



METALLICA POWDERFINGER *LIVE!*

Jazzed in the Vines:
An audio adventure

Aussie PA Delhi-vers

REVIEWED:

Panasonic 3D camera
Maselec Parametric EQ
Selecon debut plastic spot
Shure digital wireless mic (!)
Microphones from Blue & AT
Roland MVS-12 Multi-viewer
Lake LM26 Loudspeaker Processor



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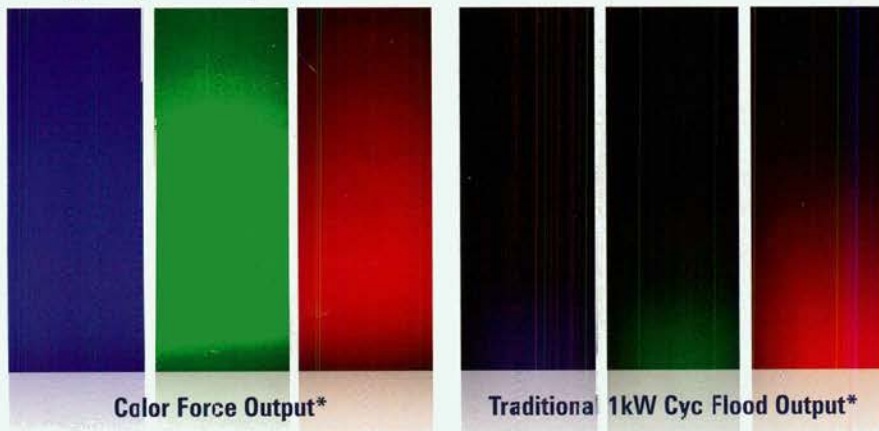
Color Force

Mighty Output LED Batten

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Color Force
Mighty Output LED Batten



INSIDE THIS ISSUE

NEWS

TOM MISNER'S AUSTRALIAN NEVE



8

- 8 Security Issues at Perth Metallica Show
- 8 Trade Show War Hots Up
- 10 Weatherproof Arrays for RCF
- 10 Austage Colour Black With Chroma-Q Color Force LED's
- 12 TAG Opens Audio - Technica Lounge
- 12 Government Still Talking About Wireless Mic Future
- 12 Klotz ais with PAS
- 14 Staging Open New Qld HQ
- 16 Christie add Projectors and Yokes
- 16 Audio Products Group launch Tannoy with Australia/NZ Roadshow
- 18 Primacoustic Acoustic Solutions Expands
- 20 The Traveller writes from Canada

FEATURES

22



POWDERFINGER'S FINAL ODYSSEY

COMMONWEALTH GAMES



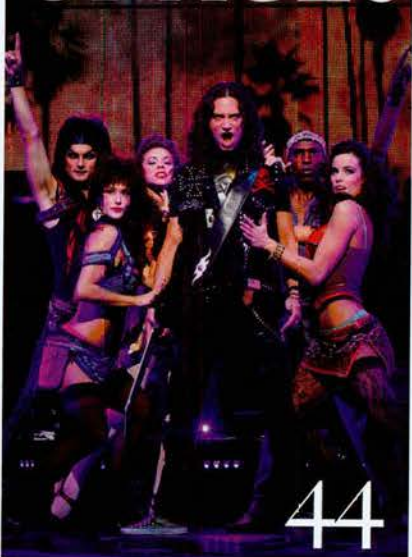
34

JAZZ IN THE VINES 2010

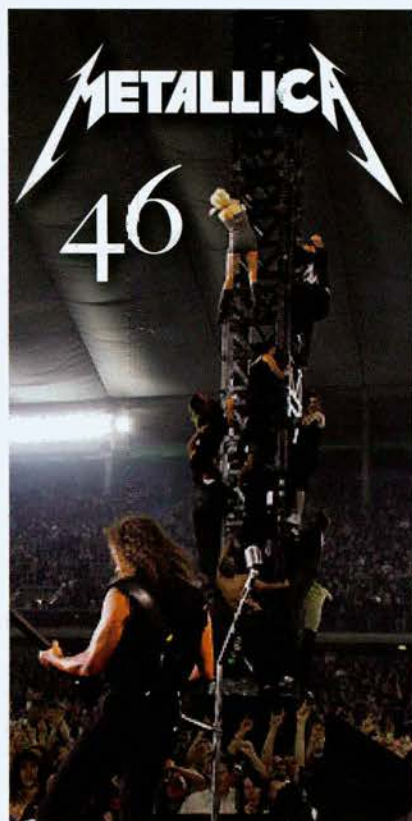


38

ROCK OF AGES



44



MEGA TEST



- 52 Selecon SPX Ellipsoidal
- 54 Shure PGX Digital Radio Mic
- 56 Audio Technica AT4080 Ribbon Mic
- 57 Blue enCORE Series Mics
- 58 Maselec MEA-2 Mastering Equaliser
- 64 Roland MVS-12 Multi-viewer

PANASONIC AG-3DA1E CAMERA



60

REGULARS

- 30 Richard Cadena
- 42 Duncan Fry
- 66 Classifieds

D-MITRI



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CUE03

Entertainment Training Resource

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



EDITORIAL

CHANGES

Welcome to CX! This issue starts to roll out some changes brought about following a survey we ran in November 2010. Some regular segments are on hold pending review. Also this issue suffers for the temporary absence of The Editor, our colleague and friend, Andy Mackenzie who is offline due to a worrisome recurring workplace injury, namely nasty growths on his vocal chords. These are removed surgically but time of worry exists.



CX-TV

Now we have a TV channel version of this very magazine. Go to juliusmedia.com for the latest episode. Multi media channels now deliver our news to you, and our survey proved a combination of print, e-news, TV and web is needed. Sophie Pearson and Jimmy Den-Ouden are our presenters, log on and let us know what you think. Please send us your videos. juliusmedia@me.com

FREE CX!

We have also doubled our FREE download versions of CX! We have our regular pdf downloads of sections of the magazine, which can be read on any platform that will see a pdf, (including iPhone and iPad) and now an 'Issuu' reader that has all the internet links live. You can click on any link, and go there. CX has been in the mass reader market with free whole magazine downloads for a long time now. In exchange we collect and validate your email address so we can send carefully targeted e-news emails. If you don't want these, please un-subscribe or email us at juliusmedia@me.com

PASSION SURVEYED!

For the first time we surveyed INDUSTRY PASSION. With 300 qualified respondents this is valid,

and a whole 50% say they have a LIFELONG level of passion or interest in this industry. 42.38% rate as highly Passionate, then 7.62% as having medium, and one person had low passion. This talks volumes about what drives you!

#1 MAGAZINE

We asked which magazine is the MOST CREDIBLE source of news. CX ranked 58.28% followed by Audio Technology Magazine on 9.93%, Pro Audio Asia at 4.64% and AV Magazine at 2.65%.

Next question was: reading a PRODUCT REVIEW, which magazine is the most believable? CX came in at 59.60%, Audio Technology scored 15.56% while AV managed 2.65%.

As to INDUSTRY COMMITMENT, we asked which magazine contributes or does something beyond making a profit. CX totalled 74.17%, Audio Technology scored 4.97%; AV was 1.66%, Pro Audio Asia 1.66% and Venue Magazine 0.99%.

As to which magazine is most likely to write the HARD STORY about an industry issue? CX 74.17%, AV 1.99%, Audio Technology 1.66%, Pro Audio Asia 1.32% and Venue 0.33%.

Then these:

'Has CX Magazine influenced which equipment you buy, or who you do business with?' Yes 57.28% and No 42.72%

'Has CX Magazine influenced how you work, or changed any work practice?' Yes 58.61%, No 41.39%.

'Has CX Magazine alerted you to an issue or a problem that may impact on you?' Yes 80.13%. No 19.87%.

These answers compare well with a similar survey we commissioned at the start of 2009. Thank you for voting us an overwhelming number one again!

INSIDE

The planets aligned for a nice range of stories inside, and we have some TV breakouts popping up on the 'site. A lot of what we do now is caught on TV, so check the website for lengthier or more visual breakouts.

As always, contributions are welcomed at CX!

Julius

the audio-technica lounge



The Audio-Technica Lounge is the first specialist headphone retail store in Australia. It's an audio Mecca with well in excess of 100 headphones and in-ears covering the full spectrum of studio, Hi-Fi, DJ and noise cancelling as well as the fashion on-the-move styles that have propelled Audio-Technica to number one in the white-hot Japanese market.

Headphones and in-ears are audio injectors and there's no cleaner, purer, more dynamic way of injecting your music than with Audio-Technica.

They're also part of you - you wear them like you wear your fashion - and no other 'phones look or feel like Audio-Technica. With 15 listening stations and an extraordinarily long listening lounge you can relax, audition and experience the difference. The Audio-Technica Lounge is all about the fusion of your music with your style and it's part of Sydney's new premier fashion experience - Westfield Sydney.

We welcome you to The Audio-Technica Lounge.


audio-technica
always listening

CX NEWS

DEVICES, PEOPLE AND CONCEPTS



METALLICA WRAP WORLD TOUR

Ending a 180 date sellout tour in Melbourne, hard rock band Metallica go into recess ahead of Rock In Rio next September. But while dazzling audiences with a 2.5 hour high octane show, security issues arose in Perth.

As our picture shows, as many as 50

punters were allowed to climb the ground support towers at Burswood Dome in Perth, and the show continued. The security failure left the venue management in crisis, as the standard response is to stop a concert until the punters come down.

Read our full Metallica story on page 46. **CX**

TOM MISNER'S AUSTRALIAN NEVE

Mystery as usual for launch of new console

Secretive SAE chief and owner of AMS Neve Tom Misner has launched a new studio and film mixing console under the Custom Series 75 name, 'powered by Neve'. Made in Byron Bay by Neve Custom Manufacturing Australia Pty Ltd, the new console was shown at the AES Berlin Convention recently.

The console is a no-compromise analogue reworking of classic Neve design 1073 line amps, and 1081 EQ stage. The original multistep attenuator (5dB increments) in a 1081 cost \$150 plus took a day to wire in. The 75 has a \$5 switch with some relays.

Australian designer Bruce McBean asserts the sound is the same or better. Reaction to the console has been generally

positive.

2245 compressors can be optioned in. Indeed the console can be specified and ordered online, although with a top end spec costing north of \$65k (US\$) it remains to be seen whether anyone would order such a system online.

As with all things Misner, layers of mystery abound. The Australian operation appears totally detached from AMS Neve. But the company "Neve Custom Manufacturing Australia Pty Ltd" doesn't exist on the Australian company register.

The brochure asserts the product is designed and tested in England, which negates the conspiracy theory that the firm had obtained an Australian research and

TRADE SHOW WAR HOTS UP

Industry visitors will determine which show survives

Sydney hosts two trade shows competing for the same industry visitors next winter, with ENTECH and new show INTEGRATE running within weeks. The battle for visitors will be intense, so CX recently surveyed industry intentions.

ENTECH has not run since February 2008 while INTEGRATE has appeared twice since, so we expected some competition. 302 industry participants told us which show they will support. ENTECH was overwhelmingly the one.

Of 302 surveyed, 159 will visit ENTECH but just 29 say INTEGRATE is their preferred trade show. The balance of those surveyed will visit SMPTE (held alongside ENTECH) or no show at all.

The breakup of industry interest showed ENTECH ranking evenly across A.V. (21%), Live Sound (30%) and Lighting (25%). Staging interest for ENTECH was 11%.

At just 29 people, the INTEGRATE response was too small to divide into industry interest.

Visitor origin for ENTECH was also interesting, with 80 from NSW, 71 from interstate and the balance from New Zealand.

The CX Survey was held in the first days of November, and conducted on a ZAP survey platform. 5,161 people were emailed, from the CX-N email list which is managed by Campaign Monitor. The list includes all CX readers who download the magazine in E-Reader or PDF form from the juliusmedia.com archive.

Each person surveyed was offered a free 12 month subscription to CX Magazine, costing the publisher \$11,778. The survey was fully subscribed within one working day. Other survey issues polled included content in CX, and industry issues. A total of 36 questions were asked.

ENTECH July 19 – 21, Darling Harbour. www.entechintech.com

INTEGRATE August 30 – Sept 1, Moore Park. www.integrate-expo.com **CX**



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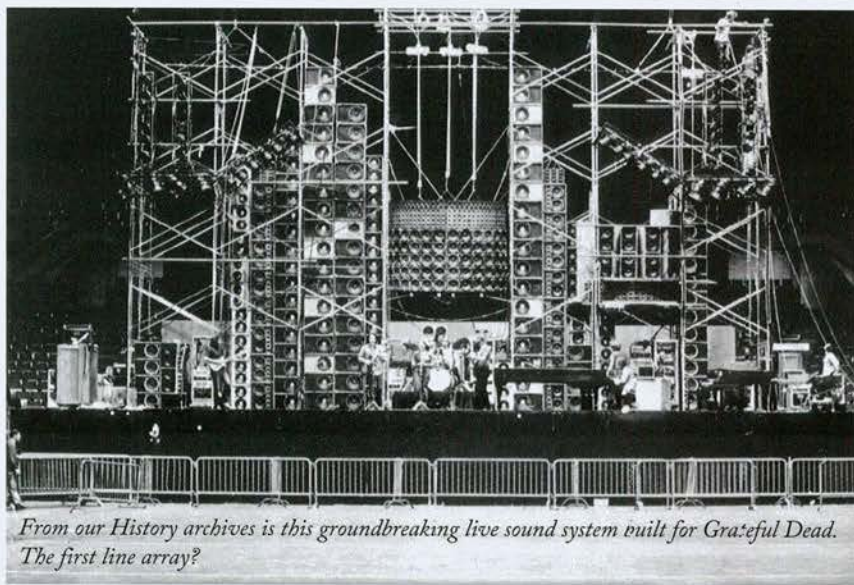
Australian Neve..Continued from page 8

development grant.

Finally the logos and trademarks are registered to SAE Licensing of Switzerland, which makes sense given Misner is the majority owner of the global SAE conglomerate of audio schools. It is that connection alone that ensures the Custom Series 75 has several years of production ahead of it, since one or two in each SAE school and in Misner's Studio 301 complexes around the world would justify the venture.

Misner himself recently relocated from Byron Bay to the U.K.

CX



From our History archives is this groundbreaking live sound system built for Grateful Dead. The first line array?

WEATHERPROOF ARRAYS FOR RCF



RCF has just added 5 new weatherproof line array speakers to the TT+ range of touring and theatre speakers. Each of the new models is passive, loaded with an internal crossover.

RCF have done important work on the crossover, which is named the LICC - Low Impedance Compensated Crossover. RCF say this provides markedly lower induction values in series with the woofer are delivered. The benefit is reduced phase shift and superior transient response.

Connections to the amplifier are

made through a watertight multi-pole connector and the grill is custom perforated aluminium utilising open-cell fibres and water repellent woven fabric backing. The cabinet is constructed of multi-ply Baltic birch plywood and finished in an extremely resistant and textured black coating.

There are 2 x 3 way models, 1 x 2 way model, and a pair of matching passive sub boxes. Passive means a single amplifier channel can drive a combination of boxes.

www.grouptechnologies.com.au

CX

AUSTAGE COLOUR BLACK WITH CHROMA-Q COLOR FORCE LED'S

For over 16 years Austage has built a reputation as one of Australia's premier corporate event companies and to keep on top of the game, managing director Joe De Abreu knows it is important to be able to offer his clients the best in lighting technology.

With this in mind, Joe began scouring the market for a new LED cyc light and when he came across the Chroma-Q Color Force LED batten he knew he had found his ultimate tool. Comparing the Color Force to a 1000 watt cyc light, the cyc light clearly lost not only in coverage, but output and colour accuracy.

Described as a brute of a light, the new Color Force LED batten is super bright and can easily wash up to eight metres. In addition, its advanced ColorSure™ RGBA colour and control management technologies deliver a radically increased colour palette, enhanced colour consistency, a high CRI of 92 and theatrical grade dimming.

"What can I say, they are so powerful they can turn black drapes into any colour you want!" said an astounded Joe. "After having a good look at what is available in LED cyc lighting, I have to say that the Color Force LED battens are the highest performing LEDs that I've ever seen. They're extremely bright, have a long throw and nothing else on the market comes anywhere near them. It's the only LED fixture that you can't look directly into as they're so bright!"

Joe purchased eight of the Color Force 72 battens and he is currently furiously saving his pennies to purchase some more!

"They are the only LED fixture with a fourth colour - amber - which is really helpful when you're doing lighting designs," added Joe. "We've used our Color Force battens on quite a few corporate shows and they've been 100% reliable. People always comment on them and now we find our clients are always asking for them. Once they've seen them once, that's all it takes - they're sold!"

CX

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Max Twartz at AT lounge

TAG OPENS AUDIO-TECHNICA LOUNGE

Bose, Sony and Apple have all realised the benefits of having their own retail stores, now Audio Technica have joined that club with Australian importer TAG opening the first AT Lounge in Australia's premium retail precinct.

Newly opened Westfield Sydney is the location of the prototype headphone store, occupying a key island location in the fashion area of the iconic retail mall in the heart of Sydney.

The Audio-Technica Lounge has a comprehensive range of studio, Hi-Fi, DJ and noise cancelling products alongside the fashion iPod type headphones and in-ear models that have elevated Audio-Technica to number one in the white-hot Japanese electronic products market. In total the Audio-Technica Lounge has over 100 model and colour types.

'Try-before-you-buy' is a key component of the Audio-Technica vision, so there are 13 listening stations for visitors to

check out a variety of headphone models. Seven stations feature the latest headphone release with a fixed music programme. The other six stations are integrated within a six meter lounge with comfortable cut-out seating spaces where shoppers can relax and experience the full impact of the headphones. To assist the process a touch-screen palate of music genres and selection of tracks within each genre is available at each of the lounge listening stations along with a plug-in function for those who wish to audition using their own iPad/iPhone,

TAG director Max Twartz told CX that selling one brand alone was a new direction whereas existing retailers place headphones into price and brand categories.

TAG did not rule out rolling out more stores, or franchising the concept should it prove successful. "Sales for the first ten days more than covered costs", Twartz said. 

GOVERNMENT STILL TALKING ABOUT WIRELESS MIC FUTURE

As the last issue of CX went to print, The Australian Communications and Media Authority (ACMA) released a discussion paper entitled "Spectrum Re-allocation in the 700MHz Digital Dividend Band".

The paper said the ACMA notes that wireless microphones and similar equipment have been operated in parts of the digital dividend spectrum under the Low Interference Potential Devices (LIPD) Class Licence for years.

"As part of the broader reconfiguration of the band, the ACMA is working with the wireless microphone community, including the Australian Wireless

Audio Group (AWAG) to make suitable provision for the operation of such equipment in the future. The ACMA is also monitoring international developments in relation to wireless audio equipment.

AWAG will continue to warrant that an appropriate level of wireless spectrum remains available for wireless audio devices.

AWAG has also called for the creation of a buyback and decommissioning programme so that LIPD Class License wireless audio users in the 694 to 820 MHz space can be compensated for the unexpected redundancy of their equipment should that occur.

Contact AWAG: Susan Twartz, Chair, Phone: +61 2 9582 0909. 



KLOTZ AIS WITH PAS

German interface systems provider Klotz ais have named Production Audio Services as their Australian distributors.

Klotz ais have a very broad range of audio visual and music cable and interface solutions, manufactured in Germany. The firm is a leader in its field and was established in 1978.

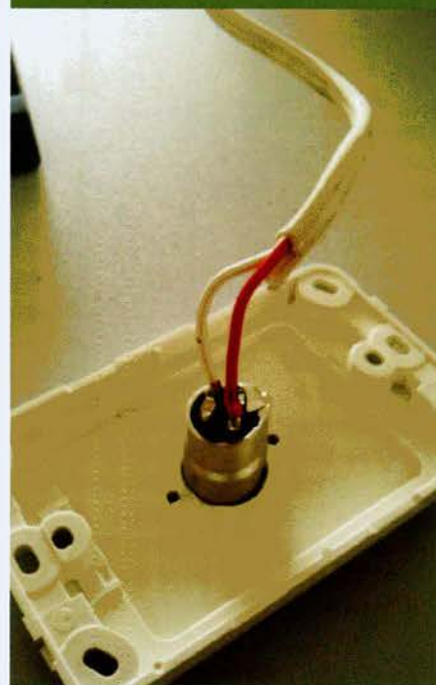
They offer more than 150 different kinds of cable and connectivity systems, ranging from stage boxes, video cables, lighting and music backline solutions. Klotz ais is a one stop supplier, with extensive research and development leading to as many as ten new product releases each quarter.

Production Audio Services are based in Melbourne, and are long time distributors of EAW, AFB Dynasonics, Aviom, Brahler, Digigram, Powersoft, Sabine and other lines.

www.productionaudio.com.au



READER PIC



Steve from Steve's Pro Audio Brisbane sent this one. Electricians should never wire up audio.

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STAGING OPEN NEW QLD HQ



Violetta Herreo & Shona Olivier.

In a move that centralises all of its SEQ operations, 110 full-time and 40+ casuals have relocated from Staging Connections' Brisbane and Gold Coast offices into a new complex in Loganholme.

The official opening was hosted by Terry Hansen from the 97.3FM Breakfast Show and also featured brief welcoming speeches by Russell Bennett, General Manager of Staging Connections Queensland and Tony Chamberlain, Managing Director of the Staging Connections Group. Logan City Lord Mayor, Pam Parker officially welcomed Staging Connections to Logan.

According to Staging Connections General Manager, Russell Bennett, the rationale behind the relocation is twofold; firstly the new premises allow better utilisation of staff and resources and the choice of Logan is due to the fact that the location provides easy access to the major arterial roads to effectively service clients on the Gold Coast, in and around Brisbane, and the Sunshine Coast.

"Our new office and warehouse has better facilities, more space and allows better utilisation of our resources. As well as our audio, visual, sound and lighting operations the 2,300 square meter warehouse has enabled us to expand our Styling and Design areas to include a showroom as well as an area specifically for the design and manufacture of sets and props for our clients' events," Russell said.



Ali Davenport, Russell Bennett and David Wiltshire.



Juliet Lally, Lorelle Chittick and Russ Krause.



Rachel Abbot, Peter Edwards and Michaela Fraser.



Tony Chamberlain, Cr Pam Parker and Russell Bennett.

HDMI Over Single Coax Splitter/Extender



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The PCE122 can send ultra high quality HDMI v1.3 over a single coaxial cable! (RG6 or RG59). It can send full HD 1080P at up to 120M or 720P up to 230M, both with full 7.1 channel audio. The conversion is fully digital (HDMI to SDI and back again) with no additional compression and gives you crystal clear HD at long distances. The PCE122 also contains a built-in 1 to 2 Coaxial Splitter to drive two separate receivers and each receiver has a loop-through to daisy chain additional receivers as required. Cables are connected via BNC for a secure, vibration resistant connection. Featuring world leading single coaxial transmission, the PCE122 is designed to simplify installation.

PCE122 Features:

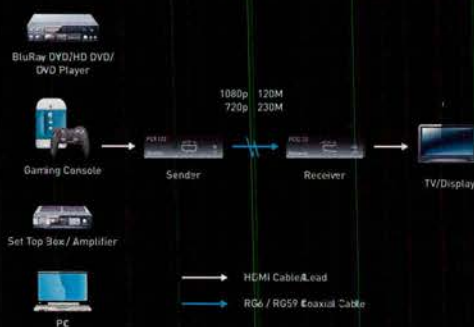
- 120M HDMI 1080p video and 7.1channel audio One Cable transmission with Ultra High Quality Video
- Features World Leading Single Coaxial Transmission, designed to simplify Installation
- 1080p 120M / 720p 230M long distance Ultra High Quality Video with 7.1 channels surround sounds transmission
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- Built-in 1 to 2 Coaxial Splitter in Sender and One Coaxial Cascade output in Receiver for great extension flexibility
- Support 5 layers Cascadable for up to 600M 1080p video transmission and up to 10 TVs/Displays/Projectors connected
- BNC connector designed for solid coaxial connection
- HDMI v1.3b, HDCP Compliant
- Hassle free plug-n-play, install in seconds



PCE122 Specifications:

- Input Connector - Sender: COAX BNC x 2 (1 to 2 Splitter)
- Output Connector - Receiver: HDMI Type A x 1, COAX BNC x 1 (Cascade Out)
- Video Bandwidth: 2.97Gb/s data Rates
- Dimension: 92.4x 117.8x29mm
- Weight: 249g
- Power Consumption: 5Watts (Max)

1 to 1 Extension



1 to Many Distribution



Madison AV Expands Product Range & Specialist Team

Madison Technologies have recently expanded their range of HDMI distribution solutions to include a suite of products from leading manufacturer Aezvara Innovation Corp. These include extenders such as the PCE122 featured above, the PB5000 HDMI over IP Broadcaster, HDMI over Cat5 extenders, Splitter and Matrix products and a complete range of HDMI V1.4 Professional AV cables. These, in conjunction with the range of Hall Research Technologies solutions, and Madison's complete range of AV cable and connectors places Madison AV as the one-stop-shop for Hi-Definition AV infrastructure products.

Also new at Madison are products from award-winning Swiss Digital Signage manufacturer, SpinettiX. Featuring the innovative HMP100™ Hyper Media Player, Madison now offer digital signage hardware and software solutions, backed locally by factory trained product specialists.

For more information on this expanded product range, contact the specialist Madison AV team directly on **1800 00 77 80** or email av@madisonotech.com.au



CHRISTIE ADD PROJECTORS AND YOKES

Christie has added the E Series – new 1-chip DLP projectors aimed at commercial use. The two models are DHD670-E (6000 ANSI lumens, 1920x1080) and DWU670-E (5800 ANSI lumens, 1920x1200).

These compact dual mercury lamp projectors are best suited for single screens in mid-to large-sized boardrooms, breakout rooms, churches, and classrooms. A dust-sealed, filter-free design should lower maintenance costs.

Christie's Nitro Solutions are integrated moving yokes and digital projector systems designed for staging and event applications. You can now project bright, high quality video and lighting effects onto virtually any surface.

There are two yoke models to choose from. Each yoke provides a platform to move and control a variety of Christie large format video projectors via DMX protocol – allowing you to integrate lighting equipment and video projectors easily with the same control console.

www.vrs.com.au



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Are YOU the Secret Listener?
Have YOU got the scoop on the big news?
Do YOU know how to?

Could YOU be the contributor
we're looking for?

Send your submissions to
juliusmedia@me.com

AUDIO PRODUCTS GROUP LAUNCH TANNOY WITHIN AUSTRALIA/NZ



Audio Products Group (APG) has recently taken over the distributorship for Tannoy commercial and domestic products within Australia. They recently held a series of "roadshow" events with stops in Sydney, Melbourne, Adelaide, and New Zealand. CX went along to take a look.

The event ran for about 2.5 hrs, and commenced with an introduction by Richard Neale of Tannoy who talked briefly about some of the heritage behind Tannoy, as well as delving into a brief discussion of Dual Concentric technology. He also explained how APG will be handling the rather extensive array of product offered by Tannoy.

APG will carry a core range of products which will be stocked locally in sufficient quantity to satisfy the requirements of most projects immediately. The remainder of the product range will be ordered in as required. The core range of products includes the CVS and CMS in-ceiling range, the Di surface mount range, the V series and Power V cabinets, a selection of product from the VNET range, TA series amplifiers, as well as

3 models of passive subwoofer and 1 active model. Products such as the large format VQ series are highly customisable, and by nature large and weighty. Thus to air-freight these items would not be economical, so they will travel by sea. QFLEX models are available on shorter turnaround times.

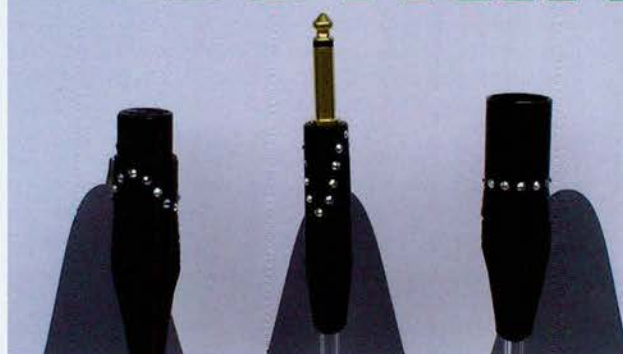
Following his presentation Richard handed over to APG's Nik Buchanan who ran through the features of the core range of products, all of which were set up and running. The audience was given the opportunity to listen to each speaker, and a couple of A/B comparisons were performed with other manufacturer's products. At the conclusion of the presentation questions were invited along with any music requests on any of the displayed product.

It's noteworthy that assembling such a demonstration (one where everything actually runs) takes a lot of time and effort, and shipping it around the country is no small matter either. This is evidence of APG's commitment to driving the Tannoy product further in the Australian and New Zealand markets.

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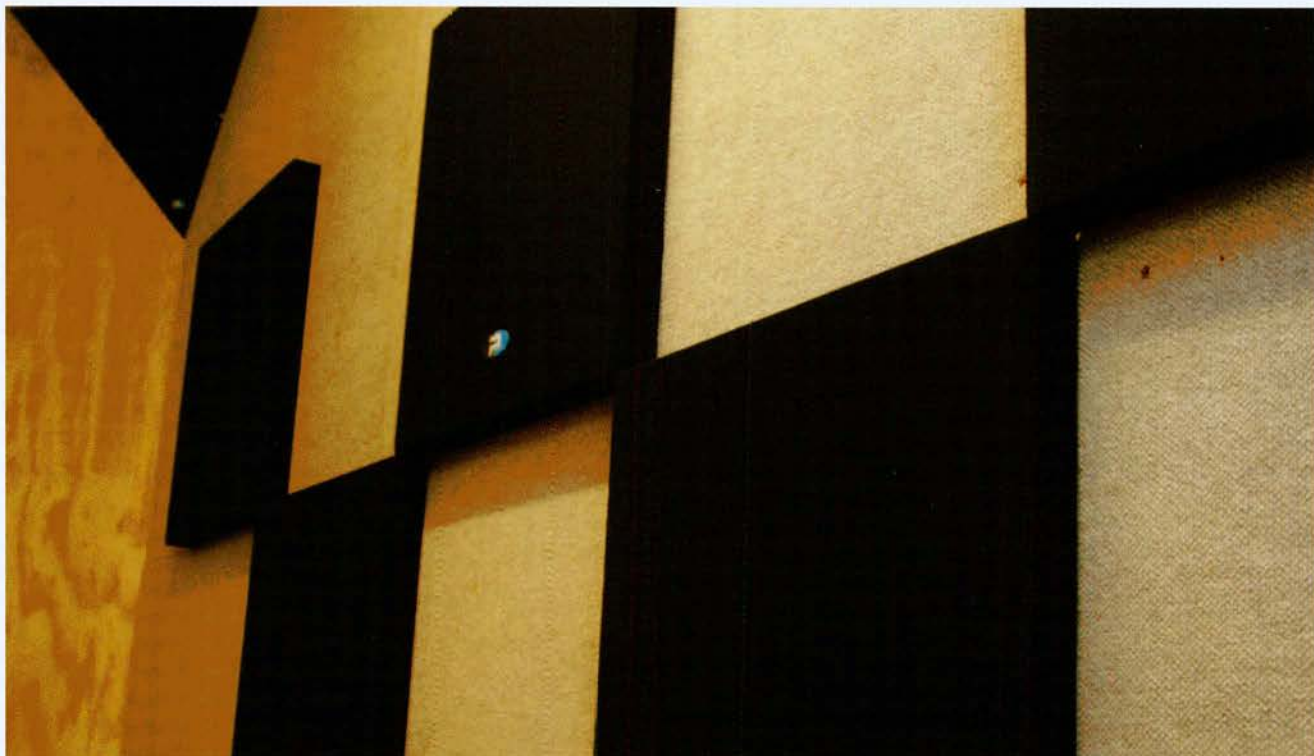
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PRIMACOUSTIC ACOUSTIC SOLUTIONS EXPANDS

Amber Technology have recently toured dealers around the region to update on the Primacoustic line of acoustic solutions.

"One of our big approaches is you can do it yourself", Jay Porter from Primacoustic says. "We have a room calculations spreadsheet to determine the amount of material required based on the surface area of room. You – the end user – can go on our website, have a look at the charts, and figure out how much material you need."

"Acoustics are completely subjective – everyone's idea of perfect is different. More life, less absorption, what do you want? Start putting things in. We have a little room kit called London for small rooms or you go with more. Make your own mind up".

"Acousticians are opinionated, but it should be up to the person using the room to make up their mind about how the room should sound, rather than have them tell you what you want."

PUT TO THE TEST

The CX campus has a sound stage that has intentionally tricky acoustics. All the better for realistic training, we say! Alongside is our studio control room where TV and audio funnel together. Through double glass is a smaller studio space that was formerly our music recording studio.



Jay Porter in our studio before work started.

When the music recording studio was pulled out, all its acoustic treatments went as well, so the space was a little live and slappy. The only work we could do in there was close mic'd voice to camera. Using a shotgun mic brought the room acoustics clearly into the project, and it didn't sound professional.

The art and science of room acoustics have become enmeshed with black science

concepts and difficult theory. That's why a consultant is usually engaged to advise on finishes.

WHY NOT FOAM?

Jay Porter from Primacoustic says the firm was created in Canada as an arm of Radial. Radial Engineering manufactures professional audio signal routing and recording interconnect gear, including



Chris Royal installing primacoustic.

some excellent DI's (direct boxes).

"Originally we focused on the home studio acoustic foam market, back when the home studio took off. Some years ago we started to transition away from foam to higher quality professional grade glass wool product".

"We got out of foam because it is a low

density material that is not an effective absorber at all frequencies. Then there is the fire rating - not much foam product is fire rated, but fiber has a class 1 fire rating."

"Because it has a higher density it is a more effective absorber - but initially it was a custom solution, cutting sheets of fiberglass to size and wrapping them in

fabric. They are encapsulated in micromesh so you can handle them. But we needed a mass production approach to get nearer to the price range of foam."

"We ended with our Broadway series of fiber panels. We have bass traps, diffusers, cloud systems, a whole range of acoustic materials. We have kind of the 'Ikea' approach, ship it all flat, and you assemble your system yourself."

OUR STUDIO

Primacoustic have a calculator, where you plug in the dimensions and the finishes of your room. It gives you a shopping list of panels required. Then you or an installer go to work.

The panels come in black, beige or grey which apparently suit 90% of all décor. If required you can recover panels following instructions supplied. Some restaurants and home theatres have elaborate fabric designs. Some even print photos onto the fabric, so the acoustic panels appear to have another purpose.

No such problem for us, Chris Royal and Filip Saelen from Amber came along with a power screwdriver, some Primeacoustic fixing strips, and before lunchtime the studio sounded totally proper.

WHAT WE USED:

Control Cubes, 24" x 24". 2" thick (sorry about the metrics, crew) Qty 12. \$989 retail.

Broadband Panels, 24" x 48". 1" thick. Box of 6: \$689.

Tri-Corner Bass Trap, 24" equilateral triangle. Qty 4. \$199 pair.

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TRAVELLER

AN OCCASIONAL TRAVEL STORY

Julius went North recently. Here are some random entertainment industry musings



80's pop sensation Gino Vannelli.

V Australia does have a big future. My 'Rockstar Experience' (as they call it) ranked with the better business class, lie flat beds and pyjamas jived with great food and wine. The space cadet crew seem impossibly young. They stop in Long Beach for 50 hours layover.

"What did you do last time?" I asked an impossibly attractive brunette while standing at the bar on the 777-300ER. "Basically drank myself close to death. Didn't go anywhere". If I weren't married she could have been wife # 4. I know why Branson does it now.

Front end of the plane sets the tone for me. I rejected economy class just after we started the magazine and I almost died of sleep deprivation on overnight trips. The last straw was when a fat mama-san with halitosis fell asleep with her head on my shoulder in seat 72B. Trapped and gassed almost to death by an ugly woman. What a way to go.

These days the journey happens less because it costs so much more. This trip ended in Toronto to see some shows.

First night in and a strange revival gig at Hughs Room for a Wednesday night full house retro sometime 70's band 'Strawbs'. Think 'intimate' with 300 yelling older persons.

Poor Hugh didn't make it, having passed away apparently, but the venue soldiers on. Nice place that is probably Toronto's equivalent to Sydney's Basement. CX paid \$20 to get in, and all things equal it was a real deal. But we get better sound back home – a very basic speaker system let down a big console and plenty of outboard. I still don't 'get' Strawbs. Very strange vibe. I did get Molson, though. Plenty of it.

Next night I was down at Niagara Falls about 2 hours south, in the Bear's Den Theatre at the Seneca Casino. This casino is named after the tribe who own it. You could see the occasional older guy with super long hair hanging around – they would be the elders. A walk to the falls in

beautiful sunshine made it a nice side trip.

I was there to see Gino Vannelli, pop identity of the 80's but mostly revered for his pioneering synth sounds and amazing production on the Powerful People album of 1974. It was one of the musical crossroads for me when I first heard it.

LIVE

The Strawbs



Photo by Joelle

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Gino and I go right back.

Bears Den is a very nice and new 450 seat raked theatre with four drops of EAW line array and a Pro 6 Midas console. It was a shame that the first song leapt out of the PA at about 103db(A). There was nowhere left to go for the mix, which at times hit the limiters. Memo to sound guy: start lower and ease into it. Gino Vanelli had a smoking hot four piece band with three brassholes up the back. For a guy older than me he looked a lot younger.

Great voice, great material, great gig!

Next night I saw Rock of Ages in Toronto, and stayed in the Westin Harbour Castle hotel overlooking Lake Ontario. I had a corner suite on a top floor, and the sunny view that afternoon dragged me in. Loved Toronto!

Then the very long flight home, Air Canada's 767s have their flat bed pod arrangement where you are cocooned very privately. That morning flight delivered me at lunchtime in LA, and my VA flight to Sydney wasn't until later that night.

I picked up a car from Midway Car Rental and drove down to Disneyland to meet some people. Midway are located inside the Radisson Hotel at the airport. All LA car rentals require you catch a shuttle from the airport. I highly recommend Midway as they are small, cheap and friendly. Last time I stood for an hour at the Hertz depot, which is now on my avoid list. Memo: always buy maximum car insurance cover in the USA, or risk your house in a lawsuit if you have a crash.

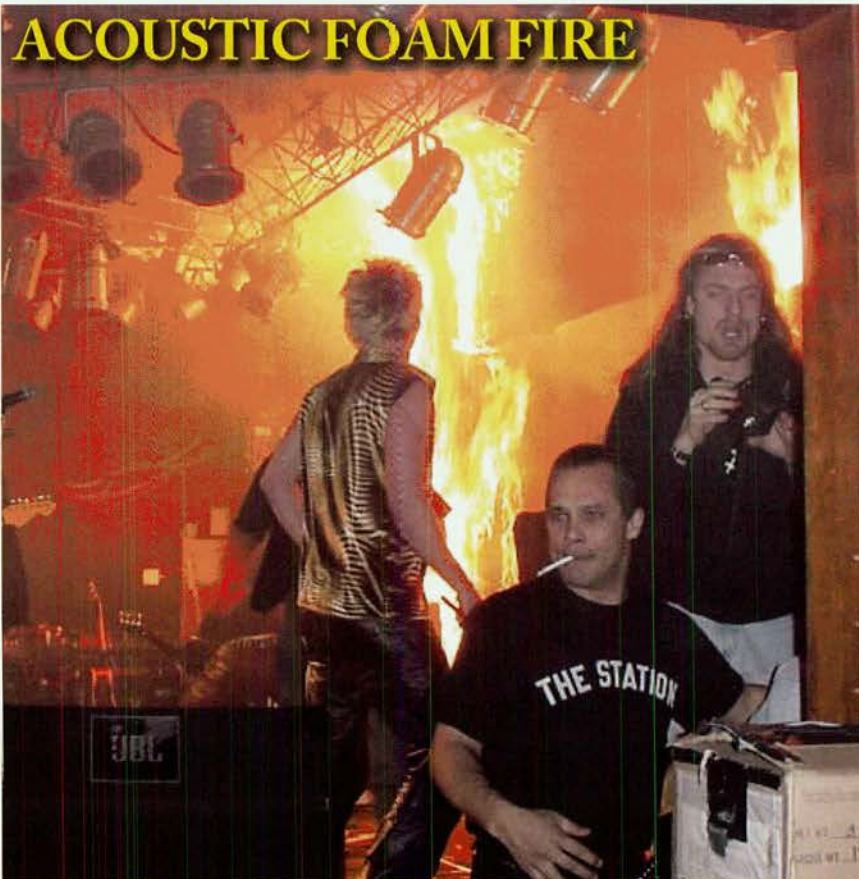
Additional information: the USA doesn't appear to take speeding seriously, so drive with the traffic at 130km/h on the

freeway or die by going at the legal limit and getting rear-ended by a truck.

Finally I stretched out on VA, glass of Nappa Valley wine or five, steak dinner and movies under my doona. Friendly young and slightly strange crew bustling

about, the cabin lights dimmed then little LEDs lit up across the roof like little stars in the galaxy.

As I drifted off to sleep in 1D, the crew packed up the bar at the back of the cabin. Life is too short to waste, isn't it? **CX**



Worst example of acoustic foam on fire: this is the Station Nightclub fire, 40 seconds in. Within minutes, over 100 people died. Pic by Daniel R. Davidson

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FINAL ODYSSEY FOR TOP AUSTRALIAN BAND

3 months on the road. Sellout. Massive production values!

By JULIUS GRAFTON

Sunsets was a sold out swan song for Powderfinger who seemed to be part of the music industry furniture in Australia. The tour demonstrated just how powerful the band have become. And now they are no more.

Their tour was beyond outstandingly successful. 22 towns and three months

on the road. That makes it the largest home-grown tour since Whispering Jack did his farewell. Powderfinger grew out of Brisbane, and with a combination of good management and skill managed to build a life long legacy for the members.

Along the way they have provided a lot of employment for local crews, and distilled great production values that others aspire to.

"They started with us back when I

had the JBL modular PA", says audio supplier Bruce Johnston. "They've been with us a very long time", echoes lighting supplier Tony Davies from Chameleon.

TDC supplied vision, and ATS did the national trucking.

CX visited the tour in its last weeks, and spoke to the punter facing crew about their gigs.



VISUALS

The audience get a face full of visuals with the first song, 'Love Your Way' - a big rock song. The stage is set with a half circle LED screen at the rear, with three semi loads of Chameleon lights everywhere else.

Rachael Johnston was the video and graphics operator. She has been a long time Powderfinger collaborator. In America or Europe she would probably carry a stronger job title, like Vision Director.

"Working with Powderfinger was an absolute dream job - Paul Piticco, the band's manager, is brilliant and not scared to spend money on good production."

The tour relied on TDC (Technical Direction Company) for vision equipment.

"I work with LD Jeff Pavey quite a lot. We have a pretty great working relationship, and most of the time we manage to merge the video and lighting beautifully. Jeff taught me a lot about structuring shows and getting depth and perspective on stage. Jeff doesn't have an ego - he is open to suggestions and ideas - which makes the process enjoyable."

"I enjoy working with lighting directors instead of against them. For a long time, it seemed lighting guys really hated video - now there are LDs who operate video as well. In my opinion LDs have enough to worry about without operating video, I think there are very few LDs who can operate video as well as lights and pull it off successfully. My objective at all events is to make the show work as a whole -

this means a compromise between the lighting and video. I work hard to match video with the lights, music and event".

SOUND

The tour started like all other Powderfinger tours, with a PA system from Johnston Audio Services. Along the way, JAS merged with Jands Production Services and became JPJ Audio.

d&b Audiotechnik's J Series line array is the current 'hot' system around the world, along with the new L-Acoustics K1 stadium array. As it happens, JAS have the J as their flagship system, while Jands have the K as theirs. Powderfinger took the J array out for this tour.

"The J line is an amazing PA", says Powderfinger sound engineer Mark McElligott. "It's very natural sounding, and great for rock and roll. It's really converted me to line arrays. I would love to take out an old Nexo Alpha rig, with hundreds of boxes. But you have to use line arrays these days!"

"The B2 subs have a beautiful note, so powerful it's amazing. We only have 9 a side! Last tour we ran 24 subs - here we run 18 and it's louder".

For the shows at Sydney's Acer Arena, an Adamson system was also used, with four drops surrounding a smaller circular B stage in the middle of the floor.

"Most of the time we've just used the main PA (for the B stage) and most of the time there's been a huge slap back off the main system. It's been weird, but they are used to it - the monitors are underneath and they're quite loud so they

don't hear it too much", says Mark.

The mix position is a flashback to the 1990's, with a monster XL4 analogue console and 16 channel side car. Then there are a line of five foot tall outboard racks crammed full.

"I used the Digico D5 (digital console) on earlier tours, but it put me off. I keep coming back to analogue, which is so intuitive. You reach out, quickly do something. It's more fun and exciting moving faders around. More tactile".

"I mix at about 105db (A weighted). Funny enough the d&b J Series sounds a lot louder at 105 than other PA's. It must be the presence or something", Mark concludes.

OTHER CREW

Stage monitors were engineered by Stephen Brown.

Dugald McAndrew is the drum tech and also stage manager while Christopher Hough and Casey Hilliard were backline techs. Denis Sheahan was tour manager, and Bailey Holloway the production manager. Jeff Gray did security, Cathy James assisted with production and Kim McCarthy was the tour accountant.

The production suppliers each had three or four technicians on the road - Pat Clarke, L'Argent Wilson, Matt Logan and Scott Black for Chameleon; Mark Crawley, Craig Gordon and Connor Dunne for JAS/Jands; and Timothy Jones, Peter Gibbs and Stevan James for TDC (Technical Direction Company).



AUDIO MASTER CHEF IN THE ANALOGUE KITCHEN

"I like quality valve gear, so Avalons over vocals are a must-have", says Mark McElligott. He's taking us on a tour of his outboard racks – two five foot high racks on the right side of an XL-4 console. This is the kind of setup we saw through the 1990's, almost swept away now by digital consoles with onboard effects.

Powerfinger's live sound has almost always been engineered by Mark, a virtual extra member of the band who has an audio production style developed around the band's music.

Where many engineers strip back and concentrate on the source, Mark has always pushed the boundaries very hard. It led to a live mix that characterised the band. High production values have always been a Powderfinger staple.

"The vocals run straight from the core into the input of the Avalons, then from the output into the insert return point on the desk. This is so it is as uncoloured as possible. You could run them into the line input, but then you're running into a line amplifier. Wherever Bernard Fanning (lead singer) sings, there's an Avalon.

"Two Distressors have a feed of the whole kit, from a stereo auxiliary output which is a mix of the whole kit. It goes straight in, and is compressed at a 10:1 ratio. They are fed back onto two channels of the XL4 as a side chain. It fattens the kit right up. I've got a Distressor on the bass mic as well, we're running three bass lines, we have a DI and two SM 58's, one on each of the 8x10 boxes. The other bass lines go through a subgroup, and go into a Summit. It's set for fast attack, quite slow release with a lot of gain reduction.

SUB HARMONICS

"Bass also runs through a dbx sub harmonic synthesizer, to get that nice octave below bottom E. It's like an effect, run off an aux and run back through a return channel. It gives extra depth to the bass without being boomy, right down to 30hz.

"On the guitars are dbx valve compressors. There are 2 mics on each of the guitars, run hard left and right in a stereo formation. Darren's got two different amps, a Vox AC 30 and a Hiwatt setup – they don't sound that different but he runs a stereo effects pod. Ian runs two Orange combos. They run stereo linked through the compressors. I like the drive feature – if you're losing a bit of harmonic content because you're compressing hard you can just turn up the drive.

"Then Bernard's acoustic guitar is on a Distressor with a 10:1 ratio. Darren's acoustic 12 string is compressed on a dbx 160A – it works quite well on it. A second dbx 160A is for kick drum, and another Distressor for snare drum.

"All the compressors are over subgroups. Where I have two kick drum channels I have one compressor, because it's over the kick subgroup. Same with the snare group, the bass group. The backing vocal group goes through a dbx as well.

"The last of the compression is the keys group – there are 10 channels of keyboards, they run through a pair of Blue dbxs, which I don't particularly like, but for keys it sounds quite nice. They're quite finicky where you set them, they can compress too hard and grab a bit quick with anything that's a bit percussive or with vocals. But with keys the longer

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notes mean they sit quite nice without me fiddling with it all the time.

"I have the usual bunch of noise gates. That's about it for inserts.

EFFECTS TIME!

"Effects wise, there's the Lexicon 480 L! Oh yeah! I have it on Bernard's vocal and the second machine runs a sort of spreader sound over all the vocals and then blended back through the mix, to give a little pitch shift.

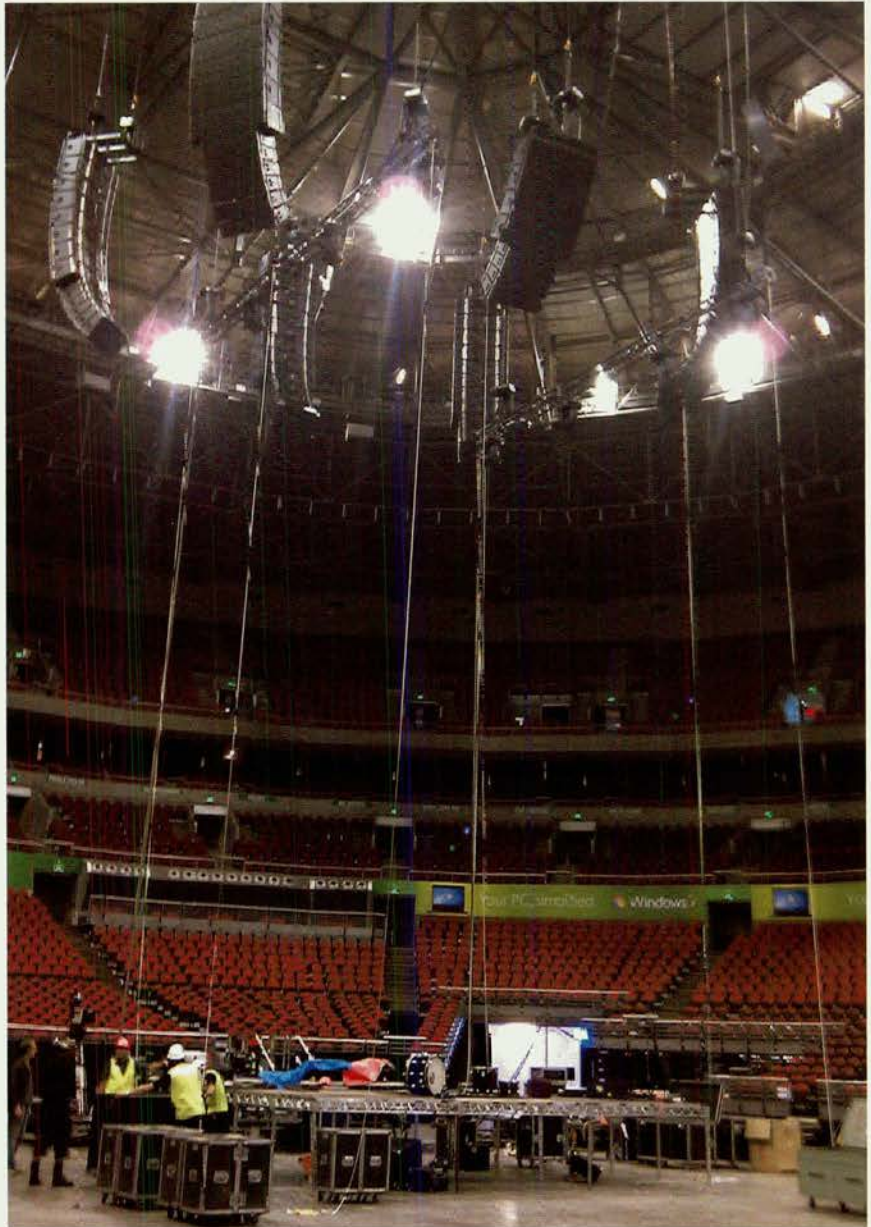
"Three Lexicon PCM 90 effectors do various things – one over guitars, as a stock standard reverb. One is on drums, and the other a really big keyboard reverb. It has one (channel) at 3.9 and one at 6.8 seconds, that gives a really lush effect over the keys, which puts them back in the mix so they don't fight the guitars.

"I have an old Yamaha SPX that runs a couple of effects during the show, generally an up and down pitch shift, a phaser used on one song, a telephone voice filter for one momentary effect on 'Day You Come'. I dial up a little distortion on Bernard when they do 'Like A Dog' on the B stage.

"The Eventide Harmonizer doesn't do too much, it sits there for one song and creates an endless looping reverb set to about 900 milliseconds (0.9 of one second). He sings a note which I try to capture, then I hit the repeat button and it keeps cycling endlessly. It's Bernard holding one note, and I fade it in and out as needed.

"I have a 2290 delay line, which sounds the nicest and does all the long delays, and a TC for short delays and backing vocals."

* See the effects racks and Mark on CX-TV at www.juliusmedia.com.



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LD Jeff Pavey at the desk.



Video and graphics operator Rachael Johnston.

RACHAEL JOHNSTON VIDEO TECH

While looking at Powderfinger, we struck up a dialogue with Rachael Johnston who is at the emerging coalface of visual design, vision, or stage imagery. Call it what you will – she controls the images, image and effects on the LED screen on stage, so she has the most power in moving the visuals that affect an audience.

“I work with my creative partner Ken Weston at a number of festivals

and events, including Big Day Out, Splendour in the Grass, Homebake, Parklife, Stereosonic, and Future Music Festival.

“We basically liaise between the production managers, promoters, video supply companies and the acts to make sure the event gets the best possible video show on the day. We have unique skills in that we both have a film based background, I have a film and TV degree, Ken is a specialised projectionist. We both create and direct projects and visuals, we have a love of music and a

knack of being able to adapt to different situations and shows, and we have some technical knowledge of the vastness that is video world. We try to approach most events in a creative manner, including the way we cut and direct live camera. We work separately and together on different projects, and we’ve been doing this a long time.

“I used to tour with a band all round Australia, jiggling projectors, screens and mixing visuals in tiny dingy venues.

VJ AND VISION

“At Big Day Out, I work with David Hawthorne (BDO Video Director) and Ben Suthers (Boiler room Controller) to design and create content for Big Day Out, as well as directing/switching cameras in the Boiler Room, and mixing visuals to the screens. We often hire local VJs in each city, so I liaise between TDC and any touring or local VJ to make sure all their touring equipment is compatible with TDC’s equipment.

“If a touring act does not have their own LD or VJs, we will either be given content to trigger live for them, or we might work with them in pre production to come up with something that they like. If we are left to our own devices, we like to research the act, look at their artwork, look at what’s happening in their live shows previously, and design something for their show that we hope they like.

“For example, at Parklife last year we



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Vision control and monitoring.



The effected camera image.

worked with A-Trak (headliner) and his team to come up with a complete visual show for him. Recently I worked with Dandy Warhols LD to come up with a visual set specifically cued and tailored to their show. He wanted to use vintage film looks, so I found archived vintage film stock, listened to their music and cut it together to come up with something he liked.

DESIGN

"We source visuals from many places, we either create it ourselves, storyboard it and sub contract someone to create it, or we have a vast library of stock footage to edit from. It really depends on what the situation requires - sometimes I don't have the skills or time to create a particular idea, but I know what I want

and will find someone who can create it, this means I am not putting any limitations on the show just for the sake of my ego.

"The best thing I have seen in a long time is the Nine Inch Nails show - the interactive video technology is breath taking, from what I know it was a combined effort, between Trent Reznor, Rob Sheridan (NIN art director), Roy Bennet (LD) and industrial tech company, Moment Factory.

"You can't go past Martin Phillips who helped design the Daft Punk Pyramid show, I also love Chemical Brothers show - designed by video director Adam Smith and LD Matthew Button. They just get it right - it's not done live, but it's really amazing.

"I also look to the following for



Old school audio effects...



...and analogue inserts.



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inspiration.. Radiohead with Andi Watson, U2 with Anton Corbijn and Depeche Mode with Anton Corbijn and Blue Leach.

CONCEPTS 'BORROWED'

"The Etienne de Crezy video mapping cube was quite spectacular, designed by a collective called Exyzt.

"Interesting side story is that MTV asked Exyzt to create a similar look for the band The Killers, who were appearing on some award show. Exyzt declined, citing the concept belonged to Etienne De Crezy, so MTV just ripped the concept and did it themselves anyway!

"In terms of "visionists" and "illusionists" Chris Cunningham (that famous Aphex Twin video) and Michel Gondry are pure genius.

"I don't really like timecoded video. Empire of the Sun's live video show is spectacular - but it's a case of press play at the beginning of the show - there is no live interaction.

"Sometimes we take a direct audio feed from the act and use the bass line to generate an effect. In the last year we have been working with designed camera effects - taking camera feeds directly into a computer and adding real time effects. Much more serious effects than are available on standard video mixers.

"I have used this during the Powderfinger - Sunsets tour. There is an issue with lag, but if you can disguise this somewhat, it does work.

"We also work with a live illustrator sometimes - he draws an image which appears on the screen in real time. For Goldfrapp recently, we used live action camera and our illustrator drew borders and images directly over the top of the camera image. It's very interactive, and people really seem to love the concept - we often find people watching our illustrator instead of the act!"



"Your eyes won't believe your ears!"

Lou Mannarin

Live Engineer for the New York Philharmonic Orchestra



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HOW A GLAMOROUS MOVIE STAR HELPED MAKE WIRELESS DMX POSSIBLE

By RICHARD CADENA

Suppose that you are a high ranking naval officer just before World War II. Germany has successfully controlled the seas by using superior numbers of submarines, Winston Churchill is getting very nervous about it, and your country is beginning to feel threatened. Along comes someone with an idea for some new technology that could provide an edge in the undeclared war to keep shipping lanes open, thus insuring the survival of the Allied countries. The only problem is that the idea comes from a glamorous Hollywood actress and an avant-garde concert pianist and composer. To make matters worse, this new technology relies on a punched paper roll similar to that found in a player piano.

This isn't a fictitious Hollywood script but a real life scenario. Hedy Lamarr was a glamorous Hollywood movie star in the 1930s and '40s and her neighbor was George Antheil. Lamarr learned that, in addition to being a film

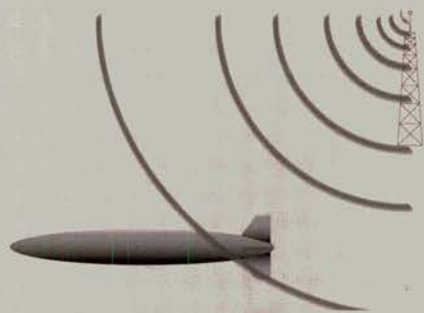
composer, Antheil also wrote an advice column to the lovelorn in *Esquire* magazine and had a syndicated column in the *Chicago Sun* about endocrinology - the study of human glands. She sought his advice about enlarging her breasts, and as you might expect, talk turned from breast enhancement to technological advancement. One thing led to another, and before you could say "endocrinology" they were discussing how they could control torpedoes by radio in a manner that would make it difficult for the enemy to detect and defeat.

What they came up with was a version of frequency hopping whereby the frequency of the control signal would constantly change to avoid detection. This would lessen the impact of interference and lessen the chance of communications being intercepted and jammed.

Today, this technology is commonly used in cordless telephones, WiFi hot spots, and wireless DMX transmitters and receivers. It has been improved

significantly over the years to take advantage of increasingly powerful hardware and software, and in the process it has become much more robust. As a result, it is being used much more for wireless DMX transmission and reception. To understand how wireless DMX technology works it helps to understand a little bit about frequency hopping and radio communication.

Imagine that, in addition to your job as a naval officer, you also moonlight as a mad scientist. One of your first mad projects is to build a Jacob's ladder, which is a high voltage arc gap generator that makes an arc rise between two diverging lengths of bare copper wire, because no self-respecting mad scientist would be without one. When you first turn it on you notice that the arc discharge produces a large amount of electromagnetic radiation, and you think that is s-o-o-o-o cool. So you decide to try to harness its power and use it to communicate a message to the entire world.



If you could somehow connect your voice to the flow of the current in the high voltage generator you think you can make the electromagnetic radiation pulse with the voice signal, thus radiating an electromagnetic version of your message. You have no problem converting your voice to an electronic signal with a microphone, so that part is easy. After much trial and error, you finally succeed in connecting the output of the microphone to the voltage generator, at which point you have an uncontrollable desire to toss your head back, fling your arms towards the heavens and exclaim, "It's alive!" But upon further examination, you decide that such celebration is unwarranted because the signal can only travel a very limited distance. In order to be a world class mad scientist it is required to broadcast this message a respectable distance. So back to the drawing board you go.

What you eventually discover is that your voice has a limited range of frequencies. If you try really hard to deepen your voice you might be able to get it down into the hundreds of hertz and if you inhale helium gas - which, by the way, is very unbecoming a mad scientist - then you might be able to squeak out tens of thousands of hertz. But through a series of mad experiments you discover that the higher the frequency the farther the travel of the electromagnetic radiation. You reason that if tens of thousands of hertz can travel a very limited distance then a few million hertz should carry it a very respectable distance. So you decide to use the higher frequency as the "carrier" signal. Now all you have to do is to figure out how to make the message ride on top of that high frequency carrier signal.

Late one night in the laboratory, you're feeling pretty good because there is a full moon and you've been inspired by reading Mary Shelley. You're in the zone and almost by accident you realize that if you changed the frequency of the carrier signal at the same rate as the frequency of your voice that you can encode your message onto the carrier signal. Then all you have to do is to build a receiver that strips out the carrier signal and you will be left with the original voice message. For a world class mad scientist like yourself it was a no-brainer. You figured out how to "modulate" the frequency of the carrier signal, which is called "frequency modulation" or FM

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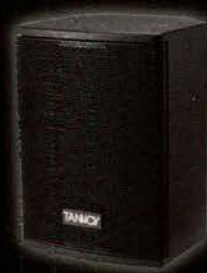
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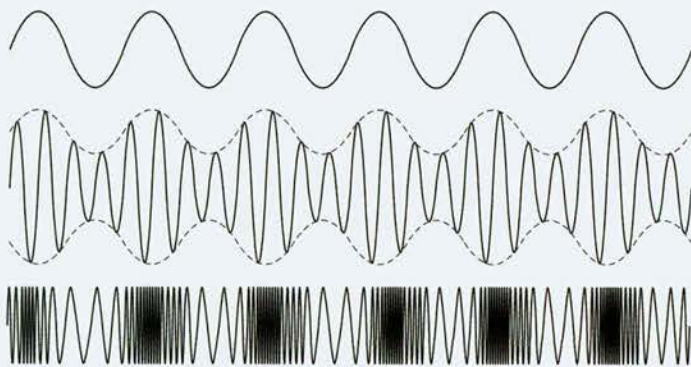


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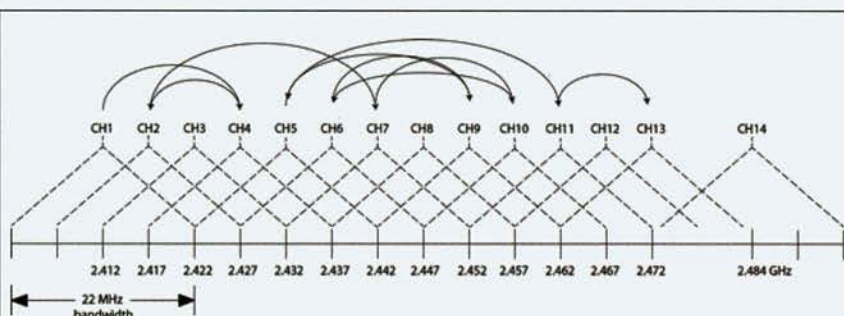
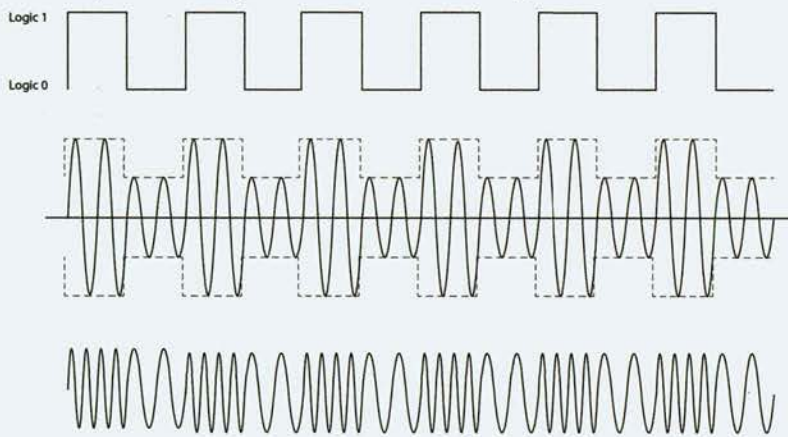
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Above is a sine wave (analogue) shown first amplitude, and then frequency, modulated. Below is a square wave (digital) modulated in the same way.



Frequency-hopping spread spectrum (FHSS) changes carrier frequency many times each second.

for short. Years later a rock band named Steely Dan would write a song about it.

In the process you also learn that you can modulate the voltage level, or amplitude, while keeping the frequency constant. That's what is known as "amplitude modulation" or AM. Alternatively, you can modulate the phase or the starting time of the carrier signal, which is "phase modulation." Radio communications typically use one of these modulation techniques, except instead of using a Jacob's ladder, a very tall and powerful antenna works too.

Now when you take off your mad scientist hat and put on your naval officer hat you have the problem that when you try to communicate with your people using the radio, the enemy has just as much access to the radio waves as you

do. So they can easily tune in and pick up your broadcast, thus spoiling the surprise you worked so hard to spring on them. And if that surprise happens to be a radio guided torpedo heading for their U-boat then all they have to do is to send their own radio broadcast at the same carrier frequency in order to jam the transmission. What you end up with is a coyote-roadrunner cartoon scene where the torpedo turns around and chases the coyote. There has to be a better way.

One better way is to change the carrier frequency several times during the broadcast to throw off anyone who might be trying to listen in. That's what Lamarr and Antheil figured out and eventually patented in 1942. Their scheme was to change the carrier frequency periodically and sync the receiver at the same time

using long rolls of paper with rows of perforations which would change the tuning frequency. They proposed using 88 rows of perforations, just like a player piano, which would allow them to make use of 88 different carrier frequencies. They would synchronize the changes in the carrier frequency with the changes in the tuning frequency by using "calibrated constant-speed spring motors, such as are employed for driving clocks and chronometers." And to insure further accuracy they suggested the use of a synchronizing pulse which would be transmitted periodically to signal the receiver when to start the clock.

The use of frequency hopping would effectively spread the carrier signal among a wider spectrum of electromagnetic radiation. This a technique known as frequency-hopping spread spectrum (FHSS) transmission. It differs from fixed-frequency transmission in that the transmitter and receiver are not set to a single frequency, as is sometimes the case with wireless microphones. Instead, the carrier signal ranges from 2.4 GHz to 2.4835 GHz, which is known as the ISM band (industrial, scientific, and medical), or from 5.47 GHz to 5.725 GHz, which is known as the U-NII band (unlicensed national information infrastructure).

The bandwidth of transmission is less than 1 MHz, so several hops can be made inside each range of frequencies. Depending on the manufacturer, the number of hops can vary from tens to thousands of hops each second. The maximum refresh rate of DMX is 43 Hz, which means that most wireless DMX systems are easily capable of transmitting the maximum number of data packets with plenty of room to spare. If there is any loss of data or data corruption, the data will be refreshed quickly enough that the error will most likely go undetected by the user.

If any of the frequencies in the transmission band have interference, then some FHSS technologies will adapt by hopping over those frequencies. This is a technique known as adaptive frequency-hopping. This helps improve the reliability of transmission. For example, if someone in the production office decides to pop some popcorn in the microwave oven while you're trying to control the lighting system, then the wireless transmitter will detect interference at a certain frequency and hop over that frequency in the course of sending a data transmission.

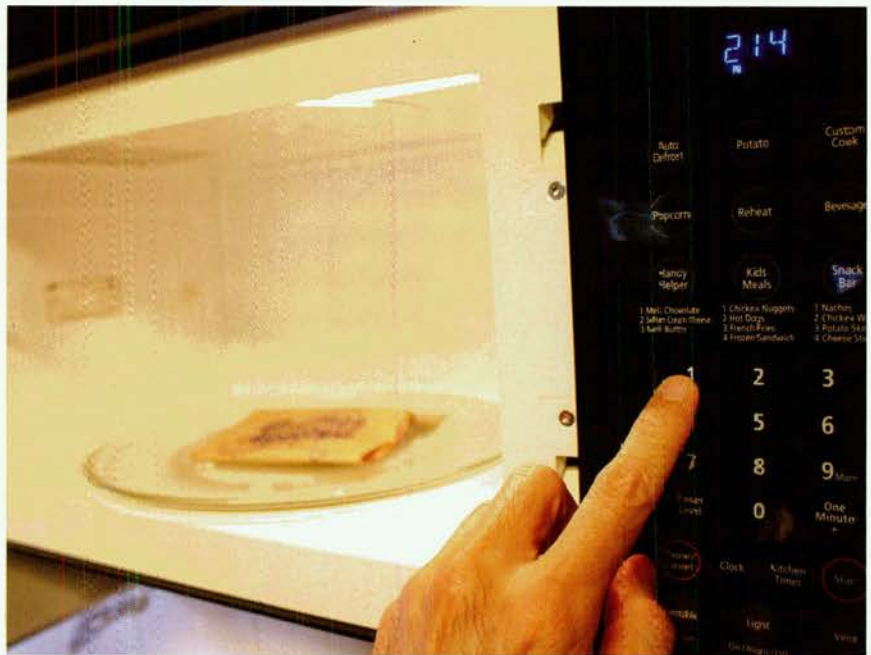
Microwave ovens, cordless telephones, and Bluetooth devices all operate in the ISM band, which can potentially cause interference. For that reason, many of

the new wireless DMX devices operate in both the 2.4 GHz and the 5 GHz bands. When you see the term “dual band,” that’s what it means.

FHSS offers a variety of advantages over fixed frequency radio transmission. It helps make it more immune to interference by spreading the energy over a range of frequencies so that any narrowband interference has less of an impact on the entire transmission signal. It also allows a transmission to coexist with other devices in the same transmission band and still operate effectively.

Wireless DMX transmission has been around for several years and it keeps getting better by taking advantage of improvements in wireless technology. In the last five years it has become more reliable, easier to implement, and less nerve-racking than ever before. In my experience, those who argue that wireless DMX is unreliable are typically reflecting on a bad experience they had with it several years ago. If you give the current technology a try, chances are you will not be disappointed.

These advances owe a debt of gratitude to a number of people who have contributed to the technology dating back to the early 20th century, including Hedy



Microwave ovens are a great way to cook up RF interference.

Lamarr and George Antheil. Lamarr and Antheil were never successful in selling their idea to the Navy. The mad scientist in the Navy officer who reviewed the patent might have been impressed with the resourcefulness of the duo but the officer in him likely choked on the idea of using a low tech solution in their high

tech, high dollar submarines. FHSS technology was eventually used by the Navy but not until the Cuban missile crisis in 1962, three years or so after the Lamarr-Antheil patent had expired.

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COMMONWEALTH GAMES LIVE AUDIO

Australia's Norwest delivers despite tough conditions

The Commonwealth Games Opening & Closing Ceremonies in Delhi turned out to be a bit of a slap in the face to the media who were expecting an event of epic failure. Despite inconsistent power, organisation issues, rampant Dengue fever, and alleged terrorist threats, the ceremonies were a resounding success.

For audio production company Norwest Productions, it was all par for the course. Many bottles of 'squirters' (disinfectant hand wash), mosquito repellent, sunscreen and chicken wire were at the top of the 'must have' list of gear that they used to provide audio for the ceremonies. Oh, and not forgetting some audio gear.

Norwest first came to international attention a decade ago when they supplied the audio requirements for the Sydney Olympic Games Ceremonies. Since then they have earned a good reputation by successfully tackling the audio requirements of large scale stadium

shows racking up successful events such as two of the three Summer Olympics, both Commonwealth Games and the Asian Games in Doha. This year alone they have done the Vancouver Winter Olympics, Singapore Youth Olympics and now the Commonwealth Games in Delhi.

Norwest has a distinct advantage over competitors in that they own all the specialist gear to do these projects, particularly in the spectrum (wireless) area, and for large scale events they are experts at signal distribution and networking capabilities.

Just as importantly, Norwest has also invested in 'human technique' formulating many procedures that ensure smooth sailing. For this job the Norwest crew had to overcome so many hurdles at the Delhi Games they deserved a medal of their own!

Norwest teamed with a regional, Mumbai-based sound production company, Sound.com, to supply the

entire audio package and crew. Most of the Norwest crew came straight to Delhi from the Singapore Youth Olympics.

HURDLES

"The main hurdles in Delhi were organisational resulting in difficulty getting things done or decided by the Organising Committee in a timely manner," remarked Chris Kennedy, managing director of Norwest. "This also applied to payments which were slow and a cause for tension. The rest was surprisingly benign once we accepted that many things were not going to resemble how it is done in a first world country!"

Upon arrival, Norwest's project manager Andrew Rodd discovered the renovated Jawaharlal Nehru stadium was nowhere near completion having no main power, no control booths or spaces, and the field of play was having serious water drainage issues. Consequently bump in was delayed by a whole two weeks on what was already a fairly tight schedule.

Ten days out from the opening two of Sound.com's key personnel, including their network engineer for the amplifiers, were struck down with Dengue fever and Norwest had to hastily fly extra crew members out from Australia.

"The paperwork involved in getting someone into India hastily is expensive and frustrating as India is an incredibly bureaucratic nation," said Andrew. "In fact getting anything done was a nightmare from the bureaucratic point of view. Getting into the stadium every day was a continual problem as they had four different types of security none of which knew what the others were doing, and their rules changed daily. One day we weren't allowed access to the field of play and were bailed up by soldiers with rifles."

Power proved to be an ongoing problem for all of the technical crews at the venue. One night the generators were abruptly switched off with no warning and anything that wasn't protected suffered. Consequently the lighting crew lost 170 lighting fixtures. According to Andrew, all of the difficulties brought the contractors closer together resulting in great camaraderie.

"We had to look after ourselves as no one else there was!" he said. "There was a lot of 'one hand not talking to the other' and that made it a very difficult show."



Ian Shapcott and Warren D'Souza at the FOH mix position

DESIGN

Scott Willsallen of Auditoria was contracted to design and manage the audio system for both the opening and closing ceremonies. Scott's design utilised over 200 loudspeakers, a ten node Optocore digital audio network, over 100 power amplifiers and a dual redundant digital audio mixing and control system. The design allowed for flexibility to meet the continuously changing requirements of both Ceremonies.

The ten node Optocore system picked up and delivered audio to and from seven locations around the field of play. The main FOH mix console, a 96 ch Yamaha PM1D system and main monitor console, a 96ch

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Warren D'Souza and Yusuf Shaikh with JBL Vertec ground array



Matt Whitehead, Andrew Rodd, Sunil Karanjikar, Josh Finlayson

Soundcraft Vi6 were both connected digitally to the Optocore network. The broadcaster had access to all inputs and some sub-mixes from the FOH console at the Optocore node provided to them.

Each Crown HD amplifier was connected via AES from the Optocore network. Optocore X6 converters were used throughout the system which meant that an input would be converted to digital once mixed and sent back to the processors in the Crown HD amps all in the digital realm. Audio replay was also provided by Norwest in the form of a matching pair of Merging Technology Pyramix Mass Core DAWs that delivered all show audio to the Optocore network via Madi. In total around 2000m of fibre connected all Optocore nodes.

The back up system consisted of identical mixing systems - another Yamaha PM1D for FOH and Soundcraft Vi6 for monitors - and were fed the same inputs via analogue. Nearly 2700m of 25 pair cable, twelve XTA DS800s, 56 channels of Creative Audio line drive and around seventy-two isolation transformers made up the analogue network. The backup system fed all crown HD amps via analogue so that switching from one system to the other was achieved in a single button press.

A gigabit Ethernet network was used to control all 112 Crown amplifiers, Shure UHF-R series radio microphone receivers and to monitor remote UPS status as well as deliver internet, printing and server access among the crew. It was made up of eight HP 2610 and four HP 1700 switches. All amplifiers were monitored constantly via Harman's System Architect software.

"Harman were very helpful and delivered custom control pages that gave one page system overview and the all important main system / backup system change over button - by telling all amplifiers to use the digital or analogue input," commented Ian Cooper, System Engineer.

Twenty-five distributed JBL Vertec arrays lined the stadium whilst on the field of play, twenty-five JBL SRX712M speakers were used for the performers' monitor system. Thirty-two JBL CBT70J column speakers and JBL SRX718S subwoofers were used to ensure that athletes on the field could experience the event's sound. On the main stage, JBL VRX915M monitor wedges were utilized for musical performances.

WIRELESS

The radio mic setup consisted of four separate receiver locations, with up to six channels of RX at each, plus a fifth location at front of house running ten channels of receive. Each of the four field-of-play receiver positions was allocated tasks for different parts of the ceremonies.

"This gave us more localised RF coverage plus a good amount of redundancy, at the same time it allowed lower gain structures in these receivers, in turn making them more immune to external RF interference," explained Steve Caldwell, RF & Technical Manager.

"The Front of House receiver setup was designed to cover the entire field of play as a backup, and therefore had a much higher gain structure."

Shure was the brand of choice for all radio microphone transmitters and receivers. Custom Norwest-built antenna systems, preamplifiers, and distribution was used on the front of house receivers in order to get the performance required, and all antennas on the field of play were custom built weatherproof units. All receivers were controlled and monitored from the control rooms.

In-Ear Monitoring systems consisted of ten sends of Sennheiser IEM, combined and amplified through custom Norwest in-house amplification. High performance log-periodic antennas were used to broadcast to the field of play. Coverage of the IEM system was

flawless and included back of house and performer dressing rooms. All IEM system transmitter field strength was monitored from the control rooms.

"All spectrum management was done by me for both the opening and closing ceremonies, and no issues were experienced during the weeks of use," added Steve. "There was however, a moment of breath holding' when the Prime Minister of India Manmohan Singh's motorcade made use of an RF spectrum jammer, in order to prevent radio operated devices being triggered while the dignitaries were entering the building just moments before the Opening Ceremony. This had the effect of completely rendering useless all the two-way comms in the venue, the TETRA GSM communications, all our radio microphones, and most of our IEM sends. Luckily it was a relatively short lived exposure to this device, a rather old, but effective Israeli made Lymtech. The device made a return during the closing ceremony, for which we were well prepared, thanks to the warnings from a spectrum analyser."

TASTY

And the chicken wire? Well, that didn't have an audio function per se but rather a protective one. The Stadium had a very active population of rats, who shortly after the gear was deployed, developed a taste for the plastic covering on the fibre optic cables inside the node racks - especially the Node in the tunnel under the field of play. Four metres of chicken wire was used to wrap the rack containing the gear to prevent the entry of the rats.

"It went extraordinarily well on both nights with very little obvious going wrong and it all looking and sounding good," concluded Chris Kennedy. "It worked out amazingly well in the circumstances and is another 'feather in the cap' for Norwest and its very capable and experienced 'Ceremonies Team'. CX

WHO & WHAT?

For Norwest Productions

Ian Shapcott – FOH Engineer
 Ian Cooper – System Engineer
 Trevor Beck – Replay Engineer
 Steve Caldwell – RF & Technical manager
 Matt Whitehead – System Technician
 Katie Pugsley – IEM Manager
 Josh Finlayson – Audio Technician
 Andrew Rodd – Project Manager

For Sound.com

Warren D'Souza – Production Manager
 Sunil Karanjikar – System technician
 Gilroy Valladares – System technician
 Yusuf Shaikh – System technician
 Yash Panchal – IEM & RF Distribution Assistant

12 additional support staff

CONTROL

2 x PM1D96 mixing systems
 2 x Pyramix 4.1 DAW Replay systems
 2 x Mackie 24/96 Hard drives HDR/MDR
 1 x TC System 6000
 3 x Emperical Labs EL8
 3 x XTA SIDD
 2 x Yamaha O1V/96
 2 x System 360 Instant Replay
 18 x Alpermann & Velte Time code readers

2 x Apogee Big Ben
 3 x AB100 Announce stations
 3 x Rode NT2000
 4 x Schoep microphone systems CMC6 / MK4
 2 x Rode Custom dual capsule podium microphones
 2 x Soundcraft Vi6 mixing systems.12 x Yamaha MSP3 monitors

RADIO SYSTEMS

16 x Shure UR4D dual receivers
 3 x Shure UA845WB
 24 x UR1 body pack transmitters
 16 x UR2 hand held microphone transmitters
 1 x Norwest Custom 8way redundant antenna distribution system
 6 x Norwest Custom weatherproof Log-Periodic antennas
 2 x Shure UA860
 6 x Shure UA870WB
 20 x Shure WL184/185 lavalier
 13 x Countryman E6 headsets
 10 x Sennheiser G2 SR300 IEM transmitters
 32 x Sennheiser G2 EK300 IEM receivers
 3 x Norwest Custom redundant Wideband IEM amplifiers
 2 x Norwest Custom log periodic directional Arrays

10 x Shure SCL5 IEM earphones
 50 x SE115 IEM earphones
 2 x WinRadio analyser system
 1 x Plotting RF spectrum analyser

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 3 x Lake Contour
 3 x Lake MESA
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 25 x JBL SRX712M
 75 x JBL VT4880/4880A
 75 x JBL VT4888/4889
 75 x Crown IT12000HD
 12 x Crown IT6000
 4 x Lab Gruppen 10000Q
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JAZZ IN THE VINES 2010



We know you'll enjoy Plugin World, where nothing can possibly go wrong, go wrong, go wrong.....

By BRIAN COLEMAN

When event opener The Silver Bell Quartet's trombone player muted his instrument with his donkey-biscuit hat and growled a Dixieland vocal into the PA at the Jazz in the Vines event this spring it seemed like nothing could possibly go wrong. But predetermined circumstances and problems with an analogue/digital marriage of mixers along with patch-list and plugin problems unfolded throughout the day to throw a spanner, along with a whole box of digital tools into the works.

The main FOH speakers for the long running Hunter Valley (NSW) annual music festival were KV2 VHD series with the KV2 ES system being used for outfills. With all the delay taps worked out, the system was doing it easy.

NSW Central Coast company Silhouette Sound Studios, who provided the audio production, were initially planning to sit two digital Digidesign Profile desks side-by-side to accommodate the two conjoined stages at the Tyrrell's Winery event. However, an audio engineer (who failed to turn up on the day) remonstrated that he wasn't comfortable with the digital Profile, so a 48 channel Midas Verona 480 analogue desk entered the mixed marriage.

MIXUP

The Profile was dedicated to Stage 1 where Kate Ceberano's band was cast for their afternoon performance. And following The Silver Bell Quartet, Stage 1 would also be used by acoustic steel string guitar maestro Bruce Mathiske. The Profile was manned by one of

Silhouette's sound engineers.

Stage two was patched into the Midas Verona. But Silhouette's allocated engineer for that desk had to attend a wedding, so a third-party technician from a Sydney company was engaged.

The left and right channels from the digital Profile were fed into two of the analogue Midas' input channels—at microphone level. This meant that all the Profile's signals were then subject to the boost from the Midas' microphone pre-amps to line level before hitting equalisers and amps etc. Some technicians prefer a splitter in this case so as to avoid going via another desk, but Managing Director of Silhouette Andrew Johnston explained his decision:

"When you're running a digital console, when you've got to re-set it for patch between (acts), the console actually shuts

down its output and re-patches back up. So you've got an element of dead air. So it's not real good when the MC is up trying to interview someone or announce the next band. So generally when you've got a digital console of some description that's going to do that, you run an analogue distribution amplifier, which runs your radio mics for the MC, your bridge-over music and things like that. We utilised the Midas as an interface doing that. So the digital console came back through the Midas then out through the matrixes and all the EQs and everything to all the distribution points," said Johnston.

FOLDBACK FEEDBACK

The first act to grace Stage 2 was the Adrian Cunningham Quartet, and the



Kate Ceberano



The jazz crowd turned up in droves.

sax supremo launched into a soulful version of the 1930s Fatsy Carmichael classic Georgia on My Mind. But foldback problems were soon to dog Stage 2, highlighted by a troublesome 160Hz feedback that lasted most of the set. Johnston, who was on foldback, put this down to a problematic string-bass pick-up, and, after a time, he tried to notch-filter the worrisome frequency out. "...but that 160 (hertz) got the better of everybody and in the end we just killed the bass wedge," lamented Johnston.

The event was billed as a 'tribute to Motown', but anyone who came to hear a James Jamerson style bass pumping



The Midas analogue console controlled audio for stage 2.





through the PA would have been disappointed on a number of levels: unfortunately the bass on Stage 2 got caught up in 'digital compression world', which pushed it into a kind of distorted buzz – and apart from a few numbers from Doug Parkinson the Motown theme wasn't greatly adhered to on the day. About the time James Morrison was firing away on Stage 2 on what looked like a Kalashnikov assault rifle – but was in fact a digital trumpet – the hot sun was firing down on the punters.

Bizarrely, security started wading through the crowd some 20 metres back from the stage demanding that all umbrellas be taken down. The aggrieved crowd, which was left to bake and burn in the sun, was to learn of an insidious A4 sign planted obscurely to one side that forbade umbrellas and deck chairs.

KATE & THE PATCH

Things were also starting to heat up on Stage 1: Kate Ceberano's band and sound engineer had flown from Melbourne to Sydney and then bussed up on the notorious F3 Freeway – meeting with bumper-to-bumper traffic.

Working hastily in a diminished time frame, Kate Ceberano's sound engineer Steve Scanlon inserted his ilok dongle (the USB smart key that holds his software licenses to unlock his show file) into the Profile. He was then to discover that the requested plugins in the show file, which had been emailed to Silhouette weren't loaded.

Johnston explains: "The front-of-house guy (Steve Scanlon) emailed that file to me...the plugins are something that you have to load-up yourself. And yes ok, if somebody rings us and says, 'can you pre-load the console with those plugins?', it's like, 'sure who's going to pay for that?' And it's quite a lengthy process to do all that. What we had was a file for a console, we loaded it up and it said: 'you require these things'."

To whether or not the FOH engineer could have assisted Silhouette with any show file or plugin queries, Johnston remarked: "Well he probably could have, but I (didn't) know where he was in the world".

The procedure should actually go like this: The talent's sound engineer that designs the show emails the Dshow (.dsh file) to the production company in

advance (it can be read, complete with a plugins list in the free downloadable stand alone D-show software). There is a list of plug-ins on the showfile, which the production company needs to download (aprox 59MB) and pre-load onto the Digidesign Profile together with the Dshow file for the upcoming show. Then the console, complete with all channel allocations and plugins is ready to go.

AUDIO VEXATION

What followed was that period of vexation that every live operator knows and dreads when something goes awry. And Scanlon was to discover that there were also loading problems with the back-up show file and the plugins.

Meanwhile, the stage was being patched by the Silhouette stage crew from the 'festival patch' to the 'Kate Ceberano patch' – and somewhere in the melee FOH was handed a wrong patch-list by the stage crew.

"The engineer gives us the patch list prior (to the event) and we patch that to what he (wants). When things weren't working we reloaded the patch that we were using for the festival, not his (Steve Scanlon's) patch," said Johnston.

Silhouette did appear to be short of staff at the event, and this was aggravated when the Stage 1 engineer had to abruptly leave to attend another venue. Regrettably this left Scanlon without an assistant engineer for FOH.

Kate Ceberano entered Stage 1 to



Music

a rousing reception, but found herself addressing a dead microphone, which obviously wasn't on the patch-list that Scanlon was given.

Seconds can seem like eons in these situations--and it took more than a reasonable time to actually locate and activate her microphone. But Kate covered very professionally and was soon on her way, not only ripping up the Jazz repertoire, but also ripping up the well-oiled crowd, whom she cleverly controlled throughout the performance. "What is this Woodstock?" she teased.

To the delight of the crowd, Kate launched into a repertoire of unexpected numbers like The Divinyls 'Boys in Town' and Blondie's 'Heart of Glass' - and a selection of disco songs. There were also impromptu numbers where she actually offered her microphone to besotted audience members to fill in the unknown lyrics; risky business, but this cleverly managed digression--especially on 'Let's get together' incited and endeared her audience to her even more.

Meanwhile the PA was singing a different song: some kind of white noise hiss that just wouldn't go away. So Scanlon had to pull the Profile mix right back because the noise was tied to the overall output gain.

GOOD AND NOT SO GOOD

Conversely, the video crew seemed to do their 3-camera shoot with ease, and the vision-mix looked flashy on the big screen. The ground camera-guy set up various on-the-fly mock ads featuring audience members reaching for bottles of Tyrrell's wine etc. As well as spoofs of punters playing huge plastic guitars during band guitar solos or singing into large blown-up microphones.

So just how do you tick the scorecard of a festival such as Jazz in the Vines? Those of the technical ilk will firstly weigh up the entertainment factor with its technical production--and then maybe scrutinise the event right down to whether you should pay a \$1 deposit

on an aluminium beer can or \$3 for an empty plastic wine cup.

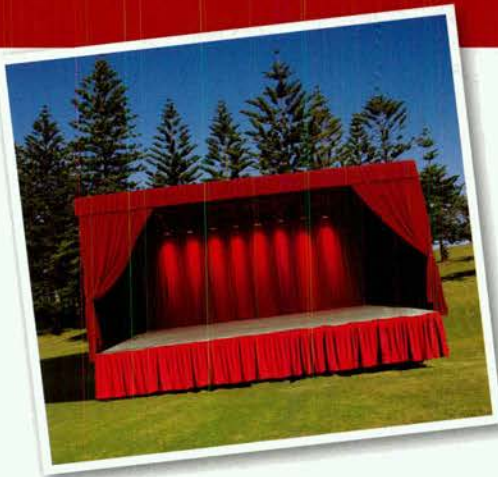
The food was reasonably priced and the most welcomed inclusion of these modern times was the free chilled water complete with complimentary plastic cups--plus an entire tank the size of a rainwater tank full of the stuff.

In summary, most of us from every sector of the industry have, on more than one occasion, driven home after an engagement with that empty 'is it really all worth it?' feeling gnawing away at us. And when things go wrong at this level, you could well find yourself staring at the simplicity of the festival's ice cream concession--and at five bucks a scoop, wondering if that might have been a better calling. CX



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CRY HAVOC AND LET SLIP THE JUNKYARD DOGS



(Apologies to Shakespeare and Julius Caesar. No, stuff 'em!)

By DUNCAN FRY

According to Jim Croce, Bad Bad Leroy Brown was meaner than a junkyard dog.

That's a bit harsh on junkyard dogs – we had one next door to us at ARX for quite a few years, so draw close youngsters, and let me explain.

As I've probably mentioned before, we have dogs the way most factories have rats. There are always a couple of them roaming around looking for some action, annoying the passers-by, razzing up the reps and chasing the couriers!

Our current factory is what we still call the 'new' factory, despite being here twenty years or more. Prior to that we were in what we call the 'old' factory (no prizes for guessing that).

This was around the corner a couple of streets away, and was one of a group of factories built early last century with concrete bricks and angled asbestos roof. Mmmm – smell the ambiance! On one side was a building wrecker's junkyard, guarded day and night by a big black dog, and opposite was a large empty block of industrial wasteland.

The whole area was owned by the junkyard owner, who took a benign

un-interest in anything we did, apart from collecting the rent from all the factories. This left us free to park any number of old trucks in various stages of disrepair on the vacant block, and also salvage anything useful to us like wood and partitions etc from the junkyard.

But wait, I hear you say, what about the junkyard dog?

Well, originally there were two dogs, the big black one previously mentioned, and a brown one, which just wandered off one night. Either that or the big one ate it, but one morning it just wasn't there. This must have made the big one a bit lonely, because a day or so later he wandered up to the fence to have a look at us, wagging his tail. I cautiously put out a hand for him to sniff. He gave it a good going over with his nose, and wagged his tail some more. Must have been the McBreakfast I had munched on the way to work. He wandered down the fence line for about 10 metres, poked his nose against the wire fence, pushed his way through a secret hole, then wandered up to have a good look at us, still wagging his tail.

When I say big, he easily came up to my hips. He stopped, and then leaned against me. I hung on to his neck to stop myself from falling over. An old leather

collar around his neck had a metal tab on it with 'Johnny' engraved on it, so Johnny it was. From then onwards he would wander out anytime we were there, and come and lay down in front of the factory. As a guard dog, he certainly looked the part, but had no idea what the job entailed. Anyone who came in could quite safely walk past him, around him, or even over him and he wouldn't bat an eyelid.

We had only been there for a couple of years when the owner of the junkyard (and everything else) died. His widow sold out a couple of months later to some grasping developer who did a deal on buying the whole lot from her for some meagre pittance, intent on throwing up a whole lot more factories on our nice convenient vacant block. Which he eventually did.

But what was going to happen to poor old Johnny?

When his owner died he had nowhere to go. All he knew was life in the junkyard, and never having been inside a house it was unlikely he'd settle down back home with the widow. But luckily Dom the panel beater next door to us took him in, and he became his factory dog. It was a real tough life for Johnny then. Mooch around factory, yard,

driveway all day, sleep inside the factory in winter, and in an old car out the front in summer.

If I came back as a dog, it sounds like the sort of life I could get used to, especially as Johnny had not been subjected to the old 'nip and tuck' operation and had quite an impressive collection of family jewels!

A paint company rep came into the factory one morning.

"I'm just looking for Dom next door" he said. "I'm supposed to see him at 10 o'clock. I can't see him anywhere - is he in today?"

"He can't be far away," I replied. "Why don't you wait in his office - I don't think he'll be long".

"Thanks," he replied, and went next door. Thirty seconds later he was back, looking rather pale.

"Jeez I can't wait in there, mate," he said. "There's this bloody big dog lying there under the desk, and it's eating some small animal!"

That sounded interesting, so I went next door with him to have a look.

I peered under the desk in the gloom of Dom's office, where I could just discern the shape of Johnny with something small, furry and pink clutched between his front paws. I bent down towards him.

"What have you got there, Johnny?" I asked. His tail thudded against the floor, and he pushed something round and glistening with dog slobber towards us.

"Ah, shit, he's ripped the bloody head off it!" yells the rep, who promptly ran outside for a good heave in the gutter.

I picked up the offending object, then started laughing. It was indeed a head, but not of an animal but some small child's soft toy doll, which Johnny had found and decided to adopt.

I took the head outside to show the rep, but he was gone. Who would have thought that paint reps had such tender stomachs?

One day a mate of ours - let's call him Rod (since that's his name!) - came down to the factory to show us his new red Mazda RX7 sports car. We all wandered outside to go ooh and aah over it, then went back inside to have a cup of our infamous coffee.

About half an hour later, Rod gets up to go, climbs in the car and zooms off down the laneway at the front of the factory, while we enviously watch.

Suddenly the car screeches to a halt, the driver's door flies open, and Rod leaps out, yelling "Shi-i-i-i-t!" He stands there white faced, pointing to the inside of the car, then slowly Johnny's head

pokes out, looks around, then he climbs out and wanders down the lane, wagging his tail.

What had happened was this: after we had gone inside with Rod when he arrived, Johnny must have gone over to have a good look at the car too. Deciding that this was a whole lot nicer place to have a snooze than the beaten up old car he normally slept in, he had climbed in through the open driver's window, wedged himself in the small back seats, curled up and nodded off. Not used to being in a car that actually moved, he had woken up when the car started, and stood up to see what was happening!

As Rod told us, "I looked in the rear view mirror to wave to you guys, and all of a sudden the only thing I could see was the Hound of the Baskervilles staring back at me! Scared the living crap out of me!"

Dom retired and took Johnny home to guard his grappa plantation, we moved to the new factory, and that was it. But next time a junkyard dog latches onto your arm and won't let go, don't worry - he's probably just looking for a bit of company!

Have a happy time over the holidays and see you all in the New Year. CX



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ROCK OF AGES



Coming to Melbourne, so CX goes to see the show in Toronto

By JULIUS GRAFTON

Of course anything about rock music where beer is also embraced must eventually appear in CX. So we walked up and bought a ticket to a new jukebox rock musical on a strangely warm October Saturday night in Canada. It should

be snowing, they said. \$120 got row D centre, box seat.

They promised a face melting silly arena experience channeling the musics of Journey, Jovi and countless other white booty wearing rock bands of the 1980's. So there were no surprises, not even the LOUD. A Meyer line array delivered it phat, full and with no pain.

Around halfway I figured this was a low budget production because the big cost items you saw on We Will Rock You and Jersey Boys are absent. The fly operator has nothing to do, if even present. Nothing goes up or down, other than heads banging. And the video - you gotta be kidding me. It was abysmal.

One 5m x 5m screen pretended to be

the centrepiece of the set, but with 25mm LED pixel spacing it was a real cheese grater and probably cost half a proper modern screen.

Script? Who needs one. But the show was owned by Aaron Walpole as Lonny, a Jack Black kind of big guy who had license to ad-lib. The female lead was previously in *Sound of Music*. What a contrast.

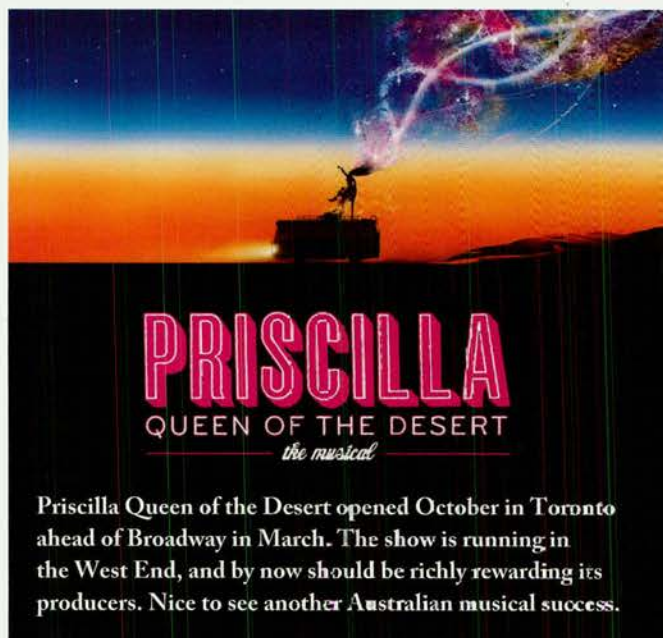
Jason Lyons probably thought he had won the lottery when he got the lighting design role, because what can go wrong? Bright, over the top, ultra colour and probably alfresco looks to mix and match. Gimme the flash buttons. Christie Lites supplied the gear

Likewise Peter Hylenski would have enjoyed designing sound, but there were some challenges. Some singers had hand held, but the rest of the time the little DFA head mics only just delivered gain over the wall of rock. More than once I suspected replay in action, because the vocal was stronger sometimes than others

Upstage was The Band, shredding and flailing away, drummer behind glass. I cut my teeth mixing this sort of stuff, it's way fun.

So the Canucks had a great time, plenty of Molson got downed and woah - if you hung in the Yale Simpson Lounge after the show, you could do more beer with the cast. If you bought a token outside, you could even order beer from your show seat. Very civilized.

Will this show work in Australia? No idea, but when it comes there better be a real video screen. Rodney Rigby's New Theatricals will open the show in April at the Comedy Theatre. It has a reported \$6m cost, and the Victorian Government has come to the party as they usually do. Rodney is probably the most successful producer of musicals in Australia at the present time. He is one of the producers of *Jersey Boys*. CX



PRISCILLA
QUEEN OF THE DESERT
the musical

Priscilla Queen of the Desert opened October in Toronto ahead of Broadway in March. The show is running in the West End, and by now should be richly rewarding its producers. Nice to see another Australian musical success.



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METALLICA WORLD MAGNETIC

*18 songs, 2.5 hours
and 180 sellout gigs.
What can possibly go wrong?*

By JULIUS GRAFTON

The followspot operators slung in the lighting rig get toasted by fire. Metallica have the biggest, hottest and most surprising array of fire-borne pyro we've seen. In Sydney those spot operators were lucky that the Meyer TM Array configuration deploying four center overhead arrays of 700-HP subwoofers was not deployed. Because a wall of low end bass, along with the flames, would be almost too much. At those shows the sub-bass were outside the circle of spot chairs.

World Magnetic is the sellout tour for a band at its absolute best, and the end of the show proves it. Any other band would be in the limo and out the back doors within a minute. Almost all tour managers get their acts away and hotel bound very, very fast to avoid the punter traffic jams. Metallica stay on stage and jive with the

crowd, house lights blazing. It sounds corny but it isn't.

The final encore 'Seek and Destroy' is done with house lights on. Hundreds of black Metallica beach balls drop. The stage is low, just three feet high, and in the round. Song over, guitars off at the tech area either end, back on stage throwing out plectrums and drumsticks. High fiving sweaty punters. Yelling, everyone yelling.

REMARKABLE

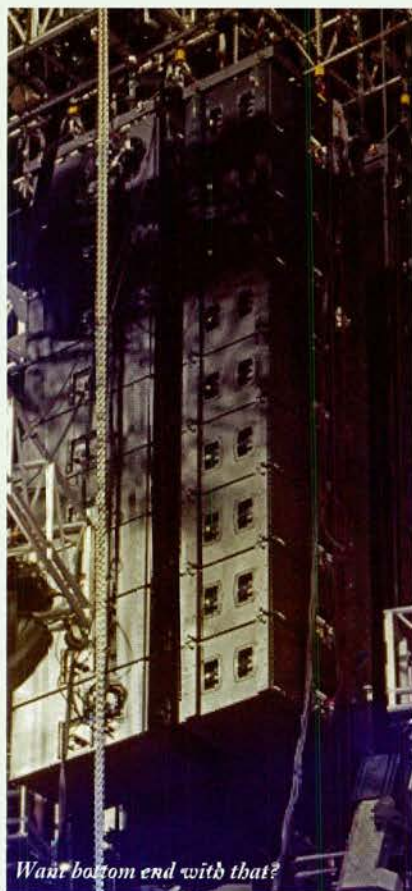
In the round is the new black. Metallica did away with video for this tour, reasoning that the stage was not too far away. It means more intensity – higher levels of lighting. Technical production for in-round is complicated, more so when the stage is so low to the deck that nothing can go underneath.

'That was just your life' opens with six

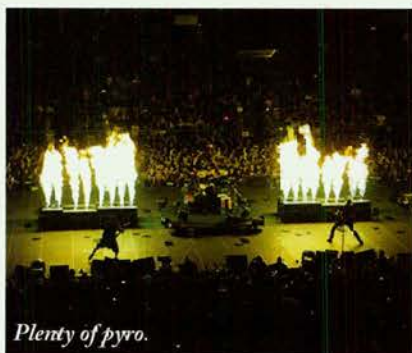
10 watt white lasers playing down onto the stage from six huge silver coffins flown around the rig. Another two lasers on stage play upwards. There is just one footlight or James Hetfield as he sings from one of eight mic positions around the edge of the stage.

It's loud, and gloomy, and then at the end of the song POW – up go the stage lights. Lars Ulrich is at a drum riser centre stage, double kick drums, dual floor toms and inverted cymbals. The riser turns four times during the night, to face each side of the audience.

A back to back line of speakers runs either side of the drums. Up the middle is a pyro discharge for coloured gas. Pyrotek of Las Vegas invented this system where an alcohol based fluid is ignited by a propane fed pilot light. Colours that can be used are Blue, Green, Red, Yellow, Orange and Purple. It freaked me out :



Want bottom end with that?



Plenty of pyro.



The low stage in the round gets the punters in close.

coloured fire, changing colour on cue.

But that's tame. Pyrotek's Fire-Screen shoots balls of fire and jets almost three metres in the air through vents in the stage floor. The heat is obvious 30 rows back. On stage it must be brutal. In the followspot chairs, it would be volcanic. Hetfield himself was fried by pyro some tours ago, and could not play guitar for a time afterwards.

MEANWHILE...

The mosh pit goes off. Thousands of guys with no shirts on are smashing into each other. There are hardly any girls. The occasional stage diver is seized by security and turfed out. Guards in the pit are squirting water into mouths, like feeding a nest.

But no aggro. There's some blood in the foyer from head injuries but – this is a different kind of aggression. It

takes a little getting used to. It is a little confronting at first. But as the set takes shape you start to understand Metallica, a band with peerage dating back to 1981. It's aggressive metal, but the tone of the band is friendly and respectful of its congregation.

There's something in the air.

The show sounds louder than it registers (103dbA at row 30) but with ear plugs it is comfortable. Those eight massive coffins motor up and down, and the lights fit the theme.

Each show is sequenced slightly differently, but always opens and closes the same.

ROUND

Tech areas at each end of the stage host backline tech stations for guitar crew, drummer and production. Automation, pyro and monitors are all controlled from

in here. The front of house position is at one end of the floor, closer to stage than normal. Lighting ops are perched up in the bleachers, crammed in some wheelchair seating area.

The rolling stage itself was designed and built by Tait Towers and takes as little as 25 minutes to deploy. At just 3' high it's the lowest arena stage we've seen.

If there were a normal PA on this tour there would be an amplifier rack city adjacent to the stage. "We had that earlier", says epic sound engineer Big Mick Hughes. He has mixed every one of Metallica's 1500 plus gigs over 25 years or so. "It used to be almost a quarter of the floor taken up with amps. Up to 450 feet of speaker cables to the furthest. Had to watch the amp impedance with all that copper. Truss loads of speaker leads".

But not now. There are no speaker leads on the road as the PA is Meyer

BIG MICK – NICEST SOUNDGUY IN THE BIZ

"I always maintained you'd never get my XL4 out of my dead clutching fingers. Digital was never an option for me, I didn't like the consoles that were around and I had played with all of them. I don't want to scroll through pages. I don't want to hear something and it takes me 30 seconds to do something."

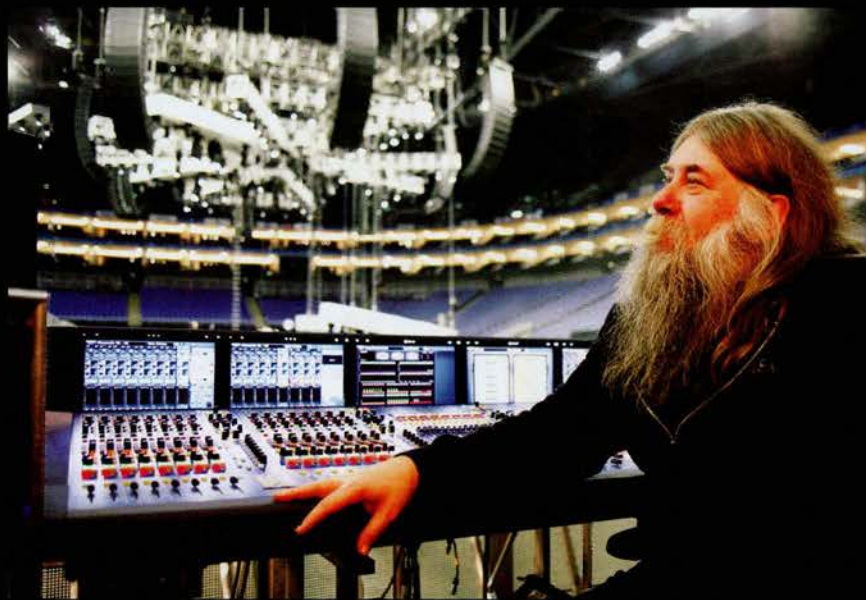
But then Midas released the XL8. "XL8 was everything it needed to be. The mic splits are fantastic – you've got A and B with C outputs on the front if you've got a recording needed from an isolated split."

Metallica have a history of different PA systems, as you would expect. "We started with SSE – they had the HB3 high box and low box. It wasn't really powerful enough."

"Then I heard an EV MT4 system from dB sound. They knew it sounded horrible with program music like a CD, but with a band it sounded great. They hired a convention centre and got a covers band for the demo in Chicago. At the time, the Metallica sound was raucous and ragingly loud heavy metal. The MT4 was perfect."

"I didn't really like the X Array and the X Line, take it or leave it. EV kind of let me go, no body ever spoke to me. Nexo got in there, I used the Alpha system and I thought it was a nice arrayable system, along the lines of Turbo Flashlight but a little smoother."

"I tried the Nexo Geo-T, but I never got on with it. I heard Bruce Johnston do an amazing mix of Oasis on it, but it was not for me."



"Then we dropped into Iceland to do a one-off gig in an airplane hanger. There were one-sixth of the Icelandic population in there, apparently. They had a Meyer Milo System. I was blown away – I'd never heard that kind of fidelity! I was speechless."

"We have a whole lot of Milo. Meyer are a real intelligent company. They employ more PhD's than any other audio company. They talk to me directly as an end user. Hence we come up with different plans."

"In the round it's always a problem where to put the subs. Then the band decided the stage would be just 3 feet high, so nothing could go underneath."

"Meyer came up with the TM Array,

four sticks of ten subs all together. Seven tonnes of speakers, above the drummer's head. It's all phase coherent, and it radiates like an antenna! A long sub array makes the pattern more controlled. We have to delay the lower portion of the array, to steer it down slightly."

"The downfall is we can't get it up in the middle of all venues, so there are three different designs for the subs. We have the TM array, we put subs in the corners and it's horrible, and we fly four hangs in the rig."

"We have 150 boxes in the air – with eight hangs of 16 Milo."

"I started mixing in stereo, but now it's mono everywhere. Everyone gets it the same."


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There's a huge amount of gear in the air.

Milo, and all Meyer is self amplified. Run mains power and signal to the boxes, and it all happens inside. A bonus for space, but a minus for weight in the air. Some conventional line arrays can fly the amp racks, so whenever you have amps in the air you have more weight.

John Broderick's lighting design includes 56 x VL3500 wash, 56 Coemar Infinity XL wash, 24 x Martin MAC700 wash, 24 x Martin Atomic Scrollers c/w colour scrollers, 12 x Syncrolite 5K's, and 66 x Martin Stage Bar 54's.

OUT THE BACK

In a dressing room sits Mike Gillies at an SSL console. His is one of the lonelier gigs on the road, that of show recording engineer. Every show comes down two Cat 5 cables from the Midas XL8 system, into two 24-channel output racks. He connects up to ProTools, and captures all 2.5 hours of each show.

Then the next day, he spends most of the day remixing the show and it goes onsale online. Jeff Yeager's photos are online as well, he is the touring shooter. Each gig is sold for about \$10 online and also by preorder at the merchandise counters.

Merch is massive for Metallica, and the chance to own the gig recording is a real impulse buy.

This is a band that know what they are doing.

CX



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Lake LM26 Loudspeaker Processor

Lake was recently acquired by Lab Gruppen, and have since been hard at work building a new processor – the LM26.



By JIMMY DEN-ouden

Many users will be familiar with devices such as the Lake Contour Pro 26, Mesa Quad EQ, and Dolby Lake controllers. The new stallion in the stable is the LM26 processor – but rest assured it will get along just fine with the other horses.

The LM26 is a 2 input, 6 output device which sits 1RU high. You can use it to drive a stereo 3 way system, or notionally anything up to a mono 6 way system (you'd use another one for the other side of your PA).

The Lab Gruppen design influence is very apparent – the LM26 being reminiscent of a PLM series amplifier. While it's a very elegant piece of kit, it's not as pretty as some of its predecessors. That said, what it lacks in "portholes" it makes up in functionality and value. Read on!

HORSEPOWER

The LM26 features the same processing algorithms as previous generations did. You still get raised cosine equalisation, you still get classic and linear phase

crossovers, and you still get LimiterMax peak and RMS signal limiting. We've looked at these features previously, so we won't go into too much depth. Suffice it to say it's everything you'd ever want in a system crossover. So what's new?

The steering wheel is new for a start. The Contour Pro 26 unit had only very elementary controls on the front panel – mute keys for each input and output as well as metering. That was it. The LM26 still gives you all this, but now there's a whole menu system which allows you to alter most parameters within the unit from the front panel. You can adjust levels, delays, limiter parameters, phase, and even input signal routing. About the only thing you can't do is re-engineer the crossover.

The LM26 has not only analogue but also AES inputs and outputs, as well as dual redundant Dante audio network ports. The input selection allows you to route any of these to the processor inputs, and you can set different precedence on each source. This means if your AES link falls over for example, the LM26 will then look for an analogue signal (or whatever signal you tell it to). Big kudos for avoiding a show stopping event.

There's also a GPI port on the back which is new, and this can be set up to perform various functions through the front panel menu. The menu is driven by softkeys and a rotary encoder – no touchscreen required.

I WANT MORE

Sure you do, everyone does. So if 2 in and 6 out isn't enough, you can cascade multiple units together using the AES port, and route audio between the two. Voila! 4 inputs and 12 outputs. 2 LM26 units work out to roughly the same as a single Dolby Lake unit, with the added benefit that you can split them up for smaller gigs. The routing system takes a little understanding, but once you do it is very cool – essentially you can route any signal from any of the 2 analogue inputs, 4 AES and 4 Dante inputs and send your output signal to 6 analogue, 8 AES and 8 Dante outputs. The analogue and AES inputs can be routed directly to the outputs.

Between all the routable I/O lies processing. Lots of processing. Each input block can derive a signal mixed from any of 4 inputs, then apply gain, as well as phase reverse, EQ and delay. Each

of the two blocks then hits the crossover, and from this point all 6 outputs can have the same parameters applied, as well as individual output limiting. Confused yet?

Thankfully the software makes it a bit easier to understand. It's still complex, but it simplifies a complex process as much as is practically possible. The Lake Controller software is very graphic heavy, and it's a shame there's only a Windows platform version available. The good news is that it's the same software which controls all previous Lake processors – just a new version. No new learning is required if you just want to use it the same way as a legacy processor. The LM26 processing modules can be included in “supermodules” just like previous processors too.

So that's it – Lake by Lab. Cheaper, better, and smaller, it's the Lake for everyone. **CX**

BRAND: LAKE

Model: LM26 Digital Audio

Loudspeaker Processor

RRP: \$6,638

Product Info: <http://lake.labgruppen.com>

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



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SELECON SPX ELLIPSOIDAL



If you had a dream about perfecting a profile spot, the SPX would come close. Do you dream about lights? I don't. If only we had this when we were using Pattern 263's in the 70's...

By JULIUS GRAFTON

Selecon might have invented the SPX regardless of being acquired by Philips. But wow – what a lighting powerhouse they have become. Decades of fighting against Strand and CCT saw both those English brands fail while little Kiwi Selecon gained market. Then Philips came along, and now Selecon, Vari*Lite and a revived Strand all sing from the same song book.

FANTASTIC PLASTIC

Enter SPX, the almost all plastic light. Exit more heat and big news: considerably reduce risks because the lamp housing is double insulated. This means the probability the lantern housing will become electrified is now zero. This is bigger news that you imagine, because ALL metallic lights

SAFETY ALERT

Metal lights can and DO electrocute lighties while focusing. This cannot.

are electrocution time bombs due to high heat, high current and the need to physically handle while focusing.

We had an SPX here at the campus recently and noted these attributes: The shutters have tap locks, which means we could lock them off. The safety chain is integrated and Euro standard with a shackle twist lock. Like Pacific, you can interchange the lens tubes so you could buy extra combinations for a set number of lamp housings.

Here's the optical newsflash: the optics are now so crisp that daggy gobo edges show up. There is virtually no light spill which has been a bugger since electricity was invented. They take a B size iris or gobo.

The yoke has a cable retention system along it, so you can make tidy what was not before. The yoke locks firmer, so droop is minimised. Mechanically the fixture feels tight and precise, and better engineered than earlier Selecon devices.

It's easier to clean, easier to fix, and the peaking adjustment is also

improved.

In the lamp housing you can take advantage of new compact filament lamps, either of two 600w lamps (400 hours or 1500 hours life) or the 800w GKV lamp which runs for 250 hours. Lens tube options go like this:

Zoom: 15°-35°

Zoom: 25°-50°

Fixed beams: 14°, 19°, 26°, 36° and 50°
The colour frame size is common throughout the range.

At 10 metre throw, the 800w 240v SPX produces 1717 lux peak using the 25/50 lens and going narrow. The beam size is 4.43m. Go wide to 50 degrees and the peak is 660 LUX at 9.33 metres wide.

CX

BRAND: SELECON

Model: SPX Ellipsoidal

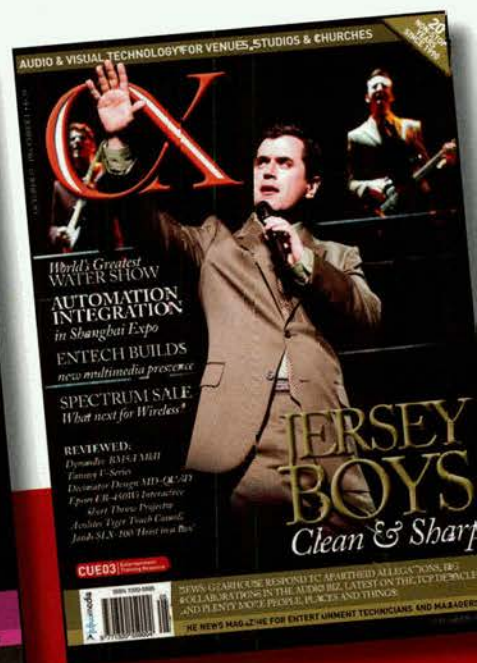
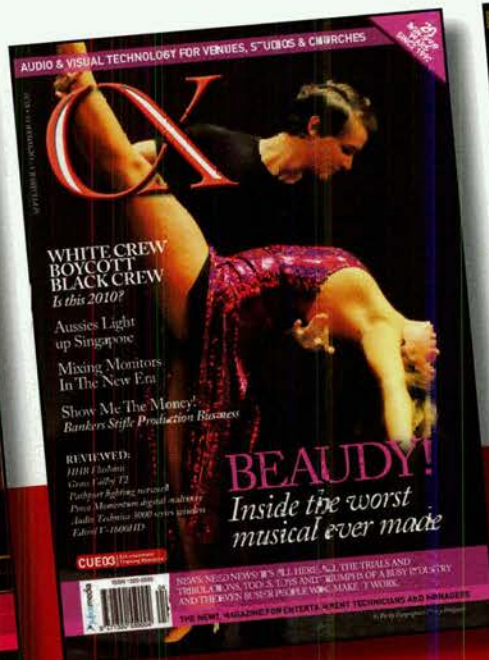
RRP: \$726 - \$913 inc GST, inc lamp, safety, frame, plug, cable and bolt set.

Product Info: www.seleconlight.com

Distributor: www.seleconlight.com

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SHURE PGX DIGITAL RADIO MIC



RF, AF, PGX, and now a whole lot of ones and zeroes. But no BS.

By JIMMY DEN-ouden

Anyone who's not been living in a cave for the past several years will be aware of the rapidly decreasing RF spectrum available to wireless equipment users in entertainment. So when everything else (TV, phones, etc) is going digital it was only a matter of time before the same happened to radio microphones.

Enter the Shure PGX Digital System. From the outside it looks relatively unremarkable. It arrives packaged in the same plastic clamshell case as many other PGX products, and save for the fact it's got digital written on the side you mightn't even know it was. It operates in the 915-928MHz frequency range, and transmits a full 20Hz – 20kHz.

The receiver is a small unit – about half rack width and 10cm deep(ish). It runs from a supplied line lump power adapter, and cable retention is just a plastic loop through which the power cable passes then hooks over a lug. Simple but effective, and impossible to cross thread. The antenna is a dual diversity type, and being an entry level kit there's not a lot in the way of front panel control. There's

THE WIRELESS DEBATE

Last issue we hypothesised about Digital, and pretty well as soon as the ink was drying the PGX landed in the review lab. 'Wow, that was fast', we said. 'Sorry boys, we didn't just read the mag and invent the product', was the response.

Jands product guru Jeff MacKenzie had a long talk with our Andy Mackenzie (no relation) about what we got wrong in the article. Sadly Andy is off on sick leave, so he can't contribute to this ongoing debate.

Jeff did supply the two images, showing that far from digital consuming less bandwidth, as we said it should, it needs MORE bandwidth.

Aside from that, the new Shure devices here sit in the hitherto un-used 900 meg spectrum which means new space. It is believed that these devices will be outside the brouhaha of the Digital Dividend, and thus unaffected by the squeeze that the Government will apply to existing wireless when they sell off the TV bandwidth.

So, long story short: these are new devices, they occupy new wireless space (albeit space used for other purposes as well), and so the answer to all our problems is probably some of these, and some of what we already have.

- Julius

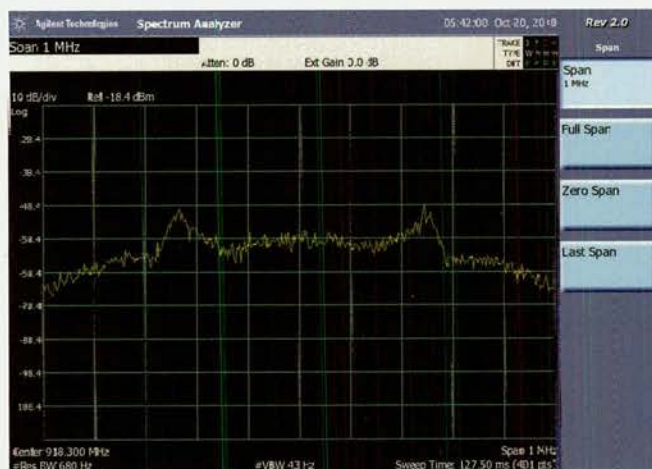
a blue LED display (presumably blue looks more digital?) to indicate channel number, a channel scan button, and a sync button. The receiver is not rack mountable, but then considering its target market this hardly seems unreasonable. Up to 3 of the PGX digital kits can be used concurrently without interference.

DIGITAL IN HAND

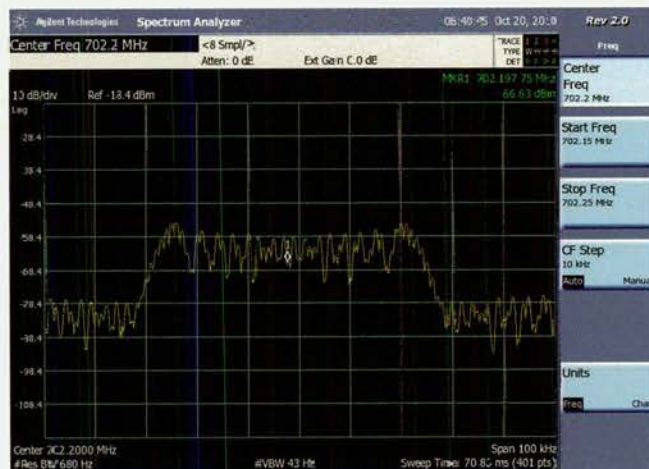
The handheld looks just like an SLX series, but minus the display and one

button. The PGX has only one button on the transmitter – ON/OFF/MUTE, these functions managed with a long or short press. A multicolour LED indicates its current operational state. It operates off 2x AA batteries, and run time seems roughly what you'd expect – reasonably good.

Plugging the unit in and switching it on, the receiver lights up. Hit CHANNEL to find a free one, and watch the amusing LED light sequence



Digital wireless spectrum.



Analogue wireless spectrum.

which takes a few seconds. Once you've got your channel, unscrew the end cap off the mic and hold it up to the receiver. Then press SYNC. Setting up channels on the system is super easy, so it's likely to work well even in the hands of novice or amateur operators. The capsule is an SM58, which provides predictability and known frequency response characteristics.

Gone is the input sensitivity pot. I don't hate the input sensitivity pot, just the lunkheads of this world who insist on destroying it by using the wrong tool

and too much force. The pot has been replaced by a simple pad switch, housed beneath the mic capsule. Easy to work and hard to break. It's clear that some thought has been put into the target market during the design process of the product, which is good.

So far as how well it works? Surprisingly well! We got close to 40m down the road before losing RF, and that was with the receiver inside the office reception area – through a brick wall, security bars, and metal film tinted

windows. So your basic standard stage should pose no challenge. The PGX Digital system is also available as an Instrument set.



BRAND: SHURE

Model: Vocal FGX Digital Wireless System

RRP: \$399 inc GST for the vocal kit, \$50 cheaper for the instrument kit

Product Info: <http://shure.com>

Distributor:

<http://www.jands.com.au>

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AUDIO TECHNICA AT4080



CX test drives a phantom powered ribbon mic – gratuitous opinions ahead...

By JIMMY DEN-ouden

You don't see ribbon mics in live applications so very often, and there are several reasons for this. Ribbon mics are fragile – more fragile than condenser mics. Push too much air (sound) into one and results are unlikely to be favourable. Ribbons don't traditionally respond well to phantom power, favouring self destruction upon its application. They're also really, really expensive, and performers can be really, really careless. The AT4080 attempts to clear a few of these hurdles.

The AT4080 is a side address ribbon microphone, designed to suit users both in studio and, more uniquely, live environments. Frequency response is stated as 20Hz – 18kHz, and the weirdest part is that it requires phantom power to operate. The phantom doesn't actually touch the ribbon transducer, but powers the active preamp circuitry within. Output level is said to be similar

to condenser microphones. It also costs nearly 1400 bucks – a lot for a stage mic to be certain. Is it worth it? Will it really stand up to the specified 150db SPL capability?

THE ROAD(IE) TEST

As luck had it, I'd been booked to do a gig around the same time the AT4080 was in for review, so I took it along. Not content with mixing any old band, the one I was working with comprises 2 sound guys. They're both good sound guys so I figured 3 opinions would be better than one.

I stuck the AT4080 in front of the guitar amp, plugged it in, and gingerly engaged the +48v switch. The PA was dual Nexö Alpha E stacks each side, Camco Vortex amps and a Midas console. The guitarist tuned up and started playing. I pushed up the fader, and BAM! There it was – electric guitar in all its ball tearing stomach punching glory. He could have been playing

through a wall of quad cabs and I reckon it still wouldn't have sounded as big as it did. I actually wound up rolling the low end off the guitar channel – even separated from the cab by 5cm or so (due to the shock mount) the mic picked up really solid low end, yet barked when it was called for. I was pretty hooked at this point, but not totally convinced.

I had a multi track recorder sitting in-line to record the sound check, and when the boys stopped playing they wandered out front and we all had a collective listen to the results. Kinda like a virtual sound check before the band has actually left. Turns out I'm not the only fan of the AT4080 – both the guys loved how the guitar sounded. We did some more sound check, and some more listening, and everyone was still happy. The gig proceeded with similar success.

Now the bad bit. The shock mount is inordinately difficult and time consuming to put the mic into. Once it's in it holds the mic well, but seriously the installation process is painfully clumsy. If you were in a studio the thing would probably go onto the mount and remain there forever, but in a live situation this kind of usability matters. The supplied case is a cheap plastic jobbie with foam insert, though it does protect the mic from impacts quite well. It's big enough for the mic and only the mic – the shock mount arrived in a separate package which is a bit annoying. But these are really all criticisms of the accessories, I can't actually fault the mic itself. I'd like to try the AT4080 it on something more delicate than a guitar amp before committing to buy it – maybe even a vocal. AT do recommend a pop screen should be used to protect the ribbon element from "plosives".

So is it worth 1400 big ones? Well, it's cheaper new than many second hand ribbons with unknown histories, so that's a massive plus. It seems pretty robust – it's built like a Sherman tank and survived a trip through my mic kit and back. If you want an absolutely monstrous killer of a guitar amp mic then yes, the AT4080 is likely to please you immensely. If you want it for other stuff too, check it out for yourself first but chances are you'll be as stoked as my band of soundies and I were. **CX**

BRAND: AUDIO TECHNICA

Model: AT4080

RRP: \$1,399 inc GST

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

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

BLUE MICROPHONES EN•CORE SERIES STAGE MICROPHONES



Ever heard of a dynamic mic which needed phantom power? Neither had we...

By JIMMY DEN-OUDEM

Blue Microphones have traditionally been known for their range of studio condenser mics, and in more recent times for innovations such as the "Snowball", a USB mic designed for recording straight into a laptop computer.

The en•CORE series represents the Blue foray into the world of stage microphones and there are 4 models in the range: The en•CORE 100i is the entry level instrument mic and is a dynamic unit, as is the en•CORE 100 series vocal mic. Both are cheap and cheerful, and present quite honestly. They're good value for the money and generally very usable.

The en•CORE 200 is the one I was really interested in (enough to take to a gig) – the active dynamic mic. The capsule in the en•CORE 200 is of traditional dynamic construction (diaphragm attached to a moving coil in a magnet gap). When you pull the grille off the top it looks just like every other dynamic mic on the market, although the capsule is set lower than the 100 series. The specifics of what the Active Dynamic phantom power circuit do are admittedly a little unclear and this annoyed me until I plugged it in and had a listen. The output level is a little

higher than you'd expect from a standard dynamic mic, so you don't need to gain it up as much. This means less cable noise in your signal. It sounds really good – it's pretty neutral with a gentle rise up top, though not so extreme as to preclude using it with monitors. The real kicker is that it sounds good from about 5cm off the basket, and keeps this niceness through to about 10cm off. You lose a little level, but the tonality of the sound is quite consistent. The gold basket is a bit fetch, but I could deal with it. The other point is that it's heavy – some artists may find this tiresome, I prefer to consider that the build quality is good.

Last up, the en•CORE 300 is a condenser stage mic, and honestly it would have to be the ugliest mic I've ever seen. It lights up when you plug it in. Redeemingly though it sounds good, though might be a bit touchy for applications where lots of gain is required. I'd happily use this in my studio, though I might turn the lights off first. 

BRAND: BLUE

Model: en•CORE series microphones

RRP: 100i - \$159, 100 - \$179, 200 - \$259, 300 - \$349

Product Info: <http://bluemic.com>

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

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MASELEC MEA-2 MASTERING EQUALISER



For times when less is more...

By JIMMY DEN-ouden

Maselec is the brand given to analogue processing equipment designed by Leif Mases. The MEA-2 is a dual channel 4 band parametric equalizer, and as we discovered it's a serious piece of kit.

The first thing I noticed about the MEA-2 is that it's heavy. 5kg in fact. The front panel is a solid chunk of metal, and everything is attached to it very securely – it has the same feel as a vintage modular style analogue console. Round the back, power is delivered via an IEC connector and a pair of electronically balanced XLR connectors provide input and output for each channel. It's unashamedly analogue, and for reasons mentioned a little further on it's built to a kind of standard which is

now far from common.

For the benefit of those who don't know, a parametric equalizer works differently to a graphic equalizer. In simple terms, a graphic EQ lets you adjust a frequency and a little bit of the ones either side of it. A parametric EQ allows you pick a frequency, then adjust it and a range of frequencies either side. You can also choose how wide that range is. So while in some ways a parametric EQ looks simpler than a graphic, in operational terms it's both more complex and potentially more subtle.

Each channel on the MEA-2 covers 4 bands, with the lower and upper filters capable of running in notch or shelf modes. The controls are dead simple, with perhaps the exception to this being the front and rear power switches, both

of which must be on for the unit to operate. The "in-line" switches for each channel illuminate when the channel is active, and you can hear relays clicking inside when you press them.

WHY ARE WE REVIEWING AN EQ?

The big deal about the unit is really the accuracy and sound quality of it. Most equalizers rely on potentiometers to control their various parameters. This works okay, but it's not really very accurate. The MEA-2 uses stepped rotary switches for all aspects of filter control – you ask for 2.5db boost at 114Hz, and that's exactly what you get. The filters are adjustable in steps of 0.5db up to 3db, then 1db increments to 6db, with a final increment at 8db. The thinking here is presumably that by the time you need 8db boost or attenuation, the need for subtlety has somewhat diminished. Available filters run from 19Hz – 27kHz, with a good degree of overlap. There's no way to "stereo link" the channels, but when you can just match the filter settings exactly on each side why would you need one? If you need more than 4 bands of EQ, just bus the output of channel one into the input of channel 2 and suddenly it's an 8 band unit instead.

So how's it sound? Pretty much like you'd expect – it reacts to you in all the right ways – subtle when you are and more forceful when you're not. As nice as it sounds, the MEA-2 isn't going to be for everyone. If you're an old-school dinosaur who prefers to tune their monitors by shoving a mic down the throat of a wedge and turning up stuff till it rings, then the refinement of this device might not be as good a bargain to you as, say, some replacement compression drivers.

But if you're one of the very technical breed of audio brethren who don't feel the need to run the balls off the PA, fill the lead vocal with 10K, or would sooner change a mic position than a channel EQ then you might like this unit quite a lot. Inserted over a mic channel it would certainly give you a heap more control than you'd normally get from a desk channel strip, and personally I reckon it would make a pretty damn nice FOH EQ too... **CX**

BRAND: MASELEC

Model: MEA-2

RRP: \$7,480 inc GST

Product Info: <http://maselec.com>

Distributor: <http://cda-proaudio.com>

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PANASONIC AG-3DA1E CAMERA



The 3 dimensions of 3D TV have long been time, dollars and difficulty. Now Panasonic offers a camera that is set to reduce all of these factors.

By JIMMY DEN-ouden

3D imaging can be traced back as far as 1807. I remember my Dad taking me to the Panasonic IMAX theatre shortly after it opened to see a 3D movie. I can't remember what the movie was (something about a museum?), but I do remember the effect was mind blowing. Awesome technology at the time, but for some reason it didn't make it to the "small" screen for some years. Probably because 3D has been bloody difficult to do.

The basic idea of 3D is taking two camera images of whatever you're filming, and somehow conveying one of these images to each of the viewer's eyes. In other words, a camera for each eye. Problem is, our eyes tend to focus



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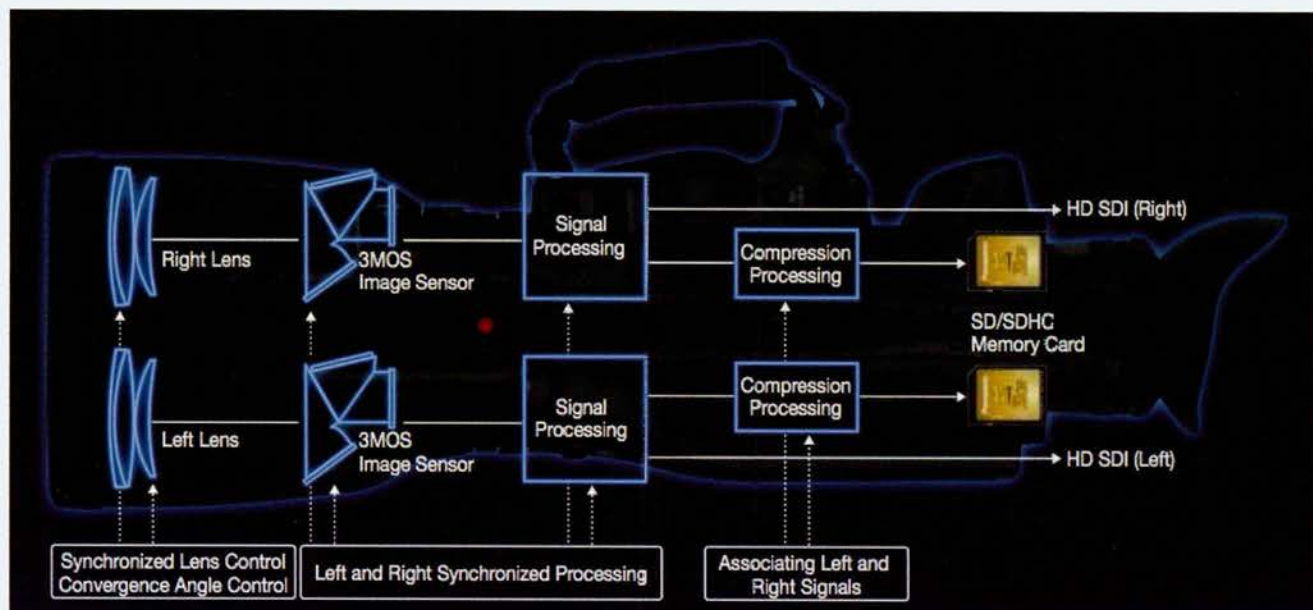
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Panasonic's simple schematic showing the operation of the camera.

on the same thing as each other so the idea of two screens doesn't work. So over time, we've developed technology to trick them. Anaglyphic 3D works with red & blue glasses, whereas 3D by Polarisation requires the viewer to don a pair of polarized specs instead. Each eye is then manipulated into seeing an image from one camera only. The "3D-ness" is controlled by the convergence of the two cameras – how far they are from being parallel.

The basic principles of 3D haven't changed much, but now we have better cameras, lenses, and image processing technology. Films and large sporting events are now being shot in 3D using special rigs which allow multiple cameras to be ganged together either side by side or one above the other. The hassle is that you need the rig, then two cameras, two lenses, a way to make the zoom & focus controls operate in unison, and a day or two to set up and align the thing. For every camera position, each of which weighs upwards of 80kg. The results are nothing short of impressive, and the cost is just shy of astronomical.

3D WITH CHANGE

Panasonic appears to believe that 3D should be easier, cheaper, and faster to do. So they made it easier, cheaper and faster by introducing the AG-3DA1E camera to the market. At the core, it's essentially two HD cameras in one box. Two lenses are seated within one housing, and the convergence is controlled on the camera. The imaging functions of both image sensors and lenses are synchronized within the camera. It uses two card slots to record

onto low cost SDHC memory – one card for each lens. What you do with these files after they're recorded is up to you – generally you'll need Final Cut with a plug-in, or other suitable editing setup to deal with the content. Plug-ins start at a few hundred dollars.

If you don't really care too much about exporting the footage you shot and just want to display it, that's cool too. Being a pro grade device, the AG-3DA1E has dual HD-SDI output sockets on the back, so you can plug it directly into any suitable broadcast grade 3D monitor. If you don't have a suitable broadcast grade monitor then that's okay too. Use an HDMI 1.4 compatible 3D monitor and that will work fine. Either way you'll need some polarized glasses to get the effect.

HOW'S IT FEEL?

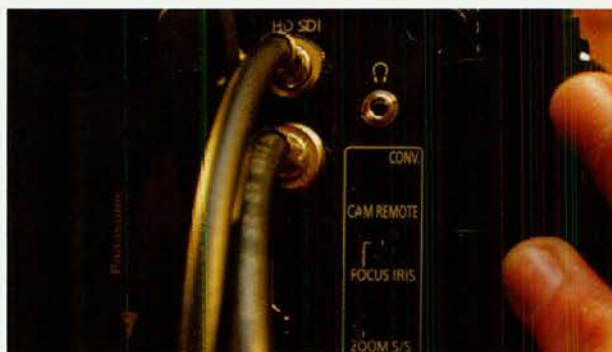
We took delivery of the camera and a suitable monitor here at the bunker and tasked some students to dutifully set the thing up. 10 minutes later we were shooting in 3D. And it was

AWESOME.

The AG-3DA1E feels very reminiscent of other Panasonic cameras we've reviewed in the past. It manages to somehow feel lightweight without feeling plasticity. It has real mic inputs on the handle. The grip feels a long way back on the body of the camera, and shooting using the LCD screen would probably be easier using the top handle – fortunately there's a zoom control there too so you can do this easily.

The 3D convergence (how much 3D the camera generates) is managed by way of an endless rotary encoder on the left side of the camera body, which doubles as the iris control at the flip of a switch. The operator is assisted by a 3D "distance guide" display which you can turn on or off, and shows a range for which the convergence is set – playing with the convergence we were able to shift image components back and forth on screen. The focus ring though not direct drive to the lenses was responsive and felt good. Now the gripe: The menu





navigation "joystick" is (by nature) irritating to use – whether on a mobile phone or a camera. Real buttons would be better. We had trouble finding the white balance control but then again we also made 3D work without reading any manuals. In 10 minutes. That's insanely cool.

THE LONG VIEW

We used a Panasonic 3D broadcast monitor with dual HD-SDI inputs and the 3D effect was good. The students were dutifully impressed, especially when they realized they could freak each other out by seemingly extending their arms out beyond the front glass of the monitor. An important note here is one of safety – too much negative convergence can give people headaches (a. OH&S concern we've not previously seen). The goggles play an important role in making the thing work – see the photo of how the image appears without glasses. There are tech specs on the Panasonic website, as well as some good general info on the 3D system.

This technology will enable small to medium production houses to offer their clients services which were previously written off as impractical. Advertisers will go nuts for it. Filming a live concert in 3D just became a viable reality. At \$25k this camera is definitely not for everyone, but it will surely find its feet in markets where 3D has been previously ruled out due to the higher costs and other impracticalities. **CX**

BIG SCALE 3D - SWITCHING, MONITORING AND TRANSMITTING

Everything in 3D happens at least twice. Two lenses pass light to two image sensors. For best effect, all these components should be identical. If you're broadcasting, you'll need two CCUs to control these cameras, and they need to operate seamlessly in tandem with each other. Then the dual signals need somehow to be switched simultaneously with the dual signals from other camera positions. Monitoring can be done off one lens only, but someone still needs to manage the convergence of each camera pair. This person is a stereographer, and a good one can look after two camera positions simultaneously. Once the dual signals have been switched, you need a stereo brain box to combine them into a single transmittable signal, which can then be bounced out to consumer televisions, decoded, and displayed. Twice the gear and more than twice the time to set it all up.

Brand: Panasonic

Model: AG-3DA1E Twin lens professional 3D camcorder

RRP: \$25,000

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

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

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ROLAND MVS-12 MULTI-VIEWER

We all know vision systems are becoming more complex, and that with more sources comes the need for more monitoring.



By JIMMY DEN-ouden

Traditional corporate type vision systems will normally include several sources such as cameras, DVD players, VTR machines, and computer or other graphic generators. Suppliers have two options for fulfilling such AV requirements – build a kit each time specifically for the gig, or build one kit which can “do it all”. The “does it all” kit is a nice option for several reasons: less prep time required in the factory before the gig, less variation when quoting, and your techs will always be dealing with the same known system. Problem is that such a kit rapidly gets very big and unwieldy.

Monitoring takes up much of your rack space, and indeed contributes heavily to its weight. A 9” monitor can weigh up to 8kg, so once you put 6 or so in a

rack you’ve instantly added 50kg or so. Combine this with the weight of your various source devices, switching & processing gear, not to mention the case and cable weight and a portable flyaway AV kit starts to look less portable.

Aside from the weight considerations, there’s also a price factor to bear in mind. You’d be unlikely to find a 9” rack mount monitor for under \$1K, so for a 4 source system with preview and program monitoring you’d need to allocate \$6K just for screens. Double the inputs and your monitoring cost cracks 5 digits.

Multi-viewers are the way forward. The idea of a multi-viewer is simple and originates from the days of security cameras. Put more than one image on one screen. Now with the availability and affordability of LCD it makes more sense. LCD screens are bigger and lighter than their CRT counterparts, and

generally have much higher resolution for fewer dollars. So now the question becomes how to put all the images onto one screen?

There are cheap multi-viewers on the market but they’re really designed for security applications and limited to four sources, not to mention their image quality can be a bit ordinary. They’re good for their intended purpose but that purpose is security, not live production.

BRING ON THE MVS-12

Roland has proven its chops in the land of video, with their range of mixers and scalars. The MVS-12 is a whole lot of video processing love inside one box. The device has 12 composite video inputs, and a choice of HDMI and 15 pin D-Sub outputs to run to your screen.



There's an inbuilt 4 output matrix router too, so you can feed additional monitoring or records from these outputs. The unit is powered by an external power supply – a pet peeve of mine to be sure but it seems to be the popular choice among manufacturers nowadays.

Setup is more complex – plug in and switch on, then select how many boxes you want to see. We found no call to refer to the manual which was nice. Front panel keys allow you to choose different screen layouts of 4, 9, 10 or 12 windows. The 10 way box is nice as it allows you to display preview, program, and eight sources (or fewer sources and some record monitors). Each box can be named, and selecting sources is simply a matter of using the on-screen menu. A really nice feature is that each window can also be scaled to accommodate different aspect ratios. The matrix outputs are not affected by any scaling applied to any of the inputs.

Four user memories allow users to recall different sets of monitoring parameters quickly, and there's even a mouse port to allow "drag & drop" arrangement of the windows. Supported output resolutions on the MVS-12 range from 1024x768 through to 1920x1080, so it will happily run on anything from a standard computer monitor up to an HD screen.

Not only were we very pleased with the video quality of the MVS-12, but the overall usability of the unit is excellent. It's even rack mountable, so could easily be integrated into a flyaway video kit, with an external monitor in a separate case. CX

BRAND: ROLAND

Model: MVS-12 Multi-viewer

RRP: \$3,295 inc GST

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

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

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BS Sound	66	Philips Selecon	13
Cases.com	66	Production Audio Services	24
CDA Pro Audio	21	Rentalpoint	66
Chameleon Touring Co.	48	Riedel	25
Clarke & Severn	35	Roland	51
dB Sound	63	Rosco	65
Ear Monitors Australia	49	SSE	33
Epson	11	Stage Hire & Productions	41
ETF	27	Subscriptions	53
Eventquip	61	Syntec International	9, 29
HES	61	System Sound	66
Jands	IFC, 3, 27, 55	TDC	43
Julius Events College	59	Technical Audio Group	7, 17
Madison Technology	15	The Resource Corp.	65
Matrix Productions	66	ULA	BC, 57
Meyer Sound Australia	5	VR Solutions	35

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