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Radio World



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The Newspaper for Radio Managers and Engineers

November 9, 2005

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DRM Gets Real at IBC

by Lawrie Hallett

AMSTERDAM, Netherlands Digital Radio Mondiale displayed consumer-grade radios at two recent electronics events in Europe, and said it expected its receiver partners to ship units to stores in time for the holiday selling season.

Previously, the DRM Consortium has had partners produce both high-end radios and inexpensive software versions that can be played on a personal computer.

DRM displayed consumer-grade receivers at the IFA consumer electronics show in Berlin, Germany.

Production models were available for evaluation at IBC2005 in September.

Texas Instruments and RadioScape introduced three multi-standard, tabletop radios with DRM, Eureka-147, FM-RDS, LW, MW and SW capabilities. Manufacturers Roberts, Morphy Richards and Sangean use RadioScape's RS500 module and TI's DRM350 multi-standard digital radio baseband in their DRM radios.

DRM believes the typical retail price for these units would be around \$300.

The Roberts unit includes digital pause and rewind and built-in stereo speakers. Sangean's radio features MP3, plus MMC or SD card storage.

See DRM, page 3 ►

Technical Standards: A Look Inside the NRSC

This Group of a Few Dozen Technical Experts Helps the Industry Determine Key Issues

by Leslie Stimson

The National Radio Systems Committee has been in the news of late; and its members have toiled for years to debate the intricacies of, and test for, a standard for in-band, on-channel digital audio broadcasting in this country.

But this group — mostly technical

employees representing companies in the broadcast and receiver industries — does its work with little fanfare and, for the most part, without much recognition. For some in radio, the acronym NRSC may, in fact, mean little. What does the group do? How does it accomplish its tasks?

According to the NRSC Web site, its

See NRSC, page 7 ►

Dialing Up Digital

A Wrapup of Gear on The Floor at the 2005 NAB Radio Show



Shown: Mark Stennett walks the booths. Photo © NAB

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Surround Compatibility Pilot Test

CINCINNATI A group of engineers here has done a "pilot test" of surround sound systems for cross-compatibility. Results will be shared with the NRSC task group evaluating surround systems for HD Radio.

"We don't know if anyone else is testing these," said Alex Kosiorek of Cincinnati Public Radio, referring to surround technology from Dolby, SRS and Neural. The purpose of the test

was to determine whether the sound is different or annoying should an HD Radio station encode using one system but a consumer be listening via a decoder that uses another. Kosiorek discussed preliminary results during an AES convention session in New York.

The September pilot listening test was organized by AES Cincinnati with Sonic Arts, WGUC, NPR and the Corbett Studio.

Cox Radio Engineer Steve Fluker, co-chair of the NRSC task group, says members are waiting for the results of this test as well as those of NPR's tests to simulate multipath.

FCC Turns a Page on Indecency

WASHINGTON The FCC launched a Web page to help consumers complain about broadcasts they believe are profane, obscene or indecent.

The site explains how to file a complaint and what happens to that complaint once the agency receives it, plus includes a section on frequently asked questions about the topics.

The page is at www.fcc.gov/eb/oip/Welcome.html.

ViaRadio to Sell RDS Gear

A former radio GM and engineer has opened a company in Florida, viaRadio Corp., to sell a line of RDS equipment built by German firm 2wcom into the United States.

Bill Marriott is president; his experience includes building a 700-station RDS network in North America for Terion.

Products include DSP-based RDS encoders, a data receiver for billboard applications and an emergency warning radio system. New is the VA20 Market Monitoring Decoder, marketed as a professional FM-measurement and RDS decoding system.

"RDS can be much more than just scrolling text," said Marriott in the announcement, "and now that RDS has finally caught on in the U.S., we feel it makes sense to introduce this top-quality equipment and application support for group-wide networks and applications such as traffic message channel, emergency warning radios and electronic billboards."

Ibiquity Has Receiver Reference Platform

COLUMBIA, Md. Ibiquity Digital introduced a receiver reference design.

The company's Mike Lyons said Ibiquity hopes the component will allow receiver manufacturers to cut costs for making HD Radios and get products to market faster.

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DRM

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DRM expects the Roberts and Sangean radios to be available for German, French and U.K. consumers in time for the holiday season.

The Morphy Richards receiver has MMC or SD card storage, and includes record or playback features. The company expects to begin manufacturing in a few months.

Coding Technologies, working with AFG Engineering GmbH and Himalaya (Power) Electronics, demonstrated a DRM-capable radio based on Analog Devices' Blackfin.

Fraunhofer IIS has developed a DRM processing chain for integration into a DRM-only or multi-standard receiver IC, supplemented by Coding Technologies' Audio Decoder Library.

Robert Bosch GmbH displayed a modified car receiver with DRM capabilities. In collaboration with RTL Group, Visteon demonstrated its in-vehicle DRM, AM/FM and CD Tuner. Panasonic showcased an OEM DRM-capable car

manufacturing issues with their partners.

The Roberts and Sangean receivers provide station identification, alternative frequency and time information, allowing suitable receivers to switch between AM and DRM signals in order to deliver the best quality service, DRM officials said.

Most DRM receivers on display allowed station selection from a list of station names as well as tuning via frequency.

Removing the need for users to always know the frequencies of their favorite stations is especially helpful in the international shortwave arena because shortwave broadcasters use multiple frequencies and switch throughout the day to compensate for changes in the ionosphere that degrade the transmission characteristics of individual frequency bands at particular times.

At its IBC press conference, DRM Consortium Chairman Peter Senger outlined expected future developments. One of those is the expansion of the DRM system to include FM frequencies, as reported here earlier.

Senger expects the additional DRM standard to cover frequencies between 30



The AFG-Himalaya DRM Receiver

transmissions to the U.K. capital, using 26 MHz shortwave frequencies.

International adopters

These tests, operated in conjunction with transmission provider Arquiva — formerly NTL Broadcast — will operate for at least six months, into the early part of 2006.

Meanwhile, early international adopters, such as Deutsche Welle and the BBC, have begun increasing the number of daily DRM broadcast hours. According to Senger, there are now about 40 broadcasters contributing to the production of

approximately 500 hours of DRM transmissions broadcast each day.

Over recent years, the number of other exhibits at IBC featuring DRM-related equipment has been expanding. This year, transmitter manufacturers, including Thales, Harris, Nautel, Transradio SenderSysteme (formerly Telefunken SenderSysteme) and RIZ presented DRM equipment and held demonstrations.

Also this year, in light of the availability of DRM receivers, RadioScape joined these transmission providers for the first time.



DAB/DRM Receivers From Roberts, left, and Sangean

radio prototype.

The Roberts and Sangean radios sported the new "DR Digital Radio" logo, indicating that they meet a multi-standard format, able to receive both DRM (150 kHz to 30 MHz) and DAB (Band III and optionally L-Band), along with analog AM mono and FM stereo RDS transmissions.

Radio World has reported that DRM and the DAB proponents are cooperating on some issues, such as co-promotion and

and 120 MHz could be finalized within two years.

As the consumer launch of DRM begins in earnest, the number of individual broadcasters supporting the standard is increasing.

London-based World Radio Network, which specializes in the distribution of English-language programming around the world, used the DRM press event to announce the launch of its own DRM test

43,000 Visit IBC2005

Expansion and continued growth marked IBC2005 in Amsterdam in September.

The technical exhibition and conference program played host to about 43,000 visitors, an increase of about 5 percent over the 2004 event, according to organizers.

Though many conference sessions were television-focused, some sessions, such as "Audio & Radio Technology — Hearing is Believing, A New Era of Coding, Middleware and Service Applications" as well as "Radio Daze — Sorting the Future of Radio" highlighted issues pertinent to the radio industry. But the real interest for radio broadcasters was on the exhibition floor with various products on show, including the rollout of DRM receivers.

The IBC2006 conference program is planned set for Sept. 7-11, with exhibits open from Sept. 8-12. The show will return to Amsterdam in 2006 and 2007. The city of Amsterdam has announced a three-year freeze on hotel prices. Benefits for attendees include free transport around the city during the show.

For information on IBC2006, go to www.ibc.org.

— Marguerite C. Clark



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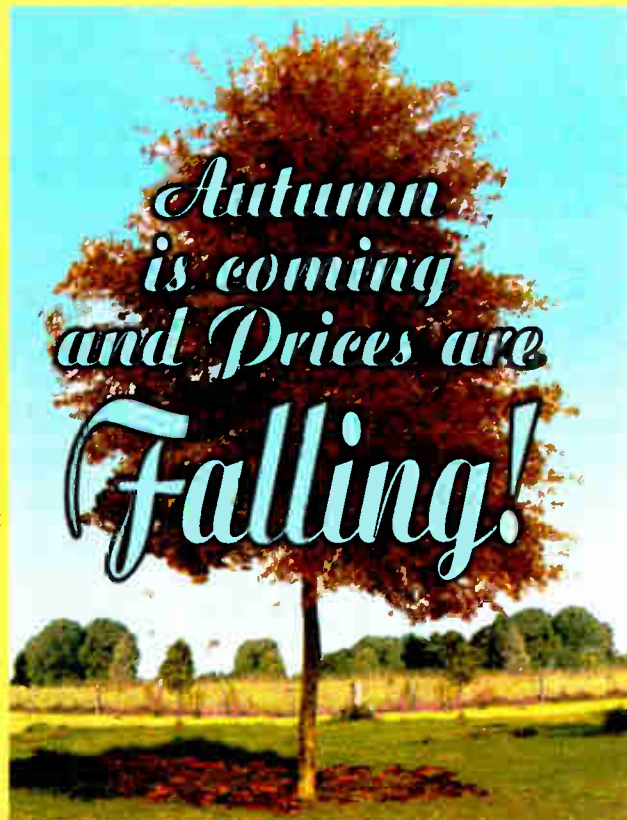
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FROM THE EDITOR

'Suddenly Your Next Station Is Free'

by Paul McLane

I'm catching up as I settle into my chair after a busy season of conventions and special publishing projects. Here are a few items I've been meaning to share. ...

Researching an article, I collected viewpoints on how radio needs to proceed in order to thrive. Many sources mentioned the promise of multicasting. Not long ago, the word would have meant little to most radio people. Now thanks to the growing penetration of digital, owners and engineers can talk credibly about splitting single air signals into several.

"That's a tremendous opportunity — more inventory to sell and increase their overall listenership," said Neil Glassman, vice president of strategic marketing for Broadcast Electronics. "Here are companies with multiple stations in a market. Suddenly your next station is free." ...

Flat

Radio at large could use a good story line after a year of news about payola investigations and satellite subscriptions. Datacasting, podcasting, people metering and other forms of "-ing" will make headlines as we fight to secure market position.

The revenue picture isn't terrible, but it's not rosy. Through the first eight months of this year, U.S. radio revenue was up only 1 percent, according to the Radio Advertising Bureau, continuing a trend in the low single digits that stretches back several years.

The financial community has taken note. Dickstein Shapiro Morin & Oshinsky LLP recently wrote, "Much of the radio industry appears to be mired in economic doldrums. Advertising is soft, stock prices are down and revenue growth rates are much lower than those of earlier years."

Initiatives like Clear Channel's "Less Is More" are intended to help attack these problems. The broadcast group recently said spring Arbitron data showed "dramatic" increases in TSL in the top 50 markets, which it interprets as "another positive indicator" that Less Is More is creating a more favorable environment. But with those ben-

efits come costs. Wachovia Capital Markets' Marci Ryvicker and Maria Zubov reported this summer, "While a reduction in supply should lead to higher demand ... we are learning that radio groups cannot increase rates fast enough or high enough to offset the amount of business that is currently being reduced."

Although noting that ratings seem to support Less Is More, Wachovia earlier this year found that rate increases of around 14 percent per unit are required to break even, "which is a difficult feat in the current environment, in our opinion. We believe that the inventory reduction efforts, along with spotty national and various format changes, are hampering top-line growth." ...

Not everyone is gloomy. Consulting firm Vallie-Richards wrote in a newsletter that the mood at the fall NAB convention was refreshing. "Gone was the 'consolidation' doom and gloom ... surprisingly gone was the industry negative tone and worry that had consumed conventions over the past few years." The company attributes the change to a return to "focus," with broadcasters focused on maximizing HD Radio, new format options and using technology to create more compelling stations. ...

Noise

The FCC of course has been studying a recommendation from the NRSC that it adopt the standard built around HD Radio. But it has heard from critics who believe the technology will increase interference, deteriorate nighttime AM, cost too much and give Ibmiquity a monopoly position.

Meanwhile, the industry has been waiting for receivers. Supporters were pleased when a carmaker confirmed plans to put HD Radios into the dashboard. BMW will include it as a factory installed option in 7 Series models this fall.

That receiver will be trunk-mounted, but the display screen is on the dash — a space for which competition is increasing.

Motorola, for example, is testing iRadio, which it calls a podcast-like subscription technology that allows Internet radio to play through cell phones to car music systems.

Meanwhile, satellite subscriber numbers keep growing, having passed 7 million in recent months; Kagan Research predicts that by 2014, satellite will have 46 million. Demand "remains strong, customer satisfaction is high and churn has been low," Kagan reported. ...

XM and Sirius have been making marketing and program deals with partners as divergent as Napster, Starbucks and Ivy League athletic departments. They hope to find audiences via the Web and MP3 players; XM plans to acquire WCS Wireless, a deal that brought protests from NAB; and it has moved into listener notification of local emergencies. The company is partnering with a county in Northern Virginia to air warnings to the public and hopes to reach deals with other jurisdictions. ...

Supporters of traditional radio, meanwhile, are fighting back. Michelle Radvansky of Brainerd Communicators, which does PR work for radio groups, argues that churn actually "continues to be a problem" for satellite, saying almost 20 percent of people who choose satellite cancel it. And as we noted in RW recently, the Michigan Association of Broadcasters, describing recent news coverage of competing services as "media hype," said its study showed "listeners strongly prefer the ability of local radio stations to keep them in touch with their communities." ...

This is also a time of change for NAB itself. Disney/ABC decided it will rejoin after a two-year "hiatus," bringing 70 radio stations and its radio networks back with it. What's a little hiatus among friends?

Meanwhile this fall the selection process continued to replace Eddie Fritts. His successor will have to help stations deal with unprecedented new competition. Whether the answer to radio's blahs is in technical approaches like surround sound and multicasting will be seen. One who thinks so is Denny Sanders, managing director of Telos Systems/Omnia/Axia, whose company has introduced a new audio processor for multicasting. "The cancer that terrestrial radio has to address is that it's losing the under-30 age group, and that is dangerous," said

★ ★ ★

Sanders, a long-time Cleveland radio programmer. "I think they have a golden opportunity here with multicast, to try to do niche programming that's low-risk."

Here's a clarification to one version of our "Cool Stuff" announcements: We wrote on RW Online that "NPR was selected for the special award, along with four manufacturing and technical partner organizations, by Radio World's panel of broadcast engineering judges at the NAB convention ... The recipients of the multicasting award also include NPR's original partners in the Tomorrow Radio project, Harris Corp. and Kenwood USA, as well as Broadcast Electronics and Ibmiquity Digital Corp."

At least one reader interpreted this wording to mean that BE and Ibmiquity were among the Tomorrow Radio partners. This wording would have been better: "The recipients of the multicasting award include NPR's original partners in the Tomorrow Radio project, Harris Corp. and Kenwood USA. Also honored were Broadcast Electronics and Ibmiquity Digital Corp." Other versions of the announcement were worded more clearly.

This does raise a point: Why mention others besides the original partners?

Ibmiquity and BE were included due to their significant contributions in making the "multicasting movement" a reality — Ibmiquity for writing and showcasing the code that made the activity possible; BE for going beyond the original Tomorrow Radio concept by introducing three audio streams over the air in cooperation with WFAE(FM) — and as NPR's Mike Starling has put it, "correcting the impression that we were only working with a single, secondary audio channel of limited fidelity."

Mike is generous with sharing credit. He says that what we know as multicasting was the result of industry-wide activity that built on and succeeded the single 64/32 Tomorrow Radio field testing of calendar 2003. "Ibmiquity and BE deserve seats at that table," he says; so I feel that our judges chose wisely. Starling adds that others should be mentioned, too, like the FCC itself and Dr. Ellyn Sheffield, who researched the quality tradeoffs that led to the now-common 48 kbps hybrid split. 🌐



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GUEST COMMENTARY

Where Does Surround Fit Into the Digital Puzzle?

by Steve Lyman

The author is senior broadcast engineer for the Research Division of Dolby Laboratories.

There is no doubt that surround sound enhances listeners' experience. Movies have been using it for years. Television joined the fray, first with "movie night" presentations, then with sports, special events and most prime-time programming. Now that DTV has found its stride, many of those broadcasters want to provide everything in surround.

There's no reason digital radio should be any different. Or is there?

conventional stereo, and a sweet spot that includes listeners in the rear seat. A surround system can offer this, but has to avoid flipping back and forth between surround and a stereo or mono sound field as the reception conditions change to avoid annoying the listeners.

Absolute spatial fidelity is not required in a car, and may in fact be undesirable if it penalizes some of the listeners in the vehicle. A surround system that works with the FM stereo signals as well as the IBOC signal, and that might even distribute the mono FM signal (recovered under severe reception conditions) to all the speakers would minimize listener annoyance.

Portable applications have other limi-

In the opinion of several broadcasters I interviewed, surround falls below multicasting and datacasting on their priority list.

Digital radio is just beginning to define itself. Years of technical machinations seem to be (nearly) over, letting the programmers begin thinking of how they would like to use this new tool.

There are many different possibilities, some of which may conflict. An examination of the requirements of each major component of the system can help find out where surround sound can find its place.

Listener requirements

Beginning with the listener is the best way to keep a clear view of what we ultimately would like to accomplish with digital radio. Listeners can be found in the home, in cars and in portable situations.

Home listeners fall into two major categories: the kitchen radio/background noise folks, and those who listen in a more controlled environment, for specific programs and entertainment.

The kitchen radio listening experience will probably not require surround; in fact, a mono signal is probably most appropriate.

The "entertainment" listener probably already has a home theatre setup, with a well-defined (and comfortable) sweet spot, so this listener can benefit from something a lot more enveloping than the stereo delivered now. Just about any programming, except for the talking heads, will benefit from a surround presentation. Home listeners don't change stations very often, and will probably not listen to a station that does not offer consistently clear reception.

In-car listeners are different. The "drive hour" programs are also very different, with much more information than entertainment programming. These listeners change stations more often, and suffer from intermittently poor reception problems that are out of their control.

One of the main objectives in a car is to provide a much larger sweet spot than

tations. Size, weight and power consumption limit the amount of technology that can be stuffed into receivers.

They suffer from the same (or worse) reception problems as car receivers, but their headphones do offer perfect, consistent speaker placement. This allows technologies like Dolby Headphone to offer a surround experience.

Broadcaster requirements

Broadcasters know that they have to offer listeners compelling programming and new services. Digital radio can offer multicasting and data services (as pioneered by DTV broadcasters) but has also to continue to provide features like reading services for the blind, without affecting the existing FM main and supplementary services.

Surround sound can help market digital radio, but in the opinion of several broadcasters I have interviewed, surround falls below multicasting and datacasting on their priority list.

The existing station infrastructure is a huge concern. Many stations wired for stereo are not scheduled for a rebuild for at least 5 to 8 years.

Existing libraries, playback equipment, servers, program delivery systems, STLs, etc. are all built for two channels. An all-digital system, connected via Ethernet (or other flavor-of-the-day network) promises a flexible route to a multichannel infrastructure, but is an over-build and requires a huge change in operational practices.

Multichannel "islands," including local multichannel production facilities, could be built within the existing two-channel infrastructure, but would still have to pass multichannel signals through two channel paths.

A five-to-two-to-five channel encoding and decoding or matrixed system, such as Dolby Pro Logic II, could solve these problems, and would serve the roughly

34 million currently deployed Pro Logic decoders.

Program providers

Program providers are the folks who make the music, produce the jingles and create the ads. They like surround. To paraphrase one advertiser, "Mono tells listeners about (the product), stereo helps to create the illusion, but multichannel drops listeners right into the environment I'm trying to create."

If recent Audio Engineering Society workshops are an indication, the studio community is experimenting enthusiastically with multichannel production and recording techniques. Surround proponents have the advantage of already being "islands," so they can produce multichannel and two channel matrixed versions of their products for distribution within the existing infrastructure. The multichannel versions can be archived for the day when that becomes the common format.

IBOC requirements

The digital radio system simulcasts programs on the IBOC and FM carriers. This allows the IBOC signal to "blend" back to the FM analog signal, protecting the program when poor reception makes the digital information unrecoverable. It also uses the FM signal for tuning, avoiding a few seconds of delay while the IBOC buffers fill with data.

Multicasting shares the 96 kilobits per second of data delivered by IBOC between services, making the blending and tuning functions more complex.

The subjective quality delivered by



Steve Lyman

digital radio depends mainly on audio codec design and data rate. Subjective tests of Ibiqity's HDC audio codec done with stereo program material last year showed that a significant portion of the listeners were not satisfied with the quality for data rates of less than 48 kbps.

It would be prudent to do more testing before committing to an aggressive multicasting format.

In conclusion, surround has many benefits, but has to fit within the many restrictions imposed by the digital radio system, existing broadcast plants and the new service offerings being planned.

RW welcomes other points of view.

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Canadian Satellite Gets Green Light

by James Careless

OTTAWA The Canadian federal cabinet will not overturn the licensing of two U.S.-based satellite radio services despite appeals to do so.

Under the licenses, awarded by the Canadian Radio-television and Telecommunications Commission in June, Canadian Satellite Radio and Sirius Canada, which partner with XM Satellite Radio and Sirius Satellite Radio respectively, can bring the pay radio services into Canada as long as each offers at least 10 percent Canadian-produced content.

This works out to a minimum of

eight Canadian-produced channels per system, with each channel playing at least 85 percent Canadian music and spoken word content to qualify.

Given that commercial Canadian radio stations must play up to 35 percent "Cancon," the CRTC decision angered broadcasters CHUM Ltd. and Astral Media, which had won a license of their own to set up a pay radio service using terrestrial repeaters.

In licensing the CHUM/Astral 50-channel terrestrial service, the regulators dictated that "music broadcast by these channels must respect the minimums required by commission regulations: notably, for popular music, 35

percent Canadian content, and, in the case of French-language channels, a minimum of 65 percent of musical selections in French."

CHUM/Astral appealed the CRTC decision to the federal cabinet.

"The low threshold of Canadian content requirements imposed on the U.S.-supported satellite licensees is a dramatic departure from historical broadcasting precedent," said Paul Ski, CHUM Ltd. executive vice president, in a news release.

"If allowed to stand, this will inevitably cause significant harm to not only Canadian artists and radio broadcasters, but to the Canadian

broadcasting system as a whole."

Many performers applauded the CRTC decision to license Canadian satellite radio now, and wrote the cabinet to say so.

"I, for one, do not want to see Canadians continue to access satellite radio directly from the U.S., as they have been in greater and greater numbers," said Robbie Robertson of The Band, in a letter to the cabinet. "This will leave nothing for Canadian artists, and nothing for the Canadian economy, as dollars will continue to flow south of the border."

'Nothing changed'

After the cabinet endorsement of the CRTC decision was made public, a source within the commission told Radio World he was not surprised.

"We made our decision in June 2005, and nothing changed between then and the time the cabinet made their ruling," the source said.

I for one do not want to see Canadians continue to access satellite radio directly from the U.S., as they have been in greater and greater numbers.

— Robbie Robertson

Asked why the group of politicians, led by Canadian Prime Minister Paul Martin, had not given in to protests from the Friends of Canadian Broadcasting and other opponents, the source said, "What happened is that the cabinet discovered that we deal with very difficult issues."

The protests did win some concessions from CSR and Sirius Canada, both of which agreed to add more Cancon and French Cancon product to their lineup. But the concessions were not enough to slow the rollout, said CSR Executive Vice President Stewart Lyons.

"We were sidelined by having to spend a lot of time dealing with the appeal, but we kept plowing ahead nonetheless," he said. "We still expect to launch in Canada before the end of the year, as we always did." ●

Letters

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

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NRSC

► Continued from page 1

purpose "is to study and make recommendations for technical standards that relate to radio broadcasting and the reception of radio broadcast signals. The NRSC is a vehicle by which broadcasters and receiver manufacturers can work together towards solutions to common problems in radio broadcast systems."

Members meet regularly to work on standards including matters of IBOC, AM and other industry issues. The standards it develops are voluntary but influential, essentially recommendations to industry backed by no enforcement power — except that of the market; if a manufacturer builds a broadcast or receiver product to NRSC specifications, it knows the product is compatible with others.

A statement on the committee Web site reads: "NRSC Standards are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products and assisting the purchaser in selecting and obtaining with minimum delay the proper product for his or her particular need.

"Existence of such Standards shall not in any respect preclude any member or nonmember of the CE or the NAB from manufacturing or selling products not conforming to such Standards, nor shall the existence of such Standards preclude their voluntary use by those other than CEA or NAB members, whether the standard is to be used either domestically or internationally."

The NRSC is an open technical committee whereby anyone with a business interest in the technology being studied is welcome to participate.

— John Marino

The FCC uses the NRSC's actions as a guideline in setting its own technical rules; the commission is an observer to the group. Some observers believe the NRSC provides technical expertise and research resources that the agency lacks.

The meeting schedule for NRSC and its sub-bodies varies based on topics at hand. Sometimes participants talk every two weeks; at other times, months may pass with no discussion. Meetings are conducted by telephone, or in person at the offices of NAB in Washington and CEA in Northern Virginia and during the annual conventions each organization holds.

The cost of NRSC testing sometimes is shared by the sponsors, as is the case with the current AM tests being conducted by members of that task group, or covered by proponents, as was the case with certain IBOC tests. The matter of who pays is negotiated for each test.

Lively discussions

Participants recall that the NRSC was reconstituted in the mid-1980s to look at AM receiver improvements. The committee had been dormant for many years before that, they said.

Charlie Morgan, who is semi-retired as senior vice president, Susquehanna Radio and is chairman of the NRSC, and John Marino, NAB vice president of science and technology and a staff liaison to the NRSC, said their involvement began when the committee began

to look at AM improvement.

Morgan was chairman of the NAB AM Broadcasting Committee. That group realized it needed input from receiver manufacturers. The NRSC reconvened, made up of members of NAB and the Electronic Industries Association, later renamed the Consumer Electronics Association.

The goal, said Morgan, was for "broadcasters and receiver manufacturers to work together in an attempt to either improve or keep AM from further deterioration."

A member who requested anonymity vividly remembers an early meeting during the CES convention in Chicago. "We met with receivers manufacturers in a shouting match." But sources agree that today, the atmosphere generally is professional and respectful.

"The real work of the NRSC is done in the task and working group meetings; and the discussion sometimes can become very lively," said Milford Smith, co-chairman of the DAB Subcommittee and vice president of engineering for Greater Media. "But generally, a collegial mood is preserved.

"No one involved is afraid to speak his or her mind and advance his or her ideas, and that is very much for the best," said Smith, who has been involved for two decades.

Marino said the group makes decisions by consensus. But behind-the-scenes lobbying and pressure from voting companies apparently come into play as well. That was the case before the NRSC-5 vote, according to sources at the time.

Members typically are companies, See NRSC, page 8 ►



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COMREX

NRSC

► Continued from page 7

associations, engineering consultants and other organizations. The size of the group varies. Attendance at the meeting to approve NRSC-5 was about 70, the largest in recent memory, according to one participant.

Most industry people can attend.

"The NRSC is an open technical committee whereby anyone with a business interest in the technology being studied is welcome to participate," Marino said.

That, however, does not include journalists. After some inaccurate statements appeared in print in the early days of the NRSC, participants said, the group decided members would feel more comfortable speaking freely if reporters weren't in the room and possibly misinterpret what was said. It is a position for which the organizers have been criticized by Radio World editors over the years, but one the NRSC shows no signs of altering.

CEA and NAB co-administer the NRSC. "Together, we keep the official records of the NRSC and ensure that the committee follows appropriate open standards-setting procedures," said Dave Wilson of CEA.

Several participants said NAB and CEA deserve kudos for helping to keep the workflow going smoothly, much as a stage crew does behind the scenes.

Membership in either organization is not a requirement to take part, according to the NRSC Procedures Manual, avail-

able at www.nrscstandards.org, although there is a \$25 annual membership fee per person per subcommittee for those who are not full members of either trade association.

Many meetings are conducted via phone to keep costs down for the participants. Travel and associated expenses for NRSC member representatives typically are paid by employers. But some participants are said to be so dedicated to the work they have been known to attend "on their own nickel."

DAB Co-chairman Mike Bergman, who is vice president of new digital technologies for Kenwood USA, said the group could use more receiver manufacturer members.

Process

Much of the major work is done in task and working groups. Their recommendations are passed to a larger group that has voting authority. Once an item reaches a subcommittee, it may be voted on if a quorum is present. A simple majority of subcommittee members typically is

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IN-BAND/ON-CHANNEL
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STANDARD
NRSC-5
April, 2005



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This year's IBOC standard is considered by participants one of the most important actions the group has taken.

needed for passage. In some instances a three-fourths majority is required, for example when adopting a standard.

Standards completed by the group include NRSC-1, -2 and -3, all having to do with improving AM transmission and reception. The FCC made use of NRSC-1 and NRSC-2 when developing Section 73.44 of its rules, Wilson said.

Receiver manufacturers and some broadcasters have implemented NRSC-4, the RDS standard for the United States. An updated version with improved capabilities for artist and song title displays, NRSC-4-A, was approved in the spring.

Hands down, those who commented for this story agreed that the IBOC standard, NRSC-5, was the most important piece of work the group has done recently. They also expect several amendments in the future. The first, incorporating a standard for advanced data services and dubbed NRSC-5-A, was passed during the NAB Radio Show.

NRSC-5 took years to develop. The effort to test and eventually choose one terrestrial digital radio system began in the late 1990s when Digital Radio Express asked the NRSC to reconvene the DAB Subcommittee so the various technologies could be tested.

Evaluating, testing IBOC

Don Messer, recently retired from the International Broadcasting Bureau and now working full-time for Digital Radio Mondiale as chairman of that consortium's technical committee, was in charge of the evaluation working group of the DAB Subcommittee. Andy Laird, now vice president and chief technology officer of the Journal Broadcast Group, headed the test working groups.

"Before we really got into testing, the merger occurred," said Messer, referring to the merger of Lucent Digital Radio and USA Digital Radio into what is now Ibbiquity Digital. "It made the evaluation process easier — but not the testing — because then we only had to evaluate a

single system and compare it to existing AM and FM."

Bert Goldman, executive vice president with First Broadcasting, has been participating in the NRSC since around 1990. He remembers the group trying to decide whether DAB should be an NRSC function.

"We were spurred into action when the Eureka-147 consortium had a display at the Atlanta NAB convention. It became obvious that this technology could dramatically impact broadcasting in the U.S., and as the caretakers for our companies' assets it would be necessary for us to manage how this new technology developed and impacted our businesses," he said.

Committee members believe it was vital that they take the time to get the IBOC standard right — even to the point of pausing in their work in May 2003 to tell Ibbiquity the group had problems with the performance of the PAC codec at low bit rates on AM.

David Maxson, a partner in Broadcast Signal Lab, said, "I cannot imagine IBOC without an industry consensus standard. If Ibbiquity had merely submitted a specification for its system to the FCC, there would have been no input from broadcasters and receiver manufacturers into the specification. ... The standard is as thorough and transparent as it is because the NRSC checked out everything it could and required demonstrable proof of performance as well as rigorous documentation."

The FCC acknowledged the work of the NRSC and how it values those efforts when it released its First Report and Order for IBOC in 2002. Various staffers with the Media Bureau have echoed those views in public panel sessions on digital radio.

There are seven active groups at present. Four meet frequently; they cover the study of AM analog bandwidth, surround sound, multicasting channel ID nomenclature and IBOC standards, according to Bergman. Others include the RDS Subcommittee, the Digital Data Subcommittee and the full NRSC.

In regards to surround, multicasting ID and ancillary data, Morgan said the group could develop standards but is more likely to issue recommended practices or guidelines.

What to expect from NRSC next? The AM group may soon issue a report on how narrowing transmission bandwidth to 5 kHz or 6 kHz might affect a typical listener's experience, Wilson said.

NRSC Standards

NRSC-1: NRSC AM Preamphasis/deemphasis and Broadcast Audio Transmission Bandwidth Specifications

NRSC-2: Emission Limitation for AM Broadcast Transmission

NRSC-3: Audio Bandwidth and Distortion Recommendations for AM Broadcast Receivers

NRSC-4: United States RBDS Standard

NRSC-5: IBOC Digital Radio Broadcasting Standard

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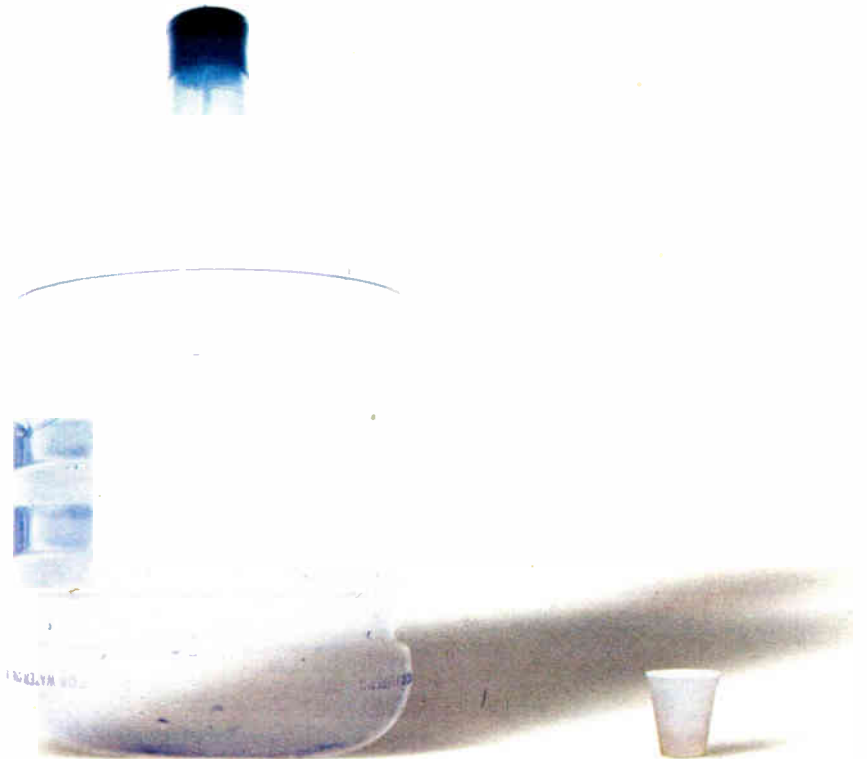
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NEWSWATCH

Azcar Opens Georgia Office

ATLANTA Canadian firm Azcar Technologies has opened an office in Atlanta.

The company also has sales offices in Chicago, Seattle and Los Angeles. The Atlanta office will serve engineering and sales functions; the new personnel had been employed by DST, a system integration company in Atlanta, Azcar said.

The media consulting and technology company has made several business acquisitions in recent years, including Pro-Com Systems this year.

CRL Sees a Profit

TEMPE, Ariz. With a debt restructuring behind it, CRL says it is generating profits and enjoyed a 42 percent increase in net sales in Q2.

In an announcement of financials, President/CEO Jay Brentlinger stated, "Finally! Patience and perseverance have prevailed, allowing us to generate a profit for the company. I feel this sets the stage for a healthier, more stable financial environment."

Circuit Research Labs Inc., which makes Orban and CRL products, reported earnings for the three and six months ended June 30 of about \$2.62 million and \$2.44 million respectively. That compares to net losses of \$264,000 and \$301,000 for the same period a year ago.

The increases were due, it said, to restructuring of loans with Harman International Industries Inc. and to more sales.

"In exchange for restructuring its debt owed by the company, we issued common stock representing approximately 19 percent of our total shares to Harman Pro North America," it said. "The restructure will allow the company to save approximately \$824,000 in interest annually."

Operating revenue for the recent quarter was \$612,000, and for the last six months \$712,000, compared to \$22,000 and \$276,000 in 2004.

Net sales were \$4.4 million and \$7.6 million, respectively, compared to \$3.1 million and \$6.4 million for the same periods in 2004. Those are increases of 42 percent and 19 percent respectively, which the company attributes to the introduction of its Optimod-FM 8500 and increased demand in higher-end processors.

RAB Switches to Dallas

DALLAS Radio salespeople will hold their next annual convention in Dallas rather than New Orleans.

The RAB had planned to convene in New Orleans, but the Hyatt Regency told organizers they will not be able to handle conventions until at least January 2007.

So RAB has moved its 2006 convention to the Hyatt Regency DFW in Dallas; the dates are now Feb. 1-3.

Richardson, Econco Sign Deal

WOODLAND, Calif. Econco signed a distributorship agreement with Richardson Electronics for power vacuum tube rebuilding.

Richardson will promote services and rebuilt products as Econco's exclusive distributor in Central America, South America, Asia, Australia, Africa and Europe, and as a non-exclusive distributor in North America.

Econco is part of Communications & Power Industries Inc. The announcement was made by Econco President David

Elliott and Richardson Electronics Electron Devices Group Executive VP/GM Murray Kennedy.

Kennedy said CPI and Richardson Electronics "have long had a close and very effective business relationship, first through CPI's Eimac division, and now with Econco." CPI is the Electron Devices Group's largest vendor.

News Roundup

iRADIO: Motorola secured the first music label to provide content for iRadio, planned to debut in January. Universal Music Group will make its catalog available on the wireless music service. The iRadio service will use a cell phone with a high-speed Internet connection and wireless Bluetooth. The company promises subscribers "hundreds of channels of commercial-free music and talk stations." The service would cost about \$7 a month.

DG SYSTEMS: The digital media distribution company has hired a securities firm to explore "strategic alternatives." DG, whose services included StarGuide, said in a statement that its alternatives could include the sale or merger of the business or other moves. The company is based in Irving, Texas.

STATION CAPS: Clear Channel President/CEO Mark Mays called for Congress to lift local ownership caps for radio to 10 stations in markets with 60 or more stations, and to 12 stations in markets with 75 or more stations. The current cap is eight in the largest markets.

JEFF-PILOT: Lincoln National Corp. and Jefferson-Pilot Corp. plan to merge. They said Jefferson-Pilot Communications will remain in place; that branch of the company owns 18 radio and three TV stations as well as a sports production and syndication business.

PPM: Arbitron said recently its Portable People Meter system can track multicast and podcast listening.

The firm said that in recent tests on the digital channels of a station in a top 10 metro, separately encoded multicast channels did not conflict with the main channel's encoding. Also, the PPM identified each of the multicast channels, according to the firm.

"It doesn't even matter if a listener does not know the names or slogans that broadcasters are using to differentiate analog signals from digital signals or primary digital channels from multicast sub-channels," stated the company's Pierre Bouvard.

Separately, this summer Arbitron encoded podcasts by WHTZ(FM), New York. It uploaded them to the podcast portion of Apple's iTunes Music Store. The Z100 podcasts then were downloaded to an MP3 player and played over headsets using the PPM headset adapter. The PPM detected and recorded the ID codes embedded in the MP3 file, according to Arbitron.

OHIO CONFERENCE: Nov. 14 is the date for the third Ohio Broadcast Engineering Conference, organized by the Ohio Association of Broadcasters, SBE Chapter 70 and the Ohio chapter of SMPTE. It's being held at a hotel in Columbus. Two dozen companies plan to exhibit. Session presentations include John Bisset on RF troubleshooting techniques, Terry Baun on transmitter site safety, Comrex on its BRIC and IP audio delivery and a session on disaster preparation and EAS.

BRAZIL HD: IBOC proponents hope the appearance of HD Radio on some stations will influence other Latin American countries to use the technology. Broadcast Electronics and Harris both recently announced they have customers in Brazil using their HD Radio gear.

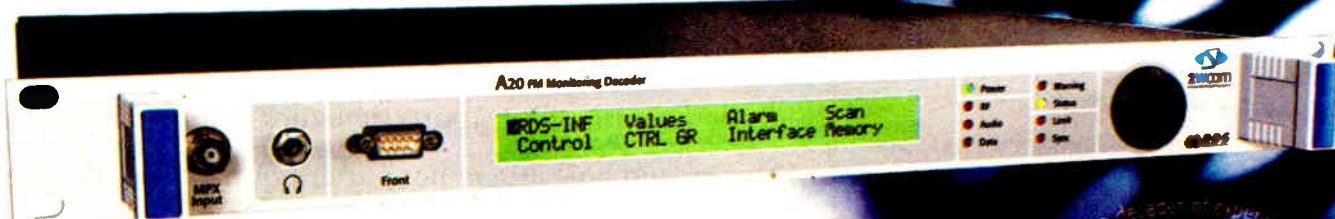
'ENCROACHMENT': The NAB says support is gaining in the U.S. House for legislation that would fight off what broadcasters see as illegal encroachment by satcasters. The legislation would "preserve local broadcast emergency and other services and to require the FCC to conduct rulemaking for that purpose," NAB said. The association says the effort has 84 cosponsors.

SATELLITE NUMBERS: Sirius Satellite Radio added 359,000 subscribers in the most recent quarter, and said it had reached 2.17 million subscribers. XM added 617,000 subscribers during Q3 for a total of more than 5 million.

WORLDSPACE: WorldSpace completed the move of its corporate headquarters from downtown Washington, D.C., to Silver Spring, Md. Chairman/CEO Noah Samara noted that the location is near other media companies such as Discovery Communications and AFI.

BEASLEY: Beasley Broadcast Group Executive Vice President/CFO Caroline Beasley is the newest member of the NAB Radio Board. She fills a vacancy left by Bonneville President/CEO Bruce Reese when he became joint board chair.

SCMS: Tyler Callis, who had to leave Texas due to Hurricane Rita, said the southwest sales office of SCMS that he runs is operating uninterrupted from the Dallas/Fort Worth area. Callis said he planned a return to Beaumont, Texas, as soon as the public infrastructure there could support operations.



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Radio World, November 9, 2005

Past columns are archived at www.rwonline.com/reference-room

Rodents and AC Don't Mix

by John Bisset

There's a reason you want to plug cable entries around your transmitter building.

This time of year, the warmth of a transmitter building will draw small rodents like a flame attracts a moth. Usually damage is confined to a few chewed tech manuals or phone books, or droppings on the top panels of equipment that must be cleaned away. But it's not just the transmitter buildings that attract these varmints.

John T. M. Lyles is an RF engineer at the Los Alamos Neutron Science Center. He

Recently, a good portion of his lab lost electrical power — about half of its 20 MW load. A squirrel had chewed through the foam insulation and burrowed its way into a 13.2 kV fused disconnect switch for one of the transformers at the particle accelerator.

Fig. 1 shows the burrowed hole in the foam insulation. The location of the disconnect is right off the main AC power lines that feed stepdown transformers to the various systems.

The results are predictable. Not only did the squirrel blow the fuses, seen in Fig. 2, he also blew up some of the lugs

the incident. Rocky himself didn't survive the contact between phase to ground.

John talked to the linemen making the repairs and mentioned plugging the holes with steel wool, as read previously in this column. Steel wool eventually will disintegrate, however. As an alternative, John found that McMaster-Carr Supply has materials that can be used to plug holes that won't corrode and disintegrate.

The Web site is www.mcmaster.com. If you've never visited, you're in for a treat; the site lists 420,000 products, with 98 percent of the items shipped from stock.

brass scouring scrubbers, #7361T11, and bronze wool, #7364T52. This material resists corrosion and breakdown, and the rodents will not chew through this material.

Reach John Lyles at jtml@lanl.gov.

★ ★ ★

We've been talking recently about inspecting your transmitter site. So now you're inside your sealed building. What's to check as you make your inside inspection?

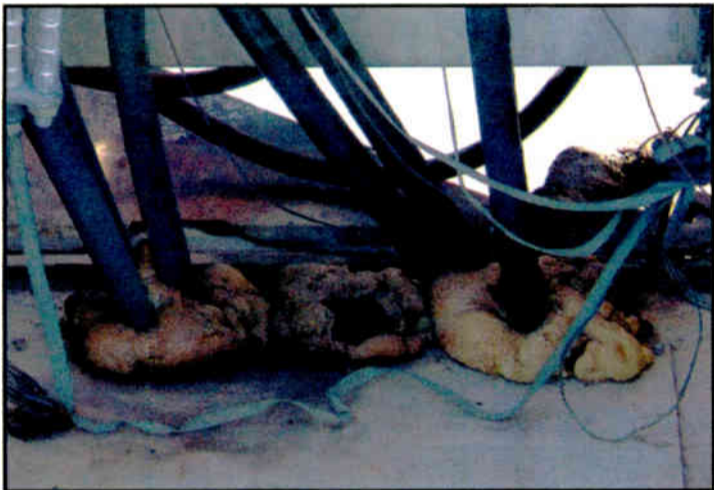


Fig. 1: A squirrel gained entry by chewing through foam insulation.



Fig. 2: Two blown fuses thanks to the squirrel's curiosity.



Fig. 3: When half of a 20 MW load is disrupted, it's quite a light show.

and I worked together years ago at Delta Electronics; and John started his broadcasting career at Virginia Tech. Before joining Los Alamos, his career also took him to BE, where he was responsible for several transmitter designs.

John still works with transmitters.

and made a general mess of things.

Take a look at the size of these fuses. This is no small-potato operation. Power was lost for the better part of a day. In John's world, like yours, time is money.

The door was arced from the flash, seen in Fig. 3, but at least it stayed close during

The company specializes in maintenance materials for industrial and commercial applications. If you place an order with these folks, let them know you heard about them from Radio World's *Workbench* column.

What John found at McMaster-Carr were

For FM operations, first take a look at the reflected power meter on the exciter. This indication should be a minimum — less than 1 watt — for maximum power transfer. Fig. 4 shows a typical reflected power meter.

See WORKBENCH, page 14 ▶

New! Dual Digital Distribution!

Henry's new dual-mode Digital DA 2X8 can be either a 1X8, or a pair of 1X4s.

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“Everything is bigger in Texas. Except equipment budgets.”

“I’d gotten the green light to build new studios for our South Texas radio cluster. We wanted the ability to put any of our stations



on air from any studio, so we started investigating networked audio.

“Also, management said we might add more stations to the cluster, so I needed a system that could be easily and affordably expanded later on.



“We looked at several systems. Some did what we wanted, but were very complex and required us to buy their expensive routing mainframe, whether we were building lots of studios or only a couple. That was completely outside our price range.



“Then we looked at Axia. They showed us how an IP-Audio system would let us share audio sources, switch air studios quickly, even customize console settings for individual jocks. And Axia cost *about half* what some companies wanted us to spend.

“Of course we were a little skeptical — how often is the least expensive solution actually the best?”

“Then we learned that Axia’s Ethernet backbone scales, like a computer network. All we’d have to do to grow is connect



more nodes and surfaces, maybe add another Ethernet switch. We didn’t have to commit to buying equipment for all of our studios at once.

“So we built one studio using Axia, and *it worked great*. Went together fast and smooth. A few



wrinkles during installation were ironed out by Axia support right away. Those guys were amazing. It was like their entire team was there to make sure I was happy.

“We liked Axia so much we installed a second studio. Then a third. Then a whole second cluster.



My colleagues are so impressed with how well Axia works, they want it in their stations, too!”

— Jorge Garza, Univision Radio, McAllen, Texas



www.AxiaAudio.com

Workbench

► Continued from page 12

If the match is not good, the input to the transmitter needs to be retuned or the



Fig. 4: A squirrel's last act: disrupt the power.

inductor may need to be physically changed for the best match. If you make changes to this network, remember that very small bends or adjustments to the coil make a large impact on the match; use moderation. It's possible to get the match so out of whack that little power is coupled into the transmitter. Newer transmitters have



Fig. 5: Keep reflected power at a minimum

coaxial cable must be replaced. Newer exciters are set at a fixed 50-ohm output impedance, so any matching problems need to be traced to the interconnecting cable or the transmitter input. Even if the interconnecting coax looks new, check the cable part number to ensure it is indeed 50 ohms. Power transfer can be disrupted if 75-ohm cable is used to connect the exciter to the transmitter; this is not an uncommon mistake.

The cable should be in good condition, with no cracks or frays, and a properly connected BNC or "N" connector on each end.

Note that some older transmitters use fixed input LC networks, whose

either a fixed 50-ohm input or input tuning and loading controls that can be adjusted for maximum power transfer (and minimum reflected).

More on inspecting next time.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386 or jbisset@bdcast.com. Faxed submissions can be sent to (603) 472-4944. Submissions for this column are encouraged and qualify for SBE recertification credit.

Radio Looks to Monetize Podcasts

by James Careless

Podcasting: No longer a novelty, downloadable programs are quickly becoming a staple of many stations' online operations.

How can broadcasters put podcasting to their best advantage and even have it contribute revenue to the bottom line?

Some "traditional" international broadcasters have some of the answers.

How it fits

As a new way to reach listeners, podcasting can add listeners to a program; however, it can also convince listeners to switch off their radios in favor of independently generated podcasts, cutting into ratings and advertising revenues.

As a result, podcasting is "a threat and an opportunity, just like all other new broadcasting and distribution platforms," said James Cridland, head of new media strategic development for Virgin Radio.

When carefully managed, "it is especially useful to allow people to trial our station and showcase our best programs," said Cridland.

"Podcasting increases our brand awareness for an extremely low cost," said Dave Walters, technical manager for Chrysalis Radio.

Chrysalis-owned LBC in London serves a variety of podcasts compiled from its most popular programs. In September, just eight weeks after its first podcast was posted, LBC was registering 177,000 podcast downloads per month.

To attract podcast listeners without cutting into its off-air audience, LBC only offers show highlights on its podcasts: To hear the whole thing, listeners have to tune in (over the air or online).

Meanwhile, by adding bonus material to its podcasts — like the "not acceptable for air" material added to the highlights of Sandi Toksvig's afternoon show — LBC gives over-the-air listeners a reason to download its podcasts.

Spoken word

There are two reasons spoken word content seems the best choice for podcasts. First, podcasts reach their audiences through MP3 players that already contain the listener's favorite music, Cridland said, so it makes no sense to try to compete with the onboard content.

Second, spoken word programming has fewer royalty or performance-rights obligations or potential lawsuits attached.

In contrast, "Music in a podcast will likely result in a copyright owner coming after you, unless you get clearance first," said Jamil al Jabri, an interactive producer for CHUM Radio in Toronto.

Having grasped these truths, some talk stations have moved quickly into the podcasting arena.

For example, consider KOMO(AM) in Seattle.

"We began our podcasts a week after Adam Curry released iPodder," a podcast aggregator program that automatically downloads audio files to MP3 players, said Stan Orchard, KOMO assistant director of news and programming.

"We already had an RSS feed available on our Web site, and we were producing lots of audio content for it, so I edited the feed slightly to match Curry's specs and put it up." RSS feeds, like iPodder, automatically collect information from Web site for display on an RSS newsreader.

Today, "the podcast section is the fifth most popular part of our Web site," he said

Making money

But can podcasts generate revenue? They already are, said Cridland.

"We have monetized podcasts from our very first podcast, with 'podvertising' from large brand names like Mastercard, the U.K. government and Bose," he said. "All our podcasts are profitable."



Tim Lovejoy of Virgin Radio is among those finding new audiences for radio shows via podcasting.

Chrysalis Radio has made money by selling podcast sponsorships to its advertising clients.

"We are also looking at other models for revenue generation, including specific commercials within the podcast, or a simple subscription service," Walters said.

Other podcasters have yet to make a buck but are working hard to do so.

"We are currently in discussion with several marketers who are interested in reaching CHUM listeners via podcasting," said al Jabri, "and we are working to integrate podcast sponsorships within interactive advertising campaigns."

Clearly, podcasting is expanding the number of ways broadcasters can reach listeners, and the opportunities to win their loyalty and sell them products. However, podcasting also is changing the way listeners consume audio; in doing so, this medium has issued a challenge that mainstream radio ignores at its peril.

"At this early stage in the game it is tough to tell how big a role podcasting will play in radio," said al Jabri, "(but) what the podcast phenomenon has made clear is that we can no longer look at ourselves as only a radio station, but rather as audio content providers."

"There is no doubt that podcasting is the current media darling, but we see a big future for it beyond the hype," said Cridland.

"We have some great content here, and it makes sense to make those available in different ways to our audience. I am also keen to be able to allow other independent podcasters access to some of our material to reuse and repackage it for their own podcasts."

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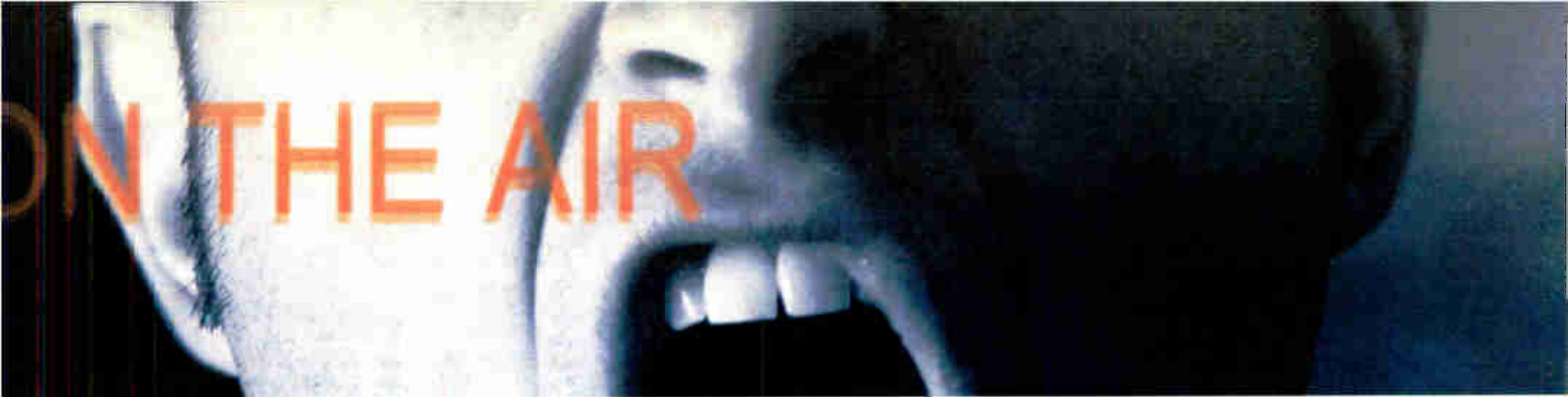
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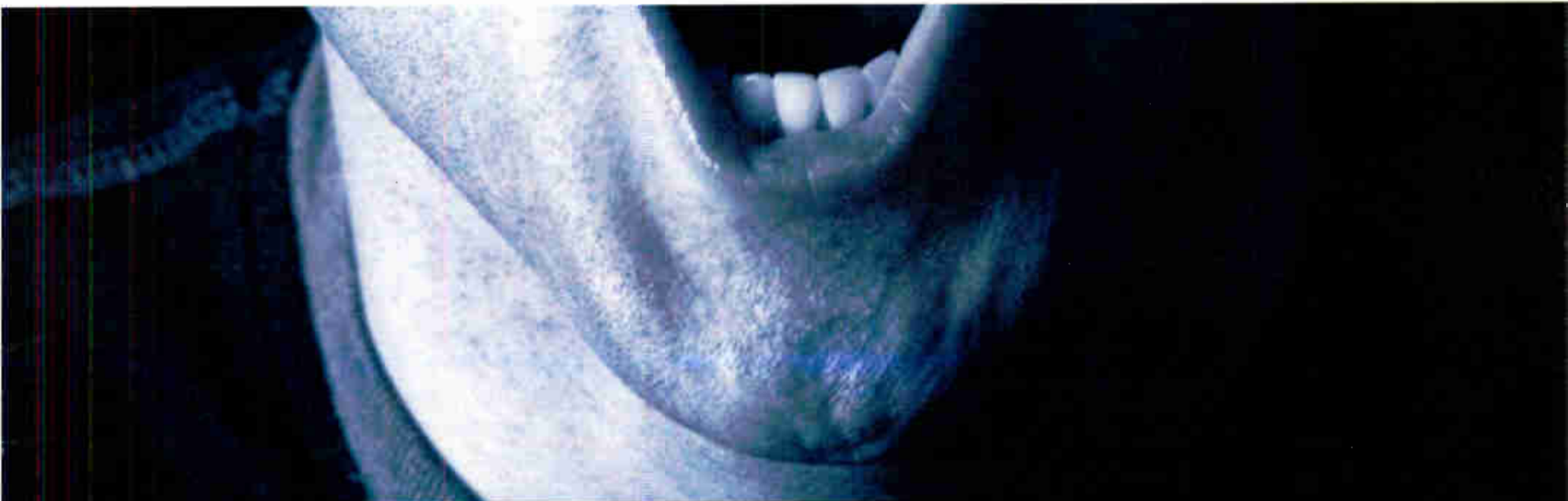
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World Radio History

Get the Most Out of That Dish

Tips to Help With the Installation and Maintenance of Satellite Receivers

by Tom Vernon

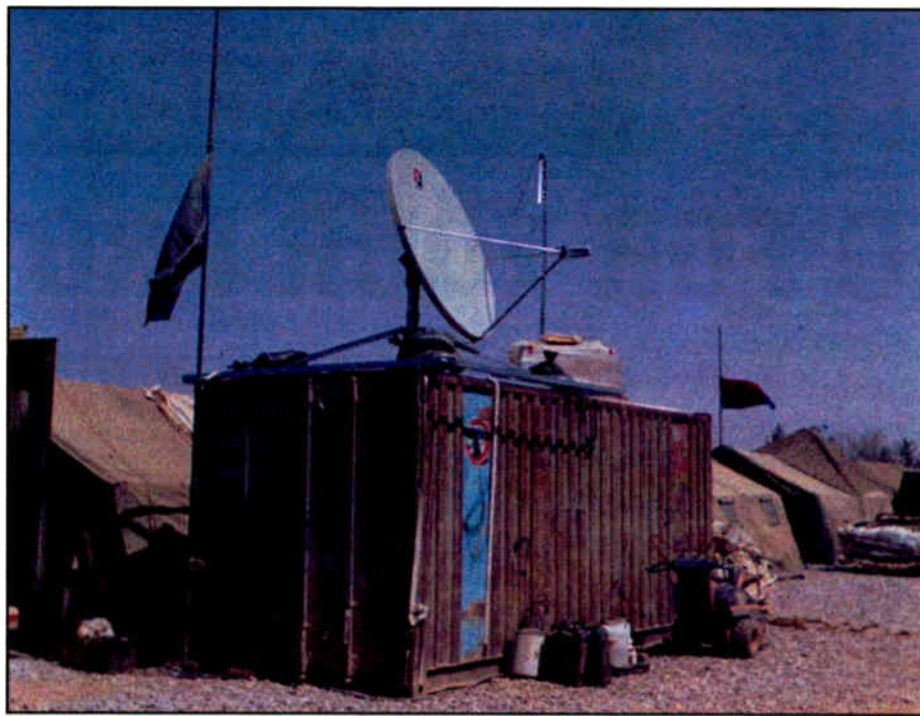
Many stations receive broadcast content from satellite feeds. Whether it's news, sports or syndicated programming, the planning, installation and operations of satellite receiver systems is an important part of the engineer's job description. Satellite systems also should be included in a station's disaster recovery plan.

We asked several experts how engineers can better handle these duties.

As with most engineering projects, the planning phase of a satellite receiver installation is critical. A site survey is the first step, and civil engineering and RF issues must be addressed.

"Civil engineering issues include roof loading, anchoring the dish and the length of cable runs to the receiver," said Kerry Whyte, manager of customer service for International Datacasting Corp.

In cases where the dish is located on the ground, soil type, drainage and ease of trenching for cable runs should be investigated. John Joslin, sales manager for DAWNco, said, "Given the choice, a ground installation is less expensive and time-consuming than a roof installation,



This IDC satellite receive installation provides radio and television feeds to Canadian troops stationed in Afghanistan.

as issues such as wind loading on the roof structure and the transport of mate-

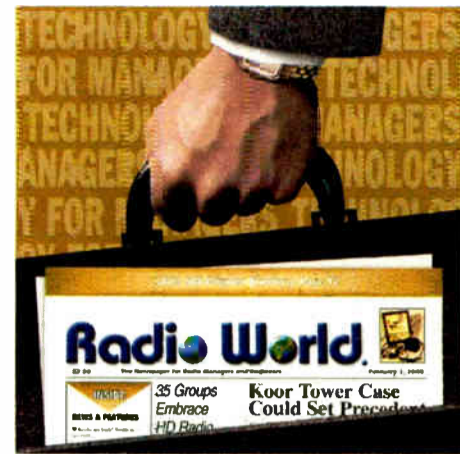
rials to a rooftop site are eliminated."

If the site passes muster on the civil side, the installer should continue with

the RF part of the site survey. "The signal path should be free of vegetation and buildings, and away from sources of interference such as airports, harbors, TV transmitters or microwave gear," Whyte said.

Rack rules

Before ordering equipment, said Chris Blackburn, senior project manager for IDC, "Make sure there is enough rack space for the satellite receiver and that the ambient temperature of the rack doesn't exceed the receiver's specifications."



TECHNOLOGY FOR MANAGERS

300 feet. If longer runs are required, special cable or fiber can be used.

Ensure that the shield of the coax doesn't create a ground loop when connected to the satellite dish, which usually has its own earth ground, Murphy said. Such installations can compromise the AC ground and lead to equipment damage from lightning.

When possible, opt for gear that provides maximum reliability. The experts say that doesn't necessarily mean you have to spend a lot more.

Dishes ranging from 2.8 to 4.5 meters have been used for C band downlink installations. The most popular size for C band is about 3.8 meters. "We don't recommend the 3-meter dishes," Joslin said. "The 3.8 meter gives the best quality."

For Ku band installations, typical dish sizes average about one meter.

One-piece dishes are the most cost-effective; but dishes that come in three or more pieces can be transported easily to a rooftop and assembled on site, sometimes saving the cost of a crane to hoist a one-piece antenna to the roof. Joslin noted that such dishes must be assembled with care to ensure they meet published gain specifications.

LNBS or low-noise blockers range in price from around \$100 to \$300. Again,



A satellite site at WUSF in Florida.

Mark Murphy, senior project engineer for NPR's Public Radio Satellite System, emphasizes the importance of having all satellite gear powered from the same AC sub-panel.

The coaxial cable link between the satellite dish and receiver is an area where many installations fall short. Whyte said, "It is important to measure the length of this cable run and calculate the line losses. A long run with inexpensive cable may result in insufficient signal reaching the receiver." Cable runs should be less than

the slight cost difference buys reliability.

"The new digital satellite receivers are very finicky," Joslin said. "Users can reduce outages related to LNB temperature drift by purchasing the more expensive units." He said that since 9/11, interference to satellite receivers has become more acute. "Military aircraft make frequent flights over urban areas and leave their radar switched on continuously now."

Murphy adds, "The RF spectrum is getting more crowded with unlicensed spread

See SATELLITE, page 17 ▶

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Satellite

► Continued from page 16
spectrum devices, WiFi, mispointed uplinks and adjacent satellites, all of which can cause interference. The solution to most of these problems is a waveguide filter on the satellite antenna in front of the LNB.”

In addition to the points raised here, other experts note that security fencing is an important consideration for ground-mounted satellite dish installations. Keep vandals from damaging your dishes by protecting your site from unauthorized access.

Good logging

Routine maintenance chores for satellite receivers are limited. Blackburn says keep the equipment dust-free, clean all air filters and make sure fans are operating.

Murphy encourages users to log the metrics provided by satellite receivers on a regular basis.

“EbNo numbers are an indication of signal strength and quality. It’s a good idea to baseline these when the equipment is working well.” (EbNo refers to energy per bit per noise power spectral density.)

In areas that receive significant snow, you’ll need to plan for its removal from the dish. This can be as simple as waxing the surface of the dish and sweeping snow out with a broom.

Alarm circuits can be constructed to alert operators when snow has reduced signal strength to marginal levels. More elaborate systems can include heating pads that mount under the dish and radomes that cover it.

Stations that rely on satellite receivers for content should include them in their disaster recovery plans. Murphy said for the receiver system this can be as simple as having a spare LNB and receiver. Today’s satellite receivers essentially are purpose-built computers and have the same power conditioning issues as PCs. It’s good procedure to connect the receiver to a surge protector and UPS.

Failures at the provider’s uplink require more planning.

“Most networks have their feeds available on dialup and ISDN lines,” said Murphy. “Stations should have the phone numbers for these lines readily available, and have written procedures for making the connection.”

An inexperienced engineer should seek training before starting an installation. Blackburn said IDC, for example, provides on-site training for customers. NPR provides educational materials for its PRSS via a DVD and through its Web site; for instance, answers to common questions are at www.nprss.org/custsupport/faq.cfm.

For others, additional legwork may be necessary, because satellite receivers are a niche market not usually covered in formal electronics education programs. Tektronix offers day-long seminars on spectrum analyzers to small groups, and receiver manufacturers occasionally offer training on their equipment. If possible, mentor under an experienced engineer.

If you’re having problems with a particular type of gear, talk to the manufacturer. Also, chances are other engineers have had similar difficulties, so talk to your peers online and in your local SBE chapter to put the power of their experiences to work.

Share your tips about satellite equipment upkeep by e-mailing radioworld@imaspub.com.

SoundBridge: Radio With ‘No Strings Attached’

Hoping to let Internet radio users take their habit with them from the desktop to the bedroom, California-based Roku has introduced a Wi-Fi music system that it says combines the ease of use of a tabletop with digital music streaming and Internet radio features.

SoundBridge Radio includes stereo speakers, subwoofer, AM/FM radio, alarm, Internet radio and digital music streaming features. The company based it on its earlier SoundBridge network music player.

The new system “lets consumers access traditional AM/FM radio along with their digital music library using simple and familiar radio controls.” Features

include a SD/MMC card slot and a volume-ramping alarm that wakes users to digital music, Internet radio, AM/FM,



playlists, podcasts or choice of several alarm tones.

The radio comes with a vacuum-fluorescent display with better resolution than the original SoundBridge. The remote control lets the user browse and select digital music by artist, title, album, composer or genre. Clock is updated via the Internet. A light sensor auto-dims the display; the unit also has a headphone jack.

Company CEO Anthony Wood said there are 40 million regular U.S. listeners using PCs to access Internet radio.

SoundBridge Radio can access playlists from Mac- and Windows-based computers and support music streaming in MP3, WMA, AIFF, WAV and unprotected AAC formats.

The unit sells for \$399.

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FIRST PERSON

Cold War Radio Memories

*Spies, Jamming and a Drug-Addled Driver
Made Life at the Salonica Relay Base Interesting*

by David L. Hollyer

I began my career in international broadcasting in 1951 when the Voice of America offered me a position as an engineer at the Salonica Relay Base in Thessaloniki (Salonica), Greece.

At that time the VOA was run by the U.S. State Department. I was hired as a Foreign Service Staff Officer, Grade FSS-9.

Salonica is the capital of Macedonia

in Northern Greece; the station was situated about 15 miles from the city. Equipment consisted of a 50 kW medium-wave, water-cooled transmitter manufactured by Western Electric. The antenna system comprised two towers in a directional array.

The array produced a cardioid pattern that could be switched north or south, depending upon which language was being broadcast. AC power was supplied by large diesel generators; that area of

Greece lacked a local AC power source.

The station operated at night, from 6 p.m. to 8 a.m., and was shut down for maintenance during the day. The staff consisted of about a dozen American engineers supervising a Greek staff of about 50 technicians.

Most of the American and Greek employees lived in Salonica about 15 miles away. We were brought to work by car. The shifts were from 8 a.m. to 4 p.m., 4 to midnight and midnight to 8.

Communication between the Greek staff and the Americans was difficult as most of the Greeks knew little English and the Americans' knowledge of the

Greek language was marginal at best.

Temperatures during the summer ran pretty high and there was no air conditioning. VOA had an arrangement with Greek government to provide an hour for a newscast in Greek at 6 p.m. and another at 11 p.m.

Bright idea

The installation included a shortwave receiving setup employing what at that time was state-of-the-art gear: Hammarlund Type SP-600 shortwave receivers utilizing dipole antennas.

The receivers were used to pick up and relay transmissions of program material from VOA stations located in the United States or overseas. Co-locating a shortwave receiving installation with a close-by transmitter made things difficult due to cross modulation; and reception difficulties were compounded by the presence of Russian "jamming" stations. These electronic noise makers almost completely obliterated our reception of VOA broadcasts from U.S. stations like WGEO in Schenectady, WBOS in Boston, WLWO in Cincinnati and overseas transmitters like VOA in Munich and Tangiers.

We liked to use Tangiers as a relay station but it was usually heavily jammed. I had heard that that station was radiating a strong second harmonic of its 7 MHz signal; I checked it out and discovered that it indeed did radiate a second harmonic out of any international broadcast band and naturally, it was jamming-free.

We liked
to use

Tangiers as a relay
station but it was
usually heavily
jammed.

Suddenly I had a bright idea. Why not use the unjammed second harmonic on 14 MHz as a relay source? I did that and we had a clear signal to relay. Of course it didn't take long for the Russian jammer station operators who monitored our broadcasts to catch on. After we had used it successfully for three nights, the second harmonic signal was clobbered again with heavy jamming.

The SP-600 receivers were sensitive and very good, except that it was difficult to determine from their tuning dials the exact frequency because they had been designed primarily for "ham" use and had a band setting dial and a band spread dial. Sometimes during heavy jamming it was difficult to recognize a signal in a foreign language to relay.

One early morning, just before the day crew arrived at the station, a sleepy Greek technician was relaying a signal he thought was Russian news from VOA using a dialogue between a man and woman anchor.

He thought he was tuned to a U.S. VOA station broadcasting VOA Russian; it was actually a Russian newscast placed very close in frequency to the U.S. VOA station. As the morning crew walked in the front door, one of the employees, an office worker who spoke fluent Russian

See VOA, page 19 ▶



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VOA

► Continued from page 1B

shouted: "Take it off! You're relaying a Russian newscast!" Sure enough, a few kilohertz higher was the VOA Russian newscast, heavily jammed.

Eventually, Collins shortwave receivers with accurately calibrated tuning dials became available — a great relief.

Easy, Petros

The Greek staff had been vetted by the local police, but apparently not very thoroughly. We eventually learned that a security re-check disclosed that some employees had gotten involved in petty thievery or small felonies. But none of us expected that there could be spies or saboteurs among them.

How naive could we have been?

Most of our Greek staff had little or no technical training. If they spoke or understood some English they were candidates for employment. One of our drivers, whom I'll call Petros, turned out to be a narcotic addict. He would drive to the station to take us home at midnight. I always wondered about him. He had brilliant blue eyes and a thousand-yard stare. I learned later that at most times that he was driving us, he was zonked out on some mind-altering substance.

One of the technicians said one night, "Petros thinks that he is God!" Petros responded matter of factly, "I am God!"

Driving home with him was an exciting and dangerous experience. At that time the Greeks had the habit of driving without headlights. The lights were hooked up to the horn button so that occasionally if the driver felt like it, he would tap the horn button, bringing up the headlights. Sometimes the lights would illuminate a flock of sheep crossing the road or an errant goat.

Luckily, we never hit anything while I was being driven home.

One day our chief engineer called the Americans on maintenance duty into a meeting in his office. He said he had received news from Washington that some listeners in Turkey had noticed strong signals from our station in some non-Turkish languages. Conversely, listeners in Egypt found that our previously strong signals in their country had disappeared.

The chief said we had to check it out.

Red flag

Normally, to verify the operation of our directional antenna, we would drive a small motorboat out into the bay. Then we would locate two points on the shore to fix our location in the bay and take readings on a field-intensity meter with the antenna switch in both north and south positions.

Since normal operation of the antenna array was to radiate a cardioid pattern north or south, field-intensity readings at the measurement location should have been quite low. The chief took readings and found that they were far too high. Obviously, the antennas' radiation pattern had changed or had been changed.

Our first move was to determine if any of our Greek technicians had displayed an inordinate amount of interest in the antennas. Someone recalled that one technician on the daytime maintenance shift often volunteered to go out to the antenna tuning houses for the weekly

cleaning. He would walk out the catwalk with a portable vacuum cleaner to get rid of any wasps or spiders that sometimes got across the tuning capacitors, causing

ever the method was, it worked. The suspect technician was interrogated — maybe he was worked over — and finally talked.

The Greek staff had been vetted by the local police, but apparently not very thoroughly.

an arc. Another chore was to burnish the contacts on the switching relays.

"I think that the Greek police might like to talk to that boy," the chief surmised.

They did. We never knew if the Greek police method of interrogation involved bright lights and rubber hoses, but what-

The police report was succinct. They reported that the technician was a committed Communist. He had been summoned to Athens, thoroughly questioned, then given his orders by a foreigner who spoke fluent Greek.

He was told to determine the tower heights and their separation. Then he was to

make a schematic diagram as well as he could of the elements in each matching network inside the tuning houses and to include a small ruler for scale. He was to record the diameter of the copper tubing inductors, the number of turns and where the taps were connected. He was also to record how much the variable capacitors were open.

The tower heights were no secret. The spacing between them he could determine as he walked along the catwalk and carefully paced out the separation.

Armed with this information, the Russian, obviously a trained RF engineer, was able to calculate the values of inductance and capacitance and the configuration of the tuning networks.

But he went a step further. Now he wanted the technician to change the values of the inductors, the positions of the

See VOA, page 20 ►

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Processing Changes With the Times

by Scott Fybush

For decades, audio processing for radio has had two goals: maximizing modulation on AM to increase station coverage areas and masking noise on FM.

The results may please the keepers of the bottom line; but Andy Laird, vice president/chief technology officer of Journal Broadcast Group, says the "golden ears" contingent of the audience has never been happy with the compromises inherent in today's intensive multi-band audio processors.

"I like to call them the 'aesthetic police,'" he told a session at the NAB Radio Show in Philadelphia. "They hate it."

Fewer compromises

There's good news for the self-proclaimed audio cops, said Laird and copresenter, Frank Foti, founder and president of processor manufacturer Omnia.

The arrival of HD Radio on the broadcast scene will eliminate the need for many of those compromises, removing the pre-emphasis built in to the present-day FM system, restoring lost high frequencies and removing the noise floor that plagues both AM and FM analog broadcasting.

Before broadcasters can take advan-

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WHY?

'For blend to operate properly the subjective levels between analog and digital must match,' Laird said, 'and by clever gain structure design from Ibiqity you have an extra 6 dB of headroom on the digital side.' (The answer to 'Why?' in his slide is 'Because of blend.')

tage of the benefits of HD Radio, though, Laird says they need to make the most of their current processing.

Among the tips he offered for quality-conscious broadcasters is to be extremely careful with audio levels before they hit the processor. That means dubbing music

and production elements with consistent levels, using a mono VU meter to read levels, properly calibrating input levels to the console and using quality mic and telephone processors.

sion used in typical satellite feeds and MiniDisc audio, for instance, Laird said it falls apart when audio that's been stored in MP3 format is transmitted at a low bit rate.

"For AM HD, it sounds like an MP3 on steroids," he said, noting that "the e-mail delivery method of spots as MP3 files is going to have to go away."

Foti shared tips from his career in the processing business, noting the many links in a station's audio chain, including the STL path and the exciter, that can affect the finished product just as much as the processor itself.

He recommends using the stereo generator in the audio processor instead of in the exciter whenever possible, then feeding the MPX input to the exciter to allow for composite clipping if desired.

So what's different about processing for HD Radio, assuming a station is taking care of those basic elements of clean audio?

"Really nothing," said Laird, "other than that you're going to need a modern processor that has a (HD) sidechain and an AES (digital) input," as well as one that's designed to work with a 5 kHz audio bandwidth for AM use.

Noise-be-gone

Laird said the biggest difference when it comes to HD Radio on the AM band is "there's no noise to cover up." That's been an eye-opener for his company,

The e-mail delivery method of spots as MP3 files is going to have to go away.

— Andy Laird

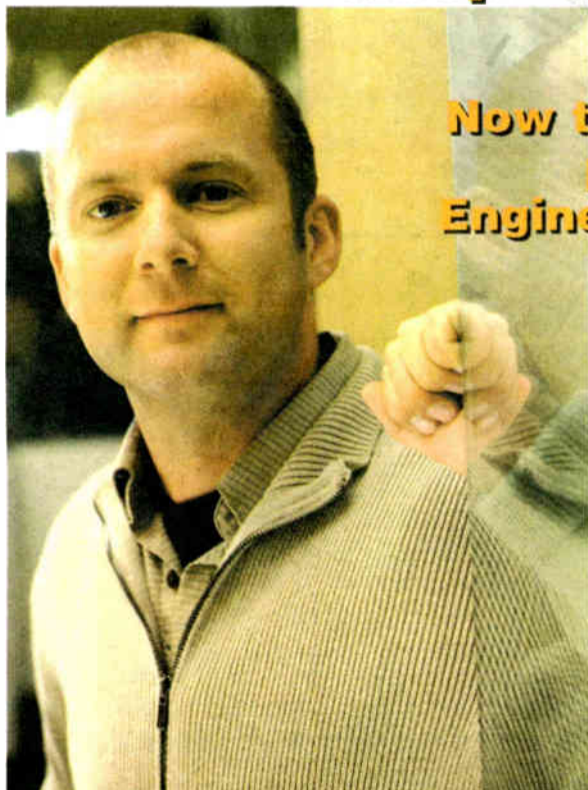
Laird says attention will also have to be paid to the number of codecs audio passes through en route to the listener. While the HDC codec used in HD Radio is compatible with most of the compres-

since it means, for instance, that Journal's WTMJ(AM), Milwaukee now enjoys the same signal-to-noise ratio in Green Bay, 100 miles north of its home market, that

See PROCESSING, page 21 ▶

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VOA

▶ Continued from page 19
taps and the settings of the variable capacitors. The new values and settings of the network would skew the cardioid pattern away from its normal orientation and still present a normal load to the transmitter.

Didn't I mention that our Russian counterparts were smart and resourceful?

Fingernail polish

Now that the problem was uncovered, we had to fix it.

Luckily, the engineering firm that had designed our antenna system had been required to furnish detailed documentation — not only the design of the antenna system but also instructions on how to tune it up. The only requirement was to follow the detailed instructions and know how to use and read an RF impedance bridge.

Assisted by a couple of engineers, the chief went to work. Following the text line by line, they took readings and carefully made settings of inductance and capacitance. To ensure that any tampering with them could be detected, an exotically colored fingernail polish was applied to each inductance tap and to

capacitor settings. Thus these settings couldn't be moved without detection.

Finally when everything had been readjusted and lacquered in place, the instructions, along with a supply of the exotically colored fingernail polish, was locked in the office safe.

Now to test the adjustments. Back out to the location in the bay with a field strength meter. Everything checked out perfectly on north and south switching. We were back in business.

Needless to remark, a new procedure was established so that no tower readings or antenna house cleanings were made without the presence of an American staff engineer. "Once bitten ..."

In order to improve our receiving capability, a new receiving station several miles from the transmitter was built, using improved receivers and directional antennas. Programs received there were piped over a VHF radio link. Four new 35 kW Collins shortwave transmitters were added to the medium-wave site.

Eventually, a new site of high-power shortwave transmitters with directional curtain arrays was built near Kavala, a spot several miles northeast of Salonica. Once the new site was activated, the Salonica installation was turned over to the Greek government.

Contact the author via e-mail to W4SG@aol.com.

Processing

► Continued from page 20

it does in downtown Milwaukee.

"All of a sudden," he said, "your need to cover noise with processing is gone."

There are tradeoffs to be made, though, especially at the relatively low bit rates used for AM HD signals and for FM stations that multicast. Laird says those low-bit rate signals are susceptible to digital artifacting, and — as with any digital audio — absolutely intolerant of any clipping.

"You have clipping in your system, you're going to hear it," he said.

Another challenge comes with matching audio levels for the analog and digital sides of a hybrid HD Radio signal. Laird recommends using telephone audio, with no high-frequency content, when matching levels between the analog and digital broadcasts.

Equally critical, he says, is the need for precise timing of the delay between the analog and digital sides. A mismatch of as little as 3/100 of a second can cause an audible echo as a radio blends from analog to digital and back, Laird says.

Foti says the complexity of the HDC codec makes the use of a modern processor even more important.

"We like to feel that the audio processor is operating more like a partner with the codec," he said. By removing audio content that will be masked anyway in the codec's algorithms, Foti said a well-designed processor can help the codec operate more efficiently.

Foti hopes the coming of HD Radio will wean broadcasters of some of their bad habits where processing is concerned. Because HD receivers won't be able to switch instantaneously from one digital signal to another, "you can't directly compare loudness" between two HD signals, he said, holding out hope that the loudness wars that have afflicted many markets

will disappear as a result. The delay inherent to HD Radio gives

that modifies itself to reduce intermodulation distortion (IMD) from clipping.

HD FM and 5.1 surround.

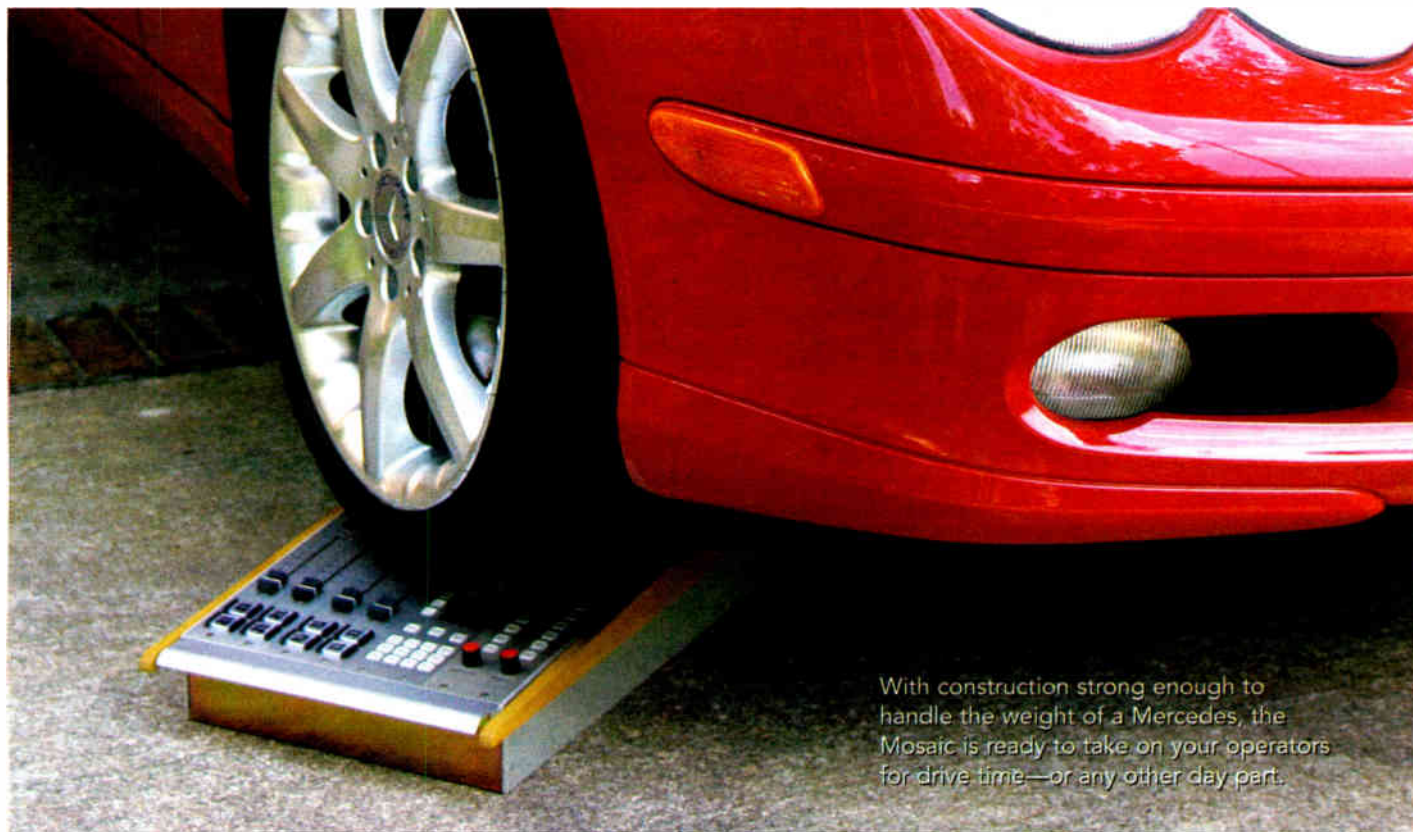
For multicasting, Foti says Omnia's "SENSUS" algorithm, part of the company's new Omnia Multicast processor, changes its architecture in response to the type of content it's processing, removing frequency ranges that won't be broadcast (on very low-bit rate spoken-word material, for example) for more efficient codec operation.

On the controversial issue of 5.1 surround, where Foti has publicly and loudly aligned himself with Fraunhofer's MPEG standard and against the competing Neural system, Foti offered demonstrations of audio that had been processed through each system, expressing concern that the Neural system leaves excessive amounts of L-R content that can cause multipath and mono-compatibility issues for stations. 🌐

Laird emphasized precise timing of the delay between the analog and digital. A mismatch of as little as 3/100 of a second can cause an audible echo as a radio blends from analog to digital and back, he says.

processor designers some new opportunities, as well. Foti says Omnia has developed a "look-ahead" clipping algorithm

Foti himself looked ahead to two more technologies that are just beginning to find their way into radio: multicasting on



With construction strong enough to handle the weight of a Mercedes, the Mosaic is ready to take on your operators for drive time—or any other day part.

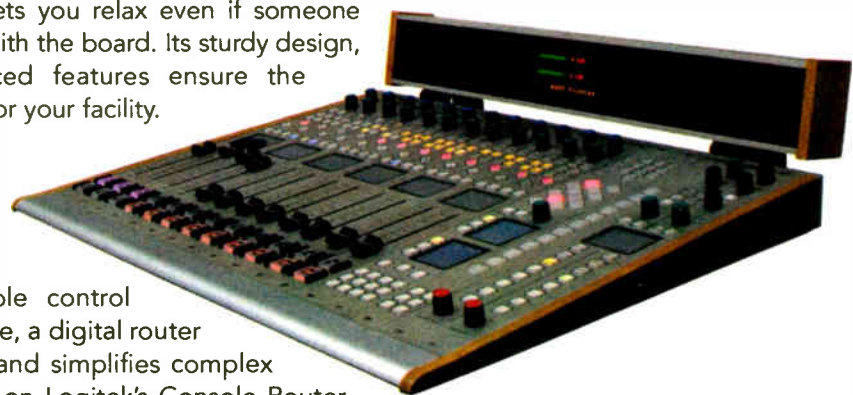
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FIRST PERSON

How's This for a House Guest?

Radio Engineer and Ham Enthusiast
Resurrects Vintage Gates BC250L

by Jerry Arnold

Having been a licensed amateur radio operator nearly as long as I've been in broadcasting, the thought of having a "heavy iron" transmitter to use on a ham band always intrigued

me, and I've been enjoying it for the past 40 years, keeping it in operating condition.

WBOW originally was on 1230 kHz; it later changed to 640 kHz before going dark. WBOW had gone on the air in 1927 using a *homemade* transmitter; the BC250L was the first com-

mercial transmitter it bought. and all the audio circuitry on the other. Both can be removed from the cabinet merely by detaching the wiring harnesses from the rear-panel barrier strips and unbolting the shelf from the frame.

Removing the AC power, audio input and metering wiring and RF output coaxial cable was easy. The wiring harnesses then were disconnected and the shelves removed from the chassis. The remainder of the cabinet was slid out of its position in the row of equipment. An appliance dolly was employed to transport the cabinet to my waiting pickup truck.

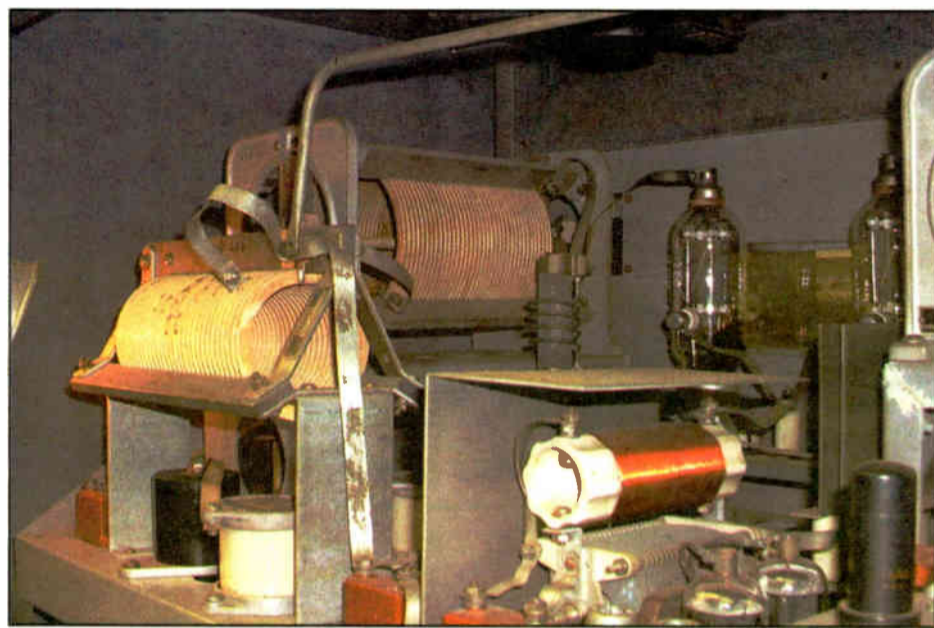
stove pipe 4 inches in diameter was employed, complete with a tee-style damper so I can deflect part of the heated air back into the room to provide climate control, just as we did many years ago. This pipe extends through the roof with a weatherproof boot and has a rain-and-insect cap topping it.

Interior walls were covered with one 8-inch pegboard, painted white. Linoleum was used on the floor; a 2-by-2-foot suspended ceiling was used to complete the interior.

In my early days in broadcasting, when our transmitter sat away from the studio in its own building, one end of the building had the station's call letters, frequency and a slogan painted on it for passersby to see from the road. I thought it appropriate to



The Gates BC250L transmitter at the radio station from which Arnold purchased it, prior to the move to his house.



The BC250L RF deck viewed from rear of cabinet.

Due to its gargantuan size, I could not place the unit inside my ham shack. And because I needed access to both the front and back of the cabinet, I could not place it in the garage. So I decided to build it its own transmitter house behind my garage.

In keeping with the 1950s theme, I wanted the transmitter house to appear as if it were built in that era. I needed room for the transmitter and a half-sized equipment rack, so an 8-by-8-foot building would do nicely.

I began construction by digging foundation holes, using only an old-fashioned post-hole digger, placing treated 4-by-4 in the holes and filling the holes with concrete. Once the corner posts had been set up, a frame of treated 2-by-10s was bolted to the 4-by-4s using 3/8-inch bolts.

I consulted with a structural engineer to ensure that I would have sufficient floor structure to support more than 800 pounds of transmitter. He recommended using 2-by-10s on 16-inch centers, supported every four feet by a 4-by-4 set in concrete.

Plywood 3/4-inch thick was used for the platform, on which standard 2-by-4 walls were built on 16-inch centers. A rafter roof that rises 4 inches in every 12 inches was added with 12-inch overhangs at each end.

Exterior paneling was applied to the frame, then rolled R13 insulation was added between the studding.

Because the BC250L has an opening on its top to exhaust the hot air from the cabinet, I needed a method to remove this air when I was using the transmitter. A section of double-wall

do the same for my building, even though it is not visible from a public road.

New digs

Once my building was complete, the transmitter could be moved in and reassembled.

This posed no real problem and was done quickly. After applying the 240 V AC power to it, connecting a 1,000-watt dummy load to the RF output and allowing a suitable warm-up time, I cautiously pressed the "plate on" button. Much to my delight the transmitter sprung to life, and was delivering *exactly* 250 watts into the dummy load with the same meter readings it had at the radio station.

The BC250L at that point was still on 640 KC — I use KC because kHz had not yet been invented in 1955!

I had purchased a crystal for my new frequency in the 160 Meter Amateur Radio band, 1880 KC. Because Gates had used a large, bulky crystal oven in its design, I disassembled the oven and removed the large crystal and heater assembly.

I soldered the leads of the crystal to the appropriate pins of the old oven holder, and reassembled the unit — minus the heater element — so I could still plug the crystal into the exciter socket. Amateur regulations do not require the strict +/- 20 Hz tolerance to which AM broadcasters must adhere. Even so, measuring the stability with my frequency counter, the maximum drift from cold to a two-hour warm up has only been 4.5 Hz. Then began the work of converting the RF deck to 1.8 MC.

Gates had provided extensive document-

See GATES, page 24 ▶



The 2x4 framing for the new transmitter house.

me. When one became available, I jumped at the opportunity.

Local radio station WBOW(AM) here in Terre Haute, Ind., went dark, so I was able to acquire a 1955 vintage Gates BC250L transmitter. The station had purchased it in 1955, used it as its main transmitter until 1964, then relegated it to back-up status when its application for a power increase was approved. Fortunately, the station engineering staff had done the right maintenance on the unit over the interven-

commercial transmitter it bought.

Back to my place

My first task was to move this beauty to my house — no small task, considering the cabinet is 77 inches tall, 30 inches deep and 42 inches wide, and weighs over 800 pounds.

The folks at Gates did a good job in designing the BC250L and even gave consideration to the monumental task of moving it. Two large shelves in the cabinet hold all the RF deck on one,

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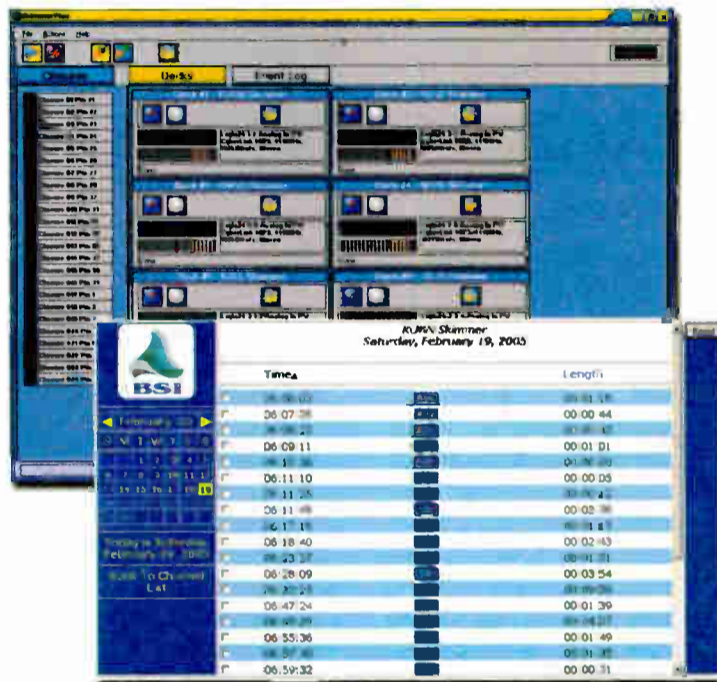
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Gates

► Continued from page 22

tation for the RF deck on the BC250L. The oscillator section ran a 6AG7 into a second 6AG7 as a tuned buffer. The tuning range was sufficient to include 1.88 MC with no further modification. However after that, I was not so lucky.

The second 6AG7 drove a pair of 6146s in parallel as intermediate power amplifiers. Their plates were tuned by a single parallel tuned coil and capacitor, with the capacitor being a large variable. As was common then, the coil has several taps, which are used to effect proper neutralization of the RF final amplifier tubes, in concert with a large two-plate capacitor supported by two larger ceramic stand off insulators.

The final amplifier is a pair of 810s in parallel, instead of the more common push-pull. Their plates feed a six-section Pi-L output filter. Of note was the fact that the inductors were variable, instead of the capacitors. Gates chose to use large mica block capacitors in the Pi-L filter, and provided sufficient values that a loaded plate Q between 10 and 15 could be maintained from 550 KC to 1.6 MC.

With my new crystal in place, the transmitter would make *some* RF out on 1.88 MC, but not much. So I referred to the Gates documentation once again. Sometimes a little "Kentucky windage" is called for.

I took the values Gates recommended for all the coils and mica capacitors at 1 MC, and scaled them to 1.88 MC. Just to satisfy the engineer in me, I ran the calculations on a computer program, based on the parameters I had verified when the transmitter was still on 640 KC. The computer-generated circuit matched almost exactly. Since the coils were variable, setting them posed no problem.

And happily, the values I need for the capacitors were readily achieved by putting many of the mica caps in series instead of parallel, as was required for broadcast band operation. I was able to come within 10 percent of all capacitor values needed by doing this.

Up and running

Now I had a functioning RF deck on 160 meters!

Even the efficiency was not too bad — about 61 percent. But on 640 KC, the efficiency was exactly what the Gates manual said it should be, 73 percent. I puzzled over this for a while. All the variable coils were almost exactly what the math said they should be. But then I noticed the large variable capacitor on the IPA circuitry was tuning almost at minimum.

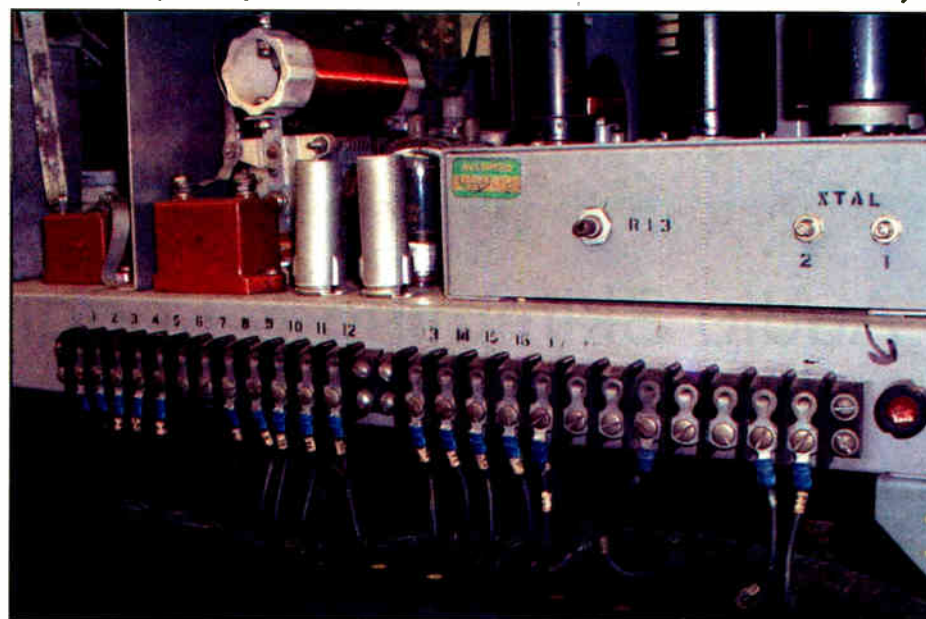
Even though the grid drive for the 810s was just about the same as it was on 640 KC, and I could still get a nice plate current

dip at resonance of the 6146s, I wondered if my efficiency problem centered here.

To see if my theory was correct, I took a small file and carefully removed the enamel from the wiring on the plate tank coil at one

at the 1 dB points was 50 Hertz and 10 kHz.

Here is where I can get in a "dig" against IBOC. I used a Hewlett-Packard 200CD audio oscillator to drive the transmitter, and a Hewlett-Packard 334A distortion analyz-



The audio circuitry and RF deck are removable by detaching the wiring harnesses from the rear-panel barrier strips, shown here.



The Gates BC250L transmitter at home in its new pad.

end, and soldered a piece of tinned wire to the coil 10 turns from the end. The other end of the tinned wire was attached to the termination bolt, effectively shorting out the first 10 turns of that coil. I re-resonated the 6146 tank circuit, and my grid drive to the 810s increased by about 5 milliamps, with the result of increasing the efficiency of the power amplifier to 73 percent.

Not bad for a 49-year-old transmitter.

As I had converted the RF section, and achieved the rated efficiencies, I wanted to see about the audio chain. Gates claimed in its documentation that the audio bandwidth

er/voltmeter to measure the audio parameters.

What I measured astounded me. My 49-year-old BC250L was flat +/- 1 dB from 37 Hz to 13,300 Hz!

For those of you who enjoy 100 percent modulation, like me, take a look at the accompanying oscillogram. As one can see, the RF carrier is modulated almost to the carrier pinch-off point. Note there is no evidence of flat topping or crossover distortion. And this was achieved with *no* external audio processing. Nearly 100 percent modulation was easily made from 37 cycles to over 13,000 cycles.

I was now ready for the ultimate challenge: putting my transmitter on the air.

A few years ago, I had erected a full quarter-wave vertical antenna for the 160-meter band (130 feet), and had installed 120 radials under it. I had used a venerable General Radio 1606 RF impedance bridge to set the matching, so I was assured I had a load of 50 ohms, j0. However, because the Gates was a transmitter *only*, I needed a way to switch the antenna to it and back to my receiver.

An antenna changeover relay was employed, but I then had to develop a delay

circuit to connect the antenna load to the transmitter first, before activating the plate on, so that the over-current sensor in the transmitter would not activate if the load was not present; then turn off the transmitter before releasing the antenna relay, when desired. This was accomplished with a relatively simple homemade circuit using common NE555 timer integrated circuits.

The NE555s control rack-mounted relays in the transmitter building. These have low-voltage DC coils, which were used as a safety factor due to my running light gauge wiring from my control console to the transmitter building.

'Heavy metal' transmitter

At this point, I was almost ready to go on the air.

A fellow broadcast engineer and ham had given me an old CBS Labs Audimax III audio compressor/expander. I bench-tested it and found it to be in good operating condition, so I installed it in my rack next to the transmitter and wired it in.

Setup was easy using an oscilloscope, and I adjusted the Audimax so that I am running about 3 dB of compression, which maintains in excess of 90 percent modulation over a wide range of input levels. I drive the Audimax with a good old Shure 267 microphone mixer, and use an ElectroVoice RE50 microphone.

The only item I had overlooked came back to haunt me. Because the Gates was not designed for use in push-to-talk service, when the filament on circuit was activated, all filaments came on, and after a 30-second delay, the high voltage for the oscillator, buffer and IPA also was applied. This was sufficient to make a *very* big carrier in my receiver when I was attempting to listen for other hams.

Thanks to Gates, the solution was not difficult.

The barrier strip on the back of the RF deck carried the 600 volts used for the oscillator, buffer and IPA. I removed this single

wire, and ran it through a large relay, then back to the screw on the barrier strip, driving the relay's coil from the plate on contactor's coil. My first contact was to a ham near Cleveland, a distance of over 250 miles from me. He

commented on how good the audio sounded as he critiqued my signal. Since that time, whenever I have been on the air using my "heavy metal" transmitter, others have also made similar comments on the quality of the transmitted audio.

I realize that AM broadcasters cannot take advantage of the full fidelity available due to bandwidth restrictions. Full double sideband with carrier communications may be somewhat wasteful of energy and spectrum space, but there is no doubt that the medium works — and works well.

As a broadcaster approaching my 40th year in the industry, whenever I travel to another city, the first thing I do in radio listening is *not* go to the FM band with all its over-processed, sound-alike, automated, satellite-provided drivel. No, I go to the AM band and see who is *really* on the air.

Many larger cities have dynamite-sounding AM stations. We dinosaurs like those kinds of things.

Jerry Arnold, K9AF, is director of engineering for Bright Tower Broadcasting in Terre Haute, Ind.

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Content(ious) Protection for IBOC?

A Quiet Battle Is Raging Over Consumers' Usage Rights for Digital Radio Content

by Skip Pizzi

In our last installment, we dipped our toes into the very deep pool of content protection technology, in the context of possible music downloads via satellite radio. This time we'll look further at the technology, and see how it might be applied, for better or worse, to digital terrestrial radio broadcasting.

CA vs. DRM

Traditional broadcast-style content protection has used some form of encryption to block unauthorized users from hearing or viewing media. This is generally called *conditional access*, or CA, and a small handful of companies around the world dominate its technology. CA systems scramble content as it is broadcast, and (in theory) only authorized receivers can descramble it as it is received. A variety of techniques and algorithms are used, optimized for a proper balance of robustness versus bandwidth efficiency.

Some form of CA is used by most digital media subscription services today, such as satellite radio and TV systems, where consumption is generally done in real time. Recent extensions to some CA systems allow time-shifting, however, thus enabling DVRs to record premium content from satellite TV channels, for example.

If protection is desired for a specific item of content, rather than the securing of a particular delivery channel, a different type of content protection called *digital rights management* (DRM) is more appropriate. (Note that this acronym should not be confused with the one for Digital Radio Mondiale, the digital broadcasting system intended primarily for LW/MW/SW/AM frequencies.)

Rather than simply allowing or disallowing access to content on a given delivery channel, DRM is a form of secure metadata that is bound to a particular piece of content (such as a song or a discrete radio program), which can allow or disallow usage of the content in a highly granular fashion.

For example, DRM applied to a song can allow it to be played on a given device only once; or, it could be played infinitely on that device, but not copied to another device or to removable media; or it could be played infinitely for one week, and then become unplayable; or it could be played in low-resolution form for free, but in higher resolution for a fee; and so on. Thus DRM can enable numerous business models encompassing content rentals, purchases, pay-per-view/listen, downloads, subscriptions and more, each with specifically crafted usage rights attached.

In the clear

Both CA and DRM rely on relatively strong encryption to enforce their protection of digital media content. This works well in the context of a "private" distribution environment (like satellite or cable, or even a subscription terrestrial broadcast channel), but obviously it cannot be intrinsically applied to nor-

mal, free-to-air broadcasts, where content by definition must remain "in the clear" or unencrypted. This conundrum has been encountered in recent years by content owners and broadcasters who wish to offer unencrypted broadcasts that still put boundaries over the subsequent usage of received content by audiences.

Specifically, the movie and television production community has been concerned that digital TV broadcasts of high-value content (e.g., first-run episodic series, sports or movies) might

be recorded in high resolution by viewers and then e-mailed or posted to the Internet for indiscriminate mass redistribution, similar to what has happened to music ripped from CDs then distributed via peer-to-peer networks.

So the U.S. DTV industry developed the concept of the "Broadcast Flag," which allows content to be broadcast unencrypted, but marked for protection after reception by the addition of encryption at the receiver. By rule, all downstream equipment would observe a protocol that allowed decryption of the content only under certain fair-use style conditions, but disallowed

See PIZZI, page 26 ▶

The Big Picture



Photo: Gary Hayes, BBC

by Skip Pizzi

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Pizzi

► Continued from page 25
Internet redistribution.

The FCC developed rules to this effect, and established a procedure by which it would approve the content protection technologies that could be used by consumer equipment to enforce the regime. The scheme was scheduled to go into effect on July 1, 2005, after which all consumer DTV equipment sold would have to observe the Broadcast Flag rules.

In May 2005, however, a court ruled that the FCC had overstepped its jurisdiction in enacting these rules, and vacated them. The court held that absent specific authorization by the Congress to do so (which had not happened, in the court's

opinion), the FCC could not set rules for what consumers can do with broadcast content after it is received. In other words, the FCC's domain extends

promise solution was for naught, and although some equipment observing the Flag provisions had already made it to store shelves, the full ecosystem required

by MPAA, have been trying to salvage the Broadcast Flag by pushing every possible congressional button to get the FCC the explicit authority it requires to reinstate the rules. At this writing it had not yet been successful, but the effort was still ongoing.

The FCC's domain extends between transmit and receive antennas, and not beyond — unless Congress tells it to go there.

between transmit and receive antennas, and not beyond — unless Congress tells it to go there.

This meant that several years of effort in developing the Broadcast Flag com-

promise solution was for naught, and although some equipment observing the Flag provisions had already made it to store shelves, the full ecosystem required

for it to work — from broadcast encoding to consumer display — was not put into effect as scheduled last summer.

RIAA jumps in

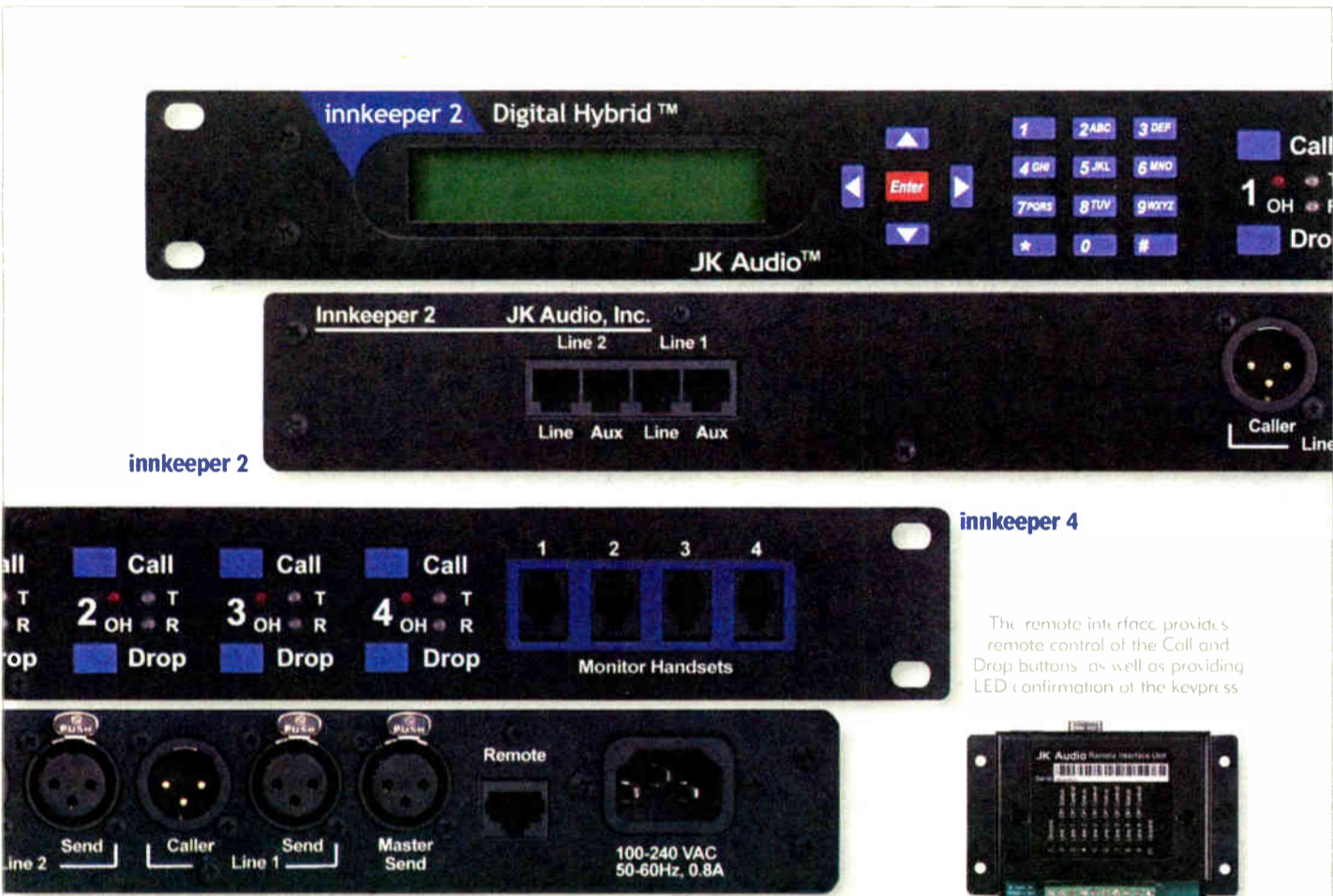
The FCC's Broadcast Flag rules were specifically limited to digital TV broadcasting. Once the rules were overturned, however, the subsequent effort to obtain congressional authorization of the FCC in this area attracted the record industry's interest.

Seizing the opportunity to have any grant of FCC authority for enforcement of content protection also apply to digital radio broadcasts of copyrighted music, the recording industry is now deeply engaged in the fray. So now, both the MPAA and the RIAA are roaming the halls of Congress attempting to garner support for relatively broad powers to be bestowed on the FCC in this regard.

Observers have noted some important differences between the DTV Broadcast Flag and any radio equivalent. These differences ultimately may cause Congress to treat the two digital broadcast media separately in any grant of FCC authority on the matter. Meanwhile the RIAA has hinted that rather than the Broadcast Flag approach, it may want all digital radio broadcasts to be encrypted prior to transmission, using one of the technologies described above.

These elements significantly up the ante on the discussion, particularly as they apply to the IBOC transition and its nascent deployment. We'll consider these effects, and the differences between content protection for digital radio vs. DTV, in the next issue.

Skip Pizzi is contributing editor of Radio World.



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Describe the experience for the radio listener.

Listeners use RadioAd.com to find and replay radio ads. This eliminates the frustration associated with trying to remember a phone number or Web site that they heard.

The site uses a unique set of search criteria to help the listener find the advertisement they're looking for quickly and easily — rather than employing general search techniques used on other Web sites.

To find an ad, the listener enters their area code, then selects the station, category and keywords associated with the ad. RadioAd.com displays the ad(s), including the phone number and Web address for the advertiser.

The address, RadioAd.com, is also unique. Some stations have been trying to use their own sites to connect listeners with advertisers. Unfortunately this magnifies the problem for listeners by adding another challenging web address to the list of items they're trying to remember. We provide the single Web address for all stations.

The word picture is perfect: "What were you listening to?" The radio. "What are you trying to find?" A radio ad. Go to RadioAd.com and you'll find it.

What does it cost a station?

We are partnering with stations and ad agencies as resellers of this service. The stations on our Advisory Board are offering this to their advertisers as a value-added service. For these stations, RadioAd.com represents a new revenue stream.

Some stations offer it as a premium service for their high-end advertisers, others prefer to offer it to all advertisers while adjusting their rates in recognition of the extra value.

RadioAd.com is a turnkey service. All you have to do is turn the key and it's operational. When a station posts an ad, it is

immediately available to the listeners.

Radio managers and engineers should

what content is displayed for each ad.

There are no setup fees, software development costs or additional equipment required. RadioAd.com is hosted and maintained by our engineers, saving the station time.

RADIOAd.com™

also know that it's easy to maintain and they're in control of the advertising content. RadioAd.com has been designed to operate with little administration and allow the stations to choose which ads they list, how long they list them and

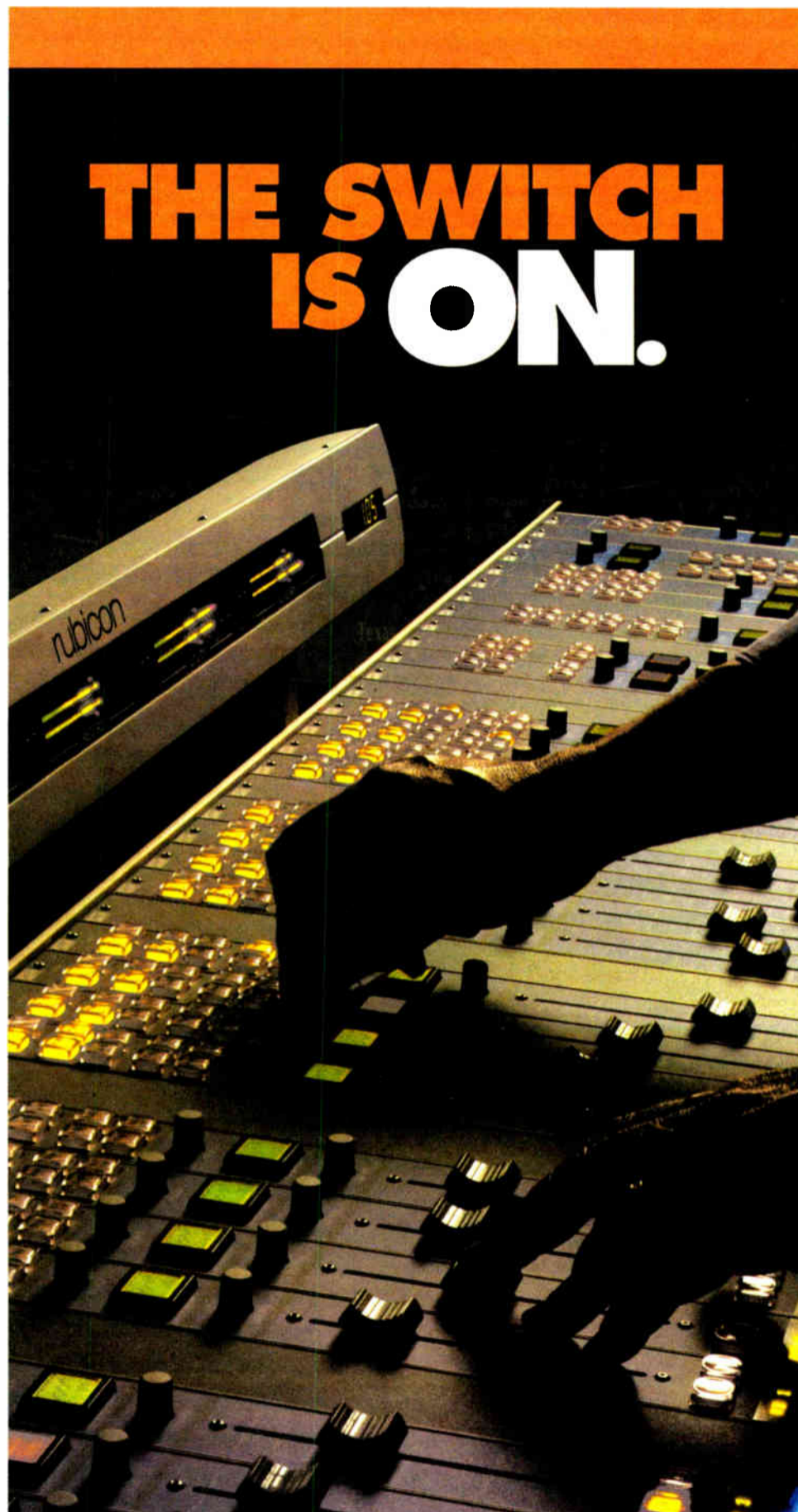
What's the background of the founders?

Rory Wilson is the creative genius. He's been involved in the advertising and marketing arena for over 15 years and has run his own business for 10. I'd

describe him as entrepreneurial and innovative.

Steve Walker provides technical guidance. During his 34-year career he's been responsible for management, business development, conceptual design, software development, engineering, product R&D, recruiting/staffing and sales and marketing. He has a great deal of experience in executive management for development of programs — such as a patent-pending online recruiting system, e-commerce solutions and the development of advanced sonar technology for use in the Strategic Petroleum Reserve.

I have eight years of software development and sales experience. Recently, I've been working with companies to implement best practices to improve software quality and reliability. 🌐



Coast to coast.

Border to border.

Broadcasters in markets large and small are switching to the elegant **Rubicon™** family of console control surfaces from Sierra Automated Systems.

In return, Rubicon's power, adaptability, and easy-to-use controls are turning on hundreds of DJs, operators, engineers and programmers across America.

Rubicon, and the versatile new **Rubicon SL**, are the primary user interface of a proprietary system of audio routing, mixing, distribution, intercom, IFB, and automation that we call the **Connected Digital Network™**.

At the network's hub is the **32KD** digital router/mixer, the proven performer in many

hundreds of radio, network, and film installations around the world.

RIOLink remote I/O router/mixer now provides stand-alone or backup mixing in addition to interconnection from the studio to the central 32KD.

To learn more about why so many broadcasters are switching to Rubicon and the Connected Digital Network, give us a call or drop us an email.



Rack mounted 32KD Digital Router/Mixer, RIOLink remote I/O and Rubicon power supply



1.818.840.6749 radio@sasaudio.com

Info:

Paladin AdSolutions LLC
17715 NE 141st St.
Redmond, WA 98052

(425) 558-1859

www.paladinadsolutions.com

NAB Radio Show Product Roundup

A selection of products and services on exhibit at this fall's NAB Radio Show. Did we miss yours? Send an e-mail to radioworld@imaspub.com.

BE Adds Modules to Now Playing; Debuts AVLogger

Broadcast Electronics added CD title/artist display and message alert features to its Now Playing and Now Playing Plus text management studio applications.

Now Playing is a system for managing text displayed on RDS, HD Radio and Internet radio tuners. A Live CD module enables CD song title and artist text retrieval and display over the air along with the song in real time. It interfaces with professional CD players with serial data ports.

Also new to Now Playing are News Flash Pro and Live Data modules for live text alerts of breaking news, traffic or weather bulletins. The former lets on-air announcers compose "instant messages" from the control room for transmission over RDS, HD Radio and Internet streaming applications. The Live Data module is for accessing and incorporating text readouts from third-party organizations like weather or traffic services.

BE debuted AVLogger, an audio capture and archiving module integrated into its AudioVault digital audio system. AVLogger records multiple audio feeds from a range of sources at a variety of bit rates and provides file markers for logging events such as the opening or closing of a mic.

Also on display was the 4MX 50 kW transmitter, first in a series of AM transmitters using the company's 4M AM modulation technology.

Additionally, the company teamed with Beasley Broadcast Group for demonstrations of multicasting and other HD radio applications. Supplemental audio channels multicast on Beasley's WXTU(FM), along with a main program service, were picked up off-air at BE's booth.

For information, visit www.bdcast.com.

Burli Adds Podcasting Features to Newsroom System

The Burli Radio Newsroom System now enables reporters to export audio items to the Internet as a podcast, and also creates podcasts from scheduled newscasts or programs.

"Podcasting has gripped consumers and the radio industry like few other trends this year," said Burli Software President Stefan Ellis. "The impact is especially strong in news and current affairs because talk programming is ideal podcast content. Burli's goal was to make it easy for radio newsrooms to repurpose their content for this new distribution model."

The Burli system runs on Windows and lets journalists manage wire feeds, scripts and rundowns, and digitally record and edit radio news reports. Reporters use Burli to connect to their main newsroom, file stories and access desktop editing tools.

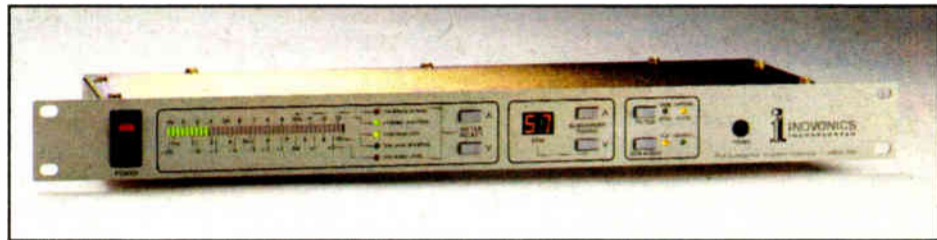
For information, visit www.burli.com.



Inovonics 713 Encoder Supports RDS Features

The Inovonics Model 713 is a TCP/IP-addressable RDS/RBDS encoder that complies with European CENELEC and U.S. NRSC standards to support RDS features such as Program Identification, PS Scrolling, Program Type and Alternative Frequency List.

The 713 connects to automation systems for scrolling artist/title information, market reports, weather, advertising or similar dynamic messaging. It "parses" words in scrolling messages for proper presentation on eight-character radio displays, and includes Inovonics' "safe scrolling" option.



Programming software runs under Windows with TCP/IP network, RS-232 serial and local USB connectivity. Software is supplied on CD-ROM.

The company says the 713 works with any FM stereo generator and FM exciter/transmitter. It locks to the 19 kHz stereo pilot from a composite/MPX sample and requires no stereo-gen "sync" port.

Operating modes include Loop-Through and Sidechain. In Loop-Through, the RDS subcarrier is internally mixed with the MPX input and the combined signal appears at the encoder output at unit gain. In Sidechain, only the RDS subcarrier appears at the encoder output, which is subsequently combined with the program signal at the FM exciter.

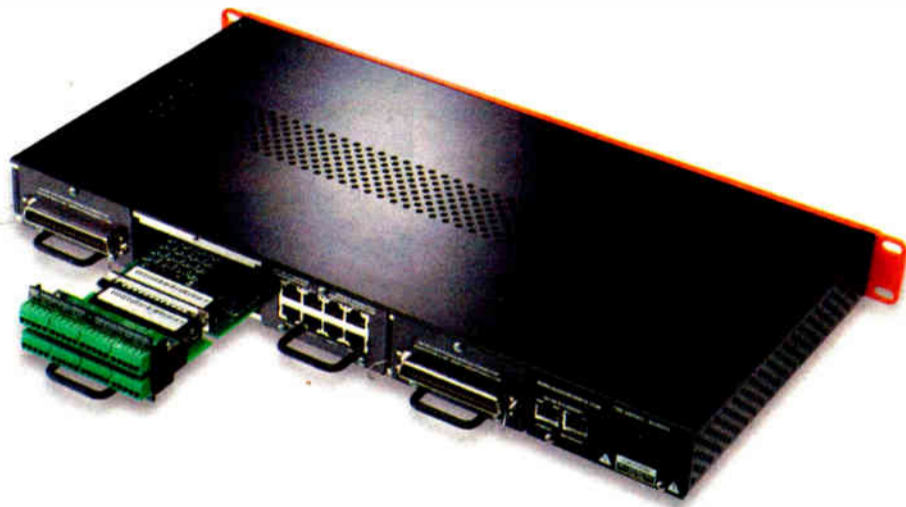
RDS features supported by the 713 include Traffic Program, Traffic Announcement, Decoder Identification and Music/Speech Switch.

For information, visit www.inovon.com.

AudioScience Has ASI2416 CobraNet Interface

AudioScience showed its ASI2416, a modular CobraNet audio interface in a 1U rackmount format.

It features 16 channels of CobraNet I/O and a Texas Instruments 32-bit floating point DSP that allows switching/mixing and broadcast-specific features like tone decoding. A graphics display on the front shows peak meters and network status.



The unit can be populated with four function-specific modules, allowing up to 32 channels of analog or AES/EBU I/O, up to 64 relay-based GPIO outputs and 64 opto-isolated inputs. Each module has an interchangeable connector that may be configured with a pluggable terminal block, StudioHub CAT-5 studio wiring solution or a standard 50-pin Centronics connector interface compatible with AudioScience's sound cards.

The ASI2416 may be part of a facility-wide CobraNet audio network or operated in tethered mode, connected to an ASI6416 CobraNet sound card with an Ethernet crossover cable. In this mode, features of the ASI2416 become an extension of the ASI6416, allowing it to be used with automation applications.

For information, visit www.audioscience.com.



80-Second Stereo Broadcast Delay!

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Eventide

Eventide BD600 Broadcast Audio Stereo Delay

Eventide's brand new BD600 profanity delay adds more delay protection, improves fidelity, and expands remote options, while maintaining the user interface and yellow 'DUMP' button familiar to all radio engineers. The BD600 is the culmination of thirty years of manufacturing the most reliable delays in the industry. Now featuring 80 seconds of delay, 24-bit digital and analog I/O, plus a host of new features, the BD600 is the new world standard!

For stations upgrading to HD, providing a high-quality subsample adjustable delay for synchronizing analog and digital is the holy grail for maintaining a seamless experience for listeners. The BD600 MicroPrecision Delay™ mode allows up to 10 seconds of delay adjustment in real time in 100 nanosecond increments. MicroPrecision Delay can be adjusted on-air.

BD600 List \$3,495.00

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434



Arrakis X-Mixer Supports BOTH Analog and Digital Sources

arrakis SYSTEMS INC.

Exclusively at BSW!! 10- and 14-Channel Consoles

The new Arrakis Xtreme mixers are powerful digital audio consoles that support BOTH analog and digital sources! Designed for long-term reliability, each console features multimillion-operation switches, Penny & Giles slide faders, and LED-illumination for all switches. Installation is quick and easy with a clamshell design that flips open, and with strain relieved connectors. Most ICs are socketed for easy replacement. The console features 3 mixing buses, stereo cue, monitoring for a control room and studio, and a powerful telephone interface for on-air talk shows and off-line recording. With both 10- and 14-channel models, the X-mixer is ideal for any size on-air or production application. Call us today for low introductory sale prices!

X10 List \$5,495.00
X14 List \$6,995.00

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434



Rack Up & Tune In!

Rolls RS79 AM/FM Stereo Tuner

The RS79 tuner has 12 AM and 18 FM presets and are retained if the power goes off. Other features include balanced XLR outputs, a signal strength meter and headphone jack, all packed into a compact 1RU chassis. Perfect as an off-air monitor in the control room.

RS79 List \$275.00

LowestPrice only \$199!

Cut Your Audio Interface Costs In Half!

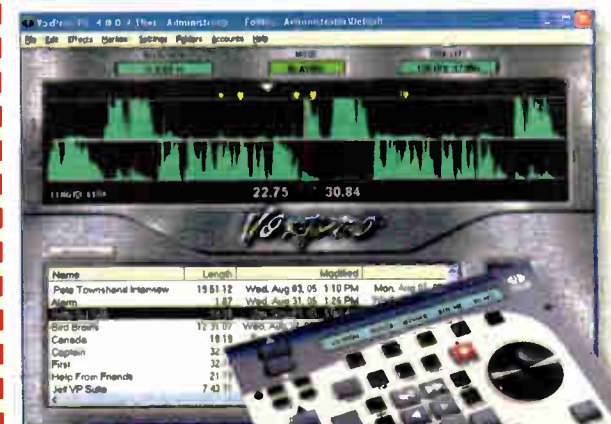
Seriously...whether you are building a studio from scratch, or rebuilding one room at a time, using **Axia** can cut your networking costs in half! And give you MUCH more flexibility.



Imagine wiring an entire studio in a few hours. Now you can, with new audio networking technology from Axia Audio. Build studios and connect them together faster and easier, without the hassle of other wiring methods. Using patent-pending Livewire™ technology, Axia networks use standard Ethernet hardware to transport high-performance audio throughout your entire plant. Axia's modular and scalable approach makes it incredibly flexible. For instance, you can make a mini-routing switcher for a simple way to share audio sources between a couple of studios. Add a Router Selector to connect a production studio or a monitor in your central equipment room. Keep going to build a system to serve a big cluster facility. And your talent will love the flexibility of the SmartSurface studio controller, which generates automatic mix-minuses on the fly and lets users set, save and recall personal preferences at a click. Call BSW today to find out how easy and affordable Axia can be.



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OR CALL: 1-800-426-8434



Record & Edit Voice

VoxPro PC 4.0 Editing Software

When it comes to editing voice, it makes sense to have software with the right tool set to handle it. The VoxPro PC software system is an easy-to-use two-track recording and digital editing system for voice-overs and phone conversations. VoxPro PC software uses an optional hardware USB- or Serial-port controller (highly recommended) for fast recording/editing as well as on-air "Hot Key" playback. The system is seamlessly networkable, allowing files to be moved instantly back and forth between the production room, on-air studio and newsroom. The single screen interface with large full-color sound window displays your recording the instant you make it. Masters are non-destructible. Edits are stored in their own folder on the same page (and unlike other software products, all edits remain with the original file). VoxPro PC 4.0 represents a considerable advance on the current version of the software, and offers a range of exciting new features: Markers, AGC, Auto-Network, Zoom, Auto-Import and Improved Effects.

**VOXPROS Software 4.0 with network List \$999.00
VOXPROCU USB controller List \$999.00
VOXPROCS Serial controller List \$999.00

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434

JBL Control Series Passive Monitors

These JBL speakers not only sound great, they combine rugged construction with a variety of mounting options for maximum flexibility. CONTROL 1 is a two-way system with a 5 1/4" low frequency speaker and a polycarbonate dome tweeter. Frequency response is 70 Hz to 20 kHz. CONTROL 5 features a 6 1/2" woofer and larger cabinet for extended bass response. Priced as pair.



CONTROL1 5.25" woofer List \$348.00 pair
CONTROL5 6.5" woofer List \$596.00 pair

LowestPrice@bswusa.com
OR CALL: 1-800-426-8434

Accessories:

MTC51 Wall mount for Control5 (pair) \$139.00
MTC52 Ceiling mount for Control5 (pair) \$135.00
MTC8 Fixed wall mount for Control1 (pair) \$19.00
MTC1A Adj. wall mount for Control1 (pair) \$58.00

Too Cool! EV Blue Cardinal & Raven Mics

The look is not the only unique thing about these birds. Just wait 'til you hear them sing! Co-designed by Blue and EV, the sound is pure and beautiful. The Cardinal is a high-performance cardioid condenser mic that features a high-quality, Class-A discrete low noise amp. The Raven is a rugged dynamic mic designed to capture the true character of live and studio vocals.



CARDINAL \$199.00
RAVEN \$149.00 **LowestPrice from \$149!**



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** Software is not returnable.

Omnia Multicast Features Sensus DSP

Omnia debuted its Omnia Multicast audio processor with Sensus DSP technology, which the company says conditions audio for HD Radio multicast, preserves clarity and dynamic range and reduces encoding artifacts.

Sensus is a suite of audio enhancement tools suitable for multicast that "predicts" the effects of the HD Radio codec and counters the problem. It works to improve fidelity, reduce artifacts and optimize audio.



Features of the Omnia Multicast include a 48 kHz, 24-bit audio processing platform with up to 384 kHz internal sampling rate, three-band dynamic peak limiter with feed-forward/feed-back design and intermodulation distortion reduction, and wideband AGC. It accepts digital inputs from 32 kHz to 96 kHz, and remote control is via serial, optional Ethernet or optional dial-up connections.

For information, visit www.omniaaudio.com.

ERI Releases EBSF Software Version 7.0

ERI showcased a version 7.0 of the ERI Broadcast System Planner software, which the company says assists in the designing of FM radio and UHF and VHF television transmission systems, and has pattern and gain information for ERI standard antenna products.

EBSF includes transmission line loss values, and allows the user to calculate transmitter power output required to achieve a given effective radiated power and effective radiated power from a given TPO. Additionally, it has plotted and tabulated azimuth and elevation pattern data for most standard ERI antenna products, such as Rototiller FM antennas.

EBSF is available at no cost from the ERI Web site, or by request on CD.

The company also displayed its motorized coaxial switch products.

For information, visit www.eriinc.com.



Logitek vScreen Puts Timers, Clocks on Screen

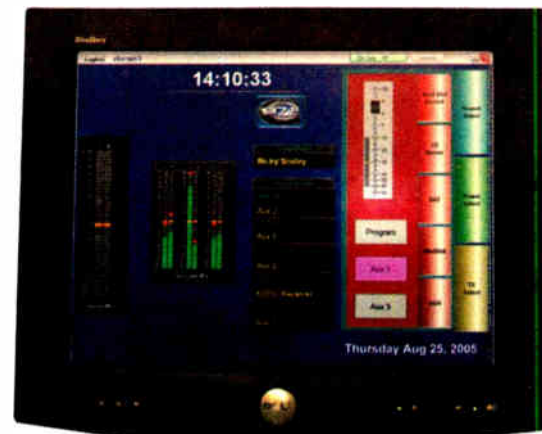
Logitek Electronic Systems featured vScreen, a PC application for its Console Router Systems that allows users to design custom operator interfaces consisting of faders, meters, buttons and graphics in user-defined configurations.

The user starts with a blank screen; console and router control elements are pulled onto the screen and placed where desired. A combination of faders, meters, control buttons and custom graphics can be placed on the screen. The company says the customizable GUI enables facilities with limited console space to put meters, timers or clocks on a computer screen.

The application is suitable for switching, scene changes, across-the-room monitoring of levels temporary guest operation and emergency control points.

Additionally, Logitek launched a redesigned Web site, with improved access to product and technical information. The Logitek User Forum, a discussion group that posts tips on Console Router Systems, also can be accessed via the site.

For information, visit www.logitekaudio.com.



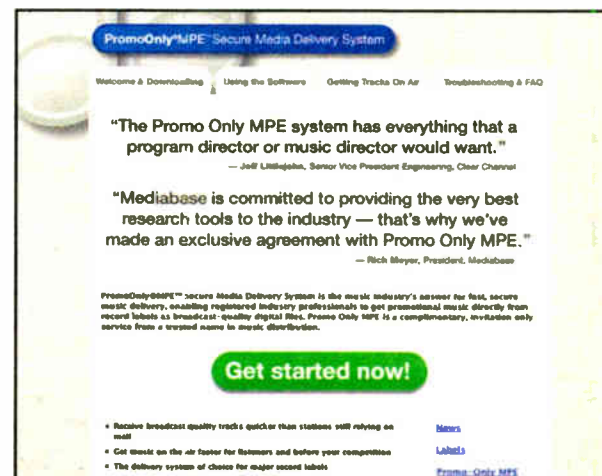
PromoOnly MPE Software Makes MPE Files Accessible

The PromoOnly MPE media delivery system from Promo Only and its technology partner Destiny Media is touted by the companies as a solution for safe, controlled digital content distribution. Music content is encoded in Promo Only's MPE (Media Protected by Encryption) audio format and then made available to authorized users as defined by the content owner.

Using MPE's Encoder software, record label or content owners can upload music files to Promo Only's secure Internet server. The software provides options such as sending streamed song previews, setting track permissions, selecting and administering trusted users and sending mass e-mail announcements with an embedded audio player.

Player software is a Web browser interface that lets registered users gain access to authorized MPE music files. Users can create personal playlists, preview songs, peruse promotional information or download tracks.

For information, visit www.promoonlympe.com.



STATION/STUDIO SERVICES

The Value of One Good Idea.

The paper mill in this town of 8,100 has nothing to sell locally. No compelling reason to spend money on local advertising. But this doesn't stop an enterprising radio advertising salesman from offering them an opportunity to sponsor a series of :60-second Winter Safety Tips the station will be running over the next few months. After a 15-minute presentation with a demo tape, they jump at the chance to be a good neighbor and agree to sponsor the whole thing. Next winter, they take it again. Same thing the following year. And the year after that. To date they've spent close to \$30,000 with that station, sponsoring Winter Safety Tips. (Does thirty grand sound to you like a fair return on a \$399 investment?) Now, stop and think: isn't there *just one prospect* in your market, who might sponsor these Winter Safety Tips on your station? Or a Don't Drink & Drive campaign? Or maybe an independent local bank, mall, chamber of commerce, etc.) that would sponsor your "Shop Our Hometown Merchants" campaign to discourage out-of-town shopping? The prospects are out there! All you need is one good idea. We can help you with that. Right now.



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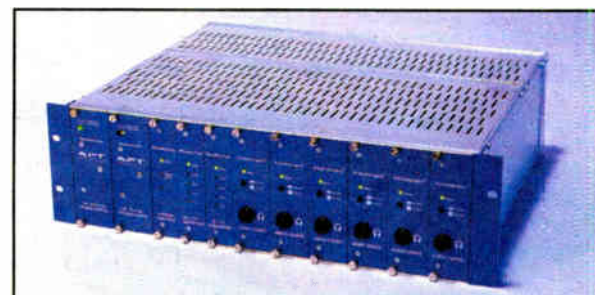
APT Offers IP Transport Card for WorldNet Oslo

APT showed advancements made to its WorldNet Oslo, a modular, multichannel audio codec suitable for broadcasters working with FM, DAB, HD Radio and 5.1 applications.

New features include the availability of an IP transport card in addition to the existing E1/T1 options, giving broadcasters the option of delivering Enhanced apt-X coded audio over synchronous or packetized networks. The Ethernet interface also can be used for WAN/LAN data transfer.

Other added features of the WorldNet Oslo include Quad Encoder and Decoder modules, offering four simple channels per card. The company says using a Quad Simplex Card along with a duplex stereo card provides a 5.1 solution for broadcasters who want to transport multichannel audio.

For information, visit www.aptx.com.



OMT Releases v2.6 iMediaTouch With FailSafe Feature

OMT debuted version 2.6 of its iMediaTouch digital audio delivery system with features including Auto Trim and Auto Resume.

Auto Trim fine-tunes recordings, and Auto Resume cues the backup machine to start playing where the main server left off.

Additional highlights include Project Editor tools, which enable the use of multiple cuts in a show, and expanded Cart Chunk tag support that facilitates content ingest.

Version 2.6 includes a Non-Stop Broadcasting FailSafe feature, which protects stations from downtime by switching to an alternate location for audio when a hardware failure is detected.

New modules for 2.6 include the "No Compromise" Remote Voice Tracking module. The company says it has the features of the in-studio Voice Track module such as song previews, music beds and access to hot keys.

The iMediaImport module imports content from various sources including third-party multitrack editors, newsroom applications, FTP sites, network folders and NPR Content Depot. The Cart Chunk and id3 tagging systems enable users of the module to have content automatically placed and titled into an iMediaTouch system.

For information, visit www.omt.net.



CEC 811HD Transmitter Features IBOC Exciter

Continental Electronics highlighted its 811HD IBOC transmitter, a cabinet-mounted low-power HD-only linear transmitting system that includes an IBOC exciter. Additional options include a CEC IBOC importer for multicasting and surround sound broadcasting, and the Audemat-Aztec Goldeneagle IBOC monitoring system.



The company says the 811HD is a 250-watt HD Radio transmitter for separate, special combined antenna systems, or for use in common antenna systems. It is suitable for use with an analog transmitter up to 25 kW analog TPO.

The 811HD shares many of the features of CEC's new 815D5 transmitter. LEDs indicate operational status, and AC power recycling facilitates operation.

Also on display: the CEC Gen II IBOC exciter, 802B analog FM exciter, CEC IBOC Importer and Powerware UPS system.

For information, visit www.contelec.com.

Sabre Towers



Sabre offers a complete line of towers, monopoles and tower components. In the tower industry for more than 25 years, Sabre towers are engineered with experience. Offering everything in guyed towers from a 12" face tubular lightweight tower

to an 84" face solid leg knock down tower, Sabre has a tower for nearly all broadcast applications. Committed to customer service, Sabre offers quality products at competitive prices with the shortest lead times.

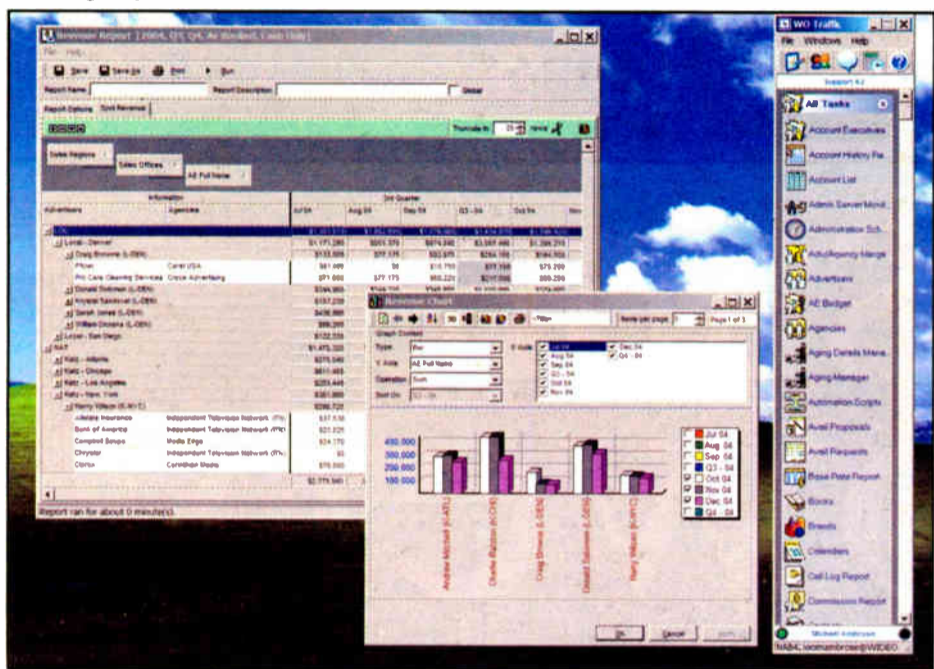


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WO Traffic Manages Billing; Tracks Market History

WideOrbit Inc. debuted the WO Traffic for Radio traffic and sales system, and displayed three of its main components: WO Traffic, traffic, billing and sales software; WO Sales+, research, sales and proposal software; and WO Promo, promotional spot optimization software.

WO Traffic is a scalable, Windows-based system that provides a suite of traffic, sales and client management, billing and accounts receivable functions targeted at broadcast radio stations, television stations and cable networks. The company says WO Traffic also offers inventory and yield management tools that can increase revenue, and centralized management of traffic and reporting from one location for multi-station groups.



Additionally, it tracks market history and conditions to help broadcasters with pricing decisions.

WO Sales+ is a native module for WO Traffic that allows for one-click order entry after the completion of proposal negotiation. WO Promo, another native module, helps optimize the placement of promotional inventory.

Features of WO Traffic for Radio include real time inventory and reports, HD radio multi-channels, electronic invoicing, Internet and NTR revenue streams and podcasts.

For information, visit www.wideorbit.com.

Harris Adds HDX-FM To Flexstar HD Radio Line

Harris Corp.'s Broadcast Communications Division introduced its Flexstar HDX-FM exciter, shown, part of its Flexstar line of HD Radio equipment. It offers real-time adaptive correction technology, which the company says enables noise reduction and transmitter/antenna linearity.

The company showed the exciter with its Flexstar HDI-100 importer, HDE-100 exporter and Mini-HD Series transmitter as part of its HD Radio multicasting demonstration.

Harris also showcased a managed platform for the transport of audio over Internet Protocol. NetXpress, part of the Intraplex line, sends multiple services over one IP connection while allowing an operator to control and monitor the entire operation from a central area.

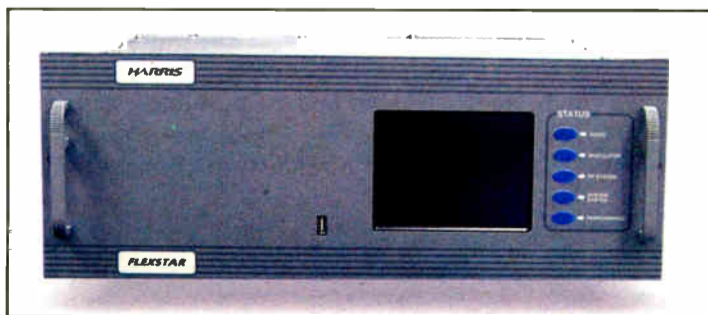
Radio broadcasters can transport multiple audio programs in multiple formats, including HD Radio; LAN data; and PBX telephone communications.

The NetXpress platform offers stations a suite of hardware/software tools for redundancy, error mitigation, service quality and network performance monitoring. The company says the platform allows broadcasters to transition gradually from T1/E1 or work within a hybrid IP/TDM network.

NetXpress provides a high-speed bus and a multichannel T1/E1 bus. It slated for availability in early 2006.

Also on display: Harris PR&E VistaMax networked products, including the RMXdigital on-air radio console; the StereoMixer digital console; and the NeuStar line, which enables broadcasters to offer 5.1 surround sound over the HD Radio FM channel. The NeuStar codec pre-conditioner was included in the multicasting demo.

For information, visit www.broadcast.harris.com.



PromoTXRadio Brings Text Messaging Into the Studio

PromoTXRadio from Spark Network Services is an in-studio text messaging system that the company says complements the elements of a traditional radio station broadcast from a Web site.

The screenshot shows the PromoTXRadio website. The header includes the 'PromoTXT' logo and navigation links for 'HOME', 'COMPANY', 'FEATURES & BENEFITS', and 'CONTACT US'. A main banner reads 'Interactivity on a New Frequency'. Below the banner, there is a section titled 'PromoTXRadio' with a description of the system. The text states: 'PromoTXRadio, the latest product of Spark Network Services, is the only in-studio text messaging system that complements all the elements of your station's broadcast from one simple, easy to use web-site. It was designed and built in conjunction with top DJs and Station Managers and encompasses all interactive aspects of radio. Our system offers you a full, white labeled, text management system for radio stations that includes sweepstakes, voting, dedications, comments, eye-witness traffic and breaking news components. There's also a comprehensive opt-in/opt-out database builder to offer you the ability to control the database. PromoTXRadio opens the doors of the mobile world to radio.' A 'Watch Now!' button is visible at the bottom right.

Applications include votelines, contests, dedications and requests and breaking news. Talent can launch a text messaging promotion online and get interactive feedback from listeners. A feature lets listeners get the play list or the station jingle ringtone sent to their cell phones.

"Immediately after a song plays on the radio, the jock says you can get the ringtone by simply text messaging a short code from the listener's cell phone. Billing is done to the listener's phone bill and the ringtone arrives immediately," said Bob Bentz, director of marketing and sales for Spark's parent company AdvancedTele.com.

"The USA has been slower in adopting text messaging technology than Europe or Asia, where similar systems have been wildly popular for a few years," he said. "But (it's) really taking off now."

"The reason we are targeting the radio industry is that so much of radio listening is done away from the home. Today, people always leave home with two things — their wallet and their cell phone. ... We think text messaging offers radio a tremendous opportunity to interact with its listeners when it has a captive audience."

For information, visit www.promotxt.com.

Burk Expands GSC3000 Functionality With G-Link

Burk Technology showed its G-Link G-Bus Expansion Series, for use with the GSC3000 transmitter remote control system. G-Link integrates remote facility monitoring on a single platform and uses the same software and Web-based interfaces as the GSC3000.

G-Link units on display included models AC-4 (shown) and AC-8 remote outlet controllers for remote management of 120 V inputs such as HVAC appliances, lighting



and computers.

The GT-4 four-input remote temperature-monitoring unit also was featured, along with the GX-128 for controlling off-the-shelf X10 brand automation products.

Burk displayed its OneConnect direct interface, providing a direct link from transmitters and other plant equipment to the GSC3000 system; AutoPilot 3 software for the ARC-16, which introduces Custom Views for flexibility in viewing and managing ARC-16 sites; and Lynx 5.1 software for the GSC3000 and VRC2500, which incorporates a Virtual Channels feature that allows users to create new remote control channels derived from conditions on one or more existing channels.

The company reminded broadcasters they have until the end of the year to upgrade VRC1000 or VRC2000 systems and make use of its trade-in program. The promotion provides \$400 cash back when purchasing a new GSC3000 or VRC2500 and trading in a VRC1000 or VRC2000.

For information, visit www.burk.com.

Emmis Expands Deal With Media Monitors

Media Monitors said it will provide Emmis Radio with advertisement tracking services of major newspapers in addition to its radio monitoring service. Emmis will use the service in clusters in New York, Los Angeles, Chicago, St. Louis, Phoenix, Indianapolis and Austin.

Users of the PaperVue service can view newspaper ads, the ad's page number and a visual of the ad. This information can be viewed against radio spot placement and frequency for the same advertiser, or compared with similar advertisers.

Emmis President Rick Cummings said in the announcement, "The new

PaperVue service from Media Monitors will help our sales teams learn about newspaper ad campaigns in their markets."

Media Monitors launched the newspaper ad tracking service early in 2005 in New York and has been adding market. Its AirCheck.net service now monitors approximately 1,000 stations in major markets.

For information, visit www.mediamonitors.com.

Start Date	End Date	Media Outlet	Market	Account	Parent	Class	#	Demo	Agency
9/1/2005	9/4/2005	Various Prrk	New York	Transporter 2	20th Century Fox	Motion Pictures	2		
		Various Radio	New York	Travelocity	Travelocity.com, LP	Travel Services	18	A25-54	BAYARD ADVERTISING
		New York City Newsday	New York	Treasure Island Stores	Treasure Island Stores	Home Furnishings	1		
		WXRK-FM	New York	TrimSpa	Goen Technologies Corporation	Weight Loss & Gain Aids	21	A25-54	NY BROADCAST SERV
		New York City Newsday	New York	Tri-State Volkswagen	Tri-State Volkswagen Dealers	Cars & Lt Trucks, Local Dealers	1		
		WHTZ-FM	New York	Trojan	Church & Dwight Co., Inc.	Toiletries, Hygnc Gds&Skn Cr	3	A18-24	PALMER, RJ
		Daily News	New York	Tropical Music Fest Orchard Beach NY	Tropical Music Fest Orchard Beach NY	Live Theater, Opera, Music, Dance	1		
		WCBS-FM	New York	Tropicana	Tropicana Products, Inc.	Beverages	1	A18-49	SPOTPLUS
		WKTU-FM	New York	TSA Recruitment	Transportation Security Admin.	Employment Recruitment	1		

Comparing newspaper ads with radio spots using the PaperVue online service combined with AirCheck.net, both from Media Monitors.

Audemat-Aztec's Goldeneagle HD Monitors in Real Time

Audemat-Aztec debuted its Goldeneagle HD, an HD receiver that can be installed at the studio, transmitter site or in a reception area. It is certified by Ibiqity; it monitors in real time the quality and continuity of several FM and/or AM and HD programs and notifies the right person of a problem by sending an alarm.



It also monitors time and level alignment between the analog and digital paths, and can decode and monitor SPS. It offers functions such as a spectrum analyzer, audio streaming, automatic scanning, measurement analysis and storage, as well as remote control.

There are three versions. Goldeneagle HD FM includes one HD and one FM analog receiver; Goldeneagle HD AM includes one HD and one AM analog receiver; Goldeneagle HD FM/AM includes one HD, one FM analog and one AM analog receiver.

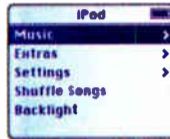
The receiver scans and monitors the pre-configured stations. The company recommends users configure their own stations in the monitoring cycle and use the scanning feature to monitor other stations once or several times a day.

The HD FM version is shipping; the HD AM and HD FM/AM will be available in December.

Also on display was the Navigator HD, which combines an FM monitor, HD monitor and GPS receiver. Readings can be exported into Microsoft's MapPoint in order to display the HD service area.

The Navigator HD can be used to measure the time and level alignment between the analog and digital signal paths, and also can decode and monitor SPS.

For information, visit www.goldeneagle-hd.com.



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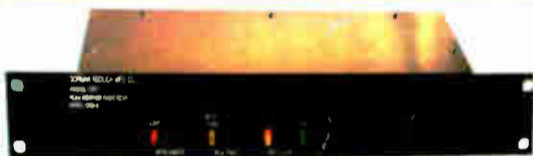
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Podcast XLR8R Is Among Prophet Offerings

Prophet Systems was at NAB highlighting its NexGen Digital radio broadcast content management system. It provides several hardware and software configurations scalable to any size station.

NexGen101 runs a single radio station, college station or Internet station for as little as \$495.

The company also says its Podcast XLR8R is simple to use and integrate into the workflow at a station. NexGen's XLR8R enables stations to convert content to an MP3 podcast file six to 10 times faster than real time.

MusicGen Pro is a music scheduling system developed with input from PDs; the supplier believes the system will rotate music better than any other. It's also designed specifically to run with NexGen.

NewsGen is a standalone newsroom software enables reporters to write newscasts, receive and manipulate wire copy and digitally record, edit and playback audio. It is scalable, from an enterprise-wide deployment to a server-based system. NexGen integration and WANcast capabilities are included.

Also promoted were Prophet Importer, which enables advanced HD Radio capabilities like multicasting and datacasting; and DigiLogger, which lets a station monitor multiple stations, and make those recordings available via a Web-browser.

For information visit www.prophetsys.com.

Day Sequerra Touts HD Radio Monitors

Day Sequerra featured its Model M2 HD Radio modulation monitor.

The M2 monitors HD Radio AM and FM signals, as well as analog AM and FM broadcasts. The company says the M2's high fidelity over-sampling 24-bit, 96 kHz DAC combined with Day Sequerra's Class A-biased audio output circuitry provides dynamic audio from the broadcast source.



The high resolution, peak and hold 50-segment LED meters in the M2 indicate RF carrier modulation percentage and audio modulation in dB; the M2 uses a multi-function display for tuning and other station information.

M2 also includes alarms for over-modulation, loss of audio and loss of carrier. M2 tuner functions can be monitored and controlled via an optional PC interface.

Day Sequerra also debuted the M4 HD Radio tuner. The company says both units are "Tomorrow Radio Ready," and the M4 recently received Ibiqity certification.

For information, visit www.daysequerra.com.

Klotz Aeon Has Monitor, Fader Modules

Klotz Digital showcased its Aeon radio consoles, which feature a router the company says is designed for small to medium-size stations. Aeon is based on Klotz's slim console modules, with each module in its own housing that can be arranged to create split or single console surfaces. Monitor and Fader modules are included.

Aeon is available with 4-, 8-, 12-, 16- and 20-fader control surfaces. The Monitor module enables access to DSP functions and features four rotary encoders, each with associated alphanumeric 16-character display; and four multipurpose buttons for snapshot and preset select, source select and parameter settings.

Each strip of the Fader module offers a 100 mm fader, four fader channels, four programmable buttons for source and bus and status indication LEDs.

Five stereo busses are included: PGM, REC, AUX, Clean Feed/Mix Minus 3 and CUE/PFL. Two mono busses are included: Clean feed/Mix Minus 1 and 2.

Additional highlights include assignable routing and function keys, status indication LEDs for important parameters and functions.

Klotz Digital also displayed the functionalities of its VADIS audio- and control-networking systems.

For information, visit www.klotz-digital.de.



Linear Acoustic Spotlights Aeromax-HDFM

Linear Acoustic highlighted the Aeromax-HDFM Multichannel Digital Processor, which it says offers

programmable audio processing for a station's main FM and HD/Digital Radio signal paths, in addition to separate multiband processing for two supplementary audio channels.



SRS Labs Circle Surround technology is part of the system, to allow 5.1-channel surround-sound

encoding, including Circle Surround, Dolby Pro Logic, Dolby PLII, DTS Neo 6 and Harman Logic 7.

The company also showed the Model LA-5100 Multichannel Distribution System, which enables eight channels of PCM-format audio referenced to any video frame rate audio, plus metadata, to be encoded into a single AES digital pair for storage, routing, switching and distribution. It uses apt-X ADPCM codec from Audio Processing Technology and comprises a Model 5171 Multichannel Distribution Encoder and Model LA-5172 Decoder.

For information visit www.linearacoustic.com.

Audioarts Has Input/Output Center

Audioarts Engineering showed a new Input/Output Center, which includes 16x16 stereo per switcher.



The compact unit accepts and outputs both analog and digital Signals and combines 24 logic ports with multiple I/O centers, which may be linked together though AE net to build a 256x256 mixed signal matrix.

The Audioarts I/O Center works with AE Net & Net 75 Panels.

Wheatstone exhibited networkable surfaces and routers, which includes the Generation-6 control surface, Gen-7, Gen-3, Wheatnet 4864 Central Switch and the Bridge router with AoIP and automation interface.

Wheatstone also showed the GPC guest panel system and the Vorsi AP3 line of digital signal processors.

Also on display were Audioarts Engineering A-Line Furniture, D-75 digital audio console, N-75 network module and AEnet router.

For information visit www.wheatstone.com.

Energy-Onix Displays DRE FMeXtra Subcarrier System

Energy-Onix featured Digital Radio Express' FMeXtra multichannel digital subcarrier system, which digitizes part of the FM signal — the subcarrier or SCA — providing FM broadcasters with a high-throughput digital system.

For U.S. broadcasters, regardless of whether the station has converted to hybrid mode IBOC, FMeXtra offers an additional independent stream of data to be used for more programming or for other data services without sacrificing bits from the main IBOC data channel. For analog FM broadcasters, DRE says FMeXtra provides an immediate, economical route to having digital broadcast capabilities in addition to the present programming.

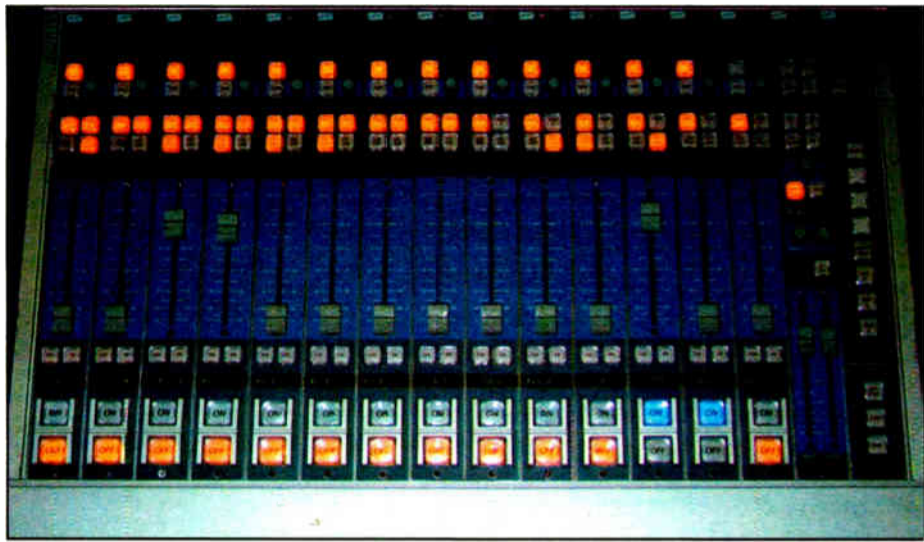
FMeXtra can be used to broadcast 5.1 surround sound, and multiple independent audio streams to provide multichannel programming. Additionally, it can be put on the air immediately and works with existing FM transmission equipment.

For information, visit www.energy-onix.com.

Rubicon SL Targets Smaller Markets

SAS exhibited several products it had announced this year.

The Rubicon SL Radio Broadcast Console Control Surface is aimed at smaller-market stations or less demanding studio applications. It provides integration with the SAS 32KD and the SAS Connected Digital Network, as well as stand-alone operation with the new upgraded RIOLink Mixer/Router.



Also, the RIOLink remote I/O Interface to the 32KD now operates stand-alone as a 32x32 router, and with the new Rubicon SL as a stand-alone router and mixer. And the ANI-750 Audio Network Interface links multiple 32KD Digital Audio Router/Mixer frames via fiber. Using a dual counter rotating ring for reliability, ANI provides static and dynamic sharing of 750-850 channels.

For information visit www.sasaudio.com.

FM Antenna Fits in Gun Case

Armstrong Transmitter showed the FMA2VBP, an FM broadband vertical only antenna for up to 2 kW input.

Originally designed for military applications, it comes packed in a hard shell gun case to facilitate transportation in an emergency.

The company also promoted its line of transmitters, STLs and other RF products.

For information, visit www.armstrongtx.com.

USB Matchbox Corrects Sound Card Glitches

Henry Engineering showed its USB Matchbox, a USB-to-XLR bi-directional stereo audio codec that works to correct problems caused by sound cards, such as inputs and outputs at the wrong levels and buzz from ground loops. The company the USB Matchbox is suitable for applications where digital audio from a computer needs to interface with a professional analog audio system.

The unit offers Burr Brown's Delta Sigma 8X Oversampled codec with SpAct audio clock recovery architecture, as well as Henry's L/C pre-filtering analog circuitry. These features, the supplier says, eliminate the transient intermodulation products caused by inadequate reconstruction filters found in sound cards.

Additionally, the USB Matchbox's internal switch-mode power system eliminates ground loops through the PC.

Front controls enable adjustment of input level and L/R balance trim. Output levels are calibrated with recessed trimmers. Rear connections include XLRs for balanced analog I/O, auxiliary unbalanced line inputs and outputs for amplified speakers. The speaker output can be muted with an external contact closure via the Mute jack.

Windows and Linux OS are supported. USB Matchbox operates with most audio editing, recording or broadcast automation software at sample rates up to 48 kHz and up to 16-bit resolution.

For more information, visit www.henryeng.com.

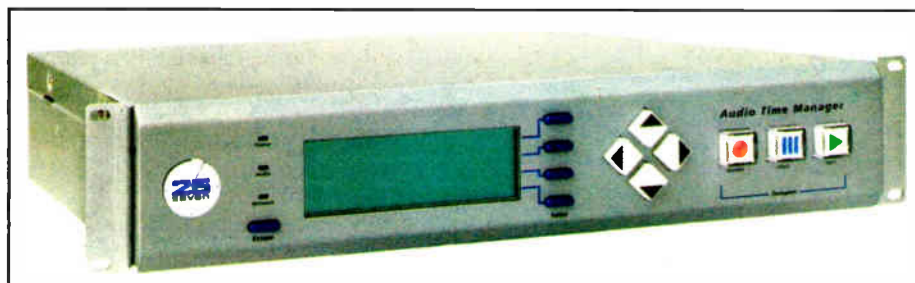
25-Seven's ATM Lets Stations Play Catch-Up

The Audio Time Manager was on display by 25-Seven. The processor lets stations delay the start of live programs and catch up to real time without loss of original content. It features the company's time compression algorithm and Time/Rate Management Calculator.

Broadcasters can create extra breaks wherever they are needed, eliminate back-timing hassles into a network feed or introduce starting events like press conferences without the talk-up. The company says stations can insert IDs, commentary or additional inventory without compromising sound quality or content.

At the Radio Show, the company promoted the ATM's use at KFMB(AM) in San Diego to "eliminate the 'train wrecks' caused by breaking news and live press conferences," said KFMB Engineering Supervisor John Rigg. "That may sound like an odd concept, but you never know when a press conference is going to start. When they say 1 p.m., it could be 1:05 p.m. or 1 p.m. the next day."

For more information, visit www.25-seven.com.



Comrex Access Delivers Audio Over IP

Comrex displayed its Access studio codec for Internet and wireless remotes, which uses the company's Broadcast Reliable Internet Codec technology to deliver wideband audio over IP networks in real time.

BRIC lets broadcasters use various Internet access points to broadcast audio. The Access uses wired circuits such as DSL, cable, POTS and Frame, as well as wireless circuits like WiFi, 1XRTT, EDGE and 3G data networks.

Access has a stereo mode that the company says optimizes performance on most stable circuits, and also offers HE-AAC and AAC Low Delay for use on managed data networks. It is available in a rack-mount version; a portable is planned.

Comrex also showed its Studio Telephone Access Center, which lets broadcasters control talk shows and call-ins. The system incorporates a pair of Comrex digital hybrids with automatic audio level control. A rack-mounting mainframe houses the hybrids and telephone and audio connections.

STAC offers two operational modes: Studio/Producer, which enables pre-air and on-air caller management; and Screener, which eases screening and queuing callers.

One control surface is included with the system. For more demanding programming, STAC supports up to four.

For more information, visit www.comrex.com.



VoxPro 4.0 Adds AGC, Auto-Network

Audion Laboratories debuted version 4.0 of its VoxPro software, which includes an "overhaul" of the file format, networking protocols and the way user accounts and settings are maintained in an effort to ease station/system reconfigurations.

Added features include markers, automatic gain control, auto-network, zoom and improved effects.

Users can mark while recording or playing back. VoxPro shows a floating window with time line position and marker titles. Right-clicking a title allows note editing and auto-play from the marker.

AGC limits the loud on either or both channels. The peak program VU meter with a 72 dB range also is new.

Auto-network enables users to network VoxPro machines. VoxPro workstations connected to a station's LAN detect each other and stay connected, so users can access their password-protected accounts from another VoxPro workstation.

The 100X zoom feature facilitates editing. Users can toggle between Zoom and Normal modes.

Highlights include auto-import, which imports media files that appear in a user-specified folder; E-Z Export, which exports files to a particular format; and improved time stretching and pitch shifting effects.

For more information, visit www.audionlabs.com.



We're all talk.

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All talk and no action? That certainly doesn't describe any radio station we've ever seen. With guest interviews, news and traffic feeds, live reports and listener calls to juggle, a talk studio is one of the most active places on the planet. Seconds count, and there's no room for mistakes.

That's why we created Status Symbols® for the Telos TWOx12 Talkshow System. Instead of flashing lights to decipher, there's easy-to-understand picture icons that give talk pros the information they need with just a glance. What caller's next? Who's screened, and who's just holding? With Status Symbols, you'll know instantly. And only Telos has them.

TWOx12 has lots more benefits. Like Digital Dynamic EQ, for uniform caller audio despite less-than-perfect lines. Twin DSP-powered hybrids for quick, no-hassle conferencing. A unique Dual Studio Mode that lets you use your 12-line phone system like dual six-line systems for extra flexibility. And TWOx12 is the world's only talk show system that can work with either POTS or ISDN lines to deliver exceptional caller clarity. Impressive? You'd expect no less from the company that *invented* the digital broadcast hybrid.

Is TWOx12 the perfect union of word and deed? Thousands of broadcasters worldwide think so. Why not see for yourself?

Telos
AUDIO | NETWORKS



12 lines, two digital hybrids, and superior audio performance. Desktop Director controller features handset, speakerphone and headset jack. Drop-in controls available for popular consoles.



New Call Controller has Status Symbols, DTMF pad and recorder controls (like Desktop Director), but lets talent use their favorite wireless phone or any standard handset for call screening.



Status Symbols show exactly what's what. Intuitive icons show calls locked on-the-air, which hybrid they're on, who's next in queue and more. So much better than a panel of blinking LEDs.



Assistant Producer enables talk show production via LAN or WAN. Status Symbols, Caller ID support, instant messaging and caller database are just a few benefits. Supports touchscreens, too.

'Your Station Name Here'

Des Moines Classic Rocker Buys Naming Rights to Arena. A New Trend?

by Steve Sullivan

Yankee Stadium. Lambeau Field. Madison Square Garden.

Stadium names used to be so simply elegant, evoking images of the teams or coaches who toiled in them, or pinpointing their locations so that anyone sitting in the arena's clouds of cigar smoke would know precisely where he was.

Is it an effective marketing strategy? It didn't seem to help Enron (although it had other problems) or PSINet.

Annual deal

Now, joining the ranks of airlines, automakers, tech companies and financial institutions is KGGG(FM). In August, the Citadel-owned Des Moines classic rocker announced its very own naming-rights deal.

hockey team," said Terry Peters, vice president and market manager for the Citadel cluster. "They were looking for ways to make improvements on their facility, and we have a long-standing relationship with the Buccaneers."

Buccaneers President and Owner Shawn Edwards said the deal provides his team with two things.

"It lets us really get our name out there because they have both country stations and the number one classic rock station. And the money will let us do some renovations to our 48-year-old building."



Terry Peters



In recent years it has become marketing chic for companies to attach their names to stadia of all sorts. Today, we've got American Airlines Arena, Conseco Fieldhouse and Lincoln Financial Field, among others.

Is it a new development? Not really, if you consider that Chicago's Wrigley Field was renamed in the early 20th century after the chewing-gum magnate took ownership of the Cubs.

A 3,500-seat venue previously known as Buccaneer Arena will be called 95KGGG Arena.

The facility, in a suburb just west of the Iowa capital city, is home to a minor league hockey team and various community hockey and skating activities for eight months out of the year.

"The idea came out of a brainstorming session with my operations manager, me and the head of the Des Moines Buccaneers

In large markets with major league teams, naming-rights deals can involve multi-millions of dollars over a number of years. For instance, FedEx has invested more than \$12 million for the rights to put the company's name on the NFL's Washington Redskins' stadium and the home of the NBA's Memphis Grizzlies. Those deals extend to 2025 and 2023 respectively.

The Des Moines deal is modest by

those standards.

"I can tell you it's a healthy six figures in what we've brought to the table in terms of cash, value, promotion," said Peters. "They had what they thought they could go out and sell their naming rights for, and I had what I thought we could give them for those rights. What we ended up with was an annual deal that's renewable."

A Fleet deal

Significant among the renovations planned is a temporary floor that can cover the ice to turn the arena into a concert venue.

"We've got within the deal an opportunity to bring a series of rock, country and Spanish concerts to the 95KGGG Arena," Peters said. "What we'll have is the third-largest music and entertainment venue in the city."

KGGG isn't the first radio station to dabble in naming-rights deals. Entercom Boston's WAAF(FM) picked up single-day naming rights to the Fleet Center. In that instance, the one-day rights were auctioned off with the money going to a charitable organization. The day the arena became the WAAF Center coincided with a Mötley Crüe concert presented in the facility by the station.

See NAMING, page 39 ▶

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You could put back the LOCAL features your listeners want. Make live events happen on YOUR cue. Drop breaking news into network shows, with no loss of content. Create extra ad avails when needed. Audio Time Manager gives you completely new control over time, so you can do these things and more. With audio quality so good, listeners won't know you're using it. Can you press two buttons? Congratulations - you now control time.



Naming

► Continued from page 38

Even though two radio stations have dipped their toes into the naming-rights pool in the span of six months, that doesn't necessarily indicate an emerging trend. Mark Ramsey, president of Mercury Radio Research, a strategic marketing research firm in San Diego, is more intrigued than impressed by the deal.

"KGGO's in that kind of market that's not too big to make it unaffordable and not too small to make it irrelevant. It's an interesting deal, but I don't know what the value is of having your name read over and over. I'm not sure whether it really motivates listenership," he said.

"I think from a financial standpoint and from the standpoint of the radio station, being able to provide more perks to its clients and customers, the benefits are clear. What kind of marketing advantage it has for the station in the long run is less clear. That's not news. That's true of any such deal anywhere in any industry."

The deal does present an interesting dilemma for competing stations in Des Moines. Whether it's a hockey game or a concert, if another station chooses to promote it, will they also end up promoting KGGO by referring to the official name of the arena?

It's a situation that isn't lost on Peters, who moved to Des Moines in February after spending time working for Cox Enterprises and Westwood One in Tampa. There he witnessed the fits that the Tampa Tribune went through when the market's competing daily newspaper, the St. Petersburg Times, bought the naming rights for the Tampa Bay Lightning's hockey arena.

When asked if part of the strategy was having rival stations have to say his station's name whenever they mentioned the arena, Peters chuckled. "I like promotion and I like being a dominant voice in my market. We've already caused some pain for our competitors."

The "pain" to which Peters refers involved a Buccaneers coach's show that was canceled by a Saga Communications station immediately after the naming-rights deal was announced.

"As soon as they saw we landed the naming rights to the arena, they called the Buccaneers and canceled the show," Peters said. "Now we're trying to retool and help the Buccaneers keep that live broadcast in place somehow."

Ramsey downplays the "gotcha" impact the naming deal may for competitors, citing what happened in his own market.

"I don't think it's worth it to do the deal just to tweak your competitors. You're certainly not going to encourage them to use your call letters on air. Here in San Diego we have Qualcomm Stadium. Now, it's known as the 'Q.' The 'Q' doesn't have the same association as Qualcomm Stadium. 95KGGOArena doesn't exactly roll off the tongue.

"I would guess that within 90 days, it will be referred to as the 'O.' And when it's called the 'O,' anyone at any station can say, 'Playing down at the 'O' this week ...' It becomes vernacularized, and that's the end of that. Problem solved from a competitive radio standpoint."

Steve Sullivan is executive news editor for multimedia at The Baltimore Sun and was a founding principal of the Advanced Interactive Media Group consulting firm. Reach him at sullicom@comcast.net.

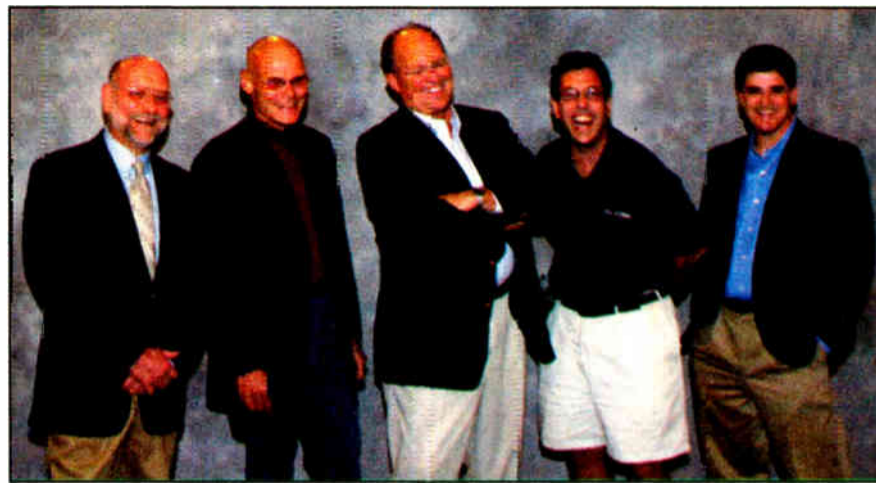
Hot Air in Orlando

Cox station WDBO(AM) hosted its third Meeting of the Mouths event in Orlando recently and said thousands of listeners and fans turned out to see the conservative and liberal talkers go at it.

Organizers said topics of debate on the stage included immigration, Iraq policy, hurricane response and the 2008 elections. A George Bush impersonator livened things further.

From left, Jim Turner, James Carville, Neal Boortz, Clark Howard and Sean Hannity pose between photos with fans at the "Golden Corral Meet & Greet Party" held in conjunction with the event.

News-talk WDBO recently won the NAB Marconi Award for medium market station of the year.



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Tax Deductions, Credits & Writeoffs

Uncle Sam May Be Able to Help Offset Cost Of Remodeling or Adding to Your Premises

by Mark E. Battersby

What better time to fix up, remodel or redecorate the building, offices or studios that house your radio operation? Naturally, you will want to keep out-of-pocket expenditures to a minimum and recover as much of the funds spent just as quickly as possible. Fortunately, broadcasters who own their buildings as well as those who lease their property can take advantage of a variety of tax deductions, credits and other tax breaks to achieve those goals.

Under the basic tax rules, additions and improvements are usually depreciated in the same manner as the existing property would be depreciated if it were placed in service at the same time as that addition or improvement. A roof replaced on a commercial building is, for example, usually treated as 39-year nonresidential real property, regardless of how that building is actually written off or depreciated.

Imagine, however, that those expenditures for improvements, additions or remodeling could qualify for faster write-

offs, even a direct reduction of the radio broadcasting operation's tax bill. The result would be a reduction in the radio operation's out-of-pocket expenses, faster — and larger — write-offs to reduce its tax bill and, most important, a much improved business environment.

First, consider a soon-to-disappear, faster write-off for so-called "leasehold improvements" created by the American Jobs Creation Act of 2004.

Leasehold

A good example of leasehold improvements was provided by a case involving the Walgreen Company, the company that operates drugstores and restaurants,



before the U.S. Tax Court. The company routinely made improvements to the leased spaces that these businesses occupied. These leasehold improvements included interior partitions, millwork, acoustic ceilings, floor finishes as well as bathroom and lighting fixtures.

While Walgreen did not own the stores that it was improving, it did make capital improvements to its leased property. Under our tax rules, those capital expenditures were "improvements" to leased property and tax write-offs were possible by Walgreen.

A faster write-off for 'leasehold improvements' expires soon.

The 2004 tax law changes created a 15-year recovery period for so-called "qualified leasehold improvement property" placed in service between Oct. 22, 2004 and Jan. 1, 2006. All improvements must be made to the interior portion of the radio station's studio or building.

This write-off is not optional. The new law, temporarily, reduces to 15 years the depreciation period for the improvements made to leased business property (and for qualified restaurant property). Qualified leasehold improvement property is an improvement to the interior portion of a building that is nonresidential real property — provided certain requirements are met, of course.

The improvements must be made under or pursuant to a lease either by the lessee (or sub lessee), or by the lesser. The lessee and lessor cannot be related and, furthermore, the improvement must be made to that portion of the building occupied exclusively by the lessee (or sub lessee). And, the improvement must be placed in service more than three years after the date the building was first placed in service (i.e., the building must be more than three years old).

Divide and conquer

The Internal Revenue Service recently announced that it would go along with a ruling of U.S. Tax Court that permitted some elements of a building to be separately depreciated as personal property.

See DEDUCT, page 41 ▶

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PRO AUDIO REVIEW



Deduct

► Continued from page 40

The IRS has agreed with the court's method for determining whether an item is a structural component (i.e., real property) or personal property. The separate, shorter recovery period for the personal property elements of a building is referred to as cost segregation.

The following items, at least if related to the operation and maintenance of a building, are examples of structural components: bathtubs, boilers, ceilings (including acoustical ceilings), central air conditioning and heating systems, chimneys, doors, electrical and wiring, fire escapes, floors, hot water heaters, HVAC units, lighting fixtures, paneling, partitions (if not readily removable), plumbing, roofs, sinks, sprinkler systems, stairs, tiling, walls and windows.

First-year expensing

In order to qualify as an immediately "expensed" Section 179 allowance, the property must be tangible Section 1245 property, depreciable and acquired by purchase for use in the active conduct of a trade or business. The Section 179, first-year expensing allowance, does not include a building or its structural components. It can include many Section 1245, personal property costs but only to the limits.

Those limits meant a broadcaster could expense up to \$102,000 in Section 179 expenditures in 2004, a figure that will be indexed for inflation for 2005. Should total expenditures for Section 179 property have exceeded \$410,000 in 2004 (another figure that will be increased for 2005), the deduction must be reduced dollar-by-dollar by any excess.

Rehab vs. fixup

The tax rules also contain a unique tax credit for any broadcaster incurring so-called "rehabilitation expenditures" during the tax year. The rehabilitation investment tax credit equals 20 percent of the qualified rehabilitation expenses (QRE) for certified historic structures and 10 percent of QRE for qualified rehabilitated buildings first placed in service before 1936 (other than certified historic structures). No energy credit is allowed on that portion of the basis of property that is attributable to QRE.

A building and its structural components constitute a qualified rehabilitated building (QRB) if they are (1) substantially rehabilitated and (2) placed in service before the rehabilitation begins. Property other than a certified historic structure must also satisfy (3) a "wall retention" test, (4) an age requirement and (5) a location of rehabilitation requirement. Property is considered substantially rehabilitated only if the expenditures during a self-selected 24-month measurement period (60-month period for phased rehabilitation) are more than the greater of the adjusted basis of the property or \$5,000.

QRE does not include new construction; an enlargement; the cost of acquisition; non-certified rehabilitation of a certified historic structure; rehabilitation of tax-exempt use property; expenditures, generally, that are non-depreciable; and lessee-incurred expenditures if, the remaining term of

the lease (determined without regard to renewal periods) is less than the property's recovery period.

Energy investment

The Energy Tax Incentives Act of 2005, recently signed into law, created an immediate tax deduction, rather than recovery through depreciation, for the cost of major energy-savings improvements to commercial buildings and property. Unfortunately, the new deduction applies only to qualifying expenditures made after Dec. 31, 2005 and before Jan. 1, 2008.

The energy-efficient commercial buildings deduction applies to energy-savings improvements installed as part of interior lighting systems, the heating, cooling, ventilation or hot water systems or the building envelope.

What's more, they must meet a 50-percent energy-reduction standard and the deduction is limited to \$1.80 per square foot.

that tax bill is computed, for so-called "energy" property. That's right, the business energy investment credit is equal to 10 percent of the basis of ener-

The 15-year write-off for leasehold improvements applies only to improvements placed in service before Jan. 1. Fortunately, many credits and write-offs are more permanent.

Already available is a unique tax credit, a direct reduction of the broadcasting operation's tax bill rather than a deduction from the income upon which

gy property placed in service during the year (subject to reduction if the property is financed by tax-exempt private

See DEDUCT, page 42 ►



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Hey, That's My Radio Station on TV

Plenty of Radio Promoters Think Television Doesn't Work. They're Missing Out.

I'm addicted to television, but not in the way most people are. My "TV jones" comes from using the medium to market radio.

commission off of placing your buy.

Instead of dealing with this foolishness, find an out-of-town buyer who

for which demo and building great relationships with reps for bonuses and last-minute calls for fire sales on shows.

Minimum

As you consider your placement plan, "know the floor" — how little you can spend in your market to obtain a result.

For example, if you know you must spend at least \$100,000 a week to obtain enough media to score, then stick to your guns; don't spend less than that in a week. Too often, radio stations come up with an initial budget that gets cut or split with a sister station. If this happens, run fewer weeks or don't do TV.

If you spend less than you know will make an impact each week, expect that someone up the food chain will lecture you later on how TV doesn't work.

Why is each week important? Each week of a survey period is unique. Listeners fill out a diary for one week. Think of each book as 12 separate books and you'll design more effective campaigns.

Do you have a TV partner who will trade with you? The ability to add to your paid schedules with trade is helpful. Structure the deal so that it does not

Promo Power



by Mark Lapidus

As to finding or making creative, play the part of an explorer. Ask for and watch every demo reel you can get your hands on. Find many spots on production house Web sites. If you locate a spot you believe will work, find a similar one and test them against each other.

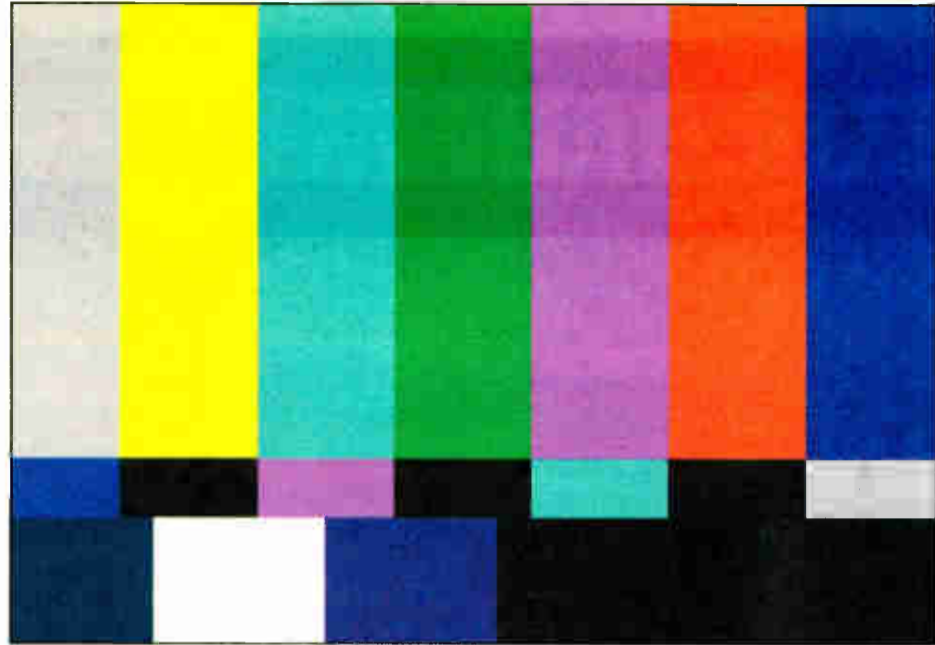
When making a spot from scratch, ask friends in the industry if they know someone who creates the type of spot you're seeking. Certain companies are better than others at contest spots, for instance, or morning show spots.

Price is negotiable; but be careful in seeking *too* good a bargain when producing custom spots. You don't want the product to look cheap just to save a few thousand dollars.

The greatest difficulty we face when doing something new is that we have no real way of testing the spot before airing it. Many a campaign has failed because the spot was never tested to see if people understood the point or liked the commercial.

Finally, don't hesitate to use a spot for more than one campaign. It's unlikely you'll ever have enough money to burn a spot out. Someday, I'd love to have that problem.

The author is president of Lapidus Media. Contact him at marklapidus@yahoo.com.



Because we are still rated in a system where recall is everything, I've found nothing more powerful than sound and pictures for making an impression in minds actively trying to remember which radio stations they listened to during the previous week.

I'm not knocking direct marketing, outdoor, transit or any other method of prompting listener recall. Each has its place, depending on what we're pushing — like a contest, or a morning show.

So I like TV. So what?

Amazingly, plenty of people in radio believe TV doesn't work. They can think so using the same brain that knows radio advertising can motivate people to action.

As we consider how to use TV for 2006, let's review basics on creative and placement.

With friends like that ...

TV placement is tricky business. Unless you've got a background in it, hire an ad agency.

I'm not a fan of hiring a local agency to handle a buy for a radio station but I'm almost always outvoted by general managers. GMs love to hand the buy to a friendly agency in the hope that turnabout will be fair play and that said hired agency will at least consider using the radio station for advertising their other clients.

This strategy can blow up in a lot of ways:

1) It creates ill will among competing agencies that would like to place your TV business too.

2) The local agency has to learn specifics about your plans; you may not want them to have all that information.

3) You won't like it when they decide they enjoy placing radio dollars on TV and ask if you'd let them do it for someone else. ("Just once — we promise!")

4) If this local agency never shows you favoritism, you'll wonder why they won't.

5) When you decide someone else can do a better job, you'll make them so angry they'll treat you worse than they would have before they made tons of

knows your market fairly well but doesn't buy it often.

Expert buyers can learn the landscape quickly. Look for skills in negotiation, monitoring schedules and getting immediate make-goods, knowing what's hot

interfere with how you spend cash with them or they with you.

Do not involve your agency in placing the trade or even knowing how much trade you are using. Doing so will cause the trade eventually to fall apart.

I'm not a huge fan of hiring a local agency to handle a buy for a radio station but I'm almost always outvoted by general managers.

Deduct

► Continued from page 41
activity bonds or by subsidized energy financing).

No energy credit is allowed for that portion of the basis of property for which rehabilitation investment credit is claimed. An advance energy invest-

geothermal deposits (but only in the case of electricity generated by geothermal power, up to the electrical transmission stage).

To qualify for the credit, the equipment must be depreciable (or amortizable) and must meet performance and quality standards prescribed by the regulations. No partial deductions are available, so a broadcaster must complete the construction, reconstruction or

Under our tax rules, the cost of the land upon which the broadcasting business sits is not deductible.

ment credit may be claimed under special rules for progress expenditures.

Energy property includes equipment that uses solar energy to generate electricity, to heat or cool a structure or to provide solar process heat. It also includes equipment that produces, distributes or uses energy derived from

erection of the property. If the property is acquired, the radio station must be the first to use it.

The land

Under our tax rules, the cost of the land upon which the broadcasting business sits is not deductible. Fortunately,

the improvements made to that land often can qualify for a tax deduction.

Land improvements not specifically included in any other asset class and otherwise depreciable are 15-year property. Examples of land improvements include sidewalks, driveways, curbs, roads, parking lots, canals, waterways, drainage facilities, sewers (but not municipal sewers), wharves and docks, bridges and nonagricultural fences

Regardless of whether your broadcasting operation's business premises are owned or leased, there are an abundance of tax deductions, credits and unique write-offs available to help offset the cost of remodeling, fixing up or adding to it. The new, but temporary, 15-year write-off for leasehold improvements applies only to improvements placed in service before Jan. 1, 2006. Fortunately, the many other tax credits, deductions and write-offs constitute a more permanent part of our tax laws.

The question is will you — and your broadcasting business — take full advantage of this helping hand provided by Uncle Sam?

The author is a tax and financial writer based in the suburban Philadelphia community of Ardmore, Pa. He has authored four books.



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John Lyons was named assistant VP and director of broadcast/communications for The Durst Organization. He had been manager of communications and broadcast operations.



John Lyons

Bryce N. Harlow and Anne S. Devlin joined the National Association of Broadcasters as directors in the government relations department. Harlow has been a congressional liaison specialist with the Federal Trade Commission since 2001. Devlin has been the PAC administrator of Dell Inc. since 2003.

DK Technologies appointed William Boxill as vice president of its U.S. subsidiary, DK Technologies America Inc. Boxill began his career in broadcast in 1985 at Videotek and was later employed by Tektronix and Leitch.

Broadcast Depot Corp. appointed Chuck Maines national sales manager for the U.S. market. He had previously been with distributors such as Allied Broadcast, Harris and Richardson.



Chuck Maines

D.A.V.I.D. Systems promoted Richard Doll to president, overseeing the company's U.S. operation. He had been executive VP. ... Fridolin Mueller was named VP, solutions. He had been project specialist for the Berlin office and later permanently transferred to the Arlington, Va. office.

Drew Hilles was named VP, advertising solutions for dMarc Broadcasting. He had been senior VP/market manager for Infinity Broadcasting, managing the Philadelphia and Denver markets.

Adam Puls joined V-Soft Communications as technical support and marketing specialist. He had been with British Petroleum, where he was a point-of-sale computer systems analyst and problem manager.

ABC Radio Networks named John Fitzgerald vice president, ESPN Radio sales. He had been director of sponsor-

ship sales for ESPN Radio. ... Scott R. Keeler was appointed manager of Hispanic sales for the southwest region. He had been regional sales and station manager for Border Media, a radio group in Texas. ... Ed Powers was appointed manager of affiliate relations. He had held a similar position at Westwood One prior to joining ABC.

Xytech Systems promoted Jonathan Niednagel to president. He had been vice president of strategic sales.

Westwood One elected Albert Carnesale to its board of directors. He has served as chancellor of UCLA since 1997. ... SmartRoute Systems, a subsidiary of Westwood One, appointed Bernie Wagenblast to Intelligent Transportation System specialist. Most recently, he served as a senior associate with TransCore.

The National Radio Hall of Fame inducted the comedy team of Bud Abbott and Lou Costello, Cincinnati Reds broadcaster Marty Brennaman; ABC News Radio White House Correspondent Ann Compton; Pittsburgh Steelers color commentator Myron Cope; and the late radio humorist Jean Shepherd.

Elizabeth "Betsy" Gardella was selected as New Hampshire Public Radio's president and general manager. She succeeds Mark D. Handley, who retired after 15 years as president.

Lisa Hirsch joined Sirius Satellite Radio as director of talent and industry relations. She had been director of marketing and product management at Virgin Records. ... Steve Leeds joined Sirius as VP, talent and industry affairs. He was senior VP of promotion at Virgin

Records.

CRN Connecticut named Bob Gall account manager. He had previously held a sales management position with Cox Radio Connecticut.

Mike Agovino resigned as co-COO of Interep. Prior to joining Interep, he served as president of Clear Channel Radio Sales from 2000-03.

Lovette Chinwah of Central State University, Wilberforce, Ohio, and Stephen Adams of Cameron University, Lawton, Ohio, were among the participants in The Radio and Television News Directors Foundation's Educator in the Newsroom fellowship program, which puts university-level broadcast educators in radio and television newsrooms for four weeks to refresh their skills. Chinwah was hosted by WOSU(AM-

See PEOPLE, page 46 ▶

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MusicToGo Aims to Help Stations Sell Music Online, 99 Cents at a Time

by James Careless

Radio stations selling music online. Talk about a no-brainer, right? Imagine listeners paying to download the songs they've just heard on air, priced at 99 cents each, by surfing to their favorite station's Web site, and clicking onto its brand digital music store.

About U.S. 75 stations are selling music online via MusicToGo (the company's site is www.tunegenie.com). The company was founded by President/CEO Jeff Specter, a radio veteran with credits at WNUA Chicago, KPWR Los Angeles and WJIZ Philadelphia.

MusicToGo is responsible for licensing downloadable songs from major labels (it claims about a million titles to date); managing the actual e-commerce systems for selling and providing it, including credit card transactions; and creating easy-to-surf music sales sites branded with

face-to-face with a cartoon "Tune Genie." Stylized to fit the station's particular genre — MGK's is a rock chick — the Tune Genie can provide listeners with appropriate music suggestions, based on their answers to short yes/no questions on a Concentration-style game board.

In addition, "As soon as you add songs into your cart the Tune Genie will make suggestions, and keep making them as you add more," Specter said. "She learns your tastes very quickly."

Listeners can scroll through the station's on-air playlists, organized on an hourly basis going back 24 hours. Also available to help at MGK is a cartoon version of John De Bella: Click on him, and he helps you search by Song or Artist.

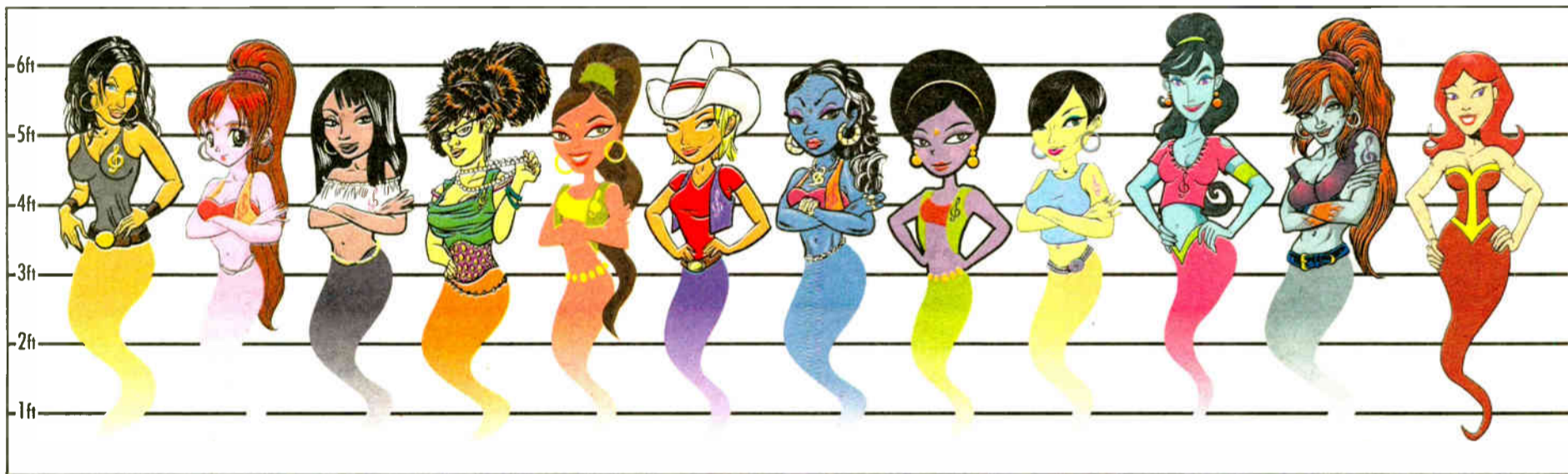
Functionally, these features are similar to those used by iTunes and Napster. The difference is that MusicToGo has made them colorful,

on our site, and it has been very consistent," he said. "As well, people tend to buy anywhere from six or seven to

making MGK rich.

"However, my motivation for signing onto the service was not to make big money," he said, "but rather to have people come to us whenever they want to hear or buy classic rock."

Thus the benefits of the service



Tune Genies are fashioned to fit various radio formats and music genres.

a station's logo, look and music selections.

Basically, the company says, all a station has to do is to sign up and it handles the rest, including providing a link for the station's site and uploading the station's playlist to the music site so listeners can buy what they heard on air.

"I believe that radio stations are natural music stores," Specter said. "All we're doing is taking the station's brand and moving it into digital music sales."

Case study: WMGK

WMGK(FM) in Philadelphia is one of nine Greater Media stations that have MusicToGo music sites. However, you wouldn't know this from the station site: It is branded with the station's name, slogan and a cartoon caricature of its handlebar-mustachioed morning man John DeBella.

"The station's own personalities serve as ambassadors to the store," Specter said. "Their friendly, cartooned faces help make the listeners feel more comfortable about buying there."

Once in the site, the listeners come

easy to understand and simple to navigate. This "Downloads for Dummies" approach matters to MGK program director, Cruze.

"Because our station is more classic rock-based, our audience is a little older and thus not that familiar with music

20-25 songs per purchase. They're not just coming in for one song."

Where benefits are and aren't

With lots of traffic moving through MGK's MusicToGo site, one might expect the station to be cashing in. But

seem to be in attracting listeners to a station's branded product and personalities; handling site set-up, maintenance and customization; and kicking some money back to the station.


It also gives stations the chance to give away downloadable songs as prizes and to do other promotions.

"We just held a Download Day on MGK, where everyone who downloaded songs from our music site was entered in a draw for five iPod Minis," Cruze said.

In the future, Specter plans to expand MusicToGo's site services including allowing stations to sell concert tickets, physical CDs and DVDs, and event station merchandise online.

"Where stations can make big money from their music stores is from selling sponsorships to local advertisers," he said.

Overall, MusicToGo's goal is to put commercial radio into the forefront of online music sales, and make a tidy profit while doing so.

"For the past 40 years, radio has been the main music distribution channel for consumers," Specter said. "We want to make sure it stays that way for the next 40 years." 

I believe that radio stations are natural music stores.

— Jeff Specter

downloading," Cruze said. "However, they've heard about downloading and like the idea of buying songs through their computers. MusicToGo's system makes it easy and convenient for them to do so."

Cruze says MGK listeners have taken to music downloads.

"We have been seeing a lot of traffic

this isn't the case.

"We give them only a couple of pennies per download," Specter said. "The record companies take the overwhelming majority of each 99-cent payment. Then there's credit card and service fees: We make a bit of money after that, and so do the radio stations."

Cruze agrees that MusicToGo isn't

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Gospel: Now a Format of Many Colors

by Ken R.

Just as adult contemporary radio has splintered into a kaleidoscope of formats — rhythmic A/C, adult standards, easy listening, hot A/C and no doubt A/C for men who have had vasectomies — religious radio has grown large enough to do the same.

Where once there were only block-programmed Christian stations, we now can hear southern gospel, urban gospel, contemporary Christian, Christian rock, Christian talk, teaching/preaching and even gospel hip-hop.

According to Arbitron's Format Trend Report, between the fall 1998 and spring 2005 books average quarter hour listenership for all religious formats (total audience 12+, Mon.-Sun., 6 a.m. to midnight), increased from 2.1 to 2.8, an increase of about 33 percent. Further, within the last five years, while the total number of stations in the United States increased by about 4 percent, the number of religious stations shot up 14 percent.

So what is the appeal, and where are these new listeners coming from?

Family-friendly

We may still be in the era of morning zoos and Janet Jackson's breast; but some people prefer their entertainment without offensive content.

"We just completed the first nationwide study of contemporary Christian formats," said Daniel Anstandig, vice president, adult formats for Cleveland-based McVay Media. "Christian music listeners say the most important ingredient of their favorite station is 'family safe' entertainment. In fact 92 percent of our respondents said hearing 'a station you can listen to with your family' is very important, both to families with and

without children."

Anstandig said these new listeners come from adult contemporary, country and news/talk stations, in that order.

Not just a niche

The Clear Channel cluster in New Orleans had built a large audience with its urban adult contemporary station, a hip hop station and a traditional AM religious sta-



Muriel Funches

tion. Thus it seemed natural to Muriel Funches, vice president and general manager for Clear Channel in that city, to flip her contemporary hit radio/rhythmic KSTE(FM) to "Hallelujah 104.1," an urban gospel and inspirational format.

"I have watched this trend to urban gospel for a year and a half in Memphis, Birmingham, Montgomery, Jackson and Biloxi," she said referring to other Clear Channel clusters. "The music is the ministry, so this means we will play some secular artists as well as Christian artists, as long as their music is positive and inspirational."

The new format bowed in July. Funches

said response from listeners and advertisers has been positive.

"We are looking for an upscale family-oriented audience that skews slightly female," she said. "We'll have all the elements you would expect to find at a contemporary station including personalities, contests and promotions."

To spot or not to spot

Dr. Frank Wright, president/CEO of the National Religious Broadcasters, said, "I suspect that Clear Channel's Hallelujah 104.1's targeting an African American audience has more to do with other factors in the market," he said. "But the larger trend is toward Christian broadcasting in general."

"About 80 percent of our members are non-commercial and even some of those with commercial licenses are non-profit."



Daniel Anstandig

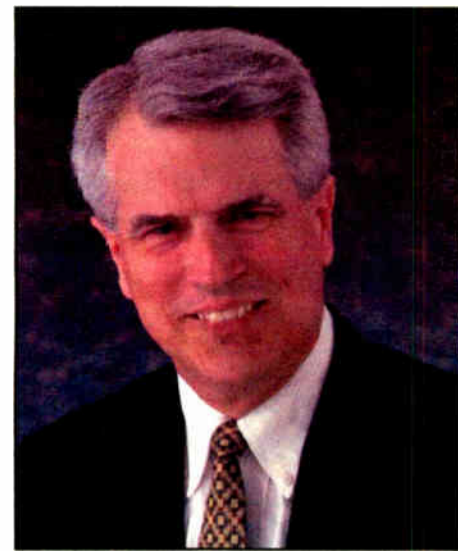
Most of our members are in it for the mission: trying to extend the Word to the rest of the world."

Anstandig said that both commercial and

members returning for the 2005-07 term include Clear Channel Radio Regional VP **Greg Ashlock** as vice chairman; Spanish Broadcasting System VP/GM **David Haymore** as secretary; and ABC Radio President and GM **John H. Davison** as immediate past chairman. **Val Maki-Candido**, market manager for Emmis Communications, joined as treasurer.



Charles Osgood, host of TV's 'CBS Sunday Morning' and radio's 'The Osgood File,' and Ron Davenport Sr., founder and chairman of Sheridan Broadcasting Corp., are pictured with Library of American Broadcasting President and CEO Lucille Luongo. Osgood and Davenport were among the broadcast pioneers honored by LAB at its third Celebration of Giants luncheon in New York.



Frank Wright

non-commercial Christian stations can command a large audience.

"Look at WJIS(FM), 'Joy FM' in Tampa/Sarasota," he said. "It's number one in women 25-54 and completely listener supported."

At the same time there are commercial stations like WVFJ(FM), Atlanta, owned by Provident Broadcasting Co., and WPIA(FM), Eureka, Ill., a contemporary Christian outlet owned by Regent Broadcasting. Regent also owns WVEL (AM/FM) in the same town, which are targeted at an urban gospel audience.

Sending a message

"With many Christian advertisers, it's a qualitative appeal and Arbitron numbers are not as important," said Anstandig. "WFHM(FM), Cleveland, known as 'The Fish,' gets enough of an audience to be able to sell based on ratings. But the majority of Christian stations are pitching family community listening, and they can boast a listenership which is intensely loyal."

Christian music listeners say the most important ingredient of their favorite station is 'family safe' entertainment.

— Daniel Anstandig

Anstandig said some secular on-air personalities garner a high number of negative responses from listeners, but the Christian audience likes their personalities and give them a kind of credibility secular stations only wish they had.

"You used to be able to buy a testimonial from Dick Clark and it meant something," he said. "But to most secular audiences, it doesn't anymore. In fact with Christian stations, listeners are indebted to station advertisers for helping to keep their favorite station on the air. Ministry-supporting advertisers connect well with Christian listeners."

For Christian formats the trend is up and the audience sees gospel radio as a patch of blue sky in an otherwise cloudy world.

What role does religious radio play in your market? Write to our letters page at radioworld@imaspub.com.

People

► Continued from page 43

FM), Columbus, Ohio; Adams was hosted by WAKR(AM), Akron, Ohio.

Chris Oliverio was promoted to VP, original programming, at **Infinity Broadcasting**. He had been director of original programming since 2004. ... **Doug Harvill** was named senior VP and market manager for Infinity San Francisco, and assumed general manager responsibilities for KCBS(AM) and KFRC(FM). He had held the senior VP and market manager position for Infinity's stations in Sacramento, Calif.

Jim Loftus was named general manager of WOGL (FM), Philadelphia. He had served as chief operating officer of Time-Shamrock's Radio Division and general manager of its Scranton/Wilkes-Barre stations.



Jeff Smulyan

Dr. James King was inducted into the Ohio Associated Press Broadcasters Hall of Fame. King served as director of Xavier University's WXXU for 29 years before retiring in 2004.

Debbie Elliott was named weekend host of NPR's "All Things Considered." She joined NPR as a correspondent in 1995 with an emphasis on Gulf South news and issues.

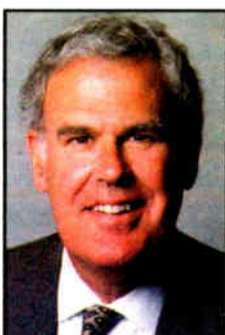
Sandra Coyle was named senior VP, strategic marketing for **Clear Channel Radio**. She had been VP of MarketPowerMedia in San Antonio. ... **Clay Hunnicutt** was appointed to lead country brand management initiatives as VP, Clear Channel Country programming. He had served as director of programming for Clear Channel Chattanooga.

Jeff Smulyan, CEO and Chairman of the Board of Emmis Communications, received the 2006 Broadcasters' Foundation Golden Mike Award.

Pat Duffy, VP/market manager, news for Infinity Radio, returned as chairman of the Southern California Broadcasters Association's board. Additional executive board



Greg Ashlock



John H. Davison

BUSINESS DIGEST

FM Channel Casting: No Commercials, Subscriptions or Jocks

The Morey Organization is talking big about its latest format strategy.

The company, owner of three Long Island radio stations, said recently it would "revolutionize" radio through what it calls "FM Channel Casting." It said it had "reinvented the medium by creating the nation's only completely free music source." It also will market the concept to other stations.

Morey, which also goes by the acronym TMO, seems to be trying to

package its stations and airtime in a different way, using the language of satellite radio and consumer electronics to better position its radio holdings.

Even station slogans reflect the strategy, as in the announcement: "Each station offers the listener a specific choice of music style: Long Island Rock/FM Channel 98 (98.5 FM), Party Hits/ FM Channel 105 (105.3 FM) and NeoBreeze/FM Channel 107 (107.1 FM)."

President John Caracciolo described the concept as a way to overhaul FM in the face of competition from satellite. "I truly believe that TMO has revolutionized the industry and saved terrestrial radio," he said in the announcement.

The company is using what it calls

brandcasting as a way to generate revenue. "An average broadcast consists of a one-hour sponsorship of uninterrupted music through four quick, yet efficient messages strategically placed between songs, giving the listener what they want with a low-cost proposition to the advertiser." Listeners as well as companies can buy an hour of music, "for a friend's birthday, a brother's graduation or a sister's wedding."

Clients will log on to www.fmchannelcast.com, choose the "channel" in which they are interested and enter four messages for the hour. Information is forwarded to the traffic, production and sales departments; a confirmation is sent via e-mail as well as reminders before the broadcast airs. A thank you goes out the following

day. Text via RBDS is part of the package.

"Traditional advertisers and listeners concerned about using the Internet will have the option to purchase over the phone or in-person through an account executive," the company stated.

The broadcaster believes listeners will tune in longer because of the absence of commercials. "Similar to PBS or product placement on TV, listeners appreciate the message. In turn, advertisers are creating a relationship with the listener rather than bombarding them with loud, annoying sales pitches."

The company said the concept also allows stations to trim radio promotions and air staff but still keep a local feel.

Auction Raises \$200,000 For Cancer Research

ESPN Radio said its listeners helped generate proceeds of about \$200,000 in an auction this summer to benefit The V Foundation for Cancer Research.

The money came from bids on about 100 sports-themed items and experiences available on ESPN Radio and ESPNRadio.com.

Prizes auctioned included a pair of tickets to a Monday Night Football game and the chance to be on the field for pre-game warm-ups and tour the production truck. That went for \$9,500. An "Evening with the Tribe," including throwing out the first pitch for a Cleveland Indians game against the Yankees and watching batting practice on the field, pulled in \$8,000.

ESPN Radio is a sports network with 700 affiliates. The auction was part of the company's "Team ESPN" program of corporate giving, community relations and employee volunteerism.

The V Foundation for Cancer Research was founded by ESPN and the late Jim Valvano.

KFAX Launches Speaker Series

A Salem station in the San Francisco area has launched a speaker series to address "important, relevant issues for families." Speakers are drawn from ministers and teachers that are heard on the station.

Tickets are sold for \$15, or \$44 for the series, through the station Web site or by phone.

KFAX(AM) hopes to make the event an annual one. Events take place at a church in Castro Valley, Calif.

Speakers this fall include Jim Burns of "HomeWord"; Steve Arterburn and co-hosts Dr. Henry Cloud and Dr. John Townsend of "New Life Live! Ministries"; author and Brooklyn Tabernacle Church Pastor Jim Cymbala; and Hank Hanegraaff, "The Bible Answerman."

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Transaction Outlook 'Moderate at Best'

by Paul McLane

In the last few years, prices paid for radio stations have leveled out, with average prices for non-metro markets showing some strength, according to research firm BIA Financial Network.

The general flattening followed a period of dramatic price escalation in the late 1990s, which BIA credited to enthusiasm surrounding implementation of the 1996 Telecom Act.

In a "state of the industry" report about transactions, the company's Mark Fratrick predicts that growth in the value of radio stations over the next few years

\$950 million. We expect the year-end total for 2005 to be above \$2 billion, reflecting flat growth over the past two years."

Fratrick noted that activity in the second half of this year could change these numbers, for instance if a sale of stations by Susquehanna or ABC went through. "Nevertheless, these two potentially huge deals would be unique and would not be suggestive of any major market trend."

Other findings:

"Buyers are looking for new, more creative ways to be competitive, using a variety of different methods, ranging

conversely, they have shown a slight increase."

Recall that the 2003 value incorporates stations sold from 2001 through 2003. Even in 2001, the stations that were sold were stronger technical facilities serving larger populations," Fratrick wrote.

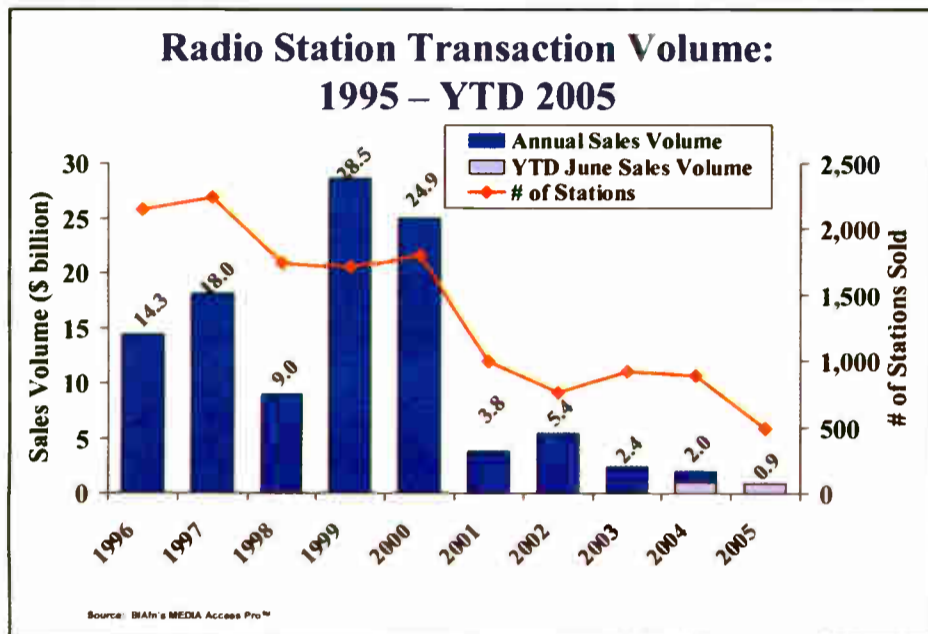


Fig. 1

will be "moderate at best," with the number of stations sold each year around 1,000 and the total value of those stations in the \$2 billion to \$3 billion range.

"This lower activity could be improved if the radio industry is able to respond to the competitive challenges it faces by improving its revenue growth performance and continuing to evaluate current emerging market opportunities to reveal key areas of strength," Fratrick wrote.

Steady state

Writing about the number and total value of station sales over the past decade, Fratrick said the change is striking.

"On average, over 1,900 radio stations were sold each year between 1996 and 2000, with an average total annual value of \$19 billion," he found. "During the next four-and-a-half-year span from the beginning of 2001 through the first six months of 2005, only slightly more than 900 stations were sold, on average, each year, with an average total annual value of \$3.1 billion."

Fratrick concludes that the level of radio transactions has reached a steady state. As shown in the first figure, the total number of stations sold in both 2003 and 2004 were around 900 stations for approximately \$2 billion to 2.4 billion in total value.

"At the end of the first half of 2005, the total number of stations sold was 500, a slight increase when compared with the 900 stations sold in the full year of both 2003 and 2004. However, each of those year's sales were approximately \$2.4 billion in value, while the total of the 2005 transactions to-date was around

from technical upgrades to working with Arbitron to create new rated market areas. Evidence of this can be seen through the increase in smaller and unrated market station sales, as well as the sales of stations with less attractive technical facilities," Fratrick wrote.

Also, "Many groups are 'picking up' one or two more stations in markets in which they are already competing in order to maximize the number of local stations they can own under the current local ownership regulations. Nearly three quarters of the radio station transactions in both 2004 and the first six months of 2005 involved only one station."

"Prices paid for AM radio stations have been sustained while FM prices have been much more volatile. One possible explanation for less volatility in the AM transaction marketplace is the introduction of digital radio technology (IBOC), which is expected to have a profound effect on the financial health of AM radio stations."

In the charts shown, BIA examined prices paid for AM stations as compared to FM stations in different market size ranges.

The second figure shows a three-year moving average of the median prices paid for AM stations in 2003, 2004 and the first half of 2005 for the different market size ranges. BIA used a moving average calculation to smooth out any upward or downward spikes due to particularly valuable stations being sold in any given year.

About AM station prices, BIA noted that "there appears to be a certain stability ... Prices in the largest markets seem to have recently decreased slightly, while in most of the smaller sized markets,

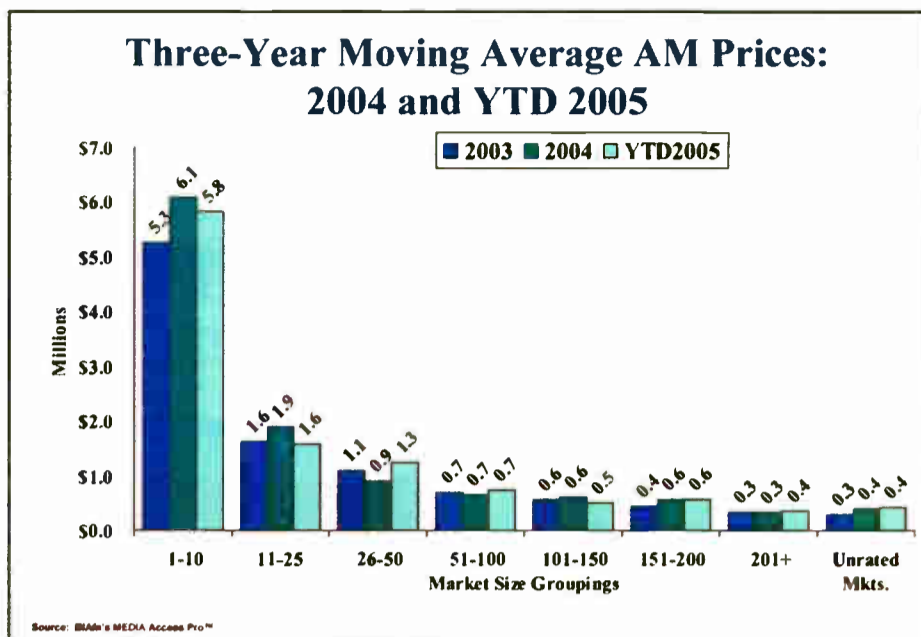


Fig. 2

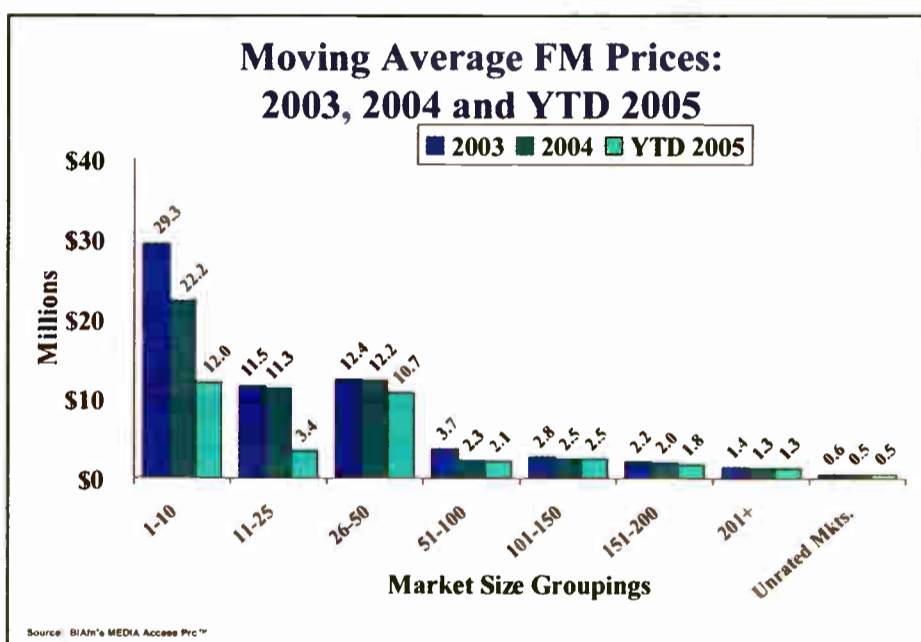


Fig. 3


In FM, it said volatility in the prices for stations is much more noticeable. The third figure shows the three-year moving average for median prices paid for FM radio stations for the various market groupings over the last three years.

"Here we see sharp decreases in the largest markets, with drops of nearly two-thirds in the last two and half years.

"For example, in markets ranked 11 through 25, the population served for the average FM stations sold increased slightly in 2004 over the 2003 level, but decreased noticeably in the first six months of 2005. Furthermore, as noted, there were only a few sales through the first six months of 2005 in the large market ranges, and as a result, this moving average may be somewhat skewed."

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Name: Harry Cole
Profession: Attorney
Favorite station growing up: WICE, 1290 in Providence. I won the "Save Batman" contest in 1966.
Biggest court cases: Briefed and argued one side in the 1990 Metro Broadcasting case involving affirmative action in federal decision-making, and member of the briefing team on behalf of Pacifica Foundation in the 1978 "Seven Dirty Words" case, both in the U.S. Supreme Court
Radio experience: Member of the "Think Tank," music and TV trivia buffs who were part of Howard Stern's show on DC-101 in Washington, 1981-82. I'm mentioned in "Private Parts" but my name is misspelled
Other interests: Writing Cole's Law for RW, guitar playing, baking, crossword puzzle construction and solving



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◆ READER'S FORUM ◆

Hybrid Broadcasting

I read Cris Alexander's digital radio tuning experience ("HD Radio Observations in My Truck," Aug. 3). Cris compared his receiver analog MW quality with its digital MW quality and heard a big difference. I wonder if most people would notice any difference if the analog MW receiver was good. The receiver makers will be cheap where they can get away with it.

I hope that hybrid broadcasting on MW will never be allowed by the FCC because the Ibiqity IBAC system for MW is something that must be changed. On FM in this area we have a station that claims to be broadcasting a digital signal, but I do not hear any interference or noise caused by it. That could be the result of the station lowering its power from 90-something-thousand watts to 25,000 several years ago, so I do not know how much interference a Class C FM would cause.

James Johnson
Arlington, Texas

Wordplay

Thanks for "Words, Words, Words" (From the Editor, Sept. 1).

Please add to the list, "I would just like to thank everyone..." Every time I hear this I want to scream, "Just thank me!"

Of course, Paul, you realize we will be watching future columns closely to see if you follow your own rules.

Frank Luepke
General Manager
KIWA(AM-FM)
Sheldon, Iowa

As I consumed your missive, red lining and rephrasing as I eyeballed the text, I suddenly became aware of the content.

I went into broadcast journalism so that I might avoid written tasks. And what of the style and art of literature? Are there not Shakespeares yet unpolished who even now are writing for impact and clarity following your recent advice? Ah but the transmitter sirens call; and I, I shall wait for that article of literary genius that escapes the technical editor's grasp.

Good piece methinks.

Fred Baumgartner
Elizabeth, Colo.

Digital Radio Needs Blue Ribbon Panel

I tried to file a comment on Aug. 13 per the information on page 3 of the Aug. 17 issue ("Digital Radio Kicks Up Strong Words"). I got the following message back from the FCC: "Application Error(s); Proceeding MM-99325 is not open for submission to ECFS."

So much for electronic filing.

Second, in the article by Steve Church ("Include Radio in iPods, Phones, Home Media"), not once does he say "AM/FM." He only wants FM tuners in the iPods or other devices. Why not have those devices IBOC-ready instead? Maybe because IBOC is "not ready for prime time."

Between IBOC and folks like Steve Church, AM radio is being kicked away as a to-be-forgotten part of our industry. It's bad enough we have to deal with increased power line noise and radios with lousy AM reception capability.

Third, my comments to the FCC would have been:

"Send the NRSC-5 to an independent group, i.e., the Blue Ribbon Panel. Let that independent panel evaluate all of the methods available worldwide, including those working in Europe, and maybe even another consideration of Kahn and any other method.

"As a broadcaster who has worked in local markets since 1952, I can see the severe financial burden IBOC will put on the locally owned, independent stations that are left. The cost of the license fees and the cost to replace good working equipment is more than many can handle. And the public we serve will be forced to eventually throw away the radios they now own.

"There have been many great technical improvements in radio during my more than 50 years in the industry. IBOC is not one of them."

Cal Zethmayr
Sales Manager
WAAZ(FM)/WJSB(AM)
Fort Walton Beach, Fla.

Hardly Elementary

As an avid Basil Rathbone-Nigel Bruce Sherlock Holmes fan, I was fascinated by Fred Krock's article ("That Radio Network Sound," Aug. 17).

In the feature film "Sherlock Holmes and the Voice of Terror," Holmes is pressured to find out where those threatening Nazi radio broadcasts were coming from. There is a scene in the movie where the detective is sitting in his easy chair listening to a live concert of the London Symphony Orchestra playing Beethoven's Fifth, broadcast on the BBC. He's listening to the radio while staring at an oscilloscope and sketching the waveform on a piece of graph paper.

Then Holmes places a telephone call to a different radio station that takes listener requests. Holmes asks to hear the LSO's recording of Beethoven's Fifth, which they proceed to play. Holmes continues to look at the 'scope and sketch on the pad of graph paper.

Most people, myself included at the time, didn't realize Holmes was comparing the audio bandpass of the live orchestra vs. a 78 RPM recording of the same orchestra playing the same piece. Observing the narrower bandwidth of the recording, he was able to deduce that the Voice of Terror announcements were not emanating live from Germany but via a record being played from a station in the U.K.

I thought that tidbit of audio engineering was a nice touch to an intriguing Sherlock Holmes adventure, especially considering when those movies were made. I can't help wondering whether the graph paper was linear or logarithmic.

H. Robert Schroeder, N2HX
Communications and Warning Officer
N.J. Office of Emergency Management
West Trenton, N.J.

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◆ READER'S FORUM ◆

Radio World, November 9, 2005

Good Insurance Is Vital to Broadcasters

With Nature's Wrath and Unpredictable Talent, Stations Should Scrutinize Their Coverage

by **Camille Brown Morgan**

Broadcasters not only report on natural disasters, they are victims too. The hurricane that provides sensational pictures of giant waves or floods can blow down your tower or flood your studio, knocking you off the air.

But more often than not, disasters are manmade. Your top-rated talk-show host uses a profanity on the air or says something that offends African-Americans, Jews, Muslims or a prominent local politician. You suspend or fire him and then he sues you. Perhaps the disaster isn't a firing, but rather actual fire.

Calamities are why you have insurance. When your former carrier doubled its rates, you went with Cut-Rate Insurance, saving a bundle. Now you learn that Cut-Rate's policy doesn't cover the revenues you lost when you were off the air for two weeks. Nor does it cover employee lawsuits.

There's one consolation, of sorts: even if the policy had covered those things, you would have collected only pennies on the dollar because Cut-Rate recently was declared insolvent.

Today, it's a chore get the insurance you need from a respectable company at a reasonable price. Many insurers that used to underwrite radio stations no longer do. Some have gone out of business. Others have gotten out of the market.

The remaining insurers usually charge more and are increasingly picky about whom they will insure. What can you do?

Stack the deck in the insurer's favor. Insurers want customers who will never use their products. Your insurer is betting you won't have a loss. Anything you can do to stack the deck in its favor will help you get a better deal on insurance.

World named 'Sue'

While you can't guarantee a tornado won't suck up your tower like a toothpick, you can do many things to reduce the likelihood of loss and the amount of damage you'll suffer.

Have you taken steps to ensure you'll get back on the air after a natural disaster or fire? Do you have a backup generator, mobile studio or arrangement with another broadcaster that will limit your downtime?

If your studio can't be used, ideally you should be able to just flip a switch and keep broadcasting from a backup location. If you can do that, the insurer will cut you a better deal on "time element" (business interruption) insurance, which covers revenues lost from being off the air.

Publish an employee handbook. Employers are sued by workers and ex-employees who claim they were discriminated against, sexually harassed or fired improperly. Besides pointing out that the organization won't tolerate sexual harassment or racial or gender discrimination, your handbook spells out conditions that can cause an employee to be fired or suspended. Then when you suspend Joe Bigmouth for using a profanity, you can point to page 12 and he won't have a legal leg to stand on.

Don't make price paramount. A policy that's \$2,000 cheaper than another may not be a better deal if it doesn't cover your antenna. You or your broker must read the fine print.

Get full protection, on and off the premises. While basic property and liability insurance and workers' compensation are bedrock coverages, they're not sufficient anymore. One valuable addition is an employment practices liability policy, which will pay your legal defense costs and cover your company if it's hit by an employee suit.

Many radio stations sponsor promotional events like picnics and concerts. But things can go wrong. At a recent station-sponsored event in Queens, N.Y., a shooting broke out, resulting in a death. A Rhode Island station that sponsored a 2003 concert where pyrotechnics started a fire that killed 100 people was sued by survivors and victims' families, who claimed the station was liable.

Even a station that isn't running the event but only has its name attached as a sponsor runs a risk. Lawyers love to sue well-known entities because it creates publicity. If you sponsor community events, make sure your policy covers potential losses.

In a world where it seems everyone's middle name is "Sue," it is crucial to protect yourself from everyone and everything. Many stations have expanded their listening audience via the Internet; but most policies exclude exposure for Internet liability. You should purchase a separate cyber-liability policy or add an endorsement to your policy to cover Internet liability.

Take the biggest deductibles you can afford. But don't take such a big deductible that a loss would cripple you financially; that would be pennywise and pound-foolish. Most small stations will need small deductibles while big operations usually can handle heftier deductibles.

Finally, shop around. Your broker should shop your account to a variety of carriers. If you're not sure you're getting the best deal, ask another broker for a second opinion. It won't cost anything.

Camille Brown Morgan is manager of insurance operations with E.G. Bowman

Company Inc. in New York City. Reach her at cbrown@egbowman.com.

Tourist Info Stations

I'm writing in response to "This AM Tells You Where to Go," (Aug. 17) by Ken R.

Ron Frizzell is quoted saying that to his knowledge, WBNC is the only traditional AM station in the country devoted to tourist information. I must respectfully disagree. There are at least two other stations in the USA doing tourist information.

The first station is WTMC(AM) 1380, licensed to Wilmington, Del. It's owned by Delaware Department of Transportation. It's more traffic information, but that falls under the guidelines of what a traveler/tourist info station should do - that one's up for debate.

However, there is one AM radio station that is definitely tourist information: WTIR(AM) 1300, licensed to Cocoa Beach, Fla., with studios and transmission facilities located just off Highway 520. We do CNN Headline News around the clock. In between we have traffic tips for travelers, visitors and drivers, along with suggestions and recommendations on where to eat, stay or play while visiting Central Florida. We also air public service information and do local weather.

I should know. I'm the station manager.
Paul B. Walker Jr.
Station Manager/Chief Operator
Rama Communications Inc.
WTIR(AM) 1300
Cocoa Beach, Fla.

Not Quite a MyFi

In an online NewsByte about Sirius' forthcoming "wearable" radio, the product was compared to XM's MyFi. The comparison is invalid because the two units don't perform the same functions.

The primary function of XM's MyFi is receiving XM Satellite Radio live, practically anywhere. It is a truly portable and mobile device as one expects a "radio" to be. A MyFi user can also record XM programming for delayed listening.

The Sirius unit is not a portable radio, and the company admits as much with the "wearable" description. Silly. It is effectively an MP3 player/iPod customized for Sirius recording; the product cannot receive Sirius radio unless docked. It fails to compare to the MyFi for this reason, and on price point.

The MyFi does more — it's actually a pocket radio that receives live radio when mobile — and it costs less, along with the newer generation of XM portables not mentioned in the report.

I don't understand why anyone would find value in this product when it doesn't receive a live signal when mobile. Especially at that price! An iPod or other personal audio player can do almost everything the "wearable" product does at far less cost.

Jim Swanigan
Los Angeles

Coverage vs. Protection

In response to Robert C. Savage, president/CEO of WYSL(AM) in Avon, N.Y. (*Reader's Forum*, Sept. 28):

Mr. Savage stated, "One wonders how Mr. Alexander would react to such a proposal directly affecting his livelihood. Or how WOR's Tom Ray would feel about a technical scheme that would prevent his New York-licensed AM from selling ads in Connecticut, New Jersey, Pennsylvania or upstate. After all, his is a 'New York City station,' not 'entitled' to coverage elsewhere."

First and foremost, WOR's protected contour covers all of New Jersey, north to south. We are the only New York AM to be received clearly and reliably in Philadelphia. So New Jersey is off of Mr. Savage's list. Unless there are changes made to the FCC regulations and the laws of physics, this will remain so, regardless of the technology employed.

Tom Ray would feel just fine if a new technical scheme came along that would prevent his New York-licensed AM from selling ads in Connecticut, Pennsylvania or upstate. We do not now sell ads in Connecticut, Pennsylvania or upstate. These areas, with the exception of the southwestern corner of Connecticut, are not part of the Arbitron New York City Metro, and WOR does not actively pursue the sale of ads in these areas.

As a matter of fact, our null is in the direction of a good portion of upstate, and it would be folly to think that we could actively sell ad time in this area. I live really close to what is considered upstate, in the null, and cannot reliably receive WOR at home, so I know of what I speak.

The WOR Radio Networks, a national program provider, easily could sell ad time to advertisers in Connecticut, Pennsylvania or upstate who are looking for exposure to a national audience. Likewise, if a potential advertiser in these areas feels they would gain business from advertising on WOR to the New York Metro, our sales department would be happy to design an advertising package suitable to their needs. Advertising on WOR gets results, no matter where a business is located.

Second, I have never said that a station is not "entitled" to coverage elsewhere. I have stated that FCC regulations do not protect listening areas, and that a station cannot feel entitled to coverage outside their interference-free protected contours. Let's set that record straight. Any station that relies on "coverage" outside their protected contours is doing so foolishly and at their own risk.

Thomas R. Ray, III, CPBE
KC2NTU
Vice President
Corporate Director of Engineering
Buckley Broadcasting/WOR Radio
New York

◆ READER'S FORUM ◆

Technology at
The Wheel

Mark Ramsey's article "The Premature Death of HD Radio" (Sept. 1) has brought many all too real skeletons out of the closet. With respect to many of the new approaches to broadcast transport now appearing in the industry, I have found myself asking if technology is driving the marketplace or the marketplace is driving technology.

I sometimes can't help but feel that it is frequently the former.

In today's industry, new technologies are flourishing because of the big money that drives their development and the potential rewards the manufacturers may reap. This is obviously a win for the manufacturers, but the buyers (read: broadcasters) may not fare as well if they fail to win acceptance from their customers.

Remember analog AM stereo? Introduction of a radically new technology into the consumer marketplace always requires heavy promotion, usually a burden the final seller has to assume. But it can be a large loss if the consumer finds little value in what you are trying to sell.

Mr. Ramsey has a valid point regarding the consumer's perception of quality. This extends to a broad range of products outside of radio as well. It is a well-known fact the majority of consumers will choose a lesser-grade product over a costlier, higher quality product if they know it will serve their purpose well.

And many times they are swayed by distorted advertising facts that may accompany said product because of their limited knowledge of the technology. With the purchase of that product, the original intention of the technology may be lost or muddied to a point where there is a question as to why it was bought in the first place.

There is no doubt that digital audio quality can be a real seller. But it pales considerably when it is introduced into an environment where that quality cannot be heard.

General vehicular noise is not my idea of a digital listening environment. Nor is forcing the audio out through a pair of 4-inch speakers by means of a 5-watt amplifier. The daytime listening environment for many users consists of a receiver turned to a low level to provide background "noise" while they work or play. Digital will not have an application here.

Another sticking point involves the transition from analog to digital. Many consumers will ask why they must make

a technology change, not at their choice, but rather at the mandate of industry or the government?

While this may not be the immediate case with radio, it is very real with digital television. In a few years millions of listeners will be faced with having to spend real money to see the same program material on possibly the very same television set because technology says it has to be done.

Granted, many people may be prepared for this moment, but there also will be many who turn on their analog sets only to find snow instead of signal because they were not adequately educated or informed about the aspects of the new technology. The responsibility falls with the broadcasters to inform those in their markets about what they have to offer and the goodness of these products.

A lot of questions still have to be answered; a lot of risks still have to be taken. Broadcasters will see the reward if they use creative ingenuity in convincing the public that digital radio can be good and will serve them beneficially. Otherwise, broadcasters will have invested a considerable cash outlay with no real effect on the delivery of their product.

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Among all the articles on the latest news in HD equipment, "The Premature Death of HD Radio" was the most important, for the new high-tech equipment and ways of listening to radio will become secondary to content.

In the transition years of FM radio when Major Armstrong's great invention was slowly eating away at AM's audience, it was the content that drew the audience with lots of innovative programming. FM also provided a dramatic difference in audio quality, being static-free and providing a rich sound.

Today, the difference in quality between HD Radio and analog FM isn't that apparent. It's hard to improve on Armstrong's original FM system, contrary to the hype coming from the HD quarters. I recently heard a reel-to-reel taped live concert broadcast by WSRS in Cleveland back in 1957. The station was 1 kW and used no processing. You would have thought you were sitting in the concert hall.

The myth is that HD Radio has CD quality and is superior to analog FM. That

Tomlinson's Chairmanship Was Flawed

Now that Kenneth Tomlinson has left his post as chairman of the CPB board, it's time to review the ground broken in U.S. public broadcasting during his term (2003-05).

From the start, Tomlinson's watch over the private, non-profit organization that delivers federal funding to public broadcasters was controversial, marked by the departure of a popular CPB president and the establishment of two "ombudsmen," one from each side of the political spectrum.

Many felt that Tomlinson's push for CPB's review of pubcasting content for political balance was an inappropriate use of the agency's resources and that the idea of a partisan ombudsman was an oxymoron. Things only got worse when allegations arose that the ombudsman plan may have been designed by a White House staffer. The turmoil led to a call from Capitol Hill for an internal investigation of CPB policies and practices.

An examination of U.S. public broadcasting's unique structure indicates that this debacle never should have happened. When it was established in the late 1960s, one of public broadcasting's fundamental tenets (in contrast to the practice of many other nations) was strict independence and institutional separation from the country's established state broadcasting operations, then largely handled by the Voice of America.

Today the VOA is one part of a larger empire of U.S. government broadcasting, collectively managed by the Broadcasting Board of Governors, which oversees U.S. non-military international broadcasting. Since 2002, the BBG has been chaired by Kenneth Tomlinson. Thus, when the Bush administration appointed Tomlinson to chair CPB, oversight of both state and public broadcasting in the U.S. converged to a single manager.

We feel this action has short-circuited essential structural protections of public broadcasting. While state broadcasting is rightly a function of government, public broadcasting was established by Congress to be free of such intervention. It would seem obvious that, as a function of this independence, no institution of public broadcasting should be led by managers of the state broadcasting enterprise.

We level such admonition without respect to party affiliation: No individual of any stripe should hold concurrent leadership positions in both spheres.

Although Tomlinson's term as CPB chair has ended, undoing his unprecedented politicization of CPB may take longer. The new president and incoming board leadership have partisan backgrounds and support continuation of pubcasting content review.

We deplore the politics bogging down our public broadcasting institutions. Let them get back to doing what they do best: efficiently utilizing government, corporate and private funding to entertain and inform the American and international public with — as both of CPB's ombudsmen have characterized it — high-quality, well-balanced content.

— RW

just isn't true. The real truth is a station can make more money offering other services with HD.

Due to our obsession with new toys for broadcasters, we have neglected the content or programming aspects of radio. Commercial radio today provides us with only a narrow choice of music. All stations pretty much sound alike, even down to the DJs. Other genres of music like blues or ethnic is totally missing from the FM band and there is an audience for them.

Sirius recently ran an ad saying they would not waste one channel, and that's why they wouldn't program polkas. You could almost hear the PR guys laughing. Yet, there is a sizable audience for polkas in some markets and it's profitable. The greats like Frank Sinatra or Rosemary Clooney can't be heard anymore in some markets of the U.S. and are usually dele-

gated to small AM or college stations. Where's the Broadway show music and ethnic music? Aren't we told we now live in a global community?

Cleveland's West Side has a sizable Hispanic population, yet not one commercial station serves that community. There was a low-power pirate station operating that was doing a great job for the community, raising money for great causes and presenting news and music in Spanish. Although they were careful not to cause interference, the FCC closed them down.

HD has a chance of making it with all the competition out there, if they hire creative right-brained people to come up with some radically new approaches to radio.

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