



RADIO WORLD

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Larry Wilkins Puts the “Active” In Alabama Engineering

From alerting and ABIP to ABA’s tech academy, Excellence in Engineering Award winner stands out

EW SMAKER

LILY M. REIGART

Larry Wilkins is the recipient of the 8th Radio World Excellence in Engineering Award. His accomplishments represent the highest

ideals of the U.S. radio broadcast engineering profession and reflect those ideals through contributions to the industry. He is the 14th person so honored.

“Wilkins has plenty of credentials as a traditional engineer, having retired as assistant director of engineering at

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Puerto Rico Stations Face Obstacles

Mainland broadcasters help devastated stations and listeners on storm-struck island

BY JAMES CARELESS

Many weeks after Hurricane Maria devastated Puerto Rico’s infrastructure, radio broadcasters there were struggling to get and keep their signals in air.

Most of the AM/FM stations in service were relying on diesel generators for electricity, because the island’s storm-ravaged power grid was still in terrible shape.

Other stations were just too damaged to get back on air without sub-

stantial reconstruction, and that’s a problem since money is in short supply in Puerto Rico these days. Due to the devastation, “there’s no business for radio stations, and when there’s no business there’s no money,” said Jose Ribas Dominicki, executive director of the Puerto Rico Radio Broadcasters Association.

In response to this situation — which has not only affected radio station owners and their staff, but also the people of

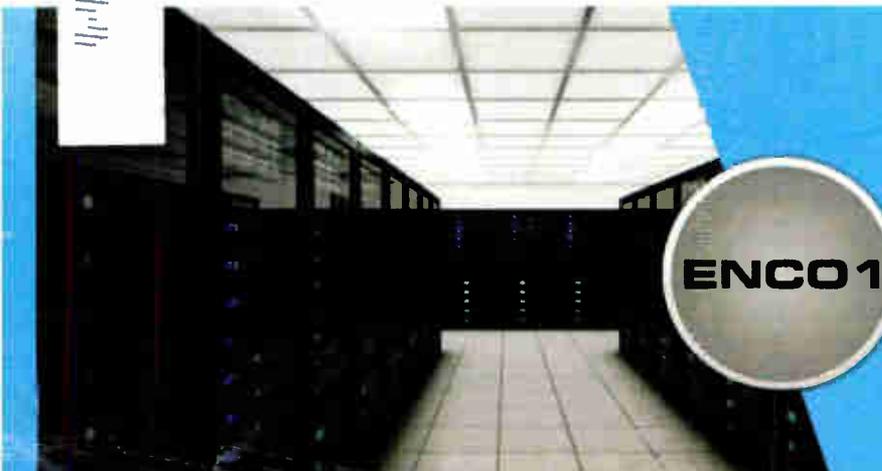
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Young boy receives a radio in Rio Grande, near El Yunque National Forest.



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EXCELLENCE

(continued from page 1)

Cumulus Media in 2007 as the capstone of a four-decade-long career in broadcasting," Radio World Editor in Chief Paul McLane said.

"But it is his ongoing devotion to making our business better and helping people that really stand out. Well after retirement, he's among the most active of local/statewide engineers in helping and educating others in modern tech concepts.

"We choose him in appreciation of his lifelong work as an engineer; his commitment to ongoing technical education, exemplified with local training programs as well as his weekly technical e-newsletter, which is read well beyond Alabama's boundaries; his ability to explain complicated concepts in common language; his service to SBE both locally and nationally and to the Alabama Broadcasters Association; his work in EAS, including upgrades to the state's system; his work in Amber alerts and the Alternative Broadcast Inspection Program; and for being a true friend to our industry."

GETTING IN THE GAME

Wilkins, 74, is a lifelong Alabaman — a native of Enterprise and current resident of Prattville, where he lives with his wife Cathy.

Like many of his cohort, Wilkins got bit by the radio bug early and worked at a local 1 kW daytime AM station as a high school student. He remembers that his responsibilities at WIRB ranged from "from reading the obituaries, to playing records and taking out the trash." He began as a board op, but the station's engineer, a retired Army colonel named Harvard Rawlinson, noticed and encouraged his interest in broadcasting's technical side.

He graduated from Enterprise High School in 1961 and went on to pursue his education at a local trade school on the recommendation of his WIRB mentor, who also advised him to learn basic electronics because "electricity flows the same way" in washing machines and radio transmitters. Wilkins also studied



In the control room of WSFA(TV) in 1965.

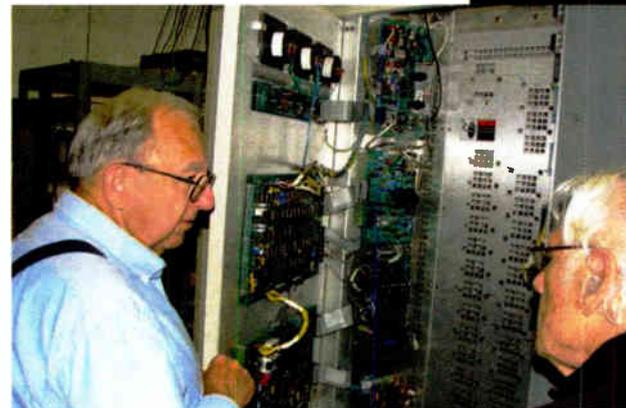
the basics of radio and television technical operation.

Upon graduation in 1963, Wilkins took a job at the NBC affiliate WSFA(TV) in Montgomery, working under engineer Dick Payne.

After about two years, Wilkins had the opportunity to build a television station. He initially hesitated, but Payne encouraged him to tackle the learning experience. Wilkins saw WCFT(TV) from a concrete slab to functioning station. Despite all the mistakes Wilkins says he made, the station went live when he pushed the buttons. The experience



Above: Wilkins poses in a studio at WLWI in Montgomery.



Left: Visiting a station as part of the Alternative Broadcast Inspection Program.

reinforced Wilkins' belief that mistakes are a crucial part of growth and learning, even in a professional setting.

The second time Wilkins worked at WSFA, the facility transitioned from black-and-white to color; he describes the experience as a "real learning curve for all."

A few years down the road, General Telephone hired Wilkins as a training instructor, teaching video and microwave transmission.

Over the years, Wilkins has worked at other radio and television facilities in Alabama in various roles. He was chief engineer for WIRB(AM/FM) in Enterprise; staff engineer for WSFA(TV) in Montgomery; chief engineer for WCFT(TV) in Tuscaloosa; staff engineer for WTVY(TV/FM) in Dothan; chief engineer for WKAB(TV) in Montgomery; and chief engineer for WKMX(FM) in Enterprise. He spent several years as the microwave technician for the Alabama Public Television Network, the first U.S. public television network.

Wilkins served on the original board of directors and was first chief engineer for Faith Radio (WLBF Montgomery, which has transmitters in Dothan and Andalusia).

Also in Montgomery, Wilkins designed and oversaw the construction

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EXCELLENCE

(continued from page 3)

of the multi-station master antenna project for WLWI, WHHY, WAFX and WBAM.

A GOOD SPORT

A career highlight came at Montgomery's WLWI(FM), which Wilkins designed and constructed in 1979. The station eventually expanded into a network of seven stations, and the company had the rights to Auburn University sports broadcasts. This meant Wilkins was in charge of handling the onsite engineering for Auburn football and basketball games.

Wilkins and his engineering team designed and installed the Alabama Digital Satellite Network, which distributes not only Auburn Sports but also the cross-state rival University of Alabama Sports Network.

He parleyed this sports experience into a few other gigs: Wilkins worked as on-site engineer for the short-lived U.S. Football League's Birmingham Stallions for three years — a move Wilkins says he made because "he didn't have more sense at the time," since he was working full-time for Cumulus. When Wilkins quit that job, he told them that he'd seen too many football games. (That didn't stop him from doing frequency coordination work for Auburn.)

He also worked as a freelance engineer with ABC TV, covering SEC football, and CBS Radio for SEC basketball.

Asked if he considers himself a sports fan, Wilkins replied, "Very much so." Although not an athlete (he played trumpet in the band), he was involved with the PA system for games, and WIRB covered high school

football games on the air while he worked there.

He says his loyalty lies with Auburn, but admits he is somewhat of a mercenary. "Well, I guess if Troy State University signed my checks, I'd be a Troy State fan."

Cumulus Media purchased the Montgomery station group in 1997, and Wilkins was promoted to assistant director of engineering. In this role, he worked under Terry Baun (former SBE president), until Wilkins' retirement in '07.

Baun and Wilkins have stayed in touch over the years, and Baun applauds Wilkins' work with the ABA.

"Larry exemplifies excellence in engineering, not only for the work he does directly, but perhaps more importantly for what he does in training future generations of engineers at his seminars for the Alabama Broadcasters Association," Baun said.

"He is a skilled taskmaster, but always ready with a quick joke or a funny story to emphasize the topic he is teaching, and at the end of the day he has prepared his students for their first steps in our industry and contributed once again to the future of our broadcast engineering community."

PROFESSIONAL DEVELOPMENT AND SERVICE

Wilkins became involved with the Society of Broadcast Engineers in 1991 and served two terms on the national board of directors; today he serves on the society's certification committee. He holds Certified Professional Broadcast Engineer (CPBE), AM Directional (AMD) and Certified Broadcast Network Technology (CBNT) certifications.

In 2005, the SBE honored Wilkins with its "Engineer of the Year" award and elevated him to the rank of fellow in 2013.



Clowning around at an annual ABA convention with John George, left.

He is chair of the Alabama EAS Committee and serves on the Amber Alert task force for the state.

Wilkins helped to develop Alabama's state plan for the transition from EBS to EAS in the mid-1990s.

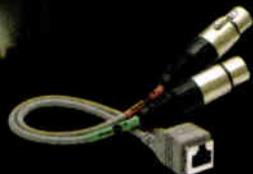
"One of my goals was to develop a real redundant system, to improve the distribution system," Wilkins said.

Wilkins has also served on the Alabama Broadcasters Association's EAS committee for many years and has long considered alerting to be an important aspect of broadcasting. In fact, one of his first roles with the ABA was to ensure that stations were in compliance with FCC regulations and rules.

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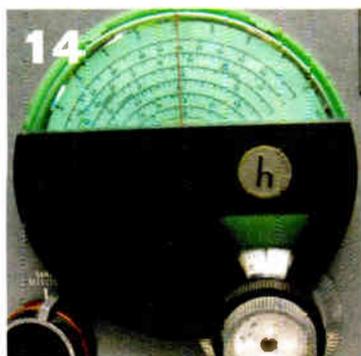
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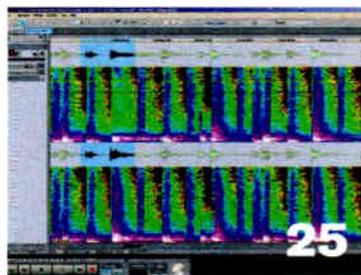
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A SECOND CAREER (OR TWO)

In 2006, Alabama's Alternative Broadcast Inspector Angle Ditty retired; he encouraged Wilkins to take the reins. Then in his mid-80s, Ditty decided to restrict his inspections to his home state of Georgia. (He has since passed away.)

"I've always really enjoyed going around to different radio and TV stations and meeting new people. You learn so much," Wilkins said.

He also conducted inspections in South Carolina until recently — a job he left because he wanted to save the South Carolinians money on his travel costs, and because he needed to make room in his schedule for the Alabama Engineering Academy.

With his 2007 retirement, Wilkins partnered with the ABA to create the association's Engineering Academy. He says its aim is to create a pool of new engineers for the broadcast industry.

The idea for the training center began at an ABA meeting, where local GMs expressed concern about a lack of young talent coming into the market. College broadcasting schools wouldn't be the solution, since their focus had largely shifted away from technical skills. Several board members asked, "Can we start our own engineering school?"

Wilkins agreed the idea was worth review. As an engineer and a member of the SBE education committee, it's not surprising that Wilkins determined that the curriculum should be loosely based on SBE certifications.

"When we started the Engineering Academy, I discovered how much there is to learn about the technical side of broadcasting, and that it is changing at such a rapid pace; we must keep up or risk falling behind quickly."

The increased focus on IT plays into

HONOR ROLL

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2013 Marty Garrison
2012 Paul Brenner
2011 Barry Thomas
2010 Milford Smith
2009 Gary Kline
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2005 Mike Starling
2004 Andy Andreson

NEWS

the curriculum. Nonetheless, he still believes in the fundamentals.

"Because of the move to digital audio and transmission, it is important that engineers develop a basic knowledge of computers and how digital functions. Engineers need to 'look under the hood' of digital audio to understand how it works. If you don't, fundamentals mistakes can be made, which can make your operations a B instead of a A+."

He continued, "A lot of technology has been 'phased out.' However, understanding even those technologies, I think, makes you a better or more informed engineer. ... If you don't understand the basics, the rest of it will go right over your head."

The Engineering Academy is also an opportunity for Wilkins to evangelize passions, such as mixing audio.

Earlier in his career, like many engineers, Wilkins moonlighted setting up and mixing live audio for concerts, church services and other events. He credits this work with providing him a good understanding of how audio is perceived by the human ear. This skill has been invaluable in teaching the proper installation and configuration of audio equipment in a broadcast operation, Wilkins says.

In 2016, he added a course that teaches engineers how to create a good

mix, which is certainly a building block of a quality broadcast. The "Mixing Live Audio Seminar" also is targeted to churches. Wilkins explains the connection: Some stations air church services, and so if the original mix is flawed, there's less that can be done on the radio end.

Ultimately, Wilkins says, it's not the equipment so much as learning how to use it.

"It appears to me that due to the rapidly changing technology, engineers are eager to keep up, so as a result we have a level of technical ability that continues to increase," Wilkins said. "Engineers that don't keep up won't be around very long."

The academy is in its fifth year, and its scope has expanded far beyond the original goal of educating engineers in Alabama's local markets.

The classes have attracted students from outside of Alabama — from all around the country, in fact. According to Wilkins, the prize for the longest journey goes to a woman who flew in from Alaska to learn about radio.

Not surprisingly, Wilkins relishes the work. "Teaching was something I had never done, but I told my wife Cathy that if I had known how much I enjoyed it, I probably would have started

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EXCELLENCE

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it earlier.”

Alabama Broadcasters Association President Sharon Tinsley is effusive in her praise of Wilkins.

“Larry Wilkins is *amazing*. We are so fortunate in Alabama to have him as a resource of engineering knowledge and skill,” Tinsley wrote in an email to Radio World (emphasis hers). “Larry is the backbone of our Engineering Academy and our EAS system. In addition, he’s always willing to do outreach in

public schools to help introduce students to the concept of broadcast engineering as a career path.

“A few years ago, we bestowed the honor of [Alabama] Broadcaster of the Year on him — a unanimous choice.”

Wilkins explains his work with the ABA has allowed him to continue his association with broadcasting — without the time constraints or stress of full-time engineering.

In fact, semi-retirement has afforded him time to cultivate a new hobby with his wife: rose gardening. Both are members of the Montgomery Rose Society



Larry Wilkins with his wife Cathy at a rose show.

and the American Rose Society, and Wilkins was president of the former. At the height of his enthusiasm, they had about 125 plants in their yard but have now winnowed that to a more manageable number.

But even his gardening passion can be traced back to engineering. One day, Wilkins was visiting a transmitter site and came across a nearby garden, full of beautiful rose bushes. He stopped to admire them and learned that a retired school teacher tended them. Once again, Wilkins was hooked.

“I’ve always loved to grow things,” Wilkins explained.

Even in his pseudo-retirement, Wilkins remains a dynamic member

of the broadcast community. One thing he doesn’t miss from the earlier days of radio? Stress. Being a “corporate engineer” came with plenty of headaches and long nights.

“Cathy has been extremely supportive of my career over our 31 years of marriage, and I thank her for all the encouragement she has given. It is not easy being married to a broadcast engineer, as transmitters quite often pick the worst times to fail.”

Nonetheless, Wilkins says “the broadcast and multimedia business is something that gets in your system and never leaves.”

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IN CASE YOU MISSED IT

A sampling of recent headlines delivered to Radio World readers in their free daily NewsBytes e-newsletter. (Click the Subscribe tab at radioworld.com, then Newsletters.)

► FCC Overhauls Some Media Ownership Rules

The committee voted to remove bans on newspaper/broadcast cross-ownership and radio/TV cross-ownership.

► The New Entercom Is Now Official

Entercom and CBS Radio completed their merger. The new entity places itself solidly in the top tier of U.S. radio companies and sees itself as a healthy competitor to a financially-challenged iHeartMedia.

► EBU Opens Registration for Dot-radio Domain

Two categories are available: “standard” and “individual.”

► Tieline Relocates to New, Bigger Offices

The Australian manufacturer relocated its Perth office.

► Burk Technology Appoints SVP of Worldwide Sales

Remote systems developer Burk Technology named Jim Alnwick to the post.

► SBE Board Appoints Siegler to Fill Vacancy

He fills a vacancy left when Jim Bernier was elected SBE national treasurer.

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PUERTO RICO

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Puerto Rico who rely on radio for information — U.S. broadcasters are providing money, equipment and support to their broadcast brethren in the territory.

“Our members understand what it is like to be slammed by a hurricane, and remember how other broadcasters helped them out in times like these,” said Vance Harrison, president of the National Alliance of State Broadcasters Associations. “We’re stepping up to help our fellow radio stations in Puerto Rico, just as they would if we were in such serious trouble.”

THE BIGGEST NEED

What do Puerto Rico’s radio broadcasters need most? The answer is simple.

“With so many stations relying on diesel and gasoline generators to stay on air, money is needed to pay for the fuel, at a time when advertising is not coming in,” Ribas said. “Without that fuel, which has to be purchased constantly, we can’t keep broadcasting.”

To help pay these fuel costs, the Puerto Rico Radio Broadcasters Association opened a bank account to accept donations on behalf of radio broadcasters there and in the U.S. Virgin Islands, both pummeled by Maria. The PRRBA hopes to raise \$250,000 to help these broadcasters get back in service and stay on air.

“Getting Puerto Rican radio back on its feet is going to be a long-term challenge, due to the fundamental damage they’ve suffered there,” said VAB Executive Director Jim Condon. “So we need to be there for our fellow broadcasters, for the long haul.”

In early November, donations had come in from NASBA plus individual groups such as the Florida Association of Broadcasters and the Vermont Association of Broadcasters, and the fund had raised \$25,000, said Harrison. “But much more is definitely needed.”

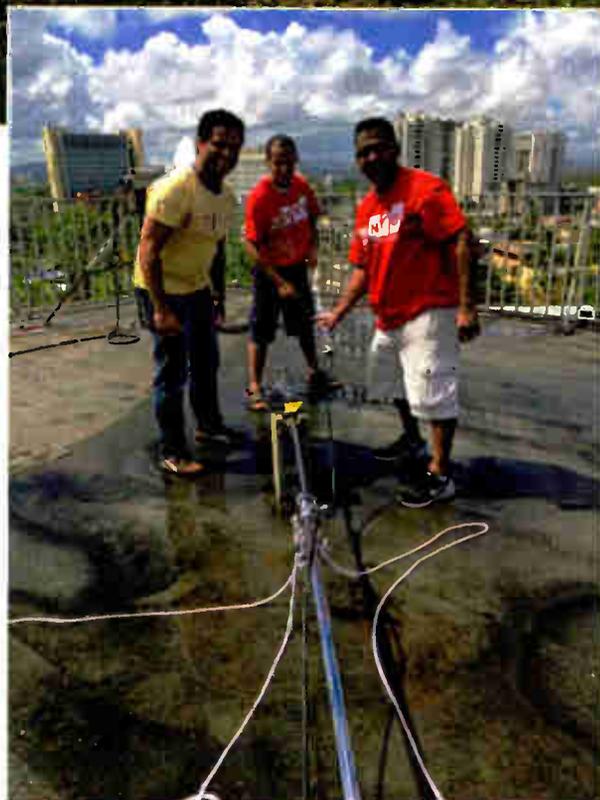
Ribas subsequently emailed that the Maine Association of Broadcasters had contributed another \$25,000.

WNYC’S HANDS-ON APPROACH

New York City public stations WNYC(AM/FM) understands the experience of having broadcast infrastructure devastated.



Damaged WIPR infrastructure.



In San Juan, Jose Otero of Puerto Rico Public Broadcasting Corp., left, works with Peter Polanco and Dannie Raghunath of WNYC to raise a temporary antenna.

“Our FM transmitter was located on the World Trade Center, which came down on 9/11,” said Steve Shultis, its chief technology officer. “Had we not received help from WKCR(FM), who lent us a studio, and WNYE(FM), who found us a frequency and transmitter, we would have been knocked off air for a long time. So we know what it is like to need help, and to receive it.”

When WNYC’s staff learned that San Juan public station WIPR had lost its mountaintop transmission/antenna facilities — “When we visited the site, we saw wreckage everywhere,” said WNYC Engineering Manager Dannie Raghunath — they wanted to help. That’s where the nonprofit CoastAlaska media collective came in. As Shultis recounted it, “They contacted WNYC to tell us that

CoastAlaska had built two ‘radio-to-go’ kits, each of which would let them set up a temporary station after a tsunami. So we asked CoastAlaska to lend us a kit to take to Puerto Rico, and they did.”

Equipped with the 300-pound radio-to-go kit — filled with microphones and mixer to a 150-watt transmitter and 30-foot standalone vertical antenna mast — Raghunath and fellow WNYC engineer Peter Polanco travelled to Puerto Rico in October to get WIPR back on air. “We had an armed guard escort us and our equipment from the airport to the hotel,” Raghunath said. “That’s just how the situation there is right now.”

In three days’ time, the two WNYC engineers had set up the kit at WIPR’s San Juan studios, and erected the anten-

na mast on its roof, held in place by cinder blocks on its tripod legs.

“We are getting a 3 dB gain on the antenna, which is carrying 150 watts on FM throughout Greater San Juan in a 20-mile radius,” said Shultis. “It certainly is no match for WIPR’s original 150,000 watt signal from its mountaintop antenna, but this temporary setup is still a big help.”

RADIOS TO THE RESCUE

Maria didn’t just knock out radio coverage in Puerto Rico, it also destroyed the radios that people used to tune into this coverage. (The same is true for TV, cellular telephone and internet service; all of which were still severely compromised due to physical damage and lack

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World Radio History

PUERTO RICO

(continued from page 8)

of power.)

The National Association of Broadcasters, NASBA and many unnamed U.S. broadcasters banded together to send 10,000 portable radios to the people of Puerto Rico.

"Time and again, broadcast radio has served as a lifeline to communities desperate for information and support," stated NAB President and CEO Gordon Smith in an NAB news release. "Our fellow Americans in the Caribbean now face a once-in-a-generation humanitarian crisis, and radio is one of the only communications resources available."

The 10,000 radios were cassette tape-sized QFX R-9s. Capable of AM, FM and SW (shortwave) signals, each R-9 comes with a telescopic antenna, LED power indicator and a 3.5 mm ear-phone jack. They retail online for \$9.99.

The NAB/NASBA/broadcasters coalition that acquired 10,000 of these for Puerto Rico also supplied two pairs of AA batteries with each radio. "We found the R-9s on the West Coast, and had them shipped to Florida," said FAB President Pat Roberts. "Even at their small size, the 10,000 R-9 radios required three pallets to ship them. The 40,000 AA batteries needed six pallets more."

After much legwork, the radios/batteries were flown into Puerto Rico and the U.S. Virgin islands in October.

Suzanne Raven, NAB's senior manager of public service, was on the ground in Puerto Rico with NAB Building Engineer Louis Abanez when the radios were distributed with FEMA's help to 25 communities there.

"It was touching to see the faces of Puerto Rican children light up when we handed them a new radio. People literally danced in the streets," said Raven. "Residents flocked to us, particularly after dark when our vehicles provided the only lights for miles.

"Word of mouth was key in making the mayors' offices aware of our initiative," she said. "Some mayors only became aware of our radio distribution upon arriving in San Juan. Without cell service, they could not receive messages about our efforts."

This generosity played out against a backdrop of fearsome destruction. "Most of Puerto Rico remained without power and drinkable water during our visit," said Raven. "Even in the capitol of San Juan, power came almost exclusively from generators that had to be refilled with fuel or diesel daily by hand, sometimes every four hours.

"Seeing the devastation drove home the need for reliable communication," Raven said. "Cellphone connections and Internet service are non-existent in many parts of Puerto Rico. Broadcast

radio continues to connect people to critical information."

THE NEED IS REAL

It will take months, or even years, for the industry and its island home to recover from Maria's bulldozer-like destruction.

"As Floridians, we know what it is like to be where Puerto Rico finds itself today," said FAB's Pat Roberts. "This is why our broadcasters are doing all they can to help our radio colleagues there, and we urge all other broadcasters to join us in doing so."

To donate money to the PRRBA's fund for broadcasters in Puerto Rico and the Virgin Islands:

Financial Institution: Banco
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Uprooted tree in Loiza.



NAB Building Engineer Louis Abanez, NAB's Suzie Raven and Mayor Lornna Soto address a crowd in Canóvanas in northeastern Puerto Rico.



The QFX R-9 is a small multi-band receiver.

Left: A man listens to one of the donated radios in the small coastal town of Loiza.

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Broadcasters General Store



This Jacket Keeps You Toasty Warm

And other tips to prevent winter engineering woes

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com



Fig. 1: Heated jackets use carbon fiber heating elements.



Fig. 2: The jacket has a Lithium-ion battery pack.

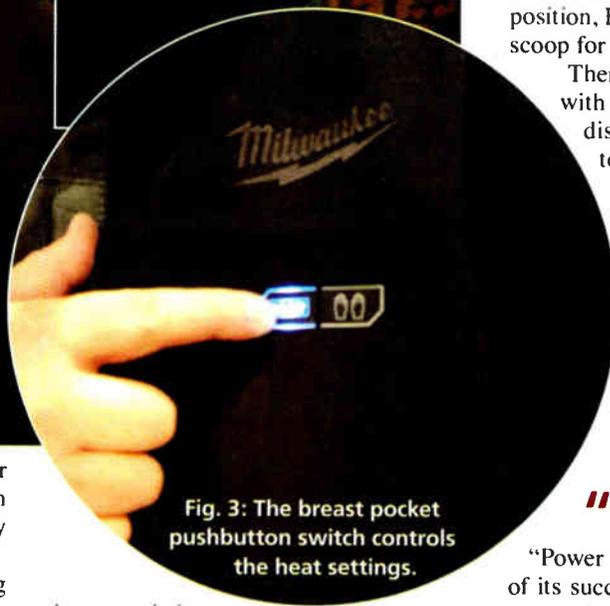


Fig. 3: The breast pocket pushbutton switch controls the heat settings.

Looking for the ultimate in winter jackets? Take it from our northern neighbors, heated jackets are the way to go.

Anchorage's Koahnic Broadcasting DOE Charles Sather suggests you consider a jacket like the Milwaukee M12 series.

These jackets use carbon fiber heating elements to heat core body areas, and one version is shown in Fig. 1. Using the same Lithium-ion battery packs that power Milwaukee tools, seen in Fig. 2, the jackets have adjustable heated panels controlled by the pushbutton

breast switch pictured in Fig. 3.

Best of all, they are machine washable and dryable — after the battery pack is removed!

The jackets are available at the big box hardware stores and online. Just Google “heated jackets.”

Steven Donnell of New Hampshire Public Radio recommends that engineers put together a “Winter Go-Kit” or travel case, which can be as simple as an old laptop bag filled with necessities. In addition to some everyday items for winter weather, Steven usually keeps an extra pair of heavy socks.

He keeps a small butane torch or lighter in there too, as well as in his winter coat. The lighter in Fig. 4 is a triple burner meant for lighting cigars. Steven

calls it his “frozen lock master key.”

Among some of the “all season” things that Steven includes is an AC wall wart and cigarette lighter to USB adapter and cable(s) to charge his cell phone. He also travels with one of those battery-to-USB chargers. As a backup to his cell phone, as a ham, he always carries a compact handie-talkie as his emergency “call home” tool.

From Hall Communications headquarters in Pennsylvania, Senior Vice President of Engineering Edd Monskie offers a caution now that winter is here and many stations have realigned their satellite dishes.

Edd only had one time in the last 25 years when there was enough snowfall to affect the dish signal. Now that stations have changed to the new satellite position, Edd's dish is going to be a big scoop for holding snow of any amount.

There are various methods to deal with snow, from treatment of the dish surface, to heating coils, to covers, or covers with some type of a heated blower from behind. None of the solutions is perfect. Edd has chosen to use the covers on the dishes at this point, and we'll see how they work.

Before the heavy snows arrive, have a plan in place so programming isn't lost because of “snow fade!”

“The Cruz Show,” heard mornings on KPWR, “Power 106 Los Angeles,” owes much of its success to its many listeners and guests that participate on the program each day.

With today's multimedia focus, Chief Engineer Saul Perez shows the sign that is posted outside the air studio door. Fig. 5 informs those entering the studio they may appear on-air, their voice may be used, and their image may appear in video or still photography. A fair warning to visitors, and good protection for the station.

Keysight Oscilloscopes has posted a series of tutorials on YouTube about the selection of active and passive oscilloscope probes. In under five minutes, you

Fig. 4: A handy “frozen lock key.”



can learn a lot about testing with oscilloscope probes, plus, view several other tutorials.

Here's the YouTube link: <https://www.youtube.com/watch?v=cX8YEaw9Xd0#action=share>.

Indianapolis Broadcast Engineer Roberta Ecks agrees that the threaded hex standoff used as a ground binding post, mentioned in our May 12 column, works fine in a pinch, but most hardware stores have small parts bins with single-quantity knurled nuts in a variety of sizes. Brass 6-32 knurled nuts are under \$10 for a quantity of 25 at McMaster-Carr.

Contribute to Workbench. You'll help fellow engineers and qualify for SBE recertification credit. Send Workbench tips to johnpbisset@gmail.com. Fax to 603-472-4944.

Author John Bisset has spent 48 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE Certified and is a past recipient of the SBE's Educator of the Year Award.



Fig. 5: A useful studio “warning” sign for guests.

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Happy Memory: The Hallicrafters SX-42 Communications Receiver

It was an important calibration tool and part of annual proof-of-performance measurements

PLUGGING INTO THE PAST

BY TOM VERNON

If we were to journey back in time and visit the engineering shop of a radio station in the 1960s or '70s, it would look very similar to the repair facilities of a hi-fi or radio-TV repair shop of the day. There would be a carpeted workbench and a shelf above filled with test equipment — VTVMs, RF signal generators, an audio oscillator, distortion meter, signal tracer and an oscilloscope. The quantity and quality would vary as a function of the engineering budget.

Also, we would find a stock of electronic components, resistors, capacitors, diodes, vacuum tubes, transistors and a bit later, integrated circuits. Bins with pinch rollers, belts and heads would be on hand to keep the station's cart machines and tape decks rolling along.

Unique to the radio station's shop, however, there would also be a quality communications receiver connected to an outside antenna. Most likely, it was used by the engineer to listen to some of the great top 40 stations of the day while working alone on long overnight maintenance shifts, or possibly to hear shortwave broadcasts from around the globe on cold winter nights.

But the real purpose of having a communications receiver at the station was not to provide entertainment for the chief engineer. It was all about compliance with FCC rules.

This time around in our Plugging into the Past feature, we'll examine the Hallicrafters SX-42 communications receiver, and talk about why these radios were an important calibration tool and also a part of the annual proof-of-performance measurements.

SX-42

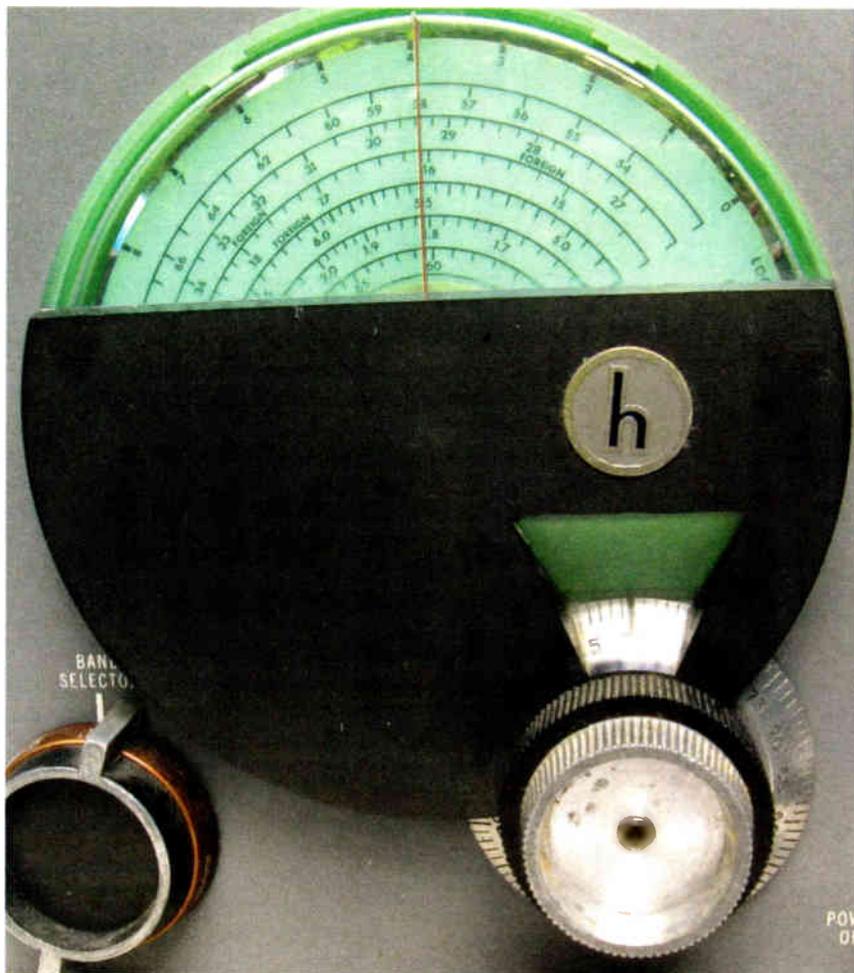
The SX-42 was the flagship of the post-war Hallicrafters product line, replacing the 1940 SX-28 Super Sky-rider. Released in 1947, it had the most extended band coverage of any receiver in the early '50s. Originally, that meant five bands topping out at 55 MHz. But when the FCC announced that the FM broadcast band would be moved from its prewar 42–50 MHz home to its current 88–108 MHz location, Hallicrafters

quickly added a sixth band, bringing coverage up to 110 MHz.

This double-conversion receiver sold for \$275, quite a chunk of change in those days. But then, it had a lot of features most receivers didn't have. Its 15-tube chassis featured a crystal fil-

road, Studebaker and NASA.

The traditional black crinkle front panel was replaced by one with a pleasing light grey finish and green lettering. The main tuning dial, bandspread dial and S-meter face were green plastic, which filled the DXers radio shack with a pleasing green glow. For the radio enthusiast of the late '40s, it must have looked like something that arrived from out of the future.



ter, BFO, six-position selectivity switch, noise limiter and continuous FM coverage from 27–110 MHz. To make this complicated receiver less intimidating for non-technical users, the various switch positions for AM/FM broadcast were clearly marked with red dots.

Not only did the SX-42 have more features than pre-war sets, it looked entirely different. Plastics had evolved during the war years, creating a lot more options for cabinet designs than the black and brown bakelite that was the norm before the war. To capitalize on these new materials, Hallicrafters commissioned the noted industrial designer Raymond Loewy to create the cabinet design for the SX-42. Loewy is well remembered for his work on the Pennsylvania Rail-

Part of the annual proof for AM stations was measuring spurious radiation, including RF harmonics, to ensure they were low enough to prevent harmful interference. The procedures for doing this were not that well defined in the regulations, as no numerical measurements were spelled out. A communications receiver was normally used.

Steps needed to be taken to ensure that the front end of the receiver would not be overloaded, and that could entail adding an RF attenuator ahead of the antenna. Usually the studio was located well within the station's coverage area, and measurements were taken from the shop using an external long wire antenna.

The receiver was slowly tuned up

from the fundamental frequency, paying particular attention to the second and third harmonics. Good engineering practice dictated a sweep all the way up to the 10th harmonic, or the upper limits of the receiver's frequency range. The details were noted in the proof, adding that no harmonics were audible. When problems did occur, it was usually with excessive second or third order harmonics, which often boiled down to misaligned or lightning-damaged harmonic traps in the transmitter.

For FM stations, a communications receiver with a BFO such as the SX-42 was essential for calibrating the modulation monitor by using Bessel's Function. This was typically done before the proof. First, the receiver's antenna was connected to the first limiter tube of the monitor by wrapping a few turns of wire around it. Then, it was tuned to the monitor's IF frequency by peaking the S meter. Typically, this was 21.5 MHz to 22.7 MHz, depending on the station's frequency. The receiver's BFO was adjusted for around 300 Hz. The FM monitor was set to display total modulation on the meter.

Next, precise audio frequencies which corresponded to various percentages of modulation at different null points were fed to the FM transmitter. There was usually a chart in the monitor's manual that listed these. For example, a frequency of 8,670 Hz corresponds to 100 percent modulation at the third null. The amplitude of the audio oscillator was increased while noting the nulls from the receiver. With the third null, the transmitter was modulating at 100 percent. Then, the calibration tweaks on the monitor for meter and flasher were adjusted. It was usually good practice to repeat the process for nulls yielding lower modulation levels to confirm the meter's linearity, and the flasher's accuracy. All this, of course, was logged in the station's maintenance log.

In addition to assisting with proofs, the SX-42 was often used to assess the overall quality of a station's AM and FM signals. With its 6V6 push-pull output stage and high-quality output transformer, this receiver was capable of impressive audio quality.

Many communications receivers of the day had single-ended audio output stages and mediocre wideband performance. This was not surprising, since the audio quality of short-wave broadcasts and amateur communications traveling half way around the globe was far worse than that of AM radio.

THE END OF THE LINE?

In the end, the inevitable march of time and newer technologies took its toll on those communications receivers in the engineering shop. By the

(continued on page 16)



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SX-42

(continued from page 14)

1970s, many of them were approaching the 30-year mark. While they were still working, they were probably not working well. A complete overhaul and alignment was needed, but it was usually much more cost-effective just to purchase one of the many high-end portable communications receivers, which could do double duty on the bench and in the field.

At the same time, RF spectrum analyzers such as the Tektronix 491 were

complicated than older devices, and they usually made a trip back to the factory to be tweaked every five years or so.

The SX-42 shown in this story has just such a history. It came from the engineering shop of a suburban Boston radio station. It had been forgotten in the attic until the mid-1980s. When new cable troughs were being routed above the ceilings, it was rediscovered. When plugged in, it fell into the "working, but not working well" category.

The first step was rounding up the usual suspects. Switch contacts and pots were given a good cleaning with DeOxit.

moves, as well as being locked away in storage for 15 years. It works reasonably well, but needs a thorough cleaning and careful alignment.

The SX-42 was a landmark receiver when it was introduced in 1947. Its sleek industrial design, high quality construction, extended band coverage and high-

quality audio output are what made it a such a standout receiver, and why it is still sought out by collectors and radio amateurs.

Comment on this story or suggest future products to feature. Email radioworld@nbmedia.com with "Plugging Into the Past" in the subject line.



Front view.

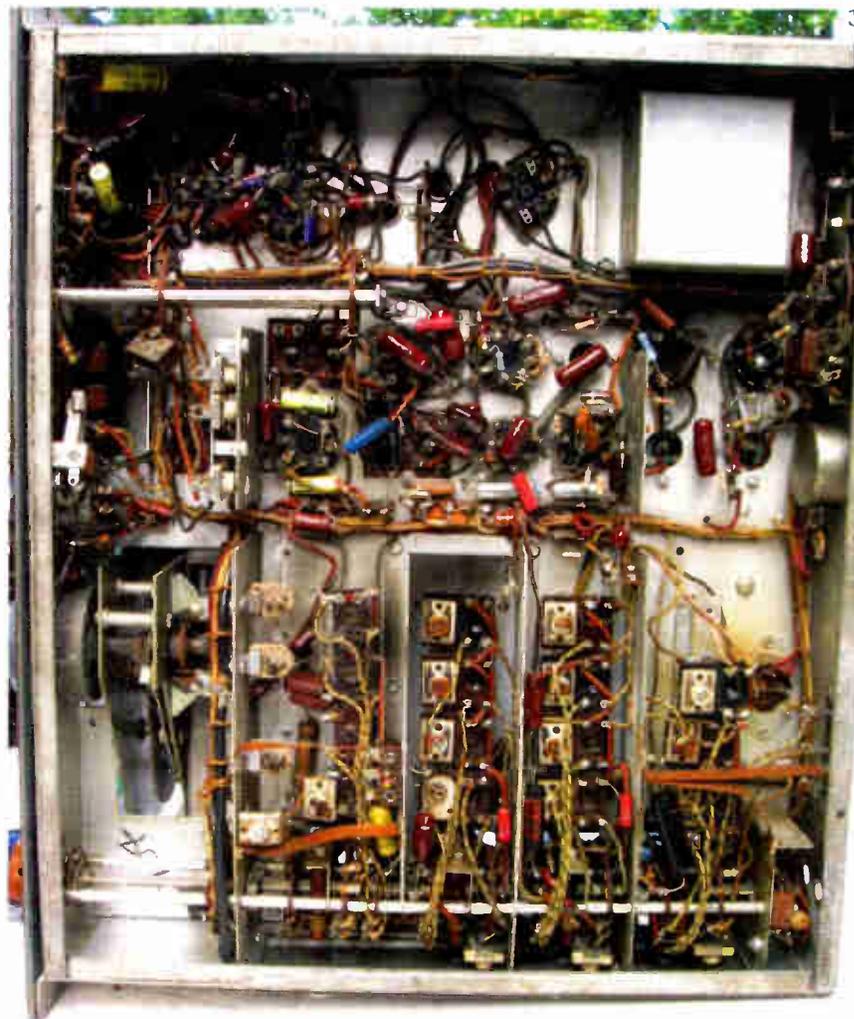
being introduced. They were much better diagnostic tools for tracking down harmonic and intermod issues than a communications receiver. Early spectrum analyzers were expensive, but typically at least one station in a market had one. Usually it was the TV guys.

As to calibrating FM mod monitors, the newer solid-state devices were much more stable, and had internal calibrators. Their calibration was a bit more

Many of the original wax capacitors remained, and they, along with the aging electrolytics were replaced. All the tubes were tested, and several in the front end were renewed.

A service manual was located, then it was a matter of measuring and logging voltages at the tube sockets and replacing numerous out-of-tolerance resistors.

Restoration work on this SX-42 has been interrupted by a few long distance



Bottom view.

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PROGRAMMING

BY JAMES CARELESS

Whether it's breaking news about the latest Star Trek movie or TV show, dueling over the finer points of Klingon culture or holding virtual dance parties for ST online game players in real-time, Trek Radio is the planet Earth's definitive source for all things Trek and science fiction.

Found at www.trekradio.net, this 24/7 internet radio station is a labor of love for the fans who produce its content. Besides broadcasting online, they take Trek Radio on the road to various sci-fi conventions; setting up remote production studios on location in the United States and Europe to interview actors and writers from Star Trek and other sci-fi movies and series.

"Collectively, we serve out over half a million minutes of content every month via our on-air audio stream, livestream video and premium on-demand content such as interviews and event coverage," said David Holquinn (Klingon name DeyvID HolQIn).

He is Trek Radio's director of marketing and communications; plus host of the "Warriors Den," a live music and talk show in which Holquinn shares his knowledge of Klingon fandom and discusses the Klingon language, culture and costuming. "Every month, we reach about 10,000 unique listeners in over 115 different countries," he said.

THE JOURNEY BEGINS

Launched as Star Trek Online Radio, this all-things-Trek internet radio station began its voyage through cyberspace in June 2010. In the first five months, the station evolved and changed its format from concentrating solely on Star Trek gaming to a wider focus, encompassing all of Star Trek fandom, science fiction and genre media.

During this transitional period, STO Radio reached out to CBS Studios for



Nick Duguid, right, of the popular online gaming site Star Trek Online is interviewed by Trek Radio's DeyvID HolQIn (David Holquinn).



guidance in order to not run afoul of the franchise holders' legal teams. In November 2010, the station adopted a new name and new look, re-launching itself as Trek Radio, the first online radio station dedicated to the Star Trek and sci-fi fan community.

"We have maintained an open dialogue with CBS Studios and Paramount Pictures since our inception," said Lisa Guetzkow, the station's chief operations officer and co-owner. "Updates have been made over the years to sustain a healthy relationship and prevent copyright infringement."

In this way, Trek Radio has been able to avoid lawsuits and "live long and prosper."

Having taken care to keep Star Trek's brand owners happy, Trek Radio has been able to boldly go throughout cyberspace, broadcasting its original content worldwide.

"Over the years, our staff has grown;

dressing up as their favorite characters), movies, television, and video games.

Again, the majority of the content is original; produced and voiced by Trek Radio's many volunteers around the world. In addition to DeyvID's show "The Warriors' Den" — sometimes featuring head-banging anthems such as "We're Not Going to Take It" (sung in the original Klingon by the Klingon Pop Warrior) — "we stream shows such as 'Harmless Content' hosted by DJ Atomos, which features an on-going original audio fiction written and voiced by Atomos in between music segments," said Holquinn.

Other Trek Radio originals include "The Singularity" hosted by Suzanna that features virtual dance parties held inside the popular MMORPG (Massively Multiplayer Online Role Playing Game) Star Trek Online; and the longest-running show on the network, "Terra Nova," where the co-hosts discuss entertainment headlines, movie



Vic Mignogna, Captain Kirk in the "Star Trek Continues" web series, with Trek Radio's Holquinn and Michelle Sprecht, who plays Doctor McKennah, at a fan convention.

adding a variety of live DJs and show hosts, increasing our roster of syndicated shows and covering more live events, such as conventions, movie screenings, concerts and red-carpet premieres," Holquinn said. "Our social media has grown steadily over the years with Twitter, Facebook and Instagram engaging our audience with information and entertainment."

WHAT'S ON?

Trek Radio's regular schedule is a mix of ST-themed talk and music shows; plus wider-ranging sci-fi shows that look at comic books, cosplay (fans

reviews and box office updates and new technology. Content is available in streaming format from the station itself, and specific interviews are also offered as on-demand audio clips.

In addition to the station's original content, "we syndicate popular podcasts focussing on Star Trek and sci-fi, as well as audio fiction shows that present original fiction in the Star Trek universe similar to old-time radio plays," Holquinn said. "We also provide live and recorded coverage of conventions and events that offer our listeners a unique look at these events so they feel like they

(continued on page 20)





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TREK

(continued from page 18)

are there when the listeners are unable to attend. Even when our listeners are at the same event as us, we often provide them with information and content they would not otherwise have access to.”

DEDICATED FANS ON BOTH SIDES

Trek Radio would not exist without two key universal forces: The content creators who produce the shows (and keep Trek Radio running), and the fans who tune in on a regular basis.

This 24/7 internet radio station is a labor of love for the fans who produce its content.

“Our dedicated volunteer staff is comprised of those who want to share their love of Star Trek and sci-fi with the community and engage in conversation about the franchises we love,” said David Holquinn.

“We have staff in various parts of the US as well as the UK, Canada and Australia. Some of our staff had previous experience working in terrestrial radio, while some never worked in broadcasting before joining Trek Radio. The experience gained while working for us

in Internet radio has led to some staff getting paid employment in traditional radio.”

On the flip side, “our listeners are followers of science fiction and genre media who want to interact with other like-minded fans to share interests and gain new insights,” he said. “Our role in the Star Trek and sci-fi community

is to serve as an online source for entertainment and information, while also providing an outlet for celebrities, merchants, fan groups, and event organizers to promote their projects to a targeted audience. We often have celebrities and event organizers approach us for help promoting their latest projects.”

Now in its eighth year, Trek Radio shows no sign of slowing down, seeking out new and exciting content for its online stream.

“We are also always recruiting quality on-air talent and DJs for Trek Radio as well as behind-the-scenes staff to assist with editing audio and video for our website,” said Holquinn. “We are looking for interactive individuals or teams with personality, plus excellent microphone and interpersonal skills. Beam aboard and join the Trek Radio family!”



Above: Trek Radio takes part in a Star Trek podcasting panel at San Diego Comic-Con International.

Right: Trek Radio’s Tom Cruz, left, interviews Manu Intiraymi, who played Icheb on “Star Trek: Voyager.”



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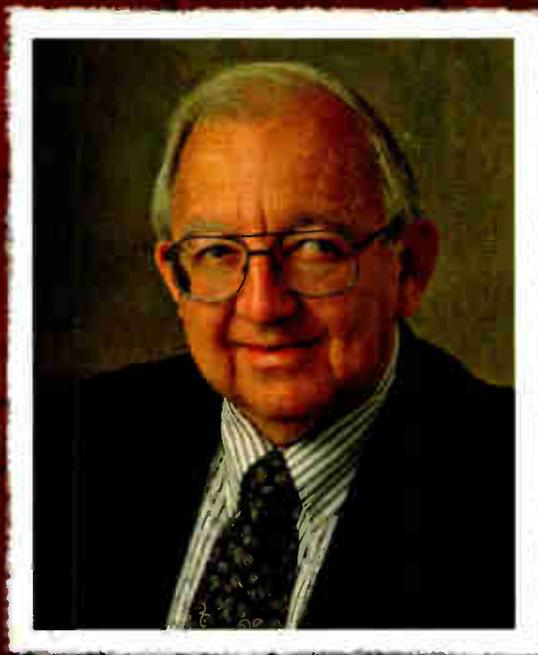
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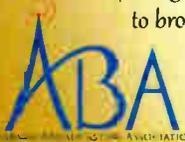
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We salute you for your lifelong devotion to making our industry better and helping people. You are an inspiration.



Testing: One, Two, Three

From the auditorium music test to online surveys, programmers need listener input

21ST CENTURY PD

by Dave Beasing

Memories differ, and some believe it started even earlier. But by 1981, a small group of music radio programmers were whispering about a powerful new secret weapon: the auditorium music test, also known as the AMT.

Prior to AMTs, top 40 programmers had been experimenting with callout research. KRIZ Phoenix Program Director Todd Wallace confided to his friend Jeff Salgo at KMJZ in San Diego that his staff had been systematically calling listeners to find out which hits to play in heavy rotation. Salgo tried it, too, and his 1000 Watt AM station quickly defeated the legendary KCBQ,

nearly every variable possible. Many of his refinements to the methodology are still in use.

ONLY AS GOOD AS THE INGREDIENTS

Although changing times have caused some changes in music testing since, a core principle remains: Every good test starts with a high-quality sample.

Los Angeles programmer Jhani Kaye — famous for his attention-to-detail at the helm of stations like KOST, KBIG and KRTH — attended all of his stations' music tests to see the sample with his own eyes, ensuring that every respondent truly passed the screener.

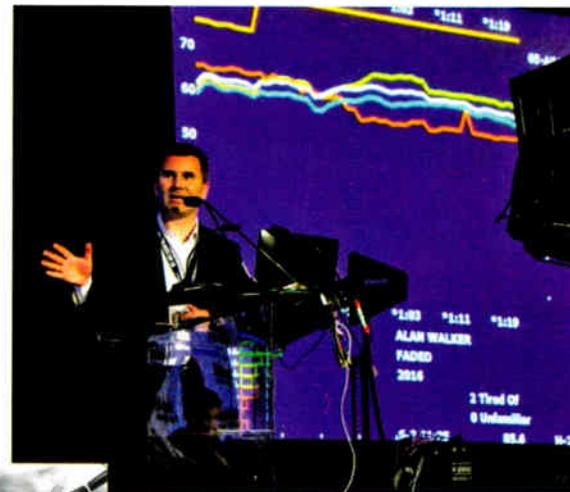
He has his share of horror stories. Once, a group of men attending an AMT admitted that they were often asked to show up if the turnout looked thin — to raise funds for their barbershop quartet.

necessity. A small-market cluster couldn't afford to recruit a test, so, "We reluctantly decided to use the stations' databases and run ads on the cluster, but we made no guarantee that we would have actionable data at the end. The recruit wound up being a tremendous success."

They've since added social media posts and other sources to their "crowd source" techniques. After running parallel tests in various formats and market sizes, Benson is confi-

Right: Hal Rood moderates a panel at the Worldwide Radio Summit in Los Angeles.

Below: Jeff Salgo signs on KKDJ(FM) — later renamed KIIS — in Los Angeles, April 15, 1971.



Music radio still can't be programmed using science alone. It's also an art form.

When Salgo was later hired to program an adult-targeted FM in town, KBZT "K-Best 95," he realized that callout respondents wouldn't have the patience to rate hundreds of song hooks over the phone. He asked his GM, "What if we paid people \$25 to come to a hotel and rate a bunch of songs?" According to Salgo, now market IT manager for Entercom in Los Angeles, the impact was amazing: "K-Best shot up to #1 in every key demo."

Around the same time, having learned that The Research Group was beginning to offer AMTs to client stations, Cox Radio boss Nick Trigony gave Research Director Roger Wimmer a million-dollar budget to "test music testing" and told him, "You've got a Ph.D., figure it out!" He did, examining ideal sample sizes, respondent incentives, song hook size,

Ken Benson of research company PI Media Group warns, "Many AMT participants are research pros. The pool of people willing to participate is small and getting smaller."

Benson says that's why the cost of recruiting and incentivizing participants has risen to as high as \$250 each. Multiply that by a sample size of 90 or 100, and you see the problem.

In response, Strategic Solutions Research — like many providers — has developed an online survey system to save money on meeting rooms, moderator travel and by allowing respondents to participate at home.

"We've been doing online testing for 10 years now," says Executive VP Hal Rood. "We have a variety of techniques to ensure the person is who they say they are. Both types of respondents [online and in-person] are people who are also willing to participate with Nielsen. The key is the quality of the screening, the questionnaire and the data's interpretation."

Cutting costs even more, Benson's company has developed a trademarked "CSMT — Crowd Source Music Test." Like many innovations, it was born of

dent in the results.

Strategic Research Solutions has also used databases and social media to recruit, but Rood is cautious. "The best research investment is in actively recruiting consumers so you reach beyond the super PIs who have signed up for your database," he says.

Wimmer takes no issue with new recruiting sources, as long as the screener is adhered to rigidly. Also important, he says, is that you "do an analysis of every person's scores in relation to the standard deviation of the test. Any respondent's data whose scores are above or below the standard deviation must be thrown out." In other words, your researcher should be challenged not to use "outlier" data that is too different from the median.

Wimmer is concerned with today's

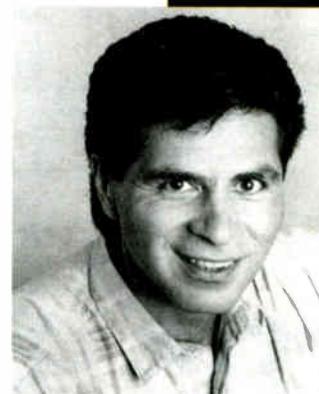
widespread use of electronic dials in music testing. His analysis shows that respondents make fewer errors when they're using a simple 7 or 10 point scale. "The average person sometimes finds the dial technology difficult," he says.

Roughly 40 years since the advent of music testing, Kaye points out that music radio still can't be programmed using science alone. It's also an art form.

"Music testing is extremely valuable,



Above: Ken Benson at Virgin Radio in Toronto.



Left: L.A. programmer Jhani Kaye.

but it can't be a bible," says Kaye. "A good programmer will always know his/her audience well and be able to read — and to a certain degree — predict what the audience would like."

Dave Beasing recently had the sad duty of signing off LA's "100.3 The Sound" after a 9-1/2 year run, divested as part of Entercom's merger with CBS Radio. The award-winning programmer and consultant is now busy opening his new on-demand audio company.

10 of the **TOP 10** U.S. radio stations are Nautel customers.

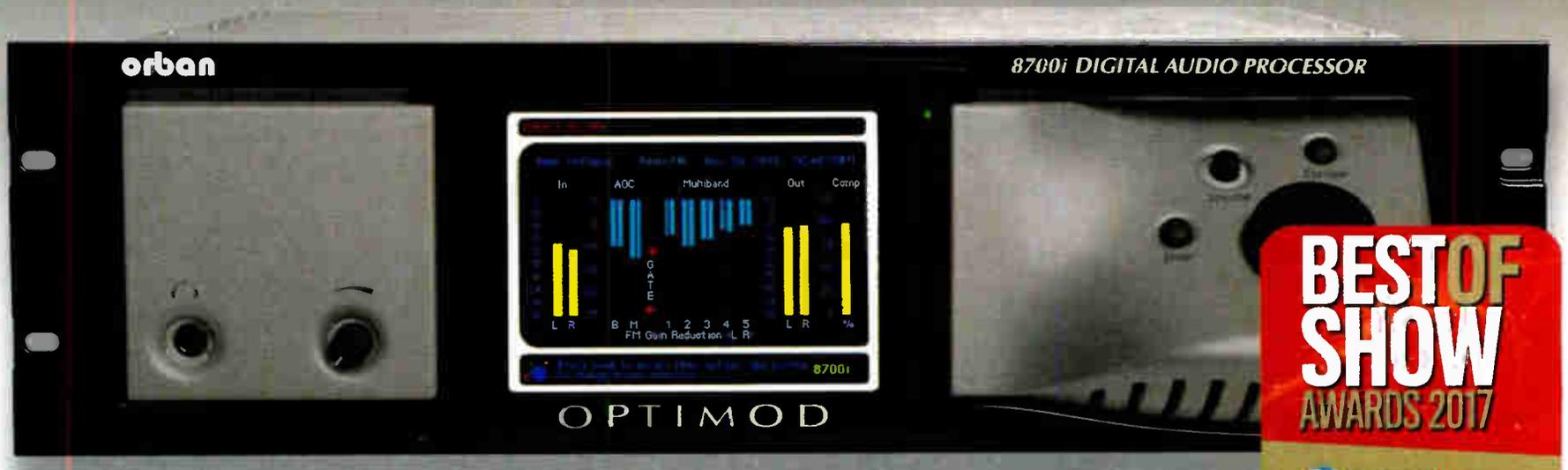
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Apps Driving Innovation

Every industry, broadcasting included, would be wise to watch app development

PROMO POWER

Mark Lapidus



Imagine a mobile phone app that is a combination of Facebook Messenger, PayPal, Uber, Google Maps, FaceTime, Skype, Calendar, iMessage, ShopSavvy, Weather Channel, Instagram, and yes, it even has radio stations!

This killer app is for real! It has over 800 million users and you may not have ever heard of it. Why? Because, this app called "WeChat" is primarily used in China.

With WeChat, you can pay for virtually everything with one click and no credit card. It's actually an endless transactional platform with thousands of retailers, built on top of basically every existing social media function.

Will such a "super app" like WeChat come to dominance in the USA? Hard to say.

One thing is for certain though, every industry, broadcasting included, would be wise to watch app development for several reasons: We have to understand how our listener's lifestyle is changing based on app usage; we need to know if it makes sense to place our own advertising and/or promotions in apps; and

we need to keep up on the latest popular apps for own productivity both in the workplace and in our personal lives.

With this in mind, here a few suggested apps to test drive.

OFO

I was walking to business meeting recently in D.C. when I spotted a bright yellow bicycle on the sidewalk. Unlike other bike-sharing systems I've seen, this bike was just on its kickstand and not in a rack. I downloaded the app, entered my credit card information and two minutes later, I was riding!

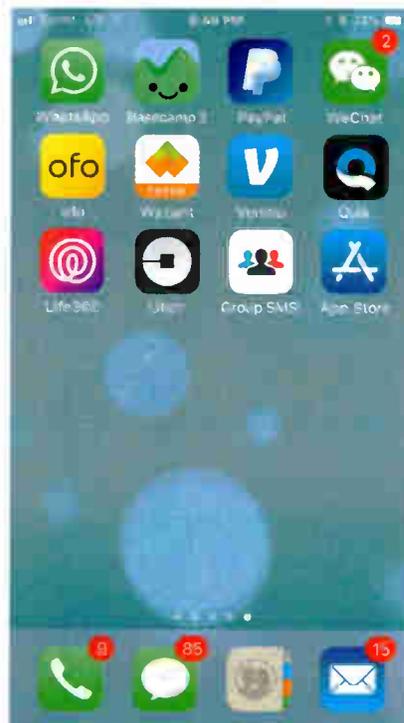
The first ride is free. Subsequent rides are \$1 per an hour. The cool part is that when you arrive at your destination, you just park the bike, lock it and leave it on the sidewalk. Later, you use the same app to find other Ofo bikes nearby. Ofo already has over 62 million active monthly users in 13 countries.

I saw another app recently for motor-assisted bikes, but I haven't tried it yet.

WYZANT

While I have expertise in broadcasting and digital media, science was never my thing. When my college-aged son needed help with chemistry, I was clueless.

I did some digging and found Wyzant, an app that matches students with tutors. Local tutors will come to your home, or



Smartphone apps aren't all time wasters. Some are intended to improve your productivity and communication.

you can connect nationwide via video chat and a whiteboard through the app or online. The tutor's experience and ability vary as much as the price, but my son found several tutors who truly helped him. They have about 2 million registered users.

BASECAMP

I work with many people collaboratively across the globe. There came a point where email became almost useless

due to sheer volume and complexity of projects. Work in various time zones also complicates matters. Basecamp enabled me to keep communication in one place, create to-do lists, upload and download files and keep track of milestones.

You can still receive email if you want, but since it all flows through Basecamp, the communication is easily found, sorted and kept in order.

WHATSAPP

Sure you've heard of it, but have you used it? You can speak with or video-chat other users for free worldwide; do text messaging and it's my go-to for sending large video recordings when files are too big for email. Facebook paid \$19 billion for this app.

While it doesn't come close to the functionality of WeChat, I use it all the time for group communication ... plus, it is in English. I understand several business use cases are pending at the enterprise level.

PAYPAL, VENMO AND APPLE PAY

If you're not using at least one of these solutions to pay bills, send money to friends and family, or check out at a store 20 times faster than a chip-using credit card, you are wasting valuable time. Once you start paying this way regularly, you'll begin to realize why handwritten checks will soon go the way of the rotary phone.

This holiday season, take a few minutes of your free time to play with apps that you've never tried before. I guarantee this activity will spark your creativity. It may even impress your friends.

So ... Happy, appy holidays!

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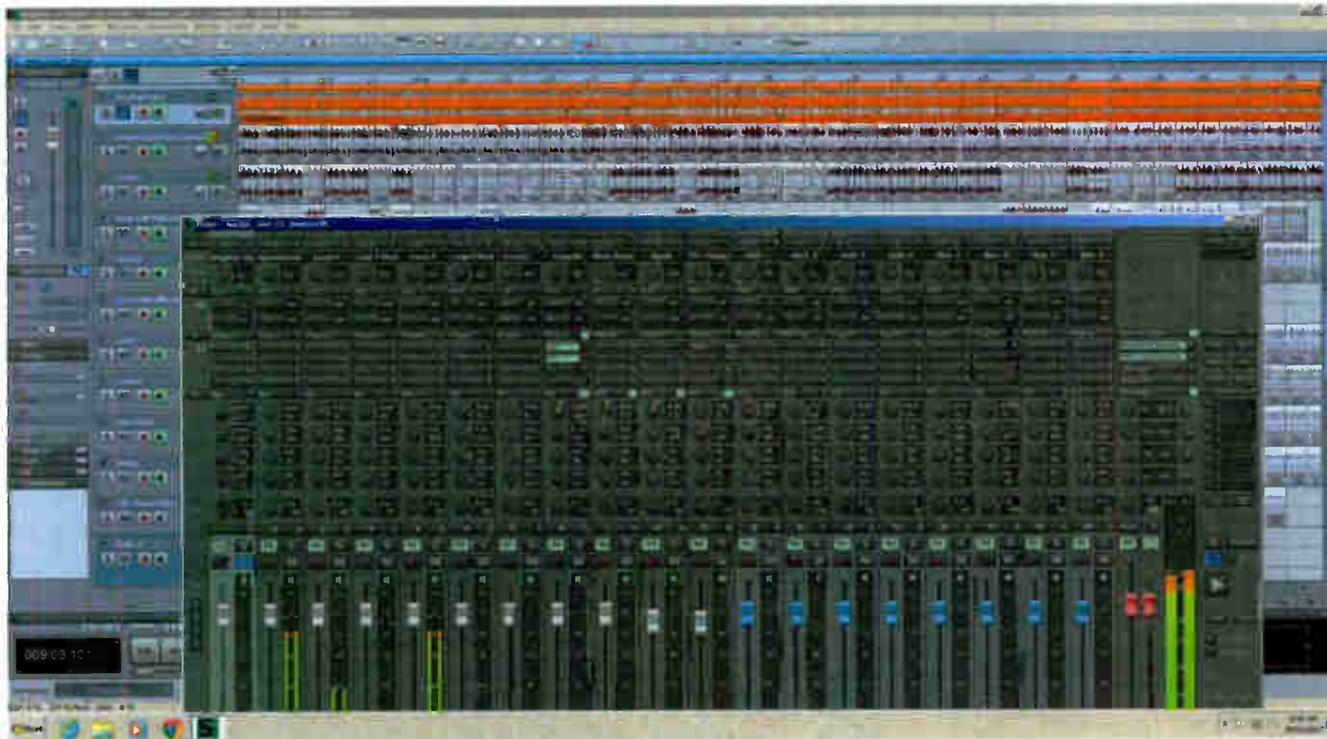
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Left: Magix Sequoia 14 Power User Desktop

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- Windows only
- Price tag is big

Price: \$2,975 (though upgrading from previous version can be cheaper)

CONTACT: For information, contact Magix Software at 305-722-5810 or visit www.magix-audio.com/us.

Magix Sequoia 14 — Big Sound, Big Features

A bit pricey but if you have to do serious audio creation and editing, this might be the package

PRODUCT EVALUATION

BY CURT YENGST, CSRE

I've never been to California, so I've never seen a sequoia tree up close, but by all accounts they're spectacularly huge. So, it's appropriate that Magix named their flagship digital audio workstation product Sequoia. Everything about the latest version is **BIG**. The feature set is big, giving users everything they need, short of a hardware interface, to record, edit, master, create CDs, and even sync their project to film or video. The amount of raw data in this package is big, including plug-ins, software samplers, VSTi instruments, and nearly 70 GB of audio samples. The hardcover(!) manual is big, at 575 pages.

And, I might as well get this out in the open right now; the price tag is big too — \$2,975. (Well, at least for me it is!) Is it worth it? Let's find out.

IN THE BOX

My first test for any software is to see how far I can get without opening the manual. Installation is pretty simple. Pop the first DVD into the drive, and it almost immediately asks for the included CodeMeter USB dongle. Users

can install Sequoia on as many workstations as needed, and the dongle can be moved from one to another, bringing all licenses with it. In a production studio environment, additional seats can be purchased, and a single dongle on a LAN server can administer all licenses for the entire plant. The basic controls are easy to spot and make sense, so it didn't take much to get it passing audio. Holding the mouse over most controls brings up a pop-up guide showing what they do.

My favorite feature of Sequoia is the mixer. It's laid out like an analog

mixing console, complete with channel strips with EQ, pan pots and faders, plus an output section complete with its own EQ, plug-in patch points, and even a monitor section. It's customizable, and templates can be saved for later recall. Users can configure aux sends for headphone mixes and buses for submixes. Automation is also available for users who would rather not make such adjustments in the editing window. It's also possible to monitor incoming signals directly through sound card outputs. Recording and playback can also be controlled directly from the mixer.

One interesting feature is Mix to File. Users can start real time playback of the session, and any mixer moves are also written to the file once playback is

complete. It's a bit of a throwback to the old days of mixing to tape. Another nice feature is an MP3 simulator plug-in for the output section. Users are able to hear how a mix will sound once rendered to MP3 or other compressed format. My chief complaint is that it's not possible to record signals "wet," with compression, EQ, and other effects in place.

Sequoia's layout can be as clean or cluttered as users need, thanks to selectable workspaces. The Power User view, for instance, gives a clear view of the Track Editor, along with transport controls, a very generous VU meter, time display, and the Manager/Docker window, which displays additional features in tab form. The Mastering view shows several different meters for level, phase alignment, and bit depth, along with

(continued on page 26)

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MAGIX

(continued from page 25)

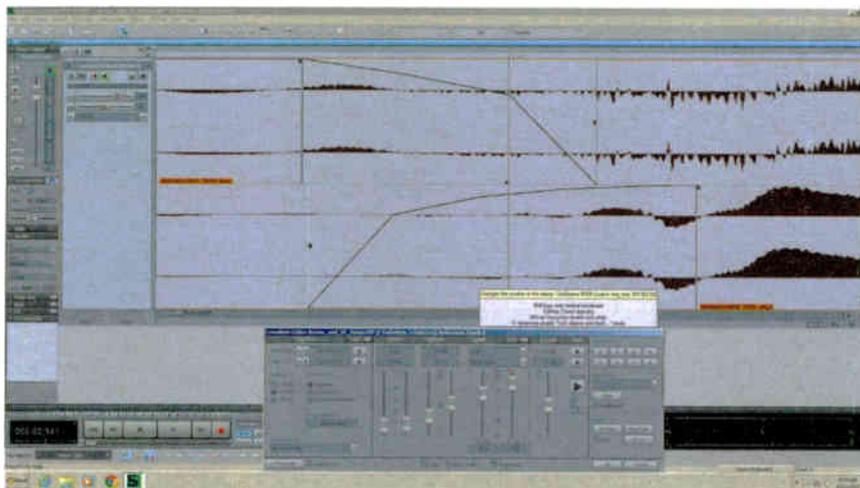
additional track timing information. The Reporter view shows clip management and timing information ideal for keeping track of news sounders and other such elements. Other windows can be added from the View menu. The look of the entire program, or just individual elements, can be changed by assigning different “skins.” One color scheme can be used for the Track Editor, and a completely different one for the Mixer, and so on. Speaking of meters, several options are available, from standard PPM and VU meters to K-Metering, surround, spectrogram, and even directional metering.

TOOLBOX

Sequoia comes with a wide variety of VST and native plug-ins that can be patched into the mixer or assigned to individual objects in the Track Editor. Plug-ins for dynamics, EQ, distortion, delay, reverb, and other assorted filters are included. There is even a suite of audio restoration plug-ins and a collection of VSTi instruments with everything from rock drums to accordion. Also included: Magix’s Independence software sampler, with thousands of sounds, included on nine discs, and Celemony’s Melodyne Essential pitch correction software. The price of this package starts to make sense when considering how much we might spend on numerous plug-in bundles and software synths anyway.

Editing in Sequoia can be done in a few ways. The most basic is object-based editing in the Track Editor window. Audio clips, or objects, are placed on the various tracks; and, depending on the tools selected, can be trimmed, moved, and otherwise manipulated. As with most DAWs, there are a few moves that can be figured out intuitively, but others will take peeking at the manual or help file. Keyboard and mouse commands are, however, customizable; so users that are used to a certain workflow can configure Sequoia to behave in a similar fashion. Within a few minutes, I had enough moves down that I could chop up a piece of audio with ease.

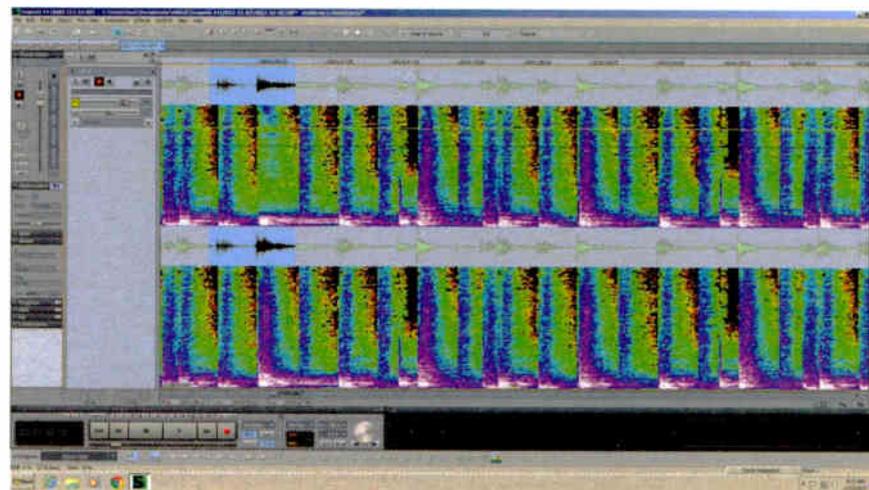
There’s also Source/Destination mode. This is useful for productions assembled from various, separately pro-



duced elements, such as a “news magazine” format, or a mastering project where numerous takes must be sorted and assembled. “Raw” audio is brought into a source track, in and out points are determined, and the result is pasted to the Destination track. Then there’s Spectral Editing, where audio is displayed in spectrogram form, so frequency content can be seen as well as level. This is handy for manually removing impulse noise and other nasties.

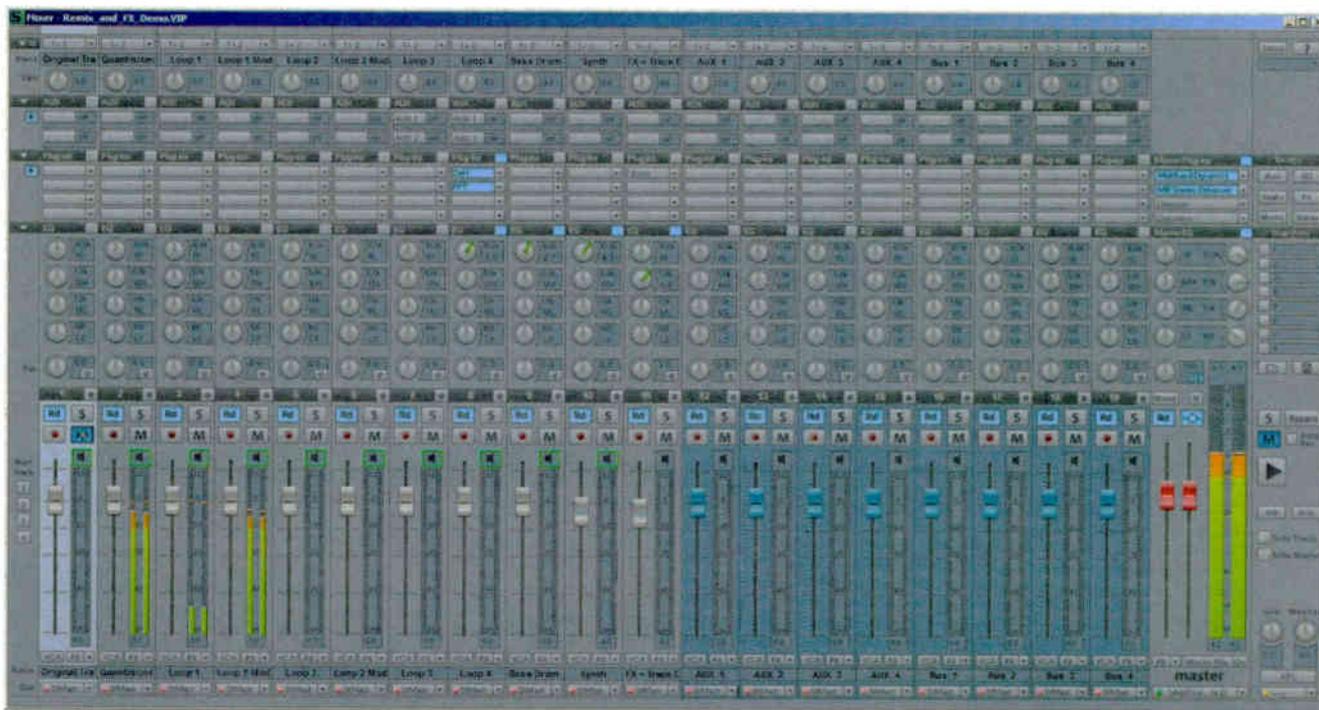
Recording in Sequoia is fairly straightforward and intuitive. In addition to being able to import just about any audio file format, Sequoia can also record to WAV, MP3, AIFF, WMA, and other formats, on the fly, with no secondary conversion. That’s a big time saver if you’re doing, say, a VO session that would have to be converted to MP3 before uploading. File housekeeping is well done, with Sequoia automatically creating the necessary folders for storing all audio for a given project. In addition to all the output options, CDs can also be burned directly from the Track Editor.

Another very cool feature is the ability to record independent from playback. Here, recording can be started, and the user can select any point in the recorded track to listen to while the recording continues in the background. Say you’re recording a speech, and you need to pull highlights for an upcoming report. As you listen live, you can go back to what you just heard a moment ago, snip out



steep due to the overwhelming number of features. Given the cost, I can’t picture any but the busiest or most well-heeled independent producers lining up for it. But, for a network production facility, mastering house, or commercial studio looking for single feature-rich platform, Sequoia 14 is well worth considering.

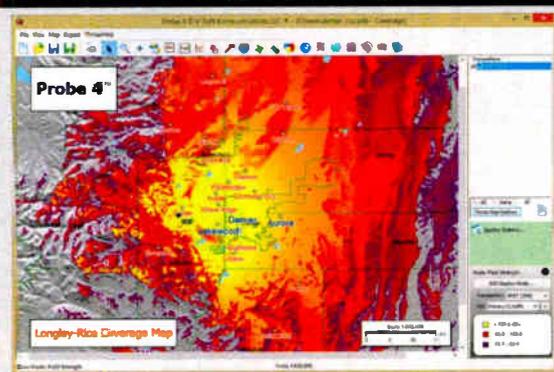
Curt Yengst, CSRE, is assistant engineer at WAWZ(FM) in Zarephath, N.J.



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Dear FCC: Please Help Us, the “Mom & Pop” Diners

The owner of Matt’s Classic Diner shares a restaurant industry fable

COMMENTARY

BY MATTHEW WESOLOWSKI

My name is Matthew Wesolowski. For the past 15 years or so, I have been the owner and general manager of “Matt’s Classic Diner,” located in Franklin City, USA.

A while back, our loyal patrons started calling it “Matt’s Class A Diner” — not sure why, but the name stuck. I’d like to think that it is because of the “Class A” service that we provide to our community, as well some neighboring towns whose residents happen to like our fare. I have always loved running the restaurant and those patrons we serve.

Franklin City is a beautiful mid-sized town with lots of other great restaurants. A few are “Mom and Pop” stand-alone joints like “Matt’s Class A,” though most here are the much larger national brands, like Alpha-bee’s and T.G.I.Heart Friday’s.

Other establishments are a little tougher to peg, like our local Cracker Barrel Store, or “CBS,” as we call it here. I often wonder if CBS is in the restaurant business or old-time country store business ... or if they even still want to own restaurants.

Either way, those in the industry here claim that Franklin City has way too many restaurants for a town of its size; but until recently, my attitude has been, “the more the merrier.”

THE CITY COUNCIL AND US

Nearly all of the restaurants cooperate well with the local government: the Franklin City Council. The FCC has taken a great interest in food service in our community lately, especially within the past year. Right now, the FCC is trying to keep Long Wave Silver’s pirate-themed restaurants from coming here. The FCC has also offered to send out groundskeeping crews to help local restaurants in our weed-whacking efforts, as some choking plants have started to take over our parking lots, making it difficult to serve the public.

Many, though not all restaurants here, are members of the Nutrition Advisory Board. The NAB will accept membership dues from any restaurant, but most times, I get the impression that companies like Alpha-bee’s and T.G.I.Heart Friday’s control most of what goes on there. For instance, there was the recent effort of the Locals Partial to Frankfurters Movement, who advocate low-cost, independent, non-profit neighborhood hot dog stands. They wanted to increase each stand’s cart capacity from 100 hot dogs to 250 hot dogs. The NAB must have thought that the LPFM group offered too little nutritional value, as their widely-supported proposal continues to languish at the FCC.

All told, Matt’s has been a great business in an even better industry, even though I’ll never get rich from restaurant ownership and the “old timers” will never (ever) stop telling me about how wonderful things “used to be” in food service.

Up until a few years ago, however, I hardly would have thought that the Franklin City Council would possibly approve a Nutrition Advisory Board initiative that

would cause so much harm to small restaurant operators, like “Matt’s Class A.”

THE FOOD TRUCK INVASION

In 2015, the NAB and FCC decided that it would be a good idea to flood the restaurant industry with thousands of new food service permits. Several years prior, a vocal band known as the Abandoned Meal-servers claimed that their outdated restaurants needed immediate help from the FCC. Most of these AMs were long-failing eating establishments, some of which had been shuttered for years (despite the tale told by their official FCC filings). It seemed as if the NAB and FCC needed to solve the problem as to why people no longer ate at the AMs’ places. The NAB and FCC came up with a plan to help the AMs: allow them to purchase and re-

chains like Alpha-bee’s and T.G.I.Heart Friday’s would only see negligible impact, as they already owned the best properties in high-traffic areas. The program seemed to be doing so well that the FCC even voted to allow AMs who were unable to purchase a food truck to just give them one.

Clearly, everyone was a winner.

SERVICE RECEPTION ISSUES

Here at Matt’s Class A, I started noticing that the Franklin City Council was allowing food trucks to park closer and closer to my small diner. Some of my fellow diner operators even had food trucks setting up shop in their parking lots! In many cases, the AMs had applied for food truck permits that plainly blocked the roads between licensed existing restaurants and their customer bases. The FCC said that many of those customers were somewhat distant anyway.



cate mobile food trucks, so long as they were for sale within 250 miles of the community. The AMs knew that the food trucks would not have the same customer capacity or site security of more traditional restaurants, but at least it could potentially revitalize their failing businesses.

The FCC did place a few restrictions upon the food truck permits, such as limiting their menus to the exact same offerings as that of the parent AM’s restaurant. In some cases, however, they would be allowed to offer a separate menu at night if the main AM’s location was closed. The AMs also agreed that their trucks would have no ability to secure a license for a permanent location or menu origination, as that was against the FCC’s long-standing food truck ordinances. Otherwise, if a city block happened to be unoccupied, it needed a food truck.

On the surface, the NAB and FCC plan was reasonable: give the AMs a chance to open up food trucks to serve the community without affecting existing eateries. The failing AMs would be revitalized with access to thousands of new potential customers. Big restaurant

Despite further cries for help to the NAB, the small restaurant owners found it almost impossible to force the trucks to move. Worse still, when one truck did move, another would often take its place.

My long-time diner patrons started complaining about the difficulty in receiving good service from Matt’s Class A, even though it was not a problem several years ago. They said that the noise impact of the food trucks made it difficult to eat here, even though our menu was better than ever. Some of my most loyal customers threatened to eat elsewhere if the poor service reception issues did not improve. Several felt it would be better to cook at home with improved steaming technologies.

When I come into work every morning, I often think that the Franklin City Council and Nutrition Advisory Board really only care about the large restaurant operators, like Alpha-bee’s and T.G.I.H. Friday’s. The FCC and NAB also give lots of attention to the AMs and their food trucks, but show virtually no support for those of us in the middle, like Matt’s Class A Diner,

(continued on page 30)

RADIO FABLE

(continued from page 29)

who get squeezed on all sides without any hope for relief.

I wonder, will the FCC ever support those of us who operate restaurants in between?

HELPING SMALL DINERS

Several years prior to the Abandoned Meal-servers revitalization initiative, another diner owner and I had a chance to meet with the (now) chairman of the Franklin City Council to explain that, although our restaurants were very small, we often had unnecessarily large

parking spaces. Locations like ours were generally able to cater to 6,000 patrons per month, but with a minor FCC policy change, Matt's Class A (and others) would be able to serve up to 12,000 customers each month.

We took the plan to the Nutrition Advisory Board, who said that they thought it was interesting, but ultimately decided to remain neutral on the nutritional merit of the plan. After all, the NAB needed to respect the wishes of Alpha-bee's and T.G.I.Heart Friday's, who had many locations already capable of serving 100,000 patrons.

After the FCC meeting, I contacted other diner owners directly. With facts

construction permits.

As of today, however, not one upgrade permit has been approved.

DEAR FCC

There are hundreds of diners just like mine that would be able to increase our customer capacity with a simple policy change. At 2016's Nutrition Advisory Board convention, the chairman of the Franklin City Council announced his intent to explore the restaurant upgrade initiative further; yet a full year later, the FCC has not acted.

Small restaurants are under assault from all sides: from large chain operators, to AMs with food trucks, to those who have stopped dining out altogether and are steaming their own meals at home (or soon in their car, when technology allows).

If not now, then when will the FCC (or NAB) ever attend to the needs of the small restaurant operator, caught in between two very powerful lobbies, who consume all of your attention? Please approve the 12,000 customer upgrade proposal now. Without it, our restaurants may not be able to stay in business much longer.

Matthew Wesolowski is owner and general manager of WYAB 103.9 FM, a Class A FM station in Pocahontas, Miss. He is joint-petitioner in FCC rule-making RM-11727, which seeks to create a new 12 kW "FM Class C4" allotment classification, as well as revise certain portions of Section 73.215. If approved, he said, several hundred FM Class A stations would be able to double their effective radiated power levels from 6,000 to 12,000 Watts.

At 2016's Nutrition Advisory Board convention, the chairman of the Franklin City Council announced his intent to explore the restaurant upgrade initiative further; yet a full year later, the FCC has not acted.

parking lots surrounding us. There was a FCC ordinance that stated that parking lots had to be big enough to ensure sufficient seating capacity for our customers, while at the same time being large enough to prevent our patrons from parking in the spaces of neighboring eateries. With that in mind, we presented a plan to the chairman to optimize the relationship between restaurant size and the amount of required parking spaces.

Our research studies showed that many diners could double our restaurant size without the need for additional

in hand, I let those owners know if their restaurants could expand and invited them to sign a petition to the FCC indicating their support of the proposal.

All in all, 146 owners representing 655 total restaurants signed the petition. The proposal even had support of several AMs and many in the Locals Partial to Frankfurters Movement. With overwhelming enthusiasm from others in a similar position to "Matt's Class A," I expected 12,000-customer capacity restaurant expansion to take place sooner than later, with the FCC issuing lots of

READER'S FORUM

CAR RECEIVER QUALITY, OR LACK THEREOF

As a broadcast engineer who has worked in radio and television for over 50 years, I have noticed lately that it seems the automobile manufacturers are trying very hard to eliminate broadcast radio.

The automobile manufacturers were one of the prime movers who squashed stereo AM, now they have their eyes set on the entire industry. Why? Simply because they no longer provide antennas on automobiles satisfactory for off air FM or AM reception. They are geared for satellite radio, and if the 2-inch antenna they provide receives any FM, and miraculously any AM, well, then you are in luck.

I work in the upper Midwest, where we have lots of 100 kW FM blasters and with a ground conductivity of 15 or better a lot of good AM stations. The 100 kW FMs usually get a reasonable signal out to 80-100 miles, and even the small AMs on 1400 or so can be listened to 60-70 miles away without any problem.

I drive around in a 2003 Dodge pickup (small-market radio guys never have a vehicle from the decade in which we are living) with a stock radio cassette player and all. This radio has no problem hearing stations out to the limits I mention above, plus the AM side is fairly wide, I would have to guess the audio is good up to at least 8 kHz.

Recently, we replaced a defective antenna on one of our 100 kW FM facilities. Since the old antenna was bad and only using six bays of its 12 and running 10 kW instead of 20 out of the transmitter, it was expected that a return to a full 100 kW ERP would make a noticeable improvement especially in close proximity.

Well, after the project was completed, the station PD, anxious to learn how it sounded, went out in his relatively new GM automobile. He came back to tell me that he lost the signal about 20 miles from the station and wasn't very impressed. I went out to the same area with the old Dodge, and it was loud and clear as I continued to drive to a point about 90 miles away. We tried with several other new cars and had similar results.

Then I happened to see this little "pod" on the roof and realized this was the only antenna, great for 2 GHz but not so hot for FM, not to mention AM. The automobile manufacturers have effectively reduced our 100 kW stations to a 3 kW and the 6 kW's down to LPFMs.

As an aside, I did go out to the location where the PD's radio lost the signal with the trusty old FIM71 and at 6 feet above ground, had a field reading of just about 4 millivolts.

I think we have to express displeasure with the automakers on their decision. With internet options now available in automobiles, I suspect satellite radio will be the first unnecessary expense in operating a vehicle. Broadcast radio is free and local. Since it will be here for a while, let's make the automobile companies use radios as the station contours predict.

*Ron Schacht
Engineering consultant
Kensett, Iowa*

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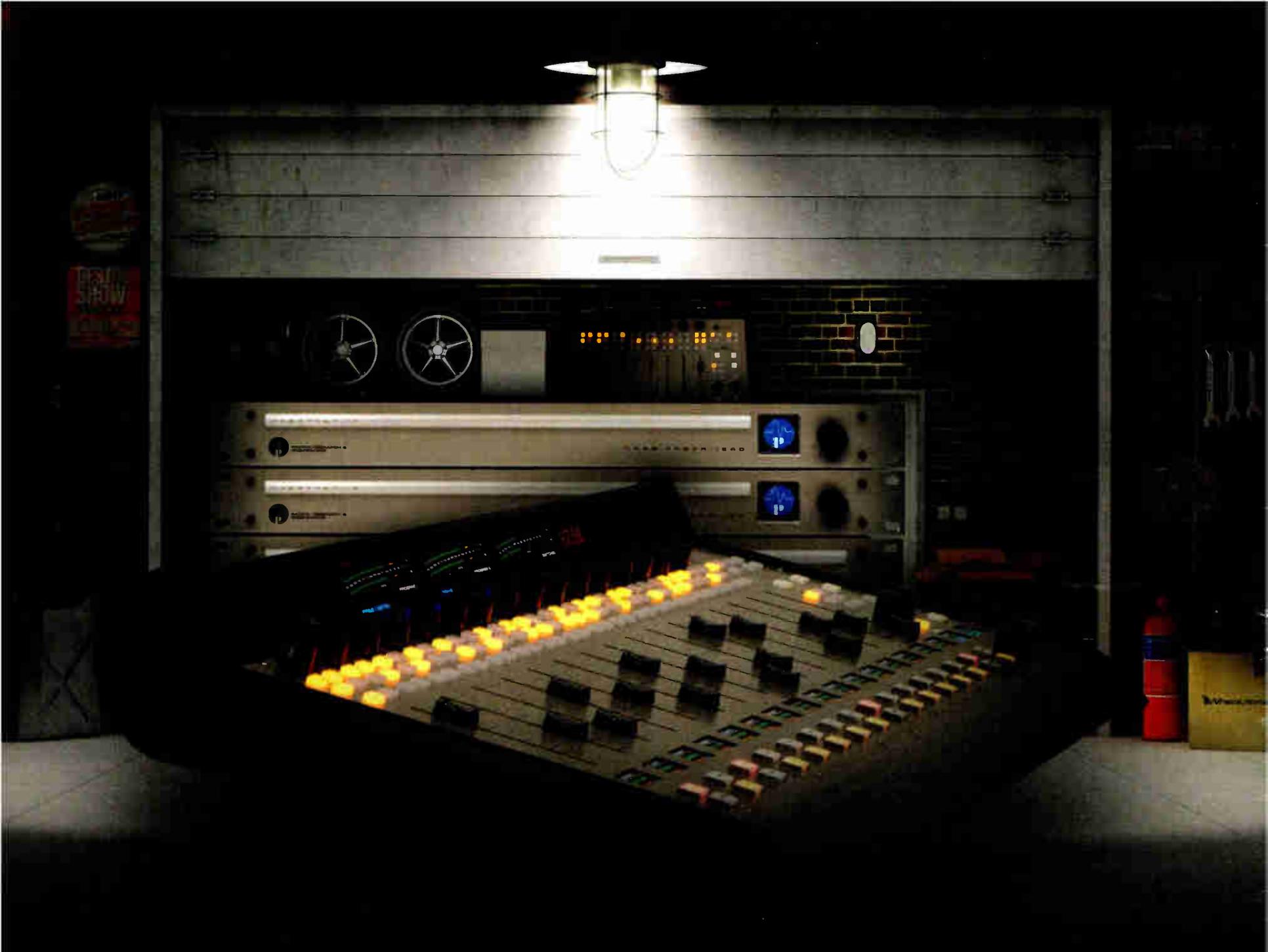


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