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**Stop Interfering**  
 Edward P. De La Hunt isn't willing to accept any new interference to the AM band.

Page 46

**Ronald Reagan**  
 Long before politics, even before acting, there was radio.

Page 22



# Radio World

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The Newspaper for Radio Managers and Engineers

July 1, 2004

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## A Bigger Union Means More Stations

*E.U. Expansion Marks Integration of Media Experiences*

by Michael Hedges

**GENEVA** Ten nations, 74 million people and more than 800 radio stations joined the European Union in May.

Radio observers in the new member

states believe that E.U. membership will benefit broadcasters and listeners, but slowly.

"It is a strong, net positive," said Paul Fiddick, president of Emmis International, which owns stations in

Hungary and Belgium. Looking at the macro-economic picture, Fiddick said he sees a benefit for broadcasters in lowering barriers and equalizing economies.

According to Michal Zelenka of the Czech Republic private broadcasters association, E.U. expansion has little influence on broadcasters there.

"The only problem we have is with Czech bureaucracy trying to put on more regulation than (the E.U.) asks for," he said. "It is a process we can work out, but it takes a lot of time and power."

For governments and regulators, joining the European Union means adjusting to its directives. The process began a decade ago, but harmonizing national regulations with E.U. regulations could still take years.

E.U. expansion also marks the integration of different cultures, more than 20 languages and vastly different media experiences.

Nine of the new member states experienced upheaval during the past 15 years. Estonia, Latvia and Lithuania were part of the Soviet Union, gaining independence in the early 1990s.

The Czech and Slovak republics were one country, Czechoslovakia, until 1993. Poland and Hungary fell within the Soviet orbit too. Slovenia gained independence from Yugoslavia in 1991. Cyprus is still divided between Turkish

See EUROPE, page 6 ▶



Existing European Community members are shown in yellow, new members in blue and applicants in purple.



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## Record Settlement Gives Clear Channel Clean Slate

**WASHINGTON** Chairman Michael Powell called it the largest payment for broadcast indecency in the agency's history. Commissioner Michael Copps says it "reaches too far and grants too much."

Unclear was whether an FCC deal with Clear Channel signals a new approach to settling indecency complaints.

Clear Channel and the commission reached a settlement that encompasses all indecency cases involving the radio group. Clear Channel agreed to pay \$1.75 million to the U.S. Treasury and admitted that some of the material it broadcast was indecent. The company committed to implementing its so-called "zero-tolerance" policy in an effort to prevent violations.

The FCC wiped clean Clear Channel's record, which helps tremendously when it seeks license renewals or approval to purchase stations. The agreement is for all indecency cases including those in which a fine has been levied, and nearly 30 cases that were pending in June.

Fines previously announced but not yet paid are vacated, and the commission will terminate investigations into pending complaints against Clear Channel. Existing fines were \$755,000 for shows involving "Bubba the Love Sponge" Todd Clem, now fired; \$247,000 for indecent utterances by host Elliot Segal; and \$495,000 for indecency cases involving Howard Stern, the Infinity Broadcasting host who's

now off Clear Channel stations.

The agreement is similar to one reached with Infinity in 1995 for several indecency violations involving Stern. At that time, Infinity paid a slightly lower fine, \$1.715 million, but did not admit guilt.

In both instances, the amounts paid are officially called "voluntary contributions" to the U.S. Treasury.

Republican Chairman Michael Powell and Commissioners Kathleen Abernathy and Kevin Martin voted for the deal. Commissioner Jonathan Adelstein approved while objecting in part; fellow Democrat Commissioner Michael Copps opposed the agreement.

Powell said, "Clear Channel has now admitted that it violated the law and has made binding commitments to clean up its act, including preventive measures such as training for on-air personalities and

employees that participate in programming decisions and the use of time delays in its broadcasts."

He cautioned, however, that government involvement into content regulation "can be a dangerous game," even where well-intended. Historically, Powell has been reluctant to involve the commission in content decisions. Some observers believe he's doing so now in deference to vocal and persistent congressional critics in an election year following the infamous Janet Jackson Super Bowl halftime incident.

Adelstein and Copps believe pending complaints against Clear Channel should not have been part of the agreement. Copps said there were open complaints concerning some 200 Clear Channel broadcasts. "This settlement reaches too far and grants too much," he said.

Clear Channel Executive Vice President and Chief Legal Officer Andy Levin said, "It was a tough negotiation, but a fair resolution. We didn't agree that all the complaints were legally indecent, but some clearly crossed the line and for those we have taken full responsibility."

The company began a zero-tolerance policy in February and said training for programming employees is underway. Under the policy, if the FCC begins investigating an indecency complaint against a station, the personnel are pulled off the air while Clear Channel conducts an investigation. If a fine is levied, the company says it will fire those involved.

Clear Channel Radio President/CEO John Hogan says the FCC settlement allows the company "to close the chapter on indecency and move forward with our business. This has been a complicated and controversial issue but it has also proven that we can provide compelling, entertaining and informative programming without being indecent."

Levin reiterated the company's call for government indecency standards that would be applied across all media platforms, including cable and satellite.

— by Leslie Stimson



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NEWS ANALYSIS

# DRM, Eureka Grow Worldwide

*International Radio Community Explains Digital; TokyoFM Develops Unique Metadata Model*

by Daniel Mansergh

U.S. broadcasters face some daunting challenges as they consider how to build their businesses with HD Radio technology. The needs of the digital transition go far beyond the transmitter site, requiring changes in audio production and distribution, data management, quality control, scheduling, promotion and marketing, to name but a few.

coverage was equivalent with only 70 kilowatts of power for the DRM signal; and the received audio approached FM quality, with none of the interference noise associated with analog reception.

Messer said this power advantage is realized primarily because the field strength required for reception of unpaired digital signals is so much lower than what is needed to receive barely intelligible analog signals.



Philip Laven

As these challenges loom large in the coming months and years, it is helpful to step back for an overview of developments in the worldwide adoption of digital radio.

Three prominent members of the international radio community had an opportunity at NAB2004 in Las Vegas to present their views on the digital transition and offer insights on the introduction of digital broadcast technologies to consumer markets.

Dr. Donald Messer, director of the spectrum management division for the

International Telecommunications Union for use in Regions 1 and 3 — essentially everywhere except North and South America — and more than 50 broadcasters have begun regular DRM service, the biggest challenge is increasing receiver penetration.

Current early-generation DRM receivers remain relatively expensive, but Messer expects the market will see receivers later this year selling in the 100-200 Euro range, or about \$125 to \$145. An inexpensive interim solution to the

receiver problem popular among DX and shortwave hobbyists is a PC-based software radio. Although this may quell some of the early demand, it will take time before DRM receivers are adopted widely.

Philip Laven, technical director for the European Broadcasting Union, knows this all too well. Commercial Eureka-147 DAB receivers were introduced six years ago, but adoption of the technology by consumers has been largely stalled since, he said.

Recently, the outlook has brightened with the success of DAB in the United Kingdom. Sales of receivers there have taken off, and interest in digital radio is high among British consumers.

Laven credits several small receiver manufacturers with breaking the impasse

by introducing low-cost DAB receivers last year, driving DAB receiver penetration in the U.K. past 400,000 by the end of 2003. Their success has not gone unnoticed, he said, and "the big manufacturers

availability nor the much-touted improvements in audio quality and reception. It's programming.

## Content is paramount

"Technical quality is important, but content is more important," Laven said.

The two U.K. national digital broadcast networks, BBC and DigitalOne, offer not only simulcasts of existing analog services but also new digital-only



Shigeru Aoki

are now following." With this surge of interest and related marketing muscle, total sales of receivers in the United Kingdom are expected to pass 1 million units by the end of 2004, Laven said.

The biggest driver of DAB adoption in the U.K., however, is neither receiver

channels. Many other local services are being launched only on DAB to complement the national offerings.

It's a model that Laven and others in the DAB community hope can be replicated and applied in other countries to

See DAB, page 8 ▶

**T**he biggest challenge that remains (for DRM) is increasing receiver penetration.

— Don Messer

U.S. International Broadcasting Bureau/Voice of America, is bullish on the future of the Digital Radio Mondiale system for digital AM broadcasting on bands below 30 MHz. In recent tests his agency conducted on several medium-wave installations in Europe, Messer said the system proved itself capable of equivalent coverage to analog, with significantly lower transmitter power and substantially improved audio quality.

## No interference noise

One dramatic example of the system's advantages can be seen in the tests conducted at a VOA facility in southeastern England that operates on 1296 kHz with 250 kilowatts of analog power. Along a 500-mile path to a location in Germany,

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# Ronald Reagan Knew What to Say

In June, with many Americans, I found myself reflecting on the life and passing of Ronald Reagan. The 40th president of the United States engendered conflicting emotions in me.

How could I not be charmed by that biography?

He was a radio announcer; I was a radio announcer.

He was an actor; I'm an actor too, if only part-time.

He was president.

Well, I got two out of three.

I was a member of the Teenage Republican Club and the Young Republicans, back when moderates felt more comfortable in the GOP. Eventually I would switch registration to no party affiliation; but I had more than a passing interest in the Reagan career path.

I'm a history buff; having grown up conscious of the historical scope of the presidency — studying the death of Kennedy, watching the traumas of Vietnam and Watergate unfold — I viewed Reagan's tenure with fascination.

He took office in 1981 and was president when I joined the U.S. work force. Reaganism was the background to the first decade of my professional life.

For the radio medium, his personality and policies left a complex legacy.

## Classic Reagan

We know about his gifts in communication. Radio was indeed a building block for his career — in part because that's how men of his generation campaigned, but also because he was smarter than other politicians. Few recently have used the power of the spoken word as effectively as he.

To advance his career, he conducted radio broadcasts and speaking tours sponsored by GE. After serving as governor, he stayed in the public ear in part through a series of daily radio messages.

Among his most famous one-liners came in the 1980 presidential primary and reflects his awareness of the power of the spoken word: "I paid for this microphone, Mr. Green." It was classic

Reagan. We forget that he got the moderator's name wrong (Breen) and that fellow Republican George Bush was the one who suffered the consequences of that moment. Instead we remember Reagan's forcefulness, his righteous indignation. The story is much like his presidency. Important details and consequences could get overlooked; but Reagan knew what he meant, and we knew what he meant.



A banner on the Canadian Embassy was visible along the route of the Reagan funeral procession.

I remember his first weekly radio address. The fact that Reagan would use radio to address Americans directly — in an era dominated by anchors on three television networks — was news in itself.

For a while, Reagan gave radio something of our own to help set the medium apart from others; this happens too rarely. The novelty of the weekly addresses would fade; but presidents of both parties have continued to use them as a platform.

People remember his power of persuasion. I saw him speak at a National Religious Broadcasters convention in Washington; the man had presence.

However, his folksy tone and his

charm generally didn't work on me as intended. I often felt I could see the manipulation, was aware of the strings he was pulling. My communication training taught me to sense when I was being "sold"; I often felt that way listening to Reagan. Yet I didn't doubt his sincerity. This is part of his paradox.

Fans talk about his impact on the national spirit, and it's true he helped people feel it was "OK to be an American again." But I pity those who bought into the national malaise idea in the first place. I didn't need Reagan to make me proud to be an American; to me the traumas of the 1960s and '70s showed that our system is strong enough to survive, despite crises and erratic leadership, and I was proud of that before 1980.

Further, although he was known as kind and sincere, the revolution he launched is marked by mean-spirited, personal attacks; we hear it on the radio all the time. If Reagan lifted people up, his protégés too often have torn their fellow Americans down, turning the national debate into vitriol.

The current President Bush and many of his followers do not consider people like me — moderate, questioning Americans, sensitive about world opinion, careful about sending soldiers abroad, suspicious of secretive government — to be American patriots. That's a Reagan legacy I deplore. Reagan made Rush possible.

## Knowing what to say

I marveled at his talents and those of his speechwriters. When the space shuttle Challenger blew up in 1986, taking seven lives with it, I was sitting in the WDEL(AM) newsroom in Wilmington, Del., and heard the alert come down the NBC Radio network. When Reagan addressed the country about the disaster, I was glad to have a man like him deliver the national eulogy.

When Reagan stood at Normandy, I felt he represented me, an American, with honor.

## From the Editor



Paul J. McLane

His economic policies left their indelible impact on the radio business. Real momentum toward deregulation began here. The Telecommunications Act of 1996 is a legacy of Reaganism, although signed seven years after he left office by a Democratic president. If you have strong feelings about the impact of consolidation on radio, include Reagan when you dole out the blame or credit.

During his second term, the FCC eliminated the 60-year-old Fairness Doctrine requiring broadcasters to present programming about controversial issues and to offer a range of views — a loss to what made broadcasting unique and responsible to the public interest.

Reagan also talked to broadcasters directly. At the NAB convention in 1988, he spoke about foreign policy in a 20-minute speech touting his "peace through strength" approach. NAB managers may prefer to forget that a nuclear war protester rushed the stage in 1992 and shattered a crystal eagle award being given to the 81-year-old former president. (Reagan was not hurt. "He must have been a Democrat," Reagan was quoted as saying.)

In fact NAB bestowed more honors on Reagan than on any other individual. He was given the National Radio Award, the Distinguished Service Award and the Spirit of Broadcasting Award; and he was inducted into the NAB Broadcasting Hall of Fame.

He was a man of stature, big enough

See **REAGAN**, page 7 ▶

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# Content Key to DAB Passion

by Lawrie Hallett

**NORWICH, England** When it comes to drawing listeners to digital radio, a station that calls itself Passion for the Planet has found what it claims is a winning strategy with its "intelligent" speech content.

In recent years, Britons have seen an

intelligent speech content, which makes up some 20 percent of the programming and is mostly prerecorded interviews. The rest of the programming is music, ads and continuity.

At present, three program feeds are generated, one for the London DAB multiplex, another for the other multiplexes and a third for an Internet stream.

disc CD players can temporarily replace the program feeds.

For the future, as listenership and commercial revenues increase, the station intends to increase its speech content to some 40 percent of output. In addition, the station aims to produce material on a per-multiplex basis so that specific local content can be included.

As speech programming content increases, rather than expand the Wimbledon offices, the station plans to open local offices for individual multiplexes. Music scheduling together with music streaming will remain centrally generated, however.

## Resource limitations

At present, Passion for the Planet does not carry news bulletins because, according to Cooke, "everyone else does it" and the available content tends to be "depressing."

However, he hopes eventually to develop an in-house source of "appropriate" news bulletins.

The Passion playlist includes world music and a range of titles that may not be instantly recognizable. Because the station has no presenters to announce artists and titles, it plans to use DAB and Web text functions to let listeners keep track of what they are hearing.

Passion is not part of the RAJAR audience-rating system, so listener figures — thought to be some 30,000 in early 2004



A simple interface handles programming at Passion for the Planet, along with a rack of equipment.



Passion for the Planet Director Kenny Stevens checks the playback.

increase in Eureka-147 DAB receiver sales thanks in part to the variety of digital-only services offered by commercial operators and the BBC.

While some issues faced by a digital station here will be different from those confronting a U.S. radio manager implementing IBOC, others are not.

For instance, in the United Kingdom, analog coverage, particularly on FM, is reliable and comprehensive for most stations. Improved audio quality and reception are not enough to attract new listeners to digital services, some radio observers believe.

## Tempting listeners

As a result, the U.K. radio industry has been one of the first to implement digital-only services, arguing that these are essential in tempting listeners away from established analog stations.

Some digital radio operators offer formats that are little more than automated jukeboxes, others are developing well-thought-out programming for DAB.

Passion for the Planet, for example, targets listeners in their 30s and 40s with a mix of music and talk that focuses on health, the environment and "alternative" solutions.

Chantal Cooke and Kenny Stevens developed the concept when working for a local radio station in May 1999. They received a digital radio license in June 2001 and launched the service in September 2002.

Today, eight DAB multiplexes carry the service, covering London and most of southern England. Broadcasts originate from offices in Wimbledon, southwest London. Multiplexes are shared transmission facilities that carry separate feeds. With the Eureka-147 system, every station has the same power level and coverage area.

What distinguishes Passion from competitors is the focus on what Cooke calls

DAB output is delivered at 96 kbps in mono, which the station management considers the best balance between quality and cost, especially as the vast majority of Eureka-147 DAB receivers are either mono or have stereo speakers only inches apart. U.K. regulators allow broadcasters a degree of leeway in determining how to allocate the bitstream for their digital broadcast.

Passion operates from modest studios with a single interview booth and an adjacent rack room. In line with the environmental slant of the station, studio soundproofing consists of hemp-based tiles built on a wooden frame.

Technical equipment is also minimal, although the station executives said they did not compromise audio quality when buying critical equipment, such as microphones. The studio is based around a single Behringer plus Audio-Technica microphones.

## Local content

Interviews are edited with Adobe Audition software and loaded into a Raduga ployout system, which generates a random music output in accordance with programmed music categories. The station output is fed through Behringer Ultra-Dyne Pro processors.

DAB program signals are then sent via fiber-optic links to the various DAB transmission multiplexes.

As required under U.K. broadcasting regulations, all output is logged and kept for a minimum of seven weeks after broadcasting. Passion uses the Skyhawk Technologies Cybercorder 2000 software-based recorder to meet this requirement.

Internet streaming from the station Web site is achieved using the Nullsoft Shoutcast Winamp-based standard for two MP3 streams — one at 24 kbps, the other at 56 kbps.

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# Europe

► Continued from page 1 and Greek cultures.

Only Malta has been free of social and political strife in recent years.

The roots of the European Union were set in the 1960s when France, West Germany, Italy, the Netherlands, Belgium and Luxembourg set up a common market for coal and steel. Over time, the European Economic Community expanded to cover other goods, services and policies, culminating in the Treaty of European Union that came into effect in November 1993.

As the scope of the union expanded, so did the number of member states with Denmark, Ireland, the United Kingdom, Greece, Portugal, Spain, Austria, Sweden and Finland joining.

On 1 May 2004, 10 more nations joined the European Union.

## Skeptical public

Private, commercial media arrived in many of the new member states more recently than in most of Europe, benefiting from foreign investment. State-controlled broadcasters making a transition

to public service broadcasting had to win over a skeptical public, particularly in the former Eastern Bloc stations.

(European broadcasting is structured differently from in the United States. See sidebar, this page.)

With a population of 38 million, Poland is the largest of the new member states and the fifth largest in the expanded European Union. It has 232 radio stations, most broadcasting for local communities; public broadcaster Polskie Radio offers four national and 17 regional channels.

The Czech Republic is home to 10 million people and 150 radio stations. Public broadcaster Český Rozhlas offers several regional channels and four national stations.

The Slovak Republic has 5.5 million inhabitants with a sizeable Hungarian minority. Of the 93 stations and channels, pubcaster Slovenský Rozhlas offers five national channels.

Hungary's 10 million people listen to three public and two commercial national channels, and 70 local stations. Foreign companies own both national commercial stations; Rádió Danubius is part of Advent International, Sláger Rádió is part of Emmis International and Juventus Rádió is part of Metromedia

International.

Hungary also has the largest Roma minority in the European Union, with about 100,000 living in Budapest. Rádió C was established to serve their community.

Slovenia, with a population of 1.9 million, is better off financially than other new E.U. countries. Per capita gross domestic product is roughly \$19,500 or twice that of the next highest country.

Slovenia's public broadcaster produces three national and five regional radio channels. In addition, there are 44 private, 20 non-commercial and two student stations.

A key provision of E.U. accession is respect for minority cultures and languages in education and media.

About a quarter of the 1.3 million Estonians are native Russian speakers. There are 35 radio stations, five public and 30 private. Public broadcaster Eesti Raadio provides one dedicated Russian-language channel and there are four private Russian-language stations.

Latvia also has a large minority population and Latvian media struggles with how to recognize the sizable Russian-speaking population. While Latvian law restricts broadcasts of non-Latvian language to 33 percent, of the 2.3 million Latvians, about 40 percent speak other languages, mostly Russian.

Public broadcaster Latvijas Radio offers five channels including one multilingual station, Radio 4 Doma Laukums. There are 31 private stations on the country's airwaves.

## Large Baltic members

The largest of the three new Baltic members is Lithuania, with a population of 3.5 million. The public broadcaster offers three channels. There are six national private commercial networks and 34 local and/or regional stations. Several stations target the significant Russian and Polish minorities.

Cyprus has 48 private and four public channels on the Greek side of the Green Line. Stations in the Turkish Republic of Northern Cyprus, which is not entering the European Union, generally re-broadcast popular stations from Turkey.

Malta is the smallest of the new members. There are 13 national and 25 community stations. Five national channels are private, three are public, three are assigned to political parties, one is assigned to the Catholic Church and one to the University of Malta.

In the newly shaped European Union,

bigger advertising and consumer markets are far more tantalizing than the new layers of directives.

"I do not think that there is any real change for the radio broadcasters. There is optimism, but nothing concrete as yet," said Mark West of Metromedia International, which owns stations in Hungary, Estonia, Latvia and the Czech Republic.

Andras Fischer, manager of Rádió Danubius in Hungary, said he thinks E.U. expansion will have an effect for the media business in Hungary in the mid term.

## Ad growth predicted

"Advertising is hot-wired to retail sales," said Fiddick of Emmis International. "Building a middle class in the (additional) E.U. countries is defined by purchasing power."

"I think that this period is more stabilizing," said Zsolt Somló of advertising agency MindShare Hungary, "because, 10 years ago, multinational companies bought into the market and invested in marketing — now, positive profit and loss is key."

The Polish radio advertising market has suffered along with much of Europe in recent years. Advertisers attracted by lower television prices pushed 2003 radio advertising revenues down 1.6 percent during 2002, while the overall market grew nearly 5 percent.

E.U. accession and overall improvement in the Polish economy should benefit all advertising, according to a CR Media Consulting report published in March. As competition increases, new products will enter the market and established companies will defend their market share.

The report forecasts a 10-percent growth in advertising spending for 2004, although radio might not see much benefit until 2006.

Hotly debated in the European Parliament for a decade, media ownership continues to ignite passionate discussion but few concrete rules.

Member countries have the right to regulate media ownership through national legislation. However, the European Parliament retains the right to review national legislation to preserve the free flow of commerce.

Critics often cite ownership concentration as a barrier to democratic reforms and call for greater E.U. regulation. In the just-added E.U. countries, ownership rules generally allow more concentrated media ownership than in existing members. Foreign ownership is also less restricted.

"I do not think that, just because of the

See EUROPE, page 7 ►

## How Radio Is Owned in Europe

As in the United States, European broadcasting is generally divided into public and private sectors. However, that is where the similarities end.

Depending upon the nation in question, broadcasters in both sectors may operate on varying geographic levels with different audiences and reach. National and regional broadcasters are generally allocated blocks of frequencies to serve their coverage areas, although in some cases a single high-power channel may be able to cover an entire nation.

Both private operators and public broadcasters can operate on any level — local, regional or national — but community and student stations tend to be restricted to small-scale local broadcasting, similar to LPFM in the States.

For example, a listener in Barcelona, Spain, can tune to local and regional commercial stations affiliated with national networks, such as Cadena SER and Onda Cero; unaffiliated local commercial stations; Catalunyan regional private stations; noncommercial community stations; national services from the public broadcaster Radio Nacional de España; and regional services from public broadcaster Ràdio Catalunya.

Most broadcasting is on FM, although some nations still make use of AM and long-wave, and there is some private use of shortwave, too. Eureka-147 DAB is in varying stages of deployment across the continent.

Although in most European nations public and private broadcasters are both allowed to air commercials, public broadcasting tends to be funded primarily by governmental grants, license fees assessed annually for each radio or television set a household owns or by a dedicated tax upon the sale of new receivers.

In some parts of the former Eastern Bloc, FM stations operate on both the OIRT FM band (65.0–74.0 MHz) and the CCIR FM band (87.5–108.0 MHz), although the stations on the OIRT band tend to be legacy services from public broadcasters.

— T. Carter Ross



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## Europe

► Continued from page 6

accession, new investors will buy or buy out media from their recent owners," said Fischer. "Ninety-nine percent of Hungarian media is owned by a company with headquarters a thousand miles away."

Poland's new media bill, passed in October 2003, effectively ended ownership limits on E.U. companies and raised to 49 percent the ownership-stake limit for non-E.U. companies.

Several foreign companies operate media in the Czech Republic. According to a report from Eurostat, the E.U. statistics office, the Czech Republic leads all accession countries in foreign investment.

French-owned Lagardère Active Radio International operates Frekvence 1 and Evropa 2. Irish Radio Investments owns the Kiss radio network. Germany-based Eurocast Rundfunk owns Rádio Impuls, the international arm of Clear Channel Communications owns Rádio Bonton and Metromedia International owns Country Radio and Rádio 1.

### Stumbling block

Trade barriers to new technologies are also set to fall. Countries new to the E.U. will benefit from the union's structural funding, allowing faster growth in many technology sectors, industry analysts believe.

In March, technology research analyst Gartner predicted near-term technology growth three times faster than western Europe, mostly in basic software products. The Gartner report also said that Estonia and Slovenia are already on a par with, if not ahead of, western Europe.

As in most states, Lithuania began changing regulations to conform with E.U. directives in the 1990s. One stumbling block for digital technologies has been the reluctance of telecom regulators to give up dominion over such technologies to media regulators.

In the case of Lithuania, the telecom regulator is responsible for digital transmissions while the media regulator oversees analog broadcasting.

In Hungary, the first DAB experiments began in 1995. Today, several programs from the public broadcaster are aired in digital.

While digital radio broadcasting in the accession countries seems likely to lag behind European DAB, one technology is moving forward. In the Czech Republic, GfK Prague began measuring audiences with Radiocontrol, a watch-sized personal listening habits meter, in April.

E.U. directives set several standards for public service broadcasting. Two of the most challenging for regulators and broadcasters are independence and public funding.

New members are expected to rein in public spending, though accession formalities did not define a payment for public broadcasting or endorse a funding mechanism.

Speaking to the Oxford Media Conference in January, Philip Lowe, the European commission director general for competition, made clear that E.U. regulation has shifted away from protecting broadly defined public interest and from public utility management toward opening up markets, ensuring free and fair competition and promoting the interests of consumers. ●

## Reagan

► Continued from page 4

not only to walk on the world stage but to dominate it. His impact on geopolitics is unquestionable. His term was more divisive at home than has generally been remembered. He was capable of ignoring truly pressing problems.

Like Roosevelt, he knew how to use radio. He understood theater and ceremony. Like Roosevelt, he could be wildly popular and generate deep loathing. For all of the art behind his amiable style, we didn't doubt Reagan was sincere.

Ronald Reagan was a gentleman. He respected the presidency; we cannot imagine him debasing it with peccadil-

loes as Bill Clinton did. He took a bullet for his job. He loved his country. He and Nancy engaged in a romance for which we loved them both. I can only wish I might have his strength and dignity when I reach his age, or now.

The warm tributes surrounding his funeral do not mask the contradictions. As a Cato Institute policy paper put it three years after he left office, "The 1980s gave birth to the second-longest peacetime economic recovery in the United States since World War II; yet, in the minds of many Americans, the 1980s were the antithesis of economic renewal. Like the 1920s, the decade of the 1980s was one of decadence."

The Institute disagreed with that assessment, saying the 1980s in fact was a time of "renewed industrial competitiveness and modest growth that

brought equally modest economic gains for most Americans."

I question Ronald Reagan's cultural legacy and his impact on the radio industry, among other things. What cannot be disputed is that he touched people. My friend Ed Yuhas wrote to me today, and said it well:

"Even at college, I would go out of my way to watch his televised speeches. I knew at that time it may be the only time in my entire lifetime that a president would connect with me as much as he did. Our parents had FDR; we had Ronald Reagan. Perhaps history will show that Reagan was merely a very good president, not a great one like FDR. But none have come close since he left office. I only hope my own children will have their Ronald Reagan some day." ●



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# FCC Touts New RF Measuring Facility

by Leslie Stimson

**COLUMBIA, Md.** The FCC's new RF Anechoic Measurement Chamber is open for business.

The facility and its instrumentation cost approximately three-quarters of a million

and repeatable testing to measure RF emitted by devices regulated by the agency.

Previously, many of these tests were done outdoors, where it's difficult to compensate for RF in the environment, said Edmond Thomas, chief of the Office of Engineering and Technology, and Dr. Rashmi Doshi,

ing about broadcast RF anymore." He listed devices for new technologies tested at the lab, including WiFi, ultra wideband, broadband over power lines, GPS, cell phones, communications radios and wall- and ground-penetrating radars and wireless meter readers.

intended to enhance its technical and engineering expertise.

Powell said technical staff at the commission has increased about 15 percent since the program began in 2001. There are 327 engineers at the commission. There has been a net gain of 69 full-time engineering positions compared to 2001, a 27 percent increase in those positions.



From left, FCC Chairman Michael Powell, Chief of the Laboratory Division Dr. Rashmi Doshi and Chief of the Office of Engineering and Technology Edmond Thomas in front of the anechoic chamber in Columbia, Md.

dollars. "Anechoic" means neither having nor producing echoes. The facility helps the technical staff conduct more-sophisticated

chief of the FCC's lab division.

Chairman Michael Powell said as he unveiled the chamber, "We're not just talk-



Engineer Tom Phillips displays ferrite tiles on the wall of the anechoic chamber. The tiles and carbon-impregnated foam, not shown, absorb higher frequencies

The anechoic chamber uses ferrite tiles and carbon-impregnated foam to absorb higher frequencies.

"We realized we were losing pace" with the testing capabilities needed for newer devices, the chairman said.

The agency needed measurement tools to measure RF output of devices at increasingly lower power levels. And it needed a better way to verify claims made by manufacturers about whether devices fall within allowable RF limits.

Without such tools, Powell said, "We're at the mercy of companies who can make data look a certain way. ... You better have something, otherwise you're just an agency listening to lawyers."

The new chamber is part of the commission's "Excellence in Engineering" Program,

Overall expenditures for technical equipment for OET have increased from an annual average of less than \$50,000 over the last 20 years to more than \$750,000 annually, the commission said.

Including part-time staff, about 40 employees work at the lab in Columbia, said Doshi. The annual budget for the Columbia facility is around \$750,000.

The lab housing the anechoic chamber was built in 1974, but the entire Columbia lab facility dates from the post-World War II era. The FCC Enforcement Bureau also has a satellite interference detection station at the site.

The FCC also shares lab facilities with the National Telecommunications and Information Administration, which operates a laboratory in Boulder, Colo. ●

## DAB

► Continued from page 3

jumpstart lagging sales of receivers. As one example, Danish broadcaster DR is offering eight new national radio services, broadcast only on DAB, according to Laven.

This is one lesson U.S. broadcasters may need to learn for HD Radio to flourish: promises of improved audio quality and the whiz-bang factor of new technology can only go so far in convincing consumers to purchase a new receiver. "Attractive content is the key driver for the success of any digital radio service," Laven said.

Managing this content is perhaps the greatest challenge broadcasters face in moving to digital broadcasting. Along with the audio, stations must now be just as vigilant about ensuring that the correct program-associated data such as artist and title information is broadcast at the right time.

Additional metadata, such as program airdates and times, host information, artist biographies, photos, and graphics, must be managed and linked to the audio and PAD so that on-demand audio archives on station Web sites can be kept current.

WAP servers, PDA playlist downloads and traffic systems need to be synchronized. And that's just for the primary channel.

In Japan, where digital radio has long been seen as just another distribution method for digital audio content already widely available through cable, satellite, mobile telephone and broadband Internet, broadcasters have been grappling with the complexities of managing all of the data needed to repurpose content on varied distribution platforms.

Shigeru Aoki, the research and development engineer for TokyoFM Broadcasting, has developed a new metadata model that encompasses the data needed for production, asset management and distribution.

The format is designed to accommodate schedule information for electronic program guides for existing cable and satellite distribution, as well as the new Integrated Services for Digital Broadcasting system for over-the-air Terrestrial Sound Broadcasting (ISDB-T SB). The model also is capable of managing the metadata for a proposed on-demand music-ordering/download service.

For audio production, Aoki envisions all low-level metadata (audio format, bit depth, frequency, production notes, cue points, etc.) embedded in the header of the audio file itself. This allows the information to be linked with the audio in a digital audio workstation at the point of creation and ensures that this critical information does not become separated from the audio. ●

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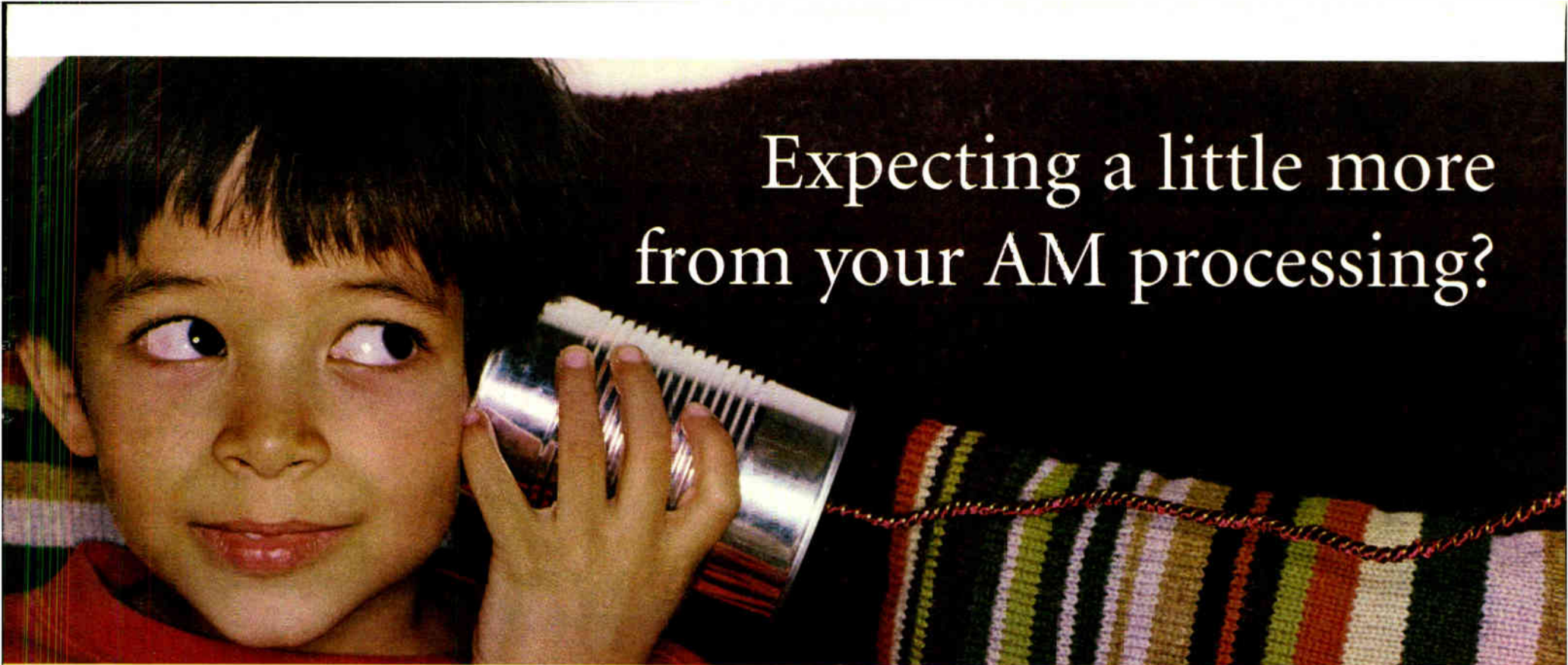


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# New Tower Site Found for WFUV

*Fordham University, N.Y. Botanical Garden  
Achieve Détente After 10 Years*

by Randy J. Stine

**NEW YORK** A nearly 10-year tower dispute between Fordham University's noncommercial WFUV(FM) and a National Historic Landmark appears over.

According to an agreement between the public broadcaster and the New York Botanical Garden, WFUV's half-constructed 260-foot tower — sitting 150 feet from the property line of the Garden — will be moved.

Montefiore Medical Center will allow WFUV to build an antenna mast atop a 28-story apartment building the center owns in the Bronx. Work on the project is expected to begin once a special zoning permit is obtained from the city and the FCC grants a construction permit. Fordham officials say they will not apply for the CP until Montefiore receives the zoning permit.

Botanical Garden officials claim WFUV's partly completed tower on the school's Rose Hill campus is an "eyesore" and degrades the aesthetics of their 250-acre century-old historical property.

What followed was nearly a decade of negotiations seeking an alternative site. The FCC even ordered public hearings on the matter seeking a resolution.



WFUV's half-built tower adjacent to the New York Botanical Garden

teria for the move. This will allow us to continue our public service and educational mission," said Joe Muriana, associate vice president for governmental and urban affairs at Fordham. "Plus, we now have political and community acceptance for the new location."

both for us and Fordham," he said.

Muriana said Montefiore Medical Center officials approached the school early last year about the possibility of building a 142-foot antenna mast on the apartment building. The WFUV antenna will be approximately 409 feet above ground level.

"They had plans to remove a cooling tower from the roof and thought it might be a good spot since (the building) already had some extra structural support," Muriana said.

Fordham will pay Montefiore a monthly rental fee to cover routine costs associated with the new structure. The New York Times pegged the yearly rental figure at \$100,000.

The new antenna location should mean a larger coverage area for WFUV, which has been broadcasting from the partially completed 260-foot tower at reduced power, half of its permitted 50 kW capacity, with special temporary authority from the FCC.

"This allows us to fill in our coverage contour and extend the signal to where it should have been, including parts of Connecticut and New Jersey," Muriana said. The school estimates its signal will cover an area with a population of 13 million.

WFUV is using a booster, WFUV-FM2, atop a 392-foot bell tower of a church in Manhattan to improve its coverage. The 600-watt booster was turned on in January of this year amid complaints by two stations on second-adjacent channels worried about interference. WFUV broadcasts at 90.7 MHz, between WHCR at 90.3 MHz and WFMU at 91.1 MHz.

Neither station has reported any interference from the booster, Muriana said.

"Continued booster operation is projected at this time even after the new antenna comes online to help cover the west end of Manhattan," Muriana said.

Still to be determined is what company will design and construct the new tower. Muriana said the school is in the process of bidding out the work on the tower and antenna. The school favors "an integrated design with one company handling the antenna and structure design and construction."

The legal battle between Fordham and the Botanical Garden pitted a non-commercial broadcaster against preservationists at a time when gaining approval for tower siting was becoming more difficult in metropolitan areas.

The Garden exhausted legal appeals in New York state courts to halt the project. The Supreme Court for the state of New York refused to hear the case on appeal in 1996, saying the Garden failed to prove it would suffer "significant harm" due to the half-constructed tower.

Subsequently, the FCC ruled the tower would have an adverse impact on the Botanical Garden and was in apparent violation of the National Preservation Act. The agency prohibited any further work.

"We could have slogged on with this," Muriana said, "but we realized it had to meet an end eventually."

WFUV is a National Public Radio and Public Radio International affiliate and offers music, sports and educational programming reaching more than 300,000 listeners a week.

The New York Botanical Garden, which is open to the public, is a research institution dedicated to the documentation and preservation of the earth's plant biodiversity, according to organization officials. ●

**W**e could have slogged on with this,  
but we realized it had to meet an  
end eventually.

— Joe Muriana, Fordham University

Fordham began erecting the tower in 1994, but stopped work after the Botanical Garden notified the FCC of alleged inaccuracies in the construction permit application.

Eventually it ruled the tower is in apparent violation of the National Preservation Act and prohibited further work.

"This was really the first alternative location presented to us that met our cri-

Muriana said Fordham hopes to have work on the new tower completed by July 2005. Once the new rooftop structure is complete, the half-built tower next to the Botanical Garden will be dismantled.

As part of the agreement, the Botanical Garden will contribute to the cost of the \$2 million to \$3 million project, said Denis O'Connor, legal counsel for the Garden. "We are contributing in a substantial way to the cost of building the new antenna and removing the old tower."

O'Connor said the new tower will still be visible from the Botanical Garden, but "at a mile and a half away, it will not adversely affect us" in any way.

"The garden is satisfied with the outcome. The ultimate conclusion is good

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# Dawning of a New Day for Data

## Will Data Broadcasting in IBOC Succeed Where Other Services Have Failed?

In this issue we begin a multi-part examination of IBOC datacasting and its prospects. Much has been made of the added value and expanded services that data transmission might add to radio in its transition to digital broadcasting, yet if history is any guide, the future reality may have a different outcome.

Both radio and TV broadcasters have heard the praises of datacasting sung repeatedly in the past, including promises of substantial new business revenue. The truth of the matter is that to date, such a one-way data delivery service has never been broadly successful. With such a cheerless history on record, what makes broadcasters think similar systems in the future will fare better, especially considering the continuing emergence of new competitive technologies?

To best evaluate this environment, let's first review some basics of the business and service models involved.

### Datacasting 101

There are several existing models for the types of service that might be operated as a datacasting enterprise.

The first could be called Extended PAD. This would allow a broadcaster to offer more than the minimalist artist/song title/album metadata carried in the standard program-associated data signal, such as song lyrics, related graphics or photos (e.g., album cover art), and music-purchasing data or links. Alternatively, this data could include photos or charts to illustrate a news story, or additional related text and references for the "tell me more" seeker.

Other models for datacasting involve non-program associated, or NPAD, content, in which data that has nothing to do with the station's audio content is delivered.

Here again, two basic approaches exist. The first simply blasts a continuous stream of data to all receivers, typically with frequent repetition of the same data, which each receiver then filters and sorts according to its user's preferences. The other method sends a series of discretely created, separately addressed messages to individual receivers, again with frequent repetition or "carouseling" of the same messages.

The blast-and-filter scheme seems to maximize the value of a one-way broadcast model, but the discrete messaging approach could also work if the service provider wanted to offer an open paging service rather than an information service, for example. The blast-and-filter model also makes the receiver work harder and longer, causing more power drain, whereas the discrete messaging system simply requires the receiver tacitly to

## How viable is a one-way, point-to-multipoint service for data delivery?

monitor the stream and only awaken into full-power mode when it hears its address being called. The two models could also be merged, such that a blast service could occasionally insert periods of discrete messaging.

Note that the NPAD services typically are envisioned as originating from some third party, for which the broadcaster operates as a pure service provider (like a telco), delivering data to its service area for a given number of bits per buck, or for a flat monthly rate. On the other hand, Extended PAD services are assumed to originate from the broadcaster, but even these could be created by a third party that is synchronized to the station's audio program — as is already being done today for simple music metadata-stream creation delivered over RBDS.

### Is there a market?

All of these models have been tried at one time or another in the broadcast world (radio or TV). In the United States, at least, none has yet gained substantial traction, and several companies have come and gone in the process. It's therefore worth examining why these systems failed, as another part of our study.

In the postmortems of the collapse of recent datacasting businesses, several

reasons have been cited by analysts, while others have been surmised by knowledgeable observers. One commonly presented reason is that these offerings were just ahead of their time, and the mainstream market wasn't ready for them yet. This is an easy out, as it ascribes a certain prescience to the corporate leadership (albeit posthumously), but it's often a disingenuous cover for the real causes. Among the latter is simple lack of demand. Perhaps there really isn't a sufficiently large market for these kinds of services, neither now nor at any time in the foreseeable future.

## The Big Picture



Photo: Gary Hayes, BBC

### by Skip Pizzi

Proponents believe things will be different with digital radio datacasting. For one thing, robust mobile reception should be assured, although whether reliable coverage can extend to the same limits as audio service remains to be seen. (Some of this will depend on the type of data being delivered; more on this in a future column.)

### It's a nice data day

Another big difference between FM subcarrier datacasting and IBOC is that the data transmitted in the latter can be a multiplex of several services, with each service occupying only the bandwidth it requires at any given moment. This bandwidth-on-demand approach provides far greater spectral efficiency than the subcarrier case, where a fixed amount of baseband real estate is occupied by any single service all the time, whether it needs it or not. For many data services, the demand pattern is quite bursty, and this plays much better into a multiplexed-services model than a fixed-bandwidth-per-service (SCA) scheme.

Perhaps adding even more efficiency is the use of opportunistic data in the IBOC system, which allows the main service's digital audio codec occasionally to offer some of its bandwidth to data services when audio coding requirements are temporarily reduced. (This gives new meaning to the term "silence is golden.") Some observers have only half-facetiously commented that public radio, with its heavy emphasis on classical music and talk programming, may turn dead air into dollars by stuffing many opportunistic data bits into its many momentary pauses, something that most commercial formats ardently avoid.

See DATA, page 14 ▶

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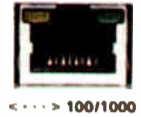
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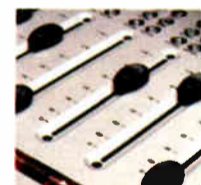
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A networked audio system doesn't just replace a traditional router — it *improves* upon it. Already, companies in our industry are realizing the advantages of tightly integrated systems, and are making new products that reap those benefits. Working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



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**"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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# The Next Breed of Engineers

*Specialization and Money Smarts Are Important, But Experience Is Still the Biggest Draw*

by Tom Vernon

Most people in broadcast management come from a sales background. To them, engineering seems to be a black art, its practitioners akin to magicians.

Hiring the right person to fill an engineering position can be a daunting task. What combinations of skills, education, certifications and experience should managers look for when hiring? Where does the new breed of engineers come from?

## Then: the recluse

In times past, the position of chief engineer was simpler and easier to define. Before consolidation, he or she was in charge of one station. In small- and medium-market operations, the chief usually worked alone. Major-market stations had staffs of three to five engineers. Many were self-educated in electronics, some had military training, and a few also were radio amateurs. Formal education in electronics was uncommon.

Because equipment operations changed little over the years, there was seldom a need to train new operators. The engineer usually could be found in his natural habitat, the shop, soldering iron in hand, working on his latest breadboard design or repair project.

The one rite of passage that all engineers had to make was acquiring the FCC First Class Radiotelephone License with a Broadcast Endorsement. It ensured that all chief engineers had at least a moderate understanding of electronics, basic circuits, communications theory and FCC rules and regulations. It also indicated that the holder had some interest and enthusiasm for broadcasting, because studying for the exam usually took a good bit of time and preparation.

Hands-on maintenance and troubleshooting skills were essential, as vacuum tube gear was prone to breakdowns. The ability to modify equipment to meet special needs and build circuits and equipment from scratch was a definite advantage, especially in small-market stations, where money was limited. While people skills are always valuable, they were not quite as important in days past.

Many top-rated chief engineers were known to be reclusive and/or grouchy.

Today the role of chief engineer has changed in many ways. He or she usu-

ally is in charge of a group of stations, has regular meetings with other department heads, and spends a good deal of time with planning and budgeting — and often very little at the bench with soldering iron in hand. In addition to the traditional electronics knowledge base, he or she must also understand satellite technology, digital audio, computers and computer networking. Interpersonal skills have become more important.

## Now: the specialist

Jeff Littlejohn, senior vice president of engineering for Clear Channel, said that with consolidation has come the age of the engineering specialist.

**In many of our larger operations, one person will handle all of the IT work, another will take care of studios, and there will be an RF specialist to oversee transmitter and antenna systems.**

— Jeff Littlejohn, Clear Channel

“In many of our larger operations, one person will handle all of the IT work, another will take care of studios, and there will be an RF specialist to oversee transmitter and antenna systems.”

In addition to these individuals, Littlejohn said another person often will act as manager to supervise operations. That person will have budgeting and project management skills in addition to a broad understanding of broadcast engineering.

Because of this specialization, there is no one-size-fits-all skillset applied to hiring. Characteristics to look for in all potential hires, according to Littlejohn, include “a great attitude, the ability to work well with others and plenty of experience.”

“The ability to manage people is becoming increasingly important,” said Mark Manuelian, radio engineering manager for Infinity’s WBZ(AM) in Boston. “It’s easier for users to get into trouble with computers than it was with cart machines, and engineers may need to intervene at times to tactfully provide training and guidance on newer pieces

of equipment.”

While formal education in electronics or IT, such as a BSEE or computer science degree, is an asset, the emphasis when hiring is on experience.

“What you know is important,” said Littlejohn, “and we look for lots of practical hands-on experience.”

SBE certification is a definite plus for job candidates, according to Manuelian. He notes that, in many ways, the SBE has taken the place of the FCC as a certifying organization.

“The main benefits to getting certified are that it demonstrates to management that an individual has a serious interest in broadcast technology, it exposes them to the technical issues facing our industry and it introduces them to the SBE and seasoned broadcast engineers.”

Having said that, Manuelian notes

that fewer young people are choosing broadcast engineering as a career and signing up for SBE certification.

“The real irony is that most of the people who go for certification don’t really need it because they already have a proven track record.”

## New directions

While the ability to build a piece of equipment from scratch may not be as critical as it once was, the innovative spirit of broadcast engineering seems just as important as ever; it’s simply gone in different directions.

Manuelian recalls using the Visual Basic programming language to design an interface for WBZ’s audio database when none was available from the manufacturer.

“Many software vendors aren’t fully meeting the needs of stations, particularly those with a news/talk format.

## Data

► Continued from page 12

Regarding market experience for data services, consider that radio broadcasters now have a lot more experience than they used to with IT-type systems, due to the increased use of computer-based technologies for audio content production and management. Most stations have significant on-line skills and well-established Web services to call upon, as well. For certain kinds of datacasting, this fresh background may provide a context of familiarity that can lessen the learning curve’s slope and ease the entry to new service offerings in ways previously unavailable to the industry.



This leaves many opportunities for creative software engineering projects around the station.”

Littlejohn advises managers who are hiring an engineer not to go it alone.

“Many engineers can buffalo their way through any technical questions the manager may pose.”

A good plan is to have potential hires interviewed by someone with at least the same level of engineering experience as the person being hired. The interviewer can pick the top candidates and send those names on to the manager, who can focus his or her efforts on finding someone who will fit the station’s culture and is easy to get along with.

Experience with budgeting and finance is becoming more important, as budgets are tight and department heads in most consolidated operations are expected to understand the bottom line. Littlejohn said that hiring ex-contract engineers is a good way to find people with both tech skills and business acumen, because they have had to balance budgets and occasionally take on extra help. ●

## How to Submit Letters

Letters should be 100 to 300 words long; the shorter the letter, the better chance it will be published in full.

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.

Maybe most important, some sectors of the audience finally could be ready for such service, given the broad experience with the Web, instant messaging and other timely and interactive services currently proliferating. Catching some of this interest could give terrestrial radio the hook into edgy, younger-skewing new markets that it desperately seeks today. So perhaps the old lessons will not apply to the new models. It wouldn’t be the first time the conventional wisdom was proved wrong.

Next time we’ll look at some specifics of HD Radio datacasting and examine why some of that system’s parameters are being reconsidered.

Skip Pizzi is contributing editor of Radio World. ●

## Product Showcase



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**MARKET PLACE**

**Blue Sky Is Part of 5.1 Radio Demo**

Is 5.1 the next big thing in radio? Expect to hear a lot more about it in months to come.

Blue Sky International says its 5.1 monitoring systems were chosen by Harris Corp.'s Broadcast Communications Division in promoting 5.1 monitoring for digital radio.

Several Blue Sky ProDesk 5.1 systems have been installed at the Seattle radio station serving as a beta test site and providing a product demo of 5.1 surround sound radio broadcasting.

According to the company, Harris used Blue Sky 5.1 monitoring systems at its NAB booth to demonstrate 5.1 surround sound for television and what the home listening environment can achieve as part of a "Living Room of the Future" display.

"One of our big market pushes right now is to bring 5.1 monitoring to digital radio," the company quoted Jim Hauptstueck, resale products manager of Harris. "FM digital broadcasters are going to need 5.1 systems for on-air monitoring in their production facilities."

Blue Sky 5 systems have been installed at Harris Broadcast's service and educational facilities in Illinois and training center in Ohio, and were to be installed at a corporate briefing center in Fla.

Blue Sky is owned by Group One Ltd. and Audio Design Labs Inc.

For information contact the company in New York at (516) 249-1399 or visit [www.abluesky.com](http://www.abluesky.com).

**'Light' Version of rfInvestigator Offered**

A new software tool is targeted at single-station owners and smaller engineering offices.

rfInvestigator-Light is based on rfSoftware's professional rfInvestigator product but costs in the hundreds of dollars.



The company touts the mapping capabilities of rfInvestigator-Light and that 30-second terrain and LULC data are included. Users can create contours

for 73.215 and NCE applications.

A "Contour Manager" allows the display and manipulation of multiple stations' contours. A manual antenna tool for DA design will output the design in a format that can be sent to the manufacturer.

Additional program are available. PL-Server creates Longley-Rice "path loss" files, used in rfInvestigator-Light for propagation coverage, best server and interference analyses. An optional plug-in population database gives the ability to do population counts.

rfInvestigator-Light retails for \$495 and rfInvestigator is \$4,995. If the user upgrades from one to the other, the original purchase price is applied.

For information contact the company in Florida at (352) 336-7223 or visit [www.rfsoftware.com](http://www.rfsoftware.com).

**Larcan Has Broadcast Solutions Monitor**

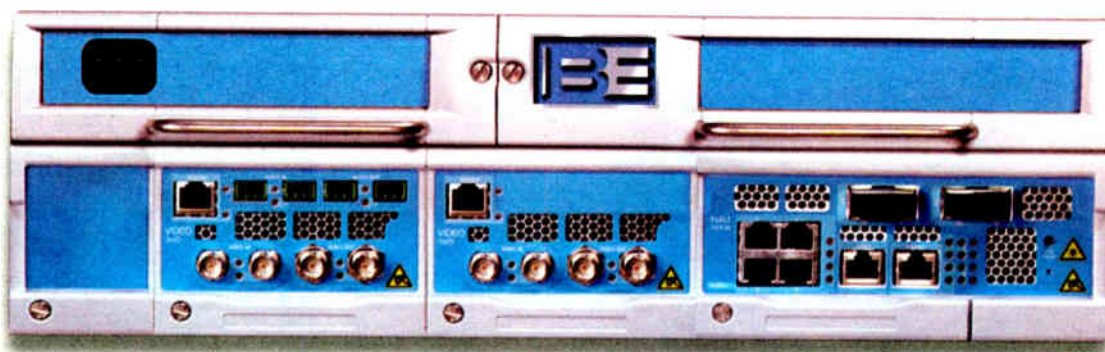
The FMSD-I from Broadcast Solutions Electronics, based in South Africa, is a VHF FM Stereo demodulator used for FM signal monitoring on-site, or for testing the audio and modulation quality of studio encoding systems, such as stereo encoders or transmitter equipment.

The product is available in the United States through Larcan.

The unit features an audio test meter section, a peak modulation test section with 0.1dB accuracy and selection of L/R and mono/stereo measurement on the front panel. It can be used in conjunction with other test equipment such as a Lindos test set. The audio level can be tested by the selection of the various scales, if a low audio signal has been demodulated.

RF input is from the front of the unit (optional from the rear), and is designed for -20dBm signal level or more to obtain the correct input measurements. An LED on the front indicates when the RF input level is below the measurement threshold.

For more information, including pricing, contact Larcan USA at (303) 665-8000 or visit [www.larcan.com](http://www.larcan.com).



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# Workbench

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

## Come Over, Red Rover, Good Boy

by John Bisset

Alan Jurison is information systems manager and broadcast engineer for Citadel's Syracuse/Ithaca stations in New York. Alan passes along a way to make Cool Edit Pro version 2.0 and higher, including Adobe Audition, fire from the board through a series of remote contacts.

When Syntrellium owned Cool Edit, it developed Red Rover, a USB device meant to run Cool Edit without being near the computer. It's ideal for bands

broadcast use, as was reported in Radio World at the time. One of the biggest complaints about Cool Edit/Audition is that it doesn't fire from the board. Enter Red Rover. It provides an external interface, and the product can be modified to hook up to your console.

The procedure is simple enough. Unscrew the back and tack on some wires to the contact closures on the back of the Play and Stop buttons. Alan used solid telco cross-connect wire to tack solder onto the back side of the

Fig. 2 shows the wires paralleling the control switches.

that can cost up to twice as much as a PC, a good sound card, a copy of Adobe Audition and now a Red Rover.

Alan's engineering team bought and modified two of these systems in Syracuse in 2002, hooking them up as



Fig. 1: The Red Rover interfaces to Cool Edit Pro 2.0 and higher to provide remote control of the device.



Fig. 2: Solder parallel wires across the control switches to permit console interfacing to the Red Rover.

doing recordings; they could even hook it up to a foot pedal, as well as verifying that the device is recording.

This product adapts nicely for

circuit board, then spliced into the regular cable used for control wiring in our studios. Alan also drilled his own hole for exit of the cable from the unit.

If your console uses relay closures, it can make the contact to fire Cool Edit from the board. Air staff can now hit the "ON" button on the console for the phone editor and it will start playing the track. If you press the "ON" button again, the track is paused. When the "OFF" button is depressed, the track stops playing it.

High-intensity radio shows that use phone editing will love this feature. The modification makes the jocks happy and saves a considerable amount of money over phone editing solutions

described; and the jocks love them. As a bonus, the Red Rover has a backlit LCD display that can help the jocks with timing if the video monitor isn't directly in front of them.

You can find product info by visiting [www.adstech.com](http://www.adstech.com) and typing "Red Rover" into the Search function.

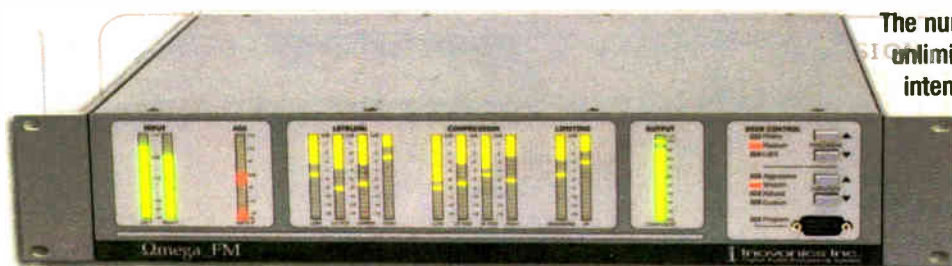
★ ★ ★

Alan Peterson, Radio World columnist and assistant chief engineer for See MORE RCA, page 17 ▶

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*See It Hear It*... Processing doesn't get any better than this.



# More RCA

► Continued from page 16

Radio America Network in Washington, shares another remote start product you may want to consider. This one is the PI Engineering X-Keys Stick. It's a button strip that talks to PCs via PS/2 bus or USB.

It's designed to "shortcut" repetitive entries when using a computer, but Alan suggests that it would make a nifty "Cart Start" button bank when using a product such as BSI's WaveCart. In this case, button 1 would start Cart 1, button 2 starts Cart 2.

The Stick, shown in Figure 3, is an inexpensive alternative to using a touchscreen and has a better feel than "mousing" an audio event. In fact, audio programs such as OTSDJ and Traktor DJ are using X-Key modules.

For info on the Stick visit [www.piengineering.com](http://www.piengineering.com); follow the tabs for "X-Keys" and then "X-Keys Stick." Also on that site, click on "Resources" for DJ applications.

★ ★ ★

Roy Baum is with the Kansas Radio Networks and WIBW in Topeka. Roy read our column regarding RCA plugs and passes along a couple of tips.

Roy got tired of messing with the Radio Shack-style plugs and found the Switchcraft 3502A. The older 3502s are good plugs, but the "A" plugs have a solder cup and a good, strong clamp to hold larger cable (audio and mic cable work well with this plug). Also, the barrel length is longer on the "A" plugs, making them easier to connect and disconnect.

For years, Roy and his colleagues used 3.5 mm and 1/8-inch stereo plugs with their portable MiniDisc recorders. Roy's favorite for that application is made by Calrad Electronics. Roy gets his from Dodge-Carroll Electronics in Topeka at (785) 234-6677.

The Calrad version is a larger-format miniplug that works well with the Sony and Sharp recorders. It is heavier-duty than the Radio Shack fare, and the barrel and clamp are plenty large to accommodate the mic cable we use in broadcast applications.

Both the RCA and miniplugs are large enough that they will take quite a bit of soldering heat before the connector insulation melts, making connector wiring easier.

Roy has another tip for users of the Comrex Vector. He found himself replacing the PC-mount power jack on these units, as they would start causing intermittent power problems after heavy field use. Cleaning the connectors seemed to help, but Roy wanted a longer-lasting solution. He finally replaced the jack with an RCA jack, then replaced the "slip in" power connector on the power supply with one of the above Switchcraft plugs. Roy reports that they haven't had any more power problems.

He can be reached at [roy.baum@radionetworks.com](mailto:roy.baum@radionetworks.com).

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.

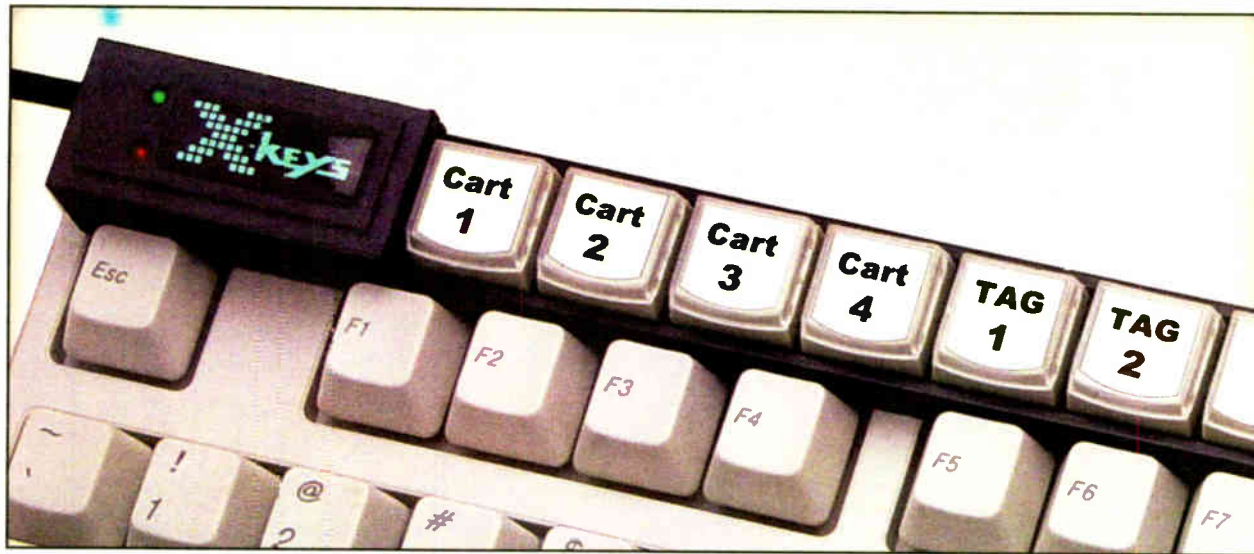


Fig. 3: The 'Stick' adds remote start functions to computer systems.

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ROOTS OF RADIO

# WOR's Antenna System in Cartaret

by Jim Hawkins

Having visited many New York City-area AM stations during the 1960s and having presented them on my Web site, I often am asked about WOR's Carteret, N.J., location. It seems any time the site was mentioned to me, the antenna system was referred to as a "Tee." Eventually I found better information in two magazines, *Communication and Broadcast Engineering*, and the publication *Electronics*. The articles dated to 1935.

When WOR was building the first 50 kW facility in Carteret, it employed Bell Laboratories to design the antenna system to focus on cities on an almost perfect SW-NE line from New York City to Philadelphia. As is shown on the right side of Fig. 1, placement at Carteret provided a straight line up to Manhattan and down to Trenton and Philadelphia.

The SE notch was toward nearby Sandy Hook, beyond which is the Atlantic Ocean. The NW notch covered Morristown adequately. Beyond that were less-populous Sussex County, N.J., and the Pocono area of Pennsylvania. The equivalent power in the direction of New York and Philadelphia was 120 kW. In the direction of the notches, it was about 5 kW.

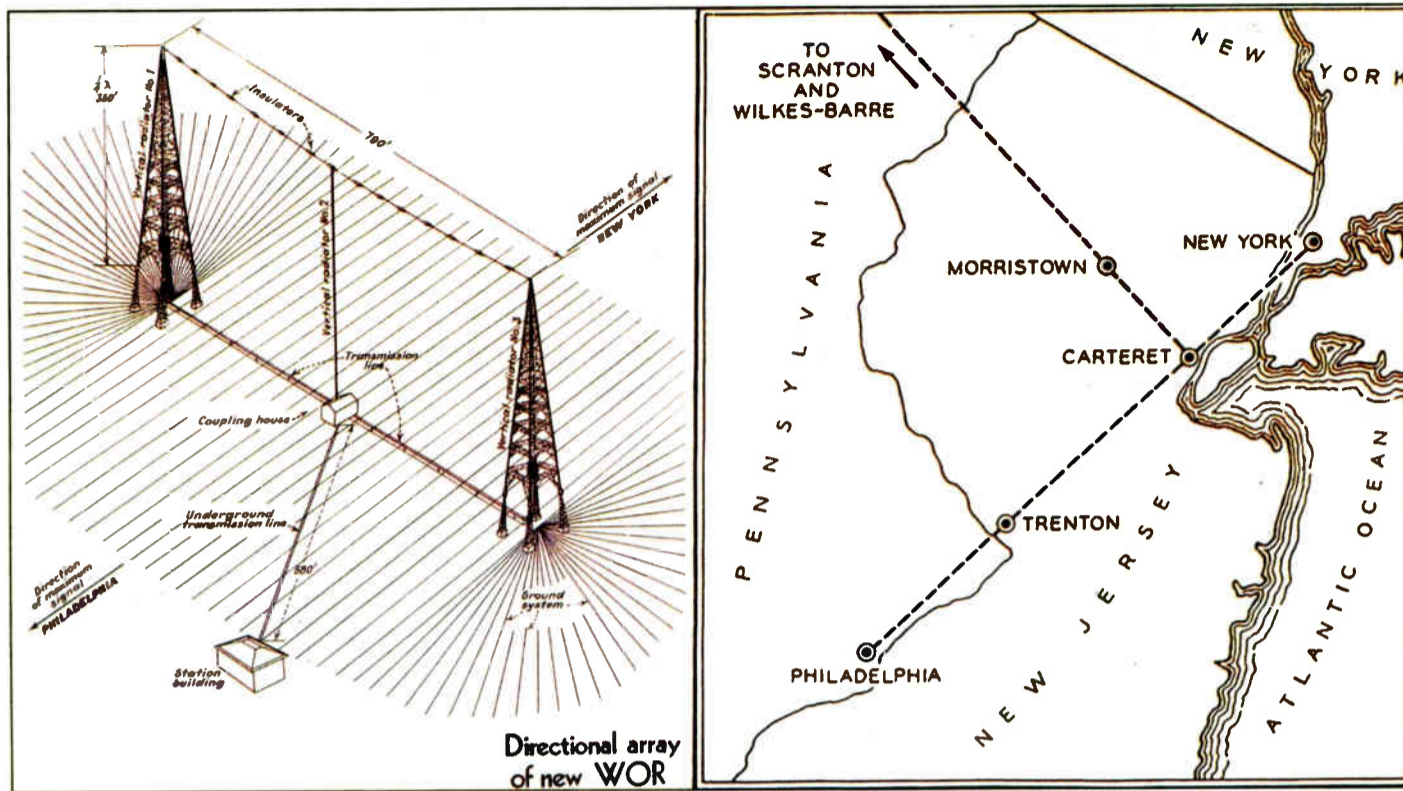


Fig. 1: A drawing of the antenna system and a diagram showing the antenna location and radiation direction

The antenna system consisted of two 350-foot Blaw-Knox towers 790 feet apart. A copper cable was suspended vertically between the two towers by a "messenger cable," seg-

mented by Isolantite insulators spaced 26 feet apart. In other words, this was an array of three vertical antennas.

The center vertical was added to adjust the ground-wave/skywave cancellation points. To the southwest, the cancellation point was approximately 30 to 40 miles south of Philadelphia, well north of Baltimore so that the sky-wave signal in the latter city was strong at night.

Each tower was insulated from and supported by smaller grounded sup-

ported towers or legs. The tuning house was attached at the top of one of the supporting towers for each main tower (Fig. 3). This placed the bottom of the radiating portion of the towers 35 feet above ground to reduce the capacitance to ground, resulting in a more desirable distribution of current. The total height of the towers above ground was 385 feet.

The WOR transmitting facility was moved from Carteret to its present location in Lyndhurst, N.J., in 1968, formerly

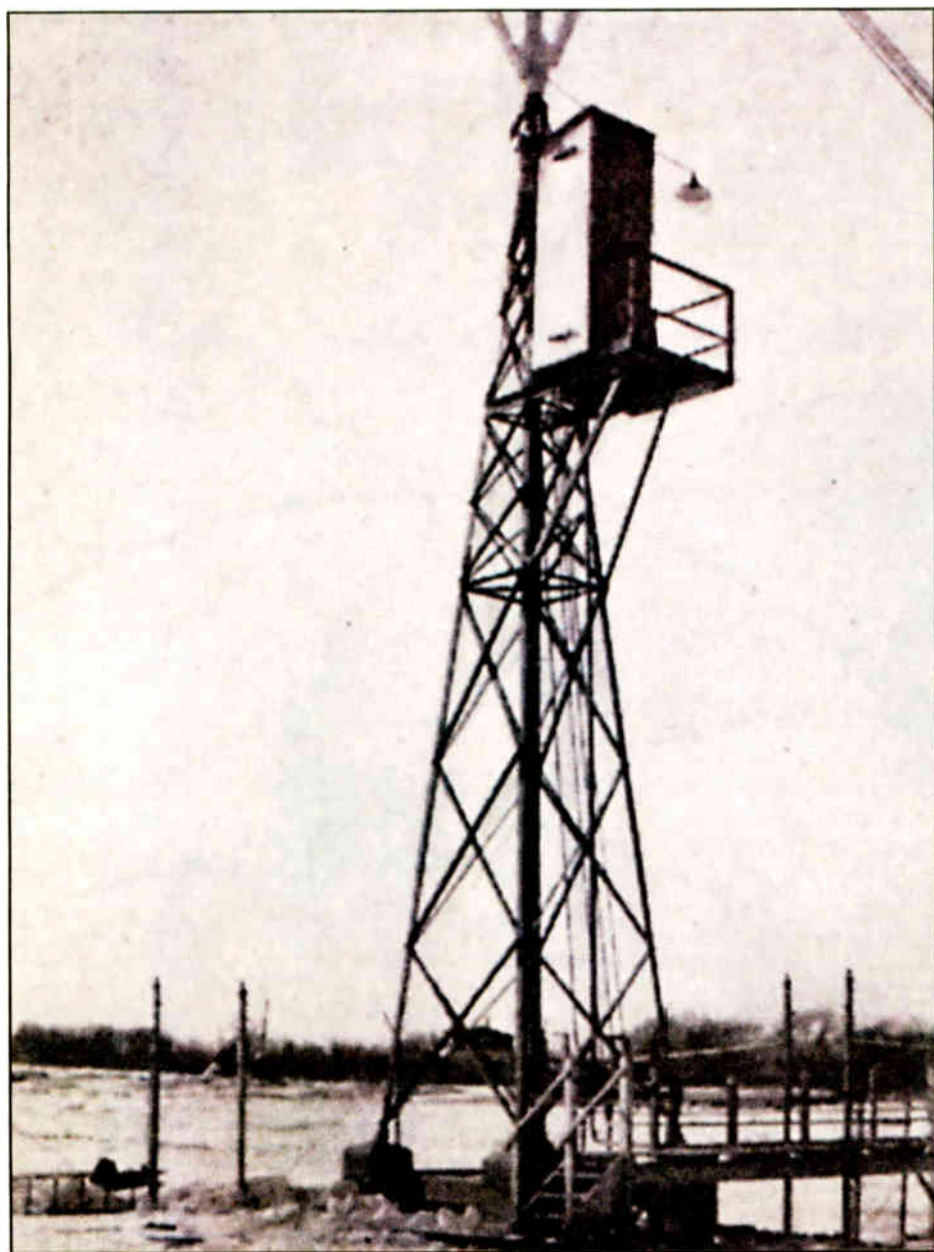


Fig. 3: A support leg with tuning house at the top is seen in another photo from *Electronics*.

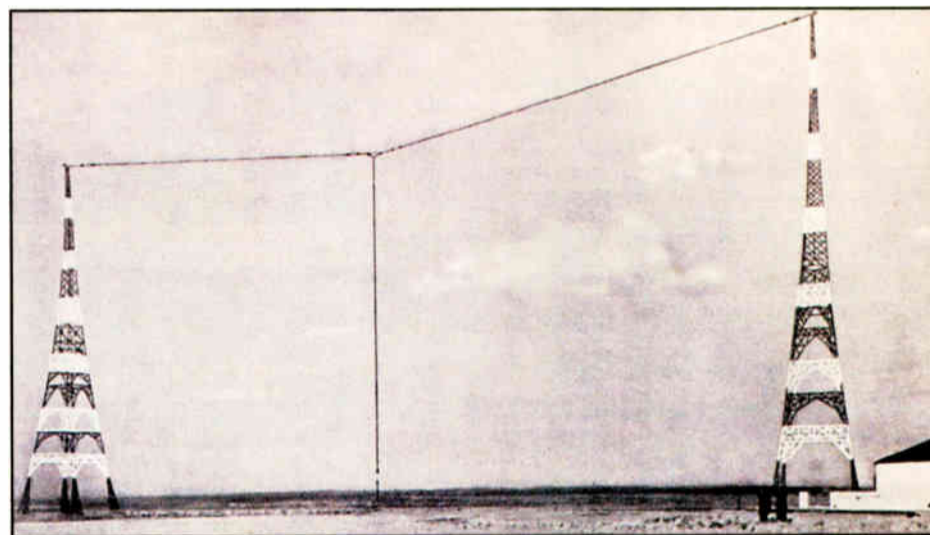


Fig. 2: Photo of WOR's AM antenna from *Electronics* magazine, September 1935

ported towers or legs. The tuning house was attached at the top of one of the supporting towers for each main tower (Fig. 3). This placed the bottom of the radiating portion of the towers 35 feet above ground to reduce the capacitance to ground, resulting in a more desirable distribution of current. The total height of the towers above ground was 385 feet.

The antenna system was fed at the center radiator through a phase shift circuit from a nitrogen-filled, 3-inch concentric conductor running six feet underground from the transmitter building about 1,400 feet away. From

occupied by a dump. The location uses three towers in a "dog leg" configuration. According to Tom Ray of WOR, "A decision was made in the late 1950s/early '60s to move the transmitter closer to the city, as increased electrical noise in the city was giving WOR grief on the East Side."

The southwest lobe still focuses on the Trenton to Philadelphia area, but the northeast lobe has been tilted toward east-northeast to cover Manhattan and Long Island.

Visit the author's *Radio and Broadcast Technology Page* at [www.jphawkins.com/radio.html](http://www.jphawkins.com/radio.html).



Information is provided by suppliers. Companies with news of unusual or prominent sales should e-mail to radioworld@imaspub.com.

Omnirax provided broadcast furniture for Entravision Communications Radio Division's flagship facility in Los Angeles. The work encompassed 27 on-air, production and imaging studios. John Buckham is project engineer for Entravision. ...

Axia Audio announced several partnerships as well as an early installation. The company, launched by Telos Systems, announced reseller agreements with vendors ENCO Systems, Scott Studios and Radio Systems.

Axia also said its products were chosen by Clear Channel's WREO(FM) in Ashtabula, Ohio, for sending multiple audio channels from one building to another. John Riccio is DOE. ...

Moseley said its Lanlink 900 LAN Extender part in the prototype transmission of real-time traffic data using HD Radio technology at NAB2004. Lanlink was installed at KSTJ(FM) to provide the bidirectional Ethernet circuit needed to transport the live data portion of the broadcast to the HD Radio transmitter. At KSTJ, Lanlink was the companion for a Moseley Starlink 9003Q digital STL, which conveyed the 44.1 linear uncompressed stereo audio for the HD Radio broadcast. ...

Separately, an AM station in Morgantown, W.Va., is running twin uncompressed 44.1 kHz audio streams on 950 MHz aural STL in less than 500 kHz of bandwidth using 128 QAM, according to Moseley. Bowers Broadcasting's WCLG uses an SL9003Q system. Dave Chancey of Moseley stated, "The short path with quiet RF noise floor allowed us the luxury of going to 128 QAM. ... As the industry converts to HD Radio and a 44.1 kHz audio sampling standard, the 128 QAM modulation technique will allow broadcasters to convey wider audio bandwidth in equivalent RF bandwidth or 32 QAM." Sites with RF hostile environs, he noted, may not allow use of 128 QAM thanks to dropouts from interference. ...

Clear Channel Radio chose Harris Broadcast Communications Division to provide a turnkey, five-room broadcast suite for the syndicated program "The Bob & Tom Show," to be constructed at WFBQ(FM), Indianapolis, Ind. Each host will have a Harris digital console. ...

Separately, Harris said its 100th VistaMax Networkable Audio Management System will be installed at Bonneville's WWZZ(FM) in Washington, which will incorporate the system into new studios at the current broadcast facilities of WGMS(FM) and WTOP(AM). WWZZ also purchased four studios of Harris furniture and BMXdigital On-Air Radio Consoles. ...

Eventide said 20 BD500 broadcast obscurity delays were purchased from Broadcasters General Store by Nassau Broadcasting Partners, which recently acquired 33 New England-area stations. Jeff Smith is director of broadcast systems for Nassau. ...

Klotz Digital America won a contract from Bonneville International to supply a VADIS AudioMedia Platform for KSL(AM) at the Salt Lake City Broadcast House. ...

Comcast SportsNet is using a C1000 Digital Broadcast Console from Solid State

Logic for centralized audio production in the Wachovia Center. The company has broadcast rights for several major pro sports teams in Philadelphia. ...

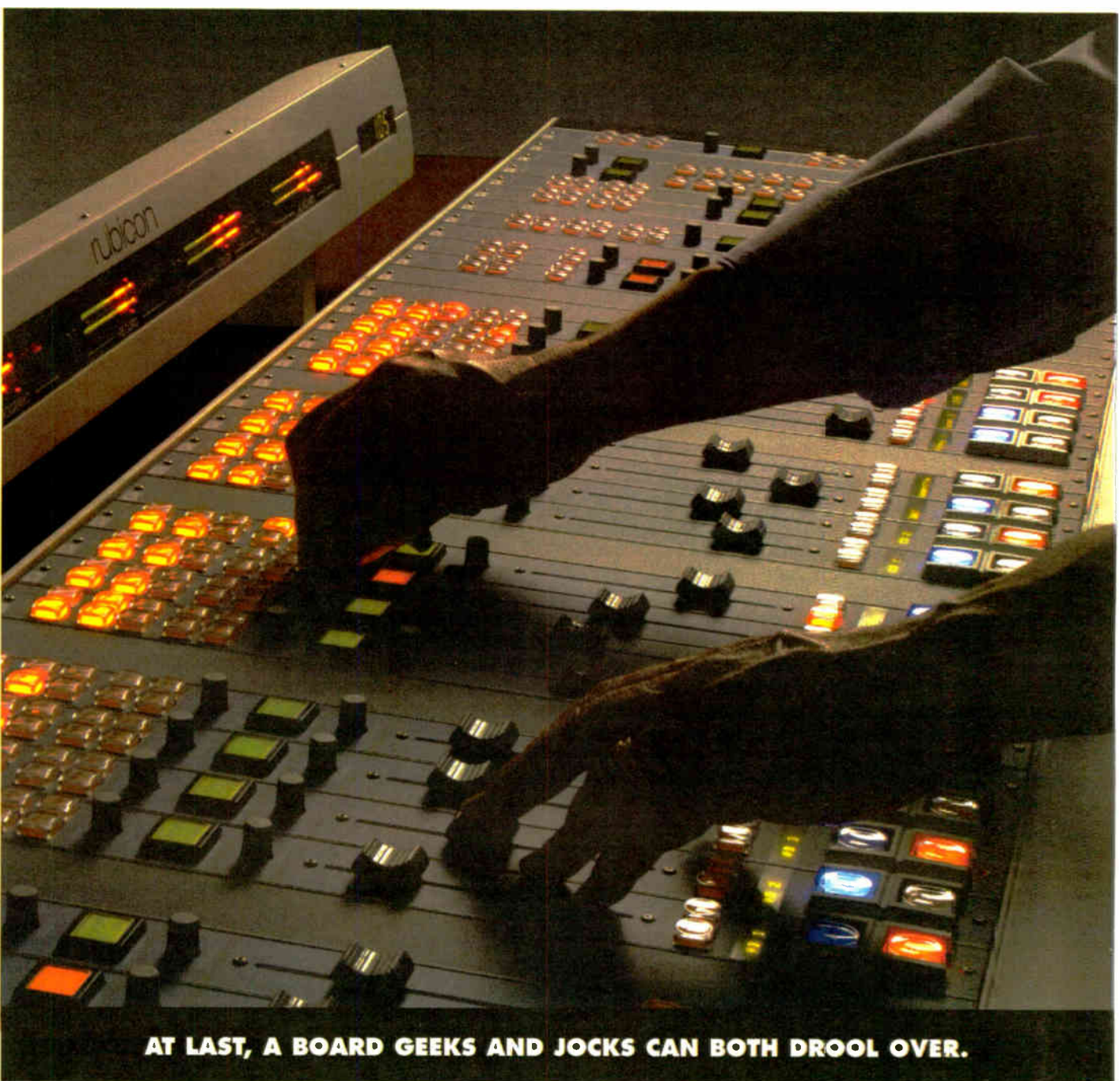
The South African Broadcasting Corp. chose DaletPlus News Wire as its digital newsroom computer system, according to Dalet Digital Media Systems. Separately, Dalet announced installation of its products at Radio Televisie Malaysia. Dalet has outfitted RTM facilities with 200 workstations. ...

Police Radio, a broadcaster in Turkey, chose Netia Radio-Assist 7 for its studios in Ankara. ...

The British Forces Broadcasting Service is modernizing to digital consoles. The project involves Dalet audio management systems and Lawo zirkon mixers. Locations include Gibraltar, the Falkland Islands, Belize, Brunei, Cyprus, Germany and Kathmandu. ●



One of the 27 Entravision studios in Los Angeles for which Omnirax provided furniture.



AT LAST, A BOARD GEEKS AND JOCKS CAN BOTH DROOL OVER.

Fact is, SAS packs so much sophistication and capability into the depths of the new **Rubicon™** control surface that even the most intensive major market programmer or board operator will swoon. Yet Rubicon is so intuitive, so comfortable, so easy to use, the weekend intern is sure to sound like a pro. Here's why:



SAS Connected Digital Network™  
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RIOLink™ Remote I/O



Frequently used controls are always right at the operator's fingertips. And for the power-user, the multi-function "dynamic control matrix" provides quick access to deeper capabilities. In other words, Rubicon has a bucket load of features for the simplest or most complex of broadcast-related tasks.

And should you think form to precede function, you'll find Rubicon's clean, easy-to-understand interface wrapped up

within a custom-configured, drop-dead gorgeous frame.

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SBE NEWS

# SBE: 40 Years of Growth and Service

by John L. Poray, CAE

The author is executive director of the Society of Broadcast Engineers.

Just over 40 years ago, a group of broadcast engineers gathered on a Sunday afternoon to plan the organization of a new group that would benefit their profession. The group's first meeting was one of many scheduled events at the annual convention of the National Association of Broadcasters, held that year at the Conrad Hilton Hotel in Chicago.

The new group, which met in the hotel's Williford Room, was called the Institute of Broadcast Engineers. Their first order of business was to change the organization's name to something that would not be confused with the IBEW, the International Brotherhood of Electrical Workers or, for that matter, any other union. The name Society of Broadcast Engineers was chosen.

## Beginnings

But the story didn't start with that first official meeting.

It goes back to 1961, when John Battison, P.E., a broadcast consulting engineer in Washington and editor of Broadcast Engineering magazine at the time, penned an editorial suggesting that perhaps it was time for a new organization that would have the interests of the broadcast engineer as its sole mission.

the new group. However, after two years of waiting, no one had surfaced to take the lead so he decided to do it himself.

In April 1963, Battison ran an application form for the new organization in Broadcast Engineering, and, with the help of his family, mailed letters to almost 5,000 radio and television chief engineers across the country, inviting them to join. The response led Battison to call the first official meeting during the 1964 NAB convention in Chicago.

Did any of the roughly 100 broadcast engineers attending that first meeting anticipate that their actions would create a legacy that would carry on today, 40 years later?

## Steering

A steering committee of six broadcast engineers, chaired by Battison, was created to guide the formation of the new Society of Broadcast Engineers.

They drafted articles of incorporation and by-laws and determined the first slate of candidates for officers and board of directors. In addition to Battison, the members of the steering committee included Sid Davidson, Charles Hallinan, Ambrose Kramer, Howard Town and Ben Wolfe.

Battison became the Society's first president, Hallinan vice president and Kramer treasurer. Kramer's wife Mary became the first elected secretary. Wolfe would be a member of the first board of directors and would later make important contributions that would have lasting effects on the organization.

Hallinan was a radio engineer from Binghamton, N.Y., who had had a small group of local broadcast engineers meeting independently for some time. He offered to Battison that this group become the Society's first chapter. Battison agreed, and it became Chapter 1.

## Getting organized

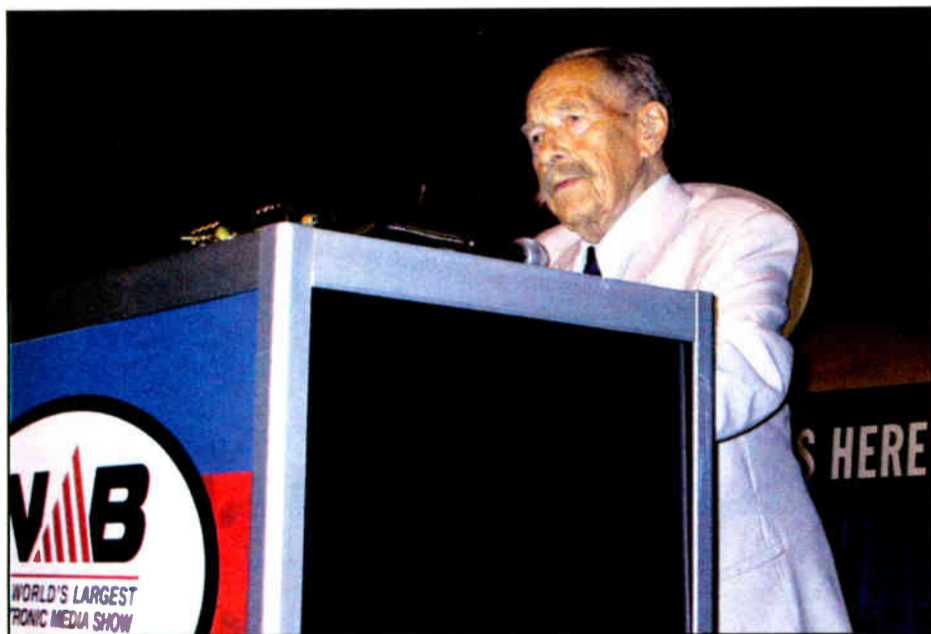
Other members soon organized chapters in their cities, including Chapter 2 in Northeastern Pennsylvania and Chapter 3 in Kansas. By 1971, there were more than 1,200 members and 19 active chapters in 18 states.

Gaining recognition and credibility for the young organization wasn't easy. The first presidents spent much time just holding the organization together. Third president Al Chismark and fourth president Lewis Wetzel, like their predecessors, worked hard to keep SBE moving forward.



Four schematic symbols, from top, appeared in the original logo: antenna, inductor, capacitor and ground potential. The drawing around the letters is an outline of a TV camera.

ly be accepted widely in the industry and become the Society's most recognized attribute. Back in 1973, original steering committee member Ben Wolfe took on the task of drafting the first certification



SBE founder and first president John Battison speaks at April's SBE Membership Meeting in Las Vegas.

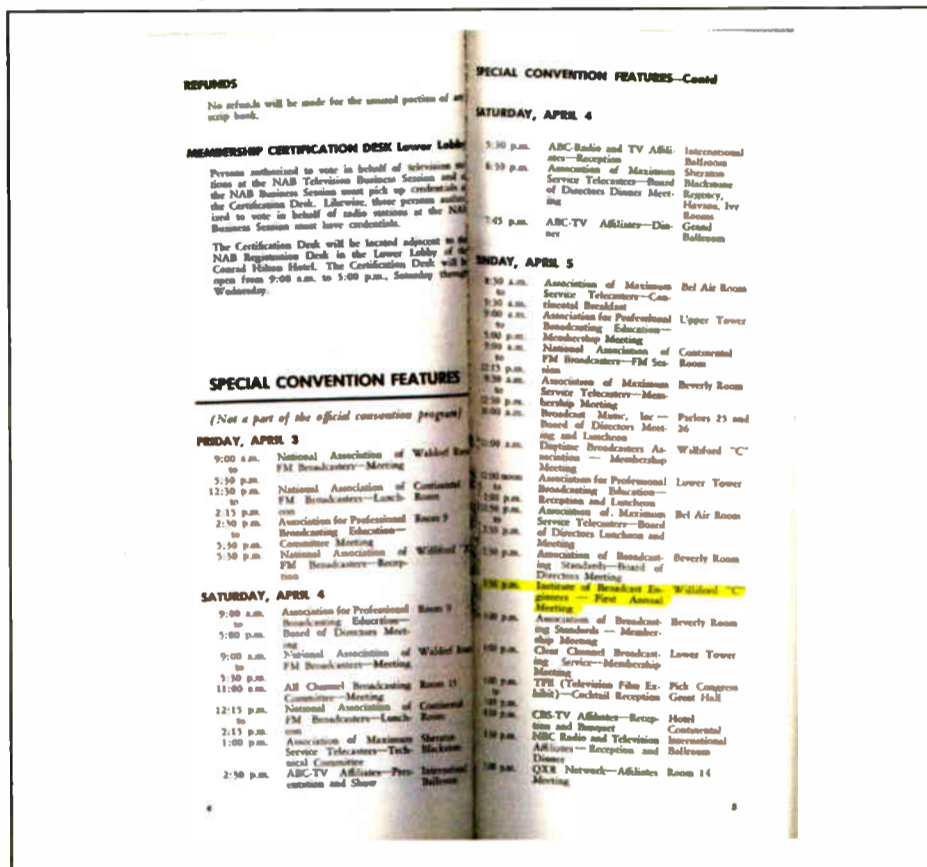
Some engineers at the time were members of the Institute of Radio Engineers. Battison had been a member since 1941, but had growing concerns that it wasn't meeting the needs of the average broadcast engineer. There was talk that this group would become part of the larger American Institute of Electrical Engineers, later to be known as the Institute for Electrical and Electronics Engineers (IEEE). This further concerned Battison, who feared the interests of broadcast engineers would be buried even more in the shadows among the larger organization's multiple engineering interests. Those two organizations eventually did join forces in 1963.

Battison received more than 30 letters in response to his editorial and hoped that someone would come forward to organize

After operating via the steering committee for one year, the slate was elected at a meeting held during the 1965 NAB Convention.

During his term as president, Battison concentrated on the Society's publication, the SBE Journal, which provided technical articles and news about the new organization. It also provided a valuable public image for the Society. After one term as president, Battison turned the reins over to Hallinan.

During Hallinan's two terms as president, he did much to improve the Society's business affairs, initiating policies and procedures that were used for many years. He devoted countless hours to the Society, running the fledgling organization, as Battison had done before him, from his home.



A page from the 1964 NAB program shows the first official meeting of what would become the SBE.

In 1971, Bob Flanders of WRTV(TV) in Indianapolis had been elected president. Flanders' two years at the helm had an important impact on the Society. During this time, its records were moved to Indianapolis, and the first paid staff person, Flanders' secretary at WRTV, was hired to keep records and handle correspondence.

The Society became involved in difficult and controversial national issues such as the battle to preserve the FCC First Class License for engineers. It was also during Flanders' two terms that the Society's began to discuss the need for guidelines of professional conduct and a non-regulatory certification program.

In 1973, Jim Wulliman became SBE's sixth president, and it was during his first term that the Society adopted the SBE Canon of Ethics. This document had been suggested by board member Ed Karl, and it was Karl who took on the task of drafting the document.

In 1975, after two years of planning and discussion, SBE established its certification program, which would eventual-

program proposal and was joined on the new certification committee by Wulliman and John Wilner.

The three men appeared on a panel at the 1974 NAB Convention and delivered a presentation, "A New Broadcast License Certification Program." It was, in effect, a trial balloon to gauge reaction. Reaction was positive and in November 1975, the SBE board of directors approved the final draft of the certification program.

Interest in the new certification program grew slowly at first, but, as acceptance gained momentum, the number of engineers becoming certified began to rise more significantly. Though SBE had fought to save the FCC First and Third Class operator's licenses, the FCC's move toward deregulation turned out to be a boon for SBE's certification program as employers needed a new method to evaluate an individual's qualifications.

The years from the mid-1970s to the mid-'80s saw much growth in the

# SBE

► Continued from page 20

Society. The number of chapters grew to more than 80, and membership climbed to more than 4,500. The Society was led by capable presidents including Glen Lahman, Robert Wehrman, James Hurley, Robert Jones, Ron Arendall, Doyle Thompson and Roger Johnson.

It even toyed with changing its name for a time to Society of Broadcast and Communications Engineers (SBCE), but opted to stay with the name chosen in 1964.

In 1981, following the untimely death of Harold Ennes, Chapter 25 in Indianapolis created the Harold Ennes Scholarship Fund and, a year later, gave it to the national organization for more exposure.

Ever since, Ennes scholarships have been awarded to deserving persons in the industry who need assistance in obtaining continuing education, and to high school and college students who wish to pursue a career in broadcast engineering. Today, the Ennes Educational Foundation Trust has expanded its scope to include educational programs and financial support for broadcast engineering related educational publications.

## Frequency coordination

It was also during the late 1970s and early '80s that a number of local markets were fortunate to have someone serve in a volunteer capacity to coordinate broadcast auxiliary spectrum use.

In the late '70s, SBE began an effort to bring local frequency coordinators under a common national umbrella to help improve and standardize the level of service being provided and to provide a central database of coordinators. The Society also eventually produced special frequency coordination software, developed by member Gerry Dalton of Dallas, to help automate the coordination task.

The driving force behind this national effort was Richard Rudman, who had been instrumental in creating the Southern California Frequency Coordination Committee in 1976. Under his leadership, the SBE frequency coordination network grew to more than 100 local coordinators. Part 74 coordination became synonymous with SBE and joined certification as one of the organization's primary functions.

Today, under the leadership of Ralph Beaver, SBE's network of volunteer coordinators numbers more than 150. The Society has extended its services to include event coordination and has provided frequency coordination services to the National Football League since 1999.

## SBE chapters and conventions

Activity at the local chapter has always been at SBE's core. The Society now has more than 100 chapters, most of which meet monthly and provide a source of education, fellowship and recognition to local members.

Chapters can be found from New England to the Pacific island of Saipan and from Miami to Alaska. They are led by volunteers who feel a commitment to providing continuing education opportunities in broadcast technology and a vehicle for colleagues to share technical problems and solutions. Most SBE chapters begin because of interest by local broadcast engineers.

With SBE's growth in the 1980s came the desire to get the membership together on an annual basis for a large, national

educational event.

Born out of a successful regional convention in St. Louis, the first national SBE Convention was held in that city in 1986. By then, Rudman had become the Society's 14th president; and he presided over the organization's first convention. National conventions would be held in several cities in the coming years, including St. Louis again in 1987, and Kansas City, Denver, Houston and San Jose in the years following. Battison, who had run the successful WOSU engineering conferences at Ohio State University for five years, had just retired as director of engineering of WOSU stations and was asked to run the first five SBE engineering conferences.

As the national economy softened in the late 1980s and early '90s, attendance at the national conventions slipped. The

Society partnered with other broadcast organizations to present national conventions from 1993 through 1996.

NewsTech, held in Miami Beach in 1993, was the product of a collaboration with the Radio & Television News Directors Association. From 1994 through 1996, SBE joined with RTNDA, the Society of Motion Picture and Television Engineers (SMPTE) and the NAB Radio Show to create World Media Expo. The three Expo events were held in Los Angeles, twice, and New Orleans.

Following the third edition of World Media Expo, the four sponsoring organizations went their separate ways. SBE decided to focus on the regional conventions that a number of SBE chapters had been presenting quite successfully, some for more than 20 years at the time.

Called the SBE National Meeting, the

first was held in conjunction with the Central New York SBE Regional Convention, sponsored by Chapter 22 and held in Syracuse in 1997. The SBE National Meeting continues to be held in the fall each year and has partnered with chapter-sponsored regional conventions in Seattle; Madison, Wis.; Pittsburgh; and Phoenix, Ariz. It has made return visits to Syracuse and Madison.

In 2004, the National meeting will be held in conjunction with Bos-Con, the SBE Chapter 11-sponsored convention, located near Boston, and in 2005, with the Chapter 67-sponsored Broadcast Engineering Expo held in the Dallas/Ft. Worth Metroplex.

*This overview of the SBE's 40 years will conclude next time with discussion of regulatory issues, the national office and expanded certification.*

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## The Man Knew How to Use Radio

by Ken R.

Had you lived in Davenport, Iowa, in 1932 you could have tuned in future president Ronald Reagan calling play-by-play of University of Iowa football on WOC(AM). From this humble beginning, for which he was paid \$5 per game, Reagan went on to a long career in the public eye, much of which took place on the wireless.

After his stint at WOC, he transferred to Palmer Communications' sister station in Des Moines, WHO(AM), in early 1933. Here he perfected the art of "baseball wire re-creation." It involved the announcer sitting in a room miles from the game, giving his listeners imaginary details fleshed out from skimpy teletype information fed to him. When the teletype malfunctioned, Reagan filled time by making up action: endless pop fouls and the ever-popular dog loose on the field.

Reagan also broadcast play-by-play of Iowa Hawkeyes football and the Drake Relays, track and field events from Drake University in Des Moines.

His salary jumped from \$5 per game to \$100 per month, big money during the Depression.

### Code

Joel McCrea is market manager for Clear Channel stations in Des Moines. Seventy years after Reagan's tenure, WHO retains its call letters; it now airs a news format.

"Reagan reportedly closed his broadcasts with a coded message which told his friends whether or not he would be

showing up at his favorite hangout, the Moonlight Inn at 73rd Street and University, that night," McCrea said.

With his brother Neil, Ronald Reagan also broadcast what he claimed was the first sports talk show. In audio featured on the WHO Web site ([www.whoradio.com](http://www.whoradio.com)), the future president described how his visiting brother used to pipe up during Ron's on-air pregame predictions. The conversations expanded into discussions of the merits of various teams and their chances of winning the next game.

After four years in the WHO studios, Reagan met Joy Hodges, who arranged a screen test for him at Warner Bros. in California. We know what happened from there. But this wasn't the end of Reagan's radio career.

### Dramatic turns

While starring in mostly "B" movies through the early 1950s, Reagan appeared frequently on radio shows broadcast from Los Angeles.

Radio historian Chuck Schaden, who runs the site [www.nostalgiadigest.com](http://www.nostalgiadigest.com), cites several Reagan appearances on "Lux Radio Theater" on the CBS network including a Dec. 2, 1940 recreation of his movie "The Knute Rockne Story." On the same series in 1947 Reagan voiced a role in "Nobody Lives Forever" and followed that in 1948 with "Cloak and Dagger."

Film star Reagan also appeared on another CBS show, "Suspense." One these stints included the March 23, 1950 "One and One's a Lonesome," a story in which his character turned a lumber yard into an illegal gambling joint.



Ronald Reagan

In 1951 he was heard on "MGM Theater of the Air" in a drama titled, "Joe Smith, American," a radio version of a 1942 movie in which he starred.

On the NBC radio network, he showed up in "The Cavalcade of America," a long-running series sponsored by DuPont. His episode was "Ulysses in Love," in which he appeared as Ulysses S. Grant.

"Occasionally Reagan would guest-star on variety or comedy shows," Schaden said. "He was on Bing Crosby's show and also appeared with Burns and Allen, but not on a regular basis. He was a popular leading man so it was natural for him to be on these shows."

### The radio addresses

In 1975 to 1979, temporarily out of political office, he gave more than 1,000 daily radio broadcasts, writing most of them himself. A selection is available in an audio book that was published by Simon and Schuster in 2001 called "Reagan in His Own Voice: Ronald Reagan's Radio Addresses."

Those broadcasts are not generally remembered. But a generation of listeners around the country reencountered the Reagan radio presence after he assumed the presidency in 1980. He chose to launch a series of national radio addresses out of frustration with the treatment he felt he was receiving in the media, according to sources such as the historical Web site, <http://eightiesclub.tripod.com/id397.htm>.

Site authors Robert C. Rowland & John M. Jones state that at various times these speeches were made available over the ABC, NBC and Mutual Broadcasting networks. From April 1982 until the end of his presidency, these 330 Saturday

morning sessions helped in setting the political agenda for the country. Subsequent presidents have used such addresses with varying degrees of success, but they were a novelty in 1982 to listeners not old enough to have heard the "fireside chats" used by Reagan's early idol, Franklin Roosevelt.

"I'd like to take a few minutes of your time to talk about some of the problems we face in this blessed land of ours and what I feel we should do about them," Reagan said then. "I can't cover all that territory in 5 minutes, so I'll be back every Saturday at this same time, same station, live. I hope you'll tune in."

While he may be best known as The Great Communicator for his career in politics, Ronald Reagan sharpened those skills on the radio.

### His First Presidential Radio Address

*The following are excerpts from Ronald Reagan's "Radio Address to the Nation on the Program for Economic Recovery," which he delivered at 12:06 p.m. on April 3, 1982, from the Oval Office at the White House.*

My fellow Americans:

I'd like to take a few minutes of your time to talk about some of the problems we face in this blessed land of ours and what I feel we should do about them. I can't cover all that territory in 5 minutes, so I'll be back every Saturday at this same time, same station, live. I hope you'll tune in.

These aren't easy times for a great many of you. Yesterday we were told that unemployment has gone up another two-tenths of 1 percent — equal to the unemployment rate we had in 1975 as we began to come out of that recession.

We can, however, take some comfort from the fact that 99-1/2 million of our people are employed. ...

The last recession before this one came in 1980. And by the time our administration took office, unemployment had almost reached 8 million, the prime rate had reached 21-1/2 percent — the highest in more than a century — and inflation was at 12.4 percent. According to the polls, inflation was the number one problem in everyone's mind. ...

We proposed a program of economic recovery based on the belief that high taxes had deprived people and business of incentive to the point that we'd lost much of our ability to produce ... our program also aimed at reducing the rate of increase in government spending. ... By mid-July, we were back in, if we were ever out of, a recession. But for the first time in the many recessions that have taken place over the recent years,

See REAGAN, page 23 ▶

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# A Web Audio/Video Resource List

*No Longer Arcane, Online Audio/Video Is Now an Everyman's Promotional Tool*

by Joe Dysart

Once the domain of digerati insiders, Web audio/video is only a little tougher to master these days than the paper clip — and about as easy to distribute. In fact, if you have someone on staff who is reasonably Web-savvy, plus a few hundred dollars to spare, you can easily have Web audio and video streaming from your site in about a week, according to Web audio/video analysts.

"Web audio/video has emerged as the multimedia option of choice for enterprise Webcast users," said Steven Vonder Haar, principal of Interactive Media Strategies ([www.interactivemediastrategies.com](http://www.interactivemediastrategies.com)). "The levels of usage clearly illustrate that it is resonating with corporate executives as a vibrant communications tool."

According to a survey of 1,206 top corporate executives released last winter by IMS, more than 40 percent said they were using Web audio/video in some facet of their business. Plus, 39 percent of those already using Web audio/video said they planned to increase spending on the technology in 2004, Haar said.

"In general, companies spending on Webcasting appear slightly more bullish on the idea of doubling-down on their investment in the technology. Of those companies planning an increase in Webcast spending in 2004, 61 percent they are planning spending hikes of up to 25 percent higher than 2003 levels."

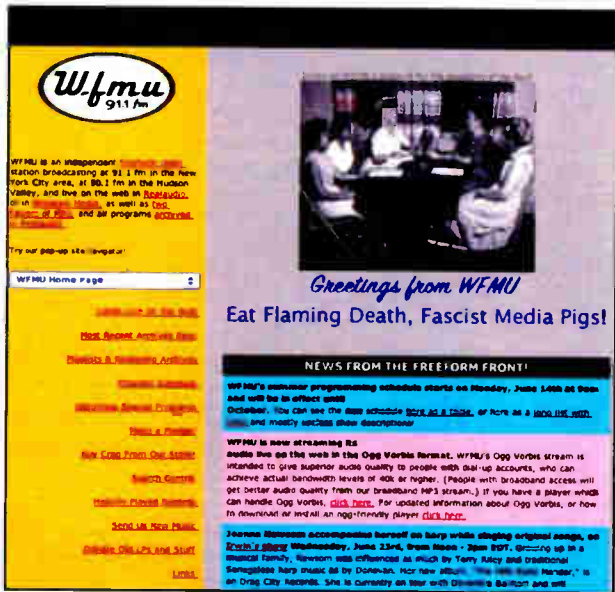
## Radio and the Web

Many radio stations with Web presences have taken advantage of the chance to offer Internet broadcasts of their programming over the Web.

Just a taste:

KTRU(FM) ([www.ktru.org](http://www.ktru.org)) at Rice University in Dallas broadcasts in both WindowsMedia and RealNetworks Real Media.

Noncommercial WWOZ(FM) ([www.wwoz.org](http://www.wwoz.org)) in New Orleans uses Real Media as its format of choice to reach out to a new audience.



WFMU(FM) offers both live broadcasts and archived programming in WindowsMedia, RealAudio and MP3.

Another noncom. WFMU(FM) in Jersey City, N.J., encourages repeat visits to its site with live broadcasts and archived programming in WindowsMedia, RealAudio and MP3.

Meanwhile, WOLF FM ([www.wolffm.com](http://www.wolffm.com)) in Nashville is one of hundreds of Internet-only stations competing with traditional stations for ears and eyeballs on the Web, offering a Net-only broadcast in Microsoft WindowsMedia.

Other radio stations, like Radford University's WVR ([www.radford.edu/NewsPub/video/wvrvid.html](http://www.radford.edu/NewsPub/video/wvrvid.html)) in Radford, Va., are using both audio and video over the Web to reach out to audiences.

Indeed, if you'd like to get a comprehensive look at radio stations that are leveraging both audio and video on the Web, you may want to check out LiveWire!

Broadcast ([www.eastbaytech.com/livewire.htm](http://www.eastbaytech.com/livewire.htm)). It's a \$20 software plug-in for Real Media and WindowsMedia that will auto-search and connect you to 10,000+ radio stations featuring 11 million audio and video streams, based on your programming preference.

## Cheaper, faster, better

Of course, things weren't always this way. In the beginning, Web audio/video usually required the production skills of an AV Web professional, countless hours of editing time and a fair amount of prayer. In the end, the resulting video often did not play well over the Web, or at all, for reasons still only grasped by Web gremlins.

Fortunately, as with everything else Internet, Web audio/video has gotten much cheaper, faster and more reliable. Entry-level software packages like Apreso for Power Point by Anystream ([www.anystream.com](http://www.anystream.com)) (\$149), for example, enable virtually anyone capable of executing a few mouse-clicks to create and post a Web audio/video to a Web site.

And unlike the early days of the Internet, many Web hosting services these days have no problem accommodating the additional bandwidth demands of a Web audio/video download.

Moreover, Web audio/video presentations requiring especially high bandwidth — such as a live simulcast to a number of employees around the globe — can now easily be handled by any number of Web audio/video service bureaus.

"For about \$500, you can get a service bureau to host a live Webcast for you that can go out to as many as 100 PC screens around the world," Haar said.

The result: scores of Fortune 500 and other firms have taken to the Internet with Web audio/video to promote their products, train their people, collaborate with trading partners, simulcast an important speech and/or create new security solutions.

## AV sampler

Here's a sampling of the tools they are using:

Apreso for Powerpoint, by Anystream ([www.anystream.com](http://www.anystream.com)), (\$149): A PC Magazine and Comdex award winner, Apreso enables you to make a Web audio/video recording of anything on your PC screen with a couple of mouse-clicks. The resulting production can be posted to the Web and viewed in any standard Web browser. Plus, you can augment the production with MS Powerpoint slides with a few more mouse-clicks.

Microsoft Producer ([www.microsoft.com/windows/windowsmedia/technologies/producer.aspx](http://www.microsoft.com/windows/windowsmedia/technologies/producer.aspx)), (free): Various iterations of this Web audio/video authoring program have been kicking around the Web for years. This latest version, released for use with MS Powerpoint 2003, debuted last fall. Web audio/videos created with Producer are rendered in the ubiquitous Windows Media format. And the software interfaces seamlessly with MS Powerpoint, for those who want to include slides with their presentations.

Dr. Divx, by Divxnetworks ([www.divx.com](http://www.divx.com)), (\$50): Another down-and-dirty Web audio/video production tool. Dr. Divx also is billed as a software package for people who want results with just a few mouse-clicks. It includes a basic editor for those who want to clean up a few scenes here and there, and comes with a free, 15-day trial.

Screenwatch, by OPTx International ([www.optx.com](http://www.optx.com)), (\$999): A bit more robust than some other, entry-level programs, Screenwatch nevertheless sticks to the mantra of "as-few-clicks-as-possible." Screenwatch requires just three keystrokes to create a Web audio/video recording. It has also been cited by reviewers as being well-suited for firms looking to do live video-streaming. For live Webcasts, the program renders in the commonly used RealOnePlayer Basic format.

See WEB, page 29 ▶

# Reagan

Continued from page 27  
we had a plan ready to go. ...

Even so, interest rates have been reduced by 20 percent, but that's not nearly enough. They have to come down more, and they should, because our greatest success has been in conquering inflation. It's no longer double-digit. For the last 5 months, it's been running at 4-1/2 percent.

By all the rules of the game, interest rates should be down around 9 or 10 percent. ... The answer to the recession lies in bringing interest rates down. To do that, a signal must be sent that, while the political process always requires some compromise, government this time intends to stay the course; that we're going to make further reductions in spending and hold to a steady consistent growth in the money supply — in short, that we're going to

come out of this recession not with a temporary, quick fix that leads to another recession down the road, but with a solid economic recovery based on increased productivity and jobs for our people.

Now, I know you've been told by some that we should do away with the tax cuts in order to reduce the deficit. That's like trying to pull a game out in the fourth quarter by punting on the third down.

You've also been told our program hasn't worked. Well, of course it hasn't; it hasn't really started yet. Our 5-percent cut in October was almost wiped out by the January increase in the social security tax called for in the 1977 tax bill. The reduced budget spending and the 10-percent tax cut in July will be the real beginning of our program.

There's no instant cure, but there is a cure. With your help and your prayers, we'll find it.

I'll be back next Saturday. Thank you, and God bless you.

Source: [www.reagan.utexas.edu](http://www.reagan.utexas.edu).

# A Rectifier To Fit Your Transmitter

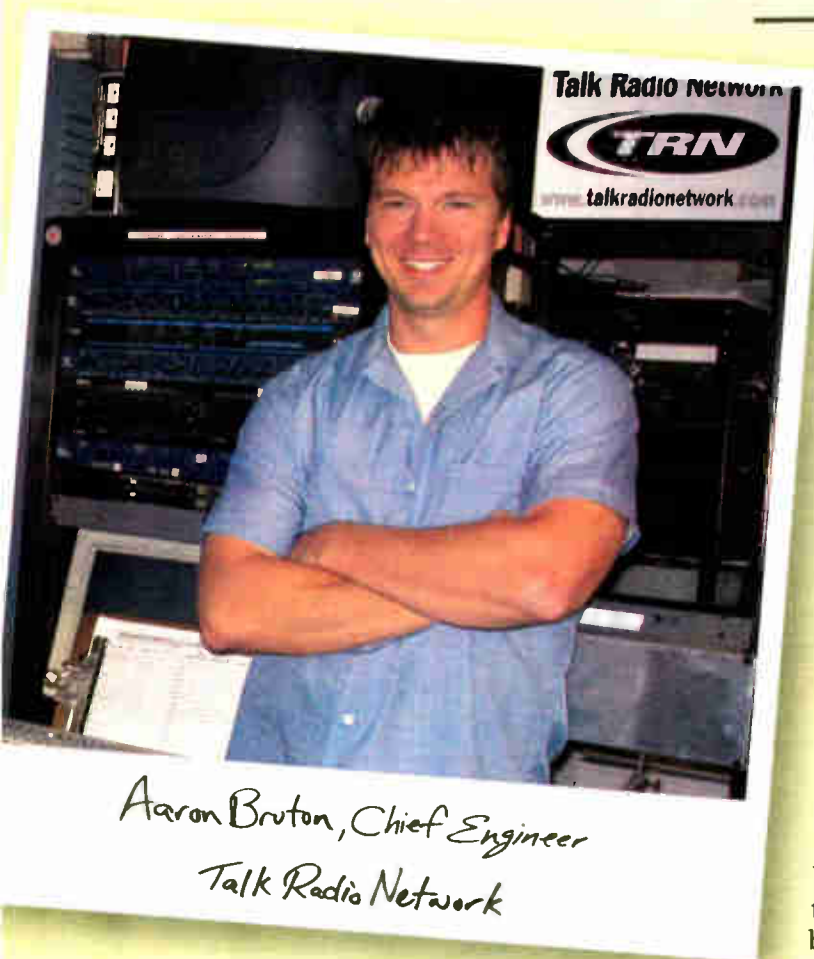
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# Get All Your Equipment



Aaron Bruton, Chief Engineer  
Talk Radio Network

Carrying the torch for a new generation of engineers, Aaron Bruton is Chief Engineer of Talk Radio Network's facility in Central Point, Oregon.

"I got my first break as a late night DJ when I was 15 - the owner was dating my mother...he's now my stepfather of 15 years. I owe all my passion for radio to him!" says Aaron.

"Over time, I found myself doing more of the troubleshooting when the contract engineer wasn't around. With all the new technology available to broadcasters, I knew there were better ways

to do things. Engineering made sense. That led employers like Talk Radio Network to seek me out."

"I've been doing business with BSW for six or seven years. It's great because I can get all of my broadcast gear from one source. Today, I prefer using the website. I'm always looking for new equipment combinations, to find something better. Having all the products online allows me to project costs and build an entire studio in an afternoon - well, on paper, anyway."

Talk Radio Network is one of the largest providers of syndicated conservative talk radio programming in the nation. "As we serve over 540 stations with programming, I am constantly on the phone working with other engineers. I still enjoy learning from the old-time AM engineers, and sometimes they learn from me," says Aaron.

Besides being a full-time engineer, Aaron puts in double-duty as a full-time parent with two sons and a daughter. From skiing to baseball to school activities, if the great Pacific NW offers it, Aaron and his family are doing it.



## Popular Level Interface

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Artist's conception of proposed BSW Stadium. It took a lot of negotiation, but we finally got the Seattle football team to take \$50 million worth of acoustic foam in trade for naming rights. (We still think AstroTurf works better for most sports...)



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World Radio History

## NEWS MAKER

# Bob Edwards, Looking Back and Ahead

by Michael Hedrick

Bob Edwards, winner of the 1984 Edward R. Murrow Award and 1999 George Foster Peabody Award for radio excellence and contributions to public radio, began his career at a station in New Albany, Ind., and later served in the U.S. Army, working on radio and TV programs for the American Forces Korea Network in Seoul, Korea.

He joined the young National Public Radio as its only newscaster in 1974, and soon after began co-hosting "All Things Considered," NPR's evening news program. In 1979 he moved "temporarily" to its new morning news show. Despite "not being a morning person," he never left.

As the voice of "Morning Edition" for 25 years, he interviewed more than 20,000 people and led the show to a weekly audience of 13 million listeners. He is the author of two books, "Fridays with Red," about his relationship with the late sports announcer Red Barber, and the new "Edward R. Murrow and the Birth of Broadcast Journalism."

Edwards ended his stint as anchor of "Morning Edition" in a widely reported departure in April; he stayed on as an NPR News senior correspondent. Radio World's Michael Hedrick asked Edwards to reflect on his career to date.

**RW:** What got you started in radio?

**Edwards:** It's all I ever wanted to do.

**RW:** You were supposed to jump from "All Things Considered" to "Morning Edition" for only a couple of weeks. How did that turn into a 25-year stint there?

**Edwards:** I got comfortable in it and decided to stay, and nobody told me not to. (Now) they've finally got around to trying somebody else.

**RW:** When did that posting become permanent?

**Edwards:** Once we got into it for a couple of weeks, they decided that it was working okay, and the stations were very happy with it, so why create any more confusion by bringing somebody else in?

**RW:** How do you think radio has changed over the past 25 years? And how did the nature of your job at "Morning Edition" change?

**Edwards:** Radio's changed in extraordinary ways, particularly with news, since not many stations want to do news anymore. Most of them don't. So I think NPR's sort of filled that vacuum, and people listening to the radio trying to find some news find NPR. And I think that's one big reason why the audience is so strong now.

**RW:** How do you think the NPR culture affects the quality of the news?

**Edwards:** I think we're doing the news for the right reasons.

We're not doing celebrity interviews, starlets, crime — the tabloid stuff that passes for news on a lot of television programs today. We're doing news that we feel needs to be done, and all of those areas that television might regard as dull — the economy, energy, environment, AIDS research — stories that we feel just need to be done.

So if that's our culture, and I hope it is,



Photo by Cable Riadon 1999

we're happy to take that on, and I don't see anyone else dying to imitate it, because they think it's ratings death. But if you're all alone out there doing this, then you get those people who are serious about the world and care about it, and will find you. And there again, the 13 million who listen to "Morning Edition" in the course of a week.

in order to beam this thing to New York over shortwave. Some of their reports were heard, and some were not.

And what they had to go through to put a broadcast together, technically, just made you wonder why they stayed in the business. And now we have this studio quality from the opposite side of the world. Well, there's your difference. The wires in your desktop computer rather than jangling down the hall. And everyone went to the wires instead of having the wires on your desk. They're not even wires anymore.

There's a million things, all of which — research you've got at your fingertips, the Internet. We have LexisNexis now.

I was throwing out files the other day that I'd collected before the year of the Web and all; and your files were what you managed to clip from the newspapers and put in manila folders and put in the drawer. That was your research that you could have handy, unless you went to a library or something.

**RW:** What else do you feel about where radio journalism is headed, and are you positive about it?

**Edwards:** No. It's disappearing, except for public radio. ...

I come from commercial radio, and I

## Consolidation has been 'awful. It's been tragic. It's the loss of community.'

**RW:** How would you compare the radio facilities and how news was gathered over the course of your career against how it is today?

**Edwards:** I remember on 9/11 talking to people on the streets of New York, and we were so fortunate to get the people we did, because they were very good with word pictures — they were great radio, and they're civilians, not in the business. They were just folks on the streets of New York that were talking to me on their cell phones.

So there's an example of how everyone is potentially a radio reporter with a cell phone. And it was magnificent radio in the midst of a horrible tragedy. I'm talking to eyewitnesses because of the availability of cell phones, which is a good thing because a lot of other communications were knocked out.

**RW:** Collecting information has become a lot easier.

**Edwards:** A lot easier, and portable. I'm talking to reporters in war zones on a satellite telephone, and the broadcast quality is just superb. They sound like they're in a studio somewhere, and they're in the middle of a war.

I just did a book on Ed Murrow, and those guys — they had to be at a ... shortwave transmitter, and it had to be live because there was a ban on recording then, and the atmospheric conditions had to be right — no sunspots or whatever —

don't like to see it hurting, or hurt. I like to see it strong and vibrant and serving people.

**RW:** What do you think needs to be improved?

**Edwards:** I'd like to see more imagination in programming, and that's on the music side, too. You have these short playlists and these —

It's over-researched to the point where you don't even need a disk jockey any more; and they're eliminating them, too. They got rid of the news people, and now with voicetracking they're trying to get rid of the jocks. And it's people, I think, that made radio so great — the sense of community, which is lost with voicetracking.

**RW:** So consolidation of radio has been a bad thing.

**Edwards:** It's been awful. It's been tragic. It's the loss of community, the idea that not only is your station not locally owned, but the guy you're hearing who's pretending to come out of your town is perhaps hundreds of miles away and doing the same program for a dozen other stations. Well, that's crap.

**RW:** It's estimated you've done 20,000 interviews. Who was your most interesting?

**Edwards:** Any time I talked to Red Barber. He was a commentator for us for the last 12 years of his life. You didn't

have to tell him about radio; he helped invent it. And he just had this magnificent personality that engaged the listener no matter what that listener was doing. They would stop and listen, and not take the shower or go to work or get in the car or whatever until those 4 minutes were up.

**RW:** Any other memorable interviews that stand out?

**Edwards:** No, I couldn't. There're just ... I've got several hundred that stand out.

**RW:** What do you think about the flap over indecency?

**Edwards:** I think the (Howard) Sterns and all are driven to get ratings. And if there's a penalty to be paid for what they do to get there, it should not be borne by the individual. I think that's management's responsibility. It's their airwaves. Well, it's not their airwaves, it's the people's airwaves, but they're in charge of their people. They can tell their jock to back off, or they can continue to push him for the ratings that deliver advertising.

**RW:** You've won a variety of awards, the Murrow, the Peabody and the Gabriel. Was there a particular award or piece of work that meant the most to you?

**Edwards:** I won one of the Gabriels for a series on fetal alcohol syndrome. And the other one was very moving too, because it was about a fellow in Maryland who runs a slavery museum, and all the artifacts in his collection are from his own ancestors. It really personalized slavery for me and focused it.

I always said it was like the Anne Frank Syndrome. It's difficult to relate to 6 million Jews, but one little girl ... So 40 million in slavery is numbers on a page, but when you're talking to one guy and he's talking about his own family, it brings it home a lot more.

**RW:** Some of the most effective radio is when it gets really personal.

**Edwards:** One on one. Exactly right. And that's the same between listener and voice on the radio — very intimate.

**RW:** What comes next?

**Edwards:** On a book tour, where I'm going to think about what I want to do.

**RW:** What topics in general are you particularly interested in?

**Edwards:** Profiles of newsmakers, which sounds good to me because I read a lot of biography. I'm interested in people's lives and what went into getting them where they are and what they're all about.

**RW:** Was there any particular big newsmaker whom you really wanted to talk to?

**Edwards:** Oh yeah, most of them. And I have.

**RW:** What other favorite memories about broadcasting do you have that you'd like to share?

**Edwards:** I like meeting listeners, and particularly NPR listeners because it's an extraordinary audience.

These are very, very bright people, they're very aware, they are a challenging audience to work for because they know so much. They're the type of person who would listen to a two-hour news program. They're someone who's pretty concerned about what's going on in the world. So I like going out and meeting them, and that's what I'm going to be doing for several months on the book tour. ●

FIRST PERSON

# 'The World's Largest Radio Network'

Remembering Mutual Broadcasting,  
Five Years After Its Official Demise

by Bill Ryan

Yes, Virginia, there was a Mutual network.

Five years have passed since Mutual officially died. It's ironic that the least prosperous of the networks produced some of the best-remembered programs of radio's Golden Age. There was "The Shadow," "The Lone Ranger," "Challenge of the Yukon," "Tom Mix," "Captain Midnight," "Queen for a Day" and news commentators like Gabriel Heatter.

I worked my way through college as an announcer at KEYY in Pocatello, Idaho, from 1947 to 1950 and at KVNU in Logan, Utah, from the spring of 1950 until the fall of 1951. Both stations were Mutual and Intermountain network affiliates.

KEYY was severely under-financed from the beginning. Its story is told in my March 14, 2001, Radio World article, "We Were Poor, and We Knew It." At KVNU, I served as announcer and night watchman. I described that experience in a story called "The Great Transmitter Heist II" in the July 5, 2000, issue.

## Baker's quartet

Mutual, the network owned by its stations, was begun in 1934 by executives of WOR, New York; WGN, Chicago; WXYZ, Detroit; and WLW, Cincinnati.

A bread company was sponsoring "The Lone Ranger" on WXYZ and WGN. The baker desired an outlet for the Ranger in New York and was allowed use of the direct phone line between WGN and WOR to carry the show, for which the stations were paid.

So Mutual was incorporated, with WOR and WGN controlling the operation.

The real owners were the Bamberger interests of New York (WOR), The Crosley Company of Cincinnati (WLW), The Chicago Tribune (WGN) and the King-Trendle Corp. (WXYZ). If the last name sounds familiar it's because George W. Trendle with Fran Striker created "The Lone Ranger."

As broadcast historian Elizabeth McLeod writes, "There was no 'Mutual Broadcasting System Building,' and the network owned no stations or studios, nor did it actually produce any programming. Mutual shows were produced by the stations on a cooperative basis, and the sta-

## More Mutual

Try Leonard Maltin's book "The Great American Broadcast," published by Penguin Putnam, 1997.

"The Big Broadcast 1920-1950" is by Frank Buxton and Bill Owen, put out by Viking Press in 1966 and since updated.

See Elizabeth McLeod's material on the Internet by indexing for "Mutual."

For old-time radio audio, try the Mutual link on Chuck Owens' WMIK site at [www.angelfire.com/ky2/cumberlandgapbc](http://www.angelfire.com/ky2/cumberlandgapbc).



The author, age 17, introduces the 1947 Pocatello High School Senior Ball queen and her attendants. The program for high-schoolers cracked the door for Ryan to enter the world of broadcasting at KEYY.

tions paid the production costs and furnished the facilities, not the network."

It wasn't long after the 1934 incorporation that microphones lettered MBS joined NBC and CBS's mikes on President Franklin Roosevelt's desk as he delivered his Fireside Chats.

In his book "The Great American Broadcast," Leonard Maltin writes, "By the end of 1935 they had 19 (affiliates). Then the West Coast's Don Lee Network joined up in 1936. By the mid-1940s Mutual would number more than 300 affiliates, including small ones in towns that couldn't boast an NBC or CBS station."

The Don Lee Network was named for its owner, who was also the Cadillac distributor for Southern California. Lee's major competitor was Earl C. Anthony, who owned Los Angeles stations KFI and KECA and was Southern California's Packard motorcar distributor.

NBC and CBS owned or had under affiliate contract almost all the nation's high-powered stations, leaving Mutual with mostly 5,000, 1,000 and 250-watters. Mutual inherited many stations by gathering under contract regionals like New England's Colonial Network and the Texas Network. These consisted mostly of small, locally owned stations. They profited by carrying advertising and programs from their regional networks and desired to "go national" by joining Mutual, a coast-to-coast network.

A major coup was the 1936 signing of Lee's network, a string of stations up and down the Pacific coast, with Hollywood's KHJ as the main feeder of programs.

## Intermountain

Another was the Intermountain Network, based in Salt Lake City and with small stations in Utah, Idaho and Wyoming.

When I began at Mutual-Intermountain station KEYY in 1947, the system cue for the station break was "This is the 14-station Intermountain Network." It did not mention Mutual in its system cues, which told the local announcer to make his station break.

Like all networks, Intermountain had its own "Conference Call," a time slot when no programs were fed down the

about programming changes, new shows, new advertising contracts, changes in the schedule and other busy work. We were warned, these were *not* for broadcast.

Intermountain fed excellent newscasts and other programs from mainstay KALL in Salt Lake City. I once auditioned for a job there to do network newscasts, but nothing came of it.

I don't recall any Intermountain show making it onto the Mutual web on a regular basis.

In the pre-satellite era, we relied on lines leased from AT&T and the local phone company. If a drunk knocked down a telephone pole, we were dead. The networks' coast-to-coast Class-A (high audio quality) trunk lines went through Salt Lake City. It seemed the farther a station was from the trunk, the worse the audio quality, unless management bought more-expensive lines.

If I heard crosstalk, or buzzing, or a tone under the network program, or if the line went dead, I was on the phone with local AT&T stalwart LeRoy Olson. He would clear up the problem or else tell me, jokingly, "It's east of Omaha."

I often wondered if AT&T purposely deteriorated the line, hoping to sell the station on a more-expensive line. "That's something a class company like mine would never do," said my friend Dale Olson, who like his father was a career AT&T man.

Mutual's top shows came from New York and Detroit. "The Shadow," which

See MUTUAL, page 28 ►

line, used by the network's sales and programming folks to inform local stations

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# Radio Web Sites: What Works?

"Our listeners will never find the photo section or the morning show information on our Web site," the program director said to me. "I want to put up big text links that take people directly to those pages."

I pointed out that the menus on the home page already had links to those areas, but I could have been speaking a foreign language. "They'll never look on a menu," he snapped back.

I tried a different angle, explaining that it was a really good idea to highlight those sections when something unusual happens with the morning show or some great photos are placed in the photo section.

The PD was now irritated and I could tell he was on the verge of walking out of my office. I told him I understood that he was frustrated, emphasized that we were on the same team and finally stumbled onto something that calmed his rising anger.

In radio, I explained, we often use our intuition to guess what it is that may interest our audience or which message may motivate them to action. Hopefully we have access to research to guide us; but we must make many assumptions.

With Web sites, however, we've learned quite a bit in the last nine years and we have accurate statistics to show us actual usage and preference.

When Arbitron tells us we have great ratings, we rejoice and marvel at how accurate that wonderful company can be. When our ratings suck, we rant about inaccurate measurement, diary placement, under-sampling and basic methods.

On the Web, we have an accurate report card to study for clues. Many studies about Web usage are available for free if you look

for them. The question is, how many radio stations take the time to look at their Web successes and failures on a regular basis and then retool their Web sites based on facts, not guesses?

## Use your tools

Let's set the record straight about menus on Web sites. They work.

People who use the Web know that sites have navigational tools to allow them to find pages. We know this simply by looking at Web statistics. People see the links in side or drop-down menus and they click them, creating a "page view" for that linked page off the navigational tool.

I'm making a big deal out of this because I often hear from PDs who doubt it, especially older managers who don't use the Web much.

Can we create more page views for things better highlighted on our Web sites? Yes, we can. Got exclusive photos of a celebrity or a musician? Have your Webmaster create a piece of art that has the photo with a link to that photo page and you will get more action.

A word about content: You remember content, right? It's the reason people actually listen to radio. They're turning us on to hear their favorite songs, talk show hosts, news, sports, information like weather and traffic, etc.

Our station Web sites must have real content, too. Inviting people to your Web site on the air and then only offering them more reasons to listen (marketing messages) is the radio equivalent to just airing recorded promos 24/7 without any

real format.

Here are a few facts we know about radio station Web sites.

## Deep links

✓ Most users are viewing our pages during the workday, Monday through Friday.

✓ We can get extra page views (more time online) out of users by deep-linking pages. For example: Your home page has a tease about an appearance by one of your DJs. That tease links to the "who, what, when, where, why" details. Then that page links to a coupon the listener can take to the appearance; finally, there's a link for a map. You've just received four page views; and your pages look cleaner and cooler because not all the detail is on one page.

✓ If we send an e-letter to our database and it has links back to our Web site, we will receive an immediate response back to our site, creating greater interaction with our product.

✓ Streaming works. If you can afford to stream, people will listen to your station online for long periods of time. Most streaming listeners will stay with music stations for over an hour each time they connect. The RIAA has made it expensive to stream broadcast stations; and bandwidth isn't free, either. I've watched many station

## Promo Power



by Mark Lapidus

streams killed by their own successes. Because there is no hard evidence that streaming produces ratings, it's difficult to correlate our bottom line ratings to streaming.

✓ Station Web sites that don't change content lose users.

✓ Morning show content on a station Web site performs well. Typically, your morning show is your highest-profile asset and can afford to spend time talking about what they've just posted for the audience to see whether it's a naughty video, a wacky audio piece or unique pictures.

✓ Webcams work. Audiences do want  
See SITES, page 29 ▶

## Mutual

▶ Continued from page 27

according to Frank Buxton and Bill Owen began in 1936, led a string of low-budget mysteries originating at WOR, while "The Lone Ranger" and "Challenge of the Yukon" came originally from WXYZ. But when WXYZ dropped Mutual in favor of NBC Blue, CKLW in Windsor, Ontario, just across the river from Detroit, became Mutual's affiliate.

Mutual provided a variety of programming for the more than 900 affiliates it claimed in the late 1970s — indeed the world's largest network.

Gabriel Heatter's "Ah yes. There's good news tonight" became a national catch phrase, a kind of precursor to always cheerful Paul Harvey. Heatter started on Mutual with broadcasts of the Lindbergh baby kidnapping. He was extremely popular during World War II.

Commentator Fulton Lewis Jr. was the voice of political conservatism during the war and into the 1950s. He hated Harry Truman, and I recall he could hardly get through his evening show the day after Truman was elected in November of 1948. If Lewis was not on at his scheduled time, I fielded calls from irate Republicans.

At one time the network carried a major-league baseball game every day of the week during the summer. These generally live events led up to the World Series, a Mutual exclusive for many years.

Most of Mutual's shows were co-ops, meaning the local station was free to sell commercials and drop them into the program following a format sent by the network. Few stations outside the major markets actually received revenue for carrying Mutual's sponsored shows.

Our time salesmen found it relatively easy to sell spots in and around "The Shadow," Gabriel Heatter, the summer baseball games, "Queen For a Day" and other network shows.

The year 1947 was a landmark one for Mutual. More stations were joining and the future looked bright.

The network had just signed Tommy Dorsey and his Orchestra to a show sponsored by Raleigh cigarettes. At about the same time Tommy and his brother Jimmy were featured in a low-budget movie called "The Fabulous Dorseys." Somebody saw to it that there were Mutual microphones in several scenes.

"The Shadow" was sponsored on the network by Blue Coal, which was sold only in the East. The stations in the rest of the country were supposed to cover the Blue Coal spots with their own commercials or public service announcements. This was a pain to do.

There were some high-quality shows on the Mutual of my day. One was the Saturday morning "Symphonies for Youth," which featured the Los Angeles Philharmonic, with conductor Alfred Wallenstein and the musicians exposing an auditorium full of kids to good music.

Another was "Family Theater," a KHJ origination with Hollywood stars performing in spiritually uplifting dramas.

Capitol records made use of the excellent acoustic properties of the KHJ studios. Many of the top-selling records made in the 1950s by Frank Sinatra with Nelson Riddle were recorded at KHJ.

WGN stood for World's Greatest Newspaper, referring to the Chicago Tribune. Publisher Robert McCormick for years bankrolled a Saturday night show, "The Chicago Theater of the Air." It featured a full orchestra plus singers and actors involved in big productions. The drawback was Col. McCormick's intermission lecture, which droned on as eyelids drooped. This was the price listeners paid to hear this classy show.

WGN also originated "Tom Mix," featuring Curly Bradley, and "Bobby Benson at the B-BAR-B Riders," both high-quality kids' shows.

Later, Larry King was a local Miami personality before going national in 1978 and getting famous on Mutual's all-night

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## Sites

▶ Continued from page 28

to see what your DJs are doing. The time to highlight that Webcam is when you've got something rare going on in the studio or elsewhere. Even a Webcam from something as dull as a radiothon will do pretty well.

✓ One Webmaster can be in charge of more than one radio site; but for the sites to be content-driven, you must have syndication tools that provide daily updates with little effort.

✓ On-air promotion is the key to success. Unlike other businesses, radio, TV and newspapers can promote sites with little or no expense. The more we promote our sites, the more listeners will go there.

I must conclude with a guess; and, no, I don't have any evidence to back this one up. I theorize that listeners who use our Web sites are much more likely to be the type that fill out diaries.

Also, I believe that by looking at our sites, they are far more likely to recall our call letters and frequencies and therefore much more likely to remember to write us down in an Arbitron diary.

I'll click to that any day.

The author is president of Lapidus Media. E-mail him at marklapidus@yahoo.com. 🌐

call-in show. By 1985, King was on CNN.

I was with CBS and NBC stations from 1953 until 1955 and lost track of Mutual. But I know that of the three national networks, Mutual was the only one that avoided television. This, despite the fact that its major affiliates went the TV route.

### Then came the screen

As the 1950s and '60s progressed, more advertising money went to TV, and all radio networks suffered. NBC's weekend "Monitor" was one of the few bright spots in creative programming.

Mutual continued to feed hourly newscasts and sports shows to its affiliates, along with presidential speeches and other important happenings. The all-night show continued with Jim Bohannon at the helm.

Television's siphoning of money led to the death of most dramatic and musical shows on network radio.

In 1985 the conglomerate Westwood One bought Mutual. An employee who was there says, "In 1985 MBS did regular newscasts, had several talk shows (King and some others, some of which still survive) and much sports, including Notre Dame football."

Westwood did not reveal the number of stations on Mutual at that time.

General Electric, owner of RCA, sold NBC Radio to Westwood One in 1988. Mutual and NBC operations were combined.

In the murky world of high finance, later corporate changes and mergers saw Infinity/CBS/Viacom take over Westwood One. It was this entity that finally pulled the plug on Mutual on April 18, 1999.

David Hinckley said it best in the New York Daily News that month: "Sixty-five years after it was created expressly to make the Lone Ranger a national hero, the Mutual Broadcasting System is signing off for good. ... Hi-yo, Silver, away!"

Bill Ryan is a retired college professor and former broadcast news writer-editor for UPI. He can be reached at wryan1807@aol.com. 🌐

## Web

▶ Continued from page 23

Camtasia Studio, by Tech Smith ([www.techsmith.com](http://www.techsmith.com)), (\$299): Less expensive than Screenwatch, Camtasia still offers much more in the way of editing tools. Using a timeline-based editing model, it can be used to import video clips and images, and create special effects such as voice-overs, zooms, captions, yellow highlighting and watermarks. The program also includes a drawing tool that enables you to draw on-screen as your record. Other special editing effects include call-outs, such as balloon help and/or text notes and Web "hotspots," which enable the viewer to

trigger supplemental Web events with a mouse.

Tech Smith also makes Snag It 7 (\$40), a scaled down version of Camtasia, which won a PC Magazine Best of the Year award for 2003.

### Service bureaus

Outsourced help with Web audio/video streaming ranges from firms that will host and distribute finished product, to those ready to will handle every facet of the production.

Digital Webcast ([www.digitalwebcast.com](http://www.digitalwebcast.com)), for example, offers a turnkey solution. For \$3,850, the firm will send a production crew to your location to create and distribute a two-hour, live Webcast for your firm to up to 100 PC screens around the world.

Meanwhile, MediaWebcasters, LLC ([www.mediawebcasters.com](http://www.mediawebcasters.com)) will host a finished Web audio/video production for as little as \$20/month. Other discounters in this space include Mirror Image Internet ([www.mirror-image.com](http://www.mirror-image.com)); Play Stream, LLC ([www.playstream.com](http://www.playstream.com)); Arcostream ([www.arcostream.com](http://www.arcostream.com)); AudioVideo Web ([www.audiovideoweb.com](http://www.audiovideoweb.com), which offers a free, 10-day trial and Jay.TV ([www.jay.tv](http://www.jay.tv)), which caters to small businesses.

If you're looking to add audio and or video to your station Web presence, there should be a product and/or service bureau that can handle that job to your specifications and at your budget level.

Joe Dysart is an Internet speaker and consultant based in California. Reach him via e-mail to [joe@joedysart.com](mailto:joe@joedysart.com). 🌐

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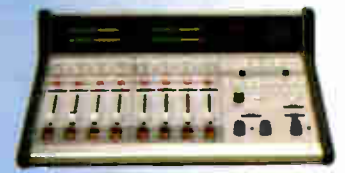
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Consoles, Mixers & Routers

July 1, 2004

USER REPORT

## SAS Control Surface Debuts at KABC

*ABC/Disney Radio Facility Selects Rubicon For Updated, Router-Based System*

by Norm Avery  
Director of Engineering  
and Facilities  
ABC Radio Los Angeles  
KABC(AM), KLOS(FM),  
KDIS(AM), KSPN(AM)

**LOS ANGELES** The ABC/Disney Radio O&O facility in Los Angeles is home to four stations: Talk Radio KABC(AM), the powerhouse talk station featuring commentator and host Larry Elder; KLOS(FM) Classic Rock, whose "Mark and Brian" show has a wide syndication audience; KSPN(AM) ESPN Radio for Los Angeles; and KDIS(AM) Radio Disney.

### Rubicon crossing

Our 12-year-old PR&E facilities were in dire need of updating. We looked at our operation and our options: ABC Los Angeles has a 15-year history of extensive use of multiple routers to do multiple things, such as share resources, reduce wire count and reduce maintenance — but most important, automate processes to enable non-technical operators to execute tasks that otherwise would require a technical engineer. We could never do this with patch bays alone. Any replacement system would have to be router-based.



KABC mid-day board operator Katie Clark likes the Rubicon's ability 'to quickly change any source to any input module.'

We evaluated networked control surface and standalone consoles, and the advantages of a control surface implementation were obvious. Every input and every output is programmable, so we don't need to establish a one-to-one relationship during wiring. We can reduce the complexity of wiring by connecting local sources and des-

tinuations to a conveniently located local network interconnect, rather than to a console the connection points of which typical-

ly are under the operator's feet. We can greatly increase operational flexibility because any source can be accessed in any location, as it's not dedicated to a console.

ABC had been using **Sierra Automated Systems** routers since 1989, so they were a logical choice to consider. Our final decision to commit to being the launch customer for the SAS Rubicon digital console control surface came down to the following five points: our previous experience with SAS routers; we were able to integrate our existing SAS 6400 switcher and its resources into operation under control from the new Rubicon control surfaces; the fact that the SAS system does not require a PC, external or embedded, to operate; SAS is a local company; and the price was competitive.

In December 2003, we shifted KABC to an alternate studio, and began teardown of the old and installation of the new in our primary KABC control room and adjacent talk studio, producer booth and screener booth. A few weeks later, we were on the air with the SAS system. It's had no downtime since.

The centerpiece was a 40-strip-wide Rubicon with 29-input modules, control room monitor module, studio monitor modules and several custom modules, including a Telos phone system control module. Two SAS RIOLinks provided interconnection in the control room for local inputs and outputs, control relays and optos and serial ports. In the terminal room, the SAS 32KD router/mixer provided central routing, mixing, analog and digital I/O and linking to our existing SAS 32000 and 64000 routers. A computer in the terminal room is used for programming of the system using the Windows-based SAS GUI, but is not

required for ongoing operation.

We were relieved when the SAS 32KD/Rubicon system was running. We had moved the facilities forward and out of early 1990s technology, and configured the console to meet our needs. For example, we reprogrammed the "IFB" button on the EAS input module to fire off the EAS test. One of our engineers commented on the flexibility of being able to program solutions to problems rather than installing customized buttons and panels.

### Tomorrowland

KABC has a dozen or so operators. Before we took possession of Rubicon, we showed them an advance demo. They were divided into two camps — half were anxious to have it installed, and half were gun shy of the technology. But no one required any assistance. The control room operators adapted the features to their show or operating style.

On the technical side of operations, we approached the new opportunity as we would approach any major project — with diligent planning. But still there were a few surprises. As a group, we didn't realize the scale of economy of a completely router-based system, including how to get signals from point A to point B most efficiently. It took a new mindset of how the system was going to work. For anyone about to undertake this transition: Analyze your system in terms of every device that needs to be connected, where it's located, whether it's analog or digital, and how it gets controlled. Think in terms of connecting locally rather than following conventional paths. In other words, distribute your resources to their most convenient location.

We also had to evaluate how we performed various processes, approaching them by looking at what we needed to accomplish rather than how we did it with our previous technology. We learned new terminology, and discovered that many attributes are assignable to a function.

There is room for improvement in any product. Even though it integrates the mixing console, routing switcher, automation and intercom functions, why not include a telephone hybrid and PBX-style switching technology? The facility could connect phone lines for on-air use directly to the main router engine. This would further reduce the complexity and cost of connecting multiple control rooms with shared resources.

Another feature that would enhance the package is the ability to connect control surfaces across a dedicated WAN, so that resources could be shared over extended distances.

ABC Radio Los Angeles is ready to do the second major room, the KLOS(FM) main air control room. We now know where things need to connect, and can do better advance preparation. Other rooms in the facility will follow next year.

For more information, including pricing, contact **Sierra Automated Systems** in California at (818) 840-6749 or visit [www.sasaudio.com](http://www.sasaudio.com).

Radio World

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Delmarva Broadcasting  
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## USER REPORT

# WEGL Dumps Analog for Axia Livewire

*For Auburn, New Telos Subsidiary Enables One Ethernet Cable to Carry Audio, Data*

by **Marc Johnson**  
Chief Engineer  
WEGL(FM)

**AUBURN, Ala.** WEGL(FM) is Auburn University's student-operated, student-funded and student-managed radio station. Operating in the heart of the school, WEGL is a 3,000-watt Class A, non-commercial radio station at 91.1 MHz that has been broadcasting since 1971. We are unique in that we're able to put many musical tastes into our programming with our diverse staff, and we have an objective of breaking new artists first before MTV or other commercial radio stations.

Our old audio consoles were outdated and needed repairs, and some necessary

replacement parts were no longer available for our existing consoles. So we started looking for an alternative.

We stumbled across this great new technology for audio routing, mixing and wiring — Axia Livewire, which enables an Ethernet cable to carry real-time uncompressed digital audio, device control messages and program associated data. A facility can be wired in a matter of hours, not weeks.

After several phone calls and lots of question asking, we decided to go with it. Persuading Auburn University to go with Axia posed no problem, as WEGL encourages a learning atmosphere both on the air and with our equipment.

We built a new control room out of one of

our old production rooms, which allowed us to remain on the air while we installed, tested and trained our staff on our new equipment. WEGL is using an Axia SmartSurface, a control surface/mixing board that gives you personalized control and provides an interface for the studio mix engine, which also is in use, along with a GPIO node and two analog line nodes in our control room.

We're also using two more analog line nodes to incorporate our existing analog mixing consoles and production rooms into our Axia system, and there's an analog line node in the engineering closet that feeds the STL and streaming computer.

The equipment was out of the box and on the air in a matter of hours, for the installation could not have gone smoother. I had the Cat-6 network cables already run when the equipment arrived. All we did was rack the

equipment, plug in the power, connect audio I/O and connect it to the network. After less than two hours of configuration via Web browser, our Axia system was ready to go. The engineering staff, consisting mostly of me, is thankful for the negligible amount of wiring involved.

I can't stress this point enough: wiring an Axia system involves short runs of cable. You install the Axia nodes close to where your equipment is anyway. Besides the mic and speaker cables, I think the longest audio cable we have now is 3-1/2 feet. This equipment placement and cabling is certainly preferable to conventional wiring techniques.

Our operators enjoy the capabilities and flexibility that the Axia system provides. As with any new equipment, there were some training issues. But other than general operational questions, there have been no major problems. In fact, considering the staff has been accustomed to rotary-pot analog consoles, I'd say they became comfortable with the SmartSurface quickly.

## Traffic jam

One problem for us was a multicasting traffic issue with Auburn University's existing computer network. The Axia system multicasts ARP packets over the network, which was problematic when we connected our working Axia system to the rest of the university network. However, there was a simple solution.

It turns out the Layer 3 routing capabilities need to be used by the HP Procurve 2626 switch in order to keep the multicast traffic off Auburn's network. As this issue was resolved, it became easy to connect our Livewire to the rest of the campus network, enabling convenient yet secure VPN access into our Livewire network and Axia equipment for configuration changes. The connectivity also enables the convenience of having one network in the radio station for Internet access, file transfers and e-mail — all of which co-exist with the Livewire audio.

Within the next year or two, WEGL plans on replacing our analog consoles in the Production rooms with more Axia gear. However, we won't need much equipment. Axia lets you connect audio sources much like connecting computers to a network. It's completely different than conventional wiring, and even from other routing systems because it uses standard, off-the-shelf Ethernet switches to route and distribute audio, closures and regular computer data.

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

## TECH UPDATES

## Intelix Adds Toggles, Upgrades 8002MCB-FP

Intelix upgraded its front-panel control 8002MCB-FP mic/line mixer, which features eight inputs and two outputs, two bus selectors per channel, low-cut filter and front-panel channel gain and mic/line pad. The unit is intended for broadcast vehicles and other applications where rear access to the mixer is limited. The MC series also includes the 8002MCB-PHX with Phoenix connectors, and the 8002MCB-XLR with XLR connectors.

The company's CEO says the previous push-button channel gain and mic/line pad controls have been replaced by toggle switches, which are more durable, easier to activate and more visible in areas with low lighting, such as broadcast trucks.

Additional features include eight-channel, dual-bus mic/line mixing, compression and limiting, actively balanced I/O and a dual-function VU meter. Phantom power and AC or DC power also are supplied.

For more information, including pricing, contact Intelix at (866) 462-8649 or visit [www.intelix.com](http://www.intelix.com)



## Soundcraft Has GigRacs And Compact Mixers

The GigRac from Soundcraft is a portable eight-channel mixer/amplifier combination unit, to which mics, instruments and loudspeakers can be connected for live sound. It is available in 300- and 600-watt models, and streamlines the process of setting up a PA for a remote broadcast. GigRac has mic preamps, two-band EQs on each channel, a seven-band master graphic EQ by BSS Audio and a selection of preset digital effects.

The company touts the unit's "road-ready" case, and its ability to stow microphones and cables.

Also featured from Soundcraft are the four-input Compact4 and 10-input Compact10 micro-mixers for production studio environments where vocals and music are recorded onto a computer using a sound card.

Highlights include record buttons on each channel for routing an input to the record output; acceptable input sources such as mic, line, guitar/keyboard and stereo inputs with RIAA equalization; and an artist/engineer "blend" control that enables users to control the mix of the computer playback and signal of the track being recorded, which are blended for the artist headphone output.

Additionally, true-stereo and zero-latency monitoring are featured, as well as three-band EQ on the inputs, 48 V phantom power and dedicated balanced and unbalanced record and playback connections.

For more information, including pricing, contact Soundcraft USA/Harman Pro North America in California at (818) 920-3212 or visit [www.soundcraft.com](http://www.soundcraft.com).

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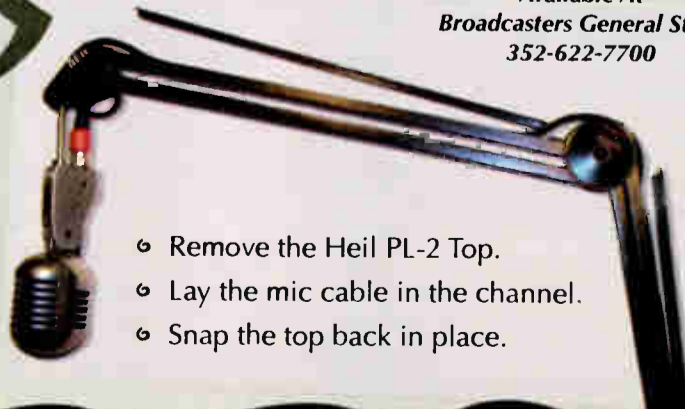
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## USER REPORT

# SS16.16 Has Multi-Location Control

*Canadian Facility Uses Broadcast Tools Switcher in Its Central Equipment Room*

by Bruce Wilkinson, P. E.  
Vice President, Partner  
Pippin Technical

**SASKATOON, Saskatchewan** There are many products out there that can provide audio routing. Some are controlled by hardware control panels, some use software control and a few provide both hardware and software for routing control.

When searching for an audio router for one of the Jim Pattison Broadcast Group facility locations in Redcliffe, Alberta, Canada, Pippin Technical needed a product that had a relatively moderate capacity and could be controlled by software at multiple locations. Our company works closely with this group on many of its projects all over Western Canada. In most cases, we make the product recommendations and our technicians perform the equipment installation.

Because every audio destination has at least one PC, it was not a requirement that we have any hardware controllers, as it is these controllers that drive up the cost of the system with many products.

After considering factors such as router capacity, operation without a dedicated PC and software control, the new **Broadcast Tools SS16.16** audio router was a good fit for our requirements. We needed a medium capacity stereo audio router that had the ability of controlling individual outputs via software. We have used products from this company on previous projects, and though this was a new product, we did not anticipate any problems based on the reputation of the manufacturer.

Broadcast Tools has a variety of systems for the broadcast industry, and the SS16.16

The SS16.16 is equipped with a front-panel monitor speaker and level control.

The SS16.16 is installed in the central equipment room of the Jim Pattison



The Broadcast Tools SS16.16 audio router is installed at a Jim Pattison Broadcast Group facility in Alberta, Canada.

Input	Description	Output	Description
1	PGM-FM	1	MCR-FM
2	PGM-AM	2	MCR-FM
3	PROD 1	3	MCR-AM
4	PROD 2	4	MCR-AM
5	NEWS BOOTH	5	PROD 1
6	NEWS 1	6	PROD 2
7	NEWS 2	7	TV PROD
8	NEWS 3	8	NEWS BOOTH
9	RPU 1	9	NEWS 1
10	RPU 2	10	NEWS 2
11	REMOTE 1	11	NEWS 3
12	REMOTE 2	12	Spare
13	REMOTE 3	13	Spare
14	BN NATIONAL	14	Spare
15	BN REGIONAL	15	TRUNK
16	TRUNK	16	MONITOR

is the latest in its expanding line of audio switchers. This audio matrix switcher has capacity for 16 stereo balanced inputs and 16 stereo balanced outputs. Any input may be routed to any or all outputs. The switcher is controlled by front panel controls and/or via RS-232, and an optional Ethernet interface offers software control over your LAN.

Broadcast Group facility, which houses 15 racks that contain the common equipment for two radio stations and one television station. Audio sources include satellite feeds, remote broadcast equipment and various studio sources. Outputs are wired to many locations, such as on-air studios, production studios and news workstations. Audio connections are made to removable Euro screw-terminal connectors. No soldering or crimping is required to install the SS16.16.

The 2U rack mount unit features external "lump-in-line" power supply. Connections are by removable Euro block connectors, and input levels are adjustable by multi-turn trim pots adjacent to each input connector. Output levels also can be calibrated with the output level controls.

Dip switches accessible from the rear of the unit are used to select configuration options, and the rear-panel serial port is used for software control of the unit. The optional SP-1 adaptor is used when control over IP is required.

The input/output configuration for this

installation is outlined in the accompanying chart.

## More than a router

Because we have numerous users who require the ability to control the audio router, the Broadcast Tools SP-1 was used. This device converts IP messages to serial commands required to control any Broadcast Tools switcher.

Free software for the SS16.16 is available in two flavors — serial or TCP/IP — and control of the SS16.16 is simple and solid. Each workstation is equipped with control software that is programmed for that user, enabling control over one output of the router and providing access to those sources that are required. This user configuration is easily secured and backed up.

Using the control software is simple. Just select the desired audio source from the drop-down list, and that audio source is delivered to the user's location via the router output assigned to that user.

In addition to the single-user software, a multi-output version of the software can be installed for global control of the router by technical staff. The router control software runs over your office LAN.

The software is free so we can't complain too much, but it would be a nice touch to have a Wizard for product selection and I/O assignment. This would avoid the necessity of having to enter the actual command string into the software configuration.

Additionally, the SS16.16 does more than switch audio. Besides being a true 16x16 stereo audio router, the unit is equipped with 16 GPI inputs and 16 open-collector outputs, which can be controlled or monitored by software and have applications where the SS16.16 is used with an automation system. Broadcast Tools products are supported directly by many automation systems and the protocol is clearly published in the user manual.

The first edition of the manual had a few errors, which were subsequently corrected by the company. A connector diagram on the lid of the unit would eliminate the need to find the manual. The rear of the unit is packed tightly, and there is no panel space available for connector labeling.

Not everybody needs a big audio router. Not everybody has the budget for one. Using a product such as the SS16.16 provides a payback because it eliminates the need for audio DAs and selectors, plus reduces the amount of wiring required to distribute audio. The Broadcast Tools SS16.16 does its job well and at a reasonable cost.

For more information, including pricing, contact Broadcast Tools in Washington at (360) 854-9559 or visit [www.broadcast-tools.com](http://www.broadcast-tools.com).

## TECH UPDATE

## Formula Sound Offers Modular System

Formula Sound, distributed by SPL-USA, offers the PM-100 small-format console, a modular production mixing system with a universal input module that accepts several types of sources. A rapid action lever switch selects between two sources; the module can be supplied with linear or rotary faders. The company says the PM-100 is suitable for broadcast and production studios.

The input module can be configured by jumpers to accept inputs from low-impedance balanced microphone, stereo line and phono (RIAA) input sources. Each module can be switched between two sources. The possible input selections are mic-phono; mic-line; line-line; phone-line. The output module contains electronics for various mix and output stages along with monitoring and VU meter sections.

Three chassis sizes house a master module and a set of four, eight (19-inch rack-mount) or 12 modules. Switch illumination shows the status of functions; connections to the modules are by way of a ribbon cable. Alps pots and faders are used. The mixer requires an external power supply providing +/- 17.5 V for audio electronics and 12 V for the illumination socket.

A suitable power supply, the PSU5, is available, which the company says is designed to be surface-mounted remotely from the mixer and features slow rise time characteristics to minimize turn-on "thumps." Additionally, the supply can be switched internally to operate from 220-240 V AC or 110-120 V AC.

Highlights include two headphone-monitoring selections, VCA controlled cross-fader and contour control and stereo inserts at either end of the crossfader to enable the connection of processors or external filters. The master module can be placed in the position in the mixer that best suits the operator and installer.

For more information, including pricing, contact SPL-USA in California at (909) 272-3465 or visit [www.spl-usa.com](http://www.spl-usa.com).



## WE GIVE YOU VERNON

**Name:** Tom Vernon

**Education:** Ph.D., Management of Technology, 2000

**Experience:** More than 30 years in broadcast engineering, recording, computers and technical education; 20+ years as a contributor to Radio World.

**Favorite Stations Growing Up:** WMEX, WBCN Boston

**Most Inspirational Engineer:** Bruno Puglia, WRKO/WROR Boston

**Quote:** "The future is already here, it's just unevenly distributed."

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## USER REPORT

# Toronto Stations Choose Ward-Beck

*Standard Radio Inc. Rebuilds Facility, Outfits Studios With R2K Consoles*

by **Wally Lennox**  
Vice President, Engineering  
Standard Radio Inc.

**TORONTO** Two St. Clair has been the home of CFRB(AM) since 1964. CKFM(FM), Mix 99.9, joined the facility a few years later. This project required rebuilding the complete facility — studios, newsroom, central equipment room (CER) and administrative offices —

ing switcher. Also included: a high-level selector; a pre-punched panel for two SAS CRS-8 heads (routing switcher); and a SAS ACP-88 head (intercom). The rest of the consoles were fitted with the required program amps, CR monitor, studio monitor and utility modules.

The meter bridge was pre-punched for an SAS CDS-40 output switcher control head, and also contains a master clock, temperature and timer mod-



97.3 EZ Rock's MCR Swing Announcer Ron Young poses in front of the station's R2K/28.

while the staff continued with their jobs. In the process the plan called for the integration of two companies acquired by Standard Radio Inc., CJEZ(FM), 97.3 EZ Rock, as well as online music broadcaster IcebergRadio.com.

Today's studios are used by a variety of personnel for many reasons — on air, voice tracking, production, canning interviews, show prep and more. Facilities need to be simple to use, feel right for the purpose and operate in a similar manner from one room to the other to reduce the learning curve. To assist with this, each control room destined for on air or self-operated announce is centered around a Ward-Beck Systems R2K series console.

## Inputs, outputs

The facilities are equipped with 14 control rooms, eight announce studios, a news booth and a large newsroom plus CER. We installed nine Ward-Beck consoles: five R2K/28s for the on-air and backup on-air control rooms; three R2K/20s for VT, production and show prep; and one R2K/12 for CFRB's news booth.

In the FM block, the three R2K/28s were configured identically, pre-wired from the Phoenix connectors on the console motherboard to BIX to achieve quick, simple installation and flexibility. Throughout the pre-wire and installation, the same methodology was used, enabling the engineering staff to move from room to room with the wiring concept of a single room.

The Mix 99.9 and 97.3 EZ Rock control rooms feature 21 input modules to handle microphones, CDs, Maestro, VoxPro, Telos 2 x 12 and the SAS rout-

ing switcher. Also included: a high-level selector; a pre-punched panel for two SAS CRS-8 heads (routing switcher); and a SAS ACP-88 head (intercom). The rest of the consoles were fitted with the required program amps, CR monitor, studio monitor and utility modules.

The high-level selector can be placed in three spots in the console — far left, far right or center of the input section. We chose to place it on the right, leaving the left-most input position blank for a clean feed module at a later date if required. It too can be placed in the same spots as the input selector.

Simple configuration is the most important part of any console. Each input module has eight configuration modes, allowing incoming and outgoing control and tally to change based on the specific application. During construction of the FM control rooms, a requirement for slightly different control became apparent. Rather than construct a discrete circuit to adapt one of the standard configurations, we requested a change. Within 48 hours we had enough programmable devices, complete with new modes, to update the first console to go to air.

## Made to order

CFRB News/Talk 1010 had specific requirements in managing the active responsive format. There were the usual assortment of inputs for Maestro, the SAS switcher and the Telos TWOx12, but the task of managing multiple ISDN/POTS codec connections at the same time sent Ward-Beck back to the drawing board. The result was a modified Clean Feed module with connection to six outboard devices, supplying

IFB to each device independently plus an "all call."

Additionally, it contains switching to determine which of two sources feed the devices, and whether each input will be a part of the mix- matrix. This modified Clean Feed module fits into a standard input module slot.

The other major consideration for CFRB was the equipment requirements in the announce booths, so we had Ward-Beck create a turret package. In Announce 1, the system consists of two hosts and two guest turrets. The hosts need to listen to independent feeds via headphones, and both hosts also should be capable of controlling speaker levels, although only the main host position controls the monitor's source.

The result is a pair of turrets that independently control headphone sources and levels, provide on/off control for any or all microphones and include clock, temperature and event timer. The two guest turrets are supplied with a pre-delay program feed, no intercom or talkback but do contain a clock/temp/timer package.

In the two main positions, the intercom is configured as an IFB through the SAS switcher. The R2K console also has talkback as part of the studio 1/2 modules, which feed talkback to the opposite ear of the IFB in Announce 1 and act as a

backup or alternative to the intercom portion of the switcher. There were a few iterations of the turret control circuitry before the final product was installed. Updating, like the input modules on the console, required nothing more than swapping a programmable IC (PIC).

Turret monitoring selection and on/off control complete with tally is supplied by 422 protocol, thereby simplifying and facilitating the installation.

Although these consoles provide the essential requirements, a few minor changes would make the product that much better. As stated earlier, we had vertical LED Vu meters installed. These should be selectable between Vu and PPM. The Utility module has a two-channel LED Vu. We use this as an uninterruptible visual indication of the Off Air feed. Some gain control to these meters would be a welcome addition.

With respect to headphones, a couple of changes would increase reliability and functionality. Headphone jacks — or at least a punch out for them — should exist in the tub of the console. Given that the headphone level control is always over-worked, it would be worthwhile duplicating the optical encoder of the control room monitor.

Ward-Beck also offers adaptable block components that enable the customizing of products for special applications.

For more information, including pricing, contact Ward-Beck in Toronto at (416) 335-5999 or visit [www.wardbeck.com](http://www.wardbeck.com).

## TECH UPDATE

## AEQ Offers Combo Mixer/Router

AEQ touts its BC2000D as an all-in-one digital audio mixer and router. The unit has assignable motorized nine-layer faders and can be programmed with setups for various users. The five-fader master module can control three side modules, each with up to 10 faders, resulting in 35 faders and 32 programmable keys.

The audio processing takes place in the TDM-based central unit, and enables simultaneous routing of 2,048 channels. Because the cards are modular, one analog I/O card can be replaced by an AES/EBU I/O card if the need for more digital I/O should arise. The TDM structure enables the system to offer several sum busses and



aux channels, and dedicated DSP cards are available for functions such as four-band EQ, compressor and pitch scaling.

The central unit also works as a router. More sub racks can be interconnected by way of MADI lines for an integrated mixer/routing system. Cards may be hot-inserted, and components like power supply and controller can be duplicated in master/slave configuration with automatic switchover in case of malfunction. For dedicated routing applications, AEQ offers multi-user control software with functions such as scheduling and DSP control.

An access-restriction system with password protection minimizes user errors. The alarm system indicates malfunctions in the system, including missing power, lack of response from a card or absence of sound on a channel.

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

# Leading POTS Codecs Compared.

	Comrex Matrix	Tieline Commander	Zephyr Xport
Audio Bandwidth @ 24 kbps @ 19 kbps	14 kHz 11.2 kHz	15 kHz 9 kHz	15 kHz 15 kHz
<b>Direct</b> Internet Software Updates	No	No	Yes, via Ethernet port
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 I3 & G.722)	\$850.00 (adds G.722)	\$495.00 (adds G.722 & state-of- the-art AAC-LD for high fidelity and low delay)
<b>List Price:*</b>	\$3,700.00	\$3,650.00	<b>\$2,495.00</b>



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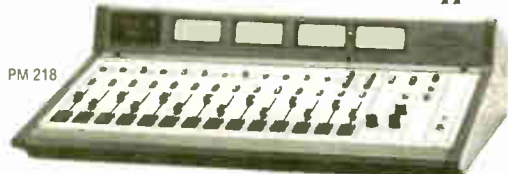
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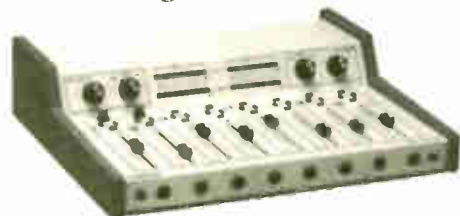
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## USER REPORT

# Radio One Consolidates Audio Routing

*Logitek's Combination Routing/Console System Used in Getting Texas HD Station On Air*

by Don Stevenson  
Chief Engineer  
Radio One, Dallas

**DALLAS** When Radio One, Dallas was charged with building a new facility for its two stations, KBFB(FM) and KSOC(FM), we turned to Logitek for our audio routing system and audio consoles. Our goal was to build a state-of-the-art facility with complete flexibility in our audio routing system. Logitek was one of the first companies to introduce the marriage of the audio routing system and audio consoles, which significantly increases the flexibility of the facility to handle changes on the fly.

We chose the Logitek system based on experience with the product, as we had inherited a Logitek audio console through a station purchase. As we worked with that console, we began to realize how reliable it was. By the time we were to specify equipment for the new studio complex, I was sold on the company's audio routing system. At that time, it was introducing the network card, which would enable multiple audio



KBFB's Logitek System

engines to be networked through fiber connections.

The Logitek consoles are actually just control surfaces through which the audio does not pass; it is instead contained

inside the Audio Engine, where all the mixing is performed. The Audio Engine holds the audio input and output cards, which can be either analog or digital, or

the Audio Engine, we only had to connect the local source audio in each studio to the house cables. We made our deadline with little time to spare.

## Chain of command

One big difference between Logitek and the other manufacturers is Logitek offers a program called Supervisor, which runs on a dedicated PC. That PC would then be linked to each Audio Engine through an RS-232 connection. The program enables the engineer to reconfigure virtually everything in the facility in real time. You can change cross points for audio routing, or change an input or level on an audio console.

Once Supervisor is running and connected to the Audio Engines, you can load several programs on a PC workstation. For instance, VMix can be loaded to connect to any console in the station and remotely control it. VRoute can be loaded to any PC to enable users to change router assignments without having to purchase and wire in an expensive router control panel.

The Supervisor program allows you to load in a series of command scripts, and program the system to do almost anything based on the press of a button or a status change. The commands are written in a program called Command Builder, and we handle a number of daily functions through this.

We have an intercom system that functions between studios, and is basically the console and Audio Engine with some Command Builder scripts added. Additionally, I have set Command Builder automatically to change a number of audio routings for our morning show, and this ensures they will be executed every morning at the correct time and it will always work.

We recently upgraded one of our stations to be the first HD Radio station on the air in Texas, and no changes were required in the Logitek system to get the

See LOGITEK, page 39 ▶

## TECH UPDATE

## Arrakis Launches A 'Revolution'

The Revolution console from Arrakis Systems is a modular, two-piece design make up of a rack-mounted digital audio engine and a control system, in which the control system can be the slide faders of a traditional-looking console or the LCD touch screens of a PC computer, or both at the same time. The design allows the digital engine to be located away from the console operator or in a rack room. The control console also is modular. Digital inputs feature sample rate converters.

Highlights include eight-, 18- and 28-channel mainframes, analog electronics for on-site support, optional input modules with panning or stereo mode selection and VCAs and DC on-off switching. The digital engine offers two serial control ports, which enable the console to be monitored and controlled from two places simultaneously, such as an on-air and talk studio. The engine has separate control room



and studio monitor feeds, in addition to five assignable microphone inputs.

For telephone talk radio and contest caller applications, the Revolution console supports two callers via two mono mix minus busses. The unit does not require separate phone channels, as with analog consoles, and uses the power from the digital engine to configure itself for telephone operation when a phone input is activated. On-air and off-line split-feed recording operation, with talkback to either or both callers, are featured.

The Revolution has several options if more digital or analog inputs are required on a channel. A five-input remote selector console module is a passive switch and can select analog or digital sources. If large routing switcher capability is required, up to four Arrakis analog routing switchers with seven to 14 inputs each may be added to four channels in the system.

For more information, including pricing, contact Arrakis Systems in Colorado at (970) 461-0730 or visit [www.arrakis-systems.com](http://www.arrakis-systems.com).

any combination of the two. Each Audio Engine can support up to three studios. Our configuration had five audio engines, which supported six studios and the Engineering Technical Operations Center.

Installation of the audio consoles went quickly, as we were faced with less than one month to build the Engineering TOC and all of the studios. The Audio Engines were installed in the Engineering TOC, where they could be configured and tested independently of the studio equipment. This became important when studio furniture was significantly delayed, arriving only 36 hours before we had to have each station on the air.

Because we had previously configured

## TECH UPDATE

## Autogram Pacemakers Are Digital-Ready

Autogram Corp. added improved, "high-definition" analog audio to its Pacemaker console line. New features include upgraded circuit cards and voltage-controlled amplifiers with laser-trimmed gain cells for transparent level control. The cards are available for Pacemaker IIK and Classic lines.

The company says the console output stages were improved to provide more headroom and better fault tolerance. Either side of a balanced output circuit now can be grounded without damage or audio quality degradation. Function-select DIP switches were moved to the top of the PC board for access without removing the circuit card.

The bi-modular Model PM218 offers 18 modules, LED illumination, electronic switching and DC control so users can replace modules while on air without pops or clicks. Autogram touts the lack of audio transformers, and mic levels are from -65 to -50 dBm. External monitor levels are from -10 to +10 dBm.

Outputs include one stereo program; one stereo audition; one mix-minus; one mono; two line monitor; two headphones; and one cue. Sources include up to 40 stereo inputs, and four to eight mics.

In terms of distortion, programs/monitor offer less than 0.05 percent THD and IMD, and headphone/cue offer less than 0.1 percent THD and IMD.

Model PM228 includes many of the same features, but instead offers 28 modules. For more information, including pricing, contact Autogram in Texas at (972) 424-8585 or visit [www.autogramcorp.com](http://www.autogramcorp.com).



Pacemaker consoles feature modern styling and colors with wood endbells.

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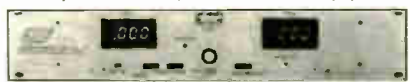
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# Logitek

► Continued from page 37

signal on the air. We later discovered that because of the delay in the transmission system, the audio skimming system was no longer recording properly. The input was delayed audio from an on-air receiver and the start/stop control was from the studio in nondelayed time.

To resolve this problem, I added a time delay command in Command Builder, and the skimmer now waits the correct amount of time and starts/stops. No other manufacturer could resolve that problem without wiring outboard timers, etc.

Profanity delays are becoming a more important part of current daily radio. Radio One has required its stations to install delays and run them 24/7. We had no problems installing an external delay,

but I was concerned about the operator not listening to air signal. Logitek came up with great idea and showed it at the NAB. They figured out how to drive a Beta Brite sign that you can buy at the local Sam's Club.

I wrote the commands in Command Builder to drive signs in three of our studios. The program also will fire a strobe light to signal high-priority alarms including a building audio level alarm (silence and too high), transmitter remote control alarm, EAS events, hot line ringing and a silence alarm for the other station. The alarms are displayed to the operators in English.

In future incarnations of the system, I would like to see RS-232 serial connections from the Audio Engines to the Supervisor computer run through category 5 LAN connections.

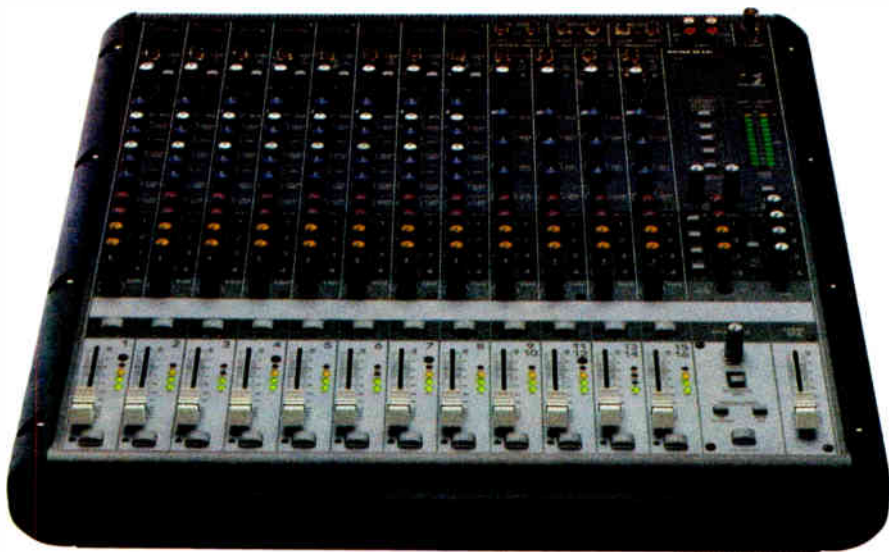
For more information, including pricing, contact Logitek in Houston at (800) 231-5870 or visit [www.logitekaudio.com](http://www.logitekaudio.com).

## TECH UPDATE

### Mackie Has Onyx Analog Mixers

Mackie says its Onyx FireWire-capable small-format analog mixers are suitable for use in digital environments. The series derives its name from the inclusion of the company's Onyx preamp, based on the XDR mic preamps found in Mackie's compact mixers.

Three small-format mixers make up the Onyx series. The 1220, 1620 and 1640 incorporate low-noise mic preamps and circuitry and direct instrument inputs, combining them into a footprint that includes a FireWire option for integration into a computer-based system. They feature an EQ circuit developed by Audio Engineer Cal Perkins, and a design and layout that the company says is reminiscent of "boutique" gear.



The Onyx 1620 small-format mixer

The 1220 is a 12-channel (four mic/line inputs and eight line inputs) mixer with two busses and a three-band Perkins EQ with sweepable midrange. The 1620 is a 16-channel (eight mic/line inputs and four stereo line inputs) mixer with two busses and four-band Perkins EQ with dual sweepable midrange. The 1640 is a 16-channel (16 mono mic/line inputs) mixer with four busses, and also features a four-band Perkins EQ with dual sweepable midrange.

Like Mackie's 1604-VLZ Pro, the Onyx 1640 includes a rotatable I/O pod that can be configured for rack or desktop use, enabling the collection of cables to be hidden.

The Onyx mixers include an upgrade slot for an optional FireWire card, which allows a user to output a combination of direct outputs — from each channel on the mixer — and the L-R mix into a FireWire-equipped computer, and simultaneously return two channels of computer audio back to the mixer for monitoring through the control room/phones matrix.

For more information, including pricing, contact Mackie in Washington at (800) 258-6883 or visit [www.mackie.com](http://www.mackie.com).

## TECH UPDATES

### RMXdigital Has Elements of BMXdigital, Legacy

Harris debuted an addition to its line of VistaMax-enabled networkable consoles, the RMXdigital on-air radio console. The company said the unit was developed for broadcasters who asked for a digital version of the PR&E Radiomixer analog console that contained features of BMXdigital and Legacy consoles.

RMXdigital offers an upgrade path with analog and digital inputs and outputs, enabling users to start with analog and upgrade to digital when ready. It includes the same switches and LED illuminators as the BMXdigital, in addition to support for multi-pair telcos.

VistaMax is a networkable audio management system that enables the connecting of sources and destinations to the system by way of the shortest physical path, which the company says eliminates or reduces the need for standalone routers, distribution systems and long multi-pair bundles of inter-room wiring.

The architecture also enables the separation of physical control surfaces from the input, output, mixing and control of non-adjacent sources and destinations, and moves these functions into a networkable structure of audio acquisition, routing, control and distribution.

RMXdigital works in a standalone or networked environment, and can be connected to VistaMax by way of fiber or Cat-5e cable.

For more information, including pricing, contact Harris Corp. at (513) 459-3547 or visit [www.broadcast.harris.com](http://www.broadcast.harris.com).



The RMXdigital on-air radio console features the VistaMax system.

### Yamaha Offers Compact DM1000, One-Box PM5D

Yamaha Commercial Audio says its DM1000 19-inch rack-mountable digital production console boils down the features of its DM2000 console into a more compact package.

Like the DM2000, the unit is intended for commercial post-production, audio for video, broadcast and sound reinforcement. Yamaha's Studio Management Application software is supplied, and mix data is interchangeable between the DM2000, DM1000 and the O2R96 consoles, which can be linked and cascaded interactively within a multi-complex studio.

Four engineers can do basic console setups on laptops, and then load the settings into the console at the venue. Highlights include software features such as 6.1 Surround, User-Assignable Layer and Global Recall safe; 48-channel capacity up to 96 kHz; four multi-effect processors; 20-bus configuration; and digital patching flexibility.

The company also released Version 2 of system software for the DM2000 and DM1000, enabling the capability to run Yamaha's Add-On effects package, and expanded DAW control and surround functions. Features include ESAM II editor control, Global Paste and improved automation functions.

Yamaha's PM5D digital console promises a "one-box" design and 64 input channels — 48 mono + four stereo analog inputs, four internal stereo returns. Outputs include 24 mix, two stereo, eight matrix, eight Mute groups and eight DCAs. Also featured are 96 kHz audio and 32-bit internal processing.

There are two front-end configurations from which to choose. Model PM5D includes 48 XLR analog mono inputs with manual mic preamps based on the circuitry of the DM2000, each with balanced TRS insert I/Os and with an additional four stereo line level inputs. Model PM5D-RH includes 48 XLR analog mono inputs with recallable mic preamps, and four stereo inputs that accept mic level signal.

For more information, contact the company in California at (714) 522-9011 or visit [www.yamaha.com/proaudio](http://www.yamaha.com/proaudio).



The DM1000 digital production console

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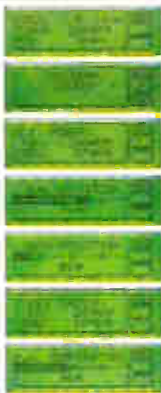
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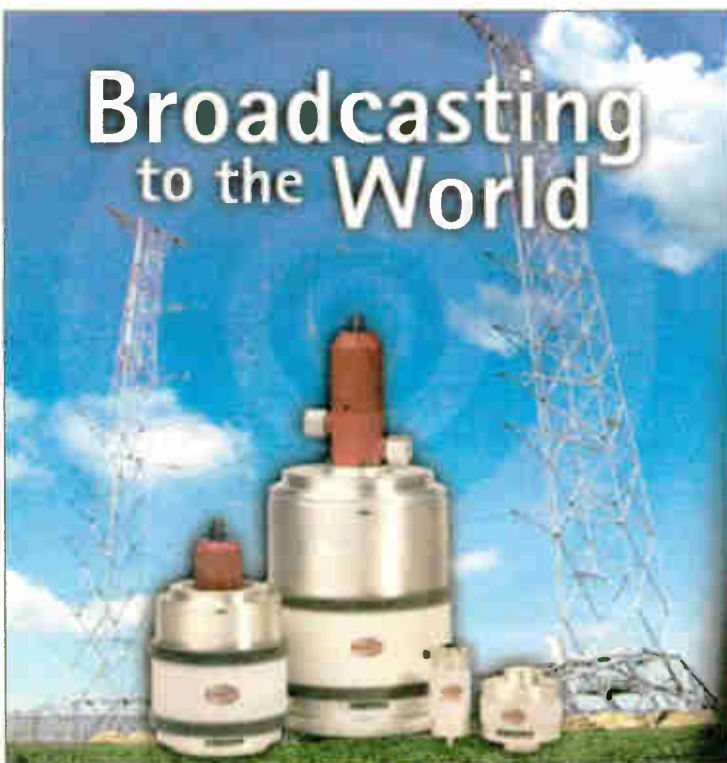
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## TECH UPDATES

## Radio Systems Explores the Next Millennium

Radio Systems added to its line of Millennium analog consoles, entering the world of digital with the Millennium-D, which the company says has the look and feel of a traditional audio console for operators and engineers who prefer a "non-computer" mixing console. The surface interface is similar, with a layout similar to its analog sibling, and there are no multi-function switches or displays. Metering is by way of analog meters.

Additionally, the Millennium-D is standalone, eliminating computer reboots.

The console includes a 24-bit digital architecture with a user-selectable sampling rate. Digital inputs feature SRC, and analog inputs support variable input levels, which the company says is a necessity for facilities using multiple microphone or consumer-level analog inputs.

Setup is by way of a browser-based input screen with user-assignable output and mix busses, enabling up to five additional stereo busses or 10 mix-minuses to be created. The Millennium-D communicates with serial-controlled devices, such as audio switchers and routers.

Highlights include 32-bit resolution, sample rate conversion on each input, CRT companion metering and timer and set-up display. Outputs are available in analog or AES/EBU digital format.

Owners of the Millennium analog console can purchase an upgrade kit that converts it to a Millennium-D.

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



The Millennium-D is a standalone unit featuring 32-bit resolution.

## Studer Adds OnAir 3000 to Console Series

Studer USA extended its family of digital production and broadcast consoles with the OnAir 3000, aimed at the middle to upper segments of the radio market. The operating concept and control surface modules of the unit incorporate the "Touch 'n' Action" system, color TFT (thin film transistor) touchscreens that offer graphical information on parameter settings that were featured as part of the OnAir 2000.



The OnAir 3000 retains the 'Touch 'n' Action' feature of its predecessor, the OnAir 2000.

The console design is based on a modular desk and fan-less S-core DSP engine. The standard fader module comprises six channel strips; and up to eight modules may be fitted, for a console size of 48 faders. Layout options range from an engineer-operated continuity console to a single-fader panel for DJ and newsroom use, or a PC-operated system with no physical desk controls.

OnAir 3000 offers three main stereo mix busses: PRG A, PRG B and REC. Also included are an audition facility, four stereo aux busses, 16 mix-minus sends configurable as auxes and three independent studio monitoring/talkback circuits, including two PFL circuits for split-desk operation. Individual channels are equipped with four-band parametric EQ, dynamics (limiter, compressor, expander and gate), de-esser, HPF and input/output routing.

For more information, including pricing, contact Studer USA/Harman Pro North America at (818) 920-3212 or visit [www.studer.ch](http://www.studer.ch).

## Wheatstone G-3 Integrates With Bridge Router

Wheatstone says its Generation series of consoles offers an integrated audio infrastructure system that allows a station's on-air and off-air resources to be shared throughout a facility without extensive wiring runs and mechanical patching.

A line of Ethernet-based X and X-Y controllers, modular and rackmount, enable communication with the company's Bridge digital audio network routing system, making visibility preferences and format changes customizable using X-point software. Routing and distribution are handled digitally by way of Cat-5 or optical fiber links.

Generations 3, 4 and 5 are aimed at small- to mid-markets on-air studios.



The Generation 3 Audio Control Console

The Generation 3 eight-fader control surface is an audio control console with four stereo program mixes, eight mix-minus busses and the ability to select a source in the Bridge routing system and send it to a fader or monitor circuit. The company says the unit also is suitable for a large market voicetrack or newsroom work surface.

G-3 enables monitoring for the control room, headphone and studio, which features its own source selection and talkback. Eight-character LED dot matrix displays are included above each fader and monitor.

The console has eight programmable buttons that can be used as configuration presets or to trigger salvos. It is available as a four-fader voicetrack package or can be ordered in a 20-fader air studio version with four stereo LED meter displays.

Additionally, Wheatstone's studio-sized Satellite router cage, described by the company as the little brother of the Bridge router, uses the same cards as Bridge for system-wide compatibility and offers 10 slots. Functionality includes networking, mixing and logic I/O. A plug-in power supply module is provided, with the second redundant power supply module optional and a DSP/CPU fail-over also available.

For installation, plug the local I/O and logic into the rear DB connectors, the Generation control surface into the Cat-5 interface and link up remote locations by way of the other Cat-5 connections.

For more information, including pricing, contact Wheatstone in North Carolina at (252) 638-7000 or visit [www.wheatstone.com](http://www.wheatstone.com).

## SSL Upgrades C100 Software

Solid State Logic debuted added features for its C100 digital broadcast console, including a V1.5 software upgrade and improved security.

The C100 is suitable for on-air and live-to-tape production applications. It features scalable DSP for up to 128 processing channels, and enables simultaneous 5.1, stereo and mono signal paths from source to destination. C100 offers 80 mix busses for talent, communication and production area mixes, and redundant, hot-swap hardware.

Other features include two 5.1 program outputs with stereo and mono fold-down outputs; 16 subgroup busses with stereo and 5.1 format options; 24 aux busses with odd/even stereo bus linking; and 24 utility busses for clean feeds, IFBs and parallel live recording. Independent direct and channel utility outputs enable simultaneous "N-1" and direct recording feeds. A central touchscreen offers metering of the 80 console outputs, as well as access to output parameters.

The V1.5 software's DSP redundancy system adds to the console's "self-healing" DSP capabilities to enable the improved security, which is aided by the C100's control surface management. Using a graphical interface, the operator is able to reconfigure the control surface without audio interruption.

The remote bay option enables the console processing to be split across two control surfaces for flexibility in situations with restricted space, or where two distinct control sections are required. Third-party router integration facilitates information exchange between an external router and the console's digital router.

For more information, including pricing, contact Solid State Logic in New York at (212) 315-1111 or visit [www.solid-state-logic.com](http://www.solid-state-logic.com).



The C100 digital broadcast console

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Shively Labs 6810-6R-DA antenna. This antenna is tuned to 92.5FM with a gain of 6.09 and db of 7.85. This was originally installed in 1986 and removed from service back in November. System also included raydoms for ice protection and is 20 dbk max. Pictures are available so e-mail [Mraley@bbnradio.org](mailto:Mraley@bbnradio.org) for the full scoop. Asking \$20,000. buyer responsible for pick-up and delivery. This system is located in Alert, NC.



ERI LPX-3E, tuned to 97.5, current model, 3-bay FM antenna with heaters, end feed, 6 yrs old, selling due to frequency change, \$4500. Miles Carter or Larry Timmons, KRLL, 102 N Mason St, Carrollton MO 64633. 660-542-0404.

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Channel Master, 1.8 meter antenna system, Type 183, 1.8M, C-band, offset Tx/Rx antenna System, new in box, complete with all mounting hardware, and instructions, mounting post (steel pipe) not included, list price is \$1500, make offer. Bill Hearst, Clarion County Bdctg, 1168 Greenville Pike, Clarion PA 16214. 814-226-4500.

OMB YAV4 FM broadcast antenna. 4 bay verticle for 6dbd omni-directional gain. Tuned to 93.3 MHz. Includes power divider, all hardware and (4) 16' coax jumpers with "N" connectors, manual. Just over a year old, working fine when taken down in March. Rated at 800w, \$450 + shpg. Ron Kochoer, WFBO-LP, 45 Pine Hill Ln, Palm Coast FL 32164. 386-437-4304 or [RLKochoer@msn.com](mailto:RLKochoer@msn.com).

### AUTOMATION EQUIPMENT

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RDS AMX84 audio matrix switchers (3), 8 stereo inputs, 4 stereo outputs, cable, keyboards, manuals, software, and connectors for above, no monitors, in excellent working condition, \$5000 or BO +shpg. Software support from RDS until 8/04. Bill Hearst, Clarion County Bdctg, 1168 Greenville Pike, Clarion PA 16214. 814-226-4500.

RDS Phantom automation system, new in 2002, PTU mother board, ASI audio DSP card, 4113 card, 20 gb EIDE hard drive, loaded with AC music library updated to 3/1/04. Also have another loaded with current and classic country music library updated to 3/1/04. Software support from RDS until 8/04. Bill Hearst, Clarion County Bdctg, 1168 Greenville Pike, Clarion PA 16214. 814-226-4500.

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Inovonics 222 NRSC AM audio processor with instruction/maintenance /operating manual, \$350. Donald De Rosa, WAMF, 315-593-1300 or email: [WAMF1300@alltel.net](mailto:WAMF1300@alltel.net).

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Belar Electronics AMM-1 frequency & modulation monitor with instruction book, \$350. Donald De Rosa, WAMF, 315-593-1300 or email: [WAMF1300@alltel.net](mailto:WAMF1300@alltel.net).

Gorman-Redlich three-tower AM antenna monitor. Includes instruction manual, remote interface cord, \$450 +shpg. Dennis Weidler, KICY, POB 820, Nome AK 99762. 800-478-5429 or email: [dennisw@kicy.org](mailto:dennisw@kicy.org).

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# ◆ READER'S FORUM ◆

## RDS Debate Scrolls On

I read Allen Hartle's guest commentary ("RDS Display Is No Place for Ads," March 10).

Let's start with the PS Scrolling issue. Being a manufacturer of RDS generators for almost 20 years, Audemat-Aztec already faced the debate over PS Scrolling in Europe. Our FMB80 RDS generator is fully compliant to the RDS and RBDS standards, meaning that it doesn't support the scrolling PS since it is not allowed by both standards.

In the meantime, our company stays focused on broadcasters' needs and expectations. In some European countries, Canada, USA, Mexico or Australia, there is a strong demand for scrolling dynamic information within the PS, normally dedicated to the call letters. Local regulation authorities of these countries "tolerate" the PS Scrolling. We have recently implemented this new feature in our FMB80 RDS generator to answer this need.

We all agree that Radio Text is nicer than PS Scrolling. Let's hope that car receiver manufacturers will see the sudden surge of RDS installation and implement systematically the Radio Text feature in their new models — or at least add an ON/OFF button for the PS scrolling. It could be an answer to the safety aspect.

The second issue discussed in the article is the content being displayed on the car receiver through the PS Scrolling. As a manufacturer, it is not our role to say what is acceptable or not. We let the broadcasters decide what is best for their listeners. As far as I see, our customers decided to use the PS Scrolling for displaying title of songs and artist information. The feedback I have had is extremely positive and their listeners enjoy this new feature.

In a world where new digital standards are now available such as IBOC, satellite radio, DRM or DAB-Eureka, which also offer text messaging on their receivers, the surge of the RDS/RBDS technology seems logical. Audemat-Aztec thinks it is a great opportunity for FM broadcasters and will keep working on new innovative developments enabling the FMB80 RDS generator to meet with broadcasters' expectations.

*Christophe Poulain  
Vice-President  
Audemat-Aztec Inc.  
Miami*

## 9/11: Solutions Instead of Criticism

Recently I watched with dismay as the Sept. 11 Commission conducted its recent analysis of what went right and wrong in NYC that fateful day. It is with difficulty that I listen to those who offer criticism, without heralding the heroism that saved many lives.

As a communication professional, I am particularly troubled by complaints about inadequacies in the 911 emergency telephone system in New York City, and disturbed by the misperception of how such a system must operate.

911 allows citizens to report emergencies, and to enable such reports to be quickly relayed to the appropriate first-responders. In other words, it is a quick and easy way to get help fast. The role of this system to offer actual hands-on assistance or information to callers is secondary — that is the responsibility of the first-responder agencies.

While I deeply sympathize with those who lost loved ones in this tragedy, my knowledge of communications is such that I can say with certainty that attempting to create a 911 telephone system that could simultaneously offer real-time information and advice to callers in a mass emergency like Sept. 11 is just not feasible. Such a system would sit with excess personnel and capacity for decades at a time. The cost would be enormous and the resources could better be used in some other way.

Readers may wonder why I have addressed this letter to a broadcasting publication. Yes, there is a connection to broadcasting. In the spirit of offering solutions rather than criticism, I hope this letter will serve to notify public safety officials that there is a better solution, and it exists now. With a small amount of planning we can be prepared to disseminate such important emergency information in the future.

Public safety officials have, or could easily have, immediate access to the Emergency Alert System at a local level. At a moment's notice, such officials can seize the entire local broadcast system and disseminate information. In the case of a disaster, this should be done and 911 emergency operators should be instructed to tell callers, "We are aware of this emergency, and the police and fire department have been notified. Please find a radio or TV and listen for up-to-the minute emergency and evacuation instructions."

With the proliferation of portable radios and TVs, it is likely that in any group of a few dozen or more people, at least one person would have a portable receiver.

The Emergency Alert System is suited for this task. On Sept. 11, local activations in the three attacked portions of the country could have each provided locally appropriate instructions while still allowing for a national alert. Here is an area where broadcasters truly can serve the local public interests of a community. We must educate the proper agencies in preparing for such activation of the system, and possibly amend state EAS plans.

After Sept. 11, there was much discussion in the broadcast community about the lack of a nationwide EAS activation to inform the country and maintain order. It is important that our public safety officials understand how they can use this system in the future to provide information that the 911 telephone system will never be able to efficiently disseminate.

*Rolf Taylor  
Cleveland*

## ◆ READER'S FORUM ◆

**Interference Is Unacceptable**

A while back, the Wall Street Journal addressed digital AM radio. In reading the article there seemed to be nothing but glorious praise.

The FCC, in its total lack of wisdom, has apparently adopted Ibiqity as an AM digital standard. Some people indicated that it sounds nice, which probably is true. But they neglect to point out that it delivers an increased level of interference to co-channel stations all the way out to the adjacent third-channel stations.

The FCC and the NAB are apparently willing to accept this interference. But as a broadcaster vested in the business, I am not willing to accept any interference. In fact, I am looking for an improvement and less interference.

The FCC and NAB adopted a program a number of years back called AM Improvement. Neither one of these revenue-driven operations have the foggiest idea of what improvement is. As a firsthand user, I understand what AM Improvement is all about. I do not want to accept what the NAB said in a recent board meeting: that interference is not as bad as had been anticipated, and would be acceptable.

As an AM broadcaster, no additional interference is acceptable.

The FCC's attitude is that we cannot expect protection for coverage outside their defined interference contours. I say baloney — and plenty of it. If my signal is currently being received without interference, why should all of a sudden this new technical marvel of stupidity be able to wipe out my signal?

The FCC and the money grabbers are always looking for a quick buck at the expense of the industry. We have been visited by C-Quam stereo that destroyed the spectrum, and thank God most of them are turned off now. And remember the wind-

shield aerial — that was a beaut, too.

In summation, it's all about money. It's all about selling a new radio that someone can pocket money off of while making obsolete a billion radios currently out there. I've been in engineering 50 years and my time on this planet is limited. But in my time left, I'll be damned if any of my facilities will ever sign on to creating interference to other broadcasters.

*Edward P. De La Hunt  
De La Hunt Broadcasting  
KDKK(FM)/KPRM(AM)  
Park Rapids, Minn.*

**Take Out the Trash**

I must respond to your editorial regarding Harry Cole's column and Ed Pyle's complaint (*Reader's Forum*, "Is It OK to Say, But Not to Print?," March 1). It is gut emotion that compels me to write.

RW, Cole and Pyle are all missing the point, as are practically all the "cultural leaders" in our society. The fact that filthy words are written with asterisks instead of letters doesn't make any difference. I still know what they mean. I hate that a filthy pornographic image hits me in the face when I'm trying to do something on the Internet. I hate it when a song or an advertisement or a TV ad hits me between the eyes with the kind of filth, vulgarity and obscenity that seems to pass for creativity in our degraded society.

There's nothing out there that you could express in asterisks that I don't know about. I'm ex-military, a nightclub entertainer, father of seven, and (dare I admit it?) a veteran broadcaster. But I don't revel in this trash. I am not positively motivated by lewd, "wink wink", body-part, sexual-perversion humor, dialogue advertising or imagery.

I guess the part I find most distressing is Paul McLane's ambivalent disclaimer near the end, where he wrote, "Without question these social standards are changing, and perhaps in another year or two, I would make a different call." Don't you set your own personal and professional standards? Are your standards subject to change on account of perceived social or business advantage?

Yeah, yeah, I know that so-called leadership in this country has been teaching flexible standards of morality, honesty, and integrity and "...it's a jungle out

**Is Skywave Listening Archaic?**

Skywave listening evokes another era, when youngsters grew up listening from afar to the Grand Ole Opry on WSM from Nashville or baseball games on WINS in New York.

As proliferation of mass media has brought the world closer, distance listening may not have the romantic appeal it once did. In the era of IBOC, however, skywave listening will be affected further. Interference may occur outside stations' protected contours in some cases, according to proponents such as Ibiqity, NAB and the National Radio Systems Committee.

According to the FCC, "changes in the upper atmosphere after sunset cause the reflection of AM signals back to earth, resulting in the transmission of skywave signals over paths that may extend thousands of miles. Nighttime skywave propagation results in a much greater potential for inter-station interference." The commission wrote this in its Further Notice on IBOC.

When the agency first authorized digital operations, it agreed with the NRSC that "significant uncertainty remains with respect to the potential for first-adjacent-channel interference under nighttime skywave propagation conditions" when IBOC is used. That's why the FCC deferred allowing nighttime AM IBOC authorization.

Until the FCC allows such operation and more AMs make the transition, we won't know how much interference to expect, experts say. Are we about to kiss our skywave coverage goodbye? Have we thought through the ramifications?

Radio leaders have not ignored this issue. The NAB's Radio Board has acknowledged that there may be a trade-off for going digital. They think the commission should allow nighttime IBOC now and handle any interference concerns on a case-by-case basis.

Yet large-power AMs with historically protected clear-channel skywave signals, such as Chicago's WGN, feel their nighttime coverage, which reaches to such places as Peoria, Ill., is part of their core coverage area. Stations like these don't want to see that audience (not to mention the related ad dollars) go away. Hobbyists such as DXers, who love to pull in signals from far-flung places and seek verification of those transmissions, feel the same.

Those who want to improve their AM signals with IBOC believe that protecting skywave listening is not as important now as it was years ago, when far fewer stations existed and rural areas in particular were underserved by media. This school of thought also argues that consumers who do need long-distance radio service — truckers, for instance — are now served by satellite radio.

"The notion that an AM signal should be heard hundreds of miles from the transmitter is quaint, but not practical in the year 2004," wrote Buckley Broadcasting's Tom Ray, who has emerged as a vocal advocate of IBOC, in a letter to the commission.

"There would be no greater damage done to the AM band, and no better way to tell the consumer that AM radio is inferior, than to not allow nighttime IBOC operation."

In order to proceed into the digital future, it seems we face an unfortunate loss of a nostalgic part of our historic radio past.

— RW

**Correction**

A sentence in the story about 4 Times Square in the April 23 issue quoted John Lyons, manager of communications and broadcast operations for The Durst Organization, incorrectly. The quote should read: "The FM master had to come up in parts ... the panels, power dividers and hybrids."

And the 385-foot structure is 1,118 feet above street level.

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YOU CAN STORE AND NAME switch and fader settings for each operator's task and recall them by simply spinning an encoder and hitting a TAKE button. And like our larger G-9, the G-8 has 12 user programmable switches for salvos and intercoms plus additional programmable TALK buttons for IFB functions. And with full color LCD display screens the operator will know for certain that his signal is clean, his sources correct, and his preset signal is ready and waiting. *The G-8 has the layout and features to let your operators work fast and accurately!*

 **Wheatstone**

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