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The Wave/PC

Bose tackles the job of taming the Internet monster.

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Island Market

Arbitron Market 13 isn't a city, it's a possession. What's up in Puerto Rico.

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Radio World®

The Newspaper for Radio Managers and Engineers

August 15, 2001



Big Names Headline Radio Show

Scott Fybush

Two years ago, The NAB Radio Show in Orlando, Fla., drew 5,500 attendees to what was widely regarded as a lackluster event. Last year's show in San Francisco attracted 7,000.

Despite the current soft economy and an up-and-down stock market, NAB officials are hoping the lure of the Big Easy will draw more radio and streaming-media players to this year's event.

"If you can't have fun in New Orleans, you don't have a pulse," said NAB spokesman Dennis Wharton.

Three-day event

To make it easier for busy station executives to get there, this year's Radio Show has been trimmed by a day. Instead of the past Wednesday-through-Saturday event, the 2001 show begins Wednesday, Sept. 5, and wraps up on Friday night, Sept. 7.

"We'd gotten some comments last year from people who thought we could do it all in three days instead of four," Wharton said.

The show takes place in an economic environment that has seen turmoil over recent months, thanks to See OVERVIEW, page 28 ▶

C'mon Along, C'mon Along

Radio Returns to New Orleans
 Wondering if Good Economic Times Will Roll Again Soon
 Hop Aboard for a Preview Tour of The NAB Radio Show

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Sights of New Orleans: St. Louis Cathedral and carriage ride, photo by Carl Purcell; Mardi Gras krewe, photo by Jeff Strout. © New Orleans Metropolitan Convention and Visitors Bureau. Montage by Joaquin Araya

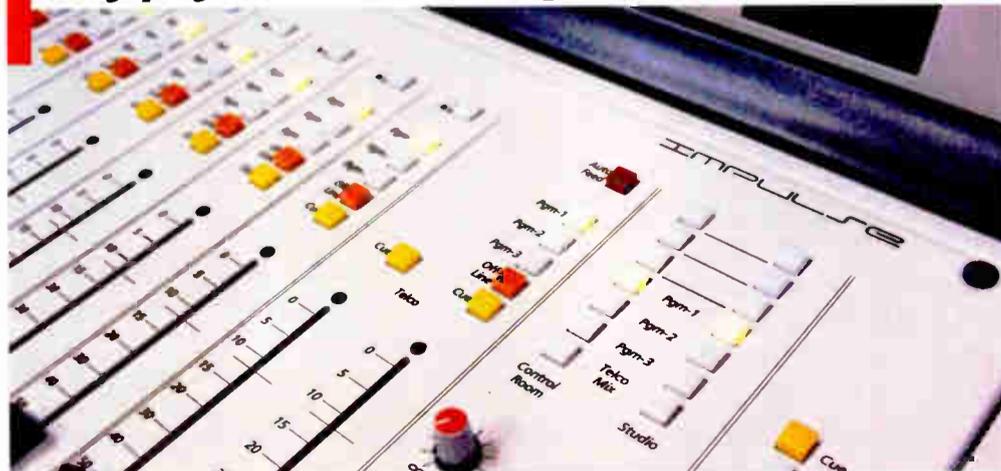
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◆ NEWSWATCH ◆

LPFMs Seek EAS Changes

WASHINGTON The FCC is reviewing requests made by LPFM advocates to tweak its regulations concerning the new class of service.

The biggest technical change that would affect LPFMs concerns the Emergency Alert System. Many existing broadcasters feel LPFMs should air EAS alerts. In order to incorporate that requirement into the rules but also lessen the financial burden of compliance, the FCC required LPFMs to install EAS decoders only.

But certified standalone EAS decoders are not on the market and are not likely to be sold soon because of the expense of

adding a memory function, LPFM advocates argue. Type-certified equipment must be able to store the last 10 messages.

Accompanying the filing was a statement from TFT Senior VP Daryl Parker who stated that the expense of certifying a decoder would increase the price to that of current encoders/decoders. He said a typical non-certified EAS box would cost about \$70.

The LPFM groups are asking the FCC to allow stations to use uncertified decoders that could be modified to air EAS messages automatically.

Other requested changes would lengthen the time allowed for parties to resolve conflicting applications. One request would allow the nonprofits operating LPFMs to remove from their board anyone who has ever run an unauthorized station.

Radio Netherlands Expands Service; BBC Still Heard

Radio Netherlands continues to broadcast on former BBC shortwave frequencies to North America, and decided to expand its regular schedule to North America in July, using some of the frequencies formerly used by the BBC.

Director General Lodewijk Bouwens stated, "If people write that they are immensely grateful for the programs that you broadcast, you should take that as a heartwarming compliment to all the program producers at Radio Netherlands."

See NEWSWATCH, page 12 ▶

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OPINION

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AUDIOARTS DIGITAL D-70



The D-70 digital console from AUDIOARTS not only utilizes the latest in digital technology and chip sets, it can be ordered with a serial interface that lets it integrate with most popular automation systems and station routers; it even has WHEATSTONE's exclusive VDIP® software setup system.

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THE D-70 DIGITAL AUDIO CONSOLE —benefit from WHEATSTONE's experience— at an AUDIOARTS price!

Media Ownership Caps Contested

WASHINGTON FCC Chairman Michael Powell opposes legislation introduced in July by Commerce Committee Chairman Fritz Hollings, D-S.C., and co-sponsored by fellow Democrats Sens. Daniel Inouye of Hawaii and Byron Dorgan of North Dakota, aimed at slow-

ing the pace of media consolidation. The legislation, the passage of which is considered a long-shot by some experts, would require the FCC to submit an extensive report to the committee justifying proposed rule changes, and then wait 18 months before eliminating or

relaxing the rules. Hollings' views differ from those of former committee chairman Sen. John McCain, R-Ariz., who generally supported deregulation.

Another broadcast ownership rule being debated is the national 35-percent TV ownership cap. Those who feel the cap should remain sparred with those who feel it's outdated and should be repealed during a Senate Commerce Committee hearing on media ownership in July.

Viacom President/COO Mel Karmazin says the cap should go so that TV can grow like radio did following the repeal of the national radio limits in 1996.

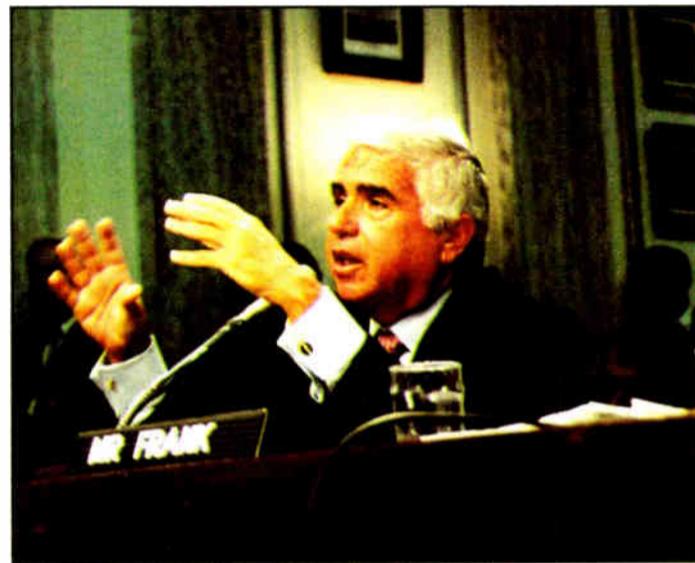
Karmazin said TV and radio face more competitive threats now than they did just a few years ago, including the Internet and soon, satellite radio.

Of satellite radio, Karmazin told Radio World, "Is there a market for it? Who knows?" He likened the new technology to cell phones in the car.

"It's another distraction from people listening to my radio station."

Post-Newsweek Chief Executive Officer Alan Frank and several committee Democrats disagreed, saying the cap should be retained or even lowered to 25 percent.

In the House, several representatives agree with Hollings, and urged the FCC to retain the cap.



Viacom President/COO Mel Karmazin

Photo by Leslie Stimson

Arbitron: PPM Technology Improves

Measurement Company to Expand Philadelphia-Area Field Trials and Introduce Technical Tweaks

by Leslie Stimson

Radio engineers whose stations are participating in Arbitron's trials of the Portable People Meter for audience measurement may soon see technical improvements to the encoding process.

Arbitron officials say early results from its Portable People Meter testing look promising and they are committed to upgrading the technology and expanding the trials to include more stations and participants later this year.

RW earlier this year that the encoding process was not totally inaudible and was distracting to some air staff. Some participating stations had been through several software upgrades of their Arbitron encoders to help minimize the problem (Radio World, May 9).

'Headset effect'

Arbitron Vice President of Research and Standards Bob Patchen said the so-called "headset effect" only occurred in a few participating radio stations and

Powell, meanwhile, has suggested that several media ownership rules are outdated and should be reviewed. He says the commission plans to review soon the rule barring a single company from owning both a TV station and a newspaper in the same market.

— Leslie Stimson

Who's Encoding?

According to Arbitron, 38 radio stations are participating in its Portable People Meter market trial in the greater Philadelphia area. The 38 broadcast stations were encoding as of July 19.

The 35 stations indicated by an asterisk were encoding during the time period covered in the PPM's first ratings results.

*WBEB(FM)	*WJZ(FM)	*WPTP(FM)	WYSP(FM)	*WIP(AM)
*WDAS(FM)	*WJKS(FM)	*WRDX(FM)	*KYW(AM)	*WJBR(AM)
*WDSD(FM)	*WLCE(FM)	*WRTI(FM)	*WDAS(AM)	*WPEN(AM)
*WEJM(FM)	WMGK(FM)	*WSTW(FM)	*WDEL(AM)	*WPHT(AM)
*WEMG(FM)	*WMMR(FM)	*WUSL(FM)	*WDOV(AM)	*WSSJ(AM)
*WHYY(FM)	*WOGL(FM)	*WXCX(FM)	*WEMG(AM)	*WWJZ(AM)
*WIOQ(FM)	*WPHI(FM)	*WXPX(FM)	*WHAT(AM)	
*WJBR(FM)	*WPLY(FM)	WXTU(FM)	*WILM(AM)	

The Wilmington, Del., Radio Metro trials of 260 participants will expand to 1,500 participants and encompass the metropolitan Philadelphia Designated Market Area as defined by Nielsen Media Research.

Nielsen is collaborating with Arbitron on PPM development and sees expanding the tests as the next logical step in evaluating the feasibility of the methodology.

Encoding process

Software encoding systems are in development and metering hardware has been ordered for the next deployment, said Marshall Snyder, president of worldwide PPM development for Arbitron.

The company says its encoding process has been improved. Typically the encoder is used near the end of the radio station's audio chain, but before the audio processor. To differentiate each station, each encoder transmits a unique code that Arbitron programs into the device before delivering the encoder to the station.

Some participating engineers told

did not affect broadcast quality.

"We believe the next equipment build will resolve this problem as we go to the next generation of encoders."

The sophistication of the encoding algorithm has been improved, according to an Arbitron spokesman.

Radio engineers also have asked Arbitron for a way to know if the encoder is really operating; they've said the light on the encoder is not always a reliable indicator. Arbitron hopes to include an alert system in the next generation of encoders, to be included in the larger Philadelphia tests.

"The alert system can be defined by the engineer, whether it's a flashing light, a bell that rings, a cell phone that rings — it will power that outcome if it should fail," said Patchen.

Of the early results from approximately 260 PPMs, Arbitron executives call the results encouraging.

"It's fast. It rapidly recognizes media exposure and gets the data back to us each day," Snyder said.

"It measures all day, every day, no matter how much media the person is exposed

See PPM, page 8 ►



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Who Will Show, Who Will Show Up

In September of 1999, Radio World asked in an editorial whether the annual NAB Radio Show would survive.

That, you will recall, was the year of the disappointing Orlando show, when the calendar, weather and consolidation ganged up to produce a turnout that satisfied no one. But broader factors about the need and demand for such a show were behind our editorial.

Now we watch with some concern as show organizers prepare for their event in New Orleans in a few weeks.

I don't know how many people will come to the convention, or how many exhibitors will show. It's a super city that should attract a good crowd. But I do have some worries.

I'm not pleased with the decision to schedule this show on a holiday week, when many people spend vacations with their families, or take kids to school; and when some exhibitors must pay overtime for labor to set up their booths (ironically, on Labor Day).

NAB officials told me two years ago that they had scheduled the Orlando show for the week before Labor Day because they were stuck with old contracts from the World Media Expo days. But that's no longer the case.

Adding to my concerns are these facts: the dot-com boom that helped rejuvenate the exhibit floor last year is past. Overall radio revenue is down this year. Major group Infinity no longer supports its employees taking part in NAB events.

And a few weeks ago, long-time exhibitors Telos Systems/Omnia and Klotz Digital decided independently of each other not to exhibit. (Telos will show product in dealer booths.)

You can bet their competitors are watching closely to see if this year's attendance will justify the expense of exhibiting. And if their cost-per-prospect is too high, they won't come back either.

I write about conventions and attendance because they are barometers of the vibrancy of the supplier marketplace and the community in which we work.

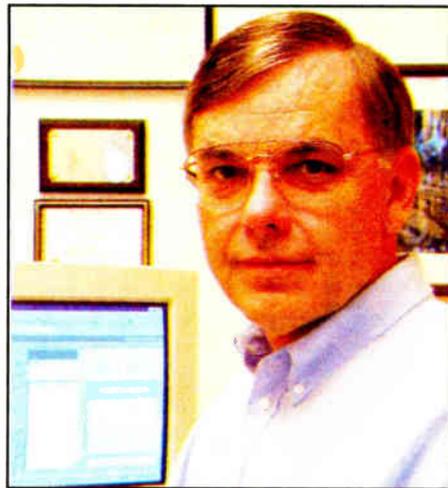
As we noted two years ago, the Radio Show has been a slick, well-produced

convention, with great speakers, useful sessions and healthy exhibits. And NAB has done a good job of broadening the show's topics, with technical content and attention to new media.

But consolidation and a ragged economy are powerful factors. I expect a subdued tone this year, and important questions being asked about what the Radio Show should be in this new era.

★ ★ ★

I'll definitely be in New Orleans, and I hope you'll join me for the "Engineering Legends" roundtable. This is the first session of its kind: a meeting of recent winners of the association's prestigious



Geoff Mendenhall

Radio Engineering Award, talking about issues of importance to all managers. I will moderate.

I'm happy to add another headliner to our all-star session: Geoff Mendenhall, VP of product development for Harris Corp. He joins Mike Dorrough, Arno Meyer, Charles Morgan and Bob Orban for the panel on Thursday, Sept. 6.

★ ★ ★

Sad word came from Arizona recently that an experienced electrical contractor had been electrocuted while working on power service at a TV transmitter site.

Stories like this one unfortunately are too familiar in our business.

I am reminded of a sign I saw inside the entrance to a U.S. Coast Guard air station in Hawaii: "We Work in a Dangerous Business." Even at the air base, where men and women put their lives at risk daily to operate helicopters and airplanes in life-threatening conditions to save others, the employees must be reminded not to overlook safety.

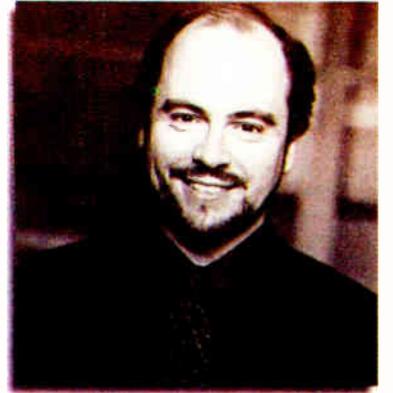
We should put similar signs inside the equipment rooms and transmitter shacks of all radio stations.

Please, be careful. Don't work on high-powered equipment or service without the proper experience and someone on hand to assist you should something happen. Double-check that all circuits are no longer hot — then check again.

Specific methods of checking after powering down include using a shorting bar, widely known as a "Jesus stick," to ground points of potential residual voltages, or the use of an LED inductive voltage sensing indicator.

Using only one hand inside a rig when first touching the hardware is an old preventive measure that has saved lives. Also check to be sure the door interlocks

From the Editor



Paul J. McLane

work, and disable a rig from being turned back on inadvertently. One of our most valued contributors at RW was almost victimized by this 26 years ago.

We have heard of GMs deciding to save money by doing "simple" work themselves, like changing a transmitter tube, and suffering fatal consequences. So this message has just as much meaning for GMs and PDs and others who want to save money or who rush to get a station back on the air without an engineer present.

In the field and in the shack, take every precaution. The expense and trouble are minor compared to the alternative. 🌍

Ed Weigle, operations manager of WEDJ(FM) and WSYW(AM) in Indianapolis, Ind., has a new tool in his audio kit: an AudioTechnica AT4047/SV Studio Capacitor Microphone with shock mount.

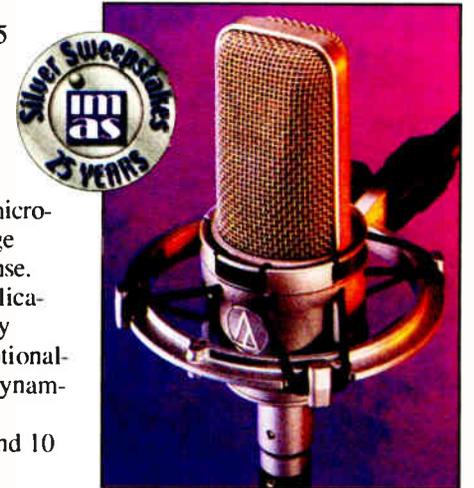
Ed won this superb mic in Radio World's Silver Sweepstakes. To sign up, you need only go to www.rwonline.com.

Since February, we have awarded 15 prizes with a retail value of more than \$32,000, and there are 10 more issues to go.

The AT4047 is suitable for production, voice-over, on-air and other critical broadcast applications. The cardioid capacitor microphone uses dual, gold-plated and aged large diaphragms for extended frequency response.

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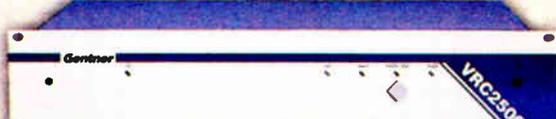
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GUEST COMMENTARY

VOA Updates Transmission Methods

by Joseph D. O'Connell Jr.

WASHINGTON U.S. international broadcasting today faces enormous challenges, but also great opportunities. Our challenges include dealing with shifting media environments and audience preferences, setting budgetary priorities, and maximizing a mix of technical delivery systems. Our opportunity is that the power of information as a force for democracy is greater than ever.

As a recent New York Times editorial read, "The free flow of information across national borders may be a more potent force for advancing democracy than dispatch of American aircraft carriers to a distant sea." We couldn't agree more.

We must also be dynamic and flexible, and we must scrupulously focus our limited resources. Indeed, we approach our opportunities acutely aware of the importance of diligent stewardship of public resources and the continued essential role of U.S. international broadcasting.

Resource levels for U.S. government-supported international broadcasting have remained relatively flat since 1994. We cannot continue to be effective as broadcasters without making difficult choices in order to match resources with the highest priorities. The BBC's recent decision to shift from shortwave to Web-based broadcasting to North America seems to reflect a similar reality. In this environment, we must move resources away from areas of lesser need and effectiveness to areas of greater need and effectiveness.

Human consequences

We of course recognize that decisions concerning the use of technical and financial resources have human consequences. We applaud the talent, skill and hard work of all the men and women — from studio technicians to broadcast engineers who play an essential role in carrying out our mission of providing reliable news and information to audiences around the world — through the best and most appropriate media available. The strength of our product rests on the quality of our people, and on our ability to deliver that product into a variety of markets.

As broadcast professionals, it is imperative for us to recognize that the media marketplaces and technical delivery options are evolving rapidly around the world. Sentimentality for what has been does not buy us relevance today.

On Oct. 1, 1999, the Broadcasting Board of Governors became an independent federal entity responsible for all U.S. government-sponsored, non-military, international broadcasting. This includes the Voice of America, Radio Free Europe/Radio Liberty, Radio Free Asia, WORLDNET Television, Radio and TV Marti, and the Office of Engineering and Technical Services. The board is composed of eight individuals appointed by the president (four Democrats and four Republicans) along with the secretary of state, who serves as an *ex officio* member.

The board is charged by the International Broadcasting Act of 1994 to direct and concentrate U.S. international broadcasting's resources in the areas of the world where they can have the greatest impact. The act requires the board to

determine annually whether language services should be added, enhanced, scaled back or eliminated. The language-service review is aimed at setting priorities and strategically targeting limited resources. This is a responsibility that the board, and all of us in the U.S. international broadcasting family, take seriously.

The mission of the Voice of America is

serve as a low-cost program delivery method for many of our listeners. Media organizations use VOA's Web site (www.voanews.com) as a wire service and download broadcast quality audio programs. Nevertheless, we value the Internet only as one among several delivery methods.

To remain relevant and effective in

Media marketplaces and technical delivery options are evolving rapidly around the world.

stated well in the VOA Charter: to provide consistently reliable and authoritative news and information as well as a balanced perspective on American policy, thought and institutions. The availability of the free flow of unbiased information in a given target area is a critical factor in how language service broadcasts are prioritized.

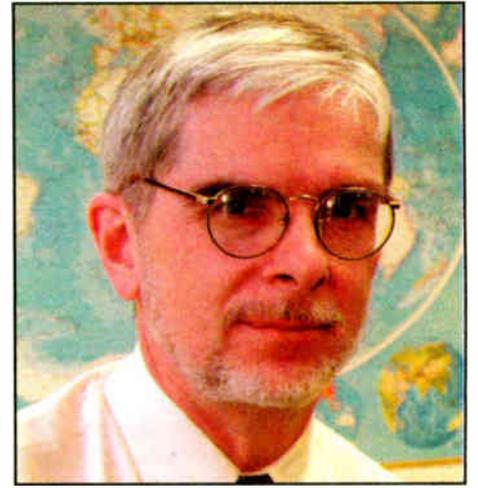
From our media-saturated society, many find it difficult to comprehend that VOA is viewed as a lifeline in places such as China. On a visit to VOA, dissident Wei Jingsheng said, "It is not possible to get the truth from domestic Chinese sources. In order to get the truth in China, one has no choice but to become a faithful listener to the Voice of America." He speaks for the millions who tune in — or watch or log on — to VOA and the other broadcasters every day.

The Committee to Protect Journalists, an international watchdog group, reported that last year at least 24 journalists either died in the line of duty or were targeted for assassination. Just last summer, a defense lawyer for several pro-reform Iranian newspapers was arrested in connection with an interview with VOA.

We know that fewer and fewer people listen to shortwave as a percentage of populations. We also know that many now tune in to U.S. international broadcasters through local AM and FM stations and cable TV. Most countries prohibit foreign ownership of AM, FM or TV frequencies, so our broadcasts through over 1,800 locally owned radio and TV affiliates worldwide extend our reach exponentially. It is not enough to produce excellent programs. Higher technical broadcast quality and convenience are critical to reaching our audiences.

We have tracked an increasing use of satellite TV, including in countries with state-controlled media environments. For example, an astonishing 70 percent of Iranian travelers recently surveyed indicated they watch satellite TV either at home or elsewhere. We recognize this is a select group and access to satellite TV is cost-prohibitive for many. However, where we have moved into TV programming with news and call-in programs in English and other languages, audiences have reacted with enthusiasm.

The Internet is another means of reaching some consumers directly and one that we cannot ignore. While Internet access is certainly not universal, it does



Joseph O'Connell Jr.

ment-funded international broadcasting cannot simply clutch to the comfort of using only shortwave technology and static programming. In order to achieve our goal of providing audiences with reliable and authoritative news and information on U.S., regional and world news, we must be agile and responsive. We must, within our financial means, utilize the available technologies and target our limited resources in order to maximize our effectiveness.

O'Connell is director of the Office of External Affairs of the International Broadcasting Bureau, which encompasses the Voice of America, WORLDNET Television, Radio and TV Marti, and the Office of Engineering and Technical Services. Reach him via e-mail at pubaff@voa.gov.

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SPECIAL REPORT

Noncom Program Delivery Evolves

Pubcaster Program Distribution, So-Called 'Content Depot,' Promises Efficiency

by Rich Parker

SEATTLE Picture a perfect world where satellite feeds are never missed because the operator forgot to put in a tape and the Thursday afternoon train wreck never happens (the one where operators have six satellite demodulators and eight programs to record in the same time slot).

Content Depot

At the Public Radio Conference in Seattle in May, Marty Bloss, director of projects for NPR Distribution, gave attendees a view of a new "Content Depot" concept and NPR's new way of thinking about program distribution. The concept grew out of discussions about system changes begun in 1998 and gained added urgency after the failure of Galaxy IV in 1998.

For many stations, the failure meant they suddenly could not provide their listeners with "All Things Considered," "Morning Edition" and the other network programs that make up a critical part of their daily schedules.

The Public Radio Satellite Service's Earth Station Refurbishment Project began to address the need to upgrade station equipment so that dishes could be moved more easily to aim at other satellites for backup and to provide stations frequency agile downconverters.

As part of that project, three transponders were leased on Galaxy IV-R providing additional capacity, and agreements were made for backup capacity on other satellites.

At the same time, new broadband technologies were becoming more mature and it became apparent that old distribution models could be supplemented or perhaps even replaced by new broadband technologies.

With three transponders, Bloss said, NPR potentially could provide up to 100 Megabits per second of data via satellite to high-speed earth terminal modems, and take advantage of the relatively low cost of data storage.

Combined with the nearly universal penetration of some kind of Internet connection at local stations, a Web-based schedule request template on servers at

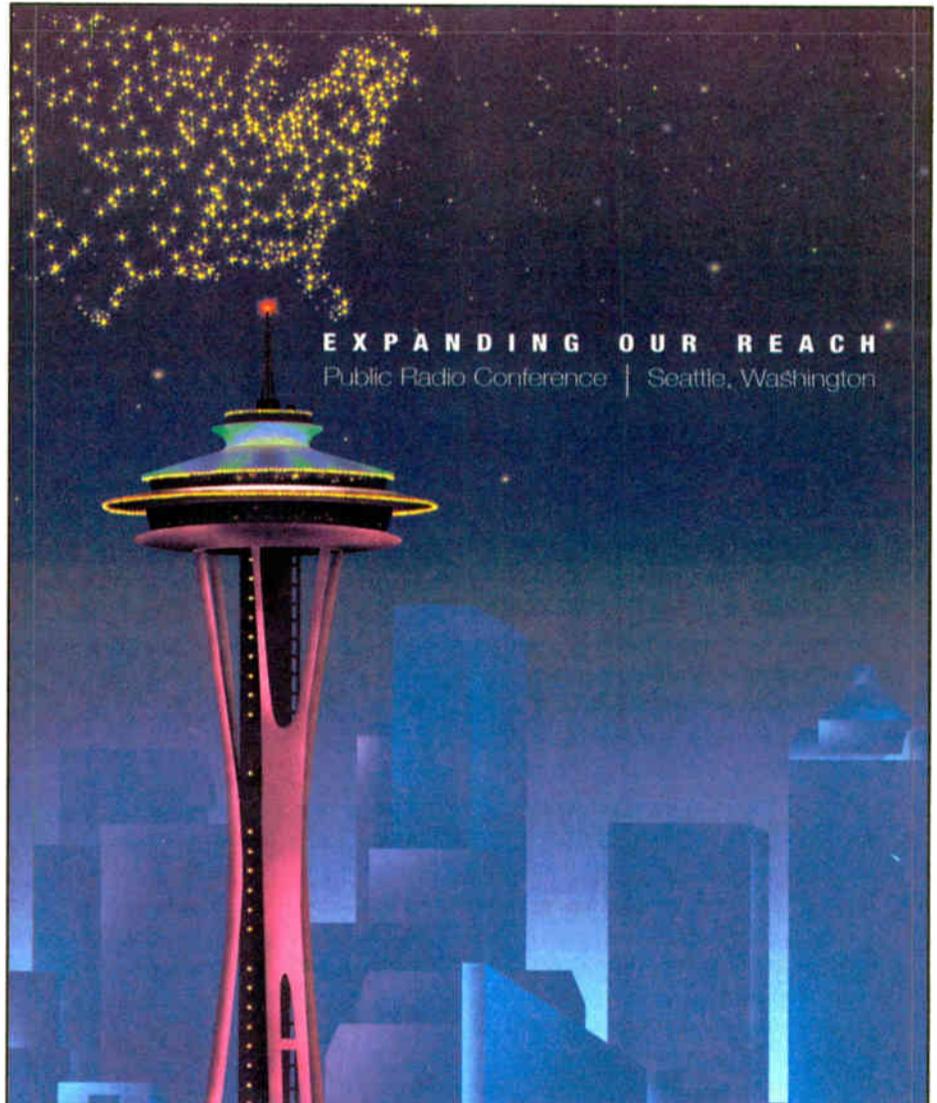
NPR could allow stations to request and store programs on a schedule that best suited their individual needs.

Under the proposed system, public radio flagship programs would still be live. Other programs that are often time-delayed could be scheduled on a Web interface based on when stations needed to air the program, and guaranteeing they would be delivered in time for air. In this way NPR could aggregate multiple station requests and optimize the use of available bandwidth.

for immediate or delayed playback. Whereas stations are currently only able to receive and record or play as many program streams as they have demods, under the proposed system the only restriction is the available bandwidth.

PRSS currently operates 24 channels for public radio programming on transponders 1 and 3 off Galaxy IV-R. Program audio is compressed and sent at data rates of 256 kilobits per second for stereo and 128 kbps for mono. In addition, a 64 kbps data channel is provided on each transponder.

The new system would use three satellite transponders occupying 108 MHz of C-band spectrum and would provide PRSS with the ability to send 100



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Under the current Satellite Operating Support System automation scheme, the satellite demodulators supplied to public radio stations can be pretuned to the correct Intermediate Frequency (70 MHz) for an upcoming program and tape or hard-drive storage devices can be started on cue, but the recording or storage system still requires some operator care and intervention.

Too many day feeds

No matter how carefully the operations manager schedules programs from the master PRSS feed schedule, there must be a satellite demodulator available at the scheduled time and a storage resource that is prepared properly — whether that means loading blank tapes into a recording deck or creating the appropriate recording templates on a hard-disk automation system. Because many stations are not staffed at night, this often makes for a "traffic jam" of feeds scheduled during the day, which can tax available resources severely.

The proposed Content Depot would help close that gap by providing broadband delivery of program content and hard-drive storage of program material

Megabits per second of compressed digital audio programming and ancillary data. As it is with the current system, some of that capacity would be leased to other entities to offset system costs.

According to NPR's Bloss, the final details of bandwidth configuration are still being determined. PRSS may wish to retain some single channel per carrier style digital carriers for direct submission of live programming. Additional wide-band carriers could be used for distribution of programming which would be stored in the "Content Depot."

Any final configuration will be designed to allow PRSS to scale the system to anticipated traffic levels while retaining flexibility for expansion on both the hardware and space parameters. The ability to better use the overnight hours for transmission of programs could keep the aggregated bandwidth requirements not too much different from today's system.

Such a system would be capable of accommodating both the current digital program streams and many new program services. Coupled with a broadband satellite receiver and modem, stations could capture

See PRSS, page 8 ▶

Moving Sound Around at the PRC

by Rich Parker

SEATTLE Do you ever feel like one of those little dogs in a car's back window that just bobs its head up and down, when your engineer starts talking about the latest technology for getting programs from one place to another?

A public radio station manager told Don Lockett, NPR's vice president and chief technology officer, that is how he sometimes feels about the rapid pace of technology in today's radio industry. Lockett related the story at the 2001 Public Radio Conference in Seattle.

Public Radio Conference attendees joined Ken Pohlman, director of the music engineering program at the University of Miami; Ralph Woods, deputy director of operations, NPR Distribution; and Skip Pizzi, program manager of interactive TV technology for Microsoft; for breakfast and an interactive primer on conventional and new technologies that stations are using to transfer audio and other content.

Presented in a game-show format with NPR's Ralph Woods as MC, questions were displayed on a large screen and participants were invited to choose the best multiple-choice answer to each question.

To start things, Woods asked, "What is the Clarke Belt? No, it's not what Arthur C. uses instead of suspenders!"

The lively interchange gave a lot of information on technical terms in an informative and light-hearted manner to give non-technical staff a better grasp of the technologies available for moving content around the station and the system.

Funny technology

Terms like data rate, push technology, ISDN, MP3 for audio and SCPC (single channel per carrier) were explained in a humorous yet clear manner by the panel of experts.

Pohlman said that if the movie "The Graduate" were made today, the word of advice for young Benjamin would not have been "plastics" but "broadband."

The concepts of Internet streaming, audio compression techniques and the tradeoffs and the pitfalls of cascading algorithms were interspersed with discussions about edge servers, IP multicasting, unicasting and other Internet delivery systems for program audio.

Pizzi provided an example of the limitations of Internet multicasting of video and the importance of the proposed multi-Gigabit Internet 2.

According to Pizzi, if a single video program were compressed to a 300 kbps stream and multicast on today's Internet, it would require 20 percent of the current Internet's capacity to reach the same number of viewers as a broadcast program with a Nielsen share of only 1. Hence the Internet is not well-suited for this sort of thing as currently constructed.

Woods discussed new training initiatives for technical and non-technical station personnel in an age of rapid change.

One example is the public radio engineering conference two days before

NAB2001, attended by nearly 100 public radio engineers.

and how to prepare for and manage implementation of the new system.

If the movie 'The Graduate' were made today, the word of advice for young Benjamin would not have been 'plastics' but 'broadband.'

This year's conference focused on the new IBOC digital technologies for radio

Woods said there were plans to provide more opportunities for station per-

sonnel to receive training at their local stations, at NPR-sponsored seminars and on the Web.

One attendee, Joyce Kryszak, arts and cultural affairs producer for WBFO(FM), Boston, said the PRC breakfast presentation gave her a good foundation to help her understand more clearly how to make better choices in-studio on issues such as sample rates for broadcast, Web streaming and archiving program material and how the end result might be affected by various types of compression algorithms.

In her view, the additional training that NPR proposes to offer to stations would be helpful to all staff and that stations are seeking this kind of training.

The Clarke Belt, by the way, is the circular belt in space containing the geostationary satellite orbits, named in honor of author Arthur C. Clarke. ●



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PRSS

► Continued from page 6 and use far more than the current six concurrent program streams, the average number of satellite demodulators at most public radio stations, according to NPR.

The proposed Content Depot "box" might also have ISDN ports, LAN or WAN ports and even digital and analog audio inputs. This would allow for storage and retrieval of program material not only from the NPR satellite, but also from producers at the local station or anywhere in the world.

And, instead of just being a mail list to ask for tape copies of missed feeds, DubNet could become a "true network" (as in "Hey Frank, could we FTP (file transfer protocol) that missed feed off your server?")

The NPR program catalog (<http://catalog.nprsat.org>) gives a basic idea of what a Web interface could look like. Stations would select a program and then see information about the program including timings and cues, and schedule the program to be delivered to the station by a certain time for broadcast. Promotional information, sample audio files for posting on a station's Web site or broadcast promos could be sent at the same time.

Resource management

A Web-based system could even make it possible for producers to provide subscription or authorization forms to be completed before a program could be transmitted to a station.

According to Bloss, "This is not going to be a designed-in-Washington, figure-out-how-to-use-it system."

A team that included NPR staff, station managers, engineers and independent program producers reviewed results of station questionnaires and at NAB2001 interviewed more than 35 vendors to determine whether the technology exists to begin building such a system. NPR says it does.

Some station managers, engineers and operations personnel who have looked at the Content Depot concept said at the show they believe such a system would be a great improvement for resource management of both hardware and personnel at the station.

Additional comments are being solicited from stations about the possible shape of the system with a final decision slated for this fall.



Attendees of PRC 2001 view 'Content Depot' demo on the exhibit floor.

The Earth Station Refurbishment Project is slated for completion for all public stations by 2002. It will provide stations with the capability to reposition their satellite dishes more easily and receive backup programming from additional satellites should there be another Galaxy type of failure.

In addition, the expanded three-transponder capacity will make delivery and storage systems such as the proposed Content Depot possible. Phase 1 of the Content Depot is expected to be released late in 2002. 🌐

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PPM

► Continued from page 3 to, or where the exposure occurs. The PPM does not get tired."

Compared to the current diary method for measuring audience, the PPM is reporting equivalent total-day average quarter-hour listening levels for radio and higher total-day AQH for TV and cable.

Overall for radio, the PPM results track close to the current diary method. The meter is showing an increase in average daily cumulative audience: 75.9 percent for the PPM vs. 66 percent for the diary.

Listening patterns

The PPM also is showing a drop in daily time spent listening for radio: 2 hours and 12 minutes for the PPM vs. 2 hours and 30 minutes, for the diary, per day. The PPM is reporting listening pattern shifts by daypart. Morning-drive AQH ratings are down slightly weekdays, while evening and weekend listening is up.

Snyder said Arbitron expected these levels in radio, as the PPM can report actual listening and more habitual listening. Evenings and weekends, he said, are characterized by less habitual listening.

Patchen said the PPM does not make distinguishing marks on the data stream to differentiate whether media exposure occurs in or out of the home. Arbitron is exploring the idea and intends to introduce this as part of its PPM technology when it can.

Out of an initial 300 PPMs originally distributed in the Wilmington trials in December 2000, Arbitron is studying results from approximately 260 units still working. The results from 35 radio stations were included in the first figures, and 38 radio stations were encoding as of July (see chart, page 3). The Wilmington market is served by signals not only from Delaware but from nearby Pennsylvania, New Jersey and Maryland.

Improving the durability of the pager-size units that participants carry is another goal. Some of the early units broke while participants wore them. 🌐

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DIGITAL NEWS

European Plans for DSB Duo

by John F. Mason

PARIS WorldSpace and Alcatel Espace have signed an agreement to develop a space-based digital sound broadcasting system for Europe that may be operational by 2003.

The concept is similar to what satellite-delivered digital audio broadcasting companies Sirius Satellite Radio and XM Satellite Radio are doing in the United States, with one big difference: The WorldSpace/Alcatel service would be free to consumers, at least initially.

According to the agreement, the two companies will explore the possibility of forming a consortium to implement a European satellite DSB system that will allow other investors and strategic partners to participate.

Full coverage

Washington-based WorldSpace, global operator of satellite audio delivery systems, and Alcatel Espace, designer and manufacturer of satellite DAB technologies based in Toulouse, France, expect the system to cover the European continent.

When operational, perhaps by 2003, the system will offer programming to users with mobile, fixed and portable

radios. The satellite system will provide continuous mobile reception of audio programs across Europe.

In addition to broadcasting up to 100 existing or new radio programs, the system will allow users to access multimedia services such as text and image transmission ancillary to the audio programs, as well as traffic reports, weather forecasts and navigation information.

WorldSpace promotes itself as the first global company to offer satellite-based DAB to portable receivers.

WorldSpace, with Alcatel as prime contractor, claims to be the first global company to offer satellite-based digital audio broadcasting services to portable receivers.

While receiver manufacturers will

offer Sirius and XM products for home and portable use also, their big push is mobile, to match the heaviest radio use in the United States.

"The European satellite digital radio service will have a mixture of existing programming from national, regional and international broadcasters, as well as original programming produced by WorldSpace that is not available anywhere else," said Nicholas Braden,

director of corporate communications for WorldSpace.

Rather than competing with existing radio services, "We see the new service complementing existing radio, DAB and multimedia service. In one sense, every alternative source of information and entertainment is a competitor for audiences with limited time and a variety of interests," said Braden.

"To attract audiences, the new satellite service will offer listeners new choices and first-rate quality, especially through a seamless service to mobile, portable and fixed receivers all over Europe. At the same time, the unique services of local radio are an alternative that will continue to hold audiences," he said.

The new satellite digital radio services will be free, at least initially. Premium and subscription services, for both audio and data are being considered.

WorldSpace system

The WorldSpace system consists of two satellites: AfriStar, covering Africa and the Middle East, launched in October 1998, and AsiaStar, covering all of Asia, launched in March 2000.

AmeriStar will be launched this year to cover Latin America and the Caribbean. The proposed European satellite system will complete the operational WorldSpace system.

As with any new satellite service, regulatory processes must be followed at the international/regional and national levels. At the international/regional level, the satellite system must be coordinated in accordance with the rules of the International Telecommunication Union.

WorldSpace has successfully coordinated its three satellites for frequencies, ITU approval and transnational concerns, and it expects that the European satellite system also will be coordinated similarly prior to service launch in 2003. At the national level, WorldSpace and Alcatel expect to obtain terrestrial rebroadcasting licenses for several target markets in Europe.

"There are still some remaining issues on frequency coordination in L-band, due to a frequency-planning process initiated by the T-DAB organization," said Christophe Nussli, multimedia-marketing manager for Alcatel. Nussli is referring to the terrestrial DAB organization that promotes the Eureka-147 system, the WorldDAB Forum.

"This does not, however, endanger the viability of a satellite system for Europe, since the European community is increasingly anxious to switch to digital radio."

WorldSpace recently tested a terrestrial repeater component to its system, which allows the satellite programs to be re-broadcast in urban areas in order to provide seamless mobile reception.

XM partner

WorldSpace and Alcatel have also taken part in the design of the XM Satellite Radio system, for which Alcatel is manufacturing the payload.

The WorldSpace/Alcatel system uses the MPEG 2.5 Layer III compression algorithm.

"This project will allow broadcasters to offer their programs with an outstanding quality and audio capacity within the entire European continent, avoiding the multiplication of terrestrial re-transmission and the resulting frequency shifts," said Jean-Claude Husson, president and CEO of Alcatel Espace.

Listeners, Husson said, will be able to receive programs in their native languages while traveling outside their home country.

Noah A. Samara, chairman and chief executive officer of WorldSpace, said the agreement marks an important step in the WorldSpace mission to bring high-quality digital audio and multimedia programming via satellite to consumers on a global level.

WorldSpace and Alcatel Espace said the enthusiasm shown by radio broadcasters, car, radio and chipset manufacturers, telecom operators and terrestrial broadcasting services providers allows the companies to consider a service launch in 2003. They did not name specific supporters.

"One of the objectives of the current WorldSpace and Alcatel joint activity is an assessment of the possible formation of a European venture to include strategic and financial players interested in participating in the implementation of the system," Braden said. 

Corrections

The June 6 issue contained incorrect contact information for AKG Acoustics. Contact the sales department at (615) 360-0499 or visit www.akg-acoustics.com.

The July 4 issue provided incorrect information about SoundManager International in Norway. The company address is:

SoundManager International A.S
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Norway
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Fax: + 47 70 13 27 01
E-mail: admin@soundmanager.com.

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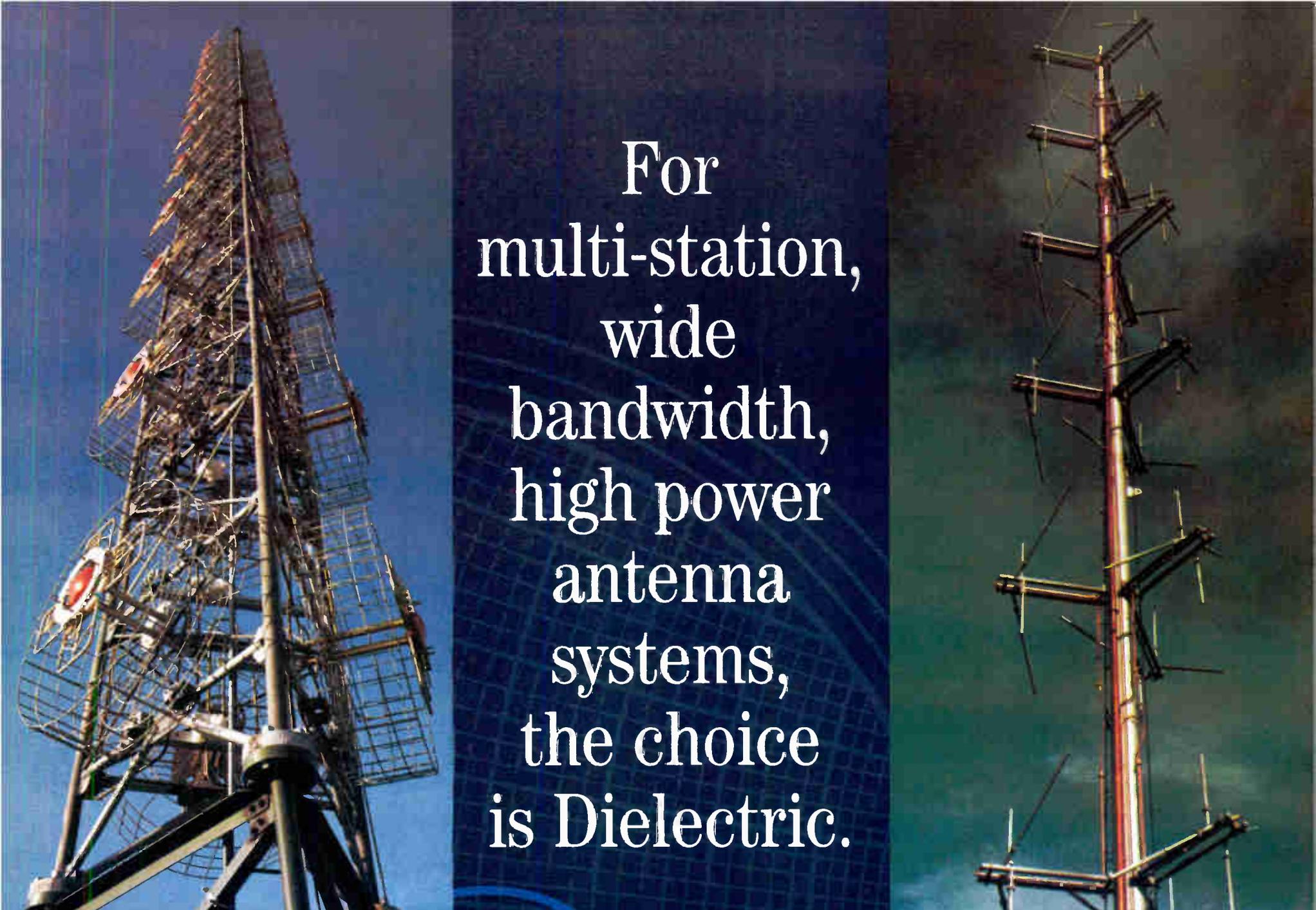
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World Radio History

◆ NEWS WATCH ◆

► Continued from page 2

Radio Netherlands took over the frequencies vacated by the BBC July 1.

The expansion of shortwave transmissions involves 5965 kHz from 1030-1225 Universal Time Coordinated for eastern North America, and 15220 kHz at 1430-1625 UTC for western North America.

These are in addition to existing evening transmissions.



Radio Nederland

A schedule is available online at www.rnw.nl/en.

Meanwhile, although direct BBC World Service shortwave transmissions to the United States and Canada ended July 1, the BBC said fans can

still hear it on other frequencies.

"We have already received reports of decent reception on a number of these frequencies from various parts of North America," a spokesperson stated.

Frequencies serving the Caribbean, Central and South America are not affected, the BBC said, suggesting that listeners try the following frequencies in North America. All times are UTC: 5975 kHz: 2300 to 0400; 9915 kHz: 0000 to 0300; 12095 kHz: 2100 to 0300; 15220 kHz: 1100 to 1400; and 17840 kHz: 1400 to 1700.

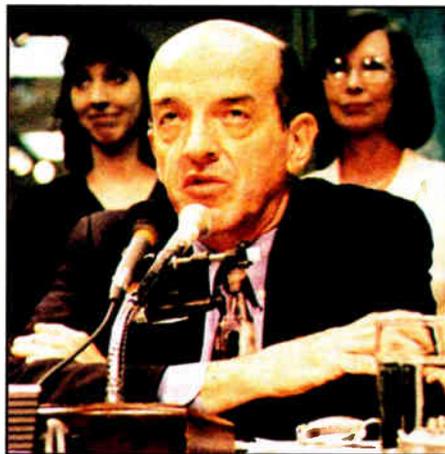
In western North America, listeners may also receive on frequencies advertised for East Asia, particularly in the early morning, for example: 9740 kHz from 1100 to 1500; 9815 kHz from 1200 to 1500; and 11955 kHz or 15280 kHz from 1100 to 1300.

Other options for listening in North America include the Internet (www.bbc.co.uk/worldservice), C-SPAN satellite and cable and, later this year, subscription services for XM Satellite Radio and Sirius Satellite Radio.

The BBC World Service made the frequency cuts as it delivers more of its programming across multiple platforms. The network said that money saved by the frequency cuts will go toward funding the BBC's investment in online services and in local re-broadcasting.

FCC Debates Indecency, Adopts Fees

WASHINGTON FCC Commissioners Gloria Tristani and Michael Copps, both Democrats, are standing against their fellow FCC colleagues on recent indecency decisions.



FCC Commissioner Michael Copps

The Enforcement Bureau dismissed several indecency complaints in July because no transcripts or tapes could be produced to back up listener complaints. Tristani and Copps protested.

"People do not normally tape or transcribe the programs they are watching or listening to, and thus it is unfair to expect people file such material with their complaints," stated

Tristani.

The commission also has adopted the schedule of regulatory fees for fiscal 2001. Radio station fees are unchanged from those earlier proposed to Congress. (RW, May 9, page 8.) The fees are due to the FCC between Sept. 10 and Sept. 21.

To make finding fee schedules and other information easier, the agency has redesigned its Web site. Changes will continue through September and will include an improved "search" function. This is the second major redesign of the site since its inception in 1996.

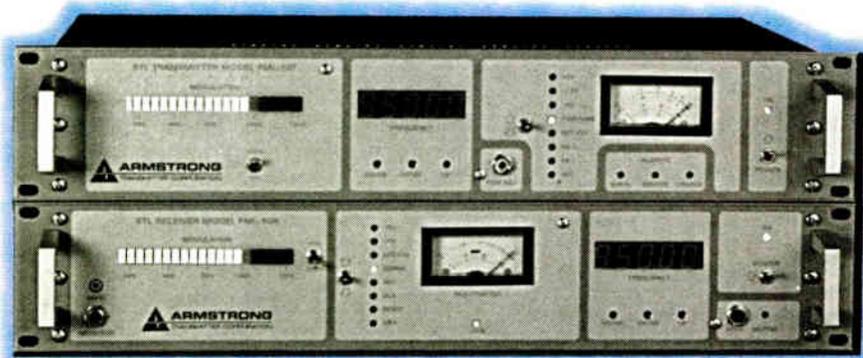
Noncoms Dodge Auction Bullet

WASHINGTON The FCC is reviewing a July decision by a federal appeals court in Washington that found the agency couldn't require noncoms to participate in auctions alongside commercial broadcasters for spectrum outside the reserved band. The court said the commission must allow pubcasters to compete alongside commercial broadcasters for commercial spectrum, but noncoms are exempt from auctions.

Noncoms are already exempt from spectrum auctions for the reserved band.

The Balanced Budget Act of 1997 required the FCC to conduct broadcast spectrum auctions and replace its predecessor for awarding licenses, the lengthy comparative hearing process.

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DIGITAL NEWS

iBiquity Aims for Fall Results, Defends Timetable

As far as iBiquity Digital Corp. is concerned, the company is on track to meeting its technology development and business goals for the year.

The company planned to deliver station testing results of its FM in-band, on-channel digital audio broadcasting system to the National Radio Systems Committee by early August. iBiquity targets a mid-October delivery of AM station test results. The NRSC planned to conduct listening tests of iBiquity's FM system at the NAB Radio Show in New Orleans. Sign-ups began in July.

The NAB Radio Board has adopted a resolution that encourages the FCC to state its preference for IBOC as the best path to digital terrestrial radio.

In response to some in the industry who've expressed frustration at the time it has taken to develop IBOC technology, iBiquity Senior Vice President Jeff Jury said, "It works. And what's taking so long is commercialization."

In addition to working with the standards-setting NRSC, iBiquity is cooperating with several silicon chipmakers, RF manufacturers, receiver manufacturers, broadcasters and automakers to coordinate an orderly rollout.

At the show, iBiquity Digital Corp. planned to have in-band, on-channel digital audio broadcast transmissions in the exhibit hall. Broadcast Electronics plans to transmit an FM signal while Armstrong sends an AM signal through one of its units. Attendees can hear both signals on prototype IBOC receivers in iBiquity's booth.

— Leslie Stimson

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Best Bets for Fall NAB Radio Show

Ken R.

"It was the best of times, it was the worst of times." Thus said Charles Dickens in the famous first line of "A Tale of Two Cities."

That line also sums up the curious dichotomy facing The NAB Radio Show, Sept. 5-7 in New Orleans.

Billed as "Radio, Hear and Now," this NAB show formally recognizes the Internet by holding a separate conference within the conference called Xstream, just months after thousands of radio stations yanked their streaming audio until various copyright and talent payment issues could be sorted out.

Fewer sessions

Meanwhile, the first half of 2001 saw months of declining sales for the industry, compared to the heady performance of a year earlier driven by the dot-com boom.

Some industry leaders see opportunities reminiscent of the gold rush of the 1840s. Others see a rocky road ahead as traditional radio faces challenges from satellite, cable, homemade CDs and the Internet. It certainly won't be a dull convention.

Here's a taste of the most interesting sessions at The NAB Radio Show. Others are described in stories throughout this section of Radio World.

Steven Goldstein, executive vice president of Saga Communications, is a programming subcommittee chair whose job it was to help guide the content of the various Radio Show sessions.

"We're covering the industry a bit differently than in the past," said Goldstein. "For example, we're not

doing format sessions because we're taking a more aerial view of what managers want and need most, and what they aren't getting from other radio shows."

Goldstein cited the Thursday "Morning Show Makeover" session as

very useable programming, promotion and management tips in that one."

Goldstein said that in response to last year's conference in San Francisco, other modifications would be made to the Radio Show schedule for 2001.



The Royal Café is representative of New Orleans architecture.

a must-see. He said airchecks of morning shows would be dissected by programming specialists to identify the high and low points.

Another session he is excited about is the Wednesday morning "Contesting & Promotions: What Works in 2001."

"And we're going to update a very popular program from last year," said Goldstein. "This year it will be called '60 Ideas in 60 Minutes,' to be held Friday afternoon. We'll be providing

"We're going to have fewer sessions, but they'll have higher impact," said Goldstein. "We've opted for quality over quantity and put a lot more into each session."

One of the highlights of the conference should be the Thursday Super Session featuring five of radio's most respected and influential leaders.

Taking part will be Lew Dickey, chairman and CEO of Cumulus Media
See BEST BETS, page 16 ▶

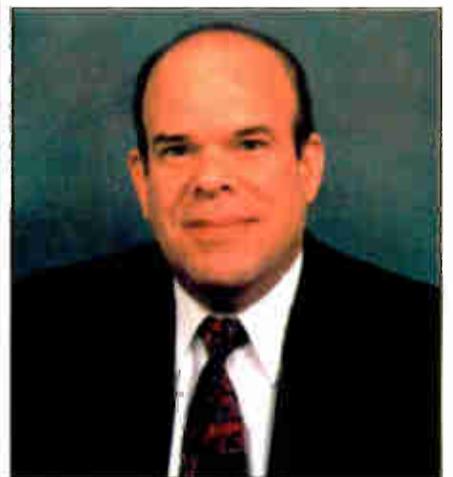
Workshop Detangles IBOC DAB

IBiquity Officials and Suppliers to Take Part In Day-Long Seminar On Status of Digital

Alan R. Peterson

As broadcasters prepare for the IBOC age, a lot of questions are being asked. Can we use our existing equipment? How much of the physical plant has to be converted for the digital process? How soon do we have to be ready?

Will this be the end of analog radio?



Jeff Detweiler

By NAB2002 next spring, several IBOC broadcast products may be
See IBOC, page 16 ▶

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Best Bets

► Continued from page 15

Inc.; Joan Gerberding, president of Nassau Media Partners; Alfred Liggins, president and CEO of Radio One Inc.; Randall Mays, executive vice president and chief financial officer of Clear Channel Communications Inc.; and Bob Neil, president and CEO of Cox Radio Inc.



Joan Gerberding

"I think people are definitely interested in the economy and what it means to the radio business," said Gerberding. "A lot of people want to know about private vs. public companies. Are we doing business for our stockholders or our stake holders?"

Gerberding said many public companies talk to Wall Street, but thousands of private companies are talking to Main Street.

Creatively speaking

Thursday morning's "Revolutionize Your Brand" session will be presented by iconoclast author Tom Asacker, whose "Sandbox Wisdom" philosophy combines a child-like curiosity with a down-to-earth understanding of what consumers really want.

"People are not loyal to a business; they are loyal to whatever gives them the feeling they are looking for," said Asacker. "Businesses are losing loyal customers and instead of looking with-

in, they are blaming the consumers.

"Most companies hesitate to go out and really ask customers how they experience their products," said Asacker. "A corporate head at Ford may not even know where the oil filter is located in his car, for example."

Asacker said he plans to help attendees understand that even though consumers have more power because of greater selection and more available information, they are overwhelmed and can't make purchasing decisions without emotional attachments to a product.

Walter Sabo, president of Sabo Media, is known for his consulting work with talk formats. His Friday afternoon session titled "Reality Check: Inside the Mind of the Average Diary Keeper" promises to reveal common misconceptions held by station management.

Help the listener

"We go into malls and ask people where Tom Brokaw works — which most people don't know, by the way. We even accepted the call letters of their local NBC TV affiliate and still very few people could give us an answer," said Sabo.

"We asked them what type of product 'news/talk' might be and a lot of respondents didn't even relate it to radio!"

Sabo maintains the public often does not understand tenets the broadcast industry takes for granted. He believes there is no punishment for "using" the wrong radio station, so there is no reason for the public to learn slogans, frequencies and the call letters to which they refer.

"There's no peer rejection, no loss of time, no loss of money. So it's arrogant to think listeners will bother to remember these things without a lot of help from the station," said Sabo.

Sabo believes broadcasters should not really be in the business of simply getting people to listen to their stations; they should be in the business of memory management.

"Just listening is meaningless unless they write it down," said Sabo.

When asked by Radio World if the testing of the Arbitron People Meter will make all this moot, Sabo hypothesized that the People Meter will not be in common use for at least 10 years.

A late addition to the program is the Thursday session, "Top Advertisers



Steve Goldstein

Sound Off."

Members of the Association of National Advertisers Radio Committee will talk about radio's strengths and their strategies. Among them are representatives of Sears, Roebuck and Co., Pfizer Inc., McDonalds Corp. and Proctor & Gamble.

"These executives will discuss the latest marketing trends and how consolidation has impacted them," said Dennis Wharton, NAB senior vice president of corporate communications.

New commissioners

Wharton said all three new FCC commissioners, Kathleen Abernathy, Michael Copps and Kevin Martin, will be on hand for a policymaker breakfast on Friday morning.

Meanwhile, "Tools & Technology: Power Tools for Power Marketers" will be on the Friday schedule and will be moderated by George Hyde, executive vice president of training for the Radio Advertising Bureau.

"We're going to look at portable hardware and software combinations that will make people more effective as managers and sales managers," said Hyde.

"And we're going to show that you can do a lot of these things with basic available products without spending a ton of money for customized solutions."

Hyde stressed that this will not be a session for "geeks," that it will be presented in plain English. 🌐

IBOC

► Continued from page 15

available. The first consumer receivers are anticipated at the 2003 Consumer Electronics Show.

Will the technology really be ready to roll out on time? What kind of costs will stations incur due to the conversion?

These questions will be addressed in the all-day Digital Radio Certification Workshop, Thursday, Sept. 6 from 10:30 a.m. to 5 p.m. at the Morial Convention Center.

Speakers will deal in specifics.

"We did a presentation at NAB2001 in Las Vegas," said Jeff Detweiler, broadcast technology manager for iBiquity Digital Corp, the company developing in-band, on-channel digital audio broadcasting technology.

"This time, we want to explain the technical implementation, high- and low-level combining and the costs that are involved."

iBiquity executives and manufacturers tooling up for IBOC will constitute the panel of experts. Hosting will be John Marino, vice president of the Science & Technology Department of the NAB, and Scott Stull, director of broadcast business development at iBiquity.

Science project

"Broadcasters have looked at IBOC as a 'science project' in the past," said Stull. "We are hoping to generate a lot of discussion. The session will be split between the business issues of IBOC, with a nuts-and-bolts discussion in the afternoon to help stations get ready."

One thought weighing on some broadcasters' minds is the "demise" of analog radio. Stull said not to worry.

"There are 600 to 700 million receivers in use now," he said, "especially those fifteen-dollar bed-stand AM/FM alarm clocks. We are not recommending any mandatory IBOC switchover, and a transition could take 12 to 15 years. Broadcasters and consumers can change over when they want."

Many stations are built out as digital facilities, with entire audio chains now passing digital bits in place of analog audio. The only time there is a conversion to analog is at the transmitter.

See IBOC, page 17 ►

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IBOC

► Continued from page 16

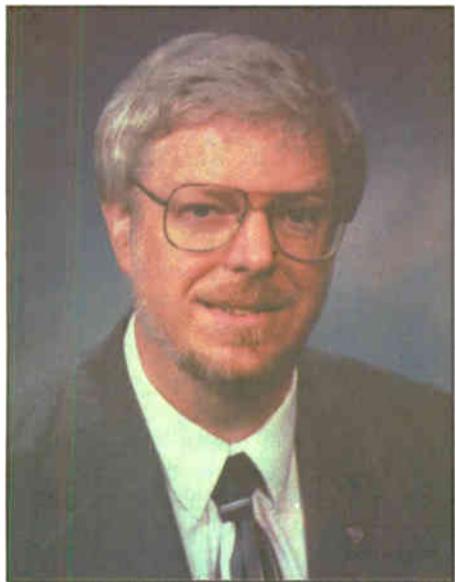
"Eventually, we'd like to see an all-digital path," said Stull. "Lots of people have already spent millions to go digital in-plant."

The iBiquity AM and FM IBOC systems continue to be tested, with results soon to be submitted to the National Radio Systems Committee for approval.

STL matters

One important aspect of IBOC planning is the studio-transmitter link. This aspect will be addressed by Bill Gould, broadcast products manager for Harris Corp., among the manufacturers taking part in a roundtable discussion in the afternoon.

"For one thing, the sample rates have to be at top levels," said Gould. "Current digital STLs sample at 32 kHz to provide the 15 kHz audio response of conventional FM. IBOC STLs will have to have 44.1 kHz throughput."



Daryl Buechting

When stations operate in the hybrid mode of IBOC, both analog and digital signals must be combined somewhere along the line. The impact of the digital signal on the existing analog signal is of concern to broadcasters — a concern not lost on Gould.

"There are reasons why this may or may not work," he said. "Broadcasters must maintain the fidelity they have today and a lot of this is not decided yet."

Answering concerns about transmitters will be Daryl Buechting, senior manager of radio products for Harris.

Can-do

"A typical question from broadcasters is, 'Can I do IBOC with my transmitter?' It can be possible with an existing FM transmitter, an IBOC transmitter and a high-level combiner," Buechting said. "A future transmitter will perform low-level combining, or what's called common amplification."

Combining those signals and maintaining isolation between competing IBOC stations that share transmission facilities also come under the province of Tom Silliman, president of Electronics Research Inc.

Eric Wandel, director of product development for ERI, said, "Tom will

be making the presentation at the NAB Radio Show. Say you have a multiplexed site: four stations, all combined

spectrum protected. You need a combination of filters and combiners to keep them isolated."

planning for the IBOC rollout.

Also representing the manufacturing side will be Jeff Keith, engineering project manager for Omnia/Telos Systems.

Other iBiquity officials on the panel include Senior Vice President Jeff Jury to provide an overview of IBOC as a business; Pat Walsh, vice president of wireless data business development, to explain the revenue opportunities of IBOC above and beyond the audio channels; and Glynn Walden, vice president of broadcast engineering, to explain the testing process and what will be handed over to the NRSC.

The IBOC session is in the same room and immediately following the session "Engineering Legends," a panel of recent winners of the NAB Radio Engineering Award. ●

We want to explain the technical implementation, high- and low-level combining and the costs that are involved.

— Jeff Detweiler

in one antenna. You have existing transmitters and IBOC transmitters, and all must have their piece of the

Wandel said Silliman will address the needs of cost, space and cooling requirements for a combiner-filter system when

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Tim & Willy Host Marconi Awards

Promoted as radio's premier honors, the Marconi Awards conclude The NAB Radio Show.

The Marconi Radio Awards Reception, Dinner and Show at the Morial Convention Center are set for Friday evening Sept. 7.

Masters of ceremonies are Tim and Willy, morning-drive personalities for Clear Channel station KNIX(FM) in Phoenix. Their show also is syndicated on country music stations. Together since 1990, the team has won numerous awards themselves.

A call to the duo engendered this exchange:

Tim: "We jumped at the chance to

host the Marconi Awards. Not just because of the opportunity to be in front of the biggest and most respected professionals in our business, but it's also a way to honor the memory of the man who actually invented this medium we love so much."

Willy: "That's right: Guglielmo Marconi!"

Tim: "No, Randy Michaels."

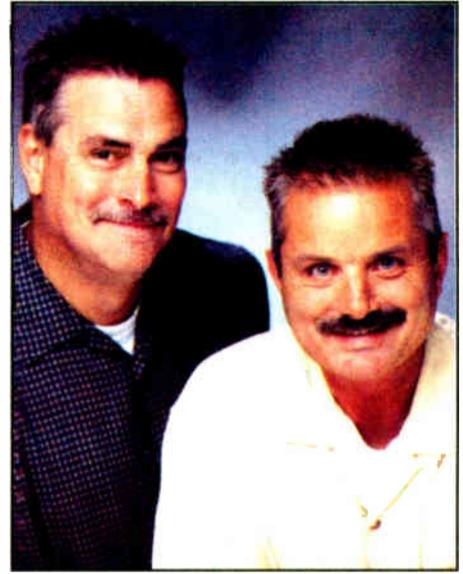
Tim Hattrick and Willy D. Loon are involved in the Phoenix community. They've started their own foundation and they work with local police and children's charities. The team recognizes outstanding educators with a "Teacher of the Week" feature, and support organizations

like 4H and Future Farmers of America.

KNIX itself is among the nominees. Alan Sledge, director of programming operations for Clear Channel/Phoenix, said, "We at KNIX are very honored to be nominated for Legendary Station of the Year. This, combined with Tim and Willy as the hosts, should make it an unforgettable evening in New Orleans."

The Marconi Radio Awards began in 1989. They honor stations and individuals in all market sizes, recognizing broadcasting excellence and outstanding air personalities. The nominees are listed on page 20.

— Paul Kaminski



Tim and Willy



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Twenty Years Ago

"The National Radio Broadcasters Association's (NRBA) 8th Annual Convention and Exposition was held in Miami Beach from September 13-16 ... As in previous years, the show, while strong in some areas, suffered from a lack of 'floor traffic.' And, even though the traffic was better than that seen at the NAB's recent Radio Programmer's Conference held in Chicago, many exhibitors felt the show really wasn't worth their time or money. ...

"The first workshop on Monday was entitled 'Audio Processing for High Fidelity.' It started off with Ed Buterbaugh's (of CKLW/Windsor) very interesting discussion of listener fatigue. ... It ended with Bob Orban of Orban Associates and Nigel Branwell of A&DR discussing the relative merits of highly adjustable vs. preset audio processing equipment. ...

"Tuesday's luncheon featured FCC Chairman Mark Fowler as the guest speaker. His presentation was well received, particularly when he called for the elimination of the 'fairness doctrine' and Section 315 of the Communications Act.

"He also touched on the AM stereo situation when he promised a decision by the end of the first quarter of 1982. It may be remembered that the last time the Commission had an AM stereo decision ready for an NAB show (that was in 1980), the result was something less than satisfactory to most broadcasters. ...

"The NRBA seems to be in almost a 'no-win' situation with regards to keeping the exhibitors happy. The fact of the matter is that the NAB's Spring show is so strong that it dominates the industry. ... The situation has gotten to the point where some exhibitors are pulling out (such as RCA this year)."

— "NRBA/Miami Draws Mixed Review; Exhibitors Unhappy" October 1981



On The Air

A Monthly Newsletter from Broadcast Software International

Issue 6

Quote of the Month

"I want to pay compliments to your tech support. They responded promptly and helped me get through the problem."

Keith Shipman, President
Horizon Broadcasting Group-
Bend, OR

News

You're Invited to BSI on the Bayou



If you're going to the NAB Radio Show in September, put a few hours aside Wednesday evening (Sept. 5) for BSI On The Bayou. Broadcast Software International is hosting a two-and-a-half-hour riverboat cruise, aboard the elegant Riverboat Cajun Queen. The cruise will officially launch BSI's newest automation software currently codenamed "Simian" and demonstrate several other new BSI products.

BSI's Simian is the first of a new generation of digital automation solutions. Many features are still confidential; though we can tell you that Simian incorporates advanced capabilities for self-diagnosis and repair, interstation communications and streaming spot substitution. Simian is touchscreen enabled and will support tagging and simultaneous multiple playback of all professional audio file types.

We'll also be showing our new audio capture software, Skimmer, which is great for sampling jocks or any other kind of air check. Skimmer can record up to an entire year of audio, with any minute of any day instantly accessible.

If you need more than a riverboat cruise and new product demos to peak your interest, we'll also have prize drawings twice an hour for super-cool prizes from BSI and our partner companies, Syntrillium and AudioScience. (Remember to bring a business card to enter the drawing.)

You'll need to have an invitation to join us on the "big muddy" for BSI on the Bayou, so call ahead to 888-BSI-USA1 (274-8721). We'll have refreshments and some great music from southern artists. We'd really like you to join us.

Calendar

Aug 23-25, WaveStation
Weekend Training Session

Sept 5, Demonstration of a
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NAB. Call for an invitation.

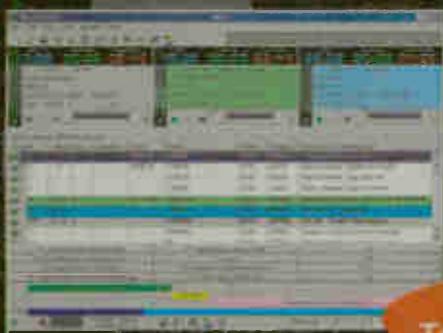
Birthdays:
Aug 25 1949: Gene Simmons
Aug 28 1982: LeAnn Rimes

Tip

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User File

KWDB - Rick Bell

Rick Bell in Oak Harbor, Washington has been running WaveStation since they switched on the transmitter in March of 2000. "The best thing I can say about WaveStation is that we're still learning things about it. Every time we turn around, it seems like we've discovered something new." Rick says, "We've only scratched the surface of what WaveStation is capable of doing."



Despite the number of features, just about everyone at the station knows the basics of WaveStation. "A friend of mine has another automation system, and it just seems like the learning curve for WaveStation is much shorter."

BSI has also been really responsive. "What I really like about the software and the support that you folks have is that you take input from all the users out there and you actually pursue fixing things." In an emergency, he knows he has someone he can count on. "I can't say enough about your tech support. Those guys are just it. They've gone way out of their way to help me. When they answer the phone, there's a sigh of relief on my end."

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And the Nominees Are ...

More than 100 radio stations and personalities are finalists for the NAB's Marconi Radio Awards, given to stations and on-air talent to recognize excellence in radio.

The winners will be announced Sept. 7 at an awards dinner and show during The NAB Radio Show in New Orleans.

The nominees:

Legendary Station of the Year

KNIX, Phoenix
KSL, Salt Lake City
WDAF, Kansas City, Mo.
WHAS, Louisville, Ky.
WQXR, New York

Network/Syndicated Personality of the Year

Jim Bohannon, "The Jim Bohannon Show," Westwood One
Neal Boortz, "The Neal Boortz Show," Cox Radio Syndication
Rick Dees, "Rick Dees Weekly Top 40," Premiere Radio Networks
Paul Harvey, "Paul Harvey News & Comment," ABC Radio Networks
Tom Joyner, "The Tom Joyner Morning Show," ABC Radio Networks

Major-Market Station of the Year

KGO, San Francisco
KIIS(FM), Los Angeles
KLTN, Houston
WDAS(FM), Philadelphia
WTOP, Washington

Major-Market Personality of the Year

Raul Brindis, KLTN, Houston
Patrick Ellis, WHUR, Washington
Eric Ferguson & Kathy

Hart, WTMX, Chicago
Ronn Owens, KGO, San Francisco
Matt Siegel, WXKS(FM), Boston

Large-Market Station of the Year

KOGO, San Diego
KPRS, Kansas City, Mo.
WALK(FM), Nassau/Suffolk, N.Y.
WAMR(FM), Miami
WWSW, Pittsburgh

Large-Market Personality of the Year

Lizz Brown, WGNU, St. Louis
Bill Cunningham, WLW, Cincinnati
Beth McDonald & Bill Austin, KESZ, Phoenix
Armando Perez-Roura, WAQI, Miami
Mike Rosen, KOA, Denver

Medium-Market Station of the Year

KKOB(AM), Albuquerque, N.M.
WGY, Albany, N.Y.
WIBC, Indianapolis
WIVK, Knoxville, Tenn.
WRAL, Raleigh, N.C.

Medium-Market Personality of the Year

Mark Belling, WISN, Milwaukee
Tony Gates, WLAV, Grand Rapids, Mich.
Brent Johnson, WTCB, Columbia, S.C.



Personality Nominee Jolly Joe Timmer, WGPA, Bethlehem, Pa.



Personality Nominee Tony Gates, WLAV, Grand Rapids, Mich.

Jolly Joe Timmer, WGPA, Bethlehem, Pa.
Dave Wilson, WIBC, Indianapolis

Small-Market Station of the Year

KCDZ, Twentynine Palms, Calif.
KTLO(FM), Mountain Home, Ark.
WICO(FM), Salisbury, Md.
WSGW, Saginaw, Mich.
WTUZ, Uhrichsville, Ohio

Small-Market Personality of the Year

John LaBarca, WICC, Bridgeport, Conn.
Will Payne & Barry Diamond, KITX, Hugo, Okla.
Brian Scott, KTWO, Casper, Wyo.
Steve Summers & Lynn Lacy, WXXQ, Rockford, Ill.
Steve & Gaye Sunshine, WECL, Eau Claire, Wis.

Stations of the Year by Format:

AC Station of the Year

KMBQ, Wasilla, Ark.
WALK(FM), Nassau/Suffolk, N.Y.
WCRZ, Flint, Mich.
WRAL, Raleigh, N.C.
WTCB, Columbia, S.C.

Adult Standards Station of the Year

KABL, San Francisco
KEZW, Denver
WMJH, Grand Rapids, Mich.
WMMB, Melbourne, Fla.
WROD, Daytona Beach, Fla.

CHR Station of the Year

KIIS(FM), Los Angeles
KWTX(FM), Waco, Texas
WABB(FM), Mobile, Ala.
WPST, Trenton, N.J.
WXKS(FM), Boston

Classical Station of the Year

KDFC, San Francisco
WFMR, Milwaukee
WGMS, Washington
WQXR, New York
WRR, Dallas

Country Station of the Year

KPLX, Dallas
KUZZ, Bakersfield, Calif.
WAXX, Eau Claire, Wis.
WBCT, Grand Rapids, Mich.
WMZQ, Washington

NAC/Jazz Station of the Year

KMGQ, Santa Barbara, Calif.
KSDS, San Diego
KYOT, Phoenix
WNWV, Cleveland
WUEV, Evansville, Ind.

News/Talk/Sports Station of the Year

KKOB(AM), Albuquerque, N.M.
KSFO, San Francisco
KTCK, Dallas



Personality Nominee Dave Wilson, WIBC, Indianapolis



Cindy and Gary Daigneault are owners of KCDZ in California, nominated as Small Market Station of the Year.



WICO(FM), Salisbury, Md., is a Small Market Station of the Year Nominee. Michael Reath is GM.

WGY, Albany, N.Y.
WTOP, Washington

Oldies Station of the Year

KCMO(FM), Kansas City, Mo.
KIOA, Des Moines, Iowa
WBIG(FM), Washington
WGLD, Indianapolis
WWSW, Pittsburgh

Religious Station of the Year

KCBI, Dallas
KNOM, Nome, Alaska
KSBJ, Houston
WMHK, Columbia, S.C.
WOLC, Princess Anne, Md.

Rock Station of the Year

KBPI, Denver
KLOS, Los Angeles
KQRS, Minneapolis
WEBN, Cincinnati
WLZR, Milwaukee

Spanish Station of the Year

KBNA, El Paso, Texas
KGBT, McAllen, Texas
KLNO, Dallas/Ft. Worth
KXTN, San Antonio, Texas
WAQI, Miami

Urban Station of the Year

KKBT, Los Angeles
KPRS, Kansas City, Mo.
WERQ, Baltimore
WHUR, Washington
WZAK, Cleveland



Kathy Clark of KBNA, Nominee for Spanish Station of the Year



WAQI and WAMR in Miami are nominated in three categories including Spanish Station of the Year. Claudia Puig is GM/VP.

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Experts Lend a Hand on Antennas

Ted Nahil

The annual AM/FM Antenna Workshop will open the technical sessions at the convention in New Orleans. Scheduled for Wednesday Sept. 5 from 9 a.m. to 5 p.m. in the Morial Convention Center, this expanded workshop will be moderated by NAB's John Marino, vice president of science and technology.

Dawson will discuss results of tests of the Crossed-Field Antenna if they are available by the time of the show.

"We feel the AM/FM Antenna Workshop is a unique opportunity for practicing broadcast engineers and technicians to not only learn new techniques, but also to review the basics of antenna operation and maintenance," Marino said.

The workshop will feature sections on AM and FM antennas as well as a special presentation that will address new engineering considerations for gin pole safety. Gin poles are used as part

of the tower erection process.

Ben Dawson, president of Hatfield & Dawson, and Ron Rackley, principal of duTreil, Lundin and Rackley, will open the session with a discussion of AM antenna systems.

They plan to cover critical maintenance and operational issues including antenna proofs and partial proofs, troubleshooting AM antenna system problems, preventive maintenance and

new FCC rule changes.

In addition, because Dawson has been retained by Cross-Field Antennas Ltd., to test the CFA antenna under construction in the United Kingdom, he will discuss results from those tests if they are available by the time of the show.

The CFA is a controversial new AM antenna design. CFAs are in use elsewhere but, to date, none are certified for operation in the United States.

Dawson's firm has been hired to test a CFA in the United Kingdom and release the results of those tests, verifying or vilifying the claims of the inventors.

AM proofs

Dawson and Rackley also will review recent FCC rule changes including proposals to relax rules pertaining to proving AM antenna performance. They'll discuss full and partial antenna proofs, leaving attendees with an understanding of the requirements and procedures necessary to operate an AM antenna system.

and resonant length adjustment.

Also on their agenda are discussions dealing with ice and lightning, support structure movement and antenna harness design. They will discuss test range measurement and antenna modeling techniques as well as transmission line measurement techniques.

Grounding on an FM tower is important. A basic "how-to" discussion of grounding techniques will be included. Silliman will discuss new electrical codes applicable to grounding.

Rounding out the FM part of the workshop, Silliman and Surette will discuss inter-modulation products and filters and present a review of radio frequency radiation rules and standards.

Ernie Jones, vice president of the ERI Structural Division, will finish the work-



Antenna systems must be inspected to assure proper operation, particularly when the weather turns nasty. This three-bay Shively 6813 serves Richmond, Ohio.



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Tom Silliman, president of ERI Inc., and Bob Surette, manager of RF engineering for Shively Labs, will handle a joint presentation on FM antennas. This is an opportunity for broadcast engineers to see different company approaches to common FM installation and maintenance procedures.

One area they will address is matching an antenna to the feed line. Each company has its approach: ERI uses slugs in the line; Shively uses a stub. They will discuss other manufacturers' approaches including gamma straps

shop with a presentation on the final draft of TIA/EIA (Telecommunications Industry Association/Electronics Industry Association) TR14.7 sub-committee standard for gin pole lifting and load specifications. A final vote on the draft will be made this fall.

This standard is important because it will help satisfy an OSHA request that gin poles be load-rated prior to being used. It's also important for tower owners to know about this standard so that they ensure tower construction crews comply

See ANTENNA, page 23 ►

Radio and What Women Want

Lyssa Graham

NAB Radio 2001 attendees will have a chance to glimpse into the minds of women on Friday morning, Sept. 7.

The session, "What Women Want: 5 Secrets to Better Ratings," will feature presentations by Arbitron's national sales manager, Laura Ivey, and John Parikhal, co-founder and CEO of Joint Communications.

Ivey and Parikhal will discuss research data compiled by Arbitron and Scarborough that should provide a new look at what women want from radio in the 21st century.

The data was so fresh that she had yet to really analyze it, Ivey said in the weeks before the show.

Chris Kennedy, senior program and research consultant for Joint Communications, had just begun taking a look at the reams of data.

"We're finding just amazing things," Kennedy said. "It's really going to, in my opinion, provide a fresh view on what radio needs to do to make sure that it's attracting female audiences."

Key elements

Kennedy said radio doesn't always do a good job attracting female listeners. The research Ivey and Parikhal will present could make attracting women an easier prospect for radio programmers.

"Right now, there are a lot of woman who actively listen to radio but they're stomping mad in several key areas," Kennedy said. "They're definitely not being fulfilled."

Kennedy said the data holds some "key elements" to help attract women listeners.

Parikhal, author of "The Baby Boom: Making Sense of Our Generation at 40," is a frequent guest on radio and television shows discussing purchasing habits of media

audiences.

Parikhal said the data comes from

gram directors."

"We asked them what they like

A lot of women ... actively listen to radio but they're stomping mad in several key areas ... They're definitely not being fulfilled.

— Chris Kennedy

more than 1,000 diary keepers, a group he calls "the Holy Grail to pro-

about radio and what they don't like. What gets them to tune in and what

gets them to tune out," Parikhal said.

Parikhal said he and Ivey have surprises for the session audience. He said the data shows what women want by format, and that women want different things based on different formats.

"We're really going to surprise you with the reasons women tune out," Parikhal said. "If you're wondering whether it's commercials, rude and vulgar language or bad songs, come and find out."

The data shows which form of advertising is more effective with women, Parikhal said. He would not reveal whether women are moved more by word of mouth, television, direct mail or the Internet but he promised to spread the word on Sept. 7.

"There's a great deal of data," Parikhal said.

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Antenna

► Continued from page 22 with it when work is performed on an existing or new tower.

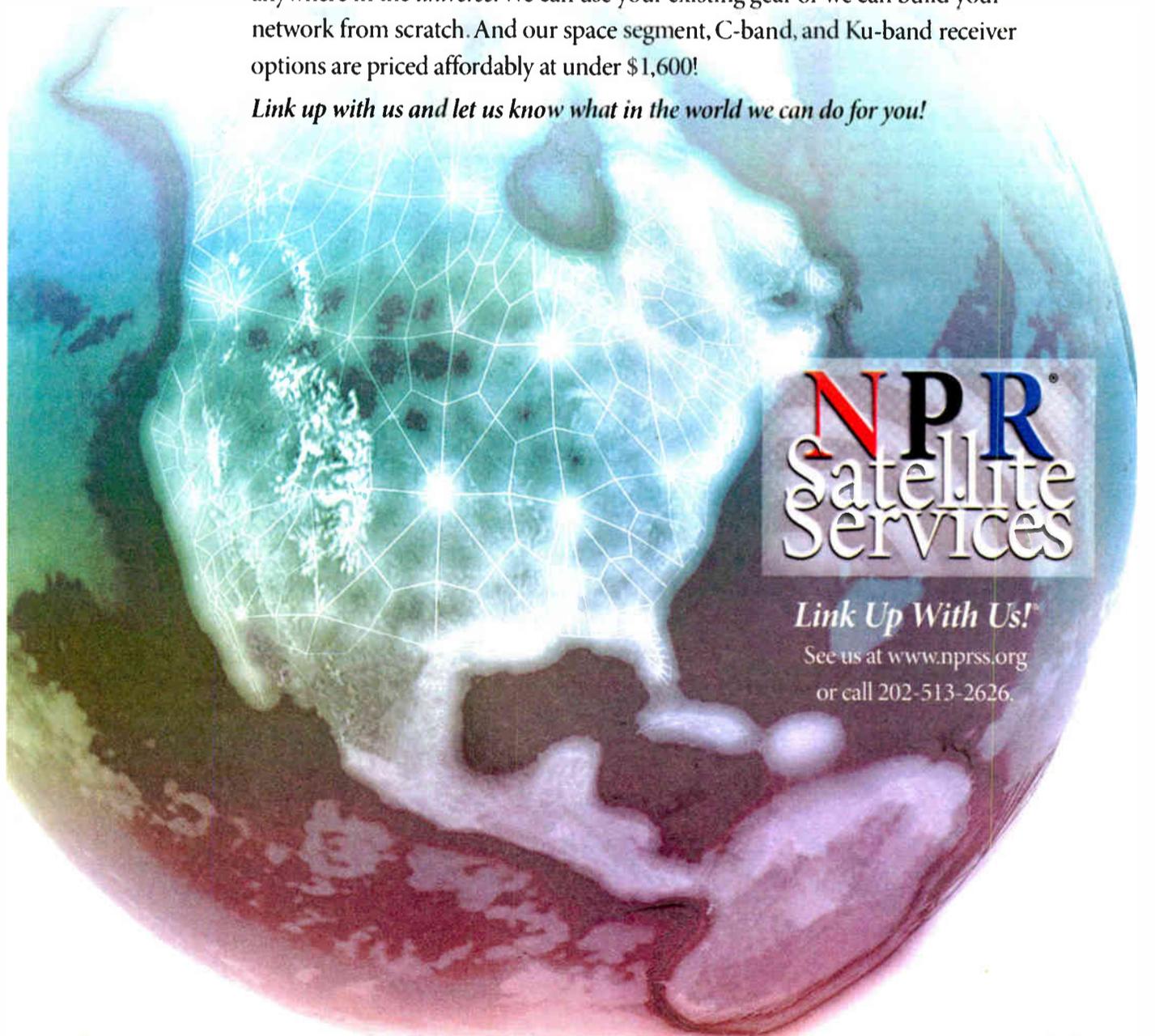
"This workshop gives broadcast engineers and technicians the opportunity to ask questions of and learn from some of the industry's leading RF engineers," said Surette.

SBE credit

The technical workshops at the Radio Show not only help engineers review basics and learn new techniques, they count towards SBE recertification.

"Attendance at broadcast technical seminars is indeed an important component of the continuing education that is required for SBE recertification," said Terry Baun, chairman of the SBE Recertification Committee.

Attendees receive 0.5 credits for each four-hour seminar they attend. Certified SBE members should retain proof of their attendance to apply toward their recertification.



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NAB Radio Goes to an Xstream

RIAA President Hilary Rosen Headlines New-Media Event During Radio Show

Craig Johnston

Radio Show attendees will find their credentials allow them entry into a second convention, NAB's inaugural Xstream Show.

Promising to bridge traditional content delivery and new, rich media content exchange, the NAB will present Xstream in conjunction with its annual Radio Show, Sept. 5-7 in New Orleans.

Eventful year

Even though radio and the Internet have had a tumultuous year, taking a double-barrel blast from the Copyright Office and then AFTRA and SAG, many stations are offering their signals to listeners on the Web.

But the convenience of reaching radio executives with the co-joined conferences was not the only reason for adding Xstream.

"We wanted to launch this streaming media conference, and with the Radio Show we already had a venue," said John Marino, NAB's vice president of science and technology.

"Entertainment use of streaming has actually lagged behind the corporate/enterprise users, predominantly because there are few home viewers who have enough bandwidth

at home."

Marino said companies are embracing streaming to communicate with their employees and to distribute financial information to investors. Their people can see immediate return on investment, eliminating travel and other expenses by using streaming media.

One station has been successfully streaming since 1996 and has spent less than \$5,000.

Though radio may not be the only target for Xstream, there are keynotes and a number of sessions that radio executives may find interesting.

Rosen

Xstream's Thursday keynoter is the head of one industry group that has placed a hurdle in front of Internet radio.

Under its president and CEO, Hilary Rosen, the Recording Industry

Association of America has sought to protect the rights of artists and copyright owners when music is delivered over new media platforms.

The RIAA takes the position that the 1995 Digital Performance Right in Sound Recordings Act exempts only traditional, over-the-air broadcasts to local communities, and not AM/FM Webcasts over a worldwide digital network such as the Internet.

The U.S. Copyright Office has sided with the RIAA; Xstream sponsor NAB



Hilary Rosen of RIAA

two entrances," said Gene Sanders, NAB Director of Exhibit Sales and Services. "If you have a badge to get on the floor, you can walk between the two exhibit areas, much like our spring show."

The Xstream exhibit area will be about one-fourth the size of the Radio Show exhibits. As of late July, only about a dozen companies had signed up as Xstream exhibitors. Asked about that, Sanders said, "It's a reflection on the economy and the status of that particular industry."

The exhibit floor features learning labs to allow visitors to get hands-on experience with streaming.

The Convergence College is sponsored by NAB and run by First Media. Its goal is to take the technology seen on the floor and show station managers how to make it work for them. It is situated straddling the Xstream and Radio Show exhibit areas.

The Advertising and Marketing Learning Lab features innovations in tracking, content creation, deployment, and other factors as they apply to advertising and marketing.

Off the exhibit floor, Harris Corp. will present the Radio Station of the Future. It will feature a radio studio, with an area showcasing the companies and components making up the station.

Cosponsoring Xstream with NAB is The Association for Interactive Media and the International Webcasting Association.

has sued in federal court to have that ruling overturned.

Rosen is sure to draw radio executives to her Xstream keynote.

A keynote aimed at both the Xstream and The Radio Show will be delivered Wednesday afternoon by Wall Street Journal technology columnist Walter Mossberg. See page 27.

Ten Xstream conference sessions are aimed directly at the radio marketplace, covering streaming of traditional radio signals as well as Internet-only radio streaming. These sessions are peppered throughout two Entertainment tracks. (There are also two Business/Enterprise tracks.)

Estimates say that Internet radio listening will hit a critical mass by 2003 and that Internet radios will be available in automobiles by 2004. The Wednesday session "The Pending Migration From FM to Internet Radio" will discuss these rapid changes.

Addressing radio's need to generate revenue from Internet streaming, SurferNetwork's Gordon Bridge will detail the success some radio groups are having in generating advertising revenue from their online broadcasts.

The Thursday afternoon session, "Internet Advertising Works on Radio and Generates Revenue," will discuss combining traditional business practices with state-of-the-art technology.

For those who see nothing but large dollar signs when they ponder streaming their station's signals, John Mielke of KKNX in Eugene, Ore., will present "Small-Market Streaming: How to Really Do It on a Budget" on Friday morning. Spending less than \$5,000, his station has been successfully streaming, increasing revenue, expanding its audience, and simplifying their billing processes since 1996.

Learning labs

In addition, a pair of learning lab pavilions will be situated on the exhibition floor, allowing attendees to interact with streaming, see live demos and get hands-on experience.

Xstream show exhibits will be situated as a pavilion on the combined show exhibit floor.

"There will be décor changes and

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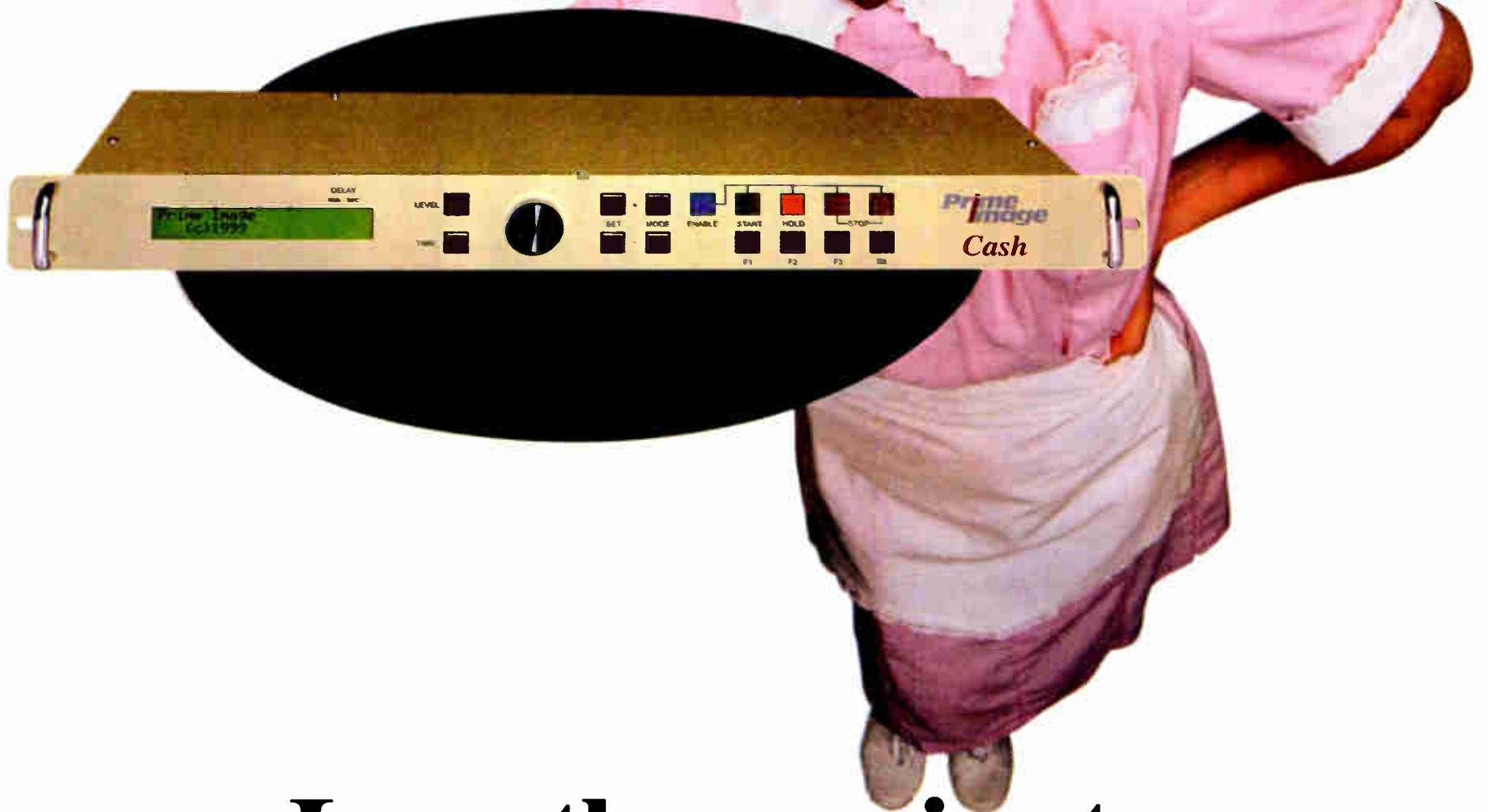
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Exhibitors	
<i>The following companies were signed up as Xstream exhibitors as of the beginning of August.</i>	
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Artesia Technologies	X520
ChainCast Networks Inc.	X718
CMBE Inc.	X1351
MeasureCast	X1036
Media CareerLINK Inc.	X930
Media Professional	
Insurance	X1236b
MP3.com	X1343
Orban	X1027
Radio Unica Network	X1337
Reliacast	X629
Royal & SunAlliance	
Insurance Group	X1236A
SRSWOWcast.com Inc.	X628
Staco Energy Products	X1028

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Mossberg: Adjustment Is Survival

Peter King

People will listen to radio less in the future unless the industry makes some major adjustments toward personalization through new technology.

That's the opinion of Walt Mossberg, technology columnist for The Wall Street Journal.

Mossberg will speak at The NAB Radio Show. He plans to discuss the state of radio and new opportunities presented to broadcasters via the Internet.

The expectation of immediate gratification has weaved its way into the radio industry, altering the basic threads that have held "traditional" radio together since its inception.

"I think radio will endure," Mossberg said, "but I think it's very likely to be transmitted in a different way than it is today, and it's very likely to be programmed very differently."

Granular services

Mossberg said he uses radio less than ever, because he's spending more time on the Internet and "burning" his own CDs for music. Unless the industry adjusts to competition from other media, radio is in for a rude awakening, he predicts.

The writer expects more "granular" or personalized programming that is less "canned" and more customized for individual tastes.

Mossberg said Internet and satellite radio provide opportunities to create narrowly focused programming and allow listeners to program their preferences.

Mossberg is more bullish on the Internet than satellite possibilities, saying it's too soon to predict the success of current digital satellite radio subscription services, such as XM Satellite Radio and Sirius Satellite Radio.

"I am a little skeptical that they will get a critical mass of people willing to pay \$10 a month ... I think it's a good model (for subscription radio) and I believe (subscription services) will even prevail on the Internet," he said.

But consumers might not be willing to pay more money for satellite radio when they're already paying for cable or satellite TV or Internet access, he said.

Net gains

Radio's in-car listening has faced competition from recorded media — cassettes, four and eight-track cartridges, CDs, MP3 — since the early 1960s. Mossberg believes auto manufacturers will help make Internet access on the road routine within the next five years.

"It's clearly on their drawing board," Mossberg said. "I'm completely convinced that cars will contain large hard disks in three or four years, to cache or store programming that's targeted to the person in the car."

As more stations stream their product on the Internet, Mossberg said their success is being stifled by the slow spread of broadband.

"The phone companies and cable companies are, frankly, doing a terrible job of marketing, selling and

installing cable modems or DSL lines. It's amazing ... There's a tremendous

Mossberg predicts that when more consumers have high-speed access,

'I am a little skeptical that (XM and Sirius) will get a critical mass of people willing to pay \$10 a month.'

demand, even at \$40 or \$45 a month," he said.

there will be more of an opportunity for Internet-delivered radio, as well as

other receiving devices to be connected to broadband terminals.

According to Mossberg, radio's future depends on the industry's ability to adjust to new competition from other media.

The key, he said, is whether new technology will allow radio to become more personalized and more narrowly focused.

"I don't want to beat a dead horse, but the fact is people are much more used to having their own music and not having to listen to stuff they don't want to hear," he said.

"The Internet and satellites offer the opportunity to create *really* targeted programming. If you don't do that, then people are just going to pop in MP3s or CDs into their cars and listen to that." 

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Overview

► Continued from page 1
stock market volatility, the economic slow-down and the drop in dot-com business.

For example, the Radio Advertising Bureau said overall radio sales for the first five months of this year were off 8 percent, compared to the year before. Industry observers hoped for a better second half of this year, at least relative to last year, pointing out that the biggest months of 2000 came early, before the tech sector dropped.

"There's softness in the economy and that's a concern in the industry. A number of dot-coms are not around this year. ... (But) we have a fantastic show," Wharton said. "From the program standpoint, this is probably the best Radio Show ever."

The convention starts with a keynote address from Wall Street Journal technology columnist Walter Mossberg.

His comments will be directed not only at terrestrial broadcasters, but also at streaming-media attendees, who'll also be at the Ernest Morial Convention Center for the NAB's parallel Xstream convention.

With the recent controversy over copyright and royalty issues for streaming broadcast signals, Wharton expects plenty of interest from traditional broadcasters at the Xstream booths.

"It'll all be one big umbrella," he said of this year's convention floor, "one big tent where you can make the crossover from the Xstream floor to the traditional exhibit floor."

The NAB Web site in July was promising more than 250 Radio Show exhibitors; at the end of July Wharton projected 150.

Prominent among those not exhibiting are manufacturers Telos Systems/Omnia and Klotz Digital America, both of which have taken part in past Radio Shows. Telos Systems/Omnia will have product in its dealers' booths.

"Just because it's the NAB doesn't mean you have to be there," said Frank Foti, president of Telos Systems/Omnia. "We look at it as a vehicle to spending quality time with customers, (but) the last two years, it seems the attendance has begun to dwindle a bit.

"In San Francisco, we felt the turnout was mediocre (although) the people that did come were quality."

Another factor in the Telos decision, he said, is that consolidation now allows vendors to meet with customers in their own markets more easily.

"With clustering, we can go into a market and get an audience with six or seven radio

stations with one visit."

Foti said he would not rule out returning to future Radio Shows.

Klotz Digital America Managing Director Ramon Esparolini cited "bad timing" of the convention, during Labor Day week. His company had planned a 20-by-40-foot booth.

One vendor, who asked not to be identified, said his company would not exhibit in part because of NAB's position in the debate over TV ownership deregulation, and in part because more radio groups now choose not to pay for employees to attend.

But many familiar suppliers will be present in New Orleans, Wharton said, mentioning Harris Corp., iBiquity Digital Corp. and BMI. A list of exhibitors starts on page 32.

Among those exhibiting is Radio Computing Services. "We use the fall NAB just like the spring show, for rendezvous opportunities with group executives and hundreds of individual owners," said Phillippe Generali, president of RCS.

A full schedule

On Thursday morning, Radio Show attendees will hear from NAB President Eddie Fritts and management expert Tom Peters, known for his "In Search of Excellence series," while Xstream attendees hear a keynote address from Hilary Rosen, president of the Recording Industry Association of America, discussing the copyright issues that have bedeviled the online music business.

A few hours later, group owners will take the Super Session stage to talk about the direction the industry is taking. This panel includes Clear Channel's Randall Mays, Cox Radio's Bob Neil, Radio One's Alfred Liggins, Cumulus' Lew Dickey and Nassau's Joan Gerberding.

A power panel of different sorts will bring together recent winners of the NAB Radio Engineering Award, including Mike Dorrough, Geoff Mendenhall, Arno Meyer, Charles Morgan, and Bob Orban. Radio World Editor Paul McLane moderates.

Thursday's events will include a panel of representatives from some of radio's biggest advertisers, including Procter & Gamble, McDonald's, Sears and Pfizer, offering their perspectives on the state of the business.

With the recent changes at the FCC, Friday morning's Policymakers' Breakfast promises to be well attended. New commissioners Kathleen Abernathy, Michael Copps and Kevin Martin will talk about their agendas and take questions from broadcasters on issues including the latest struggles over indecency fines.

"I think that could prompt a lot of questions from the audience," Wharton said, "whether there's a crackdown planned on hip-hop music or anything like that."

Friday's Radio Luncheon will honor Citadel's Larry Wilson, recipient of this year's NAB National Radio Award.

Also on tap during the convention is the unveiling of the latest Internet Study from Arbitron and Edison Media Research. In what's become an annual Radio Show tradition, the companies will present their most recent research on streaming audio and consumer reaction in the wake of this spring's shutdown of many stations' online audio ventures.

And instead of waiting until Saturday night, this year's Radio Show will wrap up Friday night with the Marconi Awards Reception, Dinner and Show. Morning team Tim and Willy from KNIX(FM) in Phoenix will be the emcees as the NAB presents the Marconis to deserving stations and air personalities from around the country.

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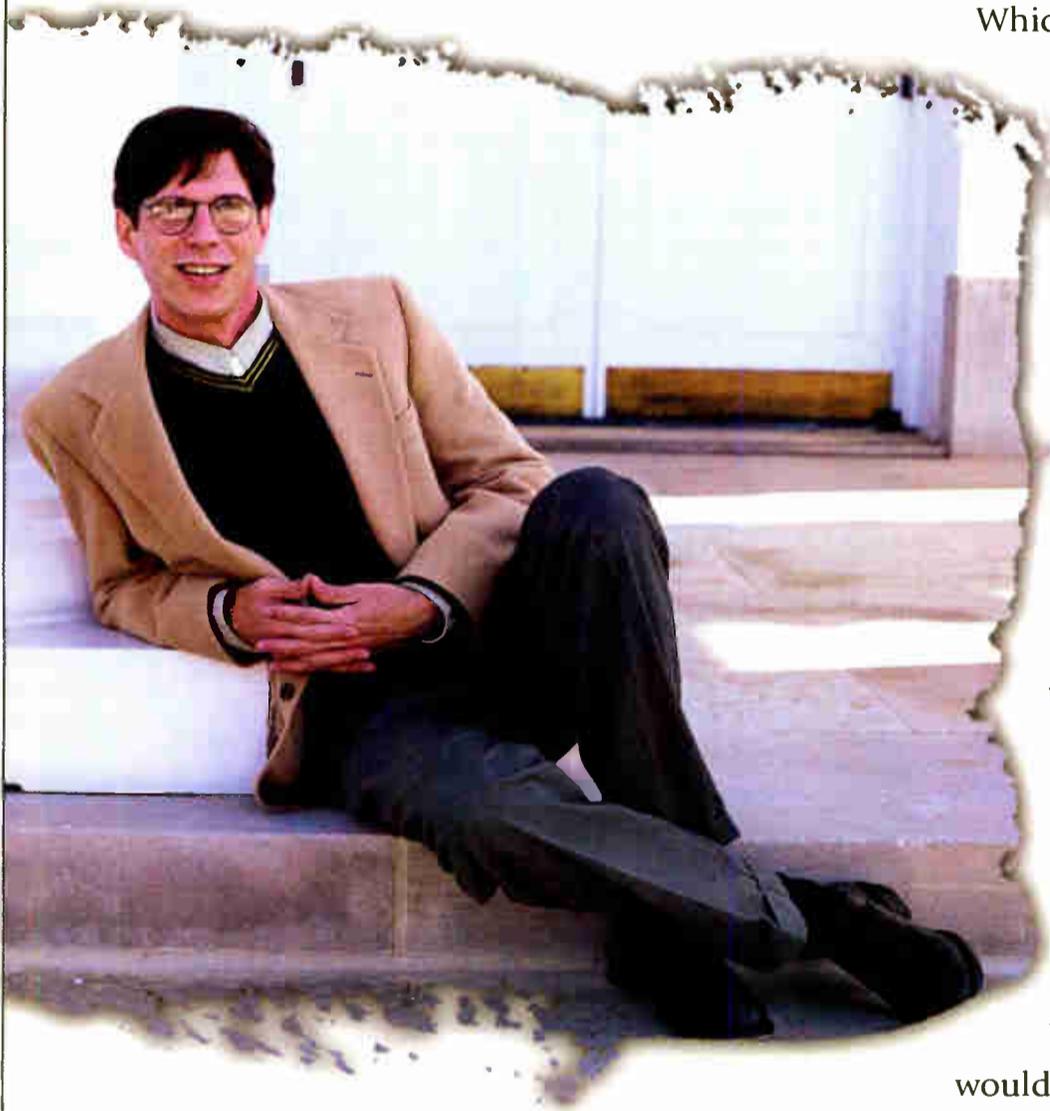
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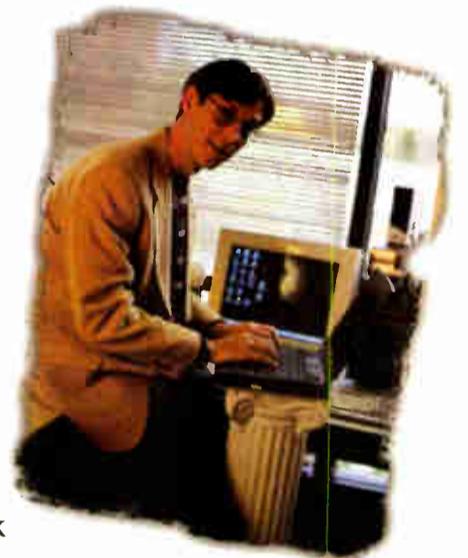


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Internet VII: More Streams to Come

Craig Johnston

Interviewers are in the field this month, collecting data for a study that will be released during The NAB Radio Show.

The topic is the Internet, and the study is the latest in a series that have become a popular part of this convention.

"I've always been surprised at the level of interest and the usage of streaming," said Larry Rosen, president of Edison Media Research.

Rosen and Arbitron VP of Webcast Services Bill Rose will present their "Internet Study VII: What Consumers Want Next," in New Orleans.

Rosen remembers thinking three or

four years ago that the number of Americans who had listened to radio over the Internet might reach a 1 percent threshold. He was wrong.

"It was 6 percent who had tried streaming! And it continues to grow. People think it's fun and interesting and different, and some of them think it's a pain, but it sure changes your world if you care about music and different kinds of radio."

"As we've tracked it over time," Rose said, "we looked at it two years later, and that number had tripled to 20 percent. One out of five Americans had listened to radio on the Internet."

An area of particular concentration for this summer of 2001 study is how to turn

that growing audience into ad dollars.

"We've found that people who use streaming media make more money," Rose said. "They buy more online, they click on more banner ads, and they're more Internet-savvy. I think that message is beginning to take hold in the industry."

Who tunes in

Rose compares streaming media's situation today with the early days of cable.

"What streaming media's beginning to do is not only talk about the growth of the audience, but who is tuning in online and what makes them special, because I think that's what is going to be the most important selling factor for advertising within

streaming media.

"I think that the industry has learned a few things ... I think they're concentrating more on what they can sell. I think a lot of the messages we're starting to hear have been an outgrowth of the research we have done not too long ago on this topic."

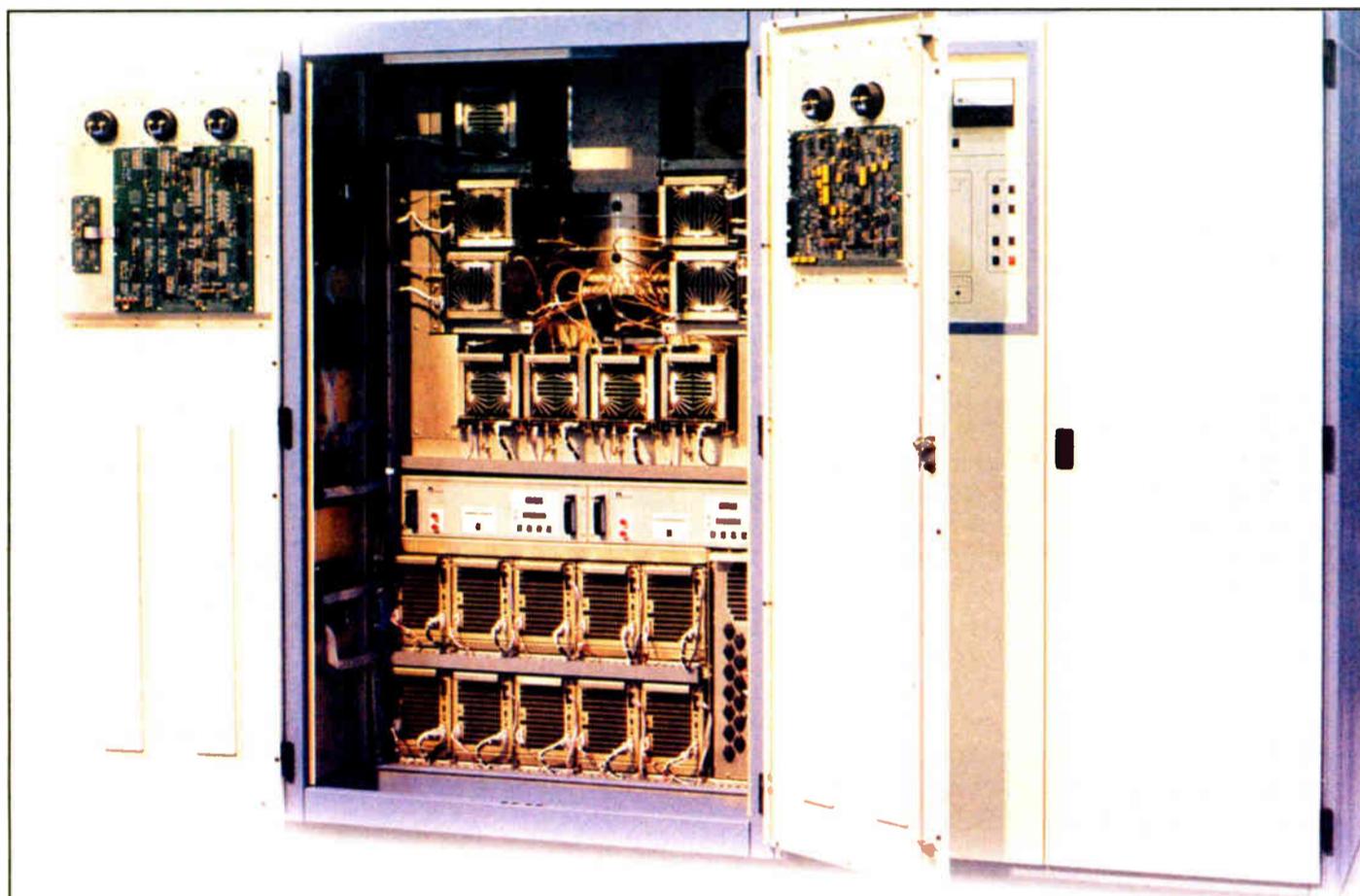
With 3-1/2 years of positive signs coming from the Arbitron/Edison studies, why has there been such a pall cast over the industry?

"I think it's because people are concentrating on their stock portfolios instead of what's actually happening out there," Rosen said. "There was sort of this mass hallucination that happened, that companies that had no reason to exist would make people billionaires, and for a couple of hours there, they did. But these studies show that there is a business there."

"While the whole retail thing completely imploded, an article I read in the New York Times talked how one area that continues to grow and grow rapidly is buying plane tickets over the Internet," he said.

People who use streaming media make more money, buy more online, click on more banner ads and are more Internet-savvy.

— Bill Rose



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"So there are the uses, but the theory was that it was going to completely undo and replace every single aspect of everybody's lives, and that's just not going to happen. People used to seriously talk about shopping malls being ghost towns, and I don't think that's going to happen."

The streaming landscape has changed over the past year with an influx of subscription services.

"We are going to be looking at interest in paid online sports subscription and other types of online subscription models," Rose said.

Another occurrence since the prior study has been the flap over union talent fees, which resulted in stations pulling their signals off the Internet.

"We're going to look at how people feel about radio stations having pulled their streams," Rosen said.

"The medium is still new, and it's still growing, but there's a big difference between online media vs. over-the-air media, in that there are thousands of choices online and it's easy to find something else online."

He cautions stations that have interrupted their Internet service to return their streams to the Net as quickly as possible.

"This thing is going to grow really rapidly, and 18 months or three years from now, some of those disaffected listeners or viewers could have found alternative sources of tuning that can please them more."

Data is being collected this month.

"We're usually working right up to the presentation," Rose said, "so you can be assured it will be really fresh." ●

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The following are exhibitors at The NAB Radio Show in New Orleans. The list was provided by the show organizers. Highlights are paid for by the exhibitors.

Late registrants may not appear here. Check your on-site program for changes.

Booths preceded by the letter "X" are part of the concurrent NAB Xstream show.

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Intro: FM Auction Allocation CD-ROM. BIAfn and SiteSafe answer how to make the December 2001 FCC FM auction work for you; MEDIA Access Pro, the most powerful radio and TV database in the industry, now has new features including Arbitron ratings, Web links and more online accessibility. Come to booth 1740 for a demo and

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 ChainCast Networks Inc. X 718
 CMBE Inc. X 1351
 CMI 2130
 Coaxial Dynamics 2154

360 Systems 1636
 Accuracy In Media 2110
 Activate X 1018
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 Air Force News Service 2046
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The sportscasters dream machine!

i-mix
TLM00



TieLine i-Mix is the worlds first fully featured intelligent remote mixer with built in ISDN and POTS Codecs with provision for wireless and IP. Test drive the TieLine i-Mix at NAB Radio 2001

Booth#1647 **AVC** **TIELINE** AMERICA

register for a free one-year license.

Also: BIAfn is a premier financial and strategic advisory firm specializing in creating value for broadcasting companies in challenging economic environments.

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Communication Graphics Inc. 1607

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Intro: Digital Universe is digital audio with uncompressed audio and open nonproprietary hardware. Ability to play spots and record voice tracks in every workstation, CD ripper, network time shifting; Maestro 3.1 digital audio system for music, talk, news formats with live copy on screen, unique announcer control, voice tracking, phone recorder and robust hardware; EpiCenter, a digital audio switcher and audio mainframe for multiple stations at one location with up to 1,024 x 1,024 routing.

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 E-mail: info@ccc.fm

ComQuest Callout 1546

Intro: ComQuest now offers an out-of-house version of its popular Interactive Callout system.

Also: ComQuest - Interactive Callout; respondents recruited by live interviewers,



The Source

A Newsletter from Electronics Research, Inc.

Tom Silliman - KING KONG'S GOT NOTHIN' OVER HIM

Almost as familiar a figure atop the Empire State Building as the bright aviation beacon flashing at pilots, Tom Silliman, ERI President and CEO, has become somewhat of a celebrity after a full-page feature article in *The New York Times*.

Tom has worked on the ERI antennas atop the Empire State Building for nearly 10 years. During that time, his excellent working relationship with the building's management has led him to help out, while on antenna jobs, with other maintenance issues on top of the building.

One cold day in January, Tom was fixing the heater for another manufacturer's TV antenna. While he was there, the building management asked him to replace the aviation bulbs at the very top, which had been dark for almost five months. However, he discovered that the bulbs weren't the problem. As the antenna heater he had been working on needed additional attention, Tom scheduled another climb to perform both repairs.

In anticipation of the lights being restored, the building management and the PR Department contacted *The New York Times*. The *Times'* journalist, Charlie LeDuff, and a photographer asked to climb with Tom and the crew to take quality pictures. As his nerves allowed him to climb all the way to the ice shield,

the photographer got some fantastic shots. The photos, along with a full-page article,

appeared in *The New York Times* on Friday, January 19. That article was only the beginning.

Not long after the original story appeared, the producer of *Ripley's Believe It or Not* called, asking to feature the story. With more work needed on the TV antenna, Tom agreed for the production crew to meet him on top of the building for filming. In the meantime, *20/20* and *National Geographic* also called for stories.

While all three media outlets filmed, Tom and his crew worked on the antenna heaters from Friday morning until Sunday night. Having only been notified of the aviation lights being restored, the production crews initially did not realize the real work Tom was doing. Highly impressed with the work and with the crew's professionalism, as well as Tom's education and experience, *20/20* ran an expanded 11-minute segment in April which aired as their lead-in to the new "Living on the Edge" feature.

The *Ripley's Believe It or Not* segment aired August 8th. *National Geographic's* story is nearing completion and will appear in the October issue. As President of ERI, Tom's work ethic, professionalism, and technical expertise exemplify ERI's commitment to customer satisfaction.

Summer 2001
Vol. 1 - Issue 2



INSIDE:

- Trivia
- Product Showcase
- Employee Spotlight



www.ERInc.com

Employee Spotlight

ERI CUSTOMERS BENEFIT FROM KENN MARTIN'S 50 YEARS OF BROADCAST EXPERIENCE



Kenn Martin

As the front line for callers with antenna problems, Kenn Martin, Technical Services Specialist, utilizes his nearly 50 years of broadcasting experience and tremendous knowledge of broadcasting to analyze each situation and to make recommendations.

Interested in broadcasting since high school, where he earned his ham radio-operating license in 1952, Kenn went to work for Naval Intelligence in Secure Radio Communications as a Russian specialist. He traveled the world with the Navy and also worked with the Armed Forces Network in Germany. One of his favorite stories is of the closed circuit radio station that he and three co-workers created out of salvaged parts in Turkey—so popular that even the Turkish people started listening!

In 1962, after serving with the Navy, Kenn set out with his first class radio license in hand, to work at the first Country FM station in Evansville, IN as a jockey and as a transmitter engineer -- skills utilized several years

later at another local station.

In 1975 Kenn became a one-person

team for ERI overseeing the Antenna Testing Range, testing antenna patterns and tuning. His next position with ERI was field technician, providing antenna installation supervision, antenna troubleshooting, filter installation, tuning and repairs. Although he never climbed more than 20-30 feet at the test range and was afraid of heights, his first site visit included climbing a 200-foot tower. By the time he returned to earth his whole body ached from the stress! Although preferring not to climb, Kenn overcame his fear and climbed 1400 feet to work on an antenna mounted on a 1600 foot guyed tower in Columbus, GA.

Since 1987 Kenn has been ERI's Technical Services Specialist, helping station engineers with antenna problems. Drawing on his vast broadcasting experience, Kenn usually has a sense of the problem within the first 30 seconds of the call, and often thinks to himself, "Been there, done that." He is able to quickly and effectively analyze the situation and recommend a solution to the customer.

Kenn Martin's experience and dedication make him a valuable asset to ERI and to our customers, and yet another example of the quality of engineering services available with all ERI products.

NEW APPOINTMENTS/HIRES AT ERI



Scott Beeler

Scott Beeler has been named Director of Worldwide Sales for the entire ERI range of manufactured products. Responsibilities include antennas and structural systems for the broadcast and communications industries for all international and domestic operations. Scott will play a major role in sales and in product development. He will also take responsibility for the formation of select new partnerships with suppliers and with end users,

and for the maintenance of existing partnerships. Starting his career with Roy Ridge of (former) Allied Broadcast Equipment, Scott has more than 18 years of broadcast and communications industries experience with time and success in many different capacities. He served most recently as Director of North American Radio Sales for Harris Broadcast.

Dan Rau's Radio Applications Unlimited will represent ERI's lineup for the Northeastern section of the United States,



Dan Rau

including CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, Washington D.C., and WV. Dan brings a high profile of over 30 years of broadcast industry experience and support to the role of representative for ERI, and he will serve customers in the Northeast from his office in Massachusetts. Dan's extensive manufacturing and sales career is one of the better known in our industry.

Al Jason's RFOnly will act as ERI representative for the Western United States, including AK, CA, HI, NV, OR, and WA. Al's broadcast career includes hands-on operations at several stations as well as RF design and propagation studies. He has also spent significant time on-site as a field technician overseeing and installing RF systems, and is recognized as a key presenter of RF papers at conventions and SBE meetings. Al represents ERI to the Western United States from his office in California.



Al Jason



ELECTRONICS RESEARCH, INC.
*Your Single Source Advantage
for Antenna and Tower Products*

Product Showcase

NASHVILLE CANDELABRA PROJECT

In the midst of one its biggest vertical real estate projects to date, ERI is working with Richland Tower on a site in Nashville, Tennessee. ERI is manufacturing a 12-foot face, 1,288 feet AGL candelabra tower that, in addition to the TV candelabra, will also support an ERI FM Panel antenna, cellular antennas, and dishes.

Richland chose ERI for the project because of our vertical integration of engineering, antennas, and towers. ERI demonstrated its knowledge of the specialized needs involved in the erection of such a large tower by:

- Our involvement in developing the design standards for gin poles
- Our engineering supervision of installations, and
- Our structural analysis of towers

We also co-developed the tower software, ERITower, considered by many to be the industry standard.

The ERI team has been working for more than a year on this project. Tower fabrication and site preparation are already in progress with the project scheduled to be operational by April 2002.

NEW PROJECTS

ERI Upgrades Two Aging Master Antennas

An ERI three-around, two-level cogwheel antenna will be installed at the Chicago Hancock Building and also at WHRO in Norfolk VA. This high power design provides reduced complexity and greater reliability. A unique feature of both jobs is the Cogwheel's integral frame which supports top-mounted, double-stacked TV antennas.

Internet Site Antenna Monitor

Through the use of Motorola Cold Fire technology and ActiveX architecture, ERI has incorporated the power of the Internet into its combiner monitoring system. The ISAM utilizes a standard web browser interface to allow broad system access without the cost of a dedicated industrial grade computer.

Enhanced Side Mount Antenna

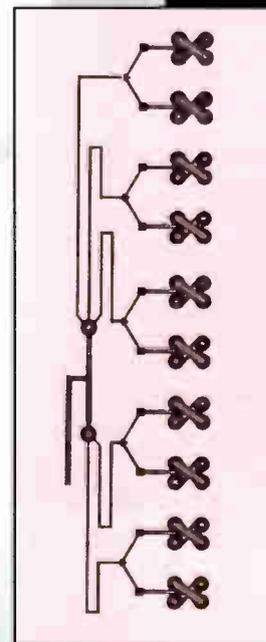
ERI announces its newest line of FM antennas, the Axiom series. The Axiom antenna incorporates a novel, high power branching feed system to complement its inherent broad-band elements. User groups ranging over 15 MHz have formed station consortiums and are jointly operating from ERI's Axiom stand-by antennas.

Lower Filter Losses

The internal cavity of the 963 high power band-pass filter has been redesigned to further decrease filter loss and start-up drift. Improvements were made using copper materials, silver-plated coupling conductors, and bellows/invar resonator restraints.



963 High Power
Band-Pass Filter



Axiom Model
10-92-6S

Contact us:

ERI

Phone: (812) 925-6000

Fax: (812) 925-4030

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Jackie Kinneyext. 267
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Please send any address corrections or other newsletter - related comments to TheSource@ERInc.com or mail comments to the attention of "The Source" at the address shown below.

BROADCAST TRIVIA CHALLENGE

Can you match the names of these significant contributors to the field of radio communications with their accomplishments? Be one of the first to respond with the correct answers and win a T-shirt!

*Al Germond
James O'Neil
Bill Sutherland
Mark Humphrey
Kevin Novak
Percy Kuhn
David Sites
JT Auderton
Ed Trombley*

Winners From The Last Broadcast Trivia Challenge

*H S Killgore
Judy Nott
A. Williams
Jim Stagnitto
Fred Lass
Hal Kneller
Ralph T. Winquist
Charlie Gallagher*



- | | |
|--------------------------|--|
| 1. Heinrich Rudolf Hertz | A. Inventor of a self-named wave-meter |
| 2. Nikola Tesla | B. Numerous patents related to electrical devices |
| 3. Guglielmo Marconi | C. Super-heterodyne receiver |
| 4. Prof. J. A. Fleming | D. Discoverer of the principles of radio communication |
| 5. Major E.H. Armstrong | E. Transatlantic wireless communication |

Answer to the Last Trivia Challenge

For those of you who thought the photos looked like an early TV antenna, you were right! The pictures were of a television transmitting antenna designed to provide broad band operation for the demanding high-definition television signal. The full description of the antenna and its development can be read in the "RCA Review" of April 1939, as described by Nils E. Lindenblad, the developer of the antenna at RCA. (The paper is also reprinted in the book Radio at Ultra-High Frequencies, published by RCA Institutes Technical Press, New York, NY, April 1940.)

Send contest e-mail to trivia@ERInc.com. Please include shirt size (L, XL, XXL) and a mailing address. The correct answer and names of the winners will be published in the next issue of ERI "The Source". You can also log onto our website at www.ERInc.com in the weeks ahead for the answers.

ELECTRONICS RESEARCH, INC.

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Comrex Corp. 1900

ro: The POTS/ISDN/Wireless Codec on POTS, ISDN and GSM wireless service for ultimate remote broadcast flexibility. See and hear the Matrix live on all circuits at the Radio Show!

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amental Electronics Corp. 1904

ive Radio 2050

e-Kimzey Co. 1238

Corp. 1666

let Digital Media Systems USA Inc. 1340

world 1637

ystems 1956

tric Communications 1641

Weather Services 2104

com 1860

nis Radio Corp. 1450

oda Systems 1656

Systems Inc. 1962

gy-Onix 2108

Electronics Research 1837

o: Axiom Antenna incorporates a high-power branching feed system to complement its increased broad- cast elements. User groups ranging over 100 have formed station consor- tiums and jointly operated from ERI's antennas with a VSWR of 1.1:1. ERI's IBOC combiner's advanced cou- pling and transforming methods deliver superior performance necessary to meet and exceed the IBOC transmission requirements.

o: Since 1943 ERI has manufactured and installed FM antennas, towers, filters, lightning protection and grounding systems. Engineering services include structural analysis and tower reinforcing.

Ellen Van Royen, Mktg. Coord.
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E-mail: evanroyen@ERInc.com



Riverwalk on the Mississippi

Photo by Carl Purcell © NOMCTV

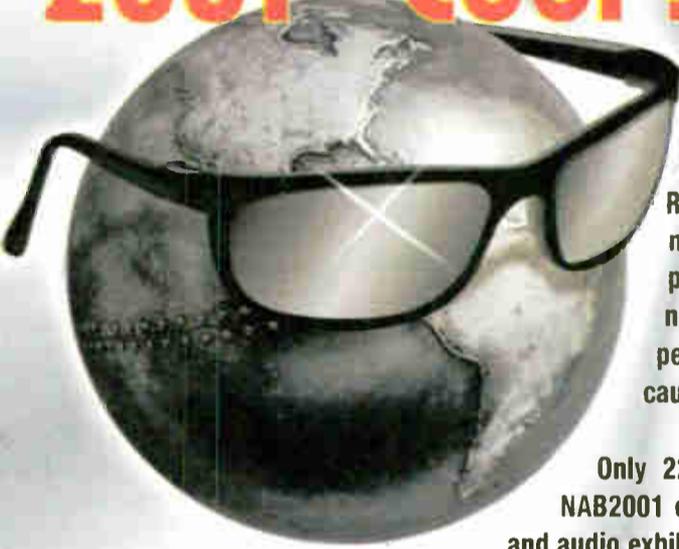
EWTN AM/FM	2144
FamilyNet	2041
FastChannel Network Inc.	1141
FirstCom Music Inc.	1611
FmiTV Networks Inc.	1137
Freeland Products Inc.	1346
Fresh Music Library	2119
Gepco International Inc.	1451
Gorman-Redlich Mfg. Co.	1946
Groove Addicts/ Who Did That Music?	2102

Radio World

Congratulates the

2001 "Cool Stuff" Award

Winners



Receiving the "Cool Stuff" Award is a significant accomplishment. It means a product was selected by Radio World's panel of broadcast engineers and industry journalists as notable for its design, features, cost efficiency and performance in serving radio users. It also means the product caused our judges to stop in the aisles and say, "Oh, cool!"

Only 22 winners were chosen for "Cool Stuff" Awards at the NAB2001 convention in Las Vegas from among more than 250 radio and audio exhibitors and many hundreds of new products.

Hats off to the winners!

Wheatstone Bridge 2001 Digital Audio Network Router	Bext XL 1000 FM Transmitter/Exciter
TransLanTech Sound Ariane Stereo Audio Leveler	Belar DAM-1 Digital Audio Monitor
Telco Systems SmartSurface Studio Controller	AudioScience ASI4344 and ASI4346 MP3 Audio Cards
TC Works Powercore DSP-Turbo	Audion Laboratories VoxPro PC Digital Audio Editing Software
Symetrix AirTools Audio Routing System	Audemat GoldenEagle FM Remote Monitoring Solution
Roland VS-2480 Digital Studio Workstation	Arrakis Digilink-Free Hard Disk Software
Orban Optimod-PC "Processor on a Card"	
Orban Opticodec Streaming Audio Codecs	
Omnia Omnia-6fm Digital Audio Processor	
MediaTouch/DMT iMediaAdCast Online Content Substitution	
Harris Corp. BMXdigital Modular Digital Audio Console	
Fast-Talk PPE 1.0 & PSE 1.0 Phonetic Preprocessing and Phonetic Search Engines	
Dialight 860 Series LED Obstruction Light	
Countryman E6 Headset Microphone	
Broadcast Tools Time Sync/Time Sync II	
Broadcast Electronics FM-20S 20 kW Solid-State FM Transmitter	



Harris Corp.	1604	based, networkable system for centralizing and distributing audio around a facility. Up to 32 Engines may be networked. The Audio Engine is the heart of Logitek digital audio consoles; ROC control surfaces; Route3 controller; Button I2 controller.
Hungerford, Aldrin, Nichols & Carter	2112	
iBiquity Digital Corp.	1646	
Images Ink	1547	
IMAS Publishing Group <i>See Radio World listing.</i>	1246	
Inovonics Inc.	2043	
International Communications Products	1660	
International Demographics	2028	
International Gamco Inc.	2047	
Jampro Antennas/RF Systems Inc.	1736	
KD Kanopy	1446	
Kelly Music Research	2049	
Kenner, Dr. Ellen	1658	
Keystone Studio	1466	
Koplar Interactive Systems International	2160	
Label Company, The	1759	
Larcan/TTC	1549	
Live365.com	2000	
Logitek Electronic Systems	1948	
<i>Intro:</i> The redesigned Numix Control Surface features a large, full-color LCD panel with easier-to-read text and more room for messages, a dedicated intercom bank and 12 user-programmable buttons for triggering custom events; vTools virtual controllers for the Logitek Audio Engine include vButton (one-click event triggers), vRoute (input selection tools) Supervisor (manages multiple, networked audio engines) and Command Builder (custom scripting tool).		
<i>Also:</i> Logitek Audio Engine, a router-		
		<i>Tag Borland, Pres. 5622 Edgemoor Houston, TX 77081 713-664-4470 2nd Phone: 800-231-5870 Fax: 713-664-4479 Web Site: www.logitekaudio.com E-mail: info@logitekaudio.com</i>
	LPB Inc.	1800
	Marketron Inc.	2008
	Mayo Clinic	1649
	MeasureCast	X 1036
	Media CareerLINK Inc.	X 1242
	Media Professional Insurance	X 1236b
	MediaTouch	1728
	Miller, Kaplan, Arase & Co.	1746
	Mobile Briefs	X 1237
	Moseley Associates Inc.	1348
	MP3.com	X 1343
	Musicam USA	1841
	National Weather Service	1761
	Nautel Maine Inc.	2040
	NBG Radio Network	1756
	NetMedia Convergence	1766
	Network Music, LLC	2012
	NPR Satellite Services	1540
	Olympus Flag & Banner	2156

OMB	1864	Rules Service Company	2147
Omnia Group, The	1431	Sabre Communications Corp.	1662
Orban	1436, X 1027	SCA Promotions	2036
Patriot Commercial Antenna Systems	1357	Scott Studios Corp.	1838
PMI Auto Group	1551	SFX Multimedia Group	1457
Powergold 2002	2062	Shively Labs	1615
Propagation Systems Inc.	1448	Sierra Automated Systems & Eng. Corp.	1566
Prophet Systems Innovations	1828	SiteShell	1336
Radio Soft	1447	SpaceCom Systems	1750

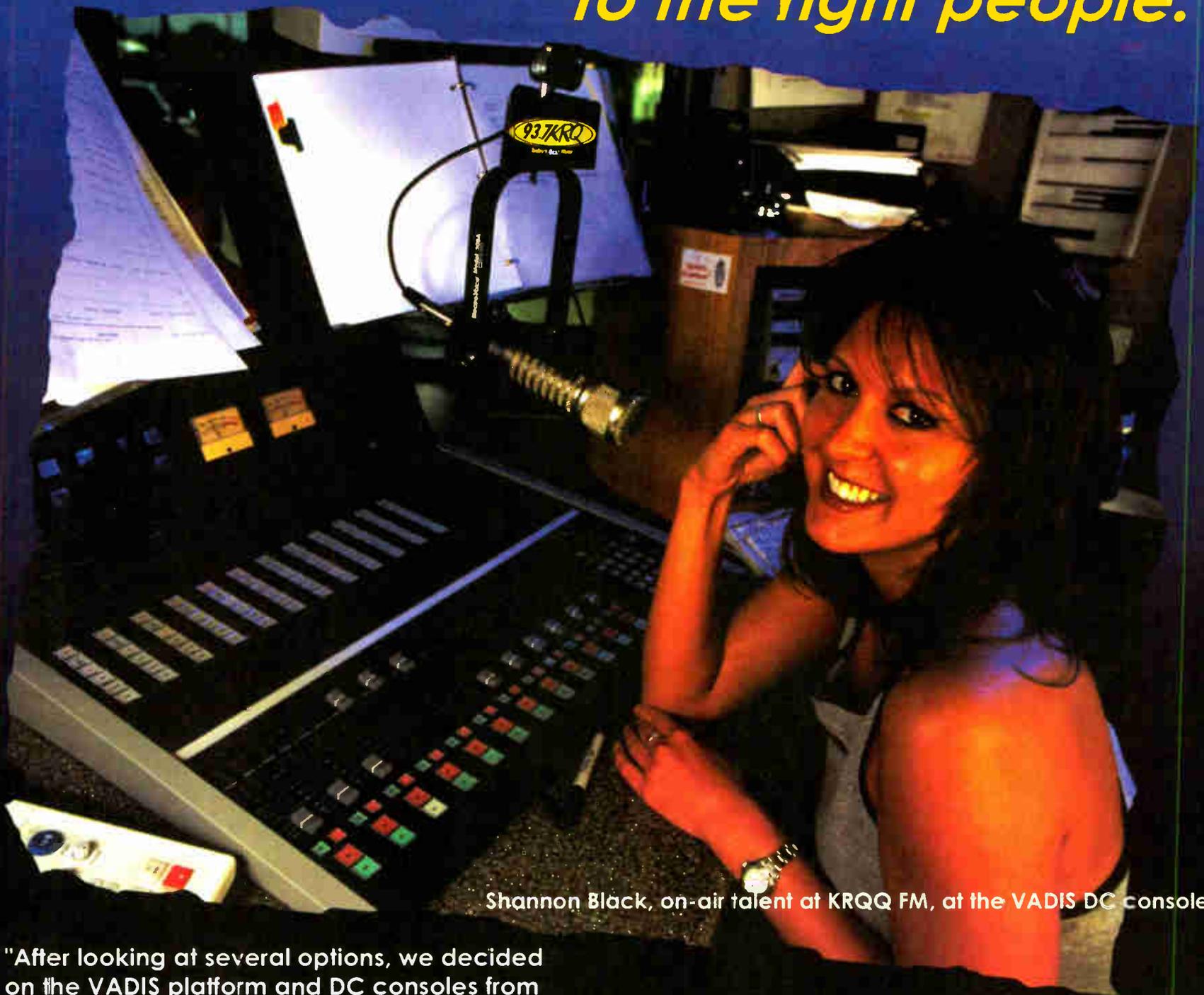


Jackson Square

Radio Systems	1456	SRSWOWcast.com Inc.	X 10
Radio Unica Network	X 1337	Staco Energy Products Co.	X
RadioWave.com	2118	Strata Marketing Inc.	
Radio World	1246	Stratosaudio	
The Newspaper for Radio Managers & Engineers is giving away more than \$40,000 in prizes in our Silver Sweepstakes throughout the year, to celebrate our upcoming 25th anniversary. Sign up at www.rwonline.com			
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Ramsey Electronics	1549	Studer	14
RCS	1920	Studio Productions	1-
Register Data Systems	1600	Superior Electric	2-
Reliacast	X 1031	Superscope	1-
RFS Broadcast	2136	S.W.R. Inc.	21
Roll A Sign, Div. of Reef Industries	1362	Texas Memory Systems Inc.	
Royal & SunAlliance Insurance Group	X 1236A	Tieline America	
		U.S. Air Force Advertising	
		U.S. Census Bureau	
		U.S. Tape & Label Corp.	
		Valcom Limited	1-
		V-Soft Communications	
		WebFriends	2158
		Wheatstone Corp.	1118
		Wicks Broadcast Solutions, LLC	1810
		Williams Communications	1863
		Windermere Communications	1651
		World Division	2151

gepco@gepco.com See us at The Radio Show Booth # 1451"/>

*"You just have to speak
to the right people."*



Shannon Black, on-air talent at KRQQ FM, at the VADIS DC console.

"After looking at several options, we decided on the VADIS platform and DC consoles from KLOTZ," says John Decker, Chief Engineer, Capstar Communications, Tucson. "Why? First, our install would be much faster since most of the plant wiring could be reduced to a simple Ethernet line and a fiber optic cable connecting each room with our rack room.

"Secondly, all four stations were to be housed in the same facility, and we had to share audio sources all around the plant. This is a function that is part of the KLOTZ system. Our entire plant is now based on a digital audio 'backbone' that provides an improved audio signal.

"We also purchased five DC consoles. The air talent finds the DC consoles simple to operate. They can put any source in our plant on any fader of the console with a simple LCD button in the meter bridge. Giving the operator the ability to call up any source to a fader is great since each operator prefers a different arrangement of sources on the console."

- Installed in world class facilities
- Integrated platform concept
- Fiber optic networking
- Any audio source, anywhere

 **KLOTZ**

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Harris Unveils Pacific Legacy

Expanding its digital console line, Harris Corp. is offering the Pacific Legacy, to be shown at The NAB Radio Show in New Orleans.

The Legacy is a modular console, made in three mainframe sizes up to 30 input modules. A and B inputs accommodate analog and digital sources without the need to switch cards or reconfigure the system.

Features include hot-swappable modules, D and A outputs for four program

busses, a stereo send and a telco record mix bus, off-line and mix-minus outputs for four telco/codec input modules, stereo cue with automatic metering and opto-isolated control logic.

The price range is \$15,000 to \$49,000.

"The Pacific Legacy carries on the tradition which Pacific Research & Engineering started with its BMX analog consoles and which Harris vowed to continue with its acquisition of PR&E in 1999," said Jay Adrick, vice president, studio products and systems at Harris' Broadcast Communications Division.

The Legacy joins BMXdigital, AirWave and Impulse in Harris' digital

console line.

For information contact the company in Ohio at (800) 622-0022 or visit www.harris.com.

New Courses for AudioVault Users

Broadcast Electronics' AudioVault University is being expanded to include new products in BE's family of computer-based audio management systems. Two courses are offered to train radio staffers on how to use the new Vault2 and

VaultXpress systems

The Operator Training course instructs on how to use the AudioVault applications with hands-on exercises. A system architecture overview and troubleshooting review are included. The System Administrator Training course looks at system architecture and the configuration of AudioVault components. It also covers remote control programming, troubleshooting, system design and other topics.

For more information contact Broadcast Electronics at (217) 224-9600 or visit www.bdcast.com.

Tube Condenser Microphones By ADK

ADK offers the A-51 Series of tube condenser microphones for use in recording and other audio applications.

The A-51TC features a large 1-inch-diameter capsule and has a single-pattern, cardioid design. The A-51TT has dual 1-inch diaphragms and a multipattern design that can be switched among nine patterns: omnidirectional, cardioid, figure-8 and six intermediate stages.



The circuit design of both models uses a 6072 vacuum tube. Both are powered by dedicated AC power supplies. Standard accessories include a foam windscreen, elastic suspension, connecting cord and flight case.

For more information contact ADK at (877) 423-5642 or visit www.adkmic.com.

Not just another



Coming Standard

pretty face

Current Standard





The illustrious legacy of Crown Broadcast is beginning a new chapter. To meet the needs of broadcasters worldwide, Crown Broadcast is aggressively researching and developing new technology.

The transition to technically innovative new designs will fit the changing dynamics of world broadcasting while keeping the rugged reliability that defines Crown.

Crown FM Series transmitters daily extend the standard for reliable excellence in broadcasting. Around the world Crown remains the choice for trouble-free service in demanding circumstances and difficult environments. From FM 30 to FM 2000, each Crown model comes with a rich tradition of long-term value. The newest

Crown designs, scheduled for release in the fall, build on this history with new features for new market requirements, as well as options that can fit current Crown transmitters for new applications.

New Crown FMX Series transmitters, with Crown's Digital System Management (DSM) design, make system monitoring and control faster, easier, and more complete. The four-line display details transmitter operation at a glance, and provides full menu-driven control.

Add the Remote System Management (RSM) option, and get full remote monitoring and control from your cell phone. Relieve the stress of inaccessible sites with easy off-site checkup and adjustment.

If you have already invested in a Crown FM transmitter, the DSM and RSM can be added as upgrades to give you new capabilities without the cost of replacing your transmitter.

Please visit our website at www.crownbroadcast.com to learn more. And there will be more. Watch for a new, cost-effective redundant transmitter control for automatic backup switching...the revolutionary CardCast digital transmitter in a PC... the industry leading effects of Omnia processing software....



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- Automatic codec recognition
- J.52, Layer 2 & 3, G.722, G.711
- IP Monitor & Control
- IP Audio



CENTAURI Audio Gateways using MAYAH's unique Advanced Core Technology offer the sophistication power users crave with the simplicity occasional users need. CENTAURI's remote codec detection, coupled with automatic algorithm and rate adaption, makes interoperability truly effortless and its state-of-the-art compression algorithms are music to your ears. CENTAURI is the world's first truly networkable audio gateway — you can stream audio, communicate with multiple locations and remotely manage your audio over LANs, WANs and the Internet as easily as browsing a web page. CENTAURI automatically selects alternative communications technologies in the event of failure while a simple to use, built-in, event-driven, programming language lets it know what to do when you're not around.

CENTAURI Audio Gateways — everything else is just a codec.

USA & Canada technical questions contact: Tim Chase • support@denimcomputers.com • Phone: (732) 332-0170

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Radio to the Power of X

XM Satellite Radio begins its \$100 million ad campaign this week, and plans to launch its service in two markets — Dallas/Ft. Worth and San Diego — on Sept. 12.

XM says \$45 million of the multimedia ad campaign will be spent in the fourth quarter of this year, and will include national radio, television, magazines, newspapers, direct mail, outdoor and online.

The campaign, called “XM — Radio to the Power of X,” kicks off with a 60-second spot in approximately 3,000 movie theaters. XM has revamped its Web site so potential subscribers can listen to music samples and buy the service online (www.xmradio.com).

Service to the rest of the Southwest, including Los Angeles and Denver, is slated to begin in mid-October. In November, XM plans to air national TV ads to coincide with a nationwide service launch. Read more about XM’s push to reach consumers and the efforts of Sirius Satellite Radio to do the same in the next issue of Radio World.

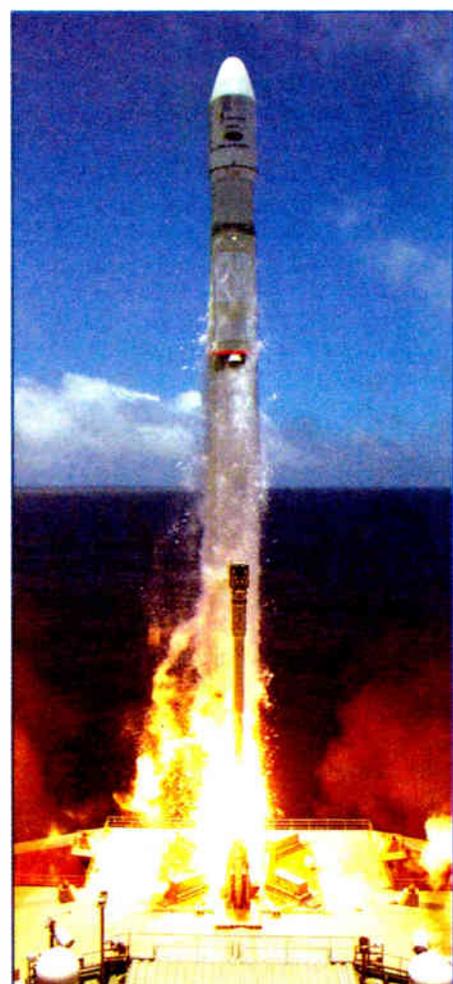
Here are the program channels XM planned as of late July.

- Ch 1 XM Preview
- DECADES**
- Ch 4 The 40s - Big Band/Swing
- Ch 5 The 50s - Fifties
- Ch 6 The 60s - Sixties
- Ch 7 The 70s - Seventies
- Ch 8 The 80s - Eighties
- Ch 9 The 90s - Nineties
- COUNTRY**
- Ch 10 America Classic - Country
- Ch 11 WSIX-XM Nashville - Country
- Ch 12 X Country - Progressive Country
- Ch 13 Hanks Place - Traditional Country
- Ch 14 Bluegrass Junction - Bluegrass/American Folk
- HITS**
- Ch 20 Top 20 on 20 - Top 20 Hits
- Ch 21 KISS-XM - L.A. Rock
- Ch 22 MIX-XM - Pop Mix
- Ch 23 The Heart - Love Songs
- Ch 24 Lite-XM N.Y. - Lite Rock

- Ch 25 MTV Radio - Rock/Pop!
- Ch 26 VH1 Radio - Rock/Pop!
- Ch 27 Cinemagic - Movie Soundtracks
- Ch 28 On Broadway - Show Tunes
- Ch 29 U-Pop Euro/Global Chart Hits
- Ch 30 Special X - Special Topics
- Ch 31 The Torch - Christian Pop
- Ch 32 The Fish - Christian Rock
- Ch 33 On The Rocks - Cocktail Mix
- Ch 34 Ethel - Alternative Hits
- ROCK**
- Ch 40 Deep Tracks - Deep Album Rock
- Ch 41 Bone Yard - Hard Rock
- Ch 42 XM Liquid Metal - Heavy Rock
- Ch 43 XMU - New Rock
- Ch 44 Fred Classic - Alternative
- Ch 45 XM Cafe - Modern/Soft Alternative
- Ch 46 Top Tracks - Classic Rock Hits
- Ch 50 The Loft - Acoustic/Folk
- Ch 51 XM Music Lab - Progressive Fusion

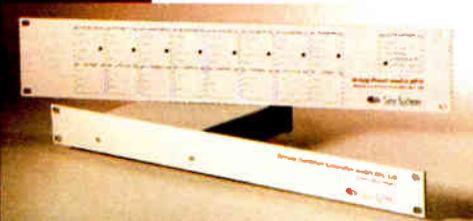
- Ch 52 Unsigned Independent/ Emerging Acts
- URBAN**
- Ch 60 Soul Street - Classic Soul
- Ch 61 The Flow Urban - Top 40
- Ch 62 BET - Urban
- Ch 63 Spirit - Gospel
- Ch 64 The Groove - Old School R&B
- Ch 65 The Rhyme - Classic Rap
- Ch 66 RAW - Uncut Hip-Hop
- JAZZ & BLUES**
- Ch 70 Real Jazz - Traditional Jazz
- Ch 71 Watercolors - Light Jazz
- Ch 72 Beyond Jazz - Modern Jazz
- Ch 73 Frank's Place - Great Vocals/Standards
- Ch 74 XM Blues - Blues
- Ch 75 Luna Latin - Jazz

- Ch 101 The Joint - Reggae
- Ch 102 Ngoma - Music from Africa
- Ch 103 Audio Visions - New Age
- Ch 104 Radio Taj - Hindi-Indian Programming
- Ch 105 C-Wave - Mandarin-Chinese Programming
- Ch 106 Earth Sounds - Earth Sounds
- CLASSICAL**
- Ch 110 XM Classics - Traditional Classical
- Ch 111 Fine Tuning - Pop Classical
- Ch 112 Vox! - Opera
- Ch 113 XM Pops - Classical Hits
- KIDS**
- Ch 115 Radio Disney - Children
- Ch 116 XM Kids - Children
- NEWS**
- Ch 120 XM News - Top Stories
- Ch 121 USA TODAY - News
- Ch 122 FOX News - News
- Ch 123 CNN Headline News - News
- Ch 125 The Weather Channel - 24-Hour Weather Radio
- Ch 127 CNBC Business - News
- Ch 128 CNNfn Financial News
- Ch 129 Bloomberg News - News and Business
- Ch 130 CNET Radio - Technology New
- Ch 131 BBC World Service - World Affairs
- Ch 132 C-SPAN Radio - U.S. Government Hearings and Public Affairs
- Ch 134 CNN en Espanol - News in Spanish



- SPORTS**
- Ch 140 ESPN Radio Sports - Talk/ Play-by-Play
- Ch 141 CNN / Sports Illustrated - Sports News
- Ch 142 Fox Sports Radio Sports - News/Talk
- Ch 143 The Sporting News - Sports Talk
- Ch 144 NASCAR Radio - Auto Racing
- COMEDY**
- Ch 150 XM Comedy - Comedy
- Ch 151 Laugh USA - Family Comedy
- Ch 152 Extreme XM - Radio Crazyies
- VARIETY**
- Ch 161 Discovery Radio -Health/General Science
- Ch 162 E! - Entertainment/News
- Ch 164 ABC News and Talk - News/Talk
- Ch 165 Ask! - Experts and Advice
- Ch 166 Buzz XM - Talk and Opinion
- Ch 167 BabbleOn - Young & Sassy Talk
- Ch 168 Open Road - Trucker's Channel
- Ch 169 The Power - African-American Topics
- Ch 170 FamilyTalk - Christian Talk

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OPINION

Hey, Are We Converging Yet?

Ken R.

The theme of the last several NAB spring conventions has been "Convergence Marketplace." And I'm sure the people at NAB believe that to be the best term to describe the current state of our industry.

But "convergence" isn't really what's going on.

A wonderful book called "Focus" written by marketing guru Al Ries detailed the long history of product development in our country with multiple examples from dozens of categories. He described, for example, how the original "computer" category divided into mainframes, personal computers, fault-tolerant computers, etc. — DOS, Windows, Mac and Linux flavors, too.

The book also chronicled the division of "toothpaste" into whiteners, cavity-fighting toothpastes, kids' brands, smoker's toothpastes and more.

Not to belabor the point, but one of the largest categories of consumer products, automobiles, also took the opposite of converging. From Henry Ford's original black Model T sprang sports cars, sedans, race cars, trucks, station wagons, campers, vans, and more.

Things don't converge; they divide.

Let us apply this principle to the broadcast industry. Shortly after World War II, audio tape was developed to replace crude wire recording and sound on film techniques. First there was plain old 1/4-inch mono tape. Then, in about 1959, stereo was the big breakthrough. How about cassettes? Dictaphones? Mini-cassettes? Carts? DATs and now digital multitrack tapes?

**In broadcasting,
as in automobiles,
things don't converge.
They divide.**

While some products die off (think: digital cassettes, the Edsel of the recording industry), most continue to co-exist. The CD was a breakthrough in 1983. Then in the 1990s that product begat CD ROMs, then DVD.

In the early days of radio, there was one format: adult full service. Early stations such as KDKA(AM) in Pittsburgh and WWJ(AM) in Detroit played a little music, read a little news, interviewed the mayor and covered local sports.

In the 1950s someone got the idea of playing rock 'n' roll. Top 40 was born and hundreds of stations found a new identity.

In 1967 KFVB(AM) Los Angeles started yet another format: all news all the time. In the 1970s, country music enjoyed a surge of popularity and many stations decided to go in that direction.

We started with AM. Now we have FM, satellite radio, citizens band, shortwave, two-way, Internet radio and dozens of other offshoots. While all "content" can now be reduced to ones and zeroes and can be

repurposed from one medium to another, we have yet to see anything converge.

Flash forward to 2001. We can tune in adult contemporary, jazz, hip-hop, classic rock, alternative rock, gospel, oldies, rhythmic oldies and too many more to mention.

Are things converging or dividing?

Engineers redefine convergence

But the NAB has used the term "convergence marketplace" since the early 1990s. There must be a reason.

John Marino is vice president of science and technology for NAB, and he believes that the fact that new media are being inte-

grated into traditional radio broadcasting justifies the term "convergence marketplace."

For example, "Now stations can use moving video on the Internet to combine with their station broadcasts," said Marino.

Galen Hassinger, the new national frequency coordinating director for SBE, also believes that the term "convergence" is applicable.

"The expression implies that there is a common thread and we are using technology to accomplish many things," said Hassinger. "Yes, there is an expanding universe with more products all the time, but it

is technology that ties it all together, thus the convergence theme."

So it's a matter of semantics. In the sense that "convergence" applies to products combining (such as the popular car that also can travel on water), it is probably not going to happen.

If one looks at convergence from the perspective that Internet, telecommunications, video and other new technologies are being incorporated into the world of traditional broadcast, well maybe the term does apply.

OK, NAB; I apologize. You don't have to change all those expensive banners just yet.

Ken R. is a former broadcaster who wonders what rough beast slouches toward Las Vegas to be born next year.

Comment on convergence. Send e-mail to radioworld@imaspub.com.

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DIGITAL NEWS

MXR 'dignet' Plan Boosts DAB

Proponents of digital radio in the United Kingdom are looking to young people in their efforts to promote DAB to the British populace.

The MXR consortium has given state secondary schools in its transmission areas a free Psion Wavefinder DAB receiver.

The consortium operates several digital radio multiplexes across the United Kingdom. It wants to promote digital radio as an educational tool.

In the schools

The Wavefinder is a digital radio that plugs into the back of a PC. The MXR scheme will enable schools to receive educational material from "dignet," a new service MXR created to promote the use of digital radio for educational broadcasting.

The Wavefinder picks up digital radio signals and sends them directly to the PC. No Internet connection is necessary.

Thus far, MXR has won digital multiplex licenses in the North East, North West, West Midlands and South Wales/Severn Estuary regions of the United Kingdom. Current coverage for these multiplexes exceeds 13 million adults.

MXR is involved in a bid for the third London digital multiplex and is expected to bid for a multiplex for the Yorkshire region.

The consortium hopes to apply the educational radio initiative to further successful bids, with schools across London and Yorkshire receiving free Wavefinders if MXR wins the respective licenses.

The Wavefinder picks up digital radio signals and sends them directly to the PC. No Internet connection is necessary.

Plan logistics

"This is the most exciting initiative we have launched as part of the MXR project," said Simon Cole, chief executive of UBC digital, the company that will manage the dignet channel for MXR.

"Analog broadcasting has been linked to education for decades, and we are thrilled to be able to migrate that commitment to digital," Cole said.

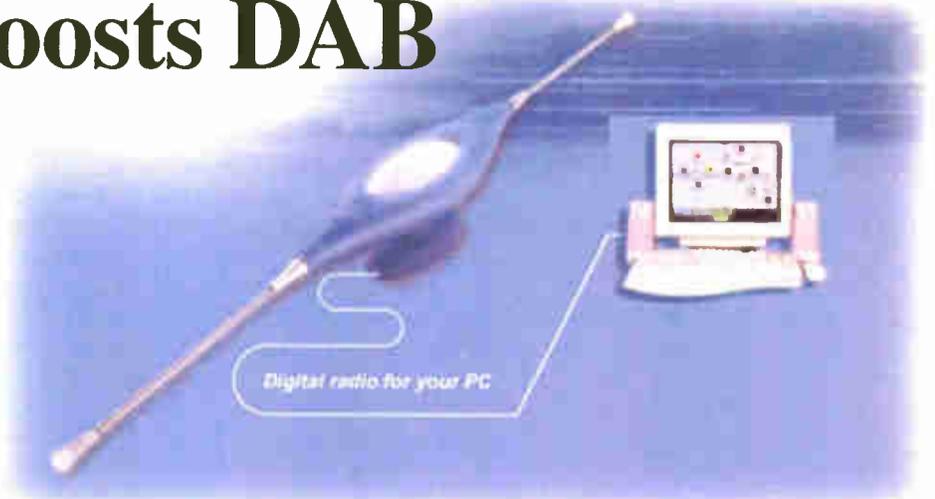
According to Cole, talks have begun with the Department for Education's National Grid for Learning to put the logistics of the plan into place, and meetings are going on with potential content providers, including the National Museum of Science and Industry and the Open University.

"We are tremendously excited about the possibilities dignet gives us — we estimate we can send over 2,000 pre-vetted Web pages of information to schools every day, free, for instant access," Cole said.

Wavefinder units are on sale at electronics retailers in the U.K.

"This initiative has significantly increased the number of digital radio receivers in the United Kingdom," said Ian Ditcham, marketing director of national electronics retailer Dixons.

— Dave Calhoun



Psion Wavefinder DAB Receiver

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Digital: 'The Staple of Affluence'

Scott Fybush

Buying a radio used to be easy. Portable or table? Analog tuning or digital? Mono or stereo?

Those are easy questions compared with the barrage that will face consumers as they confront radios that offer XM, Sirius, iBiquity or some combination.

"Digital radio is very much in its infancy and suffering from the same problems all new technologies do," said Jay Srivatsa, an analyst with Gartner Dataquest.

Srivatsa, who spoke at a session during last spring's NAB convention, says the first challenge digital radio must over-

come is the consumer impact of three incompatible standards, a situation he compared to the early rounds of the battle between VHS and Beta.

Even as manufacturers decide which of the formats to support, there's another issue: the old chicken-and-egg problem that finds broadcasters waiting for consumers to buy receivers before programming to them, while consumers wait to buy the receivers until programming becomes available.

"There's got to be one medium that's really going to drive this," Srivatsa said, "and that's the automotive market."

Even then, Srivatsa says satellite and IBOC receivers will be more successful

if their price, including subscription fees for satellite, is rolled into the overall purchase price of a new car.

"You don't want to spend \$500 on top of a \$30,000 new car," he said.

Those subscription costs are also raising some concerns for the retailers who will have to sell satellite radios to the public.

"I really question how many people will want to pay that ten dollars a month," said Thomas Campbell, a director of audio/video retailer Ken Cranes.

One key, according to Consumer Electronics Association Vice President Ralph Justus, is to promote the digital aspect of satellite and IBOC whenever

possible. He says 61 percent of consumers surveyed were interested in obtaining "CD-quality sound" from terrestrial radio, though 41 percent said they wouldn't pay extra for it.

In that case, Srivatsa said, marketing may be more important than technical reality.

"A lot of people can't tell the difference between the sound quality on a CD ... and on an analog radio," he said. In fact, another CEA study found 33 percent of consumers already think the radio delivers better sound quality than CDs.

Once it arrives, digital radio will have to do battle with a growing array of digital audio products, including the portable MP3 gear that, Campbell says, is driving much of the growth in his business.

"Our customers are coming into our stores now looking for MP3 players," he said, noting that the trend began with college students but is rapidly spreading to those in their twenties and thirties.

The key, he believes, is constantly selling the digital aspect of the new radio services, just as DVD promotions have emphasized its digital nature.

"The staple of affluency is digital," he said.

Justus believes increased attention to audio, including the boom in multi-channel audio to accompany DVD video, can only help digital radio.

"We're poised to have an explosion of multi-channel audio in the home that is extremely significant," he said.

Moving from familiar FM and AM to iBiquity and XM, though, will take some serious consumer education.

"The consumer is bombarded these days with so many acronyms," Campbell said. "People are somewhat confused by now."

Justus believes the terrestrial radio industry may have unintentionally harmed its potential for a digital explosion when it essentially adopted the iBiquity IBOC standard.

"(Multichannel audio) is going to be there with prerecorded music, it's going to be there with TV," he predicted. By choosing the IBOC standard, which provides only enough bandwidth for stereo audio, instead of the global Eureka-147 standard and its larger bandwidth, "every door's been shut in our faces" for multichannel terrestrial radio in the U.S., he said.

So what's an industry to do?

Campbell says radio can learn a lesson from video as it prepares to go digital. "People said DVD wouldn't make it," he recalled. "But it survived because the software was there."

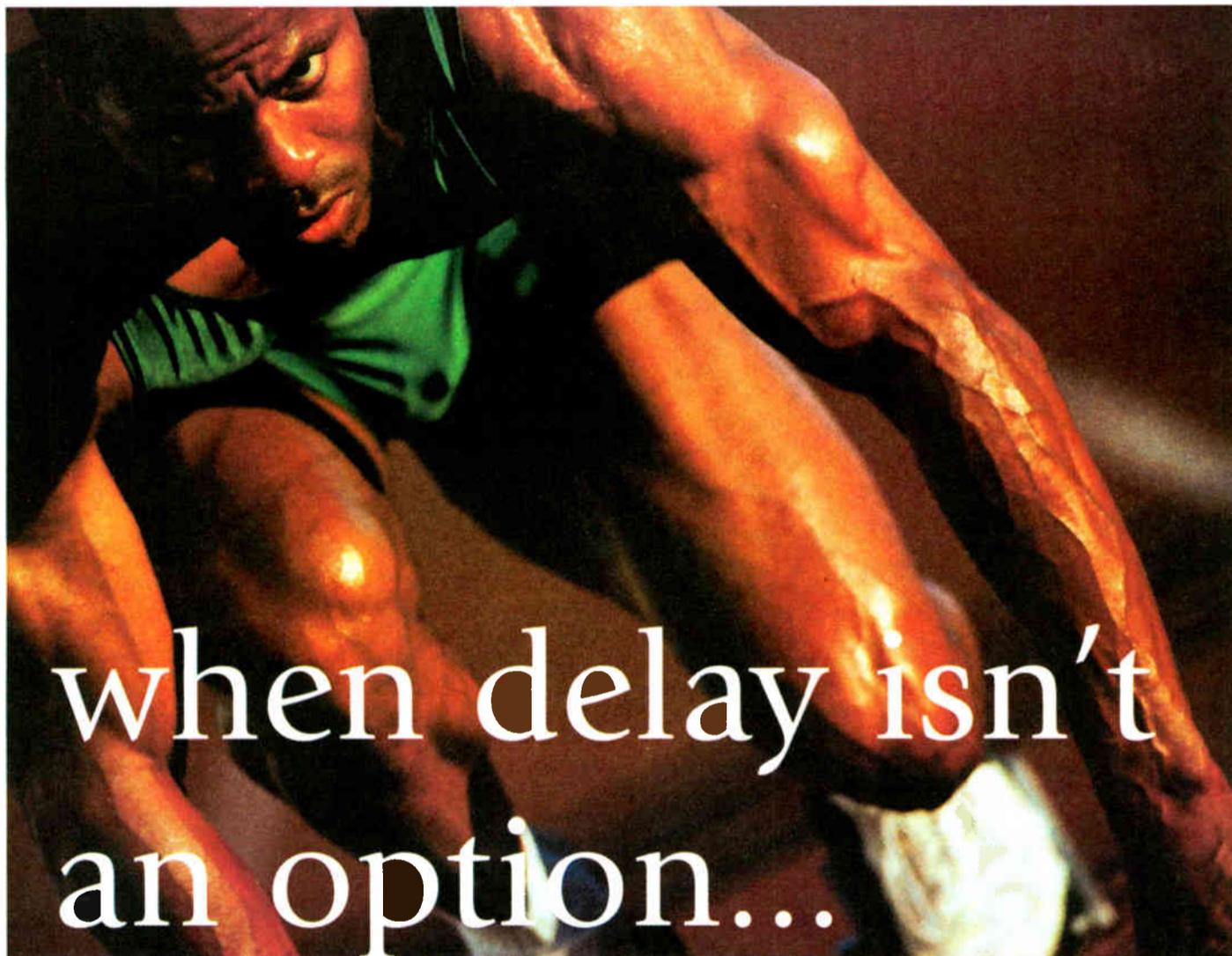
The "software" of radio, of course, is programming, and the panelists said the most valuable programming digital radio can offer consumers is relief from heavy spot loads.

"We're killing ourselves with clutter," admitted David Rau of Sandusky Radio's cluster in Hilton Head, S.C.

"What's going to happen," Srivatsa said, "is the satellite companies will begin broadcasting without commercials and people will get used to that."

But what's good for consumers isn't necessarily a good thing for the companies that hope to sell to them.

"I don't buy radio (advertising) for in-home listening, I buy it for in-car," Campbell said, "so I'm concerned about any technology that would take listeners away from that business." ●



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Station Vehicles on the Go Go

Ken R.

Even in the early "potted palms" days of radio, stations realized that they had to leave the confines of the control room to reach out to the community. Thus, cumbersome remote equipment was lugged to local furniture stores, amusement parks, election headquarters or wherever the action was.

But in 1954, Gordon McLendon took things a step further at KLIF(AM), Dallas.

Signs and letters

According to Steve Eberhart, proprietor of the Web site www.historyofklif.com, McLendon was the first to use station vehicles driving around town phoning in news and traffic reports direct from the scene.

"Originally the guys just used two-way radios to listen for traffic accidents, then called back to the station newsmen to report them," said Eberhart. "Then they figured out they could get their own frequency and put the reports directly on the air. It was expensive to maintain the equipment, but they caught the competition by surprise."

At first, KLIF had their newsmen use unmarked sedans. Then McLendon, with his gift for promotion, painted the call letters prominently on the cars.

all colors and descriptions, custom-designed and loaded with some very sophisticated equipment.

For instance, Infinity-owned KDKA(AM), Pittsburgh, has two vehicles for remotes.

"We have 'The Mobile Blowtorch,' which is an RV transformed into a studio," said Greg Jena, promotions director. "It was called the 'Rainbow Machine' back in the '70s. Then we partnered with Foodland Supermarkets and held a 'Rename The Rainbow Machine Contest.'"

The newly christened and painted vehicle is on the streets three to six times a month. It made an appearance at the last Pittsburgh Pirates game to be played at Three Rivers Stadium.

"We have a full studio in that thing," said Jena. "The back of the vehicle, which would have been the bedroom, was ripped out and we have six cart machines and a seat for a guest."

Friendly rivalry

KDKA's other vehicle is the "Party Patrol," festively decorated with streamers and confetti. In the past, the station partnered with advertisers such as Kellogg, which provided thousands of boxes of cereal.

"This vehicle is a full-sized cargo van and it's out there from Memorial Day to Halloween. We

also present. They kept turning their speakers up and we turned ours up for a friendly rivalry, and we both ended up getting tickets for being too loud."

KBXX(FM) is a rhythmic CHR station in Houston, owned by Clear Channel Communications. Natalie Jones, promotions director, said the station owns three vans, all

called "The Box Van."

"We broadcast from about 14 nightclubs a week and we had a van stolen one time and it was never recovered," said Jones. "We have now increased security by adding alarms and we always have someone with the vans at all times. We made fun of it on the air and tried to make a bad situa-

tion good by asking people to spot the van if they could."

Jones said at a typical station event, four to five staffers are present. If it's just a "street hit" or quick appearance, one person is with the vehicle.

KBXX said that, for purposes of sponsorship, a quick "appearance" lasts one hour, a "remote" is two hours and a "broadcast" is a whole show.

"The vans are very hard to See VEHICLES, page 44 ▶



KBXX(FM) in Houston is '97.9 The Box.'



KDKA's Party Patrol van is great for picnics.



This KDKA vehicle is more subdued, for news work.



Sign of the times: This remote vehicle is more like a rolling PC farm.



The Rainbow Machine had a distinctly '70s feel. It was recently repainted.

Remote vehicles today are equipped with a broad range of powerful computing, newsgathering and remote broadcast tools.

The next step was to get a lighted billboard to place on top of the cars that allowed a typed message to be displayed. This led to the first of several "KLIF Headliner Vans" used for broadcasting news stories and later to promote station events.

Today station vehicles come in

try to visit a lot of picnics all over the city," said Jena.

The station uses two additional vehicles dedicated to news operations.

"One funny story about broadcasting from the vans," said Jena. "We were at some live event where a competing station was

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Vehicles

► Continued from page 43

keep clean," said Jones. "We take them through car washes a lot, but in Houston the weather is weird with lots of humidity, dust and pollen, too."

It would be difficult for any station to broadcast more remotes than WLNG(FM), Sag Harbor, N.Y.

"We do about 250 every year," said Chris Buckhout, remote coordinator. "It's a large part of our image, so we're at high school games, community events and charity affairs."

The station has a Plymouth Voyager and a GMC motor home. The newest addition to the fleet is a reconditioned GM transit bus (shown on page 46) equipped with complete broadcast studios. The telescoping mast is 50 feet high, allowing a range of remote broadcast locations.

"The bus is 35 feet long with several couches and desks and is really roomy for traveling and broadcasting," said Buckhout. "There is a wrap on one side you can see out of but people can't see in. The other side has tinted windows with a large map of the towns we serve."

Supply-side economics

The broadcast vehicle market has spawned specialty suppliers such as Winemiller Communications in Carlisle, Pa. President Jan Winemiller and her husband maintain a fleet of vehicles for sale or rent on a moment's notice.

"If you go to a manufacturer, you may wait three to 12 months for delivery, but because we deal only in refurbished vehicles, we can turn them around quickly," said Winemiller. "We completely rebuild them mechanically with new engines, transmissions and a two-year warranty, which will save our customers anywhere from 30 to 60 percent."

Vehicles from Winemiller can include exterior detailing, weather-stripping, inside carpeting and built-in



Motor Home Remote Vehicle of WLNG, Sag Harbor, N.Y.

racks for equipment. The company can sell these vehicles equipped or stripped, depending on the budget and expertise of the station ordering them.

Winemiller Communications delivers about 15 vans a year. Prices range from \$15,000-\$20,000 for a rack-ready vehicle on the low end, to \$40,000 for a fully equipped truck. The company recently sent 45 people, three trucks, four motorcycles and six helicopters to provide outside race coverage for the Sydney, Australia, Olympic games and will provide similar services in 2002 in Salt Lake City.

"The other thing we do is train the station staff," said Winemiller. "Safety is very important, especially where it concerns the telescoping masts. We provide a comprehensive manual and on-site training to avoid injuries."

Danger

Remote vehicles represent a unique source of danger to radio employees, summarized in the safety tip "Look Up and Live."

Many such vehicles are equipped with extendable masts that elevate their antennas for remote pickup equipment. Injuries or death to the occupants can result if a mast comes into contact with power lines.

allegedly causing an accident that almost killed her.

Alpert claimed that the makers of her equipment knew about available safety devices and did not make even minimal efforts to supply them.

Apparently, while Alpert was preparing to broadcast, a telescoping mast struck a power line above the van, according to KABC(TV) news. Alpert suffered severe electrical burns, later resulting in the forced amputation of her left foot and several fingers. Named in the suit are mast manufacturer Will-Burt Co. and three other companies.

Spokespeople for the companies named in the suit declined to comment for this story.

Fully featured

There's more to starting up a van than piling in some equipment slapping on the logo.

Rich Redmond, director of broadcast systems for Harris Corp., said his company can supply an inverter to turn AC into DC power within the vehicle. It can install an engine generator that runs off the fan belt or a gas-powered generator that operates a separate motor using a common gas tank.

"We can put up a mast for the RPU

They kept turning their speakers up and we turned ours up for a friendly rivalry, and we both ended up getting tickets for being too loud.

— Greg Jena, KDKA

Last December, Adrienne Alpert, a news reporter at KABC(TV) in San Diego, sued four manufacturers of remote broadcast equipment for

antenna and that may include a cell phone antenna or an off-air receiver antenna," said Redmond. "We can build in cabinets or bins for the prizes and bumper stickers and we can install a second air conditioner to supplement the vehicle's regular system."

Another area of concern for Redmond is the safety of the vehicle. Harris can conduct a weight study to ensure equipment is mounted properly so that the mast doesn't change the steering, for example.

Ergonomics is a concern too, and Redmond suggested that the switch to raise the mast be located on the outside of the vehicle. This means that the operator can see the surrounding area clearly.

Other safety features mentioned by Redmond include a warning light to indicate the mast is up and an interlock that will not allow the vehicle to go into gear should the mast be extended.

"It used to be that the local station engineers would have a local body shop do some of these things, but today it's a lot more complicated," said Redmond.

The art of station vehicles has made gradual progress since the days of Gordon McLendon, with improved communications, more comfort and snazzier designs. Witness specially built vehicles that look like giant CD players or boom boxes. But future vehicles will be yet more different.

See VEHICLES, page 46 ►



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- Headphone jack

CellJack

Operates with Motorola bag type cell phones.

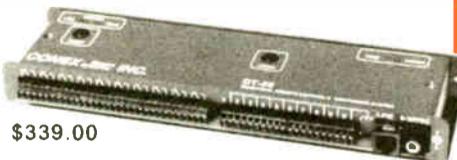


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Equipment List for the WLNG GM RTS Bus

- Marti SRPT-40 RPU transmitter
 - Will-Burt pneumatic extension mast ASM7-42-357/36
 - Dual-stacked Scala C47-460 Yagi antennas
 - Autogram mixer with 16 inputs on eight channels
 - Realistic Highball unidirectional dynamic mic
 - Telex HT-700/CE8 wireless mic with UR-700 receiver
 - (3) ITC Delta cart machines
 - Sony CD player CDP XE500
 - (2) Pioneer VSX-D608 multi-channel receivers/digital sound processors.
- (One is used for volume within the vehicle, one for external Sonic speakers.)

Typical Remote Vehicle Package

Provided by Harris Corp.

- Will-Burt mast and pneumatic system
- Scala antenna system
- Rack and power system from Harris, welded into vehicle
- Marti RPU transmitter
- Electro-Voice speakers
- Hafler P3000 amplifier
- Rolls RS79 tuner
- Mackie VLZ-1202 mixer
- Wired or wireless mics from Shure and Electro-Voice, often a wired Shure SM58
- Denon or other CD players for use with the PA
- Telos Zephyr codec for ISDN
- Comrex Vector codec for POTS



A transit bus is reborn as a WLNG remote vehicle.

Vehicles

Continued from page 44

Global Systems for Mobile Communications (GSM) is a standard that could benefit the next generation of remote vehicles. InterWAVE Communications International Ltd. provides wireless technology to create private and public cellular networks. GSM enables carriers to enhance coverage and increase capacity while avoiding landline connections.

"We're mostly using it in disaster areas now, such as earthquake and flood zones," said Ian Walter, director of product management.

"But the potential is there to deploy these vans, provide communications not just for radio stations but for emergency workers as well. The benefit is that the user isn't tied to the van; he or she can roam within about a 10-mile range which means less exposure to

severe danger."

The technology is sophisticated and still pricey, with units starting at about \$400,000. As prices come down, applications will become more practical for radio newsgathering and other purposes.

A company using a similar technology is SIGEM. It uses the Global Positioning System, which is becoming available in luxury cars. Imagine a future in which a program or news director can keep track of station vehicles by simply glancing at a screen. Indrani Ray, a spokesperson for SIGEM, said GPS units, unlike GSM, cost as little as \$500 with a small monthly service fee.

One online resource for tips on the safe operation of extendable masts is the Web site www.olderadio.com/current/andyfunk.htm

Tell us about your remote radio station vehicle, and send a photo. Write to radio@imaspub.com. or to the address on page 94.

MARKET PLACE

RCS Targets Enterprise Management

RCS is out with a service called Selector Enterprise, which allows stations in a group to share secure information on songs, links, promos, individual and collective airplay, and copyright data.

This is a browser-based system that can be installed as software on a group's main server. RCS also makes this available as a service, and takes care of hosting. Data is available through a secure connection and can be shared from any location.

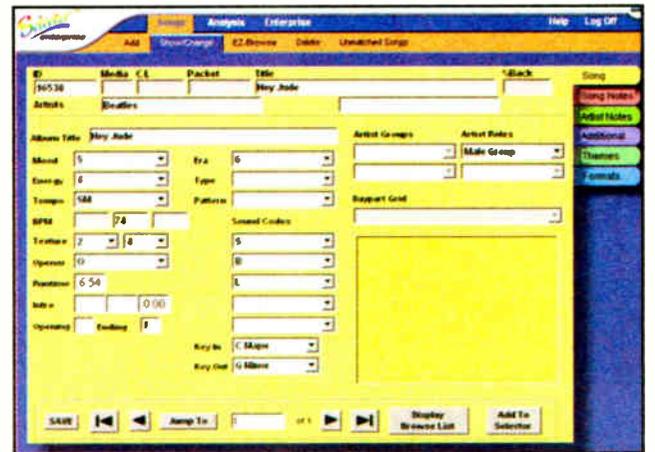
RCS says Selector Enterprise ties into its Selector and Linker databases, which create a common music, promo and traffic log.

President Philippe Generali said the product lets PDs and MDs share data entry and lets them know what is going on in their group. "It creates better communication between the regional or national vice president of programming and each member of the local programming team."

Stations can add music into a corporate Audio Storage Manager, another product of RCS, and all stations in the group or facility can share the music information.

"Most Selector Enterprise subscribers will want to organize their stations into regions, formats or management teams," Generali said. These "panels" can show what is happening in a specific cluster, such as what songs are successful stations playing, how many promos were scheduled at each station in a national contest and other information to let corporate managers react quickly.

For information contact the company in New York via e-mail to info@rcsworks.com or call Tom Zarecki at (914) 428-4600, ext. 143.



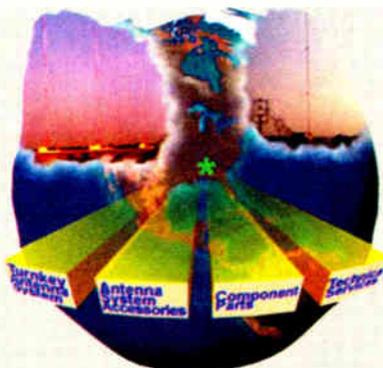
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SBE NEWS

Who Pays, and Who Benefits?

SBE's Outgoing President Warns That Board Expenses Are Hurting Radio Engineers' Participation

James (Andy) Butler, CPBE

The author is president of the Society of Broadcast Engineers and director of engineering for PBS. Radio World makes this space available to the SBE as a service to the industry.

This is probably my last opportunity to write for Radio World as the president of the Society of Broadcast Engineers. I want to take this opportunity to discuss a serious issue, but first I need to say some serious "thank you's."

My greatest thanks go to my fellow society members for allowing me to represent you for the past two years. I am still amazed by the thoughtful, dedicated and devoted men and women who make up broadcast engineering. Serving as your president has given me an even deeper appreciation of our shared profession.

I would also like to thank Paul McLane and the entire Radio World family. Your long-standing support of the society and the profession are invaluable and deeply appreciated.

My final thanks go to the Public Broadcasting Service. Like the employers of most SBE officers, they have allowed me great flexibility in my schedule and paid for a lot of travel and other expenses so I could conduct the society's business.

Without our employers' support, most of the society's officers would not be able to serve.

Equal representation

This brings me to the serious issue. As I was preparing this article, I received a disturbing e-mail from a board member. This particular person is a prominent radio engineer working for a large company in a major market. He has provided the society with excellent leadership at both the board level and industry committee level for some time.

Recognizing his value, the SBE nominations committee had selected him as a candidate for a key officer position in this year's elections. His message indicated that, after much soul searching, he had decided to ask us to take his name off of the ballot.

The reason for his decision is the cause of my concern.

The company for which this board member works seems typical of radio today. It has changed hands several times in the past five years and has gone through a series of reorganizations and policy changes.

During this process, it quit paying expenses for professional activities such as SBE board service. Right now this individual is paying those costs out of his own pocket, but with children's college tuition and other expenses, he just can't keep meeting those costs personally.

This is really a waste. The society needs his services and he is willing to devote the time, but our by-laws specifically forbid paying any expenses for routine board or officer

activities.

TV and related industries are changing as well, but so far the squeeze isn't as severe. The result is an unintentional but severe bias at the top in the society.

The nominations committee works diligently to recruit a balance of qualified people from all areas of our profession, but practicality makes it tough. At this point, it is much easier to find qualified and willing board member and officer candidates from sectors other than radio.

I'm not implying that there is anything wrong with the present board, but it is simply a matter of awareness and perspective. No matter how well-intentioned you may be, if you don't deal with the issues daily, it is difficult to understand fully how to adequately and fairly support the working engineer who does.

The e-mail was a painful reminder of this situation. There's a part of me that wants to advocate radical and rapid change in response. That's probably not a good idea.

Too often in the past, well-intentioned



efforts to achieve change quickly have plunged the society into chaos. We need to do this deliberately, carefully and permanently.

See SBE, page 53 ▶

The Simplest Internet Spot Substitution:

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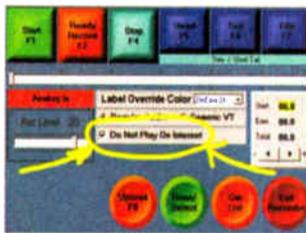
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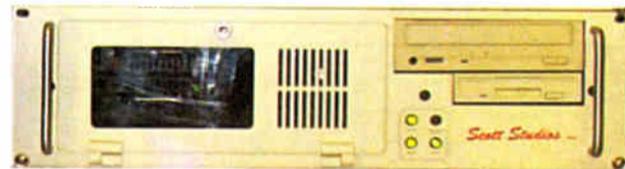
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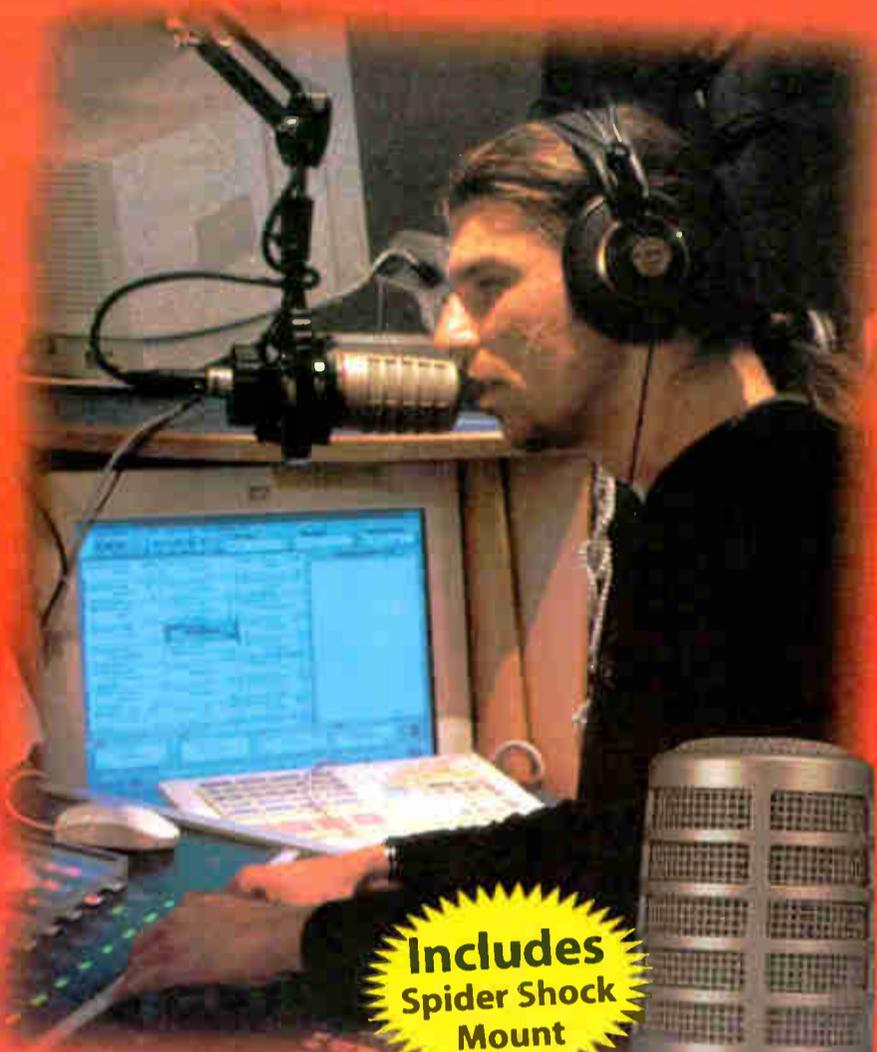
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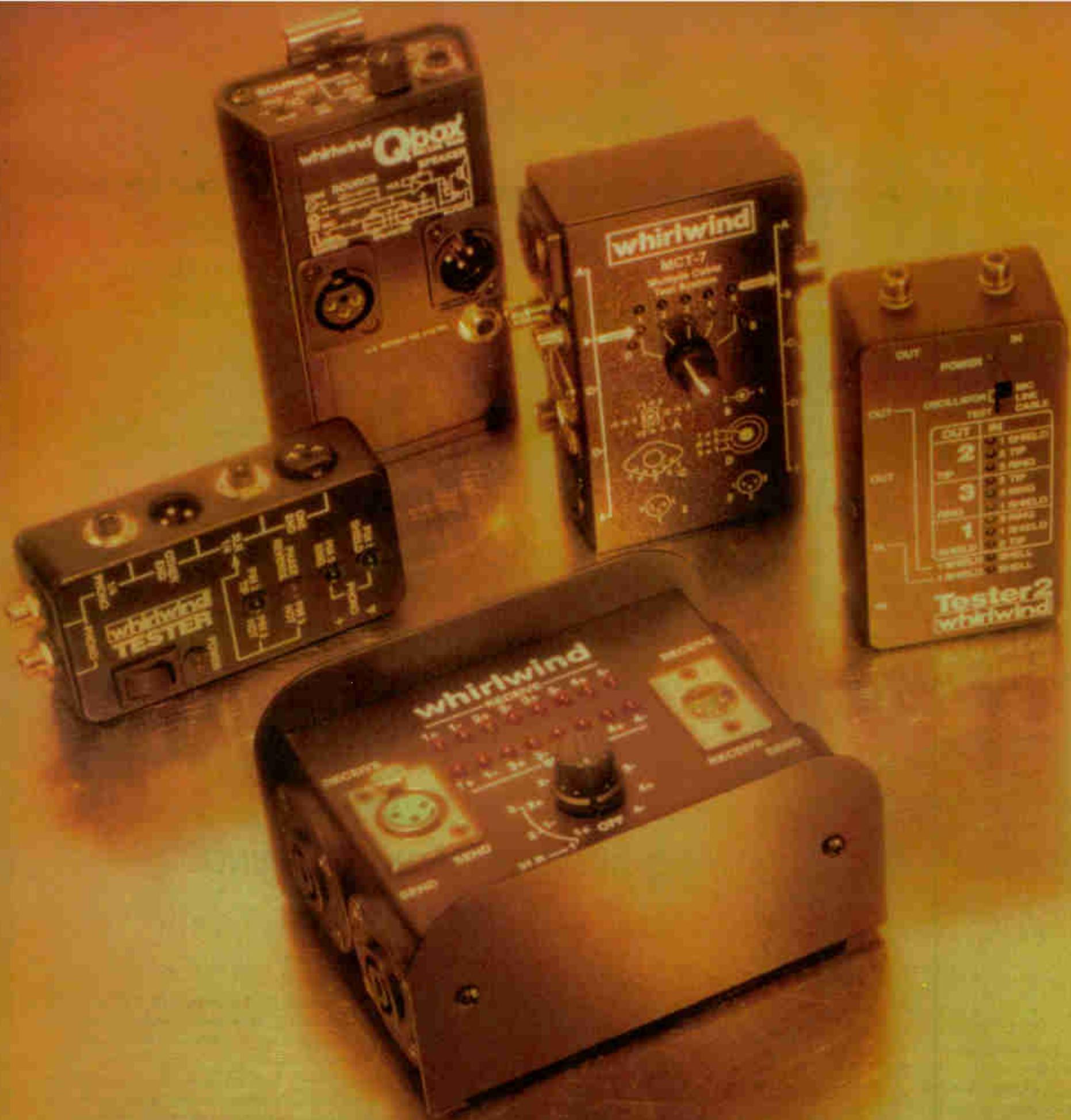
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IN60 Input module	Mfr. List \$585.00	FREE with purchase
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Workbench

Radio World, August 15, 2001

What to Do When You Inherit a Dump

John Bisset

Some good news to report. The station that allowed tower tenants to share their transmitter building, and installed a "hay-wire" rat's nest of wiring in connecting their equipment, was "shamed" into

cleaning up the mess, after seeing the picture in Radio World!

Sometimes it's not that easy. Imagine walking into a site and being faced with the wire management nightmare shown in Figure 1.

As with many older sites, add-on

wiring just happens. We're in a hurry, there's no time to plan, the new equipment must be installed quickly. Before too long, there's no rhyme or reason, and the problem grows.

The biggest difficulty in situations like this is trying to troubleshoot a problem. If you're the new guy at the station, the situation can be daunting.

We've all seen sites where 120VAC is run on Belden 8451, and perhaps encountered the voltage while dyking wires in an attempt to clean up a rack. (That's a

wasn't his mess. In this day and age of covering your behind, and of management that won't take responsibility for poor sites but simply blame the staff, the investment of ten bucks' worth of film and processing is cheap insurance.

Besides, a picture is worth a thousand words, and can be used to show a GM why you need to spend time at the transmitter site, or why it took so long to get a problem corrected.

Be proactive. Even if a GM doesn't understand the first thing about engineering, no GM would want to hunt through the wiring mess of Fig. 1 trying to solve a problem. Keep a GM informed of potential problems to eliminate surprises no one likes to encounter.

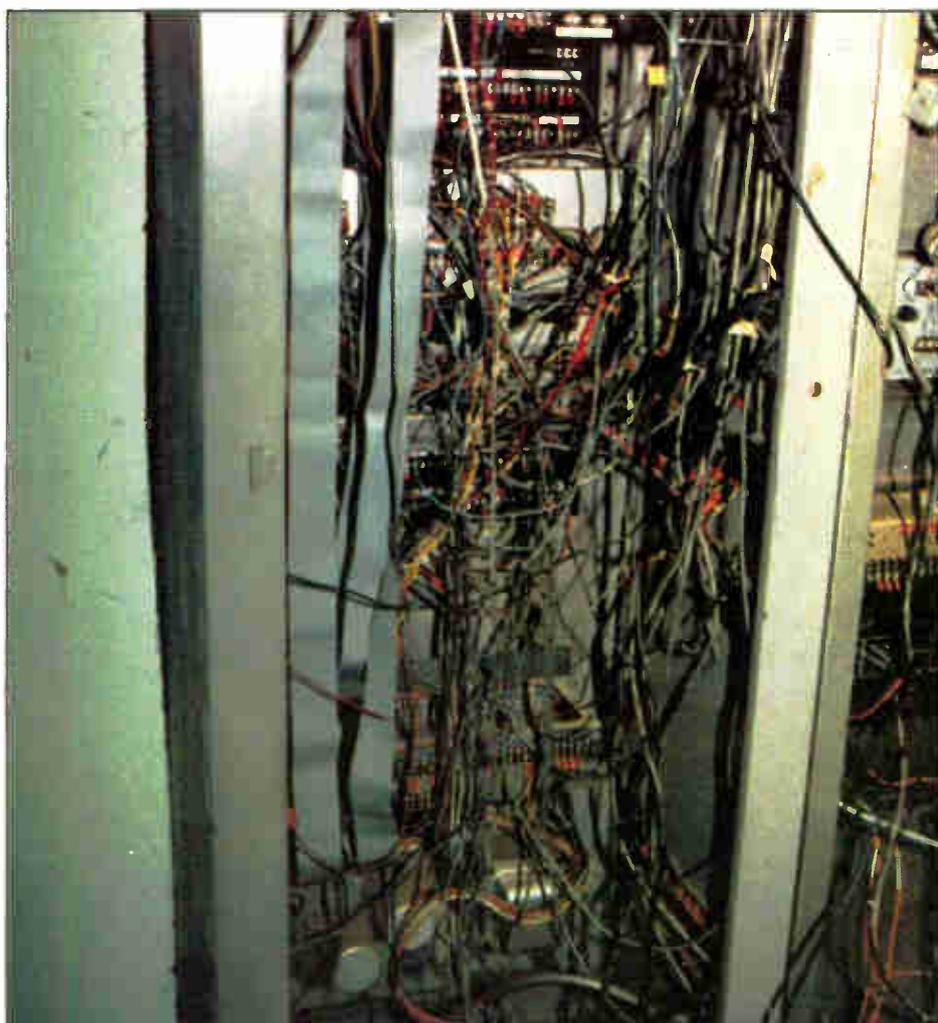


Fig. 1: Take photos of your wiring nightmares so the boss knows why they're worth your time to fix.

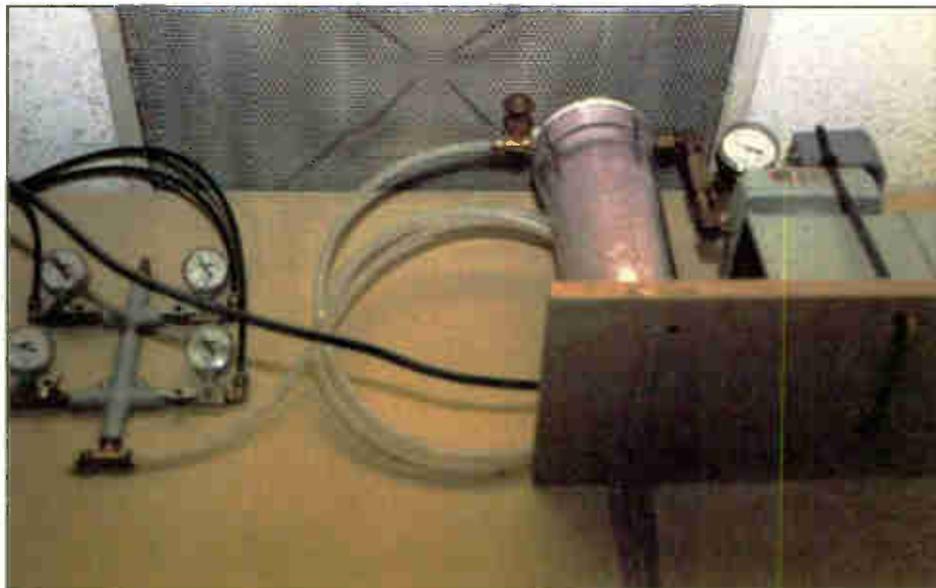


Fig. 2: This simple shelf, right, is made of pressboard and L brackets.

surprise you won't soon forget!) If I've described your site, grab your camera and document it. The pictures will come in handy.

More than one station manager has used an unkempt transmitter site as grounds to railroad the engineer. Even though the problems were caused by his predecessors, he had no proof that this

Reworking a site like this can be challenging. You're off to a good start if there is a spare empty rack that can be used to hold equipment as it is rewired.

However, if you choose this method, make sure critical cables are long enough to reach to the next rack. This is particularly an issue if your site uses sampling

See WORKBENCH, page 52 ▶

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We Build Solutions

Workbench

► Continued from page 51

line cables, satellite dish cables or transmitter remote control multipairs.

A new rack is useless if the wires won't reach. This is a good argument for service loop when wiring — either coiled in the floor, or above the rack.

★ ★ ★

Next, remove any equipment that is no longer needed. The old frequency monitors may look cool, but if you're short on rack space, get 'em out. Remember to leave at least one rack space between equipment for adequate cooling.

Before removing wires, identify everything. Use cart labels or numbered wire markers. Do your identification work while the station is on the air. If you remove a wire that knocks the station off the air, you'll know it, and it will be easier to identify.

It's been my experience to call the jock and tell them what you are doing, asking them to call you if they hear anything unusual. This way, the hum caused by a grounding problem will be picked up by the talent as you bump against the wire. After all, it's doubtful you'd hear the hum with the transmitter blower, exhaust fan or air conditioner running.

As you work, keep in mind that the code word to this kind of work is simplicity. As you identify the wires in a rack, draw a schematic of the equipment and how wires are hooked up. Don't depend on your memory.

★ ★ ★

If you've inherited a poorly designed transmitter site and are not sure where to start, one of the first improvements will be to get things off the floor.

Obtain a file cabinet from the office for your manuals. If there's room for one of those small salesman's desks, grab that too. Inexpensive steel shelves can help you organize spare parts. If your dehydrator is on the floor, get it up on a shelf.

Figure 2, page 51, shows a simple shelf using pressboard and a couple of L brackets. Note that the dehydrator is secured to the shelf with a long nylon

wire tie. This prevents the motor vibration from "walking" the dehydrator to the edge of the shelf.

This photo also demonstrates a nitrogen manifold with valves for each line, and pressure gauges for each line.

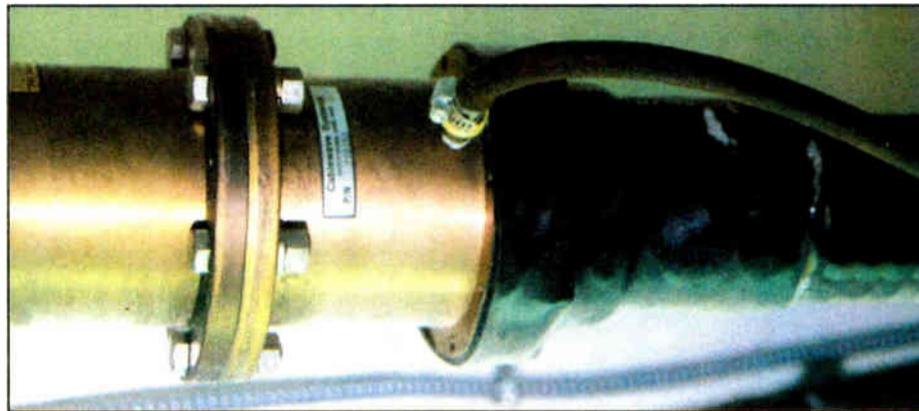


Fig. 3: Leaking line? Start your check at the gas inlet fitting.

Rather than using a common valve and gauge, this system permits sealing of any line, should a leak occur, using its

own valve. The individual gauges can pinpoint which line is leaking, reducing diagnostic time.

If you have encountered leaking line, remember to check everything on the ground first. Start at the gas inlet

fitting on the transmission line, as seen in Figure 3. Spray a bubble solution at the junction, while you have

pressure on the line. Even the tiniest of leaks will generate tiny bubbles. Tighten or replace the fitting.

Remember to use Teflon brand or similar plumber's tape around the threads of any brass-to-brass pipe screw-on connections. Roll on the piece of plumber's tape in the direction you will be screwing on the fitting (usually clockwise). This will prevent the tape from unraveling as you screw the fitting or valve in place.

Keep things off the floor and you'll have a cleaner transmitter site — and prevent any water leaking from seams in the wall or floor from damaging your equipment.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011. Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com.

WBGO's Grand Facility

Jazz station WBGO(FM) has thrown open the doors to its renovated facility in Newark, N.J. It improved transmission, studio and server facilities, office space and HVAC. Broadcast operations were moved for seven months to a nearby Rutgers University campus.

Major vendors include Dale Electronics, Harris-Pacific and Broadcasters General Store. Manager of Operations and Production Steve Brown, shown at the new Sony DMX-R100 digital console, specified and purchased gear and assisted contract firms American Wireless and Translantic.

The Sony will be used for live performance mixing, remixing and Pro Tools control.

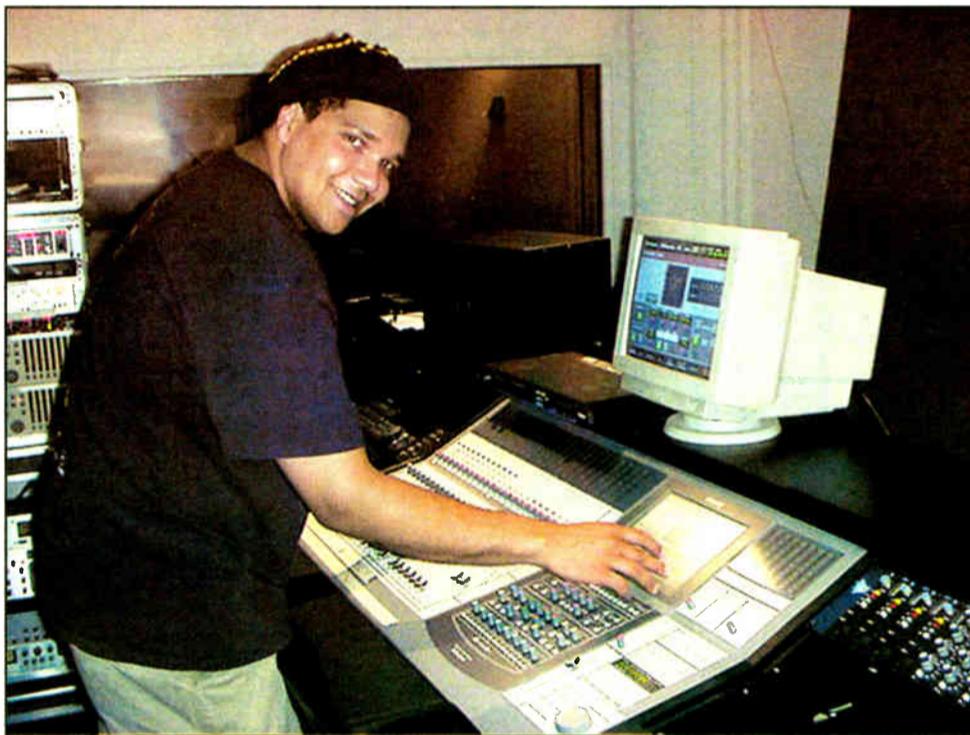
Major equipment includes two Harris Pacific AirWave digital consoles, connected via AES/EBU over Gepco multipair. Announcers play CDs with Sony CDP-D500s. WBGO has three Pro Tools systems on Macs connected via Firewire to a 220G Sancube storage device.

"We only use CAT-5 for PC networking and QSC Rave audio distribution," Brown said. "We bypass the traditional wiring and punch blocks for the digital signals."

To celebrate, WBGO hosted an on-air Jazz Radio Festival featuring the Joshua Redman Quartet.

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SBE

► Continued from page 47

A first step should be a minor change in the SBE by-laws. At this point, the society cannot help board members with routine expenses without violating the by-laws. Before crafting any solution, we need to remove that restriction.

I would urge the by-laws committee to propose a change and the membership to support it.

The original restriction was imposed to avoid creating a "privileged class" of officers who enjoyed lavish meals and travels to meetings in exotic locations under the guise of conducting society business.

While this may have been true of other industry groups in the past, I think the SBE board members have demonstrated remarkable fiscal responsibility in their activities. I don't think liberalizing the by-laws will suddenly engender recklessness and abandon.

Once the by-laws are changed, we can carefully evaluate alternative strategies to deal with the board expense problem.

Government fund?

I am far from certain about the best approach. Several people have suggested that we approach dominant companies in the industry and solicit money to support a governance fund for the society. This would eliminate the need for individuals to pester their immediate superiors for money but still put the burden of support most directly on companies that benefit from society activities.

This sounds good on the surface and should be considered, but I would leave it to others to determine the impact such a program might have on the independence of the society.

Another alternative would be chapter support for board-member activities. This has been used before.

In several instances, chapters have been concerned about adequate representation. They recruited qualified board candidates and agreed to underwrite some or all of their expenses if they were elected. Because many chapters are incorporated as separate entities, the lawyers felt that such arrangements were acceptable because no direct national money was going to the board members.

A third option could be a dues increase. Through extremely careful budget management and aggressive partnering, the SBE has operated in the black for more than 10 years without a dues increase. This can't go on forever, and ensuring fair representation of a major segment of the membership on the board may be an important enough issue to move us to action.

At the risk of slipping into sloganism, I would suggest that "Taxation for Representation" might be an alternative worth exploring.

No matter how we pay for it, I think leveling the playing field for board- and executive-level participation is important. Every industry segment and employment level must be represented for our society to be effective.

I hope my radio colleagues share this view. Your influence is fading. I hope you will join me in urging my successors to take action to reverse this dis-

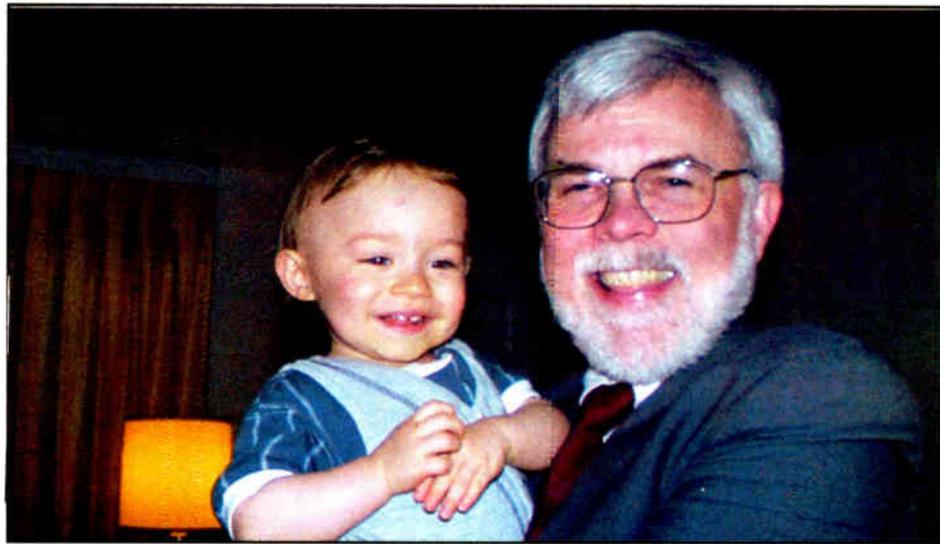
turbing trend.

While it caused me concern, the e-mail did include a positive section. The writer indicated that leaving national activities would allow him to become more active in his local chapter. I know his efforts will make a major difference for this chapter. He even plans to try to develop a new regional convention.

I hope all society members will take a minute to reflect on their own local chapters. Your participation at the chapter level provides powerful support for our national efforts and brings the benefits of society membership directly home to you.

I look forward to seeing you at a chapter meeting real soon now, and thank you again for your kindness and support.

RW welcomes other points of view. 🌐



Everett 'Rhett' Butler was born the same week that his father became SBE president in 1999.

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Who's Buying What?

Clear Channel Interactive announced a partnership with **Hiwire Inc.** to provide ad insertion services for the Internet streams of Clear Channel's radio properties in the top 50 U.S. markets.

The exclusive deal will use Hiwire's live stream ad targeting and delivery technology, with a scheduled roll out of 250 stations that was to begin in July.

The deal allows the stations to replace broadcast ads with streamed audio ads that can be targeted to specific listeners. Hiwire technology will be embedded in the encoding system of the streaming provider chosen by CCI.

"With the remarkable growth of Internet audio over the last several years, Clear Channel vowed to find a comprehensive approach to streaming that made both legal and financial sense," said Kevin Mayer, CEO of Clear Channel Interactive.

According to the companies, conservative estimates place the online ad inventory for Clear Channel's top 50 markets at more than 1 billion ad impressions in the first year, "positioning Internet audio as a serious advertising medium with true mass market appeal." Both CCI and Hiwire will generate revenue through the sale of this audio inventory.

Warren Schlichting, CEO of Hiwire, said, "Adding 250 Clear Channel stations to the Hiwire network brings our ad serving reach to over 40 percent of the entire streaming audio market. ..."

Meanwhile, **Clear Channel Worldwide** made an entry into the Dutch outdoor advertising market, the 10th

largest in Europe, through an investment in **Hillenaar Outdoor Advertising**. Clear Channel acquired 51 percent of Hillenaar. Its indoor portfolio includes ad display panels in cafés, schools and universities, which are sold as national networks. The business also has branched into outdoor billboards.



'Marketplace' is on the air with systems from Management Data.

Roger Parry, chief executive of Clear Channel International, said, "In the Netherlands, Hillenaar now joins Clear Channel's live events business (Mojo) and its radio station (Q the Beat) in offering unique marketing

solutions to advertisers." ...

Harris Corp. sold its first **BMXdigital** console to **Premiere Radio Networks** to launch national syndication of the "Kidd Kraddick in the Morning" show.

The show originates from **KHKS(FM)** in Dallas/Ft. Worth. In mid-August, syndication was to begin from the new Kidd Kraddick studios, under construction in Las Colinas.

Management Data Media Systems has delivered digital radio and content management systems to **Marketplace Productions**, a division of **Minnesota Public Radio**.

The partnership has integrated the DigaSystem product line by MD's **D.A.V.I.D** division into portions of the largest public radio network in the United States.

MPR's national programs include

outfitting Marketplace's L.A. headquarters with the **DigaSystem**. The design consists of one talk, two production and two control studios. **Management Data** and **Harris Broadcasting** provided system integration for the broadcast center; **Management Data** configured and tested servers and workstations.

Planners describe the system as a robust network architecture. Audio and database servers use the **Compaq ML370**. Soundcards include the **Digigram PCX 924** and **Soundscape Mixtreme**. A **Cisco 4006** router directs LAN traffic including the 50 workstations for the DigaSystem desktop editors, outbound production and on-air network traffic.

This establishes a multitasking environment allowing users to work on various other MS applications simultaneously. ...

AP Radio has signed several clients, including Clear Channel's **KFYI** and **KGME** in Phoenix, which will use AP products to enhance their Web sites. **WMTW Broadcast Group** in Portland, Maine, launched news/talk **WMTW** radio using AP's All News Radio 24-hour, live audio news network for its AM and FM broadcasts.

AP Radio also signed service deals with country station **KOYT(FM)**, owned by Clear Channel, and adult contemporary **KMXZ**, owned by Journal Broadcast Group, both in Tucson. ...

Telos/Omnia made several notable sales. Western Canada's largest telecom provider, **Telus**, purchased 12 of Telos Systems' new **Zephyr Xstream** codecs to provide audio-over-ISDN capabilities. The codecs are to be used in broadcast coverage of the International Amateur Athletic Federation's 2001 World Track and Field Championships in August in Edmonton, Alberta. The championship is described the third-largest sporting event in the world, with an estimated viewing and listening audience of more than 4 billion.

Separately, Clear Channel's **KTOK(AM)** in Oklahoma chose an Omnia-3am, and **Sandusky Radio**

See WBW, page 56 ▶

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- VSWR/Return loss: $\leq 1.10 / >26$ dB up to 3GHz.

PRODUCT EVALUATION

TX 150 Suitable for Backup, LPFMs

W.C. Alexander

Just as we have all gleaned benefits from space-age spinoffs over the years, many times other advances beget products and ideas that have more wide-ranging benefits.

This has certainly been true in the broadcast industry, where advances in computer technology have revolutionized our audio chains and transmitter controls. It is also true of the communications industry, where developments in solid-state power amplifier devices design have carried over to broadcast transmitters.

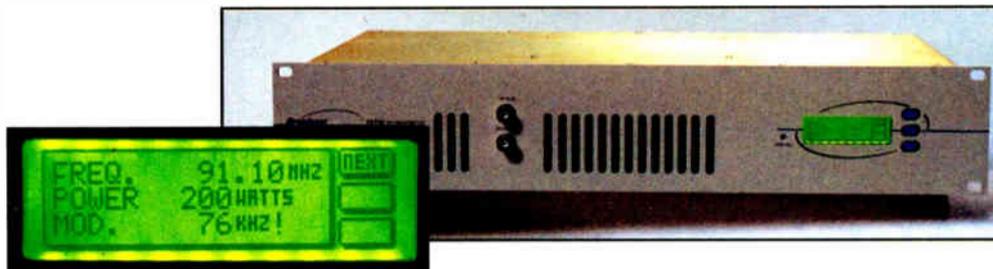
Frequency agile

A couple of young radio engineers who had for several years been involved in the English low-power radio scene have utilized this new technology to develop a self-contained, compact, frequency-agile FM transmitter suitable for standalone LPFM or emergency backup use or to drive an external power amplifier for high-power applications.

The TX 150 is manufactured by Broadcast Warehouse, headquartered in Wimbledon in the United Kingdom. Progressive Concepts, the exclusive U.S. agent for Broadcast Warehouse,

sent us a TX 150 to evaluate.

The transmitter is a two-rack-unit chassis that weighs about three pounds. Rear-panel external connections include AC power input, left and



right audio inputs, composite input/loop, RF out and control logic. On the front panel are connections for RF monitor and modulation monitor.

An automatic-mode switching power supply is employed, giving the unit the capability of operating on an AC power source of anywhere from 90 to 265 volts without user configuration. In this respect, it quite literally is plug and play.

The user has a lot of options for feeding audio to the TX 150. Using the internal stereo generator and limiter, balanced left/right audio can be connected via RF-shielded XLR connectors anywhere from -10 to +18 dB. If it

is desirable to use an external stereo generator, baseband audio can be connected via a rear-panel BNC jack.

If the built-in stereo generator/audio limiter is used, the output can be

looped through an external device, such as an RDS encoder, SCA generator or composite clipper.

The internal audio limiter is dual-mode and can be jumper selected to hard or soft action. The entire audio limiter section can be disabled, or the limiter left in the circuit with the internal clipper disabled. The unit can be operated mono from either a single-channel source or in a summing mode from two channels, with or without

Product Capsule:

**Broadcast Warehouse
TX 150 FM Transmitter**

Thumbs Up

- ✓ Simple "plug & play" installation
- ✓ Self-contained
- ✓ Small size
- ✓ Lightweight, switching power supply
- ✓ Low heat output

Thumbs Down

- ✓ Front-panel RF and mod monitor jacks
- ✓ No momentary remote on/off
- ✓ Poor recovery from momentary power outage

Reach Progressive Concepts at
(630) 736-9822.

For information on
the TX 150, visit the Broadcast
Warehouse Web site at
www.broadcastwarehouse.com.

pilot. Pre-emphasis is selectable at 0/50/75 uS.

Frequency is selectable by two means. One is by internal binary switches. The frequency simply is dialed in on the four switches in 100 kHz increments. A 12.5 kHz offset is selectable.

See TX 150, page 57 ▶

WBW

▶ Continued from page 54

bought an Omnia-6fm for its Seattle cluster. ...

Aphex Systems supplied Series 9251 Aural Exciter Single-Channel Modules to NASDAQ MarketSite in New York to enhance the sound quality of broadcast feeds.

MarketSite provides facilities for the major U.S. TV/radio networks.

"We provide broadcast facilities for the leading financial news networks, including CNBC, CNNfn, Bloomberg, CBS MarketWatch and others, from our MarketSite broadcast studio, which includes a large 96-cube video wall displaying current stock prices," said Wayne Chmielewski, NASDAQ manager of broadcast operations.

Sennheiser wireless lavalier microphones are available for broadcasters; line-level outputs are routed through a bank of 12 Series 9251 single-channel Aphex Aural Exciter modules and then to an audio-routing switcher. A pair of Mackie consoles handles mixing and onward routing of audio outputs to news organizations.

The sound and video installation for MarketSite was designed and built by Monolith Modular Systems. ...

Aphex also supplied signal processors to the XACT Radio Network for its new Denver-based production studios and Webcasting complex. XACT Radio was established to allow stations to retain their listener base by extending an existing brand to the Internet.

NextMedia, Greater Media, Citadel Communications Corp. and Milwaukee Radio Alliance have adopted the XACT service for their

stations' streaming strategies. ...

WRAL(TV) chose a Wheatstone TV-80 series audio console to produce the audio for its High-Definition newscasts. WRAL, the first station in the United States to broadcast a HDTV signal in 1996, says it is the world's first news operation to present HD local news on a continuous basis.

The Federal Radio Corp. of Nigeria signed a contract with Broadcast Electronics Inc. under which BE will supply RF transmitters and studio equipment for a major FM radio project in Nigeria.

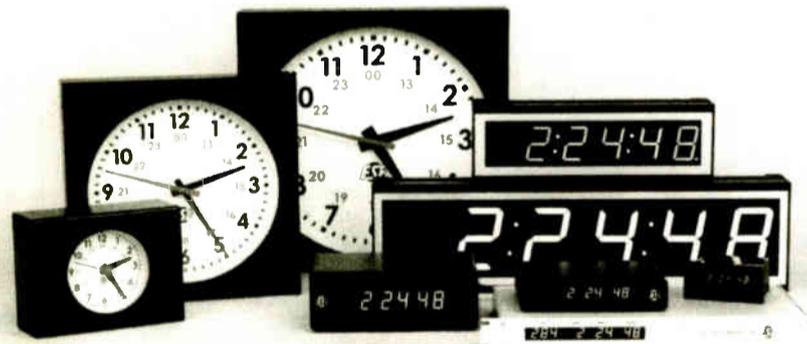
The deal, signed in July in the capital city of Abuja, calls for BE to supply, install and commission equipment for 32 new FM stations to be built around the country over the next 18 months.

Each radio station installation will include BE's new FM-20S solid-state transmitter, which won Radio World's "Cool Stuff" Award at NAB2001, in a main/alternate configuration. Additionally, the production and on-air studios will use AudioVault digital automation systems. Northgate Ltd. of Lagos, Nigeria, will assist in the project.

Professor Jerry Gana, minister of information for Nigeria, stressed the importance of this project as a means of "uplifting the people through greater local communication and information."

"Who's Buying What" is printed as a service to our readers who are interested in how their peers choose equipment and services. Information is provided by suppliers. Companies with news of unusual or prominent sales should send information and photos to: RW Managing Editor, P.O. Box 1214, Falls Church, VA 22041. 🌐

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TX 150

► Continued from page 56

The other means is by the front-panel LCD menu system and pushbuttons. By setting 4440 on the internal binary switches, front-panel frequency selection is enabled. Any 100 kHz frequency from 87.5 to 108 MHz is selectable. RF output is inhibited until the dual-speed PLL has locked.

Power level is front-panel adjustable (using a greenie or other diddle-stick) from 30 to 200 watts. The power amplifier uses a dual-gate Gemini packaged FET and employs an internal harmonic filter. Power control is achieved by varying the drain voltage to the PA FET. The PA is temperature- and VSWR-protected.

During our evaluation, we operated the unit for several hours at the 150-watt level with no discernable problems. Even at that power level, the unit ran cool to the touch.

A single three-inch rear-panel muffin fan provides cooling for both the PA and the switching power supply. The fan generates some noise, so the TX 150 normally could not be mounted in a studio rack where microphones are employed.

The front-panel LCD readout provides operating and configuration information in several screens.

Handy

The main parameter screen shows frequency, power and peak deviation. These indications appeared to be quite accurate. Power metering was very close to the Bird 43 wattmeter that we had installed in line with the output.

An RF power screen displays forward and reflected power. A peak deviation screen provides a bar-graph indication of deviation along with an alphanumeric indication of peak deviation. An alarm is

displayed when peak deviation exceeds 75 kHz.

Another screen shows the amount of gain reduction (0 to -24 dB). Other screens show power supply voltage and PA temperature.

We found that the TX 150 performed well. The sound was transparent, although at higher input levels the limiter action was somewhat audible.

A problem occurred when we simulated a brief power interruption. When this happened, the front-panel LCD screen backlight would flash on and off

This unit from the U.K. will be useful as an exciter, studio aux transmitter or LPFM main.

repeatedly and the unit would not come on. To restore operation, the power had to be turned off for several seconds, then restored. This indicates that a UPS should probably be used with the unit.

This is a versatile, compact, rugged little transmitter. LPFM broadcasters will find that it is all they need between their studio equipment and transmission line to get on the air.

Commercial and NCFM broadcasters will find that the TX 150 is a ready-to-use exciter and in some cases may be able to replace the exciter and IPA transmitter stages. Another application may be a studio auxiliary transmitter, providing a third level of backup should the main and aux transmitters fail.

The TX 150 lists for approximately \$2,495 and is available domestically from Progressive Concepts in Streamwood, Ill. 

IAAIS Program Winners

The International Association of Audio Information Service has honored member stations for excellent audio production for 2000. Members use audio technology to make printed news and information accessible for people who cannot see, hold or comprehend conventional materials because of a disability:

Extended Series/Ongoing Program (live/produced): "How We See It— Disability Inroads," Words Radio Reading Service, Dayton, Ohio; and "1900 Yesterday," Cleveland Radio Reading Service, Cleveland

Extended Series/Ongoing series (reading-based): "Western Short Stories," Sun Sounds Radio Reading Service, Tucson, Ariz.; and "Medical World News," WLRN Radio Reading Service, Miami

Short Series/Special Program (live/produced): "In Conversation with Henry Grunwald," In Touch Networks, New York; and "HTBR Christmas Special," Taping for the Blind, Houston

Short Series/Special Program (reading-based): "Christmas Special — My Father's Gift," Sun Sounds Radio Reading Service, Phoenix

Newspaper Reading: Audio Journal, Worcester, Mass.; Central Ohio Radio Reading Service, Cleveland; and Sun Sounds Radio Reading Service, Phoenix

Spot Production: "Friday Special Series Promotional Announcements," from Pell Radio Reading Service, Scranton, Pa.; and "Various," from Talking Information Center, Marshfield, Mass.

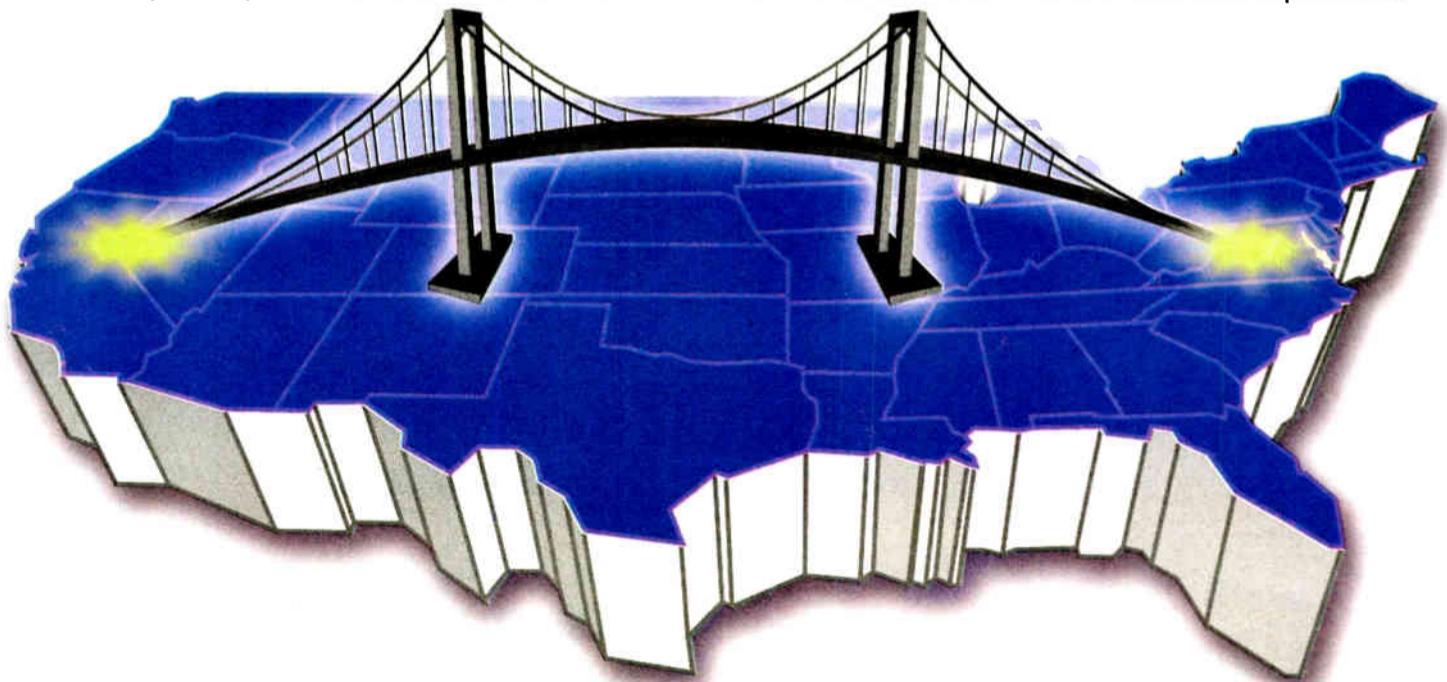
Public Awareness Campaign: "Our Lucky Number: 13th Annual On-air Fund Drive," Kansas Audio-Reader, Lawrence, Kan.

Many IAAIS members are radio reading services that use FM subcarriers for distribution. For information visit www.iaais.org.

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from the editors of
Radio World

WIRED FOR SOUND

Resistance Is Futile

Steve Lampen

Fellow "Star Trek" fans will no doubt recognize the Borg title of our column. But the resistance I'm going to talk about is the resistance in speaker cables.

Resistance generally has the same effect at all audio frequencies. High resistance will waste the power from your amplifier by turning it into heat. The output of an amplifier can be anywhere from a watt or two to hundreds, even thousands of watts. The key is to have low resistance so that all energy is transferred.

At right is a table of gage sizes (for stranded conductors) and the resistance per foot.

Just remember, you have two wires to each speaker, and you must multiply it by the number of feet from your amp to the speaker.

How much resistance is too much? Well, it's a bit more complicated than that. What gage should you use? Larger cables, 10 AWG or 12 AWG, are the most popular choices.

I can tell you that the most popular size sold is 12 AWG. There's a survey on my employer's Web site that indicates that 10 AWG is the favorite with the high-end audio crowd, with 12 AWG a close second. These gage sizes are good compromises among low resistance, size and cost.

(To see the whole survey go to www.belden.com, choose "cable college," select "technical papers" and find the one at the bottom called "Rec. Audio.High-End Speaker Cable Design Project." You have to scroll down to the survey results.)

Important parameters

You could, of course, use welding cable. That would be super-low resistance.

But is this necessary? I think we need to visit more specs before we can assign a "most important" label to any particular parameter.

In terms of wire gage, which is really

the same as resistance, we have another factor to consider: slew rate. Slew rate essentially addresses the amplifier's ability to pass high frequencies, where waveforms are very fast in "risetime."

The slew rate is the ability of the amplifier, and the speaker attached to it, to "track" these fast-moving waveforms and reproduce them accurately. Slew rate is determined by the total impedance of the speaker, which we hope is something close to the 4 or 8 ohms written on it, with the added resistance of the speaker

Gage Size (AWG)	Resistance (Ohms) Per Foot
24	0.0277
22	0.0175
20	0.0109
18	0.00692
16	0.00435
14	0.00273
12	0.00171
10	0.00108
8	0.000778
6	0.000491
4	0.000308
2	0.000194

Resistance as a Function of Gage

cable, divided by the output impedance of the amp.

The output impedance of modern amplifiers is low, often tenths of an ohm or even lower. Because the slew rate is the speaker impedance plus wire resistance divided by amplifier's actual output impedance, this can give you slew rates into the hundreds, sometimes even in the thousands.

In addition, you can see that the resistance of the speaker cable can be a factor in determining the amp's ability to deliver fast waveforms to the speaker.

Of course, the actual impedance of a speaker changes with frequency. Some have dips as low as 2 ohms; some have peaks into double-digits. This means that

slew rate must include the question, "At what frequency?"

Because low frequencies are relatively easy to pass, compared to highs, you really need to specify a high frequency, say, 20 kHz. If your slew rate is poor here, you easily can calculate the difference that lower resistance (i.e. larger) speaker cable would make.

So what is a good slew rate? Or maybe the question should be "What's a good slew rate at 20 kHz?"

I'd love to know the answer. My e-mail address is at the end of the column. Maybe speaker or amplifier manufacturers have an opinion or two to throw our way.

Because the resistance of the cable is added to the speaker impedance, the cable can be a serious factor, so you want to keep the resistance low. The result of all this is that bigger wire is better than smaller wire, which is exactly where we started. This is true especially when you consider that large amplifiers can deliver a considerable amount of current to a speaker.

A 100-watt amp into a 4-ohm speaker means that 5 amps flows down the line. A 500-watt amp produces 11 amps. This also justifies large-gage, low-resistance wire.

Now don't send me e-mails telling me that, especially in the home environment, most amplifiers are rarely working past 1 watt. Sure, unless you have a super-inefficient speaker, or you're filling an auditorium at rock-band volume, you don't need tons of power.

It is interesting to note that, when the "talkies" came to movie theaters in the late 1920s, the amplifiers used were rarely more than 10 watts, and often only 5 watts. Nevertheless, that was enough to have a large room filled with sound.

Forget the wires

Also on the Belden Web site is a chart showing how far you can go with different gage wires and different speaker impedances.

For higher-impedance speakers and larger-gage wires, you can get up to a couple of thousand feet, provided you don't mind losing a chunk of power in the wire itself.

The chart is at <http://bwccat.belden.com/Bimages/TechInfo.htm>, choose "multiconductor and paired cables," then choose "speaker cable" from the "audio/video cables" selection.

Then there is a column that says "70-volt speaker" with distances up to 56,000 feet. Yes, this is no misprint: over 10 miles. How is this possible? It's simple: change the impedance of the system so that the resistance of the wire is inconsequential.

Buy an amplifier with a 70-volt output and a small transformer for every speaker. These transformers are available at different wattages depending on how much power you expect to send to each speaker. These transformers have a 70-volt primary, for the incoming signal from the amp, and an 8-ohm secondary, for the speaker side.

One of the advantages to this system, besides the distance, is the ability to select the relative level on each speaker. Most 70-volt transformers for the speaker have power taps. If it's a 10-watt transformer, for instance, the taps might be 1 watt, 2.5 watts, 5 watts and 10 watts. If you choose the 5-watt tap for that speaker, it will be 3 dB down (half power) compared to a speaker wired to the 10-watt tap on its transformer.

We'll continue next time with more on 70-volt distributed loudspeaker systems, and look at other parameters in speaker cable such as capacitance.

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MARKET WATCH

Puerto Rico: One Market, Many Towns

Michelle Kantrow & Laura Dely

The island of Puerto Rico, 100 miles by 35 miles, located at the heart of the Caribbean Sea about 1,000 miles off the tip of Florida, boasts one of the oldest and possibly most crowded radio markets in the nation.

Arbitron considers the entire island one market — including the cities of San Juan, Aguadilla, Arecibo, Ponce and Mayaguez.

"It's a bit of an anomaly. When you look at Puerto Rico, you say 'Metro rank 13: it's kind of like Miami,' but really it's not," said Mark O'Brien, vice president at the BIA Financial Network.

"Although it has roughly the same population as Miami, no one radio station covers the entire island."

Unique market

Puerto Rico's radio sector is considered a single market mainly for advertising reasons, said Arbitron spokesman Thom Mocarisky. The service only began to rate the market in summer, 1998.

"One of the reasons Puerto Rico's radio industry wanted Arbitron to measure the market was to have visibility among advertisers in the U.S. mainland," Mocarisky said.

"As a single market, Puerto Rico is ranked among the top 20 in the U.S. mainland, while the other way (measured by towns and metros) it would probably fall completely off the scale."

Puerto Rican radio dates to 1922, when its first station, WKAQ(AM), was born in the capital city of San Juan. Since then, Puerto Rico's radio industry has evolved to blanket the island with 120 stations that serve the population in a variety of formats.

El Mundo Broadcasting, Spanish

Broadcasting System and Uno Radio Group are the three biggest players in the market, operating 30 stations among them, according to BIAfn.

In terms of revenue, Uno Radio and SBS last year earned \$27.3 million and \$26.5 million, respectively, while El Mundo Broadcasting generated some \$19 million last year, according to BIAfn.



Felo, bassist for the band 'Algarete,' enjoys the WMEG(FM) 'La Mega Summer Blast' event.

The newest kid on the block, Florida-based SBS, made its debut in the market in 1999 when it acquired three FM stations, contemporary hit radio WMEG(FM) and top 40 WEGM(FM) from Guayama Broadcasting, as well as tropical WDOY(FM) from Joe T. Jobe.

Almost before the ink had dried on those deals, SBS announced a second major purchase, eight stations owned by AMFM, Inc., for \$90 million.

SBS's investments thus far exceed \$125 million, a figure that includes the purchase of the 11 stations and a 26,000-

square-foot building in San Juan which last spring became the company's Puerto Rico headquarters.

The investment total includes system upgrades and new technology. SBS's 11 local FM stations span a range of formats, from Spanish-language easy listening to tropical music to all-'80s. The latter was introduced in September 2000, after SBS

in the top 53 U.S. markets.

Not surprisingly, its aggressive entrance and hefty investments place SBS near the top of this market.

Native competitor Uno Radio Group stood up to SBS's challenge with two major acquisitions in as many years. In 1999, Uno acquired five radio stations from Ponce Broadcasting — WZAR(FM), WLEO(AM), WZUR(AM), WKFE(AM) and WLEY(AM). Ponce exited the radio business with the sale.

SalSoul 98

Uno added the stations to those it already owned — all-news WUNO(AM), adult contemporary WFID(FM) and top-ranked tropical WPRM(FM). The latter, known to Puerto Rican listeners as SalSoul 98, generated \$10.5 million last year, representing almost half of the company's revenues.

Earlier this year, Uno announced another \$5 million acquisition: Radio Cadena Informativa's three all-news stations WSKN(AM), WPRP(AM) and WORA(AM). Through the deal, Uno secured an important place for itself within the island's news radio segment.

Uno shuffled programming on the news stations and placed WUNO(AM) as the leader of the news group. The company also placed all adult informational programming under WSKN and its affiliates, according to Soto.

"WSKN had been in the market for a long time, but it wasn't as strong as WUNO, which is why we felt the need to realign programming to strengthen both."

Although the conglomerates are seemingly gobbling up the little stations, the remaining independent stations still try to play to a healthy tune despite the current downturn in ad sales.

See MARKETWATCH, page 66 ▶

concluded there was an underserved Gen-X crowd and decided to revamp WDOY(AM).

All '80s

The change included new call letters — WCMA(AM) — and a new musical lineup. WCMA's format broke the industry mold set by competitors who traditionally mixed '80s music into regular easy-listening formats and entered a category whose popularity is swelling in the United States.

In the fall of last year, Arbitron reported the birth of at least 20 all-'80s stations

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MANAGEMENT CORNER

Radio's Doldrums May Disappear

Vincent M. Ditingo

"I'm as mad as hell and I'm not going to take it anymore," a frustrated television news executive said in the movie "Network."

The statement aptly captures the sentiment that swept through radio's fiscally strapped community in the first half of the year. The scenario has been the same for most cluster group operators: Ad sales down and monthly sales goals impossible to meet.

While revenue data from the industry painted a negative economic landscape, some fiscal indicators with upside

potential emerged that could position radio to be stronger in the near future and beyond.

With that in mind, radio executives will look to capitalize on any positive trends as they gather on New Orleans in early September for the annual NAB Radio Show.

Radio returns

The NAB has assembled a series of management-oriented sessions from that incorporate a menu of programming, sales and marketing issues with general management issues. Several workshops on local cluster manage-

ment are on the agenda.

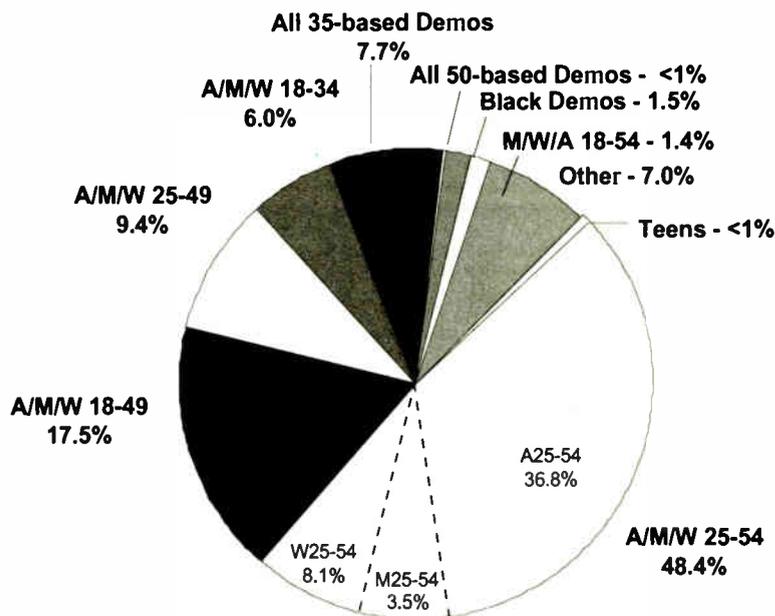
The investment firm of Robertson Stephens' recent report, "New Leaders of Radio," will certainly give sessions leaders and attendees something to talk about.

rates over time," the report stated. "Strong management teams should help navigate the risks inherent in radio stocks, especially if the ad environment does not improve as expected."

Wall Street is putting increased emphasis on high-quality management teams, said James Marsh, managing director at Robertson Stephens, who oversaw the report.

Among the major indicators for mea-

Share of National Spot Radio Dollars by Demo
Top 25* Radio Metros



Source: Interop's Performax Database using Competitive Media Reporting RER data, for full year 2000. Top 25 Radio Metros (excluding Puerto Rico and embedded metros). A/M/W = Adults/ Men/ Women; 35-based demos include any demo beginning at 35-years, i.e. 35-64, 35-54, 35+; 50-based demos include any demo beginning at 50-years.

Significantly, the report concludes that as management-intensive businesses, radio companies with top-flight management will give investors the greatest return of just about any kind of company.

Highest return

The report notes that in the post-Telecom Act era of consolidation, the average radio stock returned 335 percent from 1996 through 1999. Since the current downturn began, radio stocks on average traded at 70 percent of their 52-week highs, according to the Robertson Stephens study.

"Superior management should lead to higher and more sustainable growth

ensuring a management team's skills, according to the report, are broadcast cash flow margins compared to the industry average and ratings trends.

Investors most likely will see improved comps in the second half of 2001, simply because the same time last year marked the beginning of the slowdown and because radio ad sales this year likely will increase as the year progresses, according to Marsh.

He stated that over the last 22 years, when the federal government cut interest rates four times in a short period, as it did in recent months, media companies typically outperformed other business sectors during the 12 months following.

See DITINGO, page 68

Publicly Owned Radio Station Sales

Year	All Sales in Rated Markets		Public Sales in Rated Markets		Public % of Stations Sold	Public % of Sales Volume
	Number of Stations Sold	Sales Volume (\$ million)	Number of Stations Sold	Sales Volume (\$ million)		
1991	533	741	12	105	2.3%	14.2%
1992	685	1,340	51	463	7.4%	34.6%
1993	923	2,746	91	1,057	9.9%	38.5%
1994	792	2,548	57	616	7.2%	24.2%
1995	834	5,271	157	3,483	18.8%	66.1%
1996	1,582	14,109	587	11,139	37.1%	78.9%
1997	1,613	17,703	445	10,798	27.6%	61.0%
1998	1,119	8,640	364	6,645	32.5%	76.9%
1999	1,249	28,250	715	26,654	57.2%	94.4%
2000	1,224	24,050	1,092	23,778	89.2%	98.9%

Source: BIAfn's MEDIA Access Pro™, BIA Financial Network, Inc. * Excerpted from BIAfn's State of the Radio Industry: Radio Transactions 2000, by Mark Fratrack, PhD.



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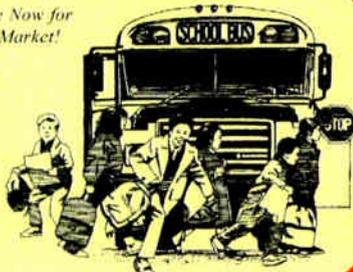
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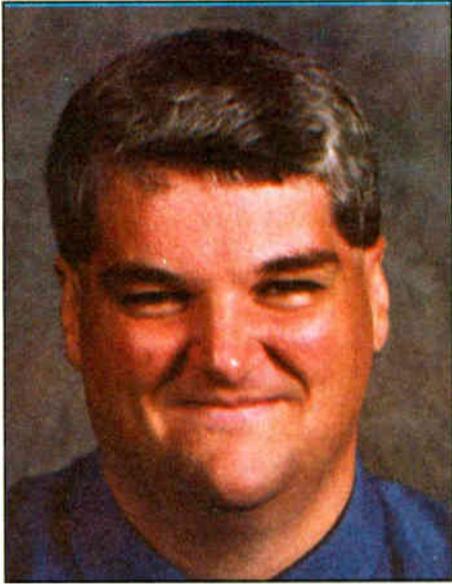
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Grab Listeners' Hearts — Literally

Scott Fybush

Want to make your listeners' hearts slow down and their skin tingle? Two professors say their research shows that the writing used in station promos and advertisements really can have a physiological effect on listeners.

Robert F. Potter, now an assistant professor of telecommunications and film at the University of Alabama, and Paul Bolls, now an assistant professor of advertising at Washington State University, began their studies a decade ago in Indianapolis.



Paul Bolls

Wiring 38 participants to measure heart rate and skin conductance, Potter and Bolls played 12 minutes of radio spots, carefully noting what they called "orienting response points."

ORP

That's academic-speak for what most radio production folks would call their "bag of tricks": voice changes, sound effects, the start of music and jingles and so on. Potter said such audio moments force listeners to pay attention to what's on the radio.

You've got this magic window to cram something into memory.

— Paul Bolls

"They can't help themselves from paying attention to something new in the environment," said Potter.

So what's happening to listeners' bodies when their minds are directed to those "orienting response points"? The researchers said that their studies show that listeners' heart rates slow down measurably, a sign that their energy is being focused on listening to the commercial.

And unlike, say, Pavlov's famous dog experiments, Bolls and Potter found that repeated exposure to those audio moments doesn't diminish listeners' response.

"Every time you do it, it works,"

said Potter.

But if you're tempted to retreat to the production room and whip up a new promo loaded with those "orienting response points," Bolls warns it's not that simple.

People listen to these high-impact spots.

— Dirk Freeman

"You've got people in the palm of your hand, they're paying attention," he said. "You've got this magic window to cram something into memory."

If that window is misused, though, "you can have people say, 'I don't remember a damn thing,'" he said. In other words, when you're demanding listeners' attention, be sure it's at a moment when you say something important.

Bolls said that moment comes three to six seconds after the "orienting response point." Any earlier, he's found and the message actually gets lost under the sound effect.

"(Listeners are) too busy going, 'Oh what's that, a laser effect,' to process what's being said," he said.

Too soon

Placing an important message *before* a sound effect or voice change also has its problems.

Bolls said he's found the brain tends to dump short-term memory when confronted with one of those response points, so a critical bit of information like an advertiser's name or sale price could disappear if placed in such a spot.

More recently, Bolls and Potter have studied the effect of "high

imagery" and "low imagery" advertising on listeners. A recent study subjected 45 people to two dozen award-winning radio ads, some deliberately written to paint pictures in listeners' minds, others simply to convey information.

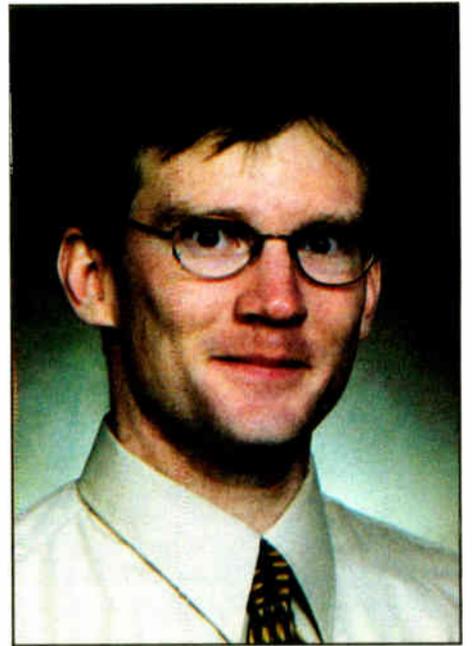
"As far as the brain is concerned," Bolls said, "even though people are listening to an exclusively auditory message, the brain thinks it's seeing it."

The study found that listeners perceive high-imagery ads as being more trustworthy and memorable than their low-imagery cousins.

"People do believe the hype," said

Dirk Freeman of Steelboy Productions, an audio/video post-production house in Denver. "They listen to these high-impact spots and put more processing into them."

That's a good thing to know, but



Robert F. Potter

Bolls said it also means there are occasions when it might be a bad idea to draw too many pictures in listeners' brains.

"The 5 o'clock drivetime home might not be the best time to use a

high-imagery strategy and get the best impact out of that ad," he said. After all, he said, listeners need to use some of their processing power to keep their cars on the road. 🌐

Citadel's Wilson: Sittin' Pretty On a Pile of Money

Larry Wilson, Citadel Communications chairman, president and CEO, is to receive the 2001 NAB Radio Award at The Radio Show Luncheon in New Orleans.

It's been an incredible year for Wilson, who took his company private in June when he struck a deal with investment firm Forstmann Little & Co. The transaction gave Wilson \$2 billion to spend toward the acquisitions that he has said he needs to build his company to be one of the top three revenue generators, just behind No. 1 Clear Channel and No. 2 Infinity.

In terms of station ownership, Citadel is the third-largest owner with 205, and is sixth in terms of revenue with \$350 million last year, according to BIAfn.

Paul Sweeney, senior analyst with Credit Suisse First Boston, said Wilson has found financial flexibility when his hands were otherwise tied.



Larry Wilson at His Ranch in Montana

"In a time when public equity markets are unavailable, Larry Wilson found a way to grow his company. He got a fair value and additional equity when these were not accessible through traditional means," Sweeney said.

The advantage inherent in taking your company private in these tough times is what stands out to Wall Street analyst Drew Marcus of Deutsche Banc Alex. Brown.

"You don't have to report results each quarter — you can escape the quarterly Wall Street paranoia," said Marcus. "He can concentrate on what he wants to do: grow his company and not worry about short-term results."

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Small Markets Create Big Thinking

Ken R.

Most major-market stations with reasonable ratings can expect a certain amount of "automatic" advertising revenue, including national or regional buys. In small markets, the bottom line has to be earned the hard way, sometimes \$5 or \$7 at a time.

"A lot of the big-market stations talk about ways to sound local," said Ron Davis, president and general manager of Butte Broadcasting Co. KBOW(AM) and KOPR(FM), Butte, Mont.

"Why don't those guys actually try to be local, which is what we have been doing all this time?"

Speaking at the NAB convention in Las Vegas this spring, Davis shared ideas with a large group of general managers from markets of 17,000 to 100,000 in population.

What's big in the smalls

According to Davis, most small-market reps don't mention rate cards or demographics in making a presentation to a potential client.

More important are issues such as whether the station helped local charities raise money, whether high school football games are heard on the air and whether the station posted obituaries and lost pet announcements on its Web page.

Another talking point in sales meetings is how the small station can help the local merchant get customer traffic into his or her business.

In Bill Flack's market of just 27,000 people, Utica, N.Y., more than 12 percent of the town is unemployed. Flack, who owns three stations there — WLLG(FM) and WBRV(AM-FM) — said his stations' mission is to help rebuild his community.

"In March and April we run a 'shop local' campaign to encourage people not to drive 40 miles to a big mall," said Flack. "Advertisers buy in for about \$150 to \$300 each month and I interview the business owners, editing the conversation down to three minutes. Then those tapes are run on the air each day and let me tell you we deliver results."

Flack said although most clients are eager to re-sign each year, he doesn't want to run these campaigns more than just two months for fear of burning out the novelty of the promotion.

Trying to get revenue from "non-advertisers" is always a challenge. Mike Ford, station co-manager of KGHP(FM) in Gig Harbor, Wash., population 6,465, came up with a low-cost idea.

"I take a tape recorder out to these businesses and have the owners record short IDs for us, with absolutely no paid schedule," said Ford. "They can say who they are and a line or two about their business. When their families and customers hear them on the air they realize radio works and they call us to buy a schedule."

Bill Noel, vice president at Heartland

Broadcasting Corp.'s WZSP(FM) in Nocatee, Fla., allows the local Rotary Club to sell spots on his behalf.

"We gave Rotary as many spots as they wanted for \$25 each, which they in turn sold to community members and business people for \$100 each. The Rotary guys wrote the spots and did them live on the air."

Noel said that the nonprofit organization made a lot of money and the station made \$800 without having to pay sales commissions.

Jeff Driggs is a marketing consultant for the Radio Network's three radio stations — KUGR(AM), KYCS(FM) and KFRZ(FM) — in Green River, Wyo.,

where the stations run a "Coats for Kids" campaign each fourth quarter.

"We sell a \$600 ad package and we get a corporate sponsor to create customized ornaments which merchants sell for \$10 each," said Driggs. "Our station makes about \$12,000 from a deliberately limited group of advertisers and J.C. Penney sells us coats at a discount."

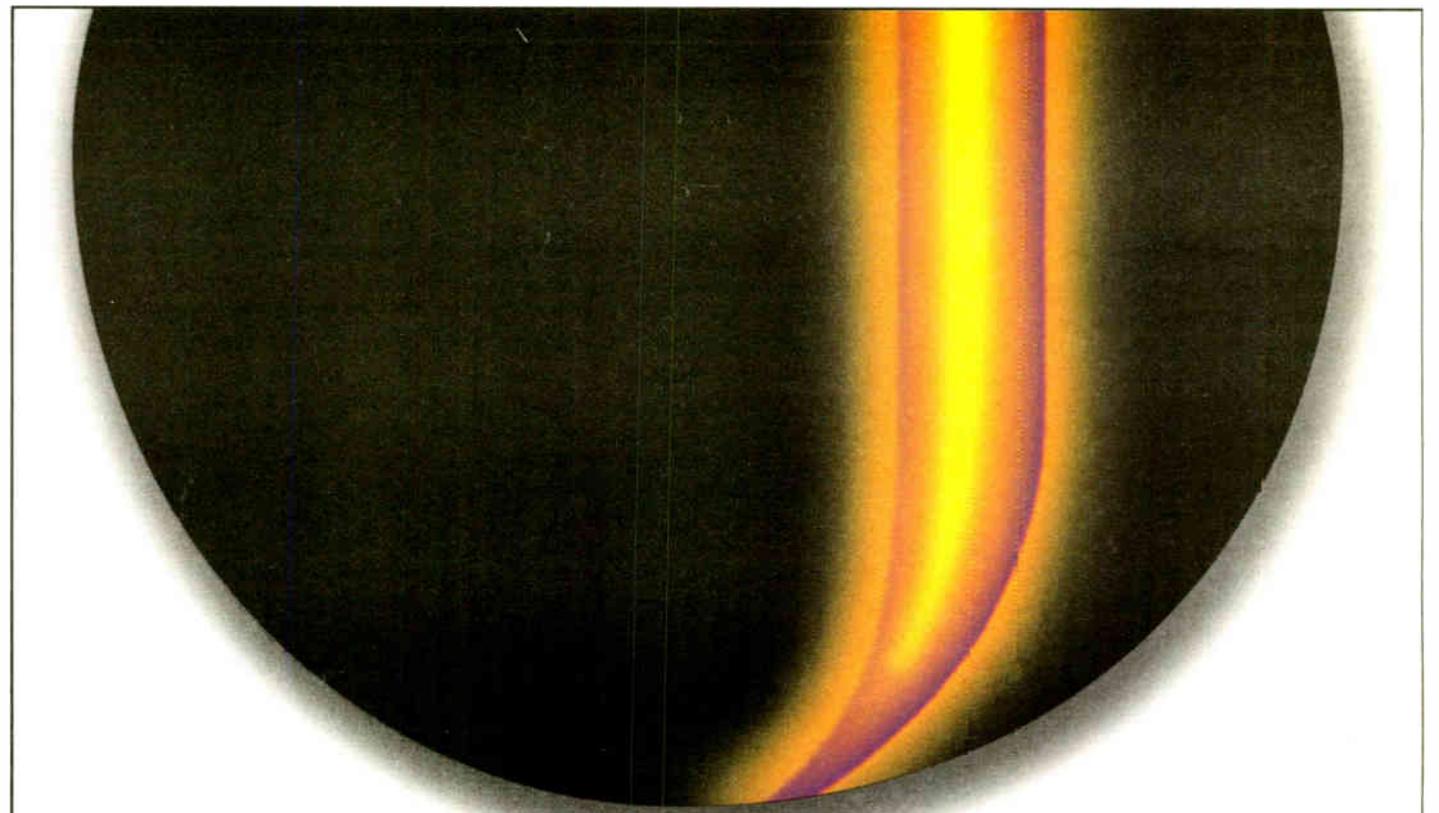
Driggs said his station has donated more than 1,300 new coats to the community in the six years the promotion has run. Some stations have run live events for many years that have little connection to their audience demographic or format.

For example, Jimmy Young, general manager at Altus Radio Inc.'s country,



Jeffrey Driggs

classic rock and hot adult contemporary stations — KWHW(AM), KRKZ(FM)
See MARKETS, page 68 ▶



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Correction

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Market Watch

► Continued from page 59

Although economic pressures have not forced stations to go dark, the squeeze is the obvious main reason for independents to sell their assets.

"Ad agencies will allot as much as 90 percent of a client's budget for spots on the bigger radio stations, leaving only a minimal amount for the small regional operations," said Efraín Archilla, president of the Puerto Rico Broadcasters Association and WYQE(FM) owner, an independent station that reaches the island's eastern flank.



Efraín Archilla

Unconsolidated

Independently owned radio stations make up about three-quarters of the Puerto Rican market. The Broadcasters Association estimates there is at least one independent in each of the island's 78 towns; in the case of bigger municipalities, there may be as many as three small stations.

"AM regional stations have maintained their independence and their importance partly because stateside investors have

Archilla said radio advertising should pick up even in the face of economic decline because "those who have advertised (on radio) during recession periods have been the ones who have survived."

Over the past six months, revenues for island radio stations have been somewhat flat for two reasons: last year's electoral process and a depressed economy, radio executives agreed.



Beautiful coral reefs await anyone who scuba dives in Puerto Rico.

looked to buy mainly FM stations," Archilla said. "But that won't be the case for much longer, because stateside companies will soon start investing in AM, which is what is happening in the U.S."

Despite limited budgets, smaller stations here seem to fill a niche of serving towns which otherwise would be overlooked by the bigger players.

"Puerto Rico has very good town stations that boast excellent audiences," José Ribas Dominicci, executive director of the Puerto Rico Radio Broadcasters Association, said.

The association is updating an internal study of the impact that advertising investments have upon Puerto Rican radio. Preliminary estimates show that industry ad revenues have swelled by more than 25 percent in the last decade and could exceed \$130 million this year.

Experts disagree on what's ahead for radio revenues here. Ribas Dominicci, along with other radio executives, dispute forecasts, such as those made by BIAfn, that predict a decline in the sector.

"We're not projecting any drops. This year has been somewhat abnormal, but we expect the next few years to be good because advertisers are noticing that the radio industry is more effective than any other media, specifically television," Ribas Dominicci said.

"An election year is usually slow because there's an uncertainty and people hold back on their expenditures," said Ribas Dominicci. "However, there were economic factors also at play."

There isn't one specific sector that solely accounts for the economic well-being of the island's radio industry. Advertising revenues come from a balanced mix of private sector businesses and government agencies, radio executives said.

No NPR

The island does not boast a typical public radio sector. There is no National Public Radio affiliate in the market, and there are less than 10 noncommercial stations on the FM band here, including PR Public Broadcasting Corp.'s classical WIPR(FM) and a pair of FMs owned by the University of Puerto Rico, jazz-formatted WRTU(FM) and religious WEUC(FM).

On Dec. 3, 1922, owner Angel Ramos secured his place in Puerto Rico's history books when he flipped the switch on the island's first commercial radio station, WKAQ(AM) — Radio Reloj.

The station formed part of what ultimately became the island's first major media conglomerate that also included a now-defunct daily newspaper and a com-

mercial television station. The company is still known as El Mundo Broadcasting.

"Angel Ramos really had a vision and he surrounded himself with people with excellent talent in the media industry," said Grafton Olivera, WKAQ(AM) chief engineer, who has worked for El Mundo Broadcasting for 20 years.

Legend

"He was a demanding boss, but he won the loyalty of his employees and that way was able to develop an enviable media conglomerate."

WKAQ Radio Reloj was not only the island's first station, but also holds the distinction of being the second radio station in Latin America, the fourth operating in the United States and the fifth in the world, according to the Puerto Rico Broadcasters Association.

Although it initially boasted a musical programming structure, since January 1978, WKAQ's format has been all-news.

"This company set the standards of quality programming. The same goes for our news coverage, which maintains its

See MARKETWATCH, page 67 ►

Puerto Rico Commercial Radio Market Overview

Station	Owner	Format	BIAfn's 2000 Est. Station Revenue (\$000s)	Winter '01 Share
WPRM(FM)	Uno Radio Group	Variety/SPAN.	10,500	10.8
WKAQ(FM)	El Mundo Broadcasting Corp.	Top40/SPAN.	9,500	5.2
WIOA(FM)	Spanish Broadcasting System	Bfm/SPAN.	4,000	4.3
WMEG(FM)	Spanish Broadcasting System	CHR	4,500	4.0
WKAQ(AM)	El Mundo Broadcasting Corp.	News/SPAN.	7,500	3.9
WZNT(FM)	Spanish Broadcasting System	Variety/SPAN.	4,700	3.8
WFID(FM)	Uno Radio Group	CHR/SPAN.	3,300	3.4
WORO(FM)	Roman Catholic Church	SJz/Bfm/SPAN.	2,500	3.4
WIAC(FM)	Bestov Broadcasting	Nstlg/SPAN.	4,200	2.9
WVOZ(FM)	Intl. Broadcasting Corp.	VarHits/SPAN.	900	2.9
WCMA(FM)	Spanish Broadcasting System	Top40/SPAN.	1,800	2.8
WXYX(FM)	RAAD Broadcasting	Top40/SPAN.	2,200	2.7
WAPA(AM)	Blanco Pi, Wilfredo G	News/SPAN.	3,200	2.5
WZAR(FM)	Uno Radio Group	Variety/SPAN.	2,700	2.3
WIVA(FM)	Uno Radio Group	Variety/SPAN.	1,200	2.1
WCMN(FM)	Caribbean Broadcast Corp.	Top40/SPAN.	900	1.8
WIOB(FM)	Spanish Broadcasting System	Variety/SPAN.	1,800	1.6
WUKQ(FM)	El Mundo Broadcasting Corp.	Top40/SPAN.	2,000	1.5
WRIO(FM)	Uno Radio Group	Variety/SPAN.	1,600	1.5
WVJP(FM)	Borinquen Broadcasting Co.	Variety/News/SPAN.	900	1.4
WCOM(FM)	Spanish Broadcasting System	Top40/SPAN.	4,300	1.3
WEGM(FM)	Spanish Broadcasting System	Top40/SPAN.	600	1.3
WBRQ(FM)	Newlife Broadcasting Inc.	Nstlg/SPAN.	1,400	1.3
WQYE(FM)	Spanish Broadcasting System	Top40/SPAN.	2,000	1.2
WIAC(AM)	Bestov Broadcasting	News/Talk/SPAN.	2,400	1.1
WERR(FM)	Radio Redentor Inc.	Religious/SPAN.	700	1.0
WNRT(FM)	Arecibo Broadcasting Corp.	Religious/SPAN.	1,500	1.0
WCTA(FM)	Spanish Broadcasting System	Variety/SPAN.	1,300	1.0
WPAB(AM)	WPAB Inc.	News/Talk/SPAN.	950	1.0
WCAD(FM)	Broadcasting Systems of Puerto Rico	Rock	3,000	0.9
WIOC(FM)	Spanish Broadcasting System	Bfm/SPAN.	1,100	0.9
WUNO(AM)	Uno Radio Group	News/Talk/SPAN.	4,500	0.8
WAEL(FM)	WAEL Inc.	AC/SPAN.	600	0.8
WNEL(AM)	Turabo Radio Corp.	Variety/SPAN.	1,500	0.7
WLuz(AM)	Marketing Promotion Network Inc.	Variety/SPAN.	400	0.6
WLEO(AM)	Uno Radio Group	News/SPAN.	600	0.6
WABA(AM)	Aguadilla Radio & Television Corp. Inc.	News/SPAN.	600	0.6
WZMT(FM)	Spanish Broadcasting System	AC/SPAN.	400	0.6
WXEW(AM)	WXEW Radio Victoria Inc.	Variety/SPAN.	600	0.6
WKVM(AM)	Roman Catholic Church	Variety/Talk/SPAN.	800	0.5
WCMN(AM)	Caribbean Broadcast Corp.	News/Talk/SPAN.	500	0.5
WSAN(FM)	Colon-Ventura, Carlos J.	Oldies/SPAN.	600	0.5
WOSO(AM)	Sherman Broadcasting Corp.	News/Talk/Spt	1,500	0.4
WIDI(FM)	Arzuaga, Jose J.	Oldies/SPAN.	600	0.4
WTPM(FM)	Corp. of 7th Day Adventists of Puerto Rico	Chrst/SPAN.	600	0.4
WZOL(FM)	Asn PR Del Este D	Religious/SPAN.	0.0	0.4
WQBS(AM)	Aerco Broadcasting Corp.	Spt/News/SPAN.	1,100	0.3
WSKN(AM)	Uno Radio Group	News/SPAN.	2,300	0.3
WPRA(AM)	Empresas Bechara Inc.	Variety/T40/SPAN.	0.0	0.3
WISO(AM)	Blanco Pi, Wilfredo G.	News/SPAN.	0.0	0.3
WLEY(AM)	Uno Radio Group	News/Old/SPAN.	0.0	0.3
WNIK(FM)	Kelly Broadcasting System Corp.	AC/SPAN.	0.0	0.3
WYQE(FM)	El Yunque Broadcasting Inc.	Variety/SPAN.	550	0.3
WKSA(FM)	Isabela Broadcasting Co. Inc.	Variety/SPAN.	0.0	0.3
WRRH(FM)	Renacer Broadcasters	ChrsContemp	0.0	0.3
WAEL(AM)	WAEL Inc.	Variety/SPAN.	0.0	0.3
WKJB(AM)	WKJB Inc.	News/Talk/SPAN.	0.0	0.3
WXRF(AM)	Southwestern Broadcasting Corp.	CHR/T40/SPAN.	400	0.0
WBMJ(AM)	Calvary Evangelistic Mission	Relgn/SPAN.	200	0.0
WVOZ(AM)	International Broadcasting Corp.	Variety/SPAN.	700	0.0
WRSJ(AM)	Concillio Mision Cristiano Fuente de Agua Viva Inc.	CCtrmp/SPAN.	600	0.0
WIDA(AM)	Primera Iglesia Baut	Relgn/SPAN.	600	0.0
WPRP(AM)	Uno Radio Group	News/Talk/SPAN.	600	0.0
WDIN(FM)	HQ 103 Inc.	Span./Dance	600	0.0
WUPR(AM)	Central Broadcasting Corp.	News/Talk/SPAN.	600	0.0
WCGB(AM)	Grace Broadcasters Inc.	Relgn/SPAN.	0.0	0.0
WENA(AM)	Southern Broadcasting Inc. (PR)	Variety/News/SPAN.	400	0.0



Stations are ranked in order of Arbitron Winter 2001 12+ share. Copyright 2001 the Arbitron Company. May not be quoted or reproduced without the prior written permission of Arbitron. Other information provided by BIA Financial Network through its MEDIA Access Pro Radio Analyzer Database software.

Background: The Cavernas de Camuy in Puerto Rico

Market Watch

► Continued from page 59
credibility by steering away from exploiting rumors," Olivera said.

Aside from WKAQ Radio Reloj, El Mundo Broadcasting also has a presence on the FM dial with a top-40s format through popular station WKAQ(FM), known commercially as KQ-105.

Although its signal originally covered the San Juan metropolitan area, El Mundo Broadcasting continued to beat the island's topographical challenges by the addition of new stations and repeater agreements with three regional AM's and two other FM stations.

reported. Ribas Dominicci said the island's news stations have historically had an advantage over television and newspaper coverage and will likely continue the trend, particularly when it comes to town-by-town updates.

Local content

"As long as regional dilemmas and situations continue to exist, so will the need for local stations to provide news that people in the town or region are truly interested in," said Ribas Dominicci, who also owns WMNT(AM) — Radio Atenas — that covers the northern coastal town of Manatí.

"That need will unlikely be covered by the conglomerates," said Ribas

investors who brought with them millions to invest.

"Deregulation was good for Puerto Rico, and this is only the beginning," said Raúl Fuster, vice president of SBS's Puerto Rico operations.

radio stations also brought additional credibility to the market, Fuster said.

"Arbitron's presence in Puerto Rico has greatly benefited us because they have brought attention to a market which nobody really talked about before,"



A Sack Race at a WMNT(FM) Station Event Beach Olympics Party

The company's plans include an expanded Internet presence, through agreements with stateside portals targeting the Puerto Rican and other Hispanic communities, Olivera said.

"We've received many calls from stations in the U.S. mainland interested in linking with us via the Internet and we're considering it because we would be extending our content to that territory and the rest of the world," Olivera said.

WKAQ(AM)'s news-talk format competes with similar programming offered by almost one-quarter of the stations operating on the island — whether independent or owned by a major broadcast group. Among its strongest competitors are WAPA(AM) and WISO(AM), independently owned by Wildredo Blanco Pi.

The Blanco Pi's stations netted some \$3.2 million in revenues last year, BIAfn

Dominicci, who has been involved in the Puerto Rican radio and television industry since 1958.

At present, there are at least 30 all-news and news-talk Puerto Rican radio stations, of which only a few offer English-language content. The format competes head-on with three commercial television stations and a government-owned channel, all of which air at least two daily newscasts.

Furthermore, radio news also competes with three daily newspapers — El Nuevo Dia, The San Juan Star and El Vocero.

Two major events in the last five years are accountable for "historical" changes in the market, radio executives agreed.

First, the federal Telecommunications Reform Act of 1996 created new ownership opportunities for native and stateside



From Left: WKAQ(AM) News Reporter Nellie Rivera, Chief Engineer Grafton Olivera and Announcer Fernando Pérez González

His company was the first major state-side player to break into the island following deregulation looking for FM properties.

The reform, coupled with the entrance of Arbitron in 1998, also lured new advertising revenues estimated at some \$4 million annually, according to Puerto Rico Broadcasters Association.

Arbitron's decision to begin to measure the performance of Puerto Rican

Fuster said.

While the island's radio industry looks stable, it looks like there may be some major changes in the forecast. Recent reports predict SBS could put its stations on the block, asking at least \$175 million for the properties. However, SBS executives deny reports.

Michelle Kantrow is a business reporter for the San Juan Star newspaper. Contact her at jmkantraw@hotmail.com.

Puerto Rico

Market rank: 13
Market revenue rank: 26
Number of FMs: 41
Number of AMs: 48

Estimated Revenue: (in \$000s)
1997: 80,200
1998: 90,000
1999: 97,800
2000: 111,600
2001: 100,400
2002: 107,500

Revenue Growth:
'95 - '00: 9.1%
'00 - '05: 2.0 % (projected)

Local Revenue: 60%
National Revenue: 40%
2000 Population: 3,889,500
Per Capita Income: \$8,914
Median Income: \$16,249
Average Household Income: \$25,425

Background: The San Juan Gate

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Markets

► Continued from page 65

and KQTZ(FM) — in Altus, Okla., staged a Golden Years Expo. In the four years that the stations have run the Expo, Young said, they have attracted a rapidly growing demographic. His stations joined forces with senior citizens clubs to hold a silent auction whose proceeds go to the clubs.

"Banks and health-related industries are very interested participating in this Expo," said Young.

Each January, Ron Davis and his stations hold "Operation Sponsor," a dinner

We gave Rotary as many spots as they wanted for \$25 each, which they in turn sold to community members and business people for \$100 each.

— Bill Noel

for his advertisers. They sell a participation package for \$1,000 that is billed over four months. They sell about 77 of them.

"We give away prizes at a dinner which is held at a very nice restaurant and three people win a \$1,500 package which we buy from a local travel agency," said Davis. "Clients like to get together and network with each other during dinner and it's a good way for our sales people to rub elbows with them, too."

The secret to many of these promotions is to find all the tie-ins and special twists. Davis said that at a station-sponsored wine tasting party, the station provided free limo rides home for anyone who tasted a bit too much of the grape.

"We haven't had to actually drive anyone home drunk yet, but it's good public relations and it gives us some liability coverage, too," said Davis.

Driggs also described a "Home and

Garden Show," but in addition to the live remotes and sponsor packages, Driggs created a "prize card" which features coupons from smaller advertisers such as Avon. Participations are sold for \$125.

"We make about \$2,500 on that one with very little extra work."

Theatre of the mind

Small-market radio is not just concerned with community service. The lack of ratings pressure allows experimentation on the air.

Bits that may not go over well in a market like Los Angeles do well in the smaller markets, according to the panel assembled at the NAB show.

"We use theatre of the mind," said Davis. "For example, on our station we have something we call 'Accu-Dart Weather,' that involves a sound effect of a dart whizzing through the air and smacking into a target before our forecast."

Various members of the small market idea exchange mentioned that they might have "helicopter" reports on non-existent traffic snarls or imaginary on-air morning show partners who are in truth the sole program host who has pre-recorded other voices.

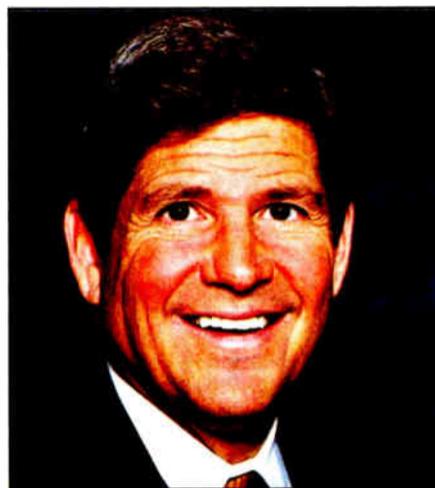
One station boasted of owning "Fluffy," a dog who becomes increasingly aggressive each morning on the air until the host "shoots" him, only to have him re-appear the next day.

Ken R. is a former broadcaster who toiled in the mines of small market radio. Ask him about the time he encountered a snake under a station mailbox located in a cornfield.

Ditingo

► Continued from page 60

Meanwhile, research from the BIAfn Financial Network illustrates how publicly held companies have become a driving force in rated markets. For example, in 2000 there were 1,092 station transactions among public companies, totaling some \$23.8 billion.



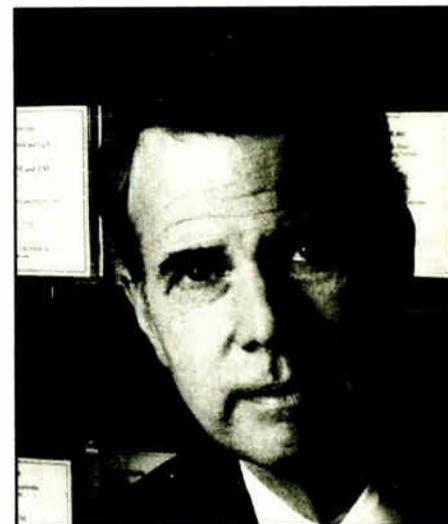
Jeff Smulyan

That figure accounted for 89.2 percent of all stations sold during last year, according to BIA's new "State of the Radio Industry: Transactions 2000" white paper, prepared by Mark Fratrick, BIAfn vice president.

Dollars down

The paper shows that, while the total number of individual station transactions among public companies climbed from 715 in 1999 to 1,092 in 2000, the dollar volumes in these transactions declined from \$26.6 billion to \$23.8 billion. (See accompanying chart.)

This trend indicates, among other things, that the downturn of the economy in late 2000 began to affect pricing and that some of the major groups branched out to fortify existing clus-



Gary Stevens

ters in second- and third-tier markets where pricing generally is lower.

"The mindset (among group owners) is to expand holdings in a particular market while you can because once a station is sold it usually does not come back on the market again," said Gary Stevens, a media broker who specializes in radio station sales.

Silver lining

When a bidding war among highly leveraged public companies for a geographically desired station occurs, there is an upside for smaller, independent or private-based companies in the current economic climate.

The BIAfn report speculates that as stock prices for public radio companies weaken, the multiples paid for these stations will decline and allow privately held companies to better compete on price.

Interep too reports positive signs about the economy to cheer radio broadcasters. Its study analyzed the share of national spot radio expenditures by key demographic groups within the top 25 radio metros. It concludes that radio spending will continue to be strong in the long-term.

The study revealed that the percentage of radio dollars aimed at its historically most coveted demographic, ages 25 to 54, was down from 50.3 percent in 1999 to 48.5 percent in 2000. In fact, there has been a five-year downward trend year-to-year in requests for adults 25 to 54, dating to 1995 when it reached 55.5 percent.

And while 25-to-54 buys have been on the decline, spending for the more narrowly defined demographic age brackets gradually are rising, allowing the industry to move toward a more competitive buying arena for all formats.

For instance, the percentage of national spot radio dollars targeted for adults 18 to 34 rose slightly from 5.2 percent in 1999 to 6.0 percent last year while requests for all 35-based demographics (including 35 to 64 and 35-plus), climbed from 6.8 percent to 7.7 percent and buys for adults 25 to 49 shifted from 9 percent to 9.4 percent.

"It appears advertisers in greater numbers are taking advantage of radio's ability to service a variety of demographic groups," stated Michelle Skettino, vice president of marketing communications for Interep.

Vincent M. Ditingo is an assistant professor and coordinator of the radio program at the New York Institute of Technology. Contact him via e-mail at VDitingo@aol.com.

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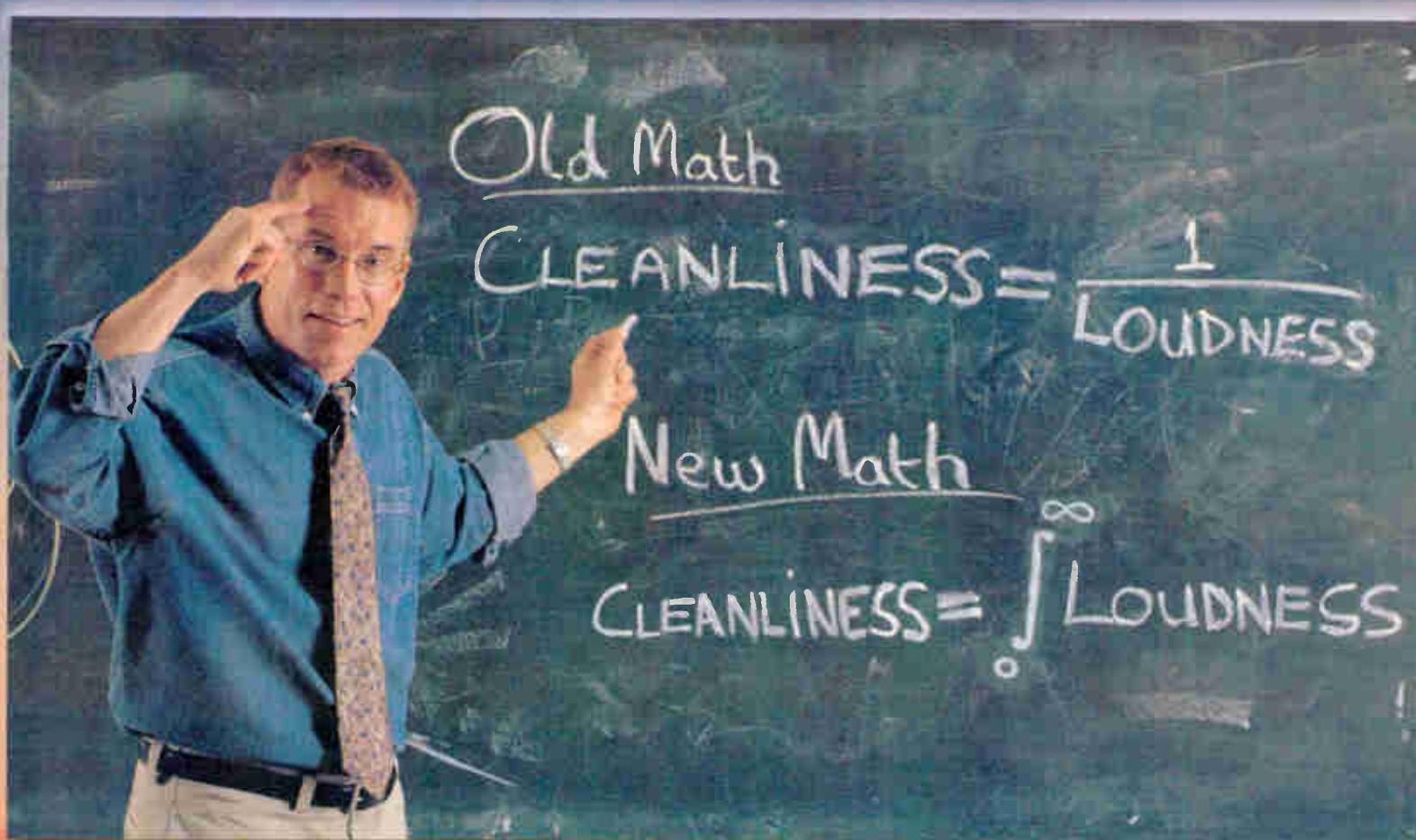


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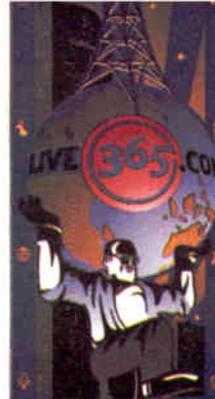
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WorldRadioHistory

Internet Radio



Stayin'
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at 365
Page 78

Radio World

How to Succeed in the Dot-Com World

August 15, 2001

How to Hire Your Next IT Director

Steve Sullivan

A few years ago, hiring an information technology director was no problem, primarily because such an animal didn't exist.

Your station or group information technology needs were handled by an engineer or even an ambitious youngster looking to create a place on your staff.

But technology has evolved at a head-spinning pace. IT now covers digital audio systems, traffic and billing systems, your office intranet and your Internet efforts.

Finding the right person or persons to oversee these systems can be challenging, but it doesn't have to be overwhelming.

Do homework

Brian Parsons is the president of nTunes, an e-commerce company that serves the radio industry. Before founding nTunes, Parsons was instrumental in launching the first Internet initiatives for Jacor and Clear Channel in the mid-1990s.

Today he frequently consults groups and stations on their IT strategies. He offers three tips to help your search for an IT director.

"First, do as much needs analysis as you can. And I don't mean taking the months and months to do it. Look at what you need the IT person for. Do you need to replace antiquated technology or make better use of the technology you have?"

"Second, consider all the new technology that's going to hit the station in the next five years. That includes updated digital audio systems, Internet, networking and so on. You want to find somebody who's familiar with the systems you're using and going to be using."

And make sure when you're building your requirements list that you look inside the radio arena first.

"It takes a long time for someone to learn the radio business, but it doesn't take long for someone from the radio business to learn the technology," he said.

Parsons said many radio engineers have enhanced their value by learning new skills. He said this survival tactic is more valuable than ever for engineers and stations in the wake of a tight economy and consolidation.

responsibilities of IT oversight between two or more people. EBC Radio Inc. owns six stations within a 60-mile area defined by Salina, Abilene and Manhattan in north central Kansas.



EBC Staff, From Left: Jerry Hinrikus, General Manager; Christopher Gaddis, Webmaster; Joe Eck, Chief Engineer

"Most stations have had separate IT and engineering staffs. But now that the squeeze is on and companies try to run the properties lighter and lighter, you're starting to see these jack-of-all-trades engineers come to the top," Parsons said.

"These are guys who have adapted to the computer world and learned the digital automation systems and all the networking things. A lot of them have gone out and gotten CNE (Certified Novell Engineer) and CAN (Certified Novell Administrator) certifications."

If finding the jack-of-all-trades proves elusive, you might consider splitting the

EBC's Vice President and GM Jerry Hinrikus said the stations share many centralized operations and operate a money-making regional Internet portal that the six stations feed into. He said that his company's IT operations are managed jointly by his chief engineer and a Webmaster.

"Our CE was familiar with DOS and had a good understanding of what we were trying to do. I could go to him and ask him how we could do something — like streaming high-school football games — and he would come back and tell me exactly how we could do it without spending a

See IT DIRECTOR, page 76 ▶

PRODUCT EVALUATION

New Bose Wave/PC Radio Is Fine

Frank Beacham

Ask anyone you know to name a high-quality table radio and odds are they'll mention the ubiquitous Bose Wave radio. Oh yes, it's too expensive, they'll always say, but it's the best. It's the one I'd buy if I wanted the finest radio available today.

Bright brand

Ah, the power of Bose marketing. In an era when the table radio became a cheap commodity product, the folks at Bose turned the market on its head, making the pricey (\$349) Wave radio an object of desire. Whether it's actually the best radio available is not the issue. It's that a large number of people think it's the best that matters.

Never a company to rest on its laurels, Bose has recently upped the stakes for its radio icon with a new version aimed at taming the myriad of audio choices now available to personal computer users. The new Bose Wave/PC combines the best of the Wave radio with a new set of tools to tame the Internet monster.

If the relentless Bose marketing machine applies the same energy to the new product as it brought to the original radio, music via computer may never again be the same.

Bose has always had a talent for bringing simplicity to increasingly complex audio systems. It defined

See BOSE, page 72 ▶

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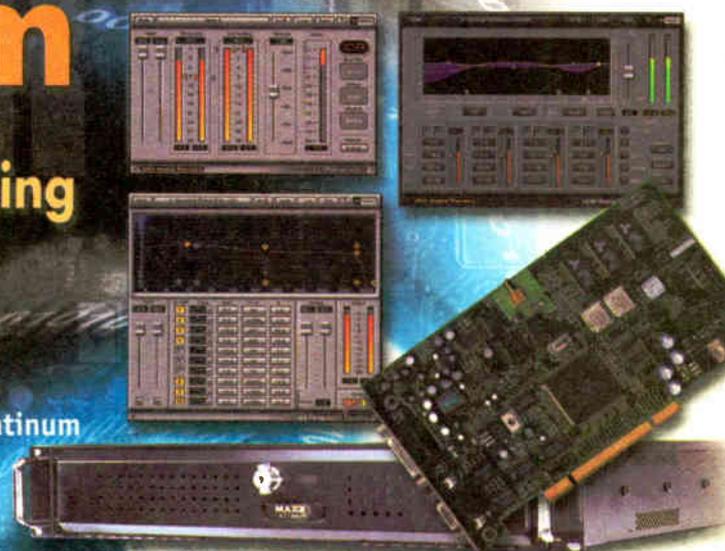
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Bose

► Continued from page 71

the market for living room-friendly micro-sized speaker systems, hide-away hi-fi components and elegant, user-friendly remote controls.

Now, with the Wave/PC, the company tackles the ambitious job of seamlessly integrating AM/FM broadcast radio, Internet streaming media, MP3 files and personal CD collections into a music system that's so unchallenging it can be used by the average Joe who has yet to master setting the clock on his VCR.

The Wave/PC software, which can operate from a PC screen or the remote control, smoothly integrates functions. Through powerful presets, AM/FM stations can easily be categorized by format and mixed with Internet stations around the globe. These listening choices can be further integrated with personal playlists that include MP3 files and CDs that have been "ripped" to the PC's hard drive.

New choices

The Wave/PC preset function goes far beyond traditional radio station presets. These are actually "smart keys" that can hold buckets of user preferences captured from many different

media such as Zip or Jazz drives. er can hold music for exercise, another can hold favorite stations, whether AM/FM or Internet. The ability to mix and match choices is endless.

media such as Zip or Jazz drives.

In addition to WAV and MP3 files, the system can play MP2, AAC, WMA and AVI audio files.

Almost anything can be assigned to a preset — perhaps a favorite radio station, Web station, individual artists or playlist of music files.



The Bose Wave/PC Interactive Audio System

On its own, the Wave/PC, priced at \$449, is essentially a Wave radio, providing AM and stereo FM radio reception and alarm clock functions. As with earlier models, it can be operated from a set-top keypad or a card-sized remote control.

But the included radio-to-PC cable assembly and control software application transform the Wave box from a simple broadcast receiver into a sonically pleasing listening device for a wide range of audio media choices.

sources. Preferences can include a wide range of parameters, perhaps a favorite radio station, Web station, individual artists or playlist of music files — almost anything can be assigned to a preset.

Let's say you assign Bruce Springsteen to *Preset 3*. When that button is pressed on either the remote or the computer screen, the Wave/PC will play all selections by Bruce Springsteen on the computer. Other presets can hold all blues songs, another

The magic of the Wave/PC takes hold once the device is configured to your liking. It becomes easy to forget the source of the music, since it is all intermixed. The hardware remote also serves the unique role of separating the entertainment side of the PC from its more traditional workday functionality. The remote can change tracks, source, volume and presets without interrupting the applications you are working on at any given moment.

The result is that the Bose system gives the illusion of a totally separate sound system that's detached from the PC.

Connections

The Wave/PC works on with computers running Microsoft's Windows 98, 98SE, 2000 or ME. It connects to the PC's RS-232 serial and soundcard connectors. Once installation is complete, the user enters his or her local zip code into the control application. The software then downloads information about radio stations in the area, including their programming format.

The Bose software navigates and indexes all programming choices, no matter their source. Off-air broadcast signals are actually received via the tuner inside the Wave/PC box. Webcasts in RealNetworks' RealAudio format are handled by broadband or dial-up connections to the PC.

Music CDs are accessed and "ripped" as MP3 or WAV files in the PC's CD-ROM drive and MP3 files can be stored on hard drives or removable

Though the Wave/PC offers a genuine breakthrough in simplified control and organization of PC audio, it's by no means perfect. When the device was introduced in May, it was limited to use only with PCs that have serial and soundcard connections. Bose promised USB support, through an add-on upgrade kit by fall, at a to-be-determined price.

Bose also warned that many common USB-to-serial adapters will not work with the system. The company said it was testing third-party converter devices for compatibility, but at press time had not offered users a solution to use the Wave/PC with the new breed of legacy-free computers without serial connectivity.

Surprisingly, Bose limited its support only to the Windows OS. The Macintosh OS, which emphasizes audio/video functionality over Windows, is not supported at all. Bose offered no promise of future cross-platform support.

Even with its flaws, the Wave/PC is a groundbreaking product that attempts to tame the wild, diverse frontier of programming choices now available via the Internet. It also presages a fast approaching time when the word "radio" itself is redefined to mean far more than simply receiving local broadcast stations over the air.

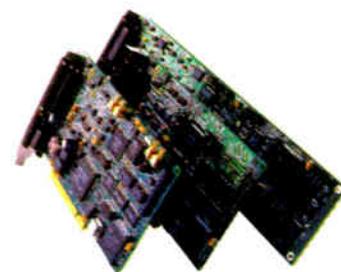
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GUEST COMMENTARY

Streaming as a Tool for Radio

In Part I of this article (RW June 20), the GMV Network presented ways for radio stations to transmit their content via the Internet and discussed the importance of the MP3 standard adoption. Part II covers streaming economics, encoders, servers, bandwidth, ROI, hosting providers and streaming sales. The purpose of this document is to provide the radio industry insight and knowledge of today's streaming technology.

The GMV Network, provides standards-based software technology for streaming media. When the company does a presentation on how to stream for radio broadcasters, the following is what it presents.



To prepare and deliver your station's broadcast via the Internet involves hardware costs, software costs and bandwidth costs. Choosing a standards-based MP3 streaming system can help keep hardware and software costs low by eliminating the costs associated with supporting multiple proprietary systems.

The encoder unit, the first step in the process, can be the least expensive portion of the streaming system (see Table 1). The fundamental feature of any encoder is MP3 compliance. Two major categories of MP3 encoders are available: software-based encoders and hardware-based (appliance) encoders.

Encoders

As a general rule, dedicated hardware encoders are easier to use and maintain

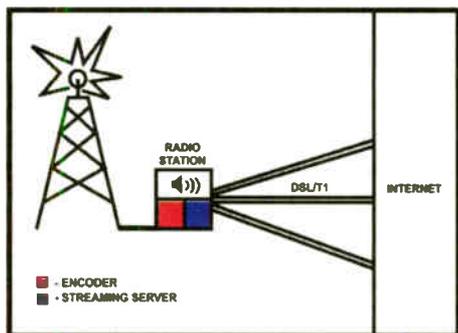


Fig. 4: Streaming Hosting Companies

than software encoders because they are designed as an appliance to be used for one purpose. Software encoders have the advantages of features like remote administration that make them a better choice for the user in some cases.

The serving (or splitting) component of a live streaming system delivers the encoded stream to end-users. The compatibility, price range and capabilities of the server vary dramatically (see Table 2 also at right).

Servers capable of delivering standards-based MP3 streams tend to be cost-effective due to their support for multiple players from a single platform. Another major consideration in choosing a server is the number of concurrent streams the server must support.

The final expenditure associated with streaming is bandwidth cost. Numerous bandwidth options are available to broadcasters. If a broadcaster chooses to use a streaming hosting company (Figure 4), their monthly charge or the advertising trade contract pays for their bandwidth cost.

In the situation where the broadcaster chooses to place both the encoder and the server in their building (Figure 5), the bandwidth cost will vary by the number and size of connections that are brought into the building.

As stated previously, DSL connections are the most popular broadband choice used by radio broadcasters. Corporate DSL connections are typically priced in the range of several hundred dollars per month.

When a broadcaster chooses to co-locate their server at an Internet Service Provider (ISP) or hosting provider (also known as Web hosting facilities or data centers) the cost structure changes dramatically.

Costs associated with bandwidth when co-locating are too varied to place into a simple chart, but there are several metrics a broadcaster should understand when negotiating with these companies in order to assure the most competitive rate possible.

The first is the Megabyte Transfer (MT) rate. This is a standard measuring tool among bandwidth providers that varies between 1.5 and 5 cents in cost, with discounts for high usage.

A hosting company will likely use a different model that is based on available bandwidth to the server(s), whether or not the bandwidth is being used. Typical

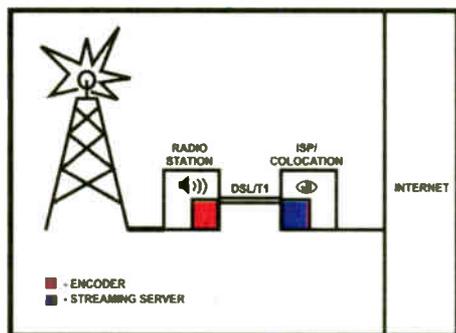


Fig. 5: Encoder and Server On Site

capacity charges are sold in units of 1 megabit per second (Mbps) per month.

Prices can vary from \$500 to \$2,000 for

each Mbps/month based on volume and performance guarantees. Be sure to understand how the host calculates this cost.

When broadcasters co-locate servers they will be charged rent for space in the hosting facilities, so the monthly cost of rack space must also be determined. The

cases a specialty one- or two-unit high rackmount server will cost much less to host than less expensive "tower" servers.

Broadcasters should consider this cost trade-off before purchasing hardware.

Other considerations to look for when choosing a hosting provider include: performance guarantees or Service Level Agreements (SLA), burstable bandwidth (to handle an unusually large demand for a short time), security (both physical and network) and 24/7 support and monitor-

Table 1 — Encoder Cost Ranges

Encoder Unit	Cost Range (in \$)		Typical Cost (in \$)
Encoder Software	50	to 200	200
Hardware for Encoder Software	1,000	2,000	2,000
Other Software Licenses Needed *	0	800	800
Total	1,050	3,000	3,000
Dedicated MP3 Hardware Encoder	2,500	2,800	2,800
Other Software Licenses Needed	0	0	0
Total	2,500	to 2,800	2,800

(* Denotes operating system license cost)

Table 2 — Server Costs

Server/Replicator	Cost Range (to support 1,000 streams)		Typical Cost (in \$)
Server Software **	0	45,000	1,500
Hardware for Server Software	3,000	5,000	3,000
Other software Licenses Needed *	150	900	400
Total	3,150	50,900	4,900

(* Denotes operating system license cost ** Denotes per stream license)

The Cost Ranges for the Two Options Open to Broadcasting When Encoding

method hosts use to determine this cost varies widely.

Several companies have a minimum monthly space rental charge (usually one-quarter of a rack). Other companies will only charge for the space used. In many

ing (in the unlikely event that a server needs to be restarted in the middle of the night to restore service).

As with any tool, a business must be able to produce profit with it or it will

See GMV, page 75 ▶

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- Ethernet Network Connection: RJ-45
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SRC-1616L Serial Remote Control

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MC-16 Telephone Hybrid/Coupler

Full featured telephone line coupler/hybrid provides 32 programs; 32 ASCII strings (DTMF to ASCII); 64 macros; 16 relays; auto answer; 4-digit access codes and much more.



BOS, ROS & PBB-24 Switch Panels

The BOS offers 12 N.O. dry contact switches with status LEDs in a desktop panel. The ROS is similar, but in a single-space rack unit. The PBB-24 provides 24 momentary buttons that can be programmed to output ASCII character strings.



SRC-8 Serial Remote Control

The SRC-8 provides a means of adding 8 channels of remote control to RF, wireline and fiber type STL systems and may also be used with dedicated modems (full & half duplex models).



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GMV

► Continued from page 73
 be discontinued. Radio broadcasters have several techniques available today to help realize a return on their streaming investment.

The first step to develop an ROI model in streaming media is to engage a credible, third-party measurement system.

Based on transmitter strength, a broadcaster can estimate the coverage area of their transmission. This simple formula is not available in the transmission of streaming data.

Specialized streaming performance monitoring companies are needed to measure the effectiveness of bandwidth providers and co-location providers.

Streaming listener reports are analogous to conventional terrestrial broadcast reports. The difference in these reports is the level of absolute detail of a listener

base. These reports will be able to pin down exactly when a P-1 audience is listening and to what.

The next step to develop continued ROI on streaming is to change the way you currently sell your time slots to your advertisers.

There are two techniques used to incorporate streaming and online advertising into the sales people's rate cards.

Verification

First, use the fact that the station is streaming as a vehicle for increased advertising rates. This technique is only successful after an effective reporting and measuring system has been put into place.

The salespeople of the station are then capable of providing proof on additional streaming traffic to the advertisers.

Second, incorporate online advertising into the advertising package of the station. For example, when an advertiser purchases spots for the station, request their banner ads and logo buttons for placement on the station's Web site.

This reinforces connections between the streaming listener and the advertiser. Internet-specific ad insertion can also effectively double your ad inventory and create a possibility for national ad sales.

Finally, drive traffic to your Web site through the station's broadcast. Successful streaming radio stations mention the station URL in the morning and evening drive time as many times as possible each day.

In fact, the most successful mention is hourly or more, and place the URL on all promotional material. This benefits the online advertiser by giving them another avenue to the listener and it increases the non-drive-time streaming audience.

Streaming broadcast content can and should have a direct effect on the rate card of a radio station. Several radio stations across the country have proven that an effective streaming solution produces increased advertising revenues.

Figure 7 illustrates the fluctuation in advertising rates throughout a normal

broadcast day, which is represented in the figures by the lower black line.

The peaks represent the drive time hours of the day. Radio stations that have been successful in selling streaming to their advertisers have used one of the two following techniques.

The first is to increase your advertising rates across the entire broadcast day (Figure 8), while the second is to increase your daytime rates only (Figure 9).

It's a moneymaker

The leaders in streaming have been successful in increasing their advertising rates as much as 5 percent to 10 percent with the addition of a strong streaming audience.

Or by increasing their daytime rates, these radio stations have been able to increase the amount of traditional revenues generated by the station. The primary reason for the type of increase is the ability to reach the P-1 audience during

See GMV, page 76 ►

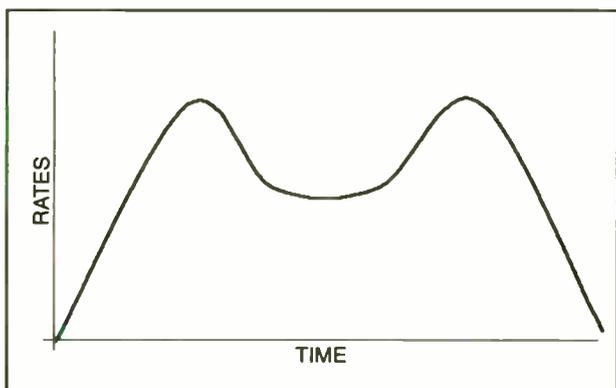


Fig. 7: Daily Ad Rate Fluctuation

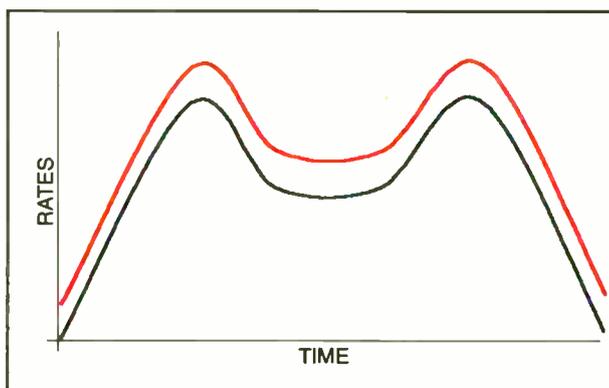


Fig. 8: Increase Your Ad Rates

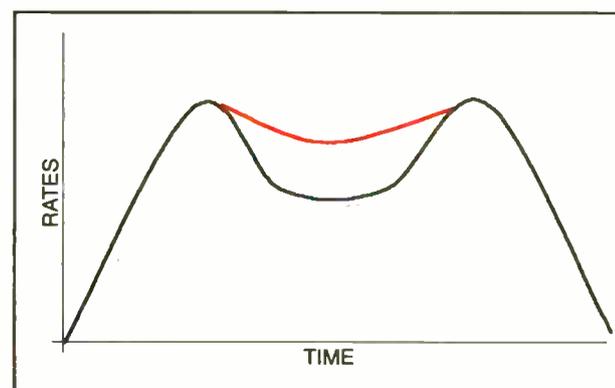


Fig. 9: Increase Your Daytime Rates

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IT Director

► Continued from page 71
lot of money.”

Although Hinrikus doesn't disclose just how much money EBC's Web site at www.ebclink.com brings in, he does say it's a significant source of revenue for the company. Because of the Net's importance to EBC, Hinrikus added a full-time Webmaster to oversee site production and maintenance. To find the person for the job, Hinrikus did not look inside the radio industry.

“This is almost scary. Our Webmaster was working at an Office Max. You're obviously looking for someone who's qualified, but you're also looking for someone who's not afraid of risk. I think there's a lot of talent out there.

It's just finding the person who's not afraid of change.”

Bill Perrault, vice president of new media for Citadel Communications, suggests that radio managers look outside the industry for IT talent.

As it does at EBC, the Internet plays a major role in Citadel's strategy. But unlike EBC's single destination, Citadel operates 167 sites.

Experience

“We have it set up a lot like a radio station,” Perrault said. “We have an operations manager who has a team of people working for him. On that team are designers, developers, database programmers and systems administrator.”

When Perrault wants to recruit his Internet operations managers, he tends to look more in traditional Web companies

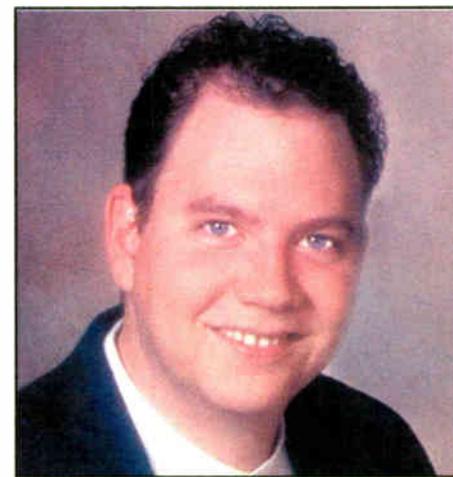
rather than radio.

“We like to find people who have a good knowledge of how to make the sites light in terms of the type of data that's on them so that they load quicker. That's important. On the Web technical end of it, we look mainly for people who have good Linux skills who understand some programs like PHP, Cold Fusion and those kinds of things.”

Perrault notes that for a large company like Citadel, traditional high-tech businesses — rather than start-up companies — are better breeding grounds for the types of people he needs.

“We have more of a corporate environment, so we're looking for people who would feel more comfortable in that kind of traditional setting.”

Regardless of whether you're looking to hire your next IT director from inside



Brian Parsons

the industry or outside the industry, from a traditional company or a start-up, all our sources agree on one thing.

“The talent pool is definitely deep right now and getting deeper,” said Parsons. “You have a lot of failed dot-coms and consolidation has forced a lot of good engineers out of the business. Two or three years ago it was hard to find good engineers or good IT people. Now you can pick up a pretty decent one of either.”

“If you can afford, it you want both because they serve two different roles. But you want them to interface with one another in the best way possible.”

Steve Sullivan, co-founder of the Advanced Interactive Media Group LLC. Reach him at sullicom@aol.com.

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GMV

► Continued from page 75
working hours when they are working at their desk.

Selling banner advertisements and logo buttons is an opportunity for revenues where none existed. These advertising vehicles do not cost as much as on-air advertisements, which opens the chance to sell advertising space to smaller prospects in the community.

Future

Streaming is developing into a profitable tool for the radio broadcast industry. The acceptance of MP3 as the standard streaming format has allowed the opportunity for easier deployment, greater reach and increased profitability in streaming broadcast content.

Many radio stations are already successfully producing a profit through streaming and more are beginning each day.

Stations considering streaming, or considering changing their streaming systems, should look for standards-based MP3 streaming systems to minimize their short- and long-term system costs and provide the best experience for their listeners.

Streaming is much like new on-air talent. It must be promoted to both the audience and the advertisers in order to be successful.

GMV Network thanks all those who contributed information for this white paper, who are named in the online version of this article. Visit www.rwonline.com and click open “Streaming as a Tool for Radio.”

For more information on our company, please visit us online at www.gmvnetwork.com.

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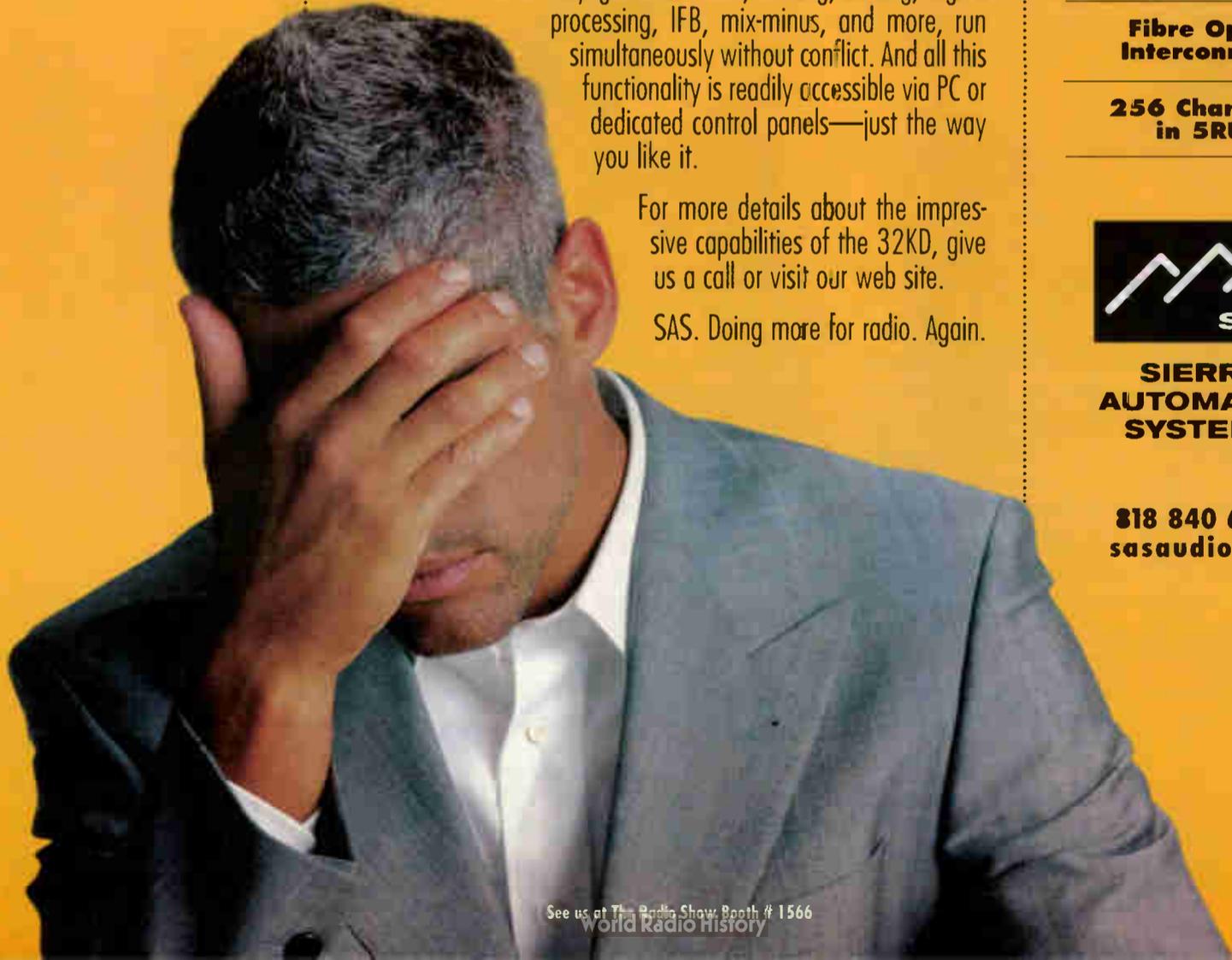
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◆ NEWS WATCH ◆

Live365 — It's Alive

The rumors of Live365's demise are apparently exaggerated.

When Live365, one of the leading aggregate sites for streaming audio, laid off 22 of its 80 employees in early July, stories circulated that the company was headed for a full-scale shutdown.

But according to Senior Vice President of Communications Alan Wallace, the site was not in jeopardy of going away soon. "We had layoffs, but there are still over 50 people here. We're

going to be here for some time."

Among those let go were two of the company's executives, Chief Technology Officer Kurt Rothman and Vice President of Strategic Development and Label Relations John Schenk.

Schenk, who joined Live365 in May 2000, had fallen into disfavor after distributing an e-mail to business contacts that stated that the company was doomed.

It has been a tough year for audio and video aggregators in general. Sites such as BroadcastAmerica.com and audio-highway.com have gone into bankruptcy. Many of Live365's other rivals (Spinner, Enigma Digital, Sonicnet) have been

takeover targets.

But until now, Live365 has looked like a shining success. The site, which hosts more than 36,000 Internet radio stations — mostly listener-formatted, although there are a handful of terrestrial station that use the company to stream



their content — has maintained the second most-visited streaming site on the Web, according to Arbitron's Webcast Network Ratings.

According to Arbitron, in February Live365 was No. 2 with more than 2.7 million aggregate tuning hours. And the

company won the "Webby" People's Voice Music Award in July.

But traffic and public acclaim will not ensure a site's survival. It takes money, both upfront and incoming.

The company launched in June 1999, backed by a handful of investors from Asia. John Jeffrey, executive vice president of corporate strategy and general counsel, does not disclose the initial investment the "angels" made, but he said the group still supports the company.

He said his investors "are not impacted by the ebbs and flows of the current market like many venture capital firms are."

Wallace said that in early July, the group agreed to pump in more funding and that meetings were ongoing to discuss future rounds.

"They may be pushing a little bit more, but they're still standing behind us."

Advertising and commercial sales had not been a major focus for Live365 to date. In March, Live365 unveiled in-house advertising and new business sales groups in an effort to boost revenue generation. Wallace said the new groups were unaffected by layoffs and will continue to aggressively sell opportunities on the site.

Earlier this year Wallace told RW that he felt secure about Live365's financial future. Wallace, who moved to Foster City, Calif., from Los Angeles in June 2000, said, "I moved a family of four and I have a baby on the way. I'm very happy and not worried about how I'm going to support my family."

When asked if he still feels that way in the wake of the layoffs and rumors, he said, "I'm still here and I don't have any résumés out."

— Steve Sullivan

'Gotta eYada?' Nada

eYada, the Internet talk radio network, has folded.

Although the network had doubled its audience numbers since the start of this year, its numbers were still too small to attract advertisers.

A company official who wished to remain anonymous said this was especially so in the in the current difficult ad environment.

"We did everything we possibly could to make it work, but the company just couldn't sell ads and then our investors backed out.

"We believe strongly in our product," said the distraught employee, who RW spoke with as the site prepared to stream its last show, "Wrestling Observer Live," on July 9.

"Someone will do this — it's inevitable — we may just have been premature."

eYada streamed live talk programming that covered a range of topics from entertainment, sex and gossip to comedy and sports. Personalities like New York Post gossip columnist Richard Johnson and New York Daily News entertainment columnists "Rush & Molloy" were among its hosts.

No plans had been made for the disposal of its new Times Square assets. All 70 employees were let go.

— Laura Dely



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Studio Sessions

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In This Issue

Radio World

Resource for Radio On-Air, Production and Recording

August 15, 2001

PRODUCT EVALUATION

Communication Via a Software Codec

MDO Develops Communicator for PCs and Laptops to Bypass Hardware-Based Codecs

Lawrence Hallett

The Communicator software ISDN and IP audio codec is the first product in the AudioTX range from MDO UK.

Designed for such tasks as remote linking into studios, the software is suitable both studio PC and laptop use. This makes it ideal for reporting and outside broadcasts, where it is essential to get high-quality audio from a remote location to air with a minimal amount of technical equipment.

By using the software on a laptop PC with input devices such as microphones, CD or MiniDisc, we can avoid the need for a separate hardware codec and physical audio mixer.

Users can handle recording, preproduction, mixing and signal transmission with a simple, self-contained package —

all that is needed is an ISDN or other digital connection.

Designed for broadcast, professional audio and telecommunications applications and running under Windows 98 or NT/2000 PCs, the Communicator can connect to ISDN audio codecs including the Musicam USA CDQ Prima, Telos Zephyr and GlenSound and Dialog4 units.

Self-configuring

The Communicator uses a proprietary autoconnect algorithm automatically to detect the type of codec at the other end of the line and configure itself.

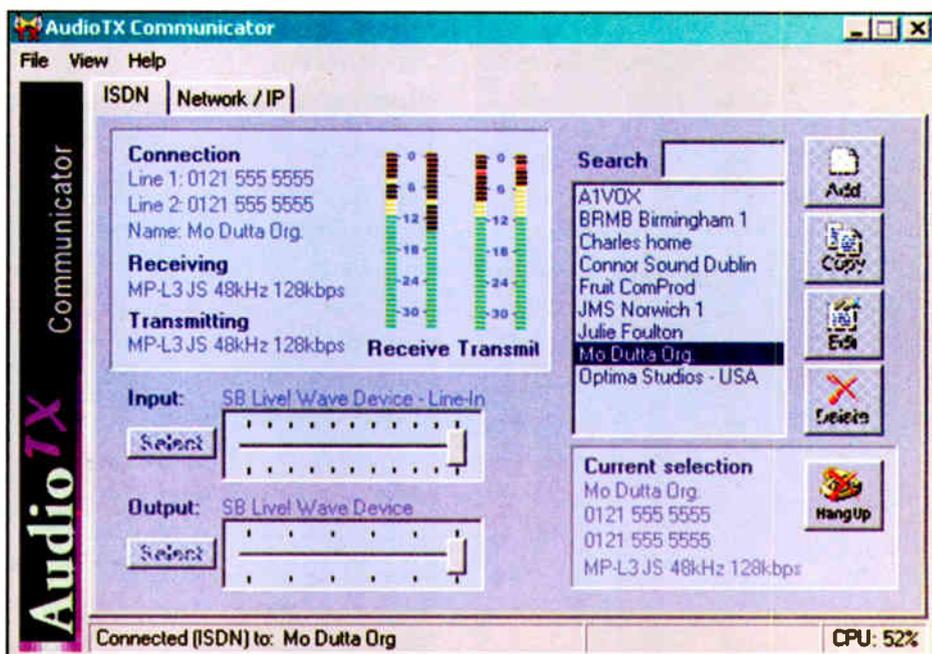
Both 64 kbps and 128 kbps connections are possible — using one or two ISDN B channels — and coding algorithms available include MPEG Layer II and Layer III in mono/stereo/joint stereo modes; G.722 as 7.5 kHz speech only

and G.711 as 3.1 kHz for telephony use.

If an ADSL, DSL, cable modem or leased-line Internet connection is available, the system can make a live audio connection over the Internet.

or downstream.

The actual throughput will depend on the setup of the ADSL or cable modem connection being used. However, with sufficient capacity, connection modes can include uncompressed PCM linear audio in mono or stereo modes, MPEG Layer II in mono/stereo/joint stereo modes at up to 384 kbps and MPEG Layer III in mono/stereo/joint stereo



The AudioTX Communicator is a software codec.

TIPS AND TRICKS

How to Mic for MD

Avoid Phantom Power Loss and Impress Your Friends With the MiniDisc Format

Carl Lindemann

No matter how many times I suggest this, it never seems to register with some folks.

So I'll say it again: Running a dynamic mic on the typical consumer MD, DAT or cassette recorder is problematic. But you can work around it.

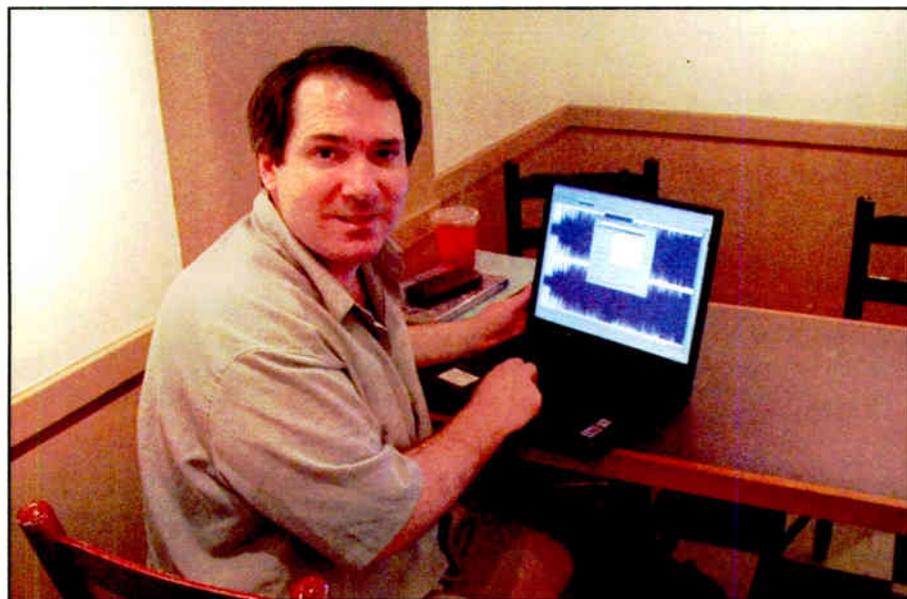
Among the problems inherent to consumer recorders are less-than-

capable preamp stages and inadequate power regulation and bypassing.

Iffy components and circuit designs far simpler than those in rack-mount recorders add to the crackles and hiss that get a free ride along with the recording.

However, a more serious concern is the "poor man's phantom power," running through the 1/8-inch mic

See CARL, page 86 ▶



Carl Lindemann

According to the manufacturer, when using ADSL or a cable modem, a typical achievable data bit rate will be approximately 20 percent less than the maximum achievable bit rate of the connection itself in its slowest direction — either upstream

modes at up to 320 kbps.

The Communicator can operate over Ethernet or private wide-area networks.

Using a standard PC network card or other installed networking hardware, the

See MDO, page 85 ▶

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- Pro Audio Review
April 2000

"It's extremely clean, very clear, and amazingly accurate. Rock solid with a wide range of programs."

-Recording Magazine
February 2000

"The LynxONE is an excellent mastering card in terms of sound quality and flexibility. Suitable for today's professional studio."

AUDIO QUALITY: 5 [out of 5!]
-Electronic Musician
August 1999

LynxONE

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PRODUCT EVALUATION

Radio Can Get the Hollywood Edge

Sallie Sauber

Almost Famous? Well, they won an award for their contributions to the movie, but this company is more than almost famous.

Liberty Livewire Audio, owners of Soundelux, is one of the leaders in the movie industry when it comes to sound design.

Hearing is believing

Hollywood Edge a division of Soundelux, has released Premiere Edition 4. The package is a 10-CD set packed with the stuff you have been looking for

and cannot seem to find in most sound-effects libraries — the sounds you end up trying to produce yourself, like a bomb ticking and exploding, or a hockey game.

I have had to create both of these on more than one occasion.

I found the hockey game especially difficult to simulate, having used generic crowd noises and a pitch-shifted bat hitting a baseball to suggest a hockey puck being slapped across the floor.

Although Premiere Edition 4, like most Hollywood Edge products, was created primarily for the movie industry, this collection would make a great addition to a production studio.

From sci-fi and horror to electronics and nature sounds, Premiere Edition 4 takes detail to the *Nth* degree when it comes to sound.

with thunder because without it, the rain ends up sounding like white noise.

And as for wind, I can whistle better than most wind sound effects. But Premiere Edition 4 offers more than 20 winds that are so in-your-face, you feel the chill just by listening.

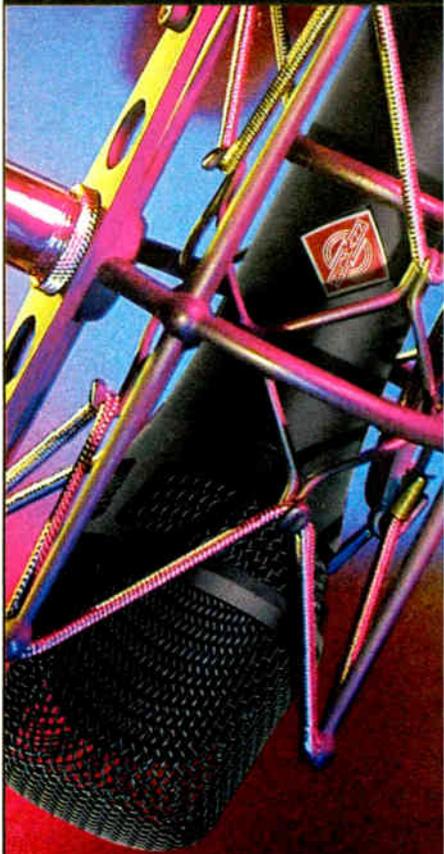
Among great sound effects in this set are field recordings from the new Los Angeles subway, downtown L.A. and the L.A. International Airport.

Out-there

According to Producer Aynee Osborn, going the extra mile to get "clean" car sounds, Hollywood Edge has had to get a permit, hire a cop and set up mics in the desert at 6 a.m.

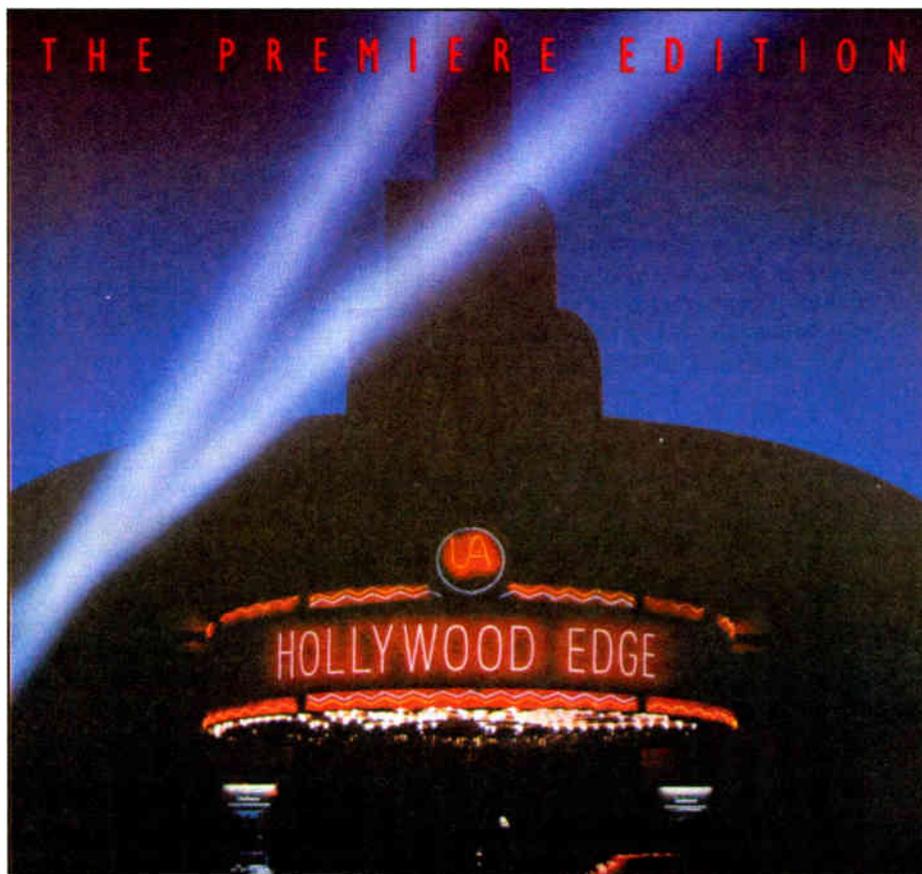
The company has gone as far as gaining access to closed-door scientific labo-

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Take the "Rain and Wind" CD (PE 46), for example. There are 30 tracks of rain alone: rain on a raincoat; rain on a tarp; light, medium, heavy rain ... you get the idea.

Your basic radio station sound-effects library usually offers two exciting rain choices, one with lightning and thunder and one without. I always opt for the one

ratory experiments to get sounds not heard on the outside.

Osborn said of these lab recordings, "From an audio perspective it opens up all kinds of doors because where we live (in the United States) there's so much air traffic and distant city noise it's almost impossible to get a completely clean sound, CD effect."

Product Capsule:
The Hollywood Edge
Premiere Edition 4

Thumbs Up

- ✓ Lots of sound effects you can't find in most libraries
- ✓ Several variations of commonly needed sound effects
- ✓ Long tracks

Thumbs Down

- ✓ Some sounds are less crisp and seem distant
- ✓ Not quite enough of the basics to exist as a radio station's only sound effects library
- ✓ Suggested retail price: \$595

For more information contact Hollywood Edge, in California at (800) 292-3755; fax (323) 603-3298 or visit www.hollywoodedge.com.

Many of the sounds in Premiere Edition 4 come from some of your favorite films like "The Perfect Storm," "Mission Impossible II" and "Gladiator."

My favorite disc is "Designed Events" (PE 50). I would almost pay for this library just to get this particular CD. Each track consists of several layered sound effects, together creating specific scenes or events. You get stuff like a dog walking and stopping to relieve itself; the devil in Hell; flies swarming and one getting smashed; and, well, sex in bed — one with vocalizations and one without.

The 'Rain and Wind' CD offers 30 tracks of rain alone.

Each event is detailed and the sounds crisp. There is no question what is going on. This is important when producing for radio because we production directors do not have the luxury of the visual to key the audience in on what's happening.

If it's not in your budget to purchase the library, you will soon be able to go to the Hollywood Edge Web site and select sounds you want for \$1 to \$20 per sound.

For more information contact Hollywood Edge in California at (800) 292-3755, fax (323) 603-3298 or visit www.hollywoodedge.com.

PRODUCT GUIDE

Aphex Excites Sound With 204

Aphex Systems has released an updated version of its Aural Exciter.

The Model 204, which replaces Model 104, features an Optical Big Bottom for enhanced low-end response, two independent channels, a revamped front-panel layout, internal power supply, XLR and 1/4-inch input and output connectors, plus updated circuitry for better overall sound quality and user flexibility.

The suggested price for the unit is \$400.

The unit features a custom light-dependent resistor as the gain-control element. As a result, the company says, dynamic range is increased by 10 dB, which provides increased flexibility.

The Big Bottom circuit shapes the bass response in the 20-120 Hz range, increasing the perception of low frequencies without boosting the maximum peak output.

For more information contact Aphex Systems in California at (818) 767-2929 or visit the Web site at www.aphex.com.



◆ PRODUCT GUIDE ◆

Products for Radio Air & Production Studios

Mail info and photos to: RW Product Guide, P.O. Box 1214, Falls Church, VA 22041

Primera SignaturePro Prints CDs

The SignaturePro CD Color Printer from Primera Technology has twice the print resolution, print speed and ink capacity of its predecessor Signature IV.



The unit has a resolution of 2,400 x 1,200 dpi, producing some 2.8 million pixels per square inch. The system can print a full-color disc with a 100-percent coverage in 16 seconds. Monochrome output is faster, at 2 seconds per disc at 15-percent coverage. Five print modes are available, so users can specify the level of speed and quality desired.

The system's dual cartridge print technology uses separate black monochrome and three color ink cartridges. The SignaturePro is priced at \$1,895.

For more information contact Primera Technology Inc. in Minnesota at (800) 797-2772, fax (763) 475-6677 or visit the Web site at www.primeratechnology.com.

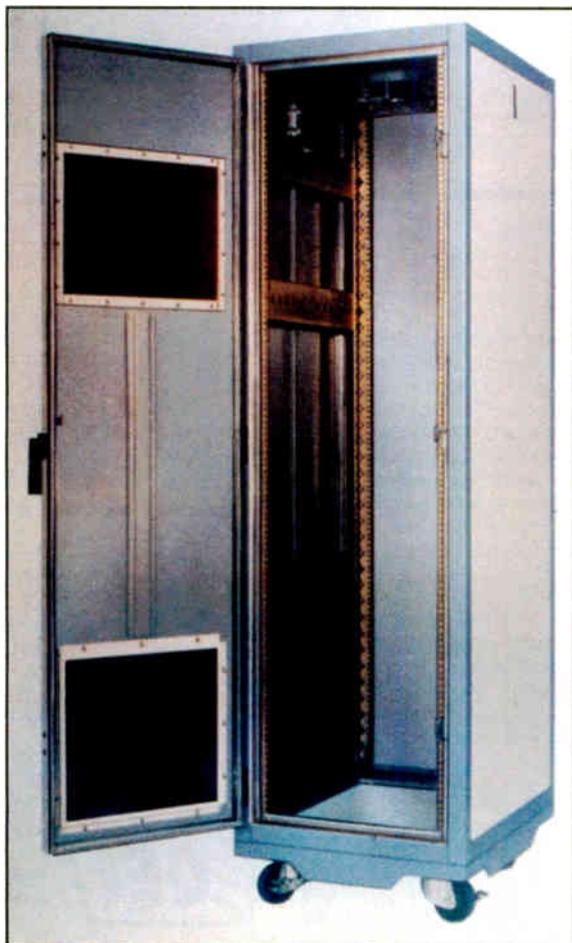
Equipto Eliminates Sagging Doors

Equipto Electronics has installed sag-proof doors and hinging as standard on its line of heavy-duty electronic cabinets. The feature is designed to prevent damage in shipment and allow equipment to be mounted directly to the door.

The doorframes feature double-ledge construction. The doors are flush-mounted with the frame and recessed within the protective perimeter of the frame itself. Hinges are constructed of extruded aluminum and feature a 1/4-inch stainless steel pin and nylon anti-friction bearing.

Doors are interchangeable and are available with a 1/4-inch see-through bronze-tinted acrylic window. Areas for viewing equipment can be sized and located according to user specifications. Special viewing material can be provided to ensure EMI/RFI shielding.

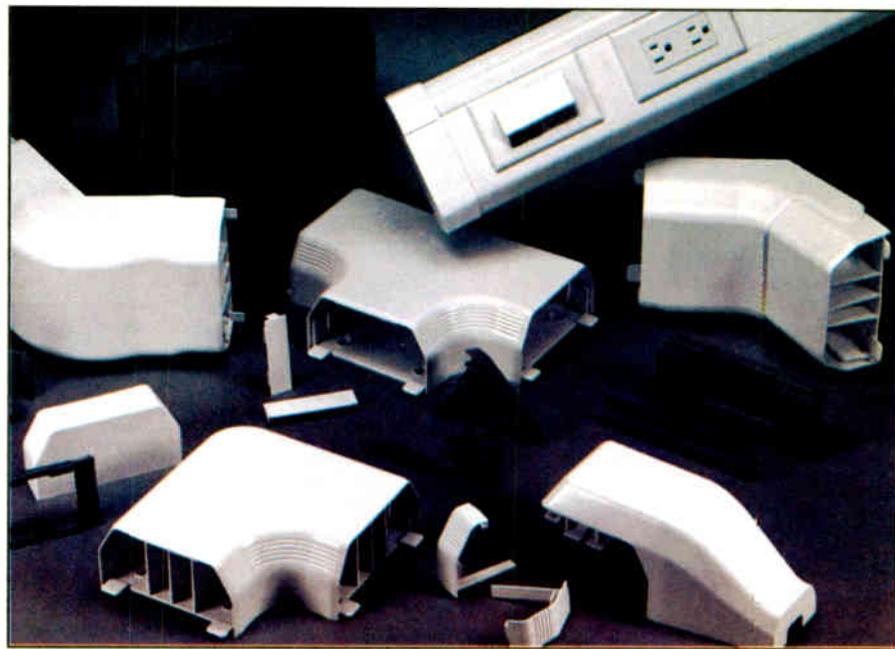
For more information contact Equipto Electronics in Illinois at (800) 204-7225, fax (630) 897-5314 or visit the Web site at www.equiptoelec.com.



Raceway Makes Cabling a Snap

The TG-70 Raceway System is an addition to the Pan-Way line of surface raceway products from Panduit.

The system is a two-piece, multichannel raceway that combines large cable capacity with direct-mounting NEMA standard faceplates as well as Panduit snap-on faceplates.



The system's capacity maximizes the number of cables that can be routed within a raceway channel while allowing for cabling additions and upgrades. Fittings maintain a 1.6-inch bend radius, exceeding TIA/EIA standards.

The similar T-45 raceway is a two-piece multichannel system for routing up to 34 CAT-5 cables within a 2-inch footprint.

Both systems are UL-5A listed to 600 V and CSA-certified to 300 V.

For more information contact Panduit Corp. in Illinois at (866) 405-6656, fax (866) 449-1702 or visit the Web at www.panduit.com.

Neutrik Makes XLR Connection Easy

Neutrik has added XLR cable connectors to the EasyCon series.

Part numbers NC3FEZY and NC3MEZY are the IDC versions of the EasyCon XLR cable connection system. Each model offers a self-adjusting cable strain-relief that eliminates the need for screw-type assembly. Additionally, increased retention force under tensile stress is provided.



The solder versions have gold contacts as the standard and feature nickel or black chrome shells and a new latching mechanism on the female unit features a positive lock compatible with mating male connectors.

The EasyCon series requires the PTZ plier for assembly of each connector.

For more information contact Neutrik USA in New Jersey at (732) 901-9488, Fax (732) 901-9608 or visit the Web at www.neutrikusa.com.

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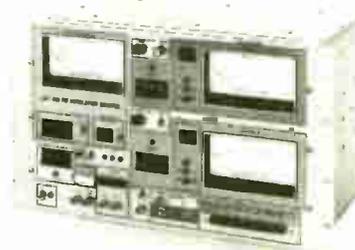
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EVALUATION UPDATE

The CAD Is Very Well Behaved

Paul Kaminski

After finishing the review of CAD's M177 large diaphragm condenser microphone, I got a call from C.P. Pores concerning my finding that the sweet spot was tilted toward 90 degrees.

plots show the results.

This error had been discovered in the first batch of the 177s and does not affect the frequency response or sonic performance of the microphone.

It may affect how monitors are placed in live applications, i.e., where floor monitors are placed in the null of

We received a M177 with the corrected tilt. The sweet spot was concentrated toward the front of the mic. The forgiving angle of acceptance will make it easy for first-time condenser users and their engineers to discover the benefits of a large-diaphragm side-address condenser mic.

At \$249.95, it is a credible alternative for studio announcing. We suspect with a proper preamp, it would even do well in the field.

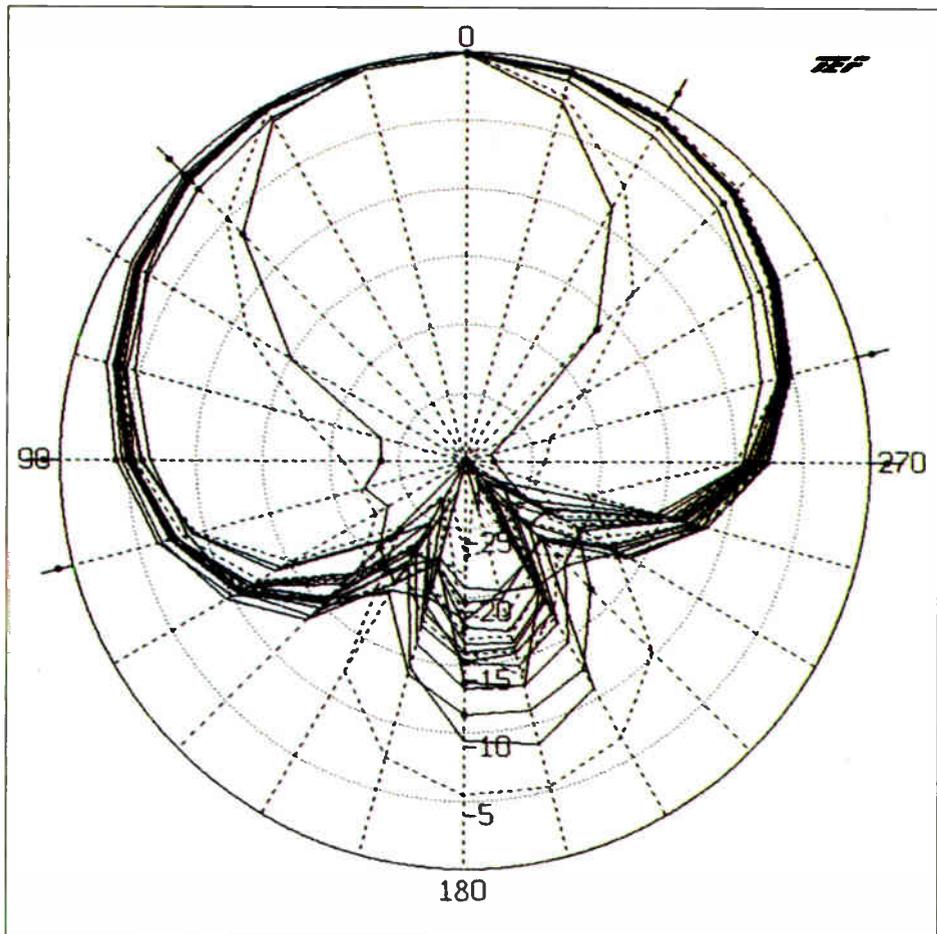
Suffice to say that short of a larynx transplant, the M177 did wonders for my voice tracks. Even without a lot of heavy processing, the voice sounds warm and authoritative.

As a result, I bought the M177 and I am now using it exclusively as my studio announce mic.

Paul Kaminski is the news director of

the Motor Sports Radio Network and host of its "Race-Talk" and "Radio-Road-Test" programs. E-mail him at motorsportsradio@compuserve.com.

For more information contact CTI Audio in Ohio at (440) 593-1111, fax (440) 593-5395 or visit the Web site at www.cadmics.com.

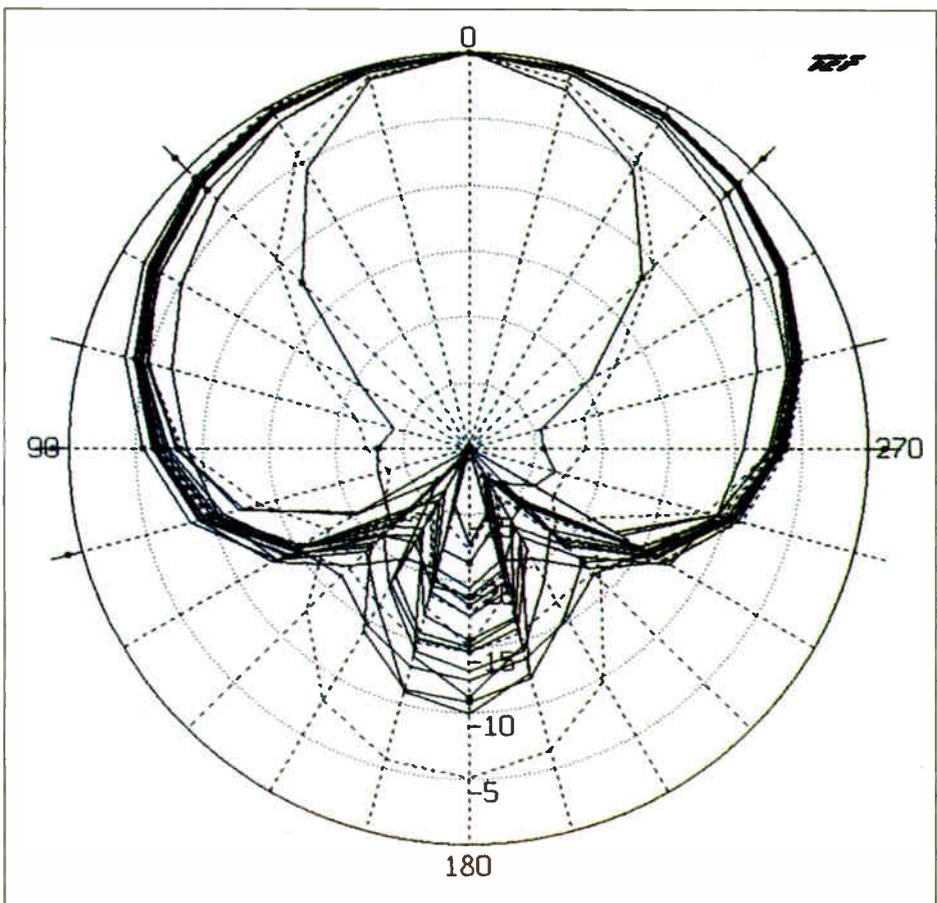


This plot, provided by CAD, shows the pattern of the early M177.

C.P. told me their ongoing review of manufacturing found a tweak in the process that explained the tilt and that it was corrected. The tweak involved a slight change to the process in which the capsule was mounted. These polar

the pattern to lessen the chance of feedback.

With the slight tilt on the earlier models, studio placement of the mic to find the sweet spot for vocal talent may take a bit more time.



This plot shows the M177 pattern after the process correction.



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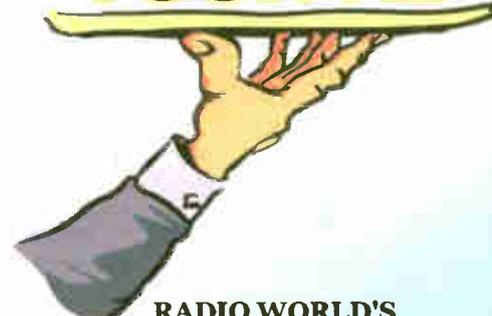
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MDO

► Continued from page 79

AudioTX Communicator can provide live audio links over IP networks. Using existing installations of hubs and routers makes the scale of a given network irrelevant.

By default, the system uses a standard IP network port, though it is possible to alter this to suit local network configuration practices.

Network-ready

The Communicator will run over private leased lines, using existing IP or an external device that provides Ethernet connection over the circuit concerned.

Larger organizations can use the software over ATM or other large-scale telecom networks.

Using existing networking setups in the PC on which the software is installed gives excellent flexibility. A standard network card plugged into an Ethernet connection to the ATM network is required.

Specialized ATM hardware can be employed, provided it presents an IP network connection capable of carrying TCP packets to/from the PC concerned. For

such private and wide area networks, the connection modes available are the same as those available for ADSL or cable modem installations.

The Communicator is designed to work with most good-quality PC soundcards, provided that the card supports full-duplex audio and operates at 44.1 kHz or, ideally, 48 kHz.

Performance will be limited if the card produces electrical "crackles" or exhibits high levels of background noise during operation. At the AudioTX Web site, the manufacturer posts a list of cards recommended for use with Communicator.

The software will operate with any ISDN terminal adaptor that meets the Common ISDN Application Program Interface 2.0 specification or with a suitable Ethernet, cable modem or ADSL connection, as circumstances dictate.

Because the CAPI 2.0 standard can be somewhat loosely interpreted in some designs, MDO UK recommend sticking with one of the two biggest brands of TAs — AVM or Eicon.

For the purposes of this review, the software was tested over ISDN circuits after installation on an 800 MHz Athlon PC with 256 MB RAM, running Windows 98SE. The PC was fitted with a

PCI bus ISDN TA and a Mar 2 soundcard.

MDO UK said it tested the software on a variety of PCI, ISA, USB and PCMCIA ISDN TAs, but that because of their inherently limited data throughput capacity, serial port ISDN devices cannot be used with the software.

The minimum recommended specifications are a 300 MHz Pentium II with at least 64 MB RAM (reduced to 32 MB for a Windows 98 installation).

Clear metering

Using a standard ISDN connection at 64 and 128 kbps, MPEG Layer II connections in mono and joint-stereo were made with both the software suppliers and to the studios of KISS100 FM in London.

Tests also utilized the G.722 and G.711 modes. Operation of the AudioTX Communicator is straightforward: Simply enter the number to connect to then select the coding algorithm and the appropriate data-rate for the type of connection required.

a reboot before becoming operational.

MDO UK recommends that the Communicator be used on a PC running, in order of preference, under Windows 2000, Windows NT or Windows 98. The reason that Windows 2000 or NT are preferred is their ability to keep individual processes separate when multitasking.

The importance of this became apparent during the testing when, running Windows 98, there were problems with the "framing" of the datastream, resulting in interruptions to and distortion of the audio being transmitted and received.

The reason for this distortion was the presence of a background task running on the Windows 98 that conflicted with the resource demands of the codec software.

I solved the problem by switching off virus checkers and other System Tray tasks. On a Windows 98 machine, trying to do a live, real-time, program mix and using the Communicator software at the same time could lead to problems.

With the proviso that some engineers

MDO UK recommend sticking with one of the two biggest brands of TAs — AVM or Eicon.

TIPS AND TRICKS

A Mic Built for You

Microphones: Cardioid or Hyper — Which One Is Best? Tighten Up or Play It Loose

Ty Ford

Radio station studio mics have gone through a long and varied evolution.

Dynamic mics started to fall out of favor in the early '90s as computer monitors started popping up in control rooms. The early monitors generated a lot of hash that the coils of some dynamic mics received quite readily. Stations began to look at condenser mics because they are unaffected by that sort of noise.

But a condenser mic can have its own problems. With wide cardioid patterns and increased sensitivity results, the mic is able to pick up a lot more room sound, including bounce from the double-pane windows, computer fan and hard-drive noise.

The problem was not so much the condenser mic as it was the width of the pattern.

Broadcasters looking to move to condenser mics need to look for tighter patterns, especially if they have less-than-perfect studio acoustics.

Get hyper

To its advantage, the hypercardioid mic has a tighter front lobe than a standard cardioid. A small disadvantage is that hypercardioids also have a small back lobe that, if aimed in the wrong direction, like 6 inches or less from a reflective surface like a hard wall or window, can also cause audible reflections.

See TIPS, page 86 ►



Ty Ford, left, works the mixer as Ty Ford, right, mans the mic.

Audio metering is done through a set of LED-style meters, which offer fast-acting peak VU-style metering coupled with PPM-style level metering.

The download software requires the purchase of an unlock code to remove the connection duration limitations of the trial mode installation. The software unlock is machine-specific; for purchasers wanting to move the software between machines, a USB or parallel port dongle-controlled version is available.

Installation was quick. The software recognized the previously installed ISDN board and soundcard and did not require

might feel the software is lacking in connection progress and analysis information, the AudioTX Communicator operates well on a correctly configured PC.

It will be interesting to see what other products are introduced into the range over the coming months.

Lawrence Hallett reports on the industry for Radio World from Norwich, England.

For information from MDO UK, contact Mo Dutta in England at telephone: +44-121-248-0200; FAX: +44-121-248-5109; e-mail: mo@mo.dutta.org or visit www.audiotx.com/.

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Tips

► Continued from page 85

One of the more popular hypercardioids used today is the Schoeps MK 41 capsule, which typically is employed by film sound mixers for dialog on sets and interiors.

Choices

The MK 41 capsule and CMC 6 body are usually boomed and operated from a distance of one to two feet. The capsule and body sell for \$1,385.

Also, the MK 41's off-axis response is extremely even. This means that as the mic is turned away from the source, you don't hear the high frequencies roll off before the mids and

lows. This application results in a more cohesive sound.

Neumann, AudioTechnica and others also make small diaphragm hyper-

clip, windscreen and wooden box runs \$1,275.

The Audio Technica AT 4053a set with AT 4900a body and AT 4053a-EL

Understand the characteristics of each popular mic to get the most out of your mixing session.

cardioids.

The Neumann KM150 Set with AK 50 hypercardioid capsule, 10 dB pad,

hypercardioid capsule with clip, foam filter and case runs \$750. I've not had an opportunity to hear the Neumann or

AT mics, so I can't comment on how they compare for tightness of pattern, evenness of off-axis response and overall sound.

I do know that most small diaphragm mics of this class are pop-sensitive and can't be used for voice at close range.

You need at least 4 to 6 inches between the mouth and mic, which given the proximity effect of the MK 41, resulted in a rich and thick sound, without being boomy. Additionally, the mic has to be set at an angle to the mouth and not directly spoken into. You also need a good pop filter.

Here's another tip: the Schoeps B5D hollow pop filter (\$45) is better than most windscreens. Ever grab a directional mic around the base of its capsule on stage and hear the feedback? When you cut off the sound to the back of the capsule, you're turning the cardioid mic into an omni.

A tight-fitting foam pop filter can have a similar effect, widening the pattern allowing the mic to hear more of what you don't want it to hear. The B5D construction cuts down on these problems. ●

Carl

► Continued from page 79

jacks. This has been designed into the recorder to power the cheapie electret mics normally included in the package.

When a standard cable wired for XLR-to-1/8-inch operation is used, the current passing up to the mic can degrade — or even spoil — recordings.

Rough handling and intermittent contacts inside the 1/8-inch connector cause those snaps and crackles often heard in recordings. And as mentioned, hiss from the power source makes digital recordings sound little better than cassettes.

The fix is to opt for a pro electret — condenser — mic like the Beyerdynamic MCE 58 or make a special cable with a capacitor in line to keep the power from reaching the dynamic mic.

To do this, take a 1/8-inch plug and use a voltmeter to determine which connector is hot. Place a capacitor in line to null it out. Then, construct the rest of the cable and connectors as usual — simple.

I've done A/B demos for MiniDisc users with various cables and they're often astounded at the difference. You really don't know how good this format is until you've given it a chance!

Stop moving

Another tip: If mic handling noise is a problem, try getting some grip wrap — either for bicycle handles or tennis racquets — and give a few turns around the handle. This acts as an effective damper.

Recently, I tried this with a Sony ECM-360 mic. This is an inexpensive electret mic with a decent sound quality. The major drawback is handling noise. But a layer of grip wrap has muffled that significantly to make this a reasonable and cost-effective backup mic. ●

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TIPS AND TRICKS

Favorite Tricks in Digital Studio

Alan R. Peterson

Many of my "favorite" production effects were disclosed in "Cool Tricks with Cool Edit," published here a few months ago (RW March 1).

Still, tastes and trends come and go and a favorite effect today will be toast next month. So for the moment, here are a few goodies I enjoy doing now in production.

One of the best effects-that-don't-sound-like-effects is the Doppler pitch shift, in which car horns and train whistles whiz by and drop in pitch.

It does not take a good ear or a warped mind to apply this effect artificially to audio on a PC, just an observation of how sound behaves in the open air.

Take that popular train effect — only this time let's be *on* the train, experiencing a crossing-gate bell as we speed by it at 50 miles an hour.

Ding ding ding

Pull a crossing gate bell from the CD collection and drop it into your DAW. Draw a volume curve in an inverted "V" fashion so the bell starts quiet, peaks loud, then dips silent again.

When peak volume occurs, apply a pitch bend to pull the pitch down two or three semitones. For more realism, pan the bell about 80 percent left or right; train passengers generally experience the sound of the bell in one ear only. Panning it stereophonically so it moves left to right is somewhat unnatural, but sounds great in headphones.

This effect works well within Cool Edit Pro and Sound Forge 4.5, and likewise works within Pro Tools also. SAWPlus and SAWPro users would likely resort to a DirectX plug-in pitch shifter, as the stock built-in pitch chang-

er is not dynamic.

Flamethrowing CHR and urban promos have moved away from the "growl" voice and the sampled stutter to heavily filtered voices soaked with digital distortion. Both Cool Edit and Sound Forge come with menu pull-down items for distortion, but a buzzier and more "digital-sounding" distortion can be applied simply.

with lots of artifacts. Squash the dynamics with heavy limiting (which brings out the breathing and background noise), then save the file at a ridiculous resolution, like 8 bits at 11,025 Hz or worse.

Combine this with the over-normalization described a moment ago, and it will probably sound like the old Ampex tape deck you used at your first station, with recycled Sunday-morning religious



Applying a Doppler Pitch Shift in Sound Forge 4.5

Apply the Normalize feature to a sound file to 200 or 300 percent (or beyond), which clips the life out of it. Scale back the levels with the Volume or Amplitude feature, or patch in the DAW's compressor/limiter to reel things in. Grunge City.

Altering the sample rate and bit depth is great for creating retro, lo-fi sound

shows used as your worktapes.

No producer worth his or her salt is without some sort of loop-based music generator. Products include Sonic Foundry ACID, the Internet shareware program FruityLoops and Hip Hop EJay from Voyetra. Music beds can be assembled quickly, with punctuators and posts placed where you want them to be.

ACID seems to have become the de facto standard for such programs, as several audio editing programs now allow WAV files to be "Acidized," or prepped for use in that environment.

Scanning the Net for software synthesizers can likewise broaden your bag of tricks, and most can run on the feeblest computers your station has. Many of these programs are free, and recreate the fat, clippy sound of classic analog synthesizers.

Among some of the better paid-for synthesizers are the Bitheadz Retro AS-1 and the ReBirth twin-synth and drum machine combo from Propellerheads Software. Both companies can be found on the Internet, and their products can be downloaded or purchased commercially.

Trendy

A popular effect in musical use today is digital pitch correction and manipulation on vocals, brought to mainstream awareness by the 1998 Cher song "Believe." The resulting robotic, pitch-stepped quality was unlike anything else on disc up to that point.

Depending on who you talk to, the effect was accomplished with the Antares Autotune software plug-in (<http://antarestech.com>), a Korg vocoding keyboard, the Arboretum Harmony software program or a Digitech Talker footpedal for guitarists. But most everyone agrees it was a clever effect and one already in danger of being overused by others.

I have found using the demo version of the Antares program that judicious use of the effect is suggested as it seems to work best on sustained vocal phrases, and it tends to "bubble up" and lose intelligibility if the effect is taken to the end of a phrase.

What I end up using instead to simulate the effect is the vocoder rendering feature in Cool Edit Pro, or the vocoding preset in my Digitech Studio Quad 4 rackmount processor. Even then, I use it only for seasoning up small slices of the voice track, not the entire body.

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◆ READER'S FORUM ◆

Speaker cable

Enjoyed "Who Put the Zip in Speaker Wire?" by Steve Lampen in the July 18 issue. It certainly demonstrates that we tend to hear what we expect to hear.

However, the last sentence in the "Capacitance (in picofarads)" paragraph in the "What We Can Measure in Cable" box that accompanied Steve's excellent article might be misleading to some readers. Quote: "The higher the frequency, the greater the reactance caused by the capacitance and the greater the signal loss."

Actually, the higher the frequency the lower the reactance of the capacitance, which shunts some of the higher-frequency signal through the cable, so that less is delivered to the speaker 73s.

*Les Proctor
Chief Engineer
KNEB(AM-FM)
Scottsbluff, Neb.*

AM and FM

With all of the debate in recent years about improving AM and FM, I have but one question. Why aren't receiver manufacturers including digital signal processing in the front-ends of their receivers?

AM component, the L-R channel. For FM stereo to work and for a station to meet the minimum requirements for separation, the L-R channel has to have the same characteristics (fidelity) as the (L+R) main channel.

So right here we have to throw out the idea that AM cannot sound as good as FM. In fact, AM is capable of sounding as good as FM and in less-occupied bandwidth.

You need to understand how AM works. AM is produced by heterodyning audio against the carrier which produces sidebands. The audio information is in the sidebands, not the carrier. In an AM transmitter, the audio typically is inserted in series with the final by the modulator.

If you take a 1 kHz audio signal and stuff it into the transmitter's modulator, you will produce a signal that is made up of the carrier and two sidebands, one 1 kHz above and one 1 kHz below the carrier.

Use a 10 kHz tone and you have the carrier and a sideband 10 kHz above and below the carrier and so on. In the receiver the process is reversed. The sidebands (that make it through the receiver) heterodyne against the carrier and are detected in the detector stage to produce the audio.

There came a time when radio manufacturers were more interested in selec-

The Birth of a New Band

Here they come, hundreds of channels of diverse digital audio programming tumbling from the sky into your listeners' cars and offices.

Satellite radio is about to move off the business page and into the lives of American consumers. XM Satellite Radio begins its \$100 million promotional campaign this week, culminating in the start of nationwide TV ads in November. Competitor Sirius

Satellite Radio hopes to have some receivers in the market in the fourth quarter.

We now know specifically what the XM program list will look like. See the chart on page 38. You might even want to save it. It could be a collector's item someday.

That chart gives a good idea of what traditional radio stations are up against.

We think XM's service will be a hit, based on that list. We believe there are many, many people who will be stunned and delighted to discover that they can hear Big Band music, or Broadway tunes, or uncensored hip-hop with the purchase of a new radio and a reasonable monthly fee.

(We do have a gag reflex to the idea of Channel 152, "Morning Madness All Day Long." But to each his own.)

The presence of Hindi-Indian and Mandarin-Chinese programming demonstrates that Lee Abrams and his team are aware of the intense desire among many Americans for targeted ethnic programming, particularly in major cities. Many of those listeners have been served only by FM subcarrier programming or public-access cable TV programs. We predict more such channels and an expanding role for "foreign" language programming in all media.

Will people pay for satellite? Yes. Ask any NASCAR fan if they'd pay \$10 or \$12 a month to listen to race-car programs on the way to work. Ask fans of classical or jazz music in Washington if they would pay to hear their favorite music 24/7 again. Ask opera buffs or truckers if they will pay for a new national service aimed at them.

Consolidated, lowest-common-denominator commercial radio has left the door open to specialized satellite radio. It is about to change the competitive nature of every market on the continent. Are you ready?

— RW

Analog will still be around for a while, so let's start cleaning it up now.

These same manufacturers are putting DSP chips in everything else they make, so why not here where it is needed most?

Analog will still be around for a while, so let's start cleaning it up now.

*Glenn Finney
Chief Engineer
Good News Network
Macon, Ga.*

I've been reading the volley of letters flying back and forth regarding AM receivers and the degradation of the AM band. From a technical side, the AM transmission scheme is not the problem.

Keep in mind that FM stereo has an

tivity than fidelity. They wanted to build receivers that could separate signals and at the same time get rid of the 10 kHz beat (whistle) between stations.

Enter Clevite. As I recall, it was back in the early '60s that a company called Clevite started manufacturing narrow ceramic filters for radios. These simple devices were about the size of a ceramic capacitor, blue and had three leads: in, ground and out. They were designed to go in the 455 kHz IF signal path.

Prior to this, radio manufacturers, particularly car radio manufacturers, had gone to a 262 kHz IF to get better selectivity. Now, with the arrival of inexpensive ceramic filters, it was easy and cheaper.

I made some measurements on a few of these receivers and found the bandwidth to be in the neighborhood of 3 kHz and drop like a rock. This allows for a recovered audio bandwidth of about 1.5 kHz. Sometimes we'd tune the receiver a little off frequency just to get a little more highs and accept the distortion that came with doing that.

Enter interference. I know many stories where the GM of a station would come in with his new car and its radio and complain that the station sounded "muddy." "Fix the station!"

I once saw a station that had a Cinema Engineering equalizer just ahead of the transmitter with 15 kHz cranked up 17 dB. Stations were actually trying to equalize out the effects of narrow filters in the receivers.

I've been looking at new cars. One of the things that's important to me is the radio, particularly AM. I've found many radios where you can tune to a strong signal then tune one channel above or below and there's no sign of the strong adjacent signal. Coincidentally, the AM receiver sounds terrible. In my present car, the one with the wider AM stereo receiver, the same stations sound pretty good. Maybe

I'll just take the radio from my old car.

There's a definite problem with the present design of most AM receivers. If you want to have received audio that goes out to 10 kHz (limited by NRSC, not AM), you need to be able to recover sidebands out to 10 KHz. If you shear off the sidebands that are farther out from the carrier you are going to lose highs accordingly. It's that simple.

*Burt I. Weiner
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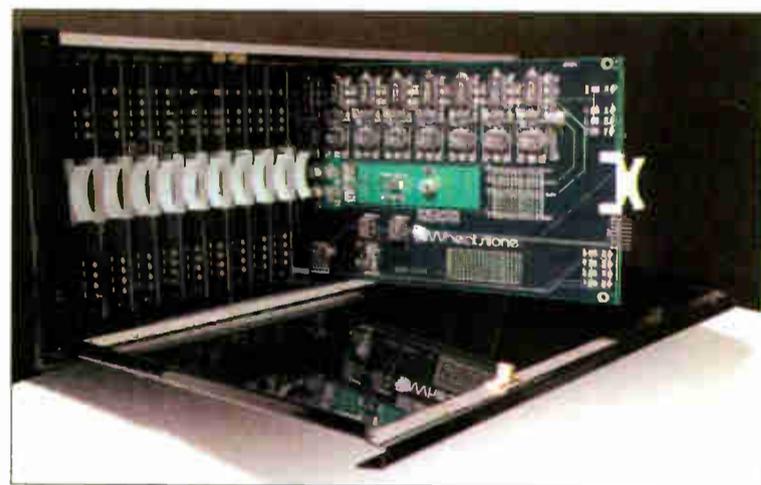
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