WHO INVENTED FM? A FRESH LOOK. — Page 16

NewBay Media

RADIOWORLD

SEPTEMBER 8, 2010 | The News Source for Radio Managers and Engineers | $2.50 | RADIOWORLD.COM

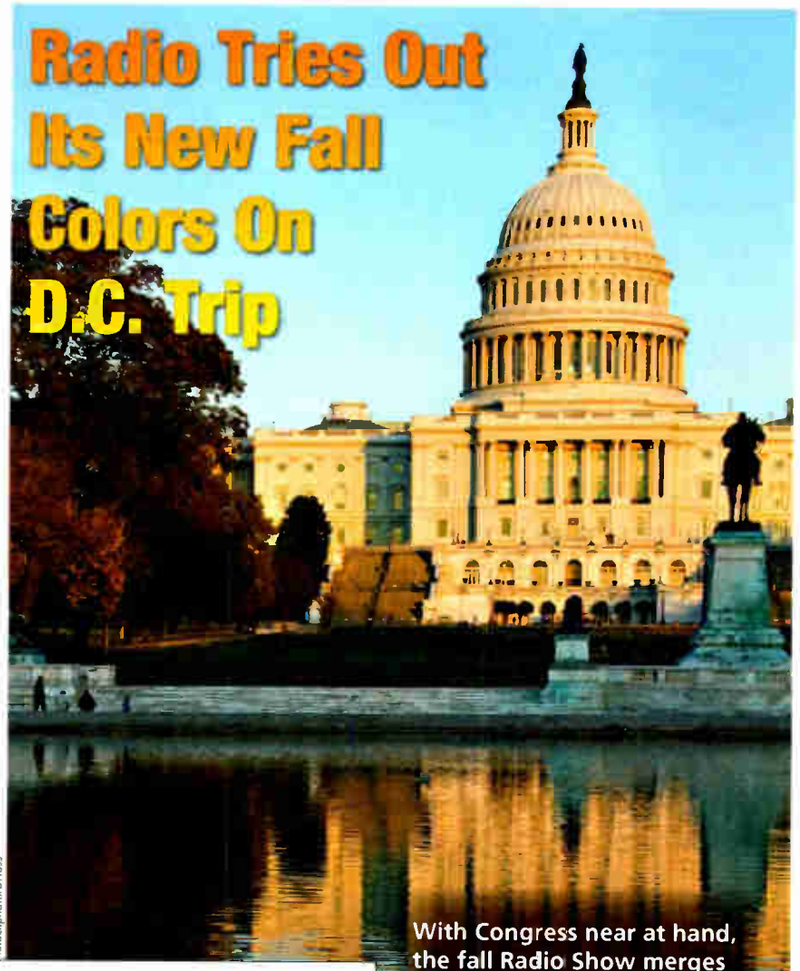
INSIDE

ENGINEERING

STUDIO SESSIONS

OPINION

IMDA
IMDAlliance.org



Radio Tries Out Its New Fall Colors On D.C. Trip

iStockphoto/DHuss

With Congress near at hand, the fall Radio Show merges regulatory, legal and technical matters with an "Ask the Experts" engineering theme that touches on familiar topics like transmitter concerns as well as new ones like personal media and the implications of 'going mobile.' Page 26

FCC Plans Adieu for CDBS

New Consolidated Licensing System Planned; Changes to Start This Year

BY RANDY J. STINE

WASHINGTON — A new consolidated online licensing and application system at the Federal Communications Commission is still in the development stages but several public workshops have left some industry users optimistic about its potential.

The FCC Media Bureau's overhaul of its online licensing database, the Computerized Database System or CDBS, will result in a new database with a single consolidated form for filing applications and license requests, enhanced filing applications tools and consolidated search capabilities.

The Computerized Database System has been a source of frustration for some broadcasters and others associated with the industry since it was launched in 2000, when it replaced three separate tabular databases. Some users of the new electronic system complained at the time about confusing templates, corrupt data, limited data sharing capability and search capabilities. The FCC acknowledged

(continued on page 7)

Preface... Clear your mind. All that anxiety that you've come to associate with the typical AoIP network install is going to leave you now... Think of cool clear water flowing into the coffee maker and the sound of sprinkles hitting fresh, hot donuts... OK. Ready?

1.OPEN

Confront your boxes. You know they're there. They know they're there. But only YOU have the power to change that. Go ahead... open them.

10:03am

2.LOOK

Take a good look at what's in the boxes. You've got a control surface mixer item and rack mount BLADE something or other. They sure look pretty. And they are. Using this stuff you are gonna be a chick magnet. Or a guy magnet. Whatever, you are going to be IN CONTROL. Cool part is, THAT is only moments away!

10:09am

Every BLADE has all the information about your entire network stored in it. Should any part of the network go down, the rest continues to function perfectly. Simply plug in a new BLADE and you'll be where you started in moments!

3.RACK EM UP

Rack mount the rack stuff. OK, we're going to be brutally honest here. THIS SINGLE ONE STEP takes the longest of the entire setup process (unless you have a REALLY dull knife in step 1). Of course you'll need your own rack and screws, but hey, if it's a deal breaker, we'll work it out.

10:20am

4.PLUG IN

Time to hook them up. You knew it was coming. Your little tummy is wrapped around your throat. I mean, it's gotta be a real hassle, right? Interfacing these things? Setting them up? Getting them to talk to each other? Somebody get me an antacid.

Wait... is that a CAT-6 cable? You know what that is. And that's all it takes? Mmm Hmm. Yep. You bet.

11:02am

It's literally this easy. WheatNet-IP has all your bases covered. CAT-6 cables hook up the BLADES and surfaces. Regular audio cables for the rest.

5.PUSH THE BUTTON

OK. Everything all hooked up (meaning, is the CAT-6 cable plugged in)? Great. Now we're gonna configure the system. We start by turning it on. Then?

Um... that's it. It configures itself. Every piece talks to every other piece and does what it's supposed to do. What? Doesn't EVERY IP Audio system do it that way?

WheatNet-IP does ALL the work of configuring your system EVERY BIT OF IT! It knows when you are adding on or when you are taking something out. You concentrate on content. We concentrate on getting it where it needs to be.

11:05am

6.IT'S WORKING!

You've got a system! From here on out, it's just like the analog stuff you're used to. Except ultimately more flexible. And much more reliable. And better sounding. And completely expandable. And such a joy to use. Yes – you heard it – I said A JOY TO USE! (Bet you never thought you'd hear an IP system described that way. Certainly not one from the other guys)

11:06am

7.CELEBRATE

Time for that cup of coffee and donut we talked about in the preface. Let's face it...the whole process was painless. AMAZINGLY PAINLESS. So painless, you are already up on Facebook and Twitter talking about what a stud muffin you are with your technical prowess. Don't get cocky, kid. But DO enjoy a delicious coffee and donut. And remember, next time you even think about installing new gear, you've gotta call your Uncle Wheaty...

11:07am

3:40am

8.SLEEP EASY

With a WheatNet-IP system, rather than having to be on the phone to who-knows-where in the middle of the night, you can take your emergency engineers off the clock and let them get a good night's sleep. We ARE here, 24/7, in beautiful New Bern, North Carolina, and if you need us, we'll talk to you all night long. But with Wheatstone's reliability record, chances are much greater that those visions of sugar plums will just keep dancing in your head.

AoIP ADVANCED...

It's great to be able to say you invented something (whether you did or not). Turning that invention into a viable, workable solution for modern applications is what's needed if we are going to take this technology to the next level. The status quo was a pretty good starting point – but taking it out of the vacuum and into the workplace requires a fresh, objective yet passionate approach to advance it. WheatNet-IP certainly advances it, making your workflow everything it should be. We cost the same or less. We can handle 10 times the bandwidth. We are far more reliable. And we're poised for THIS decade as well as the NEXT one. We're Wheatstone! This is what we do! What else would you expect?

WHEATNET

Wheatstone

IP AUDIO NETWORKING MADE EASY

phone 1.252.638-7000 | www.wheatstone.com | sales@wheatstone.com

Struble: Ray Experienced a Road Bump

We Are Committed to Working With Him and All Our Partners to Push the Technology Forward

COMMENTARY

BY BOB STRUBLE

In the Aug. 11 issue, Tom Ray, vice president/corporate director of engineering for Buckley Broadcasting/WOR Radio, New York, and a Radio World contributor, wrote a first-person article, "HD Radio Shouldn't Be This Hard," about his struggles to obtain a factory in-dash receiver for his new Ford. Bob Struble, iBiquity Digital president/CEO, responds.

When Tom Ray talks about his concerns with the HD Radio rollout, we listen. There has been no bigger proponent of digital radio technology, and HD Radio technology would not have gotten off the ground without his efforts. We have an active, productive dialog with Tom on these matters.

Tom's experiences at the Ford dealership are disappointing. We believe they reflect the growing pains which often occur when companies launch new technologies. Tom hit the lot as factory installed HD Radio receivers were just launching.

Ford is implementing a rolling launch of the technology, so as new 2011 models hit the show floor at various times in 2010, they are coming out with HD Radio receivers. When Tom shopped, HD Radio technology was only available in the Super Duty trucks and Mustangs.

Had he been able to hold out with his old Explorer for another couple months, he would have been able to purchase an Escape with a factory installed HD Radio receiver as these vehicles hit dealerships the first week of August. Other 2011 model year Ford vehicles that have launched with HD Radio Technology include the Taurus, Fusion, Flex and E-Series. Lincoln, Ford's premium brand, currently offers HD Radio Technology in their MKS and MKT lines.

More Ford and Lincoln vehicles will arrive with HD Radio receivers as the 2011 model years become available. In most cases, HD Radio Technology is included in the voice-activated navigation units. In the near future, cars with the MyFord and MyLincoln Touch premium audio system will also include the technology.

It certainly would have helped if the dealer personnel were better educated on HD Radio Technology. Again, these are growing pains, in my view. We have a solid dealer training program in place and have integrated our training material into Ford's 2011 model year dealer training initiatives, but with more than 6,000 dealerships in the U.S., these efforts will take time.

Ford has done a lot to educate their personnel and consumers on the benefits of HD Radio Technology, including comprehensive treatment in owner's manuals. I have also listed below several Web-based HD Radio informational pieces from Ford.

BRIGHT PROSPECTS

No one can question Tom's dedication to advancing radio into the digital age after reading of his efforts to install an aftermarket HD Radio solution in his new car — he should get some sort of award. Increased electronic integration in cars has made it virtually impossible in some cases to install any aftermarket radios, with or without HD Radio technology.

That is why overall sales in this segment have plummeted (although HD

(continued on page 5)

MORE FROM FORD

Bob Struble listed these Ford websites that describe or include HD Radio technology:

http://tinyurl.com/hdford (Click on "HD Radio Technology" under "Technology" section to play HD Radio video created by Ford for training dealers and Ford owners)

http://tinyurl.com/hdford1 (Same Ford video, posted on YouTube)

http://tinyurl.com/hdford2 (2011 Edge, Sony audio system with HD Radio)

http://tinyurl.com/hdford3 (Explorer)

http://tinyurl.com/hdford4 (Taurus)

http://tinyurl.com/hdford5 (Fusion)

http://tinyurl.com/hdford6 (Escape SUV)

http://tinyurl.com/hdford7 (Lincoln MKX)

http://tinyurl.com/hdford8 (Lincoln MKT)

FCC, Legal and Tech Experts Fill Panel

On Sept. 30, You Can Ask These Insiders The One Question That's Most on Your Mind

What question is most on your mind about radio technology, law and regulation right now?

One of the cool things about my job is that I get to hang out with very smart broadcast people and ask them about all manner of things: what's going on in some unfamiliar corner of the biz, what neat technical installations they've been involved with recently, what new rules might be brewing in the offices of regulators, what we might expect in new technology next year or 10 years from now.

On Sept. 30 I can do that in public, and so can you.

I'll moderate a session at the fall Radio Show in Washington called "Ask the Experts: Technical/Regulatory/Legal/FCC." I plan to come with a long list of questions; however, we'll get a far better discussion if you come and ask questions of your own.

Organizers of the engineering program are putting heavy emphasis on giving you a chance to interact with panelists; in fact they've scheduled an entire series of these "Ask the Experts" sessions on topics like building a radio station, transmitters, audio processing and AM antenna modeling.

I think our panel will be among the best — which is a compliment to the organizers, not to me, because they've assembled quite a power panel with serious insider firepower.

The FCC representation alone is impressive.

Peter Doyle is the chief of the Audio Division in the Media Bureau of the FCC; Jim Bradshaw is the division's deputy chief. Lisa Fowlkes is deputy chief of the Public Safety & Homeland Security Bureau. Got a gripe or worry regarding the FCC? These three probably can answer it.

It's a Q&A power panel: Ann Bobeck, Jim Bradshaw, Peter Doyle, Lisa Fowlkes, Richard Mertz, Gregg Skall, Milford Smith and Glynn Walden.

We'll also get to talk with Richard Mertz, principal engineer of the technical consulting firm of Cavell & Mertz, and from Gregg Skall, telecommunications attorney with Womble Carlyle Sandridge & Rice; Skall was involved on the broadcasters' side in the recent high-profile case in which a white supremacist write-in candidate sought air time.

Bringing radio executive engineering perspectives to our talk are Milford Smith, VP of radio engineering for Greater Media; Smitty is also chairman of the important National Radio Systems Committee; as well as Glynn Walden, SVP of engineering at CBS Radio. And few Washingtonians are more tied into what's going on with radio in the nation's capital than Ann Bobeck, senior VP and deputy general counsel at the NAB.

The nine of us certainly won't run out of things to talk about in our hour and a half. But if you come and ask questions, we're guaranteed to explore what's really on your mind right now. So what's *your* question? Got it? Bring it.

Sessions are Sept. 29–Oct. 1 at the Grand Hyatt Washington hotel in Washington; ours is that Thursday morning. Read more about the convention on page 26.

RW and I are fortunate to have the contributions of the industry's finest engineers in our pages. Congrats to Charles Fitch, universally known as "Buc," for being named Educator of the Year by the Society of Broadcast Engineers.

FROM THE EDITOR

Paul McLane

Buc has been an important contributor to our industry's technical dialogue for a long time. His contributions came into new focus here when he lobbied both me and the SBE to allow us to publish a recurring RW feature called *Certification Corner*, aimed at helping readers understand and prepare for the SBE exams. It appears in Radio World Engineering Extra and is archived under Columns on our website.

In this way Buc has made another contribution to advancing one of SBE's laudable goals: the education and professional betterment of radio engineers.

Buc has a passion for history and the role engineers play, as reflected in another series of articles called *Milestones*, also found online, where he reflects on technological achievements in communications. He has written on topics like the Marti RPU receiver and the proliferation of early automobile radio receivers. He has profiled 1 kW transmitter models that helped change the industry.

But his contribution to education comprises more than articles. He has given presentations and done committee work, not only about broadcasting but adjacent technologies such as project management and regulations in collateral areas like OSHA and flight safety. Eight years ago SBE recognized him for our series about the National Electrical Code. Few writers in radio understand the term "interdisciplinary material" as he does.

Buc knows that engineers are a

(continued on page 6)

THIS ISSUE

SEPTEMBER 8, 2010

NEWSROUNDUP

FM CHIP MANDATE: Several technology associations wrote to leaders of the House and Senate Judiciary Committees, urging them to resist efforts to mandate FM chips in cell phones and other personal devices. The chip issue is part of music royalty talks between NAB and MusicFirst. "It is simply wrong for two entrenched industries to resolve their differences by agreeing to burden a third industry — which has no relationship to or other interest in the performance royalty dispute — with a costly, ill-considered and unnecessary new mandate," wrote CTIA-the Wireless Association, the Consumer Electronics Association, the Telecommunications Industry Association, TechAmerica, the Information Technology Industry Council and the Rural Cellular Association.

NAB RESPONDS: NAB EVP Communications Dennis Wharton responded to what he called inaccuracies in the criticism of radio's push for FM in cell phones. Wharton wrote: "When mass-produced, an embedded radio receiver would cost pennies per cell phone. And while critics claim that a radio receiver would drastically drain a cell phone's battery; that claim is simply not accurate. A typical cell phone with an FM radio chip could provide the cell phone subscriber with 10 or more consecutive hours of radio listening on a single battery charge."

ROYALTY: NAB believes the talking points it reached with the music industry over performance rights are the best terms it's going to get, and the broadcast association asked for input from its members about what its next steps should be. In a webinar, its board leadership stressed that there had been no firm agreement. President/CEO Gordon Smith said while he believes NAB could defeat the legislation this year, a lot of political capital would be spent by continuing the fight, and that "this performance rights issue is not going to go away."

RADIO, TV MARTÍ: The man who led Radio and TV Martí for more than seven years resigned. Pedro Roig, who directed the Office of Cuba Broadcasting, did not state a reason in his resignation letter, according to the Miami Herald. It reports the stations have spent an estimated $500 million over the years broadcasting news and entertainment to Cuba "but has been dogged by complaints of meager audiences, biased politics and journalism and cronyism." It's hard to determine exact audience figures for the broadcasts; Cuba jams its frequencies, and both radio and TV diversified their distribution platforms. Critics in Congress have long tried to cut funding for the Office of Cuba Broadcasting.

SBE ELECTIONS: Vinny Lopez, director of engineering for WSYT(TV) and WNYS(TV) in Syracuse, N.Y., and the rest of the current officers of the Society of Broadcast Engineers have been reelected.

STRUBLE

(continued from page 3)

Radio receiver sales in car aftermarket have skyrocketed). That is also why it is so critical to get HD Radio receivers factory installed in cars.

And the news on that front has never been better. In 2010, 15 different automakers are offering HD Radio receivers in their cars across 86 different vehicle lines. Of those, the technology is standard on 36 vehicle lines. OEM receiver unit sales will more than double this year, with many more exciting launch announcements in the queue.

In fact, as I joked with Tom, it's ironic that his negative experience happened at a time when the consumer rollout of HD Radio technology is stronger than it has ever been. We are seeing dramatic receiver sales increases across all segments — OEM auto, consumer electronics, and the new portable HD Radio category.

Overall sales of HD Radio receivers will more than double in 2010, and that is on top of a doubling from 2008 to 2009. Can anyone point to any other facet of AM/FM that has seen this sort of growth over the last several years?

So we feel the overall progress and prospects for HD Radio technology are bright. But there will be some bumps in the road, and unfortunately, our good friend Tom Ray experienced one. We are committed to working with him and all our partners to push the technology forward, and to make these negative experiences fewer and farther between.

FITCH

(continued from page 4)

SBE Educator of the Year Buc Fitch

highly qualified group of professionals who often work alone, isolated from peer support. He tells me he views writing as a way to share his lifetime of experience, including technical problems he encountered and solutions he implemented at client facilities.

He has many letters after his name, and not only from the SBE. Notably, he is a Registered Professional Engineer in Connecticut and Pennsylvania and a licensed electrical contractor in Connecticut and Massachusetts. He has built, owned and operated radio stations; he has been a TV director of engineering and was the professional engineer in charge of the "Evening Magazine" project at Westinghouse Broadcasting's KYW in Philadelphia, developing the remote pickup microwave systems and two-way radio backbone to do this ground-breaking show live from location, for which he was nominated for an Emmy.

In fact he is a second-generation broadcast engineer; his father was the pioneer broadcast engineer and Army Signal Corps chief John Alton Fitch, Sr.

I know Buc to be a passionate father and grandfather, a devoted family man and a kind, courteous colleague. My thanks to the SBE for acknowledging Buc Fitch's contributions to the industry.

IEEE BTS SESSION SUMMARY

The IEEE Broadcast Symposium is planned for Oct. 20–22 in Alexandria, Va., as we reported in the Sept. 1 issue.

Early registration ends Oct. 1; visit *www.ieee.org/organizations/society/bt/*. Book a room by Tuesday, Sept. 28 to take advantage of discounted room rates at the Westin Alexandria

Here's a summary of the radio-related sessions, as of mid-August.

WEDNESDAY, OCT. 20
Tutorial Day Part 1
IBOC, 8:30 a.m.–12:15 pm
AM Session Chair: Roswell Clark, Cox Radio

FCC and NRSC Emission Mask Compliance Measurements for FM IBOC stations
Greg Best, Greg Best Consulting

The Design and Use of the HD Radio Coverage Model
John Kean, NPR Labs, National Public Radio

IBOC SFN Booster Design and Testing
Russ Iannuzzelli and Russ Mundschenk, iBiquity Digital Corp.

An Old Town Alexandria neighborhood

THURSDAY OCT. 21
Radio Engineering, 8:30 a.m.–Noon
Session Chair: Paul Shulins, Greater Media

The Slant Wire Shunt Fed Monopole: A Neglected But Invaluable Technique
Ben Dawson, Hatfield & Dawson Consulting Engineers

AM Directional Antenna Parameters and Pattern Inversion Techniques
Ronald D. Rackley, du Treil, Lundin & Rackley

HD Radio Data Application — Now and Future
Paul Brenner, Broadcast Traffic Consortium

The Lindenblad Antenna
Manuel Sone, Shively Labs

Transmission System Solutions to Increase IBOC Power and Coverage
Geoff Mendenhall, Harris Broadcast Communications

CDBS

(continued from page 1)

that CDBS was not perfect when it was launched, according to Radio World reporting at the time.

Many of its initial flaws — which some blamed on an outside contractor — have since been cleared up, industry observers say.

CDBS is a pool of information used by the FCC's Media Bureau for public access and electronic filing. Broadcasters and others associated with the industry use it for electronic filing of a variety of license applications and forms. The commission now mandates electronic filing of numerous applications by broadcasters. CDBS also allows the public to search for applications and EEO information filed by broadcasters.

The new Consolidated Licensing System will unify CDBS and several other databases operated by all of the FCC's bureaus and offices, according to the agency.

The existing Universal Licensing System, managed by the Wireless Telecommunications Bureau and Homeland Security Bureau, also is part of this database consolidation. The ULS is the database and application filing system for most wireless radio services, including broadcast auxiliary services.

The new combined online system will be transparent, easy to use and consistent with the FCC's data-driven and fact-based rulemaking strategies, according to Jim Bradshaw, FCC deputy audio division chief.

"The goal for CLS is to make it simpler for all licensees, including radio broadcasters, to use the license and application systems," he said.

The FCC should design its forms to allow for entry of most application data on a commercially available spreadsheet or data program.

– John Garziglia, Womble Carlyle

"It will also allow [the FCC] to communicate important information in a timely manner. We envision CLS to provide access to commonly held licenses, applications and authorizations through one log-in portal, allowing licensees to navigate through our systems more effectively and efficiently."

New "smart screens" will show only areas of interest to particular filers.

"We also anticipate improved mapping capability and the eventual capability for batch filing for filers with large quantities of licenses," Bradshaw said. "In addition, we are anticipating adding the functionality for users to simultaneously update their address or other administrative information for multiple licenses."

Commission officials say that due to the complexity of the changeover, only parts of CLS will be phased in beginning late this year. The consolidated system will be implemented over a period of years, said Bradshaw, who added that the FCC expects to solicit comments soon from the public through a Notice of Proposed Rulemaking.

Public forums held by the FCC, along with the forthcoming rulemaking, will allow input from users on what changes would benefit them the most and result in an easier-to-use licensing interface.

Meanwhile, the commission's Office of the Managing Director is seeking public input through Public Notice Docket 10-73.

The FCC did not disclose the cost of implementing the consolidation project.

'CUMBERSOME'

Communications attorneys and broadcast engineering consultants who regularly use the CDBS system have called it "antiquated" and "cumbersome." A few believe some online forms are much more difficult to complete than their hard-copy predecessors.

"CDBS data entry can be problematic at times," said John Garziglia, a communications attorney with Womble Carlyle Sandridge & Rice.

Garziglia, whose firm uses CDBS repeatedly each day in just about every aspect of radio station representation, proposes better access to all public filings associated with FCC facilities.

"Right now, petitions to deny, waiver requests, FCC letters, ownership documents, CP grants and such, are spread across a wide variety of links, if available at all," said Garziglia.

Outdated FCC forms should be redesigned for easier uploading to a new online licensing system, Garziglia added.

(continued on page 8)

CDBS

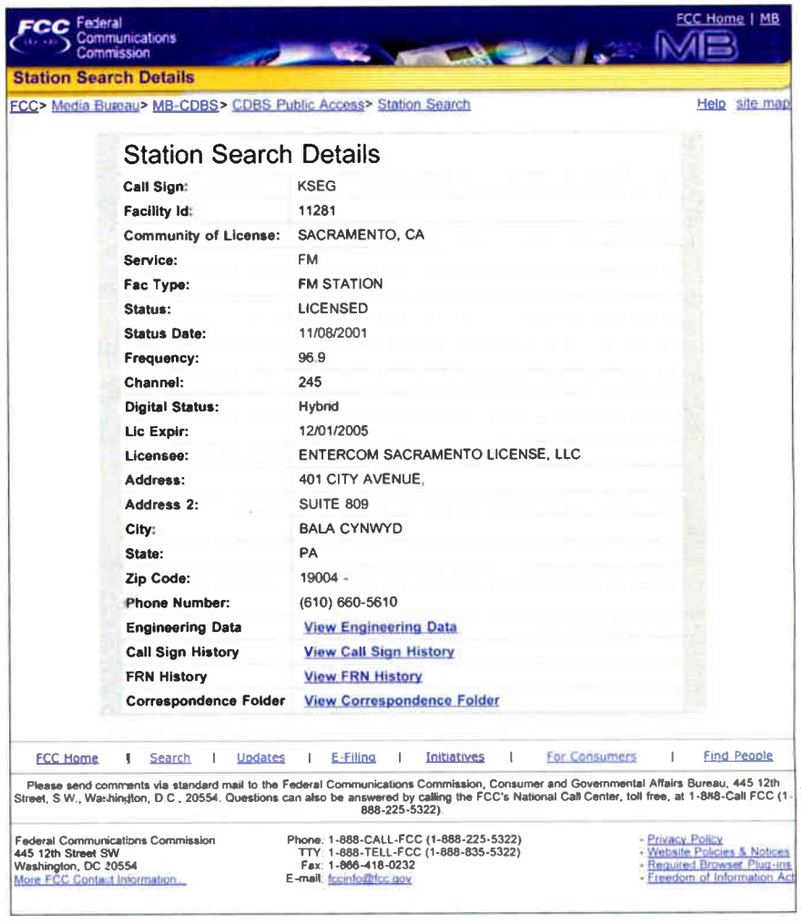
(continued from page 7)

"The FCC should design its forms to allow for entry of most application data on a commercially available spreadsheet or data program. An FCC form should be able to be substantially prepared in a program such as Excel or Access and then uploaded to the FCC's website."

Meanwhile, the ULS has been viewed by some in the broadcast industry as a "ferociously user-unfriendly" system, said one communications attorney.

"My advice would be to base the new system more on CDBS and less on [the Universal Licensing System]," said John Pelkey, a communications attorney with Garvey Schubert Barer. "Right now, ULS is based on the belief that a single application form can be used for divergent communications services. That assumption is fundamentally flawed."

His firm has devised software that continuously trolls CDBS "so that we become aware of any action on important applications as soon as possible. There is never a time our firm is not using CDBS."


FCC Federal Communications Commission — FCC Home | MB

Station Search Details

FCC> Media Bureau> MB-CDBS> CDBS Public Access> Station Search — Help site map

Station Search Details

Call Sign:	KSEG
Facility Id:	11281
Community of License:	SACRAMENTO, CA
Service:	FM
Fac Type:	FM STATION
Status:	LICENSED
Status Date:	11/08/2001
Frequency:	96.9
Channel:	245
Digital Status:	Hybrid
Lic Expir:	12/01/2005
Licensee:	ENTERCOM SACRAMENTO LICENSE, LLC
Address:	401 CITY AVENUE,
Address 2:	SUITE 809
City:	BALA CYNWYD
State:	PA
Zip Code:	19004 -
Phone Number:	(610) 660-5610
Engineering Data	View Engineering Data
Call Sign History	View Call Sign History
FRN History	View FRN History
Correspondence Folder	View Correspondence Folder

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Please send comments via standard mail to the Federal Communications Commission, Consumer and Governmental Affairs Bureau, 445 12th Street, S.W., Washington, D.C., 20554. Questions can also be answered by calling the FCC's National Call Center, toll free, at 1-888-Call FCC (1-888-225-5322).

Federal Communications Commission
445 12th Street SW
Washington, DC 20554
More FCC Contact Information...

Phone: 1-888-CALL-FCC (1-888-225-5322)
TTY: 1-888-TELL-FCC (1-888-835-5322)
Fax: 1-866-418-0232
E-mail: fccinfo@fcc.gov

- Privacy Policy
- Website Policies & Notices
- Required Browser Plug-ins
- Freedom of Information Act

Courtesy Hammett & Edison

Licensing data from the FCC's database is shown for KSEG(FM), Sacramento, Calif. It's unclear how or whether the appearance of such information may change, once the commission consolidates its various licensing databases.

Pelkey's firm uses CDBS to prepare applications, ownership reports and other filings.

"Just as importantly, we use [CDBS] for basic research. It is a great source of historical data on broadcast stations."

> **There is never** a time our firm is not using CDBS.
>
> – John Pelkey, Garvey Schubert Barer

However, concerns about converting data from the current online databases to a new consolidated system have been expressed by some industry experts.

Bob du Treil, president of consulting engineering firm du Treil Lundin & Rackley Inc., said, "When we last went through the transition from the flat file database to the new relational database, there were many issues with database structure and the data itself. Over time the current database has evolved into a more reliable source, but I do fear flashback to those kinds of issues." A relational database accommodates different data types and allows for more efficient data retrieval and storage than a flat file system.

"Any change in format or data specifications can cause extreme difficulties with our software interfaces," he said.

Hammett & Edison's Dane Ericksen cited issues with ULS and CDBS when too many people are attempting to file simultaneously.

"It can overload and crash the system, which sometimes occurs when the FCC opens a filing application window with one-day cut offs.

"Another problem is that CDBS won't allow tenth-meter site elevations when the site elevation goes over 999 meters. This then causes a rounding problem," Ericksen said.

The new CLS needs to be "intuitive, accurate, stable and reliable" and needs to run parallel with CDBS, at least for a while, Ericksen added.

"Jumping to a new CLS that then crashes or otherwise doesn't work properly could be bad news."

PowerStation: the indestructible console engine from Axia.

Unpack it, install it... forget it.

Just add console •

Meet PowerStation™, the new, **self-contained console engine** that's over-engineered to ensure years of reliable, trouble-free service. Setup couldn't be easier: PowerStation needs just one cable to connect to an Element™ mixer. With over 1,000 already installed, Element is rapidly becoming radio's most popular mixing desk.

Lots of I/O •

Built-in audio connections make setup simple.

- **Two Mic inputs** with selectable Phantom power and studio-performance preamps.
- **Four analog inputs and six outputs** with 24-bit, 256x oversampling A/D converters for connection of CD players, recording devices, headphones and monitors, *et cetera*.
- **Two AES/EBU inputs and outputs** for DATs, satellite feeds and other digital audio devices.
- **Four GPIO ports**, each containing 5 inputs and 5 outputs, for start/stop control of audio sources, on-air lamps and other studio accessories.
- **Livewire™ ports** for single-cable connection to Telos phone systems, Omnia audio processors and other Axia gear — as well as broadcast equipment from partners like DAVID Systems, Netia, WinMedia, Zenon Media and others. See the complete list at **AxiaAudio.com/partners/**.

Simple networking •

Use PowerStation to build a stand-alone studio, or network as many as 4 studios without external switches. There are **16 built-in Ethernet ports**, including 2 Gigabit with SFP ports for networking with fibre. Axia is easily scalable — for larger networks, just add a core switch; Axia networks can handle as many as 10,000 stereo channels.

Fanless operation •

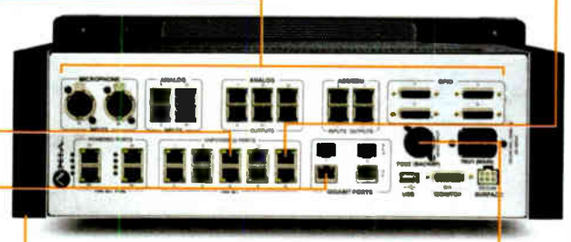
PowerStation is silent and fan-free. These large, extruded heat-sinks ensure cool operation.

Built like a tank •

This is Element. It's **built for heavy use**, with avionics-grade switches, heavy-duty optical encoders, silky-smooth, dirt-resistant conductive-plastic faders, high-impact Lexan module overlays and specially-designed switch guards that prevent accidental operation. All this is housed in a frame made from thick aluminium extrusions designed for rigidity and RF immunity. To read more, visit **AxiaAudio.com/Element/**.

Simply scalable •

Add a **PowerStation Aux** to double your Mic, Analog, AES and GPIO I/O. If that isn't enough, simply plug in Axia Audio Nodes for even more I/O.



Redundant Power •

Do your plans demand a **backup power supply**? No problem. Along with audio I/O, PowerStation Aux adds redundant power with automatic switchover.

Show Profiles •

Make and save snapshots of talent's **favorite mixer configurations** and recall them instantly, with just the press of a button.

Automatic mix-minus •

Complicated clean feeds are gone; Element **constructs them for you** — one for every fader. Phone callers and remote hosts hear only what they need to hear, with no need for operator intervention.

Voice processing+EQ •

Element **saves the expense** of outboard processors: Omnia™ processing can be applied to every Mic and Codec channel. Headphone processing is also built in, for times when it isn't possible to monitor your broadcast signal directly. 3-band parametric EQ can be applied to every channel, too, via software or drop-in module controls.

Integrated phones •

Operators don't have to take their eyes off the console — Telos multi-line phone systems are **controlled right from the surface.**

More options •

Element mixers are **built to your specifications**, from 2 to 40 faders in single- or split-frame configurations. Over a dozen different module types, with standard or motorized faders, let you create a board tailored to your exact needs.

AXIA
A TELOS COMPANY

AxiaAudio.com

See us at the Radio Show – Table 8

BIA/Kelsey Ups Its Radio Outlook

Meanwhile, Station Transactions Are Tracking Below Last Year's Pace

CHANTILLY, VA. — Most radio watchers expect U.S. commercial radio revenue to be up this year; they differ by how much.

BIA/Kelsey has updated its outlook, saying on-air revenues should be up just over 4 percent over last year to $13.93 billion, with another $459.3 million is expected from digital and online sources. Back in march it had predicted revenue would increase 1.5 percent this year.

Top 10 markets should see an increase of slightly more than 6 percent. "Notably, San Francisco and Philadelphia can expect overall revenue growth of 8 percent due primarily to an increase in spending by national advertisers."

It expects revenue in markets 11 through 25 to be up around 4 percent, and smaller increases in other markets.

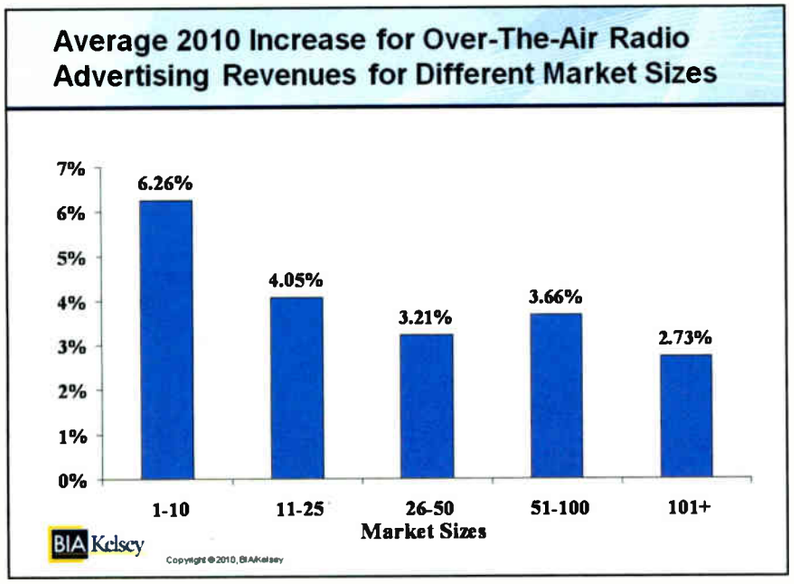
Vice President Mark Fratrik stated, "We're glad to see positive growth in most U.S. radio markets but still feel there remains enough uncertainty in the country's overall economic performance to tread carefully stepping into the second half of the year. Bear in mind, too, that the third and fourth quarters of 2009 were better than the first half of that year, so we do not expect the change to be that large by the end of this year."

The chart shows predicted average 2010 increases for over-the-air radio ad revenues for various market sizes.

The firm also tracks station transactions; it said there were only $168 million worth so far this year compared with $207 million at this point in 2009. It attributes that to revenue and profit declines and lack of bank financing.

"Station owners are hesitant to sell at today's lower multiples, while potential buyers view the growth potential conservatively in light of the economic uncertainty. Additionally, the inability to get sufficient debt financing to lower the cost of capital leaves the transaction marketplace stuck in neutral."

The forecasts are in the company's latest "Investing in Radio Market Report."



Selected content from Radio World's "The Leslie Report" by News Editor/Washington Bureau Chief Leslie Stimson. To receive the free, bimonthly e-mail newsletter, subscribe at www.radioworld.com/subscribe.

SANGEAN CANCELS PRODUCTION PLANS FOR DT600-HD

Sangean now says it's not planning this year to introduce in the U.S. the HD Radio portable model that was to have included analog AM.

Responding to my query, a Sangean spokesman said the company decided not to go ahead with production of the DT-600 HD; he could not say why. The spokesman also said Amazon is not accepting pre-orders for the unit, as we had reported. Sangean had not answered the query at the time that earlier story was published.

IBiquity Digital showed a prototype of the unit in its booth at last winter's CES and at the spring NAB Show. The multicast-capable unit was to support program-associated data services and feature iTunes tagging via a USB port.

GARY TIMM LEAVES JOURNAL

Long-time engineer Gary Timm has a new gig as an engineer for a government contractor working on Emergency Alert System matters.

I reported after the spring NAB Show that Timm planned to retire from Journal Broadcast Group in Milwaukee; he worked at WTMJ(AM) in that city for 37 years.

Timm is now with the Touchstone Consulting Group in Washington, a subsidiary of SRA International, headquartered in Fairfax, Va. SRA has contracted with the Department of Homeland Security and the Federal Emergency Management Agency to provide expertise on alert and warning matters.

His work could include all Integrated Public Alert and Warning Systems elements, such as EAS/CAP, and possibly other dissemination technologies. He remains based in Milwaukee.

I asked Gary if September was still the target for FEMA to adopt the Common Alerting Protocol, the new delivery method for next-gen EAS. That adoption triggers the 180-day shot clock by which stations need to have CAP-compliant EAS encoders/decoders installed.

He said yes but reminded me that many commenters to the FCC in the EAS-CAP proceeding called for moving the trigger to another event and/or to extend the 180 days to up to a year.

He hears the commission is to be issuing a Notice of Proposed Rulemaking soon covering all the new rule changes. "We will have to wait and see on all the clock roll details," he said.

Gary is part of an EAS CAP industry group that includes hardware and software vendors and broadcasters. The group drew up a CAP-to-EAS implementation guide for FEMA. It was written to reduce confusion over how an alert will be presented to the public using CAP-EAS, so that alert originators and distributors can deliver the intended message to the public, regardless of the vendors or platforms involved.

Timm remains on the SBE EAS Committee and he's still the broadcast chair of the Wisconsin State EAS Committee until there's a meeting to decide if the committee would rather have someone who still works in a station in that role, he told me.

I'm glad to see DHS/FEMA taking advantage of the EAS expertise available in the broadcast engineering world. You'll recall FEMA hired Al Kenyon this spring as a project manager within the Integrated Public Alert and Warning Systems Division.

Simplicity Made Smarter

Pilot

LOGITEK

DIGITAL CONSOLE

Less than a decade ago building infrastructure at even the most modest radio facility was difficult and costly. Today, AoIP is making it possible to replace miles of cables and closed systems with routers that use standardized network protocols. The **JetStream Mini** brings you the benefits of this new technology, and nothing is easier to use, faster, or less expensive. Add a **Pilot** control surface that includes the basic operating features your staff will need and you have the most cost effective AoIP networked audio system available.

JetStream MINI IP Audio Networking System

The Pilot is easy on the eye and the budget and like the JetStream Mini, Logitek has built it with ease of use and durability in mind. The Pilot is a tabletop control surface that includes all of the basic engineering features your staff will need- and more- including 4 Program busses, 3 monitor sections and 24 mix minus busses. It is available in frame sizes for 6 to 24 faders.

Looking for lots of power in a small footprint? The JetStream Mini lets you load up to 64 channels of I/O into a 2 rack unit and the Pilot will service even the most constrained spaces with ease. Configure your system with microphone inputs and analog/digital I/O to suit your specific needs; our use of standardized IP protocols ensures advanced AoIP networking with fast and easy setup... all for a price that won't break the bank.

Logitek Electronic Systems, Inc. | Phone: (713) 664-4470 | Toll Free: (800) 231-5870 | www.logitekaudio.com

Logitek

It's No Longer Hammer Time

When It Comes to Ground Rods, Scott Says It's Easier to Drill

Scott Christensen is one of many engineers who wrote about enjoying John Huntley's pictorial on installing ground rods (*Workbench*, Aug. 11). However, Scott adds that driving ground rods using any kind of a hammer or post driver is *way* too much work.

WORKBENCH
by John Bisset
Read more Workbench articles online at radioworld.com

Scott's solution: Get yourself a big drill with a chuck large enough to grab on to the dull end of the ground rod. Your local rental place should have these; once you use this method, you might just want to buy one.

Scott sets up a stepladder, climbs it and just drills that baby in. He was able to drive three 10-foot rods for his ham tower through somewhat rocky soil in a matter of minutes. No sweat, no cussing.

The best part is that when the rod hits small rocks, the "wiggle" of the point tends to get past the rock rather than forcing you to stop, pull out the rod and try driving it a few inches away. And if you do need to back the rod out, it slides out easily while turning.

Scott used a regular drill; you could also use a hammer drill. He's betting that would work even better.

Scott Christensen is a radio communications technician for Ramsey County Consolidated Dispatch in St. Paul, Minn. Reach him at *scott.christensen@co.ramsey.mn.us*.

Ted Fuller is back with a solution for owners of the Harris SX-2.5 who encounter problems with those blue capacitors.

One of Ted's clients runs a Harris SX-2.5 full-time. On three occasions the four blue capacitors that combine to make C4 have exploded.

The first two times, spare capacitors were on site. The next time, a startled station employee, on seeing sparks and smoke coming out of the top of the transmitter, called the fire department. The firemen opened both front and back doors to the transmitter, then told the employee that the whole top section of the transmitter had burned up.

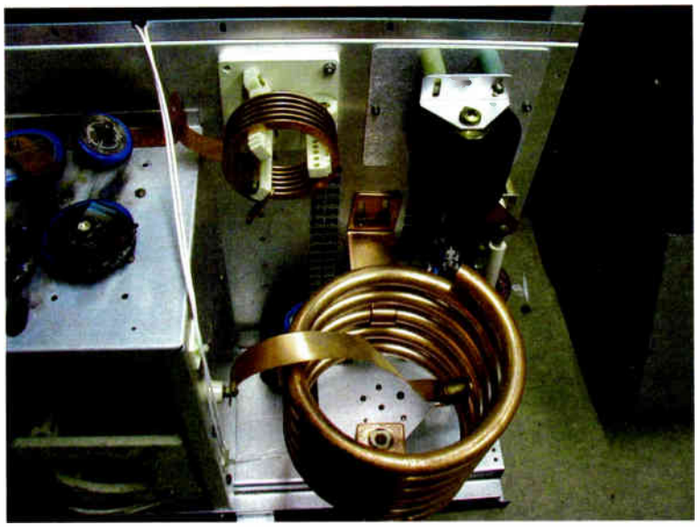


Fig. 1: Destroyed blue capacitors required a novel solution.

Though this was something of an exaggeration, Ted knew he needed a permanent solution to the capacitor failure problem. Fortunately, the fire department did not spray anything into the transmitter. The station operated on a backup Gates BC-1T until repairs were completed.

Ted checked the Harris SX-5 manual and saw what looked like a Type 293 mica capacitor in the C4 position. That would probably work well in the SX-2.5, but over the years Ted has had quite a bit of trouble with the use of mica capacitors in high-stress circuits. In those cases, Ted usually doubled or tripled the capacitor current rating from the original value. To do so in this case would be expensive.

Considering the high voltages and currents involved and the lack of space in the top of the transmitter, Ted decided to try to find a good used vacuum capacitor to replace C4. Once he acquired the vacuum capacitor, it took some time to decide on the location and the best way to mount it.

Fig. 1 shows the PA section before the new capacitor installation. You can see the damaged blue capacitors to the left, and the empty space in the middle where Ted mounted the vacuum capacitor.

Fig. 2 shows the replacement capacitor mounted to the chassis and

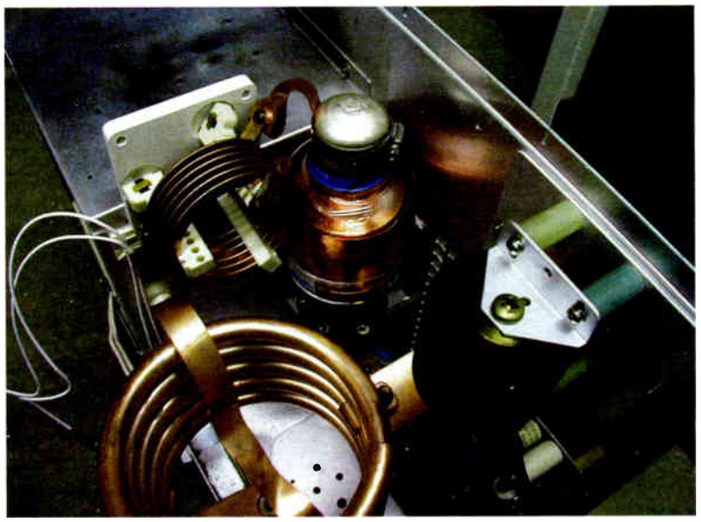
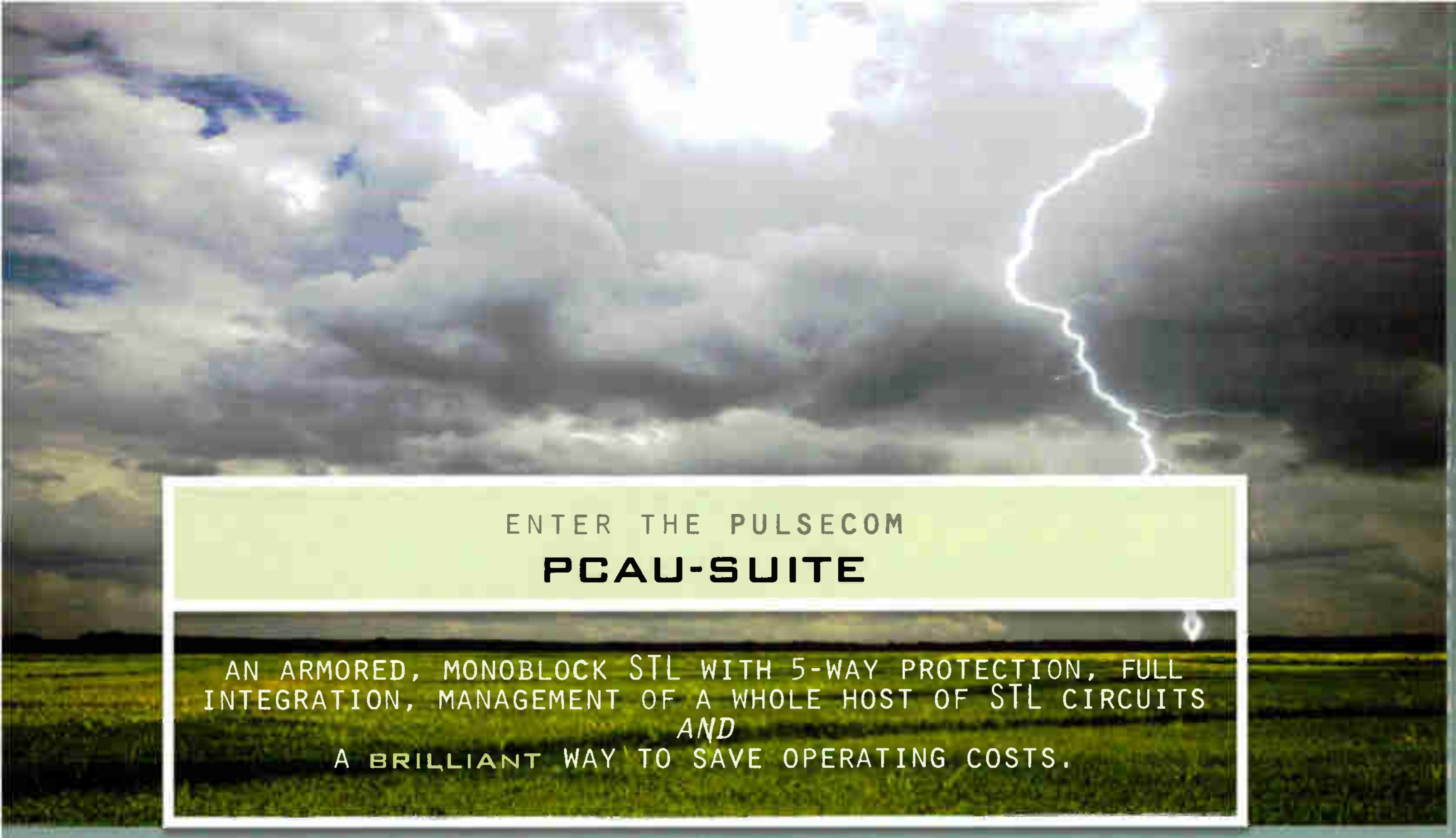


Fig. 2: Relocating a vacuum capacitor offers additional safety margin to prevent future failures.



ENTER THE PULSECOM

PCAU-SUITE

AN ARMORED, MONOBLOCK STL WITH 5-WAY PROTECTION, FULL INTEGRATION, MANAGEMENT OF A WHOLE HOST OF STL CIRCUITS *AND* A BRILLIANT WAY TO SAVE OPERATING COSTS.

HOPE FOR THE BEST, BUT PLAN FOR THE WORST

EXCLUSIVE INTEGRATED LIGHTNING PROTECTION

Benjamin Franklin would surely agree broadcast towers are one of the best ways to attract lightning. The good news is that tens of thousands of Pulsecom T1 circuits have been deployed at cell phone towers with lightning protection technology so superior that locations in Florida refuse to use equipment from other vendors. "Not a single failure" per an Orlando Engineer. As you know, lightning can create impressive ground differentials even inside a hut – situations where just "switch to protect" circuits can't save your signal.

"I DON'T KNOW, SARAH, WE MUST HAVE LOST POWER" "I DON'T KNOW, MEL, IT JUST BROKE"

Let's face it, things happen. It's one thing if an STL's logic circuit is working well enough to "switch-to-protect", but if the box loses power or its circuitry goes on the fritz, switch-to-protect can lose Big Time on the pop charts. The PCAU-SUITE comes to the rescue. Integrated drop-out relays automatically connect your audio path to an external back-up link (such as a separate telco PCAU circuit) to avoid a program interruption — even with zero input power or similar catastrophic event.

ENHANCED APT-X™

Enhanced apt X technology comes at a premium cost or is simply unavailable in other STLs, but is included at no extra charge in every PCAU-SUITE. Enhanced apt-X™ delivers bandwidth savings without the artifacts, delay or content destruction associated with other codecs. Some stations not using Enhanced apt-X™ resort to uncompressed signals and pay more for tower access. Worse, uncompressed signals fall prey to bit errors that are handled routinely by the PCAU-SUITE. Stop the Pops.

BATTERY BACK-UP

Not breakthrough technology — except that every PCAU-SUITE has both 120/240Vac inputs as well as redundant (A-side and B-side) auto-adapting 24Vdc/48Vdc inputs for battery back-up or full DC operation.

THE USUAL SWITCH-TO-PROTECT

We have this too. Ours is better. Check out the ways the PCAU SUITE can help pay for itself.

AND EXPERIENCE?

Telcos continue to deploy Pulsecom's original PCAU in STL applications. Over 7,500 so far. That's a pedigree hard to beat and experience hard to match.

CRITERIA	PCAU-SUITE
SNR/ DYNAMIC RANGE	105dB
FREQUENCY RESPONSE	10 Hz - 22.5 kHz
THD+N	< 0.05%, 400Hz, +18dBu, 48kHz sampling with digital in/digital out
A/D AND D/A CONVERTERS	24-bit
COMPRESSION TECHNOLOGY	Enhanced 24-bit apt-X; 48, 44.1 and 32 kHz sampling
DELAY/LATENCY	4.5 ms end-to-end (2 system total, analog-to-analog) with 48kHz sampling
NUMBER OF FULL DUPLEX STEREO CHANNELS	1 (analog and digital)
DIGITAL AUDIO INPUT/OUTPUT	AES/EBU 110Ω balanced
ANALOG AUDIO LEVEL MAXIMUM	+18dBu
FACEPLATE VU METER	16 segment stereo + overload LED level meter
BIDIRECTIONAL CONTROL INTERFACE	3 inputs with associated far-end contact closures; DB15 connector
PROGRAM ASSOCIATED DATA	DB9, RS232, Bidirectional
T1/E1 CONNECTORS	Two RJ48C connectors. One provides the Primary T1/E1 interface. The second provides Switch to Protect capabilities. Internal CSU.
T1/E1 LIGHTNING PROTECTION	Exceeds Telcordia GR-1089-CORE outside plant criteria
T1/E1 POWER CROSS PROTECTION	Self Extinguishing per Telcordia GR-1089-CORE
ETHERNET LINK	10/100BT RJ45. Dedicated 360kb/s.
SIZE	1.75" high (1 RU), 19" rack mount
DC POWER INPUTS	24Vdc or 48Vdc, Primary and Redundant
AC POWER INPUTS	120/240Vac 50/60Hz
TEMPERATURE	0°C to 70°C (32°F to 158°F)
REGULATORY COMPLIANCE	FCC Part 15, FCC Part 68, UL 60950.

www.pulse.com | 2900 Towerview Rd. Suite 100 | Herndon | VA | 20171
Customer Service | 1 800 381 1997

ALL-IN-ONE AND ONE-FOR-ALL

Let's see. You need a digital or analog link, probably stereo and probably HD. Some telemetry, an Ethernet link, an RS232 link, the tower-side likely runs off 24 or 48Vdc, the studio off 120Vac or 220Vac 50/60Hz and a T1 or maybe E1 interface(s). A pretty tall order, and a good test of vendor model number skills.

We're happy to report the PCAU-SUITE is different. Everything is built in. Why? Well for one thing, it's less expensive to manufacture. Second, by eliminating lots of interconnections and powering schemes and card slots, it's more reliable. Third, it can radically reduce the complexity of your network. Fourth, expensive "nice to haves" with other systems can be integrated for free with the PCAU-SUITE.

OK FINE. HOW ARE WE SUPPOSED TO PAY FOR IT?

THE PCAU-SUITE SAVES COSTS IN LOTS OF WAYS

- With integral Drop and Continue capability, the PCAU-SUITE is ready to use with existing STL gear over the same, existing T1. To cut monthly T1 costs, the PCAU-SUITE provides a T1 port to extend 7 of 24 DSOs to an older STL chassis or phone system.
- Want to avoid the cost of a spare T1 for a "switch-to-protect" circuit? Use a less expensive telco digital PCAU circuit as back-up via the PCAU-SUITE's drop-out relays.
- Did we mention all of the built-ins? The High Priority 360kb/s Ethernet link is perfect for HD1 and HD2 as well as a link to a tower LAN. A Low Priority Ethernet link is included to extend a studio LAN.
- Got spares? There's no need to stock processor cards and telemetry cards and controller cards and shelves and power cards and compression cards and so forth for each of the systems replaced by the universal PCAU-SUITE. One universal PCAU-SUITE spare covers all of the bases. Money saved is money earned" as Ben would say.

STUDIO TO TRANSMITTER LINKS ARE AS OLD AS RADIO

SURE, NEWER TECHNOLOGIES have been introduced (compression, digital, HD etc.), but an STL is still an STL.

And yet every radio station depends on this critical link. While emergency back-up power systems are almost always deployed and multiple towers are sometimes used, a network's Achilles' heel may well be the lowly STL.

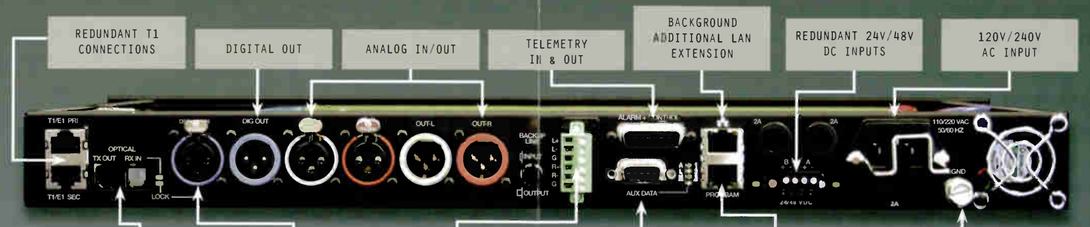
What can be done? One common approach is to install a redundant link from studio to transmitter. Sometimes useful if there's a telco failure, the cost of this redundancy can double monthly service fees. And, that's about it in terms of STL safeguards to keep you on the air.

Then there's "Technology Creep" — the ongoing introduction of new capabilities like HD that place increasing demands on STLs. First it was remotely monitoring things like tower lights. Then there was listening to over-the-air signals and Program Associated Data and LAN extensions and TSLs. The list goes on. It's been easy to end up with a hodge podge of gear, much like it's easy to end up with too many remote controls.

Another factor seems to be that equipment budgets are not limitless. This is confusing to equipment vendors, but apparently a fact of life. You likely have a substantial investment in existing equipment and — despite any advantages new gear may offer — it's probably tough to make a change without a very clearly defined return on investment.

So there you have it. In summary: Achilles' heel, hodge podge, no money.

Maybe the traditional way of looking at STLs has gone the way of the 8-track and typewriter. Maybe there's an entirely new way to make sure your station stays on the air and eliminate who-knows-how-many pieces of STL gear, all while improving profits.



REDUNDANT T1 CONNECTIONS

DIGITAL OUT

ANALOG IN/OUT

TELEMETRY IN & OUT

BACKGROUND ADDITIONAL LAN EXTENSION

REDUNDANT 24V/48V DC INPUTS

120V/240V AC INPUT

OPTICAL AUDIO CONNECTIONS (FUTURE)

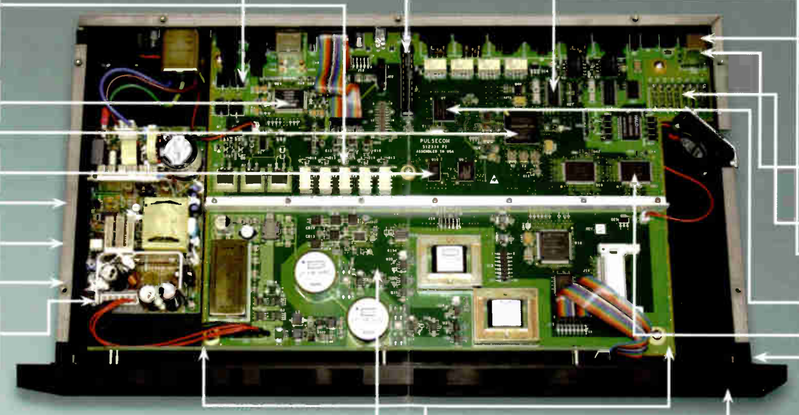
DIGITAL IN

EXTERNAL BACK-UP ANALOG LINK CONNECTIONS: TRANSMITTER OR STUDIO SETTING

RS232 AUX DATA

HIGH PRIORITY HD2 & HD3 ETHERNET

#6 GROUND WIRE CONNECTION



24/48V DC POWER INPUT PROVIDES AUTOMATIC BACK-UP IF AC FAILS AS WELL AS FULL DC OPERATION

FAILSAFE DROP-OUT RELAYS FOR CONNECTION TO A BACK-UP LINK TO SUSTAIN BROADCASTS EVEN AFTER A BLOWN FUSE

ETHERNET SWITCH

1 MILLION GATE FPGA

32 MB OF RAM AND ROM

REDUNDANT, THERMOSTATICALLY REGULATED COOLING TO HELP SUSTAIN BROADCASTS DURING A/C FAILURES

REQUIRES JUST 15W TO REDUCE OPERATING COSTS

18 GAUGE GALVANNEAL CARBON STEEL CASE (AS USED IN CABINETS THAT WITHSTAND THE GR-487-CORE OSP SHOTGUN BLAST TEST) AND ELECTRO- STATICALLY APPLIED URETHANE POWDER COAT

AC POWER INPUT ADAPTS AUTOMATICALLY TO 120/220VAC, 50/60HZ

UL RATED FR4 170°C 10-LAYER PRINTED CIRCUIT BOARD WITH ELECTROLESS NICKEL IMMERSION GOLD FINISH. 50Ω CONTROLLED IMPEDANCE; 2,093 COMPONENTS AND 1,066 MANUFACTURING TEST POINTS TO VERIFY CONSTRUCTION PIOR TO FUNCTIONAL TESTS

LIGHTNING PROCTECTION EXCEEDS GR-1089-CORE OUTSIDE PLANT CRITERIA TO HELP SUSTAIN BROADCASTS AFTER TOWER STRIKES

T1 SWITCH-TO-PROTECT TO HELP SUSTAIN BROADCASTS IF A PRIMARY T1 CIRCUIT FAILS

DUAL 24-BIT CONVERTERS

44MHZ APT-X™ PROCESSOR

STAINLESS STEEL HARDWARE

ANALOG SECTION WITH PRECISION +/-18V RAILS AND JENSEN TRANSFORMERS FOR AUDIO GROUND ISOLATION AND SITE HUM MITIGATION

THE ALL-IN-ONE PCAU-SUITE CAN BE DEPLOYED AT STUDIO OR TOWER LOCATIONS

DESIGNED AND MANUFACTURED IN THE UNITED STATES

600VAC GR-1089-CORE POWER CROSS PROTECTION HELPS PREVENT FACILITY FIRES DURING AND AFTER STORMS

DUAL T1 FRAMERS

1/2" THICK 6061-T6 MILLED ALUMINUM PLATE WITH GLASS BEAD FINISHING AND ANODIZING PER MIL-A-8625F/AMS-2469F

connected to the circuit. Note that coil L7 had to be relocated to make room for the C4 capacitor. The combination of C4 and L7 make up the center of the RF output tee section, but also functions as a third harmonic trap.

Prior to placing the PA section back into the transmitter, Ted retuned L7 with a HP 3325A signal generator, a small resistor and an oscilloscope. Ted checked the tuning again, once everything was back together.

The overall job turned out to be a big task, especially since the top assembly had to be removed from the transmitter for the modification, and then reinstalled. So far Ted's efforts have worked; there's been no further failure from this section of the transmitter.

Ted Fuller can be reached at *tsfuller@webkorner.com*.

Ted's company, Fuller Electronics, services not only transmitters but all kinds of broadcast equipment including one of the first digital STL systems, the Dolby DSTL.

I mentioned the Dolby system here in July and heard back from several engineers who are still using them including Dennis Snyder, director of engineering for Hall Communications stations in Burlington, Vt. His pair, a master/slave combination, serves one of his FM stations.

Another DSTL reader wrote in saying he'd discovered noise on his receiver output and was having trouble determining its source. Ted offers a tip that may help anyone in this situation. He suggests that if you have two systems or a master/slave on the same frequency, try paralleling the receivers, as fed by one transmitter, and see if the problem continues on the outputs of each receiver.

If the noise shows up on both receiver outputs, you can pretty much assume it is transmitter-related, possibly old power supply filtering capacitors.

If the noise only appears on one receiver and the second receiver is clean, the noisy receiver is the culprit.

Ted Fuller notes that this technique is a good first step to locating whether the problem is related to the receiver or transmitter. At the least, given that the internal electronics of the DSTL are complex, this can help to narrow the problem.

Many of the Dolby ICs are no longer available, though some parts are; in many cases, the units just need an alignment, which companies like Fuller Electronics can do.

Reach Dennis Snyder at *dsnyder@hallradio.com*.

John Bisset marked his 40th year in radio in broadcasting recently. He is a past recipient of the SBE's Educator of the Year Award. Reach him at johnpbisset@gmail.com. *He can be reached at (603) 472-5282. Faxed submissions can be sent to (603) 472-4944.*

MARKETPLACE

A NEW CURVE: There's a new player in the acoustical treatment market, Acoustical Surfaces.

The Minnesota-based company has a product group for professional contractor and retail use, Acoustic Geometry; and the first line from that group is The Curve System. It consists of diffusers, an absorber and a corner trap, all designed around a gentle curved shape reminiscent more of molding rather than traditional flat or sharp-angled acoustic treatment products.

The 42-inch Diffusor comes in three sizes, small (13.5 x 5 inches), medium (21 x 7 inches) and large (30 x 10 inches). These are constructed with internal bass traps made from a "mass-loaded vinyl membrane." Expected performance is 40–300 Hz absorption and diffusion in the 300 Hz–20 kHz range. The Absorber (42 x 21 x 4.5 inches) will work in the 200 Hz–20 kHz range while the Corner Trap (42 x 21 x 18 inches), resembling a large piece of quarter-round floor molding, follows the specs of the Diffusor.

Recycled cotton from acoustical panels is a key sound absorbing ingredient. Various fabric, color and finishing options and custom sizes are available.

Info: www.acousticgeometry.com

Overcome the Tyranny of Power

Learn From These Case Studies and You'll Avoid Getting Burned

BY MARK PERSONS

It seems that every time we turn around there's another power problem to solve. We may be radio broadcast engineers but we need *power* to keep a station on the air.

TECHTIPS

Fig. 1 is from the inside of a broadcast transmitter where 240 VAC power comes in.

A loose connection on the power connector block caused wires to burn off. Wires have been pulled back from the top center terminal of the block to show the debris left from the incident. Insulation burned off the overheated wires for about two inches from the block. The connector will need to be replaced after a temporary repair is made.

The photo shows a Harris HT-5 FM but this kind of problem can and does happen to all transmitters where high-current conductors are terminated. Best to check tightness of these kinds of connections whenever practical.

Fig. 2 shows a similar incident in a Continental 816R 20 kW FM transmitter. A heavy 208 VAC wire on the primary of the high-voltage power transformer is burned off.

I have seen this twice over the years. The original crimped terminal gets warm and then hot as resistance increases. The wire often needs to be cut back five inches or more to find clean copper. A field replacement can be a screw terminal as shown in Fig. 3.

Fig. 4 shows a 120 VAC plug that was providing power to three equipment racks in the engineering area of a radio station. The cable-to-plug wiring developed higher-than-normal resistance resulting in overheating. The insulation on one conductor turned brown from the heating. As you can see, the plastic on the plug suffered as well.

The problem was caught on a routine inspection when it was noticed that the plug was running hot. This plug would have gone into total failure after not too much longer. The wall outlet didn't look very good either.

Fig. 5 is the top/input end of a three-phase/200 ampere fused disconnect switch used at a transmitter site to provide 240 VAC power to a 25 kW FM transmitter. The leftmost lug is missing because of overheating. The left fuse was replaced temporarily because it failed from heat fatigue. The center and right fuses are discolored and also were discarded after the switch was replaced because it is good engineering practice.

The lesson here is that reliability is more important than saving a buck.

The panel was a Square D model D324N. It had been in service for just nine years. Two years earlier, an identical panel was replaced on another transmitter at the same site.

That is a bad track record considering less than 120 amperes of current were being drawn per leg. Electrical practices dictate that loads should be no more than 80 percent of the capacity of the panel. In this case, 120 amperes is just 60 percent of 200 amperes. That should be plenty of safety margin. I suspect that Square D had a problem with this panel design. The replacement panel was made by Siemens.

Fig. 6 is the left input lug of that same panel after it was gently lifted out. The 3-0 wire connected to it had overheated and its insulation was largely fried off. Not only did the fused disconnect need to be replaced, but the wire leading to it needed to be replaced.

There are inexpensive infrared thermometers that can spot overheating problems before they become big. Fig. 7 shows a Sperry IRT100 temperature sensor, with laser pointer. It was less than $50 from the local Home Depot store. The moral of the story is that preventive maintenance can save you problems later.

See you further down the road. I'll leave the soldering iron on for you. Watch for an article on backup power generators from me soon.

Mark Persons, WQMH, is certified by the Society of Broadcast Engineers as a Professional Broadcast Engineer with over 30 years experience. Visit www.mwpersons.com.


Fig. 1

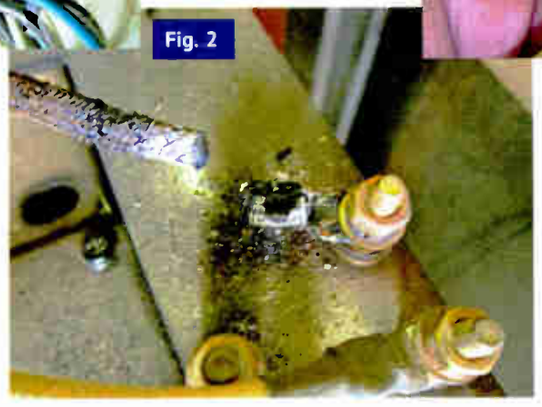


Fig. 2


Fig. 3

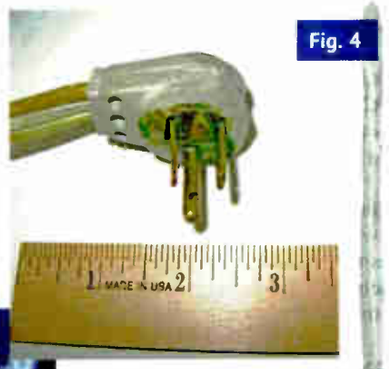


Fig. 4


Fig. 5

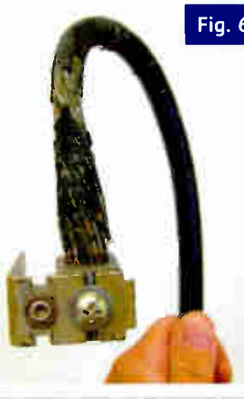


Fig. 6

Fig. 7

LIVE REMOTES VIA INTERNET?
Z/IP MAKES IT POSSIBLE.

GET A PAIR OF Z/IPs FOR JUST $5,995. WiFi ADAPTER INCLUDED.

High-speed Internet connections are everywhere. Wouldn't it be great to use them for broadcast remotes? Telos Zephyr/IP makes it possible.

The heart and soul of Z/IP is the amazing Agile Connection Technology from FhG. ACT combines state-of-the-art loss detection and concealment with dynamic buffering and adaptive bitrates. Your Z/IP will intuitively use every digital trick in the book to ensure audio gets to your studio with the lowest possible delay.

Not only is the audio incredible, but using it couldn't be easier. Z/IPs can find each other, even behind firewalls and NATS, thanks to a network of distributed servers. Z/IP can even connect to calls from PBXs that use the SIP standard. And users love the big, color display that can even show their connection being routed around the world.

Unless you're broadcasting from the moon, you'll probably find Internet just about everywhere you'll want to do a remote. IP is everywhere. And Z/IP is the best way to hear from everywhere. But hurry - supplies are limited.

Telos

AUDIO | NETWORKS

Radio Never Sleeps. Neither do we. We're here for you, anytime, with free round-the-clock, 24/7 technical support. Call +1-216-622-0247.

Telos-Systems.com

See us at the Radio Show – Table 8

Armstrong Wasn't the Only One

Who Invented FM? Gary L. Frost Offers a Fresh Exploration

BY JAMES E. O'NEAL

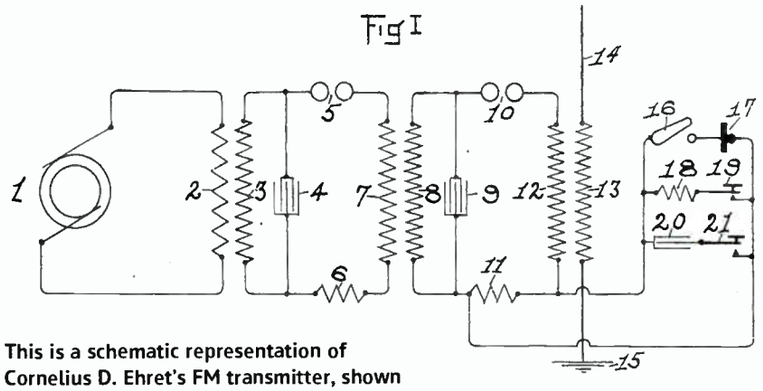
You probably know that Edwin H. Armstrong single-handedly invented frequency modulation, delivering a fully developed system in the early 1930s.

RADIOBOOKS

Perhaps you also have heard that no one else was very much interested in FM, especially after John Carson, an AT&T engineer and FM naysayer, published an analysis in 1922 declaring that FM "inherently distorts without any compensating advantages whatever."

You also know that Armstrong discarded existing preconceptions about narrowband FM when he began his experimentation, and moved right into wideband transmission as a means of eliminating static and delivering hi-fi audio to listeners. You probably believe too that RCA did everything possible to kill off FM, as it challenged the well-established RCA/NBC broadcasting empire.

According to Gary Frost, who's both an historian and engineer, we've got it all wrong.



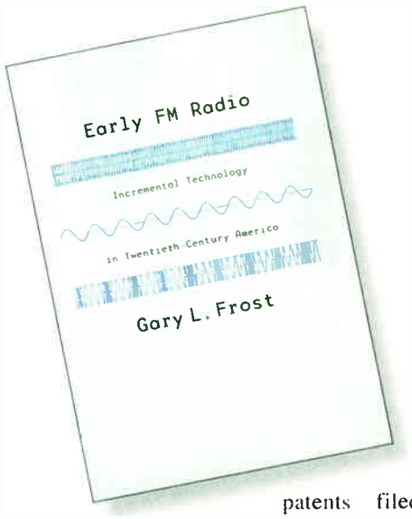
This is a schematic representation of Cornelius D. Ehret's FM transmitter, shown in his 1905 patent 'Art of Transmitting Intelligence,' discussed in Frost's book. The element at upper right, identified as #17, is a condenser microphone for instantaneously varying the transmitter's frequency.

Frost has just published a fresh look at the genesis of frequency modulation — which, by the way, didn't begin in the 1930s with work done by Armstrong at his Columbia University lab.

EHRET AND FRIENDS

Frost's "Early FM Radio: Incremental Technology in Twentieth-Century America" traces FM's beginnings all the way back to 1902 and a patent application submitted by an obscure Philadelphia inventor, Cornelius Ehret.

Ehret described the use of FM for both radiotelegraphy and radiotelephony, and included circuitry for both FM transmission and reception. Frost's research has unearthed a total of 83 FM



patents filed between 1920 and 1934. Armstrong received his wideband FM patent near the end of 1933.

Frost's investigation shows that while RCA had the lion's share of these patents (44) — and actually was conducting on-air testing of FM as early as 1925 — GE, AT&T and Westinghouse (notably KDKA's legendary Frank Conrad and others at that station) also were experimenting with this form of modulation.

The concept of the FM receiver "limiter" stage is shown to predate Armstrong's wideband FM work, with Frost directing the reader's attention to

RCA's Clarence Hansell and patents issued in 1927 and 1928.

The author notes that before the big "breakup" between Armstrong and RCA's David Sarnoff in the mid-1930s, Armstrong was "almost an RCA employee" in terms of having access to radio research work at the company.

However, this was anything but a two-way street, as Armstrong was quite secretive about his own FM work. Frost states that "Armstrong clearly owed much to his [RCA] friends at Riverhead," and that he applied knowledge of RCA's successes and failures in his own work.

Frost sets right the comments of AT&T's John Carson about FM's ability to distort, and identifies Carson as the father of single-sideband modulation (something that Frost terms "probably more important than hi-fi FM").

FIXING THE RECORD

"Early FM Radio" attributes many of the modern misconceptions about FM's early history to biographer Lansing Lamont and his posthumous tribute to Armstrong, published two years after the inventor's plunge to his death on Jan. 31, 1954.

Lamont's book, "Edwin Howard Armstrong: Man of High Fidelity," is shown by Frost to be a less than accurate representation of the facts leading up to modern FM broadcasting, yet it became the "gold standard" concerning Armstrong and his achievements. (Lamont's dissemination of misinformation has been compounded by later writers who accepted the account without question and echoed portions of it in their own works.)

Frost flags one of the most famous (yet spurious) incidents described by Lamont in connection with the first public demonstration of FM, which occurred on Nov. 6, 1935.

Armstrong had arranged for a close friend — Randy Runyon — to broadcast via FM from his Yonkers, N.Y., home to the audience assembled at an Institute of Radio Engineers meeting in Manhattan. In his 1956 book, Lamont described an elaborate battery of sound effects — water being poured, paper crumpled and torn, various forms of music — that were staged as part of the demonstration.

Frost observes: "No one who attended that day reported hearing reproductions — vivid or otherwise — of crumpled paper, oriental gongs, guitars … Nor could they have, for Armstrong had yet to incorporate the 'high fidelity' circuits into his system that the reproduction of such sound effects requires." Frost adds that this description of sound effects most likely came from a newspaper article that Lamont published some three-and-a-half years later.

While I maintain a deep respect for Major Armstrong and his many accomplishments, due to the investigative efforts of Frost I now have to temper that a bit with the reality that this well-documented history provides.

It's been said many times that television was not invented by any one person; the same must now be said for FM broadcasting. While Armstrong played a large part, even personally funding the construction and operation of the world's first FM radio station, Frost proves rather conclusively that he had company along the way in making wideband FM a reality.

"Early FM Radio" presents a refreshing new view of the development of FM radio, and one that is much overdue. It's a must-read for those of us who have spent most of our lives believing that FM was a one-person invention.

I should note that Frost's book is refreshing in another way. He breaks away from the current hertz, kilohertz and megahertz frequency designations, reverting to the "cycles," "kilocycles" and "megacycles" that were in use at the time FM was being invented.

If I could change anything at all about Frost's book, it would be the reproduction on Page 74 of three pages from a 1931 letter from RCA's Hansell to Armstrong. These are compressed into a tiny space of 3.5 x 7.5-inches, making them almost illegible (especially to many of us who arrived on the scene in the decade of the 1930s, or the one immediately following).

Hopefully, future editions of Frost's book will provide a little more real estate for these pages and eliminate the need to locate a high-power magnifier to understand why he included them.

"Early FM Radio: Incremental Technology in Twentieth-Century America" is published by the Johns Hopkins University Press.

'There I Was, at the County Fair …'

Radio Veterans Share Memories of Remotes in the Good Ol' Days

BY JAMES CARELESS

Radio World would like to hear your first-person recollections about early or unusual radio remote broadcasting. To get the conversation started, we asked three radio veterans to share a few anecdotes about the Good Ol' Days of Radio Remotes.

E-mail yours to radioworld@nbmedia.com.

FIRSTPERSON

GEORGE MARTI

Perhaps the most familiar name associated with remotes is that of George Marti.

After serving in World War II at the Naval Research Lab in Washington and later in the Pacific, where he was in charge of communications for a Marine air group, the 25-year-old was discharged in 1945. A trained radio engineer since 1937, Marti naturally returned to broadcasting.

George Marti, father of the RPU

In 1947, he and his wife Jo began building an AM station, KCLE(AM) in Cleburne, Texas (where he built the 250-watt transmitter and audio console in his mother's living room).

"KCLE was 28 miles south of Fort Worth," Marti says. "I got the AM station to air but then ran into a problem: We wanted to do remote broadcasts, but there were no telephone lines linking many of the areas we wanted to cover."

To solve the matter, Marti also built a remote program unit, or RPU.

"This was a small portable transmitter that you took to the remote broadcast location," he said. "You then broadcast the remote over VHF directly back to an antenna on the station tower. With the receive antenna I put on KCLE's 300-foot tower, we could do remotes anywhere within a 25- to 30-mile radius."

The first RPU was about 12 inches high, 14 inches wide and 8 inches deep; it had a handle on top to allow for easy carrying. The success of Marti's first RPU led him to build a second, then another and then another. Eventually, so many people were asking him to build RPUs that he established Marti Electronics in 1960 to design and build RPUs. It expanded later into STL manufacturing.

"I got so involved in making these devices that I ended up building them full-time until I retired in 1996 and sold the company to Broadcast Electronics," Marti says.

Despite the proliferation of other means of moving audio, the Marti RPU — often affectionately called simply "the Marti" — is still used in many places to connect remote broadcast sites wirelessly.

The Texas Association of Broadcasters recently presented its Lifetime Achievement Award to George Marti, just the latest honor in a celebrated engineering career.

VERN KASPAR

The president and CEO of Kaspar Broadcasting Co., which owns stations in Missouri, is Vern Kaspar. He has radio roots back to the 1930s, a time when "every radio station had to have a radiotelephone operator's license. Back then, smaller stations had to get their news by Morse Code, because we didn't have access to teletype. So you needed someone on duty who could copy Morse Code accurately."

In the 1940s, Kaspar was a radio engineer assigned to setting up concert and church remote broadcasts.

"I used to be sent out to cover Glenn Miller, Kay Kyser and Harry James when they came to town," he recalls. "I was the guy who set up the tube amplifier, which was connected to a microphone on stage to capture the broadcast. It was a great job, especially if you had a date. The security people would wave you through the line, you'd get to say a few words to the band's conductor. It made me feel like a big shot."

> **I was the guy** who set up the tube amplifier, which was connected to a microphone on stage to capture the broadcast.
>
> – Vern Kaspar

Tube amplifiers were the workhorse of radio remotes. Whether installed in trucks or in more portable steel boxes, these units captured the audio, then boosted it for transmission via telephone line back to the station's console, which may have had a dedicated input for remote broadcasts.

"We didn't worry about audio quality and frequency response in those days," Kaspar says. "We were just happy to hear live audio from around the listening area, especially if it was a big band."

(continued on page 20)

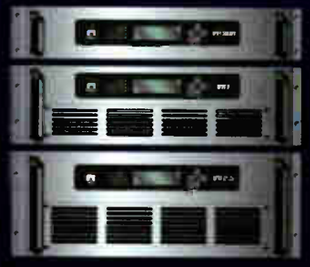
expect MORE

more engineers. more innovation. more award winning products

nautel

+1.902.823.5131

MOREFM



VS SERIES FM 300W – 2.5kW

NV SERIES FM 3.5 – 88kW

MOREAM

NX SERIES AM 25kW – 2MW

MOREDIGITAL

HD Radio
Pure Digital. Clear Radio.

- 10db / - 14dB
HD PowerBoost™
Asymmetrical Sidebands

MORECONTROL

NAUTEL AUI
(ADVANCED USER INTERFACE)

Nautel offers the industry's broadest portfolio of digital/analog solid-state transmitters including 1kW to 2000kW MW and 300W to 88kW FM models. Outstanding reliability, global presence, efficiency and exceptional support have resulted in more than 8000 Nautel transmitter deployments in 176 countries. Expect more from Nautel.

Making Digital Radio **Work.**

See what more looks like at nautel.com/expectmore/

REMOTES

(continued from page 18)

Where life got difficult was in dealing with the telephone company: Radio remote engineers never knew when they might get disconnected by someone doing work at the Central Office.

"Easter sunrise services were the most frustrating, because you'd get all set up to go and then find your telephone line didn't work — and there was no one you could call to get help," he says. "Or you would be covering a ball game away from home, and suddenly someone at the phone company would drop your line simply because they weren't watching what they were doing. That was just the risk of doing things by telephone line back then, and it could drive you crazy."

CHARLES HOLLAND

For the past 60 years, Charles Holland has been a radio engineer. Even today, in his mid-80s, he serves as chief engineer for Thunderbolt Broadcasting's KYTN and WQAK in Union City, Tenn.

One of the radio remote highlights of Holland's career was covering a live speech by President Harry Truman in the 1940s.

Charles Holland

"Back then, you just walked into the venue, set up your equipment and did a sound check without any problem," Holland says. "You did introduce yourself to the Secret Service, but that was about it."

Charles Holland relied on a portable tube amplifier and telephone lines to get the president's live audio out to his clients, in this case, a seven-station ad hoc network. The broadcast went without a hitch.

Such wasn't the case for a live Army big band concert.

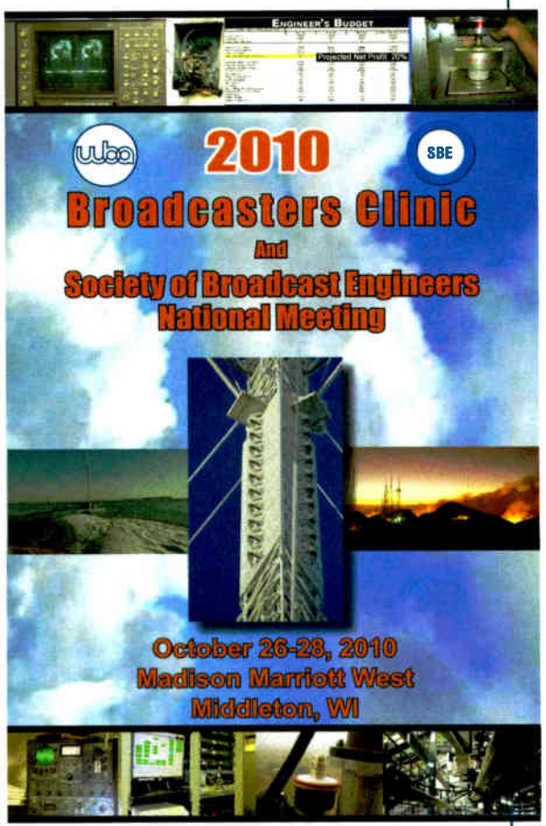
"I got to the site and discovered that the phone wire had been pulled up onto the pole, 30 feet off the ground," Holland recalls. "I went to the person who was managing the remote and said, 'Chief, I can't connect to the phone wire. I don't have a ladder.' He replied, 'Just take my amplifier wire and run it out the window,' which I did.

"So it looks like we're connected to cover the remote, but we aren't. Instead, as the band plays, someone back at the station played their music from a record."

Did this ruse work?

"Thanks to the way it was handled back at the station, no one knew the difference," Holland said with a laugh. "It was the radio remote that wasn't."

Broadcasters Clinic Details Are Set



The word Madison doesn't appear in the event's title, but if you tell someone in engineering circles that you're going to the Madison show, they probably know what you mean.

The 2010 Wisconsin Broadcasters Clinic will be held at the Madison Marriott West in Middleton, Wis., just west of Lake Mendota, on Oct. 26–28. This year the Society of Broadcast Engineers will conduct its national meeting there concurrently.

Among the presenters is Dave Hershberger of Continental Electronics, talking about elevated HD Radio power. His NAB paper on that topic was excerpted in the Aug. 18 issue of Radio World Engineering Extra.

Jeff Zigler of RCS is among speakers addressing "Not Just Audio Over IP, All of It Over IP," about which Zigler wrote in the June 2 Radio World.

Clinic topics also include the efficient use of FM composite, building engineering FM translators for AM stations, IP microwave links for STL and broadcast tower failures.

The clinic is structured, generally speaking, so that radio-oriented attendees can come on Tuesday and Wednesday, while TV-oriented visitors can come Wednesday and Thursday. The cost to attend is $130 for any two days or $150 for all three.

SBE events scheduled include its board meeting, membership meeting and national awards dinner; an SBE Awards ticket costs extra.

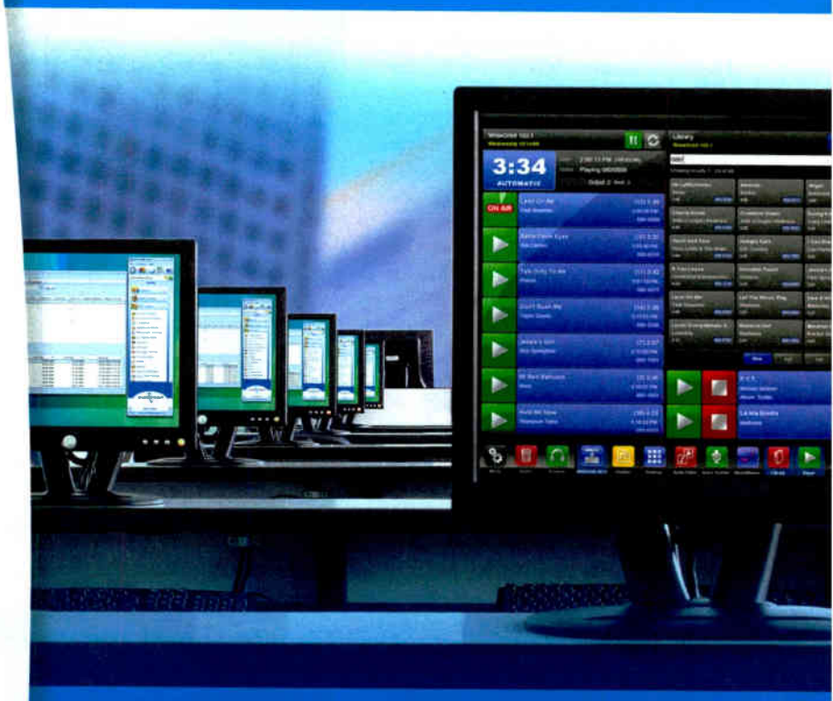
Radio-related exhibitors include Broadcast Electronics, Broadcasters General Store, Continental, Comrex, Dielectric, ERI, Full Compass, Gorman-Redlich, Logitek, Nautel, RAM Systems, RCS, Stainless, Switchcraft and WideOrbit among others.

Info: www.wi-broadcasters.org

"WideOrbit's technology makes sense.

WideOrbit is extremely efficient, user-friendly and allows us to easily customize and manipulate data. We're exceedingly satisfied with the product and when I asked all of our key players if we should renew with WideOrbit, 100% said 'yes.'"

– GLENN KRIEG
Chief Financial Officer, Morgan Murphy Media



END-TO-END SOLUTION FOR SALES, TRAFFIC, AUTOMATION AND BILLING

WideOrbit's comprehensive solution offers extraordinary efficiencies and visibility with live log editing between traffic and automation, real-time reconciliation and reporting, automatic updates and remote access—for ultimate control, from anywhere!

WIDEORBIT

VISIT WIDEORBIT AT RADIO SHOW 2010 | BOOTH 88
SIGN UP FOR A DEMO AT:
WWW.WIDEORBIT.COM/RADIO2010

For more information, please contact:
Mike Zinsmeister, Vice President, Sales
(O) +1.828.252.8891 | (M) +1.828.712.2843
mikez@wideorbit.com

Interference: Define and Conquer

Cases Should Be Evaluated Individually; Some May Involve Considerable Effort

BY TOM OSENKOWSKY

Broadcasters encounter interference in two forms: that which someone may accuse the broadcaster of causing, and that which the broadcaster experiences.

The most familiar type of the former is a consumer complaint that the broadcaster's signal is being received on a device not intended to do so. Typical devices are telephones, home sound systems and radio receivers.

Broadcasters may face complaints from other broadcasters, commercial and government entities. A broadcaster also may receive interference on its RPU, STL, EAS and off-air monitoring receivers.

CONSUMER DEVICES

Locating the source of interference often is a challenge, especially if the problem is intermittent.

Curing interference requires a combination of art and science; the same solution may not be effective in similar cases. A typical arsenal of components used to remedy consumer gear interference is shown in Fig 1. Ferrite devices, inductors, capacitors, AC power line filters, DSL filters and ground wire may be employed to reduce or eliminate unwanted reception.

A common consumer complaint is reception of an AM station on a stereo or public address amplifier. This can also occur in a house system where the studio and transmitter are collocated.

Typical cures involve placing a .1 μf capacitor across the speaker output terminals on the amplifier and/or the speaker itself. An inductor in series with the speaker output terminal may help, as can twisted (not zip cord type) speaker cable. Try wrapping several turns of the speaker cable through a toroidal ferrite choke.

Curing interference is a combination of art and science. An arsenal of components used to remedy consumer gear interference is shown.

With ferrite products, use the proper suppression material for the offending frequency band. Fair-Rite #31 and 73 are effective at AM frequencies, whereas #43 and 44 are effective at FM frequencies; #61 is effective at UHF frequencies (see sidebar for Fair-Rite link).

RF entering through the audio input terminal of an audio amplifier may be cured by placing a small capacitor across the hot lead(s) to ground, or across the balanced hot pins. A small inductor may also be used. For VHF/UHF frequencies a ferrite choke may be placed around the input terminal(s) inside the unit. A small value capacitor placed across a tape head can remedy FM/VHF/UHF interference. Take care to select the lowest value of capacitor possible to eliminate the RF while still preserving the audio frequency response.

Unwanted reception of RF in telephones often can be treated effectively by installing a DSL filter in series with the telephone line. Determine whether RFI is heard on the incoming telephone line; just plug in a Western Electric 500

or 2500 set into the demark jack with the customer's equipment disconnected. If the incoming line has RFI on it, the matter should be referred to the telephone service provider. If the line is free of RFI, the issue lies with the customer's equipment. If a DSL filter does not solve the problem, refer the complainant to the telephone manufacturer's website for technical support.

Many telephones lack RFI protection; however, the manufacturer may offer external filters. Third-party vendors like K-Y Filter Co. also offer such filters.

Receivers in close proximity to transmitter sites may experience front-end overload with the resulting inability to receive other stations. A notch filter from a supplier like Tin Lee Electronics Ltd. may be helpful for FM reception where an external antenna is employed. These are also helpful in resolving television interference.

The FCC has a resource page that may be helpful to consumers, headlined "Interference: Defining the Source" (see sidebar).

It is not advisable to attempt repairs to consumer equipment; some states require licensure to do so, and you also may face liability issues. An engineer or station may stand accused of causing damage to the device or be blamed for its unrelated improper operation. Advise consumers on how to purchase filters; refer them to local licensed repair shops or the manufacturer for resolution.

UNHAPPY FAA

Here are several cases of interference complaints and how they were resolved.

I received a call from the chief air traffic controller at a local airport claiming that our Class A FM station was interfering intermittently with the tower frequency, 119.4 MHz.

I asked if he could hear our audio and whether aircraft could hear the interference. He checked and said the problem had been heard by listeners in aircraft and also on the ground via a portable receiver. The audio was unintelligible but our station was suspected because the antenna of the FAA's direction finding van pointed toward our tower. Yet this also could mean that the offender was someone else, located between the van and our tower or beyond us on that bearing.

I invited the FAA technician to visit our site. Not having a spectrum analyzer, I brought along a Potomac FIM-71 and Icom R-7100 receiver.

I raised/lowered transmitter and exciter power; I mistuned the IPA and PA. But I could not produce any of our audio on 119.4 MHz. I could hear the tower and aircraft, but no evidence of our signal, other than on our licensed frequency.

USEFUL INFO

"A Ham's Guide to RFI, Ferrites, Baluns and Audio Interfacing"
http://audiosystemsgroup.com/RFI-Ham.pdf

Fair-Rite Products Corp. (material data sheets)
www.fair-rite.com/newfair/materials.htm

K-Y Filter Co.
www.ky-filters.com

Tin Lee Electronics Ltd.
www.tinlee.com/FM_Products.php

"Interference: Defining the Source" (FCC)
www.fcc.gov/cgb/consumerfacts/interference.html

Asked for a recording of the interference, the chief controller produced a GPS time-indexed DAT tape as the worst example.

We listened to 8 minutes of pure garble, akin to wideband FM detected on an AM receiver. According to our music log, our station at the time had been playing "Run" by Collective Soul. Listening to the tape, he and I agreed we could hear no change in tempo or cadence, and no voice. Also, "Run" was not an 8 minute song.

One aircraft trying to call in during this

(continued on page 24)

INTERFERENCE

(continued from page 23)

time had been diverted to a secondary frequency, and no wonder. I would not want to listen to that garble all day. This was a safety issue. I told the controller to call me if the interference reappeared.

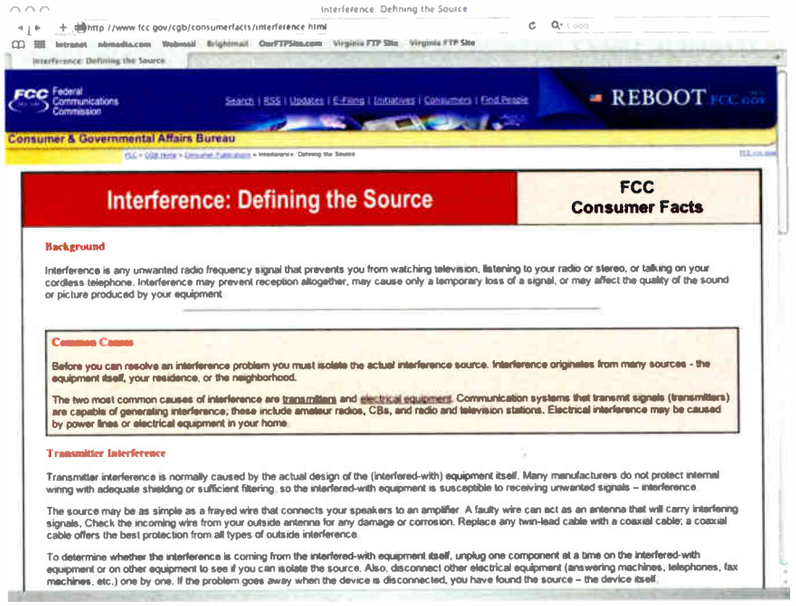
It did so the next morning at 9:30; so I turned off our transmitter/exciter. This produced no change at all; the interference remained. Our station, it appeared, was not the offender.

I offered my assistance to the FAA not only as the chief engineer of the station but as a pilot who earned his license at that airport. I never heard back from the controller but I did meet the airport manager at a local restaurant some months later and asked if they'd ever found the cause of the interference.

The FAA technician finally had identified an SUV from which the signal was emanating. The owner had installed an FM booster to improve his reception. Removing the fuse to the booster cured the problem.

In another case, a local police department called to report that our 850 kHz station was interfering with their 45 MHz repeater.

They could not hear our audio, only beeps and tones at all hours of the day and night; but we stood accused because their radio technician had examined FCC records and identified ours as the most powerful transmitter licensed to that town.



An FCC resource page

I explained that the source probably was a paging transmitter at their multi-user site miles away. When the lieutenant told me the problem had been very bad a few days earlier at 4 a.m., I also pointed out that we were a daytimer and not on the air until 6 a.m.

I never heard back.

PLAYING AGAINST THE HOUSE

At a Class A FM station, we received a complaint of interference to the CSPAN-2 channel on the local cable system at a nearby residence.

The resident was not home when the head-end chief technician and I visited. The center frequency of the CSPAN-2 was 800 kHz removed from our licensed frequency. The problem remained even after the drop cable and a trunk section were replaced.

I asked the technician if he could see our signal on a spectrum analyzer at various nearby tap points if the CSPAN-2 modulator was turned off. He said yes. Clearly this was a cable leakage issue.

It turns out the source was the neighbor's house. Aluminum siding recently had been installed there, and the drop cable's shield had been punctured and stapled in three places. The siding was acting as a receive antenna.

In another instance, this same FM station was said to be interfering with one 800 kHz up the dial. We cured this by installing double shielded coax cable between the audio processor/stereo generator located in a rack and the exciter composite input. Our collocated AM station operates on 800 kHz.

In another such case, we realized that when the station's ATU had been installed, its ground strap had never been connected to the base ground strap at the tower. In fact we found the strap coiled up inside the ATU. When we connected it, the problem was solved.

Interference has many variations, causes and cures. Evaluate and treat each case individually. Some remedies are simple, where others may involve considerable effort to locate and cure.

Tom Osenkowsky is a broadcast engineering consultant and long-time contributor to Radio World.

MARKETPLACE

CHEAP BUT NOT CHEAP: Audio-Technica's latest, the ATH-M10, look to be aimed at the lower end of the market, going by the price point. But its another example of the steady migration of quality downward into the budget market; these phones do not skimp. The dynamic drivers are 40 mm with frequency response of 30–20 kHz. The circumaural phone cups are padded. A straight-wire 10-foot cable ends with a 1/8-inch connector and wishbones to the driver cups. A 1/4-inch adapter is included. The adjustable headband offers an inner band. The package is light at 7.4 ounces. Impedance is 40 ohms. Price: $59.

Info: www.audio-technica.com

STICKING AROUND: Godlyke Distributing, known in the MI market, has a product that might be of interest to radio, Power-All Power-Grip. It is an adhesive-backed "mounting tape" designed to get around problems associated with hook-and-loop tapes, namely, the hooks and loops can get clogged and their ability to adhere diminishes after repeated usage. The design of the Power-Grip tape uses mushroom-like "stems" that perform both duties. Besides added efficiency there's never the possibility of ending up with male-male or female-female pairings. Power-Grip uses a temperature- and weather-resistant adhesive should be "near-permanent" when cured for 24 hours, according to a release from Godlyke. It is available in one meter-length rolls at an MSRP of $24.95.

Info: www.godlyke.com

PEOPLENEWS

Wes Davis is the new chief engineer of Bend Radio Group. Owner and Co-CEO Jim Gross made the announcement. Davis replaces the late **Dave Young**. "We knew we had some very big engineering shoes to fill," Gross said.

As chief engineer/operator, Davis will support a company that serves Central Oregon with four FMs and one AM. Davis spent five years as VP of engineering for NextMedia Group. He worked for Cumulus as a chief in Jefferson City, Mo., and at WMCL(AM) in McLeansboro, Ill. ...

Kevin Douglass is the new director of engineering and IT for Bustos Media.

Douglass is leaving Hawaii, where's he's been for three years as DOE for H. Hawaii Media and general manger of their Kaui properties, and moving to Sacramento for the Bustos Media job.

The former Jacor and Clear Channel regional engineering director begins his new duties on Oct. 1. Jay Meyers, president/CEO of Broadcast Management & Technology who also serves as interim CEO for Bustos, made the announcement. ...

Richard Gallow

Richard Gallow was named engineer of the year for the Beasley Broadcast Group. A 24-year company employee, he was saluted for "single-handedly managing all engineering aspects of five radio stations, as well as overseeing the completion of a large tower project on time and under budget."

He is SW Florida director of engineering and manages the engineering and IT departments of the Southwest Florida cluster, which includes WRXK(FM), WXKB(FM), WJPT(FM), WJBXFM, WWCN(AM) and four additional HD Radio channels.

Also honored by Beasley were Tom **Humm** as GM of the year, Leo Baldwin as PD of the year, **Cory Cuddeback** as SM of the year, **Kelly Baldwin** as business manager of the year, and KKLZ(FM) in Las Vegas as station of the year. ...

John Bisset

Codec manufacturer Tieline Technology appointed **John Bisset** to its sales staff.

"As Tieline expands its presence in the Americas, John joins **Mary Ann Seidler**, who spent 12 years at Telos Systems," the company said. "The two will be responsible for business development and Tieline's presence in the Americas."

Bisset is author of the Radio World column *Workbench* and a past recipient of the SBE's Educator of the Year Award. He has sold equipment for more than 20 years including stints at Harris and Broadcast Electronics, and has been a frequent presenter at trade shows. He most recently was sales manager for Europe and Southern Africa for Nautel. ...

Tom Farley

Tom Farley was named advertising and marketing manager for **Full Compass**. He has experience at financial institutions in New York including Citibank, Bear Stearns and KPMG, and manages a nonprofit he created to develop drug and alcohol prevention programs for youth audiences. He is former director of marketing for the Greater Madison Convention & Visitors Bureau. ...

Doug Bertelmann

WideOrbit recently named **Doug Bertelmann** as a regional sales director. He was North American sales and marketing manager for DAVID Systems and has sold radio traffic systems for CBSI, which later merged to form Wicks Broadcast Solutions. He has managed and produced content for stations in Charlotte, Philadelphia, Washington and Hartford, Conn. He's the son of Dick Bertel, retired radio and TV personality and an executive producer for the Voice of America. ...

APTX appointed **Damien Vandenbeyvanghe** and **Simon Denvir** as field application engineers.

Send information to radioworld@nbmedia.com *with "People News" in the subject line.*

When: Sept. 29–Oct. 1

Where: Grand Hyatt Washington

Who: The National Association of Broadcasters and the Radio Advertising Bureau are co-producing the event, which "brings radio broadcasters and industry colleagues together to share knowledge, discover the latest innovations, network with industry leaders and explore creative business strategies to help radio flourish in the digital age"

How: www.radioshowweb.com/

How Much: Until Sept. 24, $495 for members of NAB/RAB, $795 for nonmembers, discounts for spouses and students; slightly more after that date

Exhibits: A tabletop exhibit format called The Marketplace is open Wednesday 5:30 to 7 p.m., Thursday 7:30 a.m. to 5:30 p.m., and Friday 8 a.m. to noon.

iStockphoto/DHuss

'Reality' Video Shines Light on Smartphones

'Radio People Have to Stop Thinking About Their Medium in Terms of Towers and Transmitters'

BY JAMES CARELESS

Does radio have a future in the mobile world of smartphones? Not if broadcasters continue to think in 1970s-style paradigms such as "favorite radio station," "new hit music" and "most popular radio personalities."

That appears to be the lesson of reality TV-style videos produced by Jacobs Media in association with Arbitron. They were shot when Jacobs Media interviewers and camera people tracked 18 members of the 18–49 age group as they used their smartphones at work and at play. The videos will be screened during the Radio Show "Goin' Mobile" Super Session on Sept. 30.

"Arbitron was interested in providing our customers with the insights they need to stay ahead of the curve," says Ed Cohen, its vice president of research policy and communication. "Studies like this will help shine a light on consumer use of mobile platforms. The findings will assist broadcasters who are investing time and money into mobile to plan for the future."

The findings startled the researchers.

"We expected to simply capture when people were texting and what sites they were surfing to," says Paul Jacobs, general manager of Jacobs Media. "But what we witnessed was something far more profound: We documented people whose lives are intimately integrated with their mobile devices, who interact with them constantly in numerous ways, and who always keep them close at hand.

"What we recorded was a shift in people's relation to and integration with personal technology — and the implications go far beyond what audio stream they're listening to."

TIMELY

For radio people struggling to understand their medium's place in this Brave New World, the Arbitron/Jacobs Media study offers insights.

With so many personalized providers coming into this space, broadcasters have to step up and match this level of selection.

– Paul Jacobs

"It's not enough to simply throw your on-air content onto an iPhone app, and hope that people tune in," says Fred Jacobs, president of Jacobs Media. "If you want people to access your brand, you have to give them a reason to do so. This may be something like creating a station-branded ski report that you offer as a separate free app, to get your name in front of this audience." His company develops such customized apps.

Further, says Paul Jacobs, "Radio people have to stop thinking about their medium in terms of towers and transmitters. Smartphone users don't think in these terms, nor do they select their media based on any technology-first definition. They choose content based on

(continued on page 28)

When was the last time you touched something that looks this good?

The new iMediaTouch Version 4.0 is here.

Radio Automation ▸▸ Digital Logging ▸▸ Internet Solutions

Please come see us at the 2010 Radio Show in Washington, DC – Booth #47

iMediaTouch

Contact our sales department today at 888-665-0501
or via email at sales@imediatouch.com

▸▸ Watch a video demo of
iMediaTouch 4.0 in action!
www.imediatouch.com

omt technologies

SMARTPHONES

(continued from page 26)

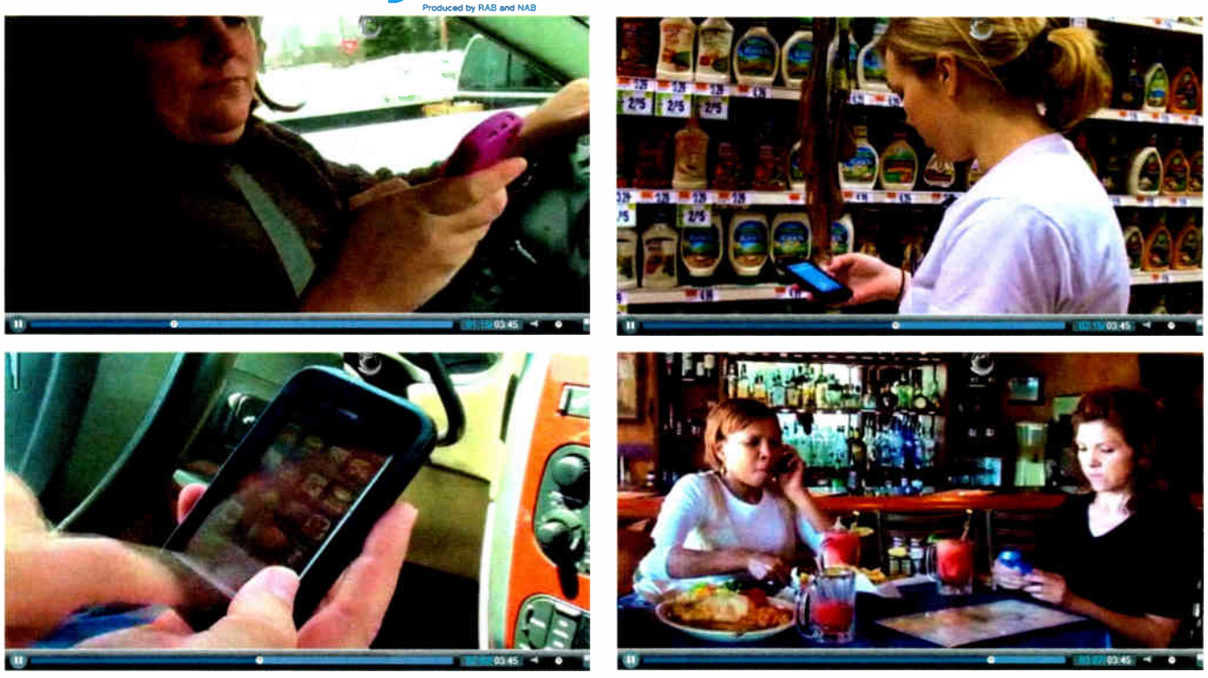
what interests them. Who produces it and how it gets to them really doesn't matter, as long as they get what they want."

Based on the Arbitron/Jacobs Media research, people are still tuning to local radio when they get in the car. But as Internet radio makes its way into this preserve through iPhones and Blackberrys, this edge could be lost.

"When local TV stations first moved to cable, kids in those markets were able to tell you who was local and who was not," Paul Jacobs says.

"But today, as brands such as TBS and CNN have become familiar, most don't know who their local broadcasters are. When this happens, those stations get lost in the 200-channel universe. All that makes them stand out is their content, not where they broadcast from."

Collectively, the anecdotal videos confront radio broadcasters with two options: Get serious about working in mobile, or prepare to abandon younger audiences to other competitors — not just Pandora and iTunes, but the myriad other mobile apps providers clamoring for attention.



Teams of interviewers and observers followed people at work and play to learn more about how consumers are using mobile devices.

LIFELINES

In the world of smartphones, there are no broadcasters, aggregators or third-party vendors, only content providers.

"This is why just providing a 24/7 simulcast of your on-air stream just isn't good enough," says Paul Jacobs. "With so many personalized providers coming into this space, broadcasters have to step up and match this level of selection, and more."

According to Cohen and the Jacobs, the users view their mobile devices as "lifelines." Smartphones are their personal electronic link to the world of friends, entertainment and work. As a result, broadcasters who want some of these people's time need to offer apps that suit this audience's wants and desires. The apps should be easy to use, free and offer services that consumers might actually use, like individually configured news and entertainment reports, sports scores and promotions that matter to them.

Broadcasters can be forgiven by feeling intimidated. In response, "Arbitron is looking at several technological advancements to address growing research needs," says Ed Cohen. "In our latest PPM 360 technology, we have migrated Arbitron's latest electronic measurement software to a mobile platform. We can now facilitate wireless data transmission and are creating a potential path to enabling Arbitron to collect audience data using multiple mobile devices including smartphones and net books."

Meantime, "Your best bet is to see these videos at the 2010 Radio Show and draw your own conclusions," Fred Jacobs says. "There's no substitute for seeing real people interacting with their smartphones and witnessing for yourself just how important this technology has become to their lives."

'ASK THE EXPERTS'

Building a Radio Station
(Wednesday, 10 a.m.–Noon)
Antonio Argibay, John Bisset, David Gilson, Andy Laird and Mike Starling. Gary Kline moderates.

Technical/Regulatory/Legal/FCC
(Thursday, 10:30 a.m.–Noon)
See details, page 4

AM/FM/Digital Transmitter Manufacturers
(Thursday, 1:30–3 p.m.)
See details, page 30

The iBiquity Radio Team
(Thursday, 3:30–5 p.m.)
Steve Baldacci, Joe D'Angelo, Ashruf El-Dinary, Jeff Jury and Albert Shuldiner. Chriss Scherer moderates.

Creative Audio Processing
(Friday, 9–10:15 a.m.)
Glen Clark, Frank Foti, Jeff Keith, James Loupas and Greg Ogonowski. Dom Bordonaro moderates.

The AM Antenna Modeling Gurus
(Friday, 10:30–11:45 a.m.)
Ben Dawson, Tom Jones, Ron Rackley, John Warner. Cris Alexander moderates.

EXHIBITORS, SUITES & SPONSORS

These companies will have tabletop exhibits or hospitality suites, or are sponsoring sessions. For locations see the Markeplace tab at www.radioshowweb.com.

10LocalCoupons
84444.com
Advantage Systems Inc.
Air Force Recruiting
Alliance 180
Allied Energy
American Urban Radio Networks
Arbitron
Arctic Palm Technology Inc.
Army National Guard
BD Sales Training
BIA/Kelsey
Big Boy's Neighborhood
BRG Music
Broadcast Electronics
Broadcast Software International
Broadcasters General Store
Broadview Software Inc.
BRS Media
Business TalkRadio Network & Lifestyle TalkRadio Network
Collette Vacations
Communication Graphics Inc.
Comrex
Continental Electronics Corp.
Dance Radio Network
Dickstein Shapiro LLP
Dielectric Communications
Digigram
Digital Alert Systems
Edulence
EMIRAT AG
Emmis Interactive
ENCO Systems Inc.
ERI-Electronics Research Inc.
Federal Communications Commission
FEMA Integrated Public Alert and Warning Systems (IPAWS)
Harris Corp.
iBiquity Digital Corp.
Inflatable Images
Inside Radio
Intertech Media
Jump2Power
Katz Media Group
KeyConnex
Larcan USA
Liquid Compass Streaming Media
Listener Driven Radio
Mainstream Network
Marketron Broadcast Solutions
Matrix Solutions
MediaGuide
MediaSpan Online Services
Miller, Kaplan, Arase & Co. LLP
MIW Radio Group
Moblico
Moseley Associates Inc.
Myat Inc.
myLocal.net
NAB Member Benefit Programs
NAB Membership
NAB Public Service Initiatives
Nautel Limited
Navteq
NPR Labs
NPR Satellite Services
NRS Media
OMT Technologies
OneDomain Inc.
Point-To-Point Marketing
PromoSuite Software & Interactive
Pulsecom
Radio Branding Solutions
Radio World/NewBay Media
Radio-Info.com
RCS
Regional Help Wanted
Regional Reps
RF Specialties Group
Roll a Sign, Div. of Reef Industries Inc.
Sabre Towers & Poles
Sage Alerting Systems Inc.
ScottTraffic.net
Second Street Media Solutions
SESAC
Shively Labs
Specialty Data Systems Inc.
Stainless LLC
StreamOn!
StreamTheWorld
Sun & Fun Media
Telos Systems
The List
The Media Audit
Timeless Cool
Triton Media Group
Vallie Richards Donovan Consulting
vCreative
V-Soft Communications, LLC
Wheatstone Corp.
WideOrbit
Worldcast Systems

Ask the Experts? OK, Let's Do

Panelists in Engineering Session Offer Thoughts About Buying Transmitters

BY TOM VERNON

A transmitter is among the largest capital items that most engineers will have to acquire. Making the right decision is important.

Radio World asked participants of a Radio Show session on AM/FM/Digital

TECHTIPS

transmitters for tips to avoid common problems when making that big purchase. The panel is part of this year's "Ask the Experts" engineering theme.

The right purchase decision involves looking beyond specifications and price, understanding the long-term goals of the station.

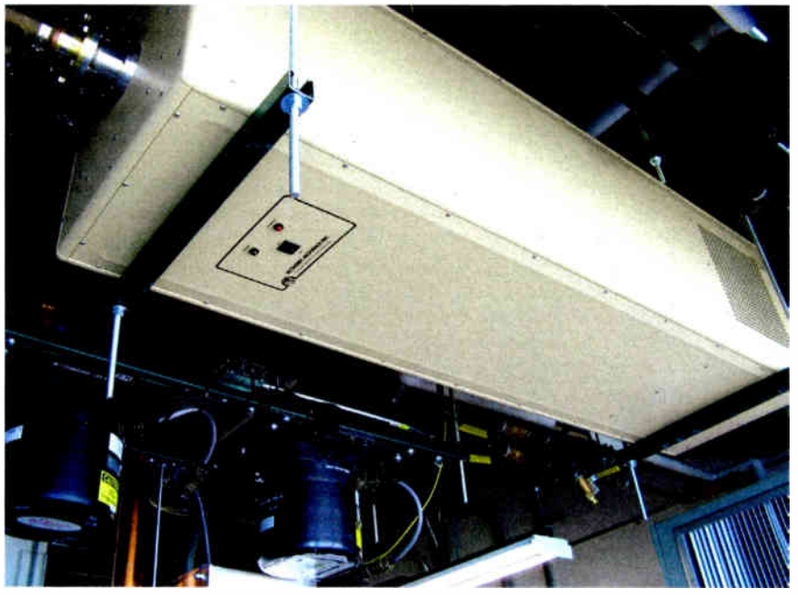
Tim Bealor, vice president of sales for Broadcast Electronics, said, "Making a smart buying decision involves understanding several issues. What is in store for the signal? Will it go HD? Is it to be sold? Will other portions of the processing chain be upgraded? Will significant investments be made in the station to grow it in the market?

"These and many other possibilities contribute to the 'What do I buy?' choice. If these questions are not asked, and answered, then the risk of buying something that may not fit the requirement significantly increases."

Nevertheless, buyers still need to understand the technology itself. Session moderator Steve Davis, senior vice president of engineering and capital management for Clear Channel Radio, noted several ways to do this.

"Read the trade publications, attend seminars, ask questions and listen to other people's questions. Company websites often have information and white papers. Social media such as Twitter is becoming an increasingly important vehicle for companies to communicate with customers."

Gary Liebisch, eastern regional sales manager for Nautel, said, "Manufacturers' offerings have changed a lot over the past decade, some for the better, some for worse. Buyers need to evaluate what's currently out there and seek out testimonials from users of present-day models."



This photo isn't sideways! Working with tight spaces is among the challenges of many transmitter installations these days. WFMT(FM) in Chicago has mounted its dummy load by suspending it from a ceiling. Another trend is greater redundancy built into transmitters. WFMT, using a new Nautel NV40, operates without an aux for that reason.

TRUE COST

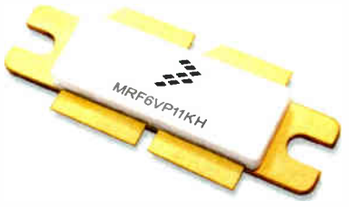
The biggest concern for purchasers usually is cost, but the panelists caution that this requires a close examination and that users need to look down the road a bit.

"True cost goes beyond initial purchase price," Liebisch said. "Customers want to know what the power consumption is, and what will be the cost of maintenance and repair costs once the warranty runs out. Often those costs can turn the appearance of slightly lower price upside down."

Geoff Mendenhall, president of transmission research and technology at Harris Broadcast Communications Division, said engineers seriously need to consider their long-term involvement with HD. "Everyone can go to –14 dBc," he said, referring to recent FCC approval of a digital power increase for

(continued on page 32)

IS THERE AN LDMOS IN YOUR FUTURE?



The MRF6VP11KH LDMOS from Freescale Semiconductor delivers 1 kW of power in the FM broadcast band.

One of the limits to efficiency in solid-state FM transmitters is the VMOS (Vertical MOS) device that manufacturers use in the RF path. This VMOS design is 15 years old and obsolete in many ways. The transition to HD is driving newer technologies to market.

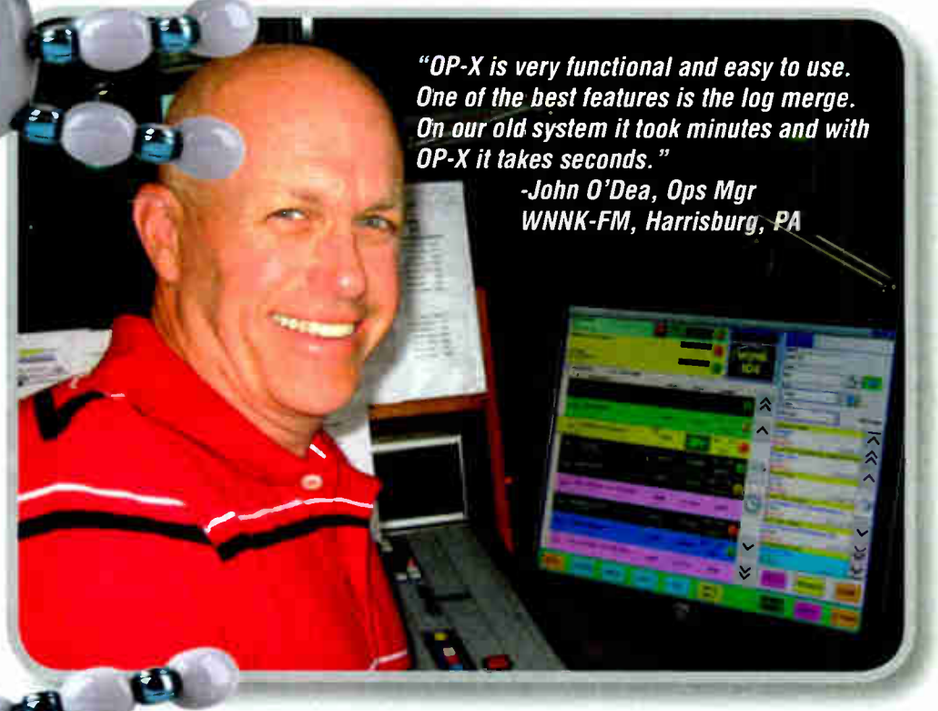
LDMOS (Laterally Diffused MOS) devices are revolutionizing the design of RF amplifiers in the HF through UHF range. Advantages of LDMOS devices include higher power in the same size package as conventional VMOS with lower thermal losses. They were first used in the early 1990s in the high-power cellular market, and the technology quickly spread to the industrial, scientific and medical (ISM), broadcast and aerospace markets, largely displacing silicon bipolar devices. Virtually all UHF TV transmitters now use LDMOS devices in their final amplifier stages.

Initial devices worked with 28 to 32 volts, while later 50 volt semiconductors offer compatibility with commercial 48 volt power supplies. 50-volt devices from one manufacturer cover power levels from 10 watts to 1 kW over the 1.8 to 600 MHz range. In the FM band a single LDMOS has over 800 watts power, a gain greater than 24 dB and drain efficiency greater than 80 percent. A ruggedized LDMOS variant can withstand a VSWR of 65:1, although it is currently only available at the 300-watt level.

The bottom line for transmitter buyers is that this greater efficiency permits the design of transmitters with fewer RF power devices and amplifier stages. LDMOS-based transmitters promise simpler circuitry, smaller footprint, lower annual energy consumption and increased reliability.

While most manufacturers are experimenting with LDMOS designs, all remain tight-lipped on specifics of new product releases, although there are hints of news by next April.

— Tom Vernon



"OP-X is very functional and easy to use. One of the best features is the log merge. On our old system it took minutes and with OP-X it takes seconds."
-John O'Dea, Ops Mgr
WNNK-FM, Harrisburg, PA

- Modular Operation in Op-X allows for a tiered system at a fraction of the cost of it's competitors.
- Each studio client is capable of accessing all Audio Server modules on the network.
- Remote voice-tracking allows for creation of content for remote studios also running Op-X.
- The revolutionary design of Op-X's clock builder turns the previous task of scheduling satellite programming into a few simple clicks.
- Share serial devices from any machine using the Op-X Serial Server.
- Importing logs now gets its own module that takes confusion out of the process.
- Engineers will enjoy Op-X because it's easy to install, maintain, and has automatic backup features.

Op-X
RADIO AUTOMATION

AUTOMATION

SIMPLE • POWERFUL • REDUNDANT

Not since Axia audio-over-IP *was introduced to the broadcast industry have we at BGS been so excited! It is with great enthusiasm we'd like to invite you to take a look at the new Op-X Radio Automation delivery system for any single or multi-station cluster. Op-X's versatility allows it to operate seamlessly with either Axia IP-Audio networks or legacy audio consoles.*

Broadcasters General Store
352-622-7700
www.bgs.cc

TRANSMITTERS

(continued from page 30)

most FM stations, "but spending the extra money to possibly go to –10 dBc in the future is a challenge to making the right transmitter purchase now."

Hard economic times also influence the decision.

"Now more than ever, value is the big issue," said Bealor. "Everyone wants a good reliable product that will give them long-term service, but at a value price. Options and glitz have taken a back seat in the current economic market."

Allot enough capacity for AC power and air conditioning. You may see an increase of 100 percent in AC when HD goes online.

– Dave Hultzman, Continental

Dave Hultzman, regional sales manager for Continental Electronics, said there should be a concern for HD readiness even if implementation is not in the near-term plans.

"In addition to sufficient headroom, it is important to allot enough capacity for AC power and air conditioning. You may see an increase of 100 percent in AC when HD goes online."

Transmitter technology has made great strides, and if you haven't purchased a transmitter in the last 10 years, prepare to be surprised.

"All solid-state transmitters are now directly cost-competitive with tube technology up to 25 kW," Mendenhall said. "At the same time the cost and size of transmitters has been reduced at all power levels."

According to Liebisch, "In the last five to seven years, control systems have become available that provide drill-down capability and IP connectivity, enabling monitoring of virtually all parameters from anywhere. DSP technology and diagnostics eliminate the need to lug heavy test equipment to sites for routine checks. For contract engineers, this can mean the ability to cover more clients efficiently."

Mendenhall cautions that buyers can get carried away with all of this remote capability.

"Many times engineers are not paying enough attention to the design efficiency and reliability of the RF power amplifier technology, but instead are distracted by the control system features."

When planning an installation, attention to details and documentation is critical.

"Make sure the selected transmitter meets all environmental conditions of the site," Mendenhall continued.

"Pay particular attention to building/transmitter cooling requirements, AC power stability/distribution and antenna performance. Make sure to lay out and label all wiring to make it easy to service now and in the future with changes in personnel."

Hultzman noted that it may also be important to consider additional AC surge protection on the load side.

"Lightning strikes to a tower are easily coupled into the AC feeds for deicers or tower lights, so it is important to install surge protectors to isolate your AC from this point of ingress."

Multicasting and higher IBOC power are notable decisions facing transmitter buyers. CBS station WJFK(FM), serving Washington/Baltimore, made headlines when it began 'quadracasting' four HD Radio channels. It uses a Harris HPX system. Shown are Jeff Loughridge, Erich Steinnagel and Glynn Walden of CBS.

GET GROUNDED

Bealor makes a plea for good grounding.

"Older transmitters with large AC transformers were much less sensitive to AC fluctuations and lightning. Newer high-performance solid-state units can be just as reliable, but the installation must be grounded and isolated properly."

Preventive maintenance has been reduced somewhat with solid-state devices, but it remains an essential element of transmitter reliability. All panelists would like their customers to take preventive maintenance more seriously, especially cleanliness.

"Cleaning, air flow and cooling are still important," said Liebisch. "The life of semiconductors and fans is greatly extended when the environment is tightly controlled. A surprising number of sites operate with an exhaust fan only, creating a negative pressure situation that starves a transmitter for air."

Hultzman adds, "Dust collecting on high-voltage components in tube transmitters can lead to arcing, while dirt buildup on heat sinks can increase semiconductor junction temperatures dramatically and cause premature failures."

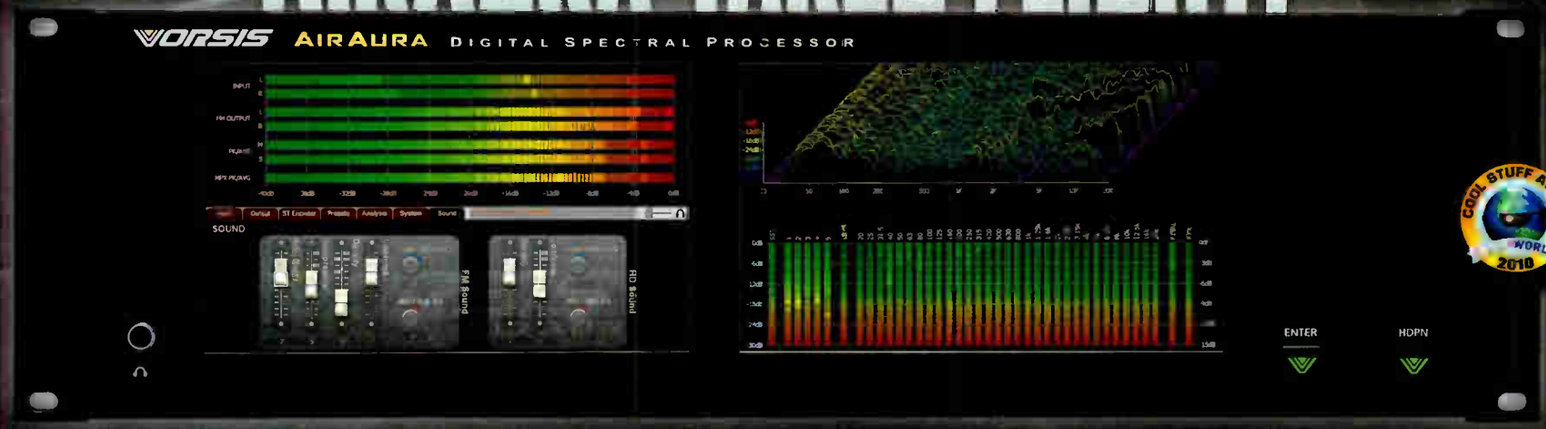
"Clean the air filters and interior of the transmitter monthly," Mendenhall urged.

Everyone has horror stories of the worst transmitter installation ever. Hultzman relates a tale of a common mistake that can have disastrous consequences.

"All of the openings in a new transmitter building were sealed up with a spray insulating foam. The problem is that it was a totally closed system. Sulfides were outgassed from the foam, had no place to go, and they totally ate up the silver plating and copper on the PC boards, virtually ruining the transmitter."

The session "Ask the Experts: AM/FM/Digital Transmitter Manufacturers" will be held at the Radio Show on Thursday Sept. 30 at 1:30 p.m.

AIRAURA TAKES FLIGHT!



The new AirAura™ audio processor features proprietary "AirAura" final clipper technology for cleaner, clearer, more natural mid and high end detail without smearing, dulling and other artifacts commonly associated with managing the FM pre-emphasis curve. Its advanced multiband AGC/SST (Sweet Spot Technology) delivers incredibly smooth and unobtrusive gain and spectral control during widely varying incoming program levels, and the AGC boasts separately adjustable low and high inter-band coupling algorithms for serious sonic sculpting. AirAura also offers the latest Vorsis Bass Management System (VBMS) with new Texture control for fine-tuning on-air bass. Dual front panel 'widescreen' displays show extensive detail about the processor's operation. In addition to real-time measurement of input, output, and RMS (loudness) output levels, its comprehensive metering also shows all gain reduction activity. Specialized analysis functions exclusive to Vorsis offer an astonishing overview of input or processed audio. And for ultimate flexibility, AirAura gives you remote processor control via wired Ethernet or integrated WiFi connectivity. Completely made in the USA and available TODAY!

- **New proprietary "AirAura" final clipper technology**
- **Advanced multiband AGC/SST (Sweet Spot Technology)**
- **Latest Vorsis Bass Management System (VBMS)**
- **Dual front panel 'widescreen' displays**
- **Remote processor control via wired Ethernet or integrated WiFi connectivity**
- **Specialized audio analysis functions, including FFT and oscilloscope analysis of input or processed audio, Energy vs Frequency display of input or processed audio, 3-D plotting of audio spectral content vs. time, Spectral Dynamic Range metering, and activity display of clipper's distortion masking algorithm**

AIRAURA
SUPER DIGITAL AUDIO SPECTRAL PROCESSOR

MORE BRAND NEW STUFF FROM VORSIS! AVAILABLE TODAY!

VP-8 PLUS

The new VP-8 PLUS takes our popular and acclaimed VP-8 and adds a slew of new features for even greater performance. Advanced processing for greater audio consistency, clarity and overall loudness with lower distortion. Includes Vorsis GUI-LITE software for taking the VP-8 PLUS anywhere you want to go.

FM-4

The new FM-4 is a no-frills FM-only audio processor that gives you those great presets Vorsis is famous for. Plus, it comes with Vorsis GUI-LITE for tweaking those presets to get your signature sound.

VORSIS

IT'S TIME YOU WON THE RATINGS WAR.™
1.252.638-7000 | www.vorsis.com | sales@wheatstone.com

Available From Your Vorsis Dealers, Including:

BROADCAST CONNECTION
equipment solutions

MAX BROWN, Mukilteo, WA
Corporate Office: 425.512.8879
Max@broadcastconnection.com

TERRY BECHT, Canyon Lake, TX
830.899.7012
terry@broadcastconnection.com

JOHN GEORGE, Lexington, SC
803.951.7443
john.george@broadcastconnection.com

KEN PERKINS, Evergreen, CO
303.674.6566
ken.perkins@broadcastconnection.com

JOHN SHIDELER, Mesa, AZ
970.227.1405
john@broadcastconnection.com

ERIC WANDEL, Newburgh, IN
812.490.7947
eric@broadcastconnection.com

Radio, the 'Always With You' Medium

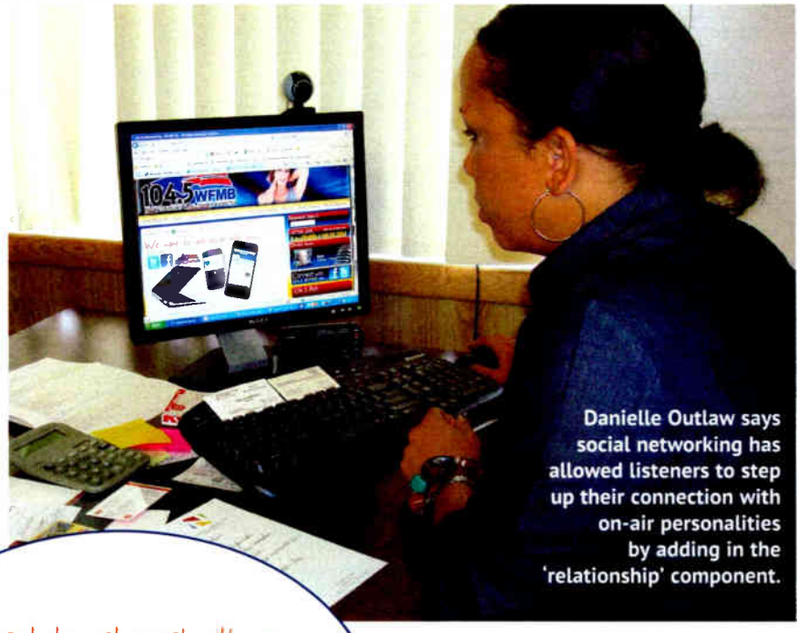
Personal Media and Social Networking Are Among Its New Tech Tools

BY JOHN MERLI

New and constantly evolving technology normally associated with digital platforms such as smartphones and social networking sites are being deployed to varying degrees by some radio broadcasters to please clients and enhance the interpersonal relationships unique to local radio and its listeners.

NEWMEDIA

While these so-called "personal media" technologies are being deployed internally on the business side of a station operation, broadcasters are now being advised by some in the industry to seize new technology to help update their brands and grow their listener/user bases.



Danielle Outlaw says social networking has allowed listeners to step up their connection with on-air personalities by adding in the 'relationship' component.

REALITY RADIO

Some of that encouragement comes from Danielle Outlaw, vice president for sales at Neuhoff Media, an Illinois group of a dozen AM/FM outlets in Springfield, Danville and Decatur.

"Social networking sites like Facebook and Twitter are important tools in expanding any station's brand," Outlaw said. "When done well, this social networking can take your brand beyond your signal. 'Reality radio' was in existence far sooner than 'reality TV' kicked it."

Stations like WFMB(FM) want to 'get social' with listeners.

For many years, she said, morning radio in particular has invited listeners into the lives of their jocks, mostly via the telephone.

"Social networking has allowed listeners to step up their connection with on-air personalities by adding in the 'relationship' component. The once-voyeuristic aspect of radio is now gone and personalities are more accessible then ever."

Alan Bishop, president and managing partner of Finger Lakes Radio Group — which owns six stations in upper New York State — concurs with Outlaw and sees new technology giving younger radio professionals vast new opportunities to demonstrate their own initiative.

"With Facebook, we're starting to use video to get both our listeners and clients more excited. We have a top 40 station where a restaurant chain came into the market and was giving away free chicken wings for a year for its first customers.

"One of our nighttime DJs went out with his video camera — on his own initiative — and taped the folks in line camping out as part of the promotion. Then he put the video on YouTube and Facebook and the client absolutely loved it."

According to Outlaw, "It's safe to say we don't just sell 'terrestrial radio' anymore. Stations like Neuhoff Media are now commonly selling commercial inventory inside their streams — video on demand, podcasts, texting, RDS, gateway videos, banner ads, and Web site content.

"The challenge is for account executives to think of terrestrial radio as the 'core' of what we do, and the additional products as ways to 'build a brick wall' around their clients, offering them a one-stop shop for their marketing," she said.

'ALWAYS WITH YOU'

Bishop, who will join Outlaw at Radio Show 2010 for a Sept. 29 session titled "New Opportunities Using New Technology," said much of the impetus to adapt emerging technologies for radio comes from young staffers.

"I think unfortunately, especially in small markets, there's a 'graying' of staff in the radio business. I was excited when our group recently put a top 40 format on the air because we knew it would attract young [staffers] to radio."

Bishop's Finger Lakes Radio Group is into new technology behind the scenes, as well. Beyond radio properties, the group also owns five Verizon Wireless stores.

"So we know what's going on in that technology, too, and how that may apply to what ever we decide to do," said Bishop. "For a few years now we've been using Verizon Wireless Internet AirCards for remotes."

Finger Lakes also recently installed a VoIP phone system to connect the four separate offices of one of its stations. Bishop said the practical advantage of this technical scheme for live broadcasts is that with software, any laptop commuter can connect directly to the VoIP system.

"This means if someone wants to do a remote with the laptop, he or she just dials up the extension in the studio and the board op can put them on the air quickly," Bishop said.

Outlaw said user-oriented radio apps like Pandora — which offer virtually self-programmed content — fall short where terrestrial, community-based broadcast stations excel: in local content, news delivery, community involvement and building local-brand relationships.

As for currently available (and free) smartphone apps that allow users to pull up live broadcasts of virtually any public radio station in the country, or the latest hourly NPR newscast, from anywhere else, "I do see in the near future most commercial stations introducing [similar] listener apps," said Outlaw. "I see taking radio from the 'away from home media' to the 'always with you' media."

Alan Bishop

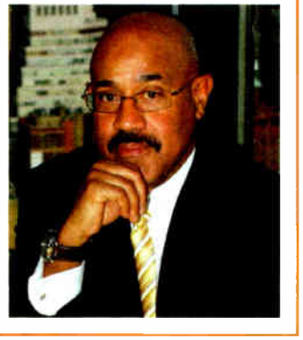
Bishop does not envision HD Radio — one of the most discussed new technologies specifically designed for radio — as a realistic tool for growing audiences and selling spots, and does not see HD Radio reaching critical mass in America. In his opinion, it's a bad business model.

"Every station in America would have adopted it by now if … it wasn't [for] all the required license fees … Where's my return on investment? I see none."

Outlaw said when introducing any new tech tool, it's important for broadcasters to be "cognizant on delivery." The audience for these products, she said, is tech-savvy and has high operational expectations.

"Turning listeners off initially may cause them not to return to your product at all. Ease of use and quality of content will create loyal, repeat users."

A WARFIELD SALUTE



Charles Warfield, president and chief operating officer of ICBC Broadcast Holdings Inc., will receive the National Radio Award during the Radio Show Luncheon on Friday, Oct. 1.

Also at the lunch: WSTW(FM)'s Graffiti Radio is saluted as HD Multicast Award winner, and Christiane Amanpour conducts an interview with a newsmaker not yet identified at press time.

DAWNlink SATELLITE CHANNEL IDENTIFIER, WITH LCD DISPLAY

Satellite users report that with DAWNlink in hand, they can navigate through a maze of digital channels, to quickly identify any satellite. Users are now able to perfectly peak their dish to maximum performance. Start by using the full-screen SPECTRUM ANALYZER to aim the dish for the

best carrier-to-noise ratio. Confirm that you are on the proper satellite with the built-in MPEG2 SATELLITE RECEIVER, to view unencrypted sat channels on the DAWNlink's color 4.5 inch LCD display. Perfectly peak when precise dish adjustments show up clearly, in the CONSTELLATION VIEW dot pattern display of a digital channel. Watch for text that comes directly from the digital channel data stream, which will identify the satellite name and channel. The satellite user's job is made simpler, with the convenient carrying case and neck strap, plus LNB powering directly from the DAWNlink. Greatly improved operation and storage time is made possible, with the rechargeable lithium ion battery. There are two different models to choose from, but most users get the "sat" model that measures the 920-2150 MHz satellite L band. Some users pay a little more, to get the "sat plus terrestrial" model, which adds measurement of the 5-900 Mhz band.

DAWNco "L SERIES" LNB AMPLIFIERS ARE NEEDED FOR NEW SAT CHANNELS

Several networks have made the switch to DAWNco's new "L series" of C and Ku band LNB amplifiers, to accommodate the "finicky" nature of new digital satellite receivers. This new generation of LNB has improved specs that can make a real difference in the reception of digital satellite channels. These new LNBs feature best-in-industry specs for "1dB compression point" and "phase noise." Internal circuitry has been

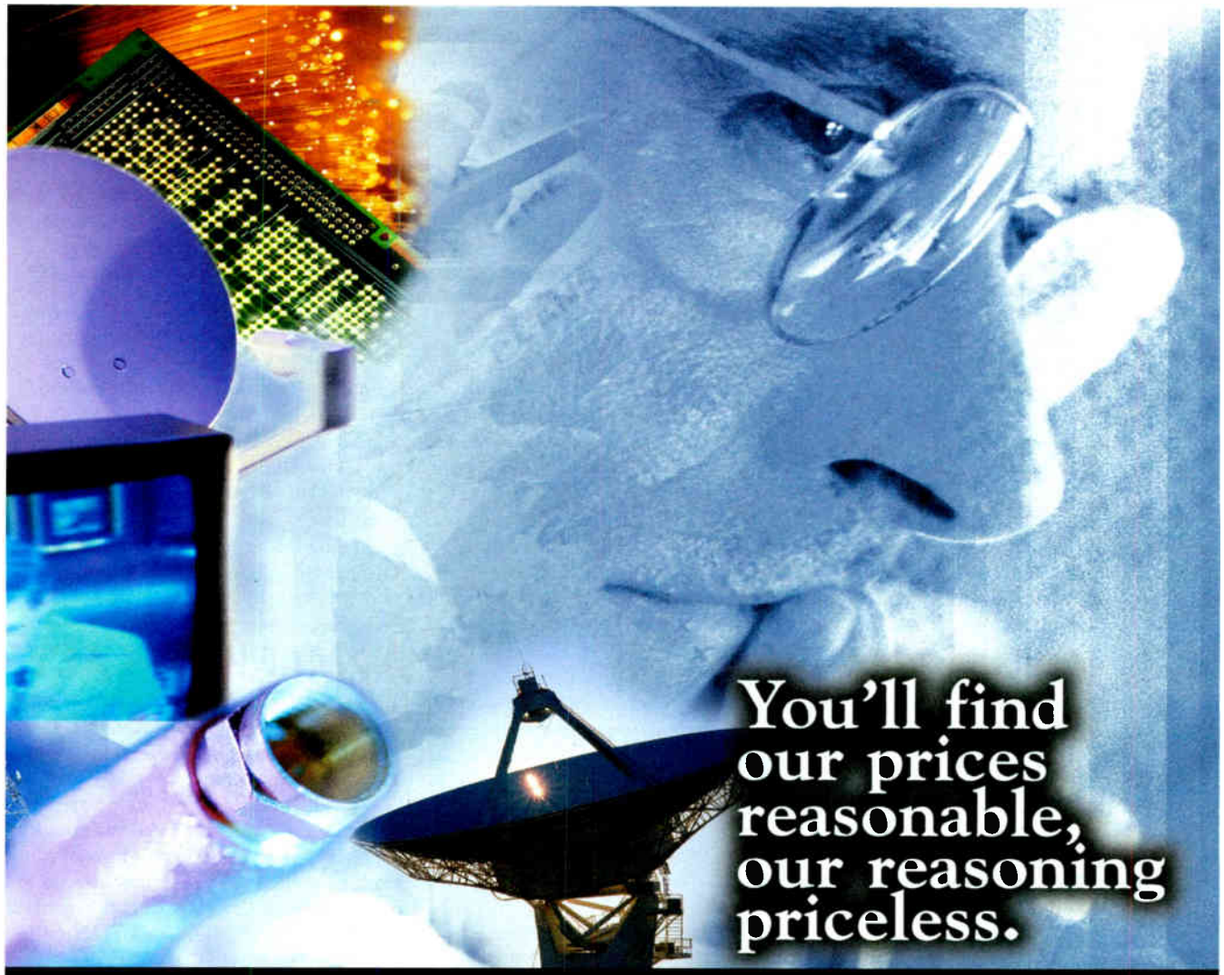
completely redesigned for reduced power draw, so that indoor receivers and power supplies will never be overtaxed. In order to prevent audio drop-outs and signal outages, when outdoor temperatures fluctuate, DAWNco's best LNBs feature a highly stable +/- 5 Khz rating. Make sure to upgrade to the new DAWNco "L series" LNBs, and watch for improved EbNo readings on your digital satellite receivers.

TI INTERFERENCE FILTER BLOCKS RADAR FROM AIRPORTS & MILITARY TO IMPROVE SATELLITE RECEPTION

Many satellite users find that their interference problems go away, when they install the DAWNco TI Filter between the feedhorn and LNB. Airport and marine radar frequently wipe out satellite reception, when the dish is located close to military bases and airports. The TI filters suppress strong out-of-band interference caused by radar. The #C-BANDPASS-6LIGHT model is best for USA reception of C band satellites. There is also a "Wimax" version and "International" model filter, for use outside the USA.

DAWNco 4.2 METER SATELLITE ANTENNA FOR BEST RECEPTION

Finicky new digital satellite channels can be received perfectly, using DAWNco's high-gain 4.2 meter satellite antenna. Satellite users are noticing that this antenna doesn't cost more than competing 3.7 meter dishes on the market, yet has 2.6 dB more C band gain. Seasoned engineers realize that accuracy-of-installation has a big impact on performance, and prefer DAWNco's 1-piece spun aluminum reflector, because it always installs perfectly. When compared to multi-panel dishes, the DAWNco antenna has 90% fewer parts. Fewer parts makes for a faster, and more precise installation, with resulting gain that actually matches published specs. The single piece reflector design has inherent structural strength and parabolic shape retention. Customers receive their new 4.2 meter satellite antenna, delivered on a factory truck in perfect condition. When satellite users are short handed, they can ask DAWNco about installation by an experienced technician. The knowledgeable people at DAWNco will help each satellite user plan for installation of their new satellite antenna, with advice on site selection choices, pad preparation details, and low loss cable solutions.



Iqoya*Link Delivers on Its Connections

Fail-Over Options and Solid Platform Support STL and Studio/Studio Use

PRODUCT EVALUATION

BY CARL LINDEMANN

The Internet promises to make location irrelevant, but keeping that promise for professional-quality audio applications has been challenging.

Dedicated ISDN links have, until recently, been the technology to make a long-distance interconnect with specialized codec units designed for that purpose. But ISDN slowly is fading away while voice over IP utilizing the everyday Internet is enjoying enormous success in many applications.

Digigram's Iqoya product line takes on the engineering challenge of advancing the quality of audio over IP. I tried out the system.

The line is a natural followup to the company's EtherSound Ethernet-based audio products. With EtherSound, Digigram sought to advance the creation of digital audio networks using standard, low-cost Ethernet local-area network connections. Iqoya takes audio distribution beyond the studio across IP networks like the wide-open Internet or dedicated wide-area network.

The lineup is described as a "comprehensive IP audio product ecosystem" utilizing FluidIP, the company's N/ACIP-compliant audio codec engine, as well as visiblu, its network audio operating system.

Iqoya offerings include hardware codecs for studio installations as well as software codecs that can connect a laptop back to the studio for contributing audio from the field.

'FIELD-HARDENED'

The Iqoya*Link is a core component of the product family.

The two-channel IP hardware codec is designed to connect studio-to-transmitter or studio-to-studio. It is described as a "field-hardened IP audio codec" and occupies a single rack space.

Inside, the unit is driven by a dedicated ARM-type processor running embedded Linux. This is not a PC-based system, and the unit is configured and controlled by both a Web interface that can be accessed by external computer and menu-driven controls on the front panel. Text and LEDs show the unit's status as far as the network connection as well as whether it is receiving or transmitting audio. A headphone jack and volume control allow for direct monitoring.

A USB port and an SD card slot offer additional opportunities to feed content into the unit, especially in case of network failure. The back panel includes I/O capabilities featuring balanced XLR analog inputs and outputs as well as stereo AES/EBU. Eight GP inputs and eight GP outputs operate through two female 25-pin D-sub connectors alongside an RS-232 serial port that can be

PRODUCT CAPSULE

DIGIGRAM IQOYA*LINK

Thumbs Up
+ Robust, non-PC system
+ Cool and quiet
+ Low energy consumption
+ Redundant "fail-over" options to protect against dead air

Thumbs Down
– Full manual not included

Price: $3,990

For information, contact James Lamb at Point Source Audio in California at (415) 226-1122 or visit www.point-sourceaudio.com or www.digigram.com.

MARKETPLACE

THE CABLEMAN COMETH: Odds are high that any prepared cable brought to a job site will be too short or way too long, or have at least one wrong connector.

Cable manufacturer Belden rides to the rescue with a line of cable assembly tools and compression connectors for use with those tools.

Designed for use with coaxial cable, a connector assembly tool is available for F, BNC and RCA connectors along with the appropriate compression base connectors. Coax strippers are available.

When used with Belden cable, the connectors get a warranty and are guaranteed to meet SCTE standards. If used with Belden's BNC and RCA connectors a "pop-pin" will visually confirm a proper connection.

Belden Vertical Marketing Manager for Commercial Audio/Video Products Chris Nieshalla said: "Our goal is to provide our customers with a complete, single-source field installation solution that includes the cabling, connectors and tools."

Info: www.belden.com

used for data tunneling (like RDS data). Finally, a pair of RJ-45 network connectors link for IP audio and well as IP-based control, backup audio or even NAS storage.

After attaching audio source/destination connectors through the I/O as well as network connectors, setup is carried out via an external computer via the Iqoya*Link's embedded Web server. The simple interface allows for a range of send-and-receive options; what source, what format/compression and where to send are fairly straightforward.

Standard audio encoding includes linear 16/24-bit PCM, MPEG Layer I and II or III. MPEG-4, AAC-LD, HE-AAC v2 and AAC-ELD are offered as part of an optional package.

The ultimate test came from pulling the network cable; the fail-over to recorded audio on the SD card proved seamless.

Additional configuration options define how the unit operates in case of a failure. If, for example, the network stream degrades or if the unit loses signal, the Iqoya*Link can be triggered to switch over to a backup network stream or to audio stored on an SD card. These "fail-over" options provide multiple layers of redundancy to protect against dead air.

If the primary IP audio stream fades or fails, the secondary IP kicks in. If there's no IP audio, it falls back on locally stored audio as a stopgap measure. Additional fail-over capabilities include bypassing the hardware in case of a power failure. If power dies, relays can switch over both the analog and digital inputs directly to the outputs.

Firing up a pair of the Iqoya*Links for testing, the units booted up silently in under a minute with the Digigram visiblu operating system and remain silent and cool. Unlike PC-based systems that would typically require fans, these operate with just air vents on the side and remained fairly cool. This is due, in large part, to the low energy consumption, just 15 watts. Aside from the LED indicators and display (when lit), you'd hardly know it was operating.

UNIT CONTROL

The Web-based setup menus cover the overall configuration of the system including choices of audio sampling rates and compression. Alarm levels for silence detection to trigger fail-overs are self-explanatory.

Other menus include network configuration plus services including FTP to update the firmware and SNMP to send e-mail alerts about events or alarms. Then, once the system is configured, additional menus set up sources and destinations to receive and send.

My impressions of the interface are that it is clean and uncluttered. The front-panel controls are more about monitoring and updating the device. While the Web interface is intuitive, the flow chart in the full manual is helpful in navigating the front-panel control.

Once connected, my paired units locked in tight when tested on a variety of audio formats. For a studio-to-transmitter link over a WAN, this provides a new option to traditional satellite, leased line or microwave solutions.

The real challenge is operation under shifting network conditions found on the open Internet. The Iqoya*Link offers options for fine-tuning the buffer size to take up network jitter or adding forward error correction (FEC) to insulate against packet loss. The ultimate test came from pulling the network cable; the fail-over to recorded audio on the SD card proved seamless.

The only glitch in testing the Iqoya*Link came in acquiring the user manual. The units come with just a four-page quick start guide. You have to register online to download the PDF of the full manual. For whatever reason, that proved to be problematic. However, a call to Point Source Audio, now Digigram's master distributor for North America, got a quick response. Still, it would be nice if this were included as part of the package.

We Stayed While the Door Revolved

With 12 Station Managers in Eight Years, the Spinning Never Quite Ceased

BY BIG JIM WILLIAMS

FIRSTPERSON

I called it "revolving door radio."

With 12 station managers in eight years, our small-town AM kicker enjoyed a diverse form of management styles and personnel in the 1950s and '60s — not to mention an eyebrow-raising reputation with the hesitant business community.

Fortunately, most of the time our programming remained consistent, although Frank Sinatra and Glenn Miller might be followed by blocks of country and western music, then Spanish, symphony music, rock-and-roll and "only God knows what."

It was fun for most, ulcer-causing to some and downright pathetic to others.

We had more managers than Baskin-Robbins had ice cream flavors. Our managers came in all sizes, shapes and ages.

One short-timer could have inspirited Gordon Jump's role as station manager in the TV series "WKRP in Cincinnati." This man floated into his office about 10 each morning mumbling "Hellos," cowered behind his desk and didn't emerge from his sanctum sanctorum until 4:30 p.m., muttering "Good-byes." I never saw him make a sales call.

He lasted until the station owner asked for the first month's billing.

Our old RCA barn-door size transmitter belched enough power to cover our county and edged into adjoining counties. The owner, who lurked in a major city a hundred miles away and beyond our signal, was a lawyer who'd built the station shortly after World War II. He'd briefly managed it until he alienated advertisers by suing any who were more than five minutes late in paying their bills.

FARM RADIO

A stream of bosses washed through the station's small building on the edge of town. The towers blinked within a few hundred feet of our small flat-roofed structure. A parking lot provided gritty dust. We were surrounded by farmland that usually was devoted to lima beans.

It was a challenge to shout through a 15-minute, wire-generated newscast while competing with the deafening roar of a Star Wars-sized harvester threshing beans within two feet of the control room window. The VU meter slammed into the "red" as the behemoth slowly drove by, kicking up enough dust to hide Mt. Rushmore.

The driver would smile and wave. I'm sure he patiently waited with portable radio behind the building to make sure my microphone was open before proceeding.

One manager, a short fellow, tried turning our station into a whiz-bang moneymaker by doing what he called "family radio," a format none of us could understand. He soon was vaporized.

The other station in town ran more financial rings around us than you'd find in a cheap motel's bathtub. Their announcers also sold radio time. Our dollar-a-holler sales personnel usually were too busy seeking jobs, especially when a new head man with shiny pants announced he would triple our rate card because he'd heard it was the way to tripled station billing. The ink hadn't dried on his business cards before he was history.

It was a challenge to shout through a newscast while competing with the roar of a Star Wars-sized harvester threshing beans within two feet of the control room window.

Our staff always had to pick up the pièces and survive.

In the early 1950s, when a competitor called television was emerging, critics claimed no one would ever again "listen to radio." It took years to prove them wrong.

Our front door was in constant motion, a combination spinning top and whirling dervish, as managers came and fled. Doses of WD-40 kept the door from squeaking.

Most helm-masters didn't say good-bye, they just departed.

For a time we had a husband-and-wife team, Mike and Marge. They did a good job until they clashed with the owner, a perennial problem for anyone in the catbird seat.

Another time an out-of-state salesman accepted a job offer from one of our spinning managers. However, by the time he arrived with family and furniture, our latest leader was gone, replaced by a new one, who asked: "Who's this?" Fortunately he kept the salesman.

GOOD-TIMING PHIL

Then there was Phil, a married man who juggled management and sales while pursuing women like an Olympic sport.

He was a big man who drove bright-colored convertibles. He lasted longer than other managers. He was gruff and sometimes difficult. But I liked the guy. We had some good times together.

Station income and programming improved under his leadership. He added first-time mobile units for live field reporting. Frequent promotions included record-busting stay-awake DJ marathon broadcasts from downtown store windows and a live broadcast of the wedding of our popular nighttime rock-and-roll DJ.

But like his predecessors, he'd hand us our paychecks days late, saying: "See if you can cash this out of town." If I got to the bank first and the check cleared, my wife, baby and cocker spaniel ate until next payday.

Phil's zipper should have been welded shut. He had a lovely wife but was constantly involved with pickups — not trucks with beds, but saloon pickups *he* was trying to bed; he had more pickups than a Ford dealership.

Phil frequently brought barroom beauties by the station late at night to show them what a "real radio station looked like." A tour of our mouse-small building usually took under 10 seconds. It had been the remote transmitter site before our downtown studio-offices were shuttered; personnel and studios were shoehorned into the cramped jerry-rigged building alongside our transmitter.

I never could understand why Phil's wife Beryl stayed with him — especially after he placed his steady girlfriend, Kerri, in the front office, where the two women worked within feet of each other, exchanging eye-daggers and occasional Neanderthal grunts.

And they knew Phil was two-timing them both.

The Olympic gold medal event in Phil's lovemaking came when he drove into the radio station late one night with his latest barroom catch. While giving the blonde the 25-cent tour, Kerri unexpectedly arrived.

Phil hustled his peroxide bimbo into the women's rest room and whispered, "Keep the light off and your mouth shut. I'll get rid of Kerri and we can get the hell out of here." Then he started sweet-talking

Kerri, promising he'd be "right home" to her apartment, when Beryl showed.

Phil now moved from sweating H_2O to blood. He hustled Kerri into a dark corner of our unlit Studio B, opposite the control room, feet from the unseen bathroom cutie. I'm sure he also said: "Keep the light off and your mouth shut. I'll get rid of my wife and we can get the hell out of here."

He was a super salesman, with the charm of a funeral director conducting a $100,000 wake. "I'll be right home, honey," he said, sweet-talking his wife and smiling like a politician with both hands in your pockets.

His wife left.

Phil then waltzed Kerri out of Studio B and repeated: "I'll be right home, honey."

And she left.

He then grabbed his rest-room blonde and hurried to the nearest motel, where we probably had a trade deal.

Our night announcer witnessed it all. Had the NAB issued awards for acting, Phil would have had a trunk full. Further details of this love triangle are reserved for a book I may write.

We had a secretary who came to work sober but would be drunk by quitting time. She wasn't drinking at her desk; but we eventually found her half-pint bottle stashed behind the toilet tank in the same women's restroom. If Phil's bimbo had found it, it would have made a more interesting story.

I'm not sure how I survived the constant march of managers and formats, but I was young, and worked cheap as an announcer. I was the last of the original employees after about eight years. Had I been on the sinking Titanic, I probably would have chipped ice from the deadly iceberg, mixed it with tequila and lime juice, poured it into salt-rimmed glasses and sold margaritas to my fellow lifeboat survivors.

I'm not sure how I survived the constant march of managers and formats, but I was young and worked cheap.

ARE YOU ON THE AIR?

The station sold and I moved to a different radio market.

One day the station owner bought a new fire extinguisher and said she would keep it locked up in the storage room. "What happens if we have a fire in the control room?" I asked.

"Then you come and get the key from me," she explained. "Then you unlock the storage room, and get the fire extinguisher."

"And what happens if we have a fire, and you're not here?"

The next day the extinguisher was mounted on our control-room wall.

She often interrupted me while I was on the air talking into a "hot" microphone. It drove me crazy. I finally went to her husband to see if he could stop her. He tried. It didn't work.

Days later she took me behind closed doors and informed me it was her radio station and she'd run it *her* way.

"Okay," I sighed, remembering the golden rule between owner and employee: The person with the gold makes the rules.

The next time she entered the control room and began talking while I was reading a newscast, I closed my mic and gave her my undivided attention. We had dead air for several minutes before she finally stopped talking and asked:

"Are you on the air?"

"Yes," I quietly replied. "I'm reading the news."

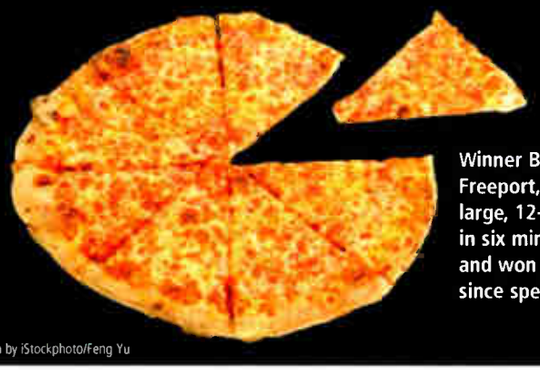
"Oh," she said. "I'll talk to you later."

Unfazed, she left, and I finished my newscast.

No actual names were used in this story. Big Jim Williams is the author of audio books including "The Old West" and "Tall Tales of the Old West." His 2007 RW article about re-creating baseball games is at www.radioworld.com/article/360. *A lifelong broadcaster, he welcomes emails at* bigjimwilliams2@cox.net.

I WANT A SLICE A'THAT

KDKA(AM) put its promotional chops on display when it attracted 50 folks to its Pizza Eating Contest this summer. The event was held during Pittsburgh's Three Rivers Regatta. The station worked with the Giovanni's Pizza chain.



Winner Bob Kuhns of Freeport, Pa., finished a large, 12-slice cheese pizza in six minutes, 57 seconds, and won $500, probably since spent on antacids.

Pizza by iStockphoto/Feng Yu

WLNK's App Displays Lyrics as Songs Play

BY JAMES CARELESS

When you listen to WLNK(FM)'s app on an iPhone or Blackberry, you just don't hear the song; you see the lyrics.

That's because AirKast, the company that created this app for this Charlotte, N.C., station and sister WBT(AM), has integrated the app with a song lyric database.

"The words of the song scrolls down the screen as you listen to it live," says Jonathan Mauney. He is interactive director for Greater Media Charlotte, which owns WLNK and WBT.

"A lot of stations jumped on the iPhone apps because they were easy to build, but we liked Airkast because of their commitment to launching Blackberry apps as well; more of our listeners are on that platform."

Greater Media Charlotte also chose AirKast because of plans to tie directly into the Ando Media platform for targeted ad insertion.

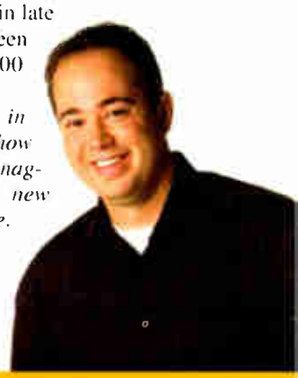
"We're just getting started, but there's so much potential here for revenue as mobile streaming grows in popularity," he says.

Jonathan Mauney's dream is to evolve WLNK's app to becoming a user-configurable application.

"We want something like Pandora, which lets you customize your music choice," he said. "As I see it, we have a wealth of exclusive content that we can offer to our app users on demand. Say you love the 'Bob & Sheri' morning show, which we syndicate from WLNK. You could use the app to listen to 'Bob & Sheri' shows from the archives 24/7 if you wanted to. That's our vision for this app, to make it more than just a simulcast of radio."

WLNK's app has been downloaded 10,000 times since being released in late 2009. The app for news-talk WBT was made public in late January. It has been downloaded 9,000 times.

This is one in a series about how radio station managers are putting new media tools to use.



Jonathan Mauney

SHOWCASE

PROMO POWER

Mark Lapidus

A journalist friend recently obtained a gig as a radio talk show host. Knowing my background, he asked me to concoct a short punch list that he could use as a roadmap to building a successful show. He's been writing articles for a decade and has appeared many times as a guest on radio and TV, but had never hosted a regular show.

As I thought about ingredients shared by those who generate real ratings, it occurred to me that nobody had shared this list with me when I started on-air. I wish someone had. I encourage you to look at this; if it doesn't agree with you, create your own. Then share with your air talent, whether they host talk or music shows (and send it to me, to pass along). If your air staff don't like your list, they should tailor their own.

The author is president of Lapidus Media and a longtime RW columnist. Read past Promo Powers at radioworld.com. *Contact the author at* marklapidus@verizon.net.

Note to Self: Be Spectacular

Create Knockout Radio With Your Own On-Air Punch List

1) Tell Great Stories! From the time we can understand language, we begin to hear stories from our parents and from media. I initially wondered why my kids liked to watch the same shows over and over when they were little. My wife intelligently informed me that they were doing that because they were learning the stories in the shows and it took repeated viewings for them to get it. Once they learned the story, they wanted to see it even more because now they understood everything and could truly enjoy it.

As adults, we still want to hear stories, only now we are more selective and don't want to waste our time on mediocre long tales. That's why it takes us so long to decide what movies to watch and why we hit the channel button on our radio when we're bored.

For talent just learning to tell stories on radio, lots of off-air practice is in order using a timer and a recording device. They should pick a topic — a band for a DJ or a game for a sports radio talk show host — and attempt to tell a compelling story in 30 seconds or less. Repeat until the story is fluid and interesting.

2) Have an Opinion! I don't trust the stock market. The oil hasn't really disappeared in the Gulf. The change of seasons is better than 82 degrees with low humidity year-round. Third Eye Blind was always underrated. Strasburg will be the best pitcher in the history of the game.

By saying any of these things in the right context, you have a shot at making a connection with at least some of your listeners.

When you don't offer anything — as when you merely introduce song titles or artists with the same old comments — you're a generic robot.

3) Be Passionate! Man, I love that. That sucks! Best guitar solo recorded in 1979 — not that it was a great year for guitarists. Finally watched "Inception" last night on DVD and I'm going to watch it at least three more times this week. You gotta go out and rent it tonight after work, then e-mail me tomorrow to let me know what *you* thought.

4) Be Interactive! When you connect with listeners on the phone and then air those vignettes in very short snippets, you allow your listeners to eavesdrop. It can also position you as a "friend" who cares about people. If you're voice-tracking a show, you can still do this — it just requires creativity, acting ability and a slew of buddies who will act as your props.

5) Be Brief! Even talk shows that are on the air for three hours must be brief. Just because you can talk for three hours doesn't mean anyone is listening for more than 15 minutes.

Your show isn't born as a listener's show. A listener's show exists only when they actively listen to you. Sure, you can talk on when you're doing great radio; but trust me, that will be rare. Brevity requires discipline and a developed sense of timing.

6) Keep It Fresh! As a recent beer commercial points out, the opposite of fresh is stale, and who wants that? Yet I hear DJs and talk show hosts do the same stupid bit at the beginning and end of every show, every day.

People are creatures of habit and want to listen as you sign on or off every day at the same time. But if you say the same thing, play the same sound effect or take forever to get into the meat of your show, you're providing monotony at your own risk.

7) Speak in the First Person! Vast audiences watch TV and movies. Individuals listen to radio. It's never "How is everybody out there?" It's always "How are *you*?"

8) Keep It Local! See my recent article on the subject. Local is everything. Without local you're nowhere, and nowhere is too far away.

9) Be Critical! Finally, you as an air talent must listen to yourself every single day.

You may not be able to tolerate listening to more than 15 minutes of yourself; but why should you be any different than your real listeners? You'll be your own worst critic, and that's good, because that's what will drive you constantly to improve your performance.

iStockphoto/Isaac Koval

ACOUSTICS

ANTENNAS/TOWERS

WANT TO SELL

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

AUTOMATION EQUIPMENT

WANT TO SELL

It's free and it has been expanded. The only cost is to keep us informed as to how the system is performing and let us know how you are using it. DIY-DJ, is a Linux based radio automation system and now sports a record scheduler (DIY-DJ-RECORDER) which allows you to schedule the recording of a network or any other program for replay later as well as a basic logging system. Beside these additions the system schedules music, does voice tracking (ALWAYS hit the vocal), create a shell, live assist, exact time events, join satellite feeds, automated temperature announce, do unattended remote events and more. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

COMPLETE FACILITIES

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@yahoo.com.

MISCELLANEOUS

WANT TO SELL

Phillips PM 3212, 0-25MHz oscilloscope, Roberts 192 FT reel tape rcdr, Numark DM 500 stereo audio mixer, technics direct drive turntable SC 1200MKz & 1500 SS Wollensak tape rcdr. bltofsc@aol.com.

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035

Wanted: BE Dura-Trak 90-A cart machines. Tom Niven, WGHT, 973-839-1500.

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

Equipment Wanted: obsolete, or out of service broadcast recording gear, amplifiers, preamps, outboard, radio or mixing consoles, microphones, etc. Large lots acceptable. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

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

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of K5FO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-687-6357.

Schnader telescriptions 16 mm musical films produced in the early 50 s. Bill Cook, 719-687-6357.

Standard Short-tune series. Bill Cook, 719-687-6357.

REMOTE & MICROWAVE

STATION EQUIPMENT

WANT TO SELL

Complete air-chain for FM radio station from microphone thru exciter. All high quality name-brand equipment. For details, pictures and price information, email radiotexas@gmail.com subject line "Radio station equipment".

STATIONS

WANT TO SELL

AM Station in Rome, NY, $100K, FM xlators in Jacksonville, NC, Taylorsville, IL, Hopkinsville, KY. mraley@bbnmedia.org.

Soperton/Vidalia, Georgia Non-Com FM CP (12,000 watts) with tower site included, $64,500. Some owner financing available. Call 1-866-568-8780.

TAX DEDUCTIBLE EQUIPMENT

Donations Needed: All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: Dan@WIECradio.org.

TRANSMITTERS/ EXCITERS/TRANSLATORS

WANT TO SELL

(2) McMartin BF-3.5K 3500 Watt FM xmtrs w/ McMartin exciters. Recently removed from service. Tuned to 104.3 and 92.7 FM. Some additional spare parts including control ladder and high pressure blower. 92.7 needs work. $5000/both or BO. John, 509-826-0300.

CCA AM 10,000 D – Call John KQSS **928-595-0263** between 10 & 6 PM Pacific Time.

WANT TO BUY

Houston Christian Broadcasters is a 20 station Christian radio network in TX and LA that started in 1964. We are looking for retired Continental 816 series transmitters we can use to repair and expand our network. Please call Paul at 832-922 4409 or email at pauleaster@pobox.com if you can help us or www.khcb.org.

CONSULTANTS

BROADCAST EQUIPMENT EXCHANGE

Submit your listings to: dcarson@nbmedia.com

TRANSMITTERS/EXCITERS/TRANSLATORS

POSITIONS WANTED

Flexible & Creative. On-air, Production, Promotions. Energetic, trustworthy, overall fun person. Easy to get along with. Industrious. Takes direction well/catches on quickly. Donald, 972-228-5909 or Donald.bradley@att.net.

Focused, driven and full of purpose broadcaster seeks station. Bilingual, multi-tasker, goal-oriented, extensive customer service, and sales. Creative copy, good voice/production. Lisa, 972-849-0206 or mayalili11@yahoo.com.

Passionate Sports Guru! Vast knowledge of sports, teams, play-by-play, and statistics. Strong digital and production abilities. Creative copy. Well organized. Extremely dependable. Justin, 254-913-0199 or jdp0420@yahoo.com.

Sports/Production. Vast knowledge of sports, teams, PBP, and statistics. Strong digital and production abilities. Creative copy. Determined, focused, and goal oriented. Travis, 812-870-9214 or t_eley@live.com.

Are you a small market station needing a good nuts & bolts engineer in the Los Angeles area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 917-324-8466 mitchellrakoff@yahoo.com.

Extremely knowledgeable and articulate racing writer/talk show host Adam Amick is available for shows, correspondent, features, etc. Check out www.bleacherreport.com for samples. Call 214-384-5812 or email: adam@rubbinsracingshow.com.

Bilingual female. Strong copywriting and communication skills. Notable on-air/production talents. Exceptional Social Media plus Pop culture savvy. Technical skills with PC/Mac. Helen, 817-793-8843 or helena-lonso33@yahoo.com.

Highly organized, Outgoing and Proficient in all areas of Microsoft office applications. Strong show prep and copywriting skills, plus News/Traffic, and Continuity. Natalie, 850-345-6839 or nnapier83@gmail.com.

TUBES

DISTRIBUTOR DIRECTORY

The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

ADVERTISER INDEX

This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

PAGE	ADVERTISER	WEB SITE/URL
41	AM Ground Systems Co.	www.amgroundsystems.com
14	Arctic Palm	www.arcticpalm.com
20	Armstrong Transmitter Co.	www.armstrongtx.com
26	ATI - Audio Technologies Inc.	www.atiaudio.com
36	Audio Technica	www.audio-technica.com
5	AudioScience Inc.	www.audioscience.com
9	Axia - A Telos Company	www.axiaaudio.com
39	Belar	www.belar.com
40	Besco Internacional	www.besco-int.com
41	Bext, Inc	www.bext.com
31	BSI	www.bsiusa.com
3	BSW	www.bswusa.com
41	Coaxial Dynamics	www.coaxial.com
6, 7, 47	Comrex Corporation	www.comrex.com
41	Cordell Communications	www.aarlon.com
10	Davicom, a Div. of Comlab	www.davicom.com
41	Dayton Industrial Corp	www.daytonindustrial.com
41	Digital Radio Engineering	www.digitalradioengineering.com
4	ERI	www.eriinc.com
32	ESE	www.ese-web.com
40	Gorman Redlich Mfg	www.gorman-redlich.com
38	Grace Broadcast Sales	www.gracebroadcast.com
17	Harris Corporation	www.broadcast.harris.com
45	Heil Sound, Ltd.	www.heilsound.com
8	Henry Engineering	www.henryeng.com
12	Inovonics Inc	www.inovon.com
30	Isotrope LLC	www.rfsigns.com
25	JK Audio	www.jkaudio.com
16	Kintronic Labs Inc	www.kintronic.com
11	Logitek	www.logitekaudio.com
37	Lynx Studio Technology	www.lynxstudio.com
18	Mayah Communications GmbH	www.mayah.com
23	Moseley Associates	www.moseleysb.com
19	Nautel Ltd.	www.nautel.com
22	NPR Satellite Services	www.nprss.org/rworld
27	OMT Technologies/iMedia Touch	www.omt.net
28	Progressive Concepts	www.progressive-concepts.com
24	Sabre Towers & Poles	www.sabretowersandpoles.com
29	Sonnox	www.sonnoxplugins.com
15	Telos Systems - TLS Corp.	www.telos-systems.com
1	Tieline Technology	www.tieline.com
2, 33, 48	Wheatstone Corporation	www.wheatstone.com
21	Wide Orbit	www.wideorbit.com

READER'SFORUM

LOST IN TRANSLATION

I've decided to chime in with a realistic answer to solving the AM noise and coverage problem.

The solution really is simple. FCC rule 307(b) essentially says service to the community is paramount. OK, from there we go to large networks of translators not associated with a legitimate FM or AM station. They have to go.

Many are satellite-fed by some non-profit/educational headquarters. They have nothing to do with the local populace. They are taking up valuable space that denies local service to communities with AMs that could put them to good use within their 2 mV contour.

At present FM translators are approved for AMs if they can operate totally inside the AM's 2 mV contour. Any of these so-called NCE translators should be removed immediately in favor of local service for an associated AM that chooses to operate them.

The idea that these "distant" translators serve any purpose beyond extending some NCE's monetary gain is obsolete. The plethora of media these days ends any legitimate purpose for them if, if fact, there ever was one.

It took the FCC endless years to wake up to the idea that AMs should use the translator to serve their local communities. Let's hope it doesn't take that long again.

Larry Tighe
Owner
WRNJ Radio
Hackettstown, N.J.

WRITE TO RW

SEND A LETTER TO THE EDITOR:
E-mail **radioworld@nbmedia.com** with "Letter to the Editor" in the subject field. Please include issue date.

IMDA

(continued from page 46)

sioned by the IMDA helps to establish viable business models throughout the value chain, while the organization's collaborative nature allows members to share experiences and expertise.

THE STANDARDS

Although it's still fairly early days for the organization, it already has introduced a baseline certification standard for standalone Internet radio players.

Requiring devices to decode both WMA and MP3 codecs, employ HTTP streaming, accept various playlist formats (M3U, ASX, PLS) and render stereo streams faithfully even on mono speakers, IMDA Profile 1 is turning out to be a huge hit with manufacturers.

For proof, consult the list of companies with Profile 1 Certified Devices, which includes Audiovox, Awox, C. Crane, Freecom, Frontier Silicon, Lenco, M3 Electronic GmbH, Ministry of Sound, Pure, Revo, Roberts Radio, Rotel RDG, Sangean, Sonoro, Tangent and Terratec.

It's a great start, and one that will bring benefits all round.

For manufacturers, the standard will speed up the process of bringing a new product to market and reduce the risk of competitive clashes. Online broadcasters adhering to IMDA Profile 1, meanwhile, will be able to reach target audiences using fewer audio codecs, thereby cutting associated costs.

With this scheme up and running, the imminent focus of attention shifts to metadata and its coordination and control by manufacturers or aggregators.

For the first time, the IMDA Service Identification XML specification defines streamed radio station data to identify the station and stream information. It is already proving to be an invaluable resource for device design companies and aggregators, as well as for broadcasters, who can express their preferences about representation with greater clarity and simplicity.

Moreover, the specification is set to be expanded in the future with guidelines for services including electronic program information and on-demand content. IMDA is opening up version 1.0.0 (Beta) of the Service Identification specification on its website — *http://bit.ly/imdasib* — for the industry to review.

This is an initial publication, which broadcasters, aggregators and device makers alike, will use and provide feedback. Details on how to do this most efficiently are available at *http://bit.ly/imdasibetacontact*.

It is with an eye on the expanding nature of Internet media devices and services that the IMDA is working on its next device profile.

Anyone involved with the Internet radio world — directly or tangentially — is advised to follow these developments. The IMDA has made great strides in pursuing Internet radio standards that everyone can depend upon, but now the organization is positioned to help bring about a whole new generation of devices and services that will add a further dimension to the market.

Yes, these are exciting — occasionally daunting! — days, but thanks to the IMDA's efforts, Internet radio seems to be destined for a bold and dynamic future.

Contact the author at jan.nordmann@dmt.fraunhofer.org. *More information on the IMDA is at* www.imdalliance.org.

OPINION

IMDA Charts Course for Internet Radio

Heralds Comprehensive Standardization in This Fast-Developing Arena

COMMENTARY

BY JAN NORDMANN

The author is a member of the Internet Media Device Alliance's Steering Board and director of marketing & business development in the Audio & Multimedia Division of Fraunhofer USA Digital Media Technologies.

The development of Internet radio services able to command large and loyal audiences has taken place at a phenomenal speed — so quickly, in fact, that it can be rather difficult to keep track.

The inherent accessibility and ease of use of these services mean that they were destined for popularity, but it was perhaps surprising that so many consumers were prepared to migrate to the new platform in its nascent stages.

The adoption of Internet radio by renowned public and commercial service providers means that this sector is likely to continue its rate of expansion for some time yet, while the advent of streaming services such as Spotify, Pandora or last.FM could add to the underlying momentum.

But this new area of the broadcast world requires standardization if it is to continue to flourish and, equally importantly, if the quality of its offering is to be upheld.

Mark Elster for IMDA

Selection of IMDA base profile certified devices at IFA show in Berlin in 2009. 'The PC-only phenomenon has been superseded by a mass-market one in which Internet radio is no longer regarded as a luxury,' Jan Nordmann writes.

To this end, a new organization is bringing an industry-wide approach to the development of Internet radio guidelines and marketing support that aims to ensure and accelerate the continued growth of this exciting new market.

THE BACKGROUND

As recently as two years ago, it might have been argued that Internet radio was a fairly marginal activity; but that claim certainly couldn't be made now.

Sophisticated home and in-car audio systems, as well as next-generation mobile devices such as smartphones, mean that Internet radio can be enjoyed at home or on the move — any time, any place. The PC-only phenomenon has been superseded by a mass-market one in which Internet radio is no longer regarded as a luxury — indeed, it is an integral part of the modern, multi-platform broadcasting world.

As with TV-on-demand and other comparable services, content is king, and only those providers able to offer a variety of high-quality material will be able to make an enduring connection with consumers.

But what might sound like an appealingly straightforward supply/demand dynamic is complicated by the diversity of the sector, wherein systems based on open and proprietary standards continue to coexist.

Now, no one could argue that this duality has brought some short-term commercial benefits for service providers, but it has also resulted in confusion among consumers, and in the long run it actually could hinder growth.

Fortunately, there has been increasing recognition of this issue for a while now, and in 2009 a number of key market players announced the formation of an organization dedicated to pursuing standardization, the IMDA, or Internet Media Device Alliance.

Leading broadcasters, aggregators, chip vendors and device makers pledged their support for the IMDA, which has two primary objectives:

1) To define a series of end-to-end technical standards, functions and profiles that will encourage the development of a range of compelling, mainstream Internet media devices. There should be a degree of consistency to these devices, although product difference and variation are encouraged to ensure that the market remains lively and competitive.

2) To provide B2B marketing support to member organizations and to promote the concept of Internet-capable devices to consumers, potential members and retailers. Research commis-

(continued on page 45)

BASICS OF THE CERTIFIED DEVICE SPECIFICATION

The IMDA is in the process of publishing an XML document format that allows broadcasters to describe their live Internet radio streams in a structured way.

This will simplify the automated aggregation of Internet radio content and consequently enhance the accuracy of station information displayed on Internet radio devices.

In its current state, it consists of three parts, describing:

IMDA

IMDAlliance.org

a) the broadcasting media organization itself; for example name, description, logos and location

b) the individual programs (brands); for example name, description, logos and genres

c) the technical details of the associated streams; for example URLs, audio codecs and bitrates

Soon the IMDA intends to extend the document format to describe on-demand content, integrate with EPG data and include support for hybrid radio devices, among others.

The specification is available for free at *http://bit.ly/imdarart*. Feedback and questions can be addressed to *metadata@imdalliance.org*.

RADIOWORLD

Vol. 34, No. 23 September 8, 2010

Next Issue of RADIO WORLD September 22, 2010
Next Issue of ENGINEERING EXTRA October 13, 2010

E-mail: radioworld@nbmedia.com
Web site: www.radioworld.com
Telephone: (703) 852-4600
Business Fax: (703) 852-4582
Editorial Fax: (703) 852-4585

For address changes and subscription renewal, please visit radioworld.com and click on the "Subscription" button. To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, e-mail the editor at radioworld@nbmedia.com.

EDITORIAL STAFF
EDITOR IN CHIEF, U.S. Paul J. McLane
NEWS EDITOR/WASH. BUREAU CHIEF Leslie Stimson
GEAR & TECHNOLOGY EDITOR Brett Moss
TECHNICAL ADVISER Thomas R. McGinley
TECHNICAL EDITOR, RWEE Michael LeClair
PRODUCTION EDITOR, RWEE Karen Lee
CONTRIBUTING EDITOR John Bisset
INTERNATIONAL EDITOR IN CHIEF T. Carter Ross
LATIN AMERICA EDITOR IN CHIEF Rogelio Ocampo
LATIN AMERICA EDITOR Karina Gerardi
MANAGING EDITOR, WEB Brian Smith
EDITORIAL ASSISTANT, MILAN Peter Finch

EDITORIAL CONTRIBUTORS
W.C. Alexander, James Careless, Harry Cole, Mark Durenberger, Charles Fitch, Ty Ford, Harold Hallikainen, Craig Johnston, Paul Kaminski, Peter King, Mark Lapidus, Daniel Mansergh, Sharon Rae Pettigrew, Carl Lindemann, Ted Nahil, James O'Neal, Tom Osenkowsky, Ken Deutsch, Rich Rarey, Tom Ray, Randy Stine, Richard Strickland, James G. Withers, Tom Vernon.

ADMINISTRATION & PRODUCTION
PUBLISHER John Casey
EDITORIAL DIRECTOR T. Carter Ross
PRODUCTION DIRECTOR Davis White
PRODUCTION PUBLICATION COORDINATOR Karen Lee
ADVERTISING COORDINATOR Caroline Freeland

CIRCULATION
ASSOCIATE CIRCULATION DIRECTOR,
AUDIENCE DEVELOPMENT Tracey Dwyer
CIRCULATION MANAGER Kwentin Keenan
CIRCULATION COORDINATOR Michele Fonville

SUBSCRIPTIONS
Radio World, P.O. Box 282, Lowell, MA 01853
TELEPHONE: 888-266-5828 (USA only 8:30 a.m.–5 p.m. EST)
978-667-0352 (Outside the US) FAX: 978-671-0460
WEB SITE: www.myRWNews.com
E-MAIL: newbay@computerfulfillment.com

CORPORATE
NewBay Media LLC
PRESIDENT AND CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
CONTROLLER Jack Liedke
GROUP CIRCULATION DIRECTOR Denise Robbins
VICE PRESIDENT OF WEB DEVELOPMENT Joe Ferrick

VIDEO/BROADCAST GROUP
EXECUTIVE VICE PRESIDENT Carmel King
VICE PRESIDENT / SALES DIRECTOR Eric Trabb

ADVERTISING SALES REPRESENTATIVES
US EAST & LATIN AMERICA: John Casey, jcasey@nbmedia.com
T: 212-378-0400, ext. 512 | F: 330-247-1288
US WEST & CANADA: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156
SOUTHERN EUROPE, AFRICA, MIDDLE EAST:
Raffaella Calabrese, rcalabrese@broadcast.it
T: +39-02-7030-0310 | F: +39-02-7030-0211
UK & IRELAND, CENTRAL & NORTHERN EUROPE:
Graham Kirk, g.kirk@audiomedia.com
T: +44-1480-461555 | F: +44-1480-461550
JAPAN: Eiji Yoshikawa, callems@world.odn.ne.jp
T: +81-3-3327-5759 | F: +81-3-3322-7933
ASIA-PACIFIC: Wengong Wang, wwg@imaschina.com
T: +86-755-83862930/40/50 | F: +86-755-83862920
CLASSIFIEDS: David Carson, dcarson@nbmedia.com
T: 212-378-0400, ext. 511 | F: 866-572-6156

Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 810 Seventh Avenue, 27th Floor, New York, NY 10019. Phone: (703) 852-4600, Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

REPRINTS: Call or write Caroline Freeland, 5285 Shawnee Rd., Ste. 100, Alexandria, VA 22312-2334; (703) 852-4600; Fax: (703) 852-4583

Globe graphic ©iStockphoto.com / Edward Grajeda

Comrex BRIC-Link

provides reliable, high quality, cost-effective IP audio transmission over dedicated links.

plus

ISM Band 5.x GHz IP Radios

from Trango Systems, Tranzeo, Motorola, Tsunami and others available at BGS provide a low-cost, unlicensed, line of sight data link.

equals

Perfect, low cost STL solution

Use with BRIC-Link's linear and FLAC modes for full bandwidth audio with minimal delay. Easy to set up. Low operating cost.

Available from:

Broadcasters General Store

www.bgs.cc • 352-622-7700

BRIC Link

Put Comrex on the Line

COMREX

www.comrex.com

FIVE MARKETS OVER 40 STATIONS ONE NETWORK:

WHEATNET-BRIDGE TDM

For Entravision, with multiple stations in multiple markets, a network with flexible functionality and reliability is key to maintaining the strongest on-air presence with absolutely no downtime. Listeners depend on Entravision for content tailored to each community as well as demographically relevant programming across the grid. Wheatstone's WheatNet-Bridge TDM systems make it possible to keep such a network up and running around the clock.

Entravision currently has Wheatstone TDM systems in 5 of their markets – including Los Angeles where 27 surfaces provide programming for their eight Los Angeles area transmitter sites and seven satellite uplink networks.

Rick Hunt, Vice President and Director of Radio Engineering at Entravision Communications Corporation knows that taking chances with unproven or ad-hoc technology simply isn't feasible – that the ultimate cost of using less than the best can be detrimental not only to day-to-day operations but to their overall success.

"Entravision prides itself on delivering the highest quality content and programming to our loyal base of radio and television audiences, and we rely on the Wheatstone system as an important piece of our broadcast equipment. The system is versatile, easy to manage and one of the most advanced pieces of technology on the market. It also delivers an unmatched level of consistancy, ensuring that our systems operate the same way regardless of size or location."

You do your best to create and maintain a successful business. Wheatstone designs and builds its networking systems, whether TDM or IP based, right here in the USA. Wheatstone knows that your programming, network and content are mission-critical, and that failure is not an option. Don't leave it to chance - choosing Wheatstone can only ensure your efforts are rewarded... continuously.

Give us a call or visit us on the web to learn more - we'd love to hear from you.

Rick Hunt, Vice President and Director of Radio Engineering at Entravision Communications Corporation, with one of their Wheatstone G5 consoles.

Wheatstone

AUDIO NETWORKING-SIMPLY EVOLVED

phone 1.252.638-7000 | www.wheatstone.com | sales@wheatstone.com