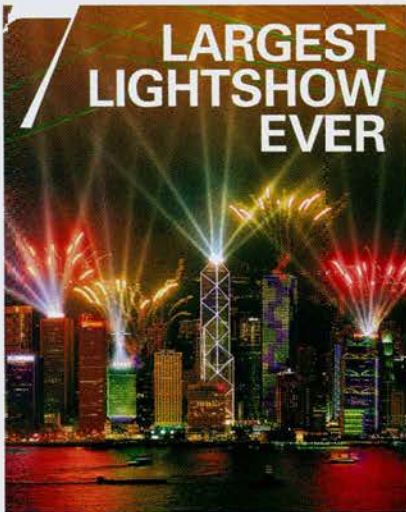
Technical Audio Group, 43-53 Bridge Road, STANMORE NSW 2048. Phone: (02) 9519 0900. Email: info@tag.com.au



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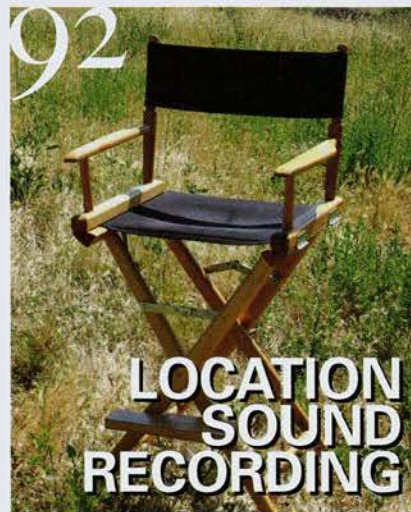
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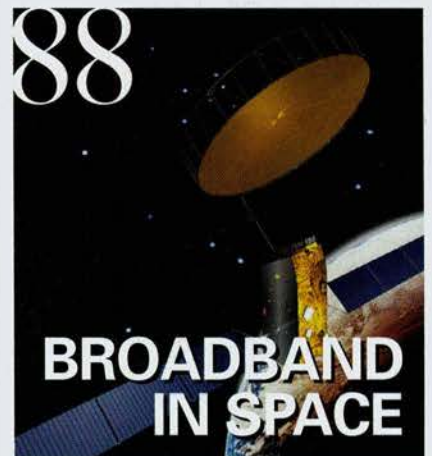


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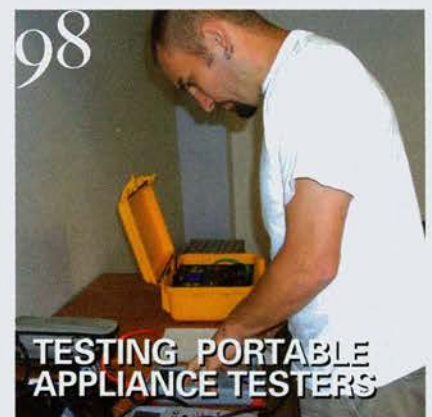
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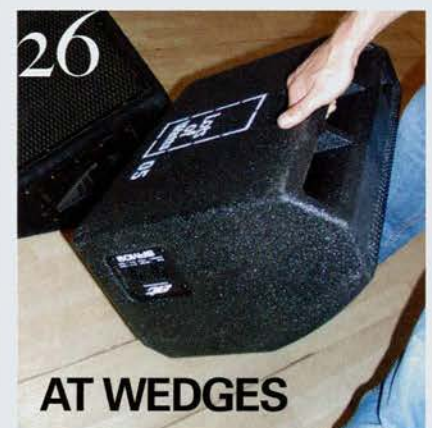
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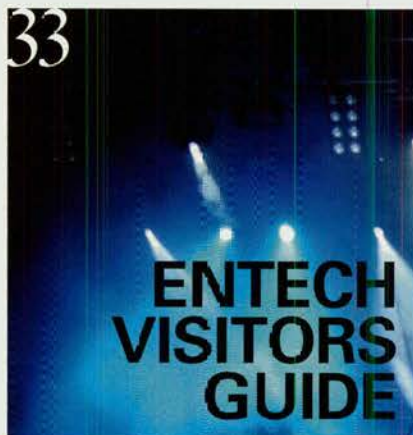
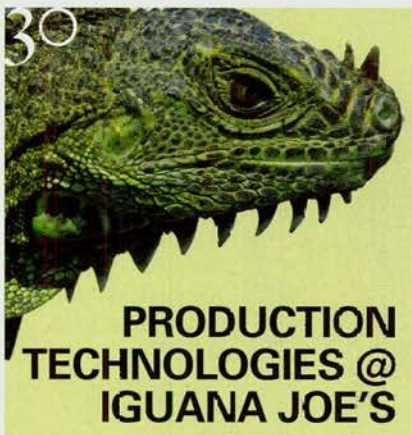


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## The Full Production Report on their Latest VERTIGO Megatour



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**Office:** 10 Bridge street,  
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**Call** +61 2 9638-5955  
**(New) Fax** +61 2 9638-7181  
Email [mail@juliusmedia.com](mailto:mail@juliusmedia.com)  
Web [www.juliusmedia.com](http://www.juliusmedia.com)

**Editor, publisher** Julius Grafton  
[julius@juliusmedia.com](mailto:julius@juliusmedia.com)  
call +61 2 9638-5955

**Technical Advisors:** Andy Mackenzie;  
Richard Neville; Rob Zimola

**Sales** Steve James  
[stevej@juliusmedia.com](mailto:stevej@juliusmedia.com)  
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## **CUE03** Entertainment Training Resource

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



# The Next Generation of Active Loudspeakers



## KV2 Audio. Defining Performance Downunder

Unlike most other speaker manufacturers, KV2 Audio is equally expert in both acoustic and electronic design - in fact, we're thirty-year veterans at building rugged, high-performance, high-current power amps. We get the most out of technology because we understand it thoroughly. But don't take our word for it - listen to what the locals are saying.



"I would like to thank David Williams of KV2 Audio for all his help on the most recent **Leo Sayer Tour**. I used a KV2 system on the first two shows of this tour, and missed the boxes on every other show.

The KV2 system gave me the best vocal, acoustic guitar and piano sounds of the whole tour. All sounds had great separation and I could really hear the placement/position of anything I panned - this was a real surprise in a live environment!

For the production on this tour I used very similar consoles with a quite varied speaker systems. There wasn't a day where I didn't miss the sound of the kv2.

**DAMIEN YOUNG, LEO SAYER'S TOUR MANAGER/AUDIO ENGINEER**  
*Pictured: Dave Williams (KV2 Audio), Leo Sayer (the guy with lotsa hair)*



"When I first heard the **KV2 ES system** it was quite an eye and ear opener. The amount of clean power that was coming out of those relatively small boxes was amazing. I was then told of the people who had designed the system. They have a huge amount of expertise to draw on. I compared my existing equipment to the ES system and from that time on it was obvious that it was only a matter of time - I wanted a system!

The results are always good, clean audio with plenty of punch."

**GREG SUTTLE**  
**SUTTLE SOUND, SYDNEY**



"The truck space advantage of this system over my old boxes is huge. Now I can do a bigger gig without buying a bigger van and all with 'one pair of hands.

I've found myself using my **EX10's** & **EX2.2's** in a myriad of situations from corporate press conferences to rock gigs and street festivals. In every case they have performed admirably. They look smart and stylish while not being garish, fitting easily into the corporate environment. While at the same time they have the high volume performance to get

you out of trouble with enough level under the bonnet to push rock band vocals above the stage sound of a marshall quad. Its like having an extra gear allowing you to go louder should you need it!"

**JIM MORLEY**  
**VOYAGER SOUND, SYDNEY**

George Krampera and Marcelo Vercelli (the K & V of KV2) practically invented the small-venue active loudspeaker system. Chances are, if you have used an Active Loudspeaker or Subwoofer, you have used one of their designs.

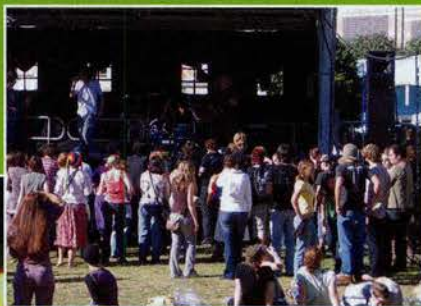
Their new company KV2 Audio are creating the next generation of even more advanced high-definition Active Speakers and Electronics providing unmatched dynamic range, resolution and output. Hear for yourself, call for a demo today!



### KV2 IS TOP OF THE POPS IN NZ

NZ's 'Top of the Pops' on TV2 is now the best sounding TV performance studio around with the live audience getting the benefit of a KV2 in-house FOH rig.

**Andy Tait** handles FOH Audio. This KV2 rig sounds better than anything else we've used. Everyone's noticed the difference."



"Easy to set up with the built in crossover configurations and excellent sound clarity for both live and audio playback. The small footprint allows for ease of storage, set up and all important van and venue space. Great after sales service and most importantly, the follow-up work due to the quality and performance of the gear."

**KIM McCUTCHEON**  
**KIMBOSOUND**  
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**Contact an Authorised KV2 Dealer:**  
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PHONE (02) 4329 0062  
MOBILE 0422 385 940  
EMAIL [davew@kv2audio.com](mailto:davew@kv2audio.com)  
WEBSITE [www.kv2audio.com](http://www.kv2audio.com)

# NEWS

## PRODUCTS AND GADGETS



## LARGEST LIGHTSHOW EVER

Hong Kong's finally completed 'Circle of Light' has been announced by the Guinness Book of records as the worlds " Largest Permanent Light and Sound Show ". It is now made up of 31 participating buildings located on either side of Hong Kong's Victoria Harbour and the 17 minute performance runs every night.

Sydney firm Laservision were the project managers, a massive undertaking spanning several years. Another major winner: Melbourne based lighting consultancy CDA, who

outfitted many of the buildings.

Some statistics: the show is controlled by over 30 Laservision Digital Data Pump (DDP II) units, each of which is capable of 15 Universes of 512 lighting channels = 7,680 channels. There are 30 DDP II's generating a staggering 50 Galaxies with a capacity of 253,440 lighting channels alone

There are over 82 Xenon Search Lights producing over 1 mill on watts of light, and over 2,624 Robotic Intelligent lights controlled by over

40,000 control channels

If that isn't boggling enough, there are 775,720 Laser diodes (LEDS ) spread across 7 Kilometres. How about over 2.5 kilometres of Cold cathode (low voltage neon)? Or Multiple Stella Ray YAGS producing over 1,000 High Powered Laser Beams?

The entire Installation uses more than 14,894 lighting fixtures controlled by 26,562 channels creating the 'Circle of Light'.

[www.laservision.com.au](http://www.laservision.com.au)





## DYNAUDIO MINI

Dynaudio Acoustic has released a new small yet powerful speaker for cost and broadcast production. The BM 5A Compact is an active two-way nearfield monitor that provides a solution for quality in very small spaces. Measuring only 170 x 260 x 235 mm, its small footprint makes it a great solution for OB vans and tight editing bays. The BM 5A Compact is now available in Australia.

Dynaudio Acoustics has managed to equip the petite cabinet of the BM 5A Compact with woofers and tweeters of the same quality as in the BM 5A active monitor, which is nearly two times the size. Powered by two 50-watts amps and operating within a frequency response of 55 Hz - 21 kHz, the BM 5A Compact covers all professional audio tasks in post production and broadcast, and combines with the BM 9S subwoofer.

[www.ambertech.com.au](http://www.ambertech.com.au)



## INFOCOMM SETS SENSIBLE DATES

InfoComm International exposition and conference will do a rotation between Orlando, Florida and Las Vegas, Nevada for 2008 through 2013, after transiting through Anaheim (LA) next year. It is the key show for AV and vision systems. These are the dates for the next two years, thereafter it goes Vegas - Orlando - Vegas - Orlando until further notice.

**2006 Orlando, FL** Conference: June 3-9 Exhibits: June 7-9

**2007 Anaheim, CA** Conference: June 16-21 Exhibits: June 19-21

[www.infocomm.org](http://www.infocomm.org)



## SSL OFFER FREE PLUG-IN!

Solid State Logic announce the LMC-1 Plug-In which is free. Is that good? It captures the signature sound of the legendary 'Listen Mic Compressor' from SSL's classic 1980s SL 4000 Series consoles. Originally intended to prevent overloading on a tracking room 'talkback' mic, the Listen Mic Compressor accidentally became an essential factor in defining the drum sound of the 1980s, when producers famously began patching it into their signal chain to process ambient drum

mics, creating radically dynamic drum sounds and rhythm tracks. One of the most famous examples of this sound can be heard on Phil Collins' 'In The Air Tonight'.

LMC-1 is available for Mac only, in AU and VST plug-in formats, making it compatible with a wide range of popular software sequencers. Users of ProTools™ systems will be able to use the plug-in via a third-party VST to RTAS plug-in 'wrapper'.

The plug-in is available as a direct download from [www.solid-state-logic.com](http://www.solid-state-logic.com) and is free of charge following a simple registration procedure.

[www.solid-state-logic.com](http://www.solid-state-logic.com)



Ralph Heinz with new R-H Iconyx.

## RENKUS HEINZ SHOWS DIGITALLY CONTROLLABLE COLUMN

Renkus Heinz was well known in Australia in the 1980's, and has returned with Audio Telex adding the brand to its stable.

The R-H range includes a compact line-array, 3-way theatre and stadium speakers, digitally controllable columns and speech/music horns for high SPL sports applications. Many R-H speakers are available as self-powered with options including CobraNet (that's CobraNet direct into

the powered speaker), amplifier control, monitoring, and AES/EBU digital inputs.

Audio Telex Brand Manager Don McConnell commented: "Renkus-Heinz is the perfect fit for our customer base and sits nicely alongside Turbosound. We have been very successful with Turbosound in the bar, club and live sound areas and our commitment to them has not changed. We see Renkus-Heinz being used in more specialised installations. As well as the compact line array, they have some unique products including IP rated cabinets (for outdoor applications) and self-powered models with CobraNet. It's a well designed range of products and one that will provide real solutions for both contractors and consultants."

To further differentiate R-H, Audio Telex recently hosted a demonstration session where Ralph Heinz showed the new Iconyx, a very clever digitally

steerable column array for painfully difficult and reverberant venues, particularly churches.

The columns are modular, each with 8 dual concentric 4" speakers and 8 amplifier channels. 8, 16, 24 and 32 channel versions are available. The idea is that if required by the architect, you can slap the column hard up against a wall up high, then use software to steer the array in the direction required.

We heard it, it works, and the specialists who also attended the demo thought it was a very good thing too.

[www.audiotelx.com.au](http://www.audiotelx.com.au)





# EDITORIAL

## New year, new ENTECH, new realities

By **JULIUS GRAFTON**

### ENTECH

The trade show returns to Darling Harbour on February 13th – 12 years after I started it, in the same venue. This is the first ENTECH totally organized by owners ETF, who acquired ENTECH in 2004 from Juliusmedia. They promise new directions and a fresh vibe, which should be very exciting. We will be there – come and say hello.

### EXIT LOUISE



Along with ENTECH comes the end of an era as Louise Brooks goes off contract as media sales queen at CX Magazine. Lou was 'sold' to ETF to run ENTECH, and remained

involved with Juliusmedia via a complicated slavery deal that ends when this ENTECH closes on February 15th. She will be unshackled, set free, and missed.

### ENTER STEVE



Steve James takes over the media sales role here at CX, following the departure of Louise Brooks. Steve is a muso, has done a SAE course, and has worked in management at Juliusmedia for two years. He brings professional sales and marketing skills into his new role as media sales manager.

### CONTENT YEAR

The theme for this year is content. Content means creative, whether it is a lightshow for a city (think Hong

Kong); a TV show (think expanding Church) or a visual for a LED wall (think graphics and vision at a concert). People are now buying one music track at a time from iTunes WITH a video clip – instead of a whole CD. The challenge for our industry: using new technology to make content cheaper. Program it, light it, record it, shoot it, mix it, edit it, and sell it. Faster.

### EXIT EQ

After 2 years we have driven away from our syndication deal with EQ Mag, as the recording industry freefalls down market onto the PC, becoming a consumer market hard to reach because of its enormously thin spread. We will keep the audio part of our coverage aimed at the pro side, where we have always been strongest.

*Julius*

### COLOUR FUSION

LSW has introduced the Colour Fusion, a compact DMX-compatible stage colour wash effect that offers professional RGB colour blending at a show-stopping price.

Designed for bands, small nightclubs, DJs, and a wide variety of staging applications, the Colour Fusion comes with three rectangular lamps - red, green and blue. By varying the amount of output from each lamp, users can create virtually any colour they want, setting just the right backdrop for any performance.

Colour Fusion can be operated using any standard DMX controller and uses 4 channels. It can be set to run as a sound-active plug-and-play unit with its own built-in chase patterns. Colour Fusion provides electronic dimming. Barn doors are supplied.

The fan-cooled unit comes with three LL-EHM 120-volt, 300-watt lamps and includes an easy access lamp replacement door. The RRP of the Colour Fusion is \$349.00.

[www.lswonline.com.au](http://www.lswonline.com.au)





Garbage toured the HogiPC, Catalyst G-5 Media Sever and a Mainlight SoftLED Curtain to make a flexible video package for drastically different sized venues. Steve Jennings cool picture shows it all working.



AAA Producers: Neil Campbell.

## KUDO NETWORK

The last six months has seen audio companies servicing key markets across Australia rapidly expand their inventory with KUDO, the latest line source array from L-ACOUSTICS.

In Perth, AAA Productions & Audex Sound have taken delivery of 24 KUDO and rigging, 6 MTD112b all powered by LA48a amplifiers. They have strong customer bookings for their new system.

Frontline Tasmania based in Launceston have also purchased 12 KUDO, 6 S3218 sub-bass along with 10 115XT HiQ floor monitors also powered by LA48a amplifiers. Frontline will debut the KUDO system with several interstate touring artists commencing early 2006.

CON-SCL based on the Gold Coast have also purchased a KUDO system to service the local and interstate conventions/corporate events. The system includes 6 KUDO elements &



Frontline: Chris Veevers & James Foster.

associated rigging, 4 SB118 sub-bass along with 8 MTD112b floor monitors, all powered by LA48a / LA24a amplifiers.

Norwest Productions with offices in Sydney, Melbourne and Brisbane has purchased an extra 24 KUDO and associated rigging to add to their initial system purchase making a total of 72 KUDO in their rental inventory. Norwest Productions will be using KUDO for many upcoming events including the 2006 Commonwealth Games Opening & Closing Ceremonies in Melbourne.

Adelaide based Novatech Production Services also recently added an extra 6 KUDO to bring their total to 18. Novatech since July has provided KUDO on over 50 events/concerts along with lighting/staging equipment for numerous local & international artists such as 'Guy Sebastian', 'The Hives', 'Harlem Gospel Choir' and the 'Foo Fighters'.

[www.randomaudio.com.au](http://www.randomaudio.com.au)



## SELECON PERFORMER 2 SERIES FOLLOWSPOTS

Selecon's new Performer Series followspots deliver more light to cut through the ever increasing light levels used on stage and in the studio today. Utilising the latest short arc lamp technology from Philips and a very efficient optical system the two new models deliver two to three times the output delivered by current 1.2 / 2.5 kW MSR/HMI followspots.

Operator controls include 24 leaf iris, mechanical dowsler, CTO filter, diffusion frost, and horizontal / vertical cutters. The 6-colour changer is integrated as part of the luminaire chassis. The beam angle zoom is a slide linked zoom with integrated focus (soft - hard) on the one hand control. An easily adjusted peak / flat beam light distribution is a new addition to high performance followspots allowing for blending the high powered beam into the ambient stage lighting as required.

The maximum output of the Performer 2 series can be preset using the dim function of the universal electronic power supply from 100% to 50% of output, an LED meter indicates the preset output level. Flicker free operation ensures the Performer 2 Series is at home in the studio as on stage.

[www.seleconlight.com](http://www.seleconlight.com)





# L-ACOUSTICS available for the first time in Tasmania



## Frontline

- ▶ **KUDO LINE SOURCE ARRAY**
- ▶ **SB-218 SUB BASS**
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- ▶ **LAB. GRUPPEN AMPLIFIERS (FOH & MON)**
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# PRODUCTION REPORT



## SUPERDOME AWARDED

International Magazine 'Venues Today' has an annual venue rating based on ticketing revenue. Sydney SuperDome has come in at number four in the world for ticketing revenue for the year to November, (after previously reaching number one for the 6 month period to May 2005).

## 2005 BROADWAY AUDIENCE DEMOGRAPHICS

There are 39 theatres 'on Broadway' in NY with 500 or more seats, compared to around 42 in the West End in London. The League of American Theatres and Producers has advised Broadway audience numbers climbed well last year.

International visitors, whose numbers in theatres had declined after September 11, 2001, continued their rebound, climbing back to pre-2000 levels. During the 2004-2005 season, there were 1.3 million admissions of foreign tourists, compared to 1.2 million in the 2003-2004 season and 651,000 during the 2002-2003 season.

The number of New Yorkers in the audience also increased, from 1.9 million in the 2003-2004 season to 2.05 million.

Sixty-five percent of the audience was female. Moreover, women continued to be the primary decision-makers in show selection. The average age of the Broadway theatregoer was 42 years old. Theatregoers under 18 years old accounted for nearly 1.2 million tickets, a drop from 1.3 million in the previous season, but still relatively high.

Personal recommendation was the single most important deciding factor in show selection. Nineteen percent of theatregoers said critics' reviews influenced their decision to see the show.

The use of the Internet to purchase tickets has quadrupled in the last five years, from 7% to 29%.

Theatregoers were still not purchasing as far in advance as they did before 2001. Last season, only 32% purchased more than one month in advance compared to 40% in the 2000-2001 season.

[www.livebroadway.com](http://www.livebroadway.com)

## STONES, U2 BREAK RECORDS

Billboard reports The Rolling Stones' A Bigger Bang tour sold 1.2 million tickets and grossed US\$162 million on the tour's first leg of 42 shows.

Stones promoter Michael Cohl is incredibly astute, and has NO FREE LIST, even making the band pay for tickets. CX almost were personally thrown out of their previous Sydney show by Mr. Cohl, very unhappy at the presence of a production pass on a journalist.

U2's Vertigo tour was the top-grosser of 2005, according to figures from Billboard Boxscore, reporting grosses of US\$260 million from 90 concerts, all of which were sell-outs. Vertigo restarts in March, with 750,000 tickets sold in Mexico, South America, Australia and New Zealand.

## TELSTRA DOME TO SELL

The Seven Network plans to sell its stake in Telstra Dome, previously known as Colonial Stadium. The six-year-old stadium cost \$450 million to build. The sale may reap Seven up to \$200 million.

The 52,000-seat stadium has a retractable roof and is now profitable after teething problems.

U2 will play two shows there in March.

## STATE THEATRE, SHOWROOM EXPANDING

Arts uber-reporter Valerie Lawson recently speculated in the Sydney Morning Herald that Sydney's fantastic art deco State Theatre may get a real stage, after the owners

purchased the building next door.

State Theatre's general manager, Patrick Corrigan was quoted: the "stage area [of the State] has always been problematic. Problems of access have to be resolved eventually. One of the major problems is being able to get a semi-trailer or truck close to the stage door."

Meanwhile Lawson says "the Showroom at Star City is to be rebuilt as a theatre with 1100 seats instead of 950 seats placed in a cabaret setting. The change will not only increase audience numbers, but also eliminate the thrust stage. The width of that stage means that sets have to be rebuilt if shows are transferring from a proscenium arch theatre. After the closure, possibly in February, the Showroom will re-open at the end of June with a major production, yet to be announced."

## DWARF TOSSING TO RETURN?

Meanwhile, CX has been inundated with a request from a nightclub to assist to overturn the ban on the gentle game of Dwarf Throwing - otherwise known as 'propelling persons of restricted growth'.

In our extensive time working within, and just hanging about in, the more salubrious venues before this fine sport was outlawed we observed the professional stakeholders (eg: the midgets) were quite happy and well paid. If this highly skilled sport is reintroduced, we urge that the customary swapping of shirts at the end of each competition be scrapped, due to the wo-mans constant complaints that the shirts given to them were always too small and that they wouldn't want to wear the shirt of a 'chauvinist pig who got his kicks throwing persons of restricted growth anyway'.

We still remember the song.....

*This dwarf is made for tossing,  
and thats just what he'll do,  
One of these days this dwarf,  
is gonna toss all over you...*

CX

# KUDO

THE ALLIANCE OF 2 SOUND REINFORCEMENT INNOVATIONS



**KUDO** is **NOW** available for rental throughout Australia:

**Sydney** - Norwest Productions  
**Melbourne** - Norwest Productions  
**Brisbane** - Norwest Productions  
[www.norwestproductions.com](http://www.norwestproductions.com)

**Gold Coast** - Con-Sol  
[www.con-sol.com.au](http://www.con-sol.com.au)

**Adelaide** - Novatech Productions  
[www.novatechproductions.com.au](http://www.novatechproductions.com.au)

**Perth** - AAA Productions  
[www.aaaproductions.com.au](http://www.aaaproductions.com.au)

**Tasmania** - Frontline  
[www.frontline-tas.com.au](http://www.frontline-tas.com.au)

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## "LIGHT FOR THE ARAB WORLD", OMAN


A recent work of light art in Muscat, Oman boasted lighting, laser and projection effects at the Indian Ocean frontage to the Sultan's Palace. A technical team of 55 crew including ETC UK (large format projection), Procon (Lighting), Laser Fabrik (lasers) and Black Box Music (audio) staged the 1 hour 50 minute show.

16 PIGI large format projectors shot the 550 metres across the harbor onto a mountain. The brown rocks were a particularly difficult surface on which to project. To optimise brightness of the image, explains Ashton, the projectors were



divided up into 8 pairs, each of which was overlaid.

Procon provided the moving lights

and co-ordinated the laser and audio supply. They also dealt with the logistics of the technical operation. 

## MADISON EXPANDS TO 70 STAFF

Brisbane-based technology company MADISON Technologies has specialised in the design, manufacture and supply of cable and related products for almost fifteen years, linking many market sectors such as telecommunications, broadcast, audiovisual, data, security and more recently, the electrical wholesale industry.

Madison Technologies CEO, Mr Roger Joy said that despite this rapid growth the company is not even close to reaching its full potential.

"In 2003 we had 15 employees - now we have more than 70. The expansion we've seen across all areas of the business has been incredible - we keep expanding to meet the increasing demand for our products and services."

Although Madison Technologies has continued to expand as a whole Mr Joy said the company's recent launch of several new product ranges has largely accelerated the company's growth.

"The introduction of our Roadwork range and other supporting branches into the professional AV market has been extremely successful and welcomed by the industry.

"Our new broadcast/AV hire business has allowed us to secure major contracts for the Sydney New Years Eve fireworks, Carols in the Domain, the 2005 Economic Forum in Jeddah, "Nile Fire" in Egypt, V8 Supercar events and numerous company AGMs and corporate events across Australia and overseas.

"Madison is expanding its operation to encompass the wider audio visual market for the home owner and enthusiast," he said.

[www.madisontech.com](http://www.madisontech.com)



## OLYMPIC WIRELESS TECHNOLOGY LEAPS PRICE HURDLE

The wireless microphone technology Audio-Technica developed for the Athens Olympics and used extensively in the opening and closing ceremonies has now been incorporated in the company's new 2000 Series.

Audio-Technica has transferred much of the 5000 Series technology to the new 2000 Series. Designed and priced to suit the widest market the 2000 Series is a 10-channel frequency-agile, true diversity UHF system with easy set up and automatic frequency scanning to determine and set the best available reception.

For multiple wireless systems 10 channels can be used together simultaneously.

The handheld transmitter (ATW-T220) features the neodymium magnet PRO 41 cardioid dynamic capsule which provides (they say) natural, focused vocals with excellent feedback rejection.

2000 Series is available in five formats priced from A\$695.

[www.t.e.g.com.au](http://www.t.e.g.com.au)



## READER ADVANTAGES -

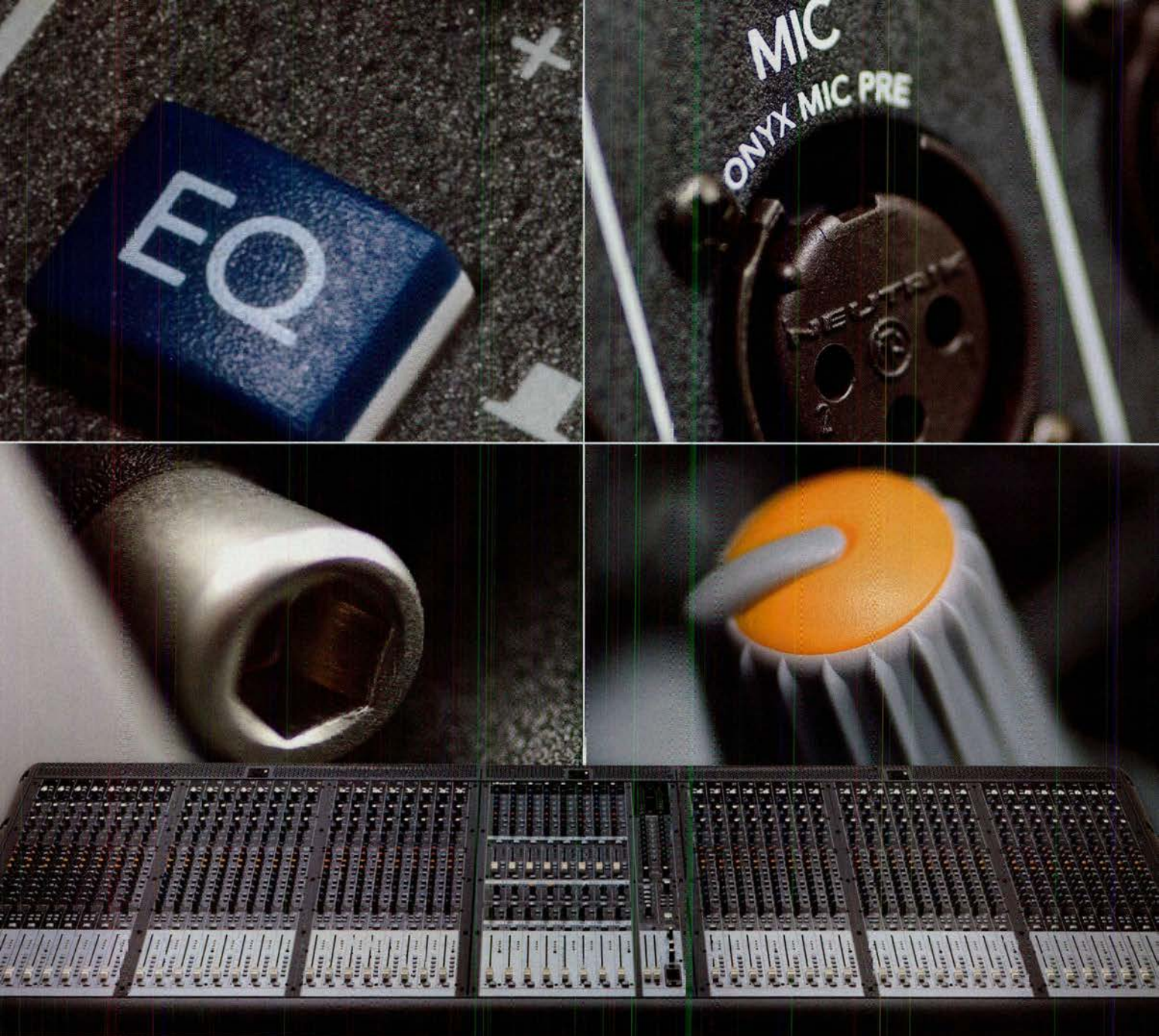
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Designed by people who actually mix live sound, the Onyx 80 Series features Mackie's acclaimed Onyx mic preamps on every channel, British-style Perkins EQ, 8 stereo-linkable Aux sends, a 10 x 2 Matrix Mixer, and no-compromise internal electronics—

yielding dynamic range and fidelity on par with esoteric, expensive consoles costing several times the price.

And because live sound is a tough business, Onyx 80 Series consoles employ a modular monocoque design, reinforced with beefy aluminum extrusions and strategically placed steel bulkheads. It's a design that will not bend or flex, no matter how tough your nightly gig.

Interested? Visit [www.mackie.com/onyx80](http://www.mackie.com/onyx80) to learn more about the Onyx 80 Series today.

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## RIVERVIEW UPGRADE COMING

Riverview Church in Perth have installed new movie style seating and expect to upgrade their sound system and stage very soon, Production Manager Craig Tucker reports.

They have acquired new Sony cameras recently.

[www.riverviewchurch.com.au](http://www.riverviewchurch.com.au) 

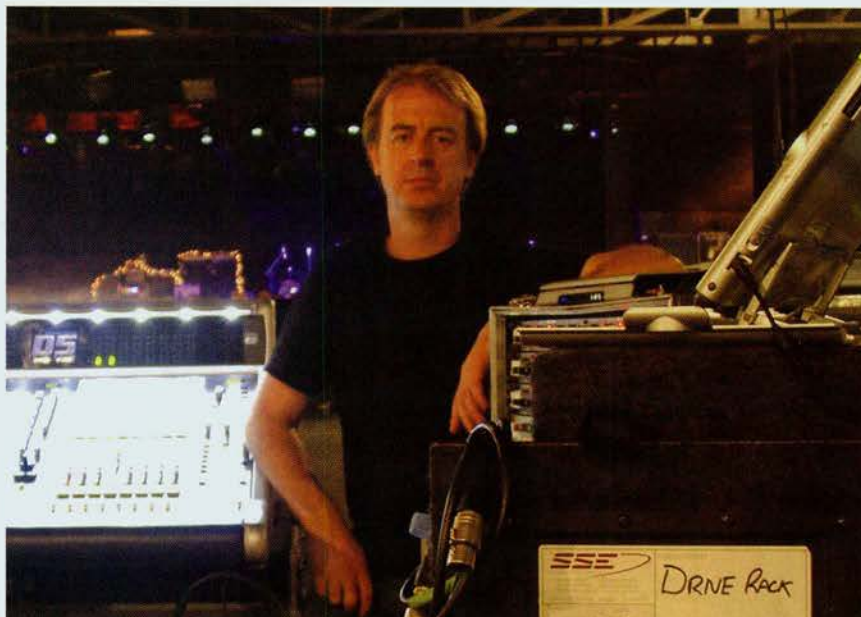
## B52 MATRIX 1000 V2

MATRIX-1000 V2 is a complete sound reinforcement solution comprised of two 10" two-way powered satellites and a dedicated powered 15" subwoofer. The sub has a built in three-channel 700-watt power amplifier, three distinct volume controls, electronic crossover with equalization and VCA compressor.

The V2 denotes a new high-performance compression driver; a new elliptical wave guide with more uniform dispersion, and the addition of a voltage controlled amplifier (VCA) on all three amplifier channels to minimize the effects of amplifier clipping.

The 15" subwoofer has a power handling capability of 400 watts and a nominal impedance of 8 ohms; while the satellites are loaded with a 10" speaker and 1" titanium diaphragm compression driver. The rounded front of the satellite speaker is a perfect fit for the convex face of the subwoofer, allowing a mobile entertainer to stack, roll and transport the entire system in and out of a venue in record time.

[www.lswonline.com.au](http://www.lswonline.com.au) 



Oasis recently toured Australia with local sound guy Bruce Johnston at the helm. Bruce has acquired a DiGiCo D5 console which he has had on the road with the Brit Brat band. The tour could end up running a year or so. Bruce has also purchased a pre-loved V-dosc line array, which has already seen festival use here in Australia this summer. Johnston Audio Services are not part of the worldwide V-dosc network, who are represented in Australia by Jands Production Services. Jands provide factory trained V-dosc crew, plus matched amplifiers and V-dosc subwoofers.



## DESTINY GOES SLS

Jansen Professional Audio & Lighting recently commissioned a new sound system into the Destiny Church in Hamilton, one hour south of Auckland New Zealand.


This is the first SLS Line array in New Zealand SLS was featured heavily on INXS Rockstar.

The system consists of 10 SLS RLA2 LS8800 2 x 8" and 6" ribbon

Line array top boxes hung from the steel beams on rated beam clamps in two hangs of 5 on SLS Bumper bars.

The Mixing desk is a Allen and Heath ML4000 48 channel fed through an Allen & Heath IDR 4.

Jansen is still working to install the lighting which will consist of an SGM Studio24 Scan Control desk and Par 64 cans fed through dimmer pack made by Theatrelight.

[www.slsloudspeakers.com](http://www.slsloudspeakers.com) 

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## Club V (C) Features:

- Titanium Tweeter • Cast Frame Woofer • Elastomeric Coating • Pole Socket

C112V  
**\$695** rrp



C115V  
**\$895** rrp





Gerry Wilkins, IDT CEO is pictured with a Magenta MultiView box, making Cat 5 transmission of video fast and inexpensive.

## IDT ROLL OUT CALYPSO

Web based 'open architecture' AV control launched

Image Design Technology is a fast growing specialist audio visual and data integration distributor. They have just launched Calypso Control, which promises to open up multi device control and get away from expensive proprietary protocols. Calypso will operate outbound serial, relay and IR commands, and can be programmed and accessed from the web.

They say that the pro AV world has moved away from specialty and into broader markets, and that users are growing intolerant of proprietary, complex and high priced solutions. Applications featuring a proprietary control system usually require external technical support for the life of the installation. The promise with Calypso is that it is very easy to use; and that the hardware can be purchased as building blocks.

CX visited an IDT roadshow, where a diverse group of users and installers were being introduced to new products. Aside from the strong interest in Calypso, IDT are on a winner with Magenta Research.

The Magenta MultiView Series offers cheap (under \$1000) Transmitters, Receivers and Distribution Systems for a large variety of AV and Command-and-Control applications, including Digital Signage over Cat 5.

Coax cable is fading to black, as manufacturers like Magenta innovate with new high bandwidth solutions that will send high definition images down Cat 5. Magenta have a new Cat 5 full-matrix switcher scalable to 256 x 256.

[www.idt.com.au](http://www.idt.com.au)



# MONDO ROCKS ON

Pics by BOB KING



**Mondo Rock** returned for a long weekend of Sydney dates recently, which would have been an excellent earner. CX attended the Pevesby show, in the interests of research, and estimated door takings upwards of 20 grand at that venue alone. The full house demanded two encores – a good outing for messers Back, Wilson, Christie and McCusker. They were joined by former Dragon drummer, Kerry Jacobsen.

## GREAT PARTY

We always remember parties better 25 years later. My best was when I ran Barratt Lighting. We stuffed a three way PA into the lounge room and played Back in Black non stop on a cassette. Richard White from Rock Industries was there, he put a Space Beacon in the front yard. Someone's wife got into the back of a panel van outside with a Rod Stewart lookalike. The Philips lamp rep got agro with guys from another party across the road. The ensuing fight closed the road and milled around the rocking van. Three people were arrested. It took two days to clean up. – Julius

## LOTS OF NEW HIRE STOCK

Sydney's Lots of Watts have recently added new devices to rental inventory.

These include Martin Mac 700's, Pulsar Chroma Banks, Chroma Panels and controllers, a Yamaha PM5D, AT SFM09 monitor wedges, RCF ART322 powered speakers, NEC MT1075 420 ANSI XGA LCD Projectors and Fast Fold screens. Daniel Munro has taken over as hire manager, following the temporary departure of Philby Lewis who has joined the Commonwealth Games production management team in Melbourne for six months or so.

[www.lotsofwatts.com.au](http://www.lotsofwatts.com.au)



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Pictures taken from various shows & installs around Australia.



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# LETTERS

**EMAIL & FLAMES FROM OUR READERS**

**Email CX now! [mail@juliusmedia.com](mailto:mail@juliusmedia.com)**

## FAKES - 1

It was refreshing to finally see an article tackling the counterfeit Shure microphone problem. I have recently encountered a few Shure copies that have been easily recognised simply by the weight of them, before even plugging them in, it was obvious these were not genuine. As with most technical types I spend many hours late at night scanning ebay listings to see whats on offer and out of curiosity recently started to ask ebay sellers (within Australia) if the product that they have listed was in fact a genuine Shure product. As you can guess a majority of them will not commit to saying that what they are selling is in fact the real thing, but simply state the product is made in "Mexico" and is bought through their suppliers in Hong Kong... If the problem continues to grow, companies like Shure may have to issue a Certificate of Authenticity.....

**Brad Tabe, Senior Audio Engineer,  
Gold Coast Arts Centre.**

## FAKES - 2

I also nearly got caught buying mics off the Internet site "Trademe" here in NZ. I purchased a bulk lot of 5, and all were fake, and they were wired unbalanced, i.e. pin 2 grounded. Some body buying them and using with a box type mixer with jack inputs would never have picked it up.

Fortunately for me, the person I dealt with was selling on behalf of his son who had bought them from the USA, and was happy to refund my money. One other purchase was the same, and I managed to get the mic swapped for a genuine article. I would add my advice to anyone contemplating buying from such auction sites, DON'T, unless you know the seller is an authorised Shure agent, and has sourced them from the Official importers.

To respond to Jeremy West's letter in the Nov/Dec issue, my current Jands Pricelist lists SM 58s with on off switch, so they're not all necessarily fakes.

Keep up the good work.

**Taff Hewton  
Taff Hewton Sound Systems  
Invercargill, New Zealand.**

## STYLE

I was taken aback to see the all new

CX, new layout, new masthead, new paper, new fonts...but when I settled into it, much better! I like the section headings and the news emphasis. Well done!

**Amanda Gurrie, Fairfield.**

## STYLE 2

What have we here? Rolling Stone meets Time? Interesting new style, and good riddance to all the lifted EQ stuff. Viva Australia! Now work on the articles and you'll have a winner.

**Raymond Le'Porte, Arriva AV, email.**

## HEART 1

I was cheering at the 'Mad As Hell' editorial in CX 16, then saw the mea culpa in the last CX (#17) and my heart sunk. I thought it was great to say how CX plays it like it is, and is not beholden to advertisers and PR flacks, but then to see the tone of moderation and the confessions re the editors personal problems made me think maybe the gutsy days are over? Don't let them get you down, Julius, keep serving it up to them!

**Kindest regards,  
Don Jacobsen, Email.**

## HEART 2

Sad to read about (Editorial, CX 16 and CX 17) and feel troubles affecting your work, Julius. You've been an inspiration to me and my workmates for a long time, and we like your passion and honesty. I'm sure you'll recover and throw yourself back into the work that you plainly love.

Bless you,

**Bruce McNamara, email.**

*Ed: All is good now, everyone settled especially me. Thanks.*

## OOOPS

Did you hear about the house guy at a small Melbourne nightclub who managed to convince the boss to part with a sizeable sum of money to buy an expensive mixing console

Purchase completed, the day of delivery arrived! This house guy called in some loaders and they removed the old trusty desk and retired it. The new desk arrived, there was a buzz (they hit the ground lift) then there was a hum (of anticipation).

They struggled with the large cardboard box that was strapped to a wooden palette as they gently lowered it down in

front of the stage for all to bear witness to the contents of the box, the pictures and logos that adorned the "box" were impressive indeed, proclaiming that inside was audio Nirvara.

The moment of truth: the lid of the box was removed to reveal....85 kg's of.... STATIONERY!

I'm sure there's an office out there somewhere with exceptional sounding elevator muzak!

**John Hall  
Revolver Nightclub Melb.**

P.S. If anyone needs any cheap staplers or rulers, let me know.

## HYATT STORY MISLEADING

I was disappointed to read your Grand Hyatt feature article in the Nov/Dec 2005 edition of CX "Audio with Token Lighting Article" Magazine.

Some of the information you have published is incorrect and misleading. Lightmoves worked very closely with the designers to deliver this world-class venue on time and on budget, and supplied and commissioned all the Dyalite lighting control equipment, special effect architectural lighting, and complex DMX infrastructure (we did not install as your article reads). Amongst other key Lightmoves staff, I project-managed all the architectural effect lighting for the job and also designed the lighting for the foyer glass features, so am well-placed to clarify some points.

Firstly, the glass feature lighting uses AVR luminaires from the UK, not the Anolis brand. We did end up using the Anolis LED drivers to run the AVR LEDs because ULA (the importer) could/would not sell us the AVR drivers to suit. At the time, ULA had just released their Anolis brand of LEDs in partnership with Robe, but the LEDs were not available in time for this project. Even if they were, we felt it would be irresponsible to install a new brand yet untested in Australia (we had used the AVR LEDs on prior occasions with great results and without problems).

I can understand that ULA/Robe would wish to market their new venture with a high profile project like the Hyatt Ballrooms refurbishment, but I do not subscribe to misleading the public. I

realise that although you have written the article, your information is based on incorrect information obtained from an existing media release by another company; I'm sure you understand that we feel it our duty to set the record straight.

**Joe Casamento - Projects  
Lightmoves Pty Ltd**

### KILLER CANS

Whilst I wholeheartedly support safety, it would appear that a few people need to modify their individual practices and not depend so trustingly on the actions of others.

With regards to the killer par can should the buyers not have checked the wiring when installing the lamp? don't know about you, but I have never purchased a new can that has come pre-loaded. Inserting a lamp is the ideal time to actually check the wiring, the lamp base and the strain relief. I would argue that all new equipment should be bench tested on a suitable protected circuit. We should not be lured into a false sense of security because of a "CE" sticker or the name of a reputable supplier. Mistakes do get made and cheaper productions costs means that fewer items are pulled off the assembly line and tested. To simply plug and play is not good practice in my opinion.

My next gripe is with the number of people that think that a tested and tagged cable is somehow magically protected by the tag. I would love to have a dollar for every time that I have pulled up next to a tradesman's ute at a set of lights, only to see an extension cord hanging from the rack with a current tag on it and a plug with exposed inner wires poking out of the top, or a fresh wrap of insulation tape hiding some other indiscretion. I have had cables go out that have been tested and tagged only to see them on the repair pile a week or two later because someone was a little too eager when packing up. The problem sits not with the process of testing and tagging, but with those responsible for the use and checking of cables as they come back in from a show. If this is left to the date on which the tag expires, a number of faults are going to get through unnoticed. Unfortunately, most are going to be either exposed conductors or broken/faulty earths which will pose serious risks (as a fault that breaks the neutral or active will result in a break in the circuit, which will become obvious when power is lost).

**Darren Starmer  
Mayhem Musical Productions, Perth.**

### SAFETY

I am currently a sole trader working as a venue tech at an entertainment venue in (deleted). I know lots of the equipment we use is plain unsafe. None of the equipment is tested or tagged, and some of it clearly wouldn't pass - ie. exposed cores, bare wire in some instances.

There are powerpoints that stop working depending on the day, presumably internal wiring faults.

We have no safety chains on lights, and the whole venue is an accident waiting to happen. It is getting to the point of getting a little shock off a cd deck- not static... enough to be disturbing. I am not sure of the best way to approach it.

The bosses attitude is that it's been working fine for 15-20 years, so why not now? Some things are trivial but lots of the problems are a real liability.

I don't want it to take out a punter, or anyone for that matter to get injured, or killed. What is the best thing to do? What are their legal obligations? And mine?

- Name withheld.

*Ed: You are obliged to report the place to Workcover, explain to them that you fear for your job if you are identified.*

### WAA WAA CONGA

I am a percussionist and a long time reader of CX.

I want to get the same sound that a guitarist gets when using a wah pedal. like the shaft sound (the Song). Have you heard of any one doing this to live percussion.? I am able to get the effect to pre recorded conga tracks, by using phasers and filters and even wah wah pedals. But not live.

I have been recommended lots of equipment, from analogue phaser to filters to auto wahs etc... and spent way to much money. I am not even sure that it at all possible. Most equipment seems to be made for harmonically rich material - which the congas are not.

I am wanting to do this live, as I play the congas.

**Richard Cabrera  
www.cabritamusic.com**

*Ed: Use a wah wah pedal, but the trick is it needs high input gain to overcome inherent noise. Mic the conga, run mic into a studio preamp with an unbalanced output. Into wah waa. Then into DI, then balanced into PA.*



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# COHEDRA LAUNCHED IN AUSTRALIA

New HK Audio line array promises less wind interference, integrated electronics.

By JULIUS GRAFTON

Launching a new brand of line array onto an overcrowded market is not for the faint hearted. Cohedra from HK Audio has arrived, and the Australian importer and agent CMI threw one of the best launches we have attended.

CMI is owned by the Trojkovic family, they have had a major influence in the Melbourne music scene for more than 30 years. That's why the launch featured half the John Farnham band, and attracted industry heavyweights from far afield. Examples included Howard Page, a senior Clair Brother's VP who also is partner in Top End Sounds at Darwin. He attended with Top End managing director Colin West. Neil Campbell from AAA Productions in Perth went straight from work onto a red eye, and landed at 5am. Noel Anthony flew down from Townsville. Matt Doherty from Big Day Out was there. It was that kind of a day.

Peter Trojkovic ran Troy Balance Corporation for 20 years, providing major sound reinforcement for Men at Work, Little River Band and many significant legends from the music industry hall of fame. He sold off the company last decade and went into CMI which is run his bro, Drago. Then 18 months ago he was bitten again by the serious audio bug when he spotted the Cohedra overseas.

HK Audio is a German firm which has grown and grown and grown some more, off the back of really sensible engineering by the Stamer brothers. They now build between 6,000 and 8,000 speaker cabinets of all sizes every month.

The message at the launch was that HK do serious engineering, and this was borne out in the demonstrations, and by looking at the way the various Cohedra components go together into an integrated system. HK have adopted a 'turn key'



*Cohedra Compact flown at left, with Cohedra array on the right.*

approach where all the components are packaged. "Imagine if you went to Mercedes, and bought the car then asked BMW to put an engine in there", said Christian Stumpp from HK.

Subsequently Cohedra and Cohedra Compact systems include processing, amplifiers, patch panels, racks, fly gear, cable sets and road cases all made by HK. Interestingly all these components appear to be of superior standard, always an issue where 'one brand' is strong in – say – speaker cabinets, but build lousy amplifiers.

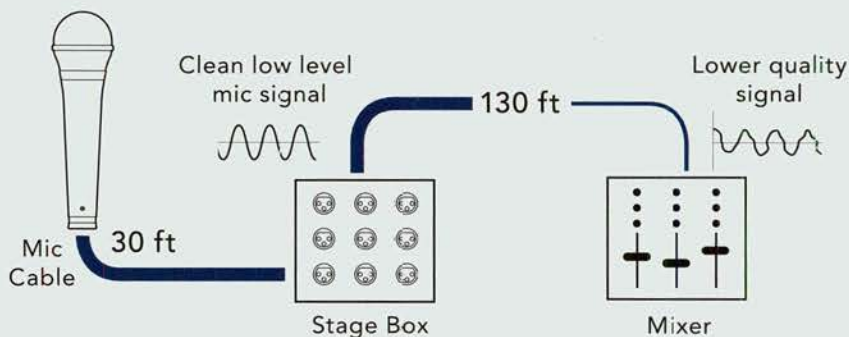
The notion of integrating electronics with speaker systems is a very sensible one, and this is one of the reasons Meyer do so well with all their products, which unlike HK, are

self-amplified. The HK solution is more traditional, you need a rack of their amplifiers somewhere on the deck.

A Cohedra Power Rack comes in two sizes. PR8 is loaded with one Digital Field Controller which is the processor. It does crossover functions, system equalization, alignment and proprietary tweaks which all loudspeaker manufacturers like to install if they make their own processor electronics. The PR 8 is also loaded with two amplifiers. This will power 8 Cohedra cabinets, or up to 16 Cohedra Compacts. There is a double sized rack, called the PR16.

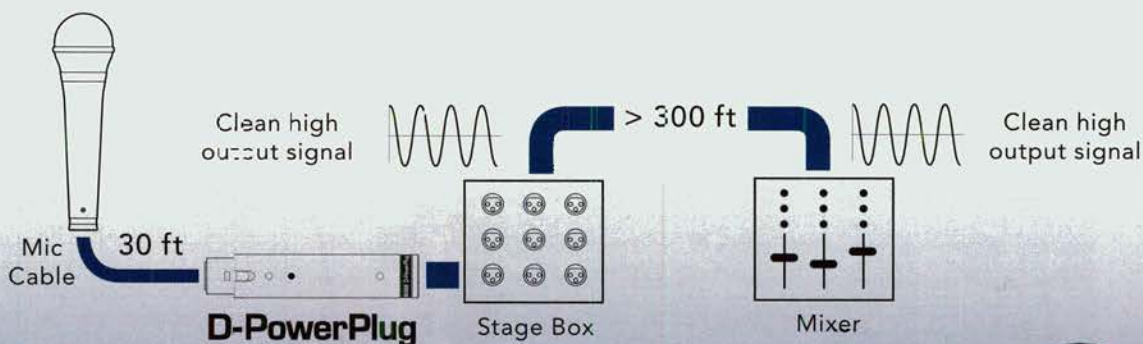
HK make several amplifiers, the VX 2400 which is installed in the PR rack

# Turbocharge your mic!



**Long cable runs can dramatically affect the purity of your sound.** Multicores of 130 ft. or longer are not uncommon in touring systems.

Every inch of cable adds resistance and capacitance resulting in reduced signal quality at the mixer. You are then faced with having to amplify that low quality signal, introducing unwanted noise.



The **D-PowerPlug** incorporates technology used in expensive active distribution systems. Featuring a precision instrumentation grade pre-amplifier, the **D-PowerPlug** will convert any dynamic microphone to a high level low-loss output.

This high level is capable of driving in excess of **300 ft.** of cable, providing improved signal quality and the added benefit of lower noise from your mixer!



## D-PowerPlug

Turbocharge your microphone

[www.rodemic.com](http://www.rodemic.com)

**RØDE**  
MICROPHONES



Members of John Farnham's band demo the rig



Very neat integrated amp racks.



Best patchbay arrangement we've seen for a long time.

delivers 1,200 watts at 4 ohms per channel with up to 2000 wats of peak, power, and appears well behaved. Up the back of the PR8 or PR 16 is a very cool switching and patching panel. It lets the user decide what is being powered – subs or main boxes – from which amplifiers, and with either NL4 or NL8 connectors, both of which are supplied. You can run one NL8 cable up to a hang of cabinets and then break out with a very neat NL8 to NL4 fan of cables.

The ability of the Power Rack to do all things Cohedra without any internal repatching is a major selling point of the system. There is less likelihood that a system engineer could re-personalise the system, which is what happens when third party processors and amplifiers are chosen by the user and installed in any one of a hundred ways, with all manner of patching and cabling.

Other makers also have this approach, but the PB5 is the best solution we've seen so far to fast, easy presets of system configurations.

Another wow factor is the flying hardware which is just too easy to use, and allows a hang to happen within the footprint of the first box.

At the complex design end of the product is a bunch of smart things including FIR filtering (for more go to <http://www.dspguru.com/info/faqs/fir/basics.htm>) in the processing, which Howard Page assured me was something Clair Brothers had been aware of for a long time, but didn't talk about. The Cohedra Acoustic Lens was a lot of science invested to produce a high frequency wave that is less susceptible to crosswinds. There is too much science involved for this article.

What is significant is that HK seem to 'own' their understanding of their technology, and have developed

proprietary innovations, whereas many other manufacturers are mouthing things and building 'me too' concepts. That was shown up with the benefit of a three hour presentation, in two parts with lunch in between, by a good presenter who was articulate, personable and relaxed in front of a terrifying audience of Australian pro audio cynics. This is, without doubt, the worst audience in the world if you slip up on a fact or leave a crack in your presentation which they will pry open without pity. I've seen plenty of sales guys subtly disassembled before their Powerpoint presentation was over by this merciless pack. Sometimes it is missed by the hired mouth, who emails HC that it all went really well, while the audio guys are laughing over beverages about all the inconsistencies and hype. That didn't happen here.

The speaker cabinets are loaded with compact components, another HK proposition (backed by demonstration) is that transient response (lag time) of a larger speaker compromises sound. An example: an Ampeg 8 x 10 bass box sounds unique (it does) and never sounds the same through a PA (it doesn't) when most PA systems have 15" or 18" bass drivers. HK load their subwoofers with 10" drivers. Radical stuff!

CMI had a great launch, now they are doing the hard work in building a brand – a job that can take three years.

**www.cohedra.dk**  
**www.cmi.com.au**

\*Julius Grafton flew to Melbourne as a guest of CMI.





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# USED NOT ABUSED

## AT Professional SFM09 stage monitor wedge.



The SFM has three pairs of Speakon connectors for near invisible wiring - one pair each side, and one pair under the front.



The porting and the handle is pleasing to behold



The SFM lined up against the CA3831 concert wedge.

### By JULIUS GRAFTON

We put this little guy up alongside a traditional bi-amplified concert wedge, to see whether it could keep up. The SFM09 is built in sunny Brisbane by Harry Lloyd Williams and Richard Faint who own AT Professional. Harry is well known in the north, he has been making loudspeakers since forever and has a formidable passion for the craft.

Likewise Richard has passion, backed with engineering chops, he is one of those audio people who breathes it and talks it. Between them, they have refined their art and today are making some products that can line up against any brand and stand equal or better.

SFM09 is compact, which is the ideal of stage monitors in this

century. It is small as it uses 8" drivers, 2 of them, and one of them has a dual concentric styled high frequency driver with a 1" exit throat driver behind it.

There are two immediate physical aspects of the SFM that endear. First is the porting and the handle, and somehow the whole shape is pleasing to behold. The other aspect that is very sexy is that it has not two, but three PAIRS of Speakon connectors - one pair each side, and one pair under the front. This way, you can design your show with neat or almost invisible speaker wiring. We like that!

But while it's one thing to have it petite and sexy in black - and we like that - it's entirely another thing to make it sound good, and sound big.

To test the big-ness, we lined the SFM up against our nearest behemoth, the CA3831 concert

wedge, loaded with a 15", 10" and a high frequency device. It's the sort of wedge you offer to Metallica.

We used the complex Juliusmedia testing algorithm for wedges and shouted into a Shure SM 58 mic. SFM came up loud - very loud - and this is good news, since it is passive, which means one amp channel is all that is needed, as against the dual channel requirement of the bi-amplified CA3831.

In the other essential test, we used the things either side of the thinking mass, and listened. SFM can't do the bass projection that a real big wedge will usually do, but it came close. And in the critical mid-highs (2k, 4k, 8k) the SFM was smooth and silky, think lycra bike shorts.

In closing: very worthy.

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# BIG HEART, BIG BRIDGÉ

## Bytecraft team get high in the wind

By JULIUS GRAFTON

Sydney Harbour Bridge is no place for the faint hearted in a wind, but Bytecraft rigged lights all over the coat hanger for New Year's Eve 2006. This was a notable event due to extreme weather conditions; the mercury hit 46.5 at the CX HQ on New Years day. It sat at 40 for days beforehand.

This year a giant heart was revealed at midnight, giving the world media an instant image of Australia as a warm and loving place, complete with half naked and fully tanked revellers kissing cops on horseback when the northworld were all freezing and chattering indoors.

Lighting designer Martin Kinnane had the Bytecraft team arrange 62 Mac 2000 Washlights in the shape of a heart to make the innermost of the concentric hearts. Each one was rigged on trusses and surrounded by a plastic weather shield so that it could be safely operated regardless of the weather conditions.

In these pictures, you can see the trucks with the pre-rigged lighting trusses being loaded onto chains to be rigged in position on the bridge. One of the big problems on the setup day was the westerly winds were tending to push the lighting trusses into the side of the bridge. This just made the setup a lot slower as care was taken.

Throughout the evening leading up to the big fireworks event, the Mac 2000's and the ropelight that made up the much larger outer heart shape were made to flash to simulate a 'beating heart'. The Mac 2000s could create the effect of a powerful beam of light streaming out of the centre of the light, which was clearly visible for many kilometres, and could even be seen on the television broadcast



The ops team (Right to Left) Peter Whitby, Paul Rigby, Hugh Taranto, Martin Kinnane.



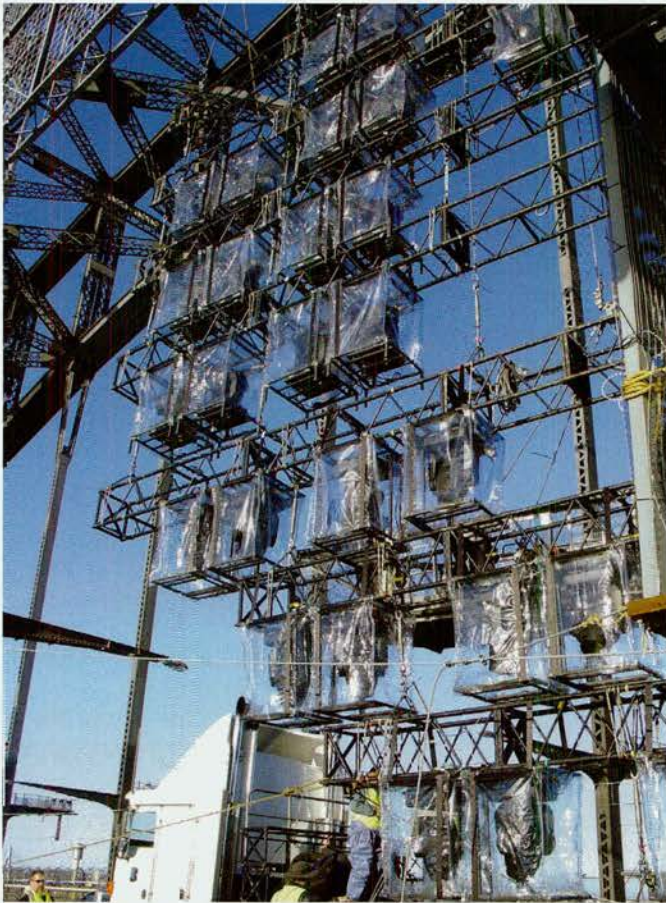
Paul Rigby with Martin Kinnane at the Opera House. Note the size and scale of the heart on the bridge!

during the main fireworks.

As the Sydney Harbour Bridge could only close driving lanes during the small hours and very early mornings, the Bytecraft crew spent many long hours through the nights leading up to the event. So from

dusk to dawn for the days between Christmas and New Years, they were rigging lights, power supplies and cable runs - as well as the DMX datalink to the Sydney Opera House forecourt where the show was controlled from.





Pre-rigged lighting trusses being loaded onto chains to be rigged in position on the bridge.



Each light was rigged on a truss and surrounded by a plastic weather shield for operation in any condition.

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# NO REALITY TV

Monica: "Shut up, the camera adds ten pounds."

Chandler: "Ah, so how many cameras are actually on you?" – Friends television episode

By RICHARD CADENA

Does Danny Bonaduce actually have red hair or does the camera add ten pounds and change your hair color? Some recent firsthand experience with video makes me wonder if the blue states really blue and the red states are really red, or if they're really some shade of magenta and pink. As it turns out, what you see on television isn't always what you get.

It's not often that you get the luxury of having access to a room with a lighting rig, some great video cameras and the time to play with them. But that's was the scenario I encountered recently. I had completed a lighting design and I went back to do some programming and training after they added more automated lighting to the rig. In the process, Bob, the video director, dropped by to assist in making some adjustments to the stage wash and check out the new lights. He cranked up the three pedestal cameras and I put some looks on the stage so we could see them on video. Two large video screens on either side of the stage painted enormous pictures of the scene. But they weren't exactly "right."

The live scene looked considerably different than its video image. In the real McCoy, the cyc was bathed in a medium blue color wash and a group of automated profile fixtures pasted an abstract image in medium red over the top of the blue wash. In real life, the red projections clearly overpowered the blue wash and dominated the scene. But on the video screens, the blue wash "bloomed" over the red images and took over as the dominant element. In addition, the blue color on the video screens was much more saturated than it was on the cyc. It was a different color, really.

After discussing it for a few minutes, we decided to experiment with the color temperature of the lights and the set up of the cameras to see if we could more closely

match the two scenes. Our idea was to balance the camera to the higher color temperature of the automated lighting and re-gel the conventional lighting to match the arc lamps. That way, we theorized, the camera would see the balance between blue and red as it was produced by the automated color wash fixtures and the video projections would more closely match the real image. So Bob placed a black and white video test pattern on a tripod downstage center and we focused the automated fixtures on the card. He re-balanced the cameras to the

"new" white light and we recreated the scene. This time the scene in the video projections exhibited no blue "bloom" and the proportion of red to blue looked very much like the original. All that remained was to re-gel the conventional lights with CTB and the problem would be solved. Or would it?

It happened that the talent was observing all of this and when he found out what we had planned to do he objected. The fair-skinned guy who would be standing in this light really liked his "instant tan" when he stepped under the conventional



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lights. A big part of this was that I had designed the system with bastard amber in the key lights and it made a big difference in skin tones. Now he wasn't about to give up his Coppertone look without a debate.

But he did have a good point. Cool light does not flatter skin tones like warm light does. If we re-gelled with CTB, we might get some frightening results. Then he had an idea. What if we just took out the bastard amber gel and left the key lights ungelled?

A few minutes later we had all the key light ungelled and once again we re-balanced the video cameras. What happened next surprised me. Bob came running out of the control room as if he had just won a trip to Disney.

"I gained a full f-stop!" he cried. Apparently f-stops are precious to video people like Bob, and he was thrilled. Why the excitement? Because video people always want more light. No matter how much light you give them they always seem to really appreciate more.

But aren't the new video cameras

much more sensitive and aren't they able to operate at much lower light levels, you ask? Well, aren't you the smart one. Yes, that's all true, but regardless, no matter how sensitive a video camera is, the more light you throw on the subject, the tighter the camera can iris down, resulting in much greater depth of field.

Depth of field? Isn't that what a lot of video people are complaining about with the new hi-def cameras, you whine, that they have too much depth of field? Stop whining and I'm sure Bob will offer a perfectly good explanation. Bob?

"It all depends," he says. Oh, there you go with your subjective clauses. Why can't video be more like lighting? If there's any question you just take out your trusty Minolta T-10 illuminance meter, read the light level and end the debate. Bob went on to explain that in certain situations, such as when you're shooting a talking head who is seated in one spot, then you might want a shallow depth of field so that the background is soft and fuzzy. But

if your subject is jumping around on the stage then it's challenging to ride the focus on the camera in order to keep a sharp picture.

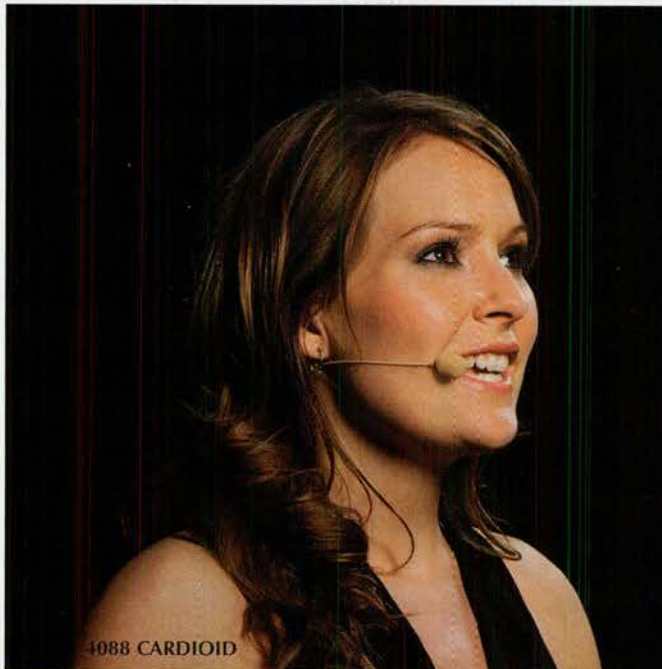
Alas, Bob's enthusiasm was tempered after the talent once again rained on the parade. He got up on stage and took one look into the newly ungelled lights and immediately nixed them. "Too bright," he said. The glare was just too much for his sensitive eyes. You could almost hear Bob's mood land on the carpet with a loud thud.

In the end, we decided to try some \_ CTB filters in the key lights to see what kind of results we get. Maybe a compromise between the actual lighting and the video reproduction is the best we can hope for. But since we didn't have any gel on hand and we ran out of time, we'll have to save it for another time.

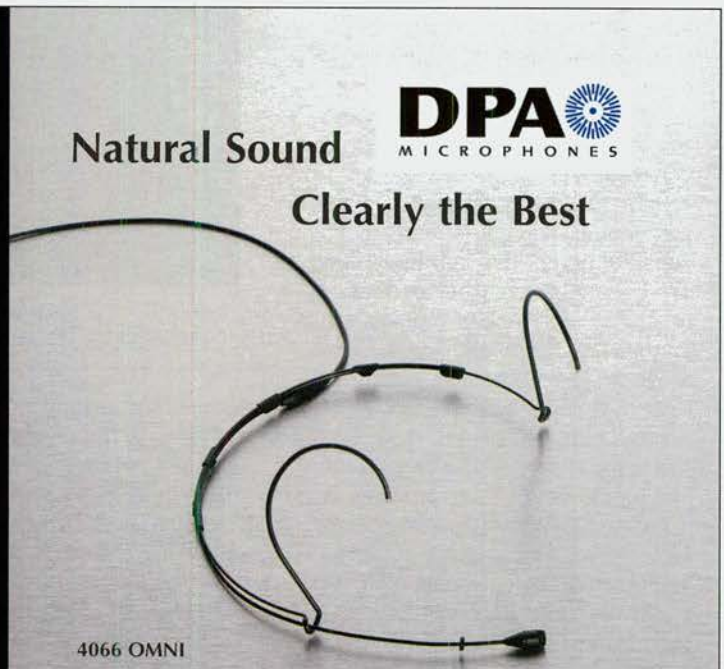
Meanwhile, don't believe anything you see on television.

*If this article has you seeing red, e-mail the author at [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com)*

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# YOUNG GUYS, NEW GEAR, GREAT SOUND



## Production Technologies is a rising company

By JULIUS GRAFTON

**CX** recently ventured to Iguana Joe's at Gosford, on the NSW Central Coast. It was an incognito night off, to watch Glenn Shorrock at a dinner show. Someone invited us, so it was free. We like free dinner shows, and this large restaurant and nightclub is on the water. Perfect combo.

While consuming a massive cooked lobster, I surmised the production component of the show had been very neatly shoehorned into the place, which probably seats around 250 in dinner mode. It was full, and I felt good as I was one of the youngest old people there. Some were, umm, very older.

Shorrock was great, he has a nice self depreciating banter and a genuine sense of humor that comes through. The band were cracker-jack session muso's who all looked vaguely familiar – I think I probably carried backline for most of them sometime last century. I put my sunglasses on when I realized that, just in case they wanted me to lug their gear out at the end, just for old time's sake! No way, guys.

I was impressed with the sound. Ricki Cook was doing the FOH mix, and Nick Macfie on monitors; it transpires that the company Production Technologies have the contract for Sunday Super Sessions at Iguana's, so I called them in to talk about it.

Ricki Cook and Nick Macfie are in partnership, and together they own quite a reasonable inventory of new equipment that they have amassed over two years. At the large end, they have a new EAW KF850z system, the newest development in the KF range.

These are married to SB850Z subwoofers, which are deadly serious



*Nick Macfie, one half of Production Technologies.*



*Ricki Cook, the other half of Production Technologies.*

cabinets in anyone's estimation.

Naturally the proceedings at Iguana's needed something a trifle more petite, so some EAW JFX 260 cabinets were hung, with some LA 400 subwoofers plonked somewhere discrete.

This installation caters for Friday night dance parties for 1500, cover bands on Saturdays, and high profile dinner shows as described on every fourth Sunday.

The boys favor Lab Gruppen amplifiers, and have a slew of fp6400 models. XTA DP processors do the system work for the EAW boxes, and when Nexo PS 15 boxes are in use, (these are ideal for monitors or smaller FOH gigs) Nexo processors are used. Ricki and Nick assert that they are seriously about to invest in

some Lake Contour processors, which are the ant's pants right now.

Other things in the inventory include XTA third octave graphics, compressors and noise gates, lots of dbx, TC, BSS and the other usual suspects in outboard; as well as some more exotic pieces uncommon in most production company's.

Large format consoles have not been added yet, but the guys expect to invest there shortly after some yet to be released digital products, (such as the new Yamaha) are released.

So what's the number one hassle running an upcoming audio company? Is it finding work? Apparently not..... "Capital is hard to come by, but if you buy the best gear, you get the best clients", says Ficki.

<http://www.ptaudio.com>



# Industry Exhibition & Conference

## Visitor Guide



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# Entertainment Technology: A Growth Industry!



For thirty years, the entertainment industry sat mainly unmeasured and aside from government funded arts support, there was not much recognition. When the Keating government announced a new vocational training framework in 1992, all industries were measured together. In 1998 the first entertainment training package was released, and the industry was better understood by the government.

Another industry review was undertaken in 2001 and 2002, followed by the revised training package which was released in 2003. In 2004 Juliusmedia published the first complete survey of economic activity within the entertainment technology industry, with a breakdown of the share enjoyed by the technical production industry. This is made up of sound, lighting, musical instrument sales, staging, vision and corporate audio/visual provision – along with all the support services for those activities within the sector.

For ENTECH 2006 the industry has been surveyed again, with the inclusion of labour information for the first time.

The majority of financial data in this report originates from the Australian Bureau of Statistics.

## THE INDUSTRY IN 2005

Overall Entertainment revenues were last surveyed by the ABS in 2000/2001 and we can assume growth of around 5% per year since. This would increase the total activity to \$3.12 billion in 2004/2005.

The survey excludes broadcast, film, radio and cinema takings – these are not included in the \$3.12 billion overall activity.

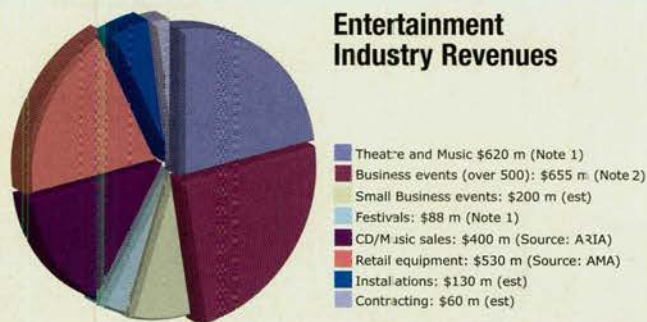
Our industry turnover figures exclude these as well – except where existing service providers supply equipment or services to film or broadcast and that market is included within their existing turnover.

Corporate and business events were measured in 2001/2002 and many people in the industry have stated that they feel the estimates were low. Example: the technical component of business events (\$75m) and small business events (\$20m) totals \$95m in our study, but one provider alone (Staging Connections) had forecast revenues of around \$80m recently. We have subsequently updated our estimates for that sector.

## INDUSTRY REVENUE

The Entertainment Industry generates in excess of \$3.12 billion annually in Australia. This is made up of:

Note 1: Australian Bureau of Statistics 2002/2003

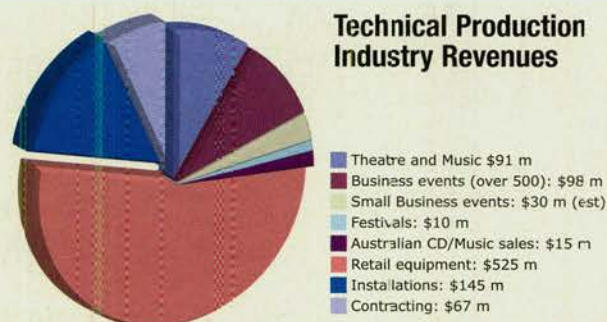


Note 2: Australian Bureau of Statistics 2000/2001

Of the total revenues of \$3,125,587,000, the technical production industry share is approximately:

For a total of \$981 million.

Of the \$525 million in Retail Equipment, we have included provisions for



lighting equipment (not surveyed by AMA) and pro vision equipment. The latest AMA survey shows pro audio equipment at import value of \$45 million, which extends to a value of \$112.5 million. The AMA has identified around 500 retail outlets for musical and audio equipment across Australia.

Ian Harvey from the Australian Music Association told Juliusmedia that he relies on an IBIS Consulting study which measures total musical economic activity in Australia at around \$5.6 billion dollars – against which the \$525 million in retail equipment sales is realistic.

Our numbers do not include broadcast equipment, or film and TV production.

## INDUSTRY PARTICIPATION

The Cultural Minister's Council have surveyed work activity in the performing arts, music and broadcast industries. The survey covers people aged 15 or over, doing paid or unpaid work. It covers the 12 months up to April 2004.

**Music:** 230,300 performers of which 64,300 were paid.

**Music:** 69,100 people not performing of which 19,500 were paid.

**Theatre:** 272,700 performers of which 40,400 were paid.

**Theatre:** 151,200 people not performing of which 32,000 were paid.

More than 15% of all people worked more than 10 hours per week.

■ Article supplied courtesy of Juliusmedia.

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Everybody WANTS a line array, but do they NEED it?	Time: 11:00 AM
<ul style="list-style-type: none"> <li>• When and when not to use one.</li> </ul>	
Maximising the shrinking wireless spectrum.	Time: 12:00 PM
<ul style="list-style-type: none"> <li>• Navigating the frequency jungle in the age of digital TV.</li> </ul>	
Idiot Proof Hi Fidelity commercial audio.	Time: 1:00 PM
<ul style="list-style-type: none"> <li>• How technology makes life easier.</li> </ul>	
Technology & Safety... finding a balance.	Time: 2:00 PM
<ul style="list-style-type: none"> <li>• So how do I focus the lights then?</li> </ul>	
New Product Release: ETC Source 4.	Time: 3:00 PM
<ul style="list-style-type: none"> <li>• New imaging and beam options for your favourite fixture.</li> </ul>	
New Product Release: Varilite VL500 moving light.	Time: 4:00 PM
<ul style="list-style-type: none"> <li>• Based on the award winning VL5 wash fixture.</li> </ul>	



# Organisers Welcome



## It gives me great pleasure welcoming all Entertainment Technology Professionals back to ENTECH.



This year, along with the industry we are exploring the integration of technologies across all sectors. This has led to the introduction of a broadcast component to the show and a new conference program to provide something for every visitor.

With the support of our conference partners, we are now able to offer Entertainment Technology professionals full and half day conference programs in vision, lighting, pro audio and broadcast.

The popular accredited OH&S training course is on again to provide necessary safety tips and knowledge for all. For new comers we have added an introductory to the industry course teaching the basics and jargon to get you started.

The trade show floor has again attracted key industry players and professional exhibits. I would like to thank all exhibitors who have continued to support ENTECH and those who are supporting us for the first time. Thank you for all your efforts in displaying exciting new projects and offering visitors an event where the industry can come together.

I wish you all a successful and fulfilling ENTECH 2006!

**Louise Brooks**  
Event Manager

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# The Conference Program

## **OH&S Course presented by Juliusmedia**

**Sunday 12th February 2006**

**10am - 5pm**

*Hosted by Andy MacKenzie, Technical Training Manager, Juliusmedia College*

The OH&S course at ENTECH 2006 is a certificate accredited course based on modules from the Juliusmedia training college. The OH&S course will cover the following modules and upon completion an industry recognised certificate will be awarded.

### **OHM-01 Height Safety – 10am-11am**

Details kinds of safety equipment, arrest and rescue requirements, ladders and high reach devices. What is acceptable, what is not.

### **OHM-02 Manual Handling of Show Equipment – 11.30am-12.30pm**

With practical component. What is your legal lifting limit? Shows the best and safest methods for handling large, heavy or un-usual items of equipment.

### **OHM-03 Show Electrical 2pm-2.30pm**

Starts with basics, what is three phase, what is single phase, relationship between watts, amps and load, earth leakage breakers, and power essentials.

### **OHM-04 Show Practices 2.30pm-3.30pm**

Jargon of the industry, glossary of terms, which is 'prompt', etiquette of the stage, etc.

### **OHM-05 The Induction, The Laws, and You 4pm-5pm**

Gives individuals the shocking realisation they can be heavily fined, along with their employer. Details what to look for at a venue, or with a new show.

## **Introductory Cram Course for Industry Beginners presented by Juliusmedia**

**Sunday 12th February 2006 10am - 5pm**

*Hosted by Julius Grafton, Director Juliusmedia*

This is the entry portal to the sensational world that is ENTECH. In one action packed day you'll be given a crash course in what all this 'stuff' does. This is a new idea, where Juliusmedia college attempt to infuse you with almost all the jargon and acronyms you need to know! This course suits all beginners and sales and admin staff who work alongside technical people!

We delve into sound, lights, vision and staging. This isn't a nationally recognised or endorsed course, BUT everyone doing this course gets a credit voucher so the entire cost of this ENTECH cram course can be claimed against any Juliusmedia course in any state during 2006!

## **InfoComm Academy @ ENTECH**

**Monday, 13 February 2006**

**9am – 5pm**

The InfoComm Academy at Entech is a series of four, 90 minute Seminars designed to aid buyers and users of Audio Visual technology from Building, Corporate, Education, and Government sectors. The presenters are people from the Audio Visual industry with many years experience. They will present information focused on current trends and technology from their area of expertise.

### **AV Infrastructure Co-ordination for Installation Projects**

**– 9am-10.30am**

*Paul Brown, CTS-D, Managing Director & Principal Consultant, Integrated Media Systems (Australia)*

Project planning has huge budgetary implications. This cost of getting it wrong can be devastating to a project. Infrastructure co-ordination between AV and other aspects of a project is critical. Yet all too often, the technology that enables a space to live up to its intended purpose, is overlooked until the project is almost complete. This causes costly re-works in the late stages of a project when both time and money are tight.

This seminar will deal with Architectural and Engineering items that need to be considered throughout the project. In particular, you will learn to understand the importance of identifying items and issues requiring co-ordination with other project areas. You will also learn to create comprehensive co-ordination checklists for distribution to other disciplines and trades. Finally you will learn to understand design requirements and limitations for co-ordination items and how to negotiate where there are conflicts with other requirements. Tips and examples will be given, with reference to general design concepts and good design practice.

### **Signal Management for AV Systems**

**- 11am- 12.30pm**

*Presented by InfoComm Academy Instructor(s)  
– Fairfax VA, USA*

With such diversity in Audio Visual technology, is it any surprise that the signals in an Audio Visual System travel in many formats across many different cable types or frequencies. Without a clean signal your Audio Visual System will re-produce nothing but noise.

This seminar will look at Audio Visual signal types and their application. We will discuss how Audio Visual Signals travel from the source, through various types of processing equipment to the output device. We will also discuss the potential effects that the physical environment can have on Audio Visual Signals and what to do about it.

### **Characteristics of Audio Visual Display Devices 2pm – 3.30pm**

**James Waldron, Senior Product Manager – Business Display**

*Sony Australia*



Selection of the "Right" Audio Visual Display Device, is critical to getting your message across to your audience. This Seminar will look at the different types of display devices available in the market today (CRT, LCD, DLP, Plasma, D-ILA, LCoS, LED, and OLED) and where future product development is likely to take us.

We will discuss how the different display devices work and the Pros and Cons of each one, as used in typical business and educational settings, taking into consideration, the Audience, Material Presented, and Environmental Factors

### **Audio Visual Presentation Support – 4pm – 5pm**

*Presented by InfoComm Academy Instructor(s)  
– Fairfax VA, USA*

Be Seen, Be Heard, That's the Goal of everyone that has to present information to an audience, be it to 1 or 1000. Your presentation deserves the best treatment it can get, after all it includes valuable information.

This seminar is designed to give you the utmost confidence that your message will be seen and heard. It will look at the relationship between your presentation content, the venue and its layout, current presentation technology and how you as the presenter take control of your presentation, whether your pushing the buttons or not.

### **The ENTECH Pro Audio Conference supported by Juliusmedia**

**Monday 13th February**

**9am - 5pm**

#### **Digital Audio Transport and Networking**

*Hosted by Julius Grafton and Andy MacKenzie, with a host of industry gurus from some of these manufacturers:*

*\* Ethersound (Digigram) \*Aviom \*Media Matrix \*Rane \*BSS (Soundweb) \*Crown \*Optocore \*Netcira (Fcstex) \*Whirlwind*

Welcome to the new era of distributed audio on Cat 5 and Fibre. This conference deals with shifting files, and shifting formats. We will enter at the A/D converter and spend the day streaking around the conference room at the speed of data.

The whole conference session is literally devoted to routing audio and the various formats and protocols that do it and enable it. Cables, software, networks, and TCP/IP.

Whether you work in live sound, contracting, or studio, this conference will assist your understanding of what is the state of the art in getting sound in and out of more places, cheaper, faster and patched remotely.

#### **Session 1: Introduction 9:00am – 10:30am**

The day will start with a basic overview of how digital audio works: Sampling, quantisation, time compression and frames, basic principles of error correction and latency. We will also cover some of the basic principles of data networking. This session will also include an introduction to some of the technology available – transport, DSP and networked systems.

#### **Session 2: File and Transmission format overview 11:00am – 12:30pm**

We continue by looking at specific transmission formats used by different manufacturers' systems: coding, error correction, latency, sample rate, bit rate and other factors affecting audio transfer, quality and reliability. We will also look at issues including hardware requirements, network bandwidth, channel count and compatibility with other equipment.

#### **Session 3, 2.00pm - 2:30pm.**

Scenario: Broadcast.

#### **Session 4, 2:30pm-3:30pm.**

Scenario: Live Major Event.

#### **Session 5, 4.00pm – 5.00pm.**

Scenario: Contracting Solution.

As the day goes on, we will look at the solutions offered by each system represented to a range of scenarios. These scenarios will involve both simple audic transport solutions and DSP controlled systems.

### **The ENTECH Broadcast Conference presented by Broadcastpapers Content + Technology**

**Tuesday, 14 February 2006**

**9pm-5pm**

#### **Audio Post-Production 9am-10.30am**

Using real world examples, this session will look at the complexities of modern audio post-production and the latest tools available. On-set, on location and in the mixing suite, you'll hear what has to be done to control the sometimes uncontrollable.

#### **Radio & Mobile - 11.30am - 12.30pm**

*Presented in Conjunction with Commercial Radio Australia*

**Digital Radio** - Australia is gearing up for Digital Radio and the standard is Eureka 147 DAB. CD-quality audio, data and picture services are all part of an exciting future for the oldest electronic medium. This session will not only examine what the standard can deliver, but also coming business models and what you can do to get your facility 'up to scratch'.

**MP3** - Audio is now on the move with podcasting, ringtones and music download services. Hear the latest for the local industry and the offshore potential.

#### **Audio For Broadcast Television 2pm-3.30pm**

Digital TV has not only brought audiences clearer pictures, but also clearer sound. Get an update on the state of audio for television, including Dolby AC-3 & E, as well as live sound in the studio and on location.

#### **Film Sound In Focus 4pm - 5pm**

If you think today's visual effects for film are complex, lend an ear to the art of sound design. With examples from recent feature film releases, this session will demonstrate that not all is as it sounds, but it all goes to believing what you're hearing.



## **The ENTECH Business Laws Conference presented by Juliusmedia**

**Tuesday, 14 February 2006**

**9am – 12.30pm**

*This conference is chaired by Julius Grafton, publisher of CX Magazine and CEO of Juliusmedia College.*

*Featuring:*

*Col Peet (Operations Manager, Parramatta Riverside)*

*Michael Kent (Technical & Safety Supervisor, Playbill Venue Management)*

The new entertainment employment landscape  
(Incorporating laws and nightmares in the real world)

In 2006 we are at the peak of a legal eruption that threatens to clog our enterprises with paperwork, legislation and unworkable remedies. Our conference addresses the issues and outlines some sensible pathways.

This is not a seminar of lawyers and apparatchiks who dish up more questions than answers. This is a gathering of like minded individuals who battle red tape on a daily basis.

Join us as we detail:-

### **Self regulated OH&S implementation that works for employers.**

- What are the steps? What are the main issues? How can this be simplified?
- How far do we need to go as an industry?

### **Filling skills gaps, how to recruit and retain trainees**

- How to best use Government training funding
- Employer sponsored migration – can it work for you?
- Validating existing skills – how it works for you and your staff.

### **The Big Picture**

- A snapshot of the entertainment industry, what it is worth, where the opportunities lie, what are the career pathways, how we can better keep our skilled people motivated.

## **The ENTECH Lighting Conference**

**Tuesday 14th February 2006**

**2pm - 5pm**

*Hosted by Rohan Thornton, leading Lighting Designer*

Our first dedicated LIGHTING conference will be very exciting!

Join us as we explore MEDIA SERVERS and LED PANELS driven by DMX!

This is the red hot new thing for lighting. Suddenly vision and lighting are coming from the same place, as lighting directors fire video clips and effects using their existing DMX consoles. Media Servers store clips and files, and lighting consoles can now cue, fire, and stop multiple clips to multiple LED panels - a whole wall of images, or a cluster of panels each with discrete imagery.

This keynote conference will be hosted by leading Lighting Designer,

Rohan Thornton Rohan is lighting supervisor at GTV 9 and has a stellar portfolio of work spanning TV, theatre, large scale events, concerts and architectural. He is considered one of the top practitioners of his art in Australia, and travels overseas regularly.

"Imagine the creative director says he wants a desert look. You send clouds to the LED screens, and have yellow light on the talent. Then there is a storm - the panels flash white at the same time as the lights. You can only do all that, perfectly sync'ed, from the lighting desk", he says.

See: the new equipment - Media Servers and the latest LED panels.

Discuss: the costs, the issues, the amortisation and the trends.

Explore: the possibilities, the content, the looks and the issues.

Rohan will demonstrate and show the relationship between devices like the Hipotizer Media Server and LED panels and products. He will draw on TV, Concert and Music Touring knowledge, with extra help from his friends.

## **CONFERENCE PROGRAM SUMMARY**

**SUNDAY 12 February 2006**

**EXHIBITION CLOSED**

### **Room 1**

**ENTECH OH&S Course presented by Juliusmedia**

**Hosted by Andy Mackenzie, Technical Training Manager, Juliusmedia College**

10am – 11am OHM-01 Height Safety

11am – 11.30am: Morning Tea

11.30am – 12.30pm: OHM-02 Manual Handling of Show Equipment

12.30pm – 2pm: Break to visit Tradeshow Floor

2pm- 2.30pm: OHM-03 Show Electrical

2.30pm – 3.30pm: OHM-04 Show Practices

3.30pm – 4pm: Afternoon Tea

4pm – 5pm: OHM-05 The Induction, The Laws, and You

5pm concludes

### **Room 2**

**ENTECH Introductory Cram Course for Beginners presented by Juliusmedia**

**Hosted by Julius Grafton, Director, Juliusmedia**

10am- 11am: Mini OH&S Session

11am – 11.30am: Morning Tea

11.30am – 12.30pm: Introduction to Lighting

12.30pm – 2pm: Break to visit Tradeshow Floor

2pm- 2.30pm: Introduction to Lighting (Cont.)

2.30pm – 3.30pm: Introduction to Sound

3.30pm – 4pm: Afternoon Tea

4pm – 4.30pm: Introduction to Sound (Cont.)

4.30pm – 5pm: Meet the vision systems

5pm: Concludes

**Monday, 13 February 2006**

**EXHIBITION OPEN FROM 10AM – 6PM**

**Room 1**

**InfoComm Academy @ ENTECH**

9am-10.30am: AV Infrastructure Co-ordination for Installation Projects  
Rod Brown, CTS-D, Managing Director & Principal Consultant,  
Integrated Media Systems (Australia)

10:30am – 11am: Morning Tea

11am- 12.30pm: Signal Management for AV Systems

Presented by InfoComm Academy Instructor(s) – Fairfax VA, USA

12.30pm – 2pm: Break to visit the Trade Show Floor

2pm – 3.30pm: Characteristics of Audic Visual Display Devices

James Waldron, Senior Product Manager – Business Display

Sony Australia

3.30pm – 4pm: Afternoon Tea

4pm – 5pm: Audio Visual Presentation Support

Presented by InfoComm Academy Instructor(s) – Fairfax VA, USA

5pm: Concludes

**Room 2**

**The ENTECH Pro Audio Conference**

**supported by Juliusmedia**

9am-10.30am: Introduction

10:30am – 11am: Morning Tea

11am- 12.30pm: File and transmission format overview

12.30pm – 2pm: Break to visit the Trade Show Floor

2pm – 2.30pm: Workshop 1 A scenario with solutions:

Scenario – Broadcast

2.30pm – 3.30pm: Workshop 2 A scenario with solutions:

Scenario – Live Major Event

3.30pm – 4pm: Afternoon Tea

4pm – 5pm: Workshop 3: A scenario with solutions:

Scenario – Contracting Solution

5pm: Concludes

**Tuesday, 14 February 2006**

**EXHIBITION OPEN FROM 10AM – 6PM**

**Room 1**

**The ENTECH Broadcast Conference presented by Broadcastpapers Content + Technology**

9am-10.30am: Audio Post-Production

10:30am – 11am: Morning Tea

11.30am - 12.30pm: Radio & Mobile

Presented in Conjunction with Commercial Radio Australia

12.30pm – 2pm: Break to visit the Trade Show Floor

2pm-3.30pm: Audio For Broadcast Television

3.30pm – 4pm: Afternoon Tea

4pm - 5pm: Film Sound In Focus

5pm: Concludes

**Room 2**

**The ENTECH Business Laws Conference presented by Juliusmedia**

9am-10.30am: Introduction & Self Regulated OH&S and You

10:30am – 11am: Morning Tea

11.30am - 12.30pm: Skills Gaps: Identify what skills are in demand

12.30pm: Concludes

The ENTECH Lighting Conference: Media Servers and the LD

Hosted by Rohan Thornton

2pm-3.30pm: Lighting Session 1

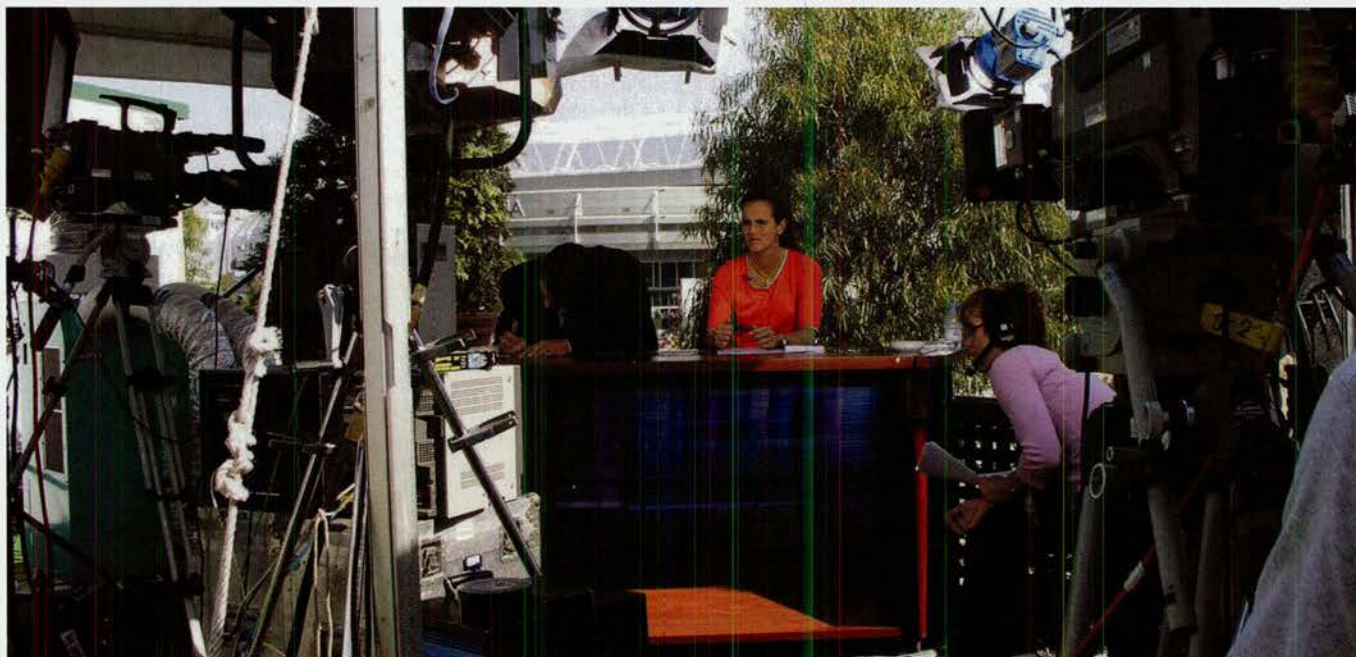
3.30pm – 4pm: Afternoon Tea

4pm - 5pm: Lighting Session 2

5pm: Concludes

**Wednesday, 15th February 2006**

**No conference sessions, Exhibition Open 9am - 5:30pm**





# Demo Rooms Program

## Tumbalong Auditorium – APAC Audio

APAC Audio presents live demonstrations and new product displays of Electro-Voice, Dynacord, Midas, Klark Teknik, Telex and Optogate on the hour every hour. Featuring leading Australian artists and keynote speaker Christian Glueck, Director of Product Management – Prosound, Telex Communications Inc.

### Monday & Tuesday:

- 11.00 – 11.15am  
EV Speaker Systems – featuring Zx series
- 12.00 – 12.15pm  
EV & Dynacord Powered Speaker Systems – featuring Guest Performer
- 1.00 – 1.15pm  
Dynacord Presentation – featuring D-Lite, Xa2
- 2.00 – 2.15pm  
EV floor monitors demonstration
- 3.00 – 3.15pm  
Klark Teknik equipment & Midas mixing consoles demonstration
- 4.00 – 4.15pm  
Microphone Presentation – featuring EV Blue series, RE97TX, Optogate line
- 5.00 – 6.00pm  
Major feature – live performance by leading Australian artists featuring the NEW X-Line Very Compact Line Arrays XLD & XLE



### Wednesday:

- 11.00 – 11.15am  
EV Speaker Systems – featuring Zx series
- 12.00 – 12.15pm  
EV & Dynacord Powered Speaker Systems – featuring Guest Performer
- 1.00 – 1.15pm  
Dynacord Presentation – featuring D-Lite, Xa2
- 2.00 – 2.15pm  
Klark Teknik equipment & Midas mixing consoles demonstration
- 3.00 – 3.15pm  
Microphone Presentation – featuring EV Blue series, RE97TX, Optogate line
- 4.00 – 5.00pm  
Major feature – live performance by leading Australian artists featuring the NEW X-Line Very Compact Line Arrays XLD & XLE

## Demo Room 1 – JANDS Timetable (repeated daily) is as follows:

- 11am Everybody WANTS a line array, but do they NEED it When and when not to use one
- 12pm Maximising the shrinking wireless spectrum Navigating the frequency jungle in the age of digital TV
- 1pm Idiot proof hi fidelity commercial audio How technology makes life easier



- 2pm Technology & Safety... finding a balance So how do I focus the lights then?
- 3pm New Product Release: ETC Source 4 New imaging and beam options for your favourite fixture
- 4pm New Product Release: Vari\*lite VL500 moving light. Based on the award winning VL5 wash fixture

## Demo Room 2 – TBC

## Demo Room 3 – National Audio Systems

National Audio Systems Pty Ltd – Demo Room 3  
d&b audiotechnik



### Rundown

The latest ground breaking product series from Germany's d&b audiotechnik lines up to go the distance. On display will be the all-new J Series medium/large format line array system along with the record breaking Q series small/medium format line array as used for the Boiler Room 2005 for the Gold Coast Big Day Out. Other d&b systems and series will also be on display at Demo Room 3.

Ralf Zuleeg, Head of Training and Support for d&b audiotechnik in Germany will also be presenting a series of seminars each afternoon that include "Demystifying Audio", "Line Array Theory" and "Software Analysis and Support". Keep up to date and register for these seminars at [www.nationalaudio.com.au](http://www.nationalaudio.com.au) and follow the links. All participants will be presented with a certificate on completion from Ralf and d&b audiotechnik.

During the mornings the demo room will be open to all interested parties for viewing and brief auditioning of systems or chatting to Ralf, Peter Tongue Sales Director for d&b, Simon Johnston Marketing Director from Great Britain or our own Shane Bailey.

The brand, d&b audiotechnik has enjoyed a huge surge in popularity in Australia over the last 12 months with several key installations in place along with major rental partners. The key philosophy behind each system is complete and precise with all system components being designed, manufactured and engineered all at the one facility in Germany.

For all session times and details during Entech log onto [www.nationalaudio.com.au](http://www.nationalaudio.com.au) and follow the links.

## Demo Room 4 – HK Audio

In demo Room 4 CMI Will be launching the HK AUDIO, COHEDRA Line Array speaker system with demonstrations in our demo Room.

In attendance will be one of the engineers and part of the design team from HK Audio in Germany.

CMI will also be showing and demonstrating the latest from Wharfedale Pro and DB Technologies





# Exhibitors

## A Brighter Image

**J37** 6/16 Ada Ave Brookvale NSW 2100 Australia  
 P: +61 2 9938 6866 F: +61 2 9938 6899  
[www.abimage.com.au](http://www.abimage.com.au)

## Altronic Distributors

**H29** 15 Short St Auburn NSW 2144 Australia  
 P: 1300 780 999 F: 1300 790 999  
[www.altronics.com.au](http://www.altronics.com.au)

New for ENTECH 2006 and Altronic Distributors: NEW power amplifiers and Pro range of speakers from Biema, NEW additions to our Audio solutions range, NEW 2005-2006 catalogue, NEW Multiroom Audio from Pro-art, NEW portable PA The BlackMAX MK2, NEW Redback Catalogue, NEW DSP product from REDBACK, Showrooms and warehouses now in Sydney, Melbourne and Perth.

## Amber Technology Ltd

**J17** Unit B / 5 Skyline Place Frenchs Forest NSW 2086 Australia  
 P: +61 2 9452 8600 F: +61 2 9975 1368  
[www.ambertech.com.au](http://www.ambertech.com.au)

Amber Technology's stand will be packed with the latest Pro Audio & A/V gear from such industry-leading manufacturers as TC Electronic, SSL, Neutrik, DPA, Dynaudio Acoustics, Canare & Optoma – plus many more. Entech 2006 will see the Australian show debut for several new models including SSL's XLogic range of SuperAnalogue outboard gear, state of the art vocal processors from TC-Helicon and some very exciting developments from DPA Microphones. Other hot products to check out on the Amber stand include:

- Optoma super-compact, high-performance projection systems.
- A host of revolutionary new connector designs from Neutrik.
- SE – the new name in high-performance, low-cost studio microphones.
- Super-tough headsets & headphones from MB Quart, Germany.

## APAC AUDIO Pty Ltd

**Tumbalong Auditorium** James Ruse Business Park Unit 2C 6 Boundary Road Northmead NSW 2152 Australia  
 P: +61 2 9683 4752 F: +61 2 9890 5928  
[www.apacaudio.com.au](http://www.apacaudio.com.au)

APAC (Australia Pacific) Audio will once again be showing off their arsenal of product in the Tumbalong Auditorium at ENTECH 2006. APAC (formerly EVI Audio) are the Australasian distributor for the Telex Communications Corporation family of products. These brands include U.S. sourced product from Telex and Electro Voice as well as German sourced product from Electro Voice and Dynacord and English product from Klark Teknik and Midas. In addition APAC will be featuring a new agency line from Optogate in Germany.

As well as both local and interstate staff the APAC workforce will be supplemented by international visitors in the form of Christian Glueck from Electro Voice in the U.S. Christian has many years experience with EV and as Director of product management brings a level expertise across a wide variety of products. The second international visitor is Mark Gubser who is the U.S. product manager for RadioCom (most notably the popular BTR line). Mark has come to this role from an engineering background and as such has great expertise in RF.

## ATT Audio Controls

**M17** 452 Gaffney Street Pascoe Vale VIC 3044 Australia  
 P: +61 3 9379 1511 F: +61 3 9379 9081  
[www.attaudiocontrols.com](http://www.attaudiocontrols.com)

New from the Studio/Broadcast Department include Merging Technologies Pyramix V5.0, Isis Controllers, Luxor Media Server, VCube HD Video Player/Recorder and Sphinx 11 Audio Converters and Interfaces. From Studer a Vista 8 and On-Air 500 Console. The complete Quested S Series will be on display as will products from EMM Labs and Martinsound. New from the Sound Reinforcement Department, an Adamson Spektix and Y-Axis Line Array. Various items from Kling & Freitag including the new SP Series. The Lake G2 platform will make its debut. Various offerings from Cadac and Timax. Classic Audio Designs on display will include devices from Broadhurst Gardens, Helios, Langley Designs, Raindirk, Thermionic Culture and making its debut in Australia, Portico from Rupert Neve Designs.



### Audio Chocolate

**R6** 685 Burke Road Camberwell VIC 3124 Australia  
P: +61 3 9813 1833 F: +61 3 9813 1822  
www.audiochocolate.com.au

Audio chocolate proudly represent boutique Pro Audio solutions. Founded in 1999, it is the sole director that Audio Chocolate offer the highest level of hardware and software, to offer a real world working solution to it's professional Audio Client. Audio Chocolate proudly represent :

- ADAM monitors
- BIGFISH audio sound libraries
- Cranesong
- Cycling 74 software solutions
- Dangerous Music
- DaveSmith Instruments synthesizers
- Drumcore software
- Grace Design
- Lynx Studio technology soundcards and converters
- Metric Halo mobile hardware and software for Apple
- Millenia
- Moog
- Mytek converters
- Ultimate Sound bank software and sound library
- RealTraps Bass trap and room reinforcement products
- Sony Oxford
- Soundelux microphones
- Sonic Studio hardware and software for mastering
- T.H.E. microphones
- SPL hardware solutions

### Audio Products Group

**M10** 67 O'Riordan St Alexandria NSW 2015 Australia  
P: +61 29669 3477 F: +61 2 9578 0140  
www.audioproducts.com.au

Audio Products Group exclusively distributes leading brands in Pro Audio and Installed Sound. We are exhibiting the latest releases from AKG, Denon Professional, Denon DJ, Marantz Professional, Peavey, Biamp and TOA. Denon Professional exhibits award-winning digital DJ CD turntable technology, DJ mixers and rack mountable professional source products.

Marantz has professional portable and rack mount recording solutions and source products. Come see Peavey's speaker ranges SP, PR, QW and PV as well as Peavey PA power amplifiers GPS, CS and PV. New from AKG are studio condenser microphones, upgrades of the renowned WMS40 series, DJ headphones, communication and broadcast headsets, and the Crystal Clear Sound range. Biamp exhibits AEC-2W, a wide band Acoustic Echo Cancellation module for Audiaflex and DaVinci software for creating end-user control screen interfaces. TOA exhibits 100 Volt Line Amplifiers, Wireless Microphone Systems, Wide Dispersion Speakers, Column Line Array and Variable Dispersion Speakers and Digital Mixers.

### Australasian Lighting Industry Association (Incorporated)

**M45** PO Box 189 Mount Kuring-Gai NSW 2080 Australia  
P: +61 419 925 730 F: +61 3 6229 1662  
www.alia.com.au

ALIA is an organisation formed by and for people with a passion for the art, science and technology of light. Our primary goal is to promote the exchange of knowledge about lighting. Membership is open to everyone in lighting; whether they design the lighting for theatre, international concert tours, major musicals or architectural applications, sell lighting equipment, teach drama and technical production, work as lighting crew on films and television productions, work on community and school productions, or create lighting products. Visit the ALIA Entech lighting lounge room to catch up with old friends or to find out more about becoming a part of the lighting industry

### Australian Audio Supplies

**K25** PO Box 183 Ourimbah NSW 2258 Australia  
P: +61 2 4388 4666 F: +61 2 4388 4688  
www.ausaudio.com.au

Australian Audio Supplies is please to present an array of new products from Mackie at Entech 2006. On display will be the revolutionary new DXB Digital Recording Console and the TT24 Digital Live Console which continues to grow in popularity in the Australian Market. Also on display will be the new large format ONYX 80 series mixers which offer outstanding value for money with a full feature set housed in a robust all steel chassis. A number of new speaker offerings will also be on display including the new Precision Passive Range and a number of new Active models. Mackie is always at the forefront of innovative audio technology, make sure you drop by the stand and check out their latest cutting edge technology.



**Australian Tel-Tec Pty Ltd**

L38 Unit 2 14 Leighton Place Hornsby NSW 2077 Australia  
P +61 2 9482 4533 F: +61 2 9482 4769 www.teltec.com.au

Australian Tel-Tec distributes the ACD range of high performance audio, video and data connectivity and patching solutions installed in broadcast studios, production/post facilities and mobile trucks. For critical high definition programming, broadcasters rely upon ADC's high quality, innovative infra structure solutions to provide a long stable platform for service delivery. The products displayed will include the latest in audio and video patchfields, BNC connectors, Triaxial camera connectors and RS422 patching along with a range of Ethernet/Data connectivity patch panels, media converters and fibre optic management products.

**AV Stumpfl Australia/New Zealand – ITI-Image Group Pty. Ltd.**

C6 3/12 Salisbury Rd Hornsby NSW 2077 Australia  
P: +61 2 9477 5709 F: +61 2 9476 3276  
www.iti-imagegroup.com.au

AV Stumpfl Australia will demonstrate Wings Platinum multi screen event software with image warp features on a curved screen, AV Stumpfl Show Control Technology and MonoBlox, the world leading portable projection screens. We will demonstrate Stumpfl Vario screen technology, the ideal solution for custom applications. New for Australia we will show SAX3D holographic RP screens, made in Germany.

**audioproducts  
Group**

Audio Products Group represents a diverse group of Pro Audio brands that provide products for use on stage, in pubs and clubs, for touring, in studios and for all your wireless needs.



**Visit  
stand  
M10**

Call: 1300 134 400 or visit:  
www.audioproducts.com.au



- Microphones
- Headphones
- Headsets



- Professional DJ Equipment



- Source Devices



- Sound Reinforcement



### AVE Audio Visual Engineering

**P32** 12 22-24 Rhur St Dandenong VIC 3175 Australia  
P: +61 3 9792 2357 F: +61 3 9792 2357  
www.avecorp.com.au

AVE Audio Visual Engineering will have on exhibit a range of Australian Made AV products and also presentations outlining our services to the Audio Visual Industry. We will be exhibiting our metal and wood work services and products such as roadcases, custom built speaker cabinets, brackets, trussing clamps and speaker/lighting stands. This will be a great opportunity to discuss your custom build requirements as engineers and sales team will be present. Also on display, a range of AVE products including lighting, speakers and mixers, just to name a few. Come see the newly released Citronic DJ products direct from Amsterdam.

### B & M Trading Co

**G36** 13/966 Botany Road Mascot NSW 2020 Australia  
P: +61 414 236 336 F: +61 2 9317 4986  
www.bmtrading.com.au

This range of US designed laser lights have finally been brought to Australia by B&M Trading Co and are ideal for laser shows anywhere- from bowling alleys to nightclubs. For those of you who want to get into the party, these lights have a sound activation mode where you can dance all night to the varying designs that twist and turn with the music. These affordable high quality laser lights, available from our stand at the Entech Exhibition, will give your party distinctive taste and make all your friends swoon in jealousy. Please feel welcome to come and make an enquiry.

### Balanced Technology Pty Ltd

**L49** PO Box 154 Goodwood SA 5034 Australia  
P: 1300 305 832 F: 61 8 8270 6921  
www.balancedtech.com.au

Balanced Technology will be showcasing all the hottest tools available to lighting and entertainment professionals today, including:

- the Pocket Console DMX – a 512ch Lighting Console that fits in your hand
- the new, improved Littlite LED range – now almost 50% brighter
- Enttec's LightFactory Starter Kits, DMX/USB devices, the new Programming & Playback Wings & their latest DMX recording & Ethernet devices
- Goddard's Lil'DMXter range of DMX tools
- the Bulls-eye Followspot Sight
- Holdon instant eyelets
- and all the up-to-the-minute innovations from Brown's Precision Welding

Plus some new stuff that's so top secret you'll have to swing by L49 to find out!

### Beaver Sales Pty Limited

**L30** 340 Victoria Street Wetherill Park NSW 2164 Australia  
P: +61 2 9034 5444 F: +61 2 9034 5498  
www.beaver.com.au

The Beaver stand (L30) will be featuring the Liftket brand range of Electric Chain Hoists and Trolleys, which are German made, designed & developed especially for use in the entertainment industry in areas such as theatres, operas, TV studios, night clubs, stadiums, shopping centres, airports, exhibition centres etc. Beaver will also be displaying their range of entertainment industry accessories, which include Integral Push Trolley & Clamps, Adjustable Girder Clamps, Grade 'S' Rated Lifting Shackles, Synthetic Polyester Round Slings etc, all of which comply with their relevant Australian Standard.

### Blank Canvas Publishing Ltd

**P38** First Floor Suite, 30a Church Road Tunbridge Wells Kent TN1 1JP United Kingdom  
P: +44 1 892 676 280 F: +44 1 892 676 282  
www.proaudioasia.com

With offices located in Singapore, Beijing and the U.K., Pro Audio Asia (PAA) and Pro Audio Middle East serve to inform those readers who make their living from the pro audio business. With a BPA audit in development, editorial integrity and circulation development remain the core foundations of our no-compromise publishing philosophy. In an effort to provide our Chinese readers with an improved service, we now publish a Simplified Chinese version to all our readers in China directly from Beijing. Free copies of the current January / February 2006 PAA issue and subscription cards are available on the booth.



### Blue Cat Case Company

**G37** Unit 1/4 Combarton St Brendale QLD 4500 Australia  
P: +61 7 3889 7755 F: +61 7 3889 9744  
[www.cases.com.au](http://www.cases.com.au)

Featuring new low cost bulk produced products from Go Case. See examples of precision CNC cut foam & panels. View the best quality cases by Blue Cate at lowest prices in Australia.

### Bosch Security Systems

**L32** 25 Huntingwood Drive Huntingwood NSW 2148 Australia  
P: +61 2 9672 1777 F: +61 2 9672 1717  
[www.boschsecurity.com/au](http://www.boschsecurity.com/au)

Don't miss the Bosch Security Systems stand. You can learn about our PRAESIDEO Digital Public Address and Emergency Warning system - the first to be certified to the new Australian standard, Sound Systems for Emergency Purposes-AS60849.2004. Proven in over 1,500 prestigious sites worldwide, PRAESIDEO has now gained its Australian laurels with a growing list of demanding installations being added to its enviable reference list. For the Offshore Market, PRAESIDEO is also SOLAS certified. We will also be exhibiting the new DCN New Generation Congress System, as well as our Integrus Digital Infrared Audio Distribution system, and our prestigious CCTV range.

## audioproducts Group

Audio Products Group represents a diverse group of brands that provide audio products for installations at conference centres, auditoriums, houses of worship, airports, zoos, and for portable applications such as field recording.

Visit  
stand  
**M10**

Call: 1300 134 400 or visit:  
[www.audioproducts.com.au](http://www.audioproducts.com.au)



- Microphones
- Headsets
- Installed Sound



- Public Address Systems



- Digital Audio Platform



- Portable Recorders
- Source Devices



- Source Devices



### Bose Pty Limited

**M26** 3/2 Holker Street Newington NSW 2127 Australia  
P: +61 2 8737 9920 F: +61 2 8737 9322  
[www.bose.com.au](http://www.bose.com.au)

Since the company was founded in 1964, Bose Corporation have put decades of discovery and innovative thinking into each and every one of their products. They've taken their commitment and passion for innovation and applied them to developing unique sound solutions to meet virtually any audio challenge in any application. You can hear Bose wherever quality sound is important, from the Olympic Games to the Sistine Chapel, in the home or on the road. Bose – one of the most respected names in sound.

### Broadcastpapers

**P35** PO Box 259 Darlinghurst NSW 1300 Australia  
P: +61 2 9332-2221 F: +61 2 9332-2380  
[www.broadcastpapers.com](http://www.broadcastpapers.com)

With around 90,000 visitors per month, Broadcastpapers.com is the industry's world leading online library of free business & technical whitepapers. Keep Up & Download today! Content+Technology is Broadcastpaper's bi-monthly magazine for Content+management, technical and production staff in content production Content+and distribution industries through Australia, New Zealand and Content+Southeast Asia. Free to qualified readers. Visit Content+[www.content-technology.com](http://www.content-technology.com)

### Bytecraft Entertainment Pty Ltd

**O15** 2 Monterey Road Dandenong South VIC 3175 Australia  
P: +61 3 8710 2555  
F: +61 3 8710 2599  
[www.bytecraft.com.au](http://www.bytecraft.com.au)

Bytecraft Entertainment Pty Ltd, part of the Bytecraft Group of companies, specialises in the provision of quality equipment and systems to theatre, television and a range of high profile entertainment venues and special events, around the globe. Bytecraft Entertainment can deliver the complete entertainment solution from special effect lighting, theatre and studio drapes and the provision of superscreens. We can provide artistic and technical design, supply (or hire) of equipment, installation, operation and maintenance - wherever you are located. We cater for the smallest requirements to large-scale events such as the Sydney 2000 Olympic Games. Come and see us at stand O15, see our latest technologies and find out how we work with you to create magic. New Products at Entech – LDR Lanterns, LED Starcloths, Superscreens.

### Chief Manufacturing

**M38** PO Box 125 Leederville WA 6902 Australia  
P: 1300 784 644  
[www.chiefmfg.com](http://www.chiefmfg.com)

Chief Manufacturing Inc., an industry leader in technology mounting solutions, has over 25 years of proven product and service excellence. Committed to responding to Professional AV industry needs Chief offers a complete line of mounts, lifts and accessories for flat panel displays and projectors. Chief continues to design innovative mounting solutions that complement the technology they support.

"Ideas Supporting Ideas™" is the motivational theme behind Chief Manufacturing's continued effort to be the leader in new product innovation. With multiple product awards and patented designs, Chief provides unique mount features, and is recognised for delivering quality products and services.

### CMI Music & Audio

**20 & Demo Room 6** 36-38 Export Drive Brooklyn VIC 3025 Australia  
P: +61 3 9315 2244  
F: +61 3 9315 2115  
[www.cmi.com.au](http://www.cmi.com.au)

At this years Entech CMI Music & Audio theme is "Hearing is Believing"

That is why where possible you will be able to hear all products on display and believe that the products you hear are either industry leaders or best value for money available in the market.

We will be demonstrating the superb sound reinforced by HK AUDIO Systems, the excellent quality produced by DB Technologies Light weight Polypropylene Speaker enclosures, the unbelievable quality and value for money that is offered by Wharfedale Pro products and the exceptional Insulation speaker enclosures on offer by Wharfedale Systems.

Whether you're visiting our Stand X20 or make a point in visiting our HK Audio Demo Room E and personally speak to one of the designers from HK Audio, all the way from Germany, you will be impressed with what your ears will hear because "Hearing is Believing".

#### Coemar Desisti (Aust) Pty Ltd

P36

29/350 Settlement Rd Thomastown VIC 3074 Australia

P: +61 3 9465 7666

F: +61 3 9465 7463

www.cdaust.com.au

Coemar De Sisti Australia supplies professional architectural and entertainment lighting products throughout Australia. The company is committed to providing customers with the best in products and services available in the entertainment industry. Our products are sourced from amongst the world's leading manufacturers of entertainment technology.

Recent Projects: The Today Show, A Current Affair, Funniest Home Videos, Star Struck, Channel 10 NSW News studio and Channel 9 NSW ref of Studio One, Strike Bowling in Brisbane & Bayside, Meça Bongo and A Symphony of Lights - light and sound show in Hong Kong showcasing 13 buildings along the waterfront of Victoria Harbour.

#### Crew On Call Australia Pty Ltd

J44

79-81 Regent Street Chippendale NSW 2008 Australia

P: +61 2 9318 2581

F: +61 2 9318 2291

www.crowoncall.com.au

#### CX Magazine

P40

10 Bridge Street Rydalmere NSW 2116 Australia

P: +61 2 9638 5955

F: +61 2 9638 7181

www.juliusmedia.com

CX Magazine is the industry trade magazine for the entertainment technology industry. It recently celebrated 15 years of publication, first as 'Channels' and then as 'Connections'. It is the best place to advertise to reach decision makers and buyers. The magazine welcomes editorial submissions, email to mail@juliusmedia.com.

#### Digidesign

W5

29 Morris Drive Keilor Downs VIC 3038 Australia

F: +61 3 9367 8600

F: +61 3 9367 8601

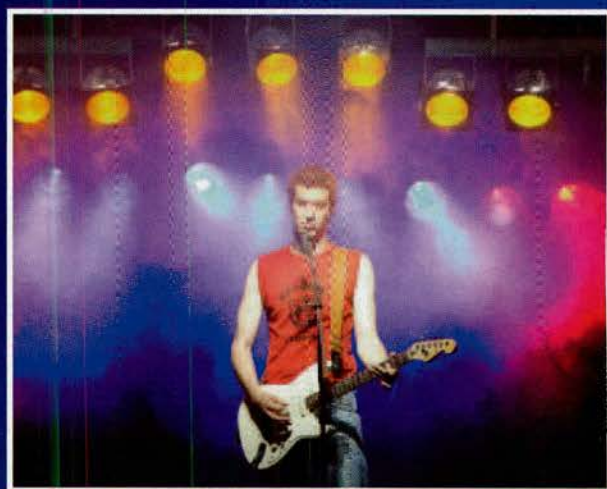
www.digidesign.com

Digidesign is excited to participate once again as an exhibitor at Entech 2006 from Feb 13-15. Major focus will be on the presentation of the flagship ICON D-Control(tm) large-format console environment. Digidesign will also be showing ICON D-Command(tm) medium-format integrated console, recently released Pro Tools 7 LE and HD Software, Mbox2 and VENUE Live Sound Environment.

# NEW OSRAM

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halogen lamps with aluminium reflectors  
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*The best in the market today*

- **66% lighter and 10% brighter**
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**OSRAM**



### DJ Technologies

**H10** 465 Morphett Street Adelaide City SA 5000 Australia  
P: 1300 739 075 F: 1300 739 786  
www.djt.net.au

### Electric Factory

**G26** 188 Plenty Road Preston VIC 3072 Australia  
P: +61 3 9474 1000 F: +61 3 9484 6708  
www.elfa.com.au

Electric Factory are the Australian distributors of the following brands Tascam, M-Audio, Samson Audio, Numark, Akai Professional, Alesis, Nord, Marshall, PRS, Taylor, Mapex, Menl, Vater, Hardcase, Formula Blue, Bosphorus, Focusrite, Galien Krueger, Giga Studio, Hartke, Hercules, Quiklok and more.

### Event Pix

**P42** Box 4112 Weston Creek NSW 2611 Australia  
P: +61 2 6287 3246  
www.eventpix.biz

EventPix is the only event photography company with photographers available in all the major conference and event locations in Australia and New Zealand. EventPix was founded by Trevor Connell who has been involved in the theatre and event industries for over 20 years and draws on this experience to ensure the most creative and professional coverage of your conferences and events.

All EventPix photographers have been personally selected by Trevor and are chosen for their skill not only as a professional photographer but also for their personality and their ability to capture the essence of your event. Importantly, all EventPix photographers are covered by our Public Liability insurance.

### Fitness Audio Distributors

**P30** Unit 6, 221 O'Riordan St Mascot NSW 2020 Australia  
P: +61 2 9313 4995 F: +61 2 9313 5569  
www.fitnessaudio.com.au

Fitness Audio Distributors are specialist suppliers to the trade with a range of unique products for the fitness industry customer as well as for theatre and worship center use. Their Australian made products include the Aeromic range of sweat resistant headmics; Leon Audio recording mics and DI Boxes; the Aeromix range of super simple stereo mic/line mixers, neoprene pouchbelts for many different users of wireless transmitters and the E\*Gloop - an anti-corrosive electrical grease. Imported products include the range of V\*Mics and the Fitness Audio brand of UHF and VHF Wireless Systems.

### Funktion One Australia Pty Ltd

**H39** 2/49 Chapel Street St. Kilda Vic 3182 Australia  
P: +61 3 9525 2515  
www.funktion-one.com.au

Funktion One sound systems continue to redefine the listening experience. No other system is capable of delivering sound of such clarity, intelligibility and beauty. Now found installed in many of the best club venues across the globe, plus the Resolution Touring series, in conjunction with the unique rapid flying system, has toured with many of the World's 'Greats'. Innovative design features and a striking appearance to match incredible sound, ensure Funktion One are in a league of their own. The New Resolution One, using no compression drivers, is simply the most amazing sounding small box on the market.

### Gobotech Pty Ltd

**R1 & S1** Unit 22 / 237 Brisbane Rd Labrador QLD 4215 Australia  
P: +61 7 5529 0505 F: +61 7 5529 2226  
www.gobotech.com.au

Gobotech is Australia's premier manufacturer of steel and glass gobos. On the stand at the show will be the new 2006 catalogue. They will be presenting the new expanded image collection as well as new fitout sets and rent-a-gobo. Gobotech make steel, B&W Glass, full colour glass and spot colour glass gobo ranges and custom gobos for all fixtures. They also supply effect filters and a range of display projectors. A range of dichroics for architectural use will also be on display to fit 500W floods and downlights. Beacon Digigobos & MIG Clips will also be presented for digital projections

### Grafton Sound And Light

**P39** 6/830 Bourke Street Waterloo NSW 2017 Australia  
P: +61 2 9696 7777 F: +61 2 9698 9999  
www.graftons.com.au

### Group Technologies (Aust) P/L

**R10** 86 Derby Street Fasco Vale VIC 3044 Australia  
P: +61 3 9381 4311 F: +61 3 9381 4922  
www.gt.aust.com

Australian distributors of Nexx, Camco, Digico, RCF Quest Engineering Verlinge Stagemaker hoisting systems, Optocore and Sommer Cable. A wide range of notable international guests from some of the major audio technology companies will be available for personal interview. Representatives and designers from Digico, Bob Doye, James Gordon, and David Webster, Nexx Geometric designer, Francois Defarges and marketing manager Dennis Baudin and from Camco, Reiner Sassenar and Mick Anderson. RCF will also have representative Federico Luigi in attendance.

### Hoisting Equipment Specialists Pty Ltd

**Q23** 31 Mangrove Lane Taren Point NSW 2229 Australia  
P: +61 2 9531 8333 F: +61 2 9531 7933  
www.ozblock.com.au

At Hoisting Equipment Specialists we have the most comprehensive range of lifting, rigging and materials handling equipment in Australia. As suppliers to the Entertainment Industry for more than 20 years, H.E.S. has the staff with the knowledge of your requirements. Come and visit us at our stand to see the new Steelflex Spot Wire Rope Endless Slings, the New Generation Leica Disto Laser Measurers, Fetz Climbing Equipment, Ozblock, Lodesar, Spanset Slings Shackles, Stage Chain, Karabiners, Harnesses Climbing Ropes and much more. We look forward to seeing you at ENTECH 2006.

### InfoComm International

**J42** GPO Box 4E29 Sydney NSW 2001 Australia  
P: +61 2 8206 0379 F: +61 2 9383 8350  
www.infocomm.com.au

InfoComm International — an industry-wide not-for-profit trade association — provides education, exhibitions and information services to its worldwide membership and the audiovisual communications industry, enhancing members' ability to conduct business successfully profitably and competently. InfoComm International's membership is made up of over 3,200 companies and individuals located in 56 countries, representing tens of thousands of AV communications professionals. Founded in 1939 as the National Audio Visual Educational Dealers Association, InfoComm International is the premier international trade association for the professional audiovisual communications industry.



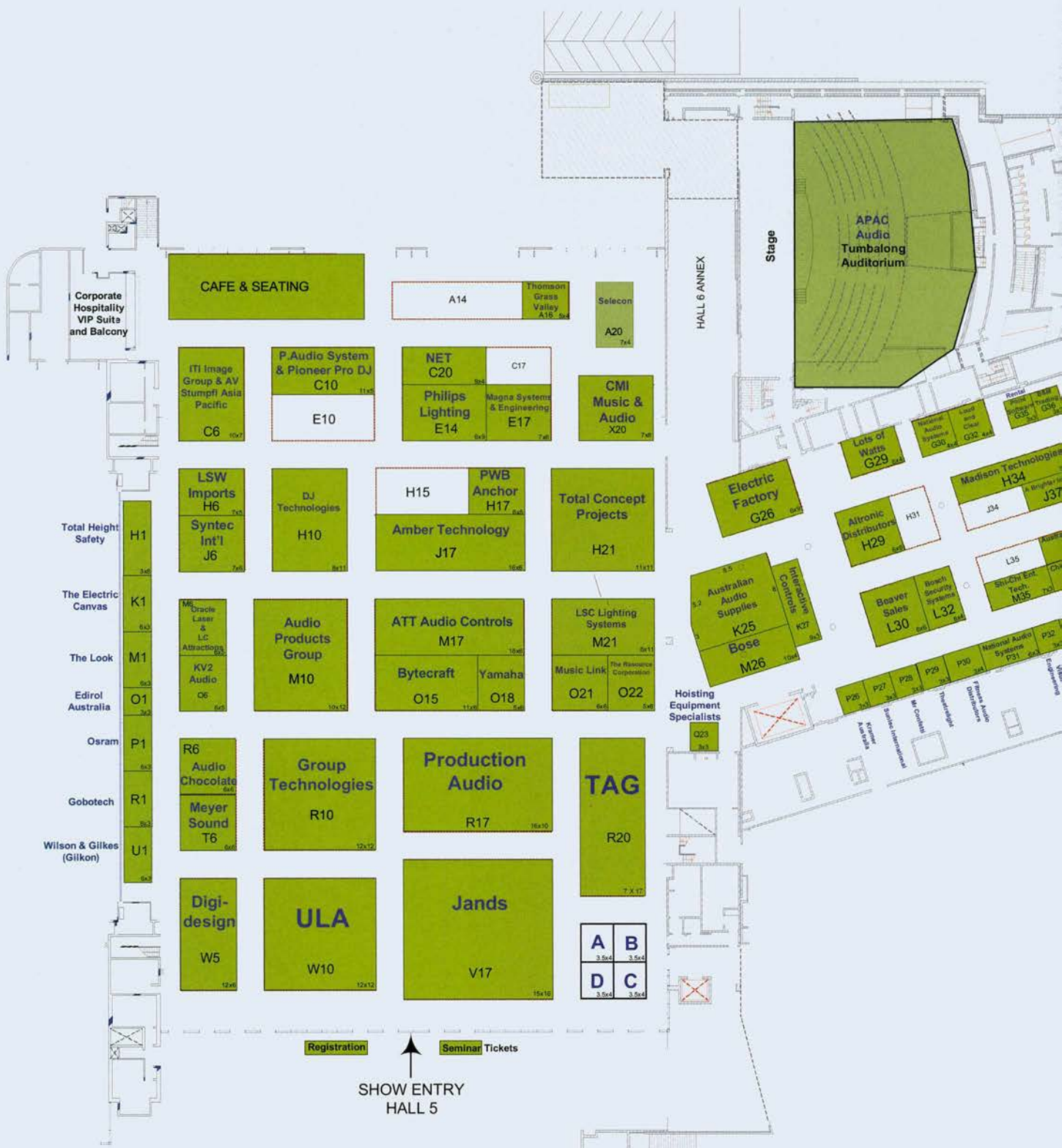
# EVP-X SERIES



## EVP-X SERIES

The Wharfedale professional EVP-X series loudspeaker systems are the latest evolution of the highly successful EVP family. The new EVP-X full range speaker system has been built around the development of the exceptional new compression driver. The 44mm HF driver brings unprecedented levels of dynamic pure clarity and sound quality, the crossover network has been designed to limit and protect the system from overloads. The ProTech driver protection system that is only seen on higher priced speaker systems, the sound performance out of these boxes doesn't match the price tag. The trapezoidal design gives low resonance and sonic accuracy in the low frequency range, the enclosure is built tough enough to withstand the rigours of the road, covered with a tough black industrial carpet, top hat for speaker stands and large handles with tough curved steel front grill. The speaker range comes in a 12" and 15" inch two way, monitor wedge design and 15" + 18" sub. The sub system features a dual voice coil woofer and low pass filtering when the job requires that kick ass punchy bass. Arguably this is the best value for money speaker system performance combination seen on the market today...

For more information, visit the Australia Distributors Website: [www.cmi.com.au](http://www.cmi.com.au)



Plan version #30 21/12/05

# ENTeCH

PRO AUDIO AV BROADCAST LIGHTING OH&S BUSINESS LAWS

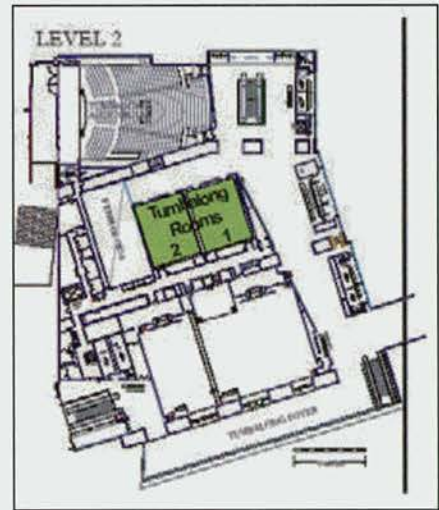
EXHIBITION & CONFERENCE

13 - 15 FEBRUARY 2006

SYDNEY CONVENTION & EXHIBITION CENTRE

[www.entech-tradeshows.com](http://www.entech-tradeshows.com)

# Conference Rooms



## EXHIBITOR LIST

A Brighter Image	J57	Crew on Call Australia	J44	Magna Systems & Engineering	E17
ALIA	M45	CX Magazine	P40	Mediavision	J46
Altronic Distributors	F29	Digidesign	W5	Meyer Sound	T6
Amber Technology	J17	DJ Technologies	H10	Mondiale Publishing	P34
APAC Audio	Tumbalong Auditorium	Edirol Australia	O1	Mr Confetti	P28
ATT Audio Controls	M17	Electric Factory	G26	Music Link	O21
Audio Chocolate	R6	Event Pix	P42	National Audio Systems	G30, P31
Audio Products Group	M10	Fitness Audio Distributors	P30	National Audio Systems	Demo Room 3
AudioTechnology	J59	Funktion-One	H39	NET	C20
Australian Audio Supplies	K25	Gobotech	R1 & S1	NZ Fire-Shield	P41
Australian Tel-Tec	L38	Grafton Sound & Lighting	P39	Oracle Laser	M6
AV Stumpf Asia Pacific	C3	Group Technologies	R10	Osram	P1
AVE Audio Visual Engineering	F32	HK Audio	Demo Room 6	Ozcad	G39
Avolution	J42	Hoisting Equipment Specialists	Q23	P. Audio System	C10
B&M Trading	G36	InfoComm	Demo Room 5 & J42	Pioneer Pro DJ	C10
Balanced Technology	L49	Interactive Controls	K27	Philips Lighting	E14
Beaver Sales	L50	ITI Image Group	C6	Pro Audio Asia	P38
Blue Cat Case Company	G37	Jands	Demo Rooms 1 & 2A	Production Audio	R17
Bcsch Security Systems	L52	Jands	V17	PWB Anchor	H17
Bcse	M26	Juliusmedia	P40	Recoil Service	H44
Broadcastpapers	F35	Just Lamps	P37	Rental Point Software	G35
Bytecraft	C5	Kramer Australia	P26	Sakai Australia	H43
Chief Mounting Solutions	M38	KV2 Audio	O6	Selecon Australia	A20
CMI Music & Audio	X20	Lots of Watts	G29	Setwear Australia	J43
Coemar De Sisti	F36	Loud and Clear	G32	Shi-Chi Entertainment Technology	M35
		LSC Lighting Systems	M21	Showquip	G38
		LSW imports	H6	Sunlec International	P27
				Syntec International	J6
				TAG	R20
				The Electric Canvas	K1
				The Look	M1
				The Resource Corporation	O22
				The Service Manager	M41
				Theatrelight	P29
				Thomson Grass Valley	A16
				Total Concept Projects	H21
				Total Height Safety	H1
				ULA	W10
				Venue Magazine	J39
				Wilson & Gilkes (Gilkon)	U1
				Yamaha	O18



#### Interactive Controls Pty Ltd

K27

Unit 32A, 2-6 Chaplin Drive Lane Cove NSW 2066 Australia  
P: +61 2 9427 9881 F: +61 2 9427 9382  
[www.interactivecontrols.com.au](http://www.interactivecontrols.com.au)

Interactive Controls Pty Ltd as Distributor and Reseller of Dataton and Medialon Products, is excited to be exhibiting Dataton Watchout V3, which in November this year won the prestigious ETS - LDI Projection Product of the Year for 2005.

We will also be demonstrating other Products from Dataton including their "Touchdown" Control Interface and "Pickup" Audio Guide System and from Medialon, The Latest V4 Release of the Award Winning Medialon Manager Show Control Software and their MIP (Medialon Integrated Player).

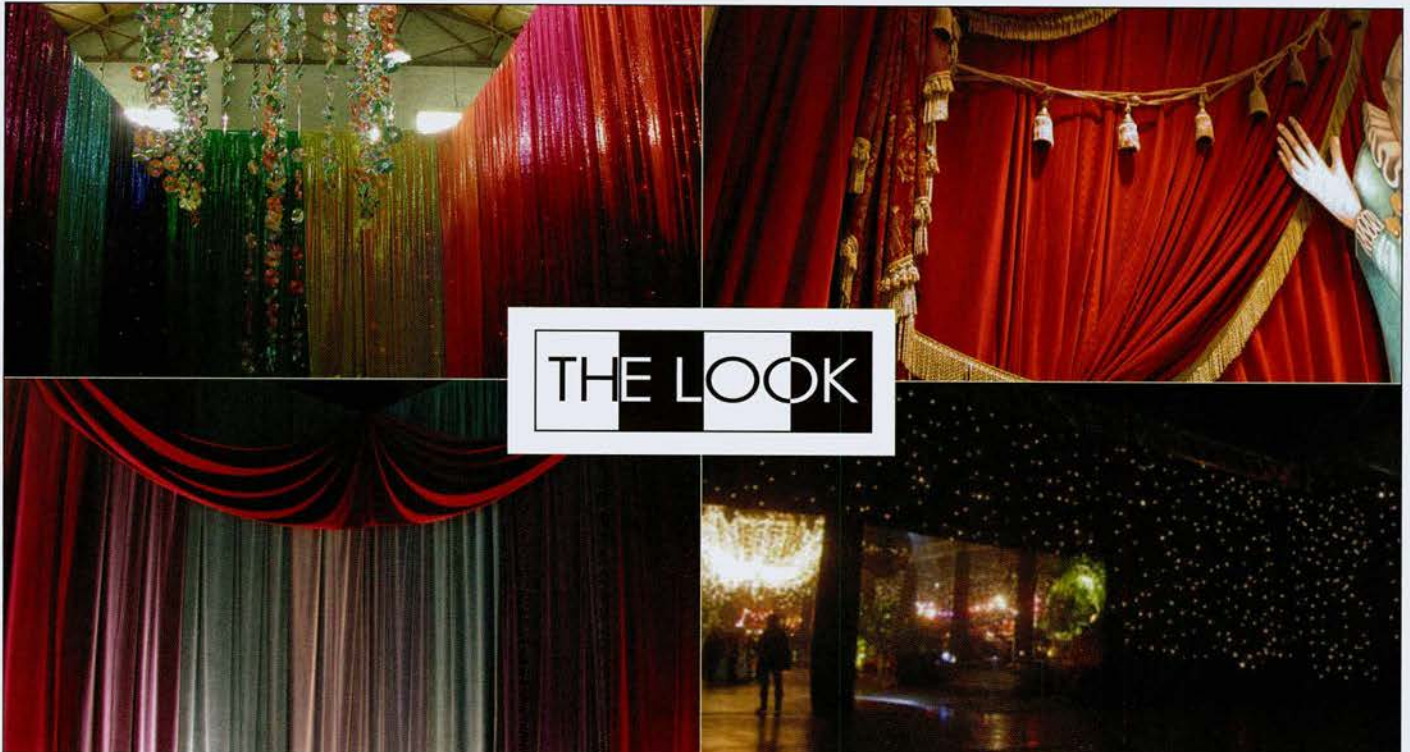
Also don't forget to pickup your invitation to a free introductory (1/2 Day) Dataton Watchout or Medialon Manager Seminar.

#### JANDS Pty Ltd

V17 & Demo Rooms 1 & 2A 40 Kent Rd Mascot NSW 2020 Australia  
P: +61 2 9582 0909  
F: +61 2 9582 0999  
[www.jands.com.au](http://www.jands.com.au)

Meet expert international factory representatives from Shure, JBL, ETC, Varilite, Crown, BSS, Soundcraft, dbx, Lexicon, ClearCom, Serapid and Stage Technologies on the JANDS stand this year!

A vast array of new products and their technologies will feature as a theme for all our Audio, Lighting and Staging areas in 2006. Instructive and entertaining demonstrations will be presented consistently both on the stand and in our demonstration room by our international and local experts.



THE LOOK

### THEATRICAL DRAPE HIRE - GLITZ AND GLAMOUR THE GRAND AND THE BEAUTIFUL

Warehouse Address: 6-10 Rothschild Ave Rosebery

Office: PO Box 428, Haberfield NSW 2045

Ph: 9797 6068 Fax: 9798 9243

Email: [mail@thelook-sydney.com](mailto:mail@thelook-sydney.com) Web: [www.thelook-sydney.com](http://www.thelook-sydney.com)

A custom built staging area will for the first time accurately portray theatre mechanics, while new lighting fixtures and consoles get their customary workout. Our well-respected audio brands will all also be showcasing their new products and innovations.

The JANDS stand is like a tradeshow within a tradeshow. We look forward to seeing you there!

### Juliusmedia

P40

10 Eridge street, Ryccalmere NSW 2116 Australia

P: +61 2 9633 5955 F: +61 2 9638 7131

www.juliusmedia.com

Juliusmedia College is the leading provider of entertainment technical training in Australia. We offer skills assessments for people working with existing skills, and also full time and part time courses in production audio visual, studio audio, lighting, live sound, vision, and event management. Govt accredited training.

### Just Lamps Australia Limited

P37

PO Box 127 Nambour QLD 4560 Australia

P: +61 7 5473 0315

F: +61 7 5476 0694

www.justlamps.com.au

Every lamp for every projector. We have huge stocks and deliver over 80% of all orders in less than 7 working days. Our website is easy to use and we offer great trade rebates.

### Kramer Australia

P26

Unit 4/42 Clincker St Darra QLD 4076 Australia

P: +61 7 3715 6200

F: +61 7 3715 4600

www.kramerelectronics.com

Kramer Electronics manufacture a wide range of Audio Visual products. Categories include, Distribution Amplifiers, Switchers, Matrix Switchers, Sync Processors, Format Converters, Video, Audio /GAX3A processors, Scan Converters, Seamless Switcher/Scalers and a range of Twisted Pair products. We will be showing a selection from our 300+ products including our Tools (TM) range of Digital/Analogue, Video and Audio solutions. We will also be demonstrating the Kramer Pro-Scale TM range of seamless switcher / scalars. Expert staff will be on hand to demonstrate equipment and answer any questions you may have about Kramer products.

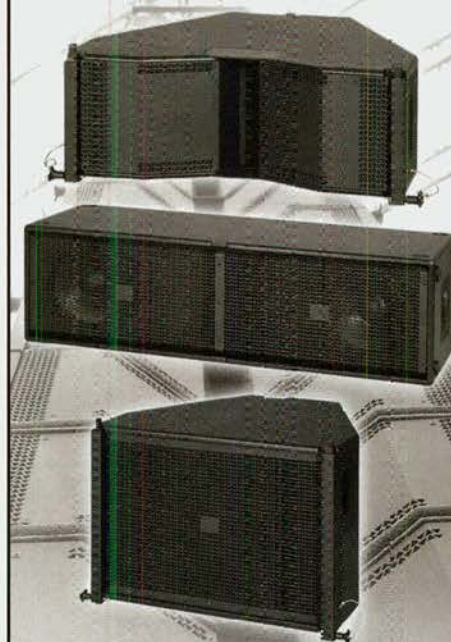
Opportunities to resell Kramer products exist in all markets, please contact Trevor Downes on (07) 3715 6200 or (0409) 422 098 to discuss opportunities.

We look forward to seeing you at ENTECH stand P26.

## COHEDRA™

COHEDRA™ - Coherent Dynamic Response Array - builds on the best of previous designs and catapults line array technology into a new dimension. Strikingly natural dynamic response over a greater distance, less wind sensitivity and trouble free handling were at the heart of this new system's design goals. A system that sets the standard with its overall performance.

**HK**  
AUDIO



### CDR-208S/T

2 x 8"/1.4" line-array mid/high unit with 80° horizontal coverage pattern. Natural dynamic response and extended throw. 30 kg.

### CDR-210SUB

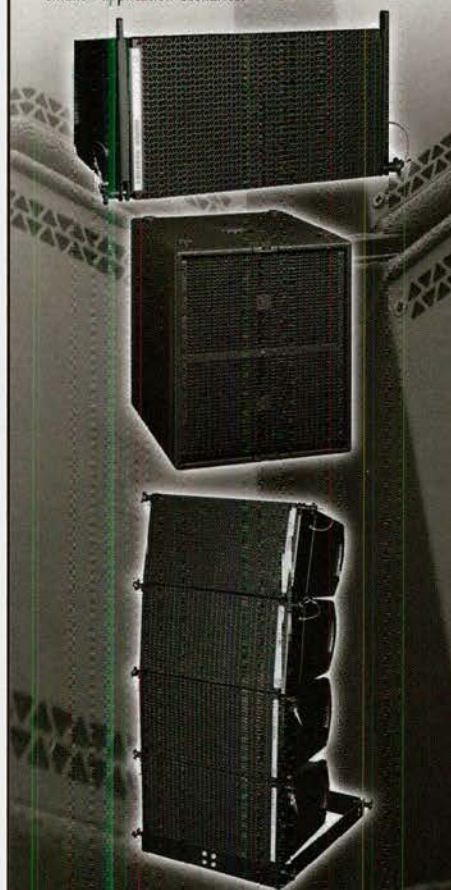
Direct radiating 2 x 10" subwoofer with outstanding impulse response for generating powerful, articulate and natural bass. 32 kg.

### CDR-210F

Direct radiating 2 x 10" subwoofer for flown configurations. This unit features the same shape as the CDR-208S/T units and can be flown using the same rigging hardware. 41 kg.

## COHEDRA™ COMPACT

COHEDRA COMPACT™, in turn, packs this same premium technology into an even more compact and flexible format, bringing the benefits of advanced engineering to new and smaller application scenarios.



### CDR-108C

1 x 8"/2 x 1" compact mid/high unit. Offers the ultimate in natural sounding dynamic response and greater range. 17.9 kg.

### CDR-210SUB

Compact 2 x 10" Subwoofer. Solid, powerful bass response. 48 kg.

### CDR-210F

Compact Ground Stack. 4 units CDR-108C in ground stack configuration.

State Of The Art German Sound Reinforcement Technology.

Delivered in any package, from the largest concert production system to a club duo compact system.

With HK Audio, Hearing Is Believing.

www.cmi.com.au



#### KV2 Audio Asia Pacific

**G06** PO Box 9204 Wyoming NSW 2250 Australia  
P: +61 2 4329 0062  
F: +61 2 4329 0362  
www.kw2audio.com

KV2 Audio Asia Pacific are pleased to welcome back Marcelo Vercelli (President of KV2 Audio) to Australia for Entech 2006. As per his last visit in 2004 he comes to the show with a wealth of experience and knowledge in the professional audio field and will be eager to answer any questions regarding KV2 audio products and applications. On display will be ES & EX series products as well as launching some new KV2 lines including the new KX series audio products designed for MI/Pro scenarios and the long awaited VHD range of large format loudspeaker technology and electronics.

#### Leading Source Wholesale

**H06** 81 Gould St Campsie NSW 2193 Australia  
P: +61 2 9718 4900 F: +61 2 9718 5900  
lswonline.com.au

Leading Source Wholesale (LSW) supplies professional audio and lighting products to the Australian market. Portable P.A.s, club sound systems, disco lighting and effects, theatrical lighting, moving heads, trussing, LED lighting, lasers, turntables, mixers, DJ equipment, tube and solid-state guitar amplifiers, music stands and accessories. LSW represents a complete range of quality brands bringing performance, reliability and quality at realistic prices. Brands include: American Audio, Antari, B-52, (USA) Pro Audio, B-52 (USA) Guitar Amplifiers, Montarbo, Redbeat, Elet on, ESP, Soundking, D.T.S., American DJ, Light Emotion, Standsystem and PR-Lighting.

#### Lots of Watts Pty Ltd

**G29** 2 Bridge Street Rydalmere NSW 2116 Australia  
P: +61 2 9638 0302 F: +61 2 9638 0331  
www.lotsofwatts.com.au

Lots of Watts has been supplying parties, concerts, theatres, schools, churches, TV stations and corporate events with professional audio, lighting and video equipment for over 13 years. Operating from a factory complex in Rydalmere, we offer a full range of services including sales, hire, servicing and installations. We represent most of the major brands of professional equipment. So if you require audio lighting or vision Lots of Watts can design and install or hire a system that meets your requirements. Call 9638 0302 or visit www.lotsofwatts.com.au.

#### Loud And Clear Audio

**G32** PO Box 334 Mosman NSW 2088 Australia  
P: +61 2 9439 9723 F: +61 2 9439 9723  
www.loudandclear.com.au

Loud And Clear, Sydney's busiest theatrical audio company, is proud to present for the first time at Entech, the Alcons Audio range of professional loudspeakers and amplifiers.

Developed and manufactured in house, Dutch company Alcons' focus is on compact and smart products with maximum flexibility. Based on Alcons multiple-patented RBN ribbon drivers, the most sophisticated transducers of their type available, these products truly deliver hi-fi sound quality at concert SPL.

A real demonstration will be held at a venue near Entech on Tuesday night. Visit our stand to collect your invitation.

#### LSC Lighting Systems (Aust) Pty Ltd

**M21** 7 University Place Clayton VIC 3168 Australia  
P: +61 3 95 61 5255  
F: +61 3 95 61 5277  
www.lscighting.com.au

Entech 2006 sees the start of another great year for LSC Lighting Systems (Aust) Pty Ltd, the only fully owned, designed & manufactured Lighting Control Company in Australia. 2005 saw LSC successfully take on PALA, PLASA, LDI, LLB, Musidata, Pro Light & Sound & CALME International Trade Shows with a huge acceptance of the entire range. Several new international distributors joined the network and added weight to the thought that LSC has a combined range that effectively & efficiently gives the lighting directors a reliable product and the equipment owner an affordable, reliable product range. Entech 2006 will see exciting new developments in LSC's product range. Oh no, LSC are doing it again. Teasing us with what? Come & see them at Entech 2006.

### Madison Technologies

**H34** 75 Proprietary Street Tingalpa QLD 4173 Australia  
 P: 1800 66 99 99  
 F: +61 7 3890 1156  
[www.madisontech.com](http://www.madisontech.com)

Madison Technologies' Broadcast and Audio Visual division specialises in supplying high quality products for the professional broadcast, audiovisual, and entertainment industries. The company's product portfolio unites many of the world's leading brands which will all be on display at this year's show. These include Pro Co Sound, Belden / CDT Cables, Canford Audio UK, Bittree, Kings Electronics, Riecel, Studio Technologies, ETS Lan, Whitesands Engineering, Pro Link, Amphenol, Paladin Tools, and Madison Technologies own brand Roadworx.

Products on display will include the new Catalyst "Digital To The Stage" multi-core system from Pro Co Sound, the latest communications systems from Riedel and Canford Audio, and a world of cable, connector and tooling options for the AV Contractor.

Come and visit our specialist technical team on stand H34 and have a chat or a demo on these products

### Magna Systems and Engineering

**E17** 2/28 Smith St Chatswood NSW 2067 Australia  
 P: +61 2 9417 1111 F: +61 2 9417 2394  
[www.magnasys.tv](http://www.magnasys.tv)

Major brands featured include: Inter-M, DAS, Hylex and Ampower Loop Systems. Inter-M have a number of new commercial 100v line products and we will be introducing the H-4200 Power Amplifier AB-class, with H-Class, 3 step high efficiency circuit, rated at 4200W, bridged mono @ 4ohm. From DAS the new Reference Series Loudspeakers and the new SM-12A Stage Monitor will be displayed. From Hylex, the new and very successful product line introduced in 2005, we will be showing the new PA-821 UHF portable PA which includes both the wireless hand and a lapel microphone, CD player/Cassette Deck with pitch control extension speaker outlet and many other great features.

### Mediavision Australia

**J46** 4 Monash Road Gladesville NSW 2111 Australia  
 P: +61 2 9816 4055  
 F: +61 2 9816 16 +61  
[www.mediavision.com.au](http://www.mediavision.com.au)

Established for over 30 years, Mediavision Australia has offices in Sydney and Melbourne and is the Distributing Agents for Lee Filters, Ianiro, Spotlight Leviton Colortran and Balcar. We will have on display at our stand a representative range of lighting products from these manufacturers including: Lee Filters range of Polyester, Polycarbonate and Dichronic Lighting Filters and Gobo Patterns; the new Ianiro DigiFamily Video Lights; the Spotlight range of theatrical and architectural lampheads; Leviton Colortran Dimming and Control; and Balcar Fluorescent Lighting.



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New Zealand	09 263 9885 sales@syntec.co.nz	F: (09) 263 9886 W: www.syntec.com.nz



### Meyer Sound Australia

T6

PO Box 595 Albion QLD 4010 Australia  
P: +61 7 3252 4433 F: +61 7 3252 3205  
[www.meyersound.com.au](http://www.meyersound.com.au)

Meyer Sound Laboratories is the premier manufacturer of professional self-powered loudspeakers for sound reinforcement. Pristine sound, reliability, efficiency, long life, and ease of setup and use make Meyer Sound products the choice of top rental companies and sound system designers worldwide. Meyer Sound also maintains international offices, including Meyer Sound Australia, in order to maintain the company's exceptional level of service and customer support in locations far from its Berkeley, Calif., headquarters. Meyer Sound systems are used at concerts ranging from the White Stripes tour to the Montreux Jazz Festival, and in venues as prestigious as Carnegie Hall and the Sydney Opera House.

### Mr Balloons Australia P/L

P28

114 Commonwealth St Surry Hills NSW 2010 Australia  
P: +61 2 9211 0655 F: +61 2 9211 0308  
[www.mrballoons.com.au](http://www.mrballoons.com.au)

### Music Link

O21

29 South Corporate Ave Rowville VIC 3178 Australia  
P: +61 3 9765 6565 F: +61 3 9765 6566  
[www.musiclink.com.au](http://www.musiclink.com.au)

Music Link has been Australia's foremost distributor of musical instruments, audio technology products, drum and percussion products, DJ equipment, and sound reinforcement products, for over forty years.

With an extensive sales, warehouse and distribution facility based in Melbourne, Australia; a team of sales representatives in all Australian capital cities; and a network of over 400 retailers around the country - Music Link's stable consists of nearly 40 world class brands and thousands of products catering to the music, audio, and recording industries.

### N.Z. Fire-Shield Ltd

P41

520 Cranford Street Christchurch South Island New Zealand  
P: +64 3 3524588 F: +64 3 3524 580  
[www.nzfire-shield.co.nz](http://www.nzfire-shield.co.nz)

New Zealand and Australian building codes all have maintenance clauses pertaining to the flame retardancy of decorative materials when used in areas of assembly or egress. Many facilities have established on-going maintenance protocols for the re-treatment and re certification of their flame retardant materials. N.Z. Fire-Shield's certified applicators utilise INSPECTA-SHIELD™ UL classified class 'A' flame retardant coating for fabric, lumber etc: including carpets, upholstery, drapes, paper, panelling and other decorative materials of natural and synthetic fibres. Our textile services include cleaning and pre-spotting, repairs, flame retarding, hardware inspections and 5 year certification.

### National Audio Systems

G30, P31 & Demo Room 3

Factory 2 15 Websters Road Templestowe VIC 3106 Australia  
P: +61 3 9846 3566 Demo Room 3 + 61 3 9846 3544  
[www.nationalaudio.com.au](http://www.nationalaudio.com.au)

Check out National Audio Systems in 3 locations this year. Demo Room 3 features d&b personalities Ralf Zuleeg, Peter Tongue and Simon Johnson along with NAS's Shane Bailey. Join us for a chat and a beer in demo room 3. Stand G30 features the latest installation products from Bosch, Soundtube and Sound Advance. Stand P31 shows the range of professional wireless mic and portable PA systems from Chiayo, huge range from Neatron, complete selection from Max cables and the newest products from SoundTech. Come to the NAS stands first and don't forget to pick up your free pair of ear muffs!

### Network Entertainment Technology P/L

**L20** Unit 2 98 Old Pittwater Road Brookvale NSW 2100 Australia  
 P: +61 2 9905 5997 F: +61 2 9905 9440 www.network-et.com

The revolutionary new Ribbon Line Array series from SLS Loudspeakers make their debut at ENTECH 2006. Industry Standard RoadReady Cases launch the new "cool" cases, mixer and lighting cases. Mogami Cable display new assembled cable designs, driven by constant installer requests. New from Celestion are the QXi Series compact Loudspeakers, built for the road. ART has a complete range of Audio Tools in rugged feature packed cases, and new model tube rack products. Radial Engineering shows a multitude of audio interfaces for the professional. New LEM Audio compact sub/sat systems demonstrate great bang for buck power. Clarity Cables feature their popular mid priced Multicore and bulk speaker cables. Ushio, Operalite, PSL, and Anytronics light up for NET.

### Oracle Laser and LC Attractions

**M6** 20A Parkes Street Ryde NSW 2112 Australia  
 P: +61 2 9807 5844 F: +61 2 9807 5811  
 www.oraclelaser.biz

Oracle Laser has joined forces with LC Attractions, formerly Lasercorp Showlasers. Both companies are now under one roof and have a demonstration area with in house creative, technical and centralised management to combine the best laser industry resources with the very latest talent and techniques. The new release Oracle T3 COLOUR diode laser and Oracle T3 CONTROLLER housed in rackmount heavy duty case are now available. See our latest products including BACKPACK LASERS and WATERSCREENS along with previews of the amazing new LASERMAN performance at Entech 2006. See you there and online at www.oraclelaser.biz and www.lcattractions.biz.

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### OSRAM Australia

**P1** Level 11 423 Pennant Hills Road Pennant Hills NSW 2120 Australia  
P: 1300 134 483 F: 1300 138 618  
[www.osram.com.au](http://www.osram.com.au)

OSRAM Lighting is a world leader in High Intensity Discharge and Tungsten lamps for the Entertainment industry. We have a strong commitment to new technologies and innovative products. On display on the OSRAM Stand P1, we are featuring our new aluPAR 56 lamp with aluminium reflector. This lamp is 66% lighter and 10% brighter than the conventional halogen lamps for stage and show lighting.

IT IS BY FAR THE BEST LAMP IN THE MARKET TODAY.

Also on display our new UL type (ultra long life) HSD metal halide lamps.

To learn more, visit our stand and talk to Warner Lulofs, Terry Lynch and Daniel Lubbers.

### OzCAD Pty Limited

**G39** PO Box 726 Rosebery NSW 1445 Australia  
P: +61 2 8338 8622 F: +61 2 8338 8655  
[www.ozcad.com.au](http://www.ozcad.com.au)

VectorWorks CAD software is widely used in the corporate event, theatre and entertainment industries for preparing venue plans, set designs, equipment layouts and technical drawings, and is also used for 3D visualisation. It can develop component or part libraries, that can be dragged and dropped into place to form complex assemblies or layouts. It is also capable of tracking costs, doing quantity take-offs, or tracking inventories.

VectorWorks Spotlight adds the ability to do complex light plots and has instrument libraries from all the major manufacturers as well as over 1000 gobos. Well priced and easy to learn, the software has a 20 year history and is available for Macintosh and Windows.

### PAudio System Co. LTD

**C10** 19/4 Moo 2 Putthamonthon Road  
Bangkrateuk Sampran Nakornprathom 73210 Thailand  
P: +66 2 441 6600 F: +66 2 441 6699  
[www.paacoustic.com](http://www.paacoustic.com)

PAudio has been producing loudspeakers for the professional audio, automotive and hi-fi markets since 1988. Produced in a new purpose-built 55,000 square metre, P.Audio utilizes modern software and R&D tools in both the development and design of their latest components allowing their engineers to optimise electrical, acoustical and mechanical details. As well as offering complimentary custom speaker designs, Australian and New Zealand P.Audio distributor Cannon Sound And Light distributes the award winning **BassBox Pro** and **X•over 3 Pro** state-of-the-art speaker enclosure design programs. With most of P.Audio's components already in the **BassBox** driver database designing a correctly tuned cabinet has never been easier.

### Philips Special Lighting Australia

**E14** Ground Floor 65 Epping Road North Ryde NSW 2113 Australia  
P: 1300 304 404 F: +61 2 9947 0325  
[www.broadway.philips.com](http://www.broadway.philips.com)

Philips Lighting has been manufacturing lamps since its inception in 1891. Philips pioneering research and development over the past century has resulted in many new innovations and technologies in the lighting industry. Philips will be showcasing their Broadway and Focusline ranges of lamps at ENTECH 2006. Broadway is an extensive range of halogen and gas discharge lamps specifically designed for the entertainment industry. Broadway lamps are technically advanced with P3 technology giving lighting professionals more freedom, reliability and quality.

FocusLine is Philips range of specialised halogen and discharge lamps that create light of ultimate precision combined with high power.

### Pioneer Electronics Australia Pty Ltd

**C10** 178-184 Boundary Road Braeside VIC 3195 Australia  
P: +61 3 9586 6300 F: +61 3 9587 1495  
[www.pioneeraus.com.au](http://www.pioneeraus.com.au)

Hot new products to look forward to will be the 'DVJ-X1' awesome DVD DJ player capable of live edits and quick promos, the 'DJM-1000' Monster Mix 96khz 24bit 6 channel Club mixer. Also the most anticipated DJ mixer in the world today the DJM-800 totally digitally assigned control surface 4 channel with full effects mixer all going well with shipping pre production products. The DJM-400, CDJ-800 and CDJ-1000 next may be making a debut as well. The stand will be loud & proud with an exclusive wall of 'Pure Black' Pioneer plasmas...along with a special guest appearance of the 'Troublemaker', Pioneer's awesome punchy little mobile sound system.

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Packed with punch, the ALL NEW Opera Live 405 Powered system features 15" woofer & 1" HF driver, 60-18 kHz, SPL 128dB. Opera Live 402 also available with 12" woofer. Includes self protection system for added piece of mind. Opera Live. Easy to handle and install, durable, and totally reliable.



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For more information, visit the Australia Distributors Website: [www.tmi.com.au](http://www.tmi.com.au)

### Productio Audio Services

**R17** 17 King Street Elackburn VIC 3130 Australia  
P: +61 3 9878 1444 F: +61 3 9578 1455  
[www.productioaudio.com.au](http://www.productioaudio.com.au)

INNOVATIVE SOLUTIONS - Let Production Audio Services guide you through what is possible for all you audio needs. Consultant, Engineers and Broadcasters alike will be amazed by the technology on offer from our suppliers, such as: EAW's renowned Guinness Focused NT series of powered speakers, ClearOne Converge EC technology, Aviom Pro64 FMP digital audio network, Comrex stereo P Codec. Manufacturers' representatives will be on-hand both presenting and answering questions. Ask to go to the VIP Suite and hear the stunning sound quality of EAW's NT series speakers.

### PWB Anchor

**H17** 44 Grimshaw Street Bundoora VIC 3083 Australia  
P: +61 3 9473 8270 F: +61 3 9467 7290  
[www.pwbanchor.com.au](http://www.pwbanchor.com.au)

For over 75 years PWB Anchor has been involved in supply of premium quality Entertainment Lifting Products. With a range of high quality products that are industry proven, extensive stock holdings and spare parts, superior technical back up and comprehensive training (CM Motor Training Schools), PWB Anchor provides the total lifting package to the Entertainment Industry - unmatched Australia wide. The following products can be viewed at stand H17:

- CM Lodestar, Prostar, Hurricane
- Chain Blocks: Inverted
- Lever Blocks
- Hoists Entertainment
- Hoists Inverted
- Motors Electric
- Kite Hoists
- Coffin Hoists
- Anchor Hoists
- Entertainment Rigging Products

### Recoil Service

**H44** 804 High Street Thornbury VIC 3071 Australia  
P: +61 3 9480 2466 F: +61 3 9480 2344

State of the art, Australian made speakers. Speakers for cinemas and theatres.

### RentalPoint Software

**G35** PC Box 687 Fakenham VIC 3810 Australia  
P: +61 500 395 896 F: 1300 551 565  
[www.rentalpoint.com.au](http://www.rentalpoint.com.au)

Come over and see the latest advances in the various editions of RentalPoint Software. We have editions to suit the one person company to the largest of companies. Whether you have a small start up company or have been in the business for years, we have an edition that will suit you. Need some help with one of your templates then come and talk about it or if you need a custom Crystal Report template written, so you can see YOUR data the way YOU want too, come over and have a chat about it. Ask about the special on extra logins for existing clients during Entech 2006!

### Resource Corp. P/L

**O22** Unit 15 /173-181 Rooks Road Vermont VIC 3133 Australia  
P: +61 3 9874 5988 F: +61 3 9874 0977  
[www.ttc.com.au](http://www.ttc.com.au)

Featuring new and favourite audio distribution & speaker systems from ARX Systems. The popular range of cables from Eurocable featuring the new ETN Cat5 cables & AES/EBU multi channel cables. New stand & rack products from Konig & Meyer. The wide range of multipin connectors, panels, stageboxes etc. from Link. New LCD, Plasma & projector mounts from the innovative manufacturers of wall & ceiling mounting systems - Omnimount. Examples of the professional ProLinx range of custom cable systems. Englands favourite wireless mic systems Trantec including the famous innovative SEECO system now in use by many of the world's leading theatre production companies.



### Roland Corporation

**01** 38 Campbell Ave Dee Why West NSW 2099 Australia  
P: +61 2 9982 8266 F: +61 2 9981 1875  
[www.rolandcorp.com.au](http://www.rolandcorp.com.au)

Roland is a world leader in the design, manufacture and distribution of electronic musical instruments including Digital Pianos & Organs, Keyboards & Synthesizers, Electronic Percussion, DJ equipment, Digital Recording equipment, Guitar products and Audio Processing devices. EDIROL branded products are high-quality, sturdy, easy-to-use multimedia tools for Desktop Media Production (DTMP) including audio recording equipment, computer music and video editing systems, MIDI editing systems, and live video equipment.

### Sakai Australia Pty Ltd

**H34** Unit 12/ 14-18 Preston Street Penrith NSW 2750 Australia  
P: +61 2 4721 8011 F: +61 2 4721 8177  
[www.primoscreen.com](http://www.primoscreen.com)

Primo Screen rear projection screen provides a solution for almost any requirement. Primo Screen designed and manufactured in Japan to the highest quality standards can be used in almost any situation from digital signage and advertising to corporateobbies, boardrooms even television and film sets. Primo Screen can be cut to any size and shape, it can be laminated on any clear substrate or be supplied complete as a rigid acrylic screen. Also look for our range of front projection screens to suit your every day needs for front projection solutions.

### Selecon Australia

**A20** 19-21 Kawana Street Northcote, Auckland 1310 New Zealand  
P: +64 9 481 0100 F: +64 9 481 0101  
[www.seleconlight.com](http://www.seleconlight.com)

What would a fast, simple, precise and cheap means to preset luminaires BEFORE flying out: the bar saving time and labour costs mean to you? Check out the revolutionary Fast, Focus Technology benefits of the new Selecon Rama range – 1.0 / 1.2kW Fresnels and PCs. Also debuting is the new ergonomic Performer Series 2 Followspot range; 2-3 times the output delivered by current 1.2 / 2.5 kW MSR/HMI Followspots. More recently introduced products such as Hui and Lui and the Pacific Cowser, Pacific 45-75 Zoomspot and specialised Pacific 5 High Efficiency Fixed Beam will also be available for your hands-on inspection. [www.seleconlight.com](http://www.seleconlight.com).

### Setwear Australia

**J43** PO Box 3262 Nerang BC QLD 4211 Australia  
P: +61 7 5596 3595 F: +61 7 5596 0155  
[www.setwear.com.au](http://www.setwear.com.au)

Setwear products have established a solid reputation among set & stage crews around the globe and deservedly so – the brand is known for its overall quality and durability. The Setwear range includes high-quality gloves are used by riggers, grips and electricians while the bags, pouches, smocks and accessories have become extremely popular with crews working in all categories of film, TV and stage production. The extensive range also includes a number of those useful hard-to-find specialty items such as heavy duty belts, belt clips for your gloves, radio chest packs, tool leashes as well as hair and make-up bags.

### Shi-Chi Entertainment Technology Co. Ltd

**M35** 1F - 12 Dingliao 5th Street Bali Taipei Country 24946 Taiwan  
P: +886 2 2618 4242 F: +886 2 2618 4200  
[www.shichi.com.tw](http://www.shichi.com.tw)

### Showquip

**G38** 21 Livingstone Street Christchurch 8005 New Zealand  
P: +64 3 982 3113 F: +64 3 379 9159  
[www.showquip.com](http://www.showquip.com)

Showquip is a New Zealand Truss manufacturing company which fabricates and distributes Total Fabrication & Slick truss under licence from Total Solutions in the UK. Early in 2006 product will be available from our Gold Coast premises in Arundel for distribution throughout Australia.



### Sunlec International

**P27** 31 Port Pirie Street Bibra Lake WA 6163 Australia  
P: 1800 999 440 F: 1800 999 217  
www.bosbox.com

Bosbox the amazing, heavy duty, rubber cased, tough as guts, go where you like portable powerhouse. Just plug it in and Bosbox will provide safe, temporary power wherever you may be. Available in a variety of sizes each Bosbox offers a range of combinations to suit your particular needs or they can be built to your specifications fast. And for multi-level, cascading coverage you can easily link several Bosboxes together.

### Syntec International Pty Limited

**J6** 60 Gibbes Street Chatswood NSW 2067 Australia  
P: +61 2 9417 4700 F: +61 2 9417 +6136  
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For over 30 years Syntec International has been proud to be the Australian and New Zealand distributor for some of the most renowned and respected brands of audio equipment, catering for a wide range of applications.

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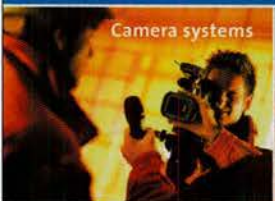
Represented manufacturers include: Ashly, Eventide, Manley, Neumann, Rycote, Sennheiser and Tarnoy  
Our committed sales team being more than happy to assist with your needs.

### Technical Audio Group

**R20** 43 Bridge Road Stanmore NSW 2048 Australia  
P: +61 2 9519 0900  
www.tag.com.au

Smell the coffee, taste a waffle, relax and surround yourself with the world's finest production hardware: Allen & Heath, ATC, Atlas Sound, Audio-Technica, DP, Euphonix, EuroModule, FBT, Genex, HHB, Klotz, Martin Audio, QSC, TLA and Whirlwind.

## G2 wireless audio Setting standards



Camera systems



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### evolution G2 Series 300 & 500

The 300 and 500 series G2 expand the capabilities of evolution range still further.

The 300 series systems offer the use of nine channel banks with up to 8 switchable frequencies per channel.

The 500 series (sold as components) offers up to 20 switchable frequencies in nine channel banks.

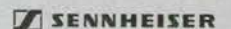
This allows for optimum flexibility in building a secure system for performance for all kinds of sizes of venue. It also guarantees that your performers will benefit from interference free sound.

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### The Electric Canvas

**K1** Unit 6, 9-11 Chaplin Drive Lane Cove NSW 2066 Australia  
P: +61 2 9420 8817 F: +61 2 9420 8892  
[www.theelectriccanvas.com.au](http://www.theelectriccanvas.com.au)

The Electric Canvas specialise in large format, high-powered image and effects projection. The company operates from Sydney providing projection services for Stadium, Corporate, or Arts events across Australasia.

We are specialists in scrolling film systems, architectural and complex large-scale indoor and outdoor multi-media projection design incorporating Video and Lighting. We are also the regional distributors for the EVC Audiovisual PIGI projection systems and The Zap technology BigLite 4.5k xenon robotic wash/searchlight. At Entech 06 we will be showcasing our recent experiences and will have a working BigLite on the stand.

### The Look

**M1** 6-10 Rothschild Ave Rosebery NSW 2018 Australia  
P: +61 2 9797 6068 F: +61 2 9738 9243  
[www.thelook-sydney.com](http://www.thelook-sydney.com)

The Look is the Theatrical Drape Hire company with Glitz and Glamour, the Grand and the Beautiful base.

Decorating, Dressing events, Theatrical Shows, Photo Backdrops, Film, Bands.

Creating your look be it paper, string, wire or netting, we start with a thought or an idea that has been put forward and work within the time and budget. Creating something new or making a black drape hang straight and look good, is our way.

### The Service Manager

**M41** Suite 2a 199 Regent Street Redfern NSW 2016 Australia  
P: +61 2 9690 3888 F: +61 2 9690 3800  
[www.theservicemanager.com](http://www.theservicemanager.com)

The Service Manager - TSM is a comprehensive field service repair and maintenance solution allowing service departments to efficiently manage business activities across the organisation. Our extensive client base tells us that TSM has positively impacted cashflow, profitability, revenue, customer satisfaction and overall business performance.

TSM's features include:

- Instant viewing of customer details, history and contacts.
- Technician scheduling, notification and dispatch.
- Tracking of labour, parts and miscellaneous charges.
- Equipment history and resolution statistics.
- Managing inventory levels in one or more stock locations.
- Generating purchase orders for stock replenishment.
- Management of preventative service agreements and warranty entitlement.
- Sales of parts.
- Generating invoices for time and materials.
- Integration with leading accounting software.
- Analysis of information captured for management decision making to further improve profits, productivity and streamline processes.
- Full functionality in the field via a wireless Pocket PC.

### Theatrelight LTD

**P29** 6 Rowe St Onehunga Auckland New Zealand  
P: +64 9 622 1187 F: +64 9 636 5803  
[www.theatrelight.co.nz](http://www.theatrelight.co.nz)

Theatrelight will have all new look product on stand with the all new Nebula and Backpack 2 dimmers. Also we will have the new look Nova's and the smaller ever popular Starlet lighting desks. We look forward to seeing you.



### Thomson Grass Valley

**A16** Unit 4 310 Ferntree Gully Road Nottig Hill VIC 3168 Australia  
 P: +61 3 98540 3600 F: +61 3 9854 3866  
[www.thomsongrassvalley.com](http://www.thomsongrassvalley.com)

Thomson Grass Valley in association with resellers The AV Group and Resonant Technologies will exhibit at ENTECH 2006 for the first time following the recent world-wide release of the Grass Valley Turbo iDDR (Intelligent Digital Disk Recorder)  
 Designed specifically for event, corporate, institutional, and worship production, the Turbo iDDR leverages the digital storage, networking, and clip-creation capabilities of the Emmy® award-winning Grass Valley Profile® line of video servers.  
 Product experts from Grass Valley and local Resellers will be on hand to demonstrate the extraordinary features of Turbo in standalone configuration and networked applications.  
 For more info on Turbo visit [www.thomsongrassvalley.com/turbo](http://www.thomsongrassvalley.com/turbo).

### Total Concept Projects

**H21** 34-36 Adderley Street East Silverwater 2128 Australia  
 P: +61 2 9648 3444 F: +61 2 9648 5900  
[www.totalconceptprojects.com](http://www.totalconceptprojects.com)

Total Concept Projects (TCP) specialise in innovative audio visual and lighting solutions for venues throughout Australia and Asia. TCP is the leader in design, engineering, installation and ongoing maintenance and provides a broad range of products for all clients, proving no job is too big or too small for our expert team. TCP's extensive team can advise on the design, management, equipment specification, installation custom manufacturing and consultancy for any project. TCP is also the sole distributor of Clay Paky Lighting in Australia and a preferred supplier of Panasonic plasmas under the banner of Arena Vision.

### Total Height Safety

**H1 & J1** Unit 10 87 Reserve Road Artarmon NSW 2064 Australia  
 P: +61 2 9966 9070 F: +61 2 9966 9071  
[www.ths.com.au](http://www.ths.com.au)

Total Height Safety Pty Ltd (THS) is a specialist provider of quality equipment, consultation and training for height safety and the theatrical industry. Specialist provider of Height Safety; PPE Inspection; Risk Assessment; Tower Access & Rescue Training. THS knows the industry. The opening and closing ceremonies of Sydney 2000 Olympics, Witches of Eastwick (Australian & Japanese Productions), Wizard of Oz, Opera Australia (Iolanthe & der Frieschutz) to name but a few depended on THS. Special guests: Bluewater Australia Manufacturer, THS "flying harness" designer. New Products: THS Fairy flying harness & BigShot Sling shot. See us at stand: J1 & H1

### Universal Lighting and Audio (ULA) Pty Ltd

**W10** 28 Expo Court Ashmore QLD 4214 Australia  
 P: +61 7 5509 4633 F: +61 7 5509 4677  
[www.ula.com.au](http://www.ula.com.au)

ULA will be exhibiting the latest products from World leading companies, ULA Represents; Acme, Anolis, Avolites, Ecue, Griven, HardCaseCo, iLED, iSolution, LeMaitre, Litecraft, Robe Show Lighting, SGM, ShowMagic, SoundiVision, Technics and Traxon MoodLight. ULA is showcasing the full ROBE range including the ColorSpot 1200 MK2, LEDBlinders and the revolutionary Robe StageBanner 50AT Multimedia - with its audio, visual and power supplies the StageBanner enables the display and rotation of a range of devices including Plasmas, LCDs, projectors or Loud Speakers.  
 A feature from Traxon is the innovative 64PXL Panel - positioned half way between a LED light and an LED screen the 64PXL contains 64 RGB light sources that can be illuminated individually.

### Venue & AudioTechnology magazine

**J39** PO Box 1756 Dee Why NSW 2099 Australia



P: +61 2 9984 8801 F: +61 2 9984 8802

[www.venuemag.com](http://www.venuemag.com)

Venue magazine: Concentrating on Lighting, Interiors and Audio Visual, Venue magazine is the only publication for the chain of decision makers involved in fit – outs, refurbishments and the design of commercial venues.

### Venue & AudioTechnology magazine

J39

PO Box 1756 Dee Why NSW 2099 Australia

P: +61 2 9984 8801 F: +61 2 9984 8802

[www.audiotechnology.com.au](http://www.audiotechnology.com.au)

AudioTechnology magazine: Covering all aspects of audio production from the studio to the stage, AudioTechnology magazine is a highly informative resource for Audio Engineers and Recording Musicians.

### Wilson & Gilkes Pty Ltd

U1

PO Box 63 Moorebank NSW 1875 Australia

P: +61 2 9914 0900 F: +61 2 9914 0901

[www.gilkon.com.au](http://www.gilkon.com.au)

Wilson & Gilkes is a manufacturer and importer of Audio Visual products. Established in 1947 and located in Moorebank, Sydney.

Wilson & Gilkes has an impressive range of professional AV products which include Da-Lite projector screens, LCD projector mounting brackets as well as the popular Lectrum brand of Lecturn.

As the demand for plasma and LCD monitors has increased Wilson & Gilkes has created a range of LCD and plasma lifts and wall mounted brackets, these products have been designed to suit the needs of home and commercial applications and will be showcased at Entech.

### Yamaha Music Australia

O18

PO Box 268 South Melbourne VIC 3205 Australia

P: +61 3 9693 5111 F: +61 3 9696 4579

[www.yamahamusic.com.au](http://www.yamahamusic.com.au)



# Brands on Stands

Brand Name	Promotional Name at ENTECH	Web address	Phone	Stand
Aardvart Depont ATA Cases	Blue Cat Case Company	<a href="http://www.cases.com.au">www.cases.com.au</a>	07 3889 7755	G37
ABLETON	Music Link Australia	<a href="http://www.musiclink.com.au">www.musiclink.com.au</a>	03 9765 6531	O21
Acme	Universal Lighting & Audio	<a href="http://www.soundivision.com.au">www.soundivision.com.au</a>	07 5509 4633	W10
Actor Mate	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
Adamson	ATT Audio Controls	<a href="http://www.AdamsonProAudio.com">www.AdamsonProAudio.com</a>	03 9379 1511	M17
ADB	LSC Lighting Systems (Aust) Pty Ltd	<a href="http://www.lscighting.com.au">www.lscighting.com.au</a>	03 9561 5255	M21
Aeromic	Fitness Audio	<a href="http://www.fitnessaudio.com.au">www.fitnessaudio.com.au</a>	02 9313 4995	P30
Aeromix	Fitness Audio	<a href="http://www.fitnessaudio.com.au">www.fitnessaudio.com.au</a>	02 9313 4995	P30
AirTools	Production Audio Services	<a href="http://www.productionaudio.com.au">www.productionaudio.com.au</a>	03 9878 1444	R17
Akai Professional	Electric Factory Pty Ltd	<a href="http://www.elfa.com.au">www.elfa.com.au</a>	03 9794 1000	G26
AKG	Audio Products Group	<a href="http://www.audioproducts.com.au">www.audioproducts.com.au</a>	1300 13 44 00	M10
Alesis	Electric Factory Pty Ltd	<a href="http://www.elfa.com.au">www.elfa.com.au</a>	03 9794 1000	G26
Allen & Heath	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Allen Products	NET	<a href="http://www.allenproducts.com">www.allenproducts.com</a>	02 9905 5997	C20
ALTO	Music Link Australia	<a href="http://www.musiclink.com.au">www.musiclink.com.au</a>	03 9765 6531	O21
AmberTec Ceiling Mounts	Amber Technology	<a href="http://www.ambertech.com.au">www.ambertech.com.au</a>	02 9452 8600	J17
AmberTec Remotes	Amber Technology	<a href="http://www.ambertech.com.au">www.ambertech.com.au</a>	02 9452 8600	J17
AmberTec Screens	Amber Technology	<a href="http://www.ambertech.com.au">www.ambertech.com.au</a>	02 9452 8600	J17

American Audio	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
American DJ	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
Amphenol	Madison Technologies	<a href="http://www.madisontech.com">www.madisontech.com</a>	1800 66 99 99	E28
Amphenol	National Audio Systems Pty Ltd	<a href="http://www.nationalaudio.com.au">www.nationalaudio.com.au</a>	03 9846 3566	G30
Amphenol	NET	<a href="http://www.amphenol.com.au">www.amphenol.com.au</a>	02 9905 5997	C20
Anchor Hoists	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8230	H17
Anolis LED Lighting	Universal Lighting & Audio	<a href="http://www.ula.com.au">www.ula.com.au</a>	07 5509 4633	W10
Artari	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
Anytronics	NET	<a href="http://www.anytronics.com">www.anytronics.com</a>	02 9905 5997	C20
Applied Research and Technology	NET	<a href="http://www.arproaudio.com">www.arproaudio.com</a>	02 9905 5997	C20
Argent Techno Racking	Madison Technologies	<a href="http://www.madisontech.com">www.madisontech.com</a>	1800 66 99 99	E28
ARX Systems	The Resources Corporation	<a href="http://www.arx.com.au">www.arx.com.au</a>	03 9874 5988	O22
Ashly	Syntec International	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Atacama Audio	Syntec International	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
ATC	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Atlas Rope & Cordage	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	O23
Atlas Sound	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Audia	Audio Products Group	<a href="http://www.audioproducts.com.au">www.audioproducts.com.au</a>	1300 13 44 00	M10
Audio - Technica	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20

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[www.content-technology.com](http://www.content-technology.com)

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# Brands on Stands

Audio Technology Magazine	Alchemedia Publishing	www.audiotechnology.com.au	02 9984 8810	T1
Audix	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
AVE	AVE Audio Visual Engineering	www.avecorp.com.au	03 9792 2357	P32
Aviom	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Avoltes	Universal Lighting & Audio	www.ula.com.au	07 5509 4633	W10
B52	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Balcar	Mediavision Australia	www.mediavision.com.au	02 9816 4055	J46
Baxter Controls Pocket Console	Balanced Tech	www.balancedtech.com.au	08 8372 7889	L49
Beacon Gobo Collection	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Beal	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Beaver	Beaver	www.beaver.com.au	02 9034 5444	L30
Belden / CDT	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Blamp	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Biema	Altronic Distributors	www.altronics.com.au	1300 780 999	H29
BigLight Large-format wash light	The Electric Canvas	www.theelectriccanvas.com.au	02 9420 8817	K1
Bitree	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
BLUE	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
Bluewater	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Bluewater	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Bonwick	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Bonwick	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Bosbox	Bosbox	www.bosbox.com	08 9434 1933	P27
Bosch	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	G30
Bosch Security Systems	Bosch	www.boschsecurity.com.au	02 9672 1233	L32
BOSE	BOSE	www.bose.com.au	07 5507 7000	M26
Broadhurst Gardens	ATT Audio Controls	www.davelectronics.com	03 9379 1511	M17
Brown's Precision Welding	Balanced Tech	www.balancedtech.com.au	08 8372 7889	L49
Bryston	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
BSS	Jands	www.jands.com.au	02 9582 0909	V17
Bytecraft	Bytecraft	www.bytecraft.com.au	02 8568 4400	O15
Bytecraft	Bytecraft Entertainment	www.bytecraftentertainment.com	03 8710 2555	O15
CAD Microphones	NET	www.cadmics.com	02 9905 5997	C20
Cadac	ATT Audio Controls	www.cadac-sound.com	03 9379 1511	M17
Canare	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Carver	NET	www.carverpro.com	02 9905 5997	C20
CAVS	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Celemony - Melodyne	Electric Factory Pty Ltd	www.efa.com.au	03 9794 1000	G26
Celestion	NET	www.celestion.com	02 9905 5997	C20
Chain Blocks Inverted	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Chain STAC	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Chiayo	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Chief Mounting Solutions	Chief Mounting Solutions	www.chiefmtg.com	1300 784 644	M38
Citronic	AVE Audio Visual Engineering	www.avecorp.com.au	03 9792 2357	P32
Clarity Sound Products (CSP)	NET	www.network-et.com	02 9905 5997	C20
Clay Paky	Total Concept Projects	www.totalconceptprojects.com	02 9648 3444	H12
ClearCom	Jands	www.jands.com.au	02 9582 0909	V17
ClearOne	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
CLS	NET	www.cls.no	02 9905 5997	C20
CM Hurricane	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
CM Lodestar	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23

CM Lodestar	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
CM Prostar	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
CM Rigging	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
CME	Music Link Australia	www.musiclink.com.au	03 9765 6531	Q21
CMI	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
CMI	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Coffin Hoists	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Cohedra	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Colortran	Mediavision Australia	www.mediavision.com.au	02 9816 4055	J46
Columbus McKinnon	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Comrex	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Content + Technology Magazine	Broadcastpapers	www.broadcastpapers.com	02 9331 4410	P35
Colina	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Countryman	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Crest Audio	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Crown	Jands	www.jands.com.au	02 9582 0909	V17
CT	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
CX Magazine	Juliusmedia	www.juliusmedia.com	02 9638 5955	P40
d&b audioteknik	d&b audioteknik	www.dbaudio.com	03 9846 3566	Demo Rm 3
D.T.S.	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Danacom	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
DAS	Magna Systems & Engineering	www.magnasys.tv	02 9417 1111	E17
db Technologies	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
dbx	Jands	www.jands.com.au	02 9582 0909	V17
Denon DJ	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Denon Professional	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Dichroic Filters	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Digidesign	Digidesign	www.digidesign.com	03 9367 8600	W5
Digigobos - Beacon	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Display Projectors	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Custom Electronics	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Dislo	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Dolby	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
DP	TAG	www.tag.com.au	02 9519 0900	X20
DPA Microphones	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Drake	Jands	www.jands.com.au	02 9582 0909	V17
DYNACORD	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
Dynaudio Acoustics	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
EAW	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
EAW Commercial	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Ebony	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	G30
Ecue	Universal Lighting & Audio	www.ula.com.au	07 5509 4633	W10
Edelrid	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Edelrid	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Edrol	Roland Corporation	www.rolandcorp.com.au	02 9982 8266	O1
eGloop	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
Elation	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Electro-Voice	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
EMM Labs	ATT Audio Controls	www.emmlabs.com	03 9379 1511	M17

# Brands on Stands

Brand Name	Promotional Name at ENTECH	Web address	Phone	Stand
Entertainment Rigging Products	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17
Enttec	Balanced Tech	<a href="http://www.balancedtech.com.au">www.balancedtech.com.au</a>	08 8372 7889	L49
ESP Technology	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
ETA	Production Audio Services	<a href="http://www.productionaudio.com.au">www.productionaudio.com.au</a>	03 9878 1444	R17
ETC	Jands	<a href="http://www.jands.com.au">www.jands.com.au</a>	02 9582 0909	V17
ETS LAN	Madison Technologies	<a href="http://www.madisontech.com">www.madisontech.com</a>	1800 66 99 99	E28
Euphonix	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Euro Module	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Eurocable	The Resources Corporation	<a href="http://www.trc.com.au">www.trc.com.au</a>	03 9874 5988	O22
Eventide	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
FBT	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Fitness Audio	Fitness Audio	<a href="http://www.fitnessaudio.com.au">www.fitnessaudio.com.au</a>	02 9313 4995	P30
Focusrite	Electric Factory Pty Ltd	<a href="http://www.efa.com.au">www.efa.com.au</a>	03 9794 1000	G26
Formula Sound	NET	<a href="http://www.formula-sound.com">www.formula-sound.com</a>	02 9905 5997	C20
FormulaBlue	Electric Factory Pty Ltd	<a href="http://www.efa.com.au">www.efa.com.au</a>	03 9794 1000	G26
Fostex Netaira	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Funktion One Australia	Funktion One Australia	<a href="http://www.funktion-one.com.au">www.funktion-one.com.au</a>	03 9525 2515	H39
Furman Sound	NET	<a href="http://www.furmansound.com">www.furmansound.com</a>	02 9905 5997	C20
Gacflex	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Galaxy Audio	NET	<a href="http://www.galaxyaudio.com">www.galaxyaudio.com</a>	02 9905 5997	C20
Gemini	NET	<a href="http://www.geminidj.com">www.geminidj.com</a>	02 9905 5997	C20
Genex	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Gibbs	Total Height Safety Pty Ltd	<a href="http://www.tfs.com.au">www.tfs.com.au</a>	02 9966 9070	H1 & J1
Gigskinz	NET	<a href="http://www.gigskinz.com">www.gigskinz.com</a>	02 9905 5997	C20
Gikon	Wilson & Gilkes	<a href="http://www.gikon.com.au">www.gikon.com.au</a>	02 9914 0900	U1
Global Lifting	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Go Cases	Blue Cat Case Company	<a href="http://www.cases.com.au">www.cases.com.au</a>	07 3889 775E	G37
Gobo Glass - Gobotech stock glass collection	Gobotech Pty Ltd	<a href="http://www.gobotech.com.au">www.gobotech.com.au</a>	07 5529 050E	R1 & S1
Gobos Steel - Gobotech Stock	Gobotech Pty Ltd	<a href="http://www.gobotech.com.au">www.gobotech.com.au</a>	07 5529 050E	R1 & S1
Steel Collection	Gobotech Pty Ltd	<a href="http://www.gobotech.com.au">www.gobotech.com.au</a>	07 5529 050E	R1 & S1
Gobotech Custom Gobos	Gobotech Pty Ltd	<a href="http://www.gobotech.com.au">www.gobotech.com.au</a>	07 5529 050E	R1 & S1
Goddard Design	Balanced Tech	<a href="http://www.balancedtech.com.au">www.balancedtech.com.au</a>	08 8372 7889	L49
Gotchasafe	Total Height Safety Pty Ltd	<a href="http://www.tfs.com.au">www.tfs.com.au</a>	02 9966 9070	H1 & J1
Grass Valley	Grass Valley	<a href="http://www.thomsongrassvalley.com">www.thomsongrassvalley.com</a>	03 8540 377E	A16
Griven	Universal Lighting & Audio	<a href="http://www.ula.com.au">www.ula.com.au</a>	07 5509 4633	W10
HardCaseCo	Universal Lighting & Audio	<a href="http://www.soundivision.com.au">www.soundivision.com.au</a>	07 5509 4633	W10
HB Wales	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
HB Wales	Total Height Safety Pty Ltd	<a href="http://www.tfs.com.au">www.tfs.com.au</a>	02 9966 9070	H1 & J1
Helios	ATT Audio Controls	<a href="http://www.raindrk.com">www.raindrk.com</a>	03 9379 1511	M17
HHB	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
HK Audio	CMi Music & Audio	<a href="http://www.cmi.com.au">www.cmi.com.au</a>	03 9315 2244	E10
Hoists Entertainment	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17
Hoists Inverted	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17
Holophone	Amber Technology	<a href="http://www.ambertech.com.au">www.ambertech.com.au</a>	02 9452 8600	J17
Hylex	Magna Systems & Engineering	<a href="http://www.magnsys.tv">www.magnsys.tv</a>	02 9417 1111	E17
Ianiro	Mediavision Australia	<a href="http://www.mediavision.com.au">www.mediavision.com.au</a>	02 9816 4055	J46
IFF	Bytecraft	<a href="http://www.bytecraft.com.au">www.bytecraft.com.au</a>	02 8568 4400	O15
ILED	Universal Lighting & Audio	<a href="http://www.soundivision.com.au">www.soundivision.com.au</a>	07 5509 4633	W10
Innova SON	Production Audio Services	<a href="http://www.productionaudio.com.au">www.productionaudio.com.au</a>	03 9878 1444	R17
Inspecta-Shield Fire Retardant	NZ Fire-Shield	<a href="http://www.nzfire-shield.co.nz">www.nzfire-shield.co.nz</a>	64 3352 4588	P41
Inter-M	Magna Systems & Engineering	<a href="http://www.magnsys.tv">www.magnsys.tv</a>	02 9417 1111	E17
iSolution	Universal Lighting & Audio	<a href="http://www.soundivision.com.au">www.soundivision.com.au</a>	07 5509 4633	W10
Jands	Jands	<a href="http://www.jands.com.au">www.jands.com.au</a>	02 9582 0909	V17
Jarrett Winches	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
JBL Professional	Jands	<a href="http://www.jands.com.au">www.jands.com.au</a>	02 9582 0909	V17
Jedia	NET	<a href="http://www.jedia.com">www.jedia.com</a>	02 9905 5997	C20
JTS	Music Link Australia	<a href="http://www.musiclink.com.au">www.musiclink.com.au</a>	03 9765 6531	O21
Juliusmedia College	Juliusmedia	<a href="http://www.juliusmedia.com">www.juliusmedia.com</a>	02 9638 5955	P40
Just Straps	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Kaleidoscope Effect Gobos	Gobotech Pty Ltd	<a href="http://www.gobotech.com.au">www.gobotech.com.au</a>	07 5529 050E	R1 & S1
Kamesan	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Kings Electronics	Madison Technologies	<a href="http://www.madisontech.com">www.madisontech.com</a>	1800 66 99 99	E28
Kito	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Kito	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17
KLARK TEKNIK	APAC Audio	<a href="http://www.apacaudio.com.au">www.apacaudio.com.au</a>	02 9683 4752	Tumbalong Auditorium
Klein + Hummel	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Kling & Freitag	ATT Audio Controls	<a href="http://www.kling-freitag.com">www.kling-freitag.com</a>	03 9379 1511	M17
Klotz	TAG	<a href="http://www.tag.com.au">www.tag.com.au</a>	02 9519 0900	X20
Kong	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Kong	Total Height Safety Pty Ltd	<a href="http://www.tfs.com.au">www.tfs.com.au</a>	02 9966 9070	H1 & J1
Konig & Meyer	The Resources Corporation	<a href="http://www.trc.com.au">www.trc.com.au</a>	03 9874 5988	O22
KORG	Music Link Australia	<a href="http://www.musiclink.com.au">www.musiclink.com.au</a>	03 9765 6531	O21
Koss Headphones	NET	<a href="http://www.network-et.com">www.network-et.com</a>	02 9905 5997	C20
Kramer	Kramer Australia	<a href="http://www.kramertechnologies.com">www.kramertechnologies.com</a>	07 3715 6200	P26
KRK	Music Link Australia	<a href="http://www.musiclink.com.au">www.musiclink.com.au</a>	03 9765 6531	O21
Lake Technology	ATT Audio Controls	<a href="http://www.proaudio.lake.com">www.proaudio.lake.com</a>	03 9379 1511	M17
Langley Designs	ATT Audio Controls	<a href="http://www.langley-designs.com">www.langley-designs.com</a>	03 9379 1511	M17
LC Attractions	LC Attractions	<a href="http://www.lcattractions.biz">www.lcattractions.biz</a>	02 9807 5800	M6
LDR	Bytecraft	<a href="http://www.bytecraft.com.au">www.bytecraft.com.au</a>	02 8568 4400	O15
Leatherman	Total Height Safety Pty Ltd	<a href="http://www.tfs.com.au">www.tfs.com.au</a>	02 9966 9070	H1 & J1
Lee Filters	Mediavision Australia	<a href="http://www.mediavision.com.au">www.mediavision.com.au</a>	02 9816 4055	J46
Lehmann Audio	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Leica Lasers	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
LEM Audio	NET	<a href="http://www.lemaudio.com">www.lemaudio.com</a>	02 9905 5997	C20
LeMaitre	Universal Lighting & Audio	<a href="http://www.ula.com.au">www.ula.com.au</a>	07 5509 4633	W10
Leon Audio	Fitness Audio	<a href="http://www.fitnessaudio.com.au">www.fitnessaudio.com.au</a>	02 9313 4995	P30
Lever Blocks	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17
Leviton Lighting Controls	Mediavision Australia	<a href="http://www.mediavision.com.au">www.mediavision.com.au</a>	02 9816 4055	J46
LexiconPro	Jands	<a href="http://www.jands.com.au">www.jands.com.au</a>	02 9582 0909	V17
Light Emoton	Leading Source Wholesale	<a href="http://www.lswonline.com.au">www.lswonline.com.au</a>	02 9718 4900	H6
Lightwave Audio	SYNTEC INTERNATIONAL	<a href="http://www.syntec.com.au">www.syntec.com.au</a>	02 9417 4700	J6
Line Array Systems	CMi Music & Audio	<a href="http://www.cmi.com.au">www.cmi.com.au</a>	03 9315 2244	E10
Link	The Resources Corporation	<a href="http://www.trc.com.au">www.trc.com.au</a>	03 9874 5988	O22
Listen	National Audio Systems Pty Ltd	<a href="http://www.nationalaudio.com.au">www.nationalaudio.com.au</a>	03 9846 3566	P31
Litcraft	Universal Lighting & Audio	<a href="http://www.soundivision.com.au">www.soundivision.com.au</a>	07 5509 4633	W10
Littite	Balanced Tech	<a href="http://www.balancedtech.com.au">www.balancedtech.com.au</a>	08 8372 7889	L49
Load Restraint Systems	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Lodestar	Hoisting Equipment Specialists Pty Ltd	<a href="http://www.ozblok.com.au">www.ozblok.com.au</a>	02 9531-8033	Q23
Lodestar	PWB Anchor	<a href="http://www.pwbanchor.com.au">www.pwbanchor.com.au</a>	03 9473 8290	H17



# Brands on Stands

Brand Name	Promotional Name at ENTECH	Web address	Phone	Stand
LSC	LSC Lighting Systems (Aust) Pty Ltd	www.lscighting.com.au	03 9561 5255	M21
Lumens	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Mackie	Australian Audio Supplies	www.ausaudio.com.au	02 43884666	K25
Madison Technologies	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Magma	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	
Mallon Rapide	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Mallon Rapide	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Manley Laboratories	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Marantz Professional	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Martin Audio	TAG	www.tag.com.au	02 9519 0900	X20
Martinsound	ATT Audio Controls	www.martinsound.com	03 9379 1511	M17
M-Audio	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
Maxcable	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
McLelland	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
MDG Fog	Bytecraft	www.bytecraft.com.au	02 8568 4400	O15
Merging Technologies Inc	ATT Audio Controls	www.merging.com	03 9379 1511	M17
Meyer Sound Australia	Meyer Sound	www.meyersound.com.au	07 3252 4433	T6
Microphones & Pouchbelts	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
Mics & DI Boxes	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
MIDAS	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
Mig Clips	Gobotech Pty Ltd	www.gobotech.com.au	07 5529 0505	R1 & S1
Mindprint	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Mogami	NET	www.mogami.jp	02 9905 5997	C20
Mondo Magazine	Mondiale Publishing	www.mondiale.co.uk	+44 161 480 3344	P34
Montarbo	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Motors - Electric	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Multidyne	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
N.G.K Grips	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Navitar ScreenStar Lenses	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Neatron	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Neumann	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Neutrik	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Nord	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
NTI	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Numark	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
Omega	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Omega	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Omnimount	The Resources Corporation	www.trc.com.au	03 9874 5988	O22
Omnitronics	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
On-Stage	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
Operalite	NET	www.network-et.com	02 9905 5997	C20
OPTOGATE	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
Optoma	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Oracle Laser	Oracle Laser	www.oraclelaser.biz	02 9807 5844	M6
Orban	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
OSRAM lighting	OSRAM	www.osram.com.au	1300 134 483	P1
Otari	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Outboard	ATT Audio Controls	www.outboard.co.uk	03 9379 1511	M17

OzBlok	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
P Audio	P Audio System	www.paacoustic.com	+ 66 2441 6600	C10
Pacific	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Pacific	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Paladin Tools	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Peak Audio	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Peavey	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Peltor	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Petzi	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Petzi	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Phase 4	Altronic Distributors	www.altronics.com.au	1300 780 999	H29
PIGI Large-format projectors	The Electric Canvas	www.theelectriccanvas.com.au	02 9420 8817	K1
Platypus	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Pointmaker	TAG	www.tag.com.au	02 9519 0900	X20
Powersoft	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
PR Lighting	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Presonus	Australian Audio Supplies	www.ausaudio.com.au	02 43884666	K25
Primo Screen	Sakai Australia	www.primoscreen.com	61 2 4721 8011	H43
Pro Audio Asia	Blank Canvas Publishing	www.proaudioasia.com	+44 189 267 6280	TBA
Pro Linx cables	The Resources Corporation	www.trc.com.au	03 9874 5988	O22
Proart	Altronic Distributors	www.altronics.com.au	1300 780 999	H29
ProCo Sound	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Projection Design	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Proline	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
ProLink	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
PROPELLERHEAD	Music Link Australia	www.musiclink.com.au	03 9765 6531	O21
Prostar	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
Protective Grease	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
ProTools - M-Powered	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
PSL	NET	www.psl.it	02 9905 5997	C20
PSS Audio	NET	www.pesaudio.com	02 9905 5997	C20
PWB Anchor	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
PWB Anchor	PWB Anchor	www.pwbanchor.com.au	03 9473 8290	H17
QSC	TAG	www.tag.com.au	02 9519 0900	X20
Quested	ATT Audio Controls	www.quested.com	03 9379 1511	M17
Radial	NET	www.radialeng.com	02 9905 5997	C20
Raindirk	ATT Audio Controls	www.raindirk.com	03 9379 1511	M17
RAT Music Stands	Bytecraft	www.bytecraft.com.au	02 8568 4400	O15
RDL	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Redback	Altronic Distributors	www.altronics.com.au	1300 780 999	H29
Redbeat	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Reference Audio Design	NET	www.network-et.com	02 9905 5997	C20
RenderWorks	VectorWorks	www.ozcad.com.au	02 8338 8622	G39
RentalPoint Software	RentalPoint Software	www.rentalpoint.com.au	+61 500 885 896	G35
Riedel	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Road Ready Cases	NET	www.roadreadycases.com	02 9905 5997	C20
RoadCat Cases	Blue Cat Case Company	www.cases.com.au	07 3889 7755	G37
Roadworx	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Robe Show Lighting	Universal Lighting & Audio	www.ulia.com.au	07 5509 4633	W10
Robert Juliat	Bytecraft	www.bytecraft.com.au	02 8568 4400	O15
Roland	Roland Corporation	www.rolandcorp.com.au	02 9982 8266	O1

# Brands on Stands

Brand Name	Promotional Name at BITECH	Web address	Phone	Stand
Roland System Solutions	Roland Corporation	www.rolandcorp.com.au	02 9982 8266	O1
Rolls	NET	www.rolls.com	02 9905 5997	C20
RSI	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Rud	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Rupert Neve Designs	ATT Audio Controls	www.attaudio.com	03 9379 1511	M17
Rycote	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Samson	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Samson Audio & Wireless	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
SE Microphones	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Selenium	NET	www.selenium.com	02 9905 5997	C20
Sennheiser	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Sennheiser Communicators	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Sennun	NET	www.ecen.com.tw	02 9905 5997	C20
Serapid	Jands	www.jands.com.au	02 9582 0909	V17
Setwear	Setwear Australia	www.setwear.com.au	07 5596 3595	J43
SGM	Universal Lighting & Audio	www.ula.com.au	07 5509 4633	W10
ShowMagic	Universal Lighting & Audio	www.ula.com.au	07 5509 4633	W10
Showquip Truss & staging	Showquip	www.showquip.com	64 3 9823113	G38
Shure	Jands	www.jands.com.au	02 9582 0909	V17
Sierra Video Systems	Kramer Australia	www.sieravideo.com.au	07 3715 8200	P26
Slick Truss	Showquip	www.slick-systems.co.uk	64 3 9823113	G38
SLS Audio	NET	www.slsaudio.com	02 9905 5997	C20
Smart Lighting	B&M Trading Co	www.bmtrading.com.au	02 9317 3743	G36
Sound Advance	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Soundcraft	Jands	www.jands.com.au	02 9582 0909	V17
SoundVision	Universal Lighting & Audio	www.soundvision.com.au	07 5509 4633	W10
SoundKing	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
SoundTech	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Soundtube	National Audio Systems Pty Ltd	www.nationalaudio.com.au	03 9846 3566	P31
Sparsnet	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
SPControls	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Spotlight	Mediavision Australia	www.mediavision.com.au	02 9816 4055	J46
Spyderco	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
SRT	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
SSL	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Stage Technologies	Jands	www.jands.com.au	02 9582 0909	V17
Standsp	NET	www.stands.pl	02 9905 5997	C20
Standsystem	Leading Source Wholesale	www.lswonline.com.au	02 9718 4900	H6
Stanton	Jands	www.jands.com.au	02 9582 0909	V17
Steefflex	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
STEINBERG	Music Link Australia	www.musiclink.com.au	03 9765 6531	O21
Stereo Mixers and Amps	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
Storm Cases	Blue Cat Case Company	www.cases.com.au	07 3889 7755	G37
Strand Lighting	Bytecraft	www.bytecraft.com.au	02 8568 4400	O15
Studer	ATT Audio Controls	www.studer.ch	03 9379 1511	M17
Studio Technologies	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Superflex	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Superlux Microphones	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Symetrix	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
SymNet	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17
Tannoy	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Tapco	Australian Audio Supplies	www.ausaudio.com.au	02 43884666	K25
Tascam	Electric Factory Pty Ltd	www.elfa.com.au	03 9794 1000	G26
TC Electronic	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Technics	Universal Lighting & Audio	www.soundvision.com.au	07 5509 4633	W10
Teletest	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
TELEX	APAC Audio	www.apacaudio.com.au	02 9683 4752	Tumbalong Auditorium
The Look	The Look	www.thelook.com.au	02 9797 6068	M1
The Resources Corp	The Resources Corporation	www.trc.com.au	03 9874 5988	O22
Thermionic Culture	ATT Audio Controls	www.thermioniculture.com	03 9379 1511	M17
Them Winches	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Thiele	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
THS	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Tieline	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Times Square Lighting	NET	www.tslight.com	02 9905 5997	C20
TL Audio	TAG	www.tag.com.au	02 9519 0900	X20
TOA	Audio Products Group	www.audioproducts.com.au	1300 13 44 00	M10
Topaz Mixers	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Total fabrications Truss	Showquip	www.trussing.com.au	64 3 9823113	G38
Total training	Showquip	www.totalabs.com	64 3 9823113	G38
Trantec	The Resources Corporation	www.trc.com.au	03 9874 5988	O22
Traxon MoodLight	Universal Lighting & Audio	www.moodlight.com.au	07 5509 4633	W10
True Systems	SYNTEC INTERNATIONAL	www.syntec.com.au	02 9417 4700	J6
Tube-Tech	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Ushio	NET	www.ushiolighting.co.jp	02 9905 5997	C20
V*Mic	Fitness Audio	www.fitnessaudio.com.au	02 9313 4995	P30
Vari*Lite	Jands	www.jands.com.au	02 9582 0909	V17
VectorWorks	OzCAD VectorWorks	www.ozcad.com.au	02 8338 8622	G39
VectorWorks Spotlight	OzCAD VectorWorks	www.ozcad.com.au	02 8338 8622	G39
Venue Magazine	Alchemedia Publishing	www.venuemag.com.au	02 9984 8801	J39
VESTAX	Music Link Australia	www.musiclink.com.au	03 9765 6531	O21
VET Training	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
Videssence	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
Vinten	Amber Technology	www.ambertech.com.au	02 9452 8600	J17
VISA ATA Cases	Blue Cat Case Company	www.cases.com.au	07 3889 7755	G37
Vista	Jands	www.jands.com.au	02 9582 0909	V17
Weiland	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Wharfale Pro	CMI Music & Audio	www.cmi.com.au	03 9315 2244	E10
Whirlwind	TAG	www.tag.com.au	02 9519 0900	X20
White Sands Engineering	Madison Technologies	www.madisontech.com	1800 66 99 99	E28
Wildfire	NET	www.wildfirefx.com	02 9905 5997	C20
Wildstuff	Hoisting Equipment Specialists Pty Ltd	www.ozblok.com.au	02 9531-8033	Q23
Wildstuff	Total Height Safety Pty Ltd	www.ths.com.au	02 9966 9070	H1 & J1
XTA	Production Audio Services	www.productionaudio.com.au	03 9878 1444	R17





# Acknowledgements



AudioTechnology



Event photography Australiawide



Lighting&Sound<sup>international</sup>



ProAudioAsia

venue  
interiors | lighting | audiovisual

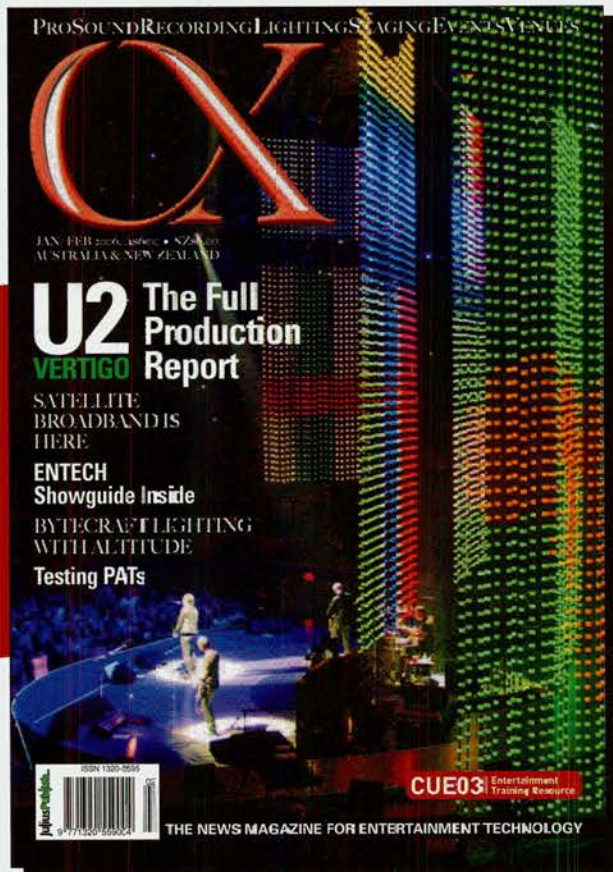
ENTECH has received great support from several companies who continue to work toward improving the industry and our event. I would like to thank the below companies who have helped produce a successful ENTECH 2006

**Thank you!**

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# RIGHT OFF THE DIAL



By IAN MACRAE

"In the digital era, the future is one in which consumers watch or listen to what they want to watch, when they want, at any time they want, on any device. This is a generation that will not wait for content to be delivered to them at a prescribed time."

— Carly Fiorina, then Chairman and CEO of Hewlett-Packard on 19/4/04

That quote from Ms. Fiorina beautifully sums up what is now happening as rapid change continues in the marketplace. So I thought that would be a good way to open this edition of Right Off the Dial.

## A BIT LOW

Late last year the Communications Minister Helen Coonan announced the government's decision to officially introduce Digital Radio to Australia.

She said the government will mandate use of the Eureka 147 system and will give high power broadcasters 128 kilo bits per second of bandwidth, half the recommended amount for Eureka.

This came as a surprise to most broadcasters, because the Eureka codecs do not currently handle this rate with maximum efficiency.

In fact a heck of a lot of bandwidth is needed to broadcast a decent quality digital signal. To get near CD quality sound you really need to broadcast at a bit-rate of 256Kb/s.

But in terms of bandwidth that's pretty expensive so lower bit rates are usually employed.

Most countries enjoy Digital Audio Broadcast (DAB) at 160Kbps or 192Kbps but, if you really want good quality DAB, Estonia is the place to be with all of its DAB stations broadcasting in maximum quality 256kbps!

## AN OPEN AND SHUT CASE

A mysterious radio signal that caused garage doors in Canada's capital City Ottawa to stop working just as suddenly disappeared.

And it disappeared around the time that CBC news contacted the U.S. Embassy to see if it knew anything about it.

The powerful signal was being transmitted at 390 megahertz which, coincidentally, is a frequency used by the Pentagon's new Land Mobile Radio System and the same frequency used by garage door openers which were malfunctioning around the city for about two weeks.

The Chamberlain group, one of the world's biggest garage door manufacturers, took it all seriously enough to fly a design engineer to Ottawa from its Chicago headquarters, with equipment to try to track the signal.

But by the time he got there, the signal was gone.

The embassy denies that it had anything to do with it.

Sure.

## PREDICTABLE RESPONSE

Millions of research dollars are spent every year by record companies trying to predict what people want to listen to and what elements go together to make a hit record.

Now, after years of analysing data, two Massachusetts Institute of Technology PhD grads reckon they've cracked the code. Brian Whitman and Tristan Jehan have created a computer program that listens to a song then predicts how humans will react to it.

Brian Whitman said: "The

response is so specific at times that it can forecast how a single will perform on the charts and spit out a review, guessing what words will be used to describe it, from 'sexy to romantic to loud and upbeat.'

This is scary stuff. I guess it means they know what songs you like...even before you like them.

## EVERY JOCK'S NIGHTMARE

It's the sort of nightmare every radio presenter has...you're on air from a brand new studio, go into your first break, hit the CD play button and nothing happens. So you ad lib as you try two other CD players.

Still nothing. So you try to play music or in fact anything from the computer playlist system. Nothing. The equipment and the board are completely dead. The only thing that works is your microphone.

What can you do? Only one thing...ad lib.

And that's what Tom Cunningham did during his all-Bruce Springsteen show on WCHR-107 The Hawk in New Jersey. In fact he had to ad lib for 35 minutes before help arrived. Turned out the new studio needed a reboot to get back to normal which is not easy to do while you're live with an open mic.

The station reports that listeners were enthralled by Tom's extensive Springsteen knowledge and storytelling ability as he shared info regarding upcoming Bruce events and one of his favorite Bruce stories.

The Bruce Bunch can be heard, going a lot more smoothly, online at [www.1057thehawkfm.com](http://www.1057thehawkfm.com). The show airs Sunday morning from 9-11 U.S. Eastern.

Finally an exclusive preview of the latest African iPod technology with unique power adaptor - See page 106.





# HELLO HELLO

## WELCOME TO A PLACE CALLED VERTIGO

Part socio-political crusade, part reclamation of musical innocence, part showcase of dazzling new live production technology... U2's latest mega-tour captures the band at its emotional peak. Prior to the Vertigo//2006 tour steamrolling into Australia & NZ in March, Mark Cunningham & photographer Diana Scrimgeour travelled with the entourage through California to bring you this extraordinary story of show design excellence...

There's something a little different about the mood of the latest U2 tour production, and it feels like a natural culmination of the iconoclastic excess that has accompanied the Irish foursome over previous campaigns.

Averaging 22 songs a night, the set is punctuated by a series of mission statements that dovetail neatly with such humanitarian rallying cries as the new 'Love And Peace Or Else' and the classic 'Pride (In The Name Of Love)'. Virtually all of the new

album's tracks made it into the pool of around 40 songs from which the band will draw. Echoes of U2's early days are felt with 'An Cat Dubh', 'The Ocean', 'Gloria', 'The Electric Co.' and the show closer, '40', and many of the band's classic anthems and torch songs find their way into each performance on a semi-rota basis, thus keeping it fresh every night for the band and audience.

### **SIMILAR STRUCTURE, REVOLUTIONARY CONTENT**

Having no previous indications of how the Vertigo staging would look, it was an exciting moment when I walked into the empty arena in San Diego to catch my first glimpse. I was actually taken aback by what first appeared to be something not a million miles away from the Elevation concept — a main stage, in front of which was a heart-shaped walkway, with both areas divided by a mosh pit or exclusive club environment for lucky fans.

This time, the walkway is an elliptical shape with some very clever LED integration, and although the decoration of the stage area is different, the basic idea — including four I-Mag video screens above the stage — has been retained. Production Manager Jake Berry commented: "People have asked why it looks the same. But wasn't Elevation one of the most perfect tours ever? It provided both a huge spectacle and an opportunity for fans to get very close to the band, by way of the center pit. I equate it to being like the manager of a soccer club. If you're winning, don't change your manager, and this was a winning formula, so don't change the basic design."

Frankly, although I understood Berry's practicality, I was shocked by this remark as it flies in the face of U2's career-long mission of constant reinvention. In tandem with their recorded output, Zoo TV, PopMart and Elevation represented huge leaps in terms of their live presentation. By contrast, Vertigo appears to be a short hop.

I asked Willie Williams, U2's lighting guru since 1982 and now their overall show designer, to comment on this observation. He said: "It's a fair statement, but it's interesting how some functional elements of a show are never questioned. We had exactly the same backline last time. We had the same PA last time, and yet no one's saying, 'gosh, how dull, it's repetition, have they run out of ideas?'"

"We really questioned whether we should do something completely different, or whether we should use that format again. But, in the end, the only reason to not do it would be because we did it last time. And to put them in a less successful performance situation, for no good reason, just seemed churlish. Another major factor which prompted those decisions, was the fact that we are actually playing in many of the same buildings."

The same approach has governed one aspect of the video design. "The notion of having a video director switching live video as an adjunct to live performance is something I hate because you always end up dividing the attention and getting competing elements in a show. Last time we absolutely cracked it and I've done it with other people since. This is just a great way of dealing with letting the people at the back see what's going on, without it being a competing design element.

"This time, we are using the top



screen for other things than I-Mag. We've made it one long piece, rather than four separate screens, so we can use it as one screen. For me, those things are no more aesthetic design elements than microphones or a PA — they just facilitate U2's performance. And so I focused on other things, rather than just trying to have a new-shaped stage, just for the sake of it.

"The great thing for me is that we're lulling people into a false sense of security. They think they know what to expect when they walk in but the stuff that comes out of this box is very different to what came out of the Elevation box. I was determined that we would go elsewhere, in terms of the spirit of the show.

"There's no fat in this show at all, there's hardly room to breathe — any notion of an acoustic section went out the window some time ago. I was always determined that this wouldn't be as cuddly a show as the big, giddy love fest that Elevation was, because it's a different world now."

## BIRTH OF THE MISHERE

Certainly since Zoo TV, U2's tours have always been instantly identifiable by at least one visual milestone. Bono's MacPhisto alter-ego and the presence of a myriad of video cubes and flying Trabants were among Zoo's content; PopMart swaggered with its mirrorball Lemon, record-breaking LED wall and towering yellow arch, and then came Elevation's heart and embracing of stunning PIGI projections. Vertigo will forever be remembered for another huge step — a series of 'digital video curtain' roll drops, each containing long strings of tennis ball-sized, plastic-encased, Saco LED spherical modules called MiSpheres.

Designed and manufactured by Barco and Innovative Designs (formerly System Technologies and now a Barco-

owned business), the MiSphere is a direct descendant of the MiPix modular LED 'tile', only this technology allows a video image to be viewed from any angle — providing an astonishing 3D effect for audiences seated behind the stage.

Above the stage hang a total of 189 strings divided across seven roll drops that are retracted and lowered at various points throughout the show. Four of the MiSphere screens fly in across the diagonals of the 360° show, and the other three form a line across center stage, behind the drum riser.

Each string contains 64 spheres and measures nine meters long — the total MiSphere count is over 12,000. Impressively, Barco took just six months from initial design to final delivery of the MiSphere strings, which says a lot for the company's commitment to advancing technology when it's most needed.

Williams explained how the concept evolved: "At some point in the early design process in August 2004, Mark Fisher and I were comparing notes, and we realized we'd been independently thinking about video pixels on strings. Originally, what we wanted to do was fill the space above the stage with a three-dimensional grid of LED pixels, where panels would be arranged next to each other, spaced as far apart as the balls are from each other.

"We imagined that they'd be almost invisible filaments with tiny little LED pixels on them, and so we made a half-sized mock-up in Belgium last October using MiPix. We could only view it at 180° from one side but we certainly got the sense of what something like this would look like. It was one of those days where everyone was saying, 'wow, this is amazing'. The idea, of course, was that you would literally have 3D video running in this 'video cloud'.

"Unfortunately, I just wasn't seeing what I hoped for — I realized that it only looked three-dimensional, like a rather intense two-dimensional sphere and I shuddered at the thought that we were about to dump a ton of cash on a hugely expensive way of making something which would actually look two-dimensional."

Furrowed brows and scratched foreheads persisted until Frederic Opsomer of Innovative Designs was asked to rebuild the concept as one large curtain, following a conversation between Fisher, Williams, Richard Hartman and video director Stefaan 'Smasher' Desmedt on the return journey from the Belgium prototype viewing, Adrian Mudd, the video animator at Mark Fisher Studio, made extensive and detailed animations of video sequences running on the MiSphere curtains, and the next design phase began.

"The overall effect had much more dimensionality to it than the 'cloud'," said Williams.

"And, of course, it addresses some vital issues. The band are effectively playing to a 360° audience because there's seating behind the stage, and so you can't have anything that blocks sight lines, which is always a huge factor in the design.

"Whereas most video screens aren't terribly interesting from the back, this is astounding because this is video that works from the back and can be seen through. It's a huge video surface that just comes out of nowhere, and then rolls up again, and just goes into a truck, and takes no time to deploy. Compared to something like the PopMart screen, this has been pretty healthy out of the gate."

#### MOVING ART

One only has to glance at the credits listing in the back of the tour brochure to realise how many 'cooks' have been responsible for the visual material seen during the show. Among them is video artist and F.O.B. (friend of band) Catherine Owens who is again working with Williams, contributing her Declaration of Human Rights sequence. The High End Systems DL1 is also used in its projector form during this piece in which a face is seen eerily within a mid-air cloud of fog — an idea influenced by Tony Oursler's Influence machine.

The video background for 'Sometimes You Can't Make It On Your Own' is a central MiSphere curtain drop displaying an aimless walking man figure, designed by Julian Opie, a high profile artist who had previously designed a Blur album cover



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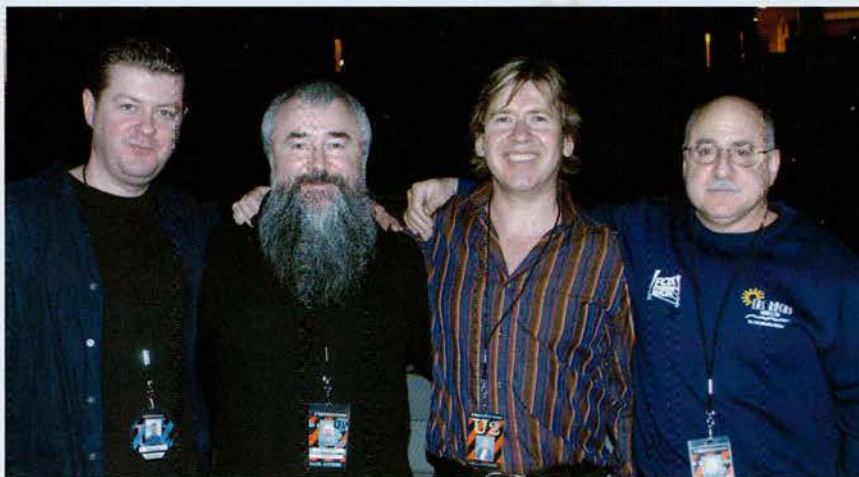


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Carl Glanville, studio engineer. Joe O'Herlihy, Steve Lillywhite and Jo Ravitch.

amongst his other considerable achievements. Williams commented: "I was interested in using the visuals as a kind of a rhythmic device, and Julian's piece is a very good example of a simple, minimalist portrait."

## SECRET WEAPON

At front of house, on a crowded riser behind Joe O'Herlihy's audio control, the lighting and video director and technicians are gathered together like bees around a hive. It's one step closer to a goal that Williams is inches away from achieving: "Rather than having separate video and lighting crews, I've been trying to pioneer a uniform visuals team because, to me, it's just nuts to have one set of guys plugging in moving lights next to another set of guys who are plugging in DL1s. Vendor practicalities meant that we weren't able to take the leap completely this time, but that's the way of the future."

Visuals producer Sam Patterson was in an identical role when he worked with Williams on the creation of visual material for the Rolling Stones' Licks tour. He was in charge of the curse strings as the various artists were commissioned to create pieces for Vertigo, and as Williams observed, much of that material ended up being made on site during rehearsals. "The key element was discovering United Visual Artists, and that because of the nature of the MiSpheres and all the LED on the stage, we required a completely custom control system," he said.

## BIG BROTHER SURVEILLANCE

One fascinating idea that has found its way into the show involves covert surveillance of the audience, resulting in a surprising video 'gag'. The High End DL1 fixture, part of the Catalyst system, has an on-board infra-red video camera

in its moving and six of these fixtures are scattered around the arena, concentrating on different areas of the audience.

The basis of the surveillance idea came out of a conversation between Fisher and Williams while they were "trapped together" during 'We Will Rock You' rehearsals in Las Vegas.

Williams commented: "U2 have always been about their audience. But the absolute rule with any of the video directors I've ever worked with is you do not shoot the audience. As soon as you do, they will inevitably start waving and yelling 'Hello Mum'. However, if you collect the images for later use, they have no control. They see themselves on the screen but it's too late — it's already been recorded. Capturing little snippets of video of people, when they're completely off guard, is really beautiful.

"Ash had written this program where he can take a live video image and pixellate it, but each pixel can be a different video input. I can take an image of Bono and gradually break it up, zooming in until we see that it is composed of moving images of the audience members. I've recently started shooting surveillance footage of the band during the show as well, which has a very interesting quality.

## EXPLAIN ALL THESE CONTROLS...

XL Video's UK and Belgium offices supplied the wealth of video equipment for the tour, with the MiSpheres rental handled by Guido Ruysschaert in Brussels and the remaining cameras, projectors and control coming from Hertfordshire.

In order to provide a central control platform that would handle this huge pool of computer-generated imagery and other artistic footage prepared for

the tour, as well as the live camera images, XL supplied the Barco Folsom Encore show control system (Folsom was acquired by Barco last year) along with the cameras and screens.

The Barco Folsom Encore provides source selection, advanced windowing features, seamless switching, video effects and integrated control. Its modular, scaleable architecture allows the system to support a wide variety of show configurations and efficiently support anything from one to 32 screens with any combination of independent display or seamless wide-screen display elements. In short, an ideal system for this tour.

## LIGHTING

The first hint of any lighting on this show occurs without any form of control at front of house, when the four U2 members emerge to stroll around the Ellipse, waving flashlights into the audience, before assuming battle positions. Then it all kicks in...

Where lighting is concerned, Bruce Ramus has occupied the role of Williams' right-hand man, programmer and lighting director for many years. Since Elevation, the High End/Flying Pig Wholehog III has been developed and Ramus is pleased to be able to use it as the main lighting controller for the first time with U2. Ramus said: "We needed a lot more universes for this tour. Last time, I ran a Hog 1000, which only has two universes, and Willie ran an Avolites Pearl. He didn't really want to program or be committed to running anything this tour, and I had more lights than a Hog II could deal with - so as I'd worked on a Hog III all last year on 'We Will Rock You', I decided to go with that.

"They've done a lot of work on the software and I'm running a Beta version of their latest build, after all, U2 tours tend to be full of prototypes so I thought I'd join the crowd! On this version of software they've really sorted out a lot of the network problems that they had earlier on. Before, there was quite a weak link between the processors and the console but it seems much more stable now. I'm really pleased with the performance."

Although Ramus is taking the reins of the lighting direction and at the Wholehog III, the situation is also set up for Williams to informally interject at any moment and run cues as he sees fit. To facilitate this, he has a Hog wing at his disposal as well as a Playstation-type joy stick device — together they allow him to govern the integration of the lights

and video. Said Ramus: "He's got a lot fun toys, and if he wants to do the cue for 'Where The Streets Have No Name' or hit the blinders in 'The Fly' then he can. Obviously we both know what's coming up and I might just flash him a look that says, 'do you want to take this one?'. We did the R.E.M. Up tour like that and it's really fun to have that ability because it just mixes it up for us."

Another familiar face on the tour is John Lobel of lighting supplier PRG, who can count himself among the small executive club of veteran U2 vendors. He said with a smile: "On the night of the first show, Roy Clair, Michael Tait and I were all standing upstage right, and Paul McGuinness came over to say hello. We realized that the three of us had been supplying equipment to U2 for a combined 70 years — and I was the new guy who'd only been doing it for 18 years!"

Was there much time for programming? "A decent amount," said Ramus. "I put in about four days pre-programming with the ESP Vision system at PRG's shop in Las Vegas, the company's primary touring location these days. It's an enormous place in contrast to Newbury Park where we prepped the last tour. I then constructed the rest of the job during production rehearsals, and a lot of the time has been spent putting together the video system so I was waiting for the rest of it to catch up."

It's the third U2 tour for Aussie crew chief Garry Chamberlain, taking over from Kes Thornley who is again out with the band. Lobel commented: "Kes is so over-qualified, for the stuff that he does on this tour, that it's one of the things that makes this crew so good."

## FIXTURE CHOICE

For Vertigo, a significant amount of the Vari\*Lite presence on the last tour has given way to Martin Professional products — namely MAC 2000 wash lights augmenting VARI\*LITE VL3000s. PRG purchased a large amount of new equipment — mostly spotlights — specifically for this tour.

Lobel commented: "They've hardly ever used hard-edged lights in U2 shows, it's not their kind of thing. The only hard-edges on Elevation, for instance, were the PIGI projectors — everything else was a wash light or an effect light. Aside from these and the Martin 2Ks, the biggest pure lighting looks are created by the 67 four-way molefays. Over the years, we've had a lot of different configurations of audience lighting. For Joshua Tree and Zoo we had nine-lites and some 12-lite units. On Elevation, we used linear four-way lights, now we're using two-by-two four-ways."

The lighting rig is marginally larger, but Ramus observed that the big difference is that the current choice of fixtures has a notable increase in channels. "We have something like 75 moving lights and a big bunch of DWEs as always, plus a lot of Atomics."

Thirty-seven Martin Atomic strobes contribute to one of Ramus' favorite looks in the show. "They perform fantastically on 'Vertigo'. They're working great with the color scrollers and we bumped that number up during rehearsals by getting a dozen more of them. I've found a way to basically confuse the Atomics, where I tell them to do two separate things at once and they go off on this beautiful random pattern.

"I did something similar on Elevation with Diversitronics D3000s. It looks programmed but it's not, and it's not in the manual! I basically tell the strobe to come on randomly but to ramp up with full intensity, and then I tell the fader to be at zero intensity. Consequently, they just get all confused and do these things where there is no facility to program them unless you do it wrong."

Although Lobel is thoroughly impressed with the new

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show, one could detect a little disappointment that the majority of the technical risk and experimentation with this tour has rested with the video department. When one considers the challenges that Lobel has risen to before, especially for Zoo TV and Elevation, for which he personally devised some outrageous, one-off lighting effects, it's not surprising he feels as if video is stealing some of his thunder.

"The great thing was that this allowed us to really concentrate on just doing a really well prepared and presented lighting system, and I'm really proud of the way it came out," said Lobel. "I think it's a remarkably efficient deployment — for the amount of stuff it really doesn't take a lot of time to set it up. Part of that is due to an idea that Jake had for Elevation. While they're building the grid we build all the trusses out in the arena, and pre-hang all the lights, pre-cable them on some wheel brackets, and then we roll it in.

"It only takes about 40 minutes of lighting clogging up the floor space, to put up a fairly large lighting system. We've got about four trucks of lights, including about one truck of grid, but that's a remarkably little amount of time to slow down production, for a system that size. And Jake deserves the credit for that one!"

There are three levels of trussing involving five different moving trusses, with two diagonals that are separate. Ramus said: "We have 30 moving points on this for things like the factory lights and the roll drop frames, and we're using Vario-lifts for all of those. We've got a couple of 18kW HMI Fresnels on this show — one of them is

suspended with a dark blue gel on it, it's bright enough to fill the entire stage, and it just comes in with an appropriate look for one of the early '80s songs.

"The other 18kW lives under the stage and it works like a shuttering lighthouse effect in 'Love And Peace' when Bono and Larry are doing their thing together at the front of the stage. Underneath the stage it's a very low-tech, medieval-looking contraption with a big propeller and a guillotine blade that opens and closes."

Perhaps the most profound lighting effect of the show occurs when Bono asks the crowd to get out their mobile phones; the crew turn the lights off and as if the night sky fills with stars. "It's the 21st century Woodstock," said Williams. "The sight of 18,000 cell phone screens surrounding the stage is an effect money couldn't buy."

## EMBRACING DIGITAL SOUND

One of the biggest diversions from the U2 touring template has been audio director Joe O'Herlihy's move from his long-time choice of the Midas XL4 analog console, to the DiGiCo D5 Live digital board — a highly significant decision, given O'Herlihy's previous, almost religious, belief in the analog medium. This move was announced informally in September 2004 at PLASA during Total Production's Designing For U2 seminar. "I was quite shocked by the reaction to the bluntness of my announcement," said O'Herlihy, U2's FOH mix engineer since 1978. "With any new format or technology that becomes available, it's wise to wait until everybody else has driven it on a few tours here and there.

"The D5 has now travelled across the world, it's been bounced up and down, it's been in and out of trucks and planes and boats... and it still ends up doing its thing. That's why I've chosen the D5."

His interest in the D5 was sparked by a number of conversations with his contemporaries who had expressed great satisfaction in the console. He was particularly taken by the D5's snapshot facility. "It's quite exceptional," he said. "As we've progressed through rehearsals in Dublin, Mexico and Vancouver, the band have chopped and changed all the time, so being able to swap and generate new snapshots along with the evolving set list configuration has been vital. The access to the songs is immediate.

"The preparation that's gone into this tour, rehearsal-wise, is huge. I'd estimate that 99% of what I do now involves the preparation. So it's fantastic to have a console like the D5 that gives you that whole access to functionality, and basically lets you do what you do best: mix the show. You don't have to worry about missing cues, because in the context of the song it's all confined in the snapshot.

"Programmed cross-fades, fader moves and rides have in the past been synonymous with the studio domain, but it's now equally available and relevant to live sound reinforcement domain, and it's a wonderful thing."

To a certain extent, O'Herlihy, like many D5 users, is relying on the console's internal effects processing. "I use the six available aux sends for drum treatments and a couple of acoustic guitar and piano parts; I certainly use the various different reverbs that are on board. But for all of the vocal treatments



Lighting designer Willie Williams.



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and everything associated with the dynamic value of the vocals between Bono and Edge, I use external treatments and effects. Those decisions are based on both the sonic value of those particular items and an element of familiarity.

## CLAIR SYSTEM

For the second time, U2 are touring with Clair Brothers' JBL-loaded i-4/i-4B line array system, processed by the Clair iO wireless system control that was co-designed with Lake Technologies. Powered by Clair-modified Crest 9004, QSC 9.0 and Carver 2.0 amps, this system required some adjustments at San Diego Sports Arena, because of the venue's low ceiling and O'Herlihy wasn't best pleased with the poor acoustics of the arena either.

"It's not doing me any favors!," he laughed. "Where we did production rehearsals in Vancouver, the arena is a full-on 20,000 capacity facility with the proper trim height. So you get the full value of your system from a distribution perspective, and you get the aesthetic value of it locking in with the rest of the production. Fortunately, once we leave San Diego we'll mostly be playing venues that compliment the sound design."

Flown on a custom 360° indoor hanging system, the PA is divided into a main left and right front system, a left/right side fill system and rear fill, with 12 Showco Prism ground sub-basses. "On this particular occasion we've come up with a very interesting way of distributing the rear fill," commented O'Herlihy. "We've got, left and right, two clusters of eight P4s per cluster. We have an up tilt and a down tilt, which basically gives us incredible distribution and dispersion so it's extremely even across 180°. There's no cross-referencing, no hotspots, and when you walk the length of the back of the bleacher section behind the stage it's very transparent. It's all down to a clever usage of rigging, and it's helped hugely because you need something that's going to throw immediately rather than require distance for it to be functioning at its best."

The central pit — variously described as Club Atomic or the Bomb Shelter — benefits from Clair FF2 front fill speakers which are attached to the entire stage perimeter and are also attached to the ellipse perimeter. This results in a club-style atmosphere where the sound has a close, intimate feel in contrast to the general arena ambience.

Although it's a similar system to

Elevation, O'Herlihy pointed out that things had in fact moved on. "The general placement of loudspeakers and the rear fill are all completely different because of updated technology. Also, the front fill and all of the stage perimeter and the ellipse perimeter equipment has all been specifically designed for this tour."

## SUBTERRANEAN MONITORS

Dave Skaff shares monitor engineering duties with Niall Slevin and Robbie Adams, all of whom have enjoyed a long and fruitful association with U2. For many years, the band's monitor world has been a 'subterranean' environment below stage left, with a walkway that allows reliable communication between the band and crew. In here, mixes are divided between three consoles — Skaff's ATI Paragon II, another D5 Live shared by Slevin and Adams, and a Yamaha O2R which generates communications mixes for the stage crew.

On the eve of the second San Diego show, pulses raced as the Paragon broke down, forcing some quick thinking on the part of Skaff who rescued the situation with a Yamaha PM4000. "We carry an old PM4000 for the band to use with a couple of wedges in a backstage rehearsal room for when they occasionally might want to work out parts in private," he said. "We hadn't set that up just yet, so the console was just idle and it provided a quick solution."

It was to Skaff's credit that the band were able to function on stage, with the minimum of background fuss, but it also helped that U2 are sensible professionals who share an understanding of what is going on around them, technically. "The hardest part was attempting to cross-patch everything," said Skaff. "There were a lot of things that had to just get triaged; there were no effects and the on-stage sound for that show was pretty dry, but workable. The band were really professional about it and they just needed to know how to work around the shortcomings. They were part of the same team dealing with the same problem, not someone standing over you demanding that things are just right."

"They place an enormous amount of faith in us guys and trust our judgement. When Adam walked in he just said, 'you seem to know how to get around this, just carry on', and Larry really liked the sound of his toms, so it was a kind of relief!"

Skaff came on board for this tour after his former monitoring partner, Brent Carpenter, left the team. It's interesting

that his choice of ATI — which has since made a full recovery — mirrors O'Herlihy's preference at the time of Zoo TV.

"I chose the Paragon II firstly because I know it back to front, but also we're not doing things much differently," said Skaff. "The ATI has got an incredible amount of outputs and routing options, and we use pretty much every bit of it. I didn't use a digital console for several reasons, one of them being that I send mixes out to several other mixers on stage, and things then come back to me, so latency was an issue."

Several years ago, Larry Mullen Jr. expressed concern that because monitor world was going beneath the stage, the crew might not react quickly enough to an immediate band requirement. This led Skaff to design a system whereby he can send click tracks and other audio information to Sam O'Sullivan — Mullen Jr.'s drum technician and backline crew chief — via a set of ATI 8MX2 mic pre-amp mixers. This allows O'Sullivan to make instant adjustments whenever the drummer gives a signal.

Skaff: "It evolved through working in the studio. I send stereo pairs of the drums, keyboards, guitars, vocals and a bunch of separate click tracks of percussion loops. So they're all available there for him, but they all come back to me as the final arbiter of the mix. We do something similar for Terry Lawless [the programmer who contributes keyboards from beneath the stage]."

"And there's another situation, I think, with Terry where we do something like that as well. If I was using digital consoles for that calculated conversion time, it would put me way out of time for a click track, or just enough to get us in trouble. So, rather than even go there, I've mixed this band on an analog console for years."

Robbie Adams' main task is to record every show using the combination of a DiGiCo D5 Live and a Pyramix digital multitracking system. Joe O'Herlihy explains: "It's like an iTunes snapshot of a particular week. Robbie is a studio engineer who worked on Achtung Baby and a few other records with us down through the years. His role during the day is to track everything that we've recorded, listen back and select stuff for the band so that they can decide which songs are strong enough to offer as downloads. The Pyramix technology is another advantage of the D5 and, again, another selling factor when it came to choosing the console."

Whereas Adams and Niall Slevin look

after the personal mixes for Bono and Edge, Skaff concentrates on Larry Mullen Jr., Adam Clayton, Terry Lawless and the so-called '911' emergency back-up mixes. Skaff is using an astonishing 38 of the 40 mixes available to him on the Peragon II.

One notable progression in U2's monitor world is that Adam Clayton has finally conceded to using in-ear monitoring. Skaff commented: "Adam's really giving it a shot this time and he's doing OK. Our issue at the moment seems to be with click tracks, how much is musical and that kind of stuff. We're doing what we can to make those click tracks musical and enjoyable to play to."

The IEM systems in use are a Sennheiser combination of new G2 series and older 3000 series transmitter/receivers. "After some A/B comparison, the vocals and guitars seem to sound better with the older units, and the newer units seem to have a much cleaner, punchier sound for the bass guitar," said Skaff. "Larry is also on a new G2 system when he's wandering around the stage and he has a hardwired one when he's sitting at the drum kit."

Future Sonics Ear Monitors are worn by Bono, Clayton and Mullen Jr., although Edge has been experimenting with some unidentified consumer ear pieces given to him by producer Steve Lillywhite who, like Brian Eno, Flood and Daniel Lanois on previous tours, has been travelling with the band to offer his own advice on approaches to replicating studio sounds in the live domain.

Skaff adds, "But Marty Garcia from Future Sonics, who has worked with us for some time, has been out on the tour and after discussion with us, he's come up with some new custom ear pieces that we hope might offer a better solution for Edge for the length of the tour." [I tried these out myself on my iPod and I immediately noticed an incredibly smooth bass response.]

Despite the in-ear activity, wedges are still in evidence but the stage count is considerably smaller these days. On a previous stadium tour, the band used around 65 wedges. For Vertigo, there are two Clair 12AMII wedges for Bono, two 212AMs for Edge, one 12AMII by the piano, two ML18 subs for Mullen Jr., and a 212AM, a P4 and two ML18s for Clayton.

So the on-stage sound is a lot quieter then? "A lot quieter, yeah," replied Skaff. "The wedges are basically there for some localized low end support, and what you mostly hear onstage is coming from the house. A lot of that house stuff coming back in the microphones is very usable and it's become a big part of the mix I'm doing for Larry and Adam. I'm just mixing slightly into or behind the guitar levels coming back from the room. The drum kit overheads are very hot, it's very open and I only have gates on the kick drum. Sam does a great job with Larry's kit and it's sounding excellent."

The simple approach governs Skaff's choice of outboard processing. "It's my standard collection of M5000, SPX990, 480L and TC 1128s. I figured if I was mixing analog I'd stay with the whole analog world."

## TO THE WORLD...

What did Jake Berry have to say about the rumors that Vertigo may be running through to the end of 2006? "From a production standpoint, U2 could tour for as long as they wanted right now and even for the next year," he said. "Whether they choose to do it is another point but they would sell out everywhere effortlessly, such is the demand. I'm sure the majority of the production staff wouldn't mind that to help pay the mortgage!"

Text & interviews by Mark Cunningham

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# BROADBAND FROM SPACE



## Broadband Global Area Network (BGAN) satellite blasts off

By **BRIAN COLEMAN**

**CX** meets visiting Vice President of Satellite Operations, Inmarsat, London, Richard Denny, who explains the revolutionary impact that the recently launched Inmarsat-4 BGAN (Broadband Global Area Network) satellite will have on world communications—I-4 being the largest commercial communications satellite ever launched.

CX were guests of TC Communications at the American Club, Sydney on December 7, 2005, when Richard Denny, Vice President of Satellite Operations, Inmarsat, visiting from London, explained the implications of their latest satellite launch.

Inmarsat-4 (I-4), is the second launch (F2) in the series of I-4 satellites, which Denny described as "not just a new era but an absolute revolution." Any space launch is exciting, but when a 480 tonne rocket is about to reshape world communications, it's especially exciting; and at the presentation CX were excited to be able to chat casually with Denny about the project.

It was a lift-off that surprisingly went almost unnoticed by the world media. Inmarsat (International Maritime Satellite Organisation), launched its second Broadband Global Area Network (BGAN) I-4 F2 satellite from on board a Sea Launch Zenit rocket in the Pacific Ocean at 14:07 UTC (GMT) on November 8, 2005. It followed the launch in April 2005 of the first Inmarsat-4 F1 satellite, which was launched from Cape Canaveral and is already in commercial service at 64°E above the Indian Ocean. Together, the two I-4

satellites will be able to deliver Inmarsat's new BGAN service to 85 per cent of the world's landmass and 98 percent of the world's population. Virtually the only misses are the eastern seaboard of Australia and its neighbouring Pacific Islands, and the polar ice caps. But these areas will be addressed when I-4 F3 (originally a spare satellite built in case of launch failure) is launched.

The BGAN service includes mobile voice and data services including the new 3G (third generation of mobile phones), and streaming video that can carry news broadcasts and store and forward video at transmission speeds never before available.

"Five years ago we embarked upon a US\$1.5b programme—three new Inmarsat-4 satellites, and the purpose was not just to do what we've done before, but to break new ground in revolutionising mobile communications. A lot of people have waited a long time to see the breakthrough that the new service will bring," said Denny.

Inmarsat's catchphrase for the new BGAN service is "Broadband for a mobile planet", and unlike the intricate operations of managing satellite communications, they have made it amazingly simple and affordable for anyone who wants to set up a mobile office in almost any remote location on the planet. BGAN enables these mobile offices to access corporate networks via secure VPN (virtual private network) connections, which use the Internet via encrypted software packages. This gives them the ability to use email and other office applications, browse the Internet and send large file attachments at speeds up to 492 kbps in a secure environment. The BGAN service can also be used for

videoconferencing and to view and transmit live video as in the videophone news reports seen on network television and cable services. Channel Nine used an Inmarsat satellite to send recent video news footage, via store-and-forward, of events in Bali.

### BGAN TERMINALS

The fundamental simplicity of the BGAN service lies in the new mobile terminals that can access the new satellite. The terminals varyingly can accommodate USB, Bluetooth, Ethernet and WLAN.802.11b services. Starting from around \$700, all the portable BGAN terminals are priced under \$5000. The top of the range Hughes Network Systems, HNS 0201 can stream video via IP at a guaranteed transmission speed of 256 kbps or on the background class IP (standard IP) network up to 492 kbps. Service providers like TC Communications, who offer satellite communications systems for Government, Defence, media, and the resources sector, offer complete packages and per megabyte services similar to commercial ISP providers.

When you consider that some of these types of communications, especially live video transmissions, up until recently were transmitted using huge satellite dishes that needed to be transported by trucks, and used satellite time that came with sky-high pricing, this is indeed a revolution. Other terminals include the Wideye Sabre 1, The Nera WorldPro 1000, and the Explorer 500. The heaviest terminal in this class weighs just 2.8 kilos and the lightest a mere 1 kilo.

Todd McDorell, CEO, TC Communications pointed out that "in the past in the satellite business, and typically with the smaller mobile

satellite equipment, you could only do one thing at a time. Either you could be on the phone, or getting email, or doing some other data transfer—but this technology allows you to do all those things simultaneously.”

Since 2003 Inmarsat had talked about a 432 kbps capability with the new BGAN service. CX asked Denny why the service is now being cited as 492 kbps. Denny says, “It was actually something that came out of the terminal manufacturers. When we wrote the original specifications we said to the terminal manufacturers that there had to be a guaranteed data rate of 432kbps for this particular type of terminal...but Hughes came back to us and said that they could confidently guarantee a rate of 493 kbps—so it was a nice positive piece of news that came out of the overall design and build.”

### FRONT END EQUIPMENT

There are a number of ‘store-and-forward’ and live video software packages that run on laptops, which can be connected to I-4 terminals. Store-and-forward is a term used in the media whereby video packages are edited, stored on laptops and then forwarded to networks offices or studios.

7E has just released a new TH-4 ‘Talking Head’ Video Reporter to interface with the new BGAN terminals. ‘Talking Heads’, which include telephone handsets, have a reputation as being rugged, portable units that connect to the front of any Inmarsat terminal to allow users, such as the media, governments or private enterprises to connect equipment like video cameras and balanced and unbalanced audio equipment for live transmissions. Picture quality has been enhanced markedly with the inclusion the new MPEG-4/H.264 codec in the TH-4.

The exciting news here for broadcasters is that H.264 is one of the world’s most advanced broadcast quality codecs, and Inmarsat can guarantee connectivity at an IP streaming transmission speed of 256 kbps. When you combine this with the Hughes HNS 9201 terminal that sells for under \$5,000, which can deliver this package via I-4, this becomes a giant leap forward for remote location broadcasts, including those from war zones and disaster areas—and an invaluable tool for emergency services. In fact the TH-4 makes good media sense as it can

also be used independently of Inmarsat terminals, by directly accessing the Internet, boasting transmission speeds of up to 768 kbps (or 2 Mbps)—or direct connectivity to ISDN telephone lines.

### HOW IT ALL BGAN

Inmarsat (International Maritime Satellite Organisation) was originally a government body, formed in 1979 and privatised in 1999. Inmarsat operate a huge constellation of geostationary satellites, and prior to the recent BGAN launch has delivered a broad spectrum of services including phone, fax and data communications for over one quarter of a million ship, vehicle, aircraft and portable GAN (Global Area Network) terminals.

The first series of satellites used by Inmarsat, starting in 1982, was leased from several sources. Then the Inmarsat-2 (one global beam) series launched between 1990 and 1992. Inmarsat-3 (one global beam, and 7 spot beams) launched between 1996 and 1998, and now the two new Inmarsat-4 satellites (a total of 256 beams: a global beam, 19 wide spot beams for existing services, and up to 236 narrow spot beams for BGAN services) launched in 2005. And there is now one more to launch (F3). Inmarsat 3 was 10 times more powerful than Inmarsat-2, and Inmarsat-4 is 60 times more powerful than Inmarsat-3.

Inmarsat-2 was 1,500 Kilos. Inmarsat-3 slightly exceeded 2,000 Kilos, and Inmarsat-4 weighed 6 tonnes. Denny says, “When Inmarsat signed the contract to have the Inmarsat-4 satellite built there was no launch vehicle in the world big enough to lift the satellite. Even so, Inmarsat specified that any launch vehicle would have to have had two successful launches before Inmarsat would risk its latest payload.” Inmarsat eventually signed with Atlas and Sea Launch, who successfully launched the first two I-4 satellites.

EADS Astrium, who has facilities in the UK, Germany, Spain and France built the three Inmarsat-4 satellites. I-4 F1, launched in March 05 from Cape Canaveral; F2 recently launched from the Sea Launch Zenit rocket in the Pacific Ocean, and the third F3 was a spare in the event of any failures. But now that F1 and F2 have successfully launched and are in orbit, the third satellite, F3 will be launched in the near future and will



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*Inmarsat-4 being pulled by EADS Astrium.*

cover the eastern seaboard of Australia and the Pacific islands. Inmarsat are going through the final throes of the business case to justify the expense of launching the third satellite. And here Denny candidly adds his personal point of view: "It doesn't make a whole lot of sense to leave a two hundred and fifty million dollar satellite sitting on the ground gathering dust."

EADS Astrium has cited that "BGAN will extend coverage of third generation terrestrial mobile networks such as JMTC (3G) for telephony, data and high-speed Internet access to laptop-sized terminals. This will enable business travellers, disaster relief workers, field based oil workers, journalists, etc to operate a virtual office anywhere in the satellite footprint. A typical user terminal looking like a small laptop could receive simultaneous voice and data at 492 Kbps."

### LAUNCHING THE BIG BIRD OF COMMUNICATIONS

The solar array span of Inmarsat-4 is 45 metres, wingtip to wingtip. It's a huge satellite, the main structure being about the size of a London double decker bus. There had to be a special nose cone made to accommodate the Inmarsat-4 satellite, and this was the first time that Atlas had used three Solid Rocket Boosters (SRBs) to get a satellite into orbit. The total weight of the rocket at the time of lift-off was approximately 480 tonnes. It took about 5 minutes for the rocket to reach 15,000 miles per hour.

"It doesn't matter really how many

of these that you do in your life, your heart is still in your mouth when a launch takes place," noted Denny, who explained that "Atlas used what's called a super synchronous orbit for the second Inmarsat-4." This is where the satellite travels 90,000 to the Earth's apogee, then uses a highly elliptical orbit where the closest point to the Earth is 400 kilometres. Denny explained, "Atlas has got to do the job very well because it could be extremely embarrassing on two fronts: one, the satellite could keep coming (at the apogee), and on the other side, if it came too close to the Earth it could burn up coming back through the atmosphere. So the intention had to be absolutely accurate, and it certainly was."

Four manoeuvres over the space of several days burned two and a half tonnes of fuel. Inmarsat-4 also needs to carry a payload of fuel to last for its expected 13 years in space. The super synchronous orbit actually gives Inmarsat-4 an extended life span.

The final phase was when I-4's 13 x 9-metre-wide reflector was deployed on November 17, 2005. The rays of the Sun were then used to warm the reflector and its deployment system before the process could begin. The spacecraft body was revolved while its solar array wings remained static in relation to the Sun, and once the mechanism had reached the optimum temperature, the reflector was deployed.

53,000 scheduled commands were sent to three different motors to

deploy I-4's reflector. Once in-orbit, and testing of the I-4's payload is complete, the satellite will be drifted to its operational location at 53 degrees west above Brazil.

The command ship and launch platform used by I-4 both reside in Long Beach California, and Denny says that emergency services in the area often received calls from panic stricken locals insisting that a missile was about to be launched out of the Los Angeles harbour.

The Sea Launch platform is actually a converted oil rig that can travel at a speed of 11 knots. It travelled about two and a half thousand miles out into the Pacific Ocean, just south of the Hawaiian Islands for the I-4 F2 launch.

Apart from the physical size Denny says that "Inmarsat-4 is the most sophisticated commercial communications satellite ever built; it really has pushed the boundaries of technology into areas where others have never gone before."

### INMARSAT'S OPERATIONS

Inmarsat has 10 operational satellites in orbit, and the latest I-4 will be the eleventh. Two of the Inmarsat-2 satellites are completely full of traffic, and the other two are substantially burdened. Of the five Inmarsat-3s, all are carrying substantial services.

There are four prime ocean regions in the Inmarsat network that provide the main bulk of its services, and they are demand-assigned services that cover a large range of clients. They are Atlantic east, Atlantic west, Pacific, and Indian Ocean regions. The fifth Inmarsat-3 is used for 'lease services', the U.S. Navy being one of Inmarsat's biggest clients.

Inmarsat have recently transferred all R-BGAN (Regional Broadband Global Area Network) services from Inmarsat-3 to the new Inmarsat-4 because of what Denny describes as, "the illegal and inappropriate action of another satellite operator." Denny says that once this issue is resolved Inmarsat will relocate the relevant traffic back to I-4 leaving I-3 in "a great state of health so as we can move it anywhere around the world." Regional BGAN was a forerunner to the new BGAN service bringing communications including satellite phones to remote locations. R-BGAN used the Inmarsat-3 network, which doesn't possess the transmission speeds of the new I-4 BGAN service.



Wid'eye Sabre 1 in use by media.

At the time of speaking Denny advised that I-4 F2 was at the 8th degree East location above the equator in the final throes of testing. It was planned three days hence to relocate it to the Atlantic west region, transfer the traffic off the Inmarsat-3 satellite and then move Inmarsat-3 around to the Pacific

central region to increase the capabilities in that part of the world.

Denny says that each major satellite location has 40 degrees of separation; typically nine orbital plots around the world, and Inmarsat has "eleven satellites to play with." Denny emphasises that "There is a massive degree of flexibility, and

also redundancy and back up capability. Having this number of capable satellites covering these areas really does give us a very resilient system that is increasingly important for all end users." These users include government, military, media, and a variety of other sectors.

Inmarsat's headquarters is in the heart of London from where all the global constellations are flown, and where the Network Operations Centre, which is co-located to the Satellite Control Centre via an adjoining room, is located. This is where all global activity is orchestrated and where capacity demand is determined, and where it is ensured that the overall global infrastructure is operating correctly.

For the mammoth amount of traffic that the global network handles, the Network Operations Centre has a permanent staff of only two. Not quite as efficient as Satellite Control where the eleven satellites are flown, and where global infrastructure is controlled with just one staff member on permanent shift. It's an impressive capability that almost every major satellite operator has been keen to observe and emulate.

Denny concludes that this "really is a revolution in mobile communications that will open up a whole new end-user base of satellite communications, and I think probably revolutionise the way that we go about our day-to-day business and our enterprise activities." 

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**MAKING THE  
TRANSITION TO**

**LOCATION  
SOUND  
RECORDING**

*From the Never Die Wondering Department*

By BRIAN COLEMAN

**I**9th Century poet Oliver Wendell Holmes wrote that many people die with their music still in them. Live audio and studio recording engineers aiming to be eulogized with the more commendable 'never die wondering' philosophy might then dare to enter the revered words of location film, ENG (electronic news gathering), EFP (electronic field production) or corporate video sound recording.

Audio recordists, as they are known in these fields, protectively surround their industry in myth and mystery. After all, it's a terrifying thought for this industry that even a lowly FOH audio technician might venture onto their hallowed ground.

My encroachment, some years ago, began whilst in the middle of a crash course in Film Production at Sydney University, where I realised that the audio guy wasn't held in the highest regard by his film aficionado peers. In fact you didn't have to be the sharpest knife in the drawer to



get the job. I once asked the lecturer what special skill sets were required by the film sound recordist. "Well you have to listen out for things on the set," was the most technical answer that he could muster. So the adroitness to hear an aeroplane approaching or the aptitude to detect

the distant whir of a chainsaw suddenly seemed less intimidating to me than those 16 channel live mixes in smoke filled rooms crammed with gassed-up punters.

My chance came after the former audio guy in my class had spent an entire day on location watching the

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VU meter on his Nagra happily ticking away, only to discover at the 'rushes' that he'd been watching the headphone meter—the recording volume virtually being in the off position. So, not seeing a great future in editing on Steinbeck flatbeds, I quickly put my hand up for the audio gig.

After graduating, and armed with

the additional audio skills of aeroplane and chainsaw acoustic detection, I got a gig as the sound guy with a professional video crew. There were the usual weddings and even bah mitzvahs in Sydney's eastern suburbs—but there was some good corporate stuff too where all the location audio gear had to be used.

Video crews don't record audio

separately onto tape or hard drives as do film crews; it's almost always recorded onto the camera tape (or media). You're mostly working with only one or two talent at a time, which makes things quite easy. So you really only need a three or four channel location mixer, a shotgun microphone with a windshield and fluffy windjammer, a boom pole, a wireless laval microphone transmitter and receiver (or two), a good set of headphones, and a snake. The snake is simply two balanced microphone leads and an unbalanced lead terminated into 3.5mm mini jacks at both ends for monitoring of the camera audio. Monitoring of the camera audio is of the utmost importance as whilst you may have perfect sound in the mixer, the camera levels could be way out. Professional cameras can switch between microphone and line level balanced inputs—and most location sound mixers have both microphone and line level balanced outputs. If you're sending line level you must check that the camera is also switched to line level, and never leave this up to the camera operator, who will be busy with other distractions.

All location mixers can switch between monitoring the mixer's audio and the camera audio that is going to the camera tape. In the event of having to record a live event, any live console can be used; a stereo or mono mix is simply sent to the camera—and the camera sound can be monitored by patching it into a spare channel (fader down) and listening on the PFL.

Inevitably you'll come across the MiniDV camcorder or the like, which has a stereo 3.5mm mini jack for the microphone input, and usually can't be switched to accept line level. These inputs are made for electret condenser microphones, so there is also some DC voltage present. There are adapters available that convert an XLR to a stereo 3.5mm mini jack, placing a mono signal across both sides. There is also a capacitor to block the DC voltage. Keep in mind that these adapters don't pad a line level signal down to microphone level. Here you must use the microphone output of your mixer. There are also a number of boxes available that will accept stereo signals and do all the connection conversions and DC blocking, and have mic/line switching whilst

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*Nagra SN miniature analogue recorder.*

keeping the integrity of the stereo signal. If you can turn the camera's horribilis AGC (automatic gain control) off, do so. And because you may introduce noise it's not a good idea to only feed one side of the stereo 3.5mm mini jack. All good location mixers supply phantom power and also 12V T (A-B) power, which is required by some of the older microphones.

Good location mixers are really beautiful pieces of equipment and are thoroughly addictive, bordering on fetishism. I started with a Shure FP32, which was generally poo-hoed in the industry, owing to the fact that if correct balance wasn't maintained between the master and channel volume they tended to get a little noisy in the high end. There are however lots of good location mixers to choose from including Sound Devices, PSC, Wendt, and Sony. And most audio recordists will own up to fantasizing about one day owning a Cooper, manufactured by Cooper Sound Systems.

There is a plethora of shotgun and wireless lapel microphones that are suitable for location audio work, and names like Sennheiser, Shure, AKG, Sanken, and Audio Technica appear frequently on the rental company's hire lists. It's generally ok for lapel mics to be visible in corporate video or ENG, and that makes things very simple, as hidden microphones, as used in film or drama, present clothing noise, which requires some experience and experimentation to eliminate.

Studio recording engineers in the '80s and '90s often talked about getting signals hot onto the tape, but this is definitely not a good idea when working on location, where you might clip the audio and not get a second take. So it's best to stay well out of the red zone. That fuzzy buzz that you often hear from lapel mics on television news broadcasts should make you more conscious of both mixer and camera levels—and also encourage you to enter the industry with the edict that you will never allow this to happen.

For film and EFP work, (EFP is really anything important enough to record independently of the camera tape or media) a location recorder is required. DAT (digital audio tape) totally replaced the old analogue Nagra tape recorders towards the end of the '80s, and reigned until the hard drives arrived. Just as some of the Nagra analogue stalwarts resisted the digital invasion, DAT users are still

hanging on to their beloved DAT recorders. But this is not an analogue Vs digital argument; it's just about media, and interoperability with modern post production facilities.

I recorded film sound onto a Sony TCD-D10 PRO 2 DAT recorder. This was a reliable and beautiful piece of equipment. This model didn't have timecode but most films at this level are locked up with clapper boards, so it didn't matter. Just to clarify: the visual point of the closing of the clapper board is synced in the post studio to the 'clap' that's recorded on the location recorder so as to line up all the sound to the pictures in that scene. And all the shouting that the First AD does about the scene identifies that audio on the tape to what's written on the clapper board and seen on the film or digital video. But audio logs, which point to where a scene is on the recorder's counter also have to be made.

My first film job was six days on location for a short film that employed some very talented professionals. However, I omitted to tell the crew that this was my first location film shoot. Day one on the set, the First Assistant Director commenced: "Everybody quiet on the set,"...bla, bla...then, "turnover!" but nothing happened. So he started again, and when he got to "turnover" I noticed that everyone was looking at me like I was a suspect urine sample in a urology lab. You see the video guys that I'd worked with just used to yell "roll sound" or "audio".

After "turnover" or "roll sound" is called by the First AD, the audio guy's 'ready' call is "speed". Although a hangover from Nagra analogue tape days when the tape motors had to be running 'up to speed' to correctly record, even the Sony DAT took a couple of seconds to get up to speed.



“the First Assistant Director commenced:  
“Everybody quiet on the set,”...then, “turnover!”  
but nothing happened”



**Top:** The Sennheiser Shotgun. **Below:** Sennheiser MD6 and wireless transmitter.

Recording atmosphere (atmos) is an important part of recording any film or video narrative. In fact television crews covering golf matches often used this technique. This is because a camera with a telescopic lens can shoot a golfer at a distance on the fairway, but invariably there is no audio that matches the shot. So the audio tech in the OB van would have some pre-recorded atmosphere, birds chirping etc., then loop it and mix it with the video to make the shot seem more realistic.

In film, there will always be some atmosphere leaking into the microphones as the audio is recorded. So this atmosphere should also be recorded (and labeled on the log sheet) without any dialogue so an editor can match up the audio to any additional scenes that may be included, including cutaway shots. Atmos is also used in ADR (Automatic Dialog Replacement) or looping, where actors repeat original dialogue in the studio.

Having lots of batteries on hand for the mixer, recorder and wireless mics is a must, and with rechargeables, accurate planning is required so as not to get caught without power.

A back-up recorder should always be carried to cater for the worst possible scenarios. This is usually an inexpensive alternative, perhaps not having the same features as the main recorder, but of similar recording quality.

Often the sound recordist can operate a small boom arm independently, but in more demanding shots a boom-slinger will be required—a good reason to check the script before recording.

It's always a good idea to regularly ask whether the microphone is "in the shot", as this is often not noticed by the camera operator.

After a scene the First AD will always ask the crew if there were any problems; so if you've detected that distant chainsaw, you have a chance to utilize some acquired academic skills. But don't be surprised if your comments are dispatched to the boundary with the old standby, "We'll fix it up in post". If you're using hidden wireless lavaliers in a situation where the actors keep hitting the microphone, be sure to tell them of the problem as well as informing the First AD, and if the problem persists recommend using a boom microphone, and especially if there is excessive wind noise.

It's a good idea to request the script before accepting any narrative film or video assignment, especially if you're dealing with the 'Tropfest factor'. You may need to forewarn an AFTRS graduate who did a certificate course in film editing (then somehow miraculously morphed into a scriptwriter) that there might be problems recording the audio for that big underwater, volcano or dangling from the rope ladder scene.

Using windshields and

windjammers can usually eliminate wind noise on boomed microphones, but this is a problem for hidden lavalier microphones. Clothing noise is also a major annoyance when using hidden lavalier microphones. There are a lot of different methods that recordists use to eliminate clothing noise and conductive cable noise that can be transmitted to the mic capsule. To eliminate cable noise, the microphone cable should be looped a couple of times near to the mic capsule and secured. The trick then is to stop any clothing from rubbing on the mic capsule, and this is done by gaffing the outside garments to any inside garments around the mic capsule, thus stopping movement across the microphone head. Rycote, who also make windscreens and windjammers, have a product called 'Stickies', which are tiny disposable double-sided adhesive pads for mounting the lavalier microphone. The adhesive material can be used on skin as well as clothing. A lot of experimentation at home or in the studio is needed to perfect these skills.

Formal training is obviously a solid alternative, but it's worth noting that like live audio engineering this industry evolved from field experience. Keep in mind that the apogee of location sound recording is when you get to recording 8 and 12 channel mixes—and live and recording audio technicians do this every gig.



# TESTING PORTABLE APPLIANCE TESTERS (PATs)

The issue of 'testing and tagging' electrical appliances is an important one, especially in an industry as dependent on electrical equipment as entertainment. Most production and hire companies now have an established routine of testing and tagging their equipment, generally using PATs.

But how do you choose a PAT from the variety currently on the market? CX tested a range of PATs and offer some advice.

By **ANDY MACKENZIE**

Let's start by considering the range of tests performed by PATs, and the circumstances in which they are likely to be performed.

Earth continuity tests the connection from the earth pin of the mains plug to the metal casing of the equipment. This test is performed at a low current (typically 200mA), and is compulsory under the standard (AS/NZS 3760:2003). Earth bond tests are performed at much higher levels and test the ability of the earth conductor to carry a high fault current (usually either 10 or 25A). While there is a good argument in favour of earth bond tests, they are not required under the standard and cannot be practically performed by battery powered testers.

All appliances must also be tested for insulation resistance between live parts and the casing of the device. The insulation resistance test is normally performed using a 500V DC voltage and must be performed with the appliance switched on, so that all normally live parts are energized. There are exceptions to this – devices fitted with surge protection would always fail a test performed at 500V, so they are tested at 250V. Some equipment does not have a power switch which can be manually switched on, using instead an electronic switch which will only operate when the unit is powered. These devices require a leakage test in which the unit is powered and measurement is taken of the current in the earth conductor.

In other words, a tester which will not perform a leakage test can still be used on devices that do not require one.



Andy MacKenzie lines up a range of PATs to be tested.

We looked at eight readily available PATs in respect of their appliance and extension lead testing. We didn't test the RCD tester function or any of the record keeping software packages. The prices are quoted as a guide and came from an independent supplier carrying all these products. All prices quoted do not include GST.

The Aegis Patrol is a basic and inexpensive tester. It is a battery/mains powered device in a Pelican hard case. It performs earth continuity and insulation resistance tests, automatically testing at 250V when dealing with surge protected equipment. While the Patrol does not perform leakage current tests, a leakage current tester, the Ace, can be bought with the Patrol as a kit. Operation is simple, with one button press performing all tests. On its own the Patrol sells for \$695. Combined with the Ace as a kit, the price is

\$815.

The TnTel, from Nesco, is a more featured unit. While it does not come in a hard case, it would be reasonably durable if treated with appropriate care. The TnT will perform all the tests performed by the Patrol, and will also perform leakage tests. In addition it senses a no load condition and suggests that either the device is turned off or requires a leakage test. It has a port to allow it to work with a computer in recording test results and is quite intuitive to use. The TnTel is priced at \$960.

The supplier also sent us a prototype of the TnT+ three phase PAT. This device has very similar features but will perform tests, including leakage tests, on three phase powered equipment. At this stage, three phase leakage testing is restricted to 20A devices, limited by the internal wiring of the unit. This



The diverse range of PATs tested.



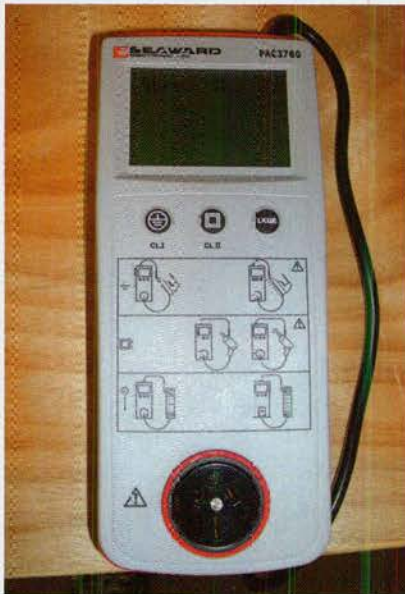
The Seaward Prima Test 200.



The Seaward Supernova.



The TnTei, from Nesco



The Seaward PAC 3760.



The Aegis Patrol.

device also includes an RCD tester. Unlike its little brother, this unit was supplied in a Pelican hard case but the various power and cable adapters supplied with it did not all fit into the case. Some of the labeling of connectors was less than ideal, but issues like this are only to be expected in a prototype. Again, the tester was compatible with the computer record system. While this was a prototype, the single phase version including RCD tester sells for \$1695.

The Seaward PAC 3760 is another one touch tester, giving a pass/fail result. It performs both insulation resistance and leakage tests, along with a 10A earth bond test. Like the TrT devices, it recognizes a high resistance load and gives a warning

on screen, requiring a second push of the button to continue the test. This device is quite intuitive to use and features clear diagrams on the front showing how to connect items under test, but we found it difficult to perform a leakage test on our DVD player. While it is not supplied in a hard case, the tester is quite robustly constructed and comes with a fairly rigid nylon case. The PAC 3760 is available for \$349.

A less idiot proof version of the PAC 3760 is the Seaward Prime Test 200. This is a tester designed for technicians. While it will still perform one touch testing, it also permits the user to perform tests individually, including RCD testing. It can be operated on battery power for all except leakage tests for which it

requires mains supply – earth continuity can only be tested on battery power as the cable test IEC connector is the same one used for the mains supply. Surge protected devices must be leakage tested with this tester, as there is no 250V setting. This tester was supplied in a case like that of the PAC 3760, and sells for \$1299.

The Trio SafeTcheck is supplied in a Pelican hard case and has some interesting features. Like the others it performs the standard tests including leakage, 25A earth bond and RCD tests. It has more connectors than any of the others, as it is equipped with both an IEC and a standard 3-pin male plug (the others all require the use of an adapter to test extension leads). In addition there is a separate

outlet for leakage tests, the argument being that an accidental button push is not enough to connect a device live to mains. Another clever feature is that the SafeTcheck is supplied with a stainless steel mesh bandage to be used as the earth connection when testing double insulated devices and senses whether this is used properly, registering a fail result if not. Like the TnT testers, the Trio is equipped to communicate with a software package for record keeping purposes. The SafeTcheck comes with a range of options, the base model being priced at \$1995 and the version tested at \$2793.

The Seaward Supernova is the first of two 'datalogging' devices tested. In addition to the normal testing functions, these devices have on-board data storage so a computer is not necessary at the test site. Records can still be transferred from the tester to a computer and back as required. Because the datalogging is onboard, it is not possible to perform a simple test without putting all the required information about a tested device into the log. This also means more button pushing than on the other testers if they are used as stand-alone devices, but probably no more than if they are used with a computer. The Supernova can be fitted with a tag printer and bar code reader, but these do not fit into the hard case, requiring separate carrying arrangements. The tester alone costs \$2979, the complete package including printer, barcode reader, software package and 500 tags sells for \$6964.

The Megger Pat4 has a similar feature set to the Supernova in terms of available tests and datalogging. It is also supplied in a hard case but the small, rechargeable battery operated tag printer, the barcode reader and the adapter leads all fit into the case, meaning the whole setup can be carried in one hand. The Megger is a British unit and is exported without change, so it complies with the British standard which is, in most respects, more stringent than the Australian standard. This does lead to some anomalies – the tester wants to perform the earth bond test three times for each device, as per the British standard – which may frustrate time conscious users. You can buy the tester for \$2800, adding a printer for \$1250, a barcode reader for \$1168 and the software for \$1474.

If you are in the market for a PAT, there are a number of issues to



The Trio SafeTcheck.



A prototype of the TnT+ three phase FAT.

consider. Think about the equipment you will be testing and how frequently – there is no sense buying an expensive datalogging tester if you don't need it, nor is it a good investment to buy the cheapest tester you can only to find that it won't do what you need it to.

Consider the practicalities – portability and durability. How easy is it to carry around, including the peripherals? How much stuff do you need to carry to go with it? How well is it going to cope with bouncing around in the back of the truck for the rest of its life? Remember as well to check on the hows and wheres of calibration – these devices need to be recalibrated every twelve months to ensure their accuracy (check the how much while you're asking). Don't get too excited about how long each test takes – if you're taking the time to do your inspections properly a

few extra seconds per test is fairly insignificant.

What about training? Some of the difficulties I experienced with some of these testers may have resulted from defective user issues. Which serves me right, since I asked everyone to give me the testers without training. When your safety and that of others depends on it, you want to know what you're doing. Most suppliers offer some kind of training with the purchase of their product, but make sure you know what you're getting.

Finally, don't be afraid to ask people how their experience with their PAT has been, or talk to someone from a testing company. Try to find a supplier who carries a number of testers so that you can compare them. Once you have all the information you need, make an informed decision about which device best meets your needs.

# LOOK MA, NO WIRES!

“I never came upon any of my discoveries through the process of rational thinking.” – Albert Einstein

By **RICHARD CADENA**

Since the time that wire was invented, we have been trying to get rid of it. In the 1890s, Nikola Tesla experimented with wireless power transmission and radio transmission. He worked for many years and spent hundreds of thousands of dollars on perfecting wireless power transmission. In the end, he succeeded only in going bankrupt.

But what if he had succeeded? It's fun to think about building lighting systems without wires, but it's unlikely that we'll see wireless power transmission in the foreseeable future. Wireless control, on the other hand, is already a reality. Several wireless solutions are currently available to connect a console with a DMX512 receiver. Most involve radio transmission, but there's a "new technology" that transmits DMX512 over the same cables that distribute power to the system.

Broadband over power lines, or BPL, is an emerging technology that encodes a control signal onto an AC power line by injecting a high frequency carrier signal and modulating it with an encoded control signal. It works much the same way a radio signal is modulated except instead of propagating through the air. The beauty of the scheme is that the power line infrastructure in most places is extensive and already in place. By using BPL technology it eliminates the need to add new infrastructure. Broadband can be implemented by simply "plugging in" to the existing power lines.

In the entertainment industry, at least one company, Daftdata in partnership with Avolites, is adapting the technology for the distribution of DMX512. Instead of using radio transmission, the idea is to use the same power distribution cables to power fixtures and distribute the DMX512 control signal. In places where the radio spectrum is crowded with other transmitters, it could avoid or resolve problems.

BPL is technically not a new technology. A similar technology called

power line carrier (PLC) has been in use in the electrical utility industry for many years. But PLC is a low frequency, narrow bandwidth signal as opposed to BPL, which operates at much higher frequencies of between 1.7 MHz and 30 MHz. PLC typically modulates the power line at less than 200 kHz and it's used for very simple commands such as opening and closing relays to route power where it needs to go. X10 is a type of power line communication that has been adapted for use in home automation.

Since the widespread commercialization of the Internet, people have been trying to figure out how to extend its reach. BPL seems to be another solution to help bring broadband to areas which aren't currently served by fiber, copper or wireless networks. But communicating over power lines is not without its problems. Power line carrier systems in the past have been plagued with problems due to the large amount of electrical noise and "trash" that tends to propagate down the lines. When large loads like air conditioners, commercial ovens and electric motors come online they can generate high frequency noise on the line that interferes with the PLC signals. In X10 systems, simply turning on a television can generate a false "on" or "off" signal. Also, in a three-phase system a PLC signal can have problems propagating between the live conductors because the windings of the distribution transformer present a high impedance obstacle. But if a load is connected to the line, then it offers a low impedance path for the carrier signal.

In most venues, there is a separate feeder transformer supplying "clean" power to the audio and lighting. So the typical problems associated with PLC systems may not be an issue since the transformer isolates a lot of the noise, transients and spikes in an electrical system.

The other problem, however, associated with BPL that is not a problem with PLC is that the high frequency signals used by BPL on long

power lines are transmitted like a radio station broadcast signal. The long transmission lines are unshielded and untwisted and they act as antennas. As a result, they emit large amounts of electromagnetic radiation at radio frequencies which can interfere with licensed radio operators. In a typical application where BPL is used on outdoor transmission lines, interference has been detected as far as a mile from the source. Widespread use of BPL could interfere with ham radio operators, aviation, public safety, maritime, government agencies and military broadcasts.

In the entertainment environment there are several factors working in our favor. Firstly, the power distribution cables are considerably shorter and lower to the ground than outdoor transmission lines. Secondly, at least half of the time the cables are inside of a building that is very often "shielded" in an iron skeletal structure. The RF radiation is less likely to propagate outside of an arena or theatre. Thirdly, many event facilities are surrounded by parking and are sufficiently far removed from neighbors who might suffer from interference. And lastly, these shows are temporary in nature, so they would not be a source of constant radio pollution.

There are still potential problems. In Austin, for example, the Frank Erwin Center is across the street from Brackenridge Hospital and the Star Flight heliport. Will PLC interfere with their aviation communications, or will the building shield the RF radiation?

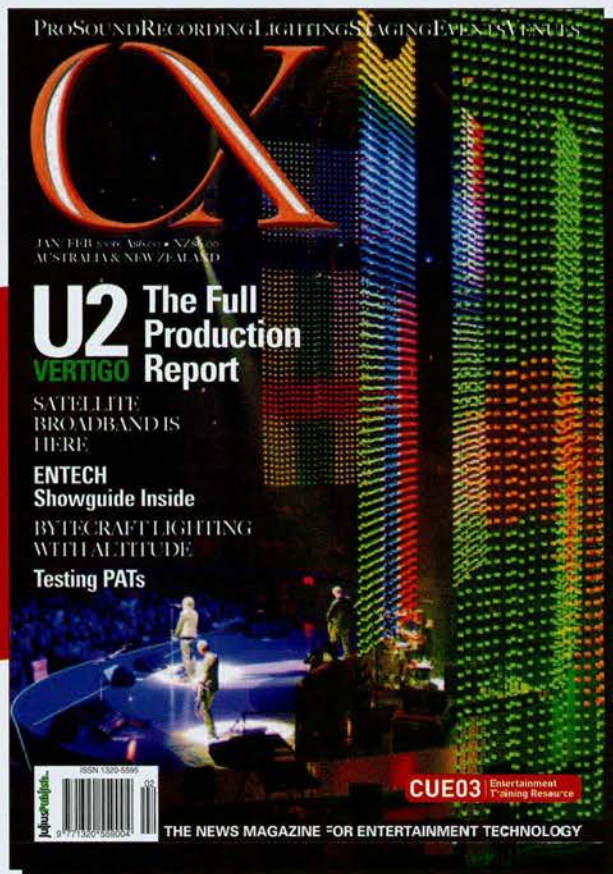
These are questions that will be answered very soon as more PLC solutions for DMX512 appear on the market. The lure of saving the time and cost associated with buying, warehousing and setting up DMX512 distribution systems is just too tempting for the industry to stand idly by while the Internet world forges ahead with BPL. Look for more DMX512 over power line solutions to hit the market very soon.

*Don't turn the page until you send the author an e-mail at [rcadena@austin.rr.com](mailto:rcadena@austin.rr.com).*



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Col West (Top End Sound, Darwin): Howard Page (Senior VP, Clair Brothers) and Grant 'Tosh' Walsh - veteran live sound engineer - at the Cohedra launch.



On tour with those Wiggles. Jeremy Noan (Jes) Andrew Killengray (AK) and Paul Owen (Pauly) prep the rig at Phaseshift Productions. They are pictured giving the LSC TDS 48 dimmer rack some extra loving.



Stephen McCallum from Dominica Sound, a fast growing audio firm based on the Gold Coast. Stephen is a musician and a high rise building repair engineer who prefers live sound. Good at fixing things that leak!



Chris Clough (Small Systems), and Tony Hystek (Action Sound) also pictured at the CM! Cohedra launch.



Mick Privitera, leading Queensland audio identity, with Peter Trojkovic from C.M.I. at the Cohedra launch



Jeff Bait (Jands) and Frank Madzin (Madzin Productions) at Chameleon's Christmas party.

# HAND CRANK IT UP

Satisfying the creative urge that burns within us



By **DUNCAN FRY**

Sometimes I feel like one of the Three Yorkshiremen, from the classic Monty Python\* sketch. Especially when young Britney Lourdes Fifi-Trixiebelle keeps asking me, "Dad, what computer games did you play when you were young?" When I answer none, that we didn't have computers let alone any games to play on them, she just looks at me blankly as if I'm ready to join Grandpa Simpson in the Springfield Retirement Castle.

Making a recording at home these days is simple: plug a microphone into your computer, fire up one of the free versions of a multi-track recording program, click on record, and play your heart out. Add on as many tracks as you need to stuff it up completely, then mix it on screen and squirt out a .wav or .mp3 file at the end.

But as many people will tell you young kids, it wasn't always this easy. Forget 4 track cassette Portastudios ("Looxury!") or any of that later stuff, for most of us a stereo reel-to-reel tape deck was all we had to work with.

During my early working days I lived in Mt Gambier, working at SES 8, the local TV station. I often felt the urge to try my hand at recording some music, but the audio facilities at the station consisted of a single mono Byer tape deck and not much else. My main problem was I had nothing to record onto. I had a good stereo system, and a Phillips cassette recorder, which although state-of-the-art for its time, was not a particularly flexible recording medium. So one Saturday morning I went down to the town and scoured the local Op shops for tape recorder bargains, coming back home with a compact Sony tape recorder for the princely sum of \$25, including half a dozen 7" reels of tape.

The beauty of this particular machine was that it had a big square record button that was two buttons in one. Press the top half and it

recorded the Left channel, press the bottom and it recorded the Right channel. Press both together and it recorded Left and Right channels at the same time. This opened up a world of opportunity for very basic multi-track recording and track bouncing. Les Paul would have been proud of me.

So, I could record a guitar track, say, on the Left channel, then play it back while I recorded another guitar track on the Right channel. Then I could playback both tracks while I put the microphone from the cassette deck next to the speaker, where it would pick up the two backing tracks and record my golden tonsils vocal and blues harp solo at the same time.

I could then copy that track to the Left channel of the tape deck and start the process all over again.

At some point the level of hiss would overtake the level of the music, but up till that point it was quite listenable. No Tubular Bells, that's for sure, but a lot of fun.

Those of you with masochistic tendencies can check out some examples of seminal bluesman DeltaHead Fry and his 1969 hi-tech recording method at: [www.dunkworld.com/mt\\_gambier\\_tapes.htm](http://www.dunkworld.com/mt_gambier_tapes.htm).

Before you do, though, if you think it was tough in 1969, what about the Middle Ages?

People have spent a lifetime looking for that special sound, perhaps none more so than the Abbot de Baigne in 1475, during the Hundred Years War. The King of France wanted a musical treat for a large banquet he was having. Bored with the sound of regular pipe organs, he commissioned the Abbot to do something special.

The Abbot built an elaborate organ-like machine that had only eight keys on the keyboard, which directly connected to eight pointed sticks that pushed into eight boxes underneath the organ. He then spent the next few weeks wandering around the local markets.

The whole court was left

wondering what this strange contraption was going to be but it wasn't until the day of the banquet that all was revealed.

With a fanfare of trumpets the good Abbot entered the banquetting hall, herding eight piglets before him, each painted with the letters A, B, C, D, E, F, G or AA on their sides. As he pushed them into their respective boxes, all of a sudden the audience could see what was going to happen.

With a flourish the Abbot banged out a chord on his pig sampler, and sharp sticks jabbed into the backsides of the appropriate piglets. All eight of them started squealing uncontrollably and very atonally, and no matter which key he pushed they still all squealed.

Although an accomplished and creative musician, the Abbot knew very little about piglets. He had spent the time before the banquet prodding various piglets and listening to their squeals, ending up with a complete piglet musical scale. However, he had forgotten that piglets grow very fast. And like humans, as they grow their voices change. What started as a perfect C ended up as an E flat, and so on throughout the scale. He also hadn't realised that a piglet will act quite differently alone than it will in a group. If one squeals, they all squeal!

As this musical chaos progressed, the King and the courtiers rolled around laughing helplessly as the Abbot tried to coax his piglets into producing something like music. But it was no use.

When finally he stepped down from his pig-o-matic, the whole audience stood up and applauded, and the King commended the Abbot for producing something truly entertaining.

And then they all had roast pork for dinner!

*\*The truly anal amongst us know it wasn't a Monty Python sketch, it was from "At Last the 1948 Show" an earlier comedy series featuring many of the Python members, and was performed on the Monty Python 'Live in Concert' shows only.*

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From Ian Macrae's column on page 77 - The African iPod!

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