

prosound

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October 2018

STATE OF THE INDUSTRY

SOUND REINFORCEMENT

BY CLIVE YOUNG

All industries are dependent on the state of the economy. The sound reinforcement business is no different—which means it's been going full steam ahead this year, powered in part by low unemployment and a public in a spend-thrift mood.

The U.S. Consumer Sentiment Index, tracked by the University of Michigan, hit 96.2 in August, not far from the 101.4 it reached in March—the highest point it's hit since 2004. Despite signs of inflation starting to kick in, consumers are feeling good about spending money, citing future income and job stability. The university's chief economist, Richard Curtin, observed, "Consumers have not yet judged the current rate of inflation as a significant source of erosion in their living standards or as a cause to reduce their buying plans," and noted that personal consumption can be expected to grow by 2.6 percent in the year ahead.

All of this directly affects the sound reinforcement commu-
(continued on page 48)

RECORDING

BY STEVE HARVEY

Last year was the third straight year of growth for the global record business, with music sales up from 2016 by over 8 percent, to \$17.3 billion, according to the annual report released in April by IFPI, which represents the recording industry worldwide. Streaming was at the heart of those figures, with digital revenues accounting for the first time for just over half of industry income around the world.

"We're in a renaissance now," says Glenn Swan, manager and director of music production for Premier Studios in New York City. Premier, which encompasses four rooms, two acquired from Quad NYC in 2010, and rents an entire floor
(continued on page 48)

Recording Dave Grohl's Epic Play

This summer, Foo Fighters frontman Dave Grohl released a 23-minute solo track, "Play," performing all seven instruments in single, unbroken takes. Engineer Darrell Thorp reveals how it all went down.



The Evil That Men Mix

Rob Zombie and Marilyn Manson teamed this summer for the Twins of Evil tour; now Zombie's tight-knit crew shares how they made bad sound so good.



THE SONICS OF SMITH—UK crooner Sam Smith is circling the globe behind his hit album *The Thrill of It All* with audio provided by UK-based Capital Sound. A massive d&b audiotechnik P.A., with multiple hangs of 20 J8s each, helps cover sold-out arenas nightly. For more on the tour, see page 36.

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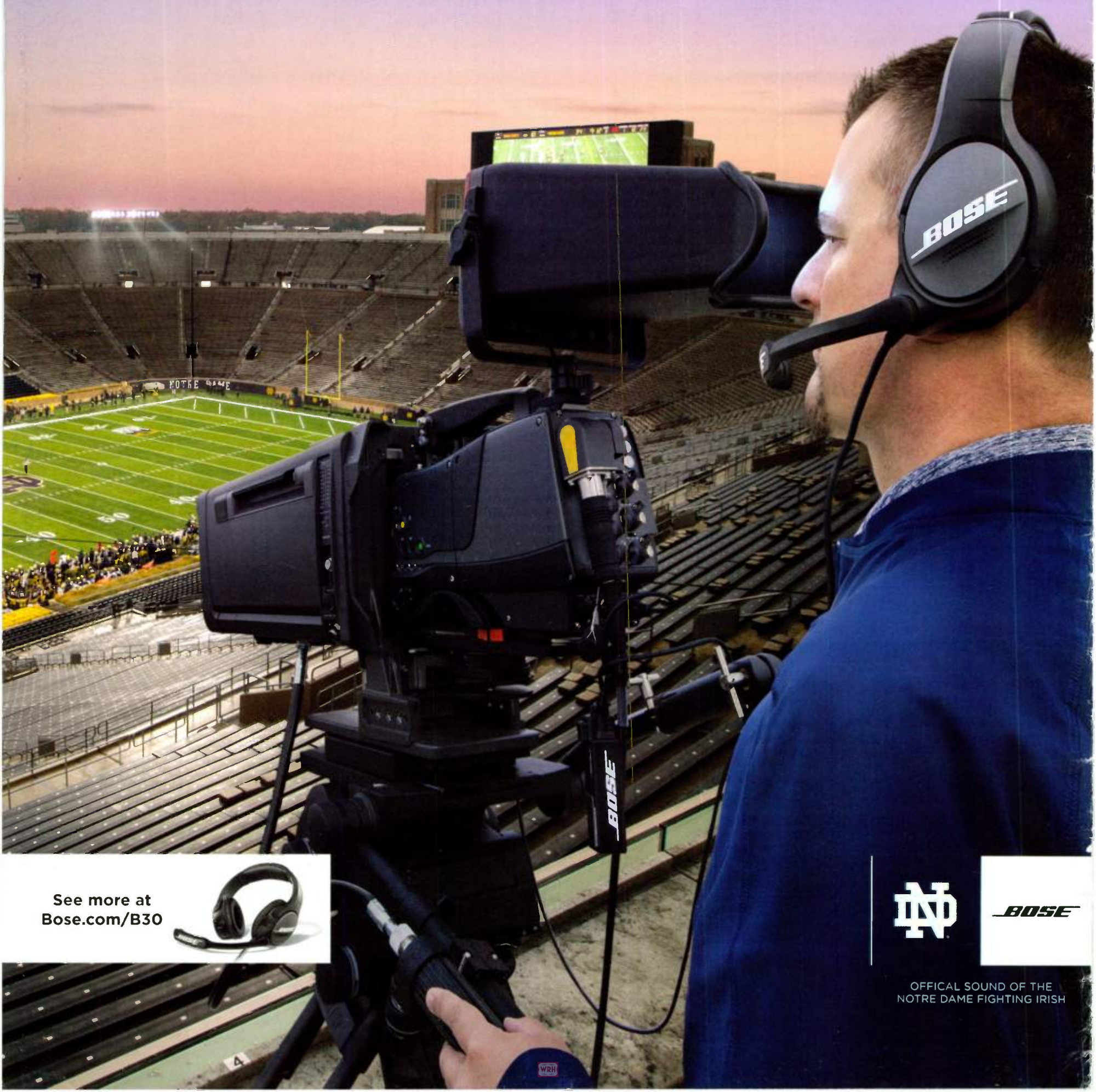
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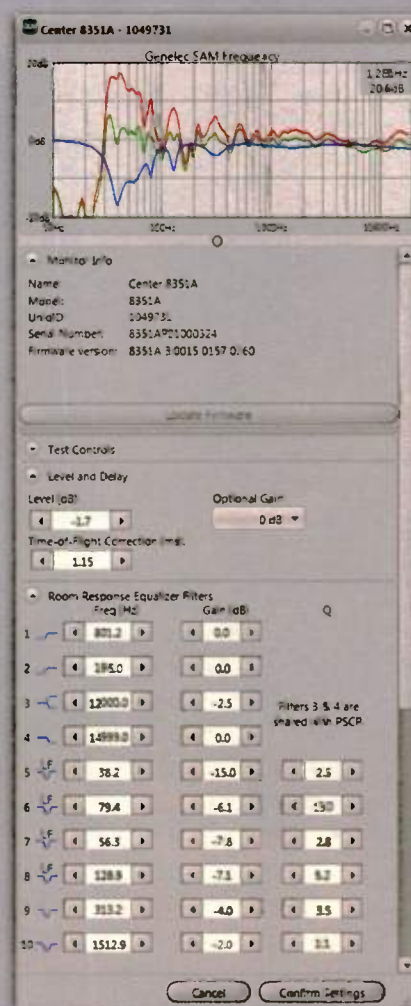
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Italy's RCF Group Acquires EAW

BY CLIVE YOUNG

WHITINSVILLE, MA—Italian pro audio conglomerate RCF Group has acquired Eastern Acoustic Works (EAW) from Loud Audio. Ironical-

briefs

Williams Sound, Pointmaker Now Williams AV

MINNEAPOLIS, MN—In the wake of Williams Sound's acquisition of Pointmaker last year, the two companies have launched a new common brand and corporate identity as Williams AV (www.williamsav.com). The overall organization will be called Williams AV, while its products will be categorized under one of two major product lines—appropriately, Williams Sound or Pointmaker. The rebranded company offers digital, FM, infrared and induction loop wireless audio, as well as video annotation and presentation systems.

Hal Leonard, Avid Team Up

BURLINGTON, MA—Avid (www.avid.com) and music media publisher/distributor Hal Leonard (www.hal-leonard.com) have entered into a five-year agreement to distribute the latter's creative tools through the former's network of resellers around the globe. The agreement is among Avid's largest distribution deals to date and is said to represent a multimillion-dollar value to Avid annually, while providing for Hal Leonard's distribution of professional audio and video products through authorized resellers in the Americas, Australia, New Zealand and selected countries in EMEA.

Roland Opens in London

LONDON, UK—Aiming to reach producers, engineers, instrumentalists and music business professionals, Roland (www.roland.com) has opened the Roland Artist Centre London, located within Metropolis Studios in West London. The center will be a hub for a variety of activities, including product support, social media initiatives, interviews, sessions, streaming events, photo shoots, gear demos and more. The move comes on the heels of new Roland Artist Centers in Nashville and Los Angeles, which opened in June and May, respectively.

ly, the deal comes some 15 years after RCF itself was divested by Loud Technologies, an earlier iteration of Loud Audio, in December 2003.

EAW will remain an independent company, according to RCF Group CEO Arturo Vicari. "We can look at a bright future together," he said in a statement. "Being part of our group will provide EAW with the necessary investments and focus for a fast and solid growth. We are very proud to have EAW with us."

Headquartered in Reggio Emilia and Bologna, Italy, RCF has subsidiaries in the United States and Europe, and operates under the companies RCF and AEB Industriale (dB Technologies). Founded in 1949, RCF has 500 employees and its products are sold in more than 130 countries around the world—an effort that it expects to bolster on an international scale with the acquisition of EAW.

Founded in 1978, EAW was bought by Mackie Designs in February 2000 to complement the latter's portfolio of brands, which included Radio Cine Forniture (RCF) at the time, acquired in 1998. In order to differentiate between the Mackie brand and its parent company, Mackie Designs was renamed Loud Technologies in 2003—the same year that Loud divested RCF. The company was later renamed Loud Audio when Transom Capital Group purchased Loud Technologies and all its related brands in October 2017.

In the wake of Transom's acquisition of Loud Audio, the EAW sale marks the third Loud brand to be

sold off this year, following in the steps of Ampeg, which was sold to Yamaha in mid-May, and Martin Audio, which was subject to a management buyout in July. The remaining brands under Loud Audio are Mackie, Crate, Blackheart and Tapco.

Loud and Transom announced that with the sale of EAW, they have completed their planned divestitures of brands—a move they say will help the company narrow its focus to its remaining pro audio brand, Mackie.

"While I have truly enjoyed working with all of the brands in the Loud legacy, now it's time for us to turn the page and focus entirely on building the Mackie brand," said Alex Nelson, Mackie's president. "Our companies have long lived in a conglomeration of brands, and I believe going forward all the brands are going to benefit from newfound focus, alignment and investment. This last divestiture marks a particularly exciting time for Mackie employees worldwide who are now about to embark on a journey of reinvention and revitalization."

It's a sentiment that was echoed by Dom Harter, managing director of Martin Audio, when he spoke to *Pro Sound News* in August about his company's MBO from Loud, noting, "We can now make the decisions wholly for the benefit of Martin Audio rather than a larger multi-brand organization."

TJ Smith, president of EAW, added, "Having grown up with the EAW and Mackie brands, I can truly say that this is an exciting moment. Both brands are now in a significantly stronger position to support their



unique partners and customers. I look forward to the continued development of Mackie and EAW under new and more focused ownership."

In a separate statement, Smith offered, "For those who love EAW, it is difficult to imagine a better scenario. From the first moment this possibility started to materialize, it has been clear that joining forces with RCF Group is a great opportunity for EAW. This transaction is a true recognition of what the brand represents and its potential, as well as the team we have built over recent years. With gratitude to the long list of those who built EAW over its 40-year history, we look forward to the exciting time in front of us."

Loud Audio
www.loudaudio.com

EAW
www.EAW.com

RCF Group
www.rcf-group.it

VER Exits Bankruptcy, Reorganizes

LAS VEGAS, NV—VER, which provides audio gear and engineering for the music touring industry as well as equipment to the film and TV industry, has emerged from bankruptcy and been reorganized.

In April, VER entered into an agreement to merge with Production Resource Group, bringing together two of the largest event production companies in North America, but as part of the transaction, VER filed voluntary petitions for Chapter 11.

VER will continue to exist as a traditional business-to-business sub-rental platform, renting to AV staging companies and industry professionals. Meanwhile, full-service solutions will transition to PRG, and the two companies will continue to operate separately.



As PRG already offers lighting, video, media servers and staging for tours, it expects to draw on VER's tour audio gear and background in order to provide complete services for tours, festivals and events. VER's audio division, VER Tour Sound, has provided audio services for such productions since it was founded in January 2013. Combined, VER and PRG will have approximately 70 locations across five continents.

Controlled by the Jordan Com-

pany, GSO Capital Partners and PRG Management, under the new corporate structure, PRG chairman and CEO Jere Harris now has roles for the combined company, while Stephan Paridaen is president and COO of the combined company and Bob Krakauer is CEO of VER.

"We believe that this approach will bring about innovation, an exciting level of service, and even more transformative collaboration with our partners. It feels historic, not only for PRG and VER, but for the entertainment industry," said Harris in a statement.

VER
www.ver.com

Production Resource Group
www.prg.com



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SOUNDRECORDING

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Indianapolis' 416 Wabash is a 7,800-square-foot flexible space that combines a well-appointed music studio with an all-purpose event facility—and it's a well thought-out hit.

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Artificial intelligence software is already writing production music; now AI music platforms may be impacting composers and their audio partners, too.

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Working on *The Darkest Minds*, co-supervising sound editors Will Files and Warren Hendricks were challenged to give the characters' mind control powers individual sonic signatures with a good or evil twist.

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SOUNDREINFORCEMENT

Bringing Boutique Festivals to the Beach 36

Boutique festivals, serving smaller, niche audiences, are a growing trend in Europe, as evidenced by Love International, an annual EDM festival in Tisno, Croatia, that puts stages on beaches, boats and more, all with DJs bringing the beats til sunrise.

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Craig Anderton throws down the gauntlet and says, "96 kHz vs. 44.1 kHz—let's settle this!"

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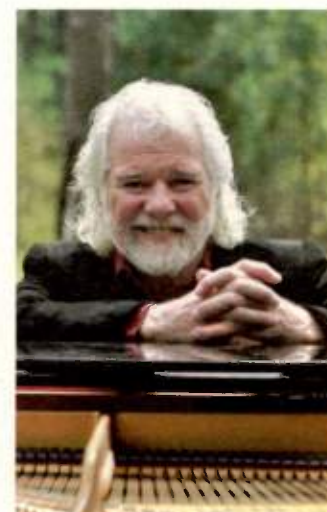
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Jacques Sonyieux talks with Chuck Leavell about one rockin' night in Germany, the genius of Ray Charles and what it's like to have Clapton and Gilmour ask you to join their bands.





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Facing Festival Fatigue

In the U.S., we love massive festivals, but Coachella, Bonnaroo, Outside Lands and the rest really only caught on in the last two decades. In truth, our festival history pales against that of Europe and the UK, where such annual blowouts have been a summertime staple since the 1970s.

There's generations of music fans over there who can't remember life without festivals—take my cousin Jemima, who makes a point of hitting three or four a year. While one happens to be held only a few hundred feet from her backyard (Boardmasters in Cornwall), Glastonbury remains her all-time favorite, though she's been known to travel halfway around the world to try one out: "At Glasto, it normally rains and you're wearing wellies for seven days straight, walking around a five-mile-big festival with blisters and mud—that's exhausting work. Coachella was grass and heat, so I thought I would give it a go, plus it's one of the biggest music festivals in America and it used to be classed as the American Glastonbury. Which it's not. The fact you are penned in a certain drinking area and can't drink while watching a band or DJ or whatever? Don't know what that's about."

Since they're such an ingrained part of culture over there, festivals—and all their supporting industries, including audio vendors—have weathered ups and downs throughout the

decades. Here in the U.S., however, after nearly two decades of growth, we're only starting to see festivals on a downward trend for the first time.

The U.S. touring industry welcomed the advent of festivals with open arms in the early 2000s. With the record industry in freefall at the time, there were fewer new acts being minted that could fill sheds and stadiums, and the aging Baby Boomer acts that were regularly among the highest-grossing live acts every year were getting on. Were live shows going to dry up forever? Then festivals started springing up, providing wins for all involved—consumers got a good ROI on a ticket, promoters made money, acts at all levels got exposure to huge audiences, and sound companies and other production vendors kept working.

Fast forward to 2018 and the top-grossing tours are still mostly aging baby boomers, but now we've started to experience festival fatigue. Lollapalooza saw slow ticket sales this year, according to the *Chicago Tribune*, while Bonnaroo had its worst and third-worst attendances ever in 2016 and 2017, according to the *Tennessean*. Some long-running mainstays like Sasquatch have gone on hiatus, while others like FYF Fest and Lost Lake threw in the towel this year due to low ticket sales. In September, St. Louis' LouFest cancelled due to money issues just 48 hours before showtime, bringing to an end

an eight-year run that had a strong attendance history, selling out all 60,000 tickets just last year.

Why is attendance down? There's no single answer. Music fans who attended the earliest post-2000s festivals are now aging out of regular concertgoing, with priorities shifting toward raising families and so on. Most of the biggest festivals are now owned by the same promoters, resulting in a creeping sameness to the lineups, too. Pitchfork found that Lollapalooza, Coachella and Bonnaroo had about a third of their lineups in common in 2017. And then there's the theory that millennials' much-discussed focus on experiences may mean they're ready to experience...something else.

All industries experience lulls, and then reinvention comes along. Some suggest the U.S. should embrace the growing European trend of small, almost artisanal festivals, like Croatia's Love International, profiled on page 36. Some fests are adopting that format here, like Portland, OR's Pickathon, which caps tickets at 3,500 daily and adds a decidedly American twist by turning it into a weekend-long live music video shoot with an audience on 12 heavily art-directed stages, resulting in hundreds of individual clips released throughout the year online for an additional revenue stream. By all reports, this year's edition was a smashing success. For years, the sound industry has crowed "live music will never die because you can't download an experience"—but now people want to experience the creation of the live music download.

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Live (Sound) from New York, It's AES

NEW YORK, NY—The annual Audio Engineering Society Convention is coming up soon. Audio pros from around the industry will come together at the Jacob K. Javits Convention Center in New York City, October 17–20, for four days of everything audio. One of the benefits of holding the show once again in the Big Apple is the opportunities it affords to attend workshops and panels at which live sound pros working on Broadway, live television, tours, international events and more share their insights and experiences.

This year's Sound Reinforcement Track will explore dozens of live and installed sound topics including sound system optimization, corporate sound, live sound production for TV, the impact of the continuing reallocation of the RF spectrum, and best practices in designing wireless intercom systems.

"Sound reinforcement is continually evolving due to new technologies and possibilities, and audience expectations. In 2018, sound reinforcement faces continuing regulatory, financial and market challenges," said Henry Cohen, AES New York 2018 Sound Reinforcement Track co-chair. "With these challenges come opportunities, and the AES New York Convention presents the next chapter in audio engineering evolution."

AES New York's "RF Super Session" will address attendees' concerns about the new RF landscape, identify specific issues and offer real-world solutions. Moderated by James



Last year's AES Convention at New York's Javits Center was packed.

Stoffo of Radio Active Designs, the panel will feature RF engineers and technicians, manufacturer's product specialists and government relations experts. A second Super Session, moderated by Peter Erskine of Best Audio and discussing wireless intercom systems, will investigate and compare the primary technologies in use today, including associated control platforms.

In the "Live Production in a TV World" seminar, Jenny Montgomery, the lead A2 (audio assist) on the recent live broadcast production of *Jesus Christ Superstar*, and other members of the production team will discuss handling the challenges of a one-off live event where there's no option but to get it right the first time. Getting it right every night is the challenge on Broadway, as will be illustrated in the session "Designing for Broadway: *The Band's Visit*," where sound designer Kai Harada

and his crew will provide insights into the show's Tony Award-winning sound design.

Core technologies will be covered in sessions such as "Understanding Line Source Behavior for Better Optimization" and "A Cookbook Approach to Sound System Optimization with Bob McCarthy." "Audio Production for Corporate Events" will feature a panel of experts addressing topics ranging from fitting the sound system to the venue to RF coordination and music and band support.

AES New York Convention Sound Reinforcement Track events, available with All-Access registration, run in complement to exhibit floor and demo room events including the Broadcast Audio Expo, Broadway Sound Expo and Live Production Stage, and the AoIP Technology Pavilion.

AES Convention
www.aesshow.com

Doug MacCallum, One Systems Co-Founder, Dead at 62

NASHVILLE, TN—Douglas "Doug" MacCallum, co-founder and president of Nashville-based speaker manufacturer One Systems, died at his Brentwood, TN, home in mid-September after a yearlong battle with leukemia. He was 62.

Born in Pittsburgh, PA, in 1956 and graduating from Baldwin High School in 1974, MacCallum headed to Otterbein University in Westerville, OH, where he earned a bachelor's degree in business administration.



Doug MacCallum in 2002

MacCallum began his career in 1978 as sales manager of Cambridge Marketing Group, a manufacturers' rep firm, followed by a 14-year run of sales management and executive positions with Electro-Voice and its parent company, the Mark IV Audio Group (the former parent company of EV, Altec Lansing, University Sound, Cetec Vega, Klark Teknik, DDA and Midas).

He ended his Mark IV Audio tenure serving as vice president from 1994-96. From there he went on to join Harman-owned AKG as vice president and general manager of U.S. operations, a position he held for a decade. At that time the microphone and headphone manufacturer was based in Nashville.

In 2007, MacCallum co-founded loudspeaker manufacturer One Systems, which is also the United States distribution partner for P.Audio's line of sound reinforcement systems. He served as president of the company until his death.

MacCallum is survived by his wife Jeanette, stepchildren Christina and Jacob, brother Bob, sisters Heather, Laurie and Tracy, and many nephews, nieces, and great-nephews and nieces.

One Systems
www.onesystems.com

Audio Precision Co-Founder Bob Metzler, Dead at 84

BEAVERTON, OR—Audio Precision co-founder and former president Bob Metzler died at home on August 11, 2018. Along with Dr. Richard Cabot, Bruce Hofer and Robert Wright, Metzler founded Audio Precision in 1984 and served as the organization's president until his retirement in 1999. He was 84.

Born in Plymouth, IN, in 1934, Metzler went to study at Manchester College in Indiana, where he met his wife, Violet, in 1953; they married in 1954. After working for various radio stations as a DJ/chief engineer, he finished his physics degree at the University of Louisville and worked for General Electric before moving to Portland,



Bob Metzler

OR, in the early 1970s to work at Tektronix. Later he gained an MBA degree at the University of Portland.

During his time at AP, in addition to his role as president, Metzler's responsibilities included marketing and sales, with those duties often

calling for extensive international travel. It wasn't uncommon for him to be gone for weeks at a time, visiting numerous countries, and customers, in a single trip. He became the face of AP during those early years, engaging thousands of customers across the globe.

During his time at AP, Metzler wrote numerous magazine articles and application notes, edited AP's newsletter, Audio.

TST, and, in 1993, authored the *Audio Measurement Handbook*.

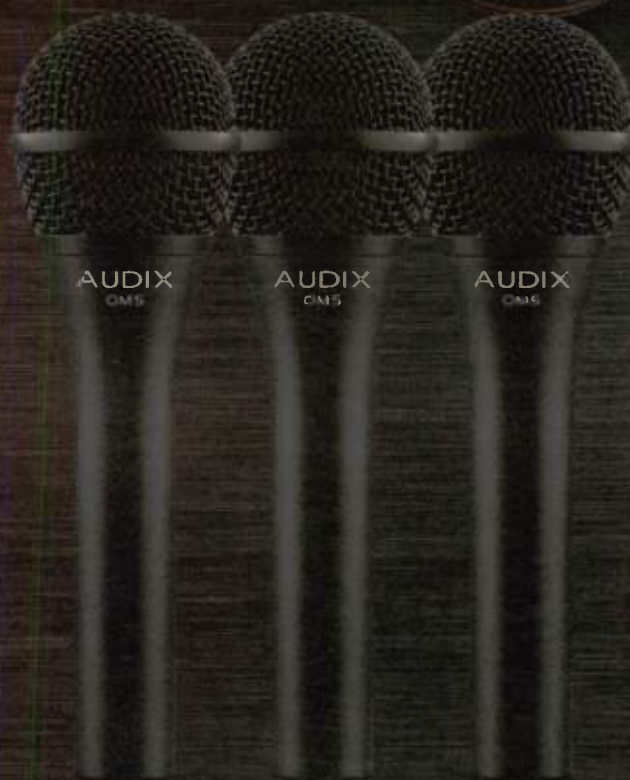
He is survived by his wife Violet; sister Helen; children Mark, Dennis, Lucinda and Christopher; and 11 grandchildren.

Audio Precision
www.ap.com

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AUDIX

audixusa.com

Audio on IP Networks: AES67 and Audinate's Dante

BY EKIN BINAL

Networking is a key component of pro audio these days, and much as all professionals have a few favorite pieces of gear, they also have preferences about networking solutions. AES67 and Audinate's Dante protocol are among the most popular offerings, though they ultimately are intended to accomplish different goals.

Here, Ekin Binal, audio solutions technology manager at Crestron Electronics, shares his opinions on the two protocols, exploring considerations such as security, cost, sound quality and future-proofing.



[opinion]

Dante and AES67 are two of the most popular ways of transmitting audio over IP. Dante is a license-based media networking technology developed by Audinate, a publicly traded Australian company. With over 300 brands and more than 1,500 products on the market designed to support the Dante audio networking protocol, the company has developed a large presence in the industry. Audio solutions that are Dante-enabled guarantee interoperability. For example, a Crestron DSP-1283 can easily connect to a Dante-enabled Sennheiser microphone, allowing both devices to appear in Dante Controller. Audinate's Dante Controller software allows the user to view all Dante transmitters and receivers, and configure all of the

routes in the Dante matrix.

AES67 is an open standard developed by the Audio Engineering Society. This suite of IP-based audio networking standards focuses on interoperability with standards like Dante or Q-LAN, for instance. With AES67 configuration, users are able to make different audio-over-IP plat-

forms talk to each other on a network. AES67 ties together different networks by allowing a user to send audio from, say, a Dante-enabled piece of hardware to a Ravenna-enabled piece of hardware when both devices are in AES67 mode.

While comparing two very prevalent solutions, it is imperative to dive deeper into the conversation and note that Dante and AES67 provide enterprise-grade solutions.

A common misconception is that AES67 and Dante are competing standards. AES67 was created to serve as an interoperability solution between various audio-over-IP standards; as such, it does not offer all of the capabilities that Dante does. For example, Dante provides users the functionality of controlling and monitoring audio, while AES67 does not. It is also important to note that Audinate has adopted AES67 compatibility mode in its most recent firmware.

Dante is a full-suite solution ranging from hardware modules to

software solutions that provides the user with the ability to control, monitor, discover and transport many audio channels between any compliant audio devices. AES67 cannot currently control or monitor assignments, and it doesn't currently have Dante's ability to allow its users the control and management of audio-over-IP traffic.

Dante has added an additional layer of security with Dante Domain Manager, which provides assigned users with different levels of access. Profiles with higher-level access can determine where audio can be sent and received. A user must have administrator rights to set and break the audio routes. Without this security, someone could enter somebody else's network, plug in and route microphone channels from a conference room to listen in on a conversation or project. While this is a benefit of the Dante solution, this type of security is not currently part of the AES67 standard.

With AES67 being an open standard without licensing costs, there is no upfront cost; rather, it is a complete specification that any manufacturer can follow. It defines what developers need to implement, the protocols to follow and the underlying architecture. AES67 is attractive for manufacturers seeking audio over IP for the lowest initial cost.

Although Dante is initially more expensive, its users can feel confident they are implementing future-proof and industry-supported technology that is designed to adapt and grow

with the business. When purchasing a Dante-enabled product, you are assured that all components will work together seamlessly.

As for sound quality, Dante offers user-selectable ranges with capability ranging from 48 kHz to 96 kHz and all the way up to 192 kHz. AES67 has currently adopted a media clock rate of 48 kHz, technically making it lower fidelity, but this is still a high sampling rate, especially when you take into account the fact that it is 24-bit and can be up to 32-bit. The difference between the sampling rates would not be noticeable to most users, and 48 kHz has been accepted across the pro AV industry as a compliant rate. For reference, CD quality is 44.1 kHz/16-bit.

With future-proofing in mind, many manufacturers have waited to see whether Dante or AES67 would emerge as the dominant audio-over-IP solution. Dante adoption has grown at a rapid pace. Customers are becoming more comfortable with Dante as it has AES67 built into it, which provides flexibility to the user. Meanwhile, if two years from now Dante becomes something else or another competing platform emerges, users can rest assured that AES67 mode will maintain interoperability with other AES67-compliant gear. Dante is currently the best solution out there as it provides synchronization, has a high quality of service built into the platform, and it ensures that all of the audio partners that support Dante can work together without question.

T-Mobile Continues 600 MHz Push Across U.S.

BY STEVE HARVEY

BELLVUE, WA—Having pushed wireless mic operators out of the 600 MHz range, T-Mobile is continuing to lay the foundation for nationwide 5G in 2020 with 5G-ready equipment, and has now lit up 600 MHz (Band 71) Extended Range LTE in 1,254 cities and towns in 36 states, including the island of Puerto Rico.

As T-Mobile rolls out its Band 71 infrastructure, licensed and unlicensed wireless audio equipment operators must vacate frequency spectrum in the 600 MHz band in the relevant regions. Failure to do so may result in a hefty fine.

T-Mobile notes that Extended Range LTE signals travel twice as

far from the tower and are four times better in buildings than mid-band LTE, providing increased coverage and capacity. The so-called "Un-carrier" has already deployed Extended Range LTE to more than 80 percent of Americans with 700 MHz (Band 12), and rapidly began deploying it with 600 MHz (Band 71) last year to expand coverage and capacity even further.

In April 2017, T-Mobile made its largest network investment ever, tripling its low-band spectrum holdings by purchasing spectrum sold in the U.S. government's 600 MHz auction. Those licenses cover 100 percent of the United States, including Puerto Rico. Immediately after receiving the licenses,

T-Mobile began its rapid 600 MHz Extended Range LTE rollout. To accelerate the process of freeing up the spectrum for LTE, T-Mobile has been working with broadcasters occupying 600 MHz spectrum to assist them in moving to new frequencies.

T-Mobile currently offers 14 smartphones capable of operating in the 600 MHz band, and that number continues to grow. The company has also enabled carrier aggregation for 600 MHz Extended Range LTE and mid-band LTE, so customers with capable devices can access the capacity of both simultaneously, increasing download speeds.

T-Mobile
www.t-mobile.com



T-Mobile has lit up 600 MHz Extended Range LTE in 1,254 cities and towns in 36 states.

Sound Emmy Winners Announced

BY STEVE HARVEY

LOS ANGELES, CA—In the first of two 2018 Creative Arts Emmy Awards ceremonies honoring outstanding artistic and technical achievement in television, the Television Academy awarded many talented artists and craftspeople, including sound mixing and sound editing teams.

The ceremony, which kicked off the 70th Primetime Emmy Awards, honored achievements in the categories of animation and scripted programming including comedy, drama and limited series and were presented at the Microsoft Theater in Los Angeles.

Best Sound Editing (Half-Hour Series)

Atlanta—"Teddy Perkins"

- TREVOR GATES, Supervising Sound Editor
- JASON DOTTS, Dialogue/ADR Editor
- DAVID BARBEE, Sound Effects Editor
- JORDAN MCCLAIN, Foley Editor
- GEORDY SINCAVAGE, Foley Editor
- MICHAEL HEAD, Foley Editor
- TARA BLUME, Foley Artist
- MATT SALIB, Foley Artist

Best Sound Editing (One-Hour Series)

Stranger Things—"Chapter Eight: The Mind Flayer"

- BRADLEY NORTH, Sound Supervisor
- CRAIG HENIGHAN, Sound Designer
- TIFFANY S. GRIFFITH, Dialogue Editor
- JORDAN B. WILBY, Sound Effects Editor
- DAVID WERNTZ, Sound Effects Editor
- ANTONY ZELLER, Supervising Foley Editor
- DAVID KLOTZ, Music Editor
- ZANE BRUCE, Foley Artist
- LINDSAY PEPPER, Foley Artist

Best Sound Editing (Movie/Mini)

Black Mirror—"USS Callister"

- KENNY CLARK, Sound Supervisor/Sound Effects Editor
- MICHAEL MAROUSSAS, Dialogue Editor
- MATTHEW SKELDING, Dialogue Editor
- DILLON BENNETT, Sound Effects Editor
- DARIO SWADE, Foley Editor
- RICKY BUTT, Foley Artist
- OLIVER FERRIS, Foley Artist

Best Sound Mixing (Half-Hour Series)

Barry—"Chapter Seven: Loud, Fast and Keep Going"

- TODD BECKETT, Re-Recording Mixer
- ELMO PONSDOMENECH, Re-Recording Mixer
- BEN PATRICK, CAS, Production Mixer

Best Sound Mixing (One-Hour Series)

Game of Thrones—"Beyond the Wall"

- ONNALEE BLANK, CAS, Re-Recording Mixer
- MATHEW WATERS, CAS, Re-Recording Mixer
- RICHARD DYER, Production Mixer

• RONAN HILL, CAS, Production Mixer

Best Sound Mixing (Movie/Mini)

Genius: Picasso—"Chapter One"

- BOB BRONOW, Re-Recording Mixer
 - MARK HENSLEY, Re-Recording Mixer
 - TAMÁS CSABA, Production Mixer
- Academy of Television Arts & Sciences
www.emmys.com



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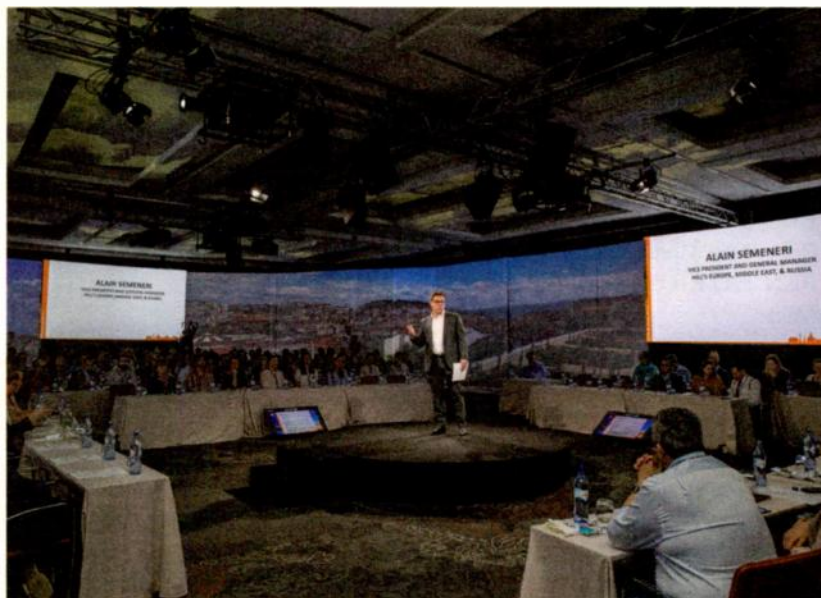
Hill's Gets Immersive with d&b

LISBON, PORTUGAL—When it comes to a corporate event, the production always keeps the client at the center of the audience's attention. Certainly that was the case recently when U.S. pet nutrition company Hill's held an in-the-round corporate presentation in Lisbon, but event producer Harvest Productions aimed to go a step further by immersing the participants via d&b audiotechnik's d&b Soundscape technology.

"We have always done 360, in-the-round style presentations for Hill's," explained Josh Koan, Harvest's project leader for this event. "And we always wanted to create a totally immersive experience for the delegates that places them within the context of the content we have created."

"For the Hill's event, we were in a large ballroom at a hotel in Lisbon, Portugal," continued Koan. "A central stage was used for all speech-based presentation. The delegates surrounded the stage, and they in turn were surrounded by a 360-video panorama.... We then paired that to multitrack recordings made at the same time so we could paint an accurate audio portrait, giving all delegates, wherever they sat, a spatially accurate experience."

d&b Soundscape enables two different, related forms of sound processing to produce defined enhancements to the listening environment. Based on the d&b DS100 signal en-



d&b audiotechnik's d&b Soundscape created immersive audio for a corporate event in Lisbon.

gine, Soundscape includes two distinct software components: En-Scene, a sound object positioning tool, and En-Space, an acoustic room emulation tool that provides room reverberation signatures.

The event's system comprised point-source loudspeakers, mainly Y10P with some E12-D. An inner "out-firing ring" for speech-based presentation from the central stage area used all Y10Ps. Meanwhile, there was also an "in-firing" system of E12-D and Y10P on the video perimeter. Each screen was approximately 4 meters wide and positioned north,

south, east and west of an oval shape, with the loudspeakers spaced evenly between them.

The systems worked together so

that as the inner ring fired outward, it supported the Soundscape environment. So if a sound object originated in the north position, for example, then as that sound transited the room and the delegates, a loudspeaker from the inner ring would pick up that role, supporting the sound object across the 120-foot throw.

Koan noted, "We used QLab to program the sound moves. The video spit out timecode, QLab took that and output OSC into the DS100, then to the matrix, so the whole process became automatic. That functionality was already built into QLab. What it meant was you just needed to drag the path of the audio through the listening area, and QLab writes the OSC code to make that happen. This was not a simple 'snap to a new position' audio; this was real-world transiting through space from one location to another, and without any need for complex programming to achieve that effect."

d&b audiotechnik
www.dbaudio.com

Back to Analog for Polosud Records

NAPLES, ITALY—Italy's Polosud Records has returned to analog after more than a decade of digital operation with the installation of a Rupert Neve Designs 5088 mixing console. Founded in 1981 as a rehearsal room and project studio for owner Ninni Pascale's band Walhalla, Polosud Records became

a professional studio in 1987 and a focal point of the Neapolitan music scene. After a "digital switchover" in the late 1990s, which lasted until 2017, Pascale says, "The analog is finally back." The 5088 was supplied by Rupert Neve Designs' Italian distributor, MidiWare.

Pascale says, "Having been a Rupert Neve fan for a long time and already having his equipment in my studio, I had the chance to talk about the console during a MidiWare event—and on that occasion, it was love at first sight. I have used a lot of consoles, but the RND 5088 is the 'true' mixer for me."

Pascale's console is configured with a 16-channel penthouse loaded with 14 channels of Shelford 5052 mic preamp/EQ and two Shelford 5051 EQ/compressor modules.

Rupert Neve Designs
www.rupertneve.com



Italy's Polosud Records has a new Rupert Neve Designs 5088 mixing console.

Aurus Makes FOH Debut in China's Cadillac Arena

BEIJING, CHINA—Zhang Hong Guang, one of China's most popular composers, filled the Cadillac Arena in Beijing in July when his music was performed for an audience of 18,000 fans. Placed at the house mix position was a Stage Tec Aurus platinum desk, making its debut as a FOH console in China.

The Aurus platinum was equipped with 32 faders and integrated into a Nexus network with six Base Devices and a STAR router. CCTV, China's national state broadcaster, recorded the event, which aired on the CCTV-3 music and entertainment channel. IFTT was the technical service provider.

The 60-piece orchestra, a choir of 50 singers and a band with 11 musicians, 16 soloists and two presenters required more than 200 mix channels and 80 buses, which engineers kept track of by using the Aurus VCA hierarchy feature, enabling instruments to be grouped. VCAs were mixed instead of individual channels, combined with the Aurus spill function.

To accommodate the large number of audio channels, the Aurus platinum was fully populated with seven



A Stage Tec Aurus platinum desk mixed the music of Zhang Hong Guang at Cadillac Arena in Beijing in July.

RMDQ DSP units. The microphones were converted to digital signals without analog preamplification directly at the Nexus' mic inputs with 32-bit resolution using the True Match process. A total of 16 XMIC microphone boards with eight channels each (128 in total) were installed in the Nexus Base Devices for the purpose.

A second performance in Shenzhen is already planned for the end of the year. Zhang Hong Guang, a composer of Chinese opera and dance theater, also writes film and television scores, as well as pop and ethnic music. The Cadillac Arena was opened in 2008 and hosted the Olympic basketball tournament in the same year. It will serve as the ice hockey venue during the Winter Olympics in 2022.

Stage Tec
www.stagetec.com

RG Jones Joins In at Henley Festival

HENLEY-ON-THAMES, UK—RG Jones Sound Engineering recently provided sound for the annual five-day Henley Festival in the UK, as it has for the last 36 years. This year, that meant providing audio for the likes of Rita Ora, Chic featuring Nile Rodgers, Grace Jones, Curtis Stigers and ENO. The event sports a number of venues, but none as unique as the festival's trademark Floating Stage.

Festival technical manager and head of sound Jim Lambert said, "The Floating Stage has always been a challenge in that the front-to-back of the arena is only approximately 98 feet but it is extremely wide, and with the introduction of general admission tickets outside the arena, we are being asked to cover a width of something like 330 feet."

To accomplish that goal, RG

Jones' audio team of Steve Carr and Mark Edwards fielded Martin Audio MLA Compact loudspeakers for main hangs and outfills. "They more than rise to this challenge and yet also enable us to keep to the fairly strict off-site noise limits set by the [city] council," Lambert explained.

For this year's edition, held in July, RG Jones added DD12s as arena delays in the grandstand to replace the previously used DD6s. Production also used MLA Mini for infill, and decided to retain the same curved MLX sub-bass arrangement that it had introduced in 2017, resulting in a smoother response in the far reaches of the main stage arena, according to Lambert.

In addition to the Floating Stage, MLA Minis were used in the Bedouin Tent and Jazz Garden—two of

the other three stages equipped by RG Jones, which was the only onsite sound contractor for the festival.

"Rita had the crowd jumping and the sound system sounded incredible—a floating fairytale on the water," reported Daria Dee, touring production manager for Rita Ora. "I've been working with RG Jones for many years now and it's always a relief to see their name on the sheet. The people behind this company are very passionate about what they do—they are a family-run independent business and it really distinguishes them. I've been to Henley Festival as a guest and it's a truly unique event. Working on it this year was equally fun and refreshing; the festival team is as wonderful as they are professional, and our crew were well looked after."



The Martin Audio MLA Compact P.A. is played wide at the Henley Festival's Floating Stage in order to cover the shallow but wide audience area.

Martin Audio
www.martin-audio.com

Solotech Takes On *Fame* in Montreal

MONTREAL, CANADA—The theme song to *Fame* goes, "I'm gonna live forever," and the theatrical musical based on the 1980 hit film might do that as well. Case in point: it was recently revived for a run at the 2,219-seat Saint Denis Theatre in Montreal, with audio provided by Montreal-based Solotech.

Front of house engineer Maxime Lambert oversaw a Yamaha Riva PM7 digital audio console nightly for the show. "Solotech strongly suggested that we take a look at the PM7, as it fulfilled most of our requirements," said Lambert. "After a moment of reflection, the show's sound designer, Colin Gagné, and I decided that it could be the right fit for us. We have used many Yamaha mixers before, mostly CL5, QL5 and M7CL, and Solotech provided us a day in their warehouse for training by Yamaha systems application specialist Kevin Kimmel."

Lambert took advantage of the new desk's multiuser interface: "Having the possibility for two operators on one control surface at the same time is really useful when you have 100-plus inputs to manage," said Lambert. "Another great feature is to have the option of choosing the send point of each channel to any mix, which made mixing monitors from front of house a lot easier. We had the Rupert Neve Designs EQ810 and MBC4 multiband compressor on all of our mix buses and mostly used the Yamaha SPX reverb for effects. The Rupert Neve Designs 5045 also came in handy."

A full two dozen Sennheiser



Tackling audio for the *Fame* revival were (l-r) Maxime Lambert, FOH engineer; Serge Rodrigue, wireless technician; and Colin Gagné, sound designer.

MKE1 lavalier wireless mics with SK 5212 bodypack transmitters were used for the actors, resulting in 40 wireless inputs, along with more than 50 wired microphones for the band. Serge Rodrigue was hired as the wireless technician for the show to ride herd on all its RF needs.

Solotech
www.solotech.com

Yamaha
www.yamahaca.com

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Capturing A Gang of Grohls for *Play*



ROSSELL FILMS

"Play," a 23-minute track composed and performed by Foo Fighters leader Dave Grohl, was recorded in single, continuous takes as he performed all seven instruments in the piece.

BY STEVE HARVEY

LOS ANGELES, CA—To help inspire new generations to learn and play music, Foo Fighters' frontman Dave Grohl recently released *Play*, a mini-docu-

mentary that includes a 23-minute track on which he plays seven different instruments, each recorded in a single take. The instrumental piece was filmed and recorded in Studio One at EastWest Studios in Holly-

wood over several days in March, with multi-Grammy Award-winning engineer, producer and mixer Darrell Thorp behind the console.

Play, from Roswell Films, an offshoot of Roswell Records, which re-

leases the Foo Fighters' music, was produced by Grohl and Therapy Content/Therapy Studios. It was directed by Grohl in collaboration with Mark Monroe. The pair previously worked together on the Grammy-winning 2013 documentary *Sound City* and the Emmy- and Grammy-winning HBO docuseries *Sonic Highways*.

Grohl's concept was to film and record each of his parts for the piece, which he wrote in sections on his laptop while touring, in a single, continuous take; one mistake and he started over. "He came in and said, 'I've never played this in its entirety before.' First he played the drums down, humming the guitar part—and there's no click," says Thorp, who also engineered Foo Fighters' latest album, *Concrete and Gold*.

The finished piece was built on take four, says Thorp. Next came the first guitar part, bass, then two more guitars, including an acoustic. Percussion and keyboards came last.

Grohl performed the drum part on three kits spread across the studio, with two floor toms placed between, enabling transitions. *Play* was reportedly inspired by Grohl watching his own kids, who have appeared on

(continued on page 24)

Behind the Beats: How UK Producers Created Grime

BY EMMA FINAMORE

LONDON, UK—Grime is one of UK music's big success stories. Thanks to the genre, British rappers are now being taken seriously across the pond by the likes of Kanye West and Drake. Ticket sales for grime events quadrupled between 2010 and 2017, while Spotify grime streams went from 89 million in 2016 to 206 million in 2017. Between 2016 and 2017, physical and digital album sales for grime grew by 93 percent, according to Dr. Joy White in *The Business of Grime*.

Despite the high accolades and equally high sales of today, it was the low-fi, DIY techniques of young producers that first generated the unique sound that would become one of the UK's biggest home-grown genres. These early pioneers used the accessible tools they had—programs found on game consoles of the late 1990s, cheap technology plugged into their parents' PCs—in order to reflect the sounds and atmosphere of their environment, at grime's now infamous 140 bpm.

A true DIY genre, many of today's biggest MCs came up as producers: present-day household names Wiley and Skepta, for example, both produced tracks for themselves and others before becoming better known for their skills on the mic. DJ Target—who helped shape grime in its earliest form—was childhood friends with Wiley, and the two discovered music production together before going on to found garage crew Pay As U Go Cartel (who had a Top 20 hit with "Champagne Dance" in 2002) and the grime-establishing group Roll Deep, who enjoyed a string of Number One singles and who count grime stars Dizzee Rascal and Tinchy Stryder as former members.

"I'd analyze the beat, right down to the small sounds in the background," remembers DJ Target—who helped shape grime in its earliest form—in his recently published autobiography, *Grime Kids*.

He describes how, even as teens, he and Wiley were analyzing the beat of tracks while listening to their Walkmans or watching MTV's first



MARKSURIDGE

DJ Plastician's early tools included FruityLoops 2.0 and Cool Edit.

ever hip-hop show, *Yo! MTV Raps*. "New software enabled us to work entirely from laptops, or from much simpler studio setups, which made it possible for many more [people] to start making music. Even without a laptop or a recording studio, teenagers were using PlayStation programs to create beats," says Target about how he and his peers started creating the sound of grime around the turn of the millennium.

"Ninety-five percent of the beats we made were on our laptops. Logic

Pro with a bunch of MIDI plug-ins was all we needed to get the sound we wanted," he adds.

FruityLoops—available on PlayStation—was a freeware digital audio workstation released in the late 1990s and adopted by many budding grime producers. Created by Belgium-based Image-Line, which specialized in games, FruityLoops 1.0 was developed as a MIDI-only step sequencer inspired by the Hammerhead Rhythm Station, an emula-

(continued on page 23)



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416 Wabash Aims for Best of Both Worlds

BY STEVE HARVEY

INDIANAPOLIS, IN—After graduating with a bachelor's degree from Indiana University, Chris Wodock decided the 9-to-5 life was not for him, so he headed to Boston to study music production and engineering at Berklee College of Music. After six years as a touring musician based out of Austin, TX, Wodock returned to his hometown of Indianapolis in mid-2002 and put his economics degree to work, initially building the Music Garage recording and rehearsal studio and, more recently, 416 Wabash, a music production facility and event space.

"When we opened in 2004, rehearsals were booming," says Wodock, who launched Music Garage with the goal of building out multiple rehearsal rooms in addition to a recording studio. "There were rehearsal spaces and studios all over Austin, so I thought I'd model off what I'd seen there. But they're completely different music scenes, so we only got to build three rehearsal rooms."

Over the following 12 years, he says, it became increasingly difficult to entice bands into the rehearsal rooms. The studio, on the other hand, was doing fine. "I worked with Gucci Mane back in 2007; that generated all kinds of buzz and I got labeled as the place to go for hip-hop."

When the lease came due for renewal, Wodock decided it was time for a change. "I found a couple of investors who were into my idea of creating a recording studio that was more of an events/performance space. Why don't we have bands come into the studio and record, and then do a show to promote their EP? I found this space; it had been empty for four years, so they were eager to rent it to us."

416 Wabash's 7,800-square-foot flexible space, with a standing capacity just short of 600 people, features an industrial vibe with multiple mezzanine levels and VIP areas that can be configured for anything from a wedding celebration to a corporate product launch to a music concert. "I bought a portable stage of 4-foot by 8-foot pieces, so we can tailor the stage for a solo acoustic artist or we can do a 24-foot by 16-foot stage for a larger touring act," says Wodock.

Shortly before relocating, Wodock purchased a 24-input SSL XL-Desk, which is outfitted with a variety of 500 Series modules, including pairs of Lindell Audio PEX-500 passive EQs and Heritage Audio '73JR mic preamps, plus an SSL

G Series stereo bus compressor. For the new facility, he purchased Lynx Aurora 24 HD converters for his Pro Tools HD12 rig and a pair of Focal Twin6 Be monitors. A double-wide outboard rack houses API, Focusrite, Universal Audio and other devices. "Premium converters, good speakers, nice desk; that was our goal," he says.

Wodock built his previous studio from Wes Lachot designs posted on the internet. Lachot was his first choice for the new facility, but the budget wouldn't quite stretch far enough. Instead, he went with Indianapolis-based Haverstick Designs, a company founded by Gavin Haverstick, who previously worked for local acoustics company Auralex.

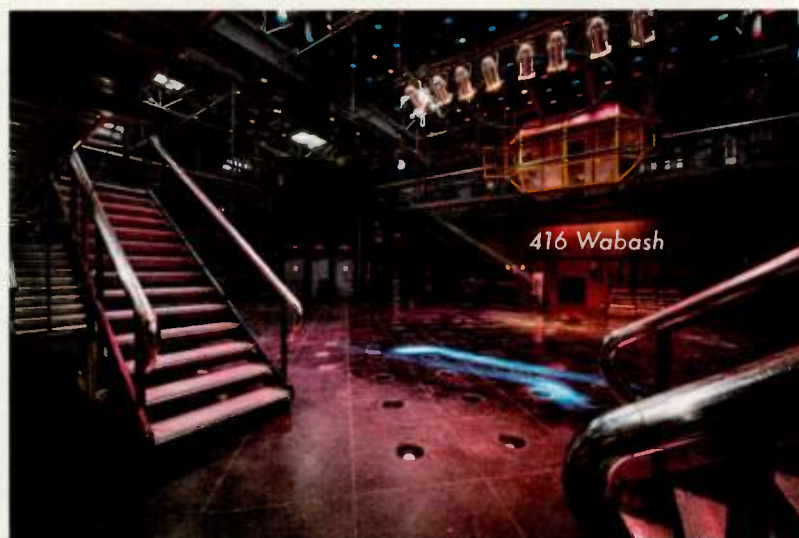
"When I saw he'd branched out on his own, I thought, of course I'm going to call the hometown guy," says Wodock. "I sat down with Gavin and said I wanted it modeled around an SSL desk and Focal speakers, and he built exactly what I asked for."

Wodock and his crew constructed the production facilities to Haverstick's specifications, only using Primacoustic diffusors on the back wall for the sake of expediency. "It was way harder than I thought," he says. "Putting real lead stone into the recording booth was a two-day process that turned into two weeks. There were points where I'd been working for 14 hours and was ready to give up. Nobody tells you how difficult it is to hang a 5x3 piece of 1-inch glass and how incredibly heavy it is. But we pushed through it."

Wodock chose to keep the control room to a workable size while also including an iso booth that could accommodate several musicians. "It was a fine line between making the event space as usable as possible and having enough space to make the studio as usable as possible," he says.



The control room for 416 Wabash centers around a SSL XL-Desk and Focal Twin6 Be monitors.



With 7,800 square feet to work with, 416 Wabash is both a full-fledged recording studio and event space.

Additionally, the event space is available for recording larger bands, or live performances, he notes. "We put a 24-input panel with four data lines outside the control room facing the event space. I had Jared Stansill at Pro Audio LA do all my Mogami wiring."

A freestanding, isolated mezzanine structure above the control room serves as a VIP area. "We might make it a green room," says Wodock, who is keen to keep the entire space as flexible as possible and cater to the widest possible range of events. "I don't want to be pigeonholed; I try to do it all."

But music is certainly a focus. "This weekend we have a four-band bill on Friday, a three-band bill on Saturday, then Sunday is a Latin dance night," he reports. One of Wodock's goals is to produce a music show similar to *Austin City Limits*. "We did a test pilot in April with a film company, with seven cameras and two really good regional touring acts."

The studio control room is linked over Cat 5 via a Focusrite RedNet 3 box to a Midas M32 console in the

event space. "I can have a front-of-house engineer and a studio engineer each doing their own things," he says.

For a P.A. system, Wodock turned to his local dealer. "I usually get my equipment through Sweetwater because they're two hours north of us. My Sweetwater sales rep, Jeff Barnett, recommended a PreSonus ULT system, two mains and two 2,000W subs. It's plenty loud—it's 110 dB all day—and crystal clear. We've had great luck with it."

Indeed, with few other businesses combining a music studio with an all-purpose event space to serve as a template, Wodock believes luck has played a part in 416 Wabash's success. "I'd had a studio business for almost 18 years, so I had a pretty good clientele, and it was a good time to add the event space. Now I'm adding even more clientele who are interested in not only recording but also having their EP release here," he says.

"But I definitely don't think I'm that smart. I think I just got lucky."

416 Wabash
www.416wabash.com

96 kHz vs. 44.1 kHz: Let's Settle This



BY CRAIG
ANDERTON

Ever since we've had a choice of sample rates, there's been controversy over whether higher sample rates sound better. Some claim higher sample rates add transparency to music, while others claim (with some justification) that no one can tell the difference if material recorded at 96 kHz plays back at 96 kHz or 44.1 kHz.

Which reminds me of being in a studio in Chicago years ago. Two musicians were having a heated debate about whether cables made a difference. Musician A said that cables can make an audible, obvious difference. Musician B said it's about companies trying to sell you things you don't need, and wire is wire.

I asked musician A if he played guitar, and musician B if he played keyboards. They were shocked—how did I know? Easy: Cables can make a difference with guitars, but not so much with keyboards.

For the past few years, I've been researching the hypothesis that both the pro and con higher-sample-rate advocates are right, because the difference is situational. Although I can't speak to all possible differences, it turns out there can be a major, obvious difference when working "in-the-box" with some (but not all) virtual instruments and amp sims.

Virtual instrument waveforms, like pulse waves, can have harmonics that can extend into, or above, the sample rate. When hardware synths feed this type of signal through an audio interface, the higher frequencies aren't an issue because the interface itself, and the A/D conversion process, filters out these harmonics. However, sounds generated inside the computer do not have these constraints. The same can be true of high-gain amp sims; with massive amounts of distortion and 60 dB of gain, harmonics can work their way above the clock frequency.

This can create foldover distortion—a well-recognized digital audio limitation that produces aliasing and a "woolly" sonic character. In workshops, I often demonstrate the sound of an amp sim recorded at 44.1 kHz, 96 kHz and 192 kHz. The difference is so obvious that a common reaction is, "Are you sure it's not a different preset?"

Foldover distortion is usually an issue with older virtual instruments because newer ones often have internal oversampling so they can run at a higher rate than the project. However, this, too, has limitations. Oversampling requires more CPU cycles, and because virtual instru-

ments tend to be power-hungry anyway, this may limit the number of real-time virtual instruments you can run in a project. Fortunately, oversampling is usually optional, so you can track without it—when low latency matters—and oversample while mixing. But another consid-

eration is that the oversampling algorithms need to work in real time, so recording at a higher "native" sample rate may be better (although whether anyone would notice is debatable).

I've also found that even 96 kHz isn't enough to represent some synth waveforms accurately, and 192 kHz is preferable. At this frequency, *(continued on page 24)*

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ARTIST: GRETA VAN FLEET
ALBUM: ANTHEM OF THE PEACEFUL

LABEL: LAVA/REPUBLIC
PERSONNEL:

Produced by: Marlon Young, Al Sutton, Herschel Boone
Engineered by: Al Sutton, assisted by Tanner Peters and Jason Mott
Mix Engineers: Al Sutton and Marlon Young at Rustbelt Studios (Royal Oak, MI)
Studio: Blackbird Studio Nashville, TN
Mastered by: Ryan Smith at Sterling Sound
EQUIPMENT NOTES: 96-input API Legacy Plus 48 212 mic pre's and Flying Faders II automation



ARTIST: BROKEN TESTIMONY
ALBUM: HOLDING ON TO NOTHING

LABEL: THERMAL ENTERTAINMENT

PERSONNEL:
Produced by: Jacob Porter
Engineered by: Jacob Porter
Studios: Illusions Studios (Taylor, SC)
Mastered by: Illusions Studios

EQUIPMENT NOTES: PreSonus FP10, Avid Pro Tools



ARTIST: PHONY PPL
ALBUM: MÖ'ZÄ-IK.
LABEL: 300 ENTERTAINMENT

PERSONNEL:

Produced by: Phony Ppl
Engineered by: Brother Rich, Roland Cespedes, Elbee Thrie, Matthew Byas, Aja Grant, Gannon Kashiwa, Andy Wright, Cole Karaba
Mix Engineer: Q Million
Studios: The Cabin at Manhattan Center (New York, NY), theSpacemnt. BK. (Brooklyn, NY), Sparta Studios (New York, NY), The Casa (Brooklyn, NY), Studio 610 (New York, NY), Flyin' Dread Studio (Los Angeles, CA)

Mastered by: Chris Athens at Chris Athens Masters (Austin, TX)

EQUIPMENT NOTES: TASCAM DP-24SD Portastudio; monitors: Focal Shape 65 and Alpha 65, Yamaha NS10 and HS5, Reftones, Tannoy 802 Reveal; Ableton Live 9.0



ARTIST: RACHEL ECKROTH
ALBUM: WHEN IT FALLS
LABEL: SELF-RELEASED
PERSONNEL:

Produced by: Tim Lefebvre
Engineered by: Gary Novak, Eric Isaacson, Griffin Boice (vocal engineer)
Mix Engineers: Nic Hard, Geoff Stanfield
Studio: Kronos Recording Studio (Burbank, CA)
Mastered by: Ed Brooks at Resonant Mastering
EQUIPMENT NOTES: Wheatstone TV Console for playback, Dynaudio BM15A monitors, Avid Pro Tools, Aurora Audio GTP-8 pre's, Neve 3104 pre's



ARTISTS: JIMMY HASLIP, SCOTT KINSEY, GERGŐ BORLAI

ALBUM: ARC TRIO
LABEL: BLUE CANOE RECORDS

PERSONNEL:
Produced by: Jimmy Haslip,

Scott Kinsey
Engineered by: Scott Kinsey
Studio: Wishbone Studio (Los Angeles, CA)
Mastered by: Scott Kinsey at Wishbone Studio
EQUIPMENT NOTES: UA 2-610, UA 6176, True Systems P8, Geoff Tanner GTQ2, Dynaudio BM15A monitor, MOTU DP9, Ableton Live



ARTIST: EDDIE Z
ALBUM: TOGETHER IN THE VAULT

LABEL: THE PLAYROOM

PERSONNEL:
Produced by: Eddie Z
Engineered by: Eddie Z, Mark Williams, Eddie Bibbs (assistant)

Studio: The Vault at The Playroom (Charlotte, NC)
Mastered by: Dave Harris at Studio B

EQUIPMENT NOTES: Avid Pro Tools, Steinberg Nuendo, AudioKinesis monitors



ARTIST: DAVID MESSIER
ALBUM: TIME BOMB
LABEL: SAME SKY PRODUCTIONS

PERSONNEL:
Produced by: Dave Madden
Engineered by: Andre Cantave
Mix Engineer: Chris Shaw
Studio: Same Sky Productions (Austin, TX)
Mastered by: Piper Payne at Neato Mastering (Oakland, CA)
EQUIPMENT NOTES: Genelec 1031 monitors, Avid Pro Tools



ARTIST: GEORGIA & THE VINTAGE YOUTH
ALBUM: REMEMBERBRICK LANE

LABEL: CUZBUZ RECORDS
PERSONNEL:

Produced by: Mo Pleasure (two tracks), Ivor Crandon and Georgia Crandon (two tracks)

Engineered by: Neil Goody
Studio: Premises Studios (London, UK)

Mastered by: Neil Goody at Premises Studios

EQUIPMENT NOTES: SSL AWS 900, ATC monitors, Avid Pro Tools



ARTIST: MIKE FARRIS
ALBUM: SILVER & STONE
LABEL: COMPASSRECORDS
PERSONNEL:

Produced by: Garry West
Engineered by: Matt Coles
Studio: Compass Sound Studio (Nashville, TN)
Mastered by: Randy LeRoy at Tonal Park (Tacoma Park, MD)

EQUIPMENT NOTES: Avid C 24, API and Millennia pre's, Emotiva Stealth 8 monitors, Avid Pro Tools



ARTIST: DEVON CHURCH
ALBUM: WE ARE INEXTRICABLE
LABEL: FELTE
PERSONNEL:

Produced by: Devon Church

Engineered by:
Mix Engineer:
Studios: Home studio (Brooklyn, NY)

Mastered by: Rafael Irisarri at Black Knoll Studios

EQUIPMENT NOTES: Universal Audio LA-610, Yamaha HS80 monitors, Apple Logic Pro

notes

RT Taps TASCAM

ALLEN, OK—RT Val ne and his band, RT N' The 44s, described as "folk noir" and "a vintage country band with dark obsessions," started out recording on a TASCAM (www.tascam.com) 626 Portastudio and have since progressed through the product line to the DR-44WL handheld digital recorder, belying a lo-fi ethos that extends to the use of instruments constructed from found materials.

Focusrite Is in the House

PAWLING, NY—Daryl Hall's longtime audio director and engineer Peter Moshay has used a 48-channel rack of Focusrite (pro.focusrite.com) ISA 828 mic preamps to record every performance of the *Live From Daryl's House* streaming and cable TV music show since it began at Hall's home in 2007, later moving to Daryl's House Restaurant & Live Music Club in Pawling, NY.

Putting the Em in PMC

LONDON, UK—Producer Emre Ramazanioglu, known to his friends as Em, whose client list is a who's who of contemporary music, has purchased a pair of PMC (www.pmc-speakers.com) twotwo8 monitors for his studio at Hoxa HQ, a boutique facility in London's West Hampstead that was established by writer/producer Jimmy Hogarth. The PMCs sit beside a Pro Tools HDX rig and LAD interfaces.

80-Fader Desk Lands at MC34

NEW YORK, NY—Manhattan Center (www.mc34.com) has renovated its Studio-7 recording facility, equipping the control room with new sound, mixing and production systems, expanding workplaces for producers, and installing a new 80-fader IP-based mc56 production console from Lawo (www.lawo.com).

Grime

(continued from page 18)

tion of the TR-909 drum machine, and Rebirth 338. An early software synthesizer, FruityLoops was an attempt at merging the two into something new. At a time when Pro Tools was still seen as an industry standard DAW, along with Cubase and Logic, FruityLoops turned out to be an uncomplicated DAW for the masses—perfect for young people with no production experience, and an ideal tool for experimentation.

Known today as FL Studio, the software has developed on the Windows platform for 20 years and finally gained a Mac version this past spring, but back in the late 1990s, it was likely FruityLoops' origins in gaming that made it so accessible—young people, accustomed to using game programs, took to it intuitively.

Grime producer Darq E Freaker, for example, has said in interviews that at his school, "everyone had FruityLoops on their computers at home, and making tunes was more like a game." Many producers came to the program via video games, having spent hours on games like *Music Creation for the PlayStation* in the early 2000s. Image-Line had unwittingly created the perfect tool for a generation of beat makers.

Grime's instantly recognizable "magic number" of 140 bpm finds its origins here, too, as the preset tempo in FruityLoops. "Godfather of Grime" Wiley has said this standard tempo in the program meant he created most of his earliest tracks at 140 bpm, and as one of the genre's first success stories, other producers followed his lead.

DJ Plastician is one such producer, who started out making "dark garage" beats while DJing on south London pirate radio in the early 2000s, "before grime was known as grime," he says. "Then I would say around late 2001 I started trying to make stuff that was based around what we now recognize as the very first grime records—stuff like 'Pulse X' and 'Eskimo' by Wiley." His first album, 2007's *Beg to Differ*, featured many UK rappers, including grime legend Skepta. More recently he's worked with East London's new generation pirate radio MC, Jammz.

"I was using FruityLoops 2.0 at the time," Plastician says of his early experiments, developing his "dark garage" sound into grime, and using the same tools that DJ Target and Wiley were jamming with in East London—which he'd read about online, on internet forums. "I began writing on that solely out of samples I'd found



From humble audio beginnings, Rude Kid has gone on to work with some of the genre's biggest MCs, including Wiley, Skepta, Frisco and Ghetts.

on the internet or cut off of tracks in my CD collection, as I was such an amateur at recording I had no knowledge of synthesis at all. I used to trawl the internet for sample packs; we were on such a slow connection back then, so everything was pretty lo-fi as well."

"I never even touched a MIDI controller until around 2004 when I went to college to do music technology," says Plastician. "I literally just used to place WAV samples onto the drum pad—which was pretty much all FruityLoops was back then, barring a few basic plug-ins—and then used to play them in on the piano roll. I think the cleverest I would get outside of Fruity was bouncing loops out and opening them in Cool Edit to add some phase or flange effects and then import those back into Fruity."

"If you listen to all my old stuff, most of it is on the *Plasticman Remastered* album, you can hear it—there's hardly any chords, nothing too musical, just stabs and stuff layered on top of each other. I guess that was a vibe in itself, but it really was just trial and error all the way."

Part of that trial and error was swapping methods and ideas with other DJs and producers, across genres, in the south London and Croydon area, where the dubstep scene had been born and was thriving. "Through hanging with Skream and Benga [a dubstep DJ duo lauded by the likes of Radio 1's Annie Mac] particularly, they put me onto using the TS404 in FruityLoops to create these weird, warping, wobbly bass lines," Plastician remembers.

"When they showed me how to use that, I began bringing it into

some of my tracks—not often, though, as I was still trying to keep my foot in the grime sound as well. That TS404 bass sound became the most iconic dubstep bass sound from around 2002 to 2005."

Plastician's experience and development as a producer demonstrates how grime's sound—as well as associated genres—was directly shaped by the technology readily available to those making music.

That sound's dominance didn't last, however: "When FruityLoops 2.0 upgraded to 3.56, the sound of the TS404 was completely different and phased out of dubstep production pretty quickly because many of us started using 3.56 instead and discovered other plug-ins. I remember Junglist being a favorite; also Albino [a synth with 128 waveforms] was a massive one for me from around 2005 onwards. It worked perfectly for me as I was straddling the gap between grime and dubstep in my productions and I felt that plug-in offered some great sounds with plenty of bass weight."

The Junglist plug-in is known for its waveforms with a complex, and organic quality, and its low bass type Bass FX section that creates ultra-low basses. The Albino plug-in (now discontinued) was voted number 12 in a 2011 poll about the best VST plug-in synths in the world. The popular synth from Rob Papen features a whopping 128 waveforms.

Despite Plastician discovering and using new tools to develop his sound, he still returns to the program that anchors grime, and in particular, the version of his youth. "I still have a working copy of FruityLoops 2.0 just in case I ever feel like revisiting that

old sound of the TS404," he says.

Rude Kid began producing grime tracks later than Plastician. Just a teenager when Wiley and DJ Target were releasing their first records, he started out in 2007 but quickly made waves and went on to work with much-loved independent grime label No Hats No Hoods, as well as with some of the genre's biggest MCs: Wiley, Skepta, Frisco and Ghetts. His track "One Take"—sampling Dizze Rascal, Section Boyz and Wiley—has itself been reworked with freestyles by grime MC legends Chip and Stormzy.

"When I was still in school, I got shown a music program that changed my life. A friend of mine played a beat he made and it amazed me, so I asked how he made it," says Rude. "A few days later, he gave me FruityLoops 3—that's what it was called at the time—but he never taught me how to actually make beats, so I had to figure that out by myself. I used to spend hours and hours making beats from morning till night, sometimes even forgetting to eat. Since then, I've never looked back."

Accordingly, FruityLoops had just as much an impact on second-wave grime producers as it did the initial pioneers, its simplicity lending itself well to young, creative minds.

Necessity is, of course, the mother of invention, and Rude Kid wasn't going to let a lack of high-end tech get in the way of creating music: "Before I even knew how to sample or what programs to use to sample, I had a £1 mic connected to my PC and I had Sound Recorder, which came with the computer. I had a little CD player and some sample CDs—I played them on the CD player, put the mic on the CD player speaker and recorded all my stuff. It sounded rough, but at the time it was the only way to get other sounds on my computer. 'Are You Ready'—my trademark sound on every one of my tunes till this day—was sampled like this, and I still use that very same rough sample."

Rude still uses FruityLoops to create beats alongside newly developed skills in Logic, and he embraces EQ plug-ins like Waves and Ozone: "Using these few things made my tunes sound much cleaner and louder." He insists that low-tech doesn't have to mean low quality. "I always tell producers it's not about what you have—it's about how you use what you have."

The biggest, most important names in grime agree. As Skepta said in 2014, "As long as there are 12-year-old kids turning on their mum's PC with a cracked version of FruityLoops, making their own DIY sound, there's grime."



Play

(continued from page 18)

stage with Foo Fighters, learning to play music. Appropriately, the middle kit—labeled “quirky” on the mic input sheet, which is posted online—is a Ludwig set that he borrowed from his pre-teen daughter, Harper. The kit is so tiny that he had to sit on a milk crate to play it, Grohl comments in the video.

Thorp reports, “I was 38 channels wide for the drums, plus a stereo room. I was trying to not be rude and steal every microphone out of the EastWest locker, because they do have two other working rooms. Thankfully, I’m a Lauten Audio artist, so I brought a fair amount of Lauten mics with me.”

Noting that the published mic input list is not entirely accurate, Thorp elaborates, “The Clarion is on kick, my 120s are on overheads, with 220s on the toms, 120s on hi-hats, and an Eden mono overhead on the ‘tight’ kit” on which Grohl starts (and which he played with Them Crooked Vultures). There’s an in-house Neumann U47 FET on the kick drum of the “Bonham” kit on which Grohl ends the piece, Thorp adds. “And I had 421s on toms and 67s on overheads.”

A pair of Cascade Fathead ribbon mics through Compex compressors captured the room. “They’re on the floor, X-Y, on a stereo bar pointed at the Bonham kit and the Vultures kit. A friend texted me and asked how I got the room sound. That’s Dave, dude; he hits so hard. That is not a reverb trigger, that’s the room sound,



that’s me just pushing the mics up. I’ve never gotten a room sound like that before.”

Happily, with so many microphones in play simultaneously, EastWest’s Studio One houses an 80-input Neve 8078 that was configured from two smaller consoles. “I used a big chunk of the console,” Thorp says, although he muted almost all but the microphones on the specific drum kit on which Grohl was playing. “I left the two toms between open as ambience; I didn’t want that to sound unnatural.”

While every mic went through the Neve, Thorp supplemented the signal chain on certain channels. “There was a fair amount of EQ, and I love the midrange and the low end of a

Neve, but I love the top air of an API. So in certain situations—and it’s listed on the track sheet—I was using API 550s on the kicks and snares” of all three kits.

“I’ll get some nice air and attack out of the API. Then, for low-mid, I can use the Neve EQ to get really punchy and mid-y. That’s my ‘trick,’ so to speak,” he says.

Thorp says he developed a good working rapport with Foo Fighters tech Samon Rajabnik during the production of *Concrete and Gold*, which was also recorded in EastWest’s Studio One. “He would get the drums in this really sweet spot,” he recalls.

For the *Play* sessions, says Thorp, “He was out there playing the kits while I got sounds and levels. I felt

I was 80 percent there and thought, once Dave comes in, I’ll dial it in, adjust some levels and we’ll be golden. Dave showed up and he didn’t come in the control room, he just started playing the first kit. I unmute the speakers and listen and ... well, I’m done!”

Play was filmed in black and white by director of photography Brandon Trost using 12 roving mini-cameras to capture Grohl performing each of his parts. On the Roswell Films website, Grohl’s individual performances on each instrument are available for viewing and separate music charts may be downloaded. A plan of the live room details the instruments used and their respective positions in the space.

The first part of the mini-doc intercuts behind-the-scenes studio footage with interviews with students from the Join the Band music school in L.A.’s San Fernando Valley. Therapy’s Eddie Kim and Brandon Kim brought together Grohl’s voiceover, the student interviews and the music tracks recorded and mixed by Thorp into the documentary’s final mix.

“It’s awesome to see these kids try to figure it out. I’m still trying to figure it out, still pushing myself, looking for the next challenge, doing something I’ve never done before,” says Grohl’s voiceover. His frustration with not being able to play a 23-minute part without messing up is visible in the first part of the video. But at the end of the day, says Grohl, “The reward is just to play.”

Darrell Thorp
www.darrellthorp.com

Roswell Films
https://play.roswellfilms.com

Anderton

(continued from page 21)

though, reality intrudes: Running projects at 192 kHz limits the number of audio streams, stresses out your computer, and some plug-ins

has real-time upsampling options so you can compare whether a higher sample rate improves a virtual instrument’s sound. Second, there’s an easy workaround. If a project consists solely of virtual instruments, change your project’s sample rate to 192 kHz, render the instrument, and then sample-rate con-

A project with a mix of audio and virtual instruments is more problematic because you can’t arbitrarily change a project’s sample rate. However, you can export the MIDI file driving the instrument and save the preset you’re using. Then create a new project at 192 kHz. Import the MIDI file, load the instrument and its preset, and render the track at the target sample rate (or render it at the higher sample rate before bringing the audio into your lower-sample-rate project—most modern DAWs will convert the file automatically to the new sample rate). This way you can enjoy the benefits of high-sample-rate virtual instrument sounds in low-sample-rate projects.

Craig Anderton’s new book series, *The Musician’s Guide to Home Recording*, is now available from Hal Leonard in softcover, and on www.reverb.com as a series of ebooks.

For the past few years, I’ve been researching the hypothesis that both the pro and con higher-sample-rate advocates are right.

won’t even work at that sample rate. Fortunately, there are solutions.

First, not all plug-ins exhibit issues. Cakewalk by BandLab (a free download from www.bandlab.com)

vert it back to a lower sample rate. Because the audio was rendered, all audio is in the audio range, so it won’t generate harmonics at the lower sample rate.

briefs

GameSoundCon Adds VO Track

SEATTLE, WA—The GameSoundCon (www.gamesoundcon.com) video game music and sound design conference being held October 9-10, 2018, in Los Angeles is this year partnering with the Help Network to create a multisession track about dialogue and performance in video games, including an in-depth look at SAG-AFTRA's low-budget Interactive Media Agreement.

CAS to Honor Lee Orloff

LOS ANGELES, CA—At the 55th CAS Awards, to be held February 16, 2019, in Los Angeles, the Cinema Audio Society (www.cinemaaudio-society.org) will honor multiple CAS and Academy Award-nominated production sound mixer Lee Orloff, CAS, with its highest accolade, the CAS Career Achievement Award, in recognition of his work on more than 75 feature films since 1984.

Genelec Gives Immersive Guidance

NATICK, MA—Genelec's free *Immersive Solutions 2018* guidebook, downloadable from www.genelec.com, provides a practical overview of principles, formats and technical considerations involved in immersive audio reproduction, along with recommended Genelec speakers, system configurations and software utilities, and covers Dolby Atmos, Auro-3D, DTS:X, 22.2 and other formats.

Sony Bows Post Rooms

CULVER CITY, CA—Sony Pictures Post Production Services (www.sonypicturespost.com) has unveiled three new studios inside Stage 6 on Sony Pictures Studios' Culver City lot: Theater 1, equipped for sound design and mixing, with two Avid S6 consoles and Dolby Atmos capabilities; Theater 2, for remote visual effects and color grading review; and Theater 3, with a single S6, for sound design.

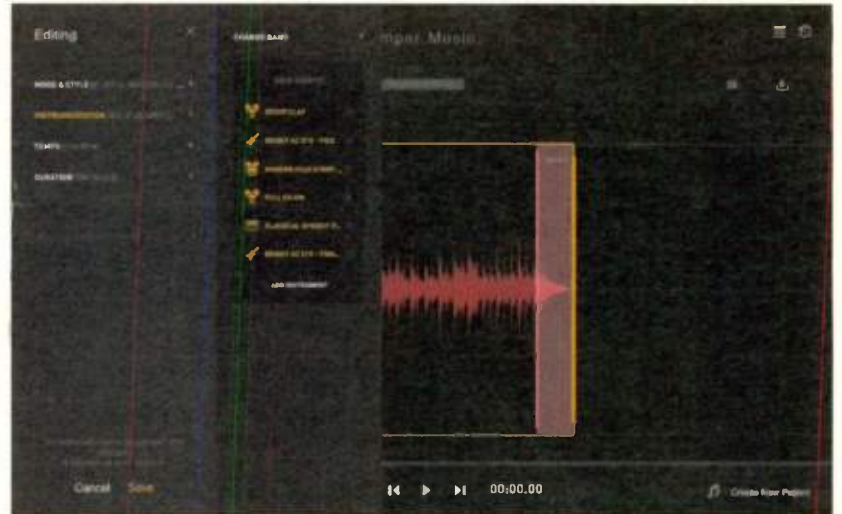
AI's Implications for Production Music

BY STEVE HARVEY

LOS ANGELES, CA—Are robots coming to take your job? If you're a songwriter or a composer, they're already here.

For years, many questioned whether AI, a technology that began in the 1950s, could ever crack the code of creativity, which might be considered a uniquely human trait. But in the last several years, machine learning has made significant advances such that we should no longer ask if AI can make art. Rather, when presented with a photograph, a painting or a piece of music, we must ask, Was this made by a human or a machine? And the answer is not always obvious.

As composer Andrew Gross observes, "It's no longer a question of when AI will start generating business and competing with human composers—it's happening now." During the fifth annual PMA Production Music Conference, to be held September 26-28 at the Loews Hotel in Hollywood, CA, Gross will moderate "AI-Generated Music: How Will This Impact the Future of Production



Amper Music is one of a number of emerging AI-based production music services.

Music?" The panel will explore the current state of AI-generated music for sync licensing, whether for film, television, video games or other visual media.

But as much as the panel will focus on the technologies, workflows and business models, there will also be some discussion around its potential regulation. "Because there's nothing in place at the moment to stop it," says Gross, who is also a PMA (Pro-

duction Music Association) board member. "There are no laws; there are just ethical arguments and conversations that we can all have."

The online AI music platforms operate similarly. A user selects parameters such as genre, length, tempo, instrumentation and so on, and the site generates a file. The method used to create the music and the assignment of the composition's copyright

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The Rules and Tools Behind the Mixes of *The Darkest Minds*

BY STEVE HARVEY

CULVER CITY, CA—In *The Darkest Minds*, a 20th Century Fox film directed by Jennifer Yuh Nelson, most of the world's children die, while the survivors are rounded up by the government after they develop mind control powers. The movie is based on the first in a series of young adult novels written by Alexandra Bracken. For co-supervising sound editors Will Files and Warren Hendricks, the principal challenge was to give the film's mind control powers individual sonic signatures with a good or evil twist, while also—rather more prosaically—dealing with an evolving post-production schedule.

In fact, the evolving schedule was what led Files and Hendricks to share their credits. "I came on to supervise and I brought Warren on to help do the sound design," Files recalls. "He did some great sound design and the clients really loved it. Then the schedule extended so far that I could no longer stay on the project full-time." Fortunately, Hendricks was able to take over File's role and shepherd the project through the mixing stage, he says.



DANIEL MCFADDEN/20TH CENTURY FOX

In *The Darkest Minds*, the world's remaining teenagers develop superpowers, so the film's audio team had to give those powers individual sonic signatures with a good or evil twist.

"It was a perfect scenario in many ways because Warren and I have very similar and overlapping skills. I felt very confident handing the reins to him, and the clients felt very confident with him taking them because he had been involved with the sound design up to that point, and he's also an excellent mixer. I had mixed the temp mixes, then Warren took over

and did the final mix, primarily with Andy Nelson." The final mix was completed on Fox Studios' Howard Hawks Stage in Culver City, CA.

"I've joked a number of times over the years that my entire career at this point is based on kids with superpowers," laughs Hendricks, whose sound design credits include two in-

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AI

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are two areas in which the services tend to differ.

Amper Music offers fully customizable music. (Amper CEO and co-founder Drew Silverstein, an award-winning composer, producer and songwriter for visual media, will be on Gross' panel.) Gross has tried Amper's system: "I was able to upload a video, make a start point and an end point, and identify anything I wanted to hit, like a cut. I would say it was high school-level at best, but it was impressive in that it had the right idea. It's just that it was using sounds that you might find in GarageBand or Logic."

At the other end of the spectrum, Xhail, which will be represented on the panel by CEO and founder Mick Kiely, who has over 30 years of experience in music composition and live performance, creates custom AI-generated pieces using human-generated loops and stems. "I've heard some of the results; it's pretty impressive," says Gross. "They have a very tight set of specs that they send to their composers. The quality is quite good because they're well-produced loops that humans created."

Amper Music is perhaps the highest profile AI music platform, but it was not the first to market. That honor appears to go to Jukedeck in the UK, which to date has reportedly generated over half a million tracks for customers worldwide, including Coca-Cola and Google (which has its own AI-generated music and art research project, Magenta).

Founded by Cambridge University graduates, Jukedeck is working toward total AI music synthesis, not just machine-generated compositions, using artificial neural networks. The company's R&D team posted an eight-bar piano piece on its blog in late 2016, noting, "To the best of our knowledge, it's the first time a computer has written and produced a complete 'song,' from start to finish, using purely machine learning-driven techniques."

In one possible dystopian future, machines could make composers and songwriters redundant. But Gross believes that AI music software developers view composers and musicians as future partners. "The better the musicians, the better the composers they're able to hire to program the AI, the better the AI will be able to write and produce better-quality music," he says.

There is already evidence that these AI-generated music technol-

ogies are useful collaborative tools. One YouTuber, Taryn Southern, added her own lyrics and vocal melodies to an AI-generated Amper composition to create "Break Free," a video—which also uses AI-generated imagery—that is approaching two million views.

The most ambitious—or audacious, perhaps—example of AI-generated music is "Daddy's Car." In 2016, researchers at Sony Computer Science Laboratories used the company's Flow-Machines technology to create a pop song, in collaboration with composer Benoît Carré, in the style of The Beatles. A more recent project by SKYGGE, a collective of French creatives, used Flow-Machines as an inspirational and collaborative tool to generate sections of songs, melodies and instrument and vocal tracks to produce an entire album, engineered and mixed by humans, entitled *Hello World*. (It can be heard on Spotify, YouTube and elsewhere.)

One gray area regarding AI music, says Gross, is the issue of rights and publishing. Where these services offer royalty-free music, he says, "A company can purchase this music and there's no composer attached to it. They own all rights to it, both master and publishing, in perpetuity."

Potentially, "That company would

have the right to attach a name as a composer and their own publishing entity, to collect royalties should it air on television, in the U.S. and worldwide," or monetize it on YouTube, he says. "A CEO could say, My family and I are the composers and we're going to start a publishing company. They could register with BMI and ASCAP and collect royalties just like anyone else."

Xhail takes a different approach, Gross observes. "They register those copyrights. Xhail in effect becomes the owner and publisher of that piece of music." Kiely has noted in past interviews that sync and royalty revenue is shared with contributing musicians and composers, with writers retaining 100 percent of their rights and Xhail owning 100 percent of the publishing.

In much the same way as AI services like LANDR and CloudBounce, and iZotope's Ozone 8 Mastering Assistant software might be taking business away from lower-cost mastering engineers, AI music platforms may be impacting composers working on low-budget sync licensing projects. But Gross can also see an upside: "As a composer, I can see it being a great tool. You use it as inspiration. I like that."

Production Music Association
www.pmamusic.com

Darkest Minds

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stallments of the X-Men series, *Deadpool* and *Fantastic Four*, among many others. In X-Men, he observes, characters have distinct powers with distinctive sounds. In *The Darkest Minds*, the kids have one of five powers, designated by color: orange, red, yellow, blue or green. "You have people with the same general power, but you still need to make them sound distinct," says Hendricks.

"All the powers need to sound distinct from each other, but even within the characters who have the same power, they need to sound the same but slightly evil, or slightly good," says Files. "It was all about characterization. We had to make the powers sound powerful and cool and cinematic, adding drama to the scene, but the challenge was to give them some real character."

Hendricks set his own rules for the characterization, he says. "They would sound ridiculous if you were to explain them to somebody else. But I know that this three-frame sound is for a Yellow-powered person's eyes coming on, and this is the sound of a Blue using their powers." Once the

underlying sound was established, he says, he would add elements specific to the character.

How does a sound communicate good or evil? "The character Clancy and the main character, Ruby, are both Oranges," Hendricks offers as examples. Each character's sounds were layered. "There were high tones and low tones and sounds for eyes coming on, stuff like that. We built similar sounds for Clancy, as far as pitch and rhythm, but they were built out of things like screams or reverse metal 'ronks,' and when we isolated those elements more out of the general Orange power sounds, they really felt a lot darker and more imposing."

Any sounds that came from the editors' respective libraries were processed specifically for this project, but there was an opportunity to grab new sounds at California City Municipal Airport in the desert north of Los Angeles, a go-to location for recording cars. "That was our primary recording for this show; we recorded a Dodge [Challenger] Hellcat," says Hendricks, with Hollywood recordist John Fasal. "He has a good relationship with that airfield. [The sounds are] meant to be over the top and crazy and make the character driving the car feel a little dangerous, so we

concentrated on drifting, high-speed bys and takeoffs—all the dangerous stuff."

Files and Hendricks came on-board as the director's cut was being assembled, which was fortuitous, as their sound design "rules" essentially set the tone for the film. Those rules were picked up by the new picture editor when there was a change part-way through the project.

"He really got it," says Files. "He understood the language that we had created and ran with it. He took our stuff and made it even cooler, because he reused it more and more and pushed more sound design in the movie."

Files reports that about 75 percent of his studio movie projects are released in Dolby Atmos, and he works natively about 90 percent of the time. This film was different, however; it was released in Dolby Atmos, but that was a last-minute decision.

"Warren and I like to blur the lines between editing and mixing. As soon as we start designing and editing sounds, we're also mixing. We try to set up our workflow in such a way that we have all the mixing tools available to us from the beginning," he says.

In that sense, they were ready to mix in Atmos, but were delivering

temp mixes for early cuts and audience playback in 5.1. Eventually, with the changing schedule, the budget would no longer stretch to a final Atmos mix.

"After the final mix was done, the next week they called and said, 'Hey, we want an Atmos mix,'" Hendricks reports. "We had to reverse engineer it in only three days—without the clients." The director, having signed off on the final mix, and emotionally exhausted following the studio screenings, couldn't return for the Atmos mix, he says, "so we had to be really conservative," and not stray from the 7.1 mix.

Fortuitously, Hendricks continues, "The workflow that we set up, where it's all native, and especially now with Atmos functionality being built into Pro Tools, made it all possible with a minimal amount of prep time and a minimal amount of crew people having to deal with it."

"Had it been a year ago, it would probably have taken a couple of weeks to figure it out. But with the new [Pro Tools] functionality, it turned out not to be a super-painful process—though I would not recommend that this be the way people approach Atmos!"

Avid
www.avid.com



The METAlliance includes (l-r) Frank Filipetti, Elliot Scheiner, Chuck Ainlay, Al Schmitt, Ed Cherney and George Massenburg.

THE METALLIANCE REPORT

Desert Island Microphones

BY FRANK FILIPETTI

This is the first in what will be a monthly series expressing the METAlliance's views, reviews and ideas concerning audio, audio hardware and software, education and more. This month's contribution comes from founding member Frank Filipetti.

As an audio professional, how many times have you been asked, "If you were stranded on a desert island, what mic would want with you?" Well, that old chestnut keeps coming around again and again. Putting aside the fact that your desert island has no electricity, or storage medium, or speakers or a dozen other importune factors.

OK, it's just another way of asking for your favorite mic, right? As if your life depended on it.

For some, their favorite mic has remained their favorite since the day they blissfully discovered it. I know folks who, once they heard a 251 or a U47 or an M49, have never looked back. Others of a more practical nature would heartily come ashore with an SM57.

My first love affair was with a Neumann M 269.

It was the German version of a U67, with an AC701 tube instead of the EF86. I had been recording James Taylor and decided to rent a couple of mics to test. I remember sitting in the control room while James sang into the 269. The sound was spectacular. After patting myself on the back about how good everything was sounding, I realized that it wasn't me at all. The dirty little secret I stumbled onto was this: Record great singers and musicians with great mics, and voila, you're a genius.

I bought that mic then and there. It was my "James Taylor" mic, my "Lou Gramm" mic, my "Carly Simon" mic and a host of others. It remained my choice for vocals until my mic collection grew from a half-dozen mics to well over a hundred.

As the collection grew, I also came to realize that many of my favorite mics were great for some things and

not so great for others. Big, open, large capsules worked great on many things, but as my sessions got bigger and bigger, I found a new love in the Schoeps CMC 5, especially on anything orchestral.

Gradually, I began moving from vintage 47s, 67s and C12s to newer mics from companies like Audio-Technica and Sanken. On Broadway sessions, where the entire album has to be recorded in a single day, the reliability and dynamic range of these mics allows me to get up and running in minutes without worrying about crackles, distortions and clipping. From the '90s onward, I began to rely more on specialized new mics for large sessions. I was no longer looking for a mic that did everything well—just something that worked for the task at hand.

end response and a rising high end beginning around 2 or 3 kHz. They sounded great, especially on voice, but due to their capsule mass, they exhibited slow transient response; that mass made it difficult to start and stop accurately.

Along came the Small Diaphragm Condenser (SDC) mics, like the KM84, the Schoeps CMC and the AKG 451. These "pencil mics" each had a much smaller circular capsule, and consequently responded much quicker to voltage changes. Transients were great, but they just didn't have the low-end warmth or extension of the LDC.

Sanken and others tackled this discrepancy by creating condenser mics with two capsules: one large and one small. By internally crossing over from the large to the small, an ef-

"I have a lot of mics I love and would never part with, but this one is different."

Frank Filipetti

So it was with a fair amount of surprise when I first heard the Audio-Technica AT5040 and subsequently the AT5047. Could this be a mic that was "great" on everything?

To my ears, I had never heard anything quite like it before. There was a clarity and uniformity of response that seemed to make it the ideal mic for almost anything ... anything where you could place a rather large microphone and shockmount, anyway. (The AT5040 has, by the way, one of the most effective and elegant shockmounts ever.)

But what most amazed me was what I can only describe as its ability to intensify "emotion"—so much so that I call it my "emotion mic."

How do it do what it do? Most professional condenser microphones are based on decades-old technology. First was the Large Diaphragm Condenser (LDC), like the CMV, U47, M49/50, C12 and so on. Each based on a large circular capsule, these mics exhibited great low-

effective solution was reached. I have a half-dozen Sanken CU-44 microphones based on this design; it was an elegant solution, but still based on standard technology.

It would take a young designer from Audio-Technica, Shioh Okita, to throw out the old and revolutionize microphone development. He knew he needed a large capsule for depth and harmonic content, but he also wanted that capsule to respond immediately to transients. And, oh yes, be robust enough to handle 140 dB or more of sound pressure.

His solution: four small rectangular capsules with low inertia, combined in a network to provide the effective area of one large "super capsule." The brilliance of this design became evident when he found that, unlike the circular capsules, the rectangular capsules no longer exhibited the same resonance that skewed the response of the LDC, resulting in a smoothness in the midrange that has to be heard to be believed.

METAlliance
MUSIC ENGINEERING & TECHNOLOGY
Advancing Excellence and Integrity in Music Technology

We are the METAlliance. We banded together in 2005 (along with our late, great co-founder Phil Ramone) with the dual purposes of mentoring through our "In Session" events to pass on to the next generation our decades of experience, and of working together to convey to the audio professional and semi-professional our choices for the highest-quality hardware and software, shining a light on those companies that can and do produce products worthy of consideration. Our mission: to promote the highest quality in the art and science of recording music.

Elliot Scheiner says, "The sign of a great mic, like the 5047, is when you record without any EQ. You get exactly what you want from the mic without having to find out where the mic is deficient. An even better sign is realizing you're still without EQ when you're mixing. The AT-5047 is that mic."

Al Schmitt has this to say: "We put it on a male singer in France, and as soon as I pushed the fader up, we all were astounded at how great it sounded. There were 16 engineers there and they all wanted one."

Getting the picture?

Or Chuck Ainlay: "I was packing up today from a tracking session at the studio and I grabbed my 5047 to take home with me in case I had an overdub to do. It got me thinking—out of all the mics I have, I picked this one because it's the one mic I really could use to record almost anything, and it would sound awesome."

Now that may not mean much to you on a synth pad, but on a vocal ... it can be something special. And believe me, I have a lot of mics I love and would never part with, but this one is different. This one I would want with me if I ever get stranded on that island.

Multiple Grammy-winner Frank Filipetti's credits include Number One singles including Foreigner's "I Want to Know What Love Is" and "I Don't Want to Live Without You" (which he also produced), Kiss' "Lick It Up" and The Bangles' "Eternal Flame." He's worked with acts ranging from Korn and Fuel to Barbra Streisand and Elton John, and has also produced, recorded or mixed albums for Carly Simon, George Michael, Dolly Parton, Rod Stewart, Luciano Pavarotti and James Taylor, among many others.

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innovations: the manufacturer's view

A Revelation in Listening:

MEYER SOUND'S BLUEHORN SYSTEM

BY MILES ROGERS

It's not that often that you get to work on a project that changes the way you look at—or in this case listen to—the world. That has been my experience working on the Meyer Sound Bluehorn System. It is a loudspeaker that builds on a tradition of innovation and brings Meyer Sound one step closer to the goal of a completely transparent studio monitor.

Pursuit of this elusive goal began in earnest with the iconic HD-1 studio monitor, introduced in 1989 and still in the product line today. In 2000, John Meyer and his R&D team developed the X-10 monitor, which incorporated cutting-edge technology to create very low-distortion, low-frequency drivers based on aerospace engineering principles. In 2012, when they started working toward the next generation of critical listening monitors, there was a lot of feedback from the front lines about the Acheron series of cinema loudspeakers—in particular, using the Acheron Designer in the midfield for mixing music. Sparking his interest, the R&D team experimented with pairing an Acheron Designer to an X-400C subwoofer. Early listening tests showed that this was an extremely musical system, and provided the flexibility to explore implementation of new technologies Meyer Sound had been developing.

Designing a loudspeaker from an existing platform is like perfecting your favorite meal. The core ingredients are already there, presenting an opportunity to refine the recipes—and there were some tasty new ingredients in development. In parallel with the Bluehorn System, we were developing the LEO Family line-array products. Cross-pollination was taking place, with the Acheron horn design influencing the LEO Family, and with new driver technology from the LEO Family extending the bandwidth of the Bluehorn System. Excitement was building. Each refinement on its own was small, but the sum total was generating a completely new paradigm.

Soon the hardware components were ready, but the Bluehorn System was still a work in progress. It was built on a DSP platform that needed to become “show ready.” That's when Perrin Meyer (son of John and Helen



Miles Rogers, business development manager, cinema and content creation markets, Meyer Sound

Meyer) stepped up to the plate and hit a home run by refining the phase correction algorithm to perform more efficiently and run on our newly released Galaxy 816 loudspeaker processor. With a signal-to-noise ratio of better than 125 dB, along with even faster processing, the Bluehorn System now had become a force to reckon with in any content creation environment.

Due to the laws of physics, DSP phase correction from 25 Hz to 20 kHz takes time—about two film

It's not that often that you get to work on a project that changes the way you look at—or in this case listen to—the world.

frames. This isn't an issue on the scoring stage or in the mix room, but what about when overdubbing in a recording studio with the guitarist in the control room? Here, low latency is critical, and this is where John Meyer's decision to keep processing external paid off. If we feed the system from one of the non-phase corrected outputs of the Bluehorn 816 processor, we instantly switch into

“live” mode with ultra-low latency.

A completely transparent loudspeaker—one with flat magnitude and flat phase response across the audio bandwidth—had been achieved with the Bluehorn System. It was amazing to see this result in measurements, but what really blew us away was the audible performance. Every time we ran a demo, the reactions were stunned astonishment, and in 2016 we had an ideal opportunity to put the system to the test in the field. Oscar-winning score mixer Shawn Murphy invited us to bring the system down for the last days of his sessions on the Sony Scoring Stage for the film *The BFG*. As with all system setups, my plan was to stick around to make sure everyone was happy and then head out to the airport. When John Williams and Steven Spielberg sat down at the console with Shawn to listen to the first cue, they all turned around and looked at me with big smiles.

Shortly thereafter, Shawn took the system to 5 Cats Studio, owned by film composer John Powell and home turf for scoring mixer John Traunwieser. They wouldn't give the demo system back. It's still there.

That brings us to 2018. A few months ago, United States Patent 9,992,573 B1 (“Phase inversion filter for correcting low frequency phase distortion in a loudspeaker system”) was awarded to John and Perrin Meyer for the foundational Bluehorn System DSP technology. We continue to get amazing feedback from demos



PHOTOS: MEYER SOUND

Meyer Sound's Bluehorn System

at trade shows and industry events around the world. Systems are selling into key locations and continue to be used for film scores like *Star Wars VIII: The Last Jedi*, *The Post*, *Ferdinand* and, most recently, *Venom*.

Personally, I have noticed that my aural referencing has greatly improved, as I am gaining the ability to critically listen into the time domain. Having a reference monitoring system that addresses the critical domain of group delay, and the non-linear effect this has in sound reproduction, provides a new and revelatory experience. Once you hear this difference, it sticks with you.

I look forward to demoing Bluehorn System for film sound and music recording professionals at our upcoming industry events, and here at the Meyer Sound factory in Berkeley, CA. If you love sound the way I do, Bluehorn System is an experience not to be missed.

Miles Rogers is business development manager, cinema and content creation markets, at Meyer Sound.

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MARA MACHINES MCI JH110C 1/4" TWO-TRACK RECORDER ■
LYNX AURORA(N) INTERFACE ■ GENELEC 1032C STUDIO
MONITORS ■ AUDIO-TECHNICA ATH-M60X HEADPHONES

MARA MACHINES MCI JH110C 1/4" TWO-TRACK RECORDER

As record-making continues to become more computerized and digital, the desire to sound more analog continues to be the goal of the majority of music makers. Between the plug-ins emulating tube compressors, old-school consoles and tape machines, everyone is trying to figure out the best way to capture the sound of analog in their modern recordings. Guess what? I figured it out.

Welcome to 1979 is Nashville's premier old-school studio. While of course they offer a full Pro Tools HD rig, they are better known as the perfect place to go if you want to record 100 percent analog, no converters, no formatting, no sample rates, just pure analog from start to finish, or any combination of the two. Chris Mara opened the facility just over a decade ago, and since then has recorded everyone from Jason Isbell and Pete Townshend to Billy Gibbons and Chris Stapleton and tons more. It's no surprise that since his studio incorporates so much analog equipment, Chris has become an expert in its maintenance and repair. It was a natural progression for him to form a business, Mara Machines, based on the restoration of vintage MCI tape machines.

A restored Mara Machines MCI JH110 1/4" machine includes relapped sync and erase heads with a new repro head (a head report is included), a repainted deck (that looks



A restored Mara Machines MCI JH110 1/4" recorder includes relapped sync and erase heads with a new repro head, a repainted deck and XLR I/O.

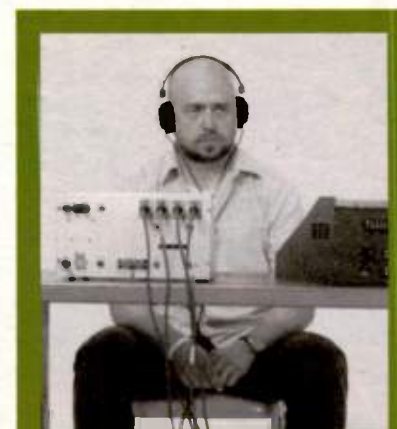
stunningly good!) and XLR I/O. The machine includes a six-month part and 90-day labor warranty.

The restoration process is intricate and detailed. Chris explains, "We achieve the same level of restoration for each machine by tearing the machines completely down to the frame, and then re-assembling as each Molex connector and other stress points are resoldered. This takes place in the power supply, transport and audio boards. Roughly 500 solder points and 80 IC chips are reworked, resoldered or cleaned." That is only the beginning and it happens before the technicians even power on the machine.

Next, every transport adjustment is made, including lifters, brakes, tensions and more. Key capacitors (like the one that controls the accuracy of the counter) are replaced. Once that is complete, each machine goes through a burn-in and stress test pro-

cedure. Chris continues, "The beauty of the MCI decks is that they are very, very modular. Each channel is broken up into separate cards to handle the different tasks of the channel. If a problem is to occur, we can diagnose it together by swapping cards, and the problematic card can be shipped to me for repair or replacement. The same goes for the transport and power supply. Many parts are compatible between the JH110 and JH24 series, making learning and maintaining these machines very easy and user friendly, even for people new to tape machines."

When Chris first spoke to me about reviewing a Mara Machine, my initial thought was that there just aren't enough people wanting to mix to tape to make the machine a viable option to many people. Yes, I would love having the option to mix to tape (although I don't see myself



BY RUSS LONG

Russ Long lives and works in Nashville, engineering and producing a wide variety of music and film projects. russlong.ws

doing it more than five or six times a year) and yes, it's awesome having the ability to play back my mixes from yesteryear, but I don't think that's worth \$5K. But once I figured out that I can strap the machine across my stereo bus, switch it to repro and throw it into record, I didn't look back. The machine stores alignments for all speeds and makes it easy to toggle between 7.5, 15 and 30 IPS so the user can compare the differences before committing to a favorite speed.

All of those tape emulation plug-ins—and some of them are quite impressive—can't stand up to the real thing. I've been printing the majority of my mixes this way over the past two months and the results have been outstanding. I've been sending clients mix versions with and without tape (although I just call them A and B versions) and they are choosing the tape version every time without even knowing what they are comparing. I'm loving it!

The Mara Machines MCI JH110C 1/4" two-track is undoubtedly the best way to incorporate the true sound of analog into today's recording workflow. I can't imagine mixing without it.

Mara Machines
www.maramachines.com

Options

Mara Machines offers some exciting options for its restorations as well. The recently released CAPI 2520 option provides an alternate input/output stage op amp (\$1,000, or \$800 for existing Mara Machines owners) and the JH-110 wireless remote (\$600, or \$500 for existing Mara Machines owners) provides wireless RF control of a JH110.

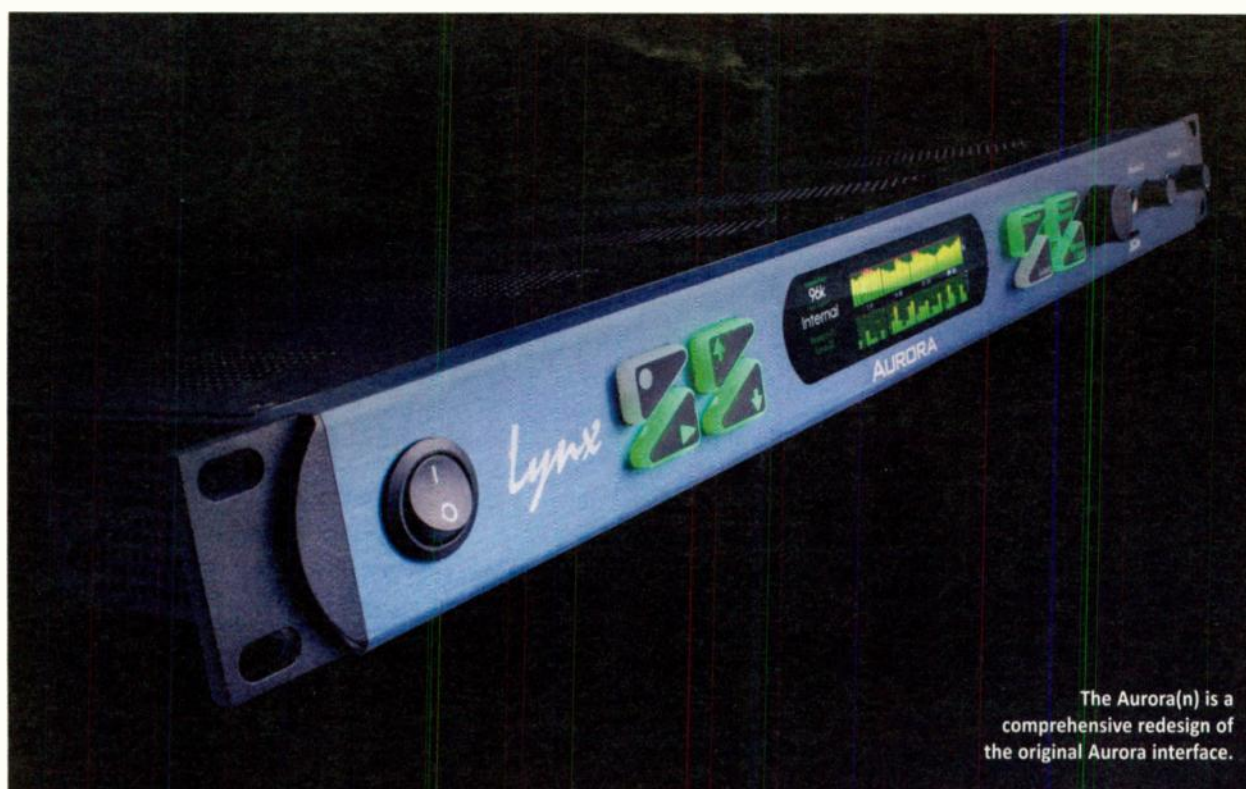
The MaraTapeCal app makes it possible for a novice to successfully calibrate an analog tape machine. The app walks through the calibration process, detailing each step and simplifying the instructions. After gathering data about tape formulation, tape speed and MRL reference level, the app automatically calculates bias level and elevation level, eliminating guesswork or the need for charts.

Also coming soon for the JH110 2-track machines is an input/output transformer option that will be switchable between the standard transformer-less audio path.



The recorder stores alignments for all speeds and makes it easy to toggle between 7.5, 15 and 30 IPS so the user can compare the differences before committing to a favorite speed.

LYNX AURORA(N) INTERFACE



The Aurora(n) is the latest offering from Lynx Studio Technology. As a longtime Aurora user (the Aurora 8 has been my primary converter since its release in 2006), I couldn't wait to see what the next chapter of Lynx's legacy would reveal.

One of the benefits of the original Aurora was its LSlot technology—a collection of cards that provided nearly every conceivable connectivity option, including ADAT, USB, FireWire, Thunderbolt, AES3, MADI, Dante and DigiLink. Beyond the sound quality, this was the primary reason the device wasn't quickly outdated like so many other interfaces that came and went during the Aurora's lifetime. For example, when Thunderbolt replaced FireWire, an Aurora user simply had to update the LSlot card to remain current.

The Aurora(n) is a comprehensive redesign of the original Aurora. Still built around the LSlot technology (it is compatible with the original USB, Thunderbolt, Dante and DigiLink LSlot cards), it has better sounding converters, better clocking and is one of the most flexible interfaces on the market today.

Like the Aurora, the Aurora(n) is a 1U rackmount device. It includes a built-in power supply, display, operational controls and dual headphone amplifiers. Specific configuration is determined by module selection, with each Aurora(n) hosting up to six modules. One of these must be an LSlot card for computer interface, and one must be Lynx's word-clock module, which provides a single input and three outputs on BNC connectors. This leaves four slots for audio I/O modules. Options include line in/out, digital in/out and mic/

line in. The Aurora(n) packs up to 32 I/O into a 1U unit, which can be an amazing space saver, as most manufacturers offer only 8 or 16 channels of I/O per unit (and often in a 2U box). The Aurora(n) Configurator tool on the Lynx website makes it easy to design the interface to your needs by allowing you to select specific configurations for line I/O, mic pre's, AES I/O and computer interface. The tool calculates the MSRP (\$2,099-6,599) for the selected configuration. My review unit, which has an MSRP of \$6,099, was equipped with 32 channels of line I/O, along with Pro Tools connectivity. It's important to note that the per-channel cost of the Aurora(n) is actually less than that of the original Aurora—amazing!

My only complaint with the Aurora(n) is that, as with the original Aurora, only one LSlot card can be installed at a time. The perfect Aurora(n) for me would be one that I use with my Pro Tools HDX rig at the studio but pop out of my rack and use via Thunderbolt with my laptop. Switching from Pro Tools HD to Thunderbolt requires cards to be swapped.

In addition to being a great native audio interface, the Aurora(n) works equally well as a standalone converter and Pro Tools HDX expander. Lynx has provided comprehensive front-panel control over many of its parameters with the assumption that there isn't necessarily going to be a computer available to control them. In its present form, though, any Aurora(n) parameter that can be adjusted from the front panel can't also be manipulated from the computer, and vice versa,

which might prove inconvenient if you want to keep the Aurora(n) in a separate machine room. Most of the things that are controllable from the front panel are housekeeping functions you wouldn't need to change very often, but not all. In particular, recording to and playback from the built-in SD card reader is possible only by pressing the buttons on the unit itself. I'm told this situation will not be permanent, and that forthcoming versions of the firmware and software will enable remote control from the computer.

The primary focal point of the interface's front panel is a high-resolution color screen. During normal use, I keep the screen parked on one of the meter displays, which I've found to be quite useful. To the left of the display are play and record buttons for controlling the built-in SD card recorder. Up and down arrows provide navigation between takes. An additional four buttons and a rotary encoder provide the ability to configure the Aurora(n). Pressing the encoder or hitting the function button activates the configuration menu. Configuration options provide the ability to send test tones to any of the analog output, to toggle the analog inputs and outputs between +4 dBu and -10 dBV standards in banks of four, and to access the routing submenu, allowing the user to select whether the analog outputs are fed from DigiLink playback, SD card playback, direct from the analog inputs or any combination of the three.

In addition to a host of buttons, the Aurora(n)'s SD card slot, headphone jacks and headphone volume controls are also positioned on the front panel. Both headphone outputs

have their own analog level control and are fed from the same stereo bus, which can pick up any pair of channels from the DigiLink playback channels, the analog inputs or the SD card playback. The headphone amps are exceptionally good, providing highly impressive detail and imaging with more than enough power to make any pair of headphones louder than I would ever expect to be necessary.

Packing so much into a fanless 1U box results in a device that has the potential to run hot. The box is well vented and Lynx recommends leaving an open rack space above and below the box so it can be passively cooled. I always heeded this advice and I never had any issues with it getting too hot.

The converters in the Aurora 8 and 16 are stunningly good, so I was pleased to find that the converters in the Aurora(n) sound even better. To my ears, the Aurora(n) holds its own against anything out there today, regardless of price.

The big hidden gem feature of the Aurora(n) is its ability to record to a micro SD card completely independent from the computer. I do a lot of location recording, where redundant recording is a necessity, and having the ability to make a redundant recording without a second Pro Tools rig is fantastic. From a live show featuring Jeff Coffin for an NPR *Jazz Night in America* program to the recording of a Zach Williams prison concert, the micro SD card has worked flawlessly.

The micro SD card recording function is also a great feature in the studio, as it allows you to continually record everything that happens during a session to ensure that no audio magic that happens between takes gets lost in the ether. It also makes sure you are covered in case of a computer crash. My only complaint with the micro SD card functionality is that the ability to format a micro SD card isn't built into the Aurora(n), so it's critical that you have a card reader-equipped computer with a formatting utility installed. (Lynx recommends SD Memory Card Formatter 5.0, which is free and works flawlessly.) It's important to note that the micro SD card feature doesn't turn the Aurora(n) into a functional multitrack recorder; rather, it's simply a capture device, as there is no individual track arming, punching, editing and so on.

Anyone in need of a no-compromise interface that has a huge and growing selection of interface options should give the Aurora(n) top consideration, as it won't disappoint.

Lynx Studio Technology
www.lynxstudio.com

GENELEC 1032C STUDIO MONITORS

The recently released Genelec 1032C is the third generation of Genelec's legendary 1032 monitor. The 1032A was launched in 1992 and was then replaced by the 1032B in 2013. Besides the addition of Genelec's Smart Active Monitoring (SAM) technology, the 1032C offers several improvements over its predecessor.

The substantial 1032C weighs 37.4 pounds and measures 19.5 x 12.63 x 11.44 inches (HWD). It supports input via line level analog or AES/EBU digital signal (32 – 192 kHz and 16- to 24-bit).

The 1032C features an active digital crossover (with a crossover frequency of 1.8 kHz and 48 dB/octave slopes) that splits the signal feeding the 1-inch metal dome tweeter and 10-inch woofer, both of which are powered by onboard Class D amplifiers, thus reducing the weight of each speaker by more than 5 pounds. Compared to the 1032B's 120W and 180W amplifiers, the 1032C tweeter and woofer power amplifiers are respectively rated

at 150W and 250W. With regard to internal filtering, the speaker has a constant latency (group delay) down to 300 Hz.

Any fan of the previous 1032 models (I fall into this group!) will absolutely love the 1032C. These monitors offer the same immaculate imaging, impressive off-axis response and broad dynamic range as their predecessors, but with an extended low frequency response (the frequency response is 40 Hz – 20 kHz), increased SPL capacity (the maximum SPL is 114 dB) and Genelec Loudspeaker Manager (GLM) compatibility.

The SAM technology incorporates multiple features that allow the monitors to be tailored to a specific work environment via the GLM software or manually via a series of DIP switches located on the rear panel. While the SAM DIP switches are convenient if there isn't a computer available, Genelec always recommends utilizing GLM to set up a SAM monitoring system.

SAM DIP switch controls include



The Genelec 1032C features an active digital crossover that splits the signal feeding the 1-inch metal dome tweeter and 10-inch woofer, both of which are powered by onboard Class D amplifiers.



Genelec's SAM technology incorporates multiple features that allow the monitors to be tailored to a specific work environment via the GLM software or manually.

Bass Roll Off (three variations), Desktop low-frequency control (attenuates the bass frequencies around 160 Hz by 4 dB, compensating for the anomalies created by the desktop), Bass Tilt Control (attenuates frequencies below 800 Hz to compensate for anomalies created when the monitors are placed near room boundaries), Treble Tilt Control (boosts or cuts frequencies above 5 kHz, correcting an excessively bright or dull sounding system or compensating for high-frequency loss if the monitor is placed behind a screen), Intelligent Signal Sensing (ISS), Digital (activates the monitor's AES/EBU digital input), Level (scales the monitor's output level down in 10 dB steps) and Stored (switches between the monitor's back panel settings or the settings stored inside the monitor via the GLM system calibration software). When the GLM network is disconnected, the settings stored utilizing the GLM software can be selected for use by setting the Stored SAM DIP switch to the ON position. Setting the switch to the OFF position selects the settings defined by the monitor's own onboard DIP switch controls. Using the Stored option supersedes all adjustments done with the monitor's built-in controls.

Although the 1032C can be used without the GLM software and control network, the full potential of the monitors can only be met when they are set up and calibrated with the GLM software, which provides automated acoustic equalization and alignment for any system configuration. GLM setup is quick, easy and accurate. The

settings can be controlled with a computer or be permanently stored in the monitors to make the setup available at all times, even when a computer is not in use. Regardless of the speaker model, any number of SAM-equipped monitors can be used together to create a recallable network, from stereo to 5.1 to large immersive setups.

I couldn't wait to give the 1032Cs a listen, so before messing with the GLM setup, I confirmed the Store switch was not active and was set to neutral, and then I spent some time listening to the monitors in my mix room. Straight out of the box, they sounded amazing. The imaging was spectacular, the top end was pristine and the bottom end was full and rich, and while possibly slightly lacking in clarity, still impressive.

After a couple of hours, I was ready to give GLM a go. I used an earlier version of GLM a few years ago and was immediately surprised at how much easier it is to use now. I have memories of having to reference documentation multiple times to get it up and running, but the current version is simple and straightforward; I had it running in no time. It's as simple as connecting a Cat 5 cable between each monitor and subwoofer (my system was simply two 1032Cs, no sub) and then to the control network input of the GLM Adapter device. The GLM Adapter device then connects to a computer via USB. I positioned the included mic (pointed upward) at the listening position with the top of the mic at the approximate height

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AUDIO-TECHNICA ATH-M60X HEADPHONES

Despite being a lifelong Audio-Technica headphone fanatic, I was still skeptical of the \$199 ATH-M60x headphones, as I've never been overly impressed by on-the-ear headphone designs. Previous experiences with other manufacturers' on-the-ear designs have been so lacking in comfort that I haven't been able to focus on the sound quality long enough to know if I even like them or not.

The extremely comfortable ATH-M60x closed-back, dynamic, on-the-ear headphones are beautifully designed, extremely lightweight and sonically stunning. At the heart of the ATH-M60x is a pair of proprietary 45 mm drivers that, with a 102 dB/mW sensitivity, provide an impressive 15 Hz – 28 kHz frequency response. The 7.8 ounce headphones have an impedance of 38 ohms with a maximum input power of 1,600 mW.

The headphones include three detachable cables: a 3-meter (9.8-foot) coiled cable, a 3-meter straight cable and a 1.2-meter (3.9-foot) straight cable. Each one terminates in a 3.5 mm (1/8-inch) gold-plated stereo mini-plug. Also included is a threaded 6.3 mm (1/4-inch) stereo adapter that can be attached to either of the 3-meter cables, allowing the headphones to be used with a 1/4-inch headphone jack.

Somewhat hidden on the top of the left earpiece is a limiter switch. When activated (I found that a small screwdriver works best), it confines volume peaks to 105 dB, offering a great option for ear protection.

The ATH-M60x headphones don't collapse or have earpieces that swivel, so even though they are lightweight and somewhat small, they will still take up some room in your carry-on bag. From what I can tell, they are



The extremely comfortable ATH-M60x closed-back, dynamic, on-the-ear headphones are beautifully designed, extremely lightweight and sonically stunning.

extremely well made, so I anticipate they will easily hold up to the rigors of the road or any professional studio environment, and sonically, the

headphones are perfectly suited for mixing, tracking, referencing or recreational listening.

I did the majority of my listen-

ing through the headphone amp in the Grace Design m905 monitoring system, the TEAC HA-P90SD high-resolution music player and the Benchmark DAC-1. I also spent time listening through my iPhone X and MacBook Pro. As anticipated, higher quality amplifiers resulted in better sound quality. While the Grace Design is always my first choice, every option provided exceptional sound quality.

Besides utilizing the headphones while recording, editing and mixing, I spent significant time auditioning the headphones while listening to my staple of reference material. This includes Pink Floyd's *Dark Side of the Moon*, Elton John's *Goodbye Yellow Brick Road*, James Taylor's *Hourglass*, Daft Punk's *Random Access Memories*, Adele's *25*, The Beatles' *Sgt. Pepper*, the Beach Boys' *Pet Sounds*, Fleetwood Mac's *Rumours*, and the Nashville Symphony Orchestra's recording of *Paulus: Three Places of Enlightenment, Veil of Tears & Grand Concerto*.

Low frequencies are nicely articulated with a smooth clarity and punch; midrange response is well defined, upfront and undistorted; and high frequencies are clean and smooth, but never harsh or brittle. The headphones provide a soundstage that is both deep and wide, with exceptional imaging and detail, and they continue to be comfortable after extremely long listening periods. I've used them for recordings lasting over five hours multiple times and have yet to have them become uncomfortable. All in all, they provide a very enjoyable and accurate listening experience perfectly suited for the professional engineer, producer or audiophile.

Audio Technica
www.audio-technica.com

Reviews

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of my ears, and then connected it to the GLM Adapter device. That's it, as far as the physical setup goes.

The GLM software is a quick download from the company's website, and then running the software performs a series of tests optimizing the monitors to their environment by making adjustments for details such as speaker location and time of flight irregularities to ensure the finest possible monitoring experience within the room. The 1032C also incorporates Video Delay Compensation and level calibration.

I was stunned at the difference

the GLM made to the sound of monitors. The clarity I was missing in the bottom end was instantly resolved. The imaging was slightly better, the top end felt more extended and the sweet spot actually felt more accurate. Since the GLM software allows the GLM settings to be bypassed and activated at the push of a button, it is easy to analyze the differences that GLM makes to the listening experience. I've used a fully calibrated system multiple times and in each instance, have found that the more problematic the room, the more of a difference GLM makes.

While unlimited presets can be easily saved in the computer, only one GLM configuration can be stored in the monitors. This means that if you frequent a number of dif-

ferent studios on a regular basis and carry your monitors with you, you will have to use your computer to recall the configuration for each location. I wish you could store more than a single setting in the speakers.

During my eight-week review period, I've found that the 1032Cs translate extremely well. It is easy to tell when a mix is finished or if it needs more work, and when you get it out of your space, you know what it's going to sound like elsewhere. The SAM system allows the monitors to provide amazingly accurate monitoring in virtually any room, which is ideal for engineers (like most I know) who regularly work in a multitude of different settings. I've utilized the monitors in six or seven spaces, and in every instance have

been pleased with their performance.

The monitors are extremely flat and natural sounding, with stunning imaging. They are remarkably transparent and their extremely low distortion keeps them from being fatiguing. Long days don't result in fried ears, as happens with many monitors out there. They are loud, too—really loud, perfectly suited to rock out and give a band the larger than life playback experience. The clarity and precision remain intact even at loud volumes, though, which is sadly not typical with most monitors out there.

The 1032C is a perfect option for any music production, post-production or broadcast studio.

Genelec
www.genelec.com

Lectrosonics SPDR Stereo Portable Digital Recorder

Lectrosonics has released the SPDR—Stereo Portable Digital Recorder—a stereo version of its PDR micro digital recorder. The unit is intended for use in news, film and video production or in situations where a wireless system isn't practical. The SPDR records to a Micro SDHC memory card in Broadcast Wave format (WAV with iXML metadata) and 24-bit depth, in sample rates of either 48 kHz or 96 kHz. The unit can accept inputs from analog line level and AES digital sources, or from lav microphones wired for standard Lectrosonics 5-pin "servo bias" inputs. The SPDR can handle timecode via 5-pin LEMO connector and features a temperature-compensated time base crystal.



Ear Trumpet Labs Dark Edwina Microphone

Ear Trumpet Labs has unveiled the limited-edition Dark Edwina microphone, created in collaboration with Dobro player Josh Swift. The variation on ETL's Edwina mic sports a black finish, making it the company's first single-color microphone. The Edwina's parts got their dark coloring via hand-processing at Cold Spring Enterprises, a gunsmith in Bristol, TN, using a technique called Cerakote that puts a thin, durable black ceramic finish on metal. The Dark Edwina is now available for a first run of 10 units, with a limit on 50 units.



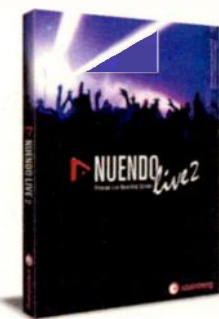
TASCAM Model 24 Digital Multitrack Recorder

TASCAM's Model 24 offers 24 tracks of 24-bit, 48 kHz audio capture (22 channels and a stereo main mix) and 22 playback tracks via either USB 2.0 or to the unit's onboard SD Card recorder. The SD Card recorder offers one-touch recording and includes transport controls, auto and manual punch in/out, and overdub capability. The unit includes a 22-channel mixer with 100mm long-throw faders. The two monitor returns, subgroup bus and stereo main bus are also equipped with dedicated 100 mm faders. The Model 24 offers 12 mono channels, each with XLR mic and 1/4-inch line inputs. One-quarter-inch channel inputs 1 and 2 can be switched between line and instrument level, enabling plugging in a guitar or bass, and feature a 1/4-inch TRS insert point. Users also get 4 stereo channels with mono XLR mic and left and right 1/4-inch line inputs. All 16 microphone inputs sport a preamp gain control and an overload (clip) indicator for the channel's premium TASCAM microphone preamp. Each of the first 20 channels includes mute and PFL solo.



Steinberg Nuendo Live 2

Steinberg has released Nuendo Live 2, the latest edition of its multitrack live recording system, which offers new and updated features, Yamaha CL/QL console integration and more. The Meter View, which allows users to oversee all of the recording session's levels over the entire display, shows 32, 64, 96, 128 or 160 meters simultaneously. The Track View feature has been enhanced to display the meter bridge on the bottom of the screen, with up to 64 tracks. When more channels are required, the meter or track count is divided into banks that can be accessed by mouse click or key command. Yamaha CL/QL console integration allows engineers to control the software directly from the mixer's touchscreen.



iZotope RX 7 Standard and RX Elements

iZotope has released its seventh generation of RX audio repair and enhancement software with RX 7 Standard and RX Elements. RX 7 Standard offers Repair Assistant, a repair tool that analyzes audio to detect noise, clipping, clicks and more, then offers three processing suggestions at three dif-



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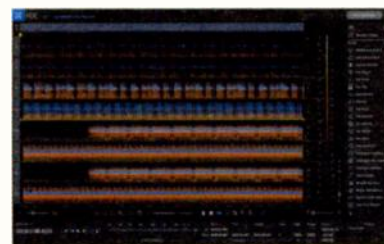
Universal Audio Apollo X Interfaces

Universal Audio has released its new Apollo X Series of Thunderbolt 3 rackmount audio interfaces. The family of four units—x16, x8p, x8 and x6—has a number of new features, including "elite-class" A/D and D/A conversion and



HEXA Core processing, featuring six UAD DSP processors, reportedly yielding 50 percent more DSP for running UAD Powered Plug-Ins in real time. The flagship x16 sports a 133 dB dynamic range, while the other three have a range of 129 dB. The x8p, x8 and x6 feature eight, four and two Unison-enabled mic preamps, respectively; the three units offer preamp emulations from Neve, API, Manley, Fender and more using Unison technology. The units also offer selectable +24 dBu operating levels, and surround sound monitoring support for 5.1 and 7.1 formats, which will debut in coming months.

ferent intensities. Also new is Music Rebalance, which uses an algorithm trained with machine learning to perform source separation, allowing users to work with individual elements of a stereo audio track without multitracks. Remove/Isolate Vocals allows users to create instrumental versions of songs by removing the vocal elements, or isolate the vocal to prepare a remix without having access to individual tracks or stems. RX Elements has been updated with a streamlined version of Repair Assistant.



Zylia ZM-1 Microphone Array

German semiconductor manufacturer Infineon Technologies and Zylia, a Poland-based developer of recording technologies, have introduced a 19-capsule, 24-bit resolution microphone array that allows users to record entire sound scenes with a single microphone. Incorporating Infineon's 69 dB SNR digital MEMS microphone and XENSIV silicon microphones, the microphone array is said to provide high-fidelity and far-field audio recording, in addition to multiple-microphone noise-free and distortion-free audio signals for advanced audio signal processing. As a third-order Ambisonics audio recorder, the ZM-1 is intended for 360-degree and virtual reality (VR) audio production. Zylia supports these workflows with its new Zylia Studio PRO and Zylia Ambisonics Converter software, offering control over the recording process.



Prism Sound SADiE v6.1.13 Software

Prism Sound has launched SADiE v6.1.13 software, introducing a number of enhancements and bug fixes to its audio recording and production system. Available as a 64-bit version of SADiE 6 for native operation and also for the SADiE BB2 Radio Editor system and LRX2 Flexible Location Recorder, SADiE v6.1.13 delivers an update to the system's core so that these tools are fully compatible with Windows 10. The SADiE system allows a choice between proprietary audio I/O and DSP processing, or standard soundcard I/O and DSP functions running on the host computer.



There's more information on all the products featured at prosoundnetwork.com/Oct2018.

Shure P9RA+, P10R+ Bodypack Receivers

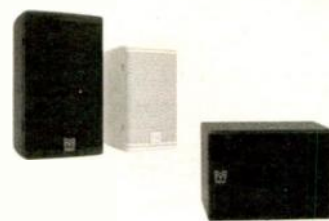
Shure has revealed its P9RA+ and P10R+ bodypack receivers, which are scheduled to ship later in 2018. The receivers operate with the PSM 900 and PSM 1000 IEM systems, respectively, and use an analog/digital hybrid system to reportedly improve headroom, stereo separation and audio fidelity. The P9RA+ is a compact, stereo bodypack that works with the PSM 900 wireless system, and is said to provide improved audio quality and RF signal strength. All P9RA+ receivers are compatible with original P9T and P10T transmitters and all Shure SE Sound Isolating Earphones. Similarly, the P10R+ is a low-profile, twin-antenna diversity bodypack receiver that operates with the PSM 1000 wireless system. The receiver's features include full-bandwidth RF scan, front-end RF filtering and automatic RF gain control.



risk of cable breaks. The connector is accommodated inside the ear mold, and the IEMs reportedly are able to reduce ambient sound by up to 26 dB.

Martin Audio Adorn Loudspeaker Series

Featuring a 4" and 5.5" driver, respectively, the two-way Adorn 40 and Adorn 55 on-wall loudspeakers are available in black or white as standard, and can be painted as needed to blend into their surroundings. The loudspeakers have a nominal impedance of 16 ohms, enabling four or more speakers to be driven in parallel by one amplifier channel. Their "T"-designated options are fitted with an internal 70V/100V multi-tap line transformer with a switch to select the output level. Backing them up will be the newly announced SX110 subwoofer, which can extend the bandwidth of Adorn on-wall speakers. Designed for a low profile within a venue, its compact enclosure features a 10" (250mm) driver and bass-reflex porting to reduce air noise. SX110 can also be suspended by means of integral M8 threaded inserts.



Neutrik True Outdoor Protection Series

Neutrik USA's True Outdoor Protection (TOP) series comprises products from its powerCON TRUE1, etherCON and XLR lines that have been made UV light-resistant and IP65-rated for use in conditions with heavy moisture, particulate pollution and sunlight. The new powerCON TRUE1 TOP product line features all-black, high-impact, UV-resistant materials. Latches are silver colored. powerCON TRUE1 TOP products offer the same input and output cable and chassis connectors as the standard powerCON TRUE1 series. IP65 and UV-resistant etherCON TOP products feature RJ45 cable carriers in two colors; Cat 5 chassis connectors for vertical PCB mounting, horizontal PCB mounting, and D-size feedthrough; and an SE8FD-TOP outdoor assembly kit. The XLR TOP product line comprises 3- and 5-pin male and female XLR cable connectors along with male and female D-size chassis connectors and a UV-resistant chassis connector protection cap.



Sennheiser IE Pro In-Ear Line

Sennheiser has launched a new series of professional in-ears, beginning with the IE 40 PRO entry model (shown here), which will be available this month. In early 2019, the IE 40 PRO will be joined by the IE 400 PRO and the top-of-the-range IE 500 PRO. Available in black and transparent versions, the IE 40 PRO is built around a Sennheiser driver reportedly offering low distortion (0.1 percent at 1 kHz and 94 dB), and neodymium magnets helping provide an SPL of up to 115 dB. The IE 40 PRO's mechanical design includes a patent-pending cable ducting that is said to reduce the



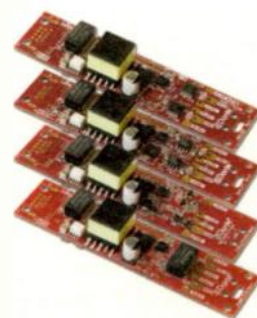
Yamaha YVC-200 Portable Speakerphone

Yamaha Unified Communications is now shipping the Yamaha YVC-200 portable USB + Bluetooth speakerphone. The unit is integrated with Yamaha sound processing technologies, including adaptive echo cancellation and Human Voice Activity Detection, which focuses on speech rather than background noise. The unit features an intelligent microphone and provides duplex conversation without sound dropouts, even when multiple people are speaking at once. The unit works with common operating systems and remote conferencing services such as Skype for Business, Microsoft Teams, Cisco Webex, Zoom, Slack and more. Touch-sensor buttons provide manual control of software functions such as microphone mute and speaker volume. Available in white or black, the YVC-200 also has a headset jack for private listening.



Audinate Dante Adapter Modules

Audinate has introduced a new line of pre-programmed Dante Adapter Modules for use in designing Dante audio adapters and low-channel count audio devices. Dante Adapter Modules can be integrated into larger host devices to provide Dante network support without the need for PCB design and manufacturing, component procurement and programming. The Dante Adapter Modules family contains six models—single and dual-channel analog input, single and dual-channel analog output, 2-in/2-out AES3, and 2-in/2-out USB. The modules use the same components as the Dante AVIO adapter family and are designed for over-molding, clamshell enclosures or mounting on a baseboard, enabling manufacturers to design products with their own physical enclosures, branding and connectors.



firstlook

Allen & Heath SLink Option Card for SQ Mixers

Allen & Heath has introduced a new SLink option card for its SQ digital mixers, intended for use in digital FOH/monitor splits, broadcast feeds, recording and other applications. Providing the same functionality as the mixers' built-in SLink port, the option card provides a further 128 inputs and 128 outputs of digital audio and runs completely independently. Outfitting an SQ mixer with a second SLink port allows it to combine additional Allen & Heath products such as an ME personal monitoring system, DX or dSnake expanders. The SLink card also allows for direct connections from any SQ console to another Qu, SQ or dLive system and/or to 48 kHz or 96 kHz expanders.



Sonifex AVN Portal Mix Engines

Sonifex's AVN Portal range of mix engines use AES67 AoIP to enable mixing and monitoring of AoIP streams as well as having physical inputs and outputs. The AVN-PA8 Portal has eight stereo analog line inputs and outputs on D-type sockets with AES59 analog pinout, paralleled with eight RJ45 connectors using StudioHub pinout. Up to 16 AES67 input channels and 64 AES67 output channels can be created in each Portal, supporting the full range of AES67 packet times and channel counts. The AVN-PD8 Portal has eight stereo AES3 digital line inputs and outputs. It has individual input sample rate conversion, input and output gain adjustment and has the same streaming facilities as the AVN-PA8. Finally, there is the AVN-PM8 Portal, which has eight mic/line inputs and eight stereo line outputs.



Bringing Boutique Festivals to the Beach

BY IAN MACDONALD

TISNO, CROATIA—Tisno, an idyllic beach town along Croatia's Adriatic coast, enjoys a relatively quiet existence for nine months of the year. However, as in many seaside locales in the country, summers bring a massive influx of festivalgoers reveling in the music of their favorite DJs in the brilliant sunshine on the beach and at sea. Tisno's particular appeal is an intimate festival site (2,500 capacity, nearly matching the population of the town itself) comprising four beachside stages, two boats with stacked sound systems and a nearby after-hours club for the nocturnally inclined. The site hosts six summertime festivals, each lasting five to eight days and spanning different sub-genres of electronic music. Things kicked off in late June this year with the house- and disco-fueled Love International.

Successfully executing six back-to-back weeklong festivals in a Mediterranean climate (read: water, sand, salt corrosion, dust, blistering sun) requires stamina and technical expertise, and the site's sound designer,



One of the more unique stages at the festival grounds is the Olive Grove.

Kim Lewis, has tackled Tisno annually for the last decade. His team of nine freelance audio pros handles the sound reinforcement for all six festivals, supported by a Funktion One-heavy kit list that has withstood both the elements and the test of time.

"When I started doing these Croatian festivals, my team inherited a pile of gear and we were told to make do with what we were given," says Lewis. "Some of these Funktion One

boxes you hear today are from that very same pile, and they still sound pristine."

Lewis' bronzed tan is a reminder of just how close this place is to the sun, but there's little wear on the Funktion One cabinets or degradation in the quality of their output, and that's no small feat in this salty, dusty, UV-drenched environment. While deep-cleaning is required after

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briefs

Dashboard Digs DPA

NASHVILLE, TN—On the road this summer, Dashboard Confessional has been performing through DPA mics (www.dpamicrophones.com). Monitor engineer Jamison Butcher and FOH man Joel Livesey surrounded the band with d:facto 4018VL mics on all vocals, d:dicat 4011 cardioids for audience mics, d:vote 4099s on all toms and cymbals, and d:dicat 2011Cs on kick and snare.

A NEO at the Opera

SAN DIEGO, CA—San Francisco-based Coral Canopy provided sound design and audio production services for the Opera NEO Summer Opera Festival in San Diego, which included performances of Franz Lehár's *The Merry Widow* and Mozart's *Idomeneo*. Alan Chang, principal of Coral Canopy, oversaw an Allen & Heath (www.allen-heath.com) SQ-5 digital mixer at front of house nightly to mix FOH and manage stage and orchestra monitor levels for the run of the summer festival.

Nexo, Yamaha on the March

MURFREESBORO, TN—At the Drum Corps International semifinal competitions held at Middle Tennessee State University in July, the Carolina Crown of Fort Mill, SC, and the Cadets of Allentown, PA, each used Nexo/Yamaha (www.yamahaca.com) systems supplied by J Sound Services (JSS) of Nashville. Though they had different configurations, the systems included Nexo Geo M10 line array boxes, NXAmp 4x2 Mk 2 amplifiers, NXAE104 AES network cards and a Yamaha QL5 console.

SEAL Acquired

MIAMI, FL—Following decades of collaborations, Pro Sound & Video (www.prosound.net) has acquired Stage Equipment and Lighting (SEAL), incorporating the latter company to become a single source for sound, video, broadcast, control, design and lighting sales and integration.

The Tour of It All

BY STEVE HARVEY

LOS ANGELES, CA—Four-time Grammy Award-winning UK singer-songwriter Sam Smith's second studio album, *The Thrill of It All*, debuted at the top of the UK and U.S. charts in November 2017 and launched a tour that is scheduled to run through April 2019. The production design is unusual, with a stage that is essentially just a thrust that extends 107 feet into the audience, requiring an equally unusual sound design configuration to meet the challenges it presents.

Rehearsals took place in a hotel ballroom in Lake Como, Switzerland, says veteran front-of-house engineer Jim Ebdon, whose résumé includes Maroon 5, Matchbox Twenty and Aerosmith, among others. "We really got the mix dialed in nicely and got everything sitting right," he says.

For this tour, Ebdon selected an L200 desk from Solid State Logic, a brand he's been using for a couple of years. "They sound like an analog console with a save button. I like the ergonomics of the layout," he says of



Sam Smith belts nightly through a Sennheiser SKM 5200-II wireless microphone with 5235 capsule.

features such as the faders being in a single row and its accommodation of a display screen to each side.

"I think they have a character on the mix bus," he adds, which was important for the project, which promotes an album recorded largely to 16-track by Irish producer and engineer Stephen Fitzmaurice. "He's a big fan of really good quality mics and old outboard gear, so I thought, that's how I'm going to approach this," Ebdon says.

The show is all about Smith's voice, of course. "We tried a few mic capsules and few different compres-

sor choices and ended up with the Sennheiser 5235 capsule" mounted on an SKM 5200-II transmitter, a combination that the four backing singers also use, Ebdon reports. Mic choices for the five stage musicians were equally judicious and include various AKG, Heil, Neumann, Royer, Sennheiser and Shure models, together with Avalon U5 and Radial JDI and J48 direct boxes.

Smith's vocal travels via a Neve 1073 DPA preamp at the stage before Ebdon sends it through a Tube-Tech CL 1B compressor. "You might look

(continued on page 42)



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BILLY DAVIS

For Rob Zombie's half of the Twins of Evil tour, production manager/FOH engineer Mark Woodcock (front) and Norm Stallings (back) mixed through a sizable Clair Global Cohesion line array system.

The Evil That Men Mix

BY BILLY DAVIS

WANTAGH, NY—When Rob Zombie and Marilyn Manson joined forces this past summer for a co-headlining tour, it was a good show—but it was still evil. The Twins of Evil: The Second Coming Tour hit the sheds for 29 shows in July and August, with a house system and Zombie's control gear provided by Clair Global, while Manson's was provided by Battlestar Productions. With the exception of monitor engineer Jay Summers, Zombie's entire sound crew came directly from a run with Poison, and included production manager/front of house engineer Mark Woodcock, crew chief/assistant FOH engineer Norm Stallings and P.A. techs Nathan Lowe and Jacob Caples.

The closeness and consistency of the team made for a steady and enjoyable workflow for everyone involved, according to Woodcock. "I left the Poison tour in Florida," he said, "and Norm finished the last two shows as FOH while I flew to L.A. to catch rehearsals for the Twins of Evil tour." The rest of the crew joined pre-production soon after. It wasn't Woodcock's first run with Zombie, either—he's spent a decade as the artist's production manager and three years as the FOH engineer, adding to a mix resume that includes the likes of Merle Haggard, Bush, Babyface, Cindy Lauper and Richie Sambora, among others.

For the run, Woodcock and Summers each used Yamaha's new Rivage PM7 consoles, marking their first times out with the desk. "I went out to Clair in Lititz, PA, to visit Mike Adams last year and I ran into Toby Francis [FOH for Katy Perry, Arianna Grande, Kiss]. He suggested I play around with the

Yamaha Rivage PM10 and said, 'It's really worth a listen.'" After trying it out, Woodcock immediately took the PM10 out with a cappella group

Pentatonix: "I liked the workflow and how it sounded, so then I then tried it with a full band on a five-week tour with Bush, and I was con-

vinced. It sounded great."

For the Zombie summer tour, he transitioned to the PM7—essentially the same desk with fewer inputs and outputs. "Back at the beginning of the year, they asked if I would want to take the PM7 out, as they had just got a bunch in," Woodcock explained. "In the PM7, I like having the DSP in the desk and not being external; it saves on space. The PM7 does have the PM10 rack, though, so you get the Rupert Neve inputs."

On monitors for the tour was J. Summers, taking the place of longtime Zombie monitor man Steve Walsh, who was committed to a summer tour with Luis Miguel. Summers trained on the PM7 at Clair's Lititz facility prior to the tour. "Steve sent me his PM5D file to convert for the Rivage," he recalled. "We met for the first time in L.A. at rehearsals to develop the mixes that Rob and the band required. Steve's trust and solid foundation with these guys set me on course for a great summer, so thank you, Steve!"

Zombie's FOH mix was straightforward as well. "With Zombie, there are not a lot of dynamics," said Woodcock. "Poison has acoustic songs and ballads, while Zombie is a straight in-your-face rock show—loud and proud." One of the key ingredients every night was the artist's signature vocal sound. "Rob's vocal is different than most acts—it's pure effect," he noted. "There's no dry vocal at all. It's an Eventide [preset] 519 Micro-Pitch shift that he uses throughout the whole show. It's not an outboard effect; it's now part of the plug-ins on the PM desks." Additionally, Woodcock made use of onboard offerings, including a Rupert Neve Designs Portico 5043 compressor.

(continued on page 40)

VITALstats

Rob Zombie

Clair Global (Lititz, PA)

FOH Engineer:

Mark Woodcock

Monitor Engineer:

J. Summers

Crew Chief:

Norm Stallings

Techs:

Nathan Lowe, Jacob Caples

FOH Console:

Yamaha Rivage PM7

Monitor Console:

Yamaha Rivage PM7 CSD-R7

House Speakers:

Clair Cohesion CO-12, CO-10, CP-218

Monitor Speakers:

Clair Cohesion CM-22, CO-12, CP-218

Personal Monitors:

Shure PSM 1000; Alien Ears; Ultimate Ears

House Amplifiers:

Lab.gruppen PLM10000Q

Monitor Amplifiers:

Lab.gruppen PLM10000Q

FOH Equipment/Plug-Ins:

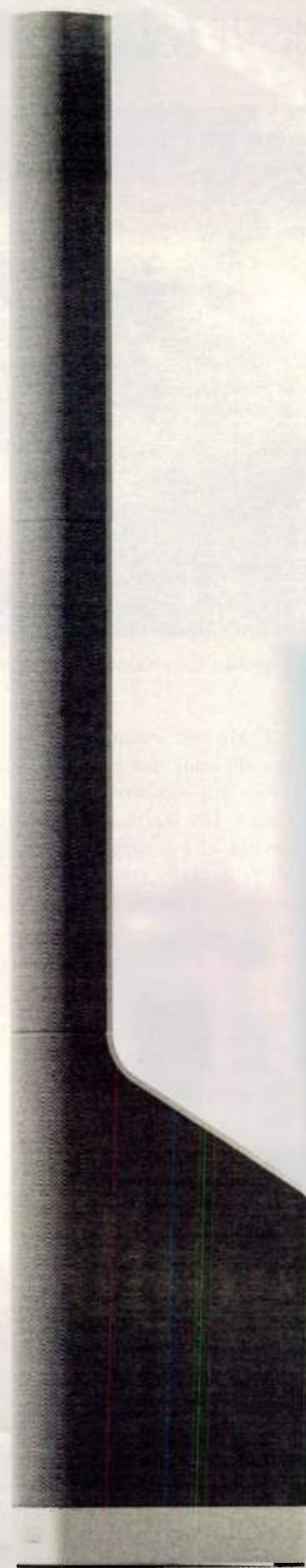
Neve Portico II, 5059 Satellite Summing Mixer; Magma Express Box; Yamaha NUAGE Dante Accelerator, RY16 ML Silk Input Card, RY16-DA Output Card; Lake LM44; Tascam SS-CDR200; Smart Research C2; Empirical Labs EL 8, Fatso; API 2500

Microphones:

Telefunken M82; Shure Beta 91A, UHFR Series; beyerdynamic Opus 87; Neumann KM 187; Palmer DIs

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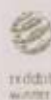
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Rob Zombie

(continued from page 38)

Onstage, what the band heard was just as important. “Rob’s vocal is purely effected returns,” Summers noted. “There is no dry ‘Rob vocal’ on stage—he requires two SPX presets, tailored, of course. They give him the demonic sound that he digs; it totally sets the vibe.”

If Zombie’s vibe was eerie, the crew’s vibe was efficient. Crew chief Norm Stallings explained, “Normally our load-in starts at 8 a.m. and I have the P.A. tuned by noon. Mark is ready to do a line check, provided backline is up and ready. In all honesty, it’s pretty easy. As for the load-outs, all my stuff is in the truck in about an hour-fifteen, including the motors.”

When *Pro Sound News* caught up with the tour at the Northwell Health at Jones Beach Amphitheater, however, the setup was different by necessity. Stallings explained, “Jones Beach is a complete caveat to almost everything we normally do. Everything has to enter the deck from stage right, so that means nothing gets flown on that side until the end.”

For the Zombie/Manson tour, Clair Global provided its proprietary Cohesion series loudspeakers—which meant the audio team used the same loudspeaker arrangement as it had just weeks earlier at the same venue for Poison. The stage left-right hangs each sported a dozen CO-12s to cover the grandstand down to the pit, with the bottom four boxes set at 120 degrees and the top eight at 80 degrees. All that was supported by Co-



Monitor engineer J. Summers mixed on a Yamaha Rivage PM7 console for the first time during the tour.

hesion CP-218 sub enclosures. “The subs are eight aside and I have them all fired forward,” said Stallings. “I’ve steered them 180 degrees per array so it gets rid of a power alley, and I find there is really good sub-bass coverage even up to the upper deck grandstands.”

Additional side hangs of eight Cohesion CO-10s each were used nightly, aimed differently depending on the venue, to provide complete sound coverage in wider or taller venues. “Jones Beach is much narrower and has an upper grandstand not typical of most venues,” Stallings remarked. “I had a rig made straightforward specifically for the grandstand seats in Jones Beach; I did this on the Poison tour as well. If you get in a very wide venue, like Pine Knob in Detroit, we’ll swing that CO-10 array to the side. It’s all about sound coverage.”

Completing the P.A. were Clair P2 front fills. “The P2s have been around a long time, but they are a very powerful box. If you need to juice it, you can really get some SPLs out of it,” said Stallings.

Behind the P.A. in monitorworld, Summer gave the band exactly what they required. “Guitarist John 5 uses wedges and sidefills and no in-ear monitors,” he said. “Rob uses three wedge mixes around him, along with sidefills left and right. On stage right is Piggy D. on bass; he has wedges, sidefills and in-ears using Alien Ears IEMs with a Shure PSM 1000 wireless pack. Ginger Fish, the drummer, has Ultimate Ears IEMs and his own Speck mixer, and I send him stems so he can blend his IEM mix. I also have a stereo return feed from Ginger for a redundant PSM 1000 wireless pack.”

Summers pointed out that stage volume sometimes affects the house

mix, so he followed traditional steps to ensure that didn’t happen: “What I got from Steve [Walsh] is that the mix we are creating on stage is the definition and low-mid body; the impact comes from FOH. So technically we’re not polluting Mark’s house mix—we’re taking his energy and adding our presence to it. By working together, FOH can provide a cleaner mix to the audience.”

Of course, a clean mix starts with proper miking on stage, so the drum mics included a Telefunken M82 and Shure Beta 91A on the kick; beyerdynamic Opus 87s to cover the snare and toms, along with an under-snare Neumann KM 187; and overhead Neumanns as well. All the guitars were DI’d, said Woodcock: “The bass guitar is a straight DI; for guitars, I used Palmer DIs. I tried miking the guitar amps in an isolation cabinet, but I just didn’t like the sound. The Palmers were originally going to be the backups, but I liked them enough to use them instead. I really like the sound of John 5’s guitar through it.” Zombie’s heavily effected vocal was captured nightly via a Shure UHFR Series handheld with Telefunken M81 capsule.

Thanks to working together on the Poison tour, Zombie’s audio team was already in sync by the time the second tour started, and they had developed a work ethic based on trust. Stallings said, “The mutual trust is killer. It makes our job easier and makes the guys on-stage’s jobs easier.” Woodcock echoed the sentiment: “There’s never any feedback from the artists—that tells me we must be pushing the right buttons.”

Clair Global
www.clairglobal.com

Love International

(continued from page 36)

each season, the systems have survived other aspects as well. “The gear truck showed up this year with three Funktion One Resolution 4 speakers vertically ratchet-strapped to each other,” he recalls. “The truck parked on a very slight tilt, and when the driver undid the strap, they tumbled off the truck and bounced off each other on the way down. The waveguide on one of them was destroyed, and the company was very expedient in getting us a replacement, but afterward I couldn’t help myself and tested all three boxes’ drivers. They all worked flawlessly; none of the magnets were knocked out of alignment. We couldn’t believe it!”

While he’s the sound designer for the site, Lewis performs double-duty as FOH engineer for the Main Stage, where he uses an old-school 48-channel Midas Legend to mix through eight Resolution 4 and eight F218 subs, all powered by MC2 E45 amplifiers. He selected new Midas MR18 tablet-controlled rackmount mixers for the slightly smaller Beach Stage and Barbarella’s, the offsite after-hours club. The digital desks were additions to the kit this year, and Lewis points to them as a massive improvement over the previous years’ analog desks for their ability to adjust levels directly from the audience position.

“The biggest reason I love this site so much, and the festivals that appear here for the summer, is the intimacy,” says Lewis. “With other big festivals around the world, I’m front of house but just a face at the

other end of the field to the DJs and performers. But with this place, the intimacy is significant enough that I often build relationships with these artists. That’s the best part, as I get to hear their feedback and incrementally improve every performance so that when they return the next year, I get to ensure their wishes are incorporated.”

As for the other stages, the 200-capacity Argonaughty boat is equipped with four Funktion One F88s, Crown MacroTech amps and two custom EV DeltaMax 218 subwoofers that take advantage of the boxes’ 90-degree dispersion to cover the open-air environment. Lewis also deployed eight non-custom EV DeltaMax 218s at the open-air club.

“We’ve placed the four subs on the outer ring of the club upright, but the four in the middle are sideways, again providing that 90-degree dis-

persion. If we also position the outer subs on their sides, we receive complaints of excessive sub as it emerges straight out the side ... but when upright, the vertical dispersion is perfectly balanced,” says Lewis. That careful balance keeps dancers moving from midnight to 6 a.m. night after night.

With only 10 days of build leading up to nearly two straight months of performances, all outdoors and surrounded by every elemental severity a FOH engineer can think of, it is not your typical American festival format. Boutique-size festivals are becoming a global trend, however, so that influence may start being felt here, too. In the meantime, Lewis and his crew will be back at it next year, when the string of festivals returns to Tisno in early July.

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Sam Smith

(continued from page 36)

at it and think it's over-compressing, but when that needle is slamming over on the left, it just sounds fantastic," he says.

He manages Smith's potent high-mid range with a Sonnox Oxford EQ plug-in and applies UA's Tube-Tech CL 1B re-creations to the background vocals. Vintage AMS and EMT reverb plug-ins supplement a pair of Bricasti hardware reverb boxes. The plug-ins are hosted on a Soundcraft Realtime Rack, with a Waves SoundGrid server handling plug-in effects such as flanging and ADT.

"I live under the stage like a troll, as once pointed out by a friend of mine," says monitor engineer Saul Skoutarides, who chose a DiGiCo SD7 for the tour. In addition to managing about 80 inputs from stage, which split to monitors and FOH via a rack of Midas DL431 interfaces, he controls a "shout mic" system of approximately two-dozen channels. "Because none of us can see each other," he says.

Skoutarides picked the SD7, he



Audio crew on the run includes (l-r) Dan Leaver, Bhekii Phakethi, Liam Halpin, Jim Ebdon, Saul Skoutarides and Lee Fox-Furnell.

says, "because I need the functionality of the automation. And I can build macros to do whatever I want."

Using the SD7's macros, he enables the MD and band members to talk among themselves or to Smith in various combinations, and for the techs to converse among themselves. "No matter what shout mic gets talked into, the crew always hear them, so we can back each other up," he says.

Skoutarides has two four-engine TC Electronic System 6000 reverbs available and puts a Crane Song STC-8 analog bus compres-

sor across Smith's mix. Everyone uses Sennheiser 2000 Series wireless ears with JH Audio earbuds—Roxanne custom models, in the case of the performers and Skoutarides. The tour's RF tech, George Hogan, handles the unusually long stage configuration using his custom antenna management system.

Skoutarides' secret weapon is a Cedar DNS8 Live box, originally designed to suppress noise between lavalier mics for broadcast. "It allows me to filter room reverb out of the microphones. You can teach it what

you don't want in the mics, then you can dial in how much of that processing you want."

System tech Liam Halpin rose to the challenges presented by the long, narrow stage and the production design—twin IMAG screens, circular rear-projection screen, lighting trusses and "The Shard," a 50-foot high, three-sided projection screen construction—with a design that encompasses as many as 80 d&b audiotechnik J8 and 32 V8 line array modules, plus 24 J-Subs, in six blocks of four, all flown. Four J-Infra triple-21-inch subs below the stage—two pointing forward and one to each side—supplement the flown rig. A full 22 compact T10 two-way boxes, mounted to the sides of the 5-foot-high stage on custom hanging shelves, provide audience fill.

There are 34 d&b D80 amplifiers per side, housed in custom carts to fit beneath the stage, says Halpin. Signal cabling and power distribution are similarly customized for quick load-in and deployment. Amp signal distribution is via a redundant Dante network and d&b DS10 network bridges, with overall EQ processing by Lake LM44s. There is a high level of redundancy throughout, from the consoles (the second desks also being

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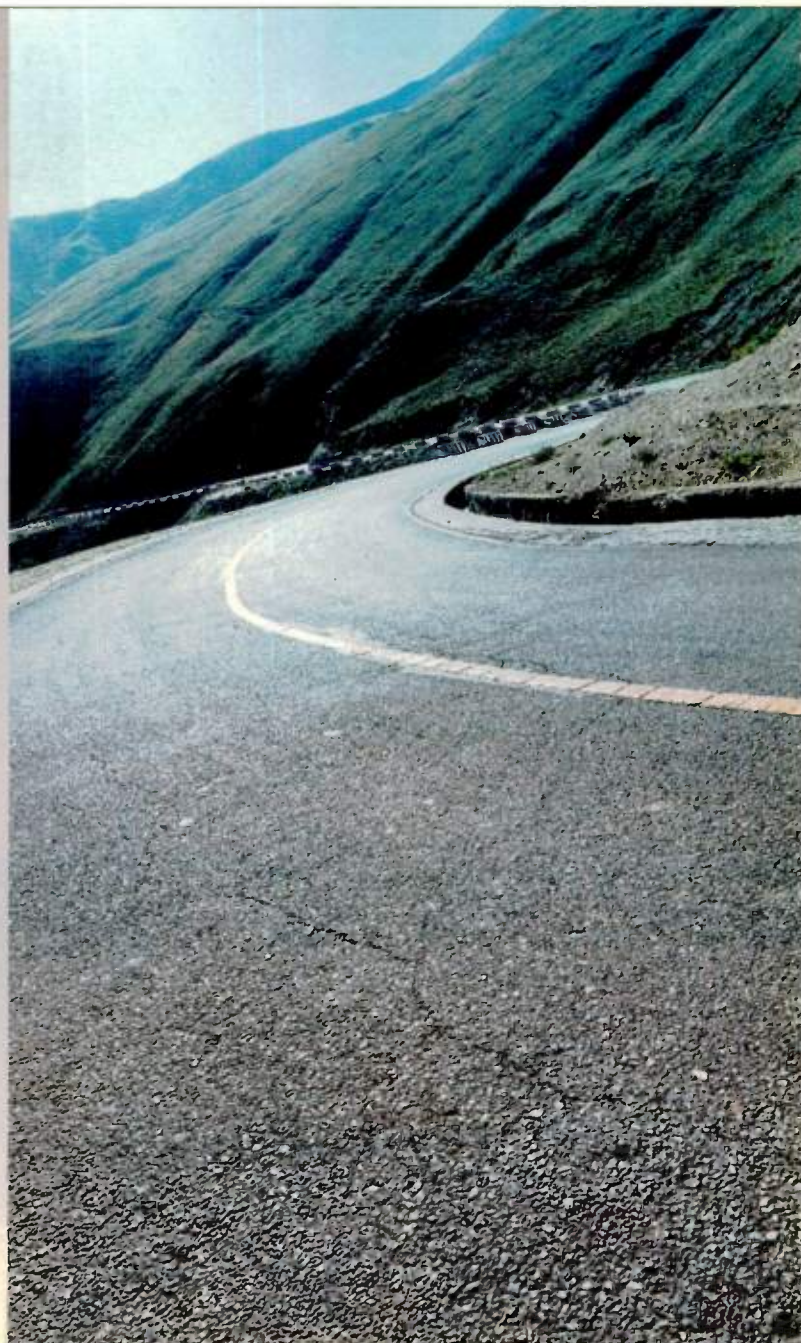
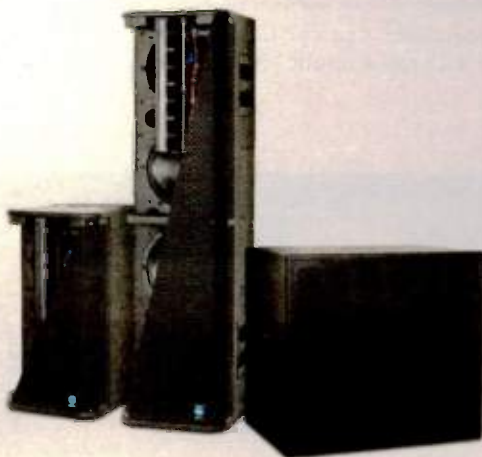
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available to opening acts) to the networking, which has an AES backup.

Capital Sound, based in London and newly integrated into the SSE Group, provided the sound equipment. Every component of the tour production was shipped by container from the UK and will go on to Australia while the tour picks up local production for its Southeast Asia shows.

The tour's sound design was driven by the need to extend coverage to the front rows of seats that run along both sides of the stage and up to its front tip, Halpin explains. "If you want to cover the front row, you have to put a hang in line with the side of the stage. That also means you've got to point the bottom box down."

Halpin spent three months of full-time work on the design, he reports, inputting the CAD drawings and his own precise measurements of representative venues such as London's O2 Arena and Manchester Arena into d&b's ArrayCalc simulation software. He often spends hours pre-show at each venue adding measurements to improve the accuracy of the available drawings. "The consistency we've had from show to show has more than justified the effort."

To provide the necessary coverage, he continues, "We ended up with a lot more cabinets than you would normally carry on an arena tour. Each J8 hang is 20 boxes deep. The last box aims 80 degrees down."

The two front and two side J8 arrays must be carefully aligned with each other. "The bottom box of the side hang acts as a fill underneath the main hang," he says. "And Sam spends a lot of time on the tip of the stage, so I can't hit that too hard."

Indeed, the acoustic center is near the downstage lift that brings Smith to the stage, from which Halpin must cover roughly 310 degrees. Viewed as a traditional end stage, the production sells each venue's seats to 270 degrees.

Providing that coverage means there's up to 16 boxes for each V8 hang. Halpin explains, "Quite often I'm using 10 boxes even if there's a wall. The floor seating extends to the Shard, so I need that many boxes to achieve the down-tilt to get the coverage." The d&b ArrayProcessing software manages the wall proximity, he adds.

"Rather than trying to pick a single point to align the system, I'm looking at the overall low-end response throughout the whole venue. It allows me to get the best average response for the greatest amount of the audience," he adds.

The array weight is close to the load limit of the rigging system, says Halpin. Because balcony seating extends higher at many U.S. venues,

"we're shooting up with the hangs, which allows me to shift more of the weight onto the front motor. For some of the lower audience profiles, I've put three or four boxes on top of the hang to act as a counterweight. It's a constant battle between what makes acoustic sense and mechanical sense."

The stage configuration means that there is no wide stereo spread, Ebdon notes. Consequently, the pro-

duction's FOH position is off to one side of the floor. Pro Tools playback of additional elements and the keyboards is stereo, he adds, "but none of the drums are panned; they're all straight up the middle."

The off-center FOH position necessitated by this tour's sound design has been an education, says Ebdon. "The interesting thing is you don't get a power alley, which is fantastic."

In a standard production, where

Ebdon is centrally located, he and maybe 10 percent of the audience experience that power alley. "I'd rather concentrate on the 90 percent," he says. "If I end up doing a regular end-on, left/right gig next year, I'm going to mix off to the side."

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centerSTAGE TOP 10 TOURS OF THE MONTH

ACT / STATISTICS	CREW	EQUIPMENT
1 BEYONCE / JAY-Z EIGHTH DAY SOUND	Stephen Curtin (he); James Berry, James Corbin (me); Arno Vortman (se); Chris Bellamy (ae); Greg Horning, Clinton Reynolds, Emily Valentine, Peter Mesaros, Dan Buckley, Nills Knecht, Dom Thorne (techs)	HC: DiGiCo SD7; MC: DiGiCo SD7; HS: d&b audiotechnik J Series; MS: d&b audiotechnik; IEM: Shure PSM 1000; HA: d&b audiotechnik D80; MA: d&b audiotechnik D80; HARDWIRED MICS: Sennheiser; Shure; DPA; WIRELESS MICS: Sennheiser 9000, 6000; FOH EQUIPMENT: Bricasti M7; Yamaha SPX2000; Neve Portico; Sonic Farm Creamliner; MONITOR EQUIPMENT: Wes Audio; Klang; OTHER: Radial SGI, Twin Iso, SW8
2 TAYLOR SWIFT EIGHTH DAY SOUND	David Payne (be); Jordan Kolenc (Swift me/cc); Scott Wasilk (Band me); Dan Bluhm (se); Eoin Collins (mtech); Chase Usry (ae); Ike Zimbel (rf coordinator); Turner Pollari (rf tech); Andy Dudash (rf comms); Liam Von Elbe (lead pa tech); Sam Balk, Mike Vultaggio, JP Kearney (pa tech)	HC: DiGiCo SD7; MC: (2) DiGiCo SD7; HS: d&b audiotechnik J Series Array Processed, J-Sub, B22, V8 front fills; IEM: Shure PSM 1000, Wisycom MTK952; HA: d&b audiotechnik D80; HARDWIRED MICS: Telefunken; Shure; Sennheiser; WIRELESS MICS: Sennheiser Digital 9000, 6000; Shure Axient Digital; FOH EQUIPMENT: Neve Portico, Masterbuss; Lexicon PCM 92; Bricasti M7; Waves; Soundcraft Realtime Rack; MONITOR EQUIPMENT: Eventide Eclipse; TC Electronic System 6000; SPL TD4; Waves; Soundcraft Realtime Rack; OTHER: Radial JS2, JS3, J Rak 4, Tonebone Mix Blender
3 KENNY CHESNEY MORRIS	Chris Rabold (be); Bryan "Opie" Baxley (me); Phill "Sidephill" Robinson (me-Chesney); Chris "Sully" Sullivan (se); Rich Rossey (patch); Phil Spina (cc); Carl Schmidt, Tanner Freese, Ryan Lewis, Justin Curtiss (techs); Ed Wannebo (pm)	HC: SSL L500 Plus; MC: (2) Midas ProX; HS: d&b audiotechnik GSL; MS: d&b audiotechnik M4; IEM: Shure PSM1000; HARDWIRED MICS: Shure SM91, Beta 52, SM57; AKG C414; Telefunken M60, M80-SH; Sennheiser MD 421; Beyerdynamic M 88 TG; Royer R-122; Radial SW8, J48, SGI, DM1; WIRELESS MICS: Shure AXT400 Axient, AXT200 J5 Handheld, AXT610 Axient; sE Electronics V7 MC1 capsule; FOH EQUIPMENT: Empirical Labs EL8-X Distressor, EL7 Fatso Jr; Rupert Neve Designs 5045 Primary Source Enhancer; Sonic Farm Creamliner; Eventide H3000; API 2500 Bus Compressor; Tech 21 SansAmp PSA 1.1; Overstayer M-A-S, Stereo Field Effect, Stereo Voltage Control; Universal Audio UAD-2 Live Rack; Waves Extreme Server
4 PAUL SIMON CLAIR GLOBAL	Michael 'Coach' Conner (he); Kevin Glendenning (me); Don Baker (cc/se); Erick Rodstol (stage e); Robert Taylor (tech)	HC: Yamaha Rivage PM10; MC: Yamaha Rivage PM10; HS: Clair Cohesion CO-12, CO-10, CO-8, CP-6 Front Fill; MS: Clair 12AM, SRM, CP-6; IEM: Sennheiser 2000; HA: Lab.gruppen; MA: Lab.gruppen; HARDWIRED MICS: Shure Beta 91a, SM57, SM58, SM81, Beta 56a, Beta 98, KSM8, KSM32, KSM44, P6W/PSM 600; Sennheiser e855, MD 421, MKH-416; AKG C-414 B-ULS; Neumann KM 185; Audio-Technica; DPA 4099; Heil PR-48; Earthworks PM40; Countryman E6, D1; Radial DI; WIRELESS MICS: Shure Axient; FOH EQUIPMENT: Bricasti M7; Alan Smart C2; Summit TLA-100; TC Finalizer; Ferrofish A32; Universal Apollo 16; MONITOR EQUIPMENT: Allen & Heath AH-ME; OTHER: Radial SGI, J48
5 BILLY JOEL CLAIR GLOBAL	Brian Ruggles (he); Josh Weibel (me); Rich Schoenadel (cc/se); Jay Yochem (m tech); Tom Ford, Bryan Darling (tech)	HC: DiGiCo SD5; MC: DiGiCo SD10; HS: Clair Cohesion CO-12, i-3, P-2, R4, CP-218; MS: Clair CM-22, SRM, ML-18; IEM: Sennheiser 2050; HA: Clair StakRak (Lab.gruppen); MA: Lab.gruppen; HARDWIRED MICS: Shure; AKG; Sennheiser; Audio-Technica; Radial J48, JDI, SW8, Firefly; WIRELESS MICS: Shure UR Series; FOH EQUIPMENT: Waves
6 SAM SMITH CAPITAL SOUND	Jim Ebdon (he); Saul Skoutarides (be); Liam Halpin (se); George Hogan (tech)	HC: SSL Live L200; MC: DiGiCo SD7; HS: d&b audiotechnik J8, V8, T10, J-Sub, J-InfraSub; IEM: Sennheiser 2000 Series; JH Audio Roxanne; HA: d&b audiotechnik D80 with DS10 network bridges; HARDWIRED MICS: AKG C414; Heil PR 48; Neumann KM 184; Royer SF-24; Sennheiser MD 421; Shure Beta 52, Beta 91, SM 57; Avalon U5 DI; Radial JDI, J48 DI; WIRELESS MICS: Sennheiser SKM 5200-II with 5235 capsule; FOH EQUIPMENT: Bricasti; Neve 1073 DPA preamps; Soundcraft Realtime Rack; Tube-Tech CL 18; Waves SoundGrid; Plug-Ins: AMS reverb; EMT plate reverb; Sonnox Oxford EQ; Tube-Tech CL 1B; various UA, Waves; MONITOR EQUIPMENT: Cedar DNS8; TC Electronic System 6000; Crane Song STC-8
7 ROD STEWART MAJOR TOM	Lars Brogaard (he); Sven Jorgensen, Charlie Bryson (me); David Vinnicombe (cc/se); Olly Twiby (ae); Juan Villa, Parker Vandenberg (tech)	HC: DiGiCo SD7; MC: (2) DiGiCo SD7; HS: Meyer Sound Leo; IEM: Sennheiser; HARDWIRED MICS: AKG, Neumann; WIRELESS MICS: AKG 5900; FOH EQUIPMENT: Rupert Neve 5045; MONITOR EQUIPMENT: Rupert Neve 5045; OTHER: Radial JX62, Headbone VT, PZDI, J48, BigShot, DM1
8 BRAD PAISLEY SOUND IMAGE	Kevin Freeman (be); Mark Gould (me); Bill Chase (cc/se); Kyle Herbert (tech); Kyle Herbert (tech); Kyle Herbert (tech)	HC: Midas Heritage 2000; MC: Avid Venue D-Show; HS: JBL VTX V25-II-CS, VTX S28, 4886; Sound Image Powerline Outfills; MS: Sound Image MA-115, JBL VerTec VT4880, 4889; IEM: Shure PSM 1000; Westone UM2; Sennheiser G2 IEM; Westone UM2; HA: Crown Audio I-Tech 12000HD; MA: Crown Audio I-Tech 12000HD; HARDWIRED MICS: Shure Beta 58A, SM57, Beta91, KSM9 HS; Sennheiser e604, 421; Royer R-121; Audix SCX1; WIRELESS MICS: Shure Axient Digital Beta58; FOH EQUIPMENT: Bricasti M7; Yamaha SPX2000, SPX990, D5000; Eventide Eclipse; dbx 160SL; TC Electronic M2000; Dolby Lake Processor; TC Electronic 1128; MONITOR EQUIPMENT: Waves V9; SSL 4000 Collection E-Channel, Renaissance Vox, C6; McDSP Channel G
9 JEFF LYNNE'S ELO SKAN PA HIRE	Gary Bradshaw (he); Steve Lutley (me); Liam Tucker (cc/ff); Joachim Dewulf (se/ah); Davey Williamson (ae); Onno Ooms, Finlay Watt (tech)	HC: DiGiCo SD7; MC: DiGiCo SD7; HS: d&b audiotechnik GSL; MS: d&b audiotechnik M4; IEM: Sennheiser 2000 Series; HA: d&b audiotechnik D80; MA: d&b audiotechnik D80; HARDWIRED MICS: Sennheiser; Shure; AKG; WIRELESS MICS: Sennheiser SKM5235; FOH EQUIPMENT: 112Ch., 96 KHz Reaper multi-track system; Waves; MONITOR EQUIPMENT: 112Ch., 96 KHz Reaper multi-track system
10 J. COLE LMG	Raymond Rogers (he); Brandon Henderson, Barry Hogan (me); Kevin McKenzie (cc); Bill Price (ae); Stanton Helm (tech)	HC: SSL Live L500; MC: SSL Live L500; HS: L-Acoustics K1/K2; IEM: Shure PSM 1000; HA: L-Acoustics

LEGEND: (he) house engineer. (ah) ass't house engineer. (be) band's house engineer. (me) monitor engineer. (ame) ass't monitoring engineer. (bme) band's monitor engineer. (se) systems engineer. (ae) ass't engineer. (tech) technician. (cc) crew chief. HC: house console. MC: monitor console. HS: house speakers. PMS: personal monitor systems. MS: monitor speakers. HA: house amplifiers. MA: monitor amplifiers.

Top 10 grossing tours according to *Billboard*. Some tours did not report grosses for all shows; rankings may be affected as a result. Equipment and crew information are provided by the respective sound reinforcement companies.

THE AHA MOMENT

Necessity Is the Mother of Invention

BY PETER JANIS

One of the questions most often posed to me over the years is this: How do you come up with so many product ideas? This question is often followed up with statements like, "I never knew I needed such a product until you showed it to me." Funny enough, the source of inspiration often comes from simply discussing problems and solutions with customers, or slowing down long enough to ponder things.

Back around 1995, I was visiting sound reinforcement company Audio Analysts (now part of Solotech) in Colorado Springs, CO, and while touring the facility, I noticed they were building their own direct boxes. I asked then-partner Mario Lecesse about it and he explained that they liked Jensen transformer-equipped passive direct boxes because they were quiet. The guys at Audio Analysts would use leftover pieces of aluminum extrusion and mount the transformers inside with 1/4" jacks and XLRs. Mario said they hated to do it, but they had no other choice.

At that time, we were building large, 48-channel snake systems, and one day I asked myself, why so many channels? Looking at a stage, I counted 10 mics on the drums, five on vocals, three on guitars and bass and four on horns. This added up to 22

mics, so why 48 channels? It dawned on me: direct boxes.

The "Aha Moment" rang as clear as a bell. We were already importing Jensen transformers into Canada and using them in our high-end Convertible snakes. Soon after, in 1996, we debuted our first Radial direct box, the JDI—and sent the first one to Mario. The first tour to use a JDI was Bruce Springsteen and our first endorsee was bass player Mark Egan.

recorded London Symphony played over the P.A.

This got me thinking about how more bands were traveling with backing tracks to lower costs and mitigate problems associated with computer crashes. Everyone recalls the Milli Vanilli fiasco. I figured that if Wigwam was using such a device, so would others. By incorporating a signal gate into the SW8, a steady-state signal could be used to activate the

Probably the best source for product ideas has been the stage techs, not the artists.

Another product development milestone was the Radial SW8 auto-switcher for backing tracks. I was visiting Wigwam, one of Britain's top sound reinforcement companies, and while looking around the facility, noticed a number of large racks that stood about 5 feet tall. Being inquisitive by nature, I asked what they were. Wigwam had built a custom backing track switcher for George Michael that enabled them to switch from a live orchestra to tracks, should the need arise. My understanding was that they would engage the services of local orchestras while on tour, and if the orchestra was not up to par, they would essentially "lip sync" the performance while having the pre-

auto-switching circuit and seamlessly jump from one playback system to another. The SW8 not only gained traction with concert touring acts like The Eagles and Madonna, it found a home on the Super Bowl halftime show, *American Idol* and the Grammys. When I ask sound engineers about the SW8, they usually respond with, "That thing saved me."

Probably the best source for product ideas has been the stage techs, not the artists. Most artists are not technically savvy; instead, they rely on their techs to make things work. As such, going backstage to chat with the techs has always been way more productive than chatting with the artist. The techs are the



people who have to deal with the problems and with the ever-changing landscape of technology, so they are a wealth of problem-solving opportunities.

A side benefit of getting to know the techs is that they migrate from one tour to the next and usually bring proven solutions with them along the way. This can sometimes lead to endorsements—an important and powerful tool that is essential in creating brand awareness. Although there were many direct box makers before Radial, such as Countryman and Whirlwind, we aimed to offer the scope or selection to create a category. Whirlwind was probably the closest before Radial came along. By constantly pushing quality, we managed to create a strong following that continues today.

Peter Janis, former CEO of Radial Engineering, is a 40-year veteran of the music industry. Exit-Plan, his consulting firm, assists business owners to build their companies and prepare them for eventual sale.

Baez Engineer Fares Well on Fare Thee Well Tour

NEW YORK, NY—Joan Baez's Fare Thee Well tour is currently crossing the United States, with both FOH and monitors mixed by engineer Jason Raboin of Klondike Sound on an Allen & Heath dLive C Class C3500 surface with CDM48 MixRack.

"I've worked for Joan for 15 years—she's an amazing performer," says Raboin. "I have 24 inputs from the stage, with three in-ear mixes and four wedge mixes, plus whatever is required for the house. And ticket demand is so high that we're sometimes selling seats behind the stage. That results in a lot of zones to manage."

On two recent dates in France, Raboin supplied Dante feeds to a broadcast truck. He adds, "Also there's a documentary film crew that's following us around. I give them eight analog feeds from the MixRack. Having 24 analog outputs plus the AES feed has made this all possible."



Jason Raboin mixes Joan Baez' FOH and monitors on an Allen & Heath dLive C3500 surface.

dLive fader banks and layers help Raboin manage his inputs. He uses the mixer's internal RackExtra FX reverb and delays for instruments and vocals and dLive scenes for specific moves. Raboin records each show from a dLive Waves card and uses the mixer's Virtual Sound Check to help set up for each venue.

The tour carries its own in-ear and wedge monitors. Raboin adds, "Joan's in-ear mix is mostly post-fader, and I split her vocal channel so the band hears what the audience hears. The percussionist does his own in-ear mix on an iPad with the dLive OneMix app. That's been great."

Raboin notes, "On this tour, we'll go from an outdoor shed to a symphony hall and the band plays to the venue, so their dynamics can change a lot from night to night. The dLive has really helped."

Allen & Heath

www.allen-heath.com



(l-r): Gabriel Medrano, Markus Jahnel, Marcel Mieger

Adam Hall Group has made a number of additions to its international sales team. **Markus Jahnel**, COO and managing director, will assume responsibility for Adam Hall Group's global business development. Meanwhile, **Marcel Mieger** has been named sales director, Europe. A member of the Adam Hall Family for 16 years, he will now look after the firm's European sales network.

Elsewhere, **Gabriel Medrano** has been named COO of the newly formed New Jersey-based Adam Hall North America, another subsidiary and local business unit of the Adam Hall Group. Together with Steven Savvides, president of Adam Hall North America, Medrano is responsible for the development of the entire business in North America.



Thomas Valter

RTW has appointed **Thomas Valter**, formerly of TC Electronic, as the company's new director of product management and marketing. Valter served as vice president of business management for the broadcast and production division of TC Electronic, and prior positions included international public relations manager and product manager; product manager for studio and post-production; and later business manager for HD and computer recording, for which he defined and drove product maps.



Doug Kittle

One Systems has announced the restructuring of its sales department and the hire of **Doug Kittle** as sales manager, Eastern USA. **Mike Torlone**, director of special projects and training, is assuming the role of sales manager, Western USA, and **Garry Templin** has accepted the position of director of sales, worldwide. **Jennifer Barnes** is now director of finance and administration.

Kittle has experience gained both as a product manager and regional sales manager at AKG Acoustics and as the owner of an integration company. Kittle's responsibilities will include working with Eastern USA rep firms, contacting acoustical consultants and heading up other specialty projects as needed.



Peter James



Abby Kaplan



José Rivas



Jim Schanz

Shure has promoted four key sales executives. **Peter James** has been named vice president of global sales, pro audio; **Abby Kaplan** has been named vice president of global sales, retail; **José Rivas** has been named vice president of global sales, emerging markets; and **Jim Schanz** has been named vice president of global sales, integrated systems.

James has spent 20 of his 30 years in the audio industry at Shure. He has been managing director of Shure Distribution UK since 2009, and since 2015 has chaired the Global Integrated Systems Board. Kaplan has been with Shure since 1998 in various sales positions. Before Shure, she worked for two pro audio companies and has a long history of working with big box and independent brick-and-mortar resellers as well as e-commerce customers. Rivas has previously served as sales and marketing director for the international Americas business unit and sales director of the Americas business unit, leading the Latin America go-to-market organization. Schanz joined Shure in 1998, serving in a number of sales roles, leading to 2011, when he took over leadership of Shure's market development function.

Roland Professional A/V has named **Lon Mass** as director of pro A/V, and **Alan Ruppert** as national sales manager of pro A/V. Both Mass and Ruppert will be based in New York. Mass is an experienced sales, marketing and executive manager and has been involved in the broadcast,

60SECONDS



Darrell Vasquez Celestion

Q: What is your new position, and what does it entail?

A: My new position is business development executive for North America. This involves seeking new growth opportunities for the company, in particular the retail distribution channel. Since its founding in 1924, Celestion has become one of the world's largest

suppliers of premium professional loudspeaker drivers, but what is perhaps less well-known is how wide a range of pro audio speakers the company offers for sound reinforcement applications. The greater challenge for me is to grow this side of the retail business.

Q: How has your background prepared you for your new role?

A: For the past 20 years I've worked in both the professional and consumer audio industries, which has given me a broader perspective about how they function independently and also how both worlds can overlap. I have unique experience because of my involvement in both the technical side—beta-testing products and working directly with engineers—and the sales and marketing side, with event planning, networking and creating sales initiatives. With an education in recording engineering from the Conservatory of Recording Arts and Sciences in Arizona and through involvement in various aspects of music production, I have learned a lot about how to listen to speakers and am able to describe sounds to technical and non-technical groups. My time in retail has given me great insight into how this sales channel works, as well as what customers expect from their products.

Q: What are your short- and long-term goals?

A: It's essential for us to always stay on top of industry trends by listening to feedback from our partners and consumers. The expansion into digital downloads is a perfect example of this; we're keeping an eye on the future and the way our customers work. That said, Celestion will always remember its roots and will continue to offer the classic speakers that our customers expect; there will always be great guitar tone and classic guitar speakers. Just as important to me, though, is to establish the Celestion brand and reputation—within distribution channels—as a pro audio speaker supplier, ensuring we'll continue to offer retailers innovative loudspeaker transducers for sound reinforcement, all with Celestion's rock-solid reliability.

Q: What is the greatest challenge you face?

A: As the Celestion brand is very well established, some customers may feel they already have an idea of what to expect from our products, predominantly the MI products, and are content with what the company has to offer. But Celestion is incredibly innovative and will continue to develop new products, particularly in the professional audio sphere, delivering the same high quality and reliability we're already well known for. Raising awareness of the latest innovations, while still respecting the fact that customers are happy with classic Celestion guitar products, requires a balanced approach to spreading the word.



Lon Mass



Alan Ruppert

corporate, dealer and distributor sectors for A/V, video and display sales vertical markets throughout his career in the professional electronics industry. His former sales and management positions have been with Sony Broadcast and Professional Products Company, NEC Display Solutions and most recently JVC Professional Video.

Ruppert has worked in the professional video industry for nearly 27 years. His most recent position was the director of sales for key accounts

at JVCKenwood. Ruppert was employed at JVCKenwood for over 12 years and directly managed JVC Professional's key dealer accounts and distributors.



Francesca Lynch

Community Professional Loudspeakers has named **Francesca Lynch** to the position of marketing associate. Prior to her role at Community, Lynch was a content marketing specialist, using her skills in advertising, integrated marketing, event planning, public relations and social media management for eight years in the food and beverages industry. Her academic achievements include a bachelor's degree in business from Stockton University and an MBA from Georgian Court University.

First Worldwide, Now Stateside

JIM DUGAN, PRESIDENT, WISYCOM USA

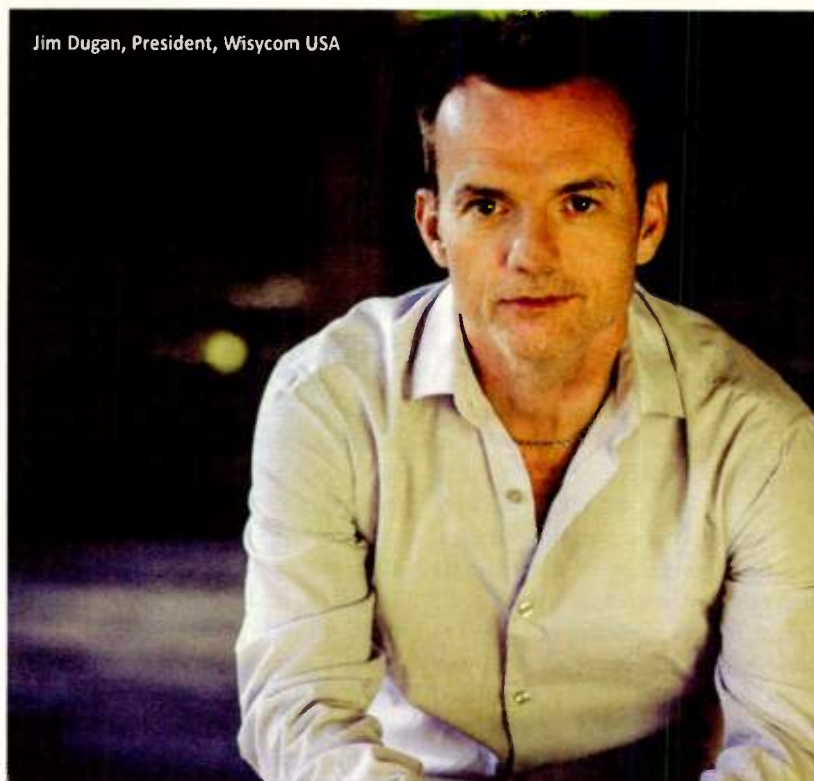
BY CLIVE YOUNG

Every musician dreams of capturing the attention of a top executive who in turn gives them the chance to take their career to the next level. That's what happened to Jim Dugan—except that it happened decades after his musical career ended; instead, it was his wireless gear design work that caught the eye of Massimo Polo, owner of Italy-based Wisycom, and that eventually led to the creation of Wisycom USA.

"Like many, I started out as a musician, which led to mixing bands at a small recording studio that I opened," recalled Dugan. Burnt out after a decade, he closed the facility and took a job with Systems Wireless, where he began learning the wireless business. That led to a freelance role building and operating trucks and widespread wireless networks for Total RF Solutions, usually for its client the Golf Channel.

Returning to Systems Wireless, which had been acquired by Bexel in the intervening years, he developed more wireless products. "While at Bexel, I designed my own gear, such as the distributive antenna system that we set up for major awards shows," said Dugan. "This technology caught the attention of Massimo. It was a very high-level fiber networking system, and he was doing similar work and exploring services in that realm."

Dugan ultimately decided to launch his own business, Jetwave Wireless, and soon established a partnership with Wisycom. "Collaborating and sharing ideas, we worked together to design a lot of Wisycom's current antenna products," said Dugan. In 2014, they officially teamed up to build Wisycom's brand in the United States. "While I was cultivating my relationship with Wisycom, I was also launching Jetwave Wireless with practically zero resources. Today, we've grown to nearly 20 full-time employees and Massimo has watched our evolution. It was through Jetwave that we were able to establish a business presence for Wisycom and begin to build a structure by which to



Jim Dugan, President, Wisycom USA

launch Wisycom USA."

Creating that business presence required more than merely bringing Wisycom's wares to the attention of potential U.S. customers; it also had to do with the interpersonal side of business. "The company needed U.S. exposure, and someone suited to American culture, who knew the technology and could build relationships with regional customers and dealers," said Dugan. "Massimo didn't just want an American employee—he wanted a business partner who was equally invested in the success of the company."

That resulted in the founding of Wisycom USA earlier this year. Dugan now serves as president of both companies. Some employees are involved with both entities, but several are dedicated solely to Wisycom USA. Geoff Baynard, who provides 24/7 service and support for all Wisycom users, while Patrick "Paddy" Steading was recently added to the team to head up national sales for the company. TJ Miesen is based in Los Angeles and provides tech support and business development on the West Coast, while the East Coast sales team comprises Ian McKelty and Josh Flower, who both focus on Jetwave sales at large but have "a keen understanding of Wisycom-related projects."

Among many other responsibilities, Dugan oversees relationships with Wisycom's local dealer network, a group that he is selective about. "Among the dealers, we have some that are systems integrators, others

that are pro audio, still others that are live production and so forth," he said. "Jetwave serves as the broadcast dealer, with our primary focus going to the major studios. To certify that every dealer has quick and easy access to the gear, we keep a certain level of stock at Wisycom USA. As categories scale up or down, we reconfigure our supply to meet the needs."

Dugan's main focus at Wisycom USA, however, is sales/marketing and education. To support that effort, the company recently expanded its office to add a production studio, used to create training-style videos for YouTube that are each under two minutes. Dugan hopes to leverage the videos to provide instant product details to prospective clients, and likewise give current users reference information about best practices, alternative uses and more. The objective of the videos is to reach not only American users but people across the globe, underlining the fact that Wisycom is everywhere.

While all product research, development and manufacturing for Wisycom USA takes place in Italy, becoming a major force in the U.S. wireless market is an important focus for the Italian company. Dugan often travels to Wisycom to advise on features intended for the American market, but the growing influence of the U.S. on the company runs deeper than a feature set.

"With the advent of the American office, the culture of Wisycom overall has changed to meet the demands of this new territory," said Dugan.

"What that basically comes down to is, near-instant response. In Europe, there's a different type of business culture. People work at a slower, calmer pace. They clock out at closing time and don't think about work again until the next morning—but in the U.S., business rarely halts. I think that's something to which many European manufacturers have had to begin to subscribe. There's a wonderful level of cooperation and understanding from the Wisycom home team that in the U.S., response time is crucial."

There are also a lot of customers here to respond to, as Wisycom USA serves primarily three markets, the biggest of which is location sound—appropriate since many of the company's new and legacy products are focused on audio mixers and operators. "Location sound experts have a unique culture about them, and I have been able to form deeper relationships with them through our platforms," said Dugan. "Our users are very loyal and excited about our products. Many of the first adopters of the product here in the States consider themselves brand ambassadors, helping to promote Wisycom to colleagues. We often turn to that collective to help with beta testing new products."

The other main markets are broadcast—for which Dugan often draws on his Golf Channel truck background—and an emerging presence in touring sound. "Over the past six months, Wisycom has gone on tour with Beyoncé, Taylor Swift and Stevie Wonder, as well as with several '80s hair bands like Whitesnake," said Dugan. "Wisycom's IEM product is truly better than anything else on the planet. Its sound, wideband, radios, range...everything is better. Nothing comes close to Wisycom's sound and quality. Live sound engineers and musicians are beginning to take note."

With all that going on, it's safe to say that Wisycom USA has a lot of irons in the fire, and Dugan and his team continue to raise brand awareness in the States, spending time with dealers to go over products and technology with them, producing YouTube videos and more. Looking ahead, Dugan is exploring having a presence at NAMM 2019, which would allow the company to reach attendees from around the world—something that would be pretty appropriate for the brand. "Wisycom is worldwide," said Dugan. "The U.S. was the last frontier. [Creating Wisycom USA] enables the brand to connect with customers throughout the Americas, from Canada to Chile."

Wisycom USA
www.wisycomusa.com



SOTI: Sound Reinforcement

(continued from page 1)

nity, as consumers continue to shell out for concert tours and goods in retail settings. *Pollstar* reported in July that at the 2018 mid-year point, the total gross of the Top 100 tours in North America this year hit a record \$164.53 million and is on track to end the year breaking records again. The average ticket price saw a 14.1 percent increase—nearly \$12—to an eye-watering \$96.31 in the mid-year survey, causing the average show gross of the top 100 tours to hit \$742,500.

The public's current sense of prosperity is also aiding the AV installation sector as brick-and-mortar stores and malls retrench against the growing presence of internet retail by renovating and creating shopping "experiences" to keep consumers away from their screens and in shops. With consumers increasingly used to quality sound found in home and personal electronics, retail spaces are upping their game and will be for the foreseeable future. As a result, according to a market report from Futuresource Consulting, installation is expected to

be the main motor behind the professional loudspeaker market in coming years. Currently valued at \$2.6 billion worldwide, it is on track to reach \$3.6 billion by 2021, and the report notes, "Installed leisure and installed commercial verticals lead the way for market development, continuing to post healthy growth out to 2021 and beyond. Although the installed leisure segment provides higher-value projects, the number of opportunities in the installed commercial segment is far greater." It also posits that the Americas will be the largest market for loudspeakers throughout that time frame.

As the public's expectations for quality sound reinforcement rise, pro audio manufacturers are answering the call at all levels, with dozens of installation loudspeakers released in the last few years, as well as multiple new flagship digital audio consoles, and the emergence of increasingly sophisticated audio networking offerings from across the industry, to name only a few examples. The economic forces at play were underlined by the Winter NAMM show's massive expansion in January of this year, when it debuted a new two-floor pro audio wing that leaned more toward live sound than studio gear.

Money has also been changing hands for audio companies them-

selves this year—staging, lighting and audio provider VER merged with competitor PRG in April, with the former entering bankruptcy proceedings, which it exited this month. (See story on page 5.) Overseas, UK live sound powerhouse SSE Audio Group acquired London-based SR provider Capital Sound Hire, a move that followed a strategic partnership between the companies that began early in the year. On our shores, Ultrasound—longtime audio provider to the Grateful Dead, Dave Matthews Band and others—was acquired in June by Derek Featherstone (then the company's vice president of tour & rental, now COO) and former VER Tour Sound executive Ralph Mastrangelo.

Acquisitions on the manufacturing side have been just as common this year, as Radial Engineering was sold to Ultimate Support Systems; Blue Microphones was purchased by Logitech; and Loud Audio sold off three major brands, with EAW going to RCF Group, Ampeg moving to Yamaha and Martin Audio undergoing a management buyout.

And the year's not over yet. With a roaring economy currently in play and consumer confidence still bolstering it for the moment, who knows what may happen before the end of 2018?

SOTI: Recording

(continued from page 1)

to songwriter/producer Gregg Wat-tenberg of Wind-Up Records fame, boasts a client list of chart-toppers from Beyoncé and Bieber to, well, think of a popular artist.

Premier's rebirth is partly due to the industry's recent turnaround, but also the loss of the city's facilities, largely to property developers. "Now that there aren't many options for places where people can work, we're a lot busier," he says.

In the Midwest, Sarah Hamilton, music studio manager at Chicago Recording Company (CRC), reports consistent business over the past decade, buoyed every summer by major-label acts booking time while in town for the Lollapalooza and Pitchfork festivals. That said, the number of album projects has increased, she says. "I've seen an uptick. We just worked with the Chicago Symphony Orchestra, which put out three new albums and was here for a couple of weeks. And we have a client, Chance the Rapper, who does all his albums out of here."

The Bay Area, in contrast, has long been a secondary music mar-

ket, but Oakland's 25th Street Studios has few complaints. By focusing on artists in the community, not just larger-label acts, "my calendar has been booked seven days a week, all day and night, for three or four years," according to general manager John Schimpf.

The inundation of the Bay Area by technology companies has caused property values to skyrocket, forcing artists to flee, says Schimpf, who has seen neighborhood art galleries close and musician friends decamp for Los Angeles. "But the mayor [Libby Schaaf] was by our studio recently; she has hired someone specifically to make sure that artists can survive in Oakland," he reports.

One way to boost studio revenues is to diversify. At Premier, says Swan, he offers one-on-one workshop sessions with working engineers, producers and mixers. "We're not trying to be a school," he stresses. "We're giving people an opportunity to do Q&A sessions at their convenience," typically in the morning hours before the studio's clients start to roll in.

CRC, founded in 1975, also has a significant audio post-production division, notes Hamilton, who is pondering a move into VR work. "And we're looking into creating an online

mixing service, something more affordable for demos and smaller projects," she says. A couple of local colleges hold classes at CRC, and the Fox TV drama *Empire* comes by occasionally: "They shoot here a couple of times a year," she reports.

Most artists see 25th Street's equipment and are impressed, and understand they are being well taken care of, he says, but it's not a deal-maker. "They just want to get rolling and get their music down, so it's our job to work quickly," says Schimpf.

Premier's two large-format mixing consoles have seen plenty of action over the years. "We're considering getting rid of one of our SSL 9000 J consoles," Swan says. "It's so old and in such poor shape that it's costing a lot to keep it going. We're thinking about replacing it with a new SSL Duality, or maybe a Neve Genesys, which is a great-sounding small-format console."

Then there's the never-ending cycle of maintenance and upgrades that any studio faces.

"We're always upgrading the rooms to the newest versions of everything," says Hamilton. "There's always stuff coming out that we're trying to keep up with—but that's part of the fun, getting to play with all the new audio toys."

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Renaissance Man

BY JACQUES SONYIEUX

While perhaps not a household name, Chuck Leavell's performances are deeply woven into the musical fabric of our times. His piano and keyboard work with the Allman Brothers Band, Eric Clapton and the Rolling Stones, for whom he has also been the de facto musical director since 1982, has earned admiration from his musical peers as well as appreciative audiences around the world. His longstanding career began at the age of 13, when he experienced a concert by Ray Charles that would change him forever. His latest album, *Chuck Gets Big (With the Frankfurt Radio Big Band)*, sees him re-creating some of the big band magic that inspired him all those years ago. *Pro Sound News* spoke to Chuck about what it was like to capture a performance in a German castle alongside 17 other stellar musicians.

ON JUGGLING PROJECTS

I have always found it fascinating that there is an art to time management. If you are careful and sensible, you can arrange time to do many different things, and that's what I try to do to keep all my projects going. This project started seven years ago: I was invited to play with the Frankfurt Radio Big Band in the Frankfurt area of Germany for a special concert. I accepted the invitation and chose to play a dozen songs. When I arrived in Frankfurt, the band had one rehearsal without me, one with me, and then the next day was the concert. A while after the performance, my engineer, Gerry Hansen, and I examined

the files and they were so great that I said, "Let's see if we can take the audience out of this. I think I would prefer this to sound like a studio record." We did—and it worked. It took a couple of weeks to get everything mixed, but it all worked like a charm. I proposed the project to my label and they jumped right on it.

ON STEPPING UP HIS GAME

There were really no tricks on the recording; it was just an incredible night, an incredible moment for me to be playing with those guys. I can tell you this: When I walked into that rehearsal that first day, the day before the concert, my mind was blown. The



Chuck Leavell's latest album is *Chuck Gets Big (With the Frankfurt Radio Big Band)*.

band was so strong and all the players were so good. My first thought was, "Whoa, Chucky, you've got to up your ante, you've got to get in this game!" It did inspire me to stay on my toes and not fool around. I had to do them proud, so to speak. It was a bit of a jolt once I was hearing those charts and being in the middle of everyone playing that music. It was just so powerful and I knew it was the opportunity of a lifetime.

ON GERMAN HOSPITALITY

During the concert itself, we had a really wonderful audience. The setting was incredible; it was in this castle owned by an ancient German family. They were gracious enough to let us use the facility for the performance and we had a really good sound system. I think there were probably about 600 people there, and I had this fantastic German Steinway piano that was a joy to put my hands on. It was just like all the stars lined up that night, and that's the way to work.

ON RAY CHARLES

When I was about 13, my sister had a date to go see Ray Charles in Tuscaloosa [Alabama], where we grew up. My parents had something going on that night and they didn't just want to leave me alone, so they suggested to my sister that she let me tag along. And I was already playing music, but I had never seen anything so powerful as that in all my life—it just blew my mind. The band was amazing. You had Billy Preston playing a Hammond B3, and Ray gave him a special part in the show where he sang a song and was featured. Of course, you also had the Raelettes and Ray himself. The voice, the playing—I get chills just thinking about it. We already had the wonderful re-

cord *Modern Sounds in Country and Western Music* in our house, and I had listened to it and really liked it. But from that moment on, Ray was my man. I began studying everything I could about him. His playing was superb, the voicings he used on the piano—everything was just so inspirational to me. The track on my record, "Georgia on My Mind," was my small way of thanking Ray for giving us all that music.

ON GETTING THE CALL

It blows my mind when I get calls from people inviting me on their tours. I still have the cassette from the answering machine where Eric Clapton called me and he said, "Hey, this is Eric Clapton, calling from Hong Kong, wanting to know if Chuck might be interested in playing some shows at the Royal Albert Hall." Man, I just about fell over; I couldn't make that return call fast enough.

David [Gilmour], that was another one that happened out of the blue. I played once with him in 1984 and many years went by. I think I saw him a few years later socially, but that was it. Well, one day my wife was checking the guest book of my website and told me, "There's a guy here who says he's David Gilmour." So I had a look, and the message said, "Hey Chuck, David Gilmour here. Honest!" And he left a contact number. I thought, "Well, it might be a joke, but why not follow up?" Sure enough, it was him and he told me, "Man, I've been thinking about you; I want to change my band up some and if you are interested, come on!" So we did and I went on his tour!

Jacques Sonyieux is a devout explorer of recording studios and the artists who occasionally inhabit them. Please send any tips or feedback to Jacques at jacquessonyieux@gmail.com.

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