



# RADIOWORLD

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## Jeff Littlejohn Stands Astride CCM&E Platforms

Engineering exec is recipient of NAB technical achievement award

### NEWSMAKER

BY RANDY J. STINE

**CINCINNATI** — Jeff Littlejohn recently purchased a new carbon frame bicycle. His challenge will be finding time to ride it.

Like most broadcast engineers, Littlejohn is rarely off the clock. Still, the Fuji Gran Fondo road bike will be ready to rack

up the miles if he can squeeze in recreation time during a busy summer of projects at Clear Channel Radio.

Littlejohn, 48, is the recipient of the NAB Radio Engineering Achievement Award for 2014, which recognizes people who have made significant contributions to broadcast engineering. Robert Seidel of CBS was chosen for the TV Engineering Achievement Award.



Littlejohn is a big presence in the industry, both literally at 6-foot 6, and professionally. He is executive vice

president of engineering and systems integration for Clear Channel Media and Entertainment, where he focuses on developing technical improvements for analog AM, FM and HD Radio, as well as establishing systems for moving content across multiple platforms for the nation's biggest radio broadcaster.

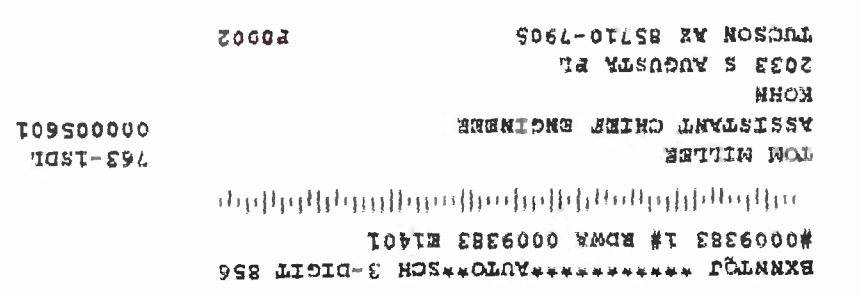
He oversees all technical aspects of the radio division, which includes 400 engineers within its engineering management structure. Five senior vice presidents of engineering report to him. "Each SVP handles a region of the country with responsibility for about 100 to 150 stations each. I have several other managers who oversee individual

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# The Spring Show in Focus

A sampling of the 2014 NAB Show as seen through the viewfinder by Radio World's photographers. **INSIDE!**

Photo by Jim Beck



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# Your Radio Is an App

Radio's "face" is changing, thanks to the Internet and smartphones

## COMMENTARY

BY SHANE TOVEN

Radio is changing. The way listeners consume media (including radio) is transforming as well. This is not news to anyone who has been watching the industry for the past five or 10 years, but these changes are starting to reach into areas we might not have expected.

For a number of years, AM radio was king. Listeners turned to the local AM radio station for news, entertainment and a connection to the personalities at the station as well as their local community.

Next, FM radio came into the marketplace. Initially there was not much interest in the technology and receiver adoption was slow. Eventually FM radio became standard and more music formats shifted to FM as AM stations slowly shifted to news and talk.

While listening to radio continues to be a big part of media consumption, an increasing number of options have become available, allowing listeners to create their own individual media environments. Early options included cassettes, then CDs and MP3s. Technology improved to the point where listeners could take their content with them anywhere.

All of these technologies required the listener to actively construct a playlist from their content. Radio, on the other hand, is a continuous stream of content that the listener does not really have to work to construct.

This changed when subscription services like satellite radio entered the picture. Suddenly the listener was able to choose from dozens of program streams

with music and talk content tailored to a specific theme, genre or topic. These program streams were available anywhere the listener had a satellite radio and a clear view of the sky.

### GAME CHANGER

Internet audio streams had been available for quite some



Remember these?



Images courtesy of Shane Toven

locations for content consumption. It is in this environment that we are seeing the biggest changes and will likely have new opportunities to engage with listeners.

Historically, technologies that were first only available in the home then found their way into the car. The adoption of media technologies in the car has closely mirrored the availability of those technologies in other portable environments. Car radios initially had only AM, then AM/FM, followed by AM/FM/cassette and AM/FM/cassette/CD. Some of these CD players even read discs with MP3 files burned on them.

After this progression of changes in the car dashboard, manufacturers started to add a small but key feature: the Auxiliary audio input. This simple feature gave consumers a universal way to bring their smartphone audio into the car without resorting to less-than-ideal methods such as RF modulators,

cassette adaptors or burning MP3 files to disc.

time by this point, but listening to them required that the user be near a computer.

Fast-forward to the present, when smartphones are everywhere. With smartphones came high-speed wireless data and apps that allow users to have an unlimited selection of on-demand streaming content at their fingertips, either customized by the listener or "curated" by content providers.

Some of the first apps simply streamed the audio from individual radio stations and Internet broadcasters. Other apps such as TuneIn and iHeartRadio aggregate streams from a number of broadcasters. The biggest change came with services like Pandora, Spotify and Rdio that allow users to tailor their own "stations" based on their personal musical tastes.

### CAR "RADIO"

For the most part, the car radio has remained largely unchanged over the years: two knobs, a few buttons and a small display. Media sources have been added and some are now starting to go away. Cassette decks in new cars are all but gone; CD slots are starting to follow.

A number of new cars on the market have replaced the traditional user interface with LCD touchscreens that incorporate everything from the car's entertainment system to climate controls and other vehicle preferences. There may still be dedicated buttons and knobs for some of these functions, but I suspect there will be fewer of these going forward.

These new "infotainment" systems

(continued on page 5)

## IN THE DASH

This is one in a series of articles about radio's role and future in the evolving automobile dashboard. To read other articles, visit <http://radioworld.com/dashboard>.



# “Radio at the Digital Tipping Point”

Core radio listeners are moving fast to digital media and gadgetry

BY FRED AND PAUL JACOBS

The authors are the president and general manager, respectively, of Jacobs Media.

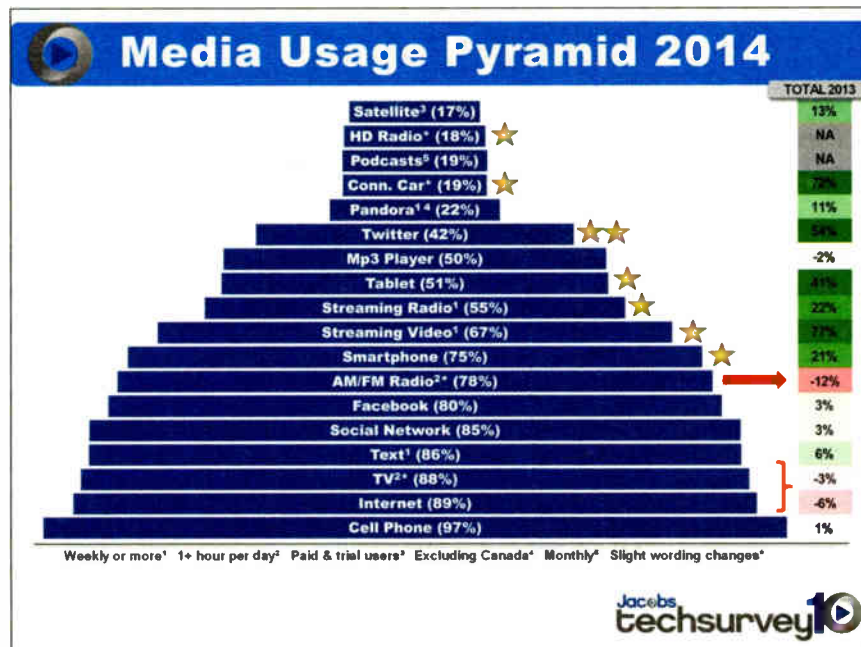
In Jacobs Media’s new study of core radio listeners, the impact of digitally delivered media continues its rise, providing both opportunity and challenges to traditional radio broadcasters.

The media habits of 11 different format core audiences, along with five generations, are examined in this mega-survey of radio listeners. From Boomers to Millennials, different patterns of consumption emerge.

And as Fred Jacobs points out, “We learned a lot about how digital’s growth is changing media habits, but by studying the movement of younger listeners — Generations Y and Z — we gain an even greater understanding of where the puck is headed.”

Here are some of the key findings from Techsurvey10:

**Core radio listeners are moving fast to digital media and gadgetry —**



TS10 now shows that three-fourths (75 percent) own a smartphone, while more than half (51 percent) carry a tablet. And now more than half (55 percent) stream audio at least weekly, while two-thirds (67 percent) access online video dur-

ing a typical 7-day period.

**Radio is on both sides of the digital tipping point** — While 95 percent still tune in daily, fewer respondents listen for a minimum of an hour on a typical

## FROM THE EDITOR



An annual spring highlight is Jacobs Media’s Techsurvey, now in its 10th year. I find the research useful, and I share a summary here. Jacobs Media is a media research and consulting firm; it explored media habits among 37,000 core radio listeners to 199 stations in the U.S. and Canada, covering 11 radio formats. Responses were collected in January. While this web survey does not represent all radio listening nor each station’s full audience, Jacobs’ conclusions are insightful. — Paul

day. And perceptually, radio listening has momentum. Compared to a year ago, only 9 percent say they’re listening to less radio, compared to nine in 10 who say they’re listening to the same amount of radio — or more.

And many respondents are now actively accessing station content on digital channels. When asked to recall their prior week’s listening to the station that sent them the survey, 17 percent of all broadcast radio consumption is occurring.

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DASHBOARD

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brought additional features, such as USB ports and Bluetooth. This allowed the smartphone to further integrate with the car, including features like hands-free calling and control of the media library on the device. The system can now display things like title, artist and album art from the device as well. Very few in-car systems do not have these integration features as standard now.

Not only can these new systems connect to smartphones, many of them are connected to the Internet, either via an onboard cellular modem or through the smartphone's data connection. This connection can be used for everything from delivering content to software updates and diagnostics. Systems such as GM's "OnStar" have connected drivers via cellular links for quite some time, but the capabilities have continued to become more advanced.

All major vehicle manufacturers are moving in this direction. This connectivity isn't the future — it's here.

"APPS" NOW IN-CAR

Adding an Auxiliary input allowed consumers to bring audio from their favorite apps into the car, but the smartphone itself has still been the primary user interface for those apps. The newest generation of infotainment systems allows these apps to be integrated into the system's interface.

Pandora and other apps can now be directly accessed from the infotainment system. Suddenly the car's interface has truly become an extension of the smartphone and the apps on the smartphone. This trend will continue as the systems become less driven by dedicated hardware and more software-based.

With the rich metadata available from other media sources, broadcasters need to ensure they are providing the same level of user experience. Broadcast radio is one of the few remaining sources that do not provide title, artist and album art by default. Listeners have come to rely on this data as part of the overall experience.

RBDS can provide text data for analog FM broadcast, but HD Radio ultimately is the path, in my view, to providing the fullest user experience with features such as album art. HD Radio is now standard on an increasing number

of infotainment systems.

For quite some time, there has been a shift from being "broadcasters" to "content providers" — and the actual delivery platform, whether it is via broadcast or Internet, radio or smartphone, becomes irrelevant.

Many broadcasters have strayed from their long-time mission of providing local and relevant content. This is evident by the FCC's initiatives directed at ensuring localism. If a listener can get the same music or content a station is playing elsewhere, the only reason the



GM MyLink

Apps can be added via software updates  
 Vehicle uses internal cellular modem



Chrysler uConnect

Integrates with smartphones for connectivity

Images courtesy of Shane Toven

With so many content options now available, how do broadcasters ensure they maintain a place in the car? Listeners are going to seek out the content they want to hear, regardless of where it comes from. It's all about the content. Listeners are their own best program director.

individual would choose radio is content that he or she can't get anywhere else — that "connection" that I mentioned at the beginning of this article. Simply airing 24/7 automated satellite feeds from syndicators isn't going to cut it.

Keep it local. Keep it relevant.

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## TECHSURVEY10

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ring on digital channels — via computer and mobile streams, as well as on other sources. The younger the generation, the more reliance there is on digital platforms to enjoy broadcast radio.

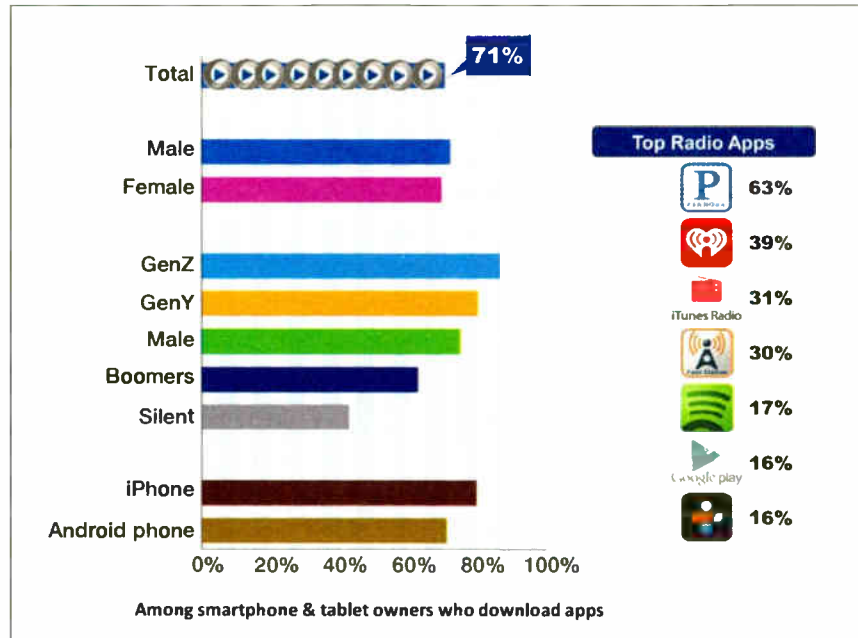
**Pandora is experiencing its own tipping point** — And it centers around its commercial load. While still the most popular of the pure-plays by a wide margin, criticisms of Pandora continue to intensify, led by perceptions that its commercials are annoying. And while Gen Y and Z consumers are the top generations for Pandora listening, they are also the most critical of its commercials.

**The “connected car” movement continues** — Now nearly one-fifth (19 percent) of respondents say their vehicle (or the one they ride in most often) sports a system like Audi Connect or Ford Sync. Similar to last year, half (50 percent) say the lion’s share of their radio listening takes place in cars, especially progressively younger consumers.

**Facebook wins the “cume” and “TSL” awards** — Of those with a social profile, 95 percent are on Facebook. And of those, nearly three-fourths (73 percent) visit at least daily making Facebook’s “regularity” nearly five times greater than the nearest social network. But it is not all rosy for Mark Zuckerberg’s baby, as Generation Z indicates their Facebook engagement is waning and being replaced by more time spent on Twitter, Instagram and Snapchat.

**The digital tipping point impacts wake-up patterns** — Nearly as many consumers are roused every day by their phones as clock radios. And the pattern is generational — a majority of Boomers still get out of the bed to buzzers or radio that emanate from clock radios, while at least six in 10 Millennials (67 percent) and Gen Z (60 percent) participants use their phones to wake up.

**Via sharing, stations with great content can accelerate the digital tipping point** — In this year’s study, the percentage of those who frequently share online content via social, web and email sources has doubled. Now more than



**Radio apps are popular among smartphone and tablet owners, led by Pandora and iHeart Radio.**

one-third (34 percent) say they frequently share compelling content, a huge opportunity for great stations and personalities. Women and Millennials are most apt to profile as “serial sharers.”

**Acknowledgment begets more brand consumption** — Three in 10 (30 percent) respondents indicate they listen more to stations that interact with them, especially women and members of both Generations Y and Z.

**The digital tipping point impacts streaming registration** — Radio has an opportunity to collect much-needed usage data, as more than seven of 10 (72 percent) “streamies” say they’d be willing to provide basic information in exchange for accessing station streams.

**But new music discovery has not reached the tipping point** — A majority (51 percent) of those interested in new music designate radio as their go-to source. While Gen Z respondents are also choosing YouTube and Pandora to find out about new music and new artists, broadcast radio also leads in the areas of artist access and listener trust when it comes to music consumption.

*Key takeaways:*

**Radio now competes with everyone.** It is essential for broadcasters to view the competitive landscape beyond other stations down the dial. Radio has a myriad of digital competitors, forcing the industry to develop effective strategies.

**Stop doing random acts of digital.** Radio can’t just show up in new digital spaces, but needs to excel there. Broadcasters need mobile engagement, a competitive stream, and to stop treating social media as a hobby.

**Radio doesn’t have a digital problem — it has a measurement problem.** It is essential that ratings account for all the different ways that consumers are accessing radio content.

**Every person counts.** Broadcasters need to commit to a policy of social acknowledgment in order to reap the benefits of fan engagement.

**Radio needs to go to school on cars.** Techsurvey10 reaffirms the importance of the automotive industry to radio. And as more vehicles become truly “connected,” competition for the ears and attention spans of drivers will only intensify.

**Radio needs to address the challenges and opportunities presented by young consumers.** TS10 offers several avenues and touch points that connect radio brands to this audience. But their media habits — from waking up in the morning to headphone usage — run counter to traditional behavior.

**The music industry ignores radio at its own peril.** Radio is a powerful force when it comes to new music discovery and artist exposure and promotion. It dominates all other media, and emerges as a trusted source for music consumers.

*A slide deck is available at [www.jacobsmmedia.com/ts10\\_key\\_slides.pdf](http://www.jacobsmmedia.com/ts10_key_slides.pdf).*

*Comment on this or any story. Write to [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com).*

## WELL DONE, MARTY AND TEAM

Radio World presented NPR’s Marty Garrison with its Radio World Excellence in Engineering Award recently. Recipients represent the highest ideals of the U.S. radio broadcast engineering profession and reflect those ideals through contributions to the industry. His selection had been announced late last year.

Garrison is vice president of technology operations, distribution and broadcast engineering for NPR. He also supervised the move of NPR’s technical operations last year to the organization’s new headquarters in the NoMa neighborhood of Washington, D.C., including its new 55,000-square-foot newsroom, new studios and technology and distribution centers that support programs such as “All Things Considered” and “Morning Edition.”

Standing on a walkway bridge above the newsroom, from left, are Radio World Publisher John Casey; NPR Acting President/CEO Paul G. Haaga Jr.; award recipient Marty Garrison; and Radio World Editor in Chief Paul McLane.



Photo by Bob Kovacs





Journalist: Maria Carrasco

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World Radio History

## LITTLEJOHN

(continued from page 1)

functionality, including one who oversees an emergency operations center.”

With an associate's degree in electronics and a bachelor's in automated manufacturing, both from ITT Technical Institute, he manages the big company's maintenance capital budget and reports to Chief Financial Officer Steve Macri.

Clear Channel Media and Entertainment's stations and content are heard on AM/FM, HD Radio, satellite radio and on the Internet.

Littlejohn began his career in at WAJI(FM), Ft. Wayne, Ind., as an assistant engineer. Later, he joined contract engineering firm Broadcast Circuit Systems, where he was mentored by Jack Didier and Jeff Goode.



**Jeff Littlejohn in Clear Channel's Emergency Operations Center in Cincinnati. On the monitor behind him is the tally board for the broadcaster's nationwide EAS monitoring system, called EAS Watch.**

The engineer also spent some time with Beasley in Chicago; he chuckles a bit and says he has worked for a lot of group owners over 20-plus years, yet hasn't had to leave his home base in southern Ohio.

### TELECOM ACT

Littlejohn started his career in 1992 with American Media, which became Chancellor Broadcasting, at WUBE (AM/FM) in the Queen City. But his career ascent really began after the Telecom Act of 1996 relaxed strict radio ownership rules and broadcasters flew into acquisition mode, he said.

“Turned out Chancellor was very active in acquisitions. We were doing a lot of due diligence work right away after the ownership rules were relaxed. It was great experience.”

Chancellor eventually merged with

Evergreen Media, which then purchased Capstar, which was then renamed AM/FM Inc. and eventually acquired by Clear Channel. “I've been with Clear Channel since 2000, but I haven't really looked for a job since 1992.”

In its award biography, NAB states that Littlejohn has been at the forefront of numerous digital radio breakthroughs at Clear Channel. He has led the company's efforts in data services, including the Total Traffic & Weather Network and HD Radio iTunes song tagging, which allows consumers to tag and purchase songs on HD Radio.

The group's Total Traffic & Weather Network provides information through FM sidebands on traffic, weather, news, sports and fuel prices, which are collected from probe data, traffic cameras, mobile reporters and speed sensors,

over HD Radio and Web services.”

Clear Channel has slowed its pace of HD Radio conversion since the vast majority of its major market stations are finished, he said. The broadcaster has converted more than 500 analog FMs out of the company's total 848 stations. Most of the HD Radio conversions are in the top 100 markets; Clear Channel has also created some 400 multicast stations. “We are taking a wait-and-see on the smaller market stations for HD conversion, he said, noting the return on investment “is harder to make sense of at the smaller-market stations.”

Littlejohn sits on the board of HD Radio developer iBiquity Digital Corp. and is optimistic about what he believes are the expanding opportunities that data over HD Radio presents stations.

For instance, car radios using The Artist Experience are becoming more commonplace, according to the engineering executive. “I really like the whole album art over radio. From a consumer's standpoint, it really adds to the experience. You have a connection to the artist.”

### CONSUMER/MOBILE

Technology changes so fast, Littlejohn said that he and his staff must keep their eyes open to see where consumers are moving next.

“The mobile phone has become the place for consumers to go to. That's why we are engaged on the FM-in-cellphone movement. Clear Channel has put in a ton of work with the iHeartRadio mobile app. The mobilization of the consumer is a trend that has started and is certainly not slowing.”

Radio's technical future will keep evolving, Littlejohn said, as consumers decide how they want content delivered. Distribution platforms will keep advancing. “All of it is driven by technology. Our job is figuring it all out. I'm, fortunately, working for a company that wants to be on the leading edge of it.”

As that technology evolves, the ability to stay up to date on how technology is advancing becomes crucial for radio engineers, Littlejohn said, as is finding new engineering talent. “A major worry for me is the lack of new people coming into the radio engineering industry.”

Littlejohn was a key figure in the establishment of Clear Channel's Engineering Co-Op Program in 2011. The two-year program includes college students, typically electrical engineering majors, who work two three-month stints, Littlejohn said.

“This is really a strategic investment in the future of radio for us. We have placed several of these students in full-time engineering jobs with us,” he said.

Meanwhile, he has led the company's

(continued on page 10)

## HONOR ROLL

Past winners of the NAB Engineering Achievement Award are listed. Beginning in 1991, radio and TV winners were named; radio winners are shown.

1959 John T. Wilner  
1960 T.A.M. Craven  
1961 Raymond F. Guy  
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1989 William Connolly

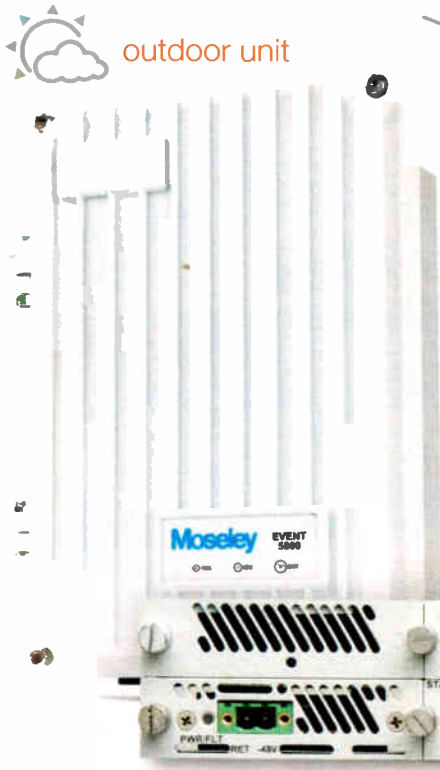
1990 Hilmer Swanson  
1991 George Marti  
1992 Edward Edison &  
Robert L. Hammett  
1993 Robert M. Silliman  
1994 Charles T. Morgan  
1995 Robert Orban  
1996 Ogden Prestholdt  
1997 George Jacobs  
1998 John Battison  
1999 Geoffrey Mendenhall

2000 Michael Dorrough  
2001 Arno Meyer  
2002 Paul Schafer  
2003 John W. Reiser  
2004 E. Glynn Walden  
2005 Milford Smith  
2006 Benjamin Dawson &  
Ronald Rackley  
2007 Louis A. King  
2008 Thomas B. Silliman  
2009 Jack Sellmeyer

2010 Steve Church  
2011 L. Robert du Treil  
2012 Paul Brenner  
2013 Frank Foti  
2014 Jeff Littlejohn



# HIGH CAPACITY EVENT STUDIO TRANSMITTER LINKS



outdoor unit



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indoor unit



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**LITTLEJOHN**

(continued from page 8)

Market Engineering Manager Development Program — “MEM-Dev” —from its infancy. MEM-Dev is a structured two-year program that’s open to Clear Channel employees, typically people in assistant technical positions.

“We test them and develop a custom program for each one to gain the skill set they need to succeed as market engineering managers. We give them a chance to work hands-on in front of a variety of equipment. Take them out on building projects and antenna re-tunes. Then we place them as market engineering managers.” Littlejohn said. “It gives us a chance to groom good candidates for more responsibility.”

And how does this engineering executive typically spend his work time? Littlejohn travels on business 80 to 100 days a year; he spends much of the time in his Cincinnati office coordinating Clear Channel projects across the company. “With a company this size, good communication among the technical people is crucial. I constantly get updates on projects and revise plans as we run into roadblocks.”

He also spends a great amount of time on “problem solving” and figuring out how to provide new capabilities for sales or programming. “There is lots of variety with my job. I might be working on traffic systems one day and then on a project for the iHeartRadio music festival the next,” he said.

New FM translator projects will be the focus

of his summer schedule. “We acquired a lot of translators from the 2003 window, so we are building out a lot of those. We are putting some HD Radio channels on [the new translators]. In many cases, we are transmitting an AM station on the new FM translator.”

Littlejohn cites among his career highlights working with the likes of engineering consultants Ben Dawson, Jim Hatfield and Ron Rackley. He also lists Telos Alliance CEO Frank Foti, the 2013 NAB Engineering Achievement Award winner, as another of the iconic names he’s had the privilege to work with.

“It’s fun and challenging every day. I’m very proud to be a broadcast engineer. It is really a great career,” Littlejohn said.

As for that new Fuji bike, Littlejohn hopes to get in “one or two big rides” of 100 miles each by the end of summer.

Littlejohn is on the National Radio Systems Committee and received Radio World’s Excellence in Engineering Award in 2008. He lives in downtown Cincinnati, and has a grown daughter and a 9-year-old son.

Littlejohn received Radio World’s Excellence in Engineering Award in 2008.



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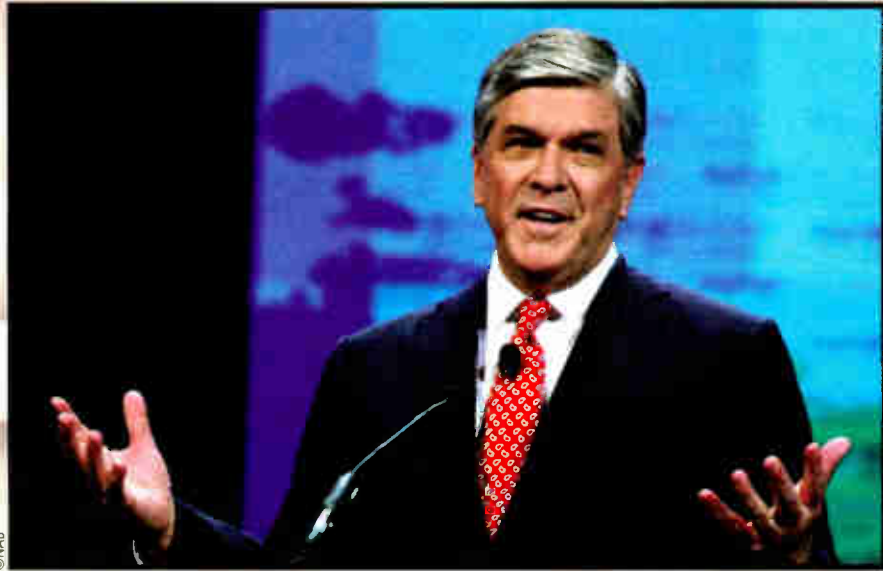


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# 2014 NAB SHOW IN PICTURES

NAB President and CEO Gordon Smith said that over five years, the federal government has had "an increasingly singular focus" on broadband. He asked: "Why doesn't the FCC have a National Broadcast Plan?"



©NAB



Photo by Kovacs/Dawley

NPR Labs Director Rich Rarey, right, talks with host Carrie Ferenac on the program "NAB Show Live," which built a production facility in a convention lobby. Rarey discussed the NPR Labs accessible alerting project and brought a Nipper One receiver, display and test transmitter to show how that system works.

Jay Tyler, at left in photo at right, discusses the Wheatstone LX-24 control surface with Kent Kramer and John Soller of Radio One. Estimated attendance was up 4 percent to 98,015. NAB said exhibit space was up about 7 percent and that 1,746 companies showed gear. Radio/audio booths will be laid out in a new configuration in Central Hall next year.



Photo by Kovacs/Dawley



Photo by Kovacs/Dawley

Tim Bealor has some fun with the display in the Broadcast Electronics booth. Bealor, who joined BE as a technician in 1975, was named its president in December.

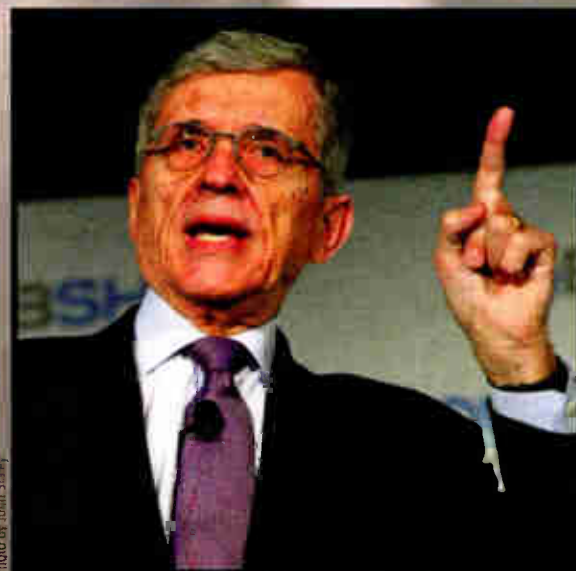


Photo by John Staley

New FCC Chairman Tom Wheeler speaks at the NAB Show. In a conversation onstage, NAB's Gordon Smith queried the chairman about FM chips in cellphones and whether the commission might require their activation. "One of the things we have to look at is public safety," Wheeler replied. "I'm trying to come up to speed with the issues you brought up today."



**NEWSROUNDUP**

**STREAMING RADIO:** Interactive audio advertising service XAPPmedia has launched XAPP Ads, with voice-activated streaming radio ads. Intended for a mobile audience, the company says the ads are "hands-free and eyes-free" as well. NPR is the first broadcaster to implement XAPP Ads into its mobile app with Lumber Liquidators as its launch sponsor. Calls to action can be embedded into the ad, like "call now," "send email," "download app" or "send coupon."

**EAS:** The FCC's Public Safety and Homeland Security Bureau wants to "refresh" its record on multi-lingual EAS and is opening the issue for a third time. In 2005, the Minority Media and Telecommunications Council petitioned the agency to change its alerting rules to ensure that people who don't speak English as their primary language have access to the same EAS alerts from state, local and national sources as those who do. Since then, EAS has undergone numerous technological and regulatory changes, including the 2007 mandated conversion to Common Alerting Protocol-EAS message delivery. "Such a plan could be modeled after the current EAS structure that could include a 'designated hitter' approach to identify which stations would step in to broadcast multilingual information if the original non-English speaking station was knocked off-air in the wake of a disaster," according to MMTC, which was joined on the petition by the Independent Spanish Broadcasters Association and the Office of Communications of the United Church of Christ. Comments are due to EB Docket 04-296 by April 28 and replies by May 12.



**Andy Laird**

**JOURNAL:** Journal Broadcast Group has named Brian McHale the company's new vice president and chief technology officer. He succeeds Andy Laird, who plans to retire later this year after more than 15 years in the role. The Milwaukee-based Journal owns 13 television stations and 35 radio stations. McHale will report jointly to Debbie Turner, executive vice president of television, and Steve Wexler, executive vice president of radio. He joins Journal from Fisher Communications, where he was vice president of technology for three years. Prior to Fisher, McHale was chief technologist at Mobile500 Alliance, a group created to promote mobile DTV.

Laird began his broadcast engineering career at KWGN(TV), Denver, as a staff engineer in 1966. He became chief engineer at KLAK(FM) in 1967 and later at KDAY(AM), Santa Monica, Calif. Before coming to Journal in 1998, he was vice president of radio engineering for Heritage Media.

**OWNERSHIP:** The FCC placed restrictions on joint sales agreements for television. New Chairman Tom Wheeler wanted to pattern television JSAs

on those of radio, making it harder for one company to control two or more TV stations in the same market by using a single advertising sales staff. The new rule mandates that if one station sells 15 percent or more of advertising time of a competing station's, then that ownership stake is "attributable" and "counts" under the media ownership rules — just like radio. The vote was 3-2 along party lines. Wheeler has argued that joint sales agreements have been used by larger broadcast companies to circumvent limits of owning more than one station in local

markets and should be seen as possible violations of the media ownership rules. In a scathing dissension, Commissioner Ajit Pai took the commission to task for not first acting on the 2010 iteration of the media ownership quadrennial review; the 2010 is being rolled into the review launched in late March and action is not expected until mid-2016 at the earliest. NAB wanted the FCC first to relax cross-ownership bans and called the decision to focus on TV JSA's "arbitrary and capricious." In the meantime, current radio ownership rules remain in place.

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# Make a Good Adaptor Even Better

Also: This nifty impedance calculator can simplify a wiring project

## WORKBENCH

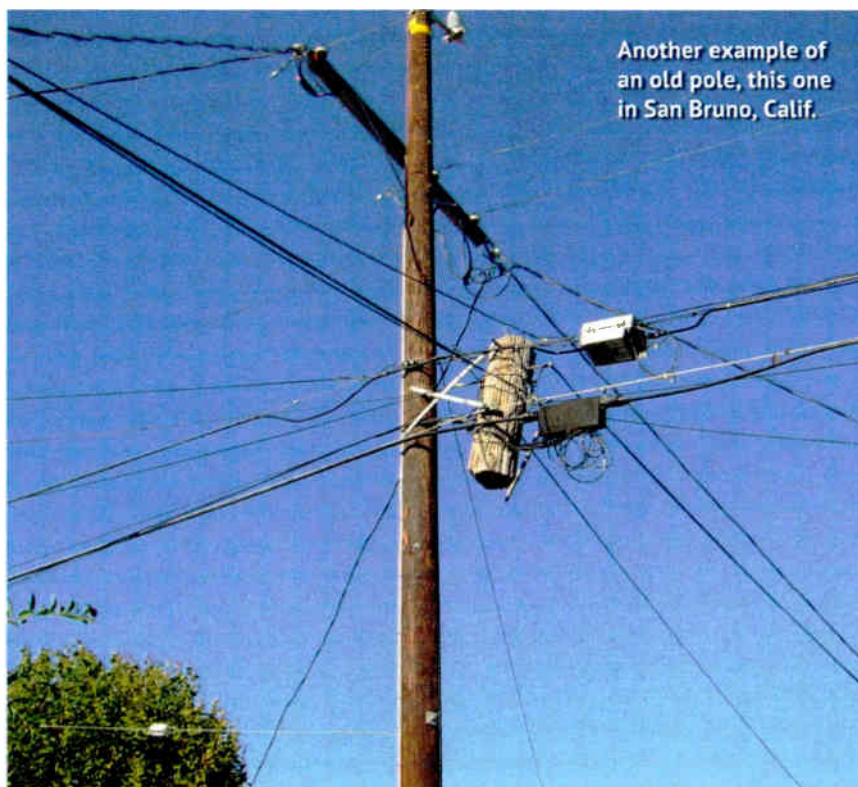
by John Bisset

Read more Workbench articles online at [radioworld.com](http://radioworld.com)

In our March 5 column, Buc Fitch wrote about a simple adaptor that every engineer needs. It's a simple "H" pad that matches 150-ohm mike level to a 600 ohm line level. Longtime equipment manufacturer Harold Hallikainen ([www.hallikainen.com](http://www.hallikainen.com)) comments that, although the pad provides a differential gain of -55 dB, its common mode gain is 0 dB. This means the common mode rejection ratio of the input will be 55 dB worse than it was. If the shunt resistor were split, with the center grounded, the common mode and differential mode gains would be the same, maintaining the input CMRR.

Thanks, Harold, for making a good adaptor even better. Harold Hallikainen can be reached at [Harold@hallikainen.com](mailto:Harold@hallikainen.com).

Broadcast engineer Paul Sagi sends in a useful site: [www.mantaro.com/resources/impedance\\_calculator.htm](http://www.mantaro.com/resources/impedance_calculator.htm). It's a selection of impedance calculators that Mantaro engineers use and freely share. Paul used the twisted pair calculator to calculate impedance for some new UTP cable he used to replace the telephone wiring of his ADSL Internet



Another example of an old pole, this one in San Bruno, Calif.

service. Now the SNR margin is better by 5 to 6 dB with the new cable.

There are calculators for both straight wire and strap, and the calculations make it easy to see why strap is good for high frequency and impulse currents. It's neater than paralleling many

round conductors, although Paul has added some round conductors to fool and satisfy copper thieves, putting the round wires above the strap. You can also use many round wires instead of strap, with the loss of a few to theft not having much effect.

Paul Sagi writes from Kuala Lumpur and can be reached at [psagi92@gmail.com](mailto:psagi92@gmail.com).

It's not just in the wilds of Montana that sections of wooden phone pole are left hanging until the cables can be transferred! Dane E. Ericksen, P.E., is a consultant to Hammett & Edison in Sonoma, Calif. Dane just read the April 9 issue of *Workbench*, and saw Greg Muir's "old pole" pictures. They reminded him of a similar replacement pole that was at a friend's house in San Bruno, Calif.

Seen in the image at left, it was this way for about six months. The "air pole" made Dane real nervous when the only available parking spot put his car directly below.

Dane E. Ericksen can be reached at [dericksen@h-e.com](mailto:dericksen@h-e.com).

Hal Schardin shares a Pubtech list-serv post written by Dave Barnett, who is constructing a building and learned some things about electronic ballasts for fluorescent lights.

His station monitors an EAS signal that is already pretty weak; any added electronic noise in the facility would be a concern. For standard four-foot light tube applications, Dave tried Philips ballasts that had been specified by the contractor, but found them to be noisy. A single light would render his test radio useless for picking up the EAS primary within 20 feet of the ballast — and plans called for about 30 of these lights in the building.

Dave then tested a similar type of light that uses a GTE Sylvania ballast. By comparison, the radio worked quite well beyond about three feet from the light. He went with that model.

Talking to the light supplier, Dave learned that common fluorescent products use a half-dozen ballast models interchangeably. It's wise to be aware and try various models.

Dave also tested a dimmable recessed can fluorescent. It produced interference somewhere between the levels generated by the Philips and GTE ballasts for four-foot tubes.

He further tested an LED retrofit for recessed cans, made by Sylvania. It caused no interference even when the radio's antenna was held up to the light. It fades nicely on a dimmer and is brighter than the incandescent version it replaces. It cost \$25; so he has what he needs for the recessed lights.

Another LED-based fixture, made by Lithonia Lighting, replaces a two-tube fluorescent. It looked acceptable and the light was nice and dispersed, so

(continued on page 19)



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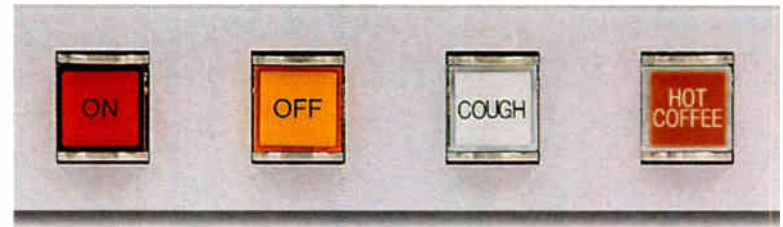
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## E-6 Gets Facelift

**Fresh for 2014, the E-6 has gotten a brand new look**

With the LX-24, L-12 and L-8 sporting black and charcoal looks, we thought it time to revisit the E-6 - the console that launched the whole networking thing. Now it looks right at home in the Wheatstone lineup.

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# EKKO Stamps Recall "The Miracle"

Verified reception stamps helped early broadcasters connect with audiences



## ROOTS OF RADIO

BY PHILIP MULIVOR

If you had lived in the early 1920s, you probably would have known at least one family who sold their icebox or other household essential to raise money

for a wireless set. Radio was miraculous and intoxicating, and people rushed to be among the first to experience the impossible.

Ironically, early broadcasters had little idea who, if anyone, was listening to their stations. The first AM broadcasters believed (correctly) that their nighttime signals reached huge tracts of the country and enveloped a quasi-national audience. But without Nielsen Audio

or Facebook, stations could rely only on the occasional postal letter to gauge their far-flung listenership.

To help broadcasters understand their audiences and attract sponsors, the EKKO Company of Chicago whipped up a clever gimmick in 1924. They imprinted colorful stamps with call signs and sold them to the respective broadcasters; at the same time, they sold stamp albums to the public. The albums included a place for each station's stamp and offered simple instructions for submitting reception reports. When a station received a report from a listener, it would return an attractive EKKO stamp, which the listener would mount in his official album.

The result was twofold: The first broadcast-band QSLs were born, and, as the EKKO stamp fad caught on, stations began to understand who was actually listening.

The EKKO Company chose the American Bank Note Company to print their stamps. Similar in size and quality to U.S. postage stamps, the intaglio-printed EKKOs featured a perched bald eagle flanked by two radio towers emitting stylized lightning bolts. In addition to a station's call sign, each stamp bore the phrase "Verified Reception Stamp."

During 1922 alone, the number of AM stations grew from 67 to more than 500, and President Warren G. Harding installed the first radio in the White House. By the mid-1920s, broadcast-band DXing was a rapidly growing pastime and EKKO stamp collecting had become wildly popular.

But not all DXers embraced EKKO stamps. Radio News magazine, a popular resource for radio hobbyists of the day, published a tongue-in-cheek article about the new fad in its February 1925 issue:

"Be sure you have the little old stamp before telling how the coast came in

so loudly that you had to throw a sofa pillow over the phones to keep them from waking the baby," chided the article. "The Society for the Prevention of Useless Falseness in Radio will get you if you don't watch out. Some stern-visaged individual is liable to step up, throw back his coat and make visible the badge of the society, and upon the authority of same, demand that you immediately show your stamp."

While the article lampooned the stamp fad, the magazine's cover (shown at right) paid homage to the early adopt-



ers of the EKKO Company's scheme, featuring the colorful stamps of WTAM, WBT, WHO, KFKB and others.

One radio historian has counted more than 800 stations that participated in the EKKO stamp program during the 1920s, including broadcasters in Canada, Mexico and Cuba. The EKKO fad soon bred imitators, the most famous of which was the P.M. Bryant Company. Bryant sold both albums and stamps directly to the public. Once a station was heard, listeners needed only to paste the proper stamp into their albums; broadcasters were completely cut out of the process.

After the EKKO stamp hobby had taken hold, several stations opted to print their own, custom verification stamps. The EKKO Company often showed their displeasure by excluding those stations from subsequent editions of the EKKO album.

Before the EKKO stamp craze was extinguished by the Great Depression of the early 1930s, it's likely that many tens of thousands of EKKO stamps were distributed throughout the United

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States. But where are they all today?

The few EKKO stamps that have survived are held in private collections or traded on eBay.

"At any one time, there's maybe a dozen serious collectors," said Bob Lucier, who has been buying and selling EKKO stamps on eBay for more than 10 years "They're a fringe item for sure."

Today, rarer EKKO stamps (from stations who distributed only a few) fetch several hundred dollars, while the more common call signs often can be purchased on eBay for \$5 to \$10. Large EKKO collections occasionally surface on eBay. Lucier purchased a half-full EKKO album for \$4,700.

More than 90 years ago, tuning in an AM radio station located a few states away was a singular thrill. It was something difficult to believe, clearly worthy of a souvenir. For those of us born with the "radio gene," nothing has changed — we're still awestruck by wireless communication. For everyone else, there are still a few EKKO stamps around to help you remember the miracle.

*Philip Mulivor, CBRE, AMD, teaches electronics technology at Remington College in Cleveland.*

## WORKBENCH

(continued from page 14)

Dave decided to test this too. A local community center has these lights in one of its meeting rooms; Dave took a radio in and asked them to turn on the lights. Ultimate failure! His signal strength meter pegged and the FM signal — way stronger than the EAS primary — went away completely.

The lesson to be learned from Dave's limited tests is that engineers can expect wide variation in RFI generated by various brands of fixtures and ballasts.

Hal Schardin has been down this road too and writes that if you want lower EMI/RFI from an electronic ballast, specify a "residential" ballast. Ballasts for residential applications must meet the lower consumer limits of EMI/RFI. Electronic ballast emissions are covered by FCC Part 18.

A further lesson: It's not enough to leave lighting up to the architect or contractor. Engineers should be involved in the entire project from planning to completion.

Hal Schardin is engineering supervisor for the Minnesota State Services for the Blind. Reach him at [hal.schardin@state.mn.us](mailto:hal.schardin@state.mn.us).

*Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send Workbench tips to [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com). Fax to (603) 472-4944.*

*Author John Bisset has spent 44 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance; he is SBE certified and a past recipient of the SBE Educator of the Year Award.*

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# 2014 NAB SHOW IN PICTURES

John Kean discusses NPR Labs' research into the effects on listeners of audio program loudness in Internet streaming.

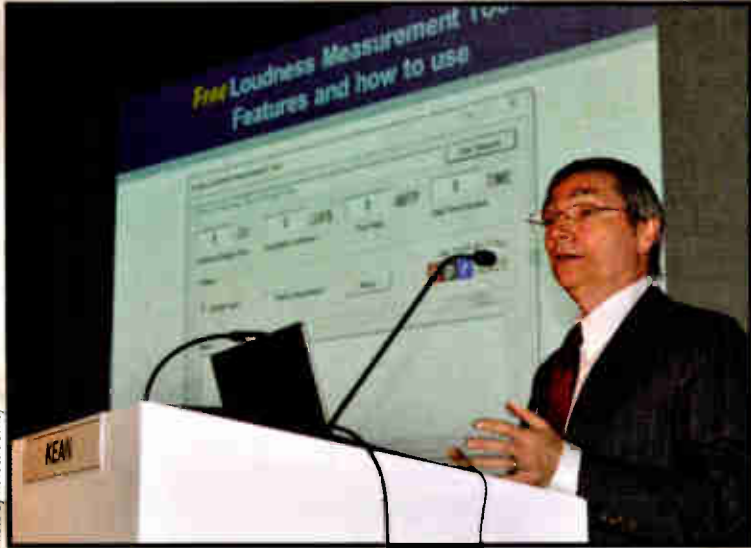


Photo by Kovacs/Dawley



Photo by Kovacs/Dawley

Broadcast Software International highlighted OpX and its use by Cumulus' new "America's Morning Show," launched in June.

Ricardo Da Silva of BW Broadcast and Alan Kilgore, chief engineer of WRVM(FM) in Suring, Wis., discuss the design of the TX V2 series of FM transmitters.



Photo by Jim Peck



Photo by Jim Peck

Joining the Association of Public Radio Engineers board of directors are Alice Goldfarb, technical researcher, NPR Labs, and Victoria St. John, director of operations, Vermont Public Radio.

David Hultsman of Continental Electronics, below center, has attended the show for 51 consecutive years. NAB President/CEO Gordon Smith, right, presented a plaque to Hultsman, joined by Continental President Dan Dickey.



Photo by Jim Peck



Photo by Kovacs/Dawley

Paul Barzizza, right, of GatesAir, part of the former Harris Broadcast, shows dealer Bob Cauthen of SCMS the features of the RMXdigital networked audio console.



# Broadcast Radio vs. Big Streaming

Whether or not radio takes their ad schedules, new streaming media will get the word out

Contentious. Profitable. Unstoppable. These words describe broadcast radio's reaction to the idea of accepting advertising from, and otherwise promoting, streaming audio services such as Pandora and iTunes Radio.

These young whippersnapper services position themselves as the latest, greatest audio experiences, proclaiming broadcast stations to be old news. Yet in their continuous desire to utilize broadcast airwaves to growth audience, they validate our domination of every market in America.

Read the comments about articles regarding this subject and you'll be treated to tirades about broadcast radio's greedy nature in taking the cash offered by our newly competitive streaming brethren. Way back in the day, similar vitriol circulated when television stations initially purchased ads on radio. We saw it happen again when Sirius and XM launched and bought big schedules on broadcast radio to advertise the advantages of subscribing to the new satellite radio.

Today's mantra from the radio broadcast peanut gallery has been the same: Isn't broadcast radio being shortsighted in selling its audience away to competing new media?

Whatever you believe, each time this happens, the point becomes moot, because one group or another takes the cash for the ads, and any money not



Wire, wire everywhere a wire -- and a bill for bandwidth.

consumed by broadcast radio turns up somewhere else — television, outdoor, print or now, online/mobile.

Whether or not broadcast radio takes the advertising schedules, new streaming media will find a way to get the word out.

## THE BIGGER PROBLEM

Most important, and with due respect to those who feel strongly about the advertising/marketing issue, this concern is not where the real audio war is happening. The most important user battles involve access to the car audio system and to mobile devices.

As long as access to get great entertainment is as easy as pushing a button, broadcast radio will dominate. The minute a consumer can get Pandora or others with the push of a button — without hooking up wires, connecting Bluetooth or paying for a costly data streaming mobile device — broadcasters will have a serious issue.

Sure, lots of geeky audiophiles like me and you have been listening to streaming media for years in our cars, but for most people (here's the shocker!) it's just not that important. Effort, technical knowledge and dependability will rule results.

However, now is the time to act! To keep our competitive advantage, we need to lobby and assist car radio manufacturers in designing easy-to-use radios that get the best possible FM, HD Radio and yes, AM performance. Often, AM is unlistenable or worse, sometimes even missing from the radio dashboard.

## PROMO POWER



Mark Lapidus

With HD, full market coverage is still problematic; FM sometimes carries no metadata. As for mobile, with time rapidly increasing on phones and other devices, we need more than just streaming apps of our broadcast stations — we need actual tuners for automatic reception that don't require data use.

Battlefield number two is being waged over content. Broadcast radio continues to pump out music jukeboxes at our own industry peril. Like it or not, behaviorally based music services like Pandora will be quite appealing for a lot of listeners if and when a simple delivery method comes to life.

Broadcast radio must focus on growing local personalities to deliver entertaining and important information that creates an emotional connection with listeners. We must continue to watch our commercial loads, raising rates rather than the number of units we run per hour. Although public radio has certainly stepped up its game on HD Radio, for the most part the digital service's new multicast channels continue to suffer from a lack of unique or interesting content. And perhaps as important as anything else, we must consistently inject fun into broadcast radio.

Ease of use and engagement are the keys. Let's put the pedal to the metal.

The author is president of Lapidus Media and a longtime contributor. Email marklapidus@verizon.net.

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# 2014 NAB SHOW IN PICTURES

Photo by Kovacs/Dawley



Hovercraft – call 'em drones, if you will – are an increasingly common sight at the show, carrying video payloads.



Photo by Kovacs/Dawley

Mike Dosch recently joined Lawo as its director of virtual radio projects. Lawo demonstrated crystalClear, a new virtual radio console.

Glensound showed the Cub, a digital mixer with a USB audio interface for the Apple iPhone or other smart devices.



Photo by Jim Peck

Univision anchor Jorge Ramos received the NAB Distinguished Service Award. Afterwards, his boss Univision Chairman Haim Saban sat down for a Q&A with NAB's Gordon Smith and joked that the letters FCC stand for "Friendly Cable Commission." Shown are Saban, NAB Joint Board Chair Charles Warfield Jr., Ramos and Smith.



Photo by Jim Peck

Bud Aiello, right, director of engineering technology at NPR, received the Association of Public Radio Engineers Engineering Achievement Award. He also proudly showed off his son Tony, lead production technician for McLean Bible Church in Virginia. Son and father, both hams, were at the Amateur Radio Reception.



© NAB



## IZOTOPE

(continued from page 23)

instead of after. I have to undo my work. If a mastering chain existed, I could simply slide the EQ before noise reduction and be on my way. Hopefully we will see this in an upcoming (maybe the next?) release.

One thing that immediately caught my eye upon launching RX 3 was "Dereverb."

Yes, that's right. Dereverb. How cool is that?

So I really wanted to test this tool out. I took a recording I made of a popular artist and loaded it into RX 3. I had placed a decent amount of reverb on this recording of a female singer and her guitar. Now, I wanted to see if RX 3 was up to the challenge of removing the reverb.



**The interface was easy to use and allowed me to be precise as to which frequencies I wished to attack.**

It was impressive. While there was a slight trace, the reverb was almost completely inaudible, and I could not detect any artifacts. This tool really comes in handy if you no longer have a session file and are unable to mix the reverb out of the recording. This was cool!

If you have read my articles, my love for 1920s and '30s 78 rpm records would be all-too apparent. I am always eager to try new remastering software when it comes to restoring and preserving the integrity of the original recordings. I have worked with several software programs regarding this matter and RX 3 is right at the top. It did a beautiful job of removing surface noise without creating artifacts. It is important to remember that you can't take out everything. You do have to leave some noise or the recording will suffer.

However, I pushed RX 3 Advanced to the limits, and it sounded clean. The interface was easy to use and allowed me to be precise as to which frequencies I wished to attack. The Remove Hum module didn't let me down, either. I purposely removed the ground from

my turntable to get a nice 60 cycle hum. After running the dehumming filter, my recording sounded fat and full ... minus the hum. Declicking was also a simple task. I tested this with a record that had minor groove distortion. To my surprise, the Declicker went above and beyond, removing most of the groove distortion. A nice side-effect, indeed. Although a word of caution: If you overprocess

with the Declicker or Decrackler, you may get an unwanted gurgling sound, so be careful.

### OTHER ITEMS

RX 3 comes equipped with time compression/expansion, phase correction, a spectrum analyzer and EQ.

I used much more modern recordings to really get the feel of how well the program handled altering the audio of a song recorded and mixed in the last 15 years. I was pleased with the time compression and expansion feature. Whether I wanted to alter the pitch or change the BPM, RX 3 did not disappoint. There were little to no artifacts

left in the music after I compressed a three-minute song by 10 seconds. RX 3 really gives the user the ability to adjust the transient sensitivity, pitch coherence and noise generation of the tool so your recording will sound just right after alteration. However, I was frustrated that I could not see a display on the duration of my audio file. The Time and Pitch tool only displayed in percentage, not duration. This made things take a little longer when I wanted to shrink the size of my recording.

If you have ever needed a good tool to extract the vocal from a song, RX 3 would be a fine candidate for the job. Like anything else, you have to play with the settings to get the balance just right, but RX 3 makes it easy to extract the center channel and retrieve the vocal from a song, if you wish. This same tool also helps you adjust the phase and azimuth of your recording. This is especially helpful when transferring old cassettes that were sometimes recorded out of phase.

Note that iZotope has published a free RX 3 tips and tricks guide that can be downloaded at [downloads.izotope.com/guides/iZotope\\_AudioRepair.pdf](http://downloads.izotope.com/guides/iZotope_AudioRepair.pdf).

All in all, iZotope RX 3 Advanced is a well laid-out, easy-to-use program that will do a superb job of helping you restore tapes and records. Whether you are entering the field of remastering or are a seasoned pro, RX 3 sophisticated algorithms and ease of use make it a program designed for everyone.

*Dave Plotkin is director of production & creative services for a large metropolitan radio station. He likes old records, a lot.*

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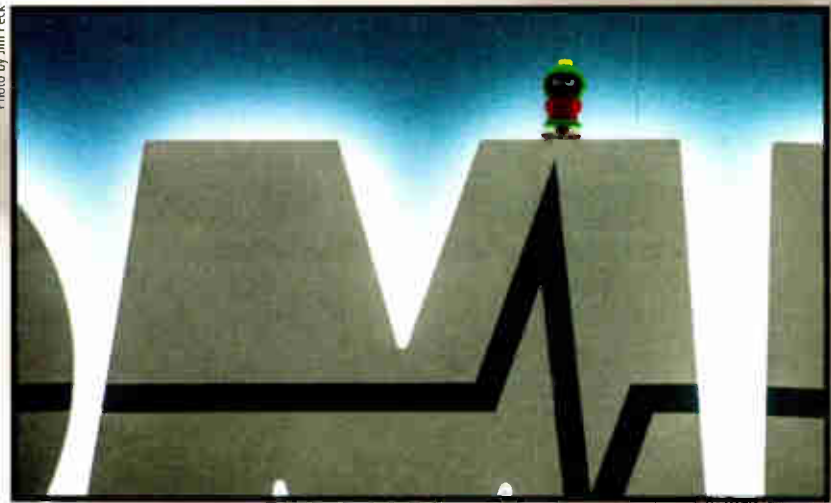
# 2014 NAB SHOW IN PICTURES

Leave it to an engineer. Gray Frierson Haertig, owner and principal engineer of Gray Frierson Haertig & Associates, was honored by the Association of Public Radio Engineers with its Engineering Achievement Award. Haertig immediately put presenter Dan Houg's laser pointer to work.



Photo by Jim Peck

Photo by Jim Peck



Marvin the Martian made an appearance in the newly redesigned Comrex booth, if you knew where to look.

Photo by Jim Peck



Paul Brenner, senior vice president and CTO of Emmis Communications and proponent of the NextRadio app, talks with Joseph D'Angelo, SVP of broadcast programs and services at iBiquity Digital, prior to a panel about hybrid radio and smartphones. During a keynote, Yahoo tech writer David Pogue endorsed NextRadio, saying, "It's everything radio should be in terms of integration of the phone and radio."



Photo by Koach D'Arcy

You might have done a doubletake but yes, that was a Russian MiG fighter jet in the parking lot. The Patriots Jet Team, which performs aerial shows, used the jet to highlight "the power and inspiration of air-based entertainment marketing" and an offering called emMPaaS Cloud: Solutions from Exact Market.

NAB's Kevin Gage moderated the panel about how to make hybrid radio work at stations. From left: Eric Williams, Sprint; Joseph D'Angelo, iBiquity Digital; Tim Clarke, Cox Media Group; Kevin Gage, NAB; Paul Brenner, Emmis Communications; Scott Burnell, Ford Motor Company; and Paul Shulins, Greater Media Boston



Photo by Jim Peck



Behind the scenes at the Broadcast Engineering Conference:  
 MAB's John Marino, Janet Elliott and David Layer.



Photo by Kovacs/Dawley



Photo by Jim Peck

Now that's a mic flag! Rycote's Megan Davies shows off a Windjammer shotgun mike cover. A U.S. version is in the background. (Also available in Siberian Tiger, Dalmatian and skunk, among other patterns. Really!)



Photo by Jim Peck

Jokes, conversation starters and mascots, oh my! Kathrein-Scala's home base is in Bayern, Germany, where the regional mascot is a bear. Anybody need a four-way UHF power divider?

Shane O'Donoghue, director of broadcasting for the Empire State Building, presented a case study of its unique broadcast history and infrastructure during the SBE Ennes Workshop.



Photo by Jim Peck



Photo by Kovacs/Dawley

LTTV demons Isabel Manske, Kara Lane and Ryan Horacek visit the ENCO Systems booth. ENCO highlighted iDAD, which allows a user to control a DAD system remotely using an iPad.

**COMING UP**

**Watch for the following convention coverage in Radio World:**

**May 7**  
 NAB Show Debriefing & News Roundup

**May 21**  
 "Best of Show" Awards Issue

**Summer issues**  
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I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc. I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at [ronwtamm@yahoo.com](mailto:ronwtamm@yahoo.com).

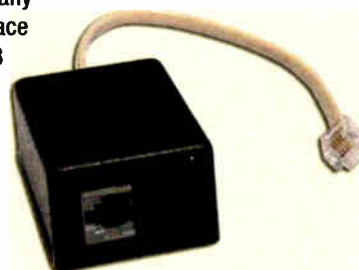
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## READER'S FORUM

### NO MINDLESS DIGITAL DASH

It is true, everything does have a beginning and an end, so I am hoping that opinions/comments like the ones made by Frank A. Gagliano ("Let Great Grandpa AM Go," April 9 issue) will soon take the "digital dashboard" to the graveyard instead. We already have

**To kill AM and FM terrestrial radio to just be another digital drone clone is not the answer.**

— R.D. Voxx

worldwide information and music delivery via digital forms and the Internet, smartphones, etc. To kill AM and FM terrestrial radio to just be another digital drone clone is not the answer.

We need to give the radio back to the people, have it serve local interests and the communities they were meant to serve. Community-based radio, in my opinion, is a much better solution than just killing off

### WRITE TO RW

#### SEND A LETTER TO THE EDITOR:

Email [radioworld@nbmedia.com](mailto:radioworld@nbmedia.com) with "Letter to the Editor" in the subject field. Please include issue date.

AM and FM. We need real people running real radio, generating local listeners and participation. There are many great community-based radio stations, such as KXCI(FM) in Tucson, Ariz., and others. I would rather roll the dice with community-based radio than to join the mindless digital dash to nowhere.

I'm sure I am not the only person out there who loves the sound of AM radio; there is just something about it that has always interested me, and I am only in my 30s. I love the way it sounds, how distant stations travel at night. I love everything about it. Sure, it does not have the fidelity of FM, but who cares? It's about the experience of AM, with all its wonderful spooky noises and static as you turn the dial. That's part of the magic with its music and news. The only thing I am letting go is your digital dash, with 100,000 audio choices of things I don't want to listen too.

R.D. Voxx  
Owner/President  
Voxx Productions  
Akron, Ohio

### CROSSED FIELD ANTENNA

Since I discovered this antenna ("Whatever Happened to the CFA?," April 9 issue) in 1996, I've been quietly examining and sharing it with other radio engineers, only to find skepticism of its performance amongst their ranks. After some time I, too, started to share such skepticism. There appears to be inconclusive evidence that this antenna is on par with a vertical quarter-wave.

Now, once again, the antenna is touted in print as being a viable substitute for a vertical quarter-wave model. It's a most interesting antenna, but I'm not falling for any exaggerated claims. I hope someone has actual comparative data about how the CFA compares with a vertical quarter-wave antenna. As of now, I've not found any such information, only speculative arguments.

Bob Henry  
Broadcast Engineer  
New Mexico PBS  
Albuquerque, N.M.

### HAM DESIGNATIONS

I enjoyed Robert Kegerreis's article on ham radio very much ("Reception Lets Hams Meet in Person," March 26 issue). However, I need to point out that there is no such designation as "Extra General" or "General Extra." You are either a Technician, General, or Extra, not a combination of any of the three.


Great job, Robert, on a very interesting article.

Steve Tuzeneu, C.B.T.  
President, Sunshine Media LLC  
Abilene, Kan.  
SBE member  
Amateur Extra Broadcast GROL



10 kW CFA installed by RAI Radio, San Remo, Italy.

Courtesy Robert Richter



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**Our readers have something to say:**

*"I read every issue cover to cover and particularly like Workbench and Reader's Forum. The information is just as valuable as a greenie in my pocket."*

**Barton A. Jones, CET**  
Chief Engineer, KFXR Radio  
Hastings College  
Hastings, Neb.




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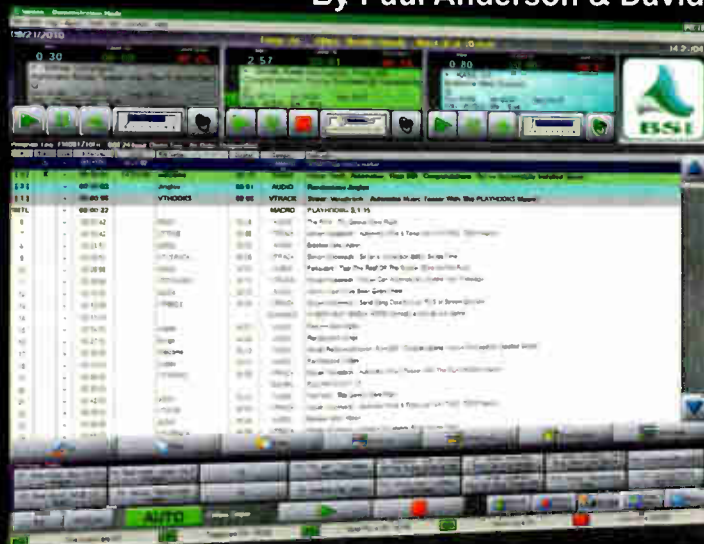




Broadcast Software International

# Streaming Made Simple! With Simian 2.2 Pro & Lite

By Paul Anderson & David Bowman of KOUU



Paul Anderson at KOUU in Pocatello, Idaho

Idaho Wireless Corp is a small market group in Pocatello, Idaho, and we're the only independently owned and managed radio group left in our market. As technology evolves we evaluate the costs and benefits of each change, and streaming was one of those projects.

When we changed the format January 1st on our 50,000 watt AM KOUU to Country Classics the response was immediately positive, but our audience wanted to listen in their offices and on their smart phones. We had considered streaming KOUU in the past, but the expense and complexity meant it was always a project that got pushed back to "later".

In 2009 we installed our first Simian system, replacing a beloved but tired Scott Studios system. We were ready for the benefits of a Windows based system that had more features, and we found that Simian is easy to use, powerful, and installation was a breeze. Since then we've converted all of our stations from Scott to Simian.

Simian offers many options to set up streaming. Country KOUU audio streaming is being outsourced to a third party (Crystal Media Networks) using data provided by Simian. Using the Metadata tab in Program options is where all the set up takes place. Crystal Media Networks required certain parameters to interface with their streaming player. The majority of the setup is all contained in an .xml file.

To create an .xml file, use Notepad and type in the syntax for each parameter required by the streamer (Syntax for Artist is <artist><![CDATA[%ARTIST%]]></artist>). Simian support can help with this, or a template is pictured in the Simian Pro Manual. In the case of KOUU, Artist, Title, Filename, Category, and Length of each piece of audio was provided to Crystal Media Networks. This file becomes the Template File.

Some final setup is required. The template file is loaded in the Metadata tab in Program Options in Simian. The IP Address corresponds to the computer that will be accessed by the streaming software. This computer needs to be networked to the on air Simian computer. The port and TCP/UDP address is set up with information provided by the streaming company (in the case of KOUU, Crystal Media provided this information).

All of the programming for KOUU is played by the Simian Pro system. In order to stream with more than one source (i.e. switching from local audio to network audio like a satellite receiver) Data Repeater-available from BSI-can handle multiple metadata sources and destinations.

Our streaming project for KOUU was easier than we imagined. The support team from BSI and the streaming features of Simian made it simple.

*Paul Anderson is the General Manager of KOUU, KZBQ and KORR. David Bowman is the Operations Manager. KOUU uses Simian Pro, though the metadata output features of Simian Pro are also available in Simian Lite. Simian Pro & Lite contain built in metadata output templates for Windows Media Encoder, ShoutCast, IceCast, SAM Cast, Live365, Urban Optimod, and Omnia A/XE. Metadata output in Simian Pro & Lite is template based, so most stream encoders not listed are compatible.*

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