

Radio World[®]

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November 26, 1997

Radio Is Wary of 'Little LEOs'

Broadcasters See Threat to RPUs
In FCC Proposal for 455-456 MHz

by Leslie Stimson

WASHINGTON Broadcasters are bracing themselves against a spectrum grab from low earth orbiting satellite services, commonly called "Little LEOs."

The FCC is considering allocating some of the most heavily-used spectrum that broadcasters use for remote pick-up broadcasts and two-way communications (455-456 MHz) to the Little LEOs.

Broadcasters said there are not enough RPU frequencies for the stations that need them now in urban areas, without having to share them with another service. The Society of Broadcast Engineers and the National Association of Broadcasters intended to tell the commission just that, in comments to an FCC rule making.

The Little LEOs would use clusters of low earth orbiting satellites to provide commercial radiolocation (using global positioning) and two-way data messaging services throughout

the world. The FCC already has licensed three Little LEO systems, one of which has launched satellites that operate within existing spectrum allocations.

But the Little LEOs want more spectrum allocated to their services. Eight additional Little LEO applications are pending at the FCC.

Important functions

The commission has issued a Notice of Proposed Rule Making (ET 97-214) to implement domestically the Mobile Satellite Service (earth-to-space) for non-voice, non-geostationary mobile satellite services (NVNG MSS) allocations adopted at the World Radiocommunication Conference in 1995.

Specifically, the FCC proposed allocating both the 455-456 MHz and 459-460 MHz bands to the NVNG MSS on a co-primary basis, providing they do not interfere with current users.

Based on interviews with officials at the SBE and NAB, broadcasters are highly skeptical of the already limited RPU spectrum can be shared with another service on a primary basis. The organizations were preparing comments for the Dec. 1 FCC deadline.

Broadcasters hold more than 25,000 licenses in the 455-456 MHz band. Many of those broadcasters have multiple transmitters. Broadcasters are licensed to use this part of the band and its companion band 450-451 MHz for several purposes under Part 74 of FCC rules for Broadcast Auxiliary Services.

Broadcasters mainly use these so-called RPU frequencies to transmit live programming from remote locations, such as shopping malls or sporting events, back to their stations. They also can be used as studio-to-transmitter links in emergencies when the normal link to the transmitter is not working. A major but less well-known application is wireless transmitter telemetry.

See LEOS, page 12 ▶

IBOC DAB Advances

LINTHICUM, Md. The FCC has granted Lucent Technologies/U.S.A. Digital Radio an experimental license to test FM channel characterizations in the Washington area. This test is a pre-cursor to the Lucent/USADR in-band, on channel FM DAB tests in Washington.

Lucent/USADR recently finished FCC-required interference-analysis on TV channel 6 (82-88 MHz) to prove its experiments will not interfere with TV broadcasters in markets surrounding the Washington test site.

The tests will begin in December in Bethesda, Md, just outside Washington. They are expected to last two months.

"We're putting out pulses to measure multipath in the FM band," said Rick Martinson, manager, DAB systems at Westinghouse Wireless Solutions. USADR is a consortium of Westinghouse/CBS and Gannett.

Lucent/USADR has a joint development agreement to develop IBOC DAB.

Mohsen Sarraf, of Lucent/Bell Labs, whose group is conducting the FM characterization tests, said the new tests are more comprehensive than the previous ones.

Martinson said the tests would verify previous multipath tests in Salt Lake City (from 1995), and "give us better confidence that our models will work in a suburban and urban environment."

When the FM characterization tests are completed and Lucent/USADR has also finished lab testing, it plans to use the same site in Bethesda to test IBOC DAB.

A second site for FM characterization testing is planned for Columbia, Md., this spring.

Xetron, a USADR contractor, conducted AM characterizations last March in Cincinnati and has an application for an experimental license pending at the FCC to conduct AM IBOC testing there next spring.

— Leslie Stimson



The Future of
DAB: Two Views
See Page 14

The Bill Kennard Era Begins

by Leslie Stimson

WASHINGTON The outgoing FCC commissioners were on hand to wish good luck to their incoming colleagues as the latter were sworn in this month. Former Chairman Reed Hundt administered the oath to his



William Kennard

successor, former general counsel William Kennard.

Facing reporters as chairman, Kennard was cautious about describing the issues the new FCC would tackle. Regarding broadcast liquor ads, however, Kennard said he has talked to people on all sides of the issue. "Not one person has told me that more distilled advertising is a good thing for the country," he said.

Kennard believes the FCC should go forward on its pending broadcast liquor ad inquiry.

Kennard expressed strong reservations about the pace of broadcast consolidation. He thought it was "probably more dramatic" than anybody had anticipated. He said pending matters, which include attribution and radio-newspaper crossownership, would give the FCC an opportunity to look at all ownership issues.

As to how he will lead the agency over the next four years, Kennard said common sense would prevail and the FCC should only regulate to promote competition, protect the public interest and, when necessary, eliminate obsolete rules.

The outgoing chairman and commissioners still have strong opinions on the direction of the FCC. Some parting words from Reed Hundt, James Quello and Rachele Chong are found on pages 25 to 27.

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NEWSWATCH

DOJ Sues to Block Long Island Deal

WASHINGTON The Department of Justice sued to block the acquisition by Chancellor Media Corp. of four radio stations from SFX Broadcasting. The stations are located on Long Island in New York.

The action was the first legal challenge by the DOJ to a radio merger since passage of the Telecommunications Act in 1996.

The DOJ said the proposed \$54 million deal would result in a dominant Long Island radio group that would garner 65 percent of the radio advertising market.

On Long Island, Chancellor and SFX are two of the largest radio groups; Chancellor

owns two stations and SFX four.

The Justice Department complaint was filed Nov. 6 in U.S. District Court in Brooklyn. The DOJ wrote that Chancellor recognized that the purchase would eliminate competition with SFX and allow Chancellor to raise advertising rates.

Chancellor and SFX disagreed with the DOJ assessment of what constitutes a local advertising market. Chancellor attorney Edward Henneberry said the companies would fight that assessment. The DOJ also said allowing the merger would allow Chancellor to dominate a broad advertising demographic: adults age 25-54.

The American Community of AM Broadcasters Association applauded the

action, which ACAMBA President Bryan Smeathers said was "long overdue."

The complaint also seeks to end a local marketing agreement under which Chancellor has been operating the Long Island radio stations of SFX.

"They entered into the LMA when they announced the transaction. You can't enter into an LMA until antitrust concerns are settled," said Charles Biggio, senior counsel to the assistant attorney general in the DOJ antitrust division.

Asked if a settlement was still possible, he replied, "They have not proposed a settlement that would settle our concerns. We have filed this action with full intention of litigating it."

Industry observers say the DOJ generally has intervened in radio deals in which the merged company would control more than 40 percent of the radio advertising in a market. The Justice Department has not issued such a clear guideline, however.

Since radio mergers have become big enough for antitrust review, the DOJ and broadcasters reached a settlement in five cases. Three other deals were restructured or abandoned without going to court.

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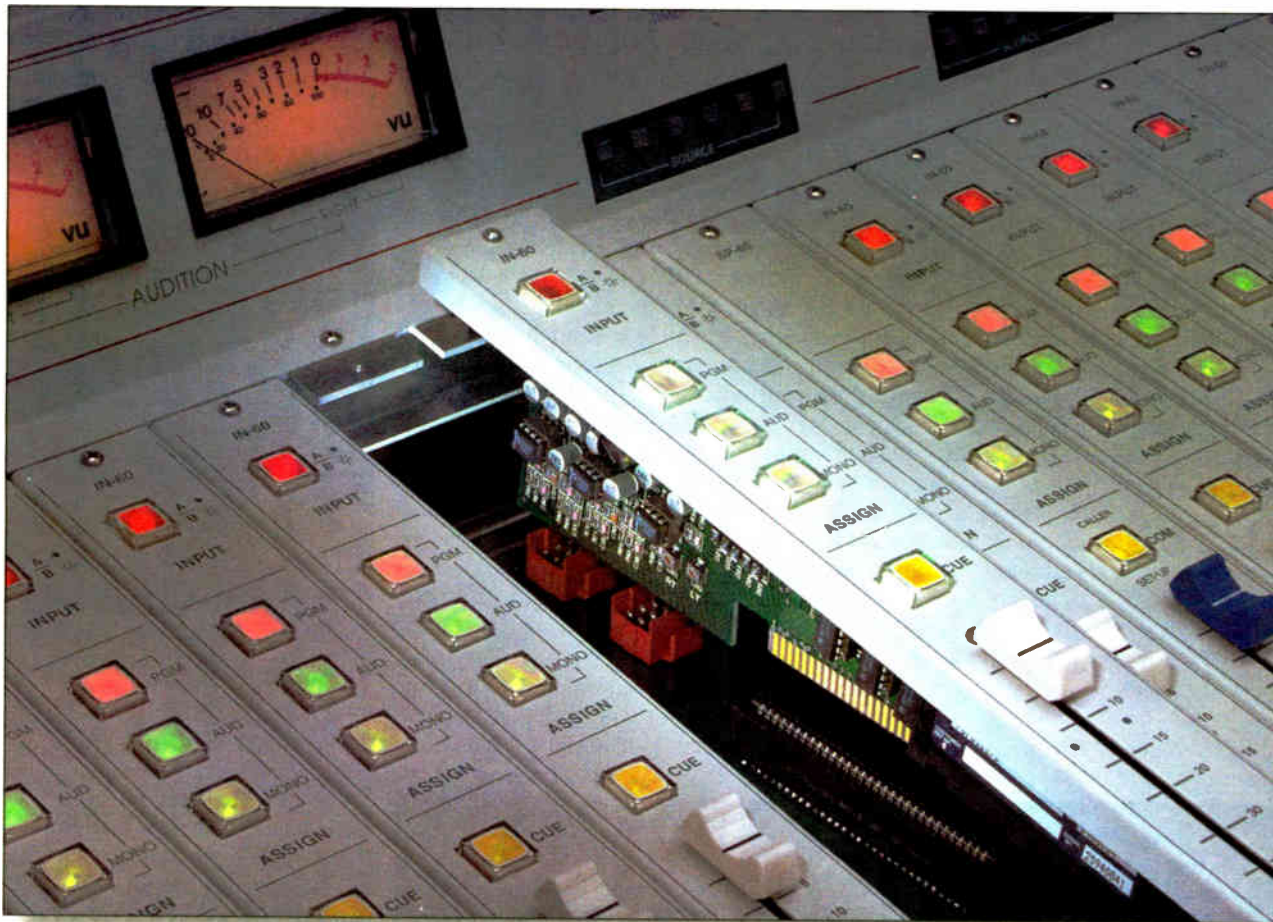
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NEWSWATCH

► NEWSWATCH, continued from page 2

ASCAP, NRB Reach Deal

WASHINGTON In an agreement touted all around as "a fair deal," the American Society of Composers, Authors & Publishers (ASCAP) announced a deal with the National Religious Broadcasters Association Music Licensing Committee (NRBMLC) on matters of music licensing.

John LoFrumento, CEO of ASCAP, said the agreement "ushers in a new era of cooperation between music creators and publishers, especially in the Christian music community, and those in broadcasting who use their works."

Edward Atsinger III, chair of NRBMLC, said, "The agreement is a true win-win-win in that it addresses many of the unique concerns religious broadcasters have had with the current music licensing arrangement with ASCAP, while also treating ASCAP fairly and encouraging the broadcast by our stations of more religious and inspirational music."

The compromise settled pending rate litigation along with disputes over legislative matters.

Jacor Snatches Up Nationwide Radio

COVINGTON, Ky. Jacor Communications intends to pay \$620 million for the 17 radio stations of Nationwide Communications.

"Nationwide hits the mark on all fronts for Jacor," said CEO Randy Michaels.

NCI President Steve Berger said, "We're pleased to have Jacor as a partner in this transaction although it will be difficult to leave Nationwide. We recognize, however, that the industry is changing and the stations need to be on the leading edge of that change in order to grow. Under the Jacor umbrella, the Nationwide stations will share in the benefits of Jacor's regional cluster strategy."

Five of Nationwide's markets are new markets for Jacor: Dallas, Houston, Minneapolis, Phoenix and Baltimore.

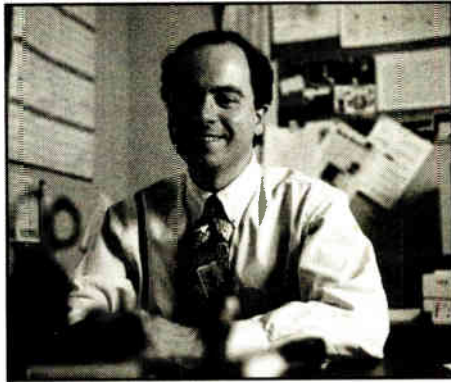
NAB, MSTV Stress Tower Zoning Relaxation

WASHINGTON NAB and Maximum Service Television have told the FCC that it should preempt local and state tower siting regulations, particularly if TV is to meet the target 2006 digital roll-out. NAB and MSTV asked the FCC to preempt local regulations on RF exposure emissions, RF signal interference and tower marking and lighting. In reply comments, NAB and MSTV asked that the proposed pre-emption rule apply to all broadcasters, in all markets, whether related or not to DTV construction. Also recommended were procedures for resolving tower siting disputes more quickly. Reply comments (MM Docket 97-182) are due Dec. 1.

McLane Upped; Rae Joins RW

Paul J. McLane was promoted to the position of editor of *Radio World*. He has served the newspaper as managing editor since joining IMAS Publishing in 1996. Editor in Chief Lucia Cobo announced the promotion.

Cobo also announced that Sharon Rae



Paul J. McLane

joined the *RW* staff as managing editor. Both changes were effective Nov. 3.

"These changes are part of our ongoing efforts to improve the content of the paper," Cobo said. "Paul's experience in both the journalism and broadcast equipment sides of our business have made him an important part of our success. He will be responsible for the day-to-day editorial decisions of the paper."

"Sharon Rae is an experienced radio news journalist and contributor to *RW*. She is an excellent addition to our staff."

McLane has 17 years of experience in radio. For five years he was a news anchor and reporter for WDEL(AM)-WSTW(FM) in Wilmington, Del., where his public affairs reporting about the deregulation of the telephone industry was honored by the Associated Press. He moved to a sales position at equipment manufacturer Radio Systems Inc. in Bridgeport, N.J., where he was later promoted to national sales manager. Prior to joining *RW*, he was marketing manager for industry supplier Bradley Broadcast Sales in Rockville, Md.

"For 21 years, radio engineers and

technical professionals have had a friend in *RW*," McLane said. "With changes in the broadcast industry, our job is tougher now. We now must serve that important group of readers, but also inform those managers who don't have a technical background and yet must make decisions about equipment and services. With consolidation and the pending questions of DAB, that's an exciting challenge."

Rae has worked in radio in the Lansing and Kalamazoo, Mich., areas for 10 years. Before joining *RW*, she was news director of WXIK(FM) in Lansing. She started her career as a weekend overnight DJ, and has worked as a talk show host, morning drive news personality, anchor/reporter and a domestic stringer for ABC Radio News. She



Sharon Rae

earned several awards from the Michigan Association of Broadcasters and Michigan Associated Press. She also served as a board member of the Michigan Associated Press Broadcasters Association.

More to come

"Our editorial changes give us a strong team with which we can continue to improve *RW*," Cobo said. Earlier this year, the newspaper hired veteran radio industry journalist Leslie Stimson as news editor/Washington bureau chief, promoted Chris Hamaker to associate editor overseeing the *Features* and *Running Radio* sections of the paper, and promoted Susan Gary to

the position of assistant editor for *Buyer's Guide*.

"We have made important improvements this year on the content side, too," Cobo said. "The popular *Workbench* column by engineer John Bisset now appears in every issue. We have restated our commitment to providing the best possible coverage of digital audio broadcasting. We've added articles and columns by industry experts like Steve Lampen, Jack Layton, Yana Davis and Paul Kaminski. This month, we begin a series of photo features from the history of radio, in cooperation with the Library of American Broadcasting; and we plan much more radio product coverage in 1998."

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To the Horses, to the Hounds, to the Comrex

WASHINGTON RW has the sad task of reporting the death of Dwight James Weller. Our heartfelt condolences go out to Dwight's mother, aunt and niece. And to all of his many radio friends.

Among these is practically everyone on staff here at **RW**. He was a terrific supporter of the paper, our efforts to improve it (he contributed to **RW** when time and health allowed him to), and was a good friend. I, like many of you, will miss him.

I believe the radio community in Baltimore expressed it heartbreakingly well when at 2 p.m. on the day of his

with a winner right here in Northern Virginia. The Middleburg Broadcasting Network was founded by football hall-of-famer, broadcaster and horse enthusiast Sam Huff and Carol Holden. Based in Middleburg, Va., MBN produces and distributes the weekly thoroughbred horse program, "Trackside," which is fed to its affiliates via satellite and ISDN phone lines. Huff and Holden host the program, which is taped at the MBN studios in downtown Middleburg.

Except, of course, when there is a live racing event to cover.

That is where the Comrex contest

audio and video tapes, promotional items and stories. The independent



panel of judges (none of whom were Comrex employees) selected the grand prize winner, who was allowed to keep the borrowed HotLines. Below, in their words, MBN covered the race:

How they did it

MBN covered the 40th annual Fairfax Steeplechase Horse Races on Belmont Plantation in Virginia. Arranging logistics for the event proved difficult because ISDN service was not an option, and the venue could not be reached using an RPU system. There were no phone lines to Belmont Plantation, and the place itself is so remote and rural, it did not even have a local address to provide the phone company for a line to be installed.

The local tax office was finally able to provide an address for the plantation, and a line was extended to Belmont. MBN was ready to use its HotLine POTS codecs.

The remote studio consisted of the back of the Ford Bronco belonging to Bob Rankin, MBN engineer.

"Broadcasting live from the horse races is extremely difficult and with so much to think about, the program content, the unpredictable nature of the race, the program sponsorship, no one wants to worry about the mechanics. That Comrex HotLine sat in the back of my Bronco and did its job all afternoon," said Rankin.

The race ended in a photo finish and despite the high level of difficulty involved in pulling it off, MBN considered the remote a success: "The HotLines made MBN sound great ... and the units were a dream to use. Best of all, when everyone was stressing over the details of the broadcast, the HotLines were the one thing we didn't have to worry about," said Rankin.

Prize ceremony

If you have never been to Middleburg, I must tell you that it is quintessential Virginia: beautiful, historical and horse country to the core. I jumped at the chance to attend the prize-award ceremony. Mr. Huff was gracious enough to give us a tour of MBN and then of his estate, not far from the broadcast studio. The picture was taken outside the stables of Huff Farm.



Pictured left to right are: Victoria Petty, MBN, Bob Rankin, MBN, Lynn Distler, Comrex, Peter J. Fakoury, MBN, and Sam Huff, MBN.

funeral, as the cars wound their way from the chapel to the cemetery, radio stations in town, led by WPOC-FM, aired a tribute to Dwight recorded by his friend and WPOC-FM Chief Engineer Lang Sturgeon, followed by a long moment of silence. We will all miss you Dwight.

Cool Remotes

How cool are your remotes? Comrex set out to find the coolest remote in the United States, that used a HotLine, of course, and came up

came in — MBN saw the contest advertised in **RW** and decided its remote from the Belmont Plantation merited entrance into the contest.

Stations across the United States participated in the contest by submitting ideas for interesting remotes. Twenty-five stations with the "coolest" ideas won the loan of a pair of HotLines to produce a broadcast during the month of September.

Upon completion of the remote events, participants submitted details on the broadcasts, including pictures,

What you are witnessing here is my paying up for running my mouth off to none other than Frank Foti (of Cutting Edge fame). I bet him that the Orioles would clinch the American League Championship over the Cleveland Indians ... and of course, they did not. The Tribe ruled (in this one instance) and the Os did not.



However, the Os will always rule in my heart!

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'Illegal' concessions

Dear RW,

I read the letter from George Michael ("Cut the Static") on page 5 in your Sept. 17 issue.

Being on 580 kHz since 1936, we could ride the airwaves up to California, south to Mexico City and west to New Zealand. So the electrical fields, computers and hundreds of radio stations do take a heavy toll on those vast territories we used to roam. But it's the "illegal" radio station concessions (from Mexico and the U.S.) which have taken a direct blow to our "pioneer rights." They have granted frequencies on 570, 590 and 580 kHz that flank us from north, south, east and west, and we (are) right in the

middle.

I read about ACAMBA and am happy about it. Why haven't we asked radio manufacturers to install a decent antenna for AM, or build AM stereo radios for home and portable use, as in cars? Of course we in AM radio are to blame. We just kept quiet. We thought AM would not recover from the impact of FM.

Claudio M. Bres M.
General Manager
XEMU
La Rancherita del Aire
Piedras Negras, Mexico

Taylor, on his feet

Dick Taylor wrote in our Sept. 17 issue about the challenges he faced after losing his job as general manager of a radio station in New Jersey. We asked him for an update.

Dear RW,

I am happy to report that I am off the public dole and back in the saddle at a wonderful radio station in Ocean City-Salisbury, Md., WLFX, 97.1FM, The FOX, Delmarva's Classic Rock.

I can't believe the huge amount of response I had to the article in Radio World, "The Day the Cheerleading Stopped." I've heard from lots of friends who weren't even aware that I had been beached for seven months, in addition to the many new friends that I've made because they picked up the phone and called me to share their own stories and words of advice and encouragement.

Two people who went out of their way to help a fellow broadcaster get back on his way were Gene and Deborah Kauffman of BUSSELLRADIO.COM. These two wonder-



Dick Taylor

ful people provided me with constant encouragement. When my arms were tired, they picked up the stick and banged my drum for me.

My first article in RW was both personally and professionally rewarding. I hope your readers were able to benefit from what I was able to share with them.

Dick Taylor, CRMC
General Manager
WLFX(FM)
Ocean City, Md.

Why Worry About LEOs?

Apparently things have gotten pretty tight on the ol' spectrum chart. Now, it seems, licensed users had better be using their frequencies full-time, or the FCC may just find other uses for that spectrum.

Consider the Little LEOs. These low earth orbiting satellite services want more frequency for their short signal bursts, and the FCC is considering accommodating them by letting them use some of the spectrum that broadcasters already are using for remote pick-up broadcasts and other communications.

The FCC figures that broadcasters do not use their RPU frequencies constantly, so perhaps they can share it with the Little LEOs on a co-primary basis, as long as they do not interfere with current users.

Perhaps we shouldn't be concerned. Perhaps Little LEOs won't interfere with RPU operations, and can send their bursts on open frequencies without bothering the radio users who were there first or who plan RPUs there. But we don't like the precedent.

Included in the FCC proposal is a provision that may allow the government to charge Little LEOs for this use, through auctions. This too is troubling.

Folks in Washington are all too willing these days to consider using the public spectrum as a way to balance their lopsided checkbook. This pressure on existing users, in the form of fees, auctions and shared usage, is likely to increase. Charging Little LEOs to use this spectrum is but one step from charging stations more.

Unfortunately, broadcasters now are seen by many people as the beneficiaries of free licenses which pre-date the era of auctions. We must learn to verbalize our public service functions better, and to speak up to the FCC, to Congress and to other industries about how radio and TV use precious spectrum to serve our communities.

We must also learn to scrutinize any proposed spectrum sharing, for precedents that we may regret later.

Radio stations must guard their spectrum vigilantly. This has never been more true. Consult your legal counsel, the NAB or the SBE, and make your feelings known. The deadline for comments to the FCC on Notice of Proposed Rule Making ET 97-214 is Dec. 1.

— RW

Help for air talent

Dear RW,

I wanted to thank you for a first-rate magazine that does a great job of cover-

was to have to miss your exhibitor party in New Orleans. When we originally accepted your kind invitation, the NAB show was scheduled to close Saturday afternoon and we looked forward to a festive last night of the convention with RW. Then the NAB changed the dates on us, closing (the exhibits) on Friday evening, and we spent the night tearing down our booth instead.

Unfortunately, the midstream date change by the NAB also forced us to send an extra crew to the IBC in Amsterdam, because we could not be tearing down one show and setting up another on the same day in both places. (Perhaps the NAB will pay for our extra expenses.)

In any case, we hope we will remain on your guest list. We also hope that the NAB will be more professional in its handling of the fall show. I wonder what would happen if they changed the spring NAB dates a month before it opened?

Lynn Distler
Vice President, Comrex Corp.
Acton, Mass.

Write to Us

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ing our industry. Even though I'm one of those lowly "air talent" people that engineers love to hate, I still get a lot of help from your magazine. Of course, it does help that I get along great with our contract engineer, and help him out as much as possible. Some of us dumb jocks aren't so dumb.

I've been in radio since I was 14, 21 years ago, and am still "learning the business," but I don't know anybody who could honestly say that they aren't still learning. As the one who trains our new employees and picks out quite a bit of the equipment, I certainly appreciate having access to your magazine.

Jim Dean
WMLB Radio, AM1170
Cumming, Ga.

NAB short notice

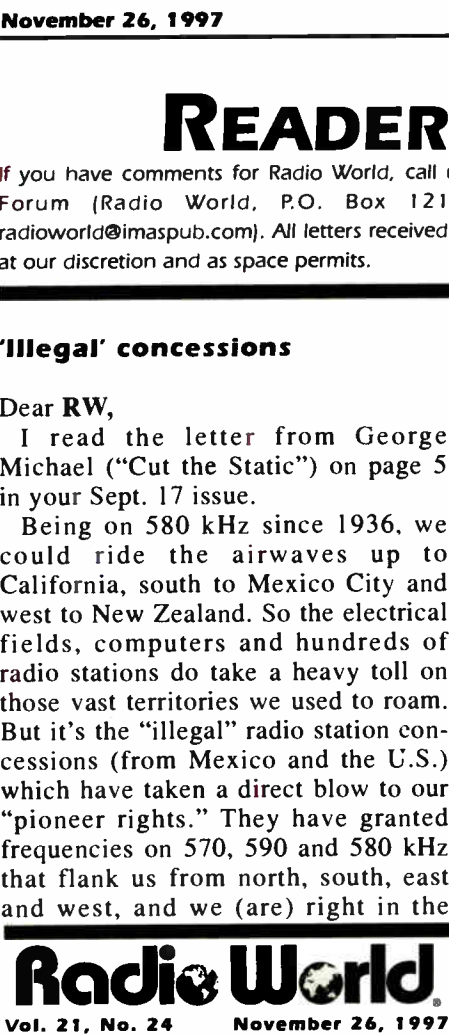
Dear RW,

Just a note to say how sorry Comrex

Correction

The Oct. 15 story "Nets Scrambled as World Mourned" misidentified two radio network employees. Jim Burns is with UPI and Jim Hickey is with ABC.

The Oct. 29 article "News Trends Emerge at RTNDA" included an incorrect product photo. The product shown is not the Comrex HotLine.



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December 10, 1997

GUEST COMMENTARY

A Tribute to Dwight Weller

by Thomas R. McGinley

WASHINGTON It happened all too quickly. A hard-working friend, a colleague in his prime of only 41 years, is gone.

We had just enjoyed Dwight Weller's company at an SBE picnic in August. He looked and sounded good, even though some of his closest friends knew his cancer had returned. Dwight persevered, continuing to work and not wanting others to know of his considerable pain or the nature of his terminal disease.

He attended the September Baltimore SBE meeting, where he had served almost as "chapter chairman for life," having led Chapter 46 in that capacity for at least the past eight years, publishing and sending out the chapter newsletter on time every month. But on

Oct. 24, Dwight lost his long-running battle with cancer, first diagnosed in 1989.

Dwight James Weller was a Baltimore radio engineering anchor for almost 20 years. He served as an FCC



Dwight Weller

field office engineer before joining the private sector as chief engineer of WFBR (FM), WBKZ, WLIF-AM-FM, WCBM(AM), and most recently of WWLG(AM). He also helped originate Baltimore Ravens NFL broadcasts. He ran a busy and successful remote broadcast equipment rental business, serving dozens of stations across the country.

Weller A/V Engineering Services was a well-

known and dependable resource on which many of us relied to pull us through those last-minute rush jobs, tasks which easily could have been disasters without him.

Almost everyone in the Baltimore

and Washington radio engineering community had a friend in Dwight Weller. He was affable and friendly with the staff at the radio stations for which he worked and the many he often visited. And he was always more than willing to help those at other stations, even competitors, by loaning equipment, giving advice and knowing whom to call during crunch time.

He literally saved WWLG(AM) from going dark four years ago. When new owners suddenly had no equipment and no studios from which to broadcast, Dwight set up temporary but functional air studios in the garage of his home to keep the station running until new facilities were built.

His crafty sense of humor and engaging voice-mail messages are legendary. "DeeWight, here" began each one, and while they often rambled a bit, we learned to listen to the entire message for fear of missing some late-breaking revelation or news item of interest to area radio folks.

Sober lesson

Dwight Weller only had 41 years to make friends and make a difference in the work he loved. While it is never easy to get over the loss of a friend at such a young age, I think there may be a valuable message in his passing he would want us to reflect upon.

Cancer strikes for many reasons. We know that early detection and appropriate treatment are the best ways to fight back. But perhaps of equal importance is taking good care of yourself.

Radio engineering is a customer service activity. Lots of people constantly want us to serve their needs first, whether it is fixing a car machine, getting a remote broadcast going, running out to put a dead transmitter back on the air, or whatever that blasted pager might be asking for.

We must trust the doctors to say what caused Dwight's cancer, but I think most of us would admit that we spend so much time and effort focusing on external problems, we tend to forget about our own health and welfare. We almost take it for granted, especially when we're younger. Working lots of extra hours, not getting adequate rest and proper exercise, and relying on a fast-food diet will take their toll on the human body.

Body resistance is under siege with this kind of lifestyle, and eventually we will likely get a wake-up call in one form or another.

Engineers are also a proud and independent lot. We prefer to give out help more than receive it. Admitting we have a problem we cannot fix is not easy and all too often we ignore it or work around it.

My 87-year-old mother gave me some sage advice many years ago. Single guys typically are the worst at taking good care of themselves. If you don't have a significant other who cares about you and for you, it might be a good idea to get one. And watch your diet carefully. Balanced meals with lots of fruits and vegetables will do a much better job keeping you going without

Engineer Weller Dies At 41

BALTIMORE Radio engineer Dwight Weller, 41, died on Oct. 24. He had cancer.

Weller was well known in Baltimore radio circles; colleagues praised him for his practical experience and knowledge about keeping a radio station on the air during adverse conditions.

Born Feb. 19, 1956, to Norris Clayton and Maude "Marge" Weller, Dwight Weller graduated from Dulaney Valley High School and the Johns Hopkins University. The list of radio stations with which he was affiliated included, among others, WFBR, WLIF, WCBM, WBAL, WWLG, WASA, WITH, WERQ, WWIN-AM-FM and WOLB. This year, he served as the radio broadcast engineer for the Baltimore Ravens football team.

Weller also managed his own company, Weller A/V, which provided broadcast equipment to radio stations.

Radio was a hobby as well as a profession. Weller, like his father, became an amateur or "ham" operator, with the call sign KB3LA. He operated a ham repeater station from the home of Roland Kraft, his friend and mentor.

At the FCC

For years, Weller worked in the Baltimore Field Office of the Federal Communications Commission. As an engineer, he conducted inspections of broadcast facilities; as an administrator, he supervised the examination process for the various commercial and amateur radio operator licenses which were required at that time by the FCC.

Many hams as well as commercial operators in the Baltimore area recalled taking their government license exams under his watchful eye. They also commented about his words of encouragement before they took those tests.

Among Weller's achievements was his service as the chairman of the Baltimore chapter of the Society of Broadcast Engineers. He held this annually elected position for more than eight years. Friends told **RW** that Weller provided the chapter with insightful leadership, and that his many contacts allowed him to bring in manufacturers of new technology and equipment as guest speakers for the chapter's monthly meetings.

Weller was a mentor and teacher for young radio engineers. Colleagues said he always knew which radio stations in town needed an engineer, and he would guide newcomers to the Baltimore area and help them find work.

Weller was a member of the Timonium Methodist Church. He is survived by his mother, Maude "Marge" Weller; two aunts, Charlotte Parr of Baltimore and Lois Blondell-Bennett of Phoenix; and a niece, E. Diane Arthur of New York.

The family asked that donations be made to the American Cancer Society. For information, contact Karl Goehring at (410) 360-2525 or (410) 332-8200.

See WELER, page 8 ►

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2	X		15:01:50	RADIO	00:14	AUDIO	RadioWAVE1 Jingle
3				CONGA	00:11	AUDIO	CONGA - Gloria Estefan
4				EURO	00:15	AUDIO	European Jingles
5	X		15:01:49	HARVEY	01:30	REC	Paul Harvey News
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—Mark Vandermeer, WHMP

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—Scott Scarborough, KTNN



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Football Game



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Remote at Software Etc.



WEKS-The Bear
Buggy Days Festival
Barnesville, Georgia



KTNN
Navajo Nation Fair at the
Arizona Resale Outlet



KBEE-Big Steve Kelly Show
Snowbird Ski Resort, Utah

Honorable Mention: **WKXX:** Jet Ski Contest; **WAIT:** End of Summer Tea Dance; **WNYG:** Soccer Game at Shea Stadium; **WXTK-Lambert & Giles:** Great Hall at the State House in Boston; **Joseph James Financial Services:** Making Sense of Your Money; **WMGX-Tim and Lori:** State of Maine Governor's Mansion; **KSCB:** Sears Remote; **WZZY:** Pontiac-Buick-GMC Sale.

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Broadcast Tower Business Booms

by Lynn Meadows

PALM BEACH COUNTY, Fla. The tower business is hot.

There are literally "pages" of advertisements for tower site companies in one of the trade magazines that Ron Gibbs, president of Lode-star Tower, reads. Three years ago, he said, there were maybe one and a half pages.

And why not? The business sounds

wonderful: Build a tower to hold antennas, sit back and collect rent from broadcasters and PCS and cellular companies. According to one source, in the top markets, space for a television antenna can lease for around \$10,000 a month.

Pete Starke is director of broadcast tower development for American Tower Systems, which currently is a subsidiary of American Radio Systems. It will be spun off into a standalone company once the CBS/ARS purchase closes next year (RW, Oct. 15). The company soon will have almost 1,000 tower sites.

Starke said many newcomers think the tower business is a "get rich quick" kind of scheme.

But towers have to be maintained, clients have to be kept happy, zoning issues plague almost anyone trying to build a tower and that does even start addressing the technical matters like radio frequency radiation and short spacing.

Starke said he thinks people getting

into the tower industry now are going to find it is a "tough row to hoe." The advantage is for those companies who are "already ramped up" who can walk into a city with the money and expertise necessary to build a tower.

Larry Wells, who founded Signal One five years ago with just a small, home-based operation, said he is glad he entered this industry when he did.

New RF safety standards became effective Oct. 15. Under the new regulations, licensees must make sure RF limits for uncontrolled environments — those where the public might go — are five times stricter than those for controlled environments.

Gibbs said Lodestar, which owns and manages more than 300 sites nationwide, is doing studies to make sure all of its towers comply with the new regulations.

"In reality, if you're at a co-located site, you can't manage everybody else's affairs," said Gibbs. "I believe that when all is said and done, it will be the responsibility of the site owner or manager to effectively measure and manage RF."

Towers most affected by the "uncontrolled" limits are those on mountaintops that hikers may unwittingly walk near and those on rooftops, said Gibbs.

"There are lots of people who go on rooftops who have no idea what RF is," said Gibbs. "I believe there is a very real possibility that if you want to refinance your building and you have lots of antennas on your roof, that the bank or lender may want an environmental study done on your roof to ensure that it is safe."

Starke said ATS also has its towers mapped out to know where the RF hot spots are. He said it is written into ATS leases that if someone has to work on the tower, the lessee may have to turn his system off.

Another "hot" topic for anyone in

the business of building towers is zoning. Starke said ATS has a company policy to avoid buying property in residential areas. He said it is much easier to get permission to build in industrial areas or areas with preexisting antenna farms.

Wells said Signal One, which will own about 100 sites by the end of the year, has had a lot of success with local zoning. He said his company tries to partner with the community.

In many locales, Gibbs said, the public perceives towers as ugly, a detriment to property values and a potential health risk. He told a story of three men who wanted to build three 400-foot towers in front of a bedroom community in Florida. So many people showed up to protest that the public hearing had to be moved to a school gym. The project died.

Gibbs said that kind of community reaction is not uncommon. He said industry should be more proactive with local government, and "co-location needs to be more of a mandate from the communities."

The Federal Communications Commission will soon close a Notice of Proposed Rulemaking on whether it should allow for preemption of local zoning laws in order for digital television and FM broadcasters to have an easier time building needed towers. Those in the industry are skeptical that will happen.

DTV

For years, people have been pondering what will happen to tower space when the conversion to digital television takes place. Already some FM stations that lease tower space have been told by their landlord television stations that they must move when the lease ends.

Co-location is one solution. It is not new, but the trend is to build heavier

towers that can hold more antennas, said Owen Ulmer, sales manager of Stainless Inc.

"It's not a stampede," he said, but it is a trend.

Profitable approaches

Starke stressed that it is a good idea wherever possible to build just one tower. It has less of an impact on the community, he said. Also, the Federal Aviation Administration and the FCC like it because they have only one tower to worry about.



Ron Gibbs

Tim Ryan, vice president of Central Tower, suggested that anyone building a new tower investigate whether rental income is viable in his or her area. He said he hears regularly from FM broadcasters who have been approached by cellular and/or PCS companies about using space at the bottom of their structure.

In many cases, said Ryan, if the structure will not support the additional antenna, the cellular/PCS company will pay for the upgrade. This is a great deal for everyone, he said, because the wireless company does not have to go through the headache of building a tower, and the FM station gets rent for space they would not use anyway.

Weller Remembered

► WELLER, continued from page 6

illness. If you smoke, make a commitment to quit and then do it. The benefits are much too obvious. And if you notice something different about one of your vital body functions, have a check up as soon as possible. Do not procrastinate. Pay attention to what your body is telling you. It could be a matter of life and death.

I think mom was right. No job or radio station is worth risking your health or your life.

Dwight will be missed by his many friends. He thoroughly enjoyed his work and the business of radio. If he could still visit with us and give some friendly advice, he would no doubt tell us to work hard and enjoy ourselves, but to also take good care of our health and well-being.

■■■

Thomas R. McGinley is chief engineer of WPGC-AM-FM and WARW(FM), and technical advisor to RW.

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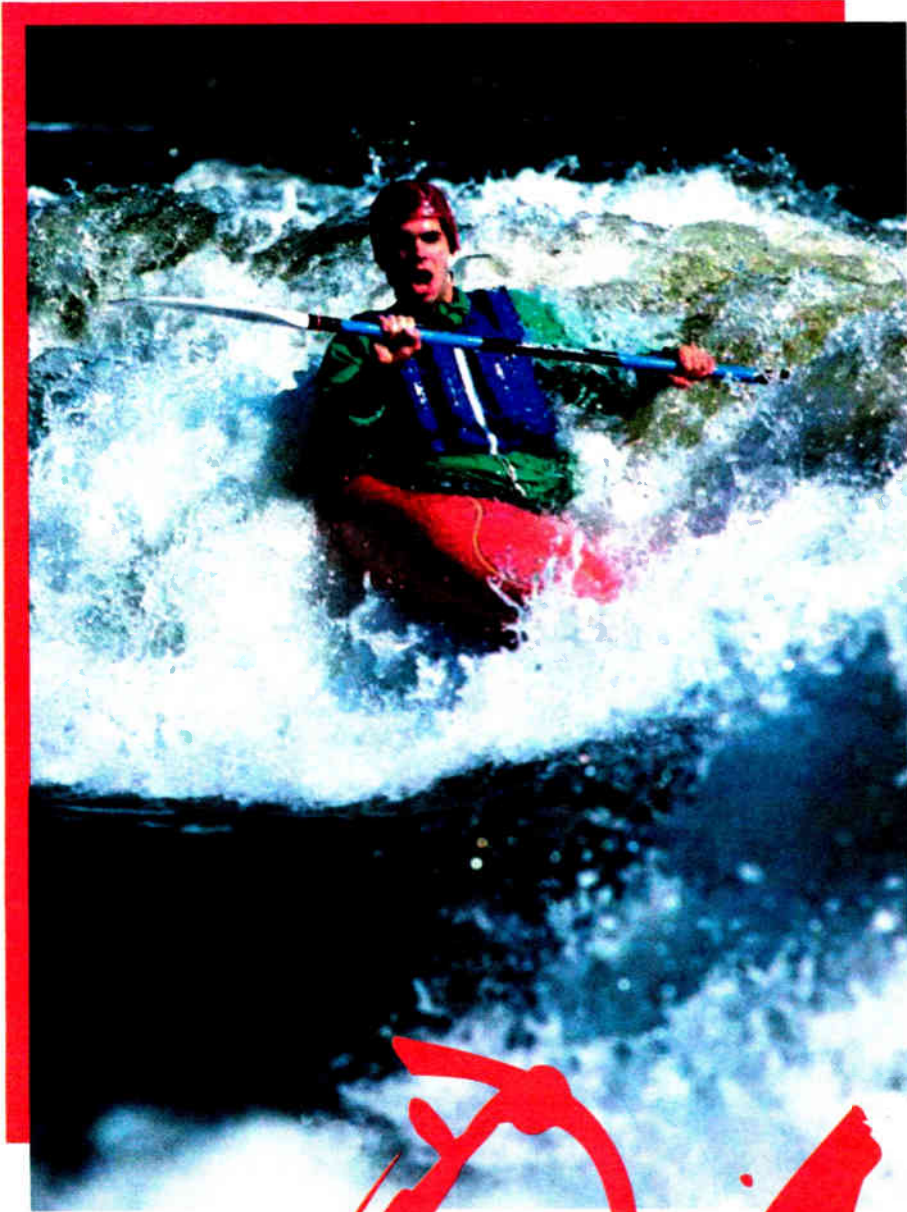
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DARE

TO GO THERE

Are They Engineers or Not?

by Lauren Rooney

In a case watched closely by the radio engineering community, the National Society of Professional Engineers and the Society of Broadcast Engineers are coming down on opposing sides of a legal debate in Illinois over the use of the title "engineer."

In June 1996, an individual complained to the state that Novell Computer was offering certified engineering training in Cook County. The state Department of Professional Regulation had sought to prevent Novell Computer from calling its graduates "Certified Novell Engineers." The regulation department issued a cease and desist order preventing Novell from using

the term "engineer" in connection with Novell's certification program.

The Cook County Circuit Court reversed the regulation department decision, saying Novell's "engineer" term did not do any harm or confuse the public. The regulation department appealed that decision to the state Supreme Court, where a decision was not expected for several months.

Arthur Schwartz, NSPE attorney, said the NSPE backs the Illinois regulation board. "We think the use of the engineer term by Novell in conjunction with their certification leads a person to believe these certified engineers are engaged in engineering. It misleads the public." NSPE would prefer that the graduates be called "techni-

cians." Schwartz said Novell is trying to "cash in on the reputation and recognition and professional status of engineers who are required to get an accredited engineering degree."

Craig Christensen, senior corporate counsel for Novell, disagreed that the "engineer" term is confusing to the public. "We have never seen data supporting those allegations, that anyone in the public has been confused or misled or called a CNE to build a building or a bridge," he said. Christensen said Novell understands that the engineering statutes imposed by states are in place to protect the public, "and Novell shares that intention, but we also feel we can all co-exist."

Craig Tupper, contracts manager for Novell education, said the company wants to keep the engineer title because of the equity it has in it. "We've spent millions of dollars on training programs to support individuals working on the certification," he said.

Novell has 1,500 authorized training schools worldwide. In the United States, authorized training also is offered at some colleges and high schools. Tupper said there are more than 120,000 CNEs worldwide, so the engineering definition debate is crucial. "You can't just change their names. There are careers at stake here, and there is a lot of recognition that goes with the CNE title."

Novell's attorney said the company also is involved in a legal dispute over use of the word in Nevada.

What about radio?

The SBE also has an interest in the Novell debate. "SBE is about to be involved in some litigation over the matter," said SBE attorney Chris Imlay. "SBE intends to intervene on the side of Novell."

Imlay said SBE was preparing a "friend of the court" filing on behalf of Novell. Imlay said the outcome of the dispute could spell trouble for people working as radio station engineers.

"If NSPE says you can't call yourself a software engineer, it's a very small step to turn around and say SBE members can't call themselves certified broadcast engineers because they're not registered in their state," Imlay said. "It's better to fight this battle with Novell now and get it settled rather than have to fight it alone down the road."

The SBE offers its own certification process.

Novell was unaware of SBE's support, but Christensen said they welcome it.

But does it really matter what you call the person who solves the buzz in the production room board, or fixes the latest glitch in the automation?

Troy Pennington, SBE national vice-president and chief engineer of Cox Radio in Birmingham, Ala., wants to keep the title he has worked so hard to get.

"I don't want someone mandating that I can't be called a broadcast engineer, because that's what I have professed to be for the past 30 years," he said. Pennington is a certified SBE engineer, and said he was called engineer even before getting that certification.

Who are you?

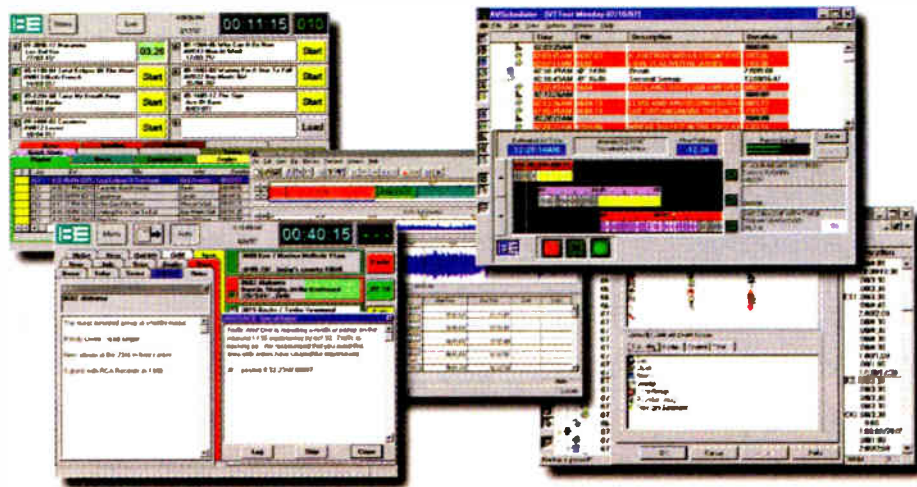
"The life of an engineer is exciting," he said with obvious pride. "You've got to have a passion for the profession. This is my life, this is all I've ever done and I love it so much I couldn't do anything else. And I would hate to give that up over one word."

The controversy over defining "engineer" is at least 15 years old. This is not the first time NSPE has acted to protect the term. A year and a half ago, the Ohio chapter of the NSPE pushed legally to restrict the title of "engineer" to Certified Professional Engineers. The argument ended without resolution, but similar fights continue in Vermont, Oregon and Michigan, according to Schwartz.

Pennington said that some eight years ago, the NSPE took a stab at restricting the term engineer, and that fellow broadcast engineers responded. "We had a lot of meetings about it. In fact, we formed a chapter of the National Association of Radio and TV Engineers here in Alabama because NARTI was one of the first organizations to recognize that there could be a problem for those



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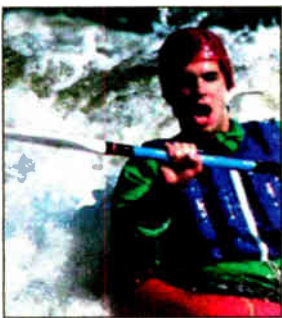
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Will LEOs Affect Your RPU?

► LEOs, continued from page 1

Also, in declared emergencies, many stations use their two-way channels for emergency public information as part of their public service commitment. All these uses could be adversely affected by sharing, broadcasters said.

"Radio's use of the RPU spectrum is simpler than TV's, but in some ways more critical," said Ken Brown, manager of RF allocations and licensing for ABC radio and TV. It is an important way for radio broadcasters to get programming on the air from remote locations without relying on other carriers, like cell phones or ISDN lines.

"In a radio news operation, RPU is

used for sending the cars out to cover stories, and getting the reports back to the station," said Brown.

If a radio station is using a delay system, it may also use RPU to send on-air staff their cues for live reports.

TV users tend to rely on this spectrum more for two-way communication rather than live programming, especially when a station or network is coordinating a live event with reporters and crews at several locations who can't see each other for visual cues.

The FCC reasoned that, because broadcasters don't use their RPU frequencies constantly, they may be able to share it with the Little LEOs. The com-

mission also said Little LEOs already share their allocated spectrum with a number of users, which limits their capacity to meet service demands.

Broadcasters said there are not enough RPU frequencies in many urban areas; they must carefully coordinate their use. Some stations use RPU for short reports, while others need a block of several hours, to broadcast a show from a local car dealer, for example.

Coordinating that use is tough enough, broadcasters said, without having to factor in Little LEOs.

Little LEO transmissions are short: only 450 milliseconds in the 148-149.9 MHz band. The FCC said the Little

LEOs may be able to search the spectrum for unused channels, send their data burst, and be off quickly.

One unknown is how many bursts would occur in a given period of time as Little LEOs search for unused channels.

The FCC asked for comments on the feasibility of sharing this spectrum.

Hard to coordinate

The greatest threat of interference to RPU operations, critics said, would be from Little LEO uplink operators who might accidentally aim their antennas toward RPU receivers.

Because the Little LEO satellites are moving, and not in fixed positions, "it makes the angle at which the uplink is pointing variable, and that makes it harder to coordinate with existing users," said David Wilson, NAB manager, technical regulatory affairs.

He said the FCC proposal is confusing because it suggests that Little LEOs should be co-primary users of this spectrum, yet the FCC proposed restrictions on Little LEO operations that would, in effect, give them secondary status. The NPRM proposes that Little LEOs be prohibited from causing interference to, or claiming protection from, RPU operations. It also proposed that Little LEOs not be allowed to impede the development and use of this spectrum by RPU users.

SBE engineers said there might be a way to coexist, but with significant, and possibly costly, engineering constraints to the Little LEOs.

"If they (Little LEOs) are using a large antenna and their uplink is not near a big city, that might be compatible," said SBE board member Dane Ericksen.

"The remote channels are not like studio-transmitter links, which are point-to-point so you know exactly where the path is and (can) easily calculate how to protect that path from interference," said Ericksen. "Most RPUs are mobile. The

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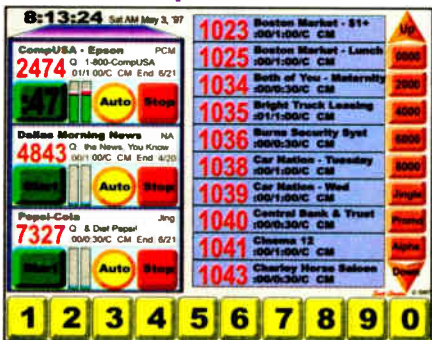
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As options, Spot Box can automatically load logs from traffic by diskette or LAN. You can record spots and edit phone calls at the right of the screen. Starting at \$5,000, Scott's Spot Box is so affordable many stations can even put two in an air studio for redundancy.

Better AXS

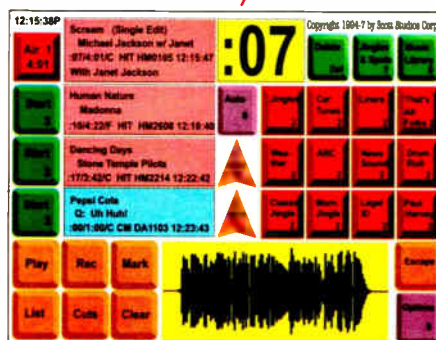


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SBE engineers said there might be a way to coexist, but with significant constraints to the Little LEOs.

location of the receiver (the station) is fixed, but the transmitter (the remote site) isn't. Depending where in the metro they (Little LEOs) set up their system, you have to protect the whole area.

"That's the problem I see if they're proposing to share frequencies in populated areas. How are they not going to cause interference with existing users and avoid receiving interference from broadcasters?"

Another potential problem in sharing this spectrum is presented by hilly terrain, where stations must use repeaters to communicate between their mobile units and the station. This is important particularly in earthquake-prone areas like California, where such wireless links are vital, said Richard Rudman, director of engineering for KFWB(AM) in Los Angeles.



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GUEST COMMENTARIES

IBOC: Two Takes on Digital Radio Effort

Lucent Sees Great Promise in an IBOC DAB Solution for the United States

by Suren Pai

The author is director of business development for Lucent Technologies Inc. in Murray Hill, N.J.

MURRAY HILL, N.J. The development of a working digital audio broadcasting (DAB) system offers radio broadcasters in the United States the greatest opportunity since the invention of radio itself. Innocently offering broadcasters a means of moving U.S. radio to its next plateau of audio performance, digital technology could unleash the latent potential of the wireless medium that we now think of as AM and FM radio.

For a listener, radio offers a "low-involvement" medium today. Television, the Internet, owned music, and interactive media engage the consumer far more, but the implementation of digital technology will likely close the gap for radio. Much improved audio quality alone will not do it. Listeners do care about good sound quality — they actually expect it — but beyond sound, many are seeking more from the radio, like innovative displays, more listening choice, and interactivity.

Creatively designed technology will lead to a new generation of services hitherto unknown, and creative broadcasters will find ways to offer consumers a new level of engagement this medium never experienced. This can only spell O-P-P-O-R-T-U-N-I-T-Y for every broadcaster in the United States.

Logical and reasonable

All this will likely arrive with a relatively modest price tag. Currently, Lucent Technologies and USA Digital Radio are jointly developing an In-Band On Channel (IBOC) system to migrate broadcasters and their listeners to the digital domain. Listeners do not care about the technology inside the box. For broadcasters, however, IBOC offers the most logical path:

- Use of the existing channel, which means no dealing with new spectrum;
- Backward and forward compatibility, which implies no risk of loss of listenership through the transition from analog to digital;
- Relatively small investment, compared to other approaches requiring entirely new transmission facilities

Because there is no need to allocate new frequency, IBOC does not disrupt normal broadcasting, using existing infrastructure for a new class of service. Like it or not, it makes little or no impact on the "Who's Who" of the world of radio broadcasting, and calls for a relatively low level of regulatory involvement.

The Lucent-USADR system currently under development presents a solution comprising two modes: a hybrid (analog-digital) mode and an all-digital mode. Both modes will be packaged and deployed as IBOC at both the transmit-

ting and receiving ends. The hybrid mode, really the bridge between today's analog and the (end-game) all-digital environment, allows broadcasters to simultaneously transmit their signal in analog and digital format on their existing channel. Thus, listeners with current analog radios will still catch the analog component, while those with the new generation of receivers will get the same programming with the enhanced quality levels and other benefits offered up by the digital medium.

This forward and backward compatibility also allows broadcasters flexibility in timing the transition of individual stations to digital. Listeners can upgrade to a new receiver based on their individual priorities and value judgment.

More significantly, there is no massive plant overhaul required for IBOC DAB. The design targets minimal investment on the part of broadcasters, but frankly, pinning down real numbers is a pointless exercise until system design is finalized through successful field tests planned for mid-1998. In any event, this upgrade path is far less involved than what television broadcasters now face in the United States.

Transmission rates

The Lucent-USADR IBOC system has consistently tested 96 kilobit-per-second (kbps) transmission rates for FM digital audio and 48 kbps rates for AM digital audio. The sound quality and strength are clearly greater than what these bands can deliver today, approaching CD quality for FM, and FM-like sound for AM. The technology that enables this quality difference is the Perceptual Audio Coder (PAC), a patented algorithm for low-bit rate audio compression developed by Bell Labs, Lucent's R&D organization. PAC's efficient audio

compression leaves more bandwidth to deal with transmission issues such as multipath, adjacent channel interference and edge-reception issues, all of which are being successfully addressed in the new design.

Data transmission is not a new topic for the radio industry. Beyond DAB, IBOC is expected to deliver data streams at greater speeds and with greater reliability than any other current wireless system. IBOC data streams, at up to 64 kbps, will enable information delivery for content providers in niche services and markets, to create greater synergies with existing Internet and over-the-air content. It is such capability that holds the promise of bringing innovation to the

See IBOC, page 16 ►



Suren Pai

Canada Is Moving Ahead With Digital Audio Broadcasting, and IBOC Is Not Part of Its Plans

by Gerald Chouinard

The author is director, radio broadcast technologies research, for the Communication Research Centre (CRC) in Canada.

OTTAWA On Oct. 21, Digital Audio Broadcasting moved another step closer to implementing regular digital radio services in Canada. At the Canadian Association of Broadcasters (CAB) convention in Toronto, a consortium of local broadcasters announced its application for a broadcasting license to operate three DAB transmitters carrying 15 private radio stations and one transmitter carrying the four public CBC networks (English and French, AM and FM) on the CN Tower in Toronto.

Purchase orders for four solid-state transmitters and a fully operational spare are being placed with selected equipment vendors. The equipment is to be installed and fully certified for start of operation by spring 1998. The DAB channels will be broadcast with a maximum radiated power of 8.3 kW (for five stereo pairs), to cover most of metropolitan Toronto.

At the same time, seven receiver manufacturers (Kenwood, Pioneer, Clarion, Panasonic, Grundig, Fujitsu Ten and Bosch/Blaupunkt) demonstrated commercial receivers at the CAB convention trade show, indicating that these receivers should be in the retail stores in Europe and in Canada by mid-1998.

A proven approach

With the Eureka-147 DAB system, broadcasters are confident they are dealing with proven technology that can deliver unparalleled digital radio services and serve as a suitable replacement for analog AM and FM radio. Initially, DAB will simulcast existing programming of participating stations, offering CD-quality sound and interference-free reception. In time, DAB will be augmented to provide a range of value-added services that will clearly establish radio on the Information Highway.

The specter of AM stereo is still vivid in the mind of many, and it is believed that minor improvements to current AM and FM services would not be good enough for the future of radio and to keep it competitive considering the plethora of digital audio and data delivery means that increasingly reach the consumer. This is likely to have a major effect on the manufacturers' decision to endorse a digital radio system.

The fact that 15 major receiver manufacturers demonstrated their first consumer-type DAB receivers at the Berlin Radio Fair last September indicates that they have few doubts about the ability of Eureka-147 DAB technology to serve the public effectively. And not one of the

attending manufacturers expressed faith that the long-term cost of AM/FM/DAB receivers will be substantially higher than analog-only models.

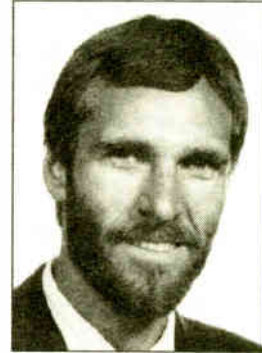
After Toronto, the roll-out of permanent DAB services in Canada will continue with the implementation of similar DAB operational sites in Montreal and Vancouver. Once in operation, DAB signals will reach 35 percent of Canada's population by the end of 1998. It is expected that by 2000, the 10 top radio markets in Canada will have made the transition to DAB, expanding coverage to about 50 percent of the Canadian population.

In Canada, all the regulatory steps have now been put in place for implementation of DAB:

- The Eureka-147 DAB system has been endorsed as a national emission standard;
- A national spectrum allotment plan was developed to accommodate all AM and FM broadcasters; and
- The DAB licensing framework is in place.

The development of digital radio in Canada has been a cooperative effort involving private and public broadcasters, government regulators as well as the Communication Research Centre (CRC). In 1990, prototype equipment of the DAB system developed under the EEC project Eureka-147 arrived in Canada for testing and demonstration, and the impressive performance of the system attracted the attention of both broadcasters and the public.

Canadian broadcasters quickly realized this system had the potential to renew their services for the next millennium. The system was tested and demonstrated more thoroughly in the ensuing years, resulting in the implementation of four experimental DAB stations in Toronto, Montreal, Ottawa and Vancouver, all of which have since been in operation. Further information can be found on the Ottawa experimental DAB site at the website www.drbcrc.doc.ca/ottawa



Gerald Chouinard

During the preparation for the ITU WARC-92, the technical studies to identify new spectrum for future satellite and terrestrial digital radio broadcasting focused on the L-Band (1.5 GHz). Broadcasters made an official request to the Canadian government for spectrum to be allocated in this frequency range for DAB. (It is worth noting that U.S. broadcasters have yet to make a similar formal request to the FCC for additional spectrum for the next generation of radio broadcasting.)

This requirement was included in the Canadian position to the WARC-92, and with the support of Australia and Brazil, Canada succeeded in convincing all countries around the world, with the exception of the United States, to set aside some 40 MHz for DAB. The implementation of DAB at 1.5 GHz is now being considered by many countries worldwide.

In early discussions, some doubts were expressed on the propagation performance of the 1.5 GHz band for DAB. To clarify the matter, CRC conducted technical studies and field measurements. As expected, it was

See CANADA, page 16 ►

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Two Viewpoints on the Future of DAB

► IBOC, continued from page 14
radio business, providing a gateway to white space opportunities beyond audio for creative and aggressive players.

It is fitting that Lucent Technologies and USA Digital Radio are working together to create a robust IBOC system. These two companies were pioneers in radio broadcast: Westinghouse's station KDKA in Pittsburgh beamed the first radio broadcast in America in 1920. Bell Labs and Western Electric created station WEAJ in 1922, the first successful commercial radio station, which later became the Red Network of NBC. Now, these two companies have banded together to bring about a breakthrough solution for

terrestrial radio in an era of converging technologies.

Radio broadcasters waiting to launch into the age of digital audio will probably get a lot more than they ever imagined. Consumers will also love what's in store for them. The future of U.S. radio will be here soon ... and it will sound great.

■ ■ ■

Suren Pai is director of business development at Lucent Technologies Inc.

Prior to joining Lucent, he worked as a management consultant with Booz-Allen & Hamilton, and with Digital Equipment Corp. leading the development and implementation of advanced automation technologies.

► CANADA, continued from page 14
found that increased signal fading occurs at L-Band, but the reduction in the level of industrial noise, as compared to that in the FM band, amply compensates for this increase in signal attenuation. With an appropriate low-noise RF front end at the receiver, the required emission power can be some 10 times less than in the case of FM. Also, indoor reception is as good at L-Band, because penetration through windows and doors and ducting inside buildings due to the shorter wavelength at L-Band amply compensates for the increased absorption through walls as compared to 100 MHz.

The endorsement of the Eureka-147 DAB technology in Canada was not undertaken

lightly. In addition to accumulating technical evidence on the performance of the Eureka-147 DAB system, the CRC conducted studies in 1992 on the potential of the current AM and FM bands to carry digital radio. The findings were disappointing. Transmitting CD-quality audio in the FM band was found to be possible only at the expense of clearing the band from analog FM. In the case of the AM band, the audio quality would have fallen short of being CD-quality audio even if the band had been emptied from analog transmissions. These conclusions were later confirmed and refined through the EIA/NRSC DAR laboratory and field tests, to which CRC actively participated.

IBOC also faces a very fundamental limitation from flat fading induced by channel multipath. A large body of empirical evidence has established that, in an urban environment, most of the signal echoes fall in the range of 0.5 μ sec and 10 μ sec. Considering the simple rule of thumb that a system can only compensate for echoes with delays larger than the reciprocal of the channel bandwidth (1/BW), the wideband EU-147 DAB system (BW= 1.536 MHz) can operate with echoes as close as 0.65 μ sec as compared to 10 μ sec in the case of a 100 kHz FM channel. For echoes closer than the limit set by the channel bandwidth, frequency selective fading becomes a flat fading condition over the whole channel and the missing signal cannot be recovered by any modulation in a static situation.

Canadian broadcasters have rejected an IBOC solution for DAB for several key reasons:

- IBOC cannot achieve high service availability (narrowband channel in multipath environment);
- IBOC quality would be below what consumers have been lead to expect from digital audio;
- IBOC cannot provide extensive auxiliary data capacity;
- IBOC would be limited by interference;
- Current AM and FM broadcasting would be affected;
- Because IBOC would default to analog AM and FM to secure the coverage, there is no clear path to a fully digital service; and
- IBOC is expressly designed to solve the current problem of spectrum shortage for DAB in the United States.

It is expected that IBOC would, at best, constitute a good second-class service compared to DAB at L-Band. While no country other than the United States has committed to IBOC technology, many have already adopted the wideband Eureka-147 DAB system, in both the VHF and L-Band. By the end of this year, more than 100 million people in Europe and 10 million in Canada will be within reach of DAB transmission, with tests continuing in Australia, India, China and Singapore.

■ ■ ■

Gerald Chouinard worked for five years for the Canadian Broadcasting Corp. in Montreal in the field of international technical relations. In 1981, he joined the Space Technology Division of the Communication Research Centre (CRC) in Ottawa.

In 1986, he joined the Broadcast Technologies Branch at CRC as manager, broadcast systems research. In 1992, he became director, radio broadcast technologies research. He has been involved in standards-setting both in Canada and abroad.



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World Radio History

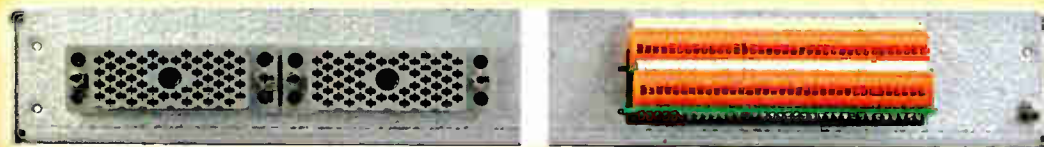
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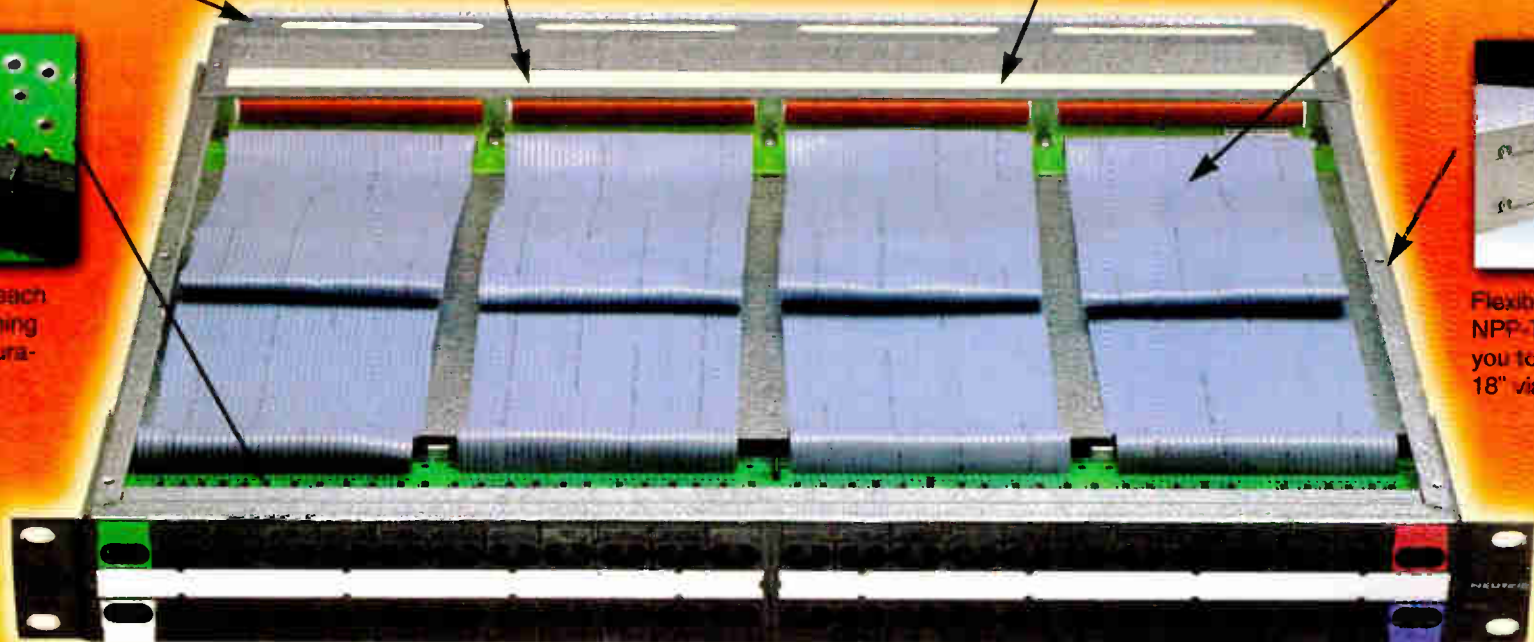
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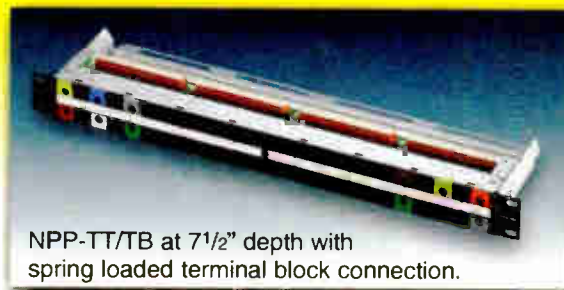
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World Radio History

Radio Seeks Its Place at Show

by Bob Rusk

BELLEVUE, Wash. Debates over floor space and exhibit hall design are not limited to big national conventions. At the recent Electronic Media Expo '97, a separate "radio row" on the exhibit floor was considered but rejected by organizers of the event in Seattle. Show Sales Manager and SBE Chapter 16 Executive Board member Earl Fleehart said the idea died because it would have geographically separated radio exhibitors from the TV side.

"That would not have been to radio's advantage," Fleehart said. "The people who want to see radio products will go to where they are. But radio products have a splash-over into television; obviously, all of the audio aspects of radio are in television."

The show's exhibits had an unmistakable TV bent; of more than 140 companies in the exhibit hall at Meydenbauer Center in suburban Seattle, the majority target television. But companies familiar to radio buyers were represented, among them Andrew, Broadcast Electronics, Broadcasters General Store, Broadcast Supply Worldwide, Computer Concepts, Continental Electronics, Dielectric, Gepco, Harris Corp., Mackie, Neutrik, Nigel B. Furniture, RF Specialties of Washington, Sony, SSL and Telex.

Broadcast Electronics Western Region RF & Digital Sales Manager Kevin

Haider had no complaints. "The traffic was pretty heavy," he said. "We (will) do quite a bit of business as a result of people we see here." Haider said the Seattle show has "the best traffic" of the five regional conferences he attends each year.

"The only shows bigger than this that I do are the NAB spring and fall conven-

coming for a day, one guy comes over for two hours. He goes back and another guy comes over for two hours. We don't get the one-on-one we used to have (with engineers), because they're too busy."

While consolidation may be having its effect, Don Winget, president of Broadcast Tools Inc., said, "When it comes to sheer numbers, 'mom and pop' operators still



Mountlake Terrace, Wash., high school students were in attendance at Electronic Media Expo '97. Advisor Ray Johnson is center front.

tions," Haider said. While Haider met engineers from stations in metropolitan Seattle, as well as other areas including smaller markets in nearby Oregon, he said he did not see as many from Portland, which is Oregon's largest market.

Cal Vandegrift, Harris studio sales specialist, said, "We used to get a good turnout from Portland." In this era of consolidation, he said, "The flavor of all these shows has changed. Instead of three guys

are the majority in the broadcasting business."

Winget said business at his Washington-based company has been good this year.

"We're up about 35 percent compared to 1996, and 1998 already looks like it will be even better."

BSW, another exhibitor, is headquartered in Tacoma, Wash. Special Projects Engineer Steve Sorkness said, "This show is right out our back door and gives us a great opportunity to see customers face-to-face."

The show was held in conjunction with the Washington State Association of Broadcasters.

Young attendees

Rubbing elbows with the engineers and other professionals on the exhibit floor were high-school students who plan to enter the radio business. Ray Johnson, an advisor to the Mountlake Terrace High School low-power station, said one reason he brought the students to the show was so they could look at software.

"I wanted to make this experience as real as possible," he said.

The Emerald City area will host not one, but two national broadcasting conventions in 1998 ... and both are in October: The NAB Radio Show, Oct. 14-17 at the downtown State Convention and Trade Center, and the SBE national meeting Oct. 28 and 29 at Meydenbauer Center in suburban Bellevue. The latter, which now rotates among sites each year, is to be held as part of the Chapter 16 event.

The timing of the events will make for some interesting choices for attendees and exhibitors. Should a radio

station send staff to both? Will one show diminish the other? Can exhibitors find Seattle storage space for their equipment, or will they ship their booths twice?



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World Radio History

Group Aims to Boost Web Profits

by Peter M. Zollman

HOUSTON A new non-profit group is hoping to help radio stations build revenue on their websites through retail sales. The Association of Internet and Radio began operations earlier this month.

Meanwhile, Channel 4000, the Internet site of WCCO-AM-TV in Minneapolis, claimed it is the first radio-

or TV-station website in the United States to be making money. The WCCO project began operating in the black in August, after less than 16 months in operation.

Taking to the AIR

The Association of Internet and Radio, which began operation Nov. 1, has developed relationships with several Internet retailers. By partnering them with radio stations, AIR believes the stations will

sell the retailers' products through the Internet and earn commissions.

"Radio stations for the most part view the Internet as an advertising-based model, much like they do radio. We want to introduce them to other avenues they can use to make the Internet generate revenue," said Maheesh Jain, the 24-year-old entrepreneur who is president of the Houston-based group, found at www.aironline.com

"A radio station could decide to create relationships with distributors and go into retail directly, but that's not their business," said Jain. "We've created the relationship, and we can help the retailer and the radio station work together."

Jain, who with his partner Fred Durham created the radio station dateline Meeting Place before selling it in May, 1996, said AIR had not signed any radio stations as members yet, "but we hope to have 500 stations by the end of next year."

Jain said radio stations do not have to develop relationships with each retailer, but can rely on AIR to develop the agreement, negotiate a higher commission rate than each station could get on a stand-alone basis, and handle all bookkeeping for the commissions.

Stations pay a membership fee of \$500 to \$1,000 per year to join AIR (group discounts are available), and receive commissions of up to 12 percent of the sales made by retailers through their sites. Jain

said AIR does not keep any of the commissions, but makes its revenue through station membership fees.

He said AIR has several long-term plans to work with radio station websites: to develop software tools to help stations study the demographics and locations of their Web listeners; to offer interactive games and digital postcards on members' sites; to provide a "partnering program" with stations' Internet Service Providers to help them with radio-specific needs; to offer customized streaming software; and to provide content in support of the transaction business that can tie with each station's individual website content.

"The thing we're trying to do with the stations is not necessarily to have them put up a banner ad for these advertisers," he said. "We're trying to have them develop the retail environment as content, to integrate it into their sites. Instead of just putting up a banner ad that says 'Click here to go to CD Universe,' for instance, when you post your top 10 songs for the week you can link them directly to CD Universe. Or when you have an article about an artist on your site, you can put up a link to a discography. You can integrate the content and advertising into the sites in various ways."

By aggregating dozens or hundreds of radio stations, Jain said, AIR also helps advertisers, because they do not have to manage a relationship with each station individually and send out small checks for commissions to each one. "We can handle that ourselves, and communicate

See WEB, page 23 ▶

Broadcasters Meet at Northwest Event

► SBE, continued from page 19
FM stations to build a tower to share, an arrangement that McKay said is becoming more common.

Consolidation has changed the way stations plan new facilities.

"It all comes down to budget, dollars per square foot," said Stuart Loberg, director of technology consulting for Sparling, a Seattle-based electrical engineering company. He addressed the topic of seamless integration of technologies in broadcast facilities.

"If you're working with new construction, you may have a budget that dictates how many square feet you (can) build in that facility. You have to look at technical spaces; they're different than administrative and support spaces." Just one of many differences, he said, is the need for thicker walls in technical spaces.

EAS model

The Washington state EAS plan has been lauded by some observers as a model for other states. Much of the credit for the plan goes to Clay Freinwald, chief engineer at five Entercom stations in Seattle. His efforts have earned him honors as SBE Engineer of the Year, and Washington State Broadcaster of the Year, an award that was presented during the banquet at the Chapter 16 convention.

Freinwald, co-chair of the Washington State Emergency Communications Committee, moderated an EAS update session, which included panelists from the FCC and Washington state. Freinwald said there had been no problems with EAS in Washington, except for the growing pains that broadcasters in other states have experienced. But unlike some states that have had weather-related and other emergencies, Washington had had no need to activate EAS yet.

But if such a need were to arise, Freinwald said he was confident radio stations throughout the state would be prepared to use it successfully. Among the important parts of Washington's plan is a Local Relay Network, which allows stations to monitor alerts simultaneously on a statewide repeater system (at 155.475 MHz).

The goal, said Freinwald, is that every station be its own "local primary" point. Also important, he said, is the state's reliance on local government emergency services departments,

instead of a designated LP-1 station, to originate alerts.

This eliminates potential problems encountered when broadcasters are left at the mercy of an LP station that may not be in automatic mode, or when the relay of certain information is left to the discretion of the operator on duty, program director or standing ownership policy.

"It's our job to try to make EAS as warm and friendly as we can," Freinwald said, "so the maximum number of broadcast stations are going to embrace it and put this (information) on their air."

Prevent fraud

At one of the sessions sponsored by the Washington State Association of Broadcasters, Bill Slantz, who formerly headed the broadcast music licensing department of the American Society of Composers, Authors & Publishers, discussed ways stations can save money on music licensing fees.

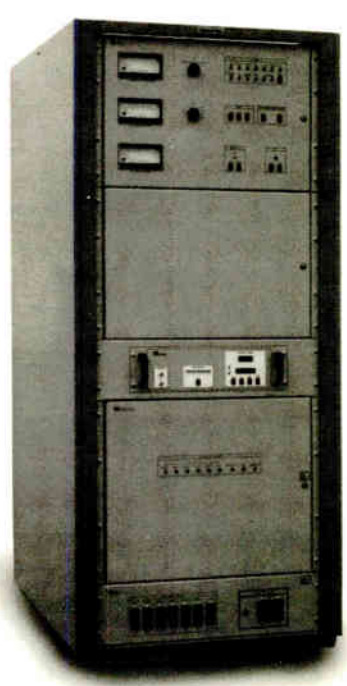
Slantz recommended that stations itemize deductions. He also said that "promotional revenue" expenses are deductible. In addition, news service deductions now include costs related to traffic, weather, business and agricultural reports.

Slantz, who now heads the New York-based W.G. Slantz Company, criticized ASCAP, Broadcast Music Inc. and SESAC, saying they are "out of touch" with the needs of radio stations.

Another important way to save money is to prevent fraud. Dr. Norman J. Gierlasinski, professor of accounting at Central Washington University, outlined steps owners and managers should implement. These include a written code of ethics, physical access controls and computer security.

Common forms of employee fraud, according to Gierlasinski, include theft of cash, false entries in accounts, and travel reimbursement abuse. Managers also should watch for fraudulent activity committed by outsiders, such as frauds perpetrated by competitors and false advertising by station clients.

Summing up the range of session topics at this year's convention, Cathie Valentine-McKinney, executive director of Puget Sound Radio Broadcasters Association, said of the convention, "It was a great way to network with people and find out what they're doing in other markets in the region."




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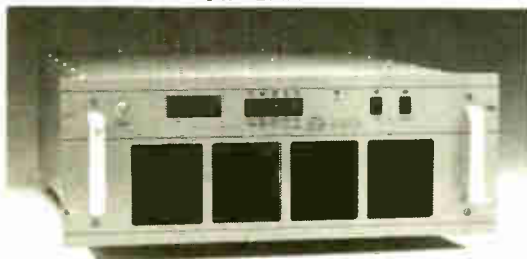


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READER SERVICE NO. 144

Looking for Profit on the 'Net

► WEB, continued from page 21 directly with the (stations') ISPs," said Jain. "For the stations, it keeps them from having to redevelop the same relationship over and over again. We've (also) been able to utilize group bargaining power to get higher commissions from our retailers than individual stations could get."

Channel 4000

At least one broadcaster already has found a way to make money on the Internet. The model of developing revenue streams beyond the traditional local banner advertiser is working for Channel 4000, the WCCO website.

Reid Johnson, CEO of the site and a former news director at the TV station, disclosed at the recent Radio and Television News Directors Association convention in New Orleans that the site began generating positive cash flow in August after less than 16 months in operation, and is returning some of that profit to its partners.

The WCCO site is unique because, unlike most radio and TV station sites, it is not owned by the stations but by an outside company, Internet Broadcasting System. WCCO, which is owned by CBS/Westinghouse, contracted in 1996 with IBS to operate the system, swapping on-air promotion in exchange for a piece of the profits. Several of the WCCO Web staffers work in the TV and radio station newsrooms, while others work at IBS offices in nearby Edina, Minn. Nine people work full time on Channel 4000, and another nine are dedicated to the site on a part-time basis.

Johnson said Internet Broadcasting System originally took the same revenue approach as most other sites, relying on banner advertising and directory advertising. Neither worked.

Now, he said, Channel 4000 has developed multiple revenue streams: advertising from national websites such as Amazon.com, Auto-by-tel and others; developing specific content areas, such as legal and health, and generating sponsorships from major local accounts; and providing Web services for outside clients, like advertising design and hosting.

In addition to WCCO, Channel 4000 is the primary website for the Minnesota Twins, the Minneapolis Zoo, a lifestyle magazine and a business magazine. Johnson said his company reaches exclusive arrangements with its partners, who provide content and promotion in exchange for a piece of the action.

The site began with 80,000 page views in March 1996, its first month; this August, it had almost 3 million. It reached 30,000 users in its first month; it now exceeds 300,000 unique viewers monthly.

Internet Broadcasting System has also launched Channel 2000 for KCBS-TV in Los Angeles, and is about to launch with KOIN-TV in Portland, Ore. The company also has three more sites in the works, and is negotiating with several broadcast groups. It will use a different business model outside Minnesota, with the broadcasters and IBS as equity partners.

Johnson said his company is working with a number of groups, including one with several stations in a single market that wants to develop an umbrella

Internet identity for all of them.

"There's no question there's going to be an outreach — we're seeing it already — on the part of radio stations to have an Internet component to their communications offering," he said. "What we are doing ... is to seek out ways our over-the-air partners, be they television or radio stations, can extend their relationships with their audience."

Internet alliances between radio, TV and newspapers in a given market are inevitable, Johnson said, because there is too much at stake to go it alone. "We think in major markets, for local content, that there's probably room for two or three major players." One of those, he

said, probably will be an alliance between one or more broadcasters and the local newspaper, and another will be AOL, Microsoft or a similar major on-line or software player.

Johnson said IBS and other broadcasters with websites will be jumping into the classified advertising business soon.

■ ■ ■

Peter M. Zollman (pzollman@aol.com) is a consultant in interactive services based in Altamonte Springs, Fla., and author of "Interactive News: State of the Art," published by the Radio and Television News Directors Foundation.

The retailers and Internet companies with which AIR has announced agreements include:

- CD Universe and Pentagon Records, retailers of CDs and videos;
- e-news.com, a magazine subscription site;
- Book Stacks, operators of books.com, a book retailer;
- Audible.com, a site for downloading spoken audio content such as "books on tape" and speeches;
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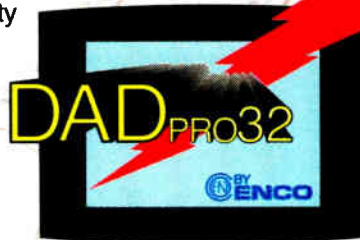
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NEWS MAKER

Hundt Looks Back on Historic Term

Outgoing FCC Chairman Reed Hundt was appointed by President Clinton in November 1993. In an interview with RW News Editor/Washington Bureau Chief Leslie Stimson before he left the commission, Hundt said he planned to work for the non-profit Aspen Institute and pen a novel. He also seemed to have lost interest in becoming commissioner of Major League Baseball, once he saw "that you have to do it at risk of frostbite."

RW: What would you say is your biggest accomplishment for radio during your term?

Hundt: The setback of hate radio. Wild, irrational talk radio, championed in particular by Rush Limbaugh and Oliver North, but others as well, with a virulent, anti-everything strain to it, really peaked in 1994. Fortunately the American people, I think led in large part by President Clinton, have repudiated this medium and it is on the decline. The president himself believes that Oklahoma City taught everyone a tragic and sobering lesson about hatred in America and caused us all to back off from this wildness that was featured on radio. I personally think that the president is modestly not mentioning the fact that it was his own reaction on TV and radio and the way he articulated the nation's concerns that has helped us all turn the dial and turn away from hate radio.

RW: You are saying programs like Rush and Ollie North are not as ...

Hundt: They're not as influential, not as significant, not as many people listen to them or take them seriously. (These shows) are filled with factual inaccuracies and wild crazy conspiracy theories and generally are designed to incite the American people to an intemperate and irrational attitude toward public policy and public affairs. These shows have been set back and I am very glad. It wasn't done through regulation, but rather was done with full respect for First Amendment values. It is not an FCC-driven issue. As far as the FCC is concerned, I would say that we have done at least one thing right, and we've got one thing really important to do that hasn't been done.

RW: What's that?

Hundt: We have forestalled the invasion of hard liquor ads onto the public property of the airwaves, both TV and radio. I don't think the public's medium that uses public property ought to be a way to publicly pitch products that are unlawful and illegal for kids, and are not welcome on radio and TV. Most radio station owners agree with this.

I personally have been sorry that my two colleagues, Commissioners Chong and Quello, have repeatedly failed to agree with me that the law clearly states that radio and TV use public property. Chong and Quello made some very articulate end-of-term speeches in which they completely ignore the fact that radio and TV licensees use public property. Chong gave a speech in which she said, "Why should broadcasters give away free time for political debate when airlines don't give away free seats?" She doesn't seem to take account of the fact that airlines do not receive free airplanes from the American taxpayers, and that's the reason why there ought to be some free time for public debate and that's

the reason why there's the public interest dimension to radio and TV.

Quello and Chong think that radio and TV are like toasters and don't care whether the bread is burned or not. They just don't see any public interest issue at all. Quello gives speeches in which he says that television serves the public by simply sending broadcasts to the public.

RW: The big networks and station groups say they will not run the ads, but some independent stations say they need the money, and will run them. Does it matter if a small station in Podunk runs a liquor ad?

Hundt: It matters to the people in Podunk. It matters to the kids in Podunk, and it especially matters to the parents of those kids. I have children aged 15, 12 and 8. I have absolutely no interest in having them get pitched hard liquor in the middle of TV and radio shows that are specifically and knowingly trying to appeal to kids.

RW: Does that mean you would be OK with a compromise, perhaps a safe harbor for running those kinds of ads?

Hundt: You cannot even get that proposal from the hard liquor industry. They have specifically rejected the notion of proposing anything like that.

RW: What do you think they should do about the ownership caps? Do you think the Telecommunications Act went too far?

Hundt: The next commission urgently needs to engage in a full-scale grassroots buildup from their inquiries into the meaning and significance of the astounding change in ownership in the radio industry. Twenty-five percent of all radio licenses have transferred in a year and a half. There has been no serious study by government of what Congress brought when it dropped all the barriers and allowed the greatest single leap forward in consolidation and concentration in the radio industry in our country's history. Here are some of the questions that ought to be looked into:

First, has this tremendous consolidation produced a concentration of ownership measured by advertising revenue in major markets? Do we now have single firms (in) a radio market in Chicago or Los Angeles or Washington that have 50 and 60 percent market share measured by revenue?

Second, has the tremendous consolidation that has occurred in the radio industry changed formats, or not? It was said by the new media magnates that there would be more diversity in formats if they were allowed to own more stations in a given town because they could counter-program.

Third, I have been told by people in the journalism business that consolidation has knocked pins out from under the whole idea of radio news. I don't know if that is true or not. I have been told that there has been a tremendous shrinkage in radio news. I am simply saying to you, it ought to be looked into.

RW: Say the next commission does study the effects of consolidation on ownership and finds too much concentration. If so, do you think the national ownership cap should be reinstated?

Hundt: I'll give you an example of what you could do if you found out that radio ownership was too problematic instead of positive. You could ask the Department of Justice to outline details of merger

guidelines for the radio industry, and have them in effect, have the force of regulation. I am not saying we should do it, but that you could do it.

RW: The Commerce Department said earlier this fall that minority ownership of radio and TV stations is stagnant and that



Former FCC Chairman Reed Hundt

black ownership in particular has dropped because of consolidation. Because Congress directed the FCC to get rid of the minority tax certificate program, is the FCC looking at a mechanism to replace that?

Hundt: This issue has been very important to Bill Kennard. You should expect Bill and the other commissioners to be involved in this. This is the first FCC in history that has had a majority composed of minorities (three), and we have two commissioners who are women. We have a continuing issue about women-owned franchises, whether there is enough and whether we have real equity there.

RW: Would you characterize your relationship with Jim Quello and Eddie Fritts?

Hundt: The relationship with Jim Quello has been very positive. Jim said that I

brought out the best in him and he hoped he taught me a thing or two. I absolutely agree with that. We disagree on every single bit of the public interest commitment. He doesn't think there is anything that radio or TV ought to do to serve the public that is any different than a car dealer or a Starbucks coffee shop. I think that radio and TV are unique media that have a special public interest obligation that stems from the fact that they were given public property and that they use it without paying the public anything at all. But I admire and respect him enormously. He is a war hero and a great public servant.

As far as Eddie Fritts is concerned, the world does not know, but Eddie and I know, that Eddie and I have had numerous private conversations in which we have seen things the same way and worked things out, and compromised on both sides to get results. His job, as a lobbyist for NAB, is to maximize the commercial dimension of radio and TV and to have it be as close to 100 percent commercial as possible. Our job is to fight back and have some percentage of radio and TV be reserved for the public interest. So that is why we're in contention, but it has always been civil, and Eddie has done a great job of trying to get that 100 percent. Frankly, he gets about 98 percent, so you would have to say Eddie is the winner.

RW: What kind of radio do you like?

Hundt: Jazz, NPR, WTOP. When I grew up in Falls Church, Va., I would take my transistor radio and tune it in on nights when the ozone layer was appropriately positioned and listen to WOWO out of Fort Wayne, Ind., so I could listen to the Pistons. Then, of course, we had the Washington Senators and the rule in my house was that I couldn't stay up week nights listening to the Washington Senators, so I had to put the radio under the covers, like all the other boys in America.

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NEWS MAKER

Chong: Telecom Act Got It Right

Rachelle Chong was appointed as FCC commissioner by President Clinton in May of 1994. The 37-year-old was the first Asian-American to serve on the FCC. As her term ended, she spoke to *RW* News Editor/Washington Bureau Chief Leslie Stinson about her accomplishments in office.

RW: What are your plans?

Chong: I am returning to San Francisco and I am going to take the rest of the year off to rest, because I am exhausted from the Telecom Act implementation. After that I will decide what to do when I grow up. That might include returning

to the practice of law or opening a telecommunications consulting group. I've also had nibbles about entering the business world, either with a company or on a board of directors.

RW: Given all the consolidation in radio since passage of the Telecommunications Act, do you think the relaxation of the ownership limits went too far?

Chong: The act pretty much got it right. I think the act was recognizing the new reality in the marketplace, which is that there is a tremendous amount of new competition for radio.

RW: A lot of small-market owners feel kind of bitter because they feel like they have been forced out of the business.

Chong: It sounds like they are resisting inevitable market change to me. I feel for the small markets. I don't mean to be flip. They clearly have an issue. ... You can either see the glass half full or half empty, and if you look at it half full, what I see is that it is going to give them some new opportunities. If they were to affiliate with a group, they would have more resources to approve their programming, they would have a more stability, they would have a chance to partner with other stations

and get, perhaps, more advertising.

RW: On cross ownership — that is one of the things that is still left hanging. Do you think that one company should be able to own all the media outlets in one town? Does that ban make sense anymore?

Chong: I think the current rules need to be updated. There is a tremendous



Former Commissioner Rachelle Chong

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amount of new competition in the whole media marketplace, including things like the Internet with the new Internet radio channels, with DARS coming in, with all types of new competition to television and video. I think that we have to re-look at the whole issue of cross ownership, of ownership, and make sure the rules still make sense in today's society. It is the top priority for radio for the next commission.

RW: On free time, should the Gore commission extend its reach to radio?

Chong: I had no reason to believe that they would just stop at television, because it is my understanding that they are addressing the whole concept of what public interest obligations ought to mean in a digital era, and I believe that when they talk about public interest obligations, they are talking about all broadcast licenses, not just television.

RW: How do you feel about free time for politicians?

Chong: Government mandating free time for politicians is wrong. I mean, why do we have public television and public radio stations? They are specifically there to air programming that will not be commercially viable, but have pro-social purposes, such as children's educational programming, such as public affairs programming. I don't understand why we have to force the commercial folks to do it. ... The commercial broadcasters do a lot of public affairs programming. They certainly don't ignore it, so anyway, from a First Amendment point of view, I think that mandating free time is very dangerous.

RW: Speaking of another First Amendment issue, liquor ads, you opposed treating liquor ads differently from beer and wine ...

Chong: They are both legal products when used by adults. ... I did take strong issue with those that suggested that the commission should begin a proceeding in which we would look at the question of whether we should mandate that broadcasters could not show hard liquor ads on television. ... The chairman had prepared

See CHONG, page 27 ►

► CHONG, continued from page 26 a draft item for our consideration, and it did not muster the necessary votes to be released by the commission. ... I didn't understand if the concern is drinking and driving and safety, that type of a thing, pro-social aspects of trying to limit alcohol intake, why you would restrict broadcasters from showing hard liquor ads only, but not beer and wine. ... Secondly ... I felt that the FTC had primary jurisdiction over those types of issues, not the FCC.

RW: What about restructuring the FCC? Several think tanks believe there should be fewer commissioners, that you would get more work done and things would go faster. Do you think that is true?

Chong: My office did some legal research about why Congress, in the 1934 (Communications) Act had chosen a multi-member commission. Apparently they felt that, because issues of free speech and free press were at stake, that it would be critical to have a balance of views so that not one political party would be able to push through a particular agenda at any one time. For that reason, I feel strongly that it should remain a multiple member commission. ... I have felt that many times, because we are

Government mandating free time for politicians is wrong. I mean, why do we have public television and public radio stations?

made up of so many diverse personalities, of various backgrounds and expertise, that it has been very helpful in bringing us together into a more moderate or sensible position. I would be very loathe to see the current commission fall below the current number of five commissioners.

RW: As a Star Trek fan, which series do you like best?

Chong: I kind of miss the original. For the time it was so revolutionary. The idea of a crew made up of a Russian, an Asian and women in key senior positions at that time was really phenomenal. The other part is that was an era when America was first getting into space exploration and I think that it presented a view of the future of humanity that I think was a very positive one. Anyway, I thought it was a great show. Sort of hokey now compared to all of the fancy special effects of Next Generation, Voyager and Deep Space, but I still kind of like it.

Members Frequently Disagreed

by Leslie Stimson

WASHINGTON There was no love lost between former FCC Chairman Reed Hundt and his fellow commissioners on certain issues. Two radio matters about which they spat openly toward the end of the Hundt reign were DARS and broadcast liquor ads.

Seeing a chance for the government to supplement its spectrum auction coffers, Hundt wanted to open the digital radio satellite auction to all companies. The other commissioners argued that this would be unfair to the original four applicants, who had waited several years for the chance to get a license.

Differed on liquor

As for radio and TV liquor ads, Hundt was adamant in his beliefs that such ads should be banned. After getting a vote delayed, Quello and Chong formed a formidable voting block against the chairman at a public meeting. Commissioner Susan Ness sat on the fence, favoring a study.

Commissioner James Quello said, "When it comes to controlling broadcasters' free speech, the past three years have been the most intensely regulated of all the 23 years that I have been at the FCC." He vented his frustrations in a speech at Michigan State University, where he has accepted a position as guest lecturer.

Quello said he respected Hundt's drive and litigation experience, but disagreed with Hundt's approach to "First Amendment values."

Though Hundt supported First Amendment rights in theory, Quello said, it was another story in practice. Here, he said, was a chairman who "proposes to quantify all public interest mandates; who plans to make broadcasters the universal donors for political campaigns; who is proposing to restrict broadcasters' rights with respect to advertising; who favors mandatory counter-advertising; and who would compel licensees to

program more PSAs, with the government having the role of casting director and script writer."

From his experience in broadcasting, Quello said, "The great majority of broadcasters make a commitment to community service over and above what the Communications Act requires ... because it is good business, not because of FCC regulations."

Quello said he failed to persuade Hundt to change his "over-regulatory fixation."

Commissioner Rachele Chong declined to answer a question from **RW** about her relationship with the chairman.



Commissioner James Quello

Who Is an Engineer?

► ENGINEER, continued from page 10 who were not degreed engineers."

Pennington said the issue slowly died down and his NARTI chapter eventually disbanded.

NARTI still has strong opinions against the NSPE stance on engineers. NARTI President Ray Throyer said he could not comment on the NSPE/Novell case because he was not familiar enough with it. But he opposes restricting use of the engineer title. Throyer said when he retires from his regular job next year, he plans to throw his energy into fighting for the right of those who keep radio and TV stations operating to call themselves engineers.

Schwartz said most states exempt broadcast engineers from licensing requirements. The title "engineer," he said, should only be given to those who have earned it by getting a four-year degree, acquiring years of experience, and taking sometimes-grueling state exams.

"The public has an understanding of what an engineer is and what it means to

be an engineer," he said. "When they seek the services of an engineer they should be getting someone who has studied the basic principles and scientific underpinnings of engineering."

Not everyone in broadcasting is upset about the debate. Tom Walker, vice-president of engineering for Patterson Broadcasting in Atlanta, said it just doesn't matter to him.

"A title is not that important to me; I'm not defined by a title," he said.

Walker holds an associate degree in electronic technology, plus an SBE certification and 27 years of experience. Walker said in some circles he is known not as a chief engineer, but rather a chief operator.

"The FCC made that change. The person responsible for licenses and technical stuff is now the chief operator, not chief engineer, even though everyone at the station may call him engineer," he said.

Walker feels that as long as he would not be restricted in performing his duties, he does not really care if he is called engineer, chief operator or technician.

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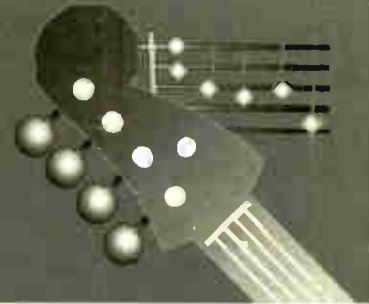
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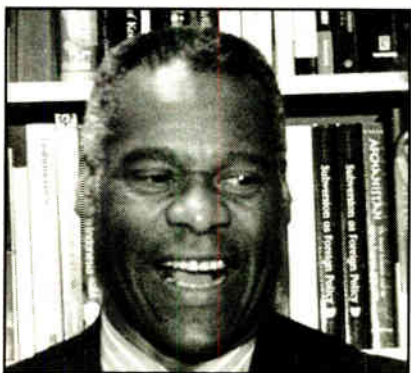
NEWS ANALYSIS

NPR/PRI Merger Talks Leave Wake

by S. D. Yana Davis

WASHINGTON National Public Radio and Public Radio International have flirted, and may flirt again. But at press time there was no merger in sight for the two giant public radio networks.

When PRI, based in Minneapolis, announced in late October that they had been approached by NPR, headquartered



NPR President/CEO Delano Lewis

in Washington, D.C., about the possibility of a merger, it sent shock waves through the public radio system. But the tremors then subsided.

Merger talks became serious early in the fall when the boards of directors of both NPR and PRI met to discuss the subject. But the talks stalled after the PRI board responded with a list of conditions, the most important of which was keeping its own organizational structure.

Judy Reese, NPR acting communications director, said the move to explore merger with PRI was logical.

"Essentially, our position is that NPR is looking to do two things: one, to serve the public radio system better; two, to serve our listeners better."

"The talk of merger is on hold for the moment," PRI President/CEO Steve Salyer said. Salyer said NPR's Lewis originally approached him about the two networks working together more closely "all the way up to the possibility of merger" last spring. The networks already cooperate on "America One," a joint venture that distributes programs from both to radio stations in Europe.

Even though talks appeared to be off as of early November, no doors were closed. "The (PRI) board said that if there is a way" to structure a merger mutually acceptable to both networks, they "were prepared to talk in the future," Salyer said.

Both Reese and Salyer said it was premature to speculate about how a merger would affect the employees and facilities of the two networks.

Sticking points

While NPR is a "membership" organization, owned by approximately 500 "member" or affiliate stations, PRI is a self-contained non-profit corporation offering programs to stations in return for payment of affiliation and program fees. NPR charges fees as well, but member stations have indirect control through election of the NPR board of directors and other mechanisms.

The PRI board and staff like the present structure. "Our model is not broken," Salyer said. While NPR

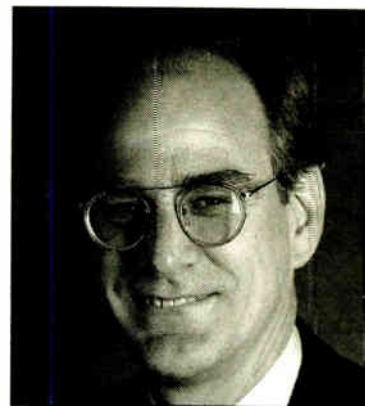
management might not be happy with their own corporate model at present, they probably are leery of trying to accommodate PRI on this issue. Two years ago, NPR President Delano Lewis floated the idea of moving NPR away from affiliate-owned status. The proposal provoked a storm of opposition from station managers at a public radio conference and was dropped.

But the differences between NPR and PRI do not end with the corporate ownership model. The two networks also take different approaches to program production, and the size of staff and budgets

reflect the differences dramatically.

The estimated 400 hours of non-duplicated weekly programming on PRI is produced mostly on contract by affiliate stations and independent producers. NPR, in contrast, produces most of its programs in-house. Among major offerings from NPR, only "Car Talk" and "Fresh Air" are not produced by NPR staff.

The older and larger of the two, NPR employs about 450 people in Washington and in several U.S. and foreign news bureaus, with a budget of about \$62 million this fiscal year. PRI, formed in 1982

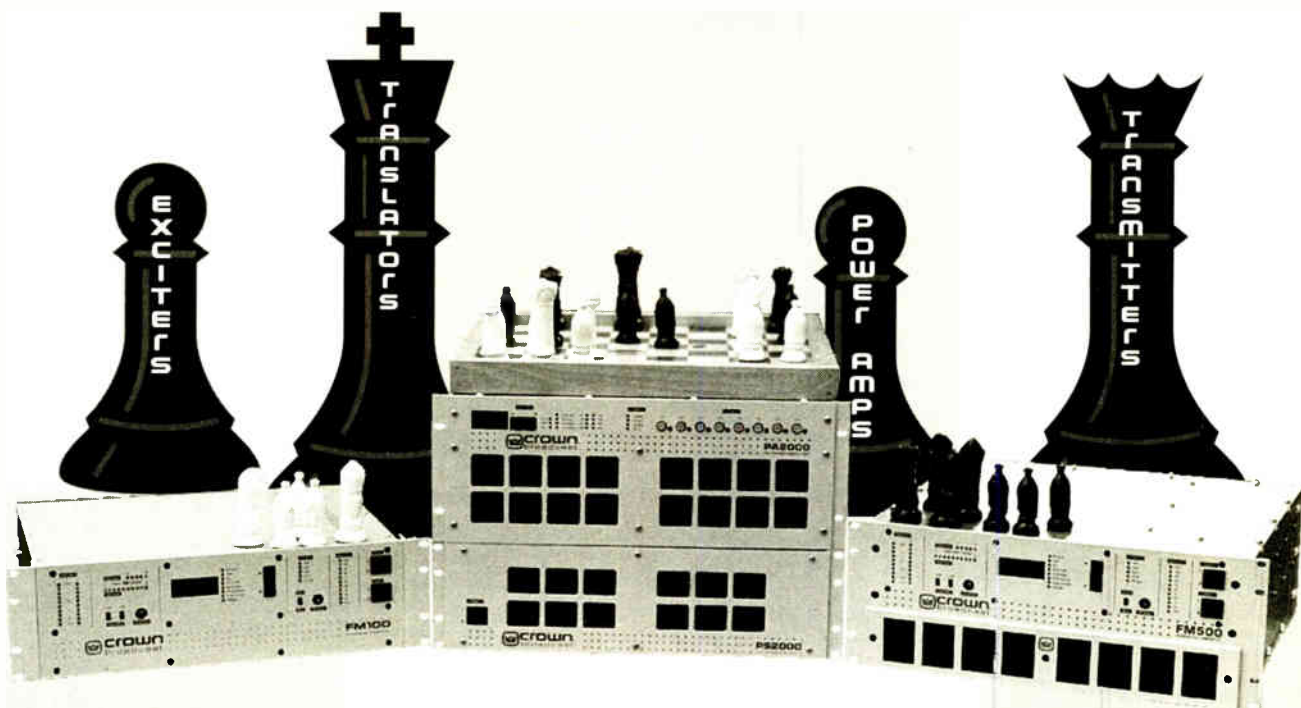


PRI President/CEO Stephen Salyer

and originally called American Public Radio, employs only 46 people directly and has a budget of \$18.5 million this year.

See MERGER, page 30 ►

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Tower Appraisal From the Ground

Troy Conner

In the past few months, a number of readers have asked me to offer suggestions on how to judge, from the ground, the condition of a tower. Knowing full well that many of you probably will never climb your tower, I have tried to think of all of the items I look at while on the ground during an inspection.

Somewhat surprisingly, we can glean a lot of important information from the comfort and safety of terra firma. It is possible to get a pretty good overall impression of tower condition from the ground. Often one can gauge how well (or if) the tower has been cared for over the years.

I will try to write for the reader who is new to a structure. Some readers may be new to the radio business, others may be starting a job at a new station or assuming additional job responsibilities. Busy contract engineers also are frequently confronted with unfamiliar towers.

Prepare for winter

For many, the first storms of winter have begun already. However, unless you reside in the far north or western mountains, there is still some time to take a close look at your tower. The fall actually is a good time to give your tower one last check prior to the onset of truly nasty weather.

Fall is an excellent time to mow, liberally spray weed killer and generally clean up around the base of the tower and guy anchors. Are the fences, gates and locks in good shape? Take a close look at any exposed concrete. Look for cracks, crumbling, chipping or flaking. Cracks should be "plastered" with grout, injected with silicon sealant or, if in truly poor condition, encased in new concrete.

What about required signage? You should have "RF Hazard Warning" signs, "Danger High Voltage" and "Hard Hat Area" signs. It

is better to have a hard hat than a hard head.

Speaking of hard hats, every station should invest a few bucks in a half-dozen hard hats. These should be kept near the tower for people to wear on the ground when anyone is aloft. Most tower crews have hard hats, but few carry enough to cover the heads of station folks watching or working beneath them.

Falling objects

Remember to wander around the base of the tower looking for any item that may have fallen from the structure. Ask the person who mows to keep an eye out and collect any debris discovered.

Let there (always) be light. An obvious item to check before the ice and snow begin is the tower lighting system. When was the last re-lamp? If it has been more than a year, you probably are pushing it. Most bulbs are rated for only 5,000 hours, which works out to a tad more than a year, given average use.

The number, type and location of light fixtures are based on the height of your structure. There are, however, only two basic fixtures common to any traditional red incandescent lighting system: the flashing beacon light(s) and the steady burning obstruction light(s).

The obstruction lights are about six inches tall and each have a single small bulb. Smaller towers usually have pairs of obstruction lights at each level; larger structures should have an OB light on each leg at each light level.

A beacon light is about three feet tall and has a pair of large 620 W bulbs. Using a decent pair of binoculars you should be able

to look at a beacon and tell if both bulbs are burning. The bulbs are positioned one over the other, so if either half of the beacon looks dimmer than the other, you likely have a burnt-out bulb.

Older beacons utilized clear outer glass and red colored glass inner screens or filters. If you see any white light coming out of a beacon you probably have a cracked inner filter. Often this can only be seen from a certain perspective. Eye your tower from several locations.

Readers with strobe lighting systems should look for any intermittent flashing, which usually indicates a failing bulb. Another problem I encounter with strobe-lit structures is with the daily cycle timing. Most strobes function at three different intensities depending on the time of day: "daylight," "twilight" and "night" modes. If the modes are out of cycle, you may be flashing too brightly at night, and not brightly enough during the day.

The easiest way I can spot this condition is in the presence of another strobe-lit tower. If your lights appear



significantly brighter than any nearby tower, you probably are out of sequence. Without the reference of another set of lights, spotting this condition can be a bit tricky.

However, if you have trouble spotting your strobe flashes on a sunny day, and the flashes seem mighty bright at night, then you need to check the mode timing. Another clue that you might have a problem is when you hear new complaints from folks living around your tower about "that @#\$\$ light" keeping people up at night.

Transit

The best instrument for taking a look at a tower from the ground is a good engineer's transit. Unfortunately, you probably don't have a transit handy. Or do you? You might well be able to trade a building contractor or surveyor some advertising time for a day of transit use. Either should also be able to check the basic plumb of the structure. A telescope or camera with a telephoto lens also will work if supported by a sturdy tripod.

Bear in mind that a ground-based inspection can never be considered comprehensive, and a climbing inspection of the structure is required to reveal any problems not visible from the ground. Having said that, keep looking up!

■■■

Troy Conner is the owner of Tower Maintenance Specialists. Reach him by phone at (704) 837-3526 or via fax at (704) 837-1015.

NPR/PRI Merger On the Horizon?

► MERGER, continued from page 29

Still another obstacle to merger between NPR and PRI would be the structure of affiliation and program fees charged to stations.

Both networks charge fees for affiliation and for each program or program package a station broadcasts, but use different methods to determine what they charge. PRI, with lower management costs, typically charges less both for affiliation and per program hour than NPR.

Escalating affiliation and programs fees prompted a revolt early this decade by NPR affiliates, who forced the network to adopt a "lockdown" on costs. Would a merged NPR and PRI quickly move to take advantage of near-monopoly status by increasing fees charged to stations?

Station managers react

One public radio manager openly worried about the possibility of fee increases if a merger of PRI and NPR took place.

"If there are cost savings in (a merger), that would be great," said Roger Duvall, manager of Alabama Public Radio, which simulcasts on WUAL-FM Tuscaloosa, WQPR(FM) Muscle Shoals, and WAPR(FM) Selma/Montgomery.

"But how long would it be before there are additional (program and affiliation) fees in a monopoly situation?" Duvall said he would favor keeping the present NPR membership-owned

structure after any merger with PRI to ensure that stations retain their present level of input and control of the system.

Another station manager was positive about the possibility of a merger.

Judy Jankowski, president of Pacific Public Radio and general manager at KLON(FM) Long Beach, Calif., pointed to potential benefits of having "single-source" station services and lobbying efforts, as well as potential program cost savings to the stations as reasons she welcomed merger talks. She also thought a merger would free up foundation grant money so that more would be available to stations such as hers, which also syndicate programs.

But a manager in the Midwest was not keen on the idea. "With all the media consolidation going on today, it's probably wishful thinking on the part of many that PRI and NPR should merge," said Tom Hunt, director of CMU Public Radio, Mt. Pleasant, Mich. CMU operates five stations in central and northern Michigan.

"I, for one, don't believe that the commercial consolidations are helping American radio one bit ... and I don't see the advantages of a merger between PRI and NPR. Certainly, a merger between the two organizations will not make NPR more user-friendly for stations," Hunt said.

■■■

S. D. Yana Davis is a freelance writer and marketing consultant in Knoxville, Tenn.



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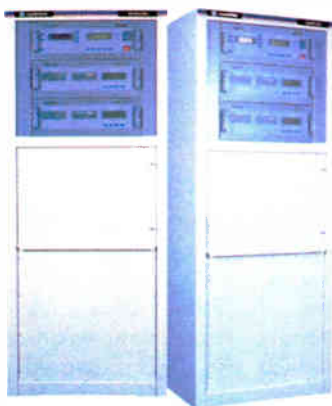
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Chicago Museum Is Radio Beacon

Alan Haber

In the Chicago Cultural Center, a state-of-the-art building located at the intersection of Michigan Avenue and Washington Street in the Windy City, a repository for radio's past also shines a light on a hopeful future.

Housing more than 50,000 hours of radio broadcasts, 10,000 television programs and



Bruce DuMont

9,000 TV commercials, the Museum of Broadcast Communications has been the home of the Radio Hall of Fame since 1991, when it took over the reins from the Emerson Radio Corp. The museum is open daily and admission is free.

Live broadcast

The 1997 Hall of Fame induction ceremony, sponsored by Sears and broadcast live in 38 cities on Oct. 19, was a regal affair populated with black ties, shiny shoes and radio royalty including personalities, radio fans and a good number of industryites in town for the Radio Advertising Bureau Board of Directors meeting.

A working radio studio located within the Lynne "Angel" Harvey Radio Center is but one of the attractions of the 15,000-plus square foot monument to radio's best. Radio historian Chuck Schaden, vice president of the museum, broadcasts his "Those Were the Days" program from here; museum founder and President Bruce DuMont airs the nationally syndicated political talk-fest "Beyond the Beltway" from here as well.

The museum's doors opened in 1987



Important Info

WHAT: The Museum of Broadcast Communications

ADDRESS: Chicago Cultural Center, Michigan Ave. at Washington St. Chicago, IL 60602-3407

PHONE: (312) 629-6000

HOURS: Mon. to Sat.: 10 to 4:30
Sun.: Noon to 5

ADMISSION: Free

TO ARRANGE REMOTES from the Hall of Fame studio: Ask for Heather Augustyn at the museum, (312) 629-6019

in the original Chicago South Loop location. DuMont, nephew of television pioneer Allen B. DuMont, is serious about keeping broadcasting's legacy alive. He busily promotes the mission of the museum and tackles its challenges with zeal.

"The greatest challenge of anyone in the not-for-profit sector is to solidify and stabilize the funding base," he said. "Because of the significant changes in the radio business in the last (couple) of years, there is still some question as to whether or not the new entities — the combined powers of radio — feel they have any responsibility to preserve the medium's history and to support a repository that celebrates that history and also

here that every day from 11:30 a.m. to 1:30 p.m. such programs are played in the Radio Hall of Fame studio; visitors — kids and adults alike — can sit at tables and eat lunch to the programming from radio's glorious past.

Visitors can experience a variety of Hall of Fame-fueled programming: "All Things Considered," Casey Kasem airchecks and other interesting audio bits blare out of a radio in half of a 1996 Saturn automobile.

Even as visitors soak up highlights from radio's past, the hunt for programming goes on. So does the broadcasting of shows from the Hall of Fame studio, used by radio stations from around the country.



The 1997 Radio Hall of Fame inductees: (left to right) Peter Altschuler, Lynne 'Angel' Harvey, Gordon Hinkley, Bruce DuMont, Tippy Conrad (wife of the late William Conrad) and Karl Haas

serves as an inspiration to future broadcasters."

History lesson

"As the oldest mass medium," DuMont said, "and certainly the first electronic mass medium ... radio is long overdue in celebrating, focusing (and) chronicling ... its own history." Witness the yearly Radio Hall of Fame induction ceremonies.

Chronicling and making available to the public the rich history of radio comes with a price: The need for funding is constant. DuMont said fund raising is a challenge. The museum taps several sources, including foundations, corporations and individuals such as the Chicago Community Trust, the Sara Lee Corporation, Tribune Broadcasting, Paul and Lynne "Angel" Harvey and the Kraft Foods Foundation. In 1997, the museum accepted a one-year grant from the Illinois Department of Commerce and Community Affairs for the development of the Radio Hall of Fame.

The museum centerpiece is a collection of radio programming, the bulk of which has come from Schaden's private collection. Since the museum took ownership of the Hall of Fame, its staff has been aggressively pursuing the acquisition of programs featuring inductees. Because storage space is at a premium, other programs offered to the museum sometimes are rejected.

Programming generally comes to the museum on reel-to-reel tapes. Programs are audited by radio archivist Michael Cervone and transferred to cassette or digital audio tape. All radio dubbing is done in-house (conversely, television dubbing is done out of house).

Jack Benny is hot at the museum; so is the radio version of "Dragnet." Fibber McGee and Molly are popular; so are the Lone Ranger, quiz shows, Rush Limbaugh, NPR's "All Things Considered" and Garrison Keillor. Vintage radio is so popular

Museum visitors can learn a bit about radio too, interactive-style, by coming on various Tuesdays and putting together a 12-minute DJ demo tape, complete with jingles, weather and news beds. Chicago oldies giant WJMK(FM) helps the museum with this project.

Contemporary medium

Work also continues on the museum's Internet website. "We feel that we have to be where the future is," DuMont said, "and that is certainly one of the futures that we're a part of."

The museum gets a good response from the site, DuMont said. He anticipates a greater presence on the Internet so that the Radio Hall of Fame can be enjoyed by people who live beyond Chicago.

DuMont is focused on the sense of history portrayed at the museum. "I think a sense of radio history is important," he said, "not only to those listeners who come to visit the Radio Hall of Fame. It is even more important to those who work in radio and who are in ... decision-making positions."

Thanks to the Radio Hall of Fame, there is a lot to be learned about "how to expand the creative walls of contemporary radio," he said. "You can expand the boundaries of radio considerably. I think that's a lesson that can be learned by listening to programs in the past."

Clearly, DuMont and the museum are serious about radio. "I believe that the single most important ingredient of radio is ... the human voice," he said. "Because on the receiving end of those radio signals are individuals, many of whom are seeking companionship and friendship. Nothing is as powerful as the human voice."

Alan Haber is editor of Tuned In magazine. This is one in a series of occasional articles in RW about museums involving broadcasting.

Radio Hall of Fame Lights Up Chicago

As Hollywood-style lights illuminated the length of the beautiful, old-fashioned Sidney R. Yates Gallery in the Chicago Cultural Center and a hopping band blew out a variety of toe-tapping musical cues, host (and past Radio Hall of Fame inductee) Casey Kasem kept things moving during the 1997 Radio Hall of Fame induction ceremony.

On Oct. 19, five radio luminaries made their way into the Hall of Fame: the late actor William Conrad, who

Five radio luminaries made their way into the Hall of Fame.

arguably made his most lasting mark on radio during his nine-year stint on "Gunsmoke"; Karl Haas, host of the syndicated classical music program "Adventures in Good Music"; Lynne "Angel" Harvey, producer of "Paul Harvey News" on the ABC Radio Network; Gordon Hinkley, a Wisconsin radio luminary for nearly 50 years; and Murray Kaufman, better known as Murray the K, one of the most famous music radio DJs.

Bruce DuMont, founder and president of the Museum of Broadcast Communications, said he was thrilled with how the evening turned out. "It's been another great year for the Radio Hall of Fame," he said, adding that he hoped the broadcast of the festivities would be beneficial to all listeners.

"For those who want careers in radio," he said, "we hope that (the broadcast) gives them something to aspire to. ... I think the breadth of what one can hear on radio is something we want to reinforce."

Haas said he was humble about being inducted. "I don't know why I have to get an award for being able to do what I love doing," he said. "It's wonderful."

Kaufman's son, Peter Altschuler, said his father and "people like Wolfman Jack were unique in their time. They did not have classical radio voices. What they did have was impeccable taste ... they had an ear for what their listeners wanted to hear."

Harvey said the evening was exciting for her and her husband Paul. "I feel that I'm representing all of us who work behind the scenes," she said. "It's good to know that other people are realizing we're there."

Paul Harvey said he felt "intimately, personally very proud" of his wife.

Altschuler said that "in the company of the people tonight, (Murray the K) really would be astounded that he had come to the point of being not someone who made history but become a part of it."

— Alan Haber



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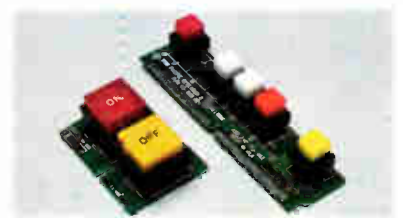
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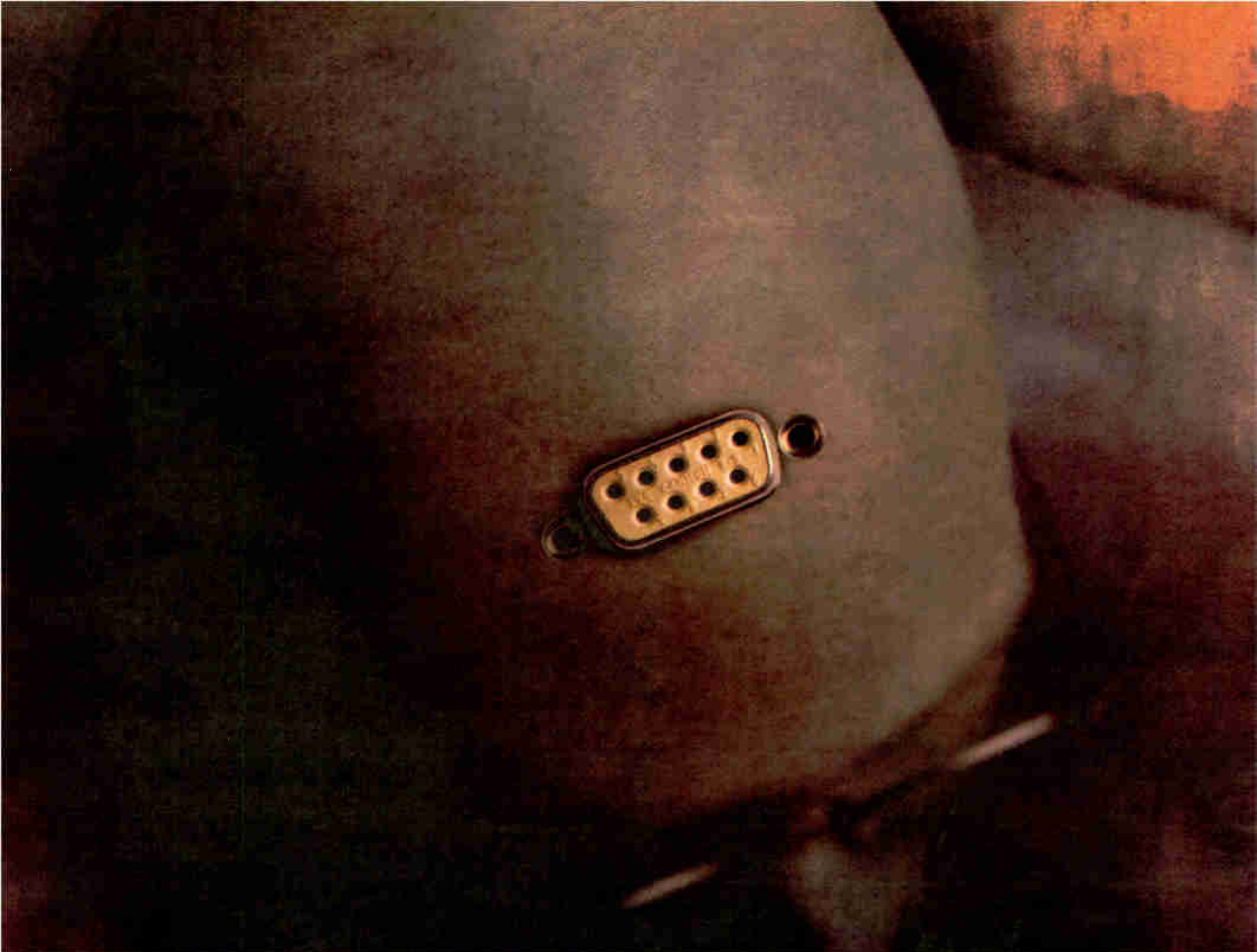


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Radio World, November 26, 1997

This Old Transmitter Blows a Fuse

John Bisset

Jim Graham, chief engineer at WMYI(FM) in Greenville, S.C., e-mailed an interesting story about an old Gates FM20H transmitter he used as a backup. Earlier this year the unit underwent periodic maintenance. The unit was turned back on, but upon receiving the PLATE-ON command it began to blow the IPA high voltage fuses F6 and F7. After two days of troubleshooting, replacing high-voltage wire and bypass capacitors

course, will tell if this cured the problem, but so far, so good. Jim Graham can be reached at (864) 235-1025.

Finding replacement parts for older equipment can be a challenge. In the Aug. 20 RW, Steve Tuzeneu was searching for audio taper pots for a vintage console. Gordon Schaffer, service technician at Projection Presentation Technology in San Francisco, has replaced audio taper pots with

shunted linear ones successfully. To create a pseudo-audio taper from a linear pot, a shunt resistance is added from the wiper to the signal ground. The value of the shunt is 0.068 times the value of the linear pot.

For example, a 100 K pot would be shunted with 6,800 ohms. So as to not load down the output stage when running the pot wide open, one needs to start with a rather high-valued linear pot. One side benefit to this substitution is that the dual linear pots track much better than audio taper duals.

Reach Gordon on line at ggschaffer@juno.com

Well, the votes are in, and our "Scuba Tank Filled With Nitrogen" tip has garnered the largest

reader response, surpassing that crackling RPU receiver problem and the Gates FM20 with the low power output. Gene Byrams e-mailed a comment in which he circumvented the dive shop. He uses a scuba tank filled with nitrogen to run air tools and for blowout purposes. Because Gene does not dive, he's had no problem getting his local welding shop to fill the tank, because it is clearly marked "NITROGEN."

Gene adds that the air we breathe is nearly 80 percent nitrogen, so any airflow through the transmitter room minimizes the chances you will get into trouble. In the case of a small, unventilated transmitter room, if the oxygen is depleted, you will feel dizzy and hopefully step outside for some fresh air.

Armand Girard is a certified diver. He's been diving since 1982.

Girard wrote to clarify that gas provided by a dive shop is air, not pure oxygen. Some shops may offer a gas mixture called Nitrox, which is composed of a higher percentage of oxygen and corresponding reduction of nitrogen. Nitrox

has no real benefit for cleaning out transmitters, but does allow divers longer down time, among other things.

Bob Schroeder, WA2JZF, is the acting communications officer for the New Jersey State Police Office of Emergency

some fool putting a finger, hand or some other part of the body against the nozzle, inducing an air embolism into the bloodstream and resulting in a rather painful death. Certainly some serious considerations.

Shown, left, are two more good mail-order sources for parts. These are provided by Harry Sonnheim, engineer at Clear Channel's WHAS(AM). Add them to your *Workbench* business contact card file.

If you have a collection of non-broadcast vendors or suppliers of unique equipment, share them with your fellow engineers. Fax your nuggets to (703) 764-0751, or send them to *Workbench* via e-mail at wrbench@aol.com

Regarding the Tech America contact, Harry points out that this is a division of Tandy. I dropped by my local Radio Shack, and over in a corner of the store is the complete Tech America catalog. Take a few minutes to look it over; it has some really great items. You can get a Tech America catalog at your local Radio Shack. Order the parts yourself or have your local store order them for you. I think you'll be amazed at what your Radio Shack can provide through this Tech America division.

John Bisset is a principal with Multiphase, a technical services company. Reach him at (703) 323-7180. Printed submissions qualify for SBE recertification credit. Fax submissions to (703) 764-0751, or send them via e-mail to wrbench@aol.com

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(including a defective IPA tube socket) and checking the feedthrough insulators, both Jim and his associate Steve Turner were stumped.

They began to wonder if the front door on this box was hard-wired to the main chassis. Bingo! This specific transmitter used the door's hinge for connection back to the main chassis, so Jim and Steve hard-wired them together. The unit hasn't blown a fuse yet. Perhaps, with no ground reference for the IPA screen voltage divider, nearly 2 kV was being applied to the IPA screen.

Turner and Graham did not temporarily remove the ground wire to test it, to avoid damaging the IPA screen bypass caps. If you've ever replaced one of these IPA tube sockets, you can understand why. For the uninitiated, you have to lay upside down, contorting your body to see and reach the bolts and solder lugs. It ain't pretty!

In reviewing the station's maintenance records, Steve and Jim found that these fuses had been intermittently blowing for no reason for several years. Time, of

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Management. Bob offers an opposing opinion regarding the use of compressed gas, stating that he has been taught everywhere he has worked to vacuum the dirt, not blow it. Blowing not only creates a hurricane of dust but creates a risk that you will blow the dirt and debris into a previously clean place, where it can become lodged and induce a fault.

Bob offered another angle on this subject. There are OSHA regulations for air gun nozzles, and these regulations govern the amount of air that can emanate from a hand nozzle.

These regulations also include noise standards. Jet pressure that is too high can produce enough noise to damage one's hearing. There's also the risk of

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DRMS: America's Garage Sale

Paul Kaminski

Looking for some low-priced "handyman special" radio equipment? The Defense Reutilization and Marketing Service (DRMS), headquartered in Battle Creek, Mich., may have your number.

When the Defense Department (which includes the Army, Navy, Air Force, Marines and their reserve components) decides it no longer needs or cannot re-use an item, it does what many of us do when we find ourselves in such a situation: put it up for sale. The DRMS does just that in 44 states and 20 foreign countries, through local offices called Defense Reutilization and Marketing Offices (DRMOs).

At the local DRMO, literally thousands of items go on sale, from automobiles to air conditioners, clothing to computers and, sometimes, broadcast equipment. According to DRMS spokeswoman Joyce Davis, the organization sold more than \$138 million of usable property in 1996. That money went back to the U.S. Treasury, saving taxpayers money.

While the DRMOs usually sell property through auctions and spot bids, sometimes they will hold a sealed bid sale (in which bids can be transmitted via mail, fax or e-mail). Some DRMOs also offer retail sale of small items such as clothing, appliances, computers, office equipment, tools and furniture.

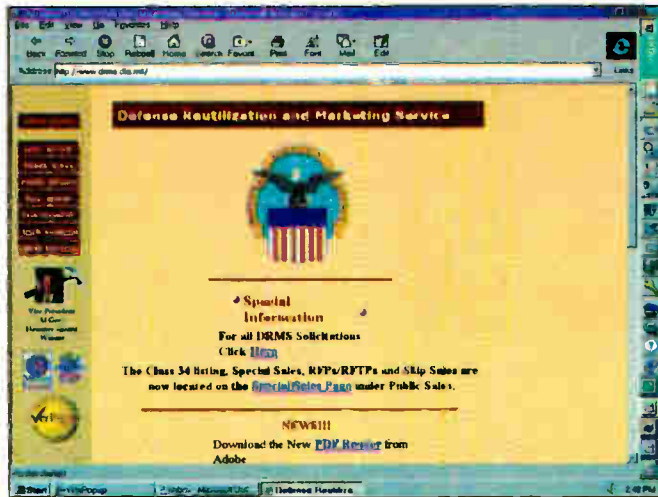
Note here: If you or your promotion director is looking for a used Hummer or old Jeep-style vehicle, you are out of luck. The military version of the Hummer (or Humvee) doesn't meet Department of Transportation requirements for an on-road vehicle. They are recycled back to the manufacturer for refurbishment and re-use. The Jeep-style vehicles are sold for scrap, because they don't meet DOT safety standards. You also won't find tanks, cannons or warplanes for sale.

To start, you might point your web browser to the DRMS website (<http://www.drms.dla.mil>). There, you will find a list of what is available around the world. Davis said the inventory literally changes daily. A further search will help you discover if the item you want is now for sale at auction or in a DRMO retail store, what condition the item is in, and where it is physically located.

Also on the website, you can find sale (auction) catalogs and the successful bidder's list for past auctions.

Any member of the public 18 years or older may participate in a DRMO auction or buy property from a DRMO retail store. Once you find the location of the DRMO nearest you, you might observe an auction in-person and, if you did not do so on line, ask to be put on the list for the next auction. You will need to register for the next auction in person. One caution here: If you decide to bid via fax or electronically, which is allowed in many cases, the bid will become the starting point for the in-person auction if it is high enough. It may also be the only bid on that item, but that is unlikely.

Local DRMOs will accept cash payments along with MasterCard, Visa, Discover, certified checks, travelers checks and money orders. The successful bidder has a specified amount of time in which to remove the property and pay for it. If a bidder doesn't pay for and pick up items at a local sale, he or she will be in default and could be barred from participating in future DRMS auctions.



You never know what you might find at a DRMO local sale. For example, at a September sale at the California Travis Air

Force Base DRMO, there was an item described as "Telephones, estimated weight 140 pounds." That lot included the key service unit and telephones for an electronic telephone system. Other lots of office equipment contained desktop computers, which on first glance, looked to be easily upgradable.

There were generators available, but they needed lots of work.

Some of the items were in good to excellent condition; others were probably better dismantled and recycled.

Irish Enjoy New Radio Museum

Maggi Taylor

Ireland can claim the first use of radio for both journalistic and commercial purposes, in 1898. The country also can boast the first radio broadcast during the 1916 Easter Rising, when news of the event was leaked to Fenian supporters in the United States by radio Morse code.

These historical events and others are celebrated in the new Irish Museum of Radio in Cork.

The early days

The core of the museum is located in the studio where Cork station 6CK began broadcasting in 1927. The studio has been brought back to life with the original furniture, microphones, gramophones, music stands and sounds and pictures of those early days of wireless.

The areas around the studio and control room house interactive exhibitions tracing the time when the wireless became part of the fabric of Irish life.

In an extensive interactive display of early radio sets, visitors can recreate the past by selecting a set and hearing snippets of programs from that era.

Artifacts include items from Cork 6CK, from Dublin 2RN, the forerunner of Radio Telefís Éireann (RTÉ), and from the then-high-power Athlone station that opened permanently in 1933.

The Irish Museum of Radio is the result of years of work by Paddy Clarke, RTÉ broadcasting historian, who collected equipment over the years. At his suggestion, a museum of the history of RTÉ opened in 1981 at its premises in Dublin, but it had to close a few years later due to a lack of space.

Thanks to the efforts of a Cork couple, Dairniudand and Mary Keneally, broadcasting returned to the unlikely setting of the former Cork City Gaol, where the original 6CK studio and transmitter were located.

Riches of Marconi

Having financed, restored and successfully operated Cork City Gaol as a visitor center, the Kenneallys identified the long-vacant radio studio as an area for development.

Paddy Clark made a particular study of Marconi, and included exhibits and pho-

tographs from Marconi's Irish stations at Rosslare, Crookhaven, Ballybunion, Clifden, Letterfrack and Malin.

In 1898, Marconi developed the first commercial use of wireless when he was asked by Lloyds of London to install an experimental wireless link between Ballycastle and Rathlin Island, a distance of about 7 miles, to improve the reporting of sea conditions for shipping.

The same year, Marconi was asked by The Daily Express and Evening Mail in Dublin to provide reports by wireless of yacht races in the Dun Laoghaire — then named Kingstown — Regatta.

Reports in Morse code were transmitted by wireless from a tug in the bay to the house of the harbormaster, and relayed by telephone to the newspapers, marking the first journalistic use of wireless.

There are also rare photographs of the Amalgamated Radio-Telegraph Co. Poulsen arc transmitter system station built at Knockroe, near Tralee in 1907.

Other treasures

The early trans-Atlantic cables, laid from 1858 to 1866, and the cable stations on Valentia Island and at Waterville on the Kerry coast, are illustrated with exhibits including cable samples, early Morse keys, mirror galvanometers and historic memorabilia.

An exciting bit of Irish history on display is the Morse key, used to leak news of the 1916 Easter Rising to the United States from a Valentia cable station.

It had been arranged by Austin Stack for Eugene Ring and his brother Timothy, who were at the Valentia cable station, to be informed when the Rising took place. News of the event was then conveyed to a Mrs. MacGowan, who was employed as a housekeeper/secretary by John Devoy, leader of the U.S.-based Irish independence organization Clann na Gael. The message read: "Mother operated on successfully today, signed Kathleen."

Equipment includes microphones dating from the opening of the Dublin and Cork stations. There is a Round-Sykes "meat safe" mic, Western-Electric stretched-diaphragm "push-pull" carbon and condenser microphones, a Marconi-Reisz carbon mic in its marble case, early STC moving-coil type microphones, ball-and-biscuit mics and the rare STC 4033

Look carefully before you make a bid.

If you are interested in purchasing government property through the DRMS, you can find out what you need to do to get started through their website. You can also call (800) 468-8289 to get the telephone number for the nearest DRMO and a free copy of the booklet "How to Buy Government Property." You can also call that number to be added to a catalog list. If you have more specific questions, you can call DRMS Customer Service at (888) 352-9333.

The DRMS can be a source for items you might need around your station. If you know what you are looking for and are willing to do a little homework, you could literally buy what you might need for pennies on the dollar.

■ ■ ■

Paul Kaminski is the news director for the Motor Sports Radio Network and host of its "Race-Talk" and "Radio-Road-Test" programs. His e-mail address is motorsportsradio@compuserve.com

steerable microphone.

The AXBT/Marconi microphone, a BBC design greatly influenced by the RCA ribbon microphone first demonstrated in Hollywood in 1931, is on display in various mountings, along with the later 4038B and the MIG10 moving-coil mic with its impressive Florentine bronze boom and stand.



President John F. Kennedy is pictured behind a Standard Telephone and Cable type 4017 moving-coil microphone in the museum.

Later mic development is demonstrated with a Neumann condenser microphone and improved steerable mics, right up to modern miniature microphones.

There is a crystal-set collection including Marconi and Millet sets, as well as a rare Grafton china set. Wireless accessories, including dry batteries and accumulators, are on display.

Throughout the museum are examples of vintage wireless receivers and a large collection of loudspeakers, including horn and diaphragm types. The early history of sound recording is represented with samples of disk cutters from 1936 and glass and metal disks through a range of tape recorders from the 1950s.

The project was launched formally in the restored studio in April of this year by RTÉ Director General Joe Barry, before his retirement that same month.

In 1927, the inaugural broadcast on 6CK was made from the same studio by fellow Corkman, then Minister for Posts and Telegraphs, J.J. Walsh.

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Zulu transfers digital audio data optically and has an independent power supply, protecting sensitive audio signals from computer-generated noise.

Zulu offers front-panel bi-color LED status lights that indicate signal level and clipping, and unbalanced quarter-inch jacks which are compatible with balanced TRS cables without an adapter. It and is enclosed in a 1/2-RU case. Zulu can be located in a rack away from the computer using optical cables as long as 33 feet.

For more information, contact Frontier Design Group in New Hampshire at (800) 928-3236; fax: (603) 448-6398, e-mail: info@FrontierDesign.com, visit the website: www.FrontierDesign.com or circle Reader Service 78.

HHB, SADiE Team Up

HHB Communications announced the new file capabilities of the Genex GX8000 high-bit, multi-track MO disk recorder and SADiE digital audio workstation.

The software marriage of the two product families is designed to increase the functional power of the Genex GX8000 and SADiE/Octavia digital audio workstations.

The new Genex Version 4 software and SADiE Version 3 software include the necessary crosslinks to handle 24-bit, 96 kHz digital audio. The data moves through a fast Wide-SCSI interface, providing all operations on both platforms for performance in real time. According to HHB Communications, there is no downtime waiting for file transfer.

For more information, contact HHB Communications in California at (310) 319-1111, fax: (310) 319-1311; e-mail: sales@hhbusa.com or circle Reader Service 222.

Digital Designs Studio Monitor

Digital Designs has new generations of its "b" series and "d" series studio monitors.



The third generation "b" series monitor, the M6b-FB, features mylar capacitors, high power coils, audioquest internal wire, strontium magnets and silver

solder and has been evaluated using electrochemical auditory perception systems. The M6b-FB monitor contains a 6.5-inch woofer and a 20 mm tweeter. The frequency response range is 45 Hz to 20 kHz, ± 2 dB, and the impedance and sensitivity is 4 ohms at 90 dB.

The DD161 "d" series features a 6-1/2-inch driver designed to deliver wide bandwidth and provide a fast transient response with high levels of long-term power handling. The cone is a composite blend of carbon, mica and polypropylene. The tweeter features an aluminum alloy dome focused through a precise acoustic lens.

Shipping weight for each pair is 50 pounds.

For more information, contact Digital Designs in Oklahoma at (405) 239-2800; fax: (405) 239-7100 or circle Reader Service 102.

Svetlana 812A Triode

Svetlana has introduced a modern version of the RCA 812A triode, originally developed in 1939 as a companion to the RCA 811A triode. Likewise, the Svetlana 812A triode was designed as a companion to the Svetlana high-mu 811A.

The Svetlana 812A power triode is intended for use in class AB, class B and class C RF and audio amplifiers. It features a low-loss ceramic base and a bonded-ceramic plate cap thermal insulator for high-power RF transmitting tube capability. The envelopes are fabricated from hard glass intended specifically for the high-temperature operation of transmitting tubes.

For more information, contact Svetlana in Alabama at (205) 882-1344; fax: (205) 880-8077, via e-mail: sales@svetlana.com or circle Reader Service 174.

Otari Magneto-Optical Digital Recorders

Otari Corp. recently introduced a line of standalone, disk-based recording systems. The units record as much as an hour of uncompressed stereo digital audio to 3.5-inch Magneto-Optical (MO) disks.



The PD-80 is an eight-channel recording and editing system. Featuring 20-bit A/D and D/A converters, on-board DSP and editing functions, the unit was designed for a variety of uses, including music and radio work. Analog I/O is handled by balanced +4 dBu XLR connectors, and digital transfers are made via AES/EBU and S/PDIF ports on the rear of the unit.

The PD-20 is a two-channel MO recorder that can be used as an upgrade from time-code DATs and reel-to-reel

decks. The unit features 20-bit A/D and D/A converters and many of the editing and sync features of the PD-80. Four internal tracks expand the two offered by DAT and quarter-inch analog tape.

The DX-5050 is a two-channel portable MO disk recorder that can be used as a replacement for reel-to-reel units. According to Otari, the unit features a tape-like interface and jog-shuttle wheel for ease of use. Location monitoring can be done by either headphones or the internal speaker. Digital transfers are possible via AES/EBU and S/PDIF coaxial and optical connectors.

For more information, contact Otari in California at (800) 877-0577; visit the website at www.otari.com or circle Reader Service 126.

Cirrus Logic 20-Bit Audio Codec

The Crystal Semiconductor Products Division of Cirrus Logic introduced a 20-bit stereo audio codec with integrated volume controls (CS4222). The company said the product is the first of its kind.

The CS4222 is targeted towards consumer audio applications and has a 99 dB dynamic range and 110 dB signal-to-noise ratio.



The CS4222 codec utilizes 128 times oversampling delta-sigma technology for both audio A/D and D/A converters. It

also contains fully differential inputs and outputs enabling rejection of common mode noise which can degrade overall system performance.

For more information, contact Cirrus Logic in Texas at (800)359-6414; visit the website at www.cirrus.com/ or circle Reader Service 150.

MUSICAM USA RoadRunner Plus

MUSICAM USA introduced its newest codec package, the RoadRunner Plus, which consists of a RoadRunner codec, an ISDN terminal adapter, an analog line interface card and a high-speed



modem.

When connected to an ISDN line, the RoadRunner provides 20 kHz audio on two "B" channels or 15 kHz on a single "B" channel. If there is no ISDN line, the RoadRunner Plus can function over a standard analog phone line.

In the analog mode, the codec uses an MPEG algorithm designed for a broad range of audio.

The Plus Package option can also be added to an existing RoadRunner codec.

For more information, contact MUSICAM USA in New Jersey at (908) 739-5600; fax: (908) 739-1818 or circle Reader Service 198.

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Products & Services Showcase

For more information on the products shown below, circle the appropriate Reader Service No.(s) on the enclosed Subscription/Reader Service card or contact the advertiser directly.

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The CircuitWerkes RP-1 combines a high quality mic amp with a headphone amp in one battery operated package for extending your remotes into locker rooms and other distant locations OR for testing out lines, etc. The RP-1 is a great addition to your remote setup and its host of handy features, including calibrated meter makes it an incredibly versatile addition to your station's arsenal. Whether you're doing news / sports actualities, general remote broadcasting or just need a handy, portable test set, you'll love the versatile features & performance of the RP-1.



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The DSC-20 adds remote control capability to the Scientific-Atlanta ENCORE, DSR-3610, AD-4595 and Virtex StarGuide II receivers, allowing channel/memory changing by automation systems or simple push buttons. The DSC-20 can be configured to control any two of the above mentioned receivers. Customized programming is accomplished with a non-dedicated computer.

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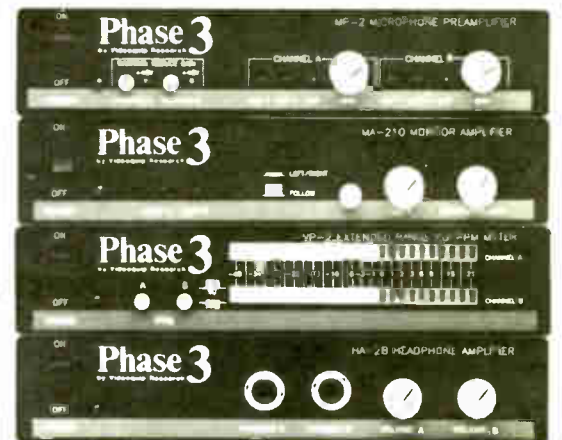
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READER SERVICE NO. 69

DX-Peditions: Good Clean Fun

Mark Durenberger

In astronomy it's called a "Messier Marathon." It's a star party, where folks gather to identify Messier-catalogued stellar objects. Ham radio operators have a similar get-together. They call it "Field Day," with the emphasis on the number of contacts.

Medium wave DX-ers have their own gatherings called "DX-peditions," when they attempt to log AM broadcast stations considered beyond the reach of normal receivers.

DX-peditions appeal to this long-time broadcaster because they provide the occasional excuse to escape urban interference, find a quiet location and set up listening gear in search of elusive AM stations. With the increased band-clutter the FCC has wrought, this has become an increasingly challenging task. But the fun of finding a long-forgotten AM signal in the night ether makes it worthwhile.

Somewhere in the night

Veteran RW readers will recall my love affair with nighttime AM radio. There is a sense of community in keeping company with untold thousands of others listening to the same AM Grand Ole Opry broadcast or truckers' show on an AM signal booming through the night and riding that long, lazy skywave.

I forgot how much fun this could be until I heard about the DX Audio Service from the National Radio Club (NRC), which allowed me to "rediscover" a hobby that has been around since the early 1920s!

Those who wish to re-ignite an interest in this fun part of radio may be surprised at the astounding collection of resources related to this age-old pastime.

The DX Audio Service (DXAS) is a monthly audio magazine enjoying popularity among those interested in AM. Anchored from Lima, Ohio, by veteran broadcaster Fred Vobbe, the tapes contain

information on AM station assignments, station audio and profiles. Editors include Vobbe, Jim Snowbarger, Jerry Starr, Phil Wayne, John Bowker, and Bruce Conti; contributors include DXAS listeners.

The DXAS periodically produces "After Dark," a compendium of long-form programming, air checks and interviews. You can hear a 1941 story on the "New WABC transmitter site on Columbia Island" or an interview on why the Voice of America shut down its Bethany, Ohio, relay station.

You also can find an extraordinary amount of DX-ing information through published reprints from the NRC, the International Radio Club of America (IRCA) and England's Medium Wave Circle. Look for newsletters and articles with solid theory and practical advice on technical topics ranging from MW Propagation to antenna design. You'll learn of the work of dozens of DX-ers as they share their experiences and the work they have done in designing gear for the hobby.

As just one example, DX-er Mark Connelly has an interest in antenna phasing systems. Connelly has designed several different phasors, and he shares his work with other DX-ers.

To get started in this hobby, I suggest you borrow or buy a medium-price, high-quality portable such as a Sony IC-2010.

Then look for toys that take you beyond simple listening. One of the best resources is Kiwa Electronics in Yakima, Wash. Kiwa accessories include IF filters and slick amplified loop antennas. You can add a "regeneration module" to a loop to make a humdrum receiver really sit up and make noise. If you've never tried a good loop, you will be astonished!

Once you have a properly accessorized receiver in hand, the only other things you need are some warm clothes and maybe a friend or two to share the fun. Do not make the initial foray any more rigorous than necessary, or you could be turned off at the start.

Start with the 50 kW stations. Once you have logged them, start looking for harder-to-get regionals and international stations. You will find target information in Funkenhauser's WHAMLOG (www.geocities.com/Hollywood/1680/) page on the Internet.

Also, NRC publishes a useful "Night Pattern Book."

Perhaps you are asking, "What's the big deal? I tune to 650 and there's Nashville." Bear in mind that a lot of new stations have been authorized on 650 and the other clear channels. WSM still may be a slam-dunk where you live, but there are other 650s to copy as well. The challenge is using antenna orientation and nulling tricks to minimize the expected signals, reaching for what's *underneath* them. That's where the fun tools come in, and that's where this hobby becomes one part fun, one part art and one part science.

Zen and the art of DX-ing

The science can be in understanding propagation trends and predicting post-sunset/pre-sunrise catches. Or it may be in learning to use a tuned loop, an "active whip" or a seriously directional long wire, such as a "Beverage" antenna. These work great, but they can haul in 10 stations on the frequency. Apply the science again by rolling out a phasor. Phasing works on the principle of common-mode rejection. Two antennas are combined so that common signals that appear in *both* antennas are nulled out, and what's left is the energy that hits only one of the antennas.

The art to the hobby is in judicious placement of the antennas, so that the desired station comes into only one antenna. Phasing units are available commercially, or you can roll your own using parts from the junk box and the available construction info from folks like Mark Connelly. I built one phasor out of old parts from a 1930s-era WCCO transmitter. A bit of overkill — unless you need receive equipment that will handle 50

kW!

This hobby cuts across all ages. Folks like me were part of the early days of FM; we look forward to the future, but we may not be terribly excited about radio today. Maybe we are listening because we are romantics at heart or because we know that someday it may all be digital. When that day comes, who knows what will happen to those lazy skywave fades? That magic nighttime AM sound may be lost forever.

Give it a try. But I'm warning you: If you get bit by the DX bug, there's only one cure: buying better and better receive equipment!

■■■

Mark Durenberger is general manager of the Group W Network Services/Teleport Minnesota in Minneapolis. He has co-developed several products in use in the broadcast industry.

To Learn More

To explore the world of DX-ing, Mark Durenberger suggests contacting the following:

- DX Audio Service, Box 5031, Lima, OH 45802-5031.
- The NRC website (<http://wcoil.com:80/~gnbc/>) or send an e-mail to gnbc@wcoil.com
- The NRC Publications Center, P.O. Box 164, Mannsville, NY 13661-0164.
- The International Radio Club of America at P.O. Box 1831, Perris, CA 92572-1831.
- The "AM DX Newsflash" subscription list, by sending your e-mail ID to Philip_Bytheway@mukiteo.hac.com
- Kiwa Electronics at kiwa@wolfenet.com or at 612 South 14th Ave., Yakima, WA 98902.
- The Medium Wave Circle at steve.whitt@zoo.bt.co.uk or 137a Hampton Rd., Southport PR8 5DY, England



This rate card for the NBC Blue Network went into effect on July 1, 1937. NBC operated two national networks, but the FCC's Chain Broadcasting Report of 1941 forced the company to divest the Blue network in 1943. We know it today as ABC.

According to this card, a sponsor could "buy the country" using all 90 of the Blue Network's outlets for \$19,200 per hour, compared with nearly \$25,000 for the more popular NBC Red. This sounds pretty good compared to \$350,000 for 30 seconds on "Seinfeld."

But in 1937 the advertiser also was responsible for providing something to fill that hour. This tended to eat into one's advertising budget, especially if you planned to air a show that people would actually *listen* to. And everything

was "subject to the program policies and to the approval of the National Broadcasting Company."

This is the first in a series of photo



features that RW will bring you in cooperation with the Library of American Broadcasting, featuring items from the library's collection. The library welcomes questions, comments and donations. Call (301) 405-9160, send e-mail to bp50@umail.um.edu, or visit the website www.lib.umd.edu/UMCP/LAB

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BE No More, No Less.

Mobile AM for Missile Crisis

James F. Pinkham

One untold story about the Cuban Missile Crisis of 1962 is the "crash priority Black Project," to rebuild and place in operation a transportable 50 kW AM transmitter. Thirty-five years ago, Navcom System HQ called upon my former employer, the late John H. Mullaney, PE, and another broadcast engineer, Phil Nesbit, to expedite and carry out a secret project: We were to pull an ancient 1942 Westinghouse 50G out of "mothballs," make it transportable, along with a two-tower directional antenna, and set it up secretly on an island in the Gulf of Mexico.

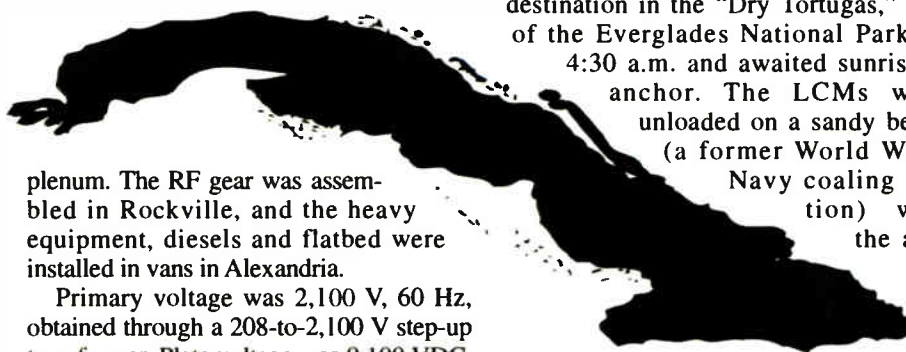
Trade-in

RCA took the equipment in trade for an Ampliphase 50 kW and warehoused it (not carefully) in Baltimore. I was working full time as the director of engineering at a Baltimore station on that memorable Thursday evening when the public got the word of the missiles in Cuba. Mullaney called to tell me to bring my wife and year-old baby girl to Rockville, Md., immediately. I was not given a choice.

We worked around the clock on this dinosaur-sized pre-war equipment. All but one of the cabinets would fit in a large semi-trailer. TMC Power Co. in Alexandria, Va., installed 20 tons of air conditioning to super-cool the system.

We were forced to rewire and repair the damage caused when the equipment was taken out of service. A second semi provided space for a studio and workshop; a third semi flatbed carried spare parts and diesel fuel; a fourth semi carried two 200 kW 208 V wye 3-phase diesel generators; and the fifth semi had a low-boy trailer equipped with a roof and side shutters to protect all the transformers, regulators and the switchgear cabinet.

The remaining transmitter cabinets were fastened to two I-beams inside the trailer. The space between became a cooling



plenum. The RF gear was assembled in Rockville, and the heavy equipment, diesels and flatbed were installed in vans in Alexandria.

Primary voltage was 2,100 V, 60 Hz, obtained through a 208-to-2,100 V step-up transformer. Plate voltage was 9,100 VDC. It was not possible to test before transport, because the three vans were 40 miles away in Alexandria.

All for naught

After several frantic days of work, we discovered to our horror that the manuals and blueprints furnished by Westinghouse were for Model 50-G, 1946, but the system we were rebuilding was Model 50-G, 1941! World War II had shut down production at Westinghouse, which decided to use the same model after the war but employ new engineers, blueprints, wiring lists and manuals. We spent nearly a week removing wiring errors.

Although nearly everything was mounted physically, wiring was still in progress when the Navy "semi" convoy started for Key West. The device was to be completed on site. I took the family home, and flew to Miami (Key West was under martial law). The power contractor sent two diesel mechanics. We had six engineers with secret clearance. Twenty-one broadcast trainees, recruited from a Miami school, were sequestered to work on the project.

The semi-trailers were loaded on two Army Transportation Corps Landing-Craft, Mechanized, or LCMs, which left the naval base at dusk. A Navy CPO and I were the only "navigators" aboard. We had to make the radar operation.

We arrived at our classified

destination in the "Dry Tortugas," part of the Everglades National Park, at 4:30 a.m. and awaited sunrise at anchor. The LCMs were unloaded on a sandy beach (a former World War I Navy coaling station) with the able

assistance of a company of beach jumpers, whom today we would call Navy SEALs.

We kept finding one emergency problem after another, mostly the result of the incredible haste to complete the rehab/modifications.

The transformers originally were

Moseley could not make the microwave link work from Key West. The transmitting dish was as high as it could go on the tallest tower at Key West Base. We had the receiving dish on top of one of the two DA towers. An error in calculating nautical miles vs. statute miles (at Navcom System HQ) placed us 13 miles over the radio horizon.

Rack-mounted Hammarlund Navy communications receivers were brought in by helicopter from Key West Base. The broadcast program was continuous from the VOA station at Marathon, Fla. It was VOA programming intended for Cuba. VOA was on low power trying to complete its antenna tune up and was ordered to continue transmitting 900+ W as a program source because our microwave hop was unworkable.

The White House issued a dispatch to: "O-in-C, VOA, Marathon; Continue operating at present experimental power level to act as a relay to the Navy

The tires were not strong enough to support the equipment, and they all blew out south of Alexandria, Va., just as we had started our long trip to Key West.

mounted on the heavy equipment van, which was very low to the ground. The tires were not strong enough to support the equipment, and they all blew out south of Alexandria, just as we had started our long trip to Key West.

Steel radials were purchased immediately, and the oil was drained from all the transformers. The only place to put the oil was an auxiliary tank mounted on the flatbed trailer; it contained welding scraps and paint particles that contaminated the transformer oil.

Johnny-ball insulators substituted for required high-voltage fiberglass types exploded when 20 kW RF was applied to the unipole antennas. Florida Power supplied a transformer oil filter system and suitable fiberglass insulators.

With all these problems (Murphy's law was with us all the way), the worst was a lack of program feed. Jack

installation on Island X, for the duration of the emergency, JFK."

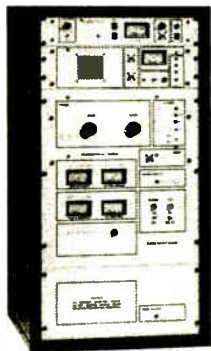
Epilogue

Three months later the system was moved to a three-tower site near Key West Naval Air Station, Boca Chica, where it continued operation for several years until damaged by a hurricane. It was mothballed at Boca Chica by the Navy until it was pressed into service as a part of the Radio Marti operation near Miami, on its original 1040 frequency. It was subsequently replaced.

James Pinkham is a control systems designer and consultant associated with Multronics Inc., Mullaney Engineering Inc., and other manufacturers. He can be contacted in Hudson, N.Y., at (518) 822-9425; or send an e-mail to JimPink@aol.com

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Audio Chip Packs Punch

If you have been wanting an audio amplifier IC with a little more kick than your garden-variety LM380, check out the National Semiconductor LM3886 "Overture" chip, capable of a surprising 68 W into a 4-ohm load.

This kind of power handling takes the LM3886 beyond simple utilitarian applications such as cue and headphone amps. This high-performance circuit is suitable for self-powered studio monitors and portable PA systems for remotes. With adequate heat sinking, the TO-220-packaged LM3886 can be mounted inside the enclosure itself.

The LM3886 requires a bipolar power supply of typically ± 18 VDC but can handle supply voltages up to

84 VDC. Single-supply applications are possible with additional circuitry. The signal-to-noise ratio is 92.5 dB with an intermod distortion value of .004 percent. Frequency response is a full 20 Hz to 20 kHz. A built-in Mute function silences the input when Pin 8 is opened or goes to 0 V.

A handful of external resistors and capacitors are used for power supply decoupling, gain control and feedback, biasing, and control over unwanted high-frequency oscillation. The LM3886 will work with a 4- or 8-ohm load.

Find information on the LM3886 at the National Semiconductor home page www.national.com or circle Reader Service 62.

— Alan R. Peterson

ON THE JOB

Assessment: Document Your Work

John Bisset

As the year winds down, now is a good time to begin a personal assessment that will help you identify your strengths as an engineer, as well as document your contribution to your station.

"But I keep the station on the air ... what more do they want?" Plenty. The pressures placed on today's general manager force him to identify and correct cost overruns or places where savings can be obtained. Don't give your GM the opportunity to look at your department as the first place to cut. The simplest way to do this is to keep your GM and owner informed. Let them see what they are getting for their money.

You see, complacency can cause some strange thinking among upper management. When you haven't been off the air for months, or the jocks aren't screaming about equipment being broken, your contribution can be forgotten. An attitude of, "Gee, things sort of run by themselves" develops. Next thing you know, your assistant is being cut, or you are given another station to care for, with little or no increase in pay.

Keep a notebook or little pocket reminder and briefly jot down major tasks performed in a week.

The daily contribution that your department provides is all but forgotten. Add to this the unfortunate scenario of the GM seeing you reading the newspaper or a magazine at your desk, or always talking on the phone, and an incorrect assessment can begin to form.

So how do you correct this problem if it has already occurred, or better yet, prevent it from happening in the first place? Keep a notebook or little pocket reminder and briefly jot down major tasks performed in a week.

Jot it down

If you don't keep your manager informed that you spent the last three nights working at the transmitter, who is to know what you've been doing? Each time you start or complete a task, jot it down. You may want to include the times, too.

Here's why: Say you have just spent the better part of your day reprogramming the telephones for the latest sales people shuffle. To simply inform your general manager that you spent five hours doing this is fine, but why not cut right to her bottom line by adding a statement, "If we had XYZ telephone company in to perform this work at \$85 an hour (or whatever they charge), this service would have cost \$425."

Now you are creating value in the

mind of your manager. You are no longer being viewed as an expense; rather, you have become an asset. You are helping her meet her bottom line.

The same holds true for maintaining the computer, or if you do your own STL path analysis or FCC filing. The point is not only to inform, but to show that your department is saving the station money.

The same idea works for other types of upkeep. If you find a component that was nearly ready to blow, thus saving the station from time off the air, let everyone know.

As engineers, it is not usually in

our makeup to pat ourselves on the back, or toot our own horn, so getting started may be difficult. Take a lesson from your promotions director: If he does not promote the station, no one will know about it.

This concept of drawing ourselves out of our shells and into the corporate limelight can be foreign to many of us. At the outset of this new strategy, it is not uncommon to finish the day and find your page blank or, worse yet, have only a couple of menial tasks listed, although you just put in 10 hours. To overcome this stumbling block, consider a time analysis sheet.

This form is simple to create. Divide a page with a vertical line. On the left side, begin listing time in half-hour increments. After each time, skip a few lines (to give you space to write). Begin with 8 a.m. or whenever you start your day. Continue with the times down the second column. Add a blank for the day's date, and you are ready to begin.

Carry this form with you the whole day. Write down everything you do — the calls on the phone, the meetings, the minor repairs or maintenance — opposite the appropriate time the event(s) occurred. At the end of the day, you will be surprised at how much time it takes to do things. You may find you are spending too much time on the telephone. Or, after finding that

See YEAR, page 42 ►

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Keep Track of Duties to Get Ahead

► YEAR, continued from page 41

it took two hours to run a simple cart machine alignment, you will come to the realization that maybe you need to keep the shop door closed, so people will stop interrupting you by just walking in to chat.

A time analysis sheet is the first step to getting better organized, because it identifies time-wasters. Keep the time analysis for a week, and it will really open your eyes.

Time analysis

I have found it easier to carry around a folded piece of paper than to keep running back to document your time on the computer. A time analysis can also be

useful to document your need for an assistant. Show your general manager a week's worth of sheets, demonstrating the hours you have put in. Now you have established "just cause."

A time analysis can be helpful in other ways, as well. One engineer friend of mine got railroaded by a jealous DOE a number of years ago. The DOE would assign him to a project off-site, then walk around the station asking if anyone had seen the engineer. The impression made was that the chief was out "goofing off" and no one could find him.

At his dismissal, he was charged with not tending to the needs of the station, among other things.

Everything can work for the better, though; he is now a DOE himself, with much better pay and benefits.

However, if he had kept a daily time analysis, the documents would have not only refuted the charges, but also

given him an outstanding legal advantage. Needless to say, he keeps a daily time analysis now.

Once you gather your data, summarize it monthly in a brief one-page report. Keep the report brief, just a

By stating the problem and a solution, you are prevented from being viewed as a naysayer.

couple of lines per paragraph. Cover not only major tasks that you completed, but also show that you check a variety of things for FCC compliance.

If your jocks still keep a transmitter log, and they know that repeated omissions on their part will be brought to the attention of the general manager through your monthly report, most will conform with the program.

It is also a good idea to show your monthly down time. If it's low, take the bow; you've deserved it. Document that your maintenance efforts are paying off. If, on the other hand, your down time is high, and the reason is because your tube budget was cut and you are trying to squeeze life out of dead or dying tubes, let the manager know that this is the result of such action.

Remember, never state a problem without offering several solutions. No one wants to read a report filled with problems. By stating the problem and a solution, you are prevented from being viewed as a naysayer. Instead, you are seen as a troubleshooter: one who identifies a problem and then offers solutions to correct it.

Year in review

In addition to keeping the management apprised of the status of your department, these monthly reports have another purpose. About a month or so before your annual review or raise, peruse the last 12 months of engineering reports. Highlight the impressive tasks, then summarize them in a memorandum to your manager.

Your memo can say something like, "With my review coming up in a couple of weeks, I have summarized a few of the many contributions that I've made to the station during the last year to help you in evaluating my performance." Then list the tasks. Show how you either made money for the station (such as finding an SCA or tower rental client), or saved the station money (such as performing the computer or telephone service yourself).

Your memorandum will jog the GM's memory, reminding him of your worth and commitment to the station's goal of being profitable. It is pretty hard to deny someone a raise when that person is contributing to the success of the station.

Do these additional tasks take time? Sure they do, but it will be time well spent as you strengthen the foundation of your position at the station, and for perhaps the first time, justify that raise that you always wanted.

■ ■ ■

John Bisset is author of the popular RW column Workbench, and is a principal with Multiphase, a technical services company.

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Kids' Radio Not All Fun And Games

S.D. Yana Davis

What if radio stations are sitting on a revenue gold mine but don't realize it?

Some commercial radio networks believe the "under 12" demo remains an unmeasured, sleeping giant, with billions of dollars spent by and on children. But 24-hour kids' programming continues to falter, with one of the pioneers, Children's Broadcasting Corp., announcing that it will cease 24-hour distribution of its Aahs World Radio format early next year.

Meanwhile, the future for children's programming on noncommercial stations looks increasingly murky.

Aahs throws in the towel

Driving programming for children on the commercial side are estimates that children under 12 directly spend \$17 billion annually, and influence another \$167 billion in adult spending, according to James U. McNeal, author of the book "Kids as Customers."

Children's Broadcasting Corp. apparently could not claim a significant enough chunk of that money. The company earlier had announced its decision to sell its owned-and-operated stations and concentrate on program production for more than two dozen affiliates, but the challenge from deep-pocketed ABC Radio Networks forced CBC to cease distribution of Radio Aahs altogether.

Christopher T. Dahl, CEO of CBC, blamed Radio Disney for the departure of CBC from full-time children's radio

See KIDS, page 52 ▶

STATION SNAPSHOT

Marconis Stack Up for WFBQ(FM)

John Montone

Here's the slogan: "All the other stations are too darn serious."

Here's the programming philosophy in a nutshell: Make use of your enormously popular morning show all day long, play the classic rock favorites of the past four



Marty Bender

decades, mix in a generous dose of comedy and run with the hottest news items, giving them your own special treatment.

Big numbers

Here are the results: three Marconi awards from the NAB for best large-market station, three more Marconis for the Bob and Tom morning show, and a seemingly permanent perch at or near the top the ratings. That is the WFBQ(FM) success story.

The Indianapolis-based rocker, owned by SFX Broadcasting Inc., was the number-one station among 25- to 54-year-old listeners, pulling a 13.2 Arbitron rating among listeners 12+ in 1996, according

to BIA Research. The station pulled a 12.1 in the winter 1997 book among listeners 12+ but slipped to a 10.7 in the spring 1997 book.

WFBQ Operations Manager Marty Bender is instrumental in keeping the station on top. One of his prime responsibilities is to produce the syndicated "Bob and Tom Show," which he describes as "spontaneous talk around news headlines," with guests and comedy routines that include cuts from the duo's own CDs. But although Bob and Tom leave after morning drive, their cast stays on the air.

"We have a continuous morning show presence all day," Bender said. Indeed, mid-day host Jay Baker begins his air shift during the last hour of Bob and Tom. Afternoon drive host Jimmy Matis pitches in, and overnight man David Gunn is a regular morning show fill-in. "And they're all funny guys," Bender said. Hence the slogan: "The other stations take themselves too darn seriously."

That philosophy extends to the music. As a heritage rock station, WFBQ, or 95-Q as it is known to its listeners, shuns the reverential-type treatment that characterizes some classic rockers.

"We played Eric Clapton back when he was with Cream," Bender said. "We still play Eric Clapton, and as he got older so did our audience. We've sort of grown together. But the last thing our audience really cares about is hearing all about Eric Clapton or how one of our DJs was hanging around backstage with Eric

Clapton. But they do want to hear the latest Marv Albert joke."

Although poking fun at the recently humiliated sportscaster may be fair game on WFBQ, Bender is quick to say the air personalities won't get overly raunchy. "Our demographics are so widespread, we can't go too far."

So with Marv in mind, Bender gives some insight into how the station operates. "When people pick up the paper in the morning," he said, "or they see the news at night or they hear it on some wonderful AM news station, the first thing we want them to think is, 'I wonder what WFBQ is going to say about this? I wonder how they'll handle it?' We are notorious for being able to grab hold of something current and presenting it our own way ... which people seem to enjoy."

Live music

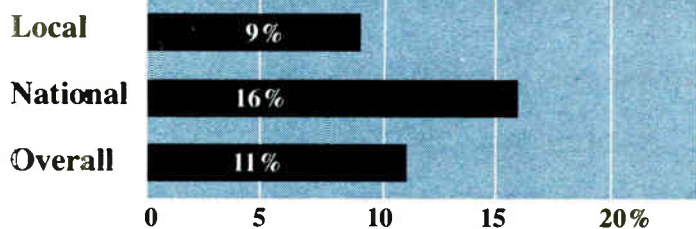
Many of the station's bits are rehearsed and pre-recorded, but there is a great deal of flexibility in the format. Bender admitted the morning news segment often runs long, and even though WFBQ doesn't play music in the morning, it will make exceptions for first-rate talent that happens to be in the area. James Taylor, Melissa Etheridge and Hootie and the Blowfish all have played live in the mornings at WFBQ.

The station offers one more inducement for listeners to tune in and stay tuned in: prizes. "We never give away one of anything," Bender said. "We give

See WFBQ, page 52 ▶



RADIO REVENUE: YEAR TO DATE



Radio Rolls Into Fourth Quarter

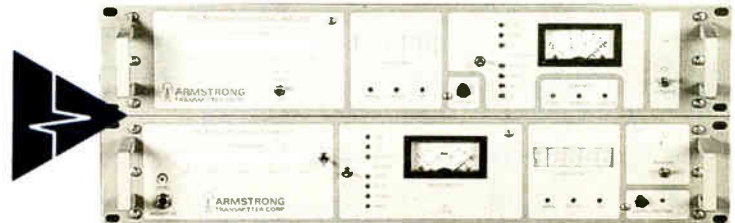
Revenue numbers for the third quarter outpaced figures from last year, and radio advertisers anticipate even higher numbers as the year comes to a close.

"With the always-important holiday season just around the corner, advertisers' growing confidence in radio as a results-producing medium will become more and more evident," stated RAB president and CEO Gary Fries.

Radio Advertising Bureau numbers show an 11 percent year-to-date increase in combined local and national revenue.

The month of September boasted a 10 percent gain in combined revenue, with the Southeast and Midwest regions leading with 21 percent and 17 percent increases, respectively.

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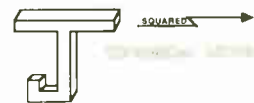
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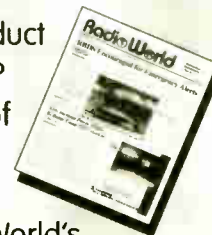
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STATION FINANCING

How to Broker Your Best Deal

Dain Schult

This is the fifth in a multipart series about buying and financing radio stations. The previous part appeared in the Oct. 29 issue.

You have read all the articles in this series, you are working on your business plan, you are talking to potential financial advisors and looking for funding. Now you need to find a station that is bankable, if not the station of your dreams.

Where do you go from here? There are several possible approaches:

- You already know an owner who may be interested in selling, and you start a serious level of negotiations with him or her.
- You start calling all the media brokers you can find in a trade publication listing and see what they have to offer.
- You reverse polarity with one of the brokers, engaging him or her to act as your buyer's agent to find you a station that will fit.

Let's examine the pros and cons of each approach:

Go it alone?

Doing it yourself cuts out the middleman fee that comes with a broker. Even if the seller is paying the broker's commission, it gets lumped in with the purchase price.

But no middleman means no assistance when things get sticky in the negotiations with the seller. You'll have no one to take the heat, fall on their sword for you and generally serve as the whipping boy to keep things on track.

I generally prefer broker involvement. They can help keep things moving on the right track. If you have the time to spend and already know the seller directly, then going without a broker probably will work. But you may be up against a seller who knows a lot more about buying and selling radio stations than you, which could put you at a disadvantage.

There are a number of fine media brokers around the country. Many of them are considerate and understanding of first-time buyers and will do everything they can to help you. However, please understand that when the seller is paying their commission, they represent the seller, not you. Their job is to get the highest possible sales price for their client, the seller. In many cases they also serve as a "palace guard" to weed out unqualified buyers from even getting to the seller in the first place.

A good broker will understand fully the concept of win-win, realizing that a one-sided deal will never really work or close. Most brokers also will put together some kind of sales presentation about the station.

Realize, however, that the broker's

presentation is only as good as the seller's representations to him. If the seller has left out key information, which unfortunately does happen, the broker is not responsible, the seller is.

Buyer agent

You may prefer the third approach and wish to engage a broker to act as your buyer's agent. In some cases this means you have agreed to pay the broker's commission so that he or she can go to prospective sellers and tell them right off the bat that they are off the hook on the commission.

In other cases, the buyer's agent works for a set retainer or fee from you and does not collect a commission at the closing. Keep in mind that your broker may go through another broker

to get you a deal, and that broker may yet get a commission from the seller.

The buyer's agent should represent you so as to ensure the broker gets the lowest possible sales price and best terms for you, the client. It certainly does not hurt to have someone in your corner during the negotiations.

There are sellers out there who will bend over backwards to help a first-time buyer because they themselves were once first-time buyers.

— Jack Riley

I have used all three approaches, and they have all worked at times. In other cases there have been problems with all three methods. This is an imprecise science. It may not be brain surgery, but sometimes it is all a matter of chemistry. Obviously you should seek out a broker who is well-versed in the area in which you want to look for a station to purchase, one who also has experience in the market sizes in which you intend to look.

Be prepared

Using a Porsche to plow a field is overkill; so is trying to use a broker with a solid track record in major-market transactions to help you find a station in a market with a population of 4,000. As Houston media broker John W. Saunders said, "You need to deal with someone who knows his own backyard, knows who's really interested in selling and can help bring together a meeting of minds. The more prepared you are as a buyer, the easier and faster I can work with you to find a station that meets your criteria."

That view is echoed by Dallas-based broker Jack Riley of Riley Representatives. "With the medium and even the smaller markets beginning to see more sales activity, being prepared

and having a solid case to make to a seller as to your ability to close is the most important thing I can think of. There are sellers out there who will bend over backwards to help a first-time buyer because they themselves were once first-time buyers. Just make sure you're ready to go before we meet with a seller."

As you get ready, you also have to decide what kind of deal to shoot for. Can you afford a turnaround or a start-up by buying an existing construction permit? Or will you have to find a cash-flowing deal to satisfy your financial partners?

Turnarounds and start-ups can be

infinitely enriching experiences if done properly. Otherwise they become infinitely enriching for everyone but you and your financial partners.

I am not trying to scare you away from a turnaround or a start-up. Just know what level of pain you can bear before we go any further. Next we will delve further into the mysteries of turnarounds, start-ups and cash-flow deals, and discover that what we consider cash flow ain't exactly what the bankers think it is.

■ ■ ■

Dain Schult is a 30-year broadcast veteran and consultant with experience as a DJ, general manager and group operator. He is based in Austin, Texas.

Got a question or suggestion for Dain to address in an upcoming part of this series? Send an e-mail to RW at chamaker@imaspub.com and let us know.



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COLES LAW

Yo-Ho-Ho, A Pirate's Life for Me

Harry Cole

Avast and shiver me timbers, mates! The pirates are back — and we're not talking about the Pittsburgh baseball players. We're talking about radio pirates, the guys who don't feel the need to comply with all those pesky little nitpicky details that just get in the way of things. You know, like getting a license to operate.

Long-time outlaws

Unauthorized operators have been around for years, probably for as long as there has been an authorization process. But as RW readers are aware, there seems to have been a marked increase in pirate operations over the last several years.

News of pirates is showing up in the general press. Take, for example, the gentleman profiled on the front page of the Oct. 21 edition of *The Wall Street Journal*. Described as a "biker," he has been openly operating a pirate station in the Tampa area for some time. The public knows about him, a number of advertisers (who have bought time on his station) know about him, even the FCC knows about him. But he has managed to stay on the air, even taunting the commission's inspectors by driving up to their inspection van when it is in his neighborhood and taking pictures of it. The local FCC agent in the area supposedly has vowed to get this pirate off the air, but it hasn't happened as of this writing.

Another pirate runs rampant on the West Coast, in Berkeley, Calif. He has operated for at least four years. The FCC, with the cooperation of the Department of Justice, actually brought the guy into court. But guess what? The pirate argued that the government effort to silence his station through the bogus rules and regulations of the FCC infringed on his First Amendment rights — and the judge seems to have bought it!

The judge denied the government's request for a preliminary injunction to get the guy off the air, and she still has not acted on the government's request for a permanent injunction (despite the fact that that request went in about two years ago). So the guy is still on the air.

Success rate?

Stories like these don't do much to squelch anyone's desire to become a pirate. After all, if there isn't any serious downside to it, why not get yourself a transmitter and start your own station tomorrow?

The commission's take on all this is a tad different. According to one knowledgeable FCC attorney, the FCC has in fact successfully shut down as many as 20 or 30 unauthorized stations during the past couple of years, mainly by showing up at their doorstep and threatening them with fines if they continued to operate.

The commission remains serious about putting an end to pirate operations. Such operations undermine the FCC's fundamental purpose of regulating spectrum usage to avoid interference. If the FCC can't keep pirates from turning on their unauthorized transmitters whenever they feel like it, the FCC might just as well go the way of the CAB and the ICC. (Also, there is a tad of self-respect involved here. The FCC cannot like its image — partly the result of the Tampa and Berkeley cases — as a governmental giant rendered powerless by a single pirate thumbing his nose at the agency.)

If you become aware of a pirate operation in your neck of the woods, here's what you can do to put a stop to it. First, obtain as much information as you can about the station: frequency, hours of operation and any information that might help identify the source of the broadcasts. Then send that information to the nearest FCC field office with a request that they investigate the matter, inspect the unauthorized operator (if it is, in fact, unauthorized), and shut it down if appropriate.

Straight to the top

It also is a good idea to send a copy of that information to the commission Compliance and Information Bureau in Washington. The CIB is in charge of the field offices, and should be interested to learn of the problem. But the CIB normally refers the information to the field office anyway, so you can save time by contacting the field office directly.

You could also send a copy to the chairman of the FCC and to your congressional representatives. We hear that the CIB and field offices are determined to put a stop to piracy, so they probably don't need additional spurs from the chairman or Capitol Hill. Still, if the problem persists, don't be shy about let-

ting as many people as possible know.

To write to the chairman, send your letter to:

FCC Chairman
1919 M St., N.W.
Washington, DC 20554

To find out where your FCC field office is located, dial the FCC Call Center at (888) 225-5322.

The commission will investigate and, if there is a pirate at work, the inspectors will confront him or her and order the operation shut down. Maybe that will work (it apparently has in 20 to 30 cases), maybe it won't (it hasn't in at least two). If the pirate wants to ignore the commission, the next step for the FCC is to issue a fine, which the pirate may ignore as well. Next, the FCC enlists the Department of Justice to initiate judicial action in the local jurisdiction.

Dodge the bullet

Although piracy is prohibited and the government is intent on enforcing that prohibition, a determined pirate (especially one with a clever attorney and a sympathetic judge) can dodge the bullet for some time.

A final observation on piracy: I

suspect that the apparent increase in pirate radio operations may be attributable at least in part to two recent phenomena: the Internet and the rampant consolidation of ownership in the radio industry. The Internet, which is readily accessible to the type of technically oriented folks who might like to build and operate their own radio station, provides unbelievably easy access to all sorts of information on how to start your own station. You can order equipment, obtain organizational suggestions, even find out about how other pirate litigation is going. Information that previously could be acquired only with some difficulty now is readily available in the comfort of your own home.

Not only are the means readily available, but so is the motivation. With wholesale consolidation sweeping the industry, we are witnessing the end of the locally owned and locally operated stations catering to the needs and interests of the local audience. The apparent increase in piracy may be a response to that phenomenon, as people perceive a need for something a little more homegrown on their radio dials.

■ ■ ■

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. He can be reached at (202) 833-4190 or on the Internet at coleslaw@erols.com

RW welcomes other points of view.

BOOK REVIEW

Righteous Radio or Ship of Fools?

Andrew Yoder

Allan Weiner has flipped the power switch of transmitters countless times. He tells about his unlikely experiences in "Access to the Airwaves," a 246-page autobiography by one of broadcasting's most well-known pirates.

The book is timely. Recently, radio hobbyists and professionals have become even more polarized over the issue of low-power broadcasting. Licensed professionals in numerous communities have coordinated efforts to report unlicensed operations to the FCC; the commission has acted several times this year alone to shut down stations. Meanwhile, proponents of unlicensed stations have their own "micropower" association, and advocate easing of federal restrictions on such broadcasts.

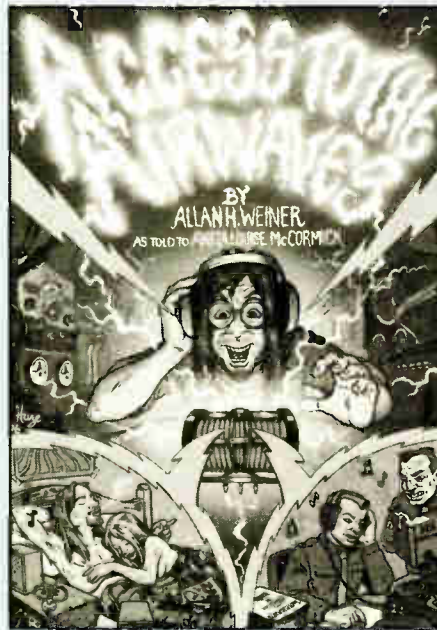
Double duty

Weiner has lived for radio, whether licensed or not. He is one of a few radio enthusiasts who have worked extensively in both arenas. He owned the AM/FM combo WOZI/WOZW in Monticello, Maine, while simultaneously operating the infamous pirate station KPRC, "Pirate Radio Central," not related to the licensed AM station with those call letters.

His disregard for the power and authority of the FCC caused numerous difficulties, most notably when the FCC located the source of the KPRC signals in 1984 and forced him to sell WOZI/WOZW.

With no stations to own and limited opportunities to get back into licensed radio, Weiner invented a creative solution: He started an offshore station. Several years and \$72,000 in equipment

and ship costs later, Radio New York International (RNI) was on the air with test broadcasts on 190 kHz (long wave), 1620 kHz (medium wave), 6240 kHz



(shortwave), and 103.1 MHz (FM).

Within several days, Weiner's offshore radio experiment was heard worldwide, featured on all of the major network TV news programs ... and subsequently destroyed by the FCC, whose agents boarded the ship and dismantled the equipment. According to a subsequent report in RW, the ship was in international waters, but the FCC received permission from Honduras to board the Honduran-registered vessel.

Hauled away in handcuffs, and later taken to court, Weiner was charged with conspiring to impede the functions of the U.S. government, but the charges

in a New York federal court were dropped in August of 1987.

The Radio New York International experiment led to appearances on MTV and an award as best radio station of 1987 by Rolling Stone magazine. His national reputation was established.

Despite the court victory and the publicity, Weiner and the RNI staff were unable to formulate a direct, focused response to the loss of the ship and station equipment. Abandoning regular programming, the station returned briefly in October 1988, before threats by the FCC forced it off the air.

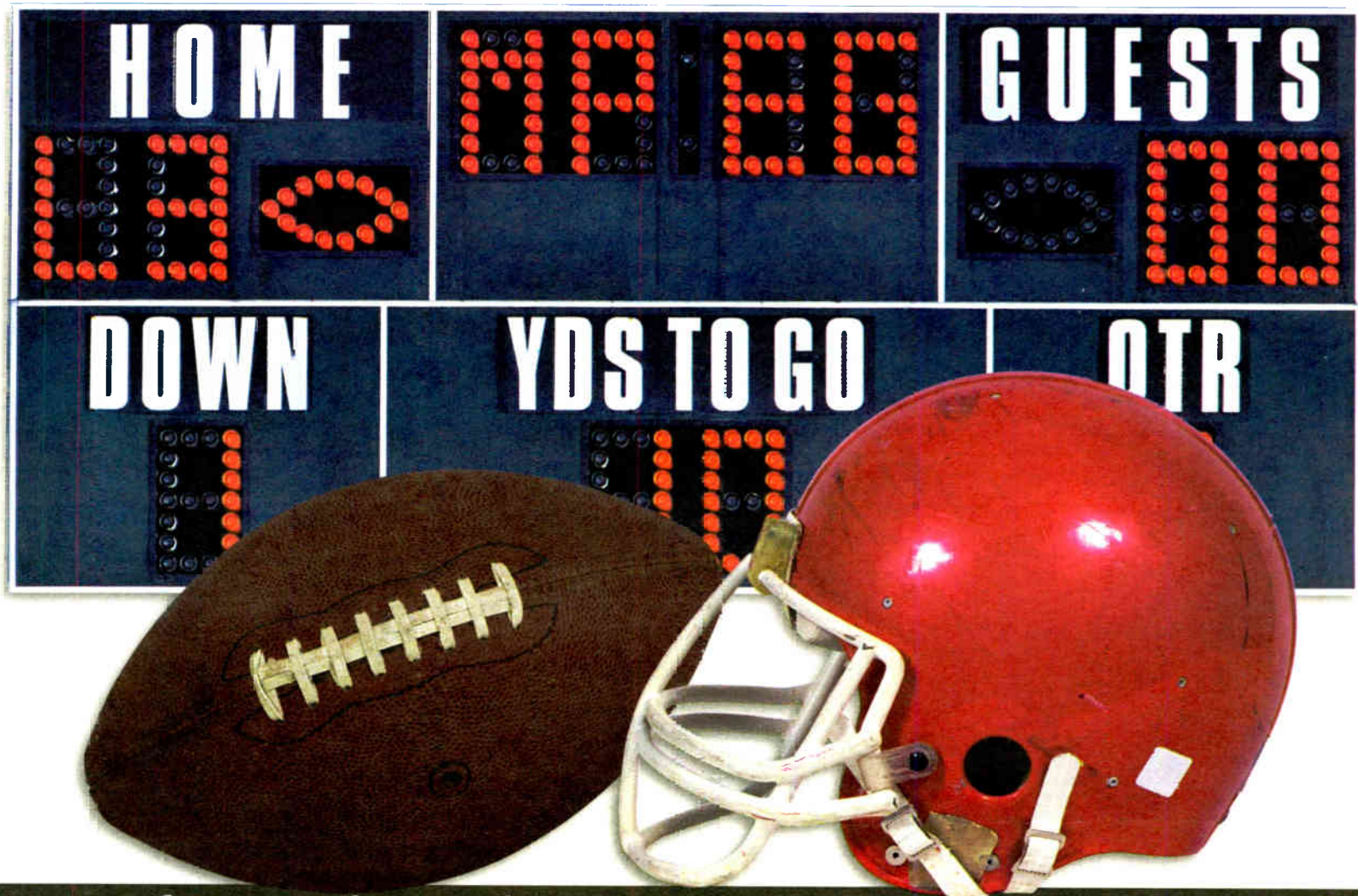
The station returned in 1990 via WWCR, a 100 kW licensed shortwave station in Nashville, Tenn. The turmoil began to take a toll on Weiner and his staff, however. Abandoning the original "free-form rock 'n' roll" concept that created an international stir in 1987, the 1990 RNI adopted a format of liberal politics and telephone call-ins. The format was not popular, and the station's bills mounted while the staff bickered and became divided. The former RNI ship, *The Sarah*, was destroyed spectacularly with explosives for the movie "Blown Away."

Change in style

"Access to the Airwaves" is a peculiar book. Laced with underlying emotion, it is not a typical autobiography. The first half covers Weiner's life from birth to his 33rd year or so. It is engaging, loaded with interesting tales about radio, the hippie movement and radio engineering using surplus equipment. Just about the time Weiner begins to reveal how his luck ran out, however, he abandons the narrative style.

See SHIP, page 48 ►

FIELD GOALS



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MSU Makes Radio Accessible

Sharon Rae

Pete Collman was only 12 years old when he suffered a virus that left him partially paralyzed. But the native of Washington, D.C., was not about to let that quash his dreams of being in radio.

Collman is now the student station manager of WDBM(FM), "Impact Radio." The 2,000 W student-run radio station at Michigan State University covers a 30-mile radius from the East Lansing campus. Impact plays the usual college-alternative music, but behind the scenes, this seemingly typical school station is anything but.

Easy access

"Every part of our studio core is accessible to me," said the 24-year-old Collman. "When I got to Michigan State and looked at these studios, it was just like an aura of, 'I can't believe it. I don't want to leave here.' Out in the professional world I know it's not going to be that catered to people with disabilities."

From consoles that raise and lower to accommodate wheelchair users, to sound-proof magnetic-seal doors that aren't too heavy, Impact's accessible studios and offices in the basement of an on-campus dormitory present a professional product.

"I think the setting comes over on our airwaves," Collman said. "It's not your typical college 'people-write-on-the-walls' sort of deal. We have a receptionist, offices, a conference room and a huge production studio core with all digital equipment including DAT, MiniDisc, Akai digital workstations, Shortcut editors and Instant Replays."

Gary Reid is the director of undergraduate studies in the Department of Telecommunication at MSU. He also serves as the general manager of WDBM.



General Manager Gary Reid (right) and Station Manager Pete Collman in the WDBM Production Control Room

"Because Impact is a student radio station, there had been a desire for a long period of time to make the station accessible to the entire student body, not just the able-bodied," Reid said. "We explored several building locations for the one that would be best for a radio facility, then brought in the Russ Berger Design Group out of Texas to do the acoustical design."

Another time

Prior to the spring of 1996, Impact Radio had been housed in the top floor of the MSU auditorium.

"Even if they would have put an elevator in there, it still wouldn't have been

handicapped-accessible," said Collman of the aging building.

"We were fortunate to be able to design a facility from the ground up," Reid said. "We've gone well beyond requirements of the ADA (Americans with Disabilities Act), and as a result I think we have a better facility all around. The things that we've built in for accessibility ... by and large haven't cost us very much more than a conventional installation."

Reid said once he changed his mindset to start thinking of the entire range of accessibility, a new vista in productivity and options were presented.

"We short-loaded our mixing consoles," he said. "They have blank modules in them within a larger mainframe so you can label with Braille and other indicators next to pots and faders. We also have a vast array of remote control equipment, so someone with limited mobility could still do an air shift."

Steve Bookshester, associate general counsel of the National Association of Broadcasters, said under ADA, employers need to make what is called "reasonable accommodation" for people with disabilities who are otherwise qualified for the positions that are being offered.

"It's very situational," he said. "In radio, it has to do with how old the studio is versus brand-new, and the cost versus the revenues. It also has to do with ... if there are some physical changes that have to be made, how difficult they are to make."

In some states, Bookshester said, state law may be more stringent than federal requirements.

"Then there is also a view that there

are probably parts of broadcast stations that are public accommodations," he said. "Access has to be provided in some way for the general public to the services the station provides. ... What that could mean, for example, is if you are on a third-floor walkup and people need access to your public file, one of the things you may need to do is bring the material down to the first floor and sit there and read it to them."

Sweet spot

Reid contracted out locally to build the studio. Audio Broadcast Group Inc. out of Grand Rapids, Mich., custom-built furniture for Impact.

"The layout of the rooms and furniture was all designed with ADA requirements in mind, including a five-foot radius to get a wheelchair in and out, which made it a very open layout," Reid said. "But that became an acoustical challenge for Berger to come up with a broad 'sweet spot' for monitoring."

Designers had to take other unique factors into consideration, ranging from station security for the 24-hour, 365-days-a-year operation, to several acoustical road blocks.

"We have a train track within a few hundred yards of our studio," Reid said. "And because of the multipurpose use of the dorm, about three times a week we have about 100 kids doing aerobics on our ceiling. The Berger Group was

See MSU, page 55 ▶

Radio Rebel Fights the Power

▶ SHIP, continued from page 46
Pleasant, well-worded stories give way to a staccato of diary entries broken by segments of explanatory text.

This stylistic change might at first be disconcerting, but it establishes sentiment for the reader as Weiner discusses that period of his life. From 1986 onward, Weiner's life flows in a never-ending river of losses: His wife of more than a decade left him, for a woman. He lost more than \$100,000 and years of his life to failed radio stations. His friendly radio staff became bitter enemies.

The choppy, maddening pace of each chapter reflects his life. The reader begins to wonder what could possibly go wrong next.

Now working as a freelance radio engineer in Maine, Weiner's motivation for baring his soul is revealed in the last paragraph. He states, "I will gladly engineer and build a radio ship for anyone who can finance the project for any good and peaceful purpose. And I will build it cheaper, better and faster than anyone else. Having one completely free and uncensored radio ship out there legally broadcasting from someplace on earth will always be a goal, a dream and a hope of mine."

This book is not a promotional piece for some new venture. But that final paragraph is proof that his autobiogra-

phy is unlikely to be the final word on an already incredible radio career.

"Access to the Airwaves" by Allan H. Weiner and Anita Louise McCormick is published by Loompanics Unlimited and is available

from Tower Books and Records at (360) 385-2230. The cost is \$17.95 plus shipping.

Andrew Yoder is a freelance writer and editor.

Weiner Meets the Coast Guard

"The Coast Guard boarded the ship, and said that everyone was under arrest for breaking international law. The first question I asked was, 'Excuse me sir, but what international law are we being arrested under?' The Coast Guard man promptly stated that he did not know which law it was, but that it was some international law.

"Everybody was handcuffed. Then we were ordered to the forward part of the ship. The sun was rising. It was going to be another one of those 90-degree scorchers. And for six hours, we had to sit out in the baking sun while all those people from the government were running around figuring out what to do with the vessel.

"The FCC had a party. They were running around taking videotapes, snapshots, and Polaroids. They cut all the cable harnesses and transmission lines with hacksaws, ripped everything out, and threw it in the middle of the deck. And, of course, they damaged quite a bit of the equipment. They basically destroyed everything that it took me a year and a half to put together. The FCC knew that we were outside of their jurisdiction and we were not violating the law. But they wanted to make damn well sure that we didn't go back on the air after they left.

"I asked the Coast Guard, 'Why are you letting these people do this? We have violated no laws, and you've come on board, seized our ship — as far as I'm concerned, illegally — and are letting the FCC tear up our station. Why are you letting this happen?'"

"One of the men admitted that he didn't understand why the FCC was destroying equipment and breaking things up. He didn't feel that was right, but he was under orders."

Calling discrimination against the disabled a "major problem in the entertainment industry," Darryl Evans, a disabled radio veteran with more than 20 years in the business, wants to see change.

"There are 49 million disabled people in this country," said Evans, who produces and hosts a weekly syndicated oldies radio show called "Best of the Oldies."

"That's 17 percent of the population. Less than 1 percent are working in the entertainment industry, including radio. Compare that to other so-called minorities such as blacks, who make up 12 percent of the population, or Hispanics, who make up 10 percent, but in the entertainment business they are getting 20 to 40 percent of the jobs."

Evans, who serves on the subcommittee of a group called "Performers with Disabilities," said the disabled must unite in an effort to raise awareness of the situation.

"A lot of people feel like if they don't see something, it doesn't exist," he said. "Employers may think if they widen a door, then they have complied with the law. That may be for accessibility, yes, but not necessarily so when you talk about employment and housing.

"When I send in my résumé for a job, I don't put 'I'm disabled' on it," Evans said. "And when I call back the PD, I have yet to figure out a way to break it to him."

Evans encourages radio managers to consider hiring a disabled person when a shift opens up.

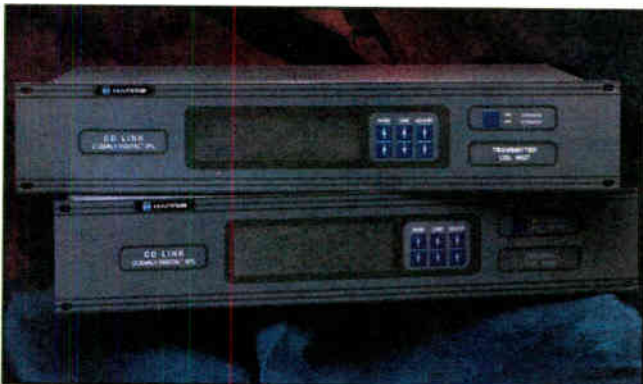
"It doesn't even cross their mind," he said. "We know they think about blacks, Hispanics and women. Think about the disabled!"

Midwest Broadcasters Network

Mark Croom

For radio and TV engineers living in southern Wisconsin, the falling leaves and nip in the air signal also means the Broadcasters Clinic must be near. This year, the popular annual event included technical sessions, opportunities to network with other broadcasters from around the region and an exhibit hall with nearly 40 companies.

The event has a long history. Don Borchert, longtime engineer with the University of Wisconsin, now retired, has been the clinic coordinator for 22 years. He said the event began in 1955 as the FM Clinic, to help educate broadcast engineers about Wisconsin Public Radio's state FM network.



The Harris CD Link

When Borchert took over the clinic in 1975, he broadened the focus of the event. The Broadcasters Clinic now includes all facets of terrestrial broadcasting and even cable TV. This year's show attracted 164 registered attendees in late October.

New location

After years of meeting on the south-east side of Madison, Wis., the location was moved to nicer digs at the Holiday Inn West in nearby Middleton.

Also new this year was a major emphasis on the transition to digital broadcasting that is bearing down on television broadcasters. The clinic format traditionally includes a day pri-

marily for radio broadcasters, a day with topics of interest to both radio and TV broadcasters and a day primarily devoted to TV.

AM broadcasters were advised to keep an eye on construction near their antenna sites.

There were so many sessions on DTV this year that the program committee had to present some of the DTV papers the first day. But the TV emphasis did not overshadow some good radio sessions.

Tuesday began with a primer, presented by Ben Evans of Evans Associates in Theinsville, Wis., on tower detuning. Though directional AM operators have been keenly aware of the issues related to new construction near their antenna sites, Evans said even non-directional AM broadcasters must keep an eye on this type of construction to be sure they don't experience

pattern distortion due to re-radiation. He also showed some practical examples of detuned towers of various types, including the monopoles that have become popular with PCS companies.

The technical papers at the clinic included some applications of digital technology to radio broadcasting. Tom Harle of Harris Broadcast presented a paper describing his company's new uncompressed digital STL system, the CD Link. The CD Link has analog and digital inputs and outputs, including a couple of RS-232 channels. Harle said the unit uses standard AES3 digital protocols and introduces no discernible delay into the transmitted signal. Harle conceded the CD Link still is a one-way system, but said it is

a good choice for broadcasters with a microwave channel available.

Jack Connors of Audio Broadcast Group presented another uncom-

pressed digital STL solution: using a T1 line from the telephone company with codecs at each end. There are

several products available for this purpose, including the QEI Cat-Link and the Intraplex products that are designed for radio use. Connors said these solutions commonly are used when there is no microwave channel available, or when the broadcaster needs high-quality channels both to and from the transmitter.

Frank Foti of Cutting Edge Technologies presented the principles used in designing his company's new digital processor for FM stations, the Omnia.fm. He described some of the differences between this product and some previous digital processors, including a DSP-based stereo generator he said may be the first of its kind. He explained why the Cutting Edge system uses a higher sampling rate than other companies' systems and described how the company has

See CLINIC, page 50 ▶

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STATION BUMPERS

The new WCWT-FM bumper sticker is moo-ey bien!

"We are 'The Beef,' hence the cow spots," said Promotions Director Leslie Savage. The 10 W station airs a mix of modern and classic rock for the residents of Centerville, Ohio.

"We are run out of Centerville High School, but we're not a trashy high-school station," Savage said. Students work at the station as part of a school course in broadcasting.



This bumper sticker for "The Beef" includes a peel-off coupon for a fast-food hamburger or cheeseburger.

How does your station bumper sticker convey the station's personality? Send a sticker, along with an explanation, to: Radio Bumpers, 5827 Columbia Pike, Third Floor, Falls Church, VA 22041.

Radio Listening Strong All Week

People are spending more time listening to their radios than one might think.

Interep recently analyzed the frequency of radio listening in the Top 10 metros, and the analysis revealed impressive numbers: 84 percent of 18+ adults tune in Monday through Friday. Weekend numbers are not far off, with 70 and 59 percent listening on Saturday and Sunday, respectively. Thursday shows the highest AQH listening, with Friday coming in a close second.

According to Interep, the increased AQH and higher cume reach on Thursdays may be a reflection of stations starting special or new

Daily Time Spent Listening

	Hours/Minutes
Monday	3:58
Tuesday	3:58
Wednesday	4:01
Thursday	4:21
Friday	4:09
M-F Avg.	4:05
Saturday	3:38
Sunday	3:10
Sat./Sun. Avg.	3:24

Adults 18+ / Arbitron Top 10 Metros / 6 a.m. to midnight. Source: Interep.

programming on Thursday.

Advertisers may be tempted to focus their efforts on the end of the work week in order to lure potential buyers, but Interep's Executive Vice-President/Director of Research Marla Pirner said the differences are not that significant.

Pirner said advertisers benefit by purchasing full-week runs for their spots, rather than depending on Thursdays and Fridays to reach consumers. Advertisers should remember that consumers listen to the radio every day in their cars.

— Stephanie Muller

Digital in Spotlight At Clinic

► CLINIC, continued from page 49 worked to reduce artifacts that tend to appear in the analog output of some digital processors.

Wednesday afternoon featured a presentation of the Smarti, a new POTS codec from Marti. As radio broadcasters look for alternatives to traditional phone couplers for remote broadcasts where RPUs won't work, digital solutions that use a standard phone line look more and more interesting.

Clean power

Lightning protection and clean power were other areas of interest. Tuesday evening's "Nuts and Bolts" session featured a discussion on lightning protection with Tim Tomter of the University of Wisconsin, Milwaukee, who recommended putting in a well at transmitter facilities as the primary ground.

Lightning protection and clean power were other areas of interest.

Tomter said he has seen a number of facilities where lightning has traveled all around the building and finally found a good ground in the plumbing, despite the existence of a typical copper ground at these stations.

On Wednesday morning, engineers heard a presentation from Ken Martin and Tony Wick of TECH Electric. They talked about selection and options with uninterruptible power systems and discussed the problems of harmonic content that often appears on building power with lots of non-linear loads. TECH represents several manufacturers' products for surge protection, uninterruptible power and harmonic filtering.

More than papers

Engineers enjoyed the lighter side of broadcast engineering with "Richard Sparks," an engineering character played by Dan Stone, program director of WIXX-FM in Green Bay, Wis. Sparks was kind enough to dress up in his best flannel shirt and tool belt for the engineers and entertain us with some "yooper," poking a little fun at engineers and natives of the Upper Peninsula of Michigan. It was a fun way to lighten things up after a day of technical papers.

A regional SBE meeting was held in conjunction with the clinic.

Mark Croom is chief engineer at WNBC-AM-FM in Madison, Wis. This was his 12th Broadcasters Clinic.

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Six Years of Christmas

Sing along now: "On the sixth year of Christmas, my radio gave to me — 36 hours of music!"

Christmas Music Networks celebrates six years of satellite-delivered, format-specific Christmas music. Stations can program up to 36 hours of



market-exclusive music for Christmas Eve and Christmas Day.

Adult contemporary selections include "Rockin' Around the Christmas Tree" by Amy Grant, and Johnny Mathis' "It's the Most Wonderful Time of the Year." Oldies selections range from Bing Crosby's "White Christmas" (what else?) to Stevie Wonder's "Someday at Christmas." Christmas Music Networks even offers a news/talk package, with holiday "factoids" and top-of-the-hour affiliate news windows. Artists such as the Boston Pops and Natalie Cole perform musical selections.

Christmas Music Networks debuts its country lineup in 1998.

For more information, contact the affiliate relations department in Kansas, (913) 897-8063; or circle Reader Service 55.

An Artful New Year

WFMT Fine Arts Network offers a no-cost New Year's Eve party, with its "Midnight Special New Year's Gala."

After the clock strikes midnight on

the East Coast, an hour of "the 12 most requested songs and comedy routines" rings in the new year. At 1 a.m. (EST), the network goes live with a "round-robin song swap" from Canadian recording artist James Keelaghan,

WFMT Radio Networks

Pope Music and Capitol recording artist Lori Lieberman, folk musicians Kim and Reggie Harris, and Waterbug recording artist Kat Eggleston. WFMT promises additional live guests.

The special is offered nationally at no cost to stations.

For information contact Carol Martinez at WFMT in Chicago, (773) 279-2112; or circle Reader Service 79.

Ten Hours of Christmas Classics

The golden age of radio provides Christmas programming content from the NBG Radio Network.



The 10 hours of programming begin with "It's a Wonderful Life" and end with "Ozzie and Harriet." In between, listeners can enjoy "Fibber McGee & Molly," "A Christmas Carol," "Boston Pops 'We Wish You a Merry Christmas'" and "The Great Gildersleeve."

The programming can run anytime during December.

For information contact John A. Holmes at NBG Radio Networks in Oregon, (800)505-5640 (ext. 770); or circle Reader Service 127.

Not a Pretty Picture

There are a lot of headaches that go with owning or managing property. Find out what some of the worst are by tuning in to "Real Estate Nightmares," a program filled with tales so ghastly that it uses the Grim Reaper as its logo.

And yet — it lives! The program recently logged 100 hours

of programming on WEVD(AM) in New



York and is looking to expand to other stations in the state.

New York is unique in the size and scope of its regulatory powers, said program producer and host Vincent S. Castellano. He said New York has 26 agencies of government regulating real estate — as many as Moscow.

Castellano is a columnist for "Real Estate Weekly." The "Real Estate Nightmares" website can be found at <http://www.re-nightmares.com>

For information contact Vincent S. Castellano in New York, (718) 318-2120; or circle Reader Service 151.

'Newsweek On Air' Now Syndicated

It's Sunday: What will be the big news stories during the coming week? "Newsweek On Air" can tell you.

Previously available only to AP Network News affiliates, the 55-minute "Newsweek On Air" is now heard on 26 stations. Co-produced by Newsweek and AP Network News, the radio program features audio reports complementing articles in the upcoming issue of Newsweek magazine, not available at the newsstand until the following Monday.

For information contact John Folger at AP Radio Syndication, (202) 445-4432; or circle Reader Service 103.



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What Shape Will Kids' Radio Take?

► KIDS, continued from page 43

programming distribution. "(ABC) had a contractual agreement with us they broke to develop their own network. We didn't feel that we could compete effectively. It's a Catch-22 situation," he said.

Dahl said he expected that a CBC lawsuit against Disney, claiming "misappropriation of CBC's confidential and proprietary business information, trade secrets and business opportunities," would go to trial in January.

Aahs debuted as a national network in 1992, the first network to offer a 24-hour daily kids radio format. Radio Disney programming is similar to that of Aahs, with live DJs hosting contemporary music, interspersed with features such as ABC Kids News and ESPN Kids Sports News as well as contests and games.

Upon announcing his decision to cease Aahs distribution, Dahl dangled the possibility of one day distributing Aahs programming on a satellite digital audio radio service. Two DARS providers now hold licenses and are planning to roll out satellite radio in the next couple of years.

Children's programming on public radio concurrently suffered a major blow when Public Radio International announced in late October that "Rabbit Ears Radio," a weekly half-hour of storytelling hosted for most of its four-year run by actors Mel Gibson and Meg Ryan, would be canceled effective Jan. 1.

PRI "Rabbit Ears" is broadcast on more than 200 noncommercial stations. Original soundtrack music composed by top musicians such as Herbie Hancock complements stories told by celebrities including Robin Williams, Danny Glover and Glenn Close.

No sponsor

Mark Sottnick, developer and executive producer of the series, originally owned the "Rabbit Ears" production company but sold it two years ago. The current owners, MicroLeague World Media, could not come up with a sponsor to keep the show on the air, according to PRI.

"Essentially, the program had traded hands several times," said Melinda Ward, senior vice president for programming at PRI. "The current owners weren't able to raise the money for underwriting (sponsorship)."

Sottnick was less sanguine. The new owners "made promises that weren't fulfilled," Sottnick said. Sottnick said "Rabbit Ears" was really a "family program" that adults could listen to with their children.

Despite the loss of "Rabbit Ears," some children's programming still is available to noncommercial stations.

John Shepherd is senior producer of "Kinetic City Super Crew," a half-hour weekly series funded by the nonprofit American Association for the Advancement of Science.

"It features six teenage kids who are 'the Crew,'" Shepherd said. "Every week they are called on to solve a mystery, with the subject matter ranging from animal communication to kitchen chemistry to stain removal."

"Kinetic City," on the air since 1994, is heard on 50 stations, evenly divided between commercial and noncommercial, according to Shepherd.

With the demise of "Rabbit Ears," Shepherd said he hopes some stations will pick up "Kinetic City" as a replacement, although the target children's audience is somewhat older.

Ward said her network has another program aimed at older children under development set to debut this spring. "Professor Pete's Path to Musical Mastery," also projected as a weekly half-hour drama, will combine the talents of Peter Schickele, who also hosts PRI program "Schickele Mix," with a teenage musician. Each week they will make another "discovery" about music, with the teenager acting as a foil for musician/comedian Schickele, who is best known for his tongue-in-cheek "PDQ Bach" albums released in the late 1970s.

Arbitron, the major audience ratings service used by most radio stations and advertising agencies, keeps no record of listening habits of those age 12 and under.

Noncommercial stations receive ratings surveys from Arbitron, broken out separately from commercial reports, but have had no way of knowing how many people under 12 listen to programs such as "Rabbit Ears." Despite the noncommercial nature of sponsorship for the series, it became a difficult sale to increasingly sophisticated companies looking to target public radio listeners with FCC-allowable "identification" announcements.

Radio Disney rolled out its 24-hour network in September, based on test research from Statistical Research Inc. By late

October, 11 affiliates were broadcasting Radio Disney 24 hours daily, with plans to add affiliates monthly. Affiliates must agree to carry the full 24-hour format.

To help guarantee success, Radio Disney pumps promotional money into the market when an affiliate signs on, and sends a team to train local sales reps.

"We recognize it's a major transition (from the previous format), and that the local reps are asking, 'How can I sell this?'" said Radio Disney Vice President Scott McCarthy.

Advertisers keenly interested in the children's market have hopped on board as network sponsors. Among those who have made major buys on Radio Disney are McDonald's, Hershey's, Buena Vista Home Video (a Disney subsidiary), Hasbro and Quaker.

Local Disney sponsors have included Pepsi and Nabisco on WYDE(AM) in Birmingham, Ala., and sports teams such as the Utah Grizzlies and Utah Jazz on KCNR(AM), Salt Lake City.

Fox radio

The Fox Kids Network syndicates "Fox Kids' Countdown," a two-hour, music-heavy block heard on more than 200 FM stations, according to Fox's Nicole Nichols. The program has been in syndication since July 1994.

While "Fox Kids' Countdown" has national commercial sponsorship, the main purpose of the program, Nichols said, was to "promote" the Fox television programs to the lucrative 8- to 12-year-old market. "It's high energy, and Chris often has entertainers as guests," she said, making it extremely attractive to a generation raised on cable television and video games.

A major hurdle is attracting kids who, although fond of portable radios and home entertainment systems, grew up with cable and video as their main entertainment sources. The linking of short radio features to television and film product may prove to be one of the keys in unlocking the gold mine that the kids' radio format promises.



RABBIT EARS RADIO



Melinda Ward, senior vice president for programming at PRI. "The current owners weren't

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Conservation Pays!



'Bob and Tom Show' Anchors Indiana Station

► WFBQ, continued from page 43
away big prizes."

Recent prizes include trips to the Bahamas for Super Bowl weekend. "We'll fill the entire plane with prize-winners and our morning crew," Bender said.

Station equipment

WFBQ broadcasts from a facility located in an open field away from downtown Indianapolis. The facility also houses sister stations news/talk WNDE(AM) and alternative rock WRZX(FM). The property is home to the AM transmitter.

Dave Mettler, chief engineer for all three stations, said the two FMs are linked to their transmitters across town by a Moseley STL. WFBQ uses Continental transmitters; the station consoles are made by Pacific Research & Engineering. Mettler said Telos hybrids are used in-studio to put phone

calls on the air, and a Telos Zephyr ISDN codec is used for remotes. The station also owns digital audio workstations: four Orban DSE 7000s and an Orban Audicy.

To syndicate Bob and Tom, Mettler said, "We have two complete separate redundant 20K digital uplinks and a full-time transponder." The Comstream uplinks send stereo audio and have closure capability that is used to signal network breaks.

A final thought to describe the attitude that has contributed to WFBQ's success: In describing the location of the physical plant, Bender said it is in the woods, surrounded by a river in a field populated by deer. He said the deer occasionally mosey over and look inside. "If they have diaries, we'd appreciate the mention," Bender said.

John Montone is a radio reporter for 1010 WINS(AM), New York.

PERSONALITY PROFILE

Radio Dramatist Paid His Dues

Read G. Burgan

"Radio can do very well without you!"

Those words etched themselves into the memory of young Lon Clark. Chicago in the 1930s was a leading center of radio production and Clark was making the rounds of Chicago radio stations when a director dismissed him with those words, which he would remember decades later.

First broadcast

Clark had his first introduction to radio broadcasting in Minneapolis, singing solo during a 1928 Christmas concert. "That was the first sound of my voice going over the air in radio," Clark said.

Clark and a friend formed a musical team and began broadcasting over radio stations in Minneapolis. He also had his own dance band. Then he received an offer to work with a dramatic company in tent shows.

"I can't think of a better training for a person who wants to get experience, because you're playing a different part seven nights a week," Clark said.

The director of the tent company urged Clark to take his talents to Chicago and try the increasingly popular medium of radio. After spending time working in Chicago radio, Clark received an offer from WLW(AM) at Cincinnati, where they had a stock company.

"They hired a group of about 10 actors. That really gave me a good working out and a wonderful opportunity to learn the medium. I was there for four years playing all kinds of parts — leads, character parts and all the rest of it — and getting nice reviews for what I was doing."

Hollywood or New York

Clark had two choices for where he could pursue radio drama: Hollywood or New York. Hollywood had the attraction of a potential film career; New York offered the possibility of work in the legitimate theater. Clark chose New York.

"It was 1941. My wife was six months pregnant. I had no job in sight but some hopeful leads. When I got to New York, within my first month I had made close to a thousand dollars, which was very unusual for those days."

Clark found himself in constant demand in New York radio circles. One of those who appreciated his talent was Norman Corwin.

"To be able to work for Norman Corwin was like being declared to have graduated from college cum laude, because his works were so remarkable. Everybody wanted to be on his show, even though most of the time it was noncommercial. It had prestige. And so I wanted the good stuff even though it didn't make me as much money as I might have on another show. I did maybe 30 shows for him."

In 1943 the Mutual Broadcasting System decided to produce a new detective series based on the pulp fiction detective hero Nick Carter, and Clark was called upon again. "I can

still remember the night I got the telephone call: 'This is Jock MacGregor. I'm happy to tell you that if you are available, we want you for Nick Carter.' So that's how I got the role on WOR," Clark said.

'Nick' at night

The Nick Carter series proved popular and established Lon Clark as a major radio actor. Then came a crisis.

"All of a sudden they changed our hour on Mutual to opposite Jack Benny on Sunday evenings. I remember going home and saying to my wife, 'I guess we had better save our money very



Lon Clark

carefully.' She said 'Why?,' and I said, 'They've moved Nick against Jack Benny.' It developed that Nick Carter received the highest rating of any show that was put against Jack Benny."

What made it stand out from the many other radio detective series? "Nick Carter was a show that we settled into on Sunday evening around dinner time so that the children, the parents and the grandparents could sit there and listen. In all the time the show was on the air with Patsy his girl Friday, there was never an overt suggestion that there was a sexual relationship between them except that they were a devoted team to do what they could to catch crooks.

"I never killed a man in all those years. That's unusual. ... And never was there any conflict between Nick and the police department as there were on some other shows. On our program, you heard Sgt. Mathison, who was Nick's sidekick, and we always worked together. We received several awards for helping the image of the police department."

During his peak years, Clark appeared on an average of 20 radio broadcasts a week. He was particularly in demand for programs like "The March of Time" and "Report To The Nation" that required a variety of foreign accents in a single episode.

Comic Weekly Man

Very few people know that Lon Clark was the Comic Weekly Man, and that he wrote, produced and did all of the voices except those of the female roles, which were done by his "Miss Honey."

Clark was never identified on the program's credits, and he did not emphasize his relationship with the

program in those days. "I didn't publicize it very much, because I was hoping my career would be advanced more in serious and mature roles. You think you're going to play Hamlet, and you don't want to say, 'This is the Comic Weekly Man and I want to audition for Hamlet.'"

The Comic Weekly Man began with Clark singing, "I'm the Comic Weekly Man, the jolly Comic Weekly Man, and I'm here to read the funnies to you happy boys and honeys."

"I auditioned for (the part), and I got a call saying I was the person they wanted to do it. I came in and they handed me a script, and I took it home," he said. "It was written by a very good writer, but he apparently didn't have a feel for childhood stuff and what kids would like. So I went home and re-wrote my own version of the script and took it back to Mildred Fenton the producer, and I said, 'I think this is the way the script should be.' She called me back and said 'I've read the script, and you'll be writing it, too.'"

Worst-case scenario

One day when Clark was building a new home in Woodstock, N.Y., he hurt his back. The disaster also affected his voice: Several months' worth of pain killers damaged his vocal cords. At the time he was a member of the board of directors of the Episcopal Actors' Guild,

which was dedicated to helping show business people who were down on their luck. They asked Clark to administer their organization, so he embarked on a new career, which he pursued until his retirement in 1995.

Does any particular radio program or series stand out in Clark's memory?

"One I was really thrilled to do was sponsored on Sundays by the Catholic Church," he said. "During World War II they did a lot of broadcasts about men in the service. There happened to be a man by the name of Lt. O'Shay in the Navy, and the ship went down with him on board, and he had written a letter to his children that was published in all of the newspapers about what he was fighting for.

"I was called to be in the cast for that show, and in the middle of the rehearsals the director said, 'I think I need to change a few characters around for balance of voices,' and he switched me into the lead role. I've never forgotten how difficult that broadcast was, because I had two little boys at that time, and to read that man's letter to his baby boy was just too hard for me to contain myself. But I finally got it so that I did it the proper way.

"I've never forgotten it because the director came to me afterwards and said, 'Thanks very much for saving my show.' I didn't tell him that I had auditioned for him in Chicago, and he said 'I think radio can do without you.'"

■■■

Read Burgan is a freelance writer and a former public radio station manager.

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**D'Amore
Woos and Wins Rod West**

Rod West joins Brandon D'Amore Productions as president/co-owner of the production house. West resigned as president of AME/Premiere Radio Networks, Country division, a position he held after Premiere acquired AfterMidnite Entertainment.

West worked with BDP founder Brandon D'Amore at ABC/Watermark and helped bring D'Amore's Invasion Production Library to the marketing division of Premiere Radio Networks.

**College
Station Has
'Impact'**

► MSU, continued from page 48
essential in isolating the sound infiltration to give us a good quality recording and on-air environment."

The cost of the facility came to about \$1 million.

"For a college radio station, it's extremely nice," Reid said. "We have four Pacific Research and Engineering consoles: three RadioMixers for the on-air rooms and for the newsroom, as well as a ProductionMixer. We also use an Orban 9200 digital OPTIMOD and a Dolby digital STL. My philosophy has been that it's not only important to stay on the cutting edge of technology but to also provide students with a viable learning environment."

"The foresight that went into the construction of the studios was no accident," Collman said. "You can't just go in as a person with a disability and say 'Okay, I'm going to change this because you guys aren't complying with ADA.' There are certain rules and regulations you have to follow and a grandfather clause to some things ... anything built from this point on has to be accessible. But radio is a business, and is not supposed to be an open sort of place. Irregular rooms are a must for acoustics."

"I am extremely proud of what we've been able to accomplish at WDBM," Reid said. "The major benefit of this facility is that we have the opportunity to work with outstanding people like Pete, who is destined to make an enormous contribution to the radio industry."

Arbitron Promotes Two

The Arbitron Company announced that Jerry Sacchetti has been named manager, eastern advertiser/agency services in New York. Sacchetti has been with Arbitron since 1994, when he began as an account executive, responsible for eastern Pennsylvania, upstate New York and numerous New York agencies.



Jerry Sacchetti

Arbitron also announced that Karla Eyerly has been promoted to account executive in the Columbia, Md., facility. Eyerly joined Arbitron in 1995; she has served as a marketing analyst,

software trainer and client service representative.

Crown Appoints Bolstetter CFO

John Bolstetter has joined Crown International as chief financial officer. Bolstetter replaces David Bowers, who is retiring.



John Bolstetter

Bolstetter is the former vice president of finance for Mark IV Audio Inc. in Buchanan, Mich. He brings nearly 22 years of experience in various manufacturing and distribution environments to Crown.

Bolstetter is a CPA, with an MBA from

the University of Buffalo and a BS in accounting from Ithaca College.

ABC Names Vice President — Sports

ABC Radio Networks named T.J. Lambert vice president — sports. He will be involved with all aspects of the ABC Radio Networks Sports Division, including interaction with affiliate marketing, ad sales, marketing and programming for both ESPN Radio and ABC Sports Radio.



T.J. Lambert

Lambert is the former vice president, affiliate marketing for ABC Radio Networks.

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Studio Sessions



**Tascam Multitrack
Uses MD Technology
Page 62**

Radio World

Resource for Radio Production and Recording

November 26, 1997

PRODUCT EVALUATION

ProTools 4: The Next Generation

Part I of II

Dave Foxx

For several years now, I have signed my e-mail with the tag line, *ProTools Rules!*

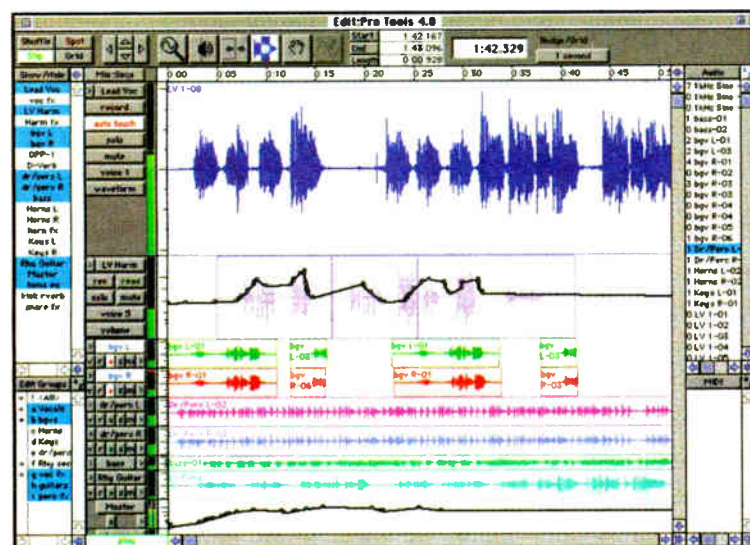
I have been a ProTools user since it was two different pieces of software, one for record/playback and one for editing.

When I first booted up that old Mac II, there were few players in the digital audio workstation (DAW) field: Digidesign's ProTools, New England Digital's Synclavier, the Studer Dyaxis and SSL.

This doesn't even include special projects like anniversary CDs featuring live performances, composites for the sales department and music CDs for a local chain of movie theaters. ProTools has handled everything I have thrown at it.

I prefer a direct-to-disk system rather than a RAM-based system. This offers me the most versatility and stability.

A few years ago, a friend of mine in Boston who was beta-testing another brand asked me to come give it a test-drive. The tape machine-like layout meant a short learning curve for jocks transiting from analog.



Editing in ProTools 4

Since then, every year at the NAB show, I have seen two or three — and, at one time, six — brand-new products to compete in the DAW arena. Some companies have left the business, while some have moved over to the consumer side of the business.

A great many others like Sound Forge, Sonic Solutions, PR&E, Roland, Orban, SADiE and SAW have moved along with the technology, making improvements and creating new versions. ProTools has just moved up to version 4.1 as of the fall AES Show in New York. Version 4 now is catching on with radio producers who have used earlier versions.

Disclaimer

Before I end up insulting everyone who ever bought another system, let me state that most work as advertised. They are reliable, easy to use and definitely have a place in broadcasting. But for the kind of work I do — high-energy, tightly focused, extremely involved production — ProTools is my choice.

At any given time, WHZZ(FM) "Z100" has as many as 10 different promos running on the air, each for their own special event or program. In a typical week, I produce five or six full-blown promos with all the bells and whistles, plus updates.

Throw in a couple dozen sweepers, a few jingles (with a little help from the JAM singers), music edits and remixes, and you have a fair idea of what my week is like.

I was operating in no time flat.

Then the power went out, wiping the RAM clean. I had to reload everything from scratch and start again from the beginning. At least when you lose the juice on a direct-to-disk system, everything is on the hard drive, waiting to re-boot.

In fairness, that model has evolved since then, with many features, including constant shadowing to hard disk.

One other factor keeps me out of the RAM platforms: plug-ins. These extra little pieces of software can transform sound in just about any way you care to imagine.

No other system offers as much in terms of plug-ins; at last count, Digidesign had more than 120 third-party developers working on a variety of modules.

In a typical session, I'm using a flange, reverb, compression and equalization, with limiting on the final output. On the once-in-a-while list, I have been known to use ring modulation, comb filtering, chorusing, stereo enhancement, gating, clipping, broadband noise reduction, hum removal, pitch shifting, Doppler, multi-delay, tremolo, and echo — all in *real time*, folks.

Add in all the rendering facilities like time compression and expansion, normalization and audio reversal, and I can do whatever an Ultra-Harmonizer can do inside the computer, without ever leaving the digital domain.

By the way, in case I want to use an Ultra-Harmonizer or any other box in the room, ProTools has tons of sends and receives already built in. I can zoom in really tight, and actually redraw the waveform with a little pencil cursor. That is way cool!

I guess another reason I shy away from RAM-based systems is that they use dedicated computers. This means the com-

puter can't be used for anything else, like writing an article about the wonders of ProTools.

Yes, this was written on my trusty Mac Power PC 9500/200, which also is my workstation computer. It also makes graphics-intensive labels for control room carts (don't ask), sends and receives e-mail, and is used to search the Internet for sounds I can use in my promos.

Yes, other systems are available; I think the Sonic Solutions and PR&E systems are good. For mastering purposes, Sonic Solutions might be a better choice. For the work I do, though, ProTools still leads.

More power, Igor

Certainly there will be times you might not need all that ProTools 4 offers. Sometimes it's better to hit a fly with a

swatter than with a sledgehammer.

For instance, ProTools might be overkill for an all-talk format, but if you are the imaging guru for a local powerhouse CHR, hot country or AAA station, you do not want to deal with any constraints to your creativity.

Today I designed some new weekend sweepers for Z100. First, a basic design was copied nine times. I changed "lifestyle" sound bites and adjusted the filtering a little bit for each one. In less time than one could imagine, I had 10 essentially different sweepers that will sound fresh for weeks instead of one that will need to be replaced by Friday.

I routinely bang out a promo in 45 minutes or less that, in the analog world, would literally have taken four or five hours. Every note is in exactly the right place, every word has impact and every effect flawlessly is laid in place.

Could I do the same promo on another system? Sure, but not in 45 minutes and not

See PROTOCOLS, page 58 ▶

SHORT TAKE

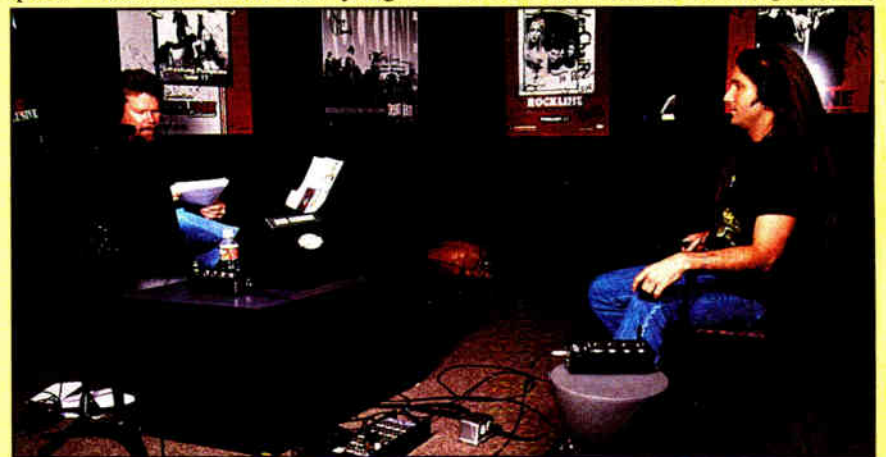
Inside 'Rockline' Studio In Los Angeles

Alan R. Peterson

Take a look at what goes on behind the scenes at "Rockline," the syndicated weekly call-in radio show produced in Los Angeles by the Global Satellite Network (GSN).

Out of the simply furnished studio space, "Rockline" is fed Monday nights

Live performances inside the studio space are captured with Sennheiser 421 II mics, while host Bob Coburn pulls his shift with a Senny HME25 headset/electret mic combination. GSN engineer Jimmy Rash noted, "Most of our guests are very familiar with the 421. The mics are major players on our show." In the field, live interviews are generally



In the Rockline Studio

from 8:30 to 10 p.m. Pacific Time to 150 affiliates in the United States and Canada. The show features live interviews and performances with mainstream artists and their music. Recent performers have included David Bowie, REM and George Harrison.

A sister show, "Modern Rock Live" has a similar format with alternative performers such as The Red Hot Chili Peppers, Alanis Morissette and Courtney Love.

recorded on MiniDisc and played back during the show.

GSN distributes one live concert recording per month to affiliates and produces a daily Internet feature called "GSNNews" where stations can download artist news as well as audio clips of interviews and concert bites.

GSN is based in Sherman Oaks, Calif., and can be reached at (818) 906-9736.

PRODUCER'S FILE

SmartMixer Saves Session

Ty Ford

I had been looking for the opportunity to test the Audio-Technica AT-MX351 four-channel SmartMixer (\$799), and AT854R quad cardioid boundary mic system (\$585), when a call came in from a local advertising agency, asking if I could do some location recording of a boardroom event.

I began to feel like Ty Ford, Audio Detective. How many people? What does the space look and sound like? How big is it? Is it a quiet space or is it next to a tomato canning operation? I was assured that it would be 12 to 15 people around a table in a standard hotel meeting room.

After a minor shipping mix-up, two complete mixers and mics arrived. I was uneasy for some reason (experience) the night before setup, so I decided to take both systems with me, just in case. If you have done this sort of thing, you know where I am headed: It was a *banquet-style* table!

Thanks for not telling me

Yes, there was rectangle made up of four tables, 28 feet long and 14 feet wide with a gaping 8-by-23-foot empty space in the middle. There were 19 people, six on each side, four at one end and three at the other end.

With only one mic, the people at the ends of the table would be 12 to 15 feet away from the mic. I thanked Providence for the shipping screw-up that had resulted in two systems being delivered and set up two trays with stands inside the tables.

Although the AT-MX351 mixer comes with a special cable that daisy-chains multiple units, I went stereo instead, putting one system on each channel of my Panasonic SV-255 DAT machine. That put everyone within five to eight feet from a mic — a bit farther than I would have liked, but doable.

The kitchen staff put a tablecloth over one of the tables to dress it up, but the linen softened the sound too much, so I removed it. The 30-foot multiconductor cable was plenty long for the job. The only thing I didn't like about it was the plastic XLR connectors.

I was told they were strong enough to drive a truck over. So I tested one with my Honda Accord. It survived, but the XLR barrel got a little bit out of round. I was able to squeeze it back into shape with a pair of channel locks.

The back panel

There are four XLR inputs on the back that can be independently switched between mic and line via DIP switches inside the box. Phantom power also is independently switchable.

The unit also provides four independent -10 dBV unbalanced RCA outputs, one for each channel. The main balanced XLR output can be switched internally between mic and line levels, and there is an additional -10 dBV main output RCA jack. A -10 dBV RCA jack is provided for a mono aux input.

A 15-pin connector allows for external control of TTL output and closure control input for each channel. You can use this to set up indicator lamps, switch speaker zones, select video cameras and more. There also is an industry standard IEC power socket and cord.

The front panel has a power switch, individual pots and "On" LEDs for each channel, a pot for the aux input, a seven-

LED output level meter that ranges from -20 to +6, a master output control that comes after the output LED and a quarter-



Brains of the Outfit: The Audio-Technica AT-MX351

inch TRS monitor jack with level for headphones.

Five DIP switches change the priority of the mics and a lockout LED indicates that the lockout circuitry is active.

The idea here is that mics that are not in use are turned down automatically by as much as 40 dB. The DIP switches on the SmartMixer face can be configured to allow up to four channels to have priority.

If all mics have priority, no single mic gets locked out. But as the level of a mic drops below the threshold, it will be turned down between 6 and 40 dB. If all lockout DIP switches are *on*, the lockout bus shuts down all other mics until the first speaker pauses. You can also select one, two or three channels to have priority, which shuts out the others until all priority mics are silent. The mixer also can be used manually.

See MIXER, page 58 ▶

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Audio-Technica Automates Mix

► MIXER, continued from page 57

According to Kelly Statham, development engineer at Audio-Technica, the AT-MX351 has some new features that were not on earlier models. First is an automatic threshold feature that "listens" to the room ambiance on the mics not turned on, determining an average level for background noise.

It has limiters for each channel, placed before the individual -10 dBV preamp

outputs to which the gate can also be separately applied.

The daisy-chaining feature mentioned earlier allows multiple SmartMixers to be connected via a multi-pin cable. The cable provides summing so that the last mixer in the chain contains the audio from all previous mixers. Lockout information is passed along with the audio from each channel.

The SmartMixer also has a feature

that keeps the overall level constant as the number of open mics increases. Bill

settings worked better than my mine. Part of the problem was that, even though the cardioid patterns of the AT854R quad mic overlap generously, the room was so big that mic switches resulted in noticeable ambiance changes. Although the client was happy with the result, I had other problems with the room because there were so many people a bit too far away from the mics.

I was "zone miking" rather than individual miking. Even though each input has a limiter, I found it necessary to make manual adjustments due to the different speaking levels while the automatic



The AT854R Quad Mic: Four Mics in One

Balmer of Audio-Technica recounted a large-scale use of the system for a four-hour live broadcast in which 145 mics and 40 mixers were used successfully.

Back at the banquet

Hotel spaces are notorious for having loud HVAC systems. I used the full 40 dB on one of the SmartMixers. On the other, the trim pot was left at the factory setting of 12 dB. I used the All Priority DIP switch settings, because I never knew who would be speaking, and I needed to get all of it.

I positioned the mics about nine feet apart, which put most of the people four to eight feet from a mic. The cardioid capsules in the AT854R are numbered 1 to 4 and set 90 degrees apart. I pointed the No. 1 element of each mic at opposite ends of the table. That left Nos. 2 and 4 to cover the sides.

I had planned on leaving No. 3 off on each mixer, but found that it occasionally did a nice job of capturing the far end table at which it was pointed. Concerned that this might cause a phasing problem during playback, I cautioned the client that they would probably have to choose one of the two DAT channels to get the best results.

In this particular application, the factory

part was doing its thing.

Depending on where the person was seated relative to the mics, a turned head would cause a mic to switch. In a more intimate application with only one person on each of the four AT854R mics, a level probably could be set for each mic and left alone.

Conclusion

The only thing I could think to ask for on the SmartMixer would be a good 60 Hz or sub-bass filter to reduce HVAC noise. The AT854R Quad mic, without the SmartMixer, makes a nice omni pattern when all four elements are mixed. During my session, I was monitoring off my DAT machine with headphones. The two systems provided some interesting stereo effects and occasionally the sound source appeared to be coming from behind me. It was so convincing that I turned around only to be staring at the dark and empty end of the room.

Spooky.

■ ■ ■

For information, contact Audio-Technica in Ohio at (330) 686-2600 or circle Reader Service 175.

Ty Ford can be reached at tford@jagunet.com

Radio Production on Digidesign ProTools 4

► PROTOOLS, continued from page 56

without sacrificing the texture and layering that is central to my style of production. What to do with all that extra time is the next question (my program director would answer that one right away).

Oh, did I mention that I have two home studios? Both are also equipped with ProTools.

In one room, ProTools is burning a CD for a commercial client like Reebok or Ralph Lauren Polo Jeans. I am in the other studio using ProTools to make promos for Star 98.7 in Los Angeles.

What about the learning curve on ProTools? If you know anything about production, ProTools 4.0 is incredibly easy to master. Anyone can be doing full-blown production inside of two or three days.

As proof, I have two producers at Z100 who work on other projects. Until I built their studios, neither one had ever done a lick of production in their lives.

Are they good? I would put their work up against anything I have ever heard.

Are they gifted child prodigies? No. They learned it all from scratch — Macs, ProTools, everything — all in the last year.

I have spent a lot of time hitting just the treetops in this installment. Next time, we will walk through ProTools 4 and find out more about the features found in this newest version of Digidesign's baby.

■ ■ ■

Dave Foxx is creative services director for WHZZ(FM), "Z100," New York. To talk about ProTools, audio design or radio in general, e-mail him at foxx@z100.com

He promises to respond "with advice (free, and worth it at twice the price), answers and my own twisted brand of production philosophy."

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PRODUCT GUIDE

Companies with new product announcements for Studio Sessions Product Guide should send them to:
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Rane Mojo Mixer

The Mojo MM8x Mixer from Rane Corp. has been designed for serious disc jockey work in clubs, mobile services and small studios.

The MM8x mixer comes with eight switchable inputs, four phono preamps and independent three-band EQ on each slider. The mic input features two-band EQ and a top-mounted XLR connector.

The semi-circular LED meter is switchable between Program and Cue levels, and an active VCA-controlled crossfader eliminates crosstalk and signal bleed.



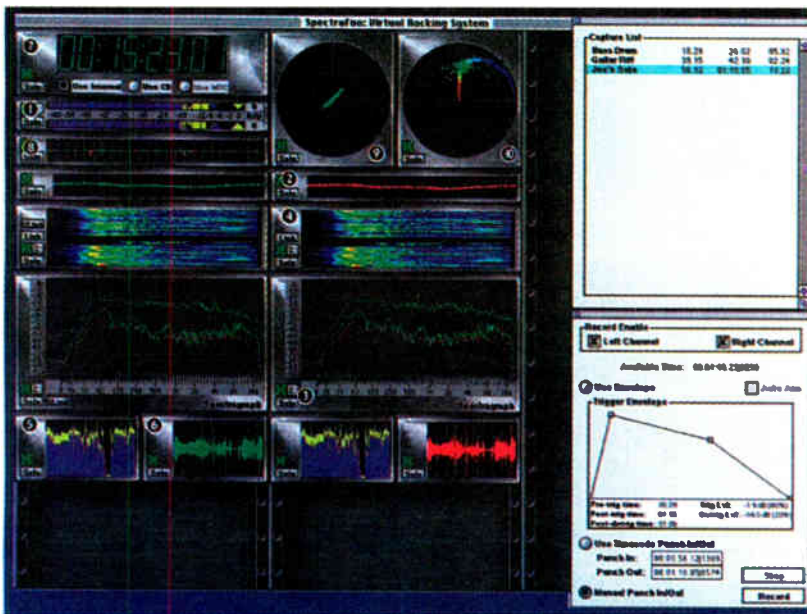
The Mojo MM8x retails for \$899.

For information, contact Rane in Washington State at (425) 355-6000 or circle Reader Service 199.

SpectraFoo Monitoring System

A new computerized monitoring system from Metric Halo Laboratories puts a whole rack of audio analysis tools onto one screen.

SpectraFoo combines several virtual instruments onto a Macintosh screen that is updated 42 times per second.



Resolution of up to 1/100 of a dB is possible.

The suite combines a real-time oscilloscope, spectrum analyzer, Lissajous phase scope, time code clock and Peak/RMS/VU meters in one computer with laboratory-grade precision. All audio captures are saved to RAM and can be copied to disk as AIFF files.

A demo is available from the company.

For information, contact Metric Halo Laboratories in New York at (914) 298-0451 or circle Reader Service 223.

Genelec Active Monitors

Designed for large broadcast facilities and recording spaces, the Genelec

Model 1039A is a powerful and highly precise monitoring system.

The monitors are designed for soffit or flush mounting in the control room wall, or can be used free-standing. Amplification for the 1039 speakers is provided by two 7U racks housing amps, crossovers and protection circuitry.



The bass, midrange and treble amplifiers respectively produce 2 X 400 W, 350 W and 120 W. Total power per channel available is 1,270 W with less than .05 percent harmonic distortion.

The size, weight and cost restrict the 1039A system to the largest facilities. Each speaker enclosure is nearly three by four feet and weighs 313 pounds. Each amplifier unit weighs 46 pounds. Retail price of the 1039A is \$25,000 per system pair.

For information, contact Genelec in Massachusetts at (508) 440-7520 or circle Reader Service 8.

settings for the type of CD being played and compensates for changes in the pickup over the years.

The cassette deck now includes the ability to switch between the internal CD source and an external line input. A return-to-zero memory rewind is included, as is a ± 12 percent variable-speed control.

Other improvements include the addition of a headphone jack and monitor selector switch, a terminal for a wired remote and balanced XLR I/O.

For information, contact Denon Electronics in New Jersey at (201) 575-7810 or circle Reader Service 32.

Quantegy MiniDisc Media

Quantegy introduced the Quantegy Recordable MiniDisc, a multitrack media product designed for the new generation of portable MD recorders.

The Quantegy MiniDisc is a Data MD offering high performance in digital audio recording, editing and playback. Up to four tracks can be recorded on a 140 MB Data MD on "portable studios" made by Tascam, Yamaha and Sony.

For information, contact Quantegy in Georgia at (770) 486-2800 or circle Reader Service 56.

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Denon Cassette/CD Deck

The Denon DN-T620 is the successor to the DN-610F, and combines a high-quality cassette deck with a CD player in a single 3U rackmountable chassis.



New features include variable pitch of ± 12 percent on the CD deck, an A-B repeat mode, single/continuous playback mode and back-cueing. Automated laser servo adjustment maintains optimum

Sore Wrist? Maybe It's Your Job

Flip Michaels

Most office and casual computer users suffer in silence. Now joining the ranks of the walking wounded are producers and production directors.

All are among the thousands of Americans suffering from repetitive stress injury (RSI), also known as cumulative trauma disorder. With the

work with a variety of controls in a different physical configuration. This leads to less fatigue for the hands, compared to having one hand on the mouse all day."

The Spectral system of "hot key" assignments was implemented to eliminate mouse functions of the editing software, assigning them instead to buttons on the CS-10/2 controller.



Moving Mouse Pad: the Flex Rest Tray for Computer Users

jump in digital editing use, RSI may have taken to the airwaves.

Often associated with people working on computers, RSI is one of the nation's most common numbing and painful work-related illnesses. Whether it manifests itself as an ache in the shoulder or neck or a pain in the elbow, or is diagnosed as the dreaded Carpal Tunnel Syndrome, those hours slumped over a keyboard could be taking their toll.

"We have received many requests over the years from customers who would prefer to control our audio editing and production software by means other than a mouse," said Harold Drews of Spectral, maker of Express radio production software.

"By far the most popular unit of choice for controlling Spectral workstations has become the JL Cooper CS-10/2," said Drews. "This unit has eight faders, six rotary potentiometers, a scrub wheel, transport controls and 10 function keys, and enables the user to

"The JL Cooper CS-10/2 can be programmed with Spectral software functions to accommodate the working style of individual operators," Drews said. "Although Spectral software responds very well to mouse control, the partial or nearly complete abandonment of the mouse in favor of dedicated and assign-

Those hours slumped over your computer at work and home could be taking their toll on your health.

able buttons and knobs on the worksurface controller has become a very popular method of working."

JL Cooper Electronics has been a pioneer in professional automation, control, synchronization and interfacing products for nearly 15 years. Cooper technology is an active part of the motion picture and television industries,

radio, multimedia and the professional audio industry.

"Mice are handy for word processing or general use," said Chuck Thompson, vice president and general manager for JL Cooper. "For precision editing of digital audio or video you need an input device that lets you concentrate on your project, not on your computer."

The company's Electronics Control Station products are mouse replacements for hard-disk editing systems. They feature conventional controls that look and feel like a tape recorder transport, with large buttons for Record, Play, Stop, Fast Forward and Rewind.

The added benefit of smooth, optically encoded jog/shuttle wheels provides precise positioning and effortless scrub editing as well.

Cooper Control Station technology is being used industry-wide in radio broadcast, audio recording, video post



The CS-10/2 MIDI Controller From JL Cooper

and multimedia production.

Akai, Audion, Dalet, Harris Broadcast, Phillips/BTS, RCS and Spectral are just some of the big names who have looked to JL Cooper for control interfaces.

"The CS-10/2 Professional Control Station is engineered to be the definitive control surface for Spectral's Prisma System running Producer, Express or Studio Tracks XP and other digital audio and video workstations," said Thompson.

Speed, the great motivator

The Orban DSE 7000 and its new sibling Audicy have also been designed with dedicated hardware control surfaces, eliminating the need for a mouse.

"The primary motivating factor is operator speed," Amy Huson, Orban vice president of marketing and customer service, said.

"A user sits down to a console and can quickly negotiate with faders, buttons and a keyboard for naming files. While the work can be repetitive, the variety of movements and locations must help minimize repetitive stress problems. We have never had any complaints, so far," she said.

The Orban AirTime digital audio storage/delivery system uses a mouse, but can also be configured with a touch-screen or alternative interfaces. The Orban Sound Slate is a single-touch access interface for selecting sounds, similar to flat-plane cash register interfaces at fast-food restaurants. The

Sound Cube is a digital cart head with a display screen and push buttons that gives full access to an audio database.

"We want to give Orban users alternative interfaces that best suit their working style," Huson said. "What we've found is that most users mix and match these interfaces, so they can avoid repetitive injuries themselves."

Ouch!

But what if you are using PC-based digital software like SAW or Cool Edit? They are among many systems with no provision for alternative controllers.

"It's a formula virtually guaranteeing serious injury," said the Wall Street Journal's Emil Pascarelli, professor of clinical medicine at Columbia University and an often-quoted expert on RSI.

"Be warned, most quality ergonomic products are quite expensive," he said. "And no matter what the cost, experts say, there is no one solution to RSI problems. A keyboard or wrist rest that works for one 'computer athlete' may

not work for another."

Many companies now offer products to address these concerns, including wrist braces, desks and chairs. One source is the Ergonomics and Occupational Health catalog. This 96-page booklet from AliMed Inc. of Dedham, Mass., is devoted to two major RSI culprits: keyboards and mice.

"We've got the best place for the mouse," said Fred Ambrose, inventor of the Flex Rest tray. "The adjustable Flex Rest is designed to slope backward, with the top of the keyboard actually pointing down and away from the wrists. Like a sport, you need the right equipment. The extremities need to be as close to the body as possible, to reduce flexion and extension of the arms."

RSI can cost businesses money, employee downtime and suffering. With computers in radio studios, now may be the time to examine the ergonomics of your production and on-air system and try to avoid injury to your staff.

■ ■ ■

Flip Michaels is production director for classical music station WGMS(FM) in Washington.

For information on products mentioned, contact Orban at (510) 351-3500; Flex Rest at (800) 336-7484; Spectral at (415) 855-0400; and JL Cooper at (310) 322-9990.

Got an idea to prevent RSI? Tell us about it. Send e-mail to apeterso@imaspub.com

If cost is an issue and you are stuck with your present digital editing setup, here are some ergonomic tips to help avoid RSI:

- Never use a laptop as your full-time DAW. If that is all you have, get a separate, full-size keyboard for it.
- The computer monitor should be at arm's length plus three inches. The top of the screen should be level or slightly below the center of your forehead.
- Built-in keyboard trays are useless unless they can adjust both vertically and horizontally.
- Trays should give the keyboard a negative tilt so the edge nearest you is raised slightly.
- Forearms should be straight, at a 90- to 95-degree angle to upper arms; wrists should be in a neutral position, never bent.

SHORT TAKE

Beyer DT290 Works on the Air

Alan R. Peterson

I used to watch former WHEN(AM) Syracuse morning man Phil Markert do his show in-studio with a headset/mic combination, the type normally associated with sportscasters.

At first I was amused by this, but Markert ran an active show, and the combo worked for him. He could conduct his show while walking back to the cart rack, maintain patter while doing transmitter readings 10 feet from the console and wander back to a piano he kept in the studio to plunk out an improvised tune. And it sounded as if he was on the main studio mic.

The mic is mounted on a flexible mini-gooseneck, allowing accurate positioning so the mic cannot be shifted up and out of the way.

If you are a heavy user, it is probably a good idea to buy several replacement pads along with the headset.

for optimum sound and minimal plosives. The point where the gooseneck attaches to the left earcup does not rotate vertically,

This also keeps broadcasters from turning the headset around so the mic is on the other side of the head. It is possible to

loosen three screws under a cap and shift the mic angle 90 degrees so the DT290 can be turned around and used in "right-ear" configuration. However, this also means the left and right headphone channels are now reversed.

The DT290 comes with a tinned bare-end cable (no plugs) so you can use the connectors of your own choice. If you wish, you can also include a cough switch on the mic when you solder it all together.

If you need to move around in the studio while on-air or if you want an alternative to the other headset/mic manufacturers, look into the DT headset line from beyerdynamic.

■ ■ ■

For information, contact beyerdynamic in New York at (516) 293-3200 or circle Reader Service 80.



beyerdynamic DT290

On most other shows, you would normally hear off-mic jocks yell, "Wait, wait, let me just reach over here." Markert's approach, while unorthodox, made sense for the logistics of his show. I have tried it myself on a few occasions with different headsets.

Over the ears

One such product is the DT290 from beyerdynamic. This headset/mic combo is compact, comfortable and light.

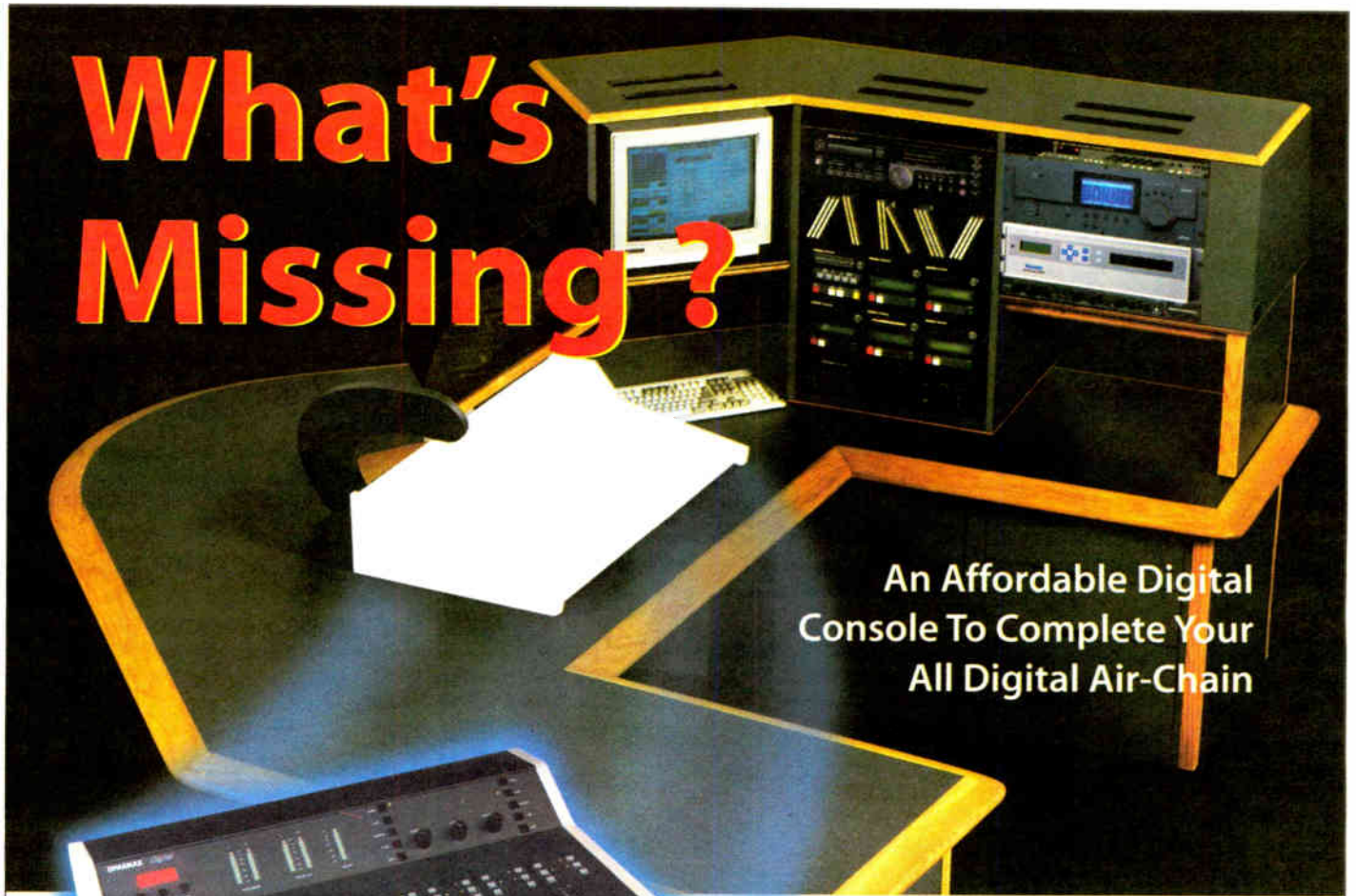
The headphone elements have a frequency response of 10 Hz to 30 kHz, and the hypercardioid dynamic mic element rolls off around 12 kHz.

The frequency response reads inadequately here in print. I suppose for FM or high-fidelity recording, it would not be your first choice. However, for speech recording and AM broadcast, it is fine.

Should you wish a wider response, the beyerdynamic DT291 and DT292 headsets come with electret condenser mic elements that scope out to 18 kHz.

The sealed cup earpieces are comfortable, although the newness of the DT290 made it quite stiff. Over time, the "action" of the headband would relax and offer a better fit.

Ear pads are replaceable; new pads simply click into place. If you are a heavy user, it is probably a good idea to buy several replacement pads along with the headset.



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PRODUCT EVALUATION

Tascam MD Multitrack 'Fun to Use'

Rick Barnes

History has a tendency to repeat itself, and when it does, it often times comes with improvements. Such is the case with the new Tascam 564 MiniDisc Portastudio.

Over a decade ago, various portable

between the channel EQ section and the channel fader. The "2TR" inputs may be used to listen to the folded-back output of a two-track master recorder.

Unbalanced outputs from the Tascam 564 include Line outputs from the Master fader, Monitor outputs, individual direct outputs right from each MD

of "the Kennedys," a voice and guitar duo.

After recording their concert, I brought the 564 into WRNR's production studio for a remix. Because the 564 had only unbalanced outputs, I borrowed the output cables from our production room's cassette player to get it to the control board. The final mix was sent to cart and by the next day, our personalities were playing "live" cuts from the Kennedys concert on-the-air.

The second test was to evaluate the 564's abilities in a studio situation. A friend, Charlie Garrett, and I teamed up for an overdubbed brass quartet.

Charlie, a wonderful trombone player, and I, wiping off the dust and cobwebs from my trumpet, were able to quickly record two pieces. Overdubbing was simple and straightforward and by adding some concert hall reverb, we were able to present the sound of four players performing in a large cathedral.

After we played our brass quartets, guitarist Steve Cosper showed up. So I got out my trusty electric bass guitar and we proceeded to lay down the rhythm tracks to two jazz standards, recording directly into the Tascam 564.

Vocalist Dana Rogers came in and overdubbed very sultry performances of "Our Love is Here to Stay" and "Gentle Rain."

Sweetening

Later, at home, I did a forward bounce of the tracks we recorded, dropped in some MIDI drums and congas from my computer and overdubbed a track of muted jazz trumpet solos. Nice.

The last recording test I performed with the Tascam 564 involved a harp and a classical soprano vocalist. My wife, Jan Holland, a harpist who performs quite often for wedding ceremonies, needed a demo tape with her new singer to pass on to "brides-to-be."

We recorded in our basement using one track for the harp and one for the vocalist, Mary Ann Evangelista. One selection was written for two singers and

harp, so Mary Ann was overdubbed onto track 3, panning the harp in the center with the two vocal tracks panned hard left and right.

One piece required a retake of the harp introduction. This again was recorded on the third track. By creating an index at the end of her second take and another at the beginning of the vocal entrance, I was able to erase the data in



The Tascam 564 MiniDisc Portastudio

recording studios came on the market. Most were four-track devices with cassette tape. Now a new generation of portable recording studio exists, using MiniDiscs (MD). I have had the opportunity to test drive the Tascam entry into this field for a couple of weeks.

With 140MB of data storage available on a Data MD, the new portable studios are capable of recording up to 37 minutes of four-track audio. The MD data format is a much-welcomed improvement over its cassette tape predecessor, providing clear near-CD quality sound with absolutely no noise or tape hiss.

The 564 is a device worth considering if you are a musician or broadcaster who likes to quickly turn out bits and songs at home when the inspiration hits.

Down to business

The Tascam 564 Portastudio is a self-contained four-track recording system that weighs 13 pounds. Designed as an entry level device for home studios, its capabilities also make it appropriate for recording jobs at a commercial radio station.

The 564 features four channels with high and low impedance inputs and individual faders. It also has eight high-Z inputs (two channels per fader) for stereo devices. The first four channels have XLR and quarter-inch phone jacks with trim pots.

The EQ sections consist of High and Low controls and a Mid with a variable center-frequency control. The first four channels also have two effects control pots and a pan pot.

Channels 5-6 and 7-8 have quarter-inch jacks with High and Low EQ only, two effects controls and a left/right balance pot. Channels 9-10 and 11-12 also use quarter-inch jacks with only a level pot.

There is a master control fader, two effect main controls, cue channels for each of the four MD tracks, a cue master control, monitor level and monitor select switches.

Insert jacks are included for external signal processors, which may be added

track, cue output from the cue master control and a headphone jack. It also has MIDI In/Thru/Out jacks and a digital output jack.

Access is easy, as the jacks are mounted on an angled back. Easy-to-operate Stop, Play, Record, Forward, Reverse, Index, Return to Zero and menu buttons, as well as an LCD screen all help you find your way on the MD.

The jog/data dial and shuttle knob also provide ease in operation for editing. Metering is with LED ladders for each of the four tracks and L and R channels.

The MD media is inserted through a slot on the side of the case, much like the Sony MD-4 deck. Yamaha is the only manufacturer with a top-loading MD mechanism.

Remember, MD multitracks need to be fed Data MiniDiscs. Conventional two-track MDs will only record and play back two tracks. The two are not interchangeable.

If you have had experience with digital audio or MIDI editing, you will find editing on the Tascam 564 understandable and fun to use.



By creating "indices" at the points you want to edit, you can move, copy, erase, black out and redo a sequence of indices. If you do not like a particular edit, the "undo" button saves the day.

All for one

Unfortunately, editing takes place on all four tracks simultaneously, so you cannot move data on one track while keeping the other three intact. The Tascam 564 also has pitch control and, what I consider its most exciting feature, "bounce forward."

Bounce forward allows you to play back a four-track recording, mix it down to two tracks and simultaneously re-record it on the same disc. With the project now collapsed to a stereo two track mix, you have two free tracks available to record more overdubs. This process can be performed ad infinitum.

My first test of the 564 was at an outdoor concert sponsored by WRNR(FM)

Product Capsule:	
Tascam 564 MiniDisc Portastudio	
 <p>Thumbs Up</p> <ul style="list-style-type: none"> ✓ Clarity of Sound ✓ Ease of Operation ✓ "Bounce Forward" ✓ Portability 	 <p>Thumbs Down</p> <ul style="list-style-type: none"> ✓ No Balanced Outputs ✓ No Individual Track Editing
<small>For more information contact Tascam in California at (213) 726-0303, or circle Reader Service 104</small>	

between and seamlessly merge the two portions of the song.

I added some reverb to give their performance a cathedral-like sound. During all of these recording sessions, the Tascam 564 performed admirably and all of the participants were amazed at the clear tone achieved from this digital recorder.

The cost of a Tascam 564 Portastudio is reasonable for a home studio. With a list price of \$1,499, I found street prices of \$1,148 to \$1,250. MD data discs are available from music retailers for \$25 apiece.

In testing this equipment, it was necessary to recruit and record musicians at their craft. Without their help and performance, this evaluation would not have been possible.

This Tascam 564 is being sent back to RW, but I'm going to buy one myself.

■ ■ ■
Rick Barnes, CBRE, is chief engineer for WRNR/WYRE, Annapolis, Md., Secretary of SBE Chapter 46, Baltimore, a professional musician and a retired U.S. Army Band officer and conductor. He can be reached at KE3QJ@msn.com

BOOK REVIEW

Recording Book Is Handy For Radio Production

Alan R. Peterson

In 1977, I bought Craig Anderton's book "Home Recording For Musicians" (Music Sales Inc.), written for folks who had a lot of musical experience but little in the way of studio smarts.

That edition included an Eva-Tone Soundsheet (remember those?) demonstrating what was in the text. Anderton discussed the then-state-of-the-art Teac 3340 reel machine. Schematics for constructing an audio mixer with cue channels and spring reverb were included. Some, like myself, took this newfound knowledge and began applying it to radio production.

A lot has happened since 1977 — the Teac has been eclipsed by portable

multitrack recorders, the Soundsheet is gone, and it now costs less to buy a mixer than to build one — so Anderton has retooled "Home Recording For Musicians" (\$24.95) to reflect technical trends of today.

Given this, the new book remains a useful source of information for fledgling production people and veterans who have toyed with the idea of creating a home studio. Musicians will not be the only ones to glean relevant data from this volume.

Getting started

A section on audio basics leads off the book. Anderton patiently and clearly explains a number of terms for the novice to grasp.

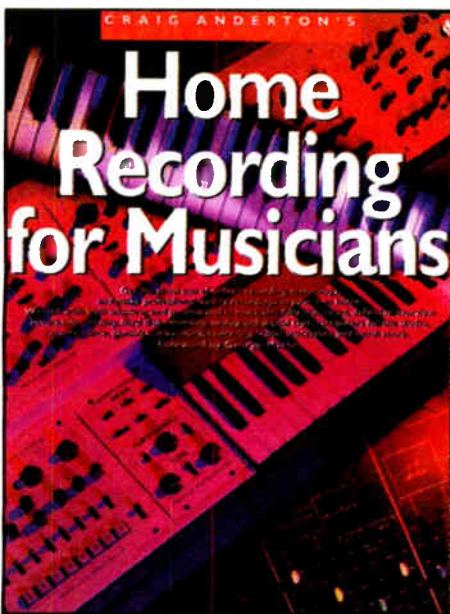
So what if you never really
See BOOK, page 63 ►

► **BOOK**, continued from page 62
understood logarithms in high school? This chapter explains why the ear responds to sound logarithmically. It then becomes a short leap of logic to understand the concept, and from there, how decibels work.

Where the original version of "Home Recording For Musicians" was heavily analog, digital reigns supreme in the current edition with only a few dozen pages devoted to good old oxide. Anderton left in tips on splicing and editing a master analog reel, as well as flopping a tape for reverse effects.

A number of pages discuss selecting and purchasing studio gear. It was interesting to flip through references to Digital Compact Cassette (DCC), VHS Hi-Fi decks and standalone MIDI sequencers. The graphic for the latter was of the old Alesis MMT-8 sequencer; a box I have not seen in four years.

I cannot tell how long ago Anderton wrote it, but he prophetically said of the comparison between MiniDisc and DCC, "Although neither format has caught on with consumers, MD may survive." The current rollout of Yamaha, Tascam and Sony MD machines bears this out.



Chapters on building a home studio made the cut to the new edition. Console and equipment layout are discussed, as well as wall construction and acoustics.

This section is lightweight; Anderton has to cover a lot of ground between the softcovers. If you really need to know about studio construction, pick up F. Alton Everest's "How To Build a Small Budget Recording Studio From Scratch" (1979, TAB Books).

The chapter on Electricity and Wiring could save your gear and your skin. Ground loops, balancing loads across power lines and attention to safety all come under this heading.

Anderton refers to devices meant to keep noise off the AC line, but absent is any mention of *balanced power*, the technology offered by Equi=Tech and Furman. It is possible the technology is too new to have made the deadline for the manuscript.

Mix it up

"Home Recording For Musicians" gets deeply into mics and mixers — the heart of any studio — and educates the neophyte in the differences between a Bus, an Aux, Pre's and

Post's and an Insert.

If all you have ever used in your career was a hardwired broadcast console, knowing and using these terms could open a world of creativity for you.

If you prefer modular digital multi-tracks (MDMs) such as ADAT or DA-88 machines, an eight-page chapter on synchronization is for you.

Portions of the book lean heavily on Mac software graphics. If you are in the IBM-PC camp, this may irk you. My only gripe is the jaggy graphics. The original printing had line art drawings while the new edition depends heavily on computer-drawn images.

Diagonal lines and curves suffer from the jaggies a great deal. One studio diagram with wiring and baffles

came out particularly jumbled. This is seen often in less-elaborate publications and equipment manuals.

Oh, and watch out for European electronic terminology. A 2.2 kohm resistor is shown as a 2k2 in one diagram.

Do radio production people need "Home Recording For Musicians"? Not necessarily, but it is a good lesson in why modern recording gear does what it does. It also justifies having that home studio; when the work is over, plug in and be creative for yourself.

But I still miss that Soundsheet.

■ ■ ■

For information, contact Music Sales Corp. in New York at (914) 469-2271. E-mail Craig Anderton at anderton@aol.com

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EV RW20, perfect, \$295; EV 309A mic shockmount, perfect, \$65; Telex V220 sportscaster headset w/cord, XLR plug, excel, \$145; OC White M2MDUR mic arm/R, excel cond, \$65; Symetrix 528E mic processor, perfect, \$285. J Coursolle, CRMC, 2401 W Waukau Ave, Oshkosh WI 54903. 920-238-4242.

RCA 77DX & 44BX mics completely refurbished. P Hayes, TCC Productions, 6327 Bahama Shrs Dr So, St Petersburg FL 33705. 813-867-8330.

Shure SM7, like new, \$220; Sennheiser MD421, gd cond, \$180. R Forsythe, Forsythe/Hines, 59241 Overseas Hwy #99, Marathon FL 33050. 305-743-3503.

Valley 400 mic processor, excel cond, \$150. M Middleton, WQRX, POB 309, Valley Head AL 35989. 205-635-6284.

AKG H-17 shock mount for 414 series (2), \$150 ea. P Cibley, Cibley Music, 166 E 35 St, NYNY 10016. 212-532-2980.

Shure 556S (pro) (2), no switch w/XLR outs, mint in original cartons, packaging, specs & registration card. P Paquin, Sound Dynamics

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RCA 77DX, BK1A, \$395; vintage PA mics, Shure 51 Elvis, \$75, EV731, \$95, EV 630 or 635, \$75, RCA mini 77" shaped, \$295. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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Neumann, Sennheiser, AKG, many models. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

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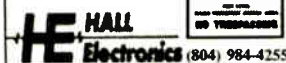
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Industrial Acoustic voice over booth, new, \$900 +shpg; Grim audio patch bay, new, \$120. J Baltar, New Musik Directions, 67 Green St, Augusta ME 04330. 207-623-1941.

Onan OT225 automatic transfer switch, 240 V, 3 phase, 100 kW, new in crate, \$2500. S Swanson, KBNL, Box 440029, Laredo TX 78044. 956-724-9211.

1929-1945 vintage radio collection, \$800; Henry minus, \$100; CS100 DTMF decoder, \$150; Pioneer CTF 1250 cassette, \$75; Delta Labs DL4 effects box, \$100; 12" B/W monitors, \$50 ea. D Rose, KDUC, POB 432, Barstow CA 92312. 760-256-2068.

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Tascam DA-88, very low hrs, w/12' XLR cable, \$1800; Otari MX-5050 MK III-4, 1/2" 4 trk, overbridge, wheels, \$600. G Hansuld, Act Radio, 301 Merritt, Norwalk CT 06851. 203-840-5767.

Ampex 200A 1948 #28 of 112, works, \$12,500/BO. P McManus, McManus Enter, 4011 Orchard Ave, San Diego CA 92107. 619-223-1730.

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Want to Sell

Conex CG-2S 25 Hz tone generator, \$200/BO +shpg. B Knight, WAQQ, POB 344, Chillicothe OH 45601. 614-775-2600.

TAPES/CARTS/ REELS/CD'S

Want to Sell

Assorted cart racks, in gd cond, many new, BO; Fidelipac carts, gold & grey, gd cond, \$1 ea. C Yengst, WAWZ, Weston Canal Rd, Zarephath ME 08890. 732-469-0991.

Fidelipac Dynamax Type AA, approx 3000 cartridges, various lengths, \$1000. F Ferreri, WLYU, 6214 Springer Dr, Port Richey FL 34668. 815-845-1063.

Records, Adult Contemporary format on 76 10.5" reels; **Music Library** digitally recorded on 172 CDs of the greatest standards of the past 50 yrs by original artists, complete buy-out basis, for radio use only. J Gelo, 941-642-6899.

Box of assorted carts. T St James, KFLP, POB 658, Floydada TX 79235. 806-983-5704.

R-R tapes (100 w/cue sheets), \$7/ea or \$150/all +shpg. B Knight, WAQQ, POB 344, Chillicothe OH 45601. 614-775-2600.

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ACTION-GRAM

EQUIPMENT LISTINGS

Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations and recording studios only. All other end users will be charged. Simply send your listings to us, following the example below. Please indicate in which category you would like your listing to appear. Mail your listings to the address below. Thank you.

Please print and include all information:

Contact Name _____
 Title _____
 Company/Station _____
 Address _____
 City/State _____
 Zip Code _____
 Telephone _____

I would like to receive or continue receiving Radio World FREE each month. Yes No

Signature _____ Date _____
 Please check only one entry for each category:

- I. Type of Firm**
- D. Combination AM/FM station F. Recording Studio
 A. Commercial AM station K. Radio Station Services
 B. Commercial FM station G. TV station/teleprod facility
 C. Educational FM station H. Consultant/ind engineer
 E. Network/group owner I. Mfg, distributor or dealer
 J. Other _____
- II. Job Function**
- A. Ownership G. Sales
 B. General management E. News operations
 C. Engineering F. Other (specify) _____
 D. Programming/production _____

Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a paid basis. Line ad listings & display advertising are available on a per word or per inch basis.

WTS WTB Category: _____
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 Price: _____

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 Brief Description: _____
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*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by lister.

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Microtran table top tape degausser, handles 1"-2" tapes, \$150/BO; mechanical tape timers, Lyrec & Seike/Spotmaster, new & used. M Crosby, 408-363-1646.

TEST EQUIPMENT

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B&W Model 400 dist analyzers, (2) w/copy of manual, gd tubes, \$35 +shpg. J Crawley, POB 185, Cambellsville KY 42719. 502-465-8884.

HP 1704A 100 MHz scope w/probes, \$700 +shpg; Rockland single chnl real time spectrum analyzer, \$950 +shpg; HP 8444A tracking gen, \$1200 +shpg; HP H382A variable attenuator, \$450; Tektronix 508 1Ghz counter, \$500; Tektronix 501A 2 MHz function gen, \$200; J Baltar, New Musik Directions, 67 Green St, Augusta ME 04330. 207-623-1941.

Tektronix 7633 dual trace oscilloscope, 7A26 & 7B53A plug-in units, gd cond, \$600. B Lindahl, Lindahl Studios, 10680 S W Wedgewood, Portland OR 97225. 503-644-9643

Want to Buy

Heathkit IO-10 small portable tube type oscilloscope from late 1960s. W Gunn, Box 2902, Palm Springs CA 92262. 760-320-0728.

EIMAC, RCA, AMPEREX, 3-500, 3CX1500A7, 4-400, 4X150A, 4CX250B, 572B, 807, 833C. Westgate 800-213-4563.

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Kenwood 2055 TT, deteriorated drive belt, \$40. N Williams, KPPM, 1726 S Pebble Beach Ave, Tucson AZ 85710. 520-617-0579.

Rek-O-Kut B12-71 TT, gd cond, T St James, KFLP, POB 658, Floydada TX 79235. 806-983-5704.

Rek-O-Kut L-34 TT's (2); GE arm w/GE stereo cartridge; SME arm 3009 Series II. P Paquin, Sound Dynamics Assoc, POB 608, Dennis MA 02638. 508-385-0805.

Technic SL1200 w/arms & cartridge (2), \$350 ea. T Obey, WHCF, POB 5000, Bangor ME 04402. 207-947-2751.

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3CX15,000H3	4CX3500A	6AS7G	SV572-160
3CX20,000A7	4CX5000A	6BM8	SV6550C
3CW20,000A1	4CX5000R	6D22S	SV6L6GC
3CW20,000A7	4CX7500A	6L6GC (See SV6L6GC)	SV811-3A
3CW20,000H3	4CX10,000D	6N1P	SV811-10
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4CX250BC	4CX20,000A	8161R	TH6-3A
4CX250BT	4CX20,000B	8560AS	YC130/9019
4CX250R	4CX20,000C	EF86	SK300A
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1. Publication Title: RADIO WORLD
 2. Publication Number: 0274-8541
 3. Filing Date: October 1, 1997
 4. Issue Frequency: BI-WEEKLY
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 9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor:
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 Editor: LUCIA COBO (same)
 Managing Editor: PAUL MCCLANE (same)
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 Has Not Changed During Preceding 12 Months
 Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this form)
 PS Form 3526, September 1995

13. Publication Title: RADIO WORLD
 14. Issue Date for Circulation Data Below: SEPTEMBER, 17, 1998

15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)	41,555	43,048
b. Paid and/or Requested Circulation	0	0
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))	33,387	34,775
d. Free Distribution by Mail (Samples, complimentary, and other free)	7,192	6,553
e. Free Distribution Outside the Mail (Carriers or other means)	266	1,500
f. Total Free Distribution (Sum of 15d and 15e)	7,458	8,053
g. Total Distribution (Sum of 15c and 15f)	40,844	42,828
h. Copies not Distributed	711	220
i. Total (Sum of 15g, 15h(1), and 15h(2))	41,555	43,048
Percent Paid and/or Requested Circulation (15c / 15g x 100)	80%	81%
16. Publication of Statement of Ownership <input type="checkbox"/> Publication required. Will be printed in the 11/26/97 issue of this publication. <input type="checkbox"/> Publication not required.		
17. Signature and Title of Editor, Publisher, Business Manager, or Owner Date: 10/8/97		

Instructions to Publishers:
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 3. Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in items 15d and 15e.
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operates on 3-phase pwr, buyer picks up, \$6000. L Fuss, WDTL, POB 1438, Cleveland MS 38732. 601-846-0929.

Harris Stereo 80 solid state control board, ERI 3 bay antenna tuned to 92.1, 250' coax cable, Andrew 1-5/8 air dielectric. Deb Hoeflicker, KREP, 2307 W Frontage Rd, Belleville KS 66935. 785-527-2266.

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RCA or Gates 1 kW AM or old Gates or RCA tube type. R Dumont, WSME, 243 Main St, Sanford ME 04073. 207-324-7271.

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For details on space availability contact Simone at 703-998-7600

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