



RADIO WORLD

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• Steve Church, remembered. — Page 4

TWO EGGS OVER RADIO

• Michigan station WQXO(AM) makes its home in a diner. — Page 16



STRICTLY SPEAKING

• Two keynote speeches from the Radio Show are highlighted. — Pages 44 & 45

Radio Eyes All Forms of 'Digital'

Executives, engineers critique radio's place in the dash and in devices

BY LESLIE STIMSON

Is radio preparing for a future where the marketplace is becoming increasingly competitive and unpredictable? Does radio's future mean terrestrial, streaming or both?

during the conference.

Big Machine Label Group President/CEO Scott Borchetta said the agreement takes into account how radio is being used now, and where it will be listened to in the future, namely on portables devices.

larger in the sessions and exhibit hall.

How the FCC can make life easier for beleaguered AMs was a big topic, as was how remain radio can remain relevant in the dash and the FM chip issue. Indeed, Emmis CEO Jeff Smulyan spoke of "incentivizing" carriers to activate and



Photo by Randy Richter, iBiquity Digital

Seven vehicles were featured in iBiquity's booth, which stretched the length of the exhibit hall. The seventh, outfitted by consumer electronics retailer Car Toys, is obscured on the far right.

NAB President/CEO Gordon Smith has asked broadcasters to think about those questions.

Indeed, at the recent Radio Show convention in Dallas, Big Machine Label Group and Clear Channel discussed their headline-making revenue/royalties deal; and Entercom signed a similar agreement with Big Machine

Some radio owners said such direct deals are not applicable to much of the smaller industry owners, and are specific to the large radio groups involved.

As the show ended, the Internet Radio Fairness Act was introduced in Congress by Utah Republican Rep. Jason Chaffetz and Colorado Democrat Jared Polis. The bill seeks to level the playing field for music royalties among streamed digital audio services. Entities like Pandora, Clear Channel, NAB and CEA praised the measure while the musicFirst Coalition opposed it. The bill promises to set the stage for a royalties push in the new Congress this January.

While the music royalty issue was a backdrop for broad discussions among station owners, the nuts-and-bolts of daily operations that really take up executives and engineers time loomed

also include radio chips in their devices.

Here is some of the more notable news from the event:

DIGITAL 'WILL HELP RADIO GET SOME OF ITS SEXY BACK'

Mobile is the best opportunity for radio in the digital space, according to Clear Channel President of National Ad Platforms Jim Castelli.

"It fits for radio and it fits into what people use the phone for," Castelli said at the Radio and Internet Newsletter Summit. "When it's on a mobile phone it just sounds like your best friend telling you to go buy that car or go see that movie." That can be a powerful tool for

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NEWS

RADIO SHOW

(continued from page 1)

advertisers, he believes.

However Castelli believes radio has an image problem. While the medium still resonates with a lot of consumers and has "huge" reach, traditional radio has lost some of its luster among advertisers, though he still believes it's still one of the "big three" for media, along with TV and the Web.

Digital, he said, will help radio "get some of its sexy back." Digital, meaning streamed radio, "amplifies everything we know is great about radio. It's personal, it's local. It's social," he said.

He encouraged attendees to think of digital as "in addition to," not "instead of" broadcast radio.

FCC COULD ACT SOON ON FM TRANSLATOR CAPS

Look for the FCC to take action soon on the agency's proposed translator caps. In order to sort through the roughly

on the eighth floor as an order on reconsideration, he said.

"We see translator processing as a first step. We want to push that down the tracks first," Doyle said, before the agency opens an application window for LPFMs. He can't predict how long it will take to resolve the translator issue.

Audio Division Deputy Chief Jim Bradshaw says the project has the chairman's attention.

Meanwhile Lerman Senter attorney Dennis Corbett says radio owners who don't have a pending FM translator app and who want a translator should act now to "get their engineer to scour the FCC database to find a dance partner," meaning a radio group that's approaching the cap. "You need to approach them now. If they approach the cap, they've got tough decisions to make," he said. A potential agreement with other broadcasters will affect which ones they keep.



FCC Audio Division Chief Peter Doyle

he told Radio World. "I hope he's willing to embrace broad changes to the rules because no amount of programming nor local service will allow a daytimer to serve their community in morning drive. AM needs 21st century rule changes and a new path to implement 21st century technology."

Womble Carlyle attorney John Garziglia says most of the AMs that need help are in medium

and small markets.

"If you look at AM operators as not just having a stick in the ground, FM translators is one of the few things that can be done now."

There are several things the FCC can do immediately to help them, however in speaking to Radio World, he focuses on two items: the commission should not dismiss pending FM translator applications from 2003 and should expand how many AMs can operate on

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6,500 pending FM translator applications to reach a more manageable amount as well as preserve frequencies for more low-power FM stations, the commission in March proposed limits. It proposed a national cap of 50 applications per ownership group and a per-market cap of one application in the top 156 radio metros.

Four broadcasters, including Educational Media Foundation, have challenged the caps, calling them arbitrary. They've asked the agency to reconsider the limits.

Wilkinson Barker Knauer partner David Oxenford, who represents EMF, said "We were surprised by the number of people who objected to a market cap of one. I think there are issues for the FCC to work out."

FCC Audio Division Chief Peter Doyle characterized the petitions as asking the commission "to tighten up some of the definitions in the order." The agency is close to sending those recommendations to the commissioners

PAI'S CALL FOR AM REVIEW IS WELL RECEIVED

Broadcasters who own AMs are cheering FCC Commissioner Ajit Pai's call for the agency to look at AM reforms to help the service (see page 5).

Bryan Broadcasting Vice President/General Manager Ben Downs, who's also an NAB radio board member, to Pai's call for the formation of an AM Revitalization Committee in 2013 by calling it the best news he's had in some time. "The commissioner realizes that AM has an important role to play in serving communities and realizes that rules put into place 90 years ago have little relevance today."

FM translators.

A way of accomplishing that today, Garziglia says, would be for the agency to ease its "no hopping" restriction. "Hopping" is when a translator owner, trying to move closer to a more populated market, does that by degrees, even perhaps operating the translator from a

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Womble Carlyle partner John Garziglia & NAB SVP/Deputy General Counsel Ann Bobeck

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Steve Church Left a Tech Legacy

The founder of Telos Systems introduced digital hybrids, MP3, other innovations to broadcasters

Broadcast equipment entrepreneur and inventor Steve Church, who died in September, is credited with an important role in the development of modern telephone talk show technology, audio coding and IP audio networks as used in broadcast facilities.

He was the founder and majority owner of Telos Systems, which through mergers and growth would expand to four divisions that include the Omnia, Axia and Linear Acoustic brands. For his technical contributions he received the NAB Radio Engineering Achievement Award in 2010.

Church was 57. He had brain cancer, which colleagues say he had fought intensely but privately, since learning of the diagnosis about three years ago.

TELOS 10 HYBRID

In the mid-1980s, Church was working as chief engineer of WFBQ(FM) and WNDE(AM) in Indianapolis, where he also worked part-time as a talk-show host. The intersection of his technical and on-air experiences helped prompt development of his seminal product, the Telos 10 telephone hybrid, considered the first broadcast studio product that used digital signal processing (DSP) technology. It was credited with helping many radio and TV stations air phone calls with clarity; it coincided with a wide expansion of the talk format on U.S. radio stations.

According to an obituary written by Church's colleague Frank Foti, "The significance of his hybrid product achievement is deeply rooted in prior work done at Bell Labs in New Jersey. Actually, his success was based upon a lack of success by some well-thought-of Bell Labs engineers and scientists."

Decades before, Foti wrote, Bell Labs had commissioned engineers to seek a method to eliminate a form of distortion known as sidetone, on long-distance telephone lines. The engineers ultimately published a paper saying the concept was not possible.

Church, Foti wrote, read the paper but was experimenting with digital signal processing, then relatively new, and learned about an adaptable filtering method that solved the problem. "From this effort, Steve introduced DSP into the world of radio broadcasting," Foti wrote.

Though Church founded his company while working in Indianapolis, his career is associated most with Cleveland, where he moved and became chief engineer of WMMS(FM) and WHK(AM) before leaving to devote his full time to Telos Systems, now headquartered there.

Church helped introduce the concept of audio coding to the radio industry. He became the first U.S. licensee of ISO MPEG Layer-III audio coding, known as MP3, after a visit to German research



Steve Church at an AES convention. Recalling career highlights in 2010, he told Radio World: 'I saw the potential of MP3 and really locked onto it.'

organization Fraunhofer, before most people had heard of it. He applied MP3 to the problem of sending audio point-to-point, thus contributing to rapid growth in use of codecs in radio.

Stations and networks could use them to send audio over long-distance digital phone lines in high quality, rather than using dedicated leased lines or satellites. In 1993, Telos introduced the Zephyr, considered the first use of MP3 in a broadcast product.

"I saw the potential of MP3 and really locked onto it," Church told Radio World in 2010. "We thought it was the best audio codec, first over ISDN and

FROM THE EDITOR

Paul McLane



then as a means to do music on the Internet. It was very gratifying to see it take off in the United States."

OMNIA AND AXIA

In 1997, along with Foti, Church co-invented the Omnia.fm audio processor, which notably used a DSP-based stereo generator and composite limiter.

Church had sold one of his first hybrids to Foti, a radio chief who later launched Cutting Edge Technologies. In 1992, their companies merged. Church also co-invented Livewire, a linear audio-over-IP protocol for routing and transmitting audio signals, and co-authored a book on that platform. It used standard Ethernet as a transmission backbone and off-the-shelf switching components to create audio routing systems. Livewire became the core technology for Axia IP Networks.

In honoring him in 2010, NAB said Church was "considered an authority on telecommunications and audio coding" and noted that he had authored papers on broadcast technology as well as chapters in two editions of the NAB Engineering Handbook about broadcast telephony. Peter Burk, founder of equipment manufacturer Burk Technology, wrote on the Radio World website that year saluting Church's "brilliant mind, unwavering focus and high personal standards."

Church was born in San Diego and graduated from high school two years early. He began his broadcast engineering career in 1975 at WFMK(FM) in Lansing, Mich.; he later worked at WWW(FM) in Detroit as an engineer. He had no formal technical training in college, instead taking finance, economics and philosophy classes at several schools, mostly at Buffalo University.

Pursuing an early interest in computer programming, Church once called Microsoft and talked to a young Bill Gates. In another project, Church and fellow engineer Mark Durenberger hand-built early analog Telemix hybrids in Durenberger's basement.

His pleasures included travel, music, academic lectures and reading, including science fiction. He spoke several languages and took a keen interest in the life of entrepreneur and inventor Thomas Edison. He also cited Maj. Edwin Armstrong, inventor of frequency modulation (FM) broadcasting, as an inspiration.

In later years Church moved to
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Photo by Paul McLane

NEWS

Pai: Time to Review All AM Rules

New Republican commissioner also weighs in on media ownership changes

Radio broadcasters might not have known much about new FCC Commissioner Ajit Pai prior to the fall Radio Show in Dallas, but he got the attention of attendees there.

NEWSMAKER

Pai said he wants the commission to help revitalize AM radio and to eliminate the newspaper/radio cross-ownership ban in all markets. He also expressed optimism that the agency can agree to eliminate restrictions on radio/TV cross-ownership.

He said he came to share a few ideas on how the FCC can help make radio's future brighter; what follows are excerpts from his address.

As we head into the future, I believe that broadcasting should and will continue to play an important role in America's media landscape. ... I don't view broadband as a substitute for broadcast. Instead, I see broadcast and broadband as complements.

Unfortunately, it seems there's a widespread perception that today's FCC is largely indifferent to the fate of your business.

Just to be clear, I don't believe that this impression is accurate. I care about broadcasting. And I can tell you that the staff members of the Media Bureau's Audio Division work hard every day on issues of concern to radio broadcasters. ... But I do understand where broadcast-



FCC Commissioner Ajit Pai called for the launch of an AM Radio Revitalization Initiative in early 2013.

ers are coming from. I agree that the commission can do a better job of focusing on what's important to broadcasters. We also need to make a greater effort to keep the lines of communication open between us.

AM REVITALIZATION

[I]t's time to take another look at our AM radio regulations. The FCC last conducted a thorough review of those rules 21 years ago. Since that time, AM radio has continued its relative decline. There

are 20 percent more FM stations today than there were in 2002. Just another piece of evidence that broadcast radio is still strong. But unfortunately, the number of AM stations has actually fallen during that same period.

Within the 12-34 age range, AM stations currently account for less than 10 percent of radio listening. These younger listeners should represent the future of AM radio, but many of them never tune in.

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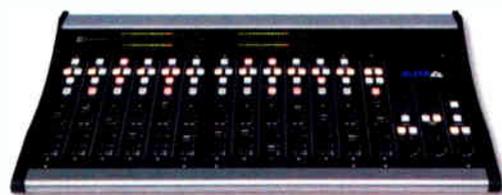
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CHURCH

(continued from page 4)

Riga, Latvia, where Telos established a research and design center. He met his wife, Lana, in Riga.

'PASS THE BATON'

Church relinquished the role of Telos Alliance CEO in January 2011, saying it was time to "pass the baton," though he did not publicly cite his health. In his announcement letter then, he wrote: "We're more successful than I could ever have imagined while building hybrids in my Cleveland kitchen back in 1985. Telos has become such a large operation, in fact, that invention must constantly vie with business for my attention — and of the two, I prefer the former." The company has grown to employ about 75 people.

Foti told Radio World that Church fought cancer by researching it and seeking out experimental therapy

that helped him live for several years. During most of that time, Church kept the matter private. Most Telos Alliance employees learned of it in a company meeting this July.

In writing his friend's obituary, Foti described Church this way: "He took immense pride in knowing that he contributed to his industry, the business world and having created jobs for a significant number of people. He was passionate, driven, dedicated, loyal and enthusiastic about life. He relished seeing the dreams and goals of others come true, as he empowered the dreams and goals of numerous colleagues. His legacy lives on in Telos Systems."

Church is survived by wife Lana, stepson Dimitri, mother Jacqueline Burgess of East Lansing, Mich., and brothers Brent Church of East Lansing, Todd Church of Interlochen, Mich., and Dann Church of Castle Rock, Colo.

Comment on this or any story. Write to radioworld@nbmedia.com.

COLLEAGUES ON CHURCH



Comrex Technical Director Tom Hartnett told Radio World that Steve Church, left, "was the father of some really great breakthrough broadcast products, and leaves a big legacy in our industry. I was pleased that our competitive relationship was always friendly. I was always impressed on how such a relatively soft-spoken guy could inspire his colleagues with such specific and successful vision."

BSW President/CEO Tim Schwieger called Church an amazing, gifted, brilliant man. "His deep love of broadcasting was always the foundation that guided

Steve to innovate revolutionary products to benefit the industry," Schwieger told Radio World. "His obsession with improving the quality of broadcast audio was always the first 'feature and benefit' found in every product he designed. The legacy he leaves is heard by most of us every time we turn on the radio."

Radio World Publisher John Casey, who worked at Telos at one time, recalled meeting Church at an NPR engineering conference in San Antonio in the early 1990s when three audio codec companies were conducting a presentation. "I had been working for the Danish company RE and just launched our MPEG Layer II audio codec (the EBU/DAB standard)," according to Casey. "Steve had an idea and maintained that the U.S. codec market would embrace Layer III over Layer II audio coding because it could maximize one ISDN circuit and produce superior stereo audio quality. Shortly thereafter, his single-box solution called the Zephyr was born and Layer III was put on the map."

There were a lot of recorded tracks for albums done over the Zephyr, too, so it wasn't just for broadcasting applications, said Casey. "Soon, the recording industry had new terminology and added a phrase to their vocabulary, 'Let's Zephyr that part in.'"

Telos set up a tribute page to Church. There, Dave Bialik, streaming/project manager at CBS Corp., wrote that he met Church years ago at a New York SBE meeting. Bialik, who organizes sessions for AES conventions, "was so glad to have him at AES when he spoke about [audio over IP]. The man was a legend who changed the way the world broadcasts audio."

Lincoln Financial Media Vice President of Engineering Barry Thomas wrote on the tribute page that he met Church at an SBE meeting in Columbia, S.C. when Church demonstrated the new Telos 100 digital hybrid. "I didn't let that thing leave town." Thomas put the device on the air at his station the next day, "then let the program director plead with the GM to pay for it."

— Leslie Stimson



1664: Just what it looks like. Two tin cups and a string. But it transmitted sound!



1876: Alexander Graham Bell's commercially viable telephone.



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AJIT PAI*(continued from page 5)*

In order to reverse these trends, I propose that the commission launch an AM Radio Revitalization Initiative in early 2013. Specifically, we should conduct a comprehensive review of all our AM radio rules. We should focus on one basic question: Are there regulatory barriers we can remove to help this sector rebound?

There have been many changes in technology since we last reviewed these rules back in 1991. One notable change is that AM reception has gotten worse. The causes of interference to AM signals have only expanded in the last two decades. If you've tried flipping through the AM dial recently, you know what I'm talking about. But I'm hopeful that we can identify and implement reforms that will improve AM radio service.

In fact, a variety of ideas already have been put on the table for liberalizing the commission's technical rules to allow for broader and better reception of AM signals. Some have advocated for an across-the-board power increase for AM stations. Some have called for the use of synchronous AM transmission systems. And some have encouraged the development of so-called "anti-skywave antennas" so that some AM stations won't have to go dark at night. The AM Radio

Revitalization Initiative should explore each of these suggestions and many others. ... We should aim to complete this initiative one year later, in early 2014.

MEDIA OWNERSHIP

We should finish reviewing our ownership regulations by the end of this year. Congress instructed the commission to review our media ownership rules every four years. That's why it's called a quadrennial review. But it has been almost five years since we completed our last media ownership proceeding.

I realize that there will be plenty of disagreement on how we should reform our ownership regulations. But I hope that there are at least a couple of areas where we can reach a broad consensus. Most obviously, I believe that the time has come to make substantial changes to the newspaper/broadcast cross-ownership rule (or NBCO for short). Our current NBCO prohibition has been in place since 1975.

Likewise, newspapers and broadcasting were pretty much the only game in town in 1975. But there have been revolutionary changes in our media landscape over the last 37 years. Satellite radio competes with terrestrial; cable and satellite television compete with broadcast. The rise of the Internet has given broadcasters new opportunities

but created substantial new competition. And the decline of traditional advertising revenues has impacted broadcasters and newspapers alike. The commission's media ownership rules cannot ignore these unmistakable marketplace realities.

The commission can do a better job of focusing on what's important to broadcasters.

The commission issued a proposal for reforming the NBCO rule in 2011. That was a step in the right direction. But it doesn't go far enough. For example, I believe we should eliminate restrictions on newspaper/radio cross-ownership. Not just in the top 20 markets, but in all markets.

I have looked through the record compiled by the commission on this issue, and the simple fact is this: No one has presented significant evidence to justify the continued prohibition of newspaper/radio cross-ownership.

For if you believe in localism, then you should know that cross-owned radio stations are four to five times more likely to have a news format, according to an FCC-commissioned study. If you believe in competition, then you should know that cross-ownership is good for business; it allows for local news to be gathered in an economically efficient manner and then distributed across multiple platforms.

Aside from repealing the newspaper-radio cross-ownership rule, I am also optimistic that we can reach a consensus on eliminating the radio-television cross-ownership rule. I agree with the commission's 2011 conclusion that the rule is no longer necessary to protect competition, localism, or diversity.

LICENSE RENEWALS

[T]he commission must rededicate itself to processing broadcast license renewals in a timely fashion. Renewal applications shouldn't languish at the commission for years. With the U.S. Supreme Court issuing its indecency decision earlier this year, now is the time for the commission to act. We should both clear the backlog of complaints that have piled up over the last several years and address the hundreds of license renewal applications that remain pending.

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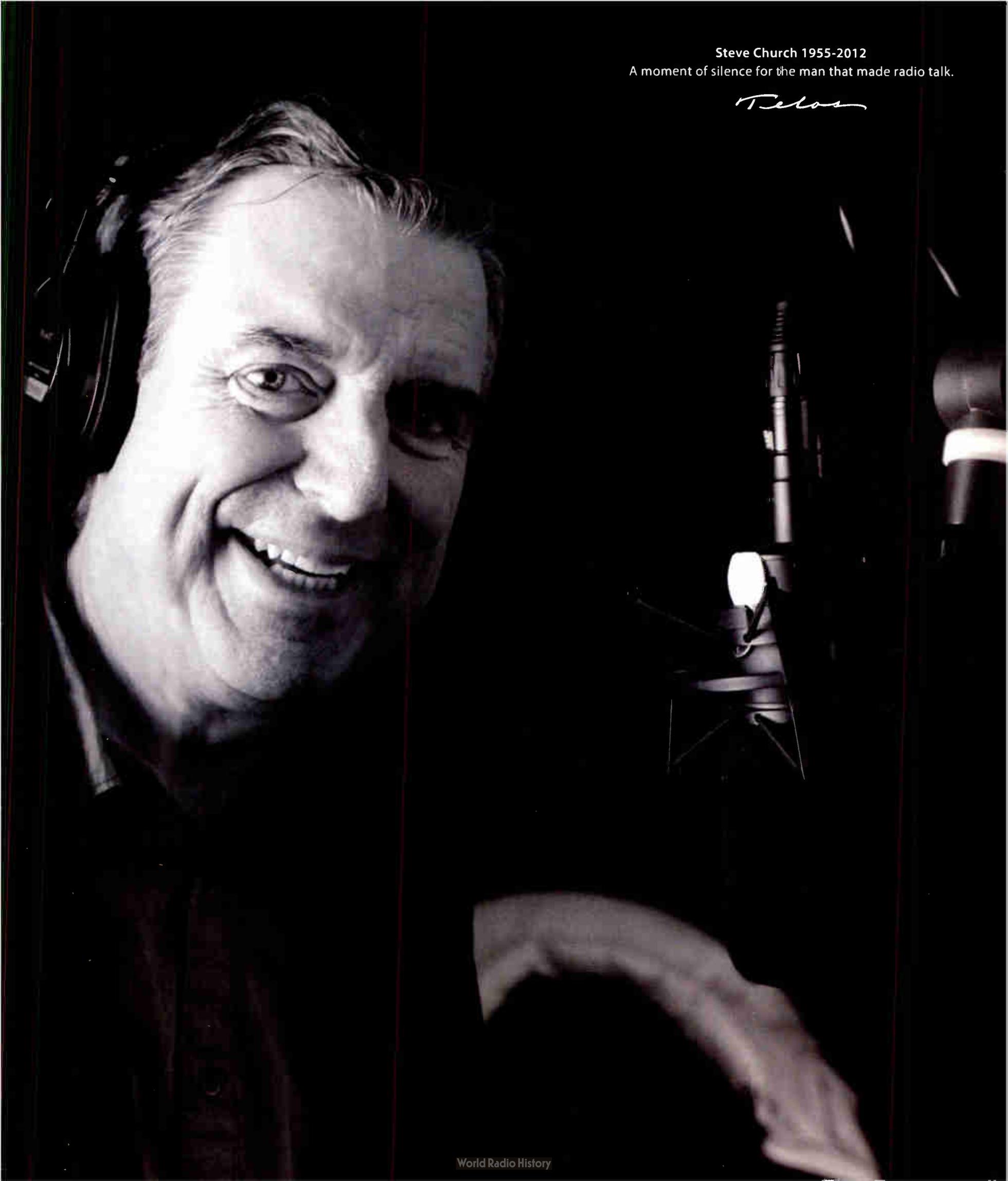
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Steve Church 1955-2012
A moment of silence for the man that made radio talk.

Texas



RADIO SHOW

(continued from page 3)

truck by the side of the road in one location for a day, then shutting down and moving as soon as the next location is approved. "The truck people are doing it this way because it's the only way they can do it" under current FCC rules, according to the attorney.

Asked whether moving some AMs to spectrum now used for the television analog Channels 5 and 6 is a good idea, Garziglia says yes, however that could potentially face a court challenge from TV owners that wish to remain on those channels and new receivers would be needed in the marketplace. Even if the process went smoothly, it could take 10 years, Garziglia said.

EXECUTIVES: RADIO NEEDS TO INCENTIVIZE CARRIERS ON FM CHIPS

How can radio persuade wireless carriers to embed FM chips in mobile devices, or activate the chips that are already there?



Cumulus Media Chairman/CEO Lew Dickey and Cherry Creek Radio President/CEO Joe Schwartz

A legislative solution doesn't appear to be at hand, nor is it the way to go, radio executives agree, so the focus is now on incentivizing the carriers.

Shortly after the show, Emmis CEO Jeff Smulyan said the tenor of the tone of the discussions with the carriers has changed dramatically for the better; he believes radio is closer to nudging the wireless industry on the issue.

"Let's reach the best business interests we can through negotiation,"



Smulyan said.

At the show, Cumulus Media Chair/CEO Lew Dickey says there needs to be an educational process for consumers — presumably by radio — to let them know an FM chip is in their phone. Part of the campaign would be to prod consumers tell their carriers know they want those chips activated. Radio needs to incentivize the carriers, who also are radio advertisers, he said, adding that some 15 million cars are sold in the U.S. each year, yet twice as many cellphones are sold.

Smulyan said radio is poised to give the carriers "millions in subsidizing." The industry hopes to make it worth the while for the carriers to embed or activate existing FM chips, Smulyan said.

SMARTPHONE CHIP WORK NOW INCLUDES FM ANALOG

Both Emmis CEO Jeff Smulyan and Cumulus Media Chair/CEO Lew Dickey say having an FM radio chip is vital, however that development effort is now tied to FM analog as well as HD Radio.

Shortly after the show, Emmis announced it would sell its interactive division to Marketron, in part to focus on TagStation, the broadcast insertion system that makes it possible for a consumer to interact with a radio station enabled by the connectivity of the mobile device.

The so-called "backchannel" ecosystem and smartphone app debuted at the spring show as an NAB Lab-funded effort of Emmis, Intel and iBiquity Digital.

TagStation now has a focus on analog FM using RDS as well as HD. Emmis Chief Technology Officer Paul Brenner described it as "baby steps." While the group built a prototype smartphone to demonstrate to carriers the data value of an FM HD chip, carriers have been reluctant to embrace the concept, he said, noting that the HD chip would also cost carriers more than \$2 per phone, above the their typical ceiling of 40 cents per device for new technology.

For a variety of reasons, HD stations too have been slow to implement Artist Experience and that gives carriers pause as well. "TagStation works for analog, too. So even analog gets some of the visual experience" of the audio synched with the visual on the receiver display, Brenner said.

"We tell automakers 'This is radio now. It's not just a call sign and frequency,'" said Brenner. And that, in turn, opens doors with the carriers and changes those conversations, he said.

Indeed, project developers are now using the term "hybrid radio" when

talking to device makers and carriers. Emmis Interactive Director of Product Development Ben Husmann demoed a Samsung Galaxy S smartphone that includes an activated FM chip. He demoed a station's "text to win" campaign, with a station list populated by the phone number.

"Why are we doing this?" he asked rhetorically. "Because when we talk to a chipmaker, we can say, 'This is your chip on a Samsung. Here's what's possible. The conversation is, what is radio doing to innovate?'"

Emmis is also studying what kind of data stations can get from a listener using a device. "We know what station they listen to and where they were. We know they heard a particular event and how they viewed it," he said.

Emmis says it's signed some top 10 market radio broadcasters for TagStation but hasn't released their names.

AUTOMAKERS GET HD COMPLAINTS; TIME ALIGNMENT MAY BE AUTOMATED

For years, there were more stations transmitting digital signals than there were HD-equipped cars on the road. Now automakers are ahead of broadcasters, rolling out more cars equipped with advanced HD Radio receivers that feature dynamic visual displays.

But even when HD stations do implement HD Radio or put a multicast channel on the air, they're not always able to pay attention to the alignment of the analog and digital signal. That's a problem, because complaints about audio quality are starting to arrive at dealerships.

iBiquity Senior Vice President of Broadcast Programs & Advanced Services Joe D'Angelo ticked off several: Customers say the HD often echoes as if two signals are being received slightly out of time or the audio sounds as if the station is "skipping." Other complaints include "the radio doesn't pick up HD stations, ever." Or "The HD goes in and out."

Many of these complaints involve alignment of the analog and digital signals.

Some transmission and monitor manufacturers are working with iBiquity to determine whether that function can be automated, with an eye toward having those upgrades ready for the spring NAB convention. That commercialization would be helped if monitor manufacturers saw an interest from stations in that feature, D'Angelo said.

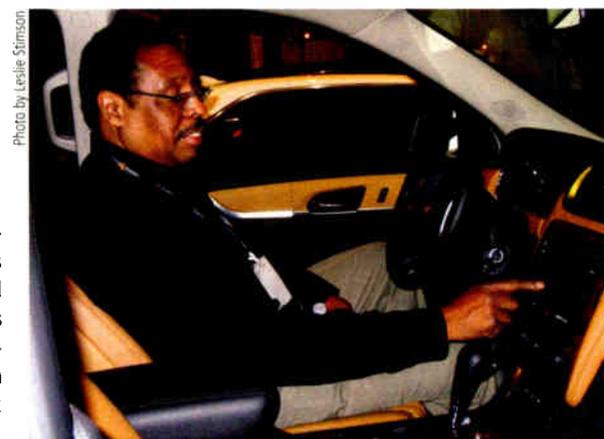
Owners have been slow to embrace

the advanced data features that can make a radio display look like its competitors, such as satellite radio or Pandora, in the dash. Only some 400 stations have so far and that's a problem, according to HD proponents; they believe that if stations don't step it up, automakers will move radio "down the center stack of priorities in the dash," so to speak.

iBiquity Digital President/CEO Bob Struble stressed the point to Radio World, noting that 9 million HD Radio receivers have been sold to date.

Ninety-four automotive models in calendar year 2013 will have HD Radio as a standard feature. "You'll be hard-pressed to find a new car in the U.S. that doesn't have it," predicted D'Angelo.

Over the next 12 months, eight OEMs will launch Artist Experience in 19 models. With AE, the digital audio is synched with visual elements for a dynamic display in today's large-screen in-dash entertainment systems.



iBiquity Digital Manager Broadcast Marketing Roy Sampson demos an HD Radio receiver in a 2013 Chevy Traverse.

The company is stressing the importance of station owners raising their digital power levels to implementing AE or iTunes Tagging.

Clear Channel has implemented AE at many stations. Greater Media has implemented AE on all of its digital FMs, and CBS Radio will be rolling out AE in its top four markets by year-end, according to Senior Vice President of Engineering Glynn Walden.

"There are people implementing it," said Emmis CTO Paul Brenner, but that number "needs to get better."

JOURNAL EXPANDS HD COMMITMENT

About half of Journal Broadcast Group's 35 stations are transmitting in digital and the plan is to take the rest of the group digital next year. So says Vice President/Chief Technology Officer Andy Laird. He said the company is raising FM digital power on three

(continued on page 12)

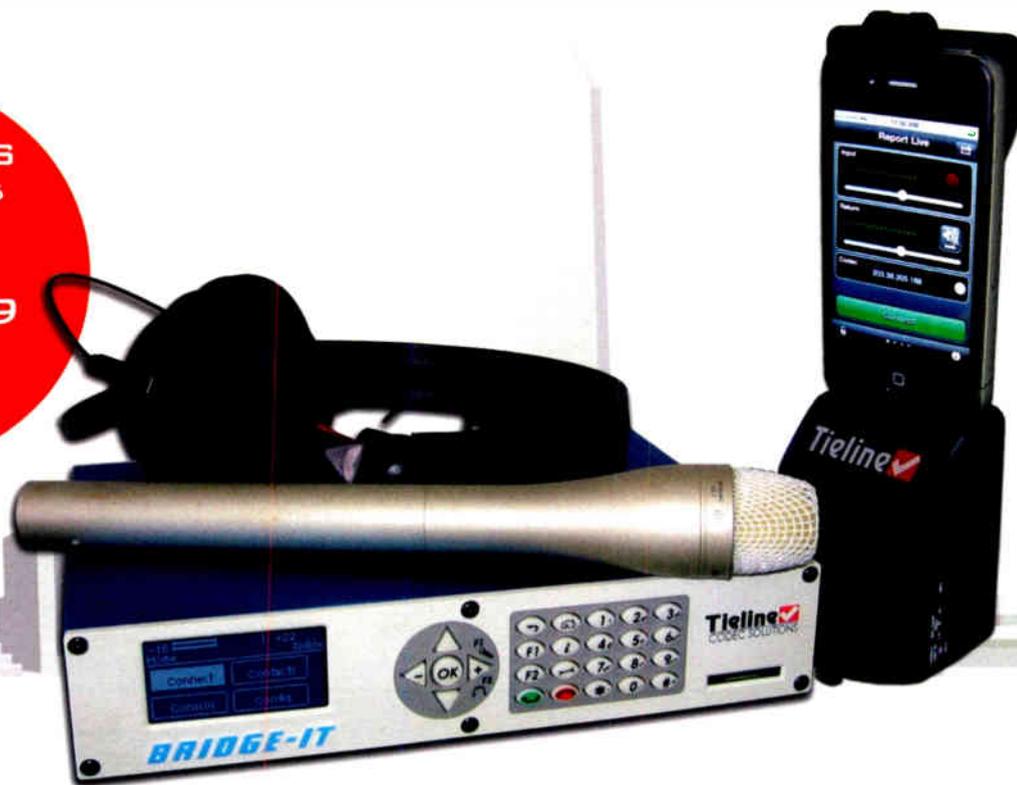


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RADIO SHOW

(continued from page 10)

stations now and working on implementing Artist Experience, with plans to also roll that out next year.

Journal would then join other radio groups, like Clear Channel and Greater Media, in implementing the advanced data feature of HD Radio in which the audio is synched with visual images on a receiver display.

Laird said he's standardized a lot of what goes into organizing, storing and transmitting album art with the digital signal.

Ford Business Development Analyst for Mobile Scott Burnell estimated that 50 percent of new cars available now have some type of large-screen infotainment system. Consumers "want everything," basically, "the ability to do what they do outside the car" and to bring that functionality into the vehicle, he said.

That percentage is expected to grow to roughly 80 percent next year.

IBiquity Digital President/CEO Bob Struble said "We're getting to a point where if you're not digital at your station, you're going to be at a disadvantage," noting that the new auto infotainment systems just display the call signs of an analog station.

Not everyone is onboard the digital train.

Cherry Creek Radio CEO Joe Schwartz is afraid radio will be split among those stations that can and those that cannot afford to spend

thousands of dollars on new technology.

"It would cost my company in excess of \$10 million to go to an HD platform. That is not going to happen." He knows other small broadcasters "who probably feel the same way."

'PANDORA' = STREAMING TO EARLY ADOPTERS

Streamed radio is maturing in the minds of early adopters.

"Years ago you couldn't get consumers to criticize streaming radio," said knowDigital Senior Research Analyst Kelly Ellis.

Now, consumers in focus groups might comment that Pandora is "old fashioned" or that sometimes audio on a streamed service cuts out. She spoke at the Radio and Internet Newsletter Summit.

Consumers also are beginning to use the word "Pandora" to describe the streaming category, she said, with the implication the personalized audio service "owns" the category.

Listeners typically use one or two streamed audio service. In focus groups, some are confused about what the brand iHeartRadio means, she said.

Clear Channel's streaming service iHeartRadio has 1,500 custom stations and 10 million registered users, according to company President of National Ad Platforms Jim Castelli.

NEWSROUNDUP

RADIO REVENUES: BIA/Kelsey lowered its original radio revenue estimates for 2012 of \$14.9 billion, however it still projects a 2.2 percent increase for the year. That represents \$14.4 billion for on-air, which represents an increase of 1.9 percent from 2011. The company projects \$491 million for online/digital radio revenues for the year, a 12.1 percent increase over the previous year.

ONLINE PUBLIC FILES: NAB has received more time from a federal court for its appeal of the FCC's new online public file system; the trade group now has until Feb. 13 to file its opening brief with the U.S. Court of Appeals for the DC Circuit. NAB told the court that after the Nov. 6 election, the volume of political ad purchases will drop dramatically, giving the lobbying group an opportunity to assess the effects of the new requirements. NAB says the new system places TV stations at a disadvantage because broadcasters are required to post the details of political ad buys onto the FCC site while TV competitors like cable or satellite are not.

SIRIUSXM: The FCC is taking comments on Liberty Media's application seeking the commission's judgment that Liberty controls the satcaster. Liberty has told the FCC it now owns 49 percent of Sirius shares and should the agency approve the transfer of control, Liberty intends to buy more shares, nudging its stock ownership in SiriusXM to more than 50 percent. Comments or petitions to deny are due by Nov. 1 to IB Docket 12-282.

JELLI: The Jelli social radio platform has closed a \$9 million round of financing led by new investors Intel Capital and Relay Ventures, with participation from existing investor First Round Capital and individual investors. Jelli will use the funding for product development and sales.

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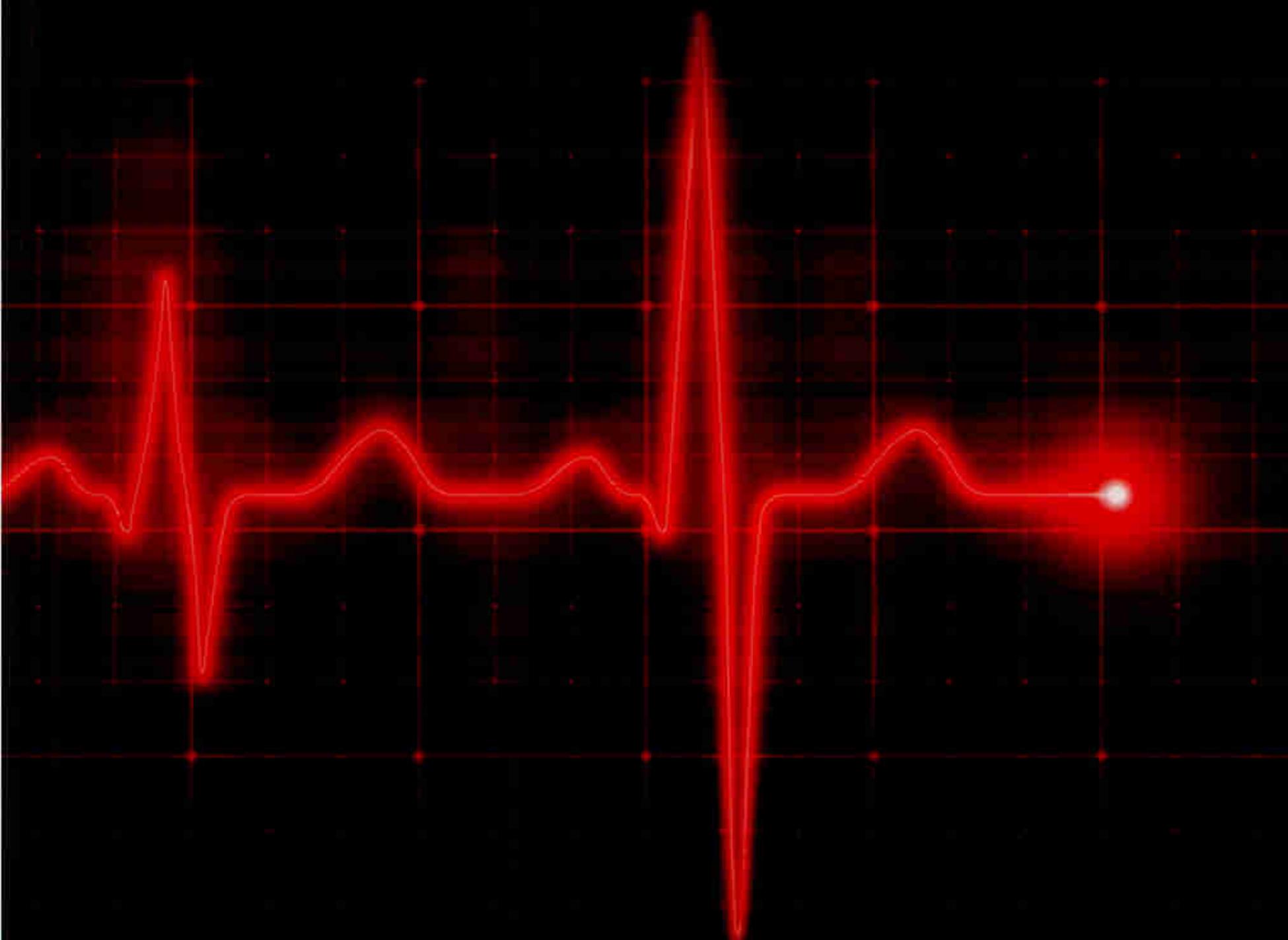
- Direct Sampling of FM RF Carrier
- Frequency Agile on both Antenna & High Level RF Inputs
- AM & Sync AM Noise Measurements
- Variable BW Digital IF Filtering
- Digital FM Demodulation with 100dB 75 μ s SNR
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Build Your Own STL Antenna Bracket

Greg Manfroi's home-brew rig cost a grand total of \$18.80

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Robin Cross of KCUR(FM) in Kansas City, Mo., has a novel way of identifying microphones in his interview studio: Paint the mic arm riser different colors.

As shown in Fig. 1, the colored risers make it easy for a board operator to spot which mic is which.

Bright, bold colors like red, yellow



Fig. 1: Painted arm risers identify talk-studio microphones.

or green work best and are more easily identifiable than colored windscreens or colored cable. Best of all, using spray paint, you can choose from a wide selection of colors. Add a swatch under the corresponding fader on the board, and the issue of pushing up the wrong fader is solved.

Robin Cross can be reached at robin@kcur.org.

Greg Manfroi, chief at WUIS(FM)/University of Illinois at Springfield, needed to mount an omnidirectional FM receive antenna on his STL tower. Instead of buying another side-mount bracket, Greg built his own.

He started by purchasing the following: two 10-foot lengths of PVC pipes, 1-1/2-inch diameter; one length of PVC pipe, 1 inch in diameter; four U-bolts; and eight lock washers and nuts.

He cut the 10-foot PVC pipes down to six feet. These would attach to the tower. He measured the tower legs at the point where the antenna would be mounted; then he marked the support pieces and drilled holes for U-bolts to

Fig. 2: Assemble the antenna bracket.

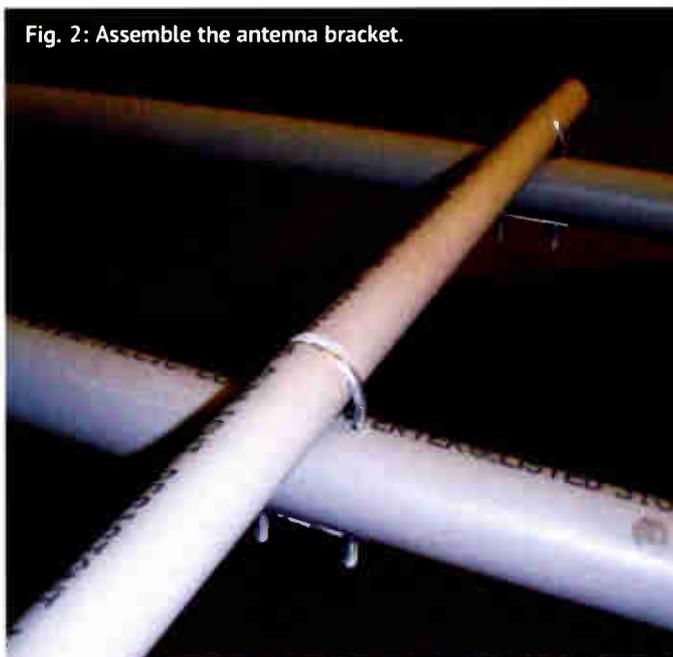
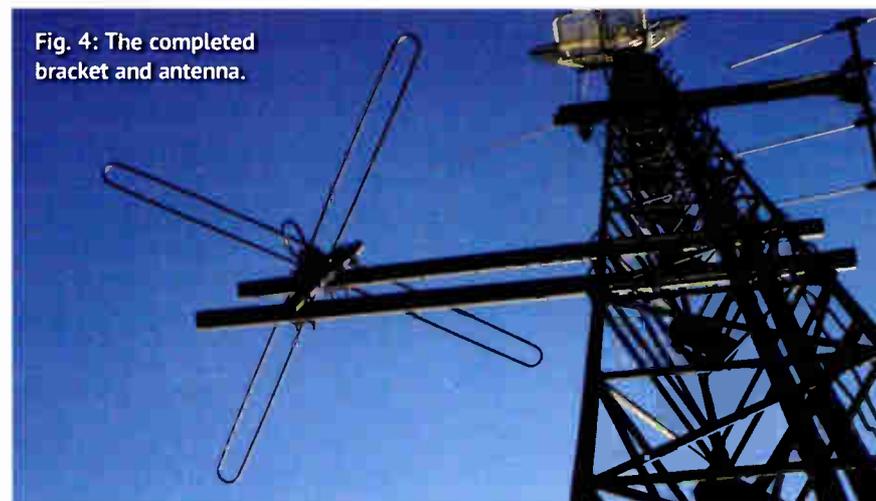


Fig. 3: Mount the bracket on the tower.

Fig. 4: The completed bracket and antenna.



attach them to the steel.

He cut the narrower PVC pipe to 34 inches long. This cross-member would be his mast. To secure it to its supports, Greg made notches for the U-bolts to slip into, marking and drilling holes where the end of the notches would go. Then Greg wrapped painter's tape around the pipe on each end of the drilled holes. Using the tape as a guide, Greg cut the notches with a hacksaw and assembled the bracket.

The bracket is sturdy enough for mounting a lightweight antenna. The PVC pipes cost \$12, the U-bolts \$6 and the lock-washers only 80 cents. Total cost: \$18.80.

Greg notes that he used electrical PVC pipe because it is sunlight-resistant. Its grey color blends in with the tower.

Greg Manfroi can be reached at gmanf2@uis.edu.

(continued on page 16)

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FEATURES

What's Cooking at WQXO(AM)?

Community AM station serves up heaping portions of community service and oldies



At 1400 on the AM dial, WQXO in Munising, Mich., looks like an average diner from the outside.

BY ROBERT KEGERREIS

Back in the good old days, when radio transmitters had power tubes that generated lots of heat and kilowatts where allowed to fly from coast to coast, station engineers would often refer to their signal strength as “really cooking!”

DX listeners all across the United States would twist their old radio knobs ever so gently, and in between the squeaking and squawking, they were

sometimes able to tune in from New York to California.

As solid-state equipment began replacing the old heat generators, some station managers began adding a new twist to that old cooking expression: “Our ratings and advertising revenue is really cooking!” Soon thereafter, operating officers of large corporations began to say, “Wow! Our network of remote control stations and voice track-

ing is really cooking!”

But over in one tiny AM station in Munising, Mich., you can be sure that “really cooking” isn’t just a manner of speech. No — this station has actually mastered the art of blending tasty entrées with tasty local content.

So where on God’s green earth is Munising, Mich., and what’s with this little radio station?

YOOPERS AND TWO EGGS OVER EASY

To begin, the population is about 2,900 citizens. It lies directly on the shores of Lake Superior in Michigan’s Upper Peninsula, about three-fourths of the way between Mackinaw City and Marquette. Outsiders could probably say that it lies smack-dab in the middle

of nowhere — yet it is one of Michigan’s most colorful summer destinations for those seeking pure ambience.

The average temperature only gets above 60 degrees from June to August. For the other nine months of the year, it gets downright cold. People who live through this kind of Upper Peninsula cold are called “Yoopers,” by Michiganders living south of the Mackinaw Bridge.

There are two highways running into this small community, with miles and miles of vast wilderness in all directions. Only in the last year did cellphone usage along these highways become operational — and service continues to be quite spotty. There are also limited choices for radio reception as you approach Munising. But then, about 20 miles outside town, a lonely AM

(continued on page 18)



Here you can order two eggs over easy, and make requests for ‘Jailhouse Rock.’

WORKBENCH

(continued from page 14)

My co-workers in the Elenos Miami service department, Edgar Higueros and Jose Toscano, have another use for Styrofoam drink cups: Use them to hold equipment hardware.

Small pieces of hardware such as nuts, bolts and screws can get lost if you don’t keep them in one place. Pictured in Fig. 5, the cup works well because it is deep. Shaking out the hardware into your hand is easier than searching for it on a workbench top.

I’ve also seen engineers press muffin tins into service as hardware organizers. The advantage here is that you have six or 12 compartments in which to store hardware.

This can be useful when disassembling equipment with a lot of hardware, or with varying sizes. Each step of disassembly can have its own muffin tin compartment. Thanks to Edgar and Toscano for a simple but useful tip.



Fig. 5: Treat yourself to a cup of nuts (and bolts). Use a Styrofoam cup to hold parts during disassembly.

Engineer Marc Mann writes from San Diego that he has started using the P-Touch Labeling System and marked everything in sight — especially wire leads, connectors and wall warts as suggested previously in *Workbench*.

Unfortunately, he says the labels started peeling off within six months or even sooner, depending on the temperature of the area and the nature of the surface.

Researching further, Marc discovered that he was not using Brother’s commercial-quality label stock. Brother (and others) makes “pro” label stock, available for various types of surfaces. For example, Marc ended up relabeling with its product called Flexible ID, which is made for wrapping or flagging wire and uses extra-strength adhesive.

Before embarking on such a project, Marc suggests you research the industrial-grade label stock available for a chosen label machine to avoid premature label failure.

Mark provided a link to Brother’s label application chart, which we’ve posted at radioworld.com/links. You’ll also find a link to Brother’s industrial product line, detailing its field service labels.

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

John Bisset has spent 43 years in the broadcasting industry, and is still learning. He is SBE certified and is a past recipient of the SBE’s Educator of the Year Award. He works for transmitter company Elenos USA.

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WQXO

(continued from page 16)

signal begins to fade in at 1400 kHz.

It was somewhat by accident that I happened to stop at the Navigator Restaurant, while I was on my way to visit Pictured Rocks National Lakeshore. I should have noticed something unusual when I first looked at the outside of the restaurant, but my stomach was more interested in getting something to fill it.

I was looking out over the marina from a large picture window of the restaurant when the waitress arrived at

COOKING WITH MICROWAVE

Lonnie Shellnut and his wife are owners of the Navigator Restaurant, and Lonnie also serves as the station manager. When Lonnie's not cooking up good tasting grubbs, he spends some of his time in front of the mic.

On the roof of his restaurant is a satellite dish that brings in oldies content to the restaurant studio. Located in the corner of the studio is an equipment rack, which includes a Clear Channel Satellite XDS Pro 4 satellite receiver, a vintage Marti STL-10 STL transmitter, voice processor, EAS unit with program interrupter and a computer with



George Dwelley, local radio personality, splits his time between deejaying and pastoring.

my table. "May I take your order?" she asked with a warm smile.

"Yes you may," I replied. "I'll have two eggs over easy, sausage, hash browns and whole wheat toast. By the way, I see that banner on the wall over there with call letters 'WQXO, AM 1400.' Is that a remote location to promote your restaurant?"

"No," she replied. "That's Munising's radio station."

"That's a radio station studio?" I asked. "Here in the restaurant? You mean this restaurant has its own radio station?"

"Yup", she replied. "That's it. It's been here for about a year and a half."

"What's the importance of the Mustangs on that banner?" I asked.

"That's our high school sports team. Sports are very important to us," she replied.

Now, I've been inside a lot of radio studios over the years, but this is the first time I've ever encountered a radio station that is part of a restaurant. Bacon and eggs and freshly baked cinnamon rolls feed the locals while an open mic feeds into the station's vintage soundboard.

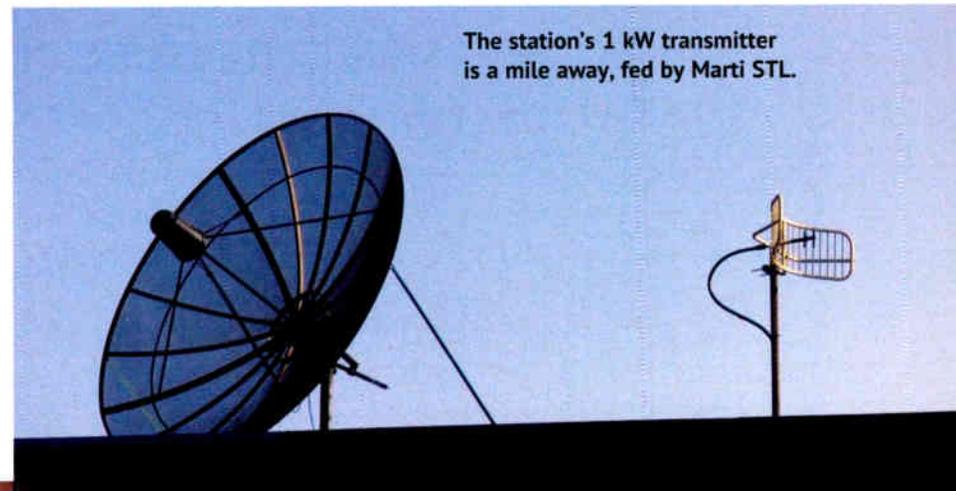
EZ Automation and an EZ proprietary switch.

The Marti beams a signal from the restaurant roof to a transmitter site located about a mile away. An older-model six-channel Audioarts soundboard is used to link everything together. It can definitely be said that this restaurant brings an entirely different meaning to the word *cooking* ... as it's cooking RF signals in addition to tasty food.

WQXO's 1 kW AM transmitter sits out in an isolated field within the city limits. The station is owned by Great Lakes Radio Inc. of Marquette, Mich., which operates five stations: four FM and one AM, and together covers the entire Upper Peninsula from the Mackinaw Bridge to Copper Harbor.

The five-station cluster has its main studio and corporate headquarters in Marquette — another 35 miles west of Munising. This studio provides voice tracking from the main studio to all five stations, and provides traffic, news, sports and weather, local and state politics, etc.

Each of the five stations has its own program format based upon what com-



The station's 1 kW transmitter is a mile away, fed by Marti STL.

munity surveys indicate listeners want to hear. At WQXO, oldies music and local sports information (go Mustangs!) is preferred. The other four stations carry country, classic rock, talk radio and adult contemporary.

Great Lakes Radio Inc. is a privately held corporation whose principal equity owner and station licensee is Todd Noordyk. Todd Pasanen is the operations manager. He and his engineers, program manager, news director and sales manager maximize uptime and broadcast performance at all of the stations.

Noordyk's management team believes they can deliver programming and uncompromising community service to five communities by using a combination of part-time local personalities, syndicated programming and voice tracking.

LOCAL FLAVORS

Every weekday morning from 7–10 a.m., local personality George Dwelley starts the day off from inside the Navigator Restaurant studio. When not playing classic oldies, George goes all-out to promote local activities such as raising funds for an autistic child in the community, or seeking awareness of another local family's child who suffers from Waardenburg Syndrome.

The station helped promote the American Cancer Society's Relay for Life and generated a huge number of participants and donations. It sponsors community blood drives and local events, such as the Flannel Jack Festival with its opening lumberjack breakfast and ending with a street dance.

For Munising High School sports fans, the station broadcasts 50 local high school football and basketball games. And here's an interesting tidbit:

Alger County Judge Charley Nebel provides the play-by-play, announcing for those Mustang mascot games.

George likes working at WQXO. As he puts it, "With just my voice in three hours each day, I am able to touch many people's lives. It is an awesome responsibility and very gratifying."

He adds that he recently drummed up community support for a young couple whose baby required a series of 10 surgeries.

When George signs-off from the restaurant studio each day after his show, he switches the audio board over to the station cluster's voice tracking and to the satellite Oldies Channel. The rest of his day, he serves as pastor of the local Corner Stone Baptist Church.

Perhaps using the term "serves time" is appropriate, because the State of Michigan Alger Correctional Facility is also in town. And it is from the prison that George receives a flow of mail from inmates asking for particular songs. It is not uncommon for George to end each day's program with their most popular request, "Jailhouse Rock."

OUT OF THE FRYING PAN

As is the case with many small community radio stations, advertising revenue at WQXO is limited, and making a profit can be tough.

Munising's recipe for successful radio is careful staffing and control of operating expenses through sharing management resources across five stations. That includes smart use of a central voice tracking system, customization of programming of each community's station to what listeners want to hear, and creation and distribution of advertising to all five stations from the central studio.

WQXO was acquired by Great Lakes Radio in 1999, and its program strategy has been custom tweaked to meet community desire. WQXO may pump out only 1,000 watts, but to the people of Munising, it sounds like a million.

Robert Kegerreis is a frequent contributor to Radio World.

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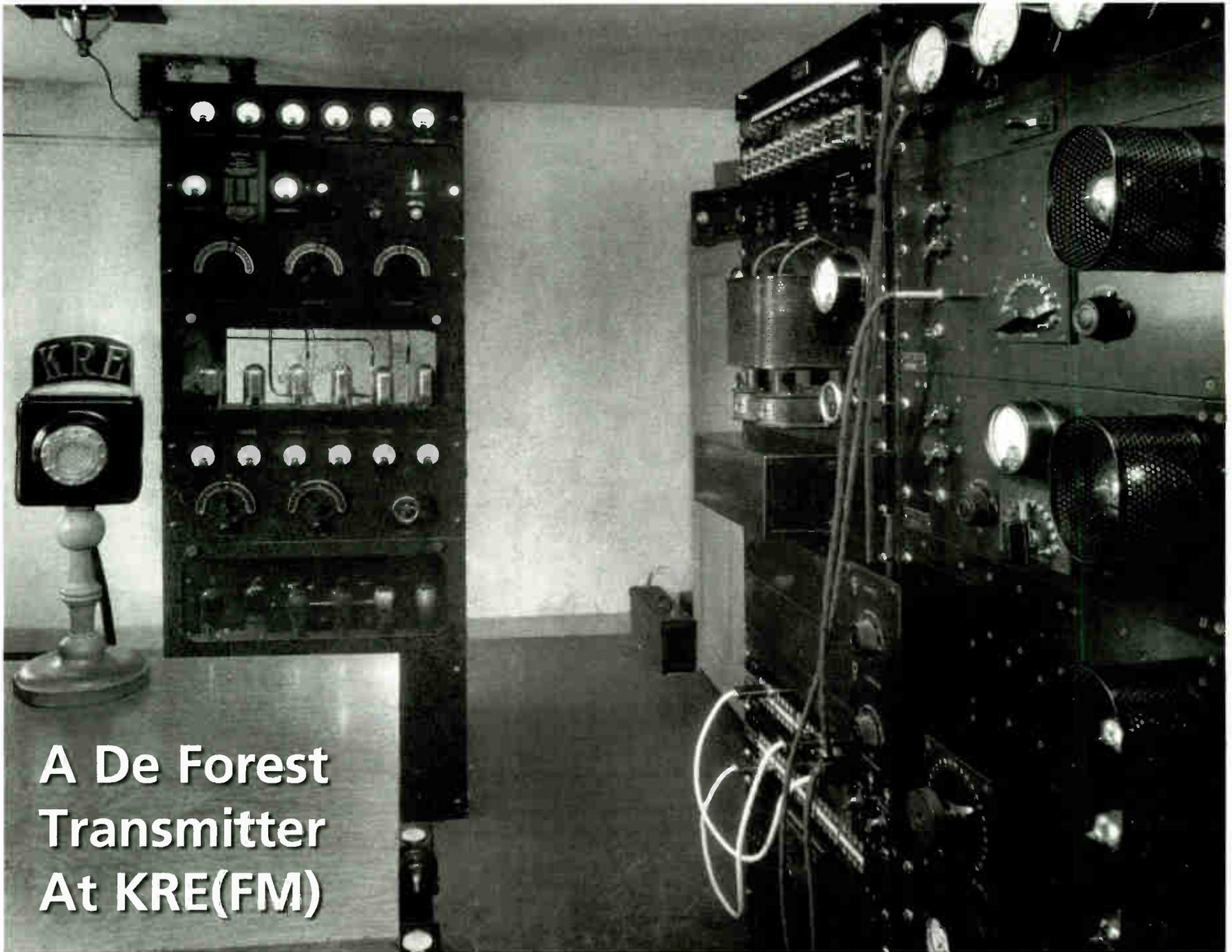


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A De Forest Transmitter At KRE(FM)

ROOTS OF RADIO

BY JOHN SCHNEIDER

This is an excellent, highly detailed image showing the transmitter room of radio station KRE(FM) in Berkeley, Calif., about 1930.

KRE(FM) was operated by the First Congregational Church; this room was located in the back of the church building. Two towers on the church property supported the antenna.

This is a de Forest 100-watt "radiophone" transmitter. There are six RF tubes on the upper deck and six more modulator tubes on the lower level (lots of glassware just to generate 100 watts).

The nameplate indicates that this unit is Serial No. 101 (probably the first production model) of the de Forest Radio Company of Passaic, N.J., and it lists a long list of patent numbers covering the circuitry.

When commercial broadcasting began in the

1920s, Western Electric held a patent monopoly on transmitter technology. When that monopoly was finally broken in the late 1920s, a few other companies entered the field, the principal being RCA.

De Forest had a number of marketable patents and so it entered the market as a low-power, lower-cost supplier. Its principal customers appear to have been the smaller independent broadcasters and police and airport stations.

The two audio panels seen on the right were made by Jenkins & Adair in Chicago, another company that provided equipment to the smaller stations that couldn't afford the prices of RCA or Western Electric.

A small manufacturer, Jenkins & Adair specialized in audio systems for sound recording, motion pictures and broadcasting. It merged into the Bendix Radio Company in 1936.

The audio panels contained the audio amplifiers for line output and monitoring. The patch panels and amplifier volume controls functioned in place of an audio console, which were not commonly

used in 1930.

The condenser microphone on the operator's table is a Jenkins & Adair model C-6. The preamplifier inside the microphone enclosure got its power from the audio rack, which in turn took its filament voltage from the batteries seen on the floor.

The original print of this photo, by Roy A. Williams, is in the archives of the California Historic Radio Society. The society today occupies the 1930s KRE art deco studio building in Berkeley, which it operates as a headquarters, meeting place and museum.

KRE is today known as KVTO(AM), operated by Inner City Broadcasting Corp. as a Cantonese-language station. KVTO recently marked its 90th anniversary of continuous broadcasting.

John Schneider is a lifelong radio history researcher. Write him at jschneid93@gmail.com.

This is one in a series of photo features from his collection. See past images under Columns/Roots of Radio at radioworld.com.

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World Radio History

The Business of Backups

A veteran radio transmitter engineer and owner makes the case for redundancy

TECHTIPS

BY JAMES G. WITHERS

I'm a big fan of the "Back to the Future" movies. There's a scene in the first one in which Doc Brown works out his elaborate scheme to get Marty back to 1985. He'll time the acceleration of the DeLorean to a bolt of lightning that he knows will hit the town clocktower at exactly 10:04 p.m. on that very night.

As an old transmitter engineer, I always key in on the part where Marty sets up to race down the street to hit the wire that will zap the flux capacitor. The alarm clock goes off, he jams the car in gear and ... it dies.

Marty, I always think, needs a back-up ride!

Of course, he finally (and miraculously) starts the car by headbutting the steering wheel; but that's in the movies. In real life, he'd still be sitting in that dead DeLorean in 1955 with a sore forehead.

PROTECT THYSELF

Even if they're not needed in the movies, there is no question that backup systems are valuable for 24/7 businesses like radio stations.

But the real question is, how valuable? Most engineers that I know would welcome two (or three) of everything.

Total redundancy. All studio equipment, STLs, transmitters, antennas, even towers and buildings. Double me up, thank you. But does this make economic sense? Maybe not, but in that case, is there an alternate plan that will afford a reasonable amount of protection without breaking the bank? To find out, you need to do some homework.

A good place to begin is by making a list of critical path points. As it turns out, these are numerous, and sometimes not obvious.

Start with program origination, and draw out everything, from announcer mic all the way through the STL antenna.

When you are done, take a look at your work and play a little mental "what if" game. I promise, you will be shocked. If your list is accurate, showing all line amps, distribution amps, patches, network routers, etc., you will find dozens of unique pieces of equipment and wiring paths that can take you off the air. The trick is to figure out how to quickly circumvent those things if (make that, when) they fail. If that means buying a backup, so be it. But many times, you needn't go that far.

The simplest and most cost-effective way to buy redundancy is to use what is already in place. If your station has two studios, is there a procedure for getting the second on the air quickly. Just as importantly, does everyone know how to do that? If the answer to either ques-



iStockphoto/MorePixels

tion is "no," you can start there. Keep in mind that the "standby" studio does not need to be a mirror image of the main. Automation and phone line interfaces, for example, might be ignored, because we are talking about emergency operations here. The goal is to keep the programming (and money) flowing. If some normal production values are missing in the process, that might be an acceptable compromise. Beware of "gotchas" though: issues like console levels, pads, processing, monitor muting and the like can make a quick patch from production to air painful on the ears, unless you know in advance what to expect.

Consider also "outside the box" solutions. An STL failure might be overcome by using a POTS codec for a day. In an extreme emergency, a remote van

might be pulled up to the transmitter building and wired right into the processor. We lost the automation system at my station when the computer power supply failed and took the sound card with it. Our operations manager loaded up all of the spots needed for the day (backed up, thankfully) onto a second desktop that appeared on the production console and we aired everything off the WinAmp sound player, through the production console, patched to the air chain. Clunky, for sure, but we aired every spot and saved all the money, which is the point, right?

STAND BY ...

Transmitter site redundancy presents a totally different set of issues, but is still a balance between cost and benefit.

In major markets, spot rates and audience numbers are so high that most stations are more or less forced to have full redundancy. For the small- or medium-market guy, though, this whole idea of transmitter site backups is complicated, since some of these components are quite pricey. If you own your tower, a spare antenna and line is a nice security blanket in which you can wrap yourself on stormy nights. It is true that total antenna failures are rare, and impending line failures often show up in abnormal VSWR readings, but a spare antenna and line can be helpful in troubleshooting difficult RF problems.

(A word of regulatory caution here:

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Standby antennas and transmitters must be capable of providing a signal to your community of license, and must be licensed as an auxiliary facility. It's a simple filing process, but necessary to stay legal when you use them.)

Also, remember that a standby antenna increases your engineering workload, since it must be pressurized and checked periodically. This is true for almost any backup system, and is part of the calculation you should make before plunging headlong into a "Two of Everything" mode.

Standby transmitters provide similar benefits to backup antennas. It is a marvelous thing to be poking around in the 10 kV power supply at 11 a.m. when you are well rested, rather than at 4 a.m. when you have caffeine jitters on two hours sleep. Piece of cake if you have a standby transmitter. Unlikely without one, but again, a second transmitter comes with added cost and maintenance time built right in.

COST CONSIDERATIONS

All decisions regarding backup equipment and systems boil down to one thing: How important is it for your station to be on the air?

At some point the cost curve and your personal benefit curve for avoiding an extended outage will cross, and at that point, a backup system makes sense.

Of course it's important, but *how* important? Would you pay \$10,000 to avoid being off the air for one minute? (Don't laugh: I visited a UHF television station once that had a full power 60 kilowatt transmitter on an UPS battery backup! The batteries — racks and racks full of them — would keep the rig going until the generator kicked in, so the chief got his no-fail standby, but the costs, in both initial price and upkeep, were enormous.)

While most of us would politely decline the offer to spend \$10K per minute for uninterrupted performance, at some point, the cost curve and your personal benefit curve for avoiding an extended outage will cross, and at that point, a backup system makes sense.

Bear in mind that your calculation will be, at best, an educated guess. Antenna failures, for example, are

almost always catastrophic, and without a standby, there will be no quick fix. Transmitter failures, on the other hand, can go from minor (a tripped circuit breaker), to epic (smoke roiling out from the 10,000 volt Cabinet O' Death). It is for the second event that we consider backup rigs.

Finally, backup systems are only as valuable as they are reliable.

I once worked at a major-market NBC TV station with two STLs, running in hot/standby mode with an auto switchover —100 percent STL redundancy. Unfortunately, though, at some point the

backup STL had failed, and no one had ever checked the status of the system.

When the day finally arrived that the main failed, the system performed perfectly, switching to the standby, which was stone-cold dead. (As it turned out, that was very nearly the professional fate of the maintenance engineer whose responsibility it was to check those things — me.) Lesson learned: The only way to make sure backups operate as planned is to invest the time and money to test them routinely.

Radio stations are complicated businesses. There is a whole host of tech-

nology subject to unplanned failures. Formulating a plan for backing up critical pieces of equipment and systems in a cost-effective manner, well in advance of actually needing it, will help ensure that you never end up in your very own version of a dead DeLorean, watching the clocktower tick down to 10:04.

Jim Withers owns KYRK(FM) in Corpus Christi, Texas. A broadcaster since 1965, he has worked at and managed radio and TV stations in Missouri, Illinois, Texas and Nevada, and built and owned several AMs and FMs in Texas and Wyoming.

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Assign any source of any type anywhere on your network to any fader. Each input channel can be assigned to four stereo busses, plus four pre/post-selectable aux sends, a stereo CUE bus, four mix-minuses and the panel's own bus-minus. Full Voris EQ and Dynamics let you sculpt and control your sound with the quality of the finest dedicated outboard

processors. The visually-stunning meter bridge features up to four sets of bright, high resolution LED meters, as well as circular LED displays for auxiliary send levels and pan control. A digital count-up/count-down timer is also included.

The LX-24 is advanced in ways that can make a HUGE difference in your capabilities. But it's also immediately familiar to anyone who has ever sat behind a board at a radio station. Use it to make your programming the best it can be. Just plug it into your WheatNet-IP Intelligent Network - with it, and the BLADES across the page, you can, dare we say it, rule the world.

THE LX-24 CONSOLE CONTROL SURFACE FEATURES

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- Meter bridge** with up to four bright, high-res LED meter sets
- Control room and headphone outputs** with level control and source selection
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- Onboard VGA and USB-Mouse connectors**
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- Each input channel features:**
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price. it's called The WheatNet-IP Intelligent Network, and it rules.



Our BLADES carry out your orders network-wide at Gigabit Ethernet speeds - no bottlenecks

As an integral part of the WheatNet-IP Intelligent Network, BLADES interface, move, bend, shape, route and control everything you want to do with your audio. If it's audio, a BLADE will handle it - at lightning speed.

Use them organically with our control surfaces, run them from our Glass-E software wherever you have internet access, or control them from the front panels. BLADES make your life incredibly easy and secure.

As you need more functionality, just plug in more BLADES - they come in configurations to handle whatever you need (analog, digital, a/d, mic, MADI). Each BLADE is self-configuring and has the DNA of the entire self-healing network.

With BLADES, you can do everything from a simple (or complex, if you like) snake to STL-over-IP to full-on multi-studio/facility networking - even processing. And because of Wheatstone's partnership with the top suppliers of automation and remote gear, you'll have control over your entire system right from WheatNet-IP. Ruling the world has never been easier.

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Four CAT-6 cables and a low-cost switch that handles the gigabit speed WheatNet-IP runs at.

Let's do the math - plug in eight connectors, power up a console and three BLADES, add your audio and you are ready to rock, roll and rule the radio world. Brilliant, you ask? Nah - just really, really intelligent.



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WheatNet-IP outperforms the other AoIP systems exponentially and is, by far, the most reliable network you can get. Log onto wheatip.com. There is a world of *real* information there. Or, give us a call. There's nothing we like better than talking about this stuff.



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Two 8x2 stereo virtual Utility Mixers that can be used for a wide range of applications: for example, using Wheatstone's ACI Automation Control Interface, your automation system can control the mix for satellite or local insertion switching

Front panel bar graph meters switchable to display source input level or destination output level after gain trim

Front panel routing control - any system source to any destination on that BLADE

Front panel headphone jack with source select and level control - monitor any system source

Flexible GPI logic - 12 universal logic ports, programmable as inputs or outputs, routable throughout the entire system

Built-in web server so you can configure and control locally or remotely without having to run dedicated software

SNMP messaging for alerts

Silence detection on each output that can trigger alarms or make a routing change

Silent - no fans - can safely be located in a studio with live mics



MARKET PLACE

SIMIAN BULKS UP: Simian Pro 2.2 is available from Broadcast Software International. It supports Simian Gateway and a Simian Remote application to enable users to access their on-air or production Simian Pro Radio Automation remotely.

"Simian 2.2 is the first version that will accept the Remote Gateway that allows for remote control of Simian through a Windows desktop, or with the iPad remote application to follow soon, pending Apple approval," the manufacturer stated. "Simian Gateway offers a TCP/IP portal into your Simian 2.2 Pro automation system for Simian Remote for PC and Simian Remote for iPad clients to connect. The Simian Gateway manages a connection to your Simian 2.2 Pro On-air or production software to Simian Remote clients on your local network, or across the Internet."

BSI says Simian Gateway and Simian

Gateway and Simian Remote's voice track editor can download intro and segue cuts that the Simian Gateway creates for the songs surrounding a voice track so that the user can preview and set cross-over points for the voice track. Shown is a screenshot of the iPad Simian Remote client.

BSI is part of Cumulus Media.

Info: www.bsiusa.com



Remote clients support the ability to create and insert voice tracks remotely. Simian Remote's voice track editor can download intro and segue cuts that the Simian Gateway creates for the songs surrounding a voice track so that the user can preview and set cross-over points for the voice track. Shown is a screenshot of the iPad Simian Remote client.

BSI is part of Cumulus Media.

Info: www.bsiusa.com

CLEAR CHANNEL GETS XTREME: Clear Channel Satellite announced deployment of the first XtremeSat Media satellite broadcast distribution platform. It is being employed by TeleSouth Communications Inc., which uses it to deliver 10 audio channels to affiliates and company-owned radio stations from an uplink in Jackson, Miss. TeleSouth also signed up for satellite capacity for distribution of programming.

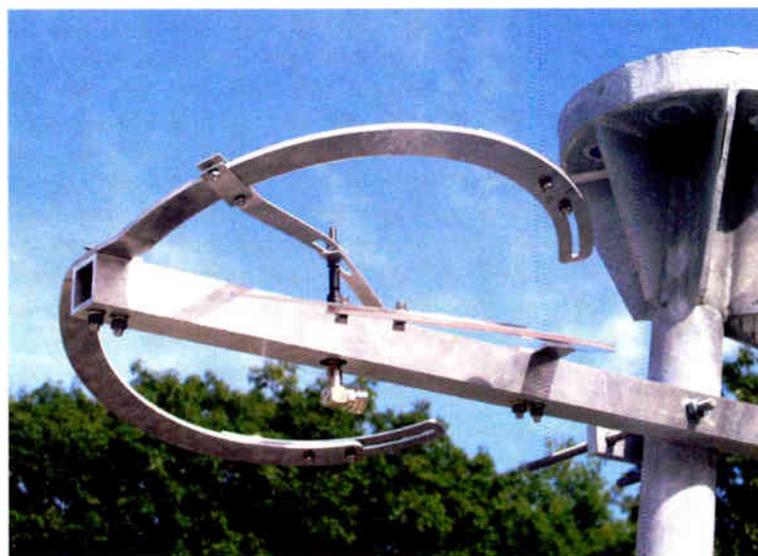


Clear Channel Satellite President Mike Hagans stated, "Recent technology advancements have made it much less expensive to operate your own multi-channel satellite network." He said the new uplink and receiver platform "allows syndication providers who have their own uplinks to replace their aging and inefficient receivers and head-end gear with a system that is much more bandwidth-efficient."

The content receiver is made in Germany by 2wcom and is sold through Clear Channel Satellite. The USA Warranty Center is maintained by Clear Channel Satellite handling repairs at its Denver facility.

Features include AAC audio, spot insertion and an intelligent fallback feature that automatically uses an alternate carrier, streaming audio or receiver-stored content when needed. The system will operate on C or Ku Band uplink systems and is capable of one stereo audio channel or can be expanded to deliver 64 stereo channels in an MCPC configuration.

Info: clearchannelsatellite.com



LOWER POWERLITE: Dielectric debuted the DCR-T. This FM model is part of the company's Powerlite line of antenna systems.

The company says that the DCR-T is a lower-power version of its DCR-H. It will be available in sizes from one bay up to eight bays, with a maximum output of 8 kW.

The circular polarized antenna has aluminum elements. Arrays are field-tunable and can be grounded to earth.

Dielectric says the DCR-T is IBOC-compatible and is aimed at Class A and B stations.

Info: www.dielectric.com

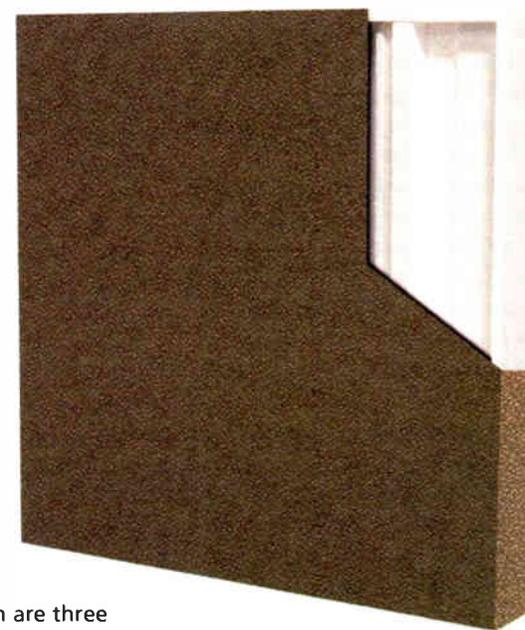
SILENCE!:

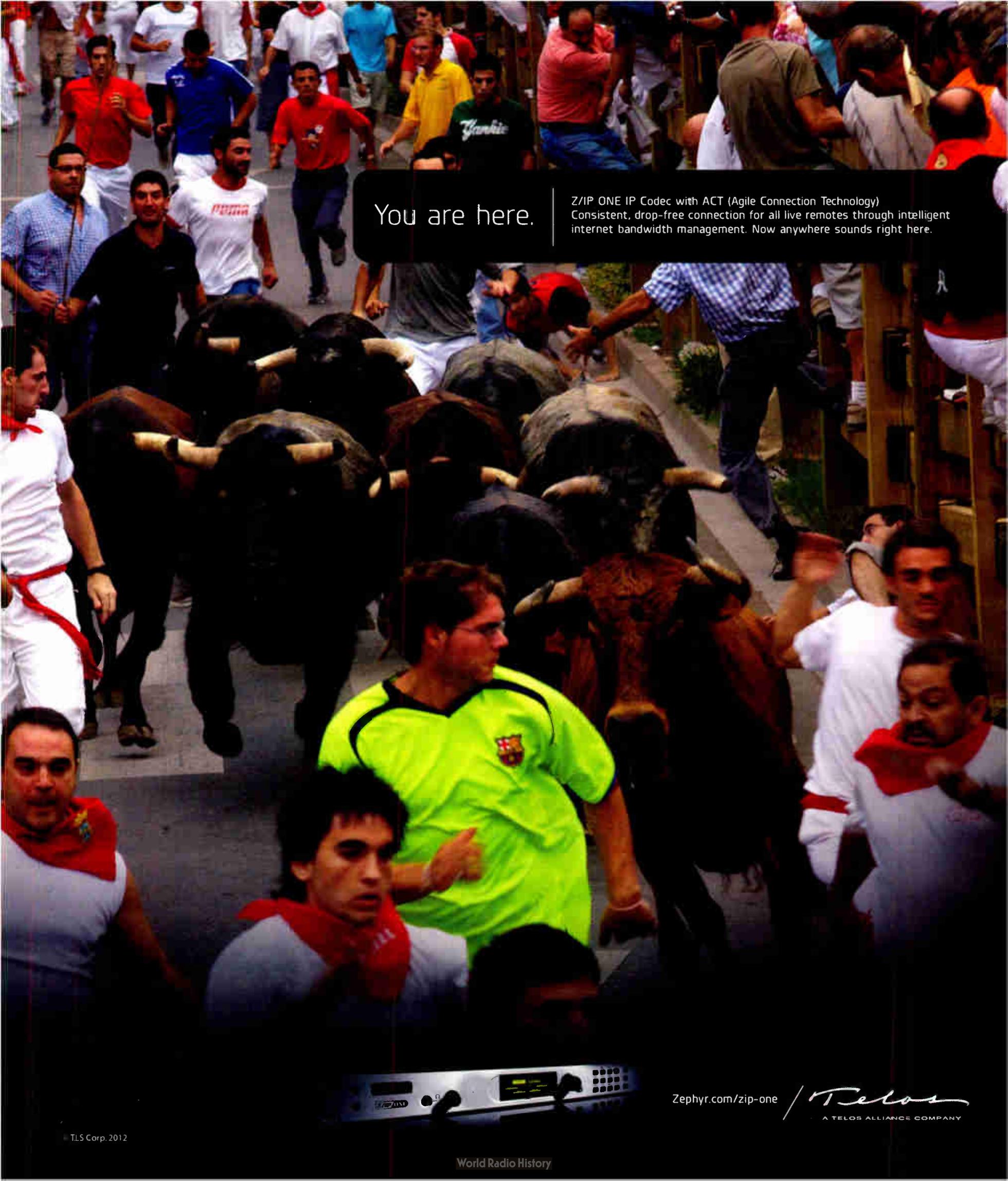
Acoustic treatment specialist Auralex has a pair of new products for those in need of silencing material: ProFusor II panels and SheetBlok-AF sound isolation wrap.

ProFusor II is a "fabric-wrapped sound diffuser." Designed to be seen with colors such as ebony, pumice, mesa, sand and shadow, it is available in 2-foot x 2-foot (ProFusor22) and 2-foot x 4-foot (ProFusor24) sizes. Both are three inches deep. They are Class A fire rated.

SheetBlok-AF is designed to be used before walls are finished or after. It can operate as a sound isolation barrier beneath wallboard, flooring, wallpaper or paneling or as a wallpaper-like acoustic treatment. It is paintable with latex paint. SheetBlok-AF has a thin PVC laminated surface on top of a sound absorbing membrane material. It is available in 4-foot x 10-foot rolls. Auralex says SheetBlok-AF is at least 6 dB more effective than solid lead at stopping the transmission of sound.

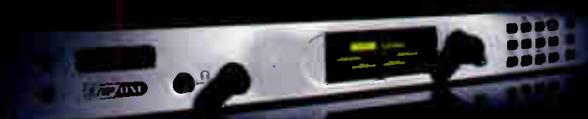
Info: www.auralex.com





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Site Sentinel Solves Problems

Maine broadcaster finds a customizable solution for alert and monitoring applications



USERREPORT

BY ANDREW ARMSTRONG
Chief Engineer
Saga Communications,
Portland Radio Group

PORTLAND, MAINE — If you're like me, over the years you've designed and

constructed custom solutions for tasks within your facilities where no commercially available product was available or it was outside the budgetary constraints of the time.

Or you may be looking to improve the overall monitoring of all your facilities so as to keep tabs on critical parameters (electronic logging, tower light monitoring, automatic pattern change,

device temperatures and so on), while also making use of a legacy remote control to add text, email notification, logging and Web access for control and monitoring.

ALERTS

At Saga Communications Portland, we have a good deal of experience working with the Broadcast Tools WVRC-8, an eight-channel remote monitoring solution with Web and POTS interfaces that we've used at many sites for many years. Primarily we use this product to add email notification of critical parameters to supplement our legacy dial-up remote control systems.

When I discovered the Site Sentinel 16 and researched its potential through emails with Broadcast Tools President Don Winget, I was looking for some programming examples of macros and schedules to get a feel for the interface before we made our first purchases. I was blown away by its capabilities.

With flexible macros, command sequencing, a scheduler, internal event logging, multiple temperature probes, Web, SNMP and an NTP client to keep it on time, as well as the capability to link eight unique email addresses to any status, metering or relays, the possibilities seemed endless.

At our studios, where we program and monitor eight stations, we needed a device to interface between our silence- and carrier-detection alarms and our in-house warning light and signaling system. At the same time, we needed email and text messaging capability to replace our current dial-out solution. We had long ago outgrown the existing facilities, originally designed to handle six stations.

A few years ago, we replaced the studio-alert portion of the system to facilitate monitoring 12 unique alerts. Then it was time for an updated interface between the monitoring devices, our internal studio signaling system and the external notifier.

We were also looking to reduce miscellaneous, erroneous and transient alarms. The Broadcast Tools Site Sentinel 16 pulled all those needs together and proved to be a single-solution perfect fit.

The Site Sentinel 16 allows us to use macros, scheduling, status, metering, relays and alert delays to monitor each station for the absence of PGM audio, loss of left or right channels, an out-of-phase condition, off-air audio loss and carrier loss, as well as other environmental parameters, including generator

operation, moisture detection and temperature monitoring.

When a particular station has a problem or the studio generator is online, decisions are made by the Site Sentinel 16 to alert the correct personnel depending on several factors: the source of the alert, the time of day and the duration of the alarm.

If, for example, our hot AC WMGX(FM) has a brief outage of PGM audio, the studios are notified immediately. If the outage continues, the PD is notified. For a prolonged outage (more than 60 seconds) overhead strobe lights and an in-house audio message are triggered and the engineer is notified.

It's a daypart-sensitive tiered system that escalates as the outage drags on, so a brief operator mistake or a quick carrier loss will not cause panic by notifying everyone at once. This also allows us to filter the number of alerts for what is likely an operational or satellite feed timing issues.

STABLE

Another example: If that WMGX PGM audio and off-air audio are missing for a brief period of time, the studio is alerted and the PD receives a message. If PGM is available and there's off-air silence or carrier loss, the engineer is contacted first, which quickens a resolution.

The Site Sentinel 16 has also helped us automate the interlocks at our backup tower sites to avoid accidental operation of both the main and backup sites simultaneously for an extended period of time and warm-up backup transmitters when there's an outage detected at main sites.

Through the use of closures and status indications between sites, the Site Sentinel 16 monitors the main site for proper operation. The Web interface also offers us a second entry point to the backup site in the event that the dial-up access goes down for whatever reason.

The Site Sentinel metering is stable. I generally don't need to recalibrate the readings over time. Another plus is that the inputs are not sensitive to RF. We proved this recently when we integrated one about 10 feet from an AM/FM stick! The Web interface is responsive and well-formatted. Broadcast Tools recommends the use of Firefox and other browsers excluding Internet Explorer.

We continue to invest in the Site Sentinel 16. It has proved to be a reliable, effective utility that meets several of our needs for an affordable price.

For information, contact Don Winget at Broadcast Tools in Washington state at (360) 854-9559 or visit www.broadcasttools.com.

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DETAILS

The RBRX1 applies BW Broadcast's RF and audio DSP technology know how to this new range of products to achieve unprecedented RF and audio performance, as well as access to typically hidden RF and audio settings. This allows complete optimisation of the listening experience.

Transmission Products » Transmitters

BW Broadcast TX50 FM Transmitter



Introducing the answer to your LPFM problem. This 50w 1RU FM transmitter is the perfect piece of equipment for low power broadcasters who want an easy to set up and ultra reliable FM transmitter with built in DSPX audio processing, so they can concentrate on making the most of their station.

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DETAILS

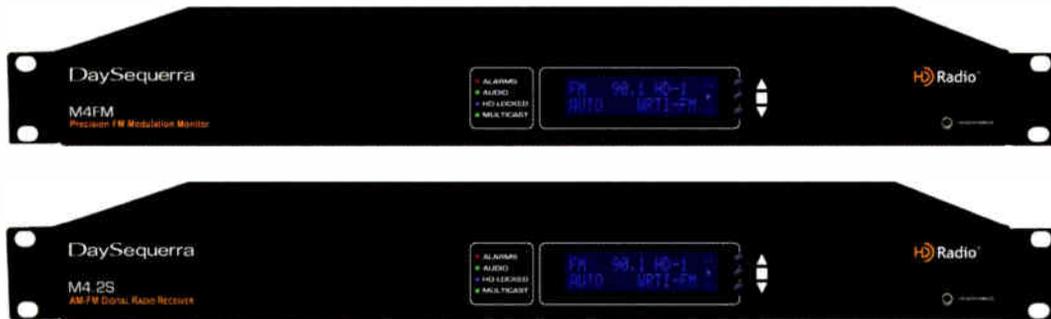
Designed for pristine audio quality and unsurpassed reliability, thousands of BW Broadcast's FM transmitters are operating trouble-free in some of the world's most remote installations. With comprehensive features and creative design, the TX25 and TX50 are exceptional value for those on a budget but don't want to compromise on performance.

TECHUPDATE

DAYSEQUERRA M4FM AND M4.2S MONITOR HD RADIO

DaySequerra says that its new M4FM is a customizable FM analog and HD Radio modulation monitor.

It receives HD Radio and analog FM signals simultaneously, providing HD Radio status, data, time alignment and configuration information as well as analog modulation, pilot level and SCA modulation level.



The M4FM display is available anywhere a user has Internet access. The Web server is compatible with all browsers and operating systems. It will email alarms and stream audio to a smartphone. DaySequerra says that the M4FM will stay locked to the user-selected radio stream during AC power or I2E interruptions. Its rear nine-pin D-sub provides alarm tallies for loss of audio, carrier and HD Radio OFDM lock.

Two expansion slots accept optional StreamPro DSP HD decoders to allow simultaneous monitoring of up to three streams of one HD radio station or add the TimeLock upgrade and maintain time alignment of HD Radio HD-1 and analog streams.

According to DaySequerra, the M4.2S is an affordable, next-generation AM-FM analog and HD Radio receiver. The company says it stays locked to the stream selected even if the broadcast or AC power is interrupted. It provides transformer-isolated digital audio even when tuned to non-HD signals, XLR balanced analog outputs and a headphone monitor.

The front-panel LCD displays RBDS, PAD and SIS data, along with digital audio quality and alarm status. Its rear-panel GPIO port provides remote reset capability and alarm tallies for loss of audio, carrier and HD Radio OFDM lock.

DaySequerra's Remote Dashboard Web server is compatible with various browsers and operating systems, and provides M4.2S remote control. A wireless router could be used for remote control using and Android or iPhone.

For information, contact DaySequerra in New Jersey at (856) 719-9900 or visit www.daysequerra.com.

KINTRONIC SHIPS VSU-1

The Model VSU-1 voltage sampling unit from Kintronic Labs is a voltage sampling unit. It was developed in response to the FCC rulemaking that permits Method of Moment proofs of performance of directional antenna arrays using towers with electrical height greater than 105 degrees.



The initial installation of the Model VSU-1 voltage sampling units was at WAOK(AM) in Atlanta. At that location the question was of the reliability and survivability of the units placed directly in shunt across the tower feed of each tower in a high lightning environment.

According to Kintronic, the units were installed in January 2011 and continue to provide stable antenna monitor readings even in the presence of a direct lightning strike on one of the towers.

The design can be configured to accommodate peak operating voltages of 40 kV and can be adapted to a range of sample voltages for multiple pattern and transmitter power levels. Operation in a diplexed directional antenna system is possible depending on the frequency difference.

According to Kintronic Labs the use of voltage sampling to facilitate MoM proofs has several advantages. It enables servicing of the sample system at the ground level and eliminates the need for sample loops; it enables proofs of arrays with

one or more sources of re-radiation, such as nearby power lines, at a fraction of the cost of a full proof; it offers an alternative to the high cost of moving sample loops to facilitate an MoM proof; and an MoM proof of any array that qualifies can be completed at a small fraction of the cost and time required for a full proof.

For information, contact Kintronic Labs in Tennessee at (423) 878-3141 or visit www.kintronic.com.

ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to bmoss@nbmedia.com.

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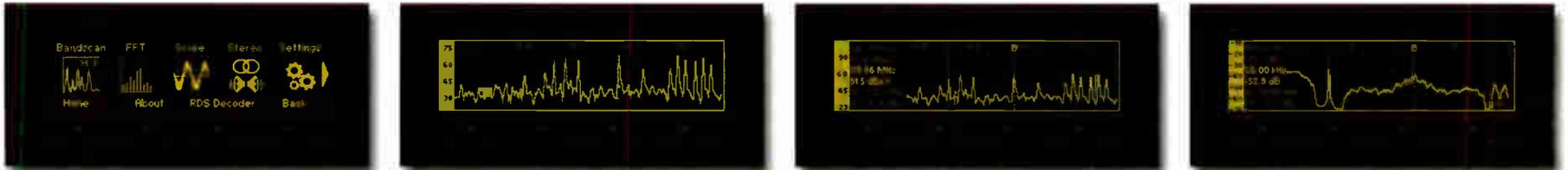


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BUYER'S GUIDE

Burk Simplifies Remote Control

ARC Plus, Adapter and AutoPilot banish complicated scripts

USERREPORT

BY **AMANDA HOPP, CBRE**
 Chief Engineer
 Crawford Broadcasting, Denver

DENVER — For many of us in the broadcast world, a remote control system is a way of life.

It keeps us from constantly having to be at a place where we have to monitor our stations manually. It helps us with switching at sunrise and sunset. It may even help us with monitoring our tower lights. Without it, we become lost.

I was asked recently to try out Burk Technology's ARC Plus with their Plus-X IP-8 Adapter. Our setup here in Denver has been the ARC-16. This unit requires a ribbon cable to go from the interface panel to the ARC-16 unit. The thought of upgrading our system seemed out of reach due to the complexity of our setup.

INTERFACING

After discussing what I needed with Burk Technology over a year ago, they decided to create an adapter for their new ARC Plus system.

When looking to upgrade our remote system, the biggest requirement for me was that it be compatible with our interface panel. Our setup is complex and having to redo all the wiring completely could cause more harm than good.

The Plus-X IP-8 Adapter was



designed to interface between older ARC-16 panels and the new ARC Plus system. No changes in the old wiring would be needed.

But I also needed something that would make it easier for me to get things done at the sites. Burk's older AutoPilot 3 management program uses scripts to customize how the system will behave. Unfortunately I have no clue on the language used to write these scripts.

Writing scripts, for me, has always been a copy-and-paste ordeal. I find

other scripts that were written before my time as chief engineer, piece together something and keep adjusting it until it works. So, needless to say, I wanted something easier.

The newer AutoPilot 2010, which came with the ARC Plus, provided that ease with its Jet flowchart scheme. Jet allowed me to design what I needed, and the complicated scripting was taken care of automatically.

The ARC Plus with the Plus-X IP-8 adapter was an easy install. The ARC

Plus is a 2 RU system and the Plus-X Dual IP-8 Adapter is a 1 RU unit. To install, just put it in the rack, hook both units up to your network and assign IP addresses. The ARC Plus allows IP changes on the front, while the Plus-X Dual IP-8 adapter does it over Ethernet. Configuration of the ARC Plus is, in my opinion, better than with the ARC-16.

CONFIGURATION

Burk Technology has configuration software on their website called AutoLoad Plus. I can input the IP address of the ARC Plus and it finds it. From there I can label various channels, assign statuses, create meters etc. For security reasons, I think placing this program on a remote server is better than embedding it locally within AutoPilot 2010, because if you happen to sign in as "admin" and just click on a meter to edit that channel and then forget to sign out, anyone else with access can then have some fun.

At first glance, AutoLoad Plus seems overwhelming, but if you pick just one thing to work on, such as statuses, it is actually quite easy. Any changes made and saved in the program are seen almost instantaneously in AutoPilot 2010. I had the system up and running for one of my sites in just about half an hour.

As with the other versions of AutoPilot, AutoPilot 2010 allows for custom views. This makes it so you aren't seeing all the unused meters or statuses when you select a station. Instead, you can create a custom view for anything you want. I use mine for each station and for tower lights at my various sites. The Jet flowcharts make it easy to create something in a few minutes. Need to have it give you readings every hour for one site? No problem.

The ARC Plus, Plus-X IP-8 Adapter hardware along with the AutoPilot 2010 and AutoLoad Plus programs were easy to use, program and required little time to set up. The combined system provided better station control and had an improved all-around look. It would be the perfect fit for any station that needs an upgrade from an older ARC-16 setup.

For information, contact Steve Dinkel at Burk Systems in Massachusetts at (978) 486-0086 or visit www.burk.com.

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Send RDS without losing loudness by using the built-in RDS encoder. Loudness is maintained due to the method of embedding the RDS signal. (More of that special sauce makes this possible)



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FM, HD-1, HD-2, HD-3, 3 audio streams, all have independent processing cores (multicast version).

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TECHUPDATES

INOVONICS FM/HD RADIO RECEIVER IS A LOCK

The INOmini 632 from Inovonics is an FM/HD Radio receiver in a small-form factor, for off-air confidence monitoring. It receives standard analog FM broadcast transmissions, as well as FM/HD Radio digital broadcasts transmitted via the FM station's associated HD1 through HD8 digital broadcasting channels.



Analog FM and HD Radio digital programs are accompanied by digitized text in the form of FM RDS and HD Radio PAD. Outputs include balanced left and right and AES audio, along with alarms for audio loss, digital loss and carrier loss. Inovonics says that the 632's 1/3-rack size is ideal for stations multicasting FM/HD Radio allowing up to three units to be daisy-chained together in one 19-inch rack space (optional).

When the 632 is set by the user to receive HD Radio digital broadcasts, it will not revert or "blend" back to FM reception if the digital signal or power is lost. This allows for dedicated, reliable, and uninterrupted monitoring of multiple HD Radio channels.

For information, contact Inovonics in California at (831) 458-0552, or visit www.inovonicsbroadcast.com.

SAGE ALERTING SYSTEMS UPDATES ITS EMERGENCY ALERT SYSTEM

Sage Alerting Systems says that while the FCC's EAS/CAP deadline is past, it continues to make software improvements and add features to its Sage Digital Endec, model 3644.

The latest software updates include support for FEMA's CAP server as well as several states' servers. It also includes a new audio level display showing relevant settings to help the user adjust alert levels properly.



According to Sage, the Endec helps to keep stations compliant with front-panel warnings, Web page status displays and email messages if the connection to a CAP source is lost. For stations that provide EAS origination for their local areas, Sage adds that it offers several origination tools, from the EAS-only Endec DJ and PRO software, to CAP origination for one Endec or many with Alert Studio from GSS.

Sage says the Endec has features such as digital audio, LAN interface, email logging, browser-based remote control, TCP/IP peripherals and its expanded automation interface. It can be a new installation or replace legacy equipment.

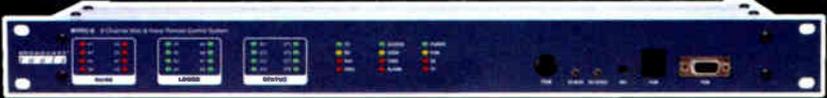
For information, contact Sage Alerting Systems in New York at (914) 872-4069 or visit www.sagealertingsystems.com.

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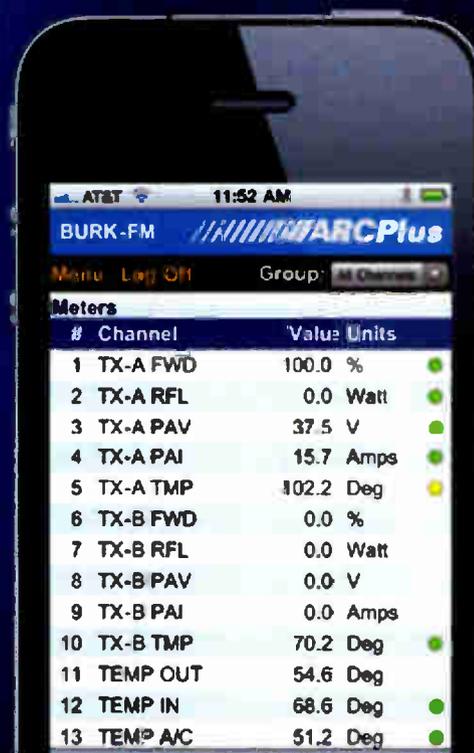
We all love the ARC-16, but there's new technology it just wasn't designed for – like Burk's exclusive **mobile app** that lets you dial-in, diagnose, and resolve problems remotely. If you've been putting off your upgrade, we'll give you (and your boss) a great reason to do it today.

Ask how you can save \$300 through our ARC-16 Trade-in program.

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World Radio History

DAS-RCS for Smooth EAS Transitions

Midwest broadcaster enjoys more orderly alert activity

USERREPORT

BY MIKE HUTCHENS
Chief Engineer
Townsquare Media Evansville

EVANSVILLE, IND. — For many years radio stations simply used an EAS box to put out EAS messaging. A severe weather warning or test message would come in, the box would take control of the broadcast and play out the message, and then the station would resume its regular broadcast.

The alert or test often cut off songs or cut into commercials, and the result was, at best, a clunky broadcast that might disrupt the listener experience. At worst, however, this abrupt interruption of spot blocks and paid messages could be alarming, even when the EAS message itself was not.

Now the integration of that EAS box — the DASDEC from Digital Alert Systems — with RCS NexGen Digital radio automation software is allowing stations such as ours to maintain broadcasts with a much more natural flow, even when there is a need to play out EAS messages.

TIMELY INTERVENTION

We have deployed DASDEC systems with Digital Alert Systems' MultiStation-2 and MultiStation-5 software in Evansville, Ind., and MultiStation-2 in Owensboro, Ky., to facilitate multiple station operation and redundancy in each market. These software systems respectively enable one DASDEC unit to provide complete EAS coverage for our collocated stations.

The RCS-DAS interface we've imple-



mented communicates EAS information between the NexGen Digital automation and the appropriate DASDEC box over our IP network using Digital Alert Systems' EAS-Net communications protocol. When the DASDEC receives an EAS alert, it passes that information to the RCS system, which in turn examines the active playlist, finds the next logical break and seamlessly inserts the EAS event audio between preexisting elements.

The listener hears a playlist item come to its natural end, hears the alert and then hears either resumption of programming or, when necessary, a weather or news report providing more detail about the alert. Additionally, each station has its own Net-Alert Interface so only alerts designated for that station are sent to its NexGen computer.

When the DASDEC system receives an alert for insertion into the broadcast,

it triggers a mode in RCS so that in addition to dropping an audio file into the playlist, it also gives our jocks a visual cue that there will be an EAS alert. Because this cue includes the alert text, they know right away if it is a test or if, for example, it's a storm warning for particular counties. Our jocks quickly get all the information they need to decide when and how to play out the alert.

In the case of a tornado, they would go ahead and play the alert immediately, following up with further information. If it's a test, they likely would just air it going into or out of a spot block.

After NexGen has played the alert it sends a message back to the DASDEC that the alert has played. If for some reason NexGen does not play the alert, the DASDEC will interrupt the air chain and forward the alert.

Before we implemented this system across our seven radio stations in Southern Indiana and Northern Kentucky, it was nearly impossible for our afternoon jocks to maintain an engaging dialog when severe weather came through the area. Now the combination of our DASDEC box and RCS software gives our jocks better and easier control over when and how alerts play. As a result, our stations can provide programming that listeners want to hear, as well as the community service of timely emergency alerts without being a nuisance.

While better control over alert play-out is a benefit to all our stations, it has been particularly valuable to our two local primary stations, WBKR(FM) and WKDQ(FM). As designated local primaries, we must carry more EAS alerts on these stations, often as many as six to eight per hour when the weather is bad. With the DASDEC interface our jocks can work those alerts into our programming easily, making for a better listener experience.

I've been waiting for the integration of our EAS system with our automation software for a long time, and the solution offered by DAS is the first that really works.

For information, contact **Bill Robertson at Digital Alert Systems in New York at (585) 765-1155 ext. 121 or visit www.digitalalertsystems.com.**

TECHUPDATE

ESE PROVIDES 10 MHZ SIGNALS

ESE's ES-210 is a quad-bank six-channel 1/5/10 MHz distribution amplifier. Each of the four distribution amp banks is independent so it can have its own frequency and each bank can take that frequency and distribute it among six isolated output channels.



All of that is packaged into a single rackmount enclosure. Each distribution amplifier has loop-thru inputs. All connectors are BNC. The ES-210 utilizes screwdriver-adjustable gain controls that are located on the front panel.

The gain controls provide an overall signal level adjustment of -1.5 to +3.4 dB. ESE explains that the ES-210 can be used to distribute accurate 1 MHz, 5 MHz or 10 MHz signals (derived from a separate master clock) that are used for transmitter synchronization as well as recalibrating various test equipment.

For information, contact **ESE in California at (310) 322-2136 or visit www.ese-web.com.**

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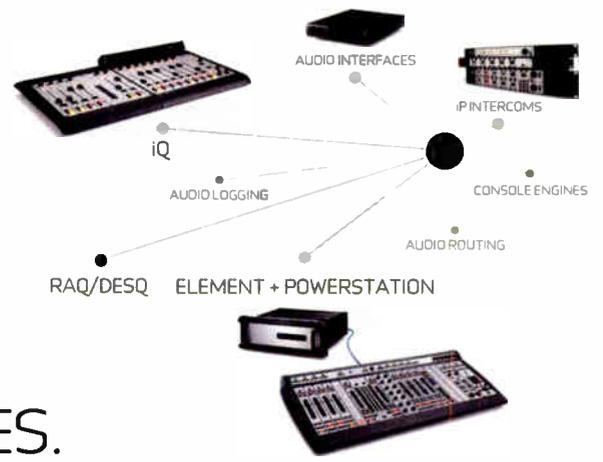
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MEET AXIA'S NEW, SMALLER IP CONSOLES. THEY'RE BIG WHERE IT COUNTS.

Plastic labels? Not on these consoles. High-rez OLED displays on each channel tell talent exactly what source is assigned.

Just a push on the Options knob lets board ops assign new sources, adjust gain trim, source EQ and more.

Razor-sharp OLED Program meter with overload warning, VU or PPM ballistics? The choice is yours.

Can a super-duty, high-performance rotary gain control still be called a fader? Just don't call it a "pot" - that's old tech.

Inside this 2RU chassis beats the heart of a giant, with power to run two RAQ or DESQ consoles. Or maybe one of each? It's okay, we don't judge.

QOR.16 console engine doesn't just look cool - it stays cool thanks to beefy heat-sinks and fanless design.

Built-in Ethernet switch lets you easily network devices and studios. Plenty of professional, balanced analog, AES and Livewire I/O, too.

Avionics-grade switches with LED lighting

Four Show Profiles for instant recall of console configurations. Try that on a PA mixer.

Rugged, built-in, auto-ranging power supply. No line lumps or wall-warts on Axia gear.

Machined-aluminum work surfaces are made tough, to stand up to what jocks dish out.

Event timer has manual and auto-reset options.

Smooth 100mm, premium faders are side-loading to foil dirt and debris.

Time-of-day clock can slave to your NTP server.

OLED channel displays have an audio confidence meter, too.

Four-position monitor selector lets you switch between Program or External monitor feeds on the fly.

Onboard headphone control with Preview option. Cheesy outboard amps need not apply.

The more you saw, the more convinced you were that IP consoles made sense for your station. Problem was, you had small spaces to work in. Some behemoth board that looks like a '78 Oldsmobile just wouldn't fit. But there was no way you'd settle for some cheap plastic PA mixer that looked like a refugee from the church basement. "Wouldn't it be great," you thought, "if someone made an IP console that didn't take up a whole room?"

Then you saw the new RAQ and DESQ consoles from Axia, and your problems were solved. With the power and features of a big console, but minus the ginormous space requirements. RAQ will drop right into those turrets in your news station's bullpen -

the reporters can send their finished stories right to the studio. And DESQ is perfect for the auxiliary production rooms.

But what sealed the deal was finding out you could run two RAQ or DESQ consoles with just one Axia QOR.16 mixing engine — you know, the one with all of the audio I/O, the power supply and the Ethernet switch built in. That brought the cost down so low that when you told your GM the price, he actually didn't swear at you (for once). Make another decision like this, and you might just be changing the sign on your door from "Chief Engineer" to "Genius."

Available in the U.S. from BGS: (352) 622-7700

Axia Audio, a member of The Telos Alliance™ ©TSL Corp 2012

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TECHUPDATES**DEVA DB4004 MONITORS MODULATION**

The DB4004 is Deva Broadcast's second generation digital FM radio modulation analyzer.

It can monitor up to 50 other FM radio stations, with many features such as TCP/IP connectivity and automatic alerts for operation outside of predefined ITU-R ranges. In case of transmission failure, engineering staff can be immediately alerted via email, SNMP or SMS for quick restoration of normal service. The DB4004 is designed to support USB and LAN communication interfaces, allowing options in remote connection and control of the unit. There is a GSM modem connectivity option to increase communication choices.



Deva explains that the RF signal is digitized as soon as it enters the DB4004 and all signal processing is then made through DSP algorithms. The accuracy of the digital filters used in the DB4004 enables the FM multiplex signals components to be accurately and repeatedly reproduced from one device to another. The company says that the processing power in the device enables all measurements to be refreshed simultaneously and synchronously, thereby allowing for detailed readings of all the multiplex FM signal components.

The DB4004 has a high-resolution OLED graphical display and 60-segment LED bargraphs that allow reading of the main signal parameters at a glance, says the company. It includes a built-in oscilloscope and spectrum analyzer for detailed RF, multiplex and audio signals analysis. In addition, the DB4004 monitors RDS/RBDS parameters.

For information, contact Deva Broadcast in Bulgaria at 011-359-56-820027 or visit www.devabroadcast.com.

SONIFEX RB-IPE IS AN IP EXTENDER FOR CONTROL

The new Sonifex Redbox RB-IPE is a 1U rackmount IP Extender to provide remote control of GPIO and analog control voltages over an Ethernet network.

It is configured using a built-in Web server that enables two RB-IPE units to control each other across an Ethernet network, or a single unit to be controlled via Ethernet commands and the Web server interface.



Its outputs can be controlled from the inputs of an additional RB-IPE on another site, or from Ethernet commands, allowing any tallies and control signals, together with analog potentiometer movements, to be sent across a network, e.g. for remote alarm points, to trigger failure alarms at a transmitter site and to control remote equipment.

The RB-IPE has 16 general-purpose inputs on eight RJ-45 connectors, consisting of eight isolated current sink inputs and eight ground-protected inputs; and 16 general-purpose outputs on eight RJ-45 connectors using eight isolated relay change-over contacts and eight opto-isolated contacts. These rear-panel RJ-45 connectors have an LED for each GPIO which shows its state.

On another eight RJ-45 connectors there are eight 0 to 3.3V/5V/12V input signals and eight output signals nominally at 0 to 3.3V output, with other output voltage configurations possible.

The Web server in the RB-IPE can be configured with a static IP address or by using DHCP; and the unit is powered from a universal mains input between 85 VAC-264 VAC at 47 Hz-63 Hz.

For information, contact Sonifex/Independent Audio in Maine at (207) 773-2424 or visit www.sonifex.co.uk.

AUDEMAT OFFERS MINI CONTROL SILVER

According to Audemat, the Mini Control Silver is a compact IP-based system offering low-cost broadcast facility management. The company says that despite its size and price, the unit offers extensive functionality encompassing eight digital inputs, eight analog inputs, eight contact closures and, critically, support for the ScriptEasy software suite.



ScriptEasy, which runs on Audemat's remote control equipment and is used in the networks of many major broadcast networks, is available as standard on the Mini Control Silver. It is a graphical software application that enables scripting and telemetry via a simple user interface. It enables the user to configure and control many units at a remote location. The data acquired from all sites can then be displayed on ScriptEasy's MasterView application for interpretation of the network's performance and alerts can be sent to designees when certain user-specified conditions are met. The Mini Control Silver can also trigger automatic actions providing an automated management solution.

All units linked to the Mini Control Silver can be monitored and controlled locally and remotely via a variety of communications modes. It can be configured to connect through traditional status and metering inputs and commands (relays) or advanced connections using serial protocols or SNMP via an IP network. Analog inputs can be used to monitor audio levels.

Supplied in the DIN format commonly used in PBX or IT rooms, the Mini Control Silver can be integrated into transmitter sites.

Audemat calls the Mini Control Silver a compact, powerful tool that packages its remote control expertise into a handy size at a competitive price.

For information, contact Audemat/WorldCast Systems in Florida at (305) 249-3110 or visit www.audemat.com.

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COMPLETE REMOTE STUDIO **ON TWO WHEELS**



We are pretty sure this is a first – an open-air moving studio broadcast on two wheels (well, six, technically).



All audio was fed to a Comrex ACCESS Portable, complete with optional mixer, which Dan used to mix the live



Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.



on-air feed as the trio traversed the winding roads of Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

ACCESS Portable lets you send studio-quality live audio, real time over IP using 3G, 4G, Wi Fi, BGAN/VSAT, PSTN or DSL to make any remote broadcast really stand out. Connect with your audience from anywhere, live, with the easy to use, handheld ACCESS Portable!

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TECHUPDATES

BELAR UPGRADES FMCS-1 FM MOD MONITOR



Peak weighting is available in the Belar FMCS-1 with a free software update from the company website. This is a method for allowing brief modulation peaks to be ignored by a monitor; as Belar puts it, this generally will result in the monitor indicating a lower peak modulation for a given modulation level.

"This helps when trying to achieve total peak values on an HD station by reducing the noise induced by the HD carriers. Peak weighting can also help when monitoring off the air if there is some multi-path interference present."



In the FMCS-1, the peak weighting feature is accessible from the Composite Popup menu and can be set to dismiss peaks shorter than 3, 5, 7, 9, 15, 20, and 30 cycles (of a 10 kHz burst), as well as OFF (no peak weighting). The FMCS-1 All-in-One FM Modulation Monitor is a solution for the analog portions of the FM signal. Using DSP techniques, its processing takes place in the digital domain, producing what the company describes as "unrivaled" FM analog performance measurements. The unit comprises a frequency-agile RF amplifier, down converter, FM demod, stereo demod, RDS decoder, two SCA decoders and an FFT spectrum analyzer in a 2RU design. Features include wide viewing angle, color LCD display and rotary encoder. An RJ-45 Ethernet Interface and Belar WizWin Software are included; display screens, settings and alarms can be monitored and controlled remotely.

For information, contact Belar Electronics Lab in Pennsylvania at (610) 687-5550 or visit www.belar.com.



DAVICOM ADDS BACKUP IP SITE ACCESS

Davicom's latest version of firmware (V5.48) for its MAC Remote Control incorporates a PPP (Point-to-Point Protocol) telephone-to-IP Bridge. This feature provides backup access to a site's IP network over the MAC's telephone modem connection, if a site's main IP connection goes down.

The MAC's PPP server accepts telephone calls from remote modems, in the manner that computer users did to access the Internet before broadband connections became common. To do this the computer dials in to the MAC, the MAC answers and assigns the computer an IP address in the PPP range. The remote computer is connected to one of the MAC's IP ports, but over the modem connection.

Since the MAC has two network ports (three if you count the PPP port), the company says, accessing the on-site network becomes a question of bridging the PPP network with the on-site IP network. Davicom's latest firmware does this.

The data speed offered by this type of connection is slow and wouldn't suffice to stream video, high-quality audio or transfer large data files, but it will allow access to on-site devices. The company says this puts users in a position to control, reset or restart, take readings and make adjustments to critical equipment. The feature can be used even if a site doesn't have broadband IP access. A site might have an independent local IP network that's used at the site, and this PPP feature will allow users to access it over the phone, for tweaking and adjustment in an emergency.

Davicom points out that even if the data rate is slow, it is better than driving two hours to press a button.

For information, contact Davicom in Quebec at (418) 682-3380 or visit www.davicom.com.

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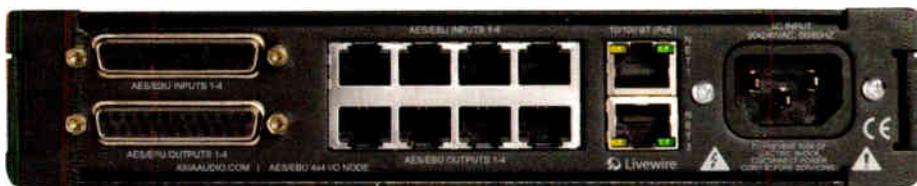


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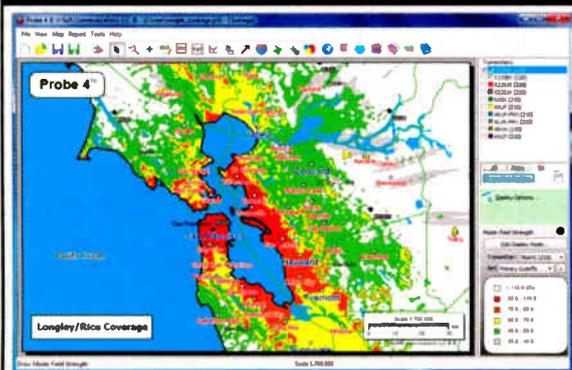


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Smith: 'What Do We Want to Be?'

Excerpts from the opening remarks of National Association of Broadcasters President/CEO Gordon Smith at the 2012 Radio Show in September.

[B]efore I begin, I want to acknowledge the recent passing of a good friend to many in the broadcasting business and a legend in this state.

As the longtime president of the Texas Association of Broadcasters, Ann Arnold was a passionate and fearless advocate for radio and television. I know she would have loved to be with us today; she will be missed.

But we are thankful that you all are here. Being in Texas is exciting for me.

You may know that my mother's maiden name was Udall. We have a saying in the Udall family that ties us to Texas. It goes: "There are more Udalls in Arizona than u'all in Texas."

As several of you know, I'm a history buff, and being here I can't help but be reminded of the battle of the Alamo. One of the central figures of this historical event was Davey Crockett. You may remember him from your childhood as the "King of the Wild Frontier."

On television, one popular show portrayed him as a frontiersman with a raccoon hat on his head and a rifle in his hand. But he was a real person ... in fact, he was a former member of Congress from the great state of Tennessee.

In his 1834 autobiography, he said of his re-election, "I told the people of my district that I would serve them as faithfully as I had done; but if not ... you may all go to hell, and I will go to Texas."

Well, the people spoke, and he packed his bags for Texas.

I can relate to that feeling.

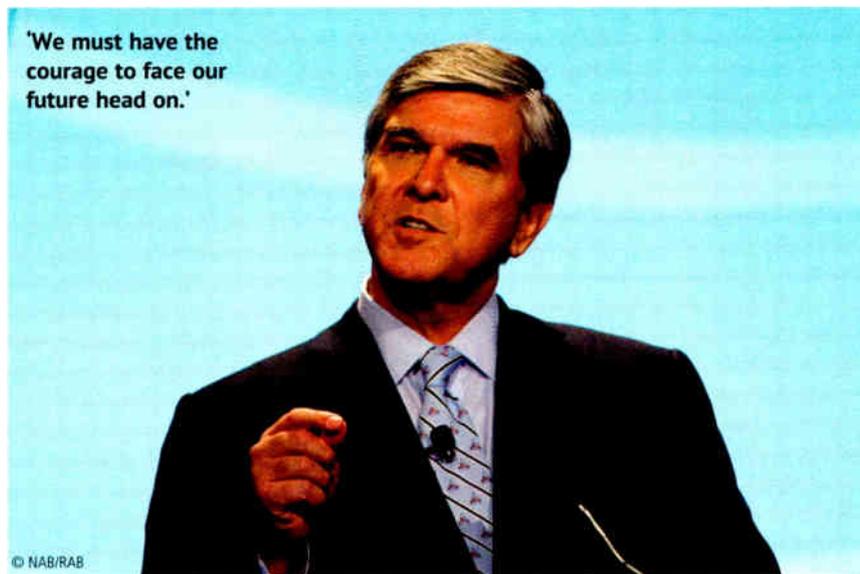
Like Davey, the people from Oregon in my last Senate race also spoke ... and now here I am with all of you fine people.

Not that I'm complaining. I now have one of the greatest jobs in the world.

THE COURAGE OF RADIO

Davey Crockett was killed at the Battle of the Alamo in 1836, but his legend endures throughout history as one of the greatest American folk heroes of all time. Davey fought alongside courageous men in the battle for Texas' independence. And in the spirit of their brave fight, we can find renewed strength right here at the Radio Show.

For radio broadcasters continually display courage against many challenges — whether they are storms, disasters or economic uncertainty.



Today, I want to talk about where we see radio heading in the future. Of course it's not an easy road, but with courage and conviction, we can map a successful course.

When I think about radio, the word "courage" comes to mind. As you know so well, time and time again, radio broadcasters demonstrate their courage in many invaluable ways.

Just several weeks ago, Hurricane Isaac struck the Gulf region, bringing powerful winds and pounding rain to communities in Florida, Louisiana and Mississippi. Broadcasters quickly stepped in, fulfilling their role as first informers ... heading warnings and providing non-stop coverage of the hurricane's path.

Residents on the Gulf coast were fortunate ... it could have been much worse ... but seven years after Hurricane Katrina, it was a fresh reminder of the lifeline role of local broadcasting.

And what better way to inform people of pending danger than through built-in radio in their mobile phones? When phone service and the Internet go down because of capacity constraints — as we saw during Hurricane Katrina — radio stays on ... radio is still there.

Now, the wireless carriers are trying to do their part. They have implemented a text message-based wireless emergency alert system to inform people during times of crisis. But its ability is limited.

Let's take a look at an example of a wireless emergency alert message. They only have 90 characters to share critical information with the public, and as you can see, they are wise to direct their customers to turn to local media for the full story.

We are natural partners, and we must work together. Radio can supplement

these emergency alert efforts, since our medium doesn't have these type of limitations.

Recently, NAB's technology experts set out to find out how many smartphones in today's market come equipped with radio chips. They discovered that all of the top 10 best-selling smartphones in the U.S. were already equipped with radio chips. But, unfortunately, none of them had the chip activated.

Now some might see this as terrible news. But I'm an optimist.

I think this information simply proves what an easy lift it would be for the wireless carriers to activate this service for the safety and convenience of their customers.

These phones represent more than 70 percent of the smartphones sold during the first quarter of this year — that's 17 million units.

Activating these radio chips presents huge opportunities for listeners, wireless companies and broadcasters alike. We just need to continue educating our friends in the wireless industry about the benefits of providing their customers with built-in radio.

ONE-TO-EVERYONE

The bottom line is: Radio provides a great service to the public ... and we must continue to inform all Americans about the facts. We have a great story to tell:

- Radio reaches more than 242 million American listeners each week — and that number continues to grow each year.
- 81 percent of Americans surveyed want free, local radio as a feature.
- This technology creates revenue opportunities for wireless carriers,

broadcasters and businesses, allowing targeted advertising that enables more interaction with consumers.

- Unlike streaming, built-in radio off-loads traffic from congested wireless systems, which can be critical in times of emergency.

After all, no other form of communication can match broadcasting's one-to-everyone transmission architecture ... there is no better reliable resource for information during times of crisis than broadcast stations.

We know that our local communities depend on their stations to provide them with the news, emergency information and entertainment they rely on each day. Broadcasters take this responsibility very seriously ... this is the heart of localism.

But how do we ensure a strong, vibrant future for the business so that radio can continue to successfully serve America's local communities? I believe radio's future hinges on innovation and our definition of the word "future."

We must have the courage to face our future head on and ask ourselves, "What do we want to be?" Is it terrestrial, or streaming or both? If both, how do we shape a strong future for both revenue streams?

Earlier this year, one of the largest radio companies bet on the future of streaming. Some say this was a risky move. Others say it was bold and forward-looking. I believe each company must evaluate its future and make its own bold decisions. Indeed, the agreement between Clear Channel and Big Machine may ultimately answer many questions about whether the future is streaming.

But we can all agree that radio's future lies in being incorporated into every new device. And uniting in our advocacy will ensure we achieve that goal.

Broadcasters showed courage in uniting against performance tax legislation two years ago. When government decisions threaten radio's future and broadcasters' ability to serve listeners, we must continue to speak with one voice and unite when the need arises.

In closing, I want to leave you with some tough questions to think about.

Are you preparing for a future where the marketplace is becoming increasingly competitive and unpredictable?

How can radio continually evolve to respond to consumers' needs?

I challenge you to face the future, to find the right path for radio. And whatever that path may be, NAB will be there to advocate on your behalf to ensure a robust future for generations to come.

Farber: Radio Is 'Being Copied Daily'

Excerpt from remarks of Radio Advertising Bureau President/CEO Erica Farber.

This theme of the Radio Show is, "Hear what's next!" OK, did I get your attention? We know the majority of our listeners and consumers are not listening to us in the dark, but I wanted to take a couple of minutes to make a point. I wanted to remind you of the importance of what it is you do. The importance of audio information and entertainment. Radio is not tied to a device; radio is everywhere. It's in the car, it's online, it's on your phone, on your on mobile devices, and believe it or not some people are still listening to radio through a radio.

Consumers today are interacting with us across all kinds of platforms. We are the leading audio content providers in the world and are being copied daily. There is a reason everyone wants to be like us and there are reasons they like to use our name. Radio has tremendous consumer adoption but we cannot stop at that. We truly have the ears of our markets, but we cannot take them for granted!

We all need to continue to present our portfolios to every local, regional and national advertiser and advertising agency. We need to present innovative solutions to help them reach their consumers. We all need to think beyond just selling :10s, :30s and :60s.

Radio today is not about having a separate conversation about our on-air product or our digital strategy. Radio today is about respecting the listeners, delivering products that she or he are interested in and recognizing that our listeners are listening in different ways than most of us ever thought possible.

As diverse of a group as the industry is today, there is one thing I guarantee that everyone in this room can agree on: growing our industry. On behalf of the staff at the RAB we all look forward to working together now to continue to insure a strong and bright future for this great medium.



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28	Acoustics First Corp	www.acousticsfirst.com
32	AM Ground Systems Co.	www.amgroundsystems.com
23	Arrakis Systems Inc.	www.arrakis-systems.com
1, 17, 37	Axia - A Telos Alliance Company	www.axiaaudio.com
12	Belar	www.belar.com
34	Broadcast Tools, Inc	www.broadcasttools.com
41	Broadcasters General Store	www.bgs.cc
3	BSW	www.bswusa.com
35	Burk Technology	www.burk.com
29	BW Broadcast	www.bwbroadcast.com
7, 39	Comrex Corporation	www.comrex.com
8	Continental Electronics Corp.	www.contelec.com
4	DaySequerra/ATI	www.daysequerra.com
31	Deva Broadcast Ltd	www.devabroadcast.com
14	ESE	www.eseweb.com
22	Gorman Redlich Mfg	www.gorman-redlich.com
36	Grace Broadcast Sales	www.gracebroadcast.com
44	Heil Sound, Ltd.	www.heilsound.com
15	Inovonics Inc	www.inovon.com
5	Lightner Electronics	www.lightnerelectronics.com
10, 19, 22, 32	Nautel Ltd.	www.nautel.com
13, 33	Omnia - A Telos Alliance Company	www.omniaaudio.com
30	Progressive Concepts	www.progressive-concepts.com
47	Radio Systems Inc	www.radiosystems.com
21	SCMS	www.scmsinc.com
9, 27	Telos - A Telos Alliance Company	www.telos-systems.com
11	Tieline Technology	www.tieline.com
2, 24-25, 48	Wheatstone Corporation	www.wheatstone.com

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Radio Engineer
New York

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Radio World Talkback*Comments shown were posted by readers to stories that appear at radioworld.com.*

"IBiquity should send engineers to stations that lack the expertise to implement HD Radio with all the bells and whistles. Many small stations are run on a shoestring budget and rely on contract engineers that aren't up to date with the latest technologies. That's fine when you're just trying to keep a station on the air but not so fine when you need to do upgrades."

— on *"HD Proponents Encourage More Owners to Implement Artist Experience"*

"If the industry and the ignorant Federal Communications Commission had chosen Digital Radio Mondiale instead of the 'politically correct' IBOC mess, then there would be no need for this test. IBOC will not work. The problem is that the technology is now obsolete and never was a viable solution. Any idiot with a kindergarten diploma would have realized that! Hey and that included the FCC!"

— on *"Test Station Chosen for All-Digital Trial"*

"A better option for most AMers is not to go to low-powered FM translators but higher-powered DRM+. It can use the empty 47–68 MHz band vacated by analog TV. There are 210 vacant 100 kHz channels so they can transmit high-quality sound in surround if they wish. The big advantage of this approach is that they do not have to switch off their AM signal ... no interference and large coverage area."

— on *"All-Digital AM Tests Considered"*

"Mexicans spend more time, per-capita, listening to the radio than U.S. residents, so it's not surprising how quickly the digital conversion is happening there. Mexico has the same issues in terms of spectrum availability. As in the U.S., an IBOC digital system, with an eventual transition to all-digital, was required. Hopefully, Mexico's success with HD Radio will spur Canada to adopt HD."

— on *"Mexican Broadcaster Says Digital Conversions On-Track"*



"Why couldn't Apple activate an FM chip in their new iPhone? When the power goes out and the cellphone system jams up, it would be nice to have an FM backup. Thanks for nothing, Apple."

— on *"FM Chip Issue Discussed on Hill"*

"Planned to be in Dallas but had to cancel. The notes, videos, pix are great. I even recognize some people."

— on *"Live From the Radio Show Floor."*
(Shown in the photo below are Mike Hagans, Charlie Wooten and Al Kenyon.)



Photo by Paul McLane

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NAIROBI, KENYA



Photo left:

Inooro FM Studios

Benjamin Wangari, News Presenter & Producer (left)
Jeremiah Kimani, Sports Presenter & Producer (right)

Photo right:

Sulwe FM Studios

Simaloi Dajom Otieno, Group Radio Production Manager (left)
Petronilla Simwenyi, Presenter & Producer (right)

Photo bottom:

Ramogi FM Studios

Ruth Ochieng, Presenter & Producer



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Samuel Kamau Macharia
 Chairman: Royal Media Services

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