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**Give Us a Break**

Trying to improve the STL band, the FCC may have broken something that didn't need to be fixed.

**A First in Engineering**

He started in radio mowing the lawn; now Bert Goldman is top engineer for a 'broadcast merchant bank.'

# Radio World



\$2.50

The Newspaper for Radio Managers and Engineers

August 1, 2004

**INSIDE**

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**NEWS ANALYSIS**

## 'Due Diligence' Urged in FM Auction

*Nearly 300 Construction Permits Up for Grabs in Bidding War*

by John Merli

**WASHINGTON** This has been more than three years in the making, amid court challenges and appeals; but now it actually looks like it will happen: Construction permits for 290 vacant FM commercial channels are slated to go on the FCC auction block on Nov. 3.

The commission and broadcast engineers contacted for this story are urging potential bidders to use "due diligence" in their transactions, in what they say will mark a big step in fundamentally altering and accelerating the procedure by which broadcasters have typically attained spectrum since FM's inception several decades ago.

Auction No. 37, as it is known, will entail CPs in mostly small and rural markets in more than 40 states, in communities such as Bethel, Alaska, and Thayne, Wyo. The November date marks the third instance that a specific timeframe has been announced for the auction.

For the most part, new FM allocations have been frozen since 1997, when Congress passed the Balanced Budget Act. A year earlier, the D.C. Circuit Court had invalidated the FCC's main method for deciding licensing cases — primarily through comparative hearings

— in *Bechtel v. FCC*.

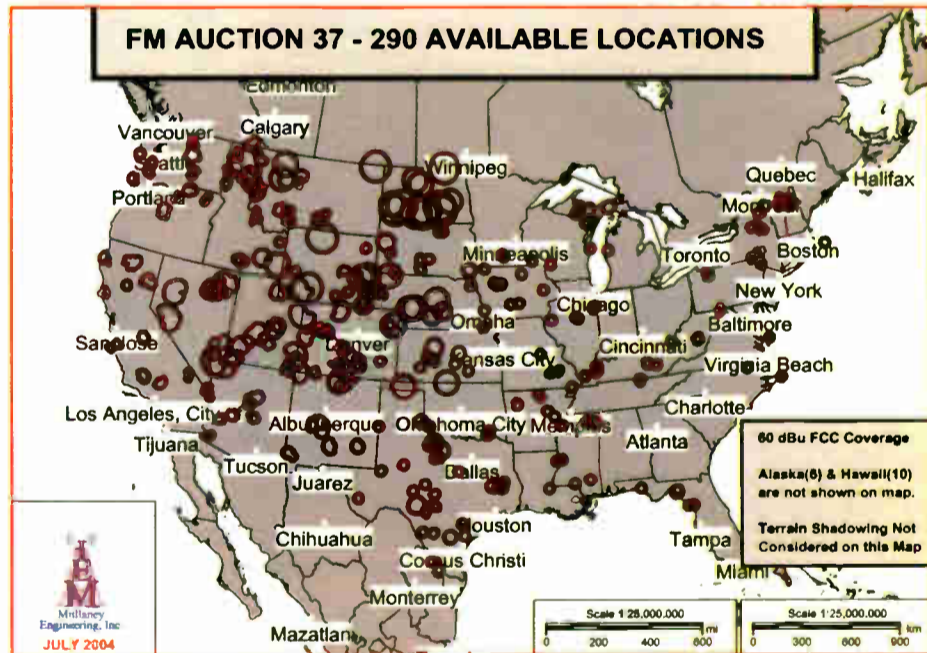
Another dispute arose in 2000 when National Public Radio took the FCC to court over bidding procedures envisioned by the commission between commercial and non-commercial parties. In 2001, a federal appeals court ruled in NPR's favor, thus delaying matters once more.

The original date for Auction No. 37

had been May 2001; later it was postponed to December 2001. So it will be three-and-a-half years from the original auction date to this November's event.

"I'm looking forward to seeing the results," said Dr. Mark Fratrick, vice president at BIA Financial Network. He said the FM auction's concentration of small markets is in line with current trends in FM activities.

"We're seeing increasing sales going See AUCTION, page 8 ▶



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# ◆ NEWSWATCH ◆

## FCC Proposes Aircheck Rules

**WASHINGTON** Remember the days when many stations kept recordings of all programming? That meant slow-moving reel-to-reel tapes at some stations, air check or "skimmer" units at others.

"Those were the days of the Fairness Doctrine, the personal attack rule and such, where stations were often the subject of FCC investigations on content; so it was the prudent thing to do," said Womble Carlyle Sandridge and Rice attorney John Garziglia.

Those days may be here again if an FCC proposal actually goes into effect.

In an effort to beef up its broadcast indecency enforcement efforts, the commission has proposed requiring stations keep recordings of their programming for at least 60 days and perhaps up to 90 days.

In a Notice of Proposed Rulemaking, the FCC seeks public comments on how long stations should retain the recordings and exactly when they should be recording: an entire 24 hours; from 10 a.m. to 6 p.m. when indecency is prohibited; outside the so-called "Safe Harbor" for indecent programming?

The commission believes the change would make it easier to investigate indecency complaints. If passed, the change would shift the burden of providing a tape or transcript from consumers to stations.

"Because the specifics and context of the broadcast are critical to the determination of whether material is obscene, indecent or profane, the more information the commission can have in its possession about a program when it concludes an investigation and decides whether or not to initiate an enforcement proceeding, the more informed a decision it can make," states the agency in the NPRM.

The FCC said between 2000 and 2002, it received 14,379 broadcast indecency complaints covering 598 programs. It denied or dismissed 169 complaints for lack of a tape, transcript or significant excerpts.

Of course, some stations never stopped keeping recordings of their programming,

but others have.

If passed, the change would affect radio and TV stations, both commercial and non-commercial. Low-power FM's were not mentioned in the item, although that doesn't mean they couldn't be included should commenters raise the issue and the commission decides to include them.

Also not clear from the commission's proposal is whether the recordings are to become part of a station's public file.

Broadcasters are sure to raise again the issue of including satellite radio and TV and cable TV in the commission's indecency rules.

The agency has asked for comments specific to how the proposed changes would affect small broadcasters.

FCC Commissioner Michael Copps urged quick action on the proposal.

Comments to MB Docket 04-232 were due July 3, replies are due Aug. 30.

— Leslie Stimson

## FCC: Powell Not Leaving Soon

**WASHINGTON** The FCC is trying to dampen speculation that Chairman Michael Powell plans to leave the agency after the November elections.

The Los Angeles Times ran a story in June quoting telecom lobbyists about possible changes in the makeup of the commission depending on whether the GOP retains the White House or if presumed Democratic presidential nominee John Kerry wins the race.

Of Powell's plans, agency Spokesman David Fiske said to Radio World: "He's not thinking about it. He has no plans to leave."

Powell has been a commissioner since 1997 and chairman since 2001.

There could be other changes at the top of the agency in the New Year. Commissioner Jonathan Adelstein's term ended a year ago. Under the Communications Act, he would need a recess appointment to stay beyond the end of the current session of Congress. Members plan to adjourn in October.

A group of bipartisan senators has  
See NEWSWATCH, page 8 ▶

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# AM, Recording Spark IBOC Opinions

**WASHINGTON** This is the second in a series of articles summarizing public comments filed with the FCC in the IBOC proceeding.

Here, we excerpt a sampling of observations about AM nighttime digital, personal recording, multicasting and the transition from hybrid analog/digital to all-digital mode.

*In joint comments, 44 state broadcaster associations recommended:*

"The commission should allow market forces to govern the adoption of digital audio broadcasting by the radio industry. No station should be required to adopt IBOC or other digital technology.

"The commission should not impose additional DAB quality standards, such as high-definition digital audio broadcasting. Such artificial standards could meaningfully delay the transition period. The market can best determine the viability and demand for higher quality audio.

"The commission should permit licensees to provide more than one digital bitstream ("multicasting") within the constraints of the IBOC technical standards. This would enhance program diversity. The commission should be flexible in its regulation of multicasting, at least in its early stages of development.

"The commission should permit licensees to broker multicast bitstreams to unaffiliated entities and to other broadcasters. This will allow licensees to recoup some of the costs associated with the digital conversion, and to increase outlet diversity.



The FCC received numerous comments in its proceeding about digital audio broadcasting.

of different machines like a computer or a hand-held device. The user will then be able to create an unlimited number of copies or to further distribute the music via the Internet or a wireless system with relative simplicity.

"The unauthorized P2P systems offer the same type of interactivity and possibility for abuse. DAB, however, also offers anonymity and simplicity. The combination will be toxic for the future of music.

"Recording artists have fared badly under the existing analog radio system. Using the faulty rationale that analog radio provides recording artists with free publicity, Congress has steadfastly

the 'buy button' — a viable, fair method of allowing users of DAB to keep the music they copy, but only if they pay."

*Reunion Broadcasting LLC wrote:*

"Reunion is the licensee of several AM stations and is actively involved in the expansion and development of AM facilities. ...

"Reunion supports the rapid introduction of spectrum-efficient digital broad-

casting on the AM band. However, the introduction of hybrid analog/digital systems on this band during the nighttime should be permitted only pursuant to a showing that the hybrid facilities will not create additional interference to existing stations.

"Since the issuance of the commission's interim order in this matter, deployment of AM digital operation has been slow. Figures published by Ibiqity indicate that approximately 30 AM stations are operating with the digital hybrid system. ...

"Uncertainty regarding the real-world performance of the hybrid IBOC system within the commission's current allocation scheme and occupied bandwidth rules, together with the lack of nighttime operation, has chilled the deployment of AM digital systems.

"Part of the uncertainty stems from the attempt to apply commission rules developed for the stations transmitting an amplitude-modulated signal to transmission modes not in existence at the time the rules were written. In particular, the emission limits specified in 47 CFR 73.44 will yield unanticipated results if applied to any transmission method other than amplitude modulation. ...

"If it is determined that the adjacent-channel energy created by use of the hybrid analog/digital system will enter the night limit of a station operating on that adjacent channel, the station proposing digital operation should be required to reduce power in the digital sidebands until the signal fits within the existing

See IBOC, page 5 ▶

**If fully implemented as expected, (digital radio) will more closely resemble a P2P system than traditional radio.**

— Recording Artists' Coalition

"Extending interim authorization for IBOC AM nighttime broadcasts and streamlining the dual antenna application process will facilitate a more expedient transition to digital audio, and thus serve the public interest."

*The Recording Artists' Coalition wrote:*

"New technology such as peer-to-peer file sharing ('P2P') has spawned rampant piracy. As a result, the music industry is in a serious depression, adversely affecting almost every person working in the music industry. ...

"The P2P experience clearly shows that it is easy to predict, almost to a certainty, that if given the opportunity, millions and millions of music fans will acquire music without paying for it. ...

"DAB is not like traditional, analog radio. If fully implemented as expected, it will more closely resemble a P2P system than traditional radio.

"The potential for sophisticated interactivity makes DAB fundamentally a new format that will eventually allow users to access specific songs or songs by specific recording artists on a real time or delayed basis, and then store that music on a myr-

refused to provide recording artists with a public performance right. When a song is played on radio, the songwriter receives a public performance royalty — the recording artist receives nothing. ...

"RAC is not opposed to DAB. DAB has potential to be a wonderful format.

"Rather, RAC is opposed to an emerging DAB business model and standard not providing revenue for the recording artist and not protecting the recording artist from the ravages of rampant piracy.

"The commission has the opportunity to afford copyright owners a reasonable and fair degree of content protection while preserving the existing expectations of listeners to record broadcast material for very limited purposes. ...

"(A) t a minimum, the commission should seriously consider adoption of a DAB transmission standard proscribing minimally intrusive rules affecting both the radio networks and equipment manufacturers.

"One minimally intrusive option could be to allow for encryption during transmission and imposition of an audio protection flag. If the technology progresses as expected, encryption and an APF will ultimately allow for the introduction of

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# At Harris, Wensinger Heralds Change

When Howard Lance, chairman and CEO of Harris Corp., needed a new head of his Broadcast Communications Division, he chose someone from the government mission support and IT side of the business.

Lance had stated earlier that lower profitability in the broadcast division had been a concern in recent quarters. In May, he named Jeremy C. Wensinger, 41, as president of the division, replacing Bruce Allan, who had held the job for six and a half years.

Sixteen days later, the division had reorganized its business structure and named leaders of five new units: Broadcast Networking and Government Solutions, Europe Broadcast Systems, Television Broadcast Systems, Radio Broadcast Systems and Broadcast Automation Solutions.

Then in June Harris confirmed that it had reduced its U.S. broadcast workforce of 1,150 by 5 percent, a move that included layoffs. It also refocused its systems integration efforts — Wensinger said it exited that business — and will rely instead on third-party partners for those services.

That's a lot of change in a short time. From all indications, the changes reflect the managerial approach of the new division president.

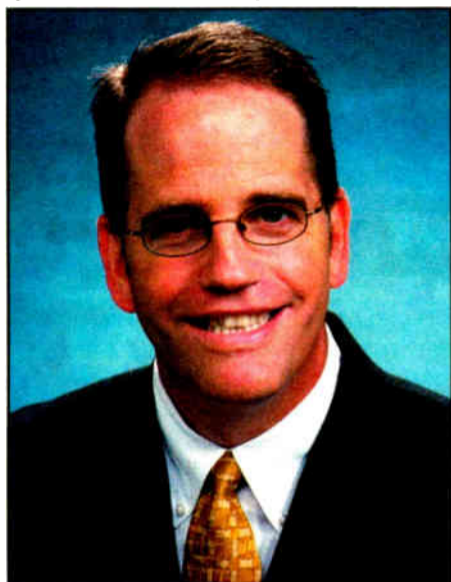
Wensinger was vice president and general manager of Harris Technical Services Corp., part of the company's Government Communications Systems Division. Lance said Wensinger had been "instrumental in guiding the rapid growth of our Technical Services business to nearly \$200 million in revenue through successful pursuits and the award of new programs." Now the head of one of the corporation's four operating units, Wensinger answers directly to Lance.

I spoke with the new division president about the changes at Harris.

**RW:** How does your background prepare you for this job?

**Wensinger:** When Howard and I first talked, I asked that exact question, because Harris has on several occasions moved some government people into the commercial environment with mixed results. I was pretty candid.

I asked for the assignment. To Howard's credit he saw a lot of similarities in my background. I spent a lot of time early in my career in the hardware side of government development. In the last seven or eight years I spent almost the entire time doing solution-based selling. We were principally a systems and software provider.



Jeremy C. Wensinger

I've come to appreciate that this (broadcast) segment is evolving. Harris needs to step up to help our customers make the transition from analog to digital. ... I'm very comfortable with the skills and experience I had on the government side transferring to this market space. The government has itself gone through a similar transition.

I look at customers and ask, "What can Harris do for them as a partner?" A transmitter is a long-term investment. During that 25-year lifespan, I want to be more than just a transmitter provider

for them. I want to ask what is it that Harris can do to help that customer improve its operating efficiency and reduce its cost of doing business.

**RW:** What has Howard Lance charged you with accomplishing?

**Wensinger:** We do have a plan for next fiscal year. You saw us announce some restructuring. Some of it is positioning for next year, some of it is for the long term.

I had a plan in place. I know exactly where we're going financially. The round of announcements you saw us make was directly related to that.

I came from a business unit where it's very powerful to say, "Look, you run TV. Here's your team and your target; and you're given complete line authority to make that happen."

Our ability to be nimble and flexible is important. For radio that means giving Deb Huttenburg (the new vice president of Radio Broadcast Systems, answering to Wensinger) the authority to operate ... She has all the "bandwidth" required to make her customers' businesses a success.

I believe the only way we're going to succeed in the long run is if our customers succeed.

**RW:** Characterize the radio broadcast supplier marketplace right now.

**Wensinger:** I'm very excited about it. ... Deb has tremendous experience in this space and in broadcast. I said, "Try to help me understand why we're at the point that we're at. Why are we going to have to reposition ourselves?" When we took a step back, we said, "The market is there. (Clients) are ready, they're willing; we just don't have the right structure to do that, to support them."

There's good demand internationally; we're seeing very strong demand domestically; I'm very excited about HD Radio.

**RW:** In talking to Harris managers over the years, many have spoken to

## From the Editor



Paul J. McLane

*me of the importance of service and client relationships; yet the company has seen bumpy times of late. How exactly are your changes different from what's been done in the past?*

**Wensinger:** Frankly I think we got wrapped up in the television high-def conversion. We got enamored with the idea that high-def TV was going to be an annuity. And it's not, it's just not. It's a wonderful market space, but it's not everything.

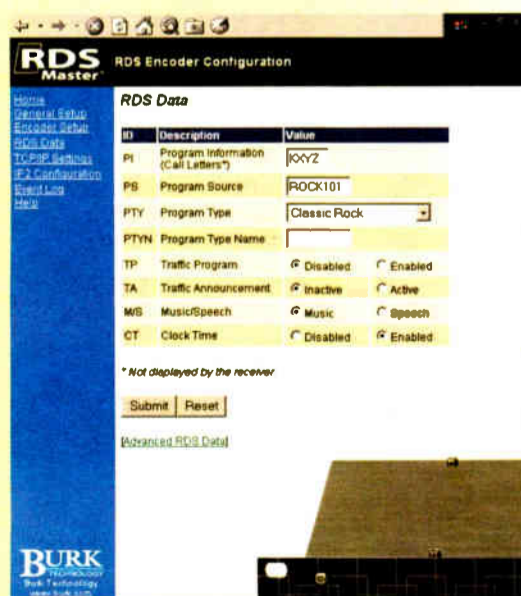
I'm not trying to be disingenuous to my predecessors, but I think mine is more of a mission view. ... A lot of what you see today is self-inflicted wounds. It may be true that the market is (also a problem), but I want to take more ownership of it. I want to say that we're where we are because of decisions we made.

The fundamental difference is on the actual fulfillment side of it. Under a matrixed organization, Deb would have had the sales team, but still be relying on some abstract organization called Manufacturing or Vendor Relationships.

What I've put forward is that Deb has line authority all the way from sales through fulfillment. If we had a customer whose hair is on fire — who's off the air — she can move product around to satisfy their needs. She has the ability to run her business, from womb to tomb. That's fundamentally different from a matrixed organization.

We did this principally to increase  
See HARRIS, page 5 ▶

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# IBOC

► Continued from page 3 protection requirements.

"Reunion believes this approach would permit the introduction of digital nighttime operation in an orderly fashion. The NAB has filed a proposal, which recommends that the commission permit nighttime digital operation for all stations currently authorized for nighttime broadcasts without prior commission authorization.

"The proposal also asks the commission to resolve cases of "unexpected interference" on a case-by-case basis. This 'do it now, fix it later' approach simply increases the uncertainty for each broadcaster seeking to move forward with digital broadcasting.

"It is questionable whether a broadcaster seeking to maximize its service to the public would invest the capital necessary to convert to a hybrid digital operation if the possibility exists that the operation might be limited or diminished because of interference given to adjacent channel stations. This is simply not an issue for which a 'trial and error' approach is appropriate. ...

"The NAB proposal and Ibiqity's AM Nighttime Compatibility Study indi-

ference for either the main or adjacent channels."

*XM Radio Inc. wrote:*

"No action by the commission is warranted to prevent recording and Internet redistribution of musical recordings that are part of digital audio broadcasts. Concerns with recording of digital audio broadcasts are virtually identical to issues previously raised that resulted in the passage of the Audio Home Recording Act of 1992 ('AHRA').

"The requirements of the AHRA fully address any concerns regarding possible consumer recording of radio broadcasts and redistribution of those recordings. ...

"In the mid-1980s, electronics manufacturers introduced digital audio tape and digital audio recorders. At that time, the recording industry voiced concerns regarding DAT and DAR that are similar to the concerns expressed today, namely that 'the precision of the digital audio recording capabilities will result in reduced sales and royalties due to illegal 'bootleg' copying, as well as home copying by consumers.' The recording industry filed legal action against those electronics manufacturers and the tension between those industries delayed widespread introduction and adoption of that technology.

royalty. In addition, devices must incorporate a serial copy management system to block second-generation copying of recordings.

"In the NOI, the commission has not formally proposed rules to address copying concerns relating to digital audio broadcasting. In its Oct. 2, 2003 letter to the commission, the Recording Industry Association of America appears to advocate prohibiting the type of activity that the AHRA is designed to protect, namely the ability of consumers to make record-

audio recording device.' ...

"In the section-by-section analysis of the AHRA, the Senate notes that a 'digital audio copied recording' includes 'a digital audio recording made from a commercially released compact disc or ... from a radio broadcast of a commercially released compact disc.' Thus, under current law, it is clear that consumers can record from radio broadcasts, organize those recordings and store them to create their own "jukebox" to be played again and again.

**In practice, the usable nighttime signal of a station operating in the analog mode extends well beyond the NIF contour.**

— Reunion Broadcasting L.L.C.

**The commission should permit licensees to broker multicast bitstreams to unaffiliated entities and to other broadcasters.**

— Joint comments of 44 state broadcast associations

cate that interference can be expected outside of a station's Night Interference Free (NIF) limit. In practice, the usable nighttime signal of a station operating in the analog mode extends well beyond the NIF contour.

"Many stations, especially those licensed to suburban cities in a metropolitan area, have substantial portions of their nighttime audience outside of their NIF. ...

"To eliminate ... uncertainty, Reunion encourages the commission to adopt an interim policy permitting hybrid analog/digital operation upon a showing by the applicant that the proposed operation, when examined on the basis of the main channel and each adjacent-channel carrier, will not increase nighttime inter-

"The AHRA was the legislative compromise to the dispute between the recording and electronics industries which provided a new royalty stream for copyright owners, addressed copyright owners' content copy concerns, and ensured 'the right of consumers to make analog or digital audio recordings of copyrighted music for their private, non-commercial use.' The AHRA imposes both a financial and technical obligation on manufacturers or importers that distribute 'digital audio recording devices.'

"Any party that manufactures or imports a digital audio recording device and/or digital audio recording media must file required reports with the Copyright Office and pay the requisite

capability. Those economics are terribly difficult to close unless your corporate structure is set up to do that.

This entity is different from one that throws off cash. I look at Harris content. What is the Harris content that is best in class and forward-looking in nature?

*RW: Other thoughts about the direction of your business?*

**Wensinger:** There is never any fun in what we did in the last month. I detest it. My job for the 1,100 families we have that work for Harris Broadcast is to provide a road map, to provide a structure around that road map and provide the resources. The objective, obviously, is growth, profitable growth. I'm excited about the opportunity to share that vision. 🌐

# Harris

► Continued from page 4 speed, flexibility and focus. They're a team that focuses on nothing but the radio side. They're not off selling TV transmitters. I think that provides customers with a lot more attentiveness.

*RW: Yet this is a marketplace where some dealer products are sold at 8 or 9 percent markup; and big clients constantly press you to keep prices down. How do you balance your idea of service with a low markup environment?*

**Wensinger:** We did exit the system integration business. We were competing with integrators who were great industry partners of ours. We don't get into that mode of selling third-party

ings of copyrighted music for their own use.

"The RIAA asserts that because of the advanced features available on digital receivers, consumers will be able to copy 'the entire repertoire of an individual artist' and transform digital broadcasts into 'a jukebox with an unlimited library of songs' in ways that 'ignore the intellectual property interests' of copyright owners. However, this type of recording activity was specifically addressed and authorized by the AHRA.

"The payment of royalties under the AHRA is triggered, in part, upon the manufacture or importation of a 'digital

"The fact that new models of receivers streamline this process is immaterial. Moreover, there is no basis for the assertion that digital broadcasts and new receivers will 'deprive (recording labels and artists) of legitimate compensation.'

"Copyright owners will be compensated in accordance with an established royalty scheme and second generation copies will be prohibited under the serial copy management system. Imposition of any additional content controls would essentially unravel the compromise reached by the recording and electronics industries that resulted in the passage of the AHRA." 🌐

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## NEWS MAKER

# Goldman Engineers Deals for First

by Randy J. Stine

**DALLAS** Bert Goldman's radio career has the humblest of broadcast beginnings. In 1972 he jumped at the opportunity to mow the grass around the tower at WDON(AM) in Wheaton, Md., then gladly helped clean up paint droplets from cars parked near the station's tower after it was painted.

"They had to paint the tower, a self-supporting stick about two blocks from a mall and lots of businesses ... their ground system had been covered up by asphalt many years before," Goldman recalled. "They waited for a still day, but paint wound up on some cars anyway. I spent two weeks going around with rubbing compound and paint thinner scrapping paint off cars. That's about as humble as you can get!"

Goldman, 52, is senior vice president of engineering for First Broadcasting Investment Partners LLC in Dallas. He no longer needs to do what many would call grunt work, but he partly credits that kind of work ethic for his rise into the ranks of radio management.

Goldman's résumé is dotted with stops at well-known broadcast groups, the names of many of them now pre-consolidation memories. Goldman has more than 30 years in engineering with companies such as Shamrock Broadcasting, Nationwide Communications, Patterson Broadcasting and ABC Radio.

Today, he works for a company that describes itself as a "broadcast merchant bank" and that acquires and sells properties that can benefit from capital investment, operational fixes or technical upgrades. First Broadcasting, founded in 1992 by Ron Unkefer, has invested \$200 million in radio transactions and targets top-30 markets such as Dallas, Sacramento and Cincinnati. It has an ownership stake in approximately 12 stations.

First Broadcasting Investments LP (72 percent) and Alta Communications (28 percent) are partners in First Broadcasting.

## Dabbled in low-power

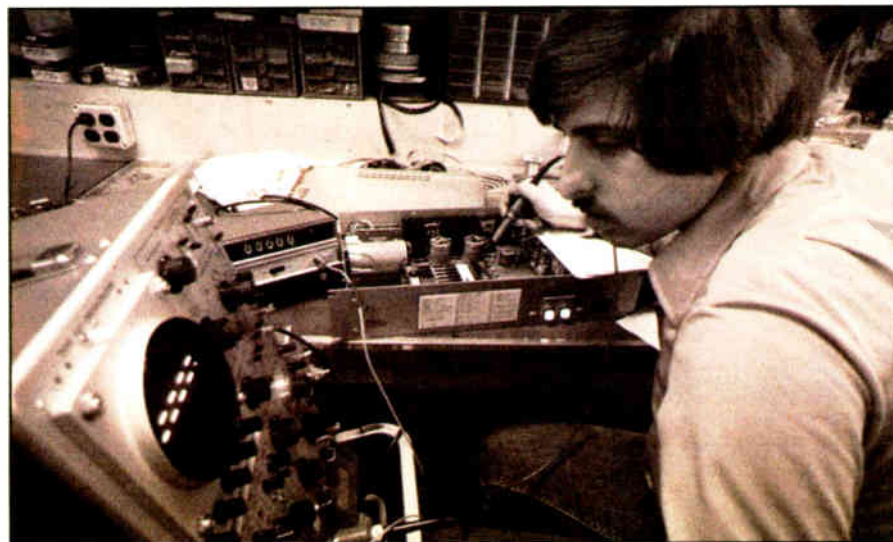
"A lot of groups are operations-driven with a component of engineering. We really are engineering-driven with a component of operations," Goldman said of First Broadcasting.

Goldman has always been driven, even as a teenager growing up in Washington, where he built his first radio transmitter

ordered from the Lafayette catalogue. With just enough juice to broadcast around the apartment building he lived in, Goldman said even then he was interested in technical matters.

"We just played records and stuff. But it was fun to see how far we could get the signal to go. Too bad we didn't have any meters to measure how much power we were putting out," Goldman said of his pirate broadcasting days.

The first radio station Goldman visited was the former WGAY(FM), the studios of which were perched atop the World Building in Silver Spring, Md.



Goldman at WTOP(AM) in Washington in 1976

"They had a huge picture window right outside the elevator where you could watch the disc jockeys. They just played beautiful music at the time, but that didn't matter."

Goldman enrolled at the University of Maryland in 1970 with the intention of becoming an aerospace engineer, but layoffs in that sector and cuts in defense spending at the time persuaded him to look at broadcasting as an alternative major. The Maryland Terrapin earned his degree in broadcasting and business administration four years later.

While in school, Goldman worked for non-commercial WGTS(FM) in Takoma Park, Md., doing some announcing and even winning awards for a "Health Watch" minute public service program he produced. However, the WDON(AM) opportunity soon came along and Goldman got his first taste of commercial broadcasting.

"The station was owned by Everett Dillard, who was a pioneer in FM broadcast-

ing in Washington with his WASH(FM). Mr. Dillard called me into his office and asked me if I really wanted to work in radio. I said 'yup.' Then he agreed to let me work over the summer and spend two weeks doing every job at the radio station. That meant sales, on-air and engineering. That also meant mowing the grass and rubbing paint off of cars," said Goldman, chuckling.

He joined WTOP(AM) in 1974 as morning board op, where he worked with rising star anchor Jim Bohannon, and eventually made maintenance engineer.

"I did get to play with their 50 kW transmitter, a RCA BTA-50F. In fact, I got a



Bert Goldman

the transmitter," Goldman said.

He almost was killed, too. In a moment of engineering exuberance, Goldman decided to lug a portable generator up the side of a steep hill to a transmitter site that was about to lose power because of scheduled electrical line work by utility Pacific Gas and Electric.

"Someone was driving the station's Jeep, and I was riding with the portable generator and it was getting steeper and steeper. Just then it popped off the hitch and started going downhill fast. I managed to jump off just as the generator went off the road," Goldman said. "The generator wound up in a tree that broke its fall.

"It took two tow trucks to pick it off."

And what were his general manager's first words to him upon return to the station? "He wasn't so much concerned with whether I had survived or not, but why the station was off the air," recalled Goldman.

Deciding to jump to a bigger market, in part because of the cost of living in California, Goldman moved to San Francisco and KABL(AM/FM) in 1979 to become assistant CE and thus began a 17-year stint with Shamrock Broadcasting.

Goldman was promoted to chief engineer for Shamrock's KUDL(FM) and WHB(AM) in Kansas City, Mo., in 1981 to oversee construction of new studios.

Shamrock "had just purchased WHB and they wanted me to consolidate facilities. It was another very good growth experience," Goldman said.

Named Shamrock's corporate director of engineering by 1986, Goldman was given the option of relocating to anywhere Shamrock had radio stations. He chose Phoenix, because it was the home of KMLE(FM) and close to Shamrock's corporate headquarters in Burbank, Calif.

"We took what was just a station with a stick playing religious music to the city's top station under the leadership of General Manager J.D. Freeman. Then Shamrock

See GOLDMAN, page 7 ▶



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# Goldman

► Continued from page 6  
was sold to Chancellor Media Corp.," Goldman said.

After it became clear that Chancellor was not going to keep top Shamrock management on board, Goldman joined Patterson Broadcasting as corporate engineer in early 1996 and moved to Savannah, Ga.

"Jim Wesley was putting together a group of medium-market stations and needed help on the technical end. He wanted help whipping them into shape and watching capital budgets," Goldman said.

When Capstar Broadcasting Corp. purchased Patterson in 1997, Goldman did the consolidation shuffle again, this time landing at Nationwide Communications in Columbus, Ohio, as corporate vice president of engineering. But not for long. Jacor Communications Inc. stepped in to buy Nationwide in 1998.

Goldman said he is not the sort to let such developments get him down. In fact, he has a wall of his Dallas home decorated with license plates from each state he has worked in.

"It got to the point where it was almost funny. When I interviewed at ABC Radio they kidded me that they were a bit scared that I was a jinx because everywhere I went everyone wound up out of work," said Goldman, laughing.

Goldman eventually got the job as vice president of engineering at ABC Radio. In a

twist that only a Mayflower Moving employee could appreciate, he was first assigned to New York City, then sent to Dallas a few months later.

## Another license plate

"We sold the Columbus house and purchased a house in New York. We had construction going on at the house there when my bosses came to me and said they wanted me in Dallas instead. So they bought us out of the house and we moved to Dallas," Goldman said.

Goldman spent much of his time at ABC Radio helping the company acquire radio stations for the purpose of converting them to Radio Disney stations.

"We would look at these secondary properties and explore ways to improve signal and value. It's a challenge to have a station fill out its coverage area the way it should

through engineering or improve its coverage from an allocation standpoint. It's pretty much what I'm doing now for First," Goldman said.

Evaluating radio stations for the technical ability to improve is Goldman's expertise at First Broadcasting, where he's been since April 2002.

"I search for ways a station can improve through engineering and then develop and refine scenarios for that improvement. If there isn't some room for technical improvement we're probably not interested in the project," he said. "What I do is more allocation engineering as compared to component engineering.

Goldman believes terrestrial radio will remain a very good investment, despite increased competition from satellite radio services and other potential audio sources.

"For example, the 3G phone services.

Eventually that technology will offer the ability to receive streamed audio. It will be very portable, and while I do not see them as a replacement for radio, it will be another competitor for us," Goldman said.

Goldman is a proponent of HD Radio and believes the additional data streams it affords terrestrial radio broadcasters will present opportunities. "It is necessary for (terrestrial broadcasters) to move to this new level to compete against other sources of digital broadcast and audio services. We must succeed in the digital arena."

In addition to serving on the National Radio Systems Committee's AM Broadcasting Subcommittee, which is considering revising the AM standard, Goldman also is a member of the NAB's Spectrum Integrity Task Force.

Goldman and his wife Sharon live in Dallas and have four children. ●

## Others Say ...

"Bert and I were introduced in 1988 when the former Shamrock Broadcasting was in the process of purchasing KMLE(FM), Phoenix. Bert gave me the opportunity to build out new studios and transmitter facilities and work with the other Shamrock engineers to accomplish a large project in a very short time frame. ...

"Bert always has a way of bringing out the best in people, professionally and personally."

*Eric Schecter  
Engineering Manager  
Infinity Broadcasting, Phoenix*

"This is a guy, who at the highest levels of Shamrock, drove across Arizona scouring the countryside for generators when the Northridge (California) earthquake hit in 1994 while I was at Shamrock's KLAC(AM) and KZLA(FM) in Los Angeles. He was determined to keep us on the air no matter what. I remember him dropping extension cords from the 12th floor of our building."

*J.D. Freeman  
Regional Vice President  
Central California  
Clear Channel Communications*

"As a consultant, I've had the opportunity to work with Bert for many years. From the very first, Bert impressed me with his thirst for knowledge, his ability to learn and his dedication to his profession. He is highly creative and has a unique ability to cut through all the underbrush and see things as they truly are.

"More important, he has a special talent for clearly explaining things to non-technical people."

*Garrison "Gary" Cavell  
President  
Cavell, Mertz & Davis, Inc.  
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# Auction

► Continued from page 1

on quite a lot in the smaller and unrated markets because there's simply not a lot of favorable, available properties in the larger markets. Those have all pretty much been purchased by the big groups and the properties are already part of clusters."

The FCC's Wireless Bureau will conduct the auction. Although its final take

that are available."

One government official familiar with the bidding procedure, speaking on the condition of anonymity, told Radio World he has heard that one or more parties may place minimum bids on all 290 CPs on the table — which would indicate a minimum \$11 million commitment — in order to stay in play as the bidding progresses around the country starting Nov. 3.

Yet Fratrik does not foresee big buyers, in the end, gobbling up all the allotments in sight.

## This is how contested licenses will be awarded.

— NAB's Jack Goodman

in no way will compare to the billions of dollars raised by many of the FCC's wireless auctions for telecommunications spectrum, minimum opening bids for all 290 CPs total nearly \$11 million, according to the FCC's Web site. Opening bids range from \$1,500 to \$200,000, with the average at under \$40,000.

A typical minimum bid is about 5 percent of the projected value of a given channel, according to James Bradshaw, deputy chief of the FCC Media Bureau's Audio Division.

Those statistics suggest a possible auction total intake of \$240 million. But the actual amount could vary widely. There are no previous broadcast auction statistics with so many allotments to use as a benchmark.

New FM allotments often result from rulemaking petitions, and in the case of Auction No. 37, many proposed CPs have simply piled up after years of court proceedings and other delays. Also, some allotments are being reclaimed — i.e., where previous parties received CPs but never built facilities for various reasons, including license revocations or death — according to commission staffers.

The FCC is introducing a New Entrant Bidding Credit (Public Notice DA 01-119) that attempts to help level the playing field in the bidding process. It includes a 35 percent credit to winning bidders who have "no attributable interest" in other mass media; a 25 percent credit goes to winning bidders who demonstrate attributable interest in no more than three mass media facilities.

No potential bidders contacted would comment on their auction plans, if any, prior to the bidding itself. Omar Thompson, vice president of marketing and communications at Clear Channel Radio, said, "We are evaluating licenses

"We get a little too carried away about the so-called 'deep pockets.' These companies are in business to make money. If it doesn't make financial sense to them, why bid? I actually think there's a lot of potential where smaller groups, or an individual station, could look around and decide to pick up another FM to enhance its presence in an area, for example. They won't have to be huge to do that."

### Diligence

Jack Mullaney, president of consulting engineering group Mullaney Engineering Inc., believes it is critical that bidders use legal and technical advisors to evaluate each of the FM allotments.

Mullaney pointed out that the commission's auction notices include the phrase "due diligence," which places the sole responsibility on the bidder for investigating and evaluating all factors that may have a bearing on the value of the facility. Mullaney agrees with the agency's caution that obtaining a CP in no way guarantees future financial success for the winning bidder.

An FCC spokeswoman said all FCC activities of a similar nature carry a "due diligence" disclaimer.

Mullaney said the notices fail to disclose important information properly "to the unsuspecting public."

"According to the FCC's database, about three dozen allotments being auctioned off are currently being evaluated in ongoing rulemaking proceedings which may, if adopted, change the channel or class, totally delete the channel, or move the channel to another community," Mullaney said.

The Audio Division's Bradshaw responded that the 2004 allocation list is as up to date as possible. He said any FM allotment could be subject to some

change of one kind or another in the future.

"The fact is, this is a very dynamic industry. Because something that might be put in play should then be taken out of the auction would mean we would never see any auctions at all.

"Fifty-plus allotments have been removed from the (original 2001) list and several other allotments have been modified to specify new channels, communities, coordinates, and so on, as a result of various rulemaking proceedings that have been adopted since 2001," said Bradshaw.

### Welcome news

While non-commercial broadcasters were able to reserve frequencies in the 88-92 MHz portion of the band, dozens of such interests could wind up competing with commercial parties in the unreserved band of 92-108 MHz.

Robin Miller, acquisitions director at Public Radio Capital, said the auction could not come at a better time for public stations. "The demand for public radio services is growing significantly and its audience has actually doubled in the past decade."

The fact that most of the 290 CPs up for auction eventually will serve small and rural communities, Miller said, also represents a good fit for pubcasters "because these are the same communities that often lack access to in-depth news or

serious music formats and are typically underserved by broadcast media. Because the minimum opening bids are more affordable than they would otherwise be for frequencies in larger markets, this is another benefit for public radio interests," Miller said.

NAB Senior Vice President General Counsel Jack Goodman said Auction No. 37 would signal a new way of life for radio broadcasters.

"This is how contested licenses will be awarded. This is kind of a catch-up auction because of all the delays involved with it, coming after this long freeze, and now I think now we'll see (auctions) periodically for broadcasters."

Goodman said one of the immediate benefits of spectrum auctions is its speed: "It's fast. Rather than having contested comparative proceedings that could easily stretch out to a decade, with an auction you put your bid in, wait to see if you win, and you can start building quickly."

The Auction No. 37 process begins this summer with short forms and initial paper work, which must be on file with the commission no later than Aug. 6 (FCC Form 175). Goodman expects the fall auction — technically, the FCC calls it an "electronic simultaneous multiple round auction" — to continue for perhaps two to three weeks beyond its Nov. 3 start date for bids.

For more on this story, see page 22 of this issue. ●

## NEWSWATCH

► NEWSWATCH, continued from page 2  
petitioned President Bush to grant the Democrat another term in case Adelstein's reappointment isn't approved before Congress adjourns.

Commissioner Kathleen Abemathy's term ended June 30. But she can stay until the next session of Congress adjourns next year.

### FCC to Probe 'Broadcast Localism'

WASHINGTON Is the way stations do business about to change?

Chairman Michael Powell promised last year, as the agency was mulling new media ownership rules, that commissioners also would look at how stations operate, and how that affects the public interest.

Now, the commission has begun a public inquiry into "broadcast localism." The agency wants the public to comment on topics including newsroom staffing, EAS and voice tracking, among other issues.

The commission is asking about the cost and profitability for news programming in radio and whether it is similar to those costs for TV. NAB submitted a study last year that indicated TV stations in middle and smaller markets realize a 30 to 40 percent profit on local news; the commission wants to know if that also holds for radio, as well as general information on how many news people radio and TV stations employ.

The agency also asks if it should impose restrictions on voice tracking.

Powell said the FCC's localism task force would combine public input with its own studies to see what steps or legislative recommendations to Congress would strengthen localism in broadcasting.

In reaction, NAB spokesman Dennis Wharton said: "NAB looks forward to participating in the FCC's inquiry into broad-

cast localism, and we strongly believe that objective observers will conclude that America's local over-the-air stations have an unmatched record of community service.

"From telethons to tornado warnings, from Amber Alerts to school closing announcements, radio and television stations provide leading-edge local programming that has made the U.S. system of broadcasting the envy of the world."

### Warning Group To Cut Back

McLEAN, Va. The Partnership for Public Warning, a body of broadcasters, local emergency management officials and other groups formed to improve emergency communications, is scaling back its efforts because it doesn't have enough money.

In a letter to members in July, PPW Chair Craig Fugate stated that although the group will continue its work to improve the nation's public warning capability and will continue to exist, its efforts "must be scaled back dramatically."

"As a state emergency manager I know first-hand the importance of public warning," writes Fugate. "I am very proud of our accomplishments and hope that in time we will succeed in securing the level of funding necessary to enable the full range of activity called for in our national strategy. I can assure you that our board of trustees remains committed to our common goal."

The PPW hosted its second National Summit on Public Warning in America June 28. Fugate told Radio World roughly 100 people attended.

During the meeting, the PPW board awarded its 2004 Distinguished Service Awards to Art Botterell for his work with the Common Alerting Protocol and to Frank Lucia for his work on the Emergency Alert System.

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Digital PC Audio Input	No	No	Yes, via Ethernet port and supplied driver
Audio Metering (XMIT/RCV)	Transmit only	One-at-a-time	Simultaneous
Audio Processing	None	Simple AGC	Digital multi-band AGC with look-ahead limiter by Omnia
Remote Control	No	RS-232 and dedicated computer	Ethernet via Web browser
Auto Dial Storage	19 Numbers	50 Numbers	100 Numbers
Frequently-Used Settings Storage	none	none	30
Standards-based POTS Codec	No - Proprietary	No - Proprietary	Yes - aacPlus (MPEG HEAAC)
Transmit-Receive Quality Display	No	Yes	Yes
Contact Closures	2	2	3
Display Resolution	120x32 LCD	120x32 LCD	128x64 LCD
Analog Cell Phone Interface	Optional	Standard	Standard
Mixer Inputs	1 mic, 1 mic / line	2 mic / line	1 mic, 1 line
Phantom Power	No	No	Yes - 12 volt
Automatic Voice-Grade Backup	No	No	Yes
Power Supply	External	External	Internal auto-switching
Local Mix Audio Outputs Headphone Line Level	Yes Yes	Yes No	Yes Yes
Direct Receive Audio Output	No	Yes	Yes
Uses ISDN at the Studio Side for More Reliable Connections	No	No	Yes - your Zephyr Xstream becomes universal POTS and ISDN codec.
Available ISDN Option	\$850.00 (adds MPEG L3 & G.722)	\$850.00 (adds G.722)	\$495.00 (adds G.722 & state-of- the-art AAC-LD for high fidelity and low delay)
List Price:*	\$3,700.00	\$3,650.00	<b>\$2,495.00</b>



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# Radio Was Prepared for Reagan Goodbye

*Networks Went Coast-to-Coast With Former President's Funeral Coverage*

by Randy J. Stine

**WASHINGTON** With recorded eulogies in the can and coverage plans laid well in advance, major radio news networks had only to get correspondents and remote broadcast equipment to the right spots to cover the funeral of former President Ronald Reagan in June.

From the time Reagan's death was announced, to his lying in repose in California and in state in Washington, to his interment service back in California, radio news networks covered the story. The networks provided their respective affiliates a lengthy list of coverage options, including long-form coverage of the state funeral ceremonies, bulletins, special reports and hourly updates.

Major news networks including ABC Radio News, CBS Radio News, CNN Radio and AP Radio Network relied mostly upon now-familiar live broadcast gear. Critical components of the audio chain included cellular phones, ISDN, POTS, T-1 lines and digital audio codecs. In addition, several used mobile satellite phones and laptops with wireless cards to move audio.

Even before the former president's death was announced on June 5, news operations were ready to enact long-standing plans to cover the event.

"We've had plans in place for at least the last five years. This was not unexpected," said Harvey Nagler, CBS News vice president in charge of radio. "Still, when it happens, you have to gear up for the amount of man hours this type of story will eat up. We used no less than a half-dozen reporters at remote locations the day of Reagan's state funeral."



The caisson bearing Reagan's casket traveled through the streets of Washington on its way to the U.S. Capitol.

Radio news anchors and correspondents dotted the funeral processional route from the Capitol to the cathedral. Coverage from Washington ended at

Andrews Air Force Base in Maryland when the 747 carrying the former president's body left for California.

Internment ceremonies at the presidential library concluded the networks' coverage.

Although the story was a big one, the problems facing radio managers were familiar. Most broadcast locations offered challenges regarding remote pickup capability or phone line availability, network engineers and operations managers said.

"We immediately think of remote gear

and remote capability to support breaking news as quickly and efficiently as possible," said Christine Ianuzzi, vice president of engineering and operations for ABC Radio Networks. "We ask ourselves, 'Should we order telco lines? Will there be spare audio channels from TV satellite feeds at the sites we can use?'"

ABC Radio News had 12 positions contributing to the broadcast on the Friday of the state funeral, Ianuzzi said, with seven in Washington and three in California.

"We also had to consider inside technical operations coordination at our Technical Operations Center at 125 West End Ave. in New York City. We have to make sure we are adequately staffed to handle technical needs during breaking news," Ianuzzi said.

In Washington, ABC Radio News engineers supported Marti remote pickup systems at several reporting positions along the National Mall and at the Justice Department. A Nera World Communicator Inmarsat M4 Terminal was used with a Comrex Matrix digital audio codec at several other locations, along with regular POTS lines. For IFB, Ianuzzi said, cellular phones were used to dial into an auto answer.

Ianuzzi said the Nera World Communicator could make a 64 kbps data call through the Inmarsat satellite system. "Once the unit's signal indicator shows you've acquired a satellite in orbit, you plug in the ISDN codec, in our case the Comrex Matrix. You're then feeding high-quality audio in real time with only a three-quarter-second satellite delay," she said.

Steve Densmore, manager of ABC Radio Technical Operations in Washington, said the length of the broadcast day for the state funeral tested the available resources. "It was a challenge to have enough portable power to cover all of the remotes and support an extended broadcast day," Densmore said.

ABC Radio News' on-site audio from Washington was fed first to ABC's bureau in the city, then on its own dis-

crete channel on a T-1 circuit to ABC Radio in New York, where mixed coverage originated.

In California, ABC Radio News correspondents used an Inmarsat M4 Terminal with a Comrex Euro Nexus codec and Shure FP-31 mixer, Ianuzzi said.

Steve Jones, president and general manager of ABC Radio News, said the network aired more than 20 hours of Reagan event coverage during the weeklong farewell, in addition to three one-hour specials.

Upon news of the former president's death, Ed Tobias, assistant managing editor for broadcast news for Associated Press Radio Network, said he immediately started ordering POTS lines at various Washington locations.

"It's a bit of a scramble. You go by best guess since our exact broadcast locations won't be decided until a few days out. For instance, we guessed right that we would be positioned in the south balcony at the National Cathedral," Tobias said.

The AP Radio Network used standard POTS telephone lines because they are "easier to put in and require less technical 'finesses' to set up, and we can depend on them," Tobias said.

Correspondents used Comrex Matrix units to file reports and traveled light because of the heat in Washington, Tobias said. "We had them carry only a MiniDisc recorder (and) a shotgun mic with two cell phones."

AP Radio correspondent Brian Bland filed audio from Simi Valley, Calif., using a laptop computer to record and transfer digital audio, Tobias said, a relatively new means of moving audio for the news network.

## Locating POTS lines

"Most of our reporters now carry laptops with wireless cards. They can edit audio on the laptops and file compressed audio right onto our wide-area network via a VPN (virtual private network). We have an in-house program that compresses the WAV file and allows for the reporter to write a billboard for the audio and send it to the broadcast center," Tobias said.

Tobias said a VPN uses the Internet to connect remote sites to AP Radio's private network in a secure fashion.


Craig Swagler, special events managing producer for CBS Radio News, said the first priority in covering a breaking national story is easy, portable and high-quality remote gear.

"Reliability is the first mandate when handling live broadcasts. We installed POTS and ISDN drops at each live location in Washington and California. At two Washington locations where hard line drops were not available, we utilized our Inmarsat ISDN units," Swagler said.

CBS Radio News correspondents used Comrex Matrix audio codecs and "utilized the battery interface of the Matrix when power was unavailable," Swagler said.

"We also equip each reporter with a Sony MZB-100 MiniDisc recorder and laptop for digital editing, FTP file transfer and access to our editorial system," he said.

Pool coverage of live events was an important aspect of each radio news network's operations, ABC Radio's Ianuzzi said. Each location was designated a pool source; ABC handled the National Cathedral. CBS had the motorcade and funeral procession. Fox had Andrews Air Force base and so on. CNN served as the overall pool, Ianuzzi said.

The pool system allows broadcasters to defray some of the expense associated with covering a live event. 

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# Duking It Out Over Datacasting

*Will Digital Radio Data Be Able to Compete With Other Emerging Services?*

by Skip Pizzi

To conclude our discussion of radio datacasting in the IBOC era, let's look at other emerging and proposed formats that may provide new competition for NPAD (non-program-associated data) delivery. We'll first consider the services that are most directly competitive, meaning those that utilize a broadcast delivery model.

Just as in the analog age, when television broadcasters presented competition to radio datacasting through their use of subcarriers, DTV datacasting could also present a competitive threat to digital radio datacasting. But the ATSC format that is used for terrestrial DTV in North America doesn't lend itself well to portable or mobile reception, so digital radio may still have an opportunity for exclusive delivery to non-fixed platforms.

On the other hand, the datacasting bandwidth available to IBOC systems, particularly in the hybrid mode, is quite constrained relative to DTV capacity, so data-intensive applications to fixed platforms may favor DTV over IBOC delivery.

## Receiver class differences

Let's digress for a moment to consider that not all non-fixed digital receivers are created equal. Mobile and portable platforms each present their own design constraints. In the mobile case, the biggest problem is Doppler shift from the potentially high speed of the moving antenna. Space-diversity antennas may be used here, whereas these are not practical in most portable systems.

Portable (handheld or "pedestrian") receivers, on the other hand, may not suffer as much Doppler difficulty (unless they are being carried in a moving vehicle), but they present a greater challenge to receiver designers in terms of power consumption. Most DTV or IBOC receivers utilize chipsets that have not yet been optimized for low-power operation, meaning that battery life will remain an operational constraint for handheld systems until such designs are developed.

Such a solution is likely just a matter of time, of course. Witness what has recently occurred in Eureka-147 DAB

receivers in Europe, for example, where current-generation devices based on low-power (and low-cost) chips have stimulated a strong market for portable DAB radios, and in the U.K. such devices are now outselling AM/FM portable units.

Because IBOC datacasting will likely favor the non-fixed receiver environments, it's important to note that a robust market cannot develop until portable and mobile receivers are produced, and at volumes that ensure widely affordable costs.

## DVB-H

Another competitive entrant comes from the digital TV environment outside the United States.

**Crown Castle is conducting a three-transmitter, single-frequency network trial of DVB-H in Pittsburgh. By the time IBOC datacasting is viable, this service may be deployed as a credible competitor.**

The DTV format used in most other parts of the world is called Digital Video Broadcasting, or DVB. Like IBOC and the Eureka-147 DAB format, the terrestrial broadcast mode of DVB, called DVB-T, also uses COFDM transmission — as opposed to the 8-VSB modulation technique used by ATSC — so DVB-T can intrinsically have reasonable success in addressing portable and mobile platforms.

However, DVB-T is not truly optimized for mobile reception, and its receivers are also subject to the battery-life concerns noted earlier. So a newly developed variant called DVB-H, for "Handheld," has emerged, which specifically targets the mobile/portable platform with both highly robust modulation and lower receiver-power requirements.

Although DVB-H is primarily intended for use in conjunction with DVB-T systems, it can also be used alone, mean-

ing that it could be used in ATSC countries for mobile/portable digital broadcasting.

Just such an application is envisioned by the wireless infrastructure operator Crown Castle, which in April 2003 quietly won an FCC auction for a nationwide, exclusive terrestrial license on five Megahertz of U.S. L-band spectrum (1670-1675 MHz) that had previously been allocated to weather balloon and weather satellite downlinking. Crown Castle, which paid \$12.6 million for these spectrum rights (on a 10-year initial term), proposes to use the bandwidth for a DVB-H service that will broadcast digital audio, video and data to mobile and handheld platforms (although fixed receivers could also be addressed, of course).

Crown Castle is conducting a three-

transmitter, single-frequency network trial of DVB-H in this band in Pittsburgh. By the time IBOC datacasting is viable, this DVB-H service may be deployed as a credible competitor.

## Other competition

Another variant to consider is the recently proposed "TV-Fi" usage of interstitial TV broadcast spectrum for wireless data applications. The FCC's high-profile floating of this concept has generated substantial response, both pro and con. It calls for the use of unused TV channels in a given market for Wi-Fi-like services, both as unlicensed spectrum for personal use in home networks (as current 802.11a, -b and -g systems use 2.5 and 5.4 GHz bands), and possibly for licensed metropolitan WAN services.

Unlike datacasting, TV-Fi is a two-way service, but it uses broadcast spectrum. Given the popularity of Wi-Fi, this

## The Big Picture



by Skip Pizzi

could become a quick success, and draw users further away from broadcasters' own datacasting services. While much of the spectrum would be unlicensed and free to users for their home networks, the WAN application would probably be auctioned to commercial service providers. Even though it exists in broadcast spectrum, the most probable winners of such auctions would be wireless telcos, who are most likely to pony up big bucks for winning bids.

Meanwhile, wireless telcos continue to expand their offerings to ever-more-powerful consumer hardware. So-called 3G services include numerous services targeted at the small but hi-res color displays featured on 3G phones. Many of these services duplicate the kind of offerings contemplated in datacasting, such as stock reports, sports scores, news headlines and the like, including short full-motion video clips. Here again, competition in such a data delivery market will be stiff.

The datacasting marketplace is unique in that it is being addressed by both broadcasters and wireless telcos. While this undoubtedly means greater competition, it could also allow new datacasting services to become successful more quickly, in that converged receiver platforms may be developed. Such devices exist in Japan, where prototype 3G phones with mobile digital video broadcast receivers are being tested.

## Deploying receivers

One of the big obstacles to the success of any new service is the widespread deployment of receiving equipment. History has shown that early successes can happen when existing consumer

See DATA, page 14 ▶

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TECH TIPS

# Improve the Air Around Solder Smoke

by Gary Palamara

In the 1950s and '60s my father worked in plumbing. Sometimes he would fashion toy soldiers out of molten lead by pouring the hot lead into molds. After they cooled, the toys were given to my brother and me.

Handing a child a piece of lead might lead to a court action today. Of course my father didn't know about the hazards of lead poisoning.

Lead has many attractive properties. Among them, it is heavy and malleable; it has a low melting point and good electrical and thermal conductivity; it is available at relatively low cost.

Scientific data, though, show the cumulative effect of lead on the body's central nervous system and formation of red blood cells. We know that children are vulnerable to high levels and less likely to tolerate abuse.

A ban on the use of lead additives in paint and gasoline took effect in the 1970s and '80s, and according to current federal law, lead may no longer be used in or around drinking water or in the food industry.

But lead also is one of the major components in solder. As technicians, most of our exposure to lead comes when we repair or build equipment using lead-based solder.

The European Union will ban lead in electrical and electronic applications effective in July 2006. Other "green" efforts, including voluntary industry initiatives, may reduce the use of lead. Sadly, even if regulators around the globe implemented an outright ban on further use of lead solder in electronics, many potential problems would remain.

We run the risk of coming in contact with lead when we repair older equipment that still has lead solder

forming the joints. Also, not all health concerns associated with solder come from the lead. Significant problems can arise from breathing solder smoke.

## Bad air

Soldering is the act of joining two metallic surfaces by the use of metal alloys with low melting points.



'Fumes may irritate the respiratory system and after prolonged repeated exposure can cause an allergic reaction (Asthma).'

Modern electronic solder is not entirely lead but a mixture of elements.

Tin is added to make the connection stronger and establish a lower melting point, a prime consideration in electronics. So-called 60/40 solder contains 60 percent tin and 40 percent lead. A flux material is added to promote uniform solder flow (wetting) and joint cleaning. The smoke released when solder is melted comes from heating the flux. For electronics a non-corrosive rosin-resin flux is used. Although rosin is a natural product made from pine trees, its use with other chemicals added to the flux makes the solder fumes naturally acidic and potentially harmful.

Inhalation of solder fumes is a major concern. The residual lead con-



The Hakko 493 Smoke Absorber is one model available from electronics suppliers.

tent in solder smoke is negligible; the immediate concern with smoke comes from breathing the flux fumes.

For many people, prolonged exposure to solder smoke and fumes may cause headaches, nausea, eye irritation or occasional coughing. For an unlucky few, chronic bronchitis and occupational asthma can be the outcome. It's estimated that approximately one of five unprotected industry workers will suffer this fate.

While removing lead from solder is a long-term plus for your body and the environment, protecting users from breathing solder fumes will yield an immediate benefit in the form of a healthier workspace. Simply put, you are being exposed to the chemicals found in the solder flux every time you smell the smoke.

Perhaps we have become desensitized to the many warnings around us. But we must not ignore the effects of low-level, long-term exposure. In many ways such problems are the easi-

est to control. As with cigarette smoking, the effects of breathing solder smoke and working around lead-based solder may not become apparent for many years.

So the question is how much direct contact with lead and smoke inhalation is too much. Not being a doctor or a scientist, I err on the side of caution. Common sense suggests that if you have the ability to control your exposure to a hazardous material, why not do it?

After handling lead-based solder, wash your hands prior to continuing work or eating. This simple step will help protect you from most of the hazards associated with touching the lead.

## Blow it out

For further protection against airborne contaminants while soldering, you might choose to control your breathing environment by the use of a full-face respirator designed to trap these hazards. While a respirator may offer the worker an improved level of protection, it seems impractical at best. Besides, a respirator only protects the wearer, not the guests who visit your shop or work area.

Experts in occupational safety tell us that many safety inventions have gone unused because of cost or difficulty of use.

Even though control of airborne pollutants has been available for some time, only recently has the technology

See SOLDER SMOKE, page 15 ►

## Data

► Continued from page 12

equipment can be easily adapted or converted to new uses. A classic case is the consumer adoption of the Internet and the Web, which benefited from the already installed base of PCs with modems, and nearly universal POTS service. All that was required of the consumer for access to the new medium was an ISP account and a little downloadable software.

In the case of datacasting, addressing fixed-terminal users can take a similar path, leveraging the large installed base of PCs by the simple addition of a digital receiver card — just as the Wi-Fi transition has done. In contrast, for the mobile datacasting market, a whole new class of hardware will need to be deployed, but this could be converged with navigation, gaming/entertainment or other "telematics" systems being added to cars as optional (and perhaps eventually, standard) equipment.

Finally, for the portable environment, a converged 3G/DTV or 3G/IBOC device would leverage the substantial marketing power of wireless telcos, and draw consumers to the use of broadcasters' datacasting services far more quickly than if broadcasters went at it alone.

So while competition will make success in the datacasting market difficult, it could also jump-start the industry if the right deals are cut and compatible standards adopted. These are the discussions that are now starting to occur, and their outcome will have strong resonance on broadcasters' ability to succeed in the new marketplace that datacasting could engender.

Skip Pizzi is contributing editor of Radio World. 📡

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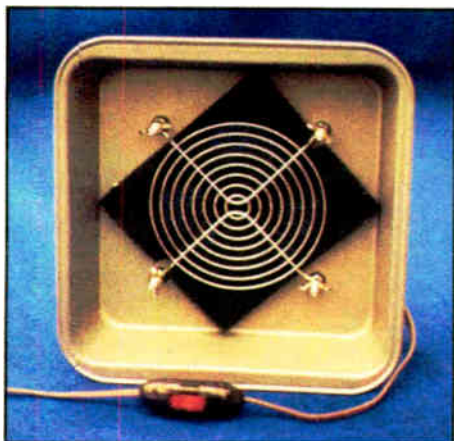


# Solder Smoke

▶ Continued from page 14

become affordable for small industry and the hobbyist. Some products on the market offer a reasonable compromise for home and industry.

The Zephyrtronics Air Plus ZT-4 and the Hakko model 493 both offer



Front view of my knock-off. An 8-inch cake pan is sandwiched between the 4-inch muffin fan and the front-mounted filter. The filter grill is held in place with 6-32 wing nuts.

control of your breathing environment. While soldering, rather than having the solder smoke billowing into your personal air space (and potentially others as well) these fume ejectors direct the smoke away from the worker, and filter it in the process.

According to the product literature, the filters trap approximately 80 percent of the airborne smoke. While 80 percent is not total control, that's 80 percent less than you are breathing now. The filter material is made of a high-density foam mixed with activated charcoal. Both commercially made smoke ejectors are well designed and may be ordered through several electronic suppliers including JAMCO Electronics and Techni-Tool Co. The units sell for \$50 to \$150. Replacement charcoal filters are available from either catalog. With average use one filter will last several months.

### Make it yourself

While commercial smoke ejectors are well made and worth the money if you do a lot of construction and repair, you can fabricate a reasonable substitute in the shop. After all, a smoke ejector mainly consists of a good filter system and a fan to suck in the fumes.

Photos four & five show my "knock-off" devise. A small "muffin" fan scrounged from an old computer (before it hit the landfill) was outfitted with the same replacement filters used for the commercial units. A metal shroud around the unit helps to direct and control the air flow.

Rather than make a shroud from scratch, I used an 8-inch metal cake pan from a discount store; it did the job nicely. Even if you bought all of the parts involved, the cost of fabricating a smoke ejector might run about \$20. Replacement filters are priced at about five for \$25.

If you build several smoke ejectors for the home and workplace, the cost of filters becomes even more affordable. If you solder only intermittently, one filter might last a year or more. It's a small price to pay to protect your health.

While I purchased a commercial



Rear view showing the muffin fan mounted on the cake pan.

unit for my shop, the knock-off works almost as well, and I've decided to dedicate it for those repair jobs around the house. By suggesting that you build the knock-off I don't want to take anything away from the professionally made items.

But I know some will choose *not* to protect themselves simply because of the "high" cost, and that would be a shame. If you do a lot of repair or construction, I'd spend the extra money and buy a commercial unit. For home use you could put the smoke ejector on Santa's wish list for Christmas or for your birthday.

Buy it or build it, there's no excuse not to improve the air while working around solder smoke.

The Internet has numerous sites and reports about occupational asthma and

colophony (rosin). Among them:

✓ [www.ccohs.ca/oshanswers/diseases/asthma.html](http://www.ccohs.ca/oshanswers/diseases/asthma.html) is by the Canadian Center for Occupational Health and Safety and includes a list of potentially hazardous jobs;

✓ [www.kester.com/enus/leadfree/index.aspx](http://www.kester.com/enus/leadfree/index.aspx) discusses alternatives to rosin fluxes and lead-free soldering and a voluntary ban on using lead-based solder in manufacturing;

✓ <http://consumerlawpage.com/article/asthma.shtml> has more on occupational asthma and Reactive Airways Dysfunction Syndrome, induced by chemical exposure.

Gary Palamara, AF1US, is a radio amateur and a freelance audio engineer. He owns a professional sound services company. Reach him at [morningstar@monmouth.com](mailto:morningstar@monmouth.com).

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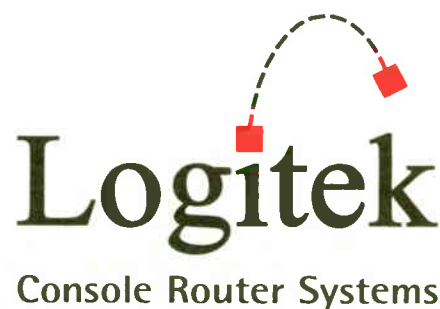
Remora - 4 to 22 faders (4-fader system shown)

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# Wi-Fi Hotspots for Live Radio Reports

by Ty Ford

Live, wireless, on-the-scene radio reporting with a laptop and a mic? Tony Gatto, general manager of radio operations at ABC News, says they're doing it now in New York.

"Immediacy is everything in radio news. The pre-existing technology is too bulky. Cell phone audio quality is too poor and cell phone reception is too unreliable."

While Wi-Fi coverage is still spotty in Manhattan, ABC Radio Network stepped into the new technology in August of last year when ABC newscaster Tim Scheld, equipped with a Dell laptop, wireless (Wi-Fi) card and Musicam USA's AudioTx Communicator software, called in a live report from lower Manhattan from his laptop over Wi-Fi wireless IP.

Key to the success of this experiment was the AudioTX Communicator software, which, among other things, does real-time conversion to MP3. A working 30-day demo is available for download at [www.musicamusa.com/techdocs/audiotx/download.htm](http://www.musicamusa.com/techdocs/audiotx/download.htm).

In the Western Hemisphere, Musicam USA sells and distributes AudioTX Communicator software as the result of a licensing agreement with MDOUK in the United Kingdom. AudioTX Communicator



Tim Scheld finds a hot spot at the south end of City Hall Park in New York.

(\$1k per station) can send and receive MPEG Layer 2 and 3 as well as uncompressed audio in real time over IP networks. With additional hardware, a laptop can send and receive G.722 and G.711 over hardwired Ethernet, ISDN, ADSL, DSL, cable modem, leased lines or global ATM networks. Gatto's point, however, is that

members, see [www.wimaxforum.org](http://www.wimaxforum.org).

According to Maarten van Duijn of New District ([www.newdistrict.com](http://www.newdistrict.com)), who like others quoted here participated in a recent NAB convention session on the topic, Wi-Fi technology is now being used in Amsterdam to bring doctors and diabetic patients together over IP.

A grid of a dozen Wi-Fi transceivers, each with an operating radius of about 250 meters, dots the cityscape.

"The mesh routers (access points) are via Wi-Fi radio signals connected to each other. Each access point forwards traffic from local users and from other neighbor mesh routers. All the mesh routers form a grid where one of the stations has VPN functionality and is connected to the Internet via broadband connection."

Van Duijns says sometimes rent and power for the equipment is charged. Sometimes free Internet can be offered as compensation.

Diabetic patients are issued specially engineered stools with microphones and cameras. During "visits," the patient puts his or her foot on the stool so doctors can check the condition of wounds. This particular Wi-Fi network is password-pro-



Maarten van Duijn of New District in Amsterdam

wired networks may no longer be needed soon for news reporting.

Experienced IP warriors may warn that the IP packet data transmissions over the Internet are anything but secure and robust, but Gatto says security takes a back seat to immediacy and the news department always has a backup plan should the connection not hold.

ected, allowing access only to doctors and patients.

Radio broadcasters in the United States might find that building Wi-Fi or WiMax hot spots and charging for local, wireless Internet access might be a way to add to the revenue stream. Coffee shops, bars and technology stores now charge anywhere from nothing to \$10 per

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## ABC Radio News is seeking technology partners to develop its Wi-Fi efforts further.

ABC Radio News is seeking partners to develop this technology further. In the future, Gatto sees a PDA-like device capable of WiMax communication over distances of up to 30 miles. For more WiMAX info and the growing list of technology companies signed on as

day for Internet access. Turnkey solutions for setting up your own hot spots are available at [www.airpath.com](http://www.airpath.com).

Need a reality check? Try [www.jiwire.com](http://www.jiwire.com) to search for paid Wi-Fi hot spots or [www.wififreespot.com](http://www.wififreespot.com) for free hot spots.



FIRST PERSON

# An Author's Remembrance of Reagan

Since the announcement of former President Ronald Reagan's death in June, many broadcasters have shared their favorite stories about the man. Some grand, some lame. Here's mine.

Mid-January of 1982 was particularly nasty in New England, and one night I found myself snowed in at WMAS(AM/FM), Springfield, Mass., unable to safely drive the 25 miles to get home to the town of Huntington. The sales office downstairs offered the only dark and quiet place to retreat to, but it was not comfortable and I found myself awake after a few short hours of restless sleep.

WMAS, and to my amazement, they thought it was hysterical. A copy was sent to the Op-Ed guy at the Springfield Republican newspaper, and on Sunday, Feb. 21, 1982, my goofy piece shared the Viewpoint page above Art Buchwald's weekly feature.

My first-ever attempt at writing *anything*, and it actually was bought by a newspaper. That was the impetus that eventually led me to be writing for you wonderful folks through these pages.

I sent copies to everybody I knew, and just for the fun of it, dropped a reprint in the mail addressed to The

White House, hoping then-President Reagan wouldn't mind the tax-exempt status I offered the residents of "my state." Never expecting a response, I thought that was it.

In late April 1982, a small envelope arrived with the simple return address — "The White House." Inside a card that read:

*Throughout American history, our people have toiled to build the greatest nation on earth. In times of challenge, we have stood together proudly proclaiming our heritage and developing our future. Thank you for your support as we start our program for national*

renewal.

The signature was Ronald Reagan's. Of course the article was never read by him, and most certainly the card I received was every bit as boilerplate as those publishers' sweepstakes mailings I received throughout the '80s. But I'm here to tell you in 1982, this 25-year-old jock and budding writer felt like he owned the world: actually selling my first-ever piece, and getting the attention of the White House in the process.

Today, that card remains taped to the back of the framed copy of that first piece of mine that ever got published. Both have followed me everywhere and both still make me smile.

Thank you, Mr. President.

— Alan R. Peterson



The author's first published piece gets a White House response.

As long as I was awake, I decided to put down on paper a silly story I had knocking around in my head for a few weeks: a 51st state consisting of no more than the boundary line across all states, making it the longest, skinniest state in the Union, touching both shores and bringing together all Americans.

Stuck for a name, I called it Peterson. Hey, it was late...

I showed it to a few jock buddies at

MARKET PLACE

## SoftWright Turns to High-Rez Shuttle Topography Data

SoftWright LLC said its Terrain Analysis Package Software can use Space Shuttle Radar Topography Mission data acquired by NASA.

"This high-resolution topography data offers the benefit of much more accurate radio coverage predictions and path link studies than were realistic prior to the space shuttle mission," the company stated in its newsletter. "Elevation data is now available for most of Europe, Asia as well as South, Central and North America."

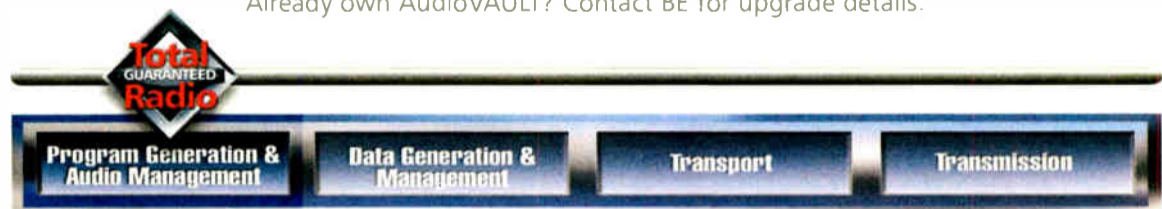
SRTM made use of a technique called radar interferometry, in which two radar images are taken from slightly different locations, the company stated. "Differences between these images allow for the calculation of surface elevation, or change."

For information contact the company in Colorado at (303) 344-5486 or visit [www.softwright.com/srtmdatasales.html](http://www.softwright.com/srtmdatasales.html).



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# Workbench

Radio World, August 1, 2004 Past columns are archived at [www.rwonline.com/reference-room](http://www.rwonline.com/reference-room)

## Save Money and Maybe Save Lives

by John Bisset

Charlie Rohde is an old DFW, Texas, broadcast engineer who'd gotten tired of calls in the middle of the night.

Ten years ago he went to work for BNSF Railroad's telecom department at

face-mount devices as well as a method for their removal. A source for many of these parts is Mouser Electronics in Mansfield, Texas, on the Web at [www.mouser.com](http://www.mouser.com) or at (800) 346-6873. They have an extensive stock of surface-mount components.

the device is showing live AC at the circuit breaker on a Continental FM transmitter.

Make it a practice to invest in this little safety tool and run it across the wires you're ready to dike or the transmitter you're about to enter. Some

line. There's a lot of experience between the two. Give them a call if you have an applications question on Harris transmitter products.

After reminding readers of the need to replace memory-backup batteries, I mentioned that these batteries are found in most solid-state transmitters. Gary wrote to correct me; the new Harris AM DAX transmitter stores operational parameters in non-volatile EEPROM, so a battery is not needed.

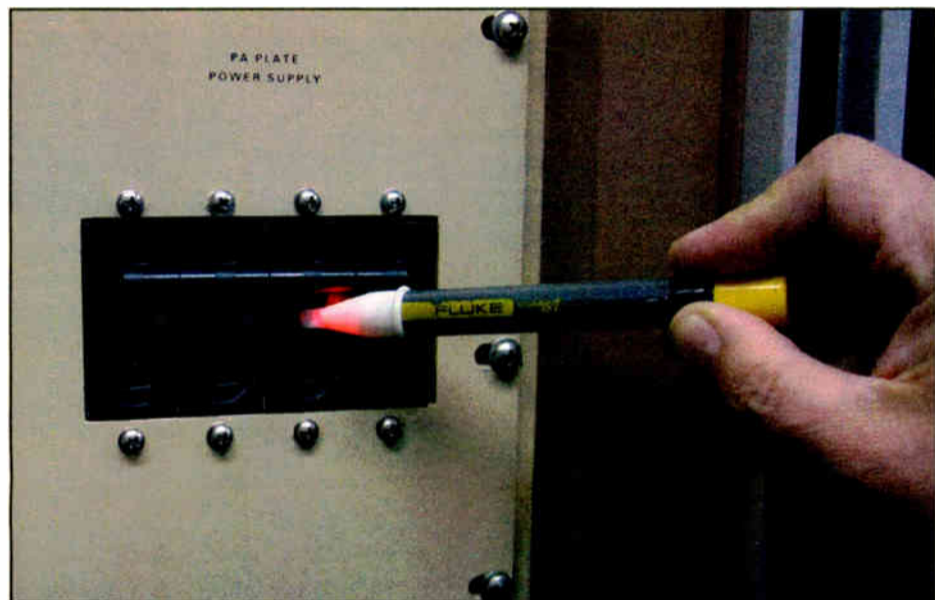


Fig. 1: Safety first. A voltage-sensing pen may save your life.

its network operations center — only to find that BNSF has one of the largest private telecommunications network in the world. Just one of its many 100 Mbps routers sets it back \$250,000. This is data, nationwide two-way, LAN, WAN, video, tracking systems — everything he did in broadcasting, but on a billion-dollar scale.

Charlie does keep up with his first love, broadcasting, though.

After taking a look at an earlier *Workbench*, Charlie saw that Scott Todd was looking for sources for sur-

Now for a tip on removal and replacement: Use *two* low-wattage irons on either end of the device, then gently lift the part off. Another choice is a "hot air" pencil iron. The prices on the hot air irons have dropped; they run about \$175 or less.

\*\*\*

Put an AC voltage-sensing pen at the top of your list. Joe Soucise, chief at Infinity's WZLX(FM) in Boston, uses his Fluke pen regularly. In Fig. 1,



Fig. 2: You have a freshly stocked first aid kit at your transmitter site ... don't you?

years ago, the Texas Association of Broadcasters handed this type of pen to attendees at its state convention. If your SBE treasury permits it, how about investing in these pens? Pass them out to members who attend regular meetings. Who knows? The investment may just save a life.

\*\*\*

Gary Liebisch and Dave Agnew are Harris radio application engineers for the company's AM and FM product

Thanks for the clarification, Gary.

Liebisch is at [gliebisc@harris.com](mailto:gliebisc@harris.com).

\*\*\*

William Weisinger runs William Weisinger Engineering Services, based in the Akron/Cleveland market. Bill confirms that many Sage Endec EAS units are nearing the end of their time/date battery lives.

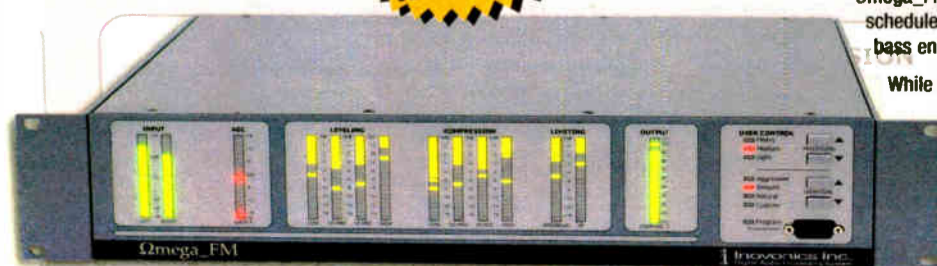
A proactive replacement stance is wise. In Bill's case he needed to pop

See FIRST AID, page 19 ▶

## Digitally Diverse Omega\_FM - \$5880

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## First Aid

► Continued from page 18

the hood on them anyway to replace old PROM ICs with the new version.

In checking the manual, Bill found that the replacement battery is a CR-2330. This is a 265 mAh, 23.0 x 3.0 (mm), 3 volt lithium battery. No problem, right? Guess again; not a single CR-2330 was to be found, not even at the local Radio Shack store, which had them as mail-order only and cost \$3.99. Even Harris was out when he called.

A CR-2320 would fit, but with 120 mAh, it wouldn't go the same distance. A BR-2330 looked good, but none of those could be found either.

What's the bottom line? Bill found and ordered several batteries from Mouser Electronics. It's their part number #658-CR2330. They cost \$1.57 each plus UPS shipping, and they arrived in a few days. Thanks, Bill, for the advice.

For clusters of stations, get these batteries ordered and replaced. It's also advisable to stick a little note on the Endec's top with the date the battery was replaced, and where you ordered it. It will save you a headache next time a replacement is due.

★ ★ ★

Bill Weisinger's company has a neat Web site, [www.wwes.org](http://www.wwes.org). On the site, Bill describes several products he manufactures that solve typical broadcast problems.

The AM/FM Skimmer/Receiver/Recorder is just what your PD wants to order. It's a full-featured skimmer (adjustable off and skim times), and it doesn't use a wall-wart power supply.

Looking for an inexpensive way to reboot your studio computer? The AC Remote Relay Box provides wired remote control of any 115 VAC device. The entire assembly is housed in a dual AC duplex box, with mounting tabs and two active AC outlets. The relay can be set for normally open or normally closed operation. Operation of the Remote Relay Box is via low-voltage DC control pair, with the control voltage generated inside the box; no external supply is needed. The AC Remote Relay Box costs \$89.95 plus shipping and handling.

Weisinger can be reached at [bill@wwes.org](mailto:bill@wwes.org).

★ ★ ★

When was the last time you checked the supplies in your first aid kit? Do you even have a first aid kit, like the one in Fig. 2, at your transmitter sites?

If you have ever needed first aid supplies, you'll agree a kit is the best investment you could make. One of the most common mistakes, though, is not replenishing supplies. Next transmitter visit, open your kit and see what's missing.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is northeast regional sales manager for Dielectric Communications. Reach him at (571) 217-9386, or [john.bisset@dielectric.spx.com](mailto:john.bisset@dielectric.spx.com).

Submissions for this column are encouraged, and qualify for SBE recertification credit.

### MARKET PLACE

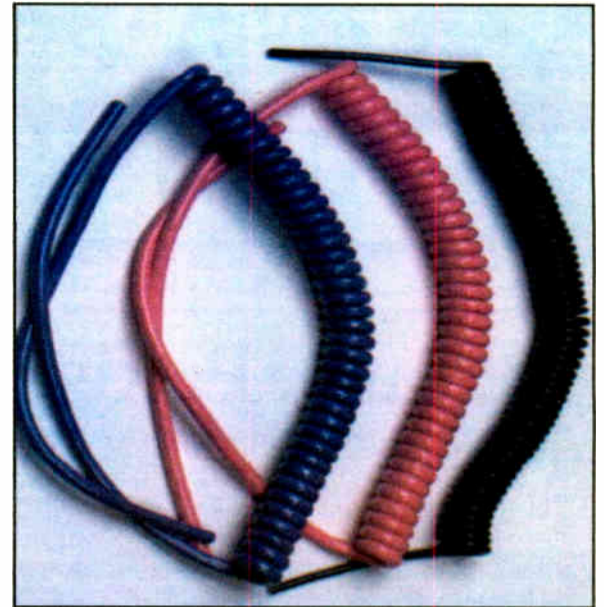
## Autac Has Shielded Cords

Autac Inc., a manufacturer of retractile cords, offers Aluminum Mylar Foil-Shielded cords.

These can be used as including power cords, control cables and miniature cord sets for various specialty applications; the company says they are designed to eliminate RFI. The cord is a heat-laminated aluminum foil polyester tape with 24 AWG drain wire. The cords offer protection against interference between the enclosed wires and its external surroundings.

The cords are available in PVC and TPE, and are featured in 12-, 24-, 36- and 48-inch sizes, which extend on a 1:5 ratio. Customized lengths and ratios are available up to a 12 foot retracted length extending 60 feet. The cords meet UL/CSA specifications.

For information contact the company in Connecticut at (800) 243-3161 or visit [www.autacusa.com](http://www.autacusa.com).



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## Indians, Pakistanis Have Radio Voice

by Ken R.

In 1934 the Telecommunications Act advised broadcasters to serve "the public interest, convenience and necessity."

The spirit of that law burns brightly in the small community of Berkely, Ill., population 5,245.

Desi Junction Radio broadcasts in a mix of languages including Hindi and Urdu. The former is the official language of India, the latter, Pakistan. Most people who speak one can understand the other.

"I noticed that over the last two years there has been political tension

small studio in the basement of his home where commercials are written and produced.

The commercials show a flair for humor and the dramatic not often heard on other stations.

"Most people turn down the volume for commercials, but not on our show," he said. "We sell our own commercials and work with the advertisers to find out what they want. We then get six or seven people together to figure out how to convey that message in just :60 seconds, and often we use funny stories with many people talking. Sometimes we mimic popular Indian film stars and listeners wonder how we got those celebrities to do our commercials!"

There is a policy of no more than six ads per hour, which allows the volunteers to do their best work on each one. The revenue from these spots goes to pay for the brokered time on WJIG.

### The listeners count

Among the listener comments at [www.desijunction.com](http://www.desijunction.com) is one from Charandeep Singh: "Your message of love and brotherhood has started to make an impact on both communities and it will spread everywhere. It will reach India and Pakistan and you people will achieve what no one in history could do."



Dara Singh, Sonia David, Jassi Parmar, Sanchita Parmar, Happy Heer and Bhavna Malhan in WJIG's studio.

But that number is misleading because within the broadcast contour of WJIG(AM) reside over 300,000 Indian and Pakistani people. Desi Junction Radio brokers four hours of time on the suburban Chicago station each Sunday afternoon to entertain, inform and connect that audience.

"All our employees are unpaid volunteers, including the radio hosts," said Sanchita Parmar, public relations director and wife of Jasvinder "Jassi" Parmar, one of the on-air hosts. "We have about 20 to 25 people involved in creating four hours of programming each week."

"Desi" (pronounced "Daisy") is an Indian word meaning "from the country" and "Junction" refers to where these people meet.

"We are the only show that tries to bring the people of India and Pakistan together," she said. "They speak the same language, wear the same clothes, and some have had to move from one country to the other. This show gives them a chance to talk, share memories and enjoy the music."

Her husband elaborated on the mission of the programming.

"We started on the air with a recorded music show just two weeks before 9/11," said Parmar. "After that we started doing live shows and talked to a lot of people on the air who were shaken up by this tragedy. We selected from a wide variety of music from both countries which fit the emotions and helped these people cope."



Sanchita Parmar, Bhavna Malhan and Manisha Mittal during a live remote with a listener (second from left).

between these two countries, including the threat of nuclear weapons," Jassi Parmar said. "I have never seen this tension among the people we meet. In fact, we believe it is the leaders who want war, not the people so we decided to come forward and fight this in our own way."

### Homemade radio

Everyone involved with Desi Junction Radio has day jobs, including Jassi Parmar, a computer engineer for United Airlines during the week. With no prior radio experience, he built a

Desi Junction Radio often takes to the road using a mobile studio, actually a personal van, to facilitate remote broadcasts. Apparently these events are well appreciated by the Indo-Pak community.

"We sometimes get 1,500 or 2,000 listeners to show up," said Sanchita Parmar. "And even though we are just common people, our audience treats us like stars. That made us realize we were doing something important."

Ken R. is a former broadcaster and a former Chicagoan who now devotes full time to writing.

## The Ad Council's New Campaign

by Steve Sullivan

The group responsible for some of the most memorable public service campaigns in media history is launching a campaign of a different sort.

Since its birth in 1942 as the War Advertising Council, the Advertising Council has come up with slogans that have permanently imprinted on the public consciousness: "Loose lips sink ships." "Only you can prevent forest fires." "A mind is a terrible thing to waste."

Getting these messages to the public has always depended on media companies airing or publishing them as inventory became available. It was a practice that was somewhat unpredictable, but seemingly — and consistently — successful.

Now, however, the Ad Council is looking to make placement a little less happenstance. For the first time in its 62-year history, the organization is asking media companies for upfront commitments of inventory for its PSAs.

### Why the change?

When you take a close look at the council, it doesn't resemble an organization that was in need of a change.

"We're a pretty robust social marketing organization," said Peggy Conlon, who has served as president and chief executive officer since 1999. The non-profit organization is funded by donations from media companies, advertising agencies and major advertisers.

"We're structured like an advertising agency that would outsource its creative. We have a campaign management staff that manages our 50 campaigns. We have a research department; a communications department that helps manage all the public relations that's done on behalf of our campaigns; and we have an interactive department that builds Web sites and creates banners and does a lot of things online with the campaigns. There are about 85 people in all."

The way the organization had gone about getting media placements for the past four decades was by no means failing. Contributions exceeded \$1 billion for the past six years, topping out two years ago at \$1.5 billion. Of all the media sectors, "radio has always been our largest supporter," Conlon said. In 2003, media companies donated \$1.3 billion, with radio representing 44 percent of the total.

Conlon said the traditional practice isn't See AD COUNCIL, page 27 ▶



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## COLE'S LAW

# The FM Auction: Promise and Pitfalls

by Harry Cole

While there was certainly news on the indecency front in May and June, we at Team Cole's Law are determined not to become a one-trick (er, perhaps we should say "single-talent") pony, unable to report about anything but dirty words.

So let's talk about auctions.

You have heard by now that the FCC has scheduled an auction of 290 FM channels to begin on Nov. 3. This is big news because it represents the first time in more than ten years that the public at large has been able to file for vacant FM channels. During the intervening decade the competitive and regulatory landscapes have shifted dramatically, and it will be interesting to see how the public reacts to this opportunity.

Anyone thinking about participating in the auction action should be sure to review the FCC's June 10, 2004 public notice laying out the initial ground rules for the auction. You can find a copy of that notice, and all other FCC notices relating to the auction — which the commission has dubbed "Auction 37-FM Broadcast" — at <http://wireless.fcc.gov/auctions/37>.

## Do I hear \$10,000?

The important thing to remember is that the FCC's auction process is not an intuitively obvious one, so familiarity in advance will prove helpful.

Unlike "conventional" auctions — in which bidders compete for individual items, one at a time, with each bidder

simply trying to bid more than the next guy on each item — the FCC's auction system involves considerably more potential gamesmanship.

You can specify more than one (indeed, all 290, if you like) of the channels in your initial application. Assuming that you are willing to submit a sufficiently large upfront payment, you would then be able to bid on any or all of the channels so specified. But you would not necessarily have to bid on each channel during each round of the auction.

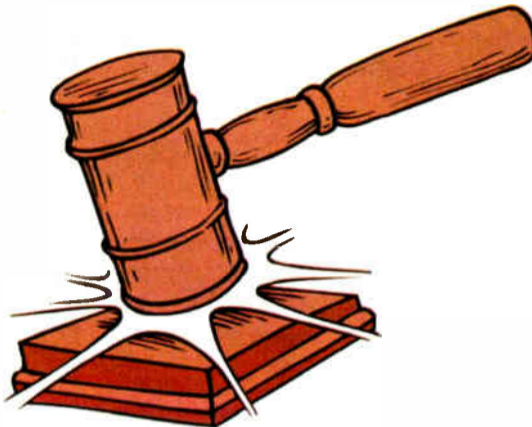
When you submit an upfront payment, the FCC translates that payment to "bidding credits" to which you are entitled. Each dollar you submit is worth one credit. Your total credits (i.e., the total of your upfront payments) establish your "maximum eligibility" for bidding during each round of the auction. Your bidding credits entitle you to participate in any market you have specified in your Form 175 application. That is to say, the bidding credits you are given based on your upfront payments are *not* market-specific, and can be used to establish your eligibility to bid in any market listed in your application up to the limit of your maximum eligibility.

## Credit check

Confused? Check out a couple of examples.

First, the simplest case: In your appli-

cation you specify only one channel that you want to apply for, and the upfront payment for that channel is \$10,000. You submit an upfront payment in that amount. When the auction starts, you can bid on *only* that one channel, the only one specified in your application.



Second, a slight variation: In your application you specify two channels, each of which has an upfront payment of \$10,000. If you submit an upfront payment of \$20,000, you would be able to

are "active" in each round in markets having an aggregate upfront value of \$200,000, you remain able to bid, in the next round, with respect to *any* of the channels you specified in your application, even if you did not place any bids on any of those channels in earlier rounds.

In this last example, in the first two rounds you might bid on the \$200,000 channel alone. Since a bid in that market would exhaust your maximum eligibility, you would not be able to bid on any other markets during those rounds. But let's say that, by the end of round 2, you feel that the \$200,000 channel is being priced beyond your limits by other bidders. In rounds 3-5, you might then decide to bid on the four \$50,000 markets. Since such bids would again exhaust your 200,000 bidding credits, you would not be able to bid on any of the other markets (i.e., any of the \$10,000 markets, or the \$200,000 market) during that round.

But let's then say that one of the \$50,000 markets gets priced out of your league by other bidders. In round 6, you could then continue to bid on the other three \$50,000 markets, but also place bids in five of the \$10,000 markets — meaning that you would be "active" in markets having an aggregate value of \$200,000, representing your maximum eligibility.

**The FCC's auction process is not an intuitively obvious one, so familiarity in advance will prove helpful.**

bid on both channels in each round of the auction. In fact, you would *have* to bid on both in each round, because your "maximum eligibility" would be 20,000 bidding credits (based on your total upfront payment of \$20,000), and the rules require that in each round you must be "active" (i.e., either place a bid or be the standing high bidder from the preceding round) in markets whose upfront payments equal your maximum eligibility.

Because you would be able to bid in only two markets (i.e., the ones listed in your application) and since the two upfront payments for those two markets equal your maximum eligibility, you would have to bid in both markets during each round, or risk losing eligibility.

## Strategy time

A third example may help clarify this. Suppose in your Form 175 you specify a total of 15 channels, 10 of which have upfront payments of \$10,000 each, four of which have upfront payments of \$50,000 each, and one of which has an upfront payment of \$200,000. You submit an upfront payment of only \$200,000, which gives you "maximum eligibility" of 200,000 bidding credits.

During each round of the auction you would have to be "active" with respect to markets totaling in the aggregate \$200,000. Thus, you could bid on the \$200,000 channel. Or you could bid on all four of the \$50,000 channels. Or you could bid on 10 of the \$10,000 channels and two of the \$50,000. As long as you

By the time you get to round 7, you may have determined that the price for the \$200,000 channel, which you stopped bidding on after round 2, really isn't all that high. At that point, you could jump back in and bid in that market, even though you had not been active there since round 2. But since the \$200,000 value of that market would exhaust your maximum eligibility, you would not be able to bid in any other markets during that round.

There are obviously a near-infinite range of possible maneuvers. We leave it to all you would-be auction participants to devise your own strategies. Our goal here is to make sure you know that it will be important to have thought this all through before the auction begins.

## Caveat emptor, baby

Another step that should be taken well in advance is a technical assessment of the actual usability of any particular channel you may have taken some interest in.

You might think, since the FCC has listed the channels and provided their classifications, that all the available channels are fresh-from-the-factory-still-in-their-shrink-wrap, perfect in every way. If you think that, you might be wrong.

A number of experienced broadcast engineers have reviewed the list of channels and made some disturbing observations. For example, one engineer reports finding nine channels short-spaced to Canada, three channels bearing indications that they are reserved for noncommercial use, one chan-

See AUCTIONS, page 23 ▶

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STATION SERVICES

## DW-Radio Targets U.S. Listeners

DW-Radio, part of Germany-based international public broadcaster Deutsche Welle, has launched an evening radio news magazine for the United States.

The organization said the introduction of "Newlink Plus" is the first time in a decade that an international broadcaster has entered the U.S. daily public radio news market with an hour-long news magazine.

Spokesman Greg Fitzgerald stated in the announcement, "Newlink Plus will be produced with the format features most public radio stations request, including the ability to begin the hour with an NPR newscast."

"Most of the editors in U.S. newsrooms don't have access to the European news resources available to Deutsche Welle's news team, because most don't speak the language and the news agenda in Europe is very different."

The program is being carried so far by WAMU(FM) in Washington and WILM(AM) in Wilmington, Del.

DW-Radio describes itself as the largest international broadcaster in central Europe. The program is an expansion of an existing 30-minute broadcast available on shortwave. It originates in Bonn, Germany, and is taken via satellite by Chicago-based distributor WFMT Networks at 9 p.m. Eastern, then transmitted via public radio satellite. Stations can air it live or time-shifted; affiliates also may broadcast just the first 30 minutes.

For information, contact the company in Massachusetts at (508) 653-1644 or send e-mail to [dwusa@mac.com](mailto:dwusa@mac.com).



Rick Demarest is a DW-Radio program host.

## Auction

Continued from page 22

nel which could not be located in CDBS, and 10 channels that are apparently short-spaced to one or another allotment under Section 73.215 of the rules.

These items were brought to the attention of the commission's staff. According to the staff, international short-spacings should be resolved well in advance of the auction. But as to the Section 73.215 short-spacings, the staff was not at all sympathetic. Essentially, it advised that the burden of "determining any issues involving the allotments" falls squarely on the prospective bidder. In the words of one staffer, "Buyer beware."

This, of course, is how shady used car dealers and yard sale operators offer their wares of uncertain provenance. And in some circumstances an "as is, where is" condition may make sense for all participants in the transaction.

But here we are talking about the U.S. government selling FM frequencies over which it exercises complete control through an elaborate regulatory scheme of technical specifications and licensing. And by using the auction process, the government is trying like mad to squeeze out the highest possible payment for each of the channels on the block. So it's a bit difficult to see how the FCC might justify such a buyer-unfriendly approach.

But the FCC is calling the shots here. That being the case, potential bidders should be sure to examine the channels in which they are interested to be sure that, when the dust settles, the payments have been made and the CP issued, the channel you end up with affords you the opportunities you had in mind when you bid for it.

Potential opportunities are surely lurking in the list of available channels. But so, too, are plenty of potential pitfalls. Solid planning, starting now (the Aug. 6 deadline is fast approaching), should be the order of the day.

Harry Cole is a member of the law firm of Fletcher, Heald & Hildreth, P.L.C. He can be reached at (703) 812-0483 or via e-mail to [cole@fhhlaw.com](mailto:cole@fhhlaw.com).

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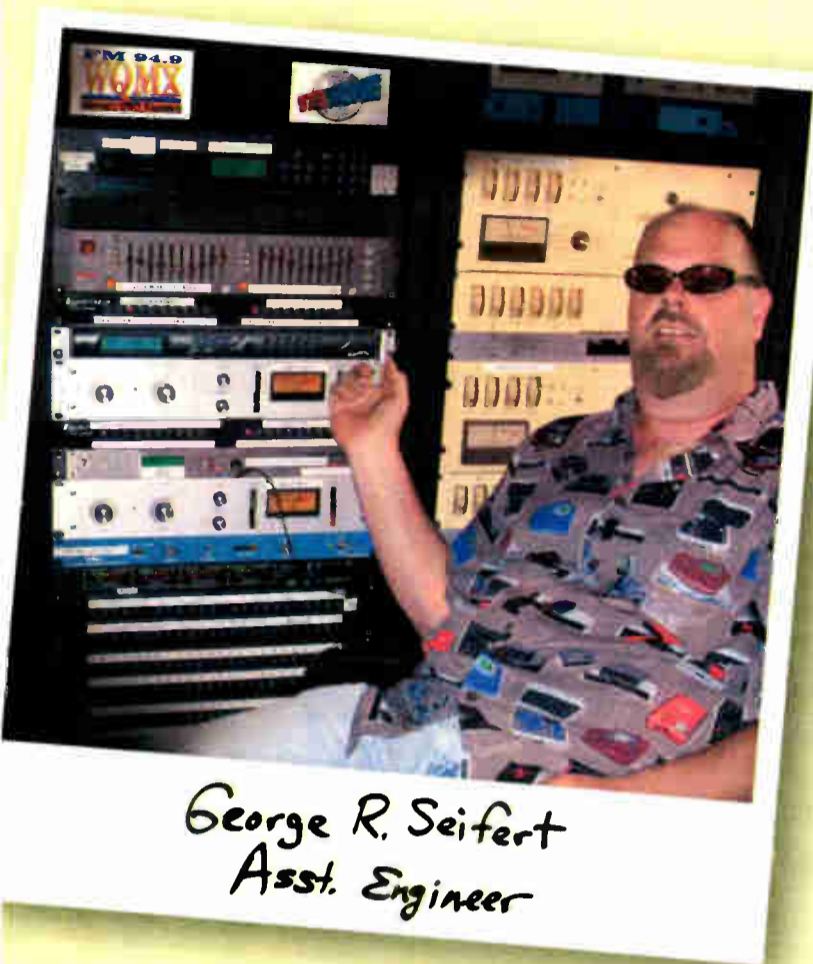
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# BSW is Stocked with Remo



George R. Seifert  
Asst. Engineer

“Working as an engineer at a smaller station group can be challenging, and buying new equipment isn’t as easy as writing a check,” says George Seifert, Assistant Engineer at Rubber City Radio Group in Akron, Ohio.

“I try to purchase all of our equipment from BSW,” says George. My budget is tight and BSW’s prices are rock-bottom – absolutely the best! Even when I’m required to get multiple bids, BSW is always the lowest.”

Rubber City Radio Group operates three stations in Akron. The company also owns four

licenses in Michigan. They combine a variety of analog and digital equipment at their facility. (Evidently...check out the UREI Limiters in the rack.) “The analog stuff is still good,” says George. “But we recently added a Comrex Matrix codec at the station and there are many advantages to incorporating digital technology.”

George began his radio career as a board-op in 1996, but soon migrated into the engineering side of the business. “I learned a ton when we consolidated our three stations into the same building in 1998” he says. “Plus I have a really knowledgeable guy to learn from in Al Hruska, our Chief Engineer.”

Besides being a full-time broadcast engineer, George has a strong passion for music and freelances as a front-of-house operator for the local music scene. And if that doesn’t keep him busy, his four kids will (three are teenagers).

Thanks for the business, George.

Taking advantage of our huge Remote Gear Sale, George is packed and ready. The new gear is purchased and the van is loaded. But where are the interns who are supposed to set up all of the PA gear?



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The MDP500 minidisc recorder offers a balanced XLR mic input with switchable phantom power, limiting and ganging. Power is supplied by rechargeable Nickel Metal Hydride batteries (supplied), delivering up to 4 hours recording time. Connections include: XLR mic/line inputs, RCA phono line outputs, coaxial and optical S/PDIF digital I/O, headphone jack and a USB interface.

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MARKET PLACE

### Pomona Debuts Broadcast Line, XLR Connectors

Following its introduction of a broadcast line, cable manufacturer Pomona Electronics has debuted its XLR connectors, which feature a clamping mechanism that it says withstands 100 pounds of pull without disconnecting the cable.

Gold contacts and black nickel coating are offered to reduce reflection, as is a latching mechanism for more secure connections. The connectors also are available on 10-25-foot cable assemblies made with Belden 1172A four-conductor Star Quad low-impedance cables.

Pomona's broadcast line includes cable assemblies that ship plug-and-play-ready with the option of adding markings or customer logos.

"As the broadcast market has migrated to HD and other forms of digital signals, the demand for high-quality connectors and cable assemblies has grown dramatically," said Product Manager Dwight Hyland.

Pomona Electronics broadcast equipment is available from most general electronics and broadcast specialty distributors.

For more information, contact the company in Washington at (800) 490-2361 or visit [www.pomona-electronics.com](http://www.pomona-electronics.com).



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Products & Services

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# Ad Council

► Continued from page 20

going away. But, she said the new approach may be more useful way for companies to more fully direct their public service campaigns.

"It was something of a surprise the way this came up," Conlon said. "We didn't specifically go in search of a new way of doing things. It surfaced during a long-term strategy planning project."

During a pro bono project for the Ad Council, the media practice group of the worldwide consulting firm McKinsey & Company interviewed several media companies. McKinsey discovered that media consolidation had presented the companies with huge amounts of potential inventory that was available for PSAs. But few of the companies were using their inventory in a structured way.

"Companies are just getting to the point where they've absorbed a lot of this consolidation and they've recognized that they have a lot of public service inventory they want to take greater control over," Conlon said. "They want it to be focused, they want it to reflect the personality and values of the parent company."

"McKinsey came back and said, 'These companies are starting to recognize that when you roll up all their assets, they've got some pretty significant inventory that they're dedicating to public service.'

"And I think that's what started the idea. The major media companies would like to be known for something. If your messages are scattered and they're not branded, I don't think the average consumer understands that these may not be paid spots. It's nice to be able to say, 'This message is brought to you by Clear Channel.'"

Conlon said the new approach allows the Ad Council to help the companies target issues that better match their audiences.

"Instead of going out and promoting campaigns and then counting it up at the end of the year, now we can come in at the beginning of the process and say, 'We'd like to be your public service advertising partners. We want to help you select the issues.'

## 'Robust docket'

"We have a robust docket of around 50 campaigns with almost something for every demographic. We can deliver to an organization across a variety of demographics on issues they feel would reflect their culture and things they would want to get gauged with, whether it's education, health or the environment."

Many media companies seem to be accepting of the new strategy. Among the major media players that have made the upfront commitments are Clear Channel, Cox Radio, Bloomberg, Time Warner and Hearst-Argyle. By the end of the first half of the year, the council had received nearly \$250 million in commitments.

Conlon said, "Our goal for 2004 is to go from \$1.3 billion to \$1.7 billion. We're on a three-year path to double our donated media. If you take a look at what it will take over the next three years to hit that goal, we need to have a 25 percent average increase per year."

Clear Channel came on board with a \$120 million commitment for Ad Council campaigns. Lisa Dollinger, senior vice president of corporate communications for Clear Channel, said, "We believe that the diversity of issues and topics covered by the Ad Council campaigns offer enough variety

and choice to fit with our decentralized structure. Local managers can identify PSAs that best fit the unique needs of their local community and localize them as appropriate. Our local managers are pleased with the quality of the Ad Council's PSAs and have received positive responses from their listeners."

Cox Radio is another of the companies that has made an upfront commitment, although it would not disclose the level of its commitment.

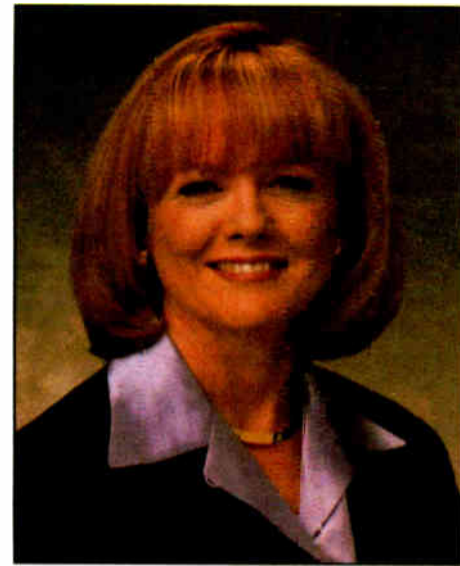
Dick Ferguson, Cox Radio's executive vice president, said, "This is a new approach for us to do it as a whole company. Our stations run pretty autonomously, so there was a certain amount of buy-in we had to get at the local level. We're going to divide up the campaigns among our stations and have them pick the ones that make the most

sense in their communities. We did the internal work and made the commitment and now we're starting to work the process through.

"I think the Ad Council has done a really great job of focusing on issues that need to get out there," Ferguson said. "The creative they've done on a lot of their stuff is outstanding. They've taken a very proactive approach to working with radio stations and groups to customize things on a local basis and do what's necessary to be really effective."

"This is a new approach for us and we're actually working through the details right now. But we think it's the right thing to do."

Steve Sullivan is the executive news editor for multimedia at The Baltimore Sun and a co-founder of the Advanced Interactive Media Group. Reach him at [steve.sullivan@baltsun.com](mailto:steve.sullivan@baltsun.com).



Peggy Conlon



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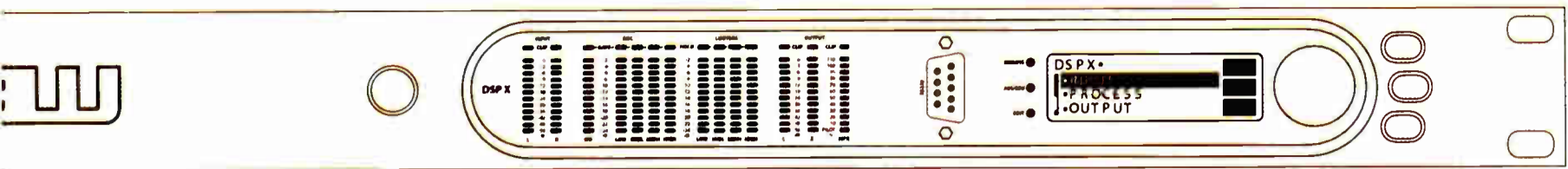
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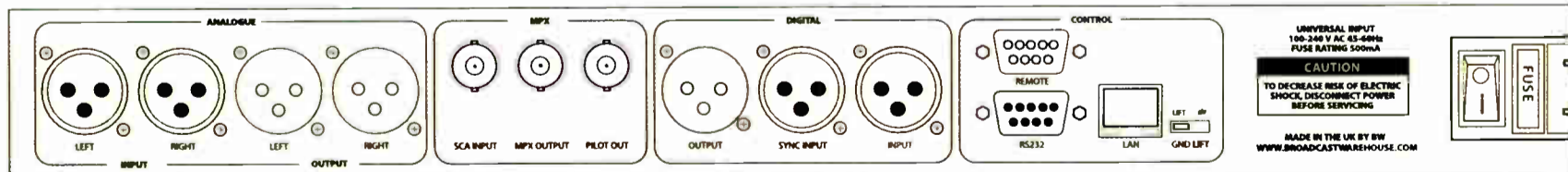


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# Buyer's Guide

Tech Updates  
Inside

Radio World

Codecs & Telco

August 1, 2004

USER REPORT

## Matrix On Call for Emergency

*Clear Channel Chicago Uses the Comrex Codec for Impromptu Broadcasts*

by **Tim Wright**  
Senior Studio Engineer  
Clear Channel Chicago

**CHICAGO** How many times has it happened to you? A sales or promotions manager walks into the shop and asks, "Are we all set for the remote tomorrow?" Typically, this is the first time you, the engineer, have heard about the event, even though it has been promoted on the air for the last week. Now what do you do?

If you are prepared, you have an arsenal of equipment on hand to help pull the rabbit out of the hat. That way, someone else's lack of preparation does not become your emergency, and you look like a team player.

### Your arsenal

One of the pieces of equipment at Clear Channel Communications' Chicago facility is the Comrex Matrix. What started out as a POTS codec has evolved into the second generation, with improved POTS algorithms, plug-in ISDN modules and a new GSM module that enables the use of cell phone technology.

Our first choice of operation mode is the ISDN module, but without advance notification, it is rare that a working ISDN line is available at the remote location. If a landline can be found, we fall back to the POTS module. Typically in the Chicago metro area, we can expect to see a solid connection at 19.2 kBaud (sometimes better), which for voice work gives "good enough" sounding

audio to get the event on the air. The Matrix has saved an otherwise lost remote several times. We have "located" fax and credit card reader lines — even pay phones were borrowed to save the broadcast.

We started using the GSM module for those impromptu events that make radio such a dynamic business. The Matrix's ease of use makes it understandable even to a typical promotions intern with some training.



WVAZ(FM) ran the GSM Matrix as well as a Marti truck for Chicago Radio Hall of Famer Herb Kent's remote broadcast from a yearly Father's Day fundraiser.

Portability of cell phone technology makes it versatile. And an added external battery pack makes for a truly wireless solution.

Comments about the quality of audio using a GSM module are favorable, with some amazement that it sounds as good as it does. I would compare it with an Internet stream. We would not use the GSM module as a primary link for a scheduled remote, but for unscheduled events, highly compressed "HiFi" audio is preferable to cell phone audio, or worse — no audio.

As compression algorithms improve, expect to see more amazing things. A third-generation solution is already being worked on in Europe where the GSM infrastructure supports 14.4 kBaud Circuit Switched Data connections.

One thing that would improve the GSM

part of the Matrix is an optional Yagi type of antenna, to help guarantee that you stay locked onto the strongest cell tower.

Cell switching is something that has to be avoided if possible, because even a momentary loss of data can cause audio dropouts. Our studios are on the 27th floor of a downtown Chicago office building, and trying to get a solid GSM connection is difficult because we can see too many cellular sites. Similar problems can occur if a remote location is seeing two or more sites of equal signal strength. The directionality of an antenna can then make or break a successful connection.

The Matrix is a valuable, easy to use and portable tool that is used in the remote kits at Clear Channel Radio in Chicago.

Now if we could just get the promotions and sales departments to fill out request forms ...

For more information, including pricing, contact Comrex in Massachusetts at (978) 784-1776 or visit [www.comrex.com](http://www.comrex.com).

TECH UPDATE

### TelTap Doubles as Phone Tap, Coupler

The TelTap from CircuitWerkes is a telephone coupler that can send or receive audio. Connected to a standard RJ-11 plug, TelTap enables the user to choose between seizing or tapping the phone line. The company says it is a handy addition for a remote kit, as a primary unit or backup.



The CircuitWerkes TelTap

The second phone port can be set to disconnect automatically when the TelTap is in line-seize mode. A telephone can be used to dial, but noise is eliminated from the phone during broadcasts. A ring LED indicates the presence of an incoming call when there is no audible ringer, making it suitable for work in the studio and field.

Additional features include a "no tap" mode for use exclusively as a manual coupler, and a mute switch that disconnects all audio to or from the phone line, but leaves the TelTap connected.

For more information, including pricing, contact CircuitWerkes in Florida at (352) 335-6555 or visit [www.circuitwerkes.com](http://www.circuitwerkes.com).

## OMNIRAX BROADCAST FURNITURE

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Upon visiting their facility in Sausalito I was delighted with what I saw. Although a mass production woodshop complete with CNC woodworking equipment, I found them eager to help with our most unique design requirements. I had only some crude sketches of what I wanted, but David Holland at Omnirax took these and in days presented me with full computer renderings of what the furniture could look like from several view angles. After we made quite a few changes over several weeks we had it. I was happy to have found them; working with them was a real pleasure. The studios our interior designers had envisioned became a reality - and all of the technical details had been addressed. I knew when I first saw the first produced furniture I had made the right choice. Our collaboration from design to production resulted in more than I had originally hoped for.

Everyone at Entravision is thrilled with the result. I wholeheartedly recommend Omnirax to everyone."

**John Buckham**  
Project Engineer  
Entravision Communications  
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USER REPORT

# WASJ Calls on Broadcast Host

*University Station Taps Phone Hybrid To Handle Additional Games*

by **Darren Morton**  
**Director of Media Services**  
**WSAJ Radio Director**  
**Grove City College**

**GROVE CITY, Pa.** Grove City College sits nestled away on a quiet hillside in Western Pennsylvania, near the intersection of I-80 and I-79. The school's broadcasting history dates to 1911, when physics professor Dr. Herbert Harmon began signal tests under experimental call sign 8CO. His experiments led to the licensing of WSAJ(AM) in November 1922, and eventually to WSAJ(FM), which was licensed in 1968.

Today, WSAJ(FM) is a 3 kW Class A station operating from a master control location in the GCC's Technological Learning Center and studios in Ketter Dorm.

## Varsity news

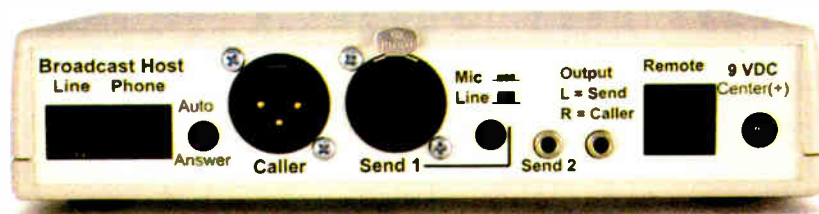
Last year, the college made a commitment to carry local high-school sports on the station as a favor to the community of license. To accommodate the additional sports broadcasts, I was tasked with finding a supplemental phone hybrid for the studio, preferably one that could easily be redeployed elsewhere on campus if needed.

After some extensive Web-based research and a chat with my cronies in SBE Chapter 122, Youngstown, Ohio (hi guys!), I finally settled on an unknown — to me at the time — product: the **JK Audio Broadcast Host** phone hybrid. A bonus to making that selection was the selling price, for it enabled me to squeak two through the budget.

The Broadcast Host is a 16-bit DSP-based phone hybrid squeezed into a convenient, 7-by-6-inch desktop box. Two units could feasibly be rack-mounted on a 1 RU shelf, but that is not the intended application for the box. I would refer you to the company's Innkeeper series for studio-based, rackable hybrids.

On the front panel, controls and metering are clearly marked — I love black letters on a white background — and fairly well-spaced considering the size of the box and

the feature set. Left to right, the first two buttons are "call" and "drop." Strangely enough, they allow you to take and drop a call respectively. Between those are the power and hook-status LEDs.



The author says the various jacks and switches on the back of the Broadcast Host are 'arranged neatly like tiny pieces of real estate.'

Next is my favorite feature of the Broadcast Host: separate send and receive LED strings. Although the metering is limited to -20, -9 and -3 dB indicators, the information conveyed is invaluable. Our previous hybrid had only a clip limiter LED on the send level. The Host's metering enables even my newest student technical operators to drive and monitor their remote lines accurately.

Just past the LEDs, there are the two (!) Send pots. Send 1 controls the input level from the balanced, XLR input jack on the

reflected on receive metering.

The last control on the face is the exceedingly handy headphone output control. The headphone output contains "send" and "receive" audio, mixed by the Send and Caller pots on the unit. The headphone jack, a 3.5 mm stereo jack, is located beside it. My only real complaint about the Host is the lack of a 1/4-inch headphone jack.

Moving to the back of the Broadcast Host, the various jacks and switches are arranged neatly like tiny pieces of real estate. Standard telco line and phone jacks appear on the left side of the unit, followed by a switch to enable "auto-answer," which turns the hybrid into a one-ring, auto-coupler. However, the "call" and "drop" buttons are still active when in auto-answer mode.

XLR jacks for "Caller" output and "Send 1" audio, and the aforementioned mic/line

**W**SAJ's Broadcast Hosts cover a lot of territory. One extracts audio to the Master Control environment, and the other serves as an auto-coupler.

back of the unit. A switch on the back makes selection of mic or line-level input easy — no recessed dip-switches. Send 2 trims the level fed into a 3.5 mm mono line-input jack, which also appears on the back.

The Caller level control is next up. This pot adjusts the feed level of caller-only audio going to your equipment. Note that the receive level metering is sampled after the DSP, but before the Caller level control — hence, adjustments in output level are not

switch are next, followed by the 3.5 mm "Send 2" input. The next 3.5 mm jack is a TRS affair unit that offers Send audio on the tip and Caller audio on the ring, both obviously unbalanced. The remote jack is an RJ-45 that offers some amazing functionality to the unit, especially considering the Host's intended applications.

The primary use for the remote jack is to interface the Host with a JK Audio Guest Module 1 remote control unit. The Guest

Module 1 offers the user a standard DTMF touchpad for dialing, remote hook capability and line status LEDs. But, as the remote jack provides ground, hook/drop closure, DTMF input and power on separate pins of the RJ-45, a user easily can interface the Host with broadcast consoles, automation equipment, etc. Neat stuff, indeed.

WSAJ's Broadcast Hosts cover a lot of territory for us. One is used on the main remote program line to extract audio to the Master Control environment, and the other serves as an auto-coupler to feed an off-site Web-streaming provider. But, thanks to their small size and easy operation, they also have seen action as:

- A one-mic, sports remote interface; just add a headset/mic, call the remote Host from the studio and you're golden. Darn that 1/8-inch jack though ...

- Auto-couplers for confidence monitoring; WSAJ's local remotes typically employ dry-pairs or a Marti for send audio. At the remote site, the crew calls one of our Hosts, set to auto-answer mode, and instantly connects to cue audio from the studio, unassisted. The phone interface also functions as the program line backup.

- A talk studio audio interface; members of the GCC faculty routinely appear on national and local radio talk shows. With a Broadcast Host set up in an office, along with a set of headphones (again, darn that 1/8-inch jack) and a good mic, the faculty member has an instant studio that keeps him/her within easy reach of their resource materials. Plus, the ease of operation makes the system Ph.D.-proof.

I have been pleased with our Broadcast Hosts, to say the least. Their audio quality is great, and their DSP creates a null deep enough to enable live cueing on the program line, if needed. The feature set is nice, considering the price point and intended application.

And, particularly important to a small shop such as WSAJ, the Broadcast Hosts are versatile. WSAJ plans a studio rebuild sometime next year, as I really need to consolidate the studios and MC environment. Based on my experience with the Broadcast Hosts, I plan to deploy more boxes from JK Audio.

For more information, including pricing, contact JK Audio in Illinois at (815) 786-2929 or visit [www.jkaudio.com](http://www.jkaudio.com).

TECH UPDATE

## RoadStar: NetStar's Mobile Sibling

The RoadStar from Musicam USA is a portable stereo digital audio codec that the company says offers new methods when sending and receiving real-time audio, ancillary data and contact closures from remote locations.

The unit is based on the NetStar IP and ISDN digital audio codec and is housed in a portable enclosure with protective elements for controls, cables and connectors.

Four Neutrik XLR inputs feed individual level and pan controls. Each input can be switched for mic, line or unbalanced operation, and features switchable 48 VDC phantom power. A separate AES/EBU input can be enabled to bypass the mixer section. Analog and AES/EBU outputs for return audio are standard.

RoadStar simultaneously sends and receives audio via IP through its Ethernet port, and also connects to ISDN codecs through its included 1-BRI ISDN terminal adapter. U and S/T ISDN interfaces are supported,

and operation on IP and ISDN at the same time is possible.

The unit has coding algorithms including G.711, G.722, MPEG 1 and 2 Layer II and MPEG 1 and 2 Layer 3 for compatibility with other codecs. MPEG 4 AAC and MPEG 4 AAC Low Delay are included for audio performance at low bit rates. Bi-directional, uncompressed linear audio over IP is supported, for use over networks of sufficient bandwidth.

Features include four vertical peak- and average-reading LED VU meters, a menu display and a dual headphone monitoring system that enables users to monitor sent audio, receive audio or a combination of the two. The company says the headphone mix function is suited for live remotes and voice talents, who often need to simultaneously monitor sent and received audio.

Like the NetStar, RoadStar detects the calling codec and synchronizes to it. RoadStar can be operated from its front panel or via remote control from an Web browser. Eight end-to-end remote contact closures are included to actuate remote equipment, in addition to RS-232 ancillary data capability.

For more information, including pricing, contact Musicam USA in New Jersey at (732) 739-5600 or visit [www.musicamusa.com](http://www.musicamusa.com).



Like the Musicam USA NetStar, RoadStar detects the calling codec and synchronizes to it.



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USER REPORT

# Xport Expedites BBC Newsgathering

BBC's Remotes from Los Angeles

Use Telos Codec for Entertainment News

by Andy Hollins  
Broadcast Journalist  
The Radio Organisation  
Inc./BBC

**LOS ANGELES** Newsgathering in Los Angeles for the BBC's radio networks is fast-paced and demanding. The Radio Organisation Inc. — a small team of professionals contracted to the BBC — has produced thousands of audio stories on a variety of topics. From natural disasters such as earthquakes and brushfires, to interviews with Tom Cruise and Ben Affleck, there's never a dull day.

## Courtroom drama

One of the more recent memorable events was the first time singer Michael Jackson appeared in person to face child endangerment charges in Santa Maria. This was a great opportunity to put through its paces our newly acquired Telos Systems Zephyr Xport ISDN and POTS codec for remote broadcasts.

Forget installing an ISDN circuit. Finding hotel accommodation was the first big test. With hundreds of world journalists descending on the tiny California town, this was a media circus like no other — and we knew that broadcasting back to London would be a challenge. The satellite equipment we were using outside of the courtroom couldn't always find a signal due to so many news-gatherers pointing their dishes towards the sky. This is where the Xport got to show its stuff.

Back at the hotel, we managed to file reports on the Jackson case for BBC Radio 1's "Newsbeat" program, the BBC's new digital station 1Xtra, BBC 5Live's "Up All Night" and "Breakfast Show" and numerous other outlets. We



Xport can connect to a Zephyr Xstream transceiver over ISDN when equipped with the ISDN option, a daughter board that can be installed for connection with ISDN-only codecs.

"bridged" the Xport connection through our Los Angeles office using a combination of one ISDN circuit, a Zephyr Xstream ISDN transceiver and our trusty old Zephyr Classic transceiver. After that we were ready for more POTS challenges. Just how far could we go with our funky lozenge-shaped codec?

Xport is intended for impromptu remote broadcasts, where an ISDN line cannot be installed in time. It uses a DSP-based architecture that enables the use of an ordinary POTS line for transmission of mono audio to an ISDN-connected Xstream.

Xport delivers audio by using a high-fidelity low-bit rate coding method,

Coding Technologies' aacPlus, the combination of MPEG Advanced Audio Coding and Spectral Band Replication. aacPlus improves the efficiency of the

codec by 30 percent over "plain" AAC, which itself is 30 percent more efficient than MPEG Layer 3.

And when ISDN is available, you're ready. When equipped with the available ISDN option, Xport can connect to Zephyr Xstream over ISDN using Fraunhofer Labs' Low-Delay AAC, which offers quality equivalent to MPEG Layer 3 with about 75 percent less delay — great for two-way remotes. The Xport ISDN option is a daughter board that can be installed to Xport for connection with ISDN-only codecs. The user can add this option to the Xport for an additional fee.

For our backstage coverage of the Grammys, we faced a dilemma. Should we install the usual expensive ISDN cir-

cuit or chance our luck with a regular phone line? After our Michael Jackson victory we took a leap of faith. We wanted to see how well the Xport would perform with a POTS connection that would last for hours, so we went for the cheaper option. After a few strange looks from a large gathering of ISDN-equipped sound engineers, we were set up in no time.

The first call to our office Xstream from the Xport produced a 24 kbps connection and excellent audio quality, so we didn't drop the line. Close to six hours later, that same connection hadn't dropped once or altered in any way. We featured entertainers such as Christina Aguilera, Missy Elliot, P. Diddy and Yoko Ono in what sounded like great Layer 3 audio, at a bargain price. We knew the Xport wasn't designed to replace ISDN in the field, but this was a victory for small budgets.

Feeling confident, we then set up a live broadcast from the home of a Hollywood actor. Martin Henderson was starring in the motorcycle flick "Torque," and our colleagues in London wanted a quality live interview. With an 8-hour time difference between the U.K. and L.A., that's a challenge for a drive-time show.

We arrived at Henderson's Hollywood Hills home at 7:30 a.m. He went back to bed as we set up the Xport on his dining room table. Fifteen minutes later, with strong coffee in hand, Martin was live on BBC Radio 5Live. He asked us if he could do all his interviews in this way. We said yes — as long as he promised not to go back to bed.

Most of the time we don't have the luxury of the three weeks notice needed to install an ISDN circuit. This is, after all, the world of breaking news. That's why our Xport has become an invaluable part of our broadcast kit. While we understand it will not replace ISDN for critical broadcasts — given the time and budget — it has filled an important gap. We love it so much that we shelled out for the custom carry case. Heaven forbid our funky lozenge ever gets scratched.

For more information, including pricing, contact Telos Systems in Cleveland at (216) 241-7225 or visit [www.telos-systems.com](http://www.telos-systems.com).

## High Voltage Rectifiers

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Don't pay ridiculous prices to OEMs for replacement rectifiers when we can provide an economical retrofit package that will more than do the job. The Model 51014 package shown is a single-phase, full wave bridge to retrofit all AM and FM transmitters to greater than 15 kilowatts, depending upon modulation method. Rectifier cards are rated at 24 KV per leg at a maximum forward current of 6 amps, suitable for plate supply voltages to 12 KV. Additionally, each diode is protected by both an MOV and a resistor.

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TECH UPDATE

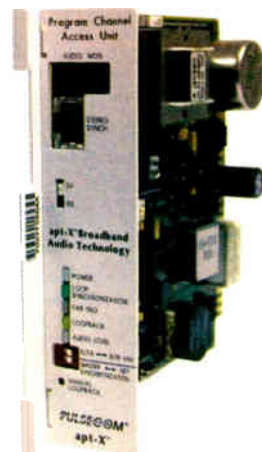
## Pulsecom PCAU Enables Transport of Audio in Stereo

Pulsecom has debuted an upgraded version of its Program Channel Access Unit, allowing broadcasters and telcos to transport audio content in stereo. The company says the feature set was developed to ensure that stereo imaging between the left and right audio channels in an FM pair is retained.

The PCAU encoder/decoder card uses APT's apt-X algorithm and passes 20 Hz to 15 Hz of mono over a 128 kbps dedicated ISDN link, enabling audio from a D4, DLC or NGDLC carrier system. A spokesman for Pulsecom says PCAU frees operating companies from the "manual workarounds" and "special assemblies" that had previously prevented them from selling broadband audio alongside broadband data.

"The first revision of the card catered for AM and voice circuits, but with the introduction of the 15 kHz stereo-enabled card, we can now address the needs of FM broadcasters, as well," he said.

For more information, including pricing, contact Pulse Communications in Virginia at (703) 471-2900 or visit [www.pulse.com](http://www.pulse.com).



The Program Channel Access Unit



USER REPORT

# WNYC Uses AEQ Swing to Go Live

by Wayne Shulmister  
Senior Broadcast Engineer  
WNYC Radio

**NEW YORK** It's Aug. 14, 2003 and I am standing in line at the package store. I can almost taste the American-made microbrew wheat beer I am waiting to buy. The cashier rings up my order, and as I reach for my debit card, the neon lights of the "No Cash No Beer" sign begin to flicker and the ceiling fans slowly coast to a stop. Was this a terrorist attack?!

As I exit the store, I watch as my fellow New Yorkers scramble to find more information. Are they standing in front of the appliance store watching CNN through the window? Are they gathered around battery-powered laptops with WiFi cards? Of course not. While this is the 21st century, and we want immediate, reliable and technologically independent information, the medium of choice is the good old car, transistor or hand-cranked radio. We soon learned that the blackout



Wayne Shulmister, center, poses with the Swing codec, along with fellow Senior Broadcast Engineer Irene Trudel, left, and Pro Tools Administrator Gregg Gasperino.

events, such as the recent 9/11 hearings at the New York and reports from the Democratic presidential primaries. The Swing also is part of our emergency gear list for our FM or AM signal should there be a loss of power or evacuation at our station facility.

Given the luxury of time, I would always prefer to have an ISDN line. But, alas, there is not always time for the phone company to install one. In recent events, such as the 9/11 hearings and reports from campaign headquarters during primaries, the press learned of the venue one day beforehand. The Swing is a great codec for such extemporaneous jobs.

It is lightweight, can run on its own battery for up to two hours and comes with an onboard mixer that features three microphone inputs, one of which is switchable to line level. Also included are two headphone outputs with individual return/local gain. My favorite feature is the phonebook, which stores all of the station's Master Control and remote ISDN numbers.

The Swing can be used with standard POTS, ISDN or Euro ISDN, the format required to work in tandem with the Nera World Communicator. It transmits and receives from G.772 to L2, and is operator-friendly. Additionally, every time I contact any of the AEQ team with questions, they are courteous and helpful.

For more information, including pricing, contact AEQ in Florida at (954) 581-7999 or visit [www.aeqbroadcast.com](http://www.aeqbroadcast.com).

GMPCS to expand our transmission choices, they recommended the AEQ Swing. The two have proven to be a winning combination.

We use the Swing and Nera World Communicator for covering scheduled

**W**hile this is the 21st century, when we want immediate, reliable information, the medium of choice is the good old car, transistor or hand-cranked radio.

extended across the eastern seaboard. As an ENG engineer at WNYC (AM-FM), I have a collection of codecs that enable our reporters to broadcast live from locations all over the city. Redundancy is more important than ever

with the omnipresent threat of terrorism. All the components of transmission and receiving are at risk, so the versatility and reliability of the codec is critical. When we purchased a Nera World Communicator satellite phone from

TECH UPDATE

## Sonifex HY-03 Offers Line Hold Switching

The HY-03 from Sonifex is an analog telephone hybrid, which the company says is suitable for most applications where a clean telephone signal is required and the line is not subject to delay. HY-03 is often used in radio and television stations, and is the replacement for model HY-02.



The rear panel of the HY-03S

While it retains many of the features of its predecessor, the HY-03 is fitted with K-break disconnect detection and offers additional features, such as local and remote line hold switching, enabling calls to be remotely switched through a mixing console; ringing detector; and combined mic/line input that is electronically balanced.

HY-03 analog hybrids are available in three models. The HY-03S is a single 19-inch rack-mounted unit, and the HY-03T is a twin 19-inch rack-mounted unit. Additionally, a eurocard-size analog hybrid HY-02EC and RD-02EC ringing detector are still available.

Eurocards are supplied without a power supply or casing, making them less expensive than other units. The cards can be slotted into a rack and located by the bracket at the front of the card. They are used mainly in mixing consoles, or other systems designed with slots to hold eurocard equipment.

Other features that distinguish HY-03 from HY-02 are its integrated power supply; and a more readily available 9-way female D-type (socket) than the HY-02's IP40 connector; low impedance; balanced output with output gain adjustment; line limiter and bandpass filter. Preset threshold provides low-distortion clear audio.

For more information, including pricing, contact Independent Audio at (207) 773-2424 or visit [www.independentaudio.com](http://www.independentaudio.com).

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2. Connect your microphone and headphone (or headset) to the innkeeper PBX.
3. Connect the audio-output of the innkeeper PBX to your computer's sound card input and conduct the interview. Your computer/software captures the audio.

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## USER REPORT

# Stereo Codec Debuts at Radiothon

*Seattle Broadcasting Co. Tries Out the Tieline i-Mix G3 at Annual Make-A-Wish Fundraiser*

by **George Bisso**  
**Director of Engineering**  
**Sandusky Broadcasting**  
**KLSY(FM), KWJZ(FM),**  
**KRWM(FM), KIXI(AM)**  
**and KKNW(AM)**

**SEATTLE** When I was determined to find a better POTS codec several years ago, I heard about Tieline from trade publications and then saw the company at NAB in Las Vegas. What convinced me to try the company was its offer of a free demo. After testing it out, I came away convinced Tieline codecs will make a connection even over a barbed wire fence. Now they've come out with a stereo POTS codec, the i-Mix G3.

Seattle is home to five Sandusky Broadcasting properties: KLSY(FM), KWJZ(FM), KRWM(FM), KIXI(AM) and KKNW(AM). With four of the five stations usually in the top 10, there is a lot at stake in terms of programming and audio quality.

The city also is home to some of the most awful phone lines in the country. Even worse, there are three major land-line carriers and multiple "mom and

broadcasts, and the greater Seattle area offers both.

Tieline codecs have proven to be stable, so we feel safe doing virtually

your connection is on each end.

I've been told the company uses these values to choose the correct bit-rate speed for a good connection. That means our talent doesn't have to mess with the codec to keep it connected, and I don't worry about dropped calls taking us off the air during a remote.



The author shows off his Tieline i-Mix G3 stereo POTS codec.

stereo connection. The i-Mix G3 looks and acts like a standard Tieline codec, but you have to dial two numbers to make the stereo connection.

We dialed the first number, pressed "Enter" and the i-Mix connected the first line, for left-channel on-air audio going to the station and mono mix-minus audio coming back from the station to the remote site. Then, we dialed the second line and got connected for right-channel on-air audio going to the station and talent que IFB audio channel coming back from the station. We were connected in 15 kHz stereo over two phone lines, and ready to go on the air.

The 15 kHz POTS codec is standard. For stereo, an optional second POTS codec is fitted into the expansion slot on the side, which also accepts a stereo/dual mono ISDN module and a 7-kHz GSM wireless module.

At the remote site, we plugged in the music sources and talent mics into five of the i-Mix G3's six inputs. The four headphone outputs made things simple for us. The sixth input used the built-in phone coupler to create a second IFB channel, so the talent has a closed-circuit two-way talkback channel to the station. This means while talent Number One is on the air, talent Number Two can talk back and forth to the station without going over the air when needed.

Using the i-Mix's matrix router option, we routed the two-way IFB channel to the left channel of headphones one and two, only because guests are on headphones three and four. Local IFB was routed to the right channel of headphones one and two to make it easy for the talent.

It was nice to hear 15-kHz stereo audio over the air and have it sound good from a codec connected to plain phone lines. The i-Mix G3 certainly makes our remote broadcasts easier.

We also discovered the i-Mix has a software option called the digital matrix router, which turns it into a router-based digital mixer. We can route any input to any output, and it stores 64 settings for different remotes. This is a rack's worth of equipment sitting in one box.

For more information, including pricing, contact Tieline Technology in Indianapolis at (888) 211-6989 or visit [www.tieline.com](http://www.tieline.com).

I came away convinced Tieline will make a connection even over a barbed wire fence. Now they've come out with a stereo POTS codec.

When Tieline came out with its i-Mix G3, a six-channel codec that offers 15 kHz phase-locked stereo over two analog phone lines, I knew I had to get my hands on it. It also enables dual mono 15kHz connections, just like ISDN, but on phone lines in one codec. This I had to hear for myself.

#### For the kids

We chose one of our biggest events to debut the i-Mix G3 live on the air. The Make-A-Wish Children's Radiothon raises money for terminally ill children, and we play music directly from the event rather than the station, so the children can get their requests played immediately. If the i-Mix G3 touted 15 kHz stereo over phone lines, it was ideal for this event.

After playing with the i-Mix G3 menu, we figured out how to do a

pop" phone companies. A simple call across town may be routed through several different phone companies, as well as multiple central offices, or COs. Hilly terrain and bad phone lines are an engineer's nightmare for remote

all our remotes over plain analog phone lines. Additionally, they enable quick set-up and tear-down — just plug in and enter the number. The screen shows you two line quality readings, which tell you how good

#### TECH UPDATE

## Broadcast Tools' TS-6 Works Like Multi-Line Set

Broadcast Tools says its TeleSwitch Six call director is a cost-effective solution for interfacing up to six telephone lines with almost any hybrid.

The TS-6 is supplied with one Switch Console and controller, and the units are interconnected via Cat-5 cable. The Switch Console has push buttons for line selection and control features, a dialing pad, LED indicators and RJ-11 for local telephone set and hybrid connections. Four Switch Consoles may be attached to the controller.

TS-6 is a dual-bus device, meaning that calls can be answered on the telephone set while calls are active on the hybrid. Lines can be answered, placed on hold (MOH audio input), busied out and routed to a telephone set and/or hybrid. The LED indicators display whether a line is ringing, on hold or busy.

Operation is similar to that of a multi-line telephone set. To answer a call directed 854-9559 or visit [www.broadcasttools.com](http://www.broadcasttools.com).



to the hybrid, press the button of the ringing line. To answer a call with the telephone set, press the "phone" button, and then press the button of the ringing line. Press the "drop" button and then the desired line button to disconnect a call. The conference feature allows button-mash conferencing, placing multiple lines on a single hybrid.

Function buttons include "next," which selects the line on hold the longest; "busy," which places on hold all lines that are not in use, and drops all lines; "flash," which simulates hook-flash and enables auto-answer or calls; and "opt," which toggles the opt relay on and off.

Also available: The TT-1 is a compact rackable telephone line-powered auto-answer and auto-disconnect hybrid. It uses dual-hybrid transformers, providing full-duplex audio. A rear-panel multi-turn hybrid "null" trimmer is offered to allow the user to achieve nearly 20 dB separation figures.

And the STA III provides the interface between telephone line and user equipment, and a self-null hybrid with balanced input and outputs. It monitors the telephone line for CPC calling party control and long dial tone hang-up signals, enabling use behind PBX telephone switches and POTS lines.

For more information, including pricing, contact Broadcast Tools in Washington at (360)



# The routing switcher gets a new twist.

(About five twists per inch, actually.)

**Everybody needs to share audio.** Sometimes just a few signals — sometimes a few hundred. Across the hall, between floors, now and then across campus. Routing switchers are a convenient way to manage and share your audio, but will your GM really let you buy a router that costs more than his dream car? Unlikely.

If you need a routing switcher but aren't made of money, consider Axia, the Ethernet-based audio network. Yes, Ethernet. Axia is a *true network*. Place our audio adapter nodes next to your sources and destinations, then connect using standard Ethernet switches and Cat-6. Imagine the simplicity and power of Ethernet connecting any studio device to any other, any room to any other, any building to any other... you get the idea.



*Routers are OK... but a network is so much more modern. With Axia, your ins and outs are next to the audio, where they belong. No frame, no curbs, no sweat.*



*Put an Axia Microphone Node next to your mics and send preamplified audio anywhere you need it, over Ethernet — with no line loss or signal degradation.*



*Scott Studios*



*Axia is already working with some great companies. Like Enco Systems, Scott Studios, Radio Systems, Balsys Technology Group, and of course Telos and Omnia. Check [AxiaAudio.com/partners/](http://AxiaAudio.com/partners/) to find out who's next.*

## Scalable, flexible, reliable... pick any three.

An expensive proprietary router isn't practical for smaller facilities. In fact, it doesn't scale all that well for larger ones. Here's where an expandable network really shines.

Connect eight Axia 8x8 Audio Nodes using Cat-6 cable and an Ethernet switch, and you've got a 64x64 routing switcher. And you can easily add more I/O whenever and wherever you need it. Build a 128x128 system... or 1024x1024... use a Gigabit fiber backbone and the sky's the limit.

## Put your preamps where your mics are.

Most mainframe routers have no mic inputs, so you need to buy preamps. With Axia you get ultra-low-noise preamps with Phantom power. Put a node in each studio, right next to the mics, to keep mic cables nice and tight, then send multiple mic channels to the network on a single Cat-6 cable. And did we mention that each Mic Node has eight stereo line outputs for headphones? Nice bonus.

## With a little help from our friends.

A networked audio system doesn't just replace a traditional router — it *improves* upon it. Already, companies in our industry are realizing the advantages of tightly integrated systems, and are making new products that reap those benefits. Working with our partners, Axia Audio is bringing new thinking and ideas to audio distribution, machine control, Program Associated Data (PAD), and even wiring convenience.

## Are you still using PC sound cards?

Even the best sound cards are compromised by PC noise, inconvenient output connectors, poor headroom, and other gremlins. Instead, load the Axia IP-Audio Driver for Windows® on your workstations and connect *directly* to the Axia audio network using their Ethernet ports. Not only will your PC productions sound fantastic, you'll eliminate sound cards and the hardware they usually feed (like router or console input modules). Just think of all the cash you'll save.

## Put your snake on a diet.

Nobody loves cable snakes. Besides soldering a jillion connectors, just try finding the pair you want when there's a change to make. Axia Audio Nodes come in AES/EBU and balanced stereo analog flavors. Put a batch of Nodes on each end of a Cat-6 run, and BAM! a bi-directional multi-channel snake. Use media converters and a fiber link for extra-long runs between studios — or between buildings.

## Would you like some control with that?

There are plenty of ways to control your Axia network. For instance, you'll find built-in web servers on all Axia equipment for easy configuration via browser. PathfinderPC® software for Windows gives you central control of every audio path in your plant. Router Selector nodes allow quick local source selection, and intelligent studio control surfaces let talent easily access and mix any source in your networked facility.

Livewire



< --- > 100/1000

*There's a better way to get audio out of your PC. No more consumer grade "k" connectors — with Axia your digital audio stays clean and pristine.*



*An Axia digital audio snake can carry hundreds of channels of digital audio on one skinny CAT-6 cable. We know you're not going to miss soldering all that multi-pair...*



*Control freaks of the world, rejoice: intelligent Axia mixing surfaces give talent complete control of their working environment. Reconfigure studios instantly and assign often-used sources just where they're most useful.*



**"This sounds expensive."** Just the opposite, really. Axia saves money by eliminating distribution amps, line selectors, sound cards, patch bays, multi-pair cables, and tons of discrete wiring — not to mention the installation and maintenance time you'll recover.

And those are just side benefits: our hardware is about half the cost of those big mainframe routers. That's right... *half*.

Once you experience the benefits of networked audio, you will never want to go back. [AxiaAudio.com](http://AxiaAudio.com) for details.



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USER REPORT

# MDOUK Software Codec Makes Link

*The AudioTX Communicator From MDOUK  
Connects Irish Radio to Communal Transmission Site*

by Mike Cofferon  
Head of Engineering  
Broadcast Technical Services

**DUBLIN, Ireland** Irish Music Radio, the newest radio station in Dublin, hit the airwaves in early June, broadcasting from the Clondalkin area of the city. Their studio facility is simple and functional. Programming is self-generated, and the basic studio equipment has been hired from local broadcast specialist Broadcast Technical Services.

The Dublin basin is blessed with a state-of-the-art communal transmission center on the "Rock Solid" tower, high on Three Rock Mountain, so the choice of transmission site was obvious. A 250 W transmitter/exciter on the site provided perfect coverage for the station's catchment area.

The only question mark was how to link the studio to the transmission site eight miles away.

## Share and share alike

The normal approach for STL facilities would be through a licensed 1.4 GHz digital link, such as Moseley Starlink or Westica Radio/Codec combinations. These options require a good line of site, precise setting up and big money. Another option would be a leased line arrangement with codecs at either end, which also would cost a lot of money. ISDN wired links would incur a similar expense.

However, circumstances started to work for us, and a solution presented itself. (Yes, I'm finally getting to the point. But this is Ireland, so you have to imagine we're having this chat over a pint of Guinness, and you'll see there's no rush.)

The AudioTX Communicator is a cracking little software codec that delivers audio over basic-rate ISDN connections and IP network connectivity. We have used it with great success for studios and broadcasters requiring an ISDN codec, and over ordinary LAN connections via wireless hubs — even over the Internet via broadband links.

With this in mind, we made a connection of our own when we were approached by one of the business-oriented Internet

Access Providers, co-located on Rock Solid. Airspeed, providers of trunk Web access and secure point-to-point links for the city, was looking for projects to help demonstrate the flexibility of its services.

BTS was quick to spot the opportunity and negotiated a simple point-to-point, zero contention link — in other words, a wireless LAN connection between studio and transmitter site. Airspeed offered a generous package for the 1 Mb bi-directional connection. Using a single wireless broadband transceiver at the studio site, the whole thing was commissioned within an hour or two. AudioTX Communicator then provided a choice of coding options.

The software runs on any Windows XP

or 2000 PC, even on low-end or older machines. So we easily employed a couple of surplus PCs (Pentium 2s), put in profes-

available bandwidth, to keep sample rates high (48kHz) and keep latency low. Running Layer 2 stereo at 384 kbps means the decoded audio at the mountain site is crystal clear, and as a result you can feed into state-of-the-art processors. Even when giving something like the new Omnia 5 its head, the processor hasn't had to deal with any unwanted coding artifacts.

## Denouement

Irish Music Radio has managed to reach their target audience at a fraction of the projected cost, over a solid, dependable link — and it sounds great, too. And the existing stations in the Dublin area? Well, they now have access to an additional STL facility that wasn't previously available. Airspeed has citywide coverage, and, in conjunction with BTS, would be able to set up temporary ad hoc links for outside broadcasts and more permanent links for STL redundancy from their studio locations.

We also are running trials of AudioTX Communicator via satellite hops, where line of site is unavailable or nationwide coverage is required — effectively using satellite broadband.

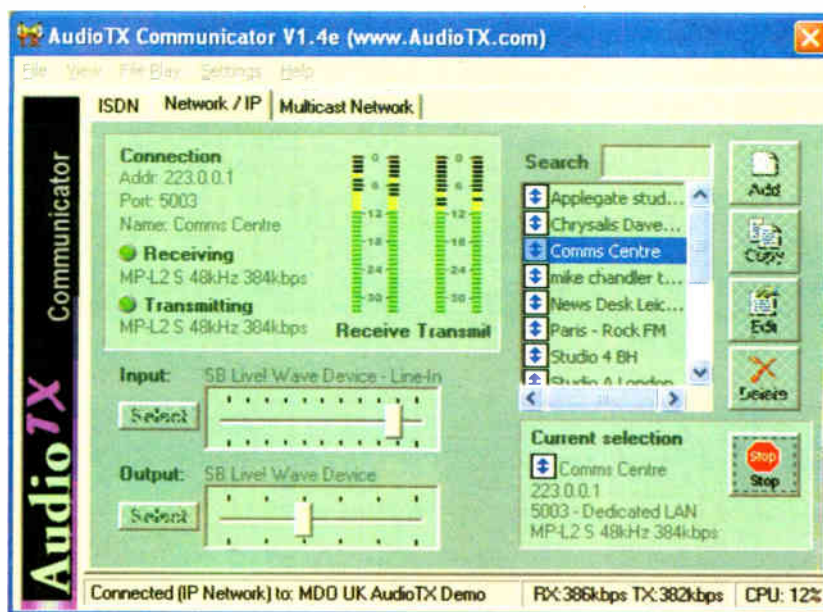
For us, the AudioTX Communicator is a simple reminder that the proliferation of IP networks enables us to employ new and more flexible solutions to STL and audio connectivity requirements, often at a lower price. Today's IP networks are more than capable of delivering the robust audio that we broadcast engineers require — as long as you are using a codec product that was designed to make the most of these connections.

Perhaps you should take some time to find out with whom you are sharing site facilities, and ask yourself, "How can we help each other out?" Hardware, and especially software, evolves and develops. Be aware of the extra potential these changes can yield.

You can try AudioTX Communicator, amongst several other great programs at [www.audiotx.com](http://www.audiotx.com). So go on then, and I'll have another pint.

Cheers.

For more information, including pricing, contact MDOUK at 011-44-121-256-0200 or visit [www.audiotxmultiplex.com](http://www.audiotxmultiplex.com).



The software codec delivers audio over basic-rate ISDN connections and IP network connectivity.

**The flexibility of the AudioTX Communicator enables you to squeeze the most reliability out of a busy network, Internet connection, etc.**

sional quality soundcards and were off. The flexibility of the AudioTX Communicator enables you to squeeze the most reliability out of a busy network, Internet connection, etc.

There's a choice of MPEG-coded audio at between 64 kbps and 384 kbps or linear (uncompressed) audio. We chose MPEG Layer 2 coding to make best use of the

TECH UPDATE

## DI-2000 Features Two Separate Hybrids

The DI-2000 hybrid from Radio Systems nulls the phone line to create caller-to-host separation. Digital circuitry performs an acoustical cancellation for feedback elimination with live studio monitors. The company says console mix minus is not required. The unit actually is two separate digital hybrids that can be used independently or operated in one of three conference modes.

The operator can answer, hold and route conference calls by pushing four lighted soft-touch buttons. Callers are switched among three audio feeds when answered, then routed to cue, air or record outputs. By adding a single-line phone, a producer can answer, screen and queue calls for air or grab callers for post-show follow-up questions. A speakerphone can be used in this way for call cueing if the console lacks an independent host send.

The rear-panel remote control interface gives hybrid control to a console. The DI-2000 enables calls to ring in, be answered, put on hold and screened and dropped through the console's channel on/off buttons, making external "black boxes" unnecessary.

The Symetrix TI-101 analog hybrid also is available from the company.

For more information, including pricing, contact Radio Systems in New Jersey at (856) 467-8000 or visit [www.radiosystems.com](http://www.radiosystems.com).

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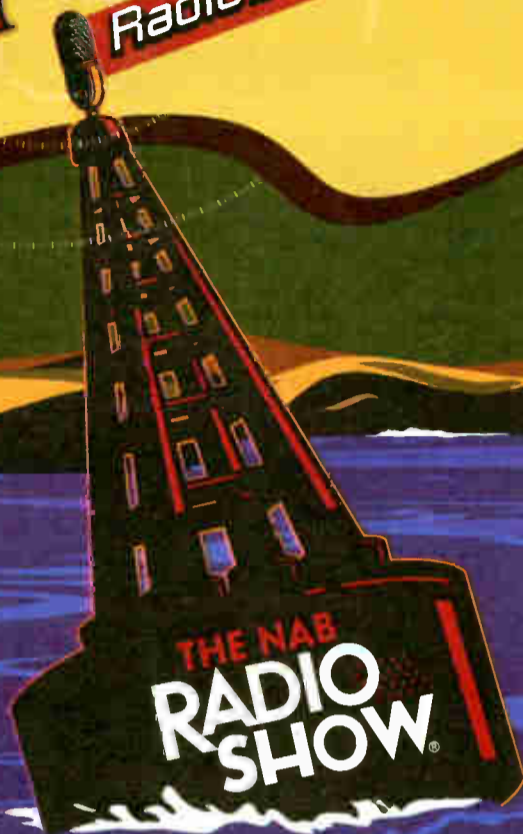


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## USER REPORT

# CIGR(FM) Installs APT's WorldNet Rio

by Marc Vallee  
 Managing Director  
 Marketing Marc Vallee

**SHERBROOKE, Quebec** On May 31, Canadian radio station Generation Rock 104.5 CIGR(FM) went live on air from its base in Sherbrooke, Quebec. For the owners, Jean Pierre Beaudoin, Dany Houle and André Gagné, this was a proud moment, the culmination of months of hard work and planning. For my company, Marketing Marc Vallee, it was an equally satisfying conclusion, given the technical obstacles we had to overcome to ensure that Generation Rock sounded good.

## Competitive sound required

Our role in bringing Generation Rock to air began in the fall of 2003 when we won the contract for the turnkey installation. The owners wanted to make sure Generation Rock had a better sound than the local competition. To do this, we used



Martin Bossé, 'The Boss,' is a DJ and producer at Generation Rock.

## The apt-X algorithm is known for two features: audio quality and low delay.

only market-leading products and equipment designed to retain audio quality through the broadcast chain.

Simply put, Generation Rock wanted a better sound than the competing radio stations in the locality.

With this goal, intensive research and investment was conducted on the broadcast chain. Particular attention was paid to retaining audio quality from remote contribution through to transmission, and keeping content in the digital domain. Equally important was to ensure that a coding delay was not introduced when compared to equivalent analog solutions. As the DJs monitored directly off-air, any delay in the broadcast chain would create an unnatural and unworkable reverb or echo effect in the headphones.

Purchases were made and installation began, which included the latest Omnia 6-EX FM processor and a Broadcast Electronics FM transmitter on the studio and transmitter sites. However, a problem

quickly surfaced: the studio-to-transmitter link.

The digital STL originally was meant to operate in the 900 MHz band. But unfortunately, to get a clear line of sight to the transmitter site, a 60-foot tower would have had to be erected. This option was expensive and two other solutions required investigation to analyze feature sets vs. cost effectiveness.

The first involved ordering balanced analog circuits from the local telephone company, Bell Canada. Although lower in price, these circuits — simplex in nature — had a number of severe disadvantages. For instance, the audio bandwidth was restricted to 15 kHz stereo, the dynamic range was limited to 60 dB, the audio channels suffered from crosstalk and the stereo imaging needed balancing at regular intervals and was susceptible to vagaries during harsh climates.

In addition to these significant problems, Generation Rock also would need

additional audio and data circuits to enable a return feed for confidence monitoring, and RS-232/contact closure for RDS and remote control.

The second option required a digital circuit and a pair of audio codecs at either end, which in turn required deploying a T1 (1.536 Mbits) circuit (Megaroute service from Bell Canada)

The apt-X algorithm is known for two features, the first being the audio quality. As the algorithm is based on ADPCM principles and functions in the time domain, 99 percent of the program content is retained after the first encode/decode process. On the second pass, 100 percent of the content is retained. The second key feature of the apt-X algorithm is the low delay. Enhanced apt-X at 48 kHz sampling frequency has an encode/decode processing time of 1.9 milliseconds.

In addition to the audio quality and low delay, the WorldNet Rio offers analog and AES/EBU audio input and outputs. Remote control and RDS can be utilized via the RS-232 port of 9600 baud and four opto-coupled input/outputs.

By commissioning the T1 and using 576 kbps of the available data rate for the WorldNet Rio, Generation Rock was able to have an STL that delivered 20 kHz stereo with a dynamic range of over 100 dB and an end-to-end delay of approximately 4 milliseconds. Additional benefits included the return path for confidence monitoring, RS-232 for RDS and contact closure for remote control. As the AES/EBU input and outputs were used, the audio remained in the digital domain.

With the additional functionality of the T1/WorldNet Rio combination, Generation Rock got a solution at a competitive cost that retained all aspects of the program content, and ensured that the delay through the network was similar to the RF and Bell Canada analog solutions.

## Generation Rock was able to have an STL that delivered 20 kHz stereo with a dynamic range of over 100 dB and an end-to-end delay of approximately 4 milliseconds.

and then sourcing a codec that retained the audio quality demanded by Generation Rock without introducing additional coding delay, or latency.

### Send a radio to Rio

At this point, we contacted **Audio Processing Technology** to get details on the WorldNet Rio, a fully duplex audio codec terminating in a V.35 data format. Using the suite of apt-X compression algorithms, the unit provides audio bandwidths from 7.5 kHz mono, 16-bit word resolution up to 22.5 kHz stereo and 24-bit word resolution.

The success of the Generation Rock project has inspired us to take the WorldNet Rio solution to other radio stations, and persuade them to replace existing landlines with apt-X-based codecs. These discussions are still at the early stages; but having found a solution that works so well for one radio station, we see no reason why many more shouldn't benefit from this groundbreaking technology.

For more information, including pricing, contact APT's California office at (323) 463-2963 or visit [www.aptx.com](http://www.aptx.com).

## TECH UPDATE

## Optelator Guards Against Lightning, EMP

The Optelator from **Stormin Protection Products Inc.** is a telco accessory that offers fiber optic isolation from telephone lines, and an upgraded version of the company's Optilator. It is described by the company as a line isolator, rather than a surge protector. The company says it protects against power surges and electromagnetic pulses better than surge protectors and methods such as fuses, spark gap devices, metal oxide varistors and diodes; and points out that damage still occurs with these devices because connection to another reference is necessary, most commonly a ground connection.

The Optelator is built in a plastic box with two

circuit boards inside, one at either end of the box. The telephone line powers the incoming circuit board, and converts incoming and outgoing signals into a form that drives and receives from two short lengths of fiber optic cable. The cables — one for signals passing in each direction — connect to the circuit board at the other end of the box.

That circuit board is powered by an isolation step-down transformer type external power supply, and connects to the local telephone-type equipment, enabling isolation with no metallic connection between the telephone line and equipment.

The two pieces of fiber optic cable, approximately four inches long, are the only connections. Lightning looks for the path of least resistance to ground, which no longer exists.

A T1/E1 model of the Optelator is available from the company in limited quantities.

For more information, including pricing, contact **Stormin Protection Products Inc.** in Florida at (888) 471-1038 or visit [www.opticsield.com](http://www.opticsield.com).



Stormin Protection Products touts the Optelator's ability to prevent lightning from blowing out your modem.



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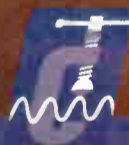
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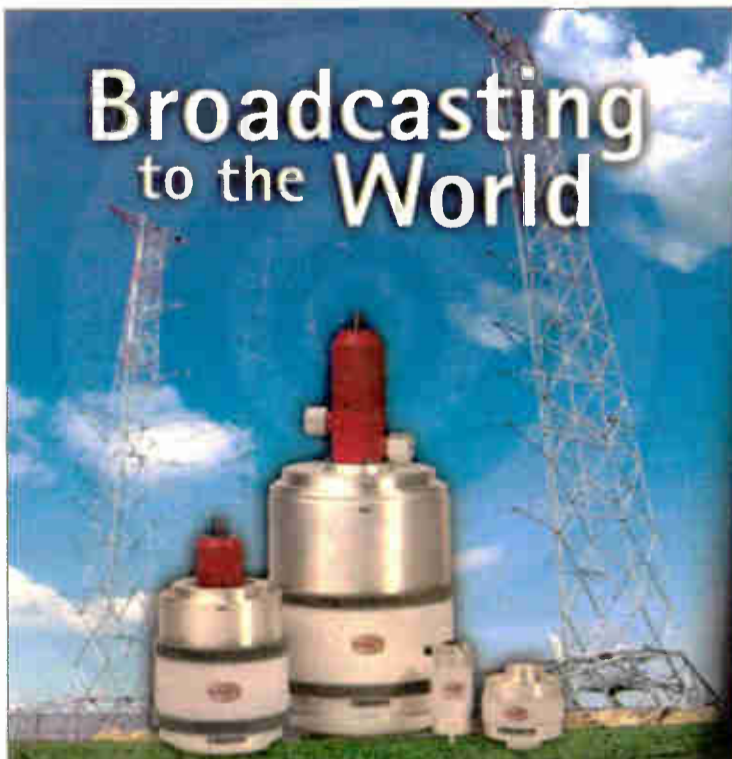
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## USER REPORT

# KLKS, Scoop E-Z Break Local Story

*Minn. Station Uses ATA Audio Codec To Cover Abduction of College Student*

by **Bob Bundgaard**  
President  
KLKS(FM)

**BREEZY POINT, Minn.** I visited the 2003 NAB Radio Show in Philadelphia looking for a device that would enable us to carry local theater live on KLKS(FM) "K-Lakes" here in Breezy Point. We needed something that was not tied to land lines. A microwave RPU doesn't work for us because of the topography and trees in our area, and we didn't want to string a lot of line for a phone pick up. While walking the floor, I visited ATA Audio.

I talked with Alvin Sookoo, who was doing live demonstrations with an audio codec over a wireless (GSM) network. The model was called the Scoop E-Z, and it was small at four pounds and ran on C-cell batteries. I was impressed with the audio quality I heard and the portability of the unit. Alvin told me to request a demo and he would send a pair of units for me to try in my environment and applications.

A few weeks later I contacted Alvin and ATA to arrange the demo units. He sent me a Scoop E-Z portable unit with

the built-in GSM module and a Scoop Studio rack version; he was kind enough to offer his T-Mobile SIM card to use as long as I wanted.

I was concerned that the GSM would not work because we are in a small town,



KLS Announcer John Warren interviews Jim Oraskovich, chairman of the Pequot Lakes 'Bean Hole Days' summer festival.

but Alvin told me I should not have a problem, based on his research.

The day we received the units, KLKS had a breaking story on our hands. Dru Sjodin, the 22-year-old who was abducted in North Dakota and later found murdered, was from our town. Live news conferences were being held at a police department the

next day in Grand Forks, N.D.

It was too late to access a phone line, so the units were about to put to work. I sent my news director, David Alan Pundt, to cover the news conference. While an excellent newsman, Pundt is no technophile — but after a short primer course, he felt comfortable using the units.

At the police department in Grand Forks, David set the unit up next to 60 to 70 other broadcasters at the media conference. Because the unit has two mic/line inputs, he used one input for the podium microphone and the other for our live mic. He then dialed the studio unit at the station that was connected to an analog line.

sorority house where Sjodin had been a member. He put the unit's carry strap around his neck and hung the unit about mid-chest, with which he felt comfortable thanks to the Scoop E-Z's weight. He wore headphones and used one of the mic inputs for his hand-held mic, and did several interviews from the house and on the street. We used some of the cuts on our broadcasts.

KLKS also set up a remote for our recent "Bean Hole Days" annual summer festival in Pequot Lakes, Minn. It was a nice display. We partner with a client who brings in a portable party porch, from which our talent bases his operations for interviews and such.

Overall, the sound quality is as good or better than that of analog lines, and it seemed to be better than most cell phone interviews we've done. However, in future incarnations we would like to hear sound closer to studio quality.

**T**he day we received the units, KLKS had a breaking story on our hands.

We were surprised with the audio quality we were receiving, being that Grand Forks was about 200 miles away. It did not sound like a cell phone, as the signal was strong. And we liked the ability to access the T Mobile telephone network, which is quite extensive in our area.

The entire broadcast was a little over an hour and the call did not get dropped. We only had an occasional interruption on the commentary.

Once the telephone connection is made and the unit is turned on, it automatically sets the mode and takes about a minute to boot. Plug in your mic and headphones, set your levels and ready to broadcast.

Later in the day, David drove to the

Telephone or ISDN lines are not always available at the drop of a hat, and RPU units can be clumsy. Scoop E-Z has the ability to do POTS and ISDN, which I did not get a chance to try. It is compact, immediately available and I am impressed with what I heard.

KLKS has used it during news conferences crawling with TV crews and their gear, setting up and broadcasting from cramped spots. We have used it in the field where power was unavailable. The E-Z is a piece of gear every news station should have.

For more information, including pricing, contact ATA Audio in New Jersey at (973) 659-0555 or visit [www.ataaudio.com](http://www.ataaudio.com).

## TECH UPDATE

## Henry Adds Mix-Minus To Consoles

Henry Engineering says its MixMinus Plus adds a mix-minus output to older or inexpensive audio mixing consoles that lack the feature. The

The company says a caller should hear everything on the air except herself. The console must provide an audio signal that contains all sources that are mixed to "air," excluding the caller's audio. (This is the concept of mix-minus: the program mix *minus* the caller's audio.) MixMinus Plus takes a sample of the program output and the caller audio. By manipulating the level and phase of the two signals, it subtracts caller audio from the program mix.



mix-minus audio mix is required when a console is used with a telephone hybrid, which is necessary when both sides of a telephone call need to be broadcast or recorded. The hybrid "splits" a POTS line into two circuits: receive (output) and send (input).

The receive circuit is caller audio, for example the caller's voice. It is mixed with other studio sources, such as CDs or mics. In contrast, the send circuit is what the caller hears.

The mix-minus signal is fed to the hybrid's send input, enabling the caller to hear what is on the air.

MMP offers around 30 db of caller null, eliminates caller-echo and feedback when phone calls are broadcast and is applicable to satellite audio systems by removing incoming audio from a return IFB or cue feed.

For more information, including pricing, contact Henry Engineering in California at (626) 355-3656 or visit [www.henryeng.com](http://www.henryeng.com).

## TECH UPDATE

## Model 220 Offers Main and Talkback Outputs

Studio Technologies said its Model 220 announcer's console serves as the audio control "hub" for announcers, commentators and production talent. The tabletop unit also is suited for sports and on-air radio broadcasting and voiceover/narration booths. Standard connectors are used to interface microphone, headphone, on-air, talkback and IFB signals.

A microprocessor provides the 220's logic functions, enabling control of the unit's operation. A microphone preamplifier circuit is included for low-noise/low-distortion amplification over a 20 to 60 dB gain range. The gain is adjustable in 10 dB steps. The input is compatible with balanced dynamic and phantom-powered microphones. The microphone power source is 48 V nominal and meets the P48 phantom standard.

Additional features include one main and two talkback outputs. The main output serves as the on-air, or other primary feed. The company says it is an interface with high output capability, low distortion and low noise. The talkback outputs are intended to provide production trucks, control rooms or support personnel with talent-originated cue signals. These outputs are transformer-coupled with +4 dBu nominal signal levels.

A compressor circuit controls the dynamic range of the signal coming from the mic preamp, and uses a laser-trimmed voltage-controlled-amplifier integrated circuit for level control. The signal from the compressor is used by the talkback outputs.

For more information, including pricing, contact Studio Technologies in Illinois at (847) 676-9177 or visit [www.studio-tech.com](http://www.studio-tech.com).



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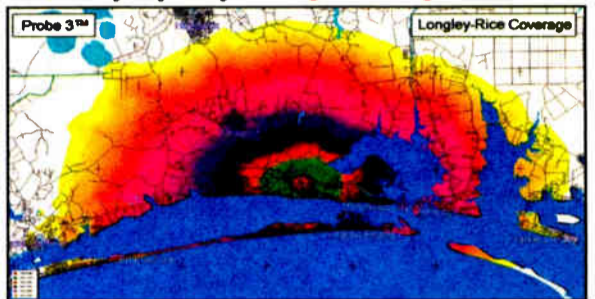
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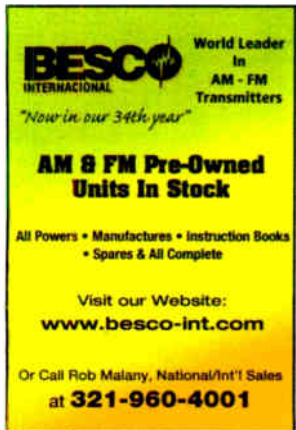
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I look forward to a career in broadcasting. Fresh out of school. Dallas is home, and I am here to stay. Bary Hetherington: [bmh@family.net](mailto:bmh@family.net).

**Jason Walters**, [sandman71JMW@yahoo.com](mailto:sandman71JMW@yahoo.com). Young, enthusiastic, energetic. Great voice, willing to relocate, commercial writing virtuoso, work well with Cool Edit. Fast learner, eager to start first job.

# ACTION-GRAM

### EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations only. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Are you currently a subscriber to Radio World?  
 Yes  No

Signature \_\_\_\_\_ Date \_\_\_\_\_

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 Title \_\_\_\_\_  
 Company/Station \_\_\_\_\_  
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 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Brief Description: \_\_\_\_\_  
 \_\_\_\_\_  
 Price: \_\_\_\_\_

WTS  WTB  Category: \_\_\_\_\_  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Brief Description: \_\_\_\_\_  
 \_\_\_\_\_  
 Price: \_\_\_\_\_

\*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

Broadcast Equipment Exchange

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# ADVERTISER INDEX

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Radio World assumes no liability for inaccuracy.

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27	APT (Audio Processing Technology)	www.aptx.com
40	ATI	www.atiaudio.com
10	Audemat-Aztec Inc.	www.audemat-aztec.com
26	Audion Labs	www.voxpro.net
16	AudioScience	www.audioscience.com
26	Autogram Corporation	www.autogramcorp.com
40	Broadcast Devices, Inc.	www.broadcast-devices.com
17	Broadcast Electronics	www.bdcast.com
28	Broadcast Tools	www.broadcasttools.com
28	Broadcast Warehouse	www.dsp-x.com
24, 25	BSW	www.bswusa.com
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26	Circuit Werkes	www.circuitwerkes.com
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7	Comrex	www.comrex.com
1	Continental Electronics	www.drs-bt.com
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36	Mager Systems	www.magersystems.com
37	Mouser Electronics	www.mouser.com
21	Musicam USA	www.musicamusa.com
13	Omnia, a Telos Company	www.omniaaudio.com
29	OMNIRAX	www.omnirax.com
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31	Prophet Systems Innovations	www.nexgen101.com
5	Radio Systems	www.radiosystems.com
23	RF Specialties	www.rfspecialties.com
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36	Star Case Mfg. Co, Inc.	www.starcase.com
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11	Tieline America	www.tieline.com/rw
2	Wheatstone	www.wheatstone.com
47	Wheatstone	www.wheatstone.com
48	Wheatstone	www.wheatstone.com
22	www.radio-mall.com	www.radio-mall.com

# ◆ READER'S FORUM ◆

Radio World, August 1, 2004

## Local Concern

On Jan. 12, "triopolist" Clear Channel Communications announced the creation of "local-market advisory boards" to counter what the Wall Street Journal calls "lingering image problems." The purported purpose of this move, which supposedly will get the opinions of community leaders, is to "discuss issues of local concern."

The owner of some 1,200 stations in 300 markets, which along with the other two members of the troika control 85 percent of the country's radio stations thanks to our public-spirited FCC, has stated that it doesn't promise to adopt any of the suggestions of the community leaders, who will be selected by CCC's local stations managers. Oh, boy.

Maybe this lip service will get CCC off the hook in the eyes of some. But if one believes that local interests will have any bearing on CCC's national network originations format, I'd say to that (lone) naïve believer: surely you're not in broadcasting and most assuredly you don't ever listen to the radio — other than NPR, XM or Sirius.

*Oliver Berliner  
SoundDesign Engineers  
Bozman, Md.*

## NAB and RIAA

The history of radio programming is "the big guys only copied the little guys." Rock and roll started with day-timers, spread to low-power full-timers and eventually the big guys picked it up — same with modern country. The heads at the top have always been hollow.

With the failure of the NAB to avoid paying RIAA for the right to play records, it appears the industry has lost its clout.

Therefore, if they can hold the RIAA at bay (I don't expect them to hold XM at bay), I'd say it's only a matter of a few years before the satellite people will have a sales force in every market — "this traffic update brought to you by Hometown Ford."

NAB is the Chicago Cubs of trade organizations.

*Bill Taylor  
Owner  
KQSS(FM)  
Miami, Ariz.*

## Don't Toss That Manual

In response to your editorial, "We Need Better Documentation" (*Reader's Forum*, April 7), there's a bit of a paradox at work here. While there are certain products that should provide more documentation, there's also a sizeable group who never read it. For example, I recently saw a post on BNET at [www.broadcast.net](http://www.broadcast.net), in which the writer stated:

"One of America's biggest problems when it comes to technology is that

we've become a nation of 'manual tossers.' Nobody reads the manual, and then they get mad at the manufacturer when they can't get it to work right."

At Telos/Omnia, many customers tell us they don't have time to read a manual, yet there are many instances where the reported problem could easily have been solved via the manual. Conversely, most computer applications are packaged with a CD-ROM and a two page leaflet-like guide to get the program installed, and from there, the user is on his own. I've noticed this with computer hardware, too.

We try to produce comprehensive manuals that contain quick setup guides so the units can be installed quickly. Yet, more in-depth information is provided for the end user looking for the theory of operation. Manuals for Telos, Omnia and Zephyr usually have the contributions of several writers.

Additionally, we encourage users to frequent our Web sites, where appended information is posted. Due to software and feature upgrades, it's not easy to quickly rewrite and reprint manuals. Thus, the Web sites have become valuable resources, which also feature user feedback and tips.

Our industry has reduced, and in some cases eliminated, the available time for users to familiarize themselves with equipment. The significant demands on broadcast engineers have resulted in time-compressed installation, setup and operation. We recognize this, and further encourage anyone who needs assistance to contact our support department first when they need help.

Our goal is to get the end user up and running as fast as possible. We have stumbled in the past, but our dedicated engineers care about the needs of all our customers.

*Frank Foti  
Omnia/Telos Systems  
Cleveland*

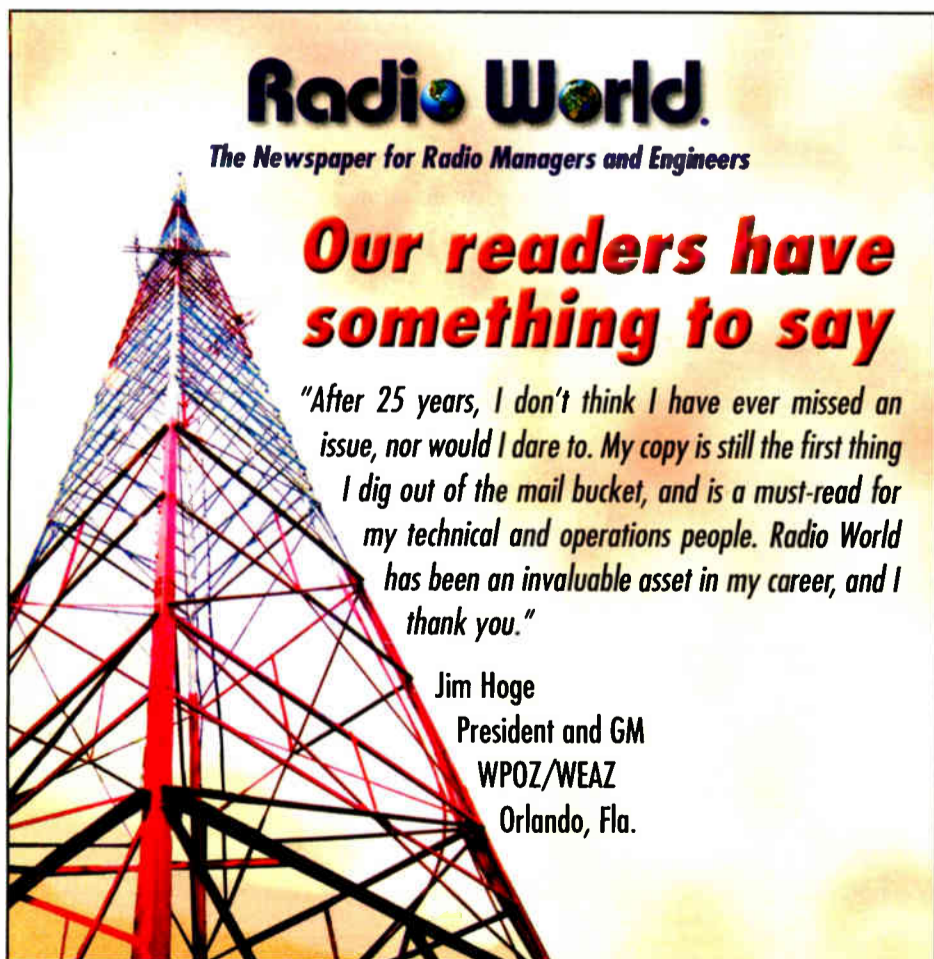
## How to Submit Letters

Radio World welcomes your point of view on any topic related to the U.S. radio broadcast industry.

Letters should be 100 to 300 words long; the shorter the letter, the better chance it will be published in full. We reserve the right to edit material for space. Longer commentaries are welcome but may not reach print as quickly.

Include your name, address and contact information, as well as your job title and company if appropriate.

Send letters via e-mail to [radioworld@imaspub.com](mailto:radioworld@imaspub.com), with "Letter to the Editor" in the subject field; fax to (703) 820-3245; or mail to Reader's Forum, Radio World, P.O. Box 1214, Falls Church, VA 22041.



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**Our readers have something to say**

*"After 25 years, I don't think I have ever missed an issue, nor would I dare to. My copy is still the first thing I dig out of the mail bucket, and is a must-read for my technical and operations people. Radio World has been an invaluable asset in my career, and I thank you."*

**Jim Hoge**  
President and GM  
WPOZ/WEAZ  
Orlando, Fla.



◆ READER'S FORUM ◆

Keeping Score

I read with great interest the article by Tony Lopez ("Taking Wireless to a New Level," March 10). While I do agree with Tony that using wireless for remotes is still in its infancy, it is interesting to note that we here at WASK(AM-FM)/WKO(AFM) have been doing remotes in this manner for the last two years.

Steve Truex
Chief Engineer
WASK/WKOA
Lafayette, Ind.

Regarding the "HD Radio Scorecard" (March 28): WOA(HFM)'s market is Hinesville/Glennville, Ga., and the licensee is Broadcast Executives Corp., not Bullie Broadcasting Corp., as was printed.

Jim Lewis
Broadcast Executives Corp.
Hinesville, Ga.

How Many NABs?

These letters were written in response to the RW Online item, "30 NABs for Hallikainen."

My first was Houston, Texas, 1974. Twenty-five shows as a vendor for Harris, Scientific Atlanta, Moseley and Gray. Five, including the last three, as station/engineering management.

When can I quit?
Mark G. Fehlig, P.E., CPBE, CBNT
Director of Engineering
Georgia Public Broadcasting
Atlanta

I saw the article about Harold Hallikainen attending 30 NAB conventions and noted the request for others with such longevity.

I have attended 43 NABs. Others I know of are Tom Keller, a consultant who has attended 50+ shows; Bernie Weiss of Energy-Onix, 47; and Lou Wetzel, also a consultant, 45.

Dick Burden
Canoga Park, Calif.

Speech Credibility

A big Amen to Kenneth MacHarg's guest commentary ("Where Has All the Quality Gone?," March 1). MacHarg puts it

diplomatically when he describes the areas of "malfunction" or should I say "dysfunction" of today's radio (are you listening, Infinity and Clear Channel?), which for the most part has become a sorry state.

As a radio vet of over 30 years, I am appalled and embarrassed when I hear the

Where Has All the Quality Gone?
By Kenneth MacHarg
This is a reproduction of an article from the 'Reader's Forum' section of the magazine, featuring a small portrait of the author.

grossly incorrect pronunciations and word slurring by untrained announcers — or more likely interns who aren't paid. Maybe President Bush never worried about it ("nuke-ular" vs. "nuclear"), but somebody who is supposed to be trained on news radio? Geeesh ... This announcer/news reporter never settled for anything less than totally professionally done work and never will. Mega-broadcasters may not care what their sound is, but the rest of us do.

Veteran NBC news reporter Edwin Newman stood for excellence in broadcasting, reporting and superb command of the English language and its complex construction. I will always be grateful to Mr. Newman and others like him. People who sweat the details and care how the finished product is presented deserve credit. Those in the industry today who think otherwise don't deserve to be in front of the mic or behind the keyboard.

John Curtis
J. Curtis Communications
Los Osos, Calif.

Nobody's Airwaves

Paul McLane's April 7 editorial brought up a key issue. There exists a key difference between liberty and license. Liberty involves responsibility and respect for our laws, customs and rights. There is an implied understanding of

Give Us a Break
Last October, the FCC forced radio stations to implement a formal process of coordination for the use of 950 MHz aural studio-to-transmitter links. Ironically the Powell Commission, known for its deregulatory passion on the topic of station ownership, showed itself willing to increase the regulatory burden in this small, but widely used, chunk of spectrum.
In its actions, the FCC rejected the comments filed by the Society of Broadcast Engineers, which warned that the commission's own database of existing aural Broadcast Auxiliary Service users was rife with errors and no guidelines for proper frequency coordination of these services existed.
It is worth noting that the SBE knows something about frequency coordination in the aural STL band. Volunteer SBE frequency coordinators have been successfully managing the use of 950 MHz band STLs for decades.
As part of the new rules, all applicants for use of the 950 MHz band must provide a certification that any new use will protect existing users. That seems fair enough. But without providing an accurate standard to predict interference, it is hard to see how this process improves upon the experience and knowledge of the old volunteer frequency coordinators, who also could be easily contacted if a problem did occur.
Further, the FCC called for all applicants to perform a "prior coordination" with existing users. The goal of this process is to allow existing users the opportunity to evaluate the interference potential for themselves. However, without published interference guidelines, it is hard to see how any amount of prior notice will aid an individual station. And the commercial frequency coordinators, lacking solid regulatory guidance, have responded to this requirement in a bizarre fashion.
It is now routine to receive dozens of PCNs (Prior Coordination Notices) on a weekly basis at a typical major-market radio station. Most PCNs are completely irrelevant to the station that receives them. A recent example at one radio station was a flood of notices (all featuring minor differences) that detailed the imminent construction of a new service on 22 GHz, obviously not a potential interferer to users at 950 MHz. Confronted with this overload of useless information, the impulse is to simply throw them all away.
It would seem that in trying to improve operations in the aural STL band, the FCC may have broken something that didn't need to be fixed. Unfortunately, it's probably too late to turn back the clock to the old volunteer process. To move forward, the FCC should fix the current nonsense and get serious about creating the necessary interference guidelines. Perhaps the SBE would be willing to help.
In the meantime, it would be nice if the commercial companies that are doing the coordination would refrain from their current practice of sending PCNs to every user, regardless of potential for interference. By using a bit of common sense, it should be possible to reduce the number of PCNs to a small fraction of their current volume, and give us a break.
— RW

rights and limitations in a democracy such as ours. However, license implies a certain abuse of liberty.

I decry the poor judgment and taste utilized by some broadcasters. By the same token, I am perplexed as to how one legislates against bad taste without trampling on the First Amendment. What's next? Legislation on what books may be read?

I disagree with his statement that the channels utilized by broadcasters "belong to you and me." What he is saying is that the public owns the airwaves, but there is no law, rule or regulation that confers the ownership of the airwaves to anyone. Technology created frequencies and those signals pass through the air. Airplanes fly through the air, but that does not confer ownership of the airlines to the public.

Regulation of an industry by a governmental agency does not confer ownership of that industry to the public.

Yes, the broadcasting industry is regulated and the government (FCC) issues licenses to broadcasters. But the broadcasters do not own the frequencies, nor does the public — no one owns them. McLane is correct that the FCC grants licenses based on serving the public interest. However, there is no standard or definition of public interest. Each licensee must determine that manner in which the licensee will strive to serve the public. There are numerous means by which to accomplish that service.

Lowry May does his company and the industry a disservice by making remarks such as "Clear Channel is in the business of selling Fords, etc." History indicates that the most successful broadcasters are those who provide exemplary service to their communities and listeners.

Robert L. Fox
Past Chairman of the
NAB Radio Board
Pacific Palisades, Calif.

Table with 3 columns: Name, Extension, Title. Includes editorial staff members like Paul J. McLane, Leslie Stimson, Kelly Brooks, etc.

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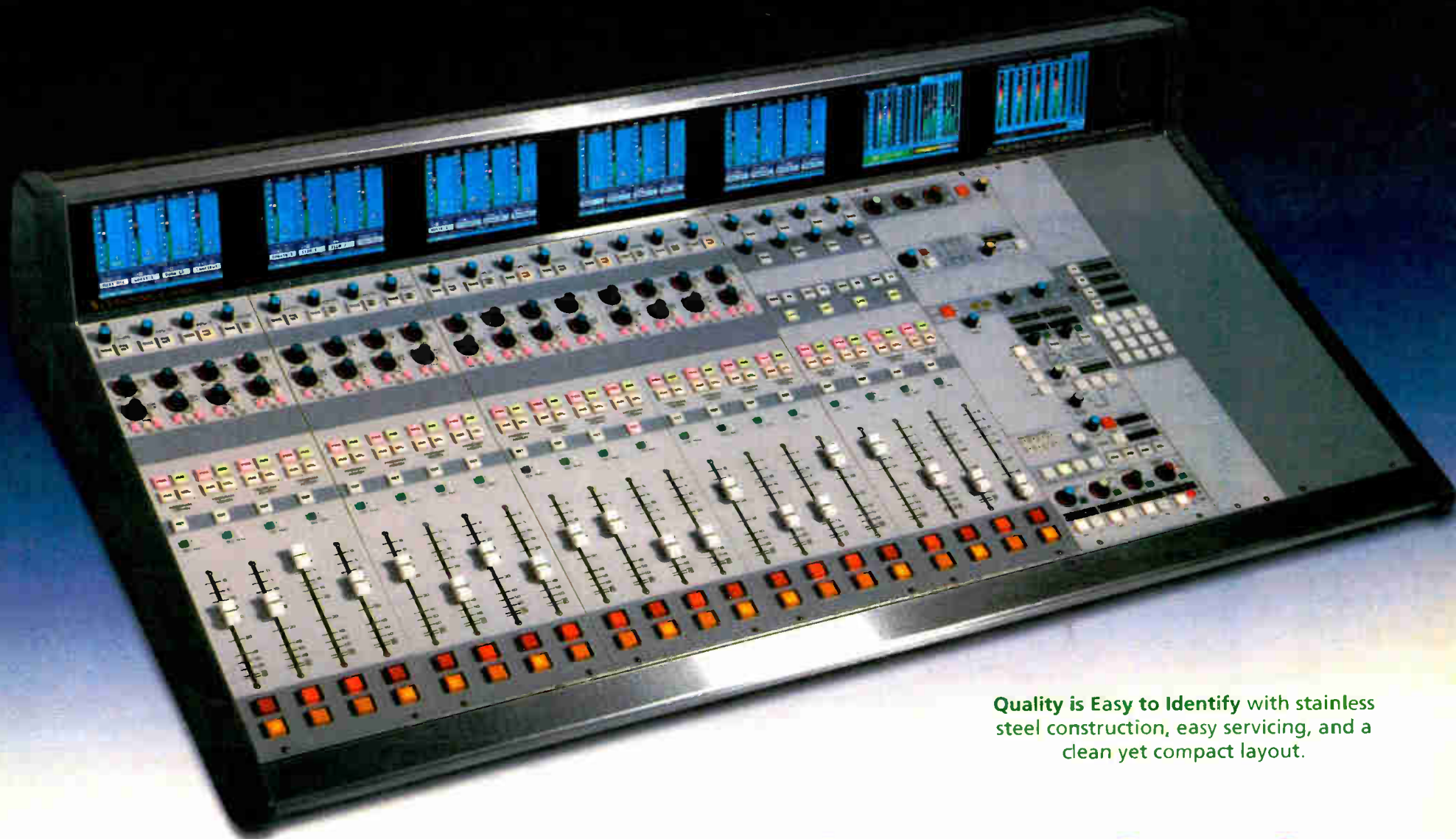


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