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Remote Broadcast

There's more to successful remotes than just codecs. *Buyer's Guide.*

Page 51

Promos That Win

Radio managers create clever promotion strategies.

Page 35



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Radio World

The Newspaper for Radio Managers and Engineers

February 14, 2001

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▼ We have another winner in our Silver Sweepstakes Giveaway! Have you registered yet?



See Page 4

EAS Could Cost You More Money

by Randy J. Stine

WASHINGTON The company that claims to own the patent for the Emergency Alert System is a step closer to charging United States station owners a licensing fee for using the technology.

The United States Patent and Trademark Office has granted the majority of claims in a patent owned by Quad Dimension Inc. for its "Storm Alert for Emergencies." Quad officials say SAFE is used in the Emergency Alert System.

Quad Dimension, as patent holder, plans to seek compensation for use of its intellectual property.

The PTO's findings come after Quad appealed a March 2000 PTO decision that rejected the patent. The rejection occurred after a re-examination requested by the National Weather Service (RW, April 26, 2000).

This is not the first time Quad's patent for SAFE technology faced re-examination; the commissioner of the PTO ordered the first one in

See EAS, page 6 ▶

Dealer Sales Not 'Internet Reliant'

Equipment Sellers Dip Their Toes Into E-Commerce; Some Wade in While Others Stay in the Shallow End

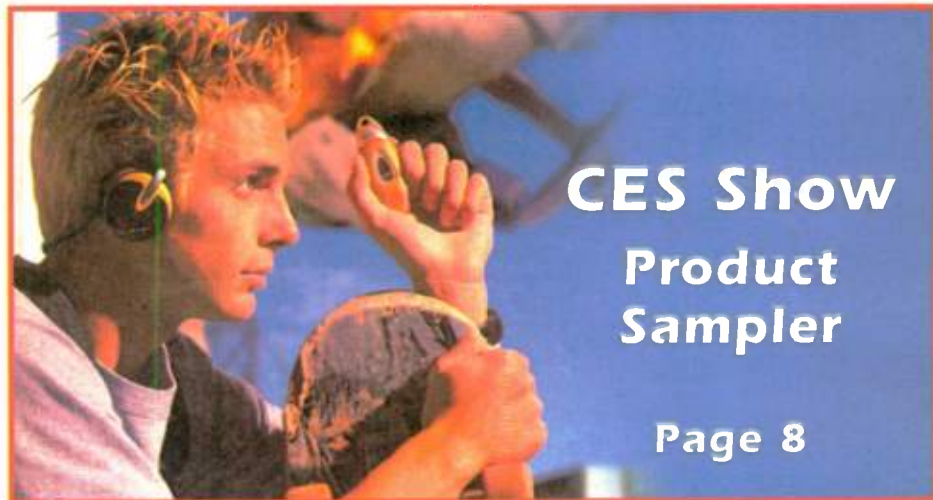
by Gregory J. Robb

Has the Internet changed the business model for dealers that sell broadcast products? Not definitively.

Yes, equipment manufacturers and dealers are exploring the question of how the Internet will boost sales. Some have not embraced the concept; others now depend on the Web for a portion of their sales.

But when it comes to selling broadcast equipment, industry players still generally prefer one-to-one contact with their customers for the purchase, usually by phone. If the Internet somehow allows contact to happen digitally, suppliers seem willing to go along. But many sellers still need to be convinced that e-commerce is better for sales.

Comments by dealers reveal patterns
See E-COMMERCE, page 5 ▶



802D-1 Digital FM Exciter

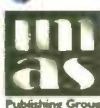
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Powell Is New FCC Chairman

WASHINGTON President George W. Bush has named fellow Republican Michael Powell as chairman of the FCC. Because he is already a commissioner, Powell needs no Senate confirmation.

NAB President/CEO Eddie Fritts called Powell "an outstanding choice" who "has demonstrated a keen intellect and a firm grasp on public policy issues." Powell's term runs through June 30, 2002.

On one of the biggest issues facing radio in the past year, low-power FM, Powell has favored a gradual phase-in of

the program and supported a study of the new stations' economic impact on existing small facilities.

Kennard Goes To Think Tank

WASHINGTON Former FCC Chairman Bill Kennard resigned effective Jan. 19, voicing some strong opinions about radio as he left.

He plans to serve as a Senior Fellow of the Aspen Institute Communications and Society Program in Washington, the same think tank to which previous chairman

Reed Hunt went after leaving the FCC.

Kennard will become the first chairman of the program's new advisory board.

After he left office, Kennard said it's time to "revisit" radio group ownership limits, and he's "concerned" about the consolidation of stations since the passage of the 1996 Telecommunications Act.

Recruiting engineers remains a problem for the commission, said Kennard, wishing new Chairman Michael Powell good luck on this and other issues.

Kennard appeared on "Public Interest," produced at Washington's WAMU(FM) and syndicated nationally on NPR-member stations.

During his three-year tenure as FCC chairman, Kennard encouraged the rollout of broadband and digital technologies, including digital radio, and oversaw plans to streamline the agency. He was the first African-American chairman of the FCC.

Previously, he served as the commission's general counsel.

EEO Advocates Vow To Fight Ruling

WASHINGTON The Minority Media and Telecommunications Council and other Equal Employment Opportunity advocates vow to fight a court decision rejecting the FCC's new EEO rules as unconstitutional.

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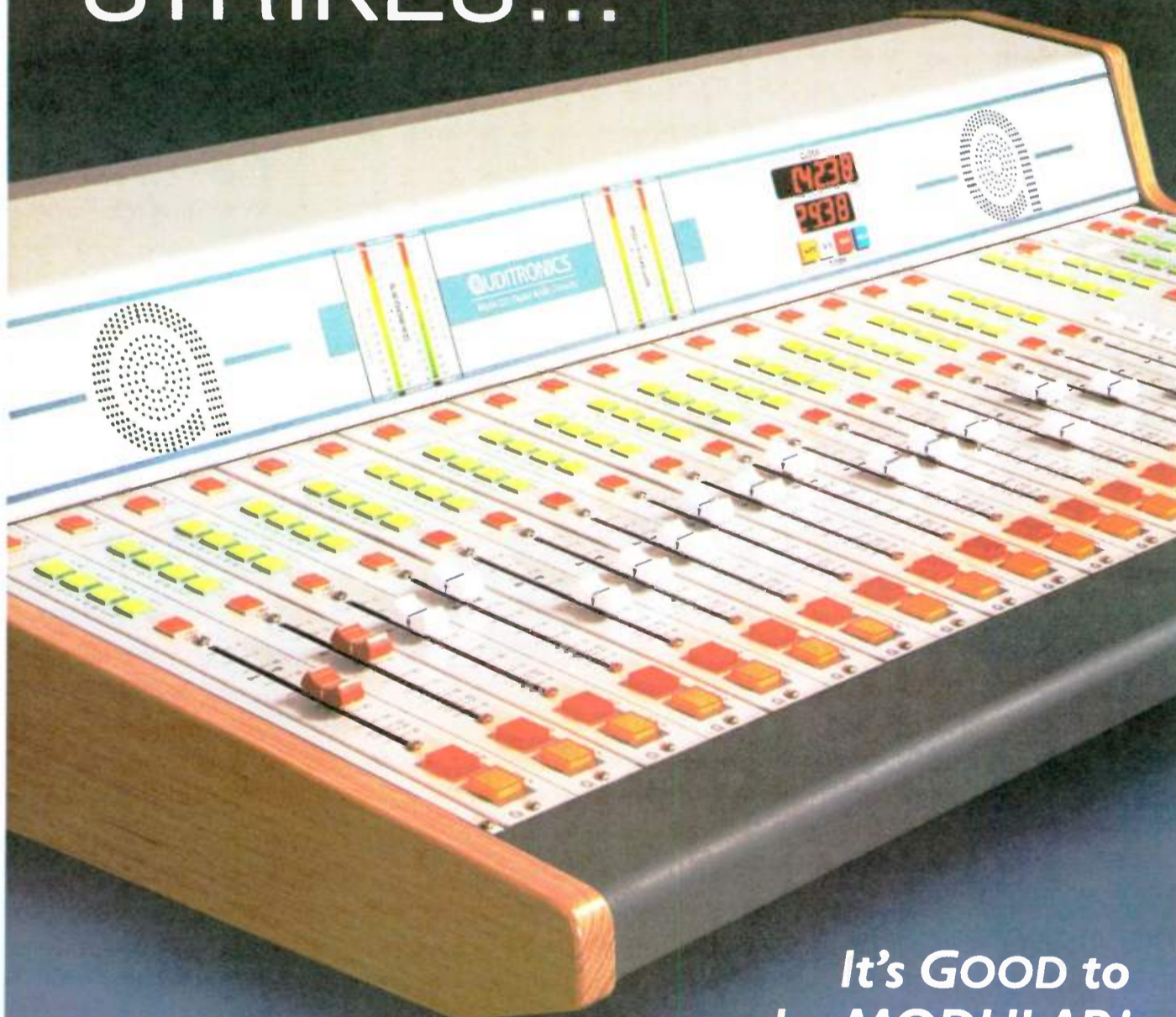
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Brazil Pushes Ahead With RDS

by Karina Gerardi

SÃO PAULO, Brazil Brazil hopes to adopt a Radio Data System certification standard this year. Once this happens, the huge nation would be the first Latin American country to offer RDS receivers widely to consumers.

RDS uses the 57 kHz FM subcarrier to interact with the listener's radio, allowing broadcasters to send text messages or allowing listeners to scan for stations based upon format.

The technology is used widely in Europe, particularly for pushing traffic information to listeners and to allow receivers to jump automatically from transmitter to transmitter as a listener drives through a network's coverage area.

U.S. fizzle

But the technology has not found widespread acceptance in the United States despite an RDS rollout effort in the mid-1990s. That's when the former Consumer Electronics Manufacturers Association gave away free RDS encoders to stations in the top 50 markets.

RDS has not caught on in the United States, where regional or national stations with multiple transmitters are not common. Many U.S. radio managers do not view the technology as a revenue-generator.

That's not the case in Brazil, said sources contacted for this article.

"USA broadcasters already have alternate sources of revenues via (the) SCA system, (but) the Brazilian broadcasters see in the RDS a new source of revenue," said Ronald Barbosa of the Brazilian Association of Broadcasters.

In Brazil, RDS is being supported by the automakers, manufacturers of RDS receivers and transmission equipment, service providers, the Brazilian Telecom Agency (Anatel), the Brazilian

electrical engineer for GM in Brazil, "Brazil pioneered as a supplier of car radios with RDS capabilities. Several Chevrolet models are available with and without RDS," he said.

GM displayed an Astra at a recent conference of the Brazilian Association for Radio and TV Stations, called ABERT after its Portuguese acronym.



Personal Computer Memory Card allows RDS Data to be displayed on laptops.

São Paulo station Alpha FM generated special RDS transmissions for the demonstration last August.

"We wanted broadcasters to be able to sit in front of the computer, write a message, put it on air and see it appear in the car radio display. We wanted to prove that the system works and is totally operational," Pedroso said.

RDS study group

A special committee is looking into standardizing and regulating RDS in Brazil. The study group includes automakers, receiver and transmission equipment manufacturers, broadcasters, service providers, telecom agency Anatel and the ABERT Technical Committee.

"Brazilian characteristics have to be analyzed to determine the necessary adaptations, such as how to assign the Program Identification, (and) how to classify types of programs and FM carrier modulation indexes," said Luciano S. Fernandes, engineering director of PST Indústria Eletrônica da Amazônia Ltda. — Stoneridge Group, which supplies modules and electronic systems to the automotive industry.

The main motives for Anatel to participate in the study group are the advantages that RDS offers to Brazilian drivers, said

Tríci Chaves, an engineer in the Anatel Regulations department. "Because RDS is considered an added value, it does not require authorization from Anatel to be implemented," Chaves said.

The goal of the ABERT Technical Committee is to study the European RDS standard and to adapt it to Brazil, said ABERT Technical Advisor Ronald Barbosas.

"It is important that those requirements are compatible with the international regulations because a large part of Brazilian automobile exports go to Europe and other countries."

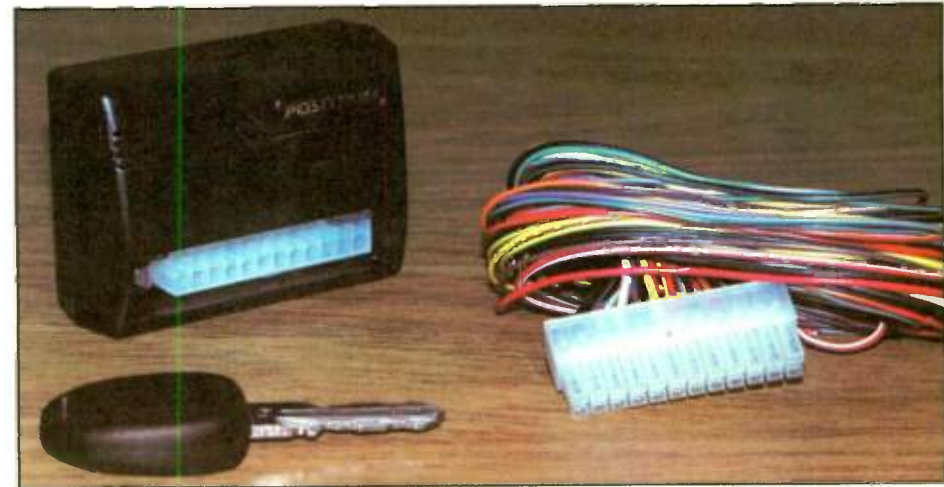
According to Chaves, "Brazil is the first country in Latin America to study the RDS system, intending to implement it in

a large scale, and it will probably be the first to do it."

Peru and Argentina are also interested in the RDS system, according to Adroaldo Gonçalves Silva of Fiocruz, a public health-promotion agency.

To transmit RDS signals, said Barbosa, a station simply needs to "receive a PI (program identification) code, which will

be assigned to it once the national plan is completed. The station would also need to know the available (program types) and the kinds of services that can be provided," said Barbosa.



PST-Stoneridge's Antitheft Module for RDS Receivers

Mário Causer, co-owner of Tropic Communications, a broadcasting company that specializes in RDS technical support, estimates that a radio station would need about \$400 to start providing RDS service.

"All you need is an RDS encoder and a PC with dedicated software," he said.

"You also will need a RDS receiver to monitor the transmission," said Cássia Cinque, superintendent of Rádio Guaraní, one of Brazil's first stations to offer RDS.

About 20 Brazilian radio stations currently transmit RDS signals, said Causer.

"We use RDS to identify the station. We also use RDS text capabilities for radio promotions," said Jovem Pan Technical Director José Vítor Chavedar.

"Originally, RDS was meant to be a traffic information service but today it has 20 other applications," said Rodrigo Guidoni, development engineer with radio manufacturer Mannesmann VDO.

For example, Rádio Guaraní uses RDS to display the name of the station, time, stock market valuations, the title of songs, cultural trivia and advertising, said Cinque.

Further uses for RDS receivers include controlling control car systems, such as the alarm system, locks and window controls,

said Alexandre Guimarães from GM Brasil.

Manufacturers have concentrated on offering auto RDS receivers but are looking to offer home units in the future.

Portable and laptop RCS applications are of interest to Brazil's RDS study group.

"We are studying and testing other devices, for example, the portable receiver by German manufacturer Tricsy, Global Navigation Systems, for general information and for the new traffic channel ... and Personal Computer Memory Cards with software applications that allow you to listen to the radio and read RDS info in laptop computers," said Pedroso.

Other services

"FM stations should realize that RDS represents a unique opportunity to develop other services, such as electronic billboards," Pedroso said.

According to Adroaldo Silva of Fiocruz, a public health-promotion agency, "a governmental entity like Fiocruz would be interested in a comprehensive, inexpensive system to deliver information."

"Car manufacturers, working with their car radio suppliers, already offer RDS receivers at practically no additional cost in Brazil," said Lázaro dos Santos, sales manager for Olimpus Antenas, a manufacturer of antenna and alarm systems.

"Radio stations are very interested in the new channel because it requires a very small investment. So, the system has very good chances of being successful in our



Portable Receiver for Traffic Information

Association of Broadcasters (ABERT) and most important, the broadcasters, said Silvio Palacios, of Mercedes-Benz Brazil.

Some auto manufacturers, such as General Motors, already are producing cars equipped with RDS receivers in Brazil. RDS receivers are available here in several brands of imported cars as well.

"Volkswagen, Ford and Fiat are just waiting for Brazilian regulations (for RDS) to be officially announced before activating RDS receivers in their Brazil-produced cars," said Rubens Pedroso, coordinator of the Brazilian RDS Technical Committee and director of ZAP, a real-time financial news and information agency.

For Alexandre Guimarães, product

market," said dos Santos.

According to GM's Guimarães, "A car radio with RDS will not cost more than 5 percent over the price of a car radio without RDS capabilities."

"We are in the final stages of defining the several aspects of the standard. Once it has been evaluated and approved by our group, it will be sent to Anatel and will become official," said Sílvio Palácios, coordinator of the AEA Eletro-Eletronics Technical Committee and a representative of Mercedes-Benz in Brazil.

According to Marcelo Cacheiro, engineering manager of applications for Eletro Equip, supplier of equipment to generate, transmit and monitor RDS signals, the Regulations Commission is now reviewing the final proposal presented to Anatel.

Eletro Equip suggested that a technical group, working in conjunction with Anatel, determine and specify minimum equipment requirements for certification, Cacheiro said.

The RDS committee and Anatel have been meeting to read and interpret each item of the proposal that has been translated and adapted to Brazil. Pedroso said the equipment standard could be finalized by mid-2001. 🌐

Hail to the Box House

There is an expression in our business that crops up from time to time. It is meant to refer to a company that resells new equipment, acting as an intermediary between the manufacturer and the user. The expression is "box house."

This particular phrase is used most often by a salesperson for a supplier who wishes to convince clients that his or her employer is more, oh *so much* more than "just" a dealer. These salespeople, praising their own value-added services, often pronounce the words "box house" with contempt, as though the very idea of acting as a dealer is somehow below them — and no doubt, sir, a discriminating customer like you wouldn't dream of taking your business to a mere "box house."

Well, I'm here to tell you that equipment dealers provide one of the most vital links in our supply chain.

These thoughts come to me after reading our front-page story about e-commerce and how some companies — including suppliers that proudly do nothing *but* sell equipment — are putting it to work.

I can't help but think back to my days as a salesman for a company that sold products through dealers, and later working for a dealer myself.

Dealers toil in relative obscurity, without the glamour of having their name on a console or a transmitter.

They run their businesses on narrow margins, often beaten down to single-digit markups by cutthroat competition or hard haggling.

Often they must convince large foreign equipment manufacturers — companies accustomed to selling vast quantities of CD players, mics and DAT machines via retail outlet chains — to offer them (and therefore offer us) competitive pricing. This is a tough sell, because big outlets might sell more CD players in a single day than our radio industry buys in a month.

We expect our dealers to take our calls toll-free, and to have just what we need on the shelf or help us get it in a hurry because we didn't plan in advance or our station just got hit by lightning.

When we are in trouble and we need a

microphone, a codec or a roll of wire, we turn to them. We want them to stock mic flags, the hot new FM audio processor or an obscure part for a Revox PR-99 recorder — oh, and ship it within the hour, please.

Even though our own group headquarters has neglected to pay its bills within 30 days, we still expect the dealer to do business with us. And when we need an advocate with a manufacturer, we expect our dealer to step in.

Small manufacturers need dealers to spread the word about their product, which a tiny company might not have the money to promote. Big suppliers need dealers who know the radio market better than they could ever hope to.

And perhaps most important, dealers represent a vast pool of specialized knowledge about our industry.

Their salespeople have talked to hundreds of users like us and can help us avoid the errors made by others. Our salesperson might well be a former radio engineer or a fellow techie. Some of the finest professionals we can find in the U.S. broadcast industry answer the phone there.

The best ones will offer unbiased advice about the most suitable product for us, because they carry several brands and models, and because they're honest folk who have been where the customer is, in the trenches.

The truth is, we're spoiled in radio. We expect all of these things from our dealers, even though the trend in the business world is moving away from such specialized knowledge and support.

Our times certainly are challenging to dealers. Consolidation of radio groups has had an effect. How could it not? If a dealer had a tough job 10 years ago, hoping to make \$75 on the sale of a \$500 microphone and run a business on that markup, how much harder is its job when a radio group might control the purchasing for hundreds of radio stations and demand even better pricing?

Dealers face many questions. What happens to them when a manufacturer is tempted to sell direct, or through their own Web sites? Some manufacturers

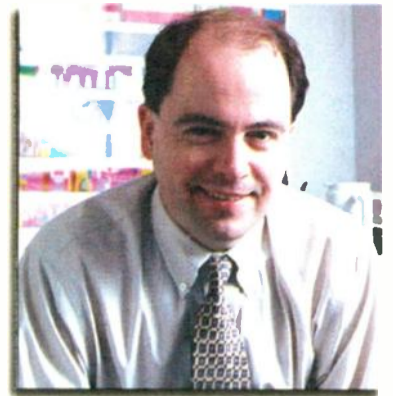
assign regional territories to dealers; what happens to those when a radio station is located in one dealer's turf and the group HQ in another?

And what about the Internet? Should dealers open Net storefronts? Does that undercut their catalogs and fliers? How would a dealer Web site change its relationship with manufacturers?

Despite these challenges, radio will always have a need for good dealers. The truth is, there is honor in being a "box house."

Hey, that box contains something I want. If a dealer can help me get it faster, cheaper or smarter, I'm all for it. Hail to the box house!

From the Editor



Paul J. McLane

So have you signed up yet for our Silver Sweepstakes contest at www.rwonline.com?

Rob Carlile did, and he wins a Gentner DH30 Digital Telephone Hybrid in this week's random drawing. It's a \$1,795 retail value.

Rob is general manager of WZCT(AM), a 5 kW station airing a southern gospel format to listeners in Jackson County, in the upper eastern corner of Alabama. His family has owned the station since 1989.

The DH30 is a high-quality interface between a standard telco line and audio gear. It has both AES/EBU and analog I/O, so Rob can wire it up to a new digital console as well as analog models. Its 24-bit DSP offers multiple adjustable parameters to assure the best send and caller sig-



Gentner DH30

nals. Features include remoteable presets, password protection, Record and Cue functions, selectable auto mix-minus, compressor and downward expander.

Thanks to the good folks at Gentner for providing this fine hybrid for our prize closet.

We have 23 more radio goodies to give away this year, so sign up now at www.rwonline.com

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Audio Engineering Manager
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E-Commerce

► Continued from page 1
 about how companies are using the Web. Most of these companies have introduced online services in recent years, but balked at making the actual sale electronically. That's changing slowly.

For instance, dealer Broadcast Supply Worldwide, based in Tacoma, Wash., offers two Web sites for its customers. *BSWUSA.com* features sale items from the company's direct mail fliers. The entire updated BSW Catalog is to be on this site in March. (See sidebar on page 7 for URLs of companies mentioned in this story.)

"Anyone, regardless if they have an account with BSW, can place orders on this site with a valid credit card," said BSW President Tim Schwieger.

After more than two years of preparation, BSW also now has a business-to-business site, called BSW Online.

On this site, qualified customers can manage their own accounts. BSW customers can access information and services, including account balances, product research, online ordering, product stock status, order history and shipment tracking.

Customers who wish to have access to their account through BSW Online must obtain security clearance and have an open billing account at BSW.

'Adjunct' role

Dealer Bradley Broadcast & Pro Audio has been a model of tradition in this digital age. It has a Web site, but until December of 2000, the site offered limited information, said General Manager Art Reed. Interested parties could order a Bradley catalog online.

Now, when visitors look at featured Bradley products online, they can also subscribe to an e-mail newsletter that is sent periodically.

In the name of efficiency, we lose some humanity.

— Bradley's Art Reed

For Bradley, the computerized world had been the gateway for the more traditional approach of catalog distribution and personal contact.

"You don't just jump on the Internet and become a distributor," said Reed. "We're a specialty market. So to me, (the Internet) is an adjunct. What we are doing, more and more, is transacting with our customers via e-mail."

Reed said e-mail transactions take place mostly with long-time customers.

With the new year, Bradley released an online version of its print catalog. Reed said the time has come for expanded online commerce.

With more workers changing offices due to consolidation, an online approach can help companies sell



Companies like Harris are carefully expanding their online presence. Shown is a Harris technician wiring consoles in the Carlsbad, Calif. facility.

more products.

"(Bradley customers) are in large facilities and ... they aren't sitting around the phone waiting for a call," Reed said. "You can spend all day trying to connect with them. Or they can sit down and bang (out) an e-mail to me and I can send an e-mail back to them."

He said formatted quote and order forms for online purchasing were

being prepared for future use.

Bradley, based in Frederick, Md., is looking forward to the convergence of the traditional, printed word with its online form.

Reed believes broadcast equipment Web sites will become economically viable when content does not have to be repackaged for distribution in different media — print and online.

That's how most broadcast equipment companies contacted by RW see online sales so far. One supplier source, who wished to remain anonymous, said the World Wide Web has yet to provide evidence of enough sales to justify a significant investment in a company Web site.

"We're being successful selling, but it's sure not coming from that," he

said.

According to another sales executive, the Web is just a different sales tool.

"It's another way to accommodate customers, to reach out to new customers," said John Vitale, national sales manager for Full Compass Systems Ltd. "We prefer to interact over the phone."

The dealer, based in Middleton, Wis., sells more microphones than other products, although the company also sells more than 600 lines of equipment for sound reinforcement, audio/video, recording and other markets.

Chief Executive Officer Jonathon Lipp determined that catalogs would best market the company's products.

Vitale said, however, that old and new ways of doing business can coexist. The company's fliers can be read online, or customers can select products in 200 categories as displayed on the Full Compass Web site.

Full Compass has toll-free phone numbers to process orders. It hopes to set up a direct ordering system online, although a specific time frame has not been disclosed.

Phone comes first

"We're pretty conservative in that regard (e-commerce). We will embrace the technology as it makes sense for us to do it," said Vitale. He said Full Compass intends to be able to process orders by phone as customers pick items via its Web site.

See E-COMMERCE, page 7 ►

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EAS

► Continued from page 1
1997 after the National Weather Service expressed concern over the patent.

At that time Quad's patent was rejected, but later amended and reissued on appeal. Quad received the patent for SAFE in 1992.

Quad officials declined comment, but stated in a press release, "QDI will earnestly begin an aggressive program to license and assert its past and future rights."

In early 1999, Quad mailed notices to nearly 1,500 broadcasters asking them to sign licensing agreements for the use of its SAFE patent in EAS. The letters requested broadcasters to pay \$240 in 1999 with annual royalty payments of \$180 beginning in 2000. The yearly payments were to continue for the life of the patent.

How many paid?

At the time, on the advice from their state broadcast associations, the vast majority of broadcasters took a wait-and-see position in regard to the payments. Quad has never indicated the number of broadcasters who signed the license agreement and declined again when asked to do so for this story.

The National Weather Service has campaigned against the validity of Quad's patent. The NWS believes "NOAA Weather Radio Specific Area Message Encoder" technology was developed first and is the basis for EAS. The FCC mandated the EAS system for broadcasters in 1994 and implemented it several years later.

Broadcasters appear to be caught in the

middle of a fight between several government agencies and a private company defending its business interests. Stations are obligated by the FCC to implement and use the EAS technology. However, the Quad claim means stations do so at the risk of being accused of infringing upon the intellectual property rights of a patent holder.

Meanwhile, EAS equipment manufacturers are not being asked to sign the license agreements. In a previous letter to Radio World, Quad President Mike Fessler wrote, "The reexamined SAFE patent encompasses a system that contains emergency warning location and type codes that are interjected, transmitted and received using the AM/FM or TV broadcast channel. The hardware being sold by the EAS equipment manufacturers is a subset of the patented system."

A source at the Department of Commerce, the parent agency of the PTO and the NWS, said a request for another re-examination is "unlikely."

Quad Dimension officials have said on several occasions that the government could resolve the matter either by buying the patent or obtaining a license for the broadcast industry. Neither side has indicated that a move in that direction is likely.

The source at the Department of Commerce said it appeared the modified patent the PTO issued to Quad "means the National Weather Service and EAS equipment manufacturers will not be subject to the Quad patent."

Whether the reissued patent lessens the chance radio stations will have to pay for using EAS is not clear. According to Quad's press release, the patent was reissued "without significant change from claims in the

original" patent.

"It would be devastating if it turns out that the FCC mandated broadcasters to implement a system based upon a patent owned by someone else," said Karole White, executive director of the Michigan Association of Broadcasters. "If (Quad) does prevail, it

shouldn't be the broadcasters who pay for licensing. Ultimately, it would be up to each individual station whether to pay or not."

White said the association's attorneys are exploring options available to member stations, "if Quad tries again to collect royalties." ●

◆ NEWSWATCH ◆

► NEWSWATCH, continued from page 2

The D.C. Circuit Court of Appeals struck down the rules in January, saying they put "official pressure upon broadcasters to recruit minority candidates, thus creating a race-based classification that is not narrowly tailored to support a compelling governmental interest."

The court decided the portions it considers unconstitutional cannot be separated from the remainder of the rule, so it vacated the entire thing.

State broadcast associations had challenged the rule on appeal. The new ruling came during the last week of Bill Kennard's tenure as commission chairman. He called the decision "a defeat for diversity."

Minority Ownership Up — Barely

WASHINGTON Minorities own less than 4 percent of all commercial stations in the U.S. In reaction, Commerce Secretary Norman Mineta said, "As we work hard to include more minorities in new media, let us not forget the critical role of minority voices and culture for TV and radio."

Mineta based his comments on a report issued by the Commerce Department's National Telecommunications and Information Administration in January. According to the report, 3.8 percent of commercial radio and TV stations are licensed to minorities — 0.9 percentage points over the last survey in 1998.

Most minority-owned stations are stand-alones. In 2000, only 131 minority-owned stations were part of a duopoly.

NAB supports congressional passage of a new version of the minority tax certificate program to help minorities buy stations. Congress killed the previous version in 1995 due to reported program abuse.


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E-Commerce

► Continued from page 5

Full Compass plans upgrades to its Web site in 2001, said Vitale. At press time, company officials were still working on those changes.

Full Compass believes that the potential of e-commerce cannot be ignored. Want to look up a special, or any price for a Full Compass product? Go online. But for now, the company would like buyers to order by phone.

The Broadcast Communications Division of Harris Corp. is based in Mason, Ohio. Harris distributes other companies' radio products, and manufactures its own. The company maintains an extensive Web site for the promotion of both.

Online ordering

In January, Harris launched an e-commerce site that enables radio broadcasters to order equipment online.

The company plans to make available expanded technical information as well as online customer support at the site, said Sarah Foss, Harris Broadcast Communications' director of marketing.

In addition, U.S. radio broadcasters can order products offered by Harris Broadcast through its field sales force or by a toll-free phone call to the company's Broadcast Center.

Some suppliers use their Web sites to generate interest in the industry, rather than direct sales online.

Crouse-Kimzey merged engineering with consultation in 1971 and has since distributed multiple products lines to broadcasters. Although the dealer's Web site is a good portal connection to more than 300 equipment vendors, Crouse-Kimzey does not seek to sell anything online. In fact, its site may be most noted for its visual commemoration of radio's golden age. The site has a notable collection of vintage photos for free viewing.

For More Information

Web addresses of companies mentioned in this article:

Bradley Broadcast & Pro Audio —
www.bradleybroadcast.com

Broadcast Supply Worldwide —
www.bswusa.com,
www.bswonline.com

Crouse-Kimzey —
www.proaudio.com

Full Compass Systems —
www.fullcompass.com

Harris Corp. —
<http://premier.harris.com/broadcast>

Mark Bradford, general manager of Crouse-Kimzey's head office in Dallas, said links on the company's Web site are

tions from the manufacturers and more.

"We use it for that and we do have our inventory clearance on there (the Web site),"

We prefer to interact over the phone.

— Full Compass' John Vitale

designed to provide visitors with information that the company would, then, not have to keep on file: spec sheets, product descrip-

said Bradford.

The dealer considers e-commerce as an offshoot of its traditional business.

When asked what type of labor commitment would be needed to maintain a fully interactive Web site, Bradford said, "That would be more than a full-time job. We would have to designate a couple of people to take on a monumental task like that. And to do that, we would have to know that there was going to be income coming from that (the Web site)."

A company that puts its entire product line online would have to update the Web site during inventory clearances and the multitude of price changes and sales that occur over the counter every day.

Reed agrees that online commerce requires a lot of work.

"My dream is to have an integrated database from which I could draw usable information to both put on the Web, and to deliver to a printed catalog. Currently, it's not like that," he said.

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COMREX



Product Sampler

Digital Gadgets Compete With Radio

Americans are buying lots of gadgets to make their lives easier and more organized, including new cell phones, DVD players, PDAs, memory cards, MP3 players and more. Some of these new products compete with radio for consumer's attention in the car, or are built into radio-equipped devices.

The trends were apparent at the 2001 International Consumer Electronics Show.

Overall, the buzzword for consumer electronics is digital. Manufacturers are creating new digital products to keep up with consumer demand.

Sales of consumer electronics products totaled \$90 billion in 2000, an increase of 10 percent over the year before, said Gary Shapiro, president/CEO of the Consumer Electronics Association, at the CES show in January. The figure represents nine years of consecutive growth for the industry.

Although several product categories are responsible for that growth, MP3 and DVD players are at the top of the list.

Shapiro predicts the consumer electronics industry will see \$96 billion in sales in 2001.

MP3 player sales are expected to continue their strong growth in 2001, as CEA predicts sales of 1.8 million units, a 54-percent increase over 2000.

In 1999, DVD players became the fastest-selling product in the history of consumer electronics, with more than 4 million units sold during the year. In 2000, that number rose to more than 8.2 million. CEA projects unit sales of 12.5 million in 2001.

Contrary to reports, consumers are buying digital TVs, said Shapiro. CEA estimates unit sales of DTV sets and displays tripled over the year before, to 625,000. About \$1.4 billion worth of DTVs will be sold this year, he said.

Turning to radio, despite the increase of entertainment choices in the auto, CEA says 75 percent of the time that we spend in the car, we're still listening to AM or FM radio.

Satellite digital radio receivers are expected to be available in stores in volume this summer. We will report on the latest developments for satellite and terrestrial digital radio from the show in our next issue.

CEA projects sales of home radios to generate \$443 million in 2001. That compares to \$390 million estimated for last year.

In the car, aftermarket autosound equipment factory sales to dealers were estimated at \$2.17 million in 2000 and projected \$2.2 million for 2001.

OEM autosound generated an estimated \$2.70 million in 2000 and \$2.77 million projected for this year.

In the portable category, CEA predicts \$1.17 million worth of portable headset audio products, including radios, tape players, radio/tape combos and CD players, will be sold in 2001. That compares to an estimated \$1.09 million in 2000.

Wireless is another hot category. CEA has created a new wireless communications division within the association. The

new division will include wireless Internet access devices, pagers, personal communications products and telephones. More than 200 wireless exhibitors showed product at CES, underscoring the importance of creating the new division, said Shapiro.

CEA also added seven members to its Consumer Electronics Hall of Fame. They included phonograph record creator Emile Berliner; vacuum tube creator Sir John Ambrose Fleming; "Modern Electrics" magazine founder Hugo Gernsback; car stereo and loudspeaker inventor Peter Laurits Jensen; TV and auto sound entrepreneur Earl Muntz; Ampex founder Alexander Poniatoff; and Westinghouse Corp. founder George Westinghouse.

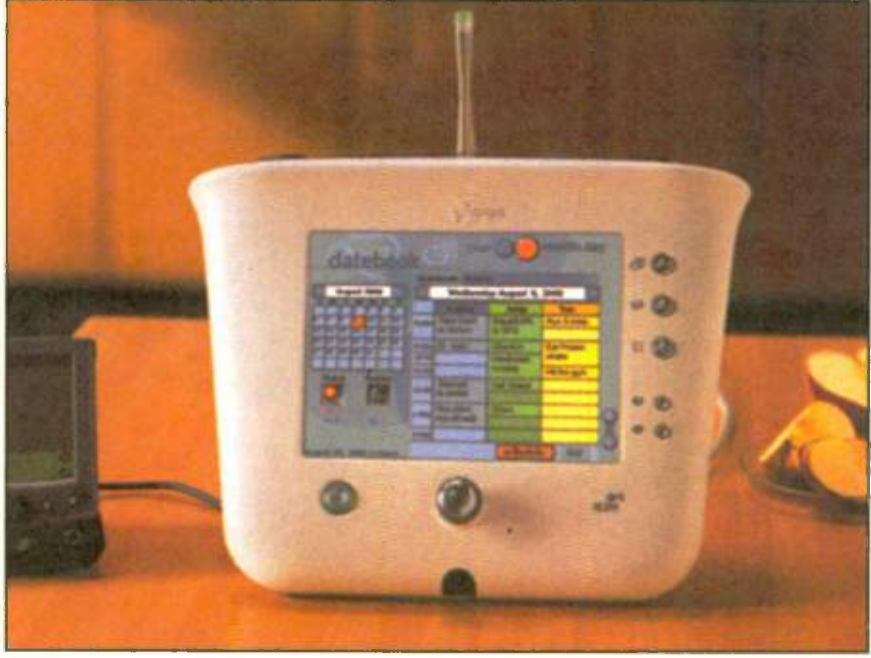
More than 1,800 companies exhibited at CES, which drew more than 122,400 attendees.

In this issue, RW provides a taste of the array of products showcased at CES.

— Leslie Stimson

'Audrey' Offers Internet Convenience

Consumer convenience and simplicity are the goals of a new product from 3Com. Audrey is an Internet appliance created for home "nerve centers" such as the kitchen or living room. The device features one-touch access to e-mail, Internet channels, a household calendar, address book and Palm HotSync technology.



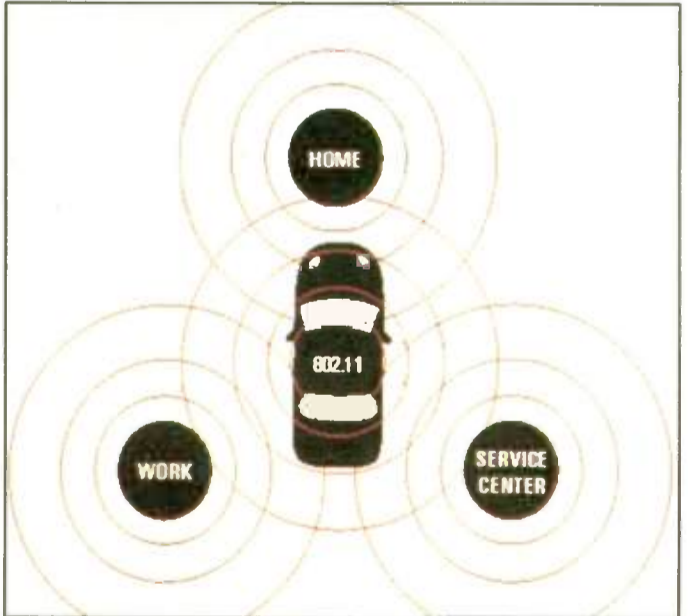
Access to pre-selected Internet content is simple with a scroll-through channel-selector knob. E-mail is simplified; a hand-written message, spoken word or typed note are accepted by the system. Palm technology on the unit allows compatibility with Palm-compatible handheld organizers.

Audrey works with multiple ISPs. The appliance arrives out of the box preset with the following basic channels: news — ABCNEWS.com; weather — AccuWeather.com; sports — ESPN.com; stock quotes/financial news — CBS MarketWatch.com; entertainment — Mr. Showbiz; and local entertainment, shopping and services — AOL's DigitalCity.com. Contact 3Com Corp. in California at (408) 326-5000 or visit www.3com.com

Delphi Showcases Satellite Radio, Wireless Network

Delphi demo'd pre-production head units for XM Satellite Radio and a wireless home network.

Using a concept vehicle, Delphi Automotive Systems demonstrated how licensed audio files and other data can be transmitted wirelessly to and from autos. With the wireless local area network, IEEE 802.11b, data can be transmitted at speeds up to 11Mbps over a range up to 300 feet. The network connects the vehicle's in-dash radio to PCs on a home network, letting users download and play licensed audio files and other information.



Delphi worked with 3Com Corp to develop the network, which operates in the 2.4 GHz band.

Delphi is working with 3Com to help bring IEEE 802.11b technology to the mobile world.

Delphi showcased one of the first satellite-delivered-digital audio receivers in a GM Cadillac DeVille. Delphi is supplying XM Satellite receivers to GM.

Delphi Delco Electronics Systems is supplying XM systems for OEM manufacturers. It also will supply XM and Sirius Satellite Radio models to other automakers.

MP3 playback development devices demonstrated by Delphi used several playback mechanisms, including one system that houses a CD-ROM that looks like a standard CD player and another MP3 unit that uses flash memory cards.

Find Delphi on the Internet at www.delphiauto.com

HOW TO BE A MAJOR MARKET SUCCESS

New York, Los Angeles, Paris and London are the most competitive radio markets in the world. You don't make it to the top in these cities without chops, talent and know-how. Being late to the best ideas and the cutting edge gear is not an option. That's why the world's leading broadcasters have made Omnia the number one audio processor.

And now, we've taken the audience-grabbing Omnia sound to the next level.

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Intel Shows 'Pocket' Player

Intel's efforts to branch out from microchips to consumer products continues with the company's Pocket Concert.

The Pocket Concert offers a 128 MB memory that enables users to store up to four hours of music programming and more than 20 hours of spoken-word audio in either MP3 or Windows Media Audio formats.

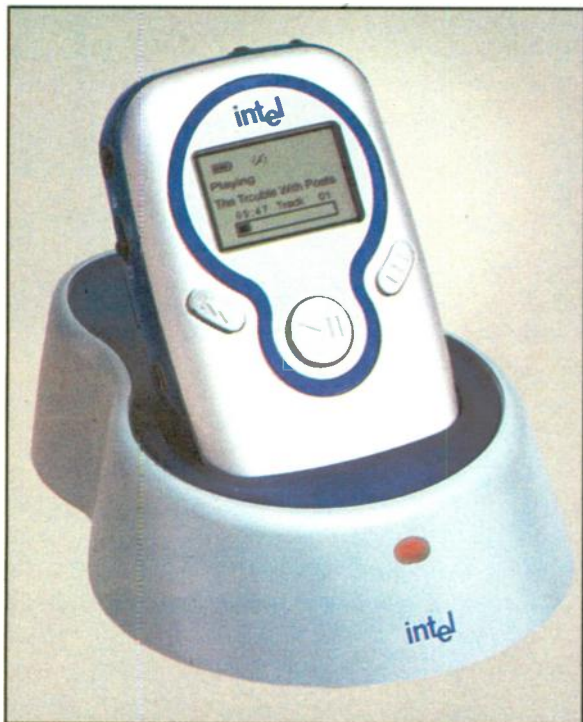
An FM radio capable of storing up to 10 presets and a behind-the-neck headphone come with the player.

The Pocket Concert can be used with an optional audio accessory kit that includes a home stereo dock and a car audio adapter that allows consumers more ways to access and use their digital music.

The player is powered by two AAA batteries, which Intel promises will deliver about 10 hours of continuous playback.

The Intel Pocket Concert Audio Player and an accessory kit are slated to be in retail locations in February. List price begins at \$299.99 for Pocket Concert alone, and \$349.99 with the accessory kit. The kit by itself lists at \$59.99.

For information, visit Intel at www.Intel.com/home/audio/ or contact Claudine Mangano in California at (408) 765-0146.



Alpine 'Satellite Ready' Units

The expected arrival of satellite digital radio this year was a buzz topic at CES. Alpine Electronics showed five pre-production head units that it calls "XM Satellite Ready."



XM Satellite Radio and Alpine expect to have receivers in volume in stores this summer to coincide with the availability of its satellite-delivered digital radio subscription service.

These products include a "plug and play" tuner module that plugs into a consumer's existing head unit, plus: versions of a CD receiver/CD changer controller, CD tuner/CD changer/controller, and a CD receiver/CD changer controller mobile multimedia station. Target list prices range from \$350 to \$1,100.

Alpine also unveiled what it says is the first in-dash wide screen navigation/video monitor with motorized tilt and swivel control. The TME-M790 allows users to swivel the 7-inch LCD monitor up to 15 degrees in either direction. The product integrates with Alpine's navigation or DVD video systems.

The TME-M790 is also equipped with front external input for connections to a camcorder or video game console. Alpine planned to ship the product in January with a suggested list price of \$1,600.

For information visit www.alpine1.com

Kenwood Turns Car Into Living Room

Kenwood showed two in-dash MP3/CD receivers and an in-dash DVD receiver with a motorized LCD video touch screen.

The company demonstrated the Excelon Z828 (top photo) and the KDC-MP8017 at CES. Both can play CD, CD-R and CD-RW containing conventional audio encoding or MP3 files. Each features four-channel amplification.



The Z828 also incorporates System Q EX Sound Control contouring technology and System E+ crossover network.

The Excelon KVT-910DVD in-dash CD/DVD player and receiver (below) features a retractable wide-screen LCD video display with touch panel control. The Z910DVD is the same unit but without the display. Both can be equipped with a 5.1 channel DSP surround sound decoder that allows playback of Dolby Digital, DTS, MPEG and Dolby Pro-Logic.

These systems also offer a dual zone feature that Kenwood says allows front and back seat occupants to enjoy different programs simultaneously over the same audio system.

For more information contact Kenwood USA in California at (310) 639-9000 or visit the company Web site at www.kenwood.com



TREÓ Stores 150 CDs In Your Pocket

TREÓ is a high-capacity Digital Music Jukebox aimed at consumers. It was introduced at CES by Hy-Tek Manufacturing Inc.



The unit stores and plays up to 150 music CDs in a pocket-sized format. Features include multiple codec support (MP3, WMA, AAC and ePAC), removable Li-Ion battery pack and eight hours of playback before recharging.

The company sought to offer its technology to other companies as well, saying it "can be used by any OEM seeking fast entry into the portable Jukebox market."

Retail price is \$399.

For information call (800) 835-7278 or visit www.treoplayer.com

CSR: Bluetooth Down to Single Chip

Cambridge Silicon Radio promoted its single-chip Bluetooth solution, BlueCore01. The company expects to ship more than 50,000 devices this year and more than 5 million in 2001.

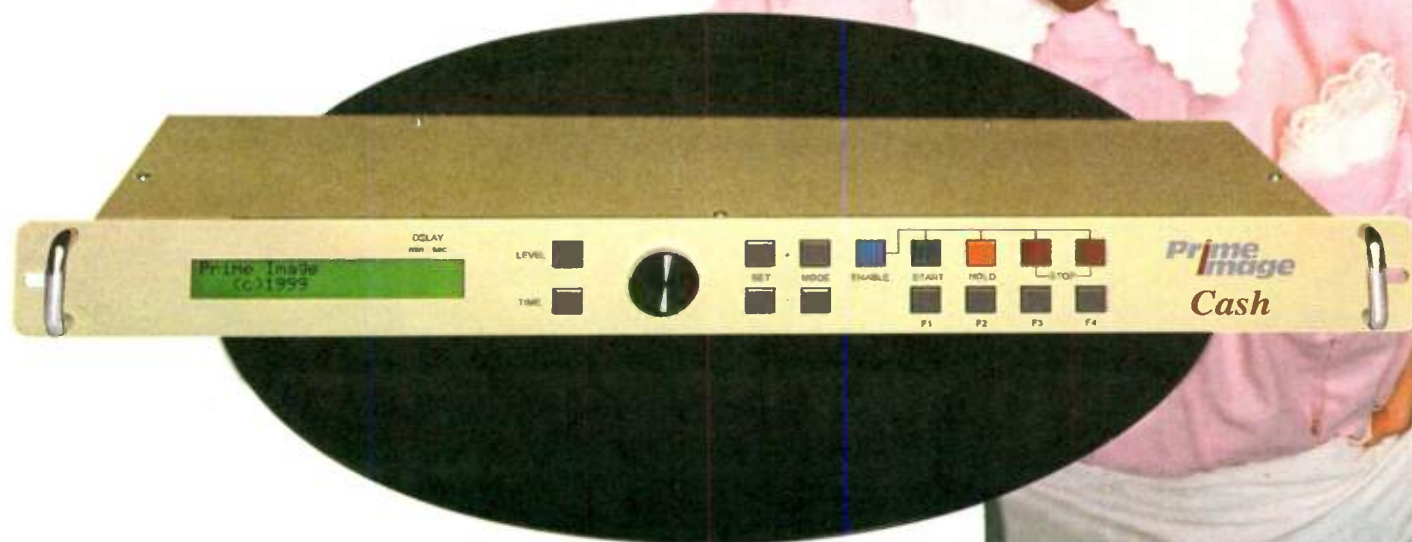


Bluetooth is the codename for a technology specification for low-cost, short-range radio links between mobile phones, mobile PCs and other portable devices. It is seen as the key to "cutting the cable" so consumers can use wireless connections for their mobile phones, PDAs and laptops.

Merrill Lynch analyst Andrew Griffin said, "A true single chip is the key to fast time-to-market, cost effective silicon."

Visit www.csr.com or for Bluetooth information go to www.bluetooth.com

Introducing the Cash™ miracle diet.



Lose three minutes in an hour!

Gone are the days of hunt-and-cut editing, warbling time compression, and sped-up chipmunk audio. Now overstuffed, overtime audio productions can be reduced through a real-time, undetectable process that can cut up to one minute of audio from every twenty without reducing program content.

The Cash audio time machine from Prime Image is a fully digital, easy-to-operate device that utilizes a patented system of random "micro-edits" to reduce the length of any production, whether voices, sound effects, or music. And Cash works automatically, in one pass, with no additional processing. Simply enter the amount of time you want to lose and the period of time over which to lose it. Then push the start button and find

something more important to do. Like kicking back and enjoying a cup of coffee—but, in the interest of your waistline, take a pass on the donuts.

For specifications, information, or orders contact Prime Image:
www.primeimageinc.com
408-867-6519

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The Digital Video People
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www.primeimageinc.com

Mobile Compute With Q-PC

Q-PC Real Car Computing rolled out its Q-PC Real Car Computer.

The product is a Window 98 PC based in the car. The unit is targeted at mobile business professionals who require computer access in their vehicles.

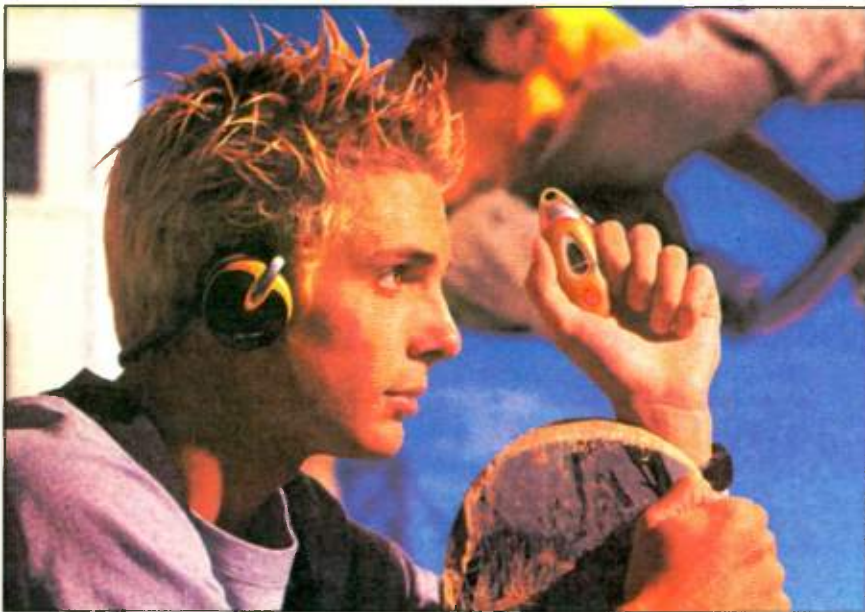
The system can access the Internet and e-mail, and use productivity tools from home and office desktop computers such as word processing, optional GPS navigation, MP3 audio and DVD video.

For information call (800) 233-0839 or visit www.Q-PC.com



Sony: What's That Song?

EMarker.com, a division of Sony, is an Internet service and device that provides listeners with the song title and artist information of music being played on the radio.



The eMarker device works by depressing a button; the unit automatically marks the information. The device is plugged into a computer through a USB connection, and www.eMarker.com is launched through the Internet browser.

The Web site displays the song information by matching the time the song was played to the radio station on which it was heard.

For more information contact eMarker.com in California at (415) 357-6146 or visit www.eMarker.com

Fisher Puts Audio on the Wall

"It looks great hanging on the wall!" That's how Fisher touts its new PH-DTA200 three-piece portable audio system.

This CD player/digital tuner system features separate full-range speakers and has a motorized half-mirror door that opens to reveal the CD compartment. A remote control comes standard, as does a multifunction display to indicate function and frequency of selected radio stations.

The system retails at \$199.99. It offers user-selectable sound presets with Fisher's Dynamic Bass sound system. The company intends to ship products to retailers in May.

For information contact Fisher in California at (818) 998-7322 or visit www.fisherav.com



AudioRamp Offers Net Stereo Units

Listeners can hear digital music in any room of the house untethered from their computers using the AudioRamp iRad family of products.

The iRad-S is a standalone shelf system that connects to the Internet using a wireless connection via an Ethernet or home Phone Networking Alliance 2.0. The unit includes an AM/FM tuner, amplifier and speakers as well as Internet audio capability. Up to 1,500 MP3 or WMA music files can be stored on the iRad-S as well.

The iRad-C allows users to add Internet audio tuning to their home stereos. Like the iRad-S, the "C" unit allows users to download, assemble and manage personal music libraries from online music sites, CDs or Internet streaming broadcasts.

Audio Ramp also offers a unit that is Internet-tethered, the iRad-TS, that plays both Internet radio and downloadable audio such as MP3 and Windows Media applications. A stereo component version of the iRad-TS, the iRad-TC is available.

To help digital audio listeners who may have multiple devices capable of playing streaming audio and Internet audio files, the company sells the iPan manager. It moves files around the Internet to meet the needs of the user who has these devices in multiple locations. The company says with iPan, a customer can control when and where he or she will listen to streaming audio stations or digital audio playlists.

Suggested retail price for the iRad-S is \$599, \$549 for the iRad-C, \$299 for the iRad-TS and \$249 for the iRad-TC.

For more information contact AudioRamp in California at (714) 258-3940 or visit www.audioramp.com

Jensen on the Receiving End

Three new Jensen in-dash units can play CD-Rs; one has MP3 playback capability. The MP5010K features a swing-down detachable face plate and can play CD, CD-R and MP3-encoded discs. The unit also functions as a controller for an external six- or 10-disc changer. The MP5010K has retail price of \$279.95 and will begin shipping in April.



The CD4010K features a flip-down detachable faceplate and can play CDs and CD-Rs. The unit can function as a six- or 10-disc changer and lists at \$179.95.

The CD3010X can play CDs or CD-Rs and retails for \$119.95.

Both the CD4010K and the CD3010X will begin shipping in March.

For more information contact Jensen/Recoton Mobile Electronics at (407) 333-8900 or visit www.jensenaudio.com

Blaupunkt Upgrades Nav Receiver

The TravelPilot DX-R70 is a combo car navigation system and CD car stereo receiver from Blaupunkt, aimed at the high-end car sound market. Suggested retail price is \$1,800.

The driver never has to look away from the road, because the system provides spoken turn-by-turn directions when the car approaches a turn on the route. The radio's display provides supplemental directional symbols and route info, and the system keeps a running estimate of the time of arrival.

This is the third in Blaupunkt's TravelPilot line. A new processor allows faster route calculations and has a better driver interface than earlier models. The unit includes CD/AM/FM car stereo receiver functions, including the company's DigiCeiver all-digital tuner.

For information, contact the company at (800) 950-2528 or visit www.blaupunkt.com

JVC Shows off Backpack Audio System, CD Units

Your kids won't complain about having to wear this backpack. The JVC RS-WP1 Sports Portable System offers CD and audiocassette playback along with a radio tuner. And the best part — you can wear it on your back!

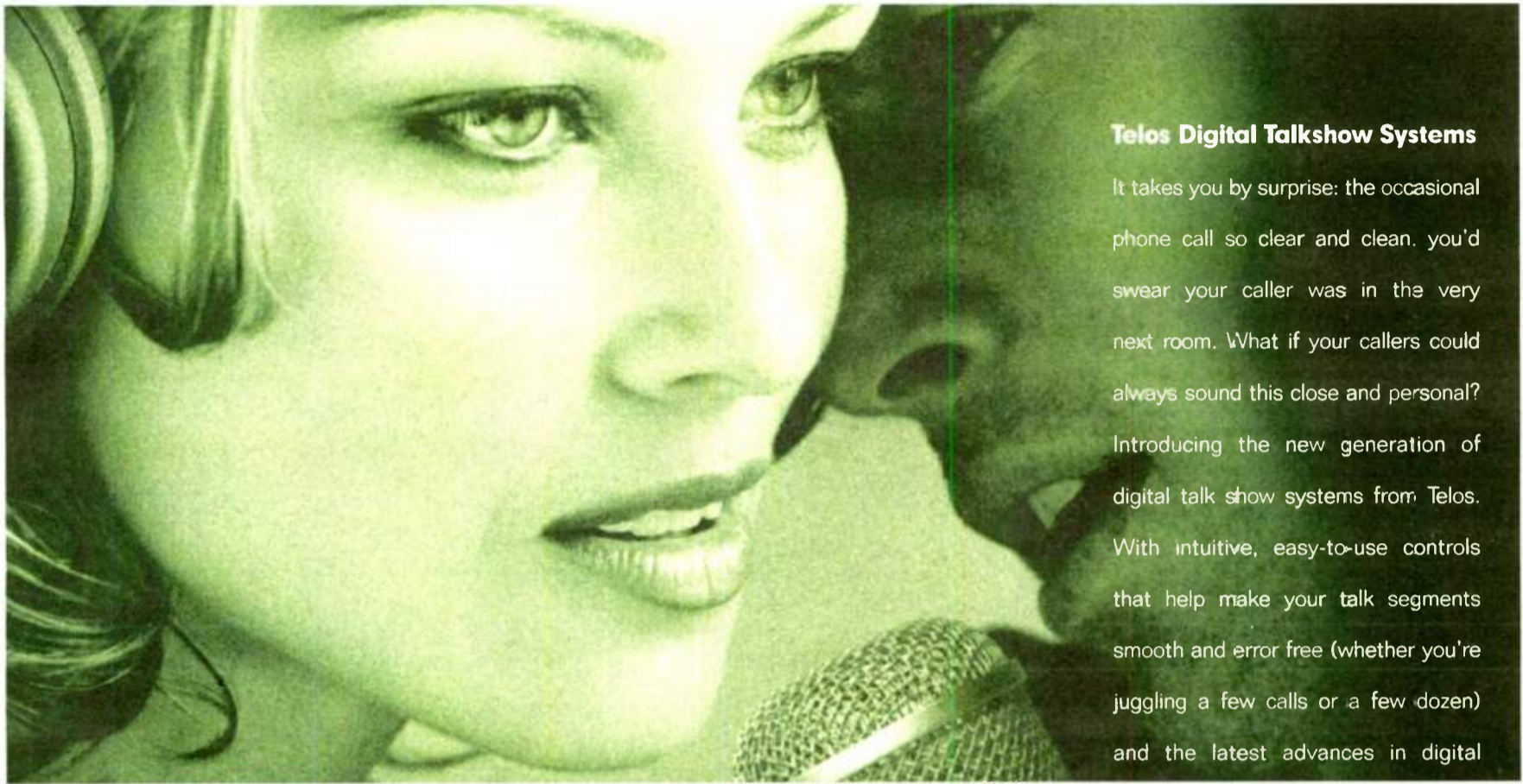
The audio system is built into a backpack and allows consumers to have their hands free.

The unit has a stand and handle, detachable AC adapter, a DC input for car use and a remote control and case. It offers a clock/timer with sleep and wake-up functions, 20 W of power, 40-second anti-shock proof operation and dual remote sensors front and back.

The Sports Portable Backpack includes auto reverse cassette deck, 20-track programming CD player, random/repeat play and bass/treble control. The unit is expected to ship in April and lists at \$220.

JVC intends to offer a line of multimedia control CD receivers, set for April. The DigiFine 2.1 line offers MP3 playback and listening. JVC says the KD-SH99 CD receiver has source flexibility with CD-R and CD-R/W compatibility as well as DVD/VCP control. The unit offers 4V line output level, two pairs of gold-plated line output terminals, subwoofer output terminals with level control and adjustable line input and front auxiliary input.

Contact JVC in New Jersey at (973) 315-5000 or visit the company Web site at www.jvc.com



Telos Digital Talkshow Systems

It takes you by surprise: the occasional phone call so clear and clean, you'd swear your caller was in the very next room. What if your callers could always sound this close and personal? Introducing the new generation of digital talk show systems from Telos. With intuitive, easy-to-use controls that help make your talk segments smooth and error free (whether you're juggling a few calls or a few dozen) and the latest advances in digital phone hybrids from the company that invented them. Never have your callers sounded so consistently loud and crystal clear – it's the next best thing to having them there. Don't just talk to your audience... get intimate.

Talk radio is suddenly intimate

Telos Systems. Connected.



Telos TWOx12™ Integrated Talkshow System

Using POTS or ISDN lines, the TWOx12 handles up to 12 callers on two built-in digital hybrids. The intuitive phone controller tames even the wildest talk shows.

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“Our web clients rely on us to deliver the highest quality streaming audio. That’s why we chose the Aphex 2020.”



Andrew Rosenberg - Director of Studio Engineering
John Patti - Director of Audio/Video Services
Casey Fuller - Assistant Audio Engineer
Westwind Media.com - Denver, CO



Westwind Media.com is a leading digital audio provider for Internet communities such as Lycos, iVillage.com, Fidelity Investments, TheStreet.com and PeopleWeb. These clients demand the best, and Westwind’s audio engineering department ensures that level of performance...even on connections as slow as a 28.8 dial up!

“We’ve tested other processors and nothing comes close to the consistently high audio quality and loudness of the 2020”.

The Aphex 2020 is a digitally controlled analog processor that is configurable as the high quality, cost-effective, one box solution for FM, Satellite Uplink, Mastering and Webcasting.

“It was no surprise to us that the number one FM station in town also uses the 2020- it’s the best sounding processor on the air and on the Web.”

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World Radio History

Harman/Kardon Picks Up Award

Harman/Kardon's CDR 30 CD Recorder has picked up an Innovations 2001 Design and Engineering Award from the Consumer Electronics Association.



Harman/Kardon CDR 30 CD Recorder

The CDR 30 includes features such as playback of MP3-encoded CDs, an automatic digital level control that normalizes varying levels from different digital recordings when creating a CD mix and built-in HDCD decoding.

Harman/Kardon also introduced what it calls a first: a digital audio transcoder that enables audio and home theater enthusiasts to connect their PCs (using Windows 98/ME) to any audio/video receiver with a coaxial digital input and listen to downloaded or streaming media files.

The DAL 150 EzLink connects between a computer's USB port and the coaxial digital input jack of an A/V receiver. Software drivers route MP3 or WindowsMedia digital audio data to the computer's USB port. The unit automatically converts MP3, WMA or WAV files to PCM digital audio, which can then be played by any A/V receiver or surround processor equipped with an SP/DIF coaxial digital input.

Harman/Kardon plans to ship the product this spring with a list price of \$119. For information call (516) 496-3400 or visit www.harmankardon.com

Sanyo Previews Digital Memory Player

Sanyo previewed its "ultra-compact" SSP-PD9 Digital Memory Player, capable of AAC, WMA and MP3 format playback, at CES. The unit weighs two ounces, measures 1.5 x 3.3 x less than 1 inches, and runs on a single AAA battery.

LiquidCard 5.4 software will be provided in this SDMI-compliant device; a 64 MB MultiMediaCard is included. Pricing has not been announced.

The company also debuted its SSP-PD7 Portable Digital Memory Player, which it calls its premier entry in the MP3 player arena. It is fully SDMI-compliant and has a retail price of \$289.95.

For information visit www.sanyousa.com

E-Mail on the Go

VTech Connect showed off a line of e-Mail PostBox portable, hand-held e-mail devices featuring Yahoo!

The series of products includes the pocket-sized Express and full-sized Companion models. They offer features like Anywhere Dialer, Flash Connect and MailScreen, which let users access e-mail with the touch of one button, help bypass long-distance charges and control who corresponds with them.



e-Mail PostBox Companion

Products are available online and at major office supply and computer outlets. The company also plans a foray into two-way wireless messaging. For information visit www.vtechconnectusa.com or call (847) 215-9700.

Four Sennheiser Wireless Headphones



Sensing a growing market, Sennheiser unveiled the RS30, 40, 60 and 80 wireless headphones. All models are designed to allow audio transmission through walls and ceilings, and unlimited users on a single transmitter. Three of the models have "on-hook charging," allowing users to place the headset on the base unit to recharge.

The RS60 is the "showcase" model, with switchable surround sound.

For more information visit the Web site at www.sennheiserusa.com or call (860) 434-9190.

AudioBasket Delivers Web Ads

AudioBasket has developed a technology that delivers audio ads online to specific user groups using profiles that combine demographic and psychographic information.

Banner and text advertising are part of the AudioBasket advertising service. A companion banner, embedded in the user's player, links to an advertising web site. Stand-alone banners are also embedded in the audio player and rotate based on the user's selection of audio content.

For information, visit [AudioBasket at www.audiobasket.com](http://www.audiobasket.com)



RFS RADIO FREQUENCY SYSTEMS RFS Broadcast



Total Systems Solutions for FM Radio



- Complete RF Systems for FM Radio
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- Horizontal, vertical and circularly polarized applications

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fax +1 203 239 9260
info@rfsbroadcast.com

FIRST PERSON

Engineer Strolls CES Candy Store

Paul Black

Engineer Paul Black walked the floor at the recent CES show. RW asked him to write about his impressions.

Although lots of broadcasters have attended NAB conventions over the years, we sometimes forget that Las Vegas is also host to tons of other trade shows. The annual CES show, produced by the Consumer Electronics Association, is not only larger in scope and attendance than the spring NAB event, it also seems to have different goals.

The NAB show's major job is to make the broadcast community aware of the latest and greatest from the equipment

manufacturers and other companies that supply our industry.

CES seems to have two main purposes: to allow smaller (and usually overseas) manufacturers to try to find distributors for their products, and to let large, well-established manufacturers blow their horns loudly and tell retailers about new products.

The show also caters to members of the public who are wealthy enough to afford the newest and the greatest electronic products, and who can afford hotel rooms and airline fares to see these toys.

The NAB show takes up the Las Vegas Convention Center, part of its parking lot and space at the Sands. This year, CES

loaded up not only the LVCC and its lot, but also the parking lot across the street and space at the Riviera and Alexis Park hotels.

That's a lot of ground to pound if you plan to see everything.

Lots of companies have a hard time finding anyone to carry their products.

were mighty attractive, too.

One such item was an automatic mobile equalizer that "tunes" the sound system for the car's interior acoustical conditions, and also cancels ambient noise. The interior noise level of an automobile moving at 60 miles per hour is about 70 dB SPL, which is pretty loud.

This unit has a wide-angle microphone that picks up the car noise and feeds it back out-of-phase to the speakers (without disturbing the program audio), thereby making the car quieter and the sound system easier to hear.

'Proprietary' technology

I asked about details but a company spokesperson would only say it was "proprietary technology," with a patent pending on it.

Another one was an alarm system that arms itself automatically as you walk away from the vehicle and disarms when you come back. One fellow attendee asked jokingly, "How does it know? Can it smell you?"

Of course, the answer is that it uses a proximity sensor to detect the presence or absence of the remote control on your key ring.

Although most of the products shown for cars were available at what are called "high-end aftermarket vehicle suppliers," a surprising number of manufacturers told me they had no U.S. distributorships, or only had one outlet in the whole country. Lots of booths had signs on the front that said "Distributorships Wanted."

Many companies apparently have a

See FLOOR, page 18 ►

Sing Along With irock

Listeners now can do more than sing along with their radio.

Motorola spin-off First International Digital showcased the irock! 680 MP3 player, featuring a Karaoke function. Not only can a user see the song lyrics on the display, but he or she can also cut voice tracks as it plays, the company said. Listeners can sing along with songs downloaded from www.myirock.com and store up to two hours of stored music.

First International Digital's newest MP3 player features 64 MB of removable, expandable memory cards, a built-in FM tuner and voice recorder. Two headphone jacks and a built-in mic are included.

The irock! 680 should be in retail outlets in February. List prices start at \$249.99.

For information, visit First International Digital at www.fidinc.com

New Internet Radio Tuner From SmartMedia

Consumers will be able to tune in Internet radio even if they do not own a personal computer with the SmartMedia Direct Dynamic Link Player.

A stand-alone unit that connects to consumers' existing home stereo systems, the DDL Player provides access to radio stations around the world with a database through a large LCD display on the face of the unit. Users may connect to the Internet with a built-in dial-up modem. The DDL Player is also Ethernet-enabled for DSL, cable modem and satellite connections.



The company said radio benefits from the unit's ability to target advertising, send on-demand user statistics and the station information on-demand via the LCD display.

The DDL Player lists at \$99.95, plus \$14.95 monthly subscription or \$199.95 for DDL broadband connections (no subscription required).

For information, contact Eddie Burchess in Los Angeles at (213) 487-7093 or visit SmartMedia at www.smartmedia.com

Cue Expands Traffic Partners

Cue Corp. will supply real-time, route-specific traffic information to new products from Alpine, Pioneer and VDO.

Alpine's DVD PowerNav system, Pioneer's DVD Navigation System and VDO's MS-5000 and MS-6000 Navigation Systems will be served by Cue.

The traffic information is delivered over an FM subcarrier network of 600 radio stations, covering 95 percent of the population of the United States and Canada.

Cue recently said it will expand its network to the United Kingdom. It also has introduced a voice version of its service called TrafficRadio, which converts RDS/TMC data into voice files and transmits them over a high-speed subcarrier channel. It operates with all car radios that have a cellular telephone interface.

For information, call Cue Corp. in California at (949) 862-8800 or visit www.cue.net

Kessel Picks Up Consumer Lines

Kessel Inc. is entering the market with approximately 100 new consumer electronic, telecommunication, housewares and lifestyle products, such as PDAs, postal scales, radios and remotes.

The firm is a subsidiary of Hong Kong-based electronics company Kessel International Holdings Ltd. It previously marketed children's electronic communication devices and toys, and now has picked up additional lines to be sold under the Kessel name.

For more information call Kessel in California at (949) 470-7999 or visit www.kesselusa.com or www.kessel.com.hk



NOAA Weather Radios are among the products sold by Kessel Inc.



On The Air

A Monthly Newsletter from Broadcast Software International

Issue 1

News

BSI Announces Ultimate Turnkey



The BSI Series 300 is a complete turnkey digital automation, VoiceTracking and production system for medium to large broadcast facilities. It is expandable, allowing you to easily add an unlimited number of additional Air Studio or Production Studio workstations. Digital hard drive automation, satellite interface, multi-studio VoiceTracking, 64-track production, backup, remote access and control are all included. A complete two-studio turnkey system, including both workstations, is only \$26,999.

The Series 300 digital broadcast workstations are built around enterprise quality Dell PowerEdge 2450 components, AudioScience audio hardware and Microsoft Windows 2000 Pro. Each Series 300 system begins its life at Dell and then receives final assembly and testing at the BSI HQ in Eugene, Oregon.

This is a beautiful system with tremendous reliability, amazing capabilities and excellent specifications. From the Dell 2450 rack mount CPU to the high-resolution 18-inch flat screen monitors, this system is unmatched in technical capability and power-for-price. More than 36 gigabytes of hot-swappable hard drives and dual redundant power supplies mean downtime is virtually non-existent.

The Series 300 systems include BSI's WaveStation digital automation, WaveCart cart machine replacement, STINGER instant playback software, WebConnect Pro remote access program and the award-winning Cool Edit Pro 64-track digital editing software. Hardware accessories include the MixMax audio mixer/switcher and an Iomega JAZ drive. Users can also add additional Series 300 Production or Air Studio workstations as needed.

Quote of the Month

"Wavestation has been running nonstop for nearly nine months. We are very happy."

John Spring
MedioFrame gmbh

Calendar

Feb 1st, WaveStation test has been running for 84 days without reboot or error.

Feb 7th-9th, WaveStation Weekend

Birthdays:
Feb 4th 1948 - Alice Cooper
Feb 4th 1947 - Dan Quayle

Tip

Macro Power

WaveStation does more than just play audio. Its macro language lets you command relays, mixes, ports and even run other applications. You can group macros along with audio in a cart to create complex sequences that look simple to the operator. For example, a cart called "GoToNet" could include a music fade, Legal ID and fade up network sequence. Carts can be randomized, nested and emailed.

User File

WYXI - Bob Ketchersid

Bob Ketchersid says, "WaveStation has really freed me." After 15 years at WYXI in Athens, Tennessee, Bob decided it was time to look into an automation system. He asked around and heard a lot of great things about BSI's \$1499 WaveStation.

Bob now uses WaveStation in live-assist and automated modes, complete with satellite switching.

Bob also has great words about BSI's tech support team. "One time I left an emergency message at 1am. Leo called back within 5 minutes. He said 'Don't worry, we'll have you up and running in a couple of minutes'... And he did. They're great."

What does Bob have to say to anyone considering an automation system? "If you want to have a system that sounds like you actually have somebody running the board, at an economical price, that can do anything you could think of that you'd want something to be able to do, then WaveStation is the way to go," says Bob. "I've not seen any of the expensive systems do something that WaveStation can't do. We are very pleased. WaveStation has improved our on-air sound. It's saved us time and made us money."

Send us your User File story.



Dave... I am sorry to bother you at home, but I've detected a fault in spot number 321. It may be missing. Perhaps you should look into it.



WaveStation 3.0 with WebConnect

2001 is now

WebConnect is a powerful accessory to BSI's \$1499 WaveStation digital automation software. It keeps you connected and in control of your station.

WebConnect identifies problems and automatically alerts you via e-mail or pager. You can even resolve many problems by sending a reply e-mail to WebConnect. And for only \$299, we promise... it will never eject you into deep space.

www.bsiusa.com

1-888BSIUSA1 WWW.BSIUSA.COM
Broadcast Software International

Floor

► Continued from page 16
hard time finding anyone to carry their products. One maker of some really nice home theater speakers told me, "It's tough to compete against a Sony or a Panasonic when you can't afford an ad budget like theirs."

If you're looking for a business opportunity and want to rep products, this is the show for you. Lots of exhibitors wanted to know if I was interested in doing this. I politely said no, but took information for myself anyway.

You never know when you'll need to start your own business.

From there I wandered into satellite territory, in the North Hall of the LVCC,

and then the bigger South Hall, finishing up in the Gold Lot in front.

The South Hall was home to all the big companies: Sony, Panasonic, Sharp, Quasar, Thompson CSF Electronics (which owns RCA and GE consumer products).

In the Palm

Other than a couple of neat portable CD recorders, not available yet but in final product development, the biggest thing in this area was flatscreen TV receivers and monitors. Everybody has them, and they're all 16-x-9 aspect ratio instead of the 4-x-3 that NTSC TV uses.

High-Definition TV is coming, according to those with whom I spoke in the booths, and they say they're ready for it. No one, however, would quote any prices.

CES

The Gold Lot was dominated by 3Com's Palm Pilot Pavilion. I'm a Palm user, so I spent some time in there. The list of new features you can buy for these useful organizers would take up an entire article by itself. 3Com allowed a lot of third-party companies that make software to use their booth, so the place was loaded with new applications written for the Palm by outside vendors.

With enough software, your Palm Pilot starts to rival a well-equipped laptop computer in its capabilities, so if you're tired of lugging the laptop, check these out on the Palm Web site.

A most interesting Palm item: a Pilot combined with a cell phone in a leather carrying case. Clip this to your belt and you could dial up the transmitter to check status at the site without a talking box on the remote. Or maybe dial up the audio

processor and change the settings while sitting in the car listening to the station.

Also in the Gold Lot was the "upcoming technology" area, showing the CEA's picks of the best new items. This was a large area and covered much of the pavilion. The trend in new products from home appliances to cell phones was obvious: faster, cheaper, more automatic.

The cell phones all had Internet connectivity, the home appliances were "smart" with the capability of talking to computers, and the car audio systems were "intelligent." This means they will automatically do things you do for yourself now, like controlling your alarm or assisting your cell phone with incoming calls.

The items in this area were in development, and in most cases won't be available for at least two years.

An important note to terrestrial radio broadcasters: beware the satellites, my son, the jaws that bite, the claws that clutch. That is, look out for Sirius Satellite Radio and XM Satellite Radio.

Most readers of Radio World know that these companies have developed satellite-delivered, pay-channel radio to mobile receivers. Each has more than \$1 billion at stake in this game, and they are about ready to go.

Here comes the sat

Some broadcasters think this is a crazy, half-baked idea. Well, it's not crazy, and it's fully baked.

The list of receiver makers includes a list from Sony to Blaupunkt. Auto manufacturers that will be offering receivers for these services include Ford and its subsidiaries (the likes of Jaguar, Volvo and Mazda), GM, Daimler-Benz (Mercedes and Chrysler) and BMW, heavy hitters in the car world, for sure.

A monthly payment of \$9.95 will get you 100 channels of direct-from-the-satellite entertainment, of which 50 channels are music formats, with limited spot breaks.

For those areas where the satellite doesn't penetrate well, terrestrial repeaters will be in place; the receiver knows to look for one if it loses the satellite signal. The idea is to keep you listening without any pause at all.

Both companies claim this technology has reached a high level of sophistication and will work as advertised.

It's going to be a big competitive service to terrestrial stations. XM had demos of 20 channels in the booth and via van rides. Its first satellite is scheduled to go up this month. Sirius has birds already up, and had live demos of the system in their booth and in limo rides. Talk about clean! Low noise, low distortion and lots of highs and lows. Close your eyes and you could be hearing a CD. Anything this good is bound to catch on. You heard it here first.

So, was it worth it to burn down a weekend for this show? Yes, it was. Should a broadcaster go to CES every year? Probably not, although I know some who do.

I think I'll probably skip January 2002 and go in '03. By then I'll be far enough behind the times that I'll be ready for a refresher course.

Paul Black, CSRE, is engineering manager for Loral/SkyNet's San Francisco satellite teleport. He has been in the broadcasting and electronic communications industry for more than 30 years.

RW welcomes other points of view.

25th Anniversary Silver Sweepstakes

Enter to win one of 25 great prizes in Radio World's reader appreciation contest giveaway!

IMAS Publishing is celebrating 25 years of serving you and the radio broadcast industry. To mark this significant milestone, 25 of radio's leading equipment suppliers have teamed up with Radio World to express their appreciation.

Throughout 2001, Radio World will conduct 25 random drawings. Prizes and winners will be announced in every issue of Radio World all year long.



To become eligible to win, you need to complete these three easy steps:

- 1) Register online at our Web site www.rwonline.com
- 2) Click the Silver Sweepstakes icon on our homepage
- 3) Fill out the electronic entry form — that's it, you're done!

It's your chance to celebrate our Silver Anniversary with these fine Radio World supporters ...

Contest Rules: To enter the drawing, simply register online at www.rwonline.com/sweeps. 25 drawings will be held throughout the year. Contest ends December 19, 2001. One prize per winner. All contestants MUST reside in the United States and have a valid mailing address. Winners should receive prizes within 30 days of notification, however, actual delivery time may vary and is not guaranteed by IMAS Publishing. Federal, state and local tax laws may apply to prizes and are the sole responsibility of the winner.

FIRST PERSON

Cautionary Tale of Frogs and Men

Ken R.

Format changes are traumatic when the skills of those who served so well are no longer needed. Loyal employees are yanked from a station bleeding and sometimes screaming for reasons that have nothing to do with their talent, willingness to work or value to the previous regime.

In the mid-1970s, I was witness to a particularly brutal clash of this sort. Although I will change the names, the story is true.

I worked at a station that had been a rocker for most of its 20-year existence. The hits were played, the salesmen sold, the jocks slung the clichés and played the hits. But as other AMs were doing at that time, our station gradually added more service and talk elements as teenagers migrated to the FM band.

This worked out well until the owner realized it cost more to run an adult station because he had to pay actual news people and air talent who could do more than spout time and temperature.

The overhead was more than he could bear, even though the ratings were very good and our station was profitable.

The beginning of the end

The owner decided to dismantle the operation and bring in some cheap and cheerful rock jocks to take over. His first step was to look for a "hatchet man" so he wouldn't have to soil his manicured hands firing about 12 people.

We had a consultant at that time, a rather distinguished one at that, who had worked for Westinghouse stations such as WBZ(AM) and KDKA(AM). This consultant, based on the East Coast, built our full-service format and helped me as operations manager keep it running.

When approached about the impending changes, he politely declined to take part and gave his notice. Of course, he never received his final check.

"The bastard can take us to court if he wants," was how our beloved owner put it, I recall.

The owner then hired a California top-40 program director to do the dirty work. We'll call this individual Big Al Benedict.

Big Al was a jock stuck in the 1960s who brought with him his patented, movin'-groovin'-hey-guys-and-gals patter, which was about 10 years out of date at the time. He brought his on-air buddy, "Thomas the Frog," who existed only as a silly "ribbit" and splash sound on a single cart.

The effect of hearing Mr. Benedict doing his thing on the air in afternoon drive, followed by an excellent news hour at 5 p.m. left over from our full-service format, certainly left the listener with whiplash. Those teens who tuned in to hear Big Al tuned out when the news hour came on. People who liked the news couldn't stand Big Al or his pal Thomas the Frog.

Shortly, more cars with California license plates showed up in our parking lot as Big Al brought in several buddies from the West Coast. The first new arrival was a real burnout case who called himself "Dr. Love" on the air.

Of course this meant our existing midday personality had to be dispatched quickly to make room for the Doctor. Our tactful new program director told our midday man he could work the all-night shift or resign, in spite of the fact that this jock had a contract with another year to run. The jock chose to leave quietly because he could hear this train whistling down the tracks.

Big Al was a jock stuck in the 1960s. He brought with him his patented, movin'-groovin'-hey-guys-and-gals patter.

Dr. Love was now free to take his place behind the mic to scream and make lewd jokes, which were not as well accepted in 1976 as they are today. Then suddenly at the top of the hour, he would schizophrenically switch voices and do his own newscasts as the sober-sounding "Mark Dalton." Thus our owner was able to save the expense of a newperson.

Dalton mispronounced everything. Local news content disappeared entirely, and national headlines were ripped and read by the good Doctor.

To rid our station of yet another news staffer, Big Al did a singularly cruel thing. He knew a certain newswoman was Jewish. He told her she had to work Fridays and Saturdays, the traditional Jewish "Sabbath" during which people of her religious beliefs did not work.

She had a contract that allowed her to have these days off, so after quitting, she sued the station for religious discrimination, a suit she eventually won.

Other relatively high-priced air talents simply were told to hit the road, in spite of their contracts. They were given three days' notice. Other costs were slashed too. Station news vehicles, no longer needed, were given to the owners' kids to play with. Contests now featured \$1 lottery tickets as prizes.

Remaining station employees were given traded-out fast-food gift certificates in place of Christmas bonus checks. Everyone who had any sense left the station voluntarily.

And then there were none

One obstacle remained in the quest to rid the station of high-priced employees and complete the conversion to top 40. An experienced newsman whom we'll call Lawrence anchored the 5 p.m. news hour. He was from the old school of news people: he had a journalistic background and had anchored local television news. He brought an element of class to the station.

Lawrence had a contract. Because he had a big family, he planned to grit his teeth and try to wait this whole nightmare out.

He didn't count on Big Al and crew. First, Big Al fired the rest of the news team that supported Lawrence. The traffic woman, the weather service,

the local reporters and other resources were done away with. Lawrence bravely pressed on. Then he was given additional duties including pre-taping all the newscasts through the evening. I guess Big Al believed nothing would happen after 6 p.m.

Next Big Al encouraged Lawrence to "jazz up" his news stories with more blood and guts, even if he had to

his news block with Big Al on the air. After one day of this painful exercise, Lawrence told me, "They can take away my whole staff if they like, but they can't make me talk to that moron."

The hand moves on

Where was I during all this? I was still operations manager, but I was a lame duck; I had given 30 days' notice that I intended to leave and start my own recording studio. I could only watch helplessly as our radio station was taken apart, brick by brick.

I felt sorry for my co-workers and friends who had worked hard and deserved better treatment. As a rule I'm not a person who takes joy in seeing destruction come to those who deserve it, but I was willing to make an exception in this case.

Within months after my departure, the whole Big Al Benedict format blew up. The sales people couldn't convince advertisers to buy into it, the California license plates all left to haunt some other station, and the station soon changed formats and picked up a satellite-fed news service — which also failed.

The theory of cosmic paybacks didn't fail me. And somewhere out in the universe where radio waves eventually go, strange beings on other planets must be puzzled to hear Big Al Benedict and Thomas the Frog. I know I was.

Ken R. is no longer a broadcaster and says Big Al Benedict is part of the reason.

SATELLITE READY



ASI4336

- RS422 bitstream input for direct MPEG recording.
- Eight relay closures
- Sixteen optoisolated inputs
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- Four MPEG play streams, one MPEG record stream.
- Balanced audio input and output.
- Windows multimedia driver.

The ASI4336 from AudioScience is a fully featured sound card that integrates everything required to connect to a satellite receiver. An RS422 input provides direct MPEG recording eliminating transcoding, while GPIO allows event sensing and channel control. Multi-streaming MPEG record and playback with digital mixing and balanced I/O complete the functionality. So get satellite ready and choose the ASI4336 for your station automation system.



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FIRST PERSON

WorldSpace Expands Service

One Listener's Opinion of the AsiaStar Satellite Radio Service, From Poolside in Bangalore, India

Grant Goddard

WorldSpace is marching steadily, introducing its service to an audience of 4.6 billion listeners throughout the Southern Hemisphere.

Currently, two geostationary satellites beam programming to Africa, the Middle East and South Asia from orbital slots above the equator.

Each satellite emits three beams, each of which can deliver more than

40 channels of crystal-clear audio and multimedia programming directly to portable receivers. Each beam covers roughly 5.5 million square miles.

In October 1999, the Washington, D.C.-based company launched its first satellite, AfriStar, covering Africa, the Middle East and the Mediterranean Basin, followed by AsiaStar in March 2000, which blankets nearly all of the Asian continent.

By year-end 2001, a third satellite,

AmeriStar, will provide service throughout Latin America and the Caribbean.

Test market

In India, huge billboards announce the recent arrival of WorldSpace satellite radio service in the south-central city of Bangalore.

Bangalore, the technology capital of India, is the first to test-market the WorldSpace Asia service, with the countrywide rollout planned for other Indian cities in coming months.

Electronics stores throughout the

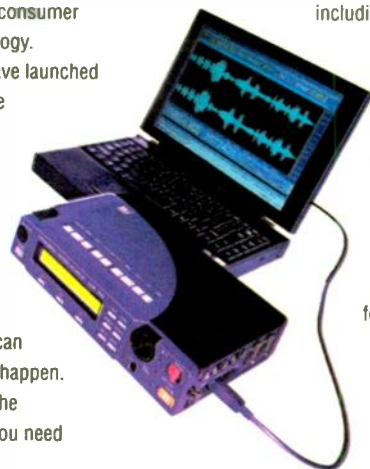
PORTADISC

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Forget consumer technology. HHB have launched

the PORTADISC™, a professional portable MiniDisc recorder designed and built to take the hard knocks of broadcast journalism. The PORTADISC uses a tough, precision MD drive for maximum durability - not a flimsy, consumer mechanism. And with a frequency response of 10Hz - 20kHz and a dynamic range greater than 96dB, you can be sure you'll capture events just as they happen. Despite its surprisingly affordable price, the PORTADISC is packed with the features you need



including ultra low noise balanced mic inputs, flexible powering options, a 6 second pre-record buffer and a comprehensive range of accessories supplied as standard. And the PORTADISC is the only MD portable to feature a USB interface enabling you to stream audio to and from your laptop and edit finished pieces in the field. When the news is breaking, you need a recorder you can rely on. Contact HHB today for full information on the PORTADISC system.



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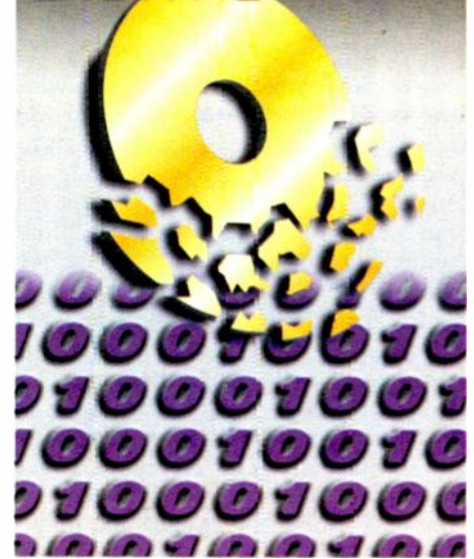
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www.hhbusa.com



Transition to DIGITAL



city sell the WorldSpace receivers, manufactured by Hitachi, Sanyo, JVC and Panasonic, equipped with AM, FM and shortwave bands, as well as satellite reception capabilities.

To explore the possibilities of the WorldSpace system, I acquired a Hitachi receiver.

The radio operates much the same way as a conventional receiver, using an LCD for channel information and up/down buttons for tuning. There is an additional beam-seek button for receiving satellite radio.

I was shocked at the sheer clarity of the sound. But if an object temporarily blocks line of sight, it does disappear for a few seconds.

The satellite dish, attached sturdily to the top of the receiver by a customized clamp system, is a flat box rather than a concave sphere, 1.3 inches deep and about the width and height of a CD jewel box.

Setting up the equipment to receive satellite signals is simple, compared to the complex steps needed to receive satellite television signals.

Line of sight

The AsiaStar satellite is positioned above Singapore, so the dish simply need be pointed to the sky in that direction (southeast from India) and press the beam seek button.

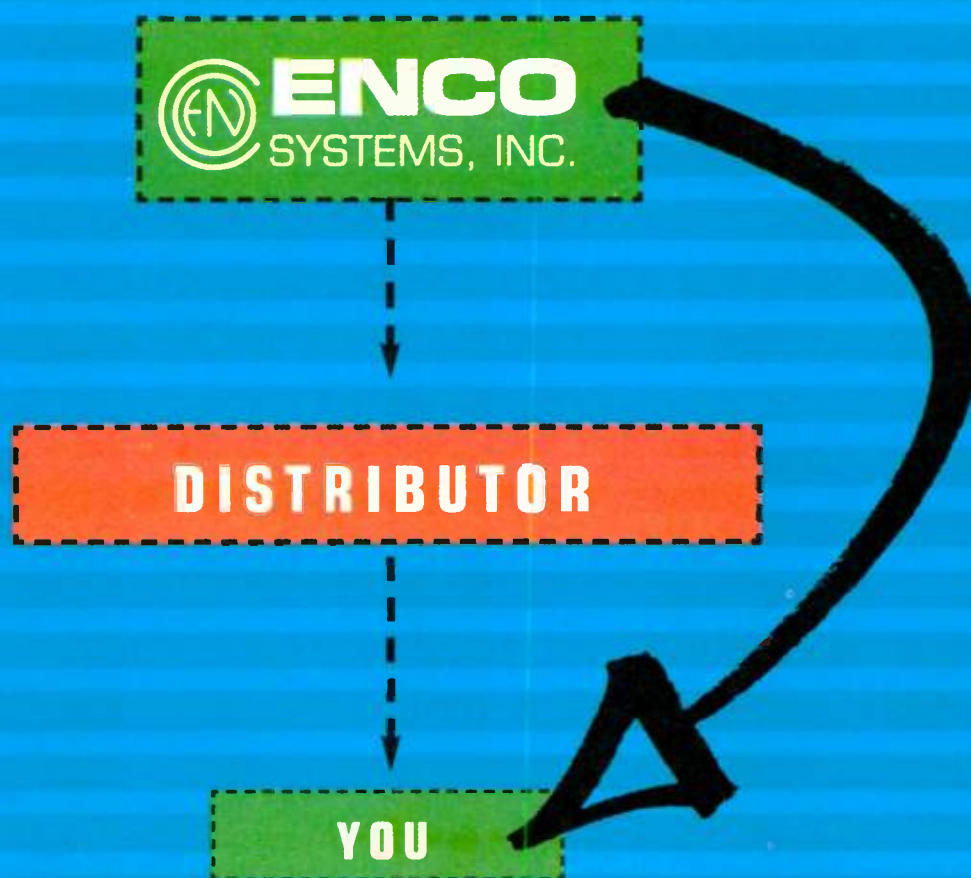
As with all satellite technology, the dish must have line-of-sight access to the satellite, making reception within many buildings and built-up city areas impossible. An antenna lead allows the dish to be placed on a windowsill for indoors listening.

As the signal is digital, reception is either a perfect-quality signal or nothing at all.

I experimented and found that I could

See WORLDSpace, page 24 ►

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World Radio History

Optimize FM Transmission Plant

Tom Osenkowsky

In the Feb. 1 issue, we considered some fundamental ways to assure the quality of your FM signal. We conclude that discussion here.

Consideration of a good signal to your listeners starts at the antenna. It is your station's prime instrument of transmission.

The location of the antenna will determine what geographic area will receive the strongest, clearest signal. The ideal transmitter location is where the antenna is situated in the center of the desired coverage area, the FCC City of License is provided adequate signal and there are no surrounding hills or mountains creating multipath.

Wantsville

Seldom are these conditions realized in the practical world. In a less-than-ideal condition, we see the City of License receiving the FCC required 70 dBu signal level, however, the desired market area — let's call it Wantsville — is not covered to the degree that the licensee would prefer.

There are mountains immediately to the west of the desired market area that reflect the signal back toward the transmitter site, which causes multipath. This depiction is taken from an actual client station case.

The station had constructed an 800-foot tower to improve coverage toward Wantsville. The station's antenna was pole-mounted atop the tower for the best omnidirectional signal. The new tower did, in fact, allow the antenna to overcome terrain obstacles between the transmitter site some 20 miles distant to Wantsville.

FCC rules allow you to correct for distortions in your FM pattern caused by the mounting structure.

Immediately to the west of Wantsville is a significant mountain range. This range acted as a mirror to the signal, creating notable multipath. A solution to this problem is to face-mount the antenna on the tower in a manner to minimize signal towards Wantsville from the main tower and install a booster on one of the TV towers atop the mountain range.

A booster is a low-power transmitter that operates on the station's frequency. Boosters designed and operated with care can provide clear reception in areas otherwise obstructed by terrain.

Care must be taken in the design and operation of a booster site. Because a booster operates on the same frequency as your main station, an interference zone will be created where both signals are audible to receivers.

By careful geographic placement and selection of antenna height, this interference can be minimized or placed over areas with few listeners. A booster may

be located within the 60 dBu contour of the main station but *cannot* be used to extend the contour beyond the present.

Another important tool is a *translator*. A translator operates on a different frequency than the main station.

For example, a station on 102.1 MHz

azimuth pattern of an antenna.

When one refers to an FM antenna pattern, there are several variations of patterns.

Azimuth pattern refers to amount of signal distributed in a compass-point direction, i.e. north, south, east, west.

Full-Wave Element Spacing			
Distance (Ft)	Elev Angle	Relative Field	Power Density $\mu\text{w}/\text{cm}^2$
0.0	-90.00°	0.126	27.74
20.0	-82.06°	0.2461	103.84
40.0	-74.42°	0.3530	202.07*
65.0	-65.62°	0.4331	272.04*
300.0	-25.55°	0.2462	19.71

Half-Wave Element Spacing			
Distance (Ft)	Elev Angle	Relative Field	Power Density $\mu\text{w}/\text{cm}^2$
0.0	-90.00°	0.100	17.48
20.0	-82.06°	0.100	17.15
40.0	-74.42°	0.1183	22.70
65.0	-65.62°	0.1486	32.00
300.0	-25.55°	0.4385	62.54

* RFR exceeds FCC limits.

Fig. 1: The impact of element spacing is shown in this comparison of two three-bay FM antennas with ERPs of 50 kW and centers of radiation 150 feet above ground level.

may have a translator in another city on 107.3 MHz. Translators have the advantage of not creating an interference zone as boosters do. Further, they give your station a signal presence where there was

The *vertical* pattern refers to the signal that is propagated in the vertical plane, which is received mostly by car radios or portable radios with antennas that point upwards in a vertical fashion.

The *horizontal* pattern refers to the signal propagated in the horizontal plane. Originally, FM antennas were horizontally polarized. These early transmitting antennas mimicked TV antennas. Most TV receive antennas are horizontally polarized.

# Bays	Full-Wave Spaced Gain	Half-Wave Spaced Gain
2	0.9971	0.702
3	1.5588	1.012
4	2.1332	1.307
8	4.4872	2.519

Fig. 2: Compare sample gains of these full- and half-wave spaced antennas.

In the early 1970s it became popular to add vertical transmitting elements to FM antennas to serve the increasing FM audience in automobiles and portable radios. Circular polarization became the norm.

Most FM antennas today are circularly polarized, radiating in both horizontal and vertical planes.

When an antenna is mounted on a tower, the tower structure will act as a reflector or absorber of some of the energy radiated by the antenna. Generally, a tower or pole structure will influence the vertical pattern to a greater degree than the horizontal pattern.

The amount of distortion on the horizontal and vertical patterns will depend on the type of antenna, dimensions of the tower, appurtenances within the antenna aperture (conduits, transmission lines, etc.) and station frequency.

The patterns of an FM antenna can be

measured on a test range.

Many antenna manufacturers have facilities capable of measuring the vertical and horizontal patterns of an antenna on a model of your tower, complete with all appurtenances. Such modeling is required by the FCC for directional FM antennas.

Some manufacturers employ full-scale tower sections, FM antenna bays and other actual elements; others use a scale model in which not only the components, but the frequency, are scaled accordingly.

The merits of the various test range technologies in use are beyond the scope of this article, but it is sufficient to state that range testing can reveal a great amount of information about why a station is or is not achieving its goal of covering specific geographic areas.

In many cases it is possible to employ parasitic radiators in close proximity to FM antenna bays to correct for distortions introduced by a tower. While it is against FCC rules to directionalize an FM antenna intentionally without authorization, it is permissible to correct for distortions in the pattern caused by the mounting structure, i.e. make the patterns as omnidirectional as possible.

In some cases, licensees have chosen a particular tower leg or face in order to deliver the most signal to a given area. This is accomplished by range-modeling an antenna and determining where the distortions are occurring and taking advantage of them.

Panels

The FCC rules assume that an omnidirectional antenna behaves as such regardless of the mounting structure.

Another technique that may be employed to lessen the influence of a mounting structure is to manufacture a special tower section in which all the cross members are placed uniformly behind each bay in a multielement antenna. In this way, the tower influence is predicted more easily and controlled.

Another type of FM antenna, known as a *panel antenna*, allows the manufacturer to correct for pattern distortion by the use of flat panels that are placed in front of the radiating elements.

Panel antennas have the advantage of achieving a desired directional or omnidirectional pattern and more uniform relation of vertical and horizontal pattern. The disadvantages of a panel antenna are the cost, and the increased weight and windload on the tower.

Panel antennas are usually employed for multistation diplexed sites and on towers with large face widths, which have the greatest influence on radiation patterns.

Most FM antennas are spaced approximately one wavelength apart. This is referred to as a full wave spaced antenna. Another arrangement specifies one-half wavelength element spacing. The advantage of this antenna is the minimization of downward radiation. This is helpful where radiofrequency radiation (RFR) near the base of the tower is a concern.

Fig. 1 is a comparison of two three-

See BETTER FM, page 26 ►

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World Radio History

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WorldSpace

► Continued from page 20

use the receiver inside a building, as long as it was within three feet or so of a window with an unobstructed view in the necessary direction.

I was unlucky in Bombay, where the hotel gave me a sixth-floor room facing due north, making satellite reception impossible. Fortunately, the outdoor swimming pool proved to have a perfectly clear view toward the southwest.

In my poolside tests, I found that individual palm tree fronds proved no barrier to the signal, but more dense vegetation or groups of palm trees did disrupt reception.

I was initially shocked when I heard the sheer clarity of the digital sound —

absolutely crystal clear with no fading or interference.

However, if an object temporarily blocks the line of sight, such as a pool attendant walking past, the signal does disappear for a few seconds but it returns quickly without the need for readjustment.

So what sort of programming does AsiaStar offer?

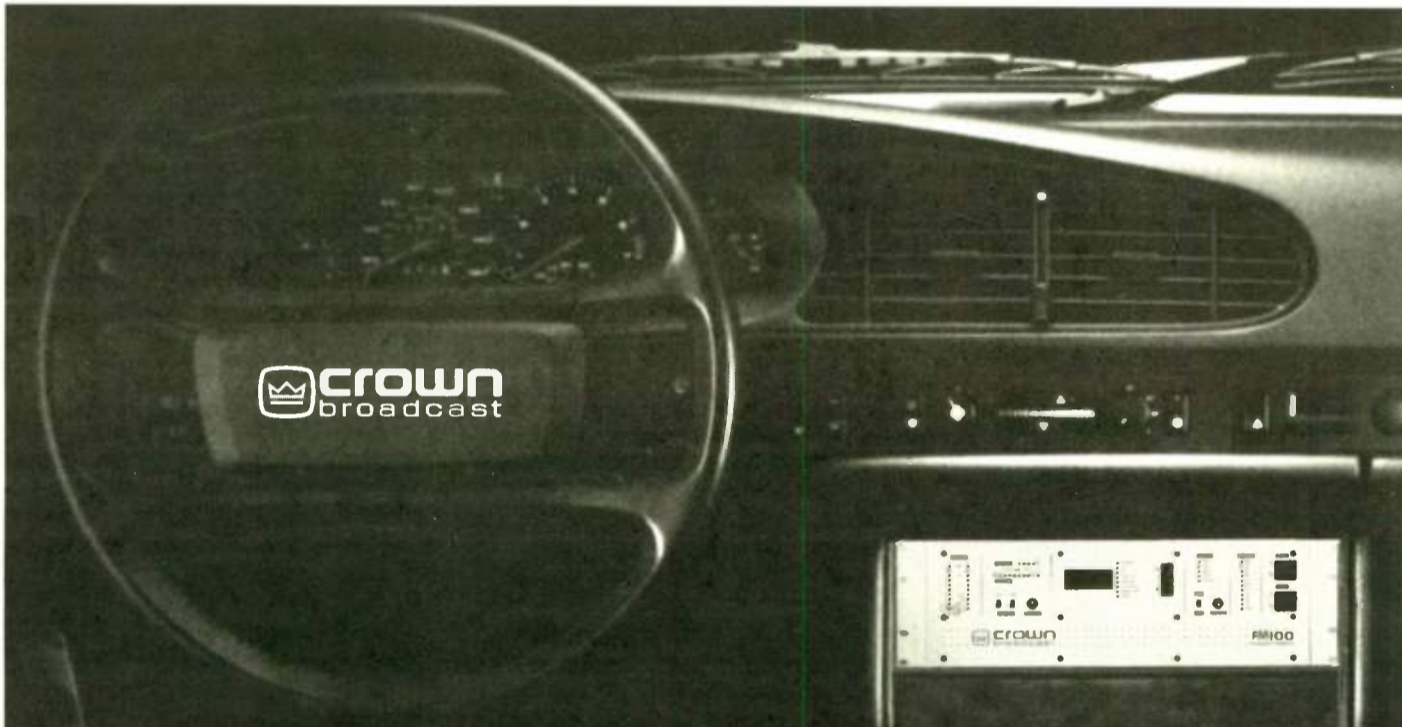
Music and Malayalam

Weeks after the launch of the service, I could choose among 23 stations by satellite. To those living in media-deprived countries, the WorldSpace radio channels offer unprecedented choice.

AsiaStar offers programming from a dozen well-known international broadcasters, including the BBC World Service, CNN Radio International and eight 24-hour music channels in a variety



The JVC FR-DS100 and similar receivers are giving Indian audiences a taste of WorldSpace.



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of niche formats.

Some nine channels carry Indian-language programming, including several that play 24-hour Hindi and Tamil film music. There are Kannada- and Malayalam-language stations, in addition to a live feed from Sunrise Radio, a South Asian-oriented station in London.

Each WorldSpace satellite broadcasts three regional beams to different geographic footprints. While I am listening to programming delivered from the western beam of the AsiaStar satellite, someone listening within the footprint of the eastern beam from the same satellite would have a different menu of stations.

Each satellite beam has capacity for 400 stations, so the choices will be extended dramatically over time.

Each satellite beam has capacity for 400 stations, so the choices will be extended dramatically over time.

The verdict?

I can understand why several hundred WorldSpace receivers were sold in the Bangalore test market within weeks of the launch.

The technology is easy to use, the quality of reception is incredible and the signal is remarkably robust once the receiver achieves contact with the satellite.

I could rotate the receiver 30 degrees in either direction without losing the signal, and I could tilt the dish up and down without effect. My wish is that the second generation of receivers weigh less and use AA batteries.

The most remarkable feat is WorldSpace successful implementation of this futuristic technology in the developing world, where traditional media infrastructure is terribly sparse — effectively leapfrogging a whole tier of technologies.

I have heard the future and the impression from poolside in Bombay is that satellite radio proves more practical and immediate than many of the "convergent" technologies presently being touted as the next big thing.

Grant Goddard is a free-lance writer. 

Workbench

Radio World, February 14, 2001

Tools for the Tower and the Shop

John Bisset

You may have noticed neat antenna signs that we've featured in this column. They list the FCC Antenna Registration Number, warn of an RF Danger Zone (required by OSHA), or simply identify antenna coax cables with consecutive numbers.

exposure guideline signs, as well as some unique license holders. The holders are either an 8.5-by-11 clear adhesive-backed plastic pouch — which permits affixing to the transmitter or equipment rack — or a high-quality clear plastic permits holder with bound and sewn edges and a hanging grommet for wall posting.

Antenna ID Products also sells guy-

All of these products are great for marking your site, but my favorite is the Giant Coax ID Band. This identifier is a large yellow wire tie (1-1/2 by 13.5 inches) with up to seven letters or numbers imprinted on the band. Not only are these useful for identifying lines, but when labeled with your call letters, they could find uses in a remote kit.

Fig. 1 displays some of the signs. Note that the FCC Tower Registration Sign is "FCC Approved."



Fig. 1: Make sure your tower is properly marked.

The tags and signs are manufactured by Antenna ID Products in Glenmoore, Pa. Its Web site can be found at www.antennaid.com, or you can call (610) 458-8418 for a color brochure.

Typical antenna ID tag locations include the transmitter/radio, the entry port to the building, the coax halfway up and the antenna. These ID tags also serve as an inventory control system.

In addition to RFR signage, the company will prepare custom ID signs for fences, gate or tower road entrance signs,

wire markers. You can alert snowmobiles, mowing operators or mud bikers of a low guy-wire hazard. The marker is composed of an eight-foot unbreakable plastic guard. It snaps over guy wires of up to 1 inch in diameter. Each marker includes three bands of night reflective marking.

Some towers may require a Guy Wire ID Ball. The ball is constructed of fiberglass with an orange coating. The halves bolt together, with supplied hardware, onto guy wires up to 3/4-inch diameter.

Fig. 2 shows the heart attack material: only inches to spare. Fortunately, there was room for an elbow. Thank goodness that most harmonic filters are a part of the transmitter!

The close call brings up an important point. Transmitter manufacturers provide dimension drawings for a purpose. Use them to pre-install your transmitter on paper. Don't forget about the height requirement.

You might also figure a 90-degree elbow, because there is a bending radius limit to all flexible coaxial cable.

If you don't have a CAD program to lay out the room, cut out scale "paper dolls" of the transmitter, power supply and racks. Make sure you have adequate



Fig. 2: Check your measurements before the transmitter arrives.

Here's how to have a really big heart attack! Take length and width measurements of your transmitter building, in preparation for installing a new transmitter. It looks like everything will fit. Then delivery day comes, and the transmitter is shipped on a wooden pallet that won't clear the entry door.

Once the transmitter is pulled off the pallet, you realize there are only a few inches from the top of the transmitter to the concrete ceiling.

space to open doors, both front and back.

You might find that your calculations demonstrate you need a bigger building. Planning is the key. Take the time to analyze everything, so there will be no "heart-stopping" surprises.

As most of us endure frigid temperatures, some lucky engineers are still enduring thunderstorms!

See WORKBENCH, page 26 ▶

"Broadcast News Lines" Made Easy!

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Better FM

► Continued from page 22

bay FM antennas with effective radiated power, or ERP, of 50 kW and a center of radiation 150 feet above ground level. The first antenna is a full wave spaced, the second is half wave spaced:

The distance from the center of radiation is given in feet. I set the minimum relative field to 0.1 as a practical limit because the actual field cannot equal zero.

Notice that in the full wave spaced antenna, the predicted RFR exceeds the FCC limit for uncontrolled environment from 38 feet to 93 feet. These calculations employed equations set forth in FCC OST Bulletin No. 65. A modified cosine array factor was used in both sets of calculations.

In the half wave spaced antenna, the

RFR increases with distance due to the propagation characteristics of this type of antenna. In other words, the energy is "squeezed" outwards instead of being partially distributed downwards. A half wave spaced antenna has a gain figure less than its full wave spaced counterpart.

A brief example is given in Fig. 2.

With a half wave spaced antenna, more transmitter power will be required due to the lower antenna gain. Even with a higher transmitter power, the RFR in the vicinity of the antenna will be lower than the full wavelength spaced counterpart.

Protecting

Directional FM antennas usually are employed where it is necessary to afford protection to a co-channel or adjacent channel neighbor. An example may be a

station that has increased tower height and finds itself with a contour overlap.

FCC rules do not permit an increase in grandfathered overlap. The area of overlap may be relocated or decreased but not increased.

Unlike AM directional antennas, if a signal is decreased in a certain direction(s) the corresponding increase in other areas may not exceed the permitted ERP. In other words, where one taketh, one cannot giveth more than the maximum ERP.

ERP for a directional FM antenna is specified "in the max" or azimuth of maximum signal. Using a highly directional FM antenna actually can result in a considerably lower ERP than a nondirectional counterpart. In dealing with power, however, one must bear in mind that field is inversely proportional to power. If one

wishes to double the signal, one must quadruple the power.

The selection of number of antenna bays vs. transmitter power has been debated over the years. Generally speaking, in mountainous or irregular terrain, fewer bays are preferred to more.

Keep in mind that each element in an antenna is a source of radiation. When multiple sources of radiation strike a reflector, more reflected signal paths arrive at the receiver. This can aggravate multipath.

While this is a generalized point, practical care must be taken in the selection of number of bays. The factors that must be considered are transmitter size, power consumption, transmission line size and antenna power handling capability.

An upcoming series of articles in Radio World will deal with specific aspects of FM system improvements. Here, we've touched only lightly on factors that contribute to quality transmission. While every link in a station's chain is important, the selection of a transmitter site, tower height and antenna are among the most important. To change them later will require a significant investment at the least, and could in fact be impossible.

Tom Osenkowsky, CPBE, is a NARTE First Class Certified Engineer with Master RF Radiating Endorsement and a senior member of IEEE, SBE and NARTE.

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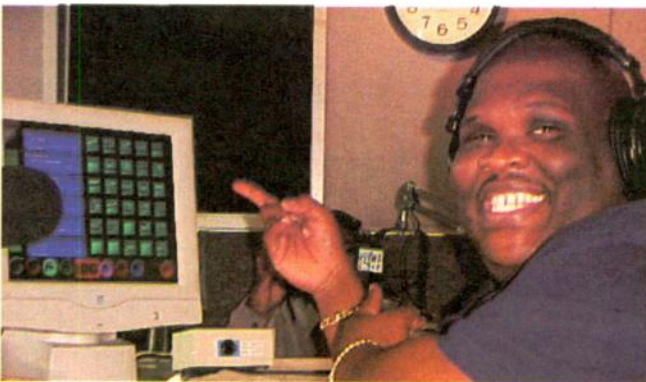
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Shown above is the top-rated "Big Boy" morning drive personality pointing to the SS32 touchscreen at KPWR, Power 106 FM in Los Angeles. For details, visit ss32.com or call 1 888 GET SCOTT.

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Workbench

► Continued from page 25

John Stortz from the Moody group in Sarasota, Fla., sent an e-mail recently, after recovering from yet another storm. Thunderstorms mean electrical surges, so even in the middle of winter, some engineers are dealing with surge suppressors and UPS systems.

John mentioned a good tip for us all to keep in mind. When installing surge protectors in line with a UPS, make sure the suppressor is inserted ahead of the UPS.

Most UPS systems do not have pure sine-wave outputs, and the harmonic-rich waveshape is likely to overtax or even destroy the surge suppressor over time. Size the suppressor to the load. At least one manufacturer, LEA, provides guidelines when specifying their suppressors for studio or transmitter use.

Finally, ensure that the suppressor has a good ground. Poor grounding prevents the suppressor from doing its job.

I'd like to add a tip of my own, for anyone contemplating the purchase of a surge suppressor. I tell my transmitter customers to contact their insurance company when considering the purchase of a suppressor.

Many insurance companies will lower premiums when a suppressor is installed. In my contracting days, I had some insurance companies actually pay for all or a part of a suppressor, due to the claims savings it would provide the insurance company.

Get the name of your station's agent, and have a talk. Even a premium adjustment will make you look great in the eyes of your station management.

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

Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com

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PRODUCT EVALUATION

Audemat FM_MC3.2 Listens Well

W.C. Alexander

Lines on a map are the most usual means of depicting the coverage area of an FM station. Most often, stations use maps showing the 1 millivolt, the 0.5 millivolt or sometimes even lower contour values to define their coverage areas for clients, agencies and listeners.

Often these map contours are derived from the ERP (effective radiated power) and HAAT (height above average terrain) on each of eight or more radials. In other cases, the map contours may be derived from empirical data or listening tests. In rare cases, they may even be drawn from data collected by aircraft measurements of the antenna pattern.

The trouble with map contours is that they don't really tell the whole story. Radio veterans know that there is usually a good bit of coverage beyond the mapped contour line, and that there are usually significant holes in the coverage within the mapped coverage area.

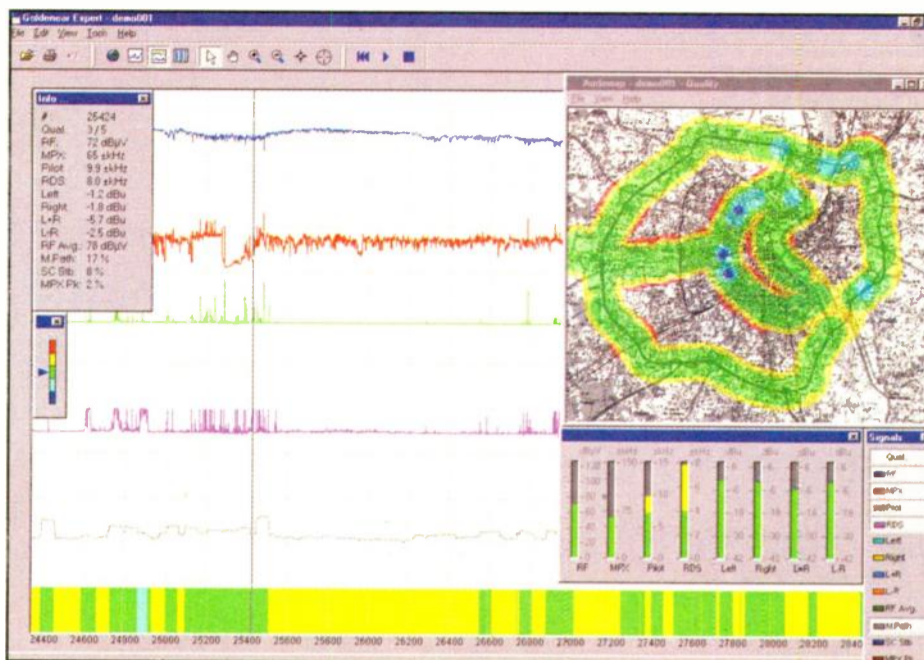
In short, it is difficult, if not impossible, to depict the overall quality of an FM station's signal with a contour line on a map. There are simply too many variables.

99 stations

To address this problem, Audemat has developed a product called the FM_MC3.2 Precision Monitor. It allows the user to evaluate the overall quality of an FM station's signal quite effectively. It consists of several software modules.

The first module is used in the process of making signal measurements. It is used with a special calibrated FM receiver and a GPS receiver in a measurement campaign wherein the signal of the station or stations being evaluated is measured while driving.

The user selects the route/locations, and a laptop computer records mobile, dynamic field-strength data on each of up to 99 stations along with GPS latitude/longitude



Audemat Goldenear Display

data for each measurement point.

A special calibrated whip antenna mounted on the vehicle roof is connected to the FM_MC3.2, which feeds field-strength data along with a number of other parameters for each station to the laptop. The computer records the data for later use.

The more stations that are being measured, the longer the scan time and thus the longer time between individual measurements on each station (three measurements per second). Multiple-station monitoring provides an excellent means of comparing the performance of different stations serving a particular area.

In addition to field-strength data, the FM_MC3.2 provides audio analysis of a single station in its MCAF02 software. In this function, a much more in-depth study of a particular station's performance can be made.

A station's performance at a particular

location depends on many more factors than simply field strength. The audio analysis looks at and records composite and pilot levels, subcarrier levels, left and right audio, L+R and L-R as well as multipath.

Precision modulation analysis is another function of the MCAF02 software. This mode provides analysis of modulation mask, peaks, density and cumulative modulation. The program can record peak and signal data for up to 72 hours in a particular location, allowing tracking of station performance over varying environmental and operating conditions.

A precision RBDS analyzer is included that looks at the RBDS subcarrier, if used. The analyzer also records bit errors as a measurement of overall RBDS subcarrier performance.

Goldenear

The Goldenear software package, which is used to gather, massage and display the data gathered in the measurement campaign, uses the FM_MC3.2 to record the parameters for one station. As the operator drives, the FM_MC3.2 sends a data stream every 20mS containing field strength, composite level, pilot, RBDS, left audio, right audio, L+R and L-R to the notebook computer, which records the data along with GPS-derived location data for each point and the audio.

From these parameters, the software calculates several other parameters: RF average, multipath, subcarrier stability and multiplex (composite) peaks. It then analyzes these parameters together in an algorithm that determines an overall "Quality Index" for the signal at each point.

An Audemat spokesman told us, "Daniel Werbrouk, president of Audemat, has been concerned for many, many years on how to measure FM quality. Before Goldenear there were only two ways to determine if an FM signal is a 'good' signal.

"One way is the human ear, but since the ear is totally subjective, the results are not accurate. The 'Quality Index' is the result of several years of working with various regulation authorities and broadcasters all over Europe, so it was not created in a vacuum of one person's concept of a good signal."

Because the automobile is a primary

listening environment, mobile Goldenear signal measurements and quality evaluations probably are the most accurate means of determining the overall performance of an FM station. The operator has complete control of the route to be measured and can thus provide information on specific areas of interest.

For example, a wide, overall coverage area or a specific target area can be the focus of the measurements, providing valuable information to the station management, engineering and sales teams.

Once the route has been driven and the measurement data collected, another software module, the Goldenear Expert, is used to massage the data and configure it before it is viewed by the end user.

Detailed information

The polished data are then provided to the end user using the Goldenear, which provides a geographical representation, a curve representation along with raw and calculated data, a text representation along with all acquired data, and a cartographic representation showing identifiable map features.

Each of the various views is selectable with a mouse click, and the recorded audio at each location is available with software start, stop and volume controls. The bottom of the screen constantly displays signal level and display zoom extent.

The current point can be moved to any location in the measurement campaign by simply clicking on the point on the route displayed on the screen, or by using a sliding control bar software control.



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MDS-E12 Pro MiniDisc Recorder • A new addition to the MiniDisc lineup, the MDS-E12 offers all the great features of the MDS-E10 plus some major extra step-up features such as: balanced analog XLR I/O; RS-232C Serial interface; a Parallel Control Port (GPI); and Control of Record Play relay, which allows multiple units to be cascaded for sequential play or record operation. It's the step-up your studio needs.

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World Radio History

SONY

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MDS-E10



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A Call for Regional Associations

Based on His Research, A Radio Educator Argues That State Broadcast Associations Should Consolidate Too

Eric Shoars

The broadcasting landscape has changed dramatically since the passage of the Telecommunications Act of 1996. The change-in-ownership rules have affected both the radio industry and broadcast trade organizations in many ways.

One change concerns the relationship between large ownership groups and broadcast trade organizations, both on a state and national level.

Organizations like the National Association of Broadcasters, Radio Advertising Bureau and state broadcast associations historically have acted as industry resources to protect the interests of broadcasters legislatively, lobbying Congress on proposed legislation that would change broadcasting rules or laws, and financially, such as providing radio stations with tips on how to increase sales revenues.

Since the change-in-ownership rules, many of the large radio owner-

ship groups have seemingly distanced themselves from their state broadcast associations and national broadcast trade associations.

The focus of my master's thesis research was to determine the future roles of state broadcast associations in a consolidated environment. A recommendation will outline steps the state broadcast associations need to take in order to maintain participation by member stations in their associations.

Minnesota Broadcasters Association President and CEO Jim du Bois and I collaborated on this project.

Six hundred surveys were sent out to radio stations across the country. Of

the 227 respondents, 30 were from large-market radio stations, 51 were from medium markets and 146 were from small markets.

Of the 49 surveys sent to state broadcast association presidents, 13 were returned.

Here's what we found.

The state association presidents were far more positive across the board than the GMs were in their assessment of the state associations. In the first seven statements of our Likert-scale questionnaire, the percentages may have differed slightly, but there was consensus as to the national associations' performance, the state associations' performance, state associations' responsiveness to changes in the industry, the level of participation of member stations in their state association, member station attendance at association conventions, state association services and member stations' use of those state association services.

It is interesting to note the difference in the response percentages. GMs generally gave high marks to the state associations for their effectiveness, although the presidents who ran those associations tended to give marks that were higher still. The level of agreement evened out between the two constituencies regarding the participation of member stations in association events, resources provided by the associations and the use of those resources by member radio stations.

Those statements provided the closest agreement between the two groups.

Differing views

However, other replies told a far different story.

GMs and state association presidents were asked if the state associations spoke for their member radio stations. While an overwhelming majority of state association presidents (92 percent) agreed, only 54 percent of the general managers did.

Also, less than half of the general managers (48 percent) agreed that state associations should change to meet the needs of the industry, while 92 percent of the state association presidents responded so.

The difference in responses between the groups on these two points represents a significant split in their perceptions. State broadcast association presidents are either overconfident that their associations are doing well or simply are out of touch with their members.

Part of the reason for the split in opinion may be the Telecom Act of 1996. Many GMs of independent, small- and medium-market stations may feel the state and national broadcast associations sold them out in the Telecom Act of '96.

Those GMs may feel that the associations are now in the pockets of the major ownership groups and no longer champion the causes of the smaller, independent stations.

Some of those general managers may feel that the associations don't need to change because they've already changed too much in some eyes and have left some broadcasters behind as a result.

Those are just a couple of theories I have as to why the GMs responded as

See ASSOCIATIONS, page 31 ►

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Associations

► Continued from page 30

they did as to why state associations don't speak for them based on the figures given and the written feedback I received from GMs.

A complete breakdown of the survey methodology, responses to the survey, and written feedback received from the GMs and state association presidents can be found in my final report.

Upon completion of my survey, data compilation and research, my recommendation is that the state broadcast associations should consolidate just as the industry as a whole has.

Rather than 50 state associations, there could be eight regional associations (see sidebar). One main association office would be headquartered in one of the states within the outlined regions.

Within each regional association, each state would have an advisory committee with which the regional president would meet and consult quarterly. One member of the advisory committee could be one of the major group owners (see sidebar).

Just as the NAB has been recruiting foreign broadcasters, I recommend

that state broadcast associations open their doors to Internet and satellite broadcasters. The Internet and satellite broadcasters will need some of the

major ownership groups that distance their radio stations from the state broadcast associations.

Since the Telecommunications Act

ive. The industry, as well as the state broadcast associations, should shape the future, not be shaped by the future.

Preparing for the future *before* it happens, rather than *as* it happens, could mean the difference between survival and extinction.

For details on the survey method, and for the complete version of the 108-page thesis, visit the Minnesota Broadcasters Association's Web site at www.minnesotabroadcasters.com

Eric Shoars, a 16-year radio veteran, is head of the Radio department at Riverland Community College in Austin, Minn., and general manager of KERC, Riverland's Internet radio station. Shoars is a Bayliss Broadcaster and a member of the board of directors of the Minnesota Broadcasters Association.

RW welcomes other points of view.

Since the change in ownership rules, many large groups have seemingly distanced themselves from state and national trade associations.

same types of services that their terrestrial counterparts do.

This would also help offset any membership decline resulting from the

of 1996, the radio medium has followed its historical pattern of change while the radio industry has decided again to be reactive rather than proac-

Proposed Regional Associations

Here is one possible breakdown of a hypothetical new system of regional broadcast trade associations:

Northwest: Washington, Oregon, Idaho, Wyoming, Montana, Alaska

Southwest: California, Nevada, Utah, Arizona, New Mexico, Colorado, Hawaii

MidNorth: North Dakota, South Dakota, Nebraska, Minnesota, Iowa, Wisconsin, Illinois

MidSouth: Kansas, Missouri, Oklahoma, Texas, Arkansas, Louisiana

MidEast: Michigan, Indiana, Ohio, Kentucky, Pennsylvania, West Virginia

Atlantic: North Carolina, Virginia, Maryland/D.C., Delaware, New Jersey

Southeast: South Carolina, Georgia, Alabama, Mississippi, Florida, Tennessee

Northeast: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York

Group heads might serve on the regional association advisory committees, such as this hypothetical arrangement:

Lowry Mays, Clear Channel Communications (MidSouth), Lew Diekey, Cumulus (MidNorth), Jeff Smulyan, Emmis (MidEast), Larry Wilson, Citadel (Northwest), and Mel Karmazin, CBS/Infinity (Northeast)

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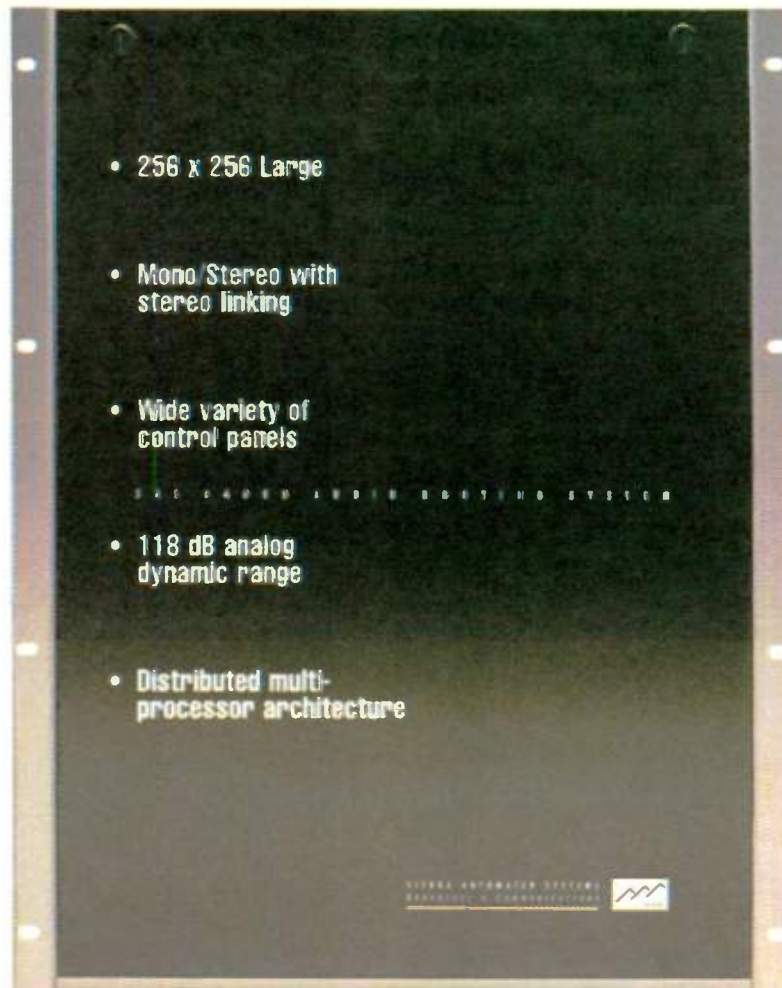
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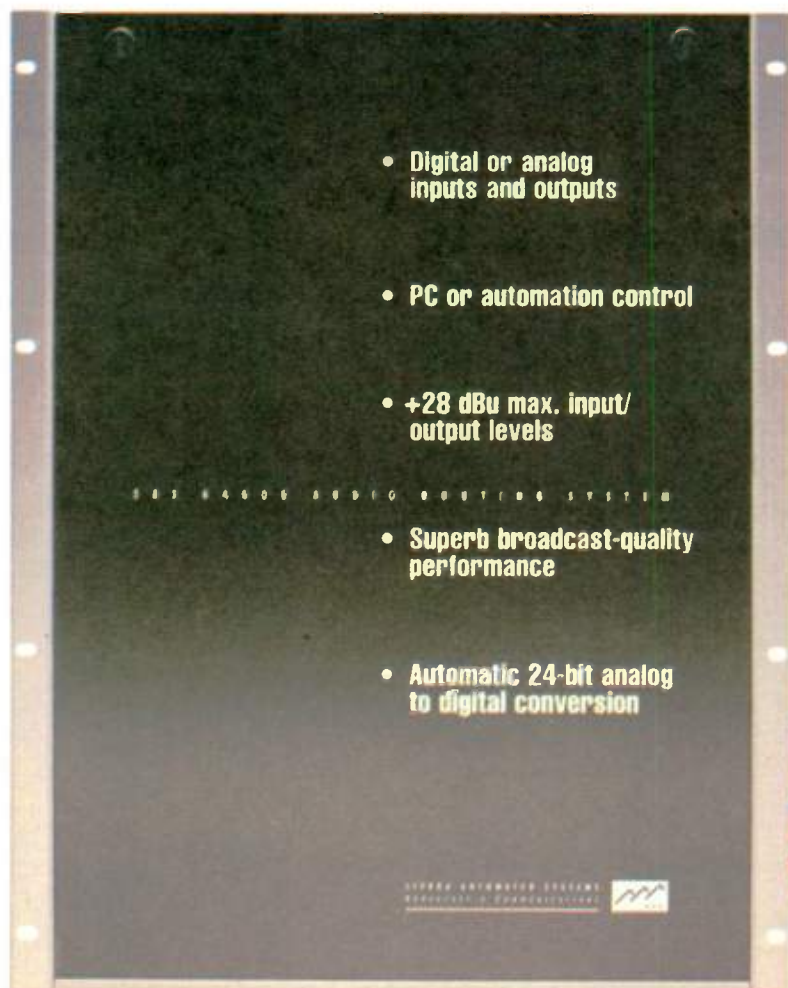
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Promotion Strategies That Work

Craig Johnston

Kristy Brown Guerra, marketing director at Cleveland's WQAL(FM), finds herself competing against stations with a lot of money to give away. So at the start of the planning for a new promotion campaign, Guerra said she always asks just one question: "What's the coolest, biggest thing we can do?"

Guerra said there are no limits to the ideas that flow at this stage of the planning process.

"If we have to whittle it down later, that's OK. Often we can work it out." That's a strategy that has worked for the station in acquiring and keeping



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the women 25-to-34 demographic they're after.

"It helps that I'm in that demo," she said.

Guerra said their research helps them zero in on what the audience thinks would be "cool and hip."

So what did this out-of-the-box, positive thinking produce on a frugal

budget? Artist encounters.

"We've had a lot of success with contests giving away listener experiences, such as shopping with Cher and bowling with Barenaked Ladies," she said.

These kinds of promotions do more than just build an audience with a contest, Guerra said. "It makes the station

seem more hip, connects us with those artists. Listeners start to know where that artist's music is played. That's important because there was a lot of confusion between us and two other stations with similar formats."

So without a wad of cash, Guerra's station was able to use its contacts in the music industry to put together productive promotions.

Linked to the hip

"It didn't hurt that the contests helped promote the artist's concerts," she said.

The station uses the Internet (www.WQAL.com) to follow through to extend the contest experience to all listeners, even those who didn't win. WQAL posts pictures of the shopping trip with Cher and the bowling with Barenaked Ladies on their Web site. Not only do the listeners get to see big names linked with the station's listen-

ers, WQAL can measure the number of Web site hits the event generates.

The station also uses the Net to put up pictures of artists' visits to the station and photos of other station events.

"Right now we're just touching on what we can do with the Internet," Guerra said.

"First, you want to know what the weaknesses of the station are, what are you trying to accomplish," said Steve Davis, a consultant for Zapolean Media Strategies. "It basically boils down to this: You want to bring more bodies into the building, get them to listen longer. From there, it's important to try to think of what's fun and creative."

Building cume

Davis cites the launch of the new morning team of Van and Cheryl at Minneapolis/St. Paul's KSTP(FM) as an example.

"They needed listener awareness, needed to build some cume.

"I'm a firm believer, no matter what the market size, you have to touch the listeners," he said. "So we began a campaign where we had Van and Cheryl try to meet all their listeners. As they met each one, they gave them a numbered card. The listener could look at it and say 'Hey, I'm listener number 153!'"

The plan allowed appearances at advertisers' businesses to be tied together under a common theme.

"You wish all the clients had a new car to give away," he said. "But you're also going to be doing events at the fried donut shop. You've got to make them both work."

With an ongoing promotion such as Van and Cheryl's meeting all their listeners, Davis said that stations need to keep thinking of ways to add onto the campaign, ways to grow it.

Davis also thinks the Internet can be of great value for a promotion.

See STRATEGY, page 39 ▶

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ABC's O'Donnell Remembered

Peter King

Longtime ABC News radio correspondent Tim O'Donnell died in December 2000, 10 days after a massive heart attack.

His outstanding career in radio included 32 years at ABC. After he died, many colleagues called him "the consummate professional."

Privileged

Dave Barrett, news director for the Fox Radio Network, recalled being hired at ABC at 27 — an age and an experience level at which one can feel intimidated.

Peter Salinger, director of News Coverage for ABC Radio, worked closely with him for almost 30 years.

"He was someone people looked up to, because he knew news, and he got along with people so well. People really gravitated to him, and he liked to talk about different things, not just the news, but also restaurants, music, politics, TV shows."

Veteran New York City newsman Bob Gibson, now with WOR(AM), worked with O'Donnell at ABC. They also attended the now-defunct New York Institute of Technology together in the early 1960s.

"He was fun to be in class with, and

the final weeks of December, he took up a collection among the newsroom," David said. "He bought me a Sony Watchman, which he knew I had designs on. He also circulated a card on which he got just about everyone in the newsroom to write something kind or touching or funny."

David still has the Watchman and the card.

"They are among the most cherished things that reside in my top dresser drawer."

Always at the forefront

Former ABC and CBS News correspondent Doug Poling was part of the group hired at ABC when it switched to its then-revolutionary four-network operation in 1968. Tim O'Donnell was also in that group.

Poling called him "a solid guy. Friendly, easy-going, polite, a little on the quiet side, but with a great sense of humor ... always liked a laugh and a joke, smiled a lot ... he had that leprechaun, Irish grin ... and he was also good at what he did."

WABC(AM) radio anchor George Weber's shift coincided with O'Donnell's on the network weekday afternoons. They never met face to face, but Weber said they spoke almost daily.



Tim O'Donnell

He signed off mistakenly, 'Tim O'Donnell in the WPIX newsdesk,' instead of on, then went home to his roommates to joke about it.

"With 30 days' actual newscasting experience, I had a lot to learn," he said. "Tim helped me learn how things worked at ABC. I watched and learned — especially how *not* to panic during a breaking story."

Barrett said O'Donnell was a master at finding stories that were a bit over the edge, and writing them so they would be acceptable to a mass audience.

"He'd rewrite a story he'd used as a kicker on his newscast into an 'after-school spot,' record it, and of course, it would always get used."

Barrett said O'Donnell's sense of humor kept people loose in the ABC newsroom.

"When someone would state something ridiculously obvious in putting together a story, Tim would call out, 'Thanks, and welcome to the News Team!'"

you *knew* he was going to have a great on-air career. Everyone wanted Tim to be on camera for his or her project."

Humility

Gibson said O'Donnell knew he wasn't perfect. He recalled O'Donnell's first night on the air as a WPIX(FM) news anchor, when he signed off, mistakenly, "Tim O'Donnell *in* the WPIX newsdesk," instead of *on*, then went home to his roommates to joke about it.

"We'd sit around between classes, talk about radio, read the trades, and visit radio stations. He *loved* radio."

CNBC Anchor Ted David worked with Tim at ABC during the 1970s and '80s. In 1985, David learned that he was being let go.

"Tim O'Donnell was not only the first and most persistent to tell me that another, better door would open, but in

catch as many gigs as possible.

"It didn't matter if they were the only people over 20 at the show. He never took his eye or ear off Kevin. He was their son and he could drum no wrong."

Nunn said O'Donnell's passions also included food.

Epicure

"Tim was a gourmand, spending time, effort and often hefty money on a restaurant meal ... enjoying food almost as an art form ... dissecting the tastes, smells and ambiance. And if the service was bad, you'd heard that too. He could have been an excellent restaurant reviewer."

ABC Radio correspondent Steve Taylor recalls early days as a freelancer for the network in Los Angeles.

"Tim O'Donnell was the AFTRA shop steward, and I was the only freelancer in L.A. From 3,000 miles away, Tim took time and trouble to make sure I knew what was going on."

ABC correspondent Richard Davies said O'Donnell cared more than most people about getting his facts right.

"He could have been glib or cynical, but was neither — he chose his words carefully. And when he gave you a compliment, it had a special meaning, because it wasn't made lightly."

Davies also said that O'Donnell had a memorable sense of humor.

"Tim was funny. The dry cackle of his laugh and that incredulous look when someone blurted out a foolish remark are fond memories that I have."

ABC Correspondent Tim Scheld said Tim was great to work with from the field.

"He was always flexible and never afraid to tell a reporter exactly what he wanted in a newscast. What I loved about his work was his ability to pick out a slice of life and turn it into a spot.

"He had the ability to take an interesting or funny story that was so keen, listenable, to the point and/or funny, and write a spot that stations couldn't help but keep an eye out for them and run them."

Peter King is a reporter for CBS News Radio. Contact him via e-mail to Pkingnews@aol.com

He loved radio.

— Bob Gibson

"I use to get so ticked that he'd steal my *local* lead and put it in his network newscast. Just about every day, I'd call him up and check with him to see if he was 'stealing' my lead. He used to look at it the other way — that *I* was *stealing his lead*. He was a fine anchor and a nice guy, too."

Gary Nunn, ABC News correspondent, remembered O'Donnell as a regular guy.

"If he had an inkling of an ego, Tim kept it on deep background. While Tim worked most of his professional life in NYC, his Midwestern roots were never more than an arm's length. He was a good and decent man ... a nice guy who finished first as a husband, father and a professional newsman."

As a dad

Nunn recalled a more personal side. "He was a wonderful father to his sons; Tim, a graphic artist, and Kevin, a professional drummer. He helped raise his sons with a positive, steady hand. When Kevin went on tour with his bands, Tim and his wife, Eileen, would make time in their schedules to

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How to Motivate Your Employees

Ken R.

In this little maze called life, the cheese pellet reward at the far end of the box may be something a little different for each of us.

It's the task of radio management to get the maximum effort from each employee. How do successful general managers and sales managers do it?

Simple division

"I think people fall into just two categories," said Bill Clark, sales manager for the Clear Channel stations in Toledo, Ohio. "You got your 'move-aways' and you got your 'move towards.'"

Clark determines compensation based on how he classifies these sales people.

"The 'move-aways' respond to a threat of having something taken away," said Clark. "The 'move-towards' people are motivated by compensation for doing something right. I supervise six sales managers and 21 salespeople, and my job is to determine which category they fit into," said Clark.

The vice president and general manager of the urban-format Blue Chip Broadcasting properties in Cincinnati is Steve Love. He believes the biggest motivator is the concept of inclusion.

"We have meetings at which we

invite all the appropriate department heads and staff members," said Love. "We find we get a greater 'buy-into' rate when the whole team is involved."

Love likes to reward employees who come up with good ideas for his stations.

"We recently rewarded one evening disk jockey because he found some great ways to utilize our Web site to create more interaction with our listeners," said Love.

"But we also like to give people simple acknowledgement for things like birthdays and anniversaries in addition to citing them for their accomplishments."

At WIZF(FM) "The Wiz" and



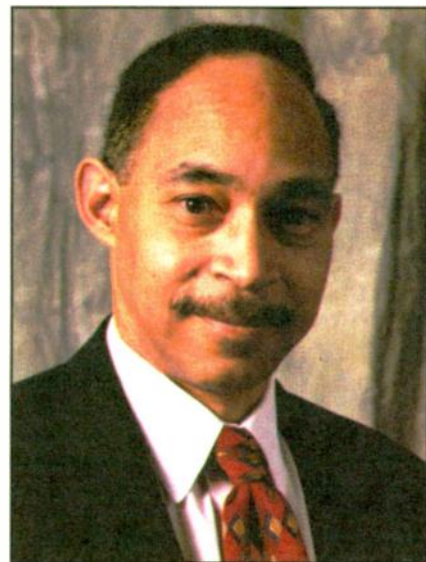
Bill Clark

WDBZ(AM) "The Buzz," Love wanted to establish a set of station values to which everyone would adhere.

"Instead of just handing these down to the staff, we went through a process where everyone had input," said Love. "They all helped and they all felt a part of the process."

One additional motivator at Blue Chip is that the management saves a few of the goodies and prizes for the staff.

"We like to give them concert tickets or whatever else may come along," said Love.



Steve Love

No One's Arguing with This Supreme Court Decision

Last month, the Supreme Court spoke, and, for the first time in history, millions of Americans got to listen.

Usually, the only Americans who can hear the Supreme Court are those privileged few who get seats inside the courtroom. That's because the Court prohibits radio and television coverage that could make its proceedings available to all Americans.

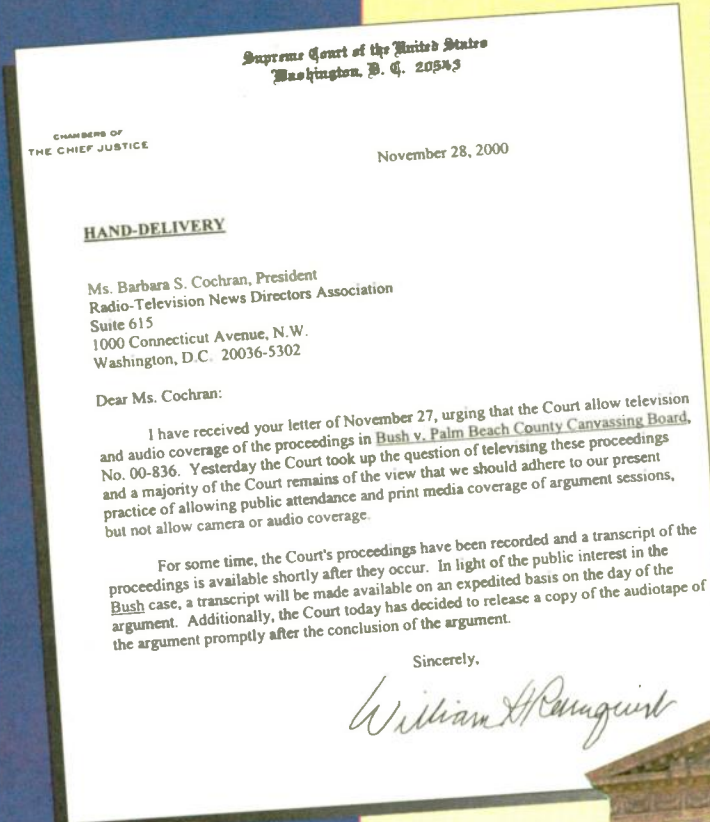
For many years, the Radio-Television News Directors Association has fought to open all courts to radio and television coverage so the public can see and hear the judicial system at work. When the Supreme Court decided to hear cases relating to the 2000 election, RTNDA urged the Court to make an exception to its policy.

Our appeal on behalf of the public brought results.

Chief Justice Rehnquist, in a letter to RTNDA, announced that for the first time in the court's history, it would release an audiotape immediately after the proceedings.

The release of the audiotape was a good first step, but it is not enough. RTNDA will continue to work to open up courts, including the Supreme Court, to full radio and television coverage, so all Americans can exercise their right to witness their government in action.

We believe America should see and hear what happens in every courtroom, especially the ones where our country's most important decisions are made.



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RTNDA: Opening the doors to America's courtrooms

Bill Shirk runs the Radio One group in Indianapolis as GM.

"I just like to make everything fun," said Shirk. "Like maybe during the week I cater in pizzas and Cokes and make it a family thing." The stations, including WHHH(FM), WBKS(FM) and WYJZ(FM), all have constant contests and promotions going on the air, which Shirk believes helps keep employees interested and active.

"A lot of people try to micro-manage their employees," said Shirk. "I just like to hire great program directors, business people and sales people and let them do their own thing."

While Shirk still oversees his employees, he likes to let them become inventive on their own. "If you're a good general manager, you shouldn't have much to do," said Shirk.

Another morale booster available to Shirk is the ability to offer advancement within his local family of properties.

"We have three radio stations and See MOTIVATION, page 39 ▶

Motivation

► Continued from page 38

we also have a TV station here and let our people move around and find what they like to do," said Shirk. "I look at myself like more of a coach than a dictator, and I wouldn't ask them to do anything I can't do myself."

Outlook is everything, is Jim Davis' credo. Davis is general manager of Clear Channel's WDDV(FM), Sarasota-Bradenton, Fla.

Goals

"If you're sitting on a plane and the captain comes on the speaker and says, 'We're going to try to get close to Atlanta today,' you'd better get off that plane," said Davis. "Attitude is altitude and goals are mandatory here."

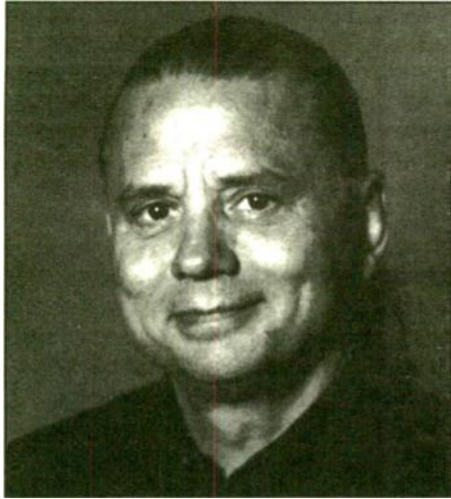
Davis also believes in getting everyone to become a partner in each project and accept radio as a career rather than just a job.

"When my employees go home at night, I want them to talk about what we're doing at the station, not what they're doing at the station," said

Davis.

Another quality of the Davis brand of management is excitement.

"We laugh a lot, play a lot and make them love what they're doing," said Davis. "Optimism beats pessimism every time."



Bill Shirk

"You can't really motivate people to do anything; they have to be motivated on their own," said Clear Channel's Clark. "It's more important to support and inspire them, but they have to do

entry box at their showroom.

Finally, KONO held its Million-Dollar Motown Showdown at the upscale Northstar Mall.

"Qualifiers went onstage to arrange the names of eight Motown musical artists in any order they desired," Allen said. "To win the million, they had to duplicate the order of those artists on a card in a secret envelope."

Though there was no million-dollar winner (the prize was insured through American Media and Special Promotions), they did give away a trip to the Motown Café in Las Vegas and other prizes.

KONO also came out the winner from this kind of promotion, having raised themselves from the top 10 to the top three in both 25-54 and 12-34.

Accord

Experts seem to agree that successful promotion requires careful attention to integrating clients into the campaign.

"If we can work six to eight months out, we can find a way to tie them in and more than accomplish the client's goal and make it work for us too," said Guerra.

"The trick is always to find a way to bring the client into the promotion, but not take away from the promotion itself," said Davis. "In a perfect world, you'd always have the promotion first and then add the client. Now it's more like 50/50."

"As our audience has grown, so has advertising demand," Allen said. "It's been more important for the sales team to see where we're going with promotions way downstream, so they can match them up with the right clients."

Craig Johnston is an Internet and multimedia producer in Seattle and is a frequent contributor to Radio World.

Contact him via e-mail to Craig@CraigJohnston.com



Jim Davis

the real work themselves."

At the Toledo Clear Channel properties, Clark provides training and information for his staff. His stations make use of the Sales Resource Center through the company's Web site and provide outside non-radio-specific sales training using the Sandler Selling System offered by a local Toledo franchisee.

"We also hold a lot of brainstorming sessions where we try to help each other with any problems," said Clark. "We can reward our people and try to make things easier for them, but they have to make it happen themselves."

Ken R. is a former broadcaster who motivates himself by smashing his occipital lobe with a No. 10 medium sledge and writing down what comes to mind.

Capsule Form: Ten Great Motivators

- Categorize employees by what drives them, reward accordingly.
- Include staff in decisions and goals.
- Reward and recognize people for small things as well as for ideas.
- Save a few prizes for employees.
- Don't micro-manage. Hire great people and let them alone.
- Allow advancement and multiple duties for those who want them.
- Laugh and have a positive attitude.
- Support, inform, inspire — but don't try to motivate.
- Brainstorm in groups to solve problems of individuals.
- Bring in pizzas and Coke once in a while.

Strategy

► Continued from page 35

"It's a great clearinghouse. Listeners can get questions about a promotion answered, how to enter, detailed rules and the schedule."

But he recommends against doing an Internet-only promotion, because it's exclusionary.

Movember

"I learned a long time ago to make a contest very easy to participate in."

When Cox Communications bought San Antonio's KONO(FM) a few years ago, the station had been playing oldies forever but had lost its fervor and its audience.

"We spent the first year getting the programming right, tightening it up," said Program Director Roger Allen. "Then we turned to promotion."

Allen said that there's nothing new with the music itself, so an oldies station has to come up with a way to freshen it.

"We're big on working as a team here and one of the things the team, the GM, myself and others, came up with was Motown Monday."

The audience had indicated the Motown sound was one of their favorites, so the station dedicated one day a week to that genre. Motown Monday became such a success that KONO decided to build on it, dedicating an entire month: Movember.

In addition to Motown Moments, which incorporated artist clips, the station put together a contest: "KONO 101 wants to make you a Mo-Millionaire."

Listeners could qualify daily during "Movember" by being the first to call when the Motown Song of the Month ("Heard It Through the Grapevine") played. In addition, a local auto dealer, who co-sponsored the event, drew 20 qualifiers from an

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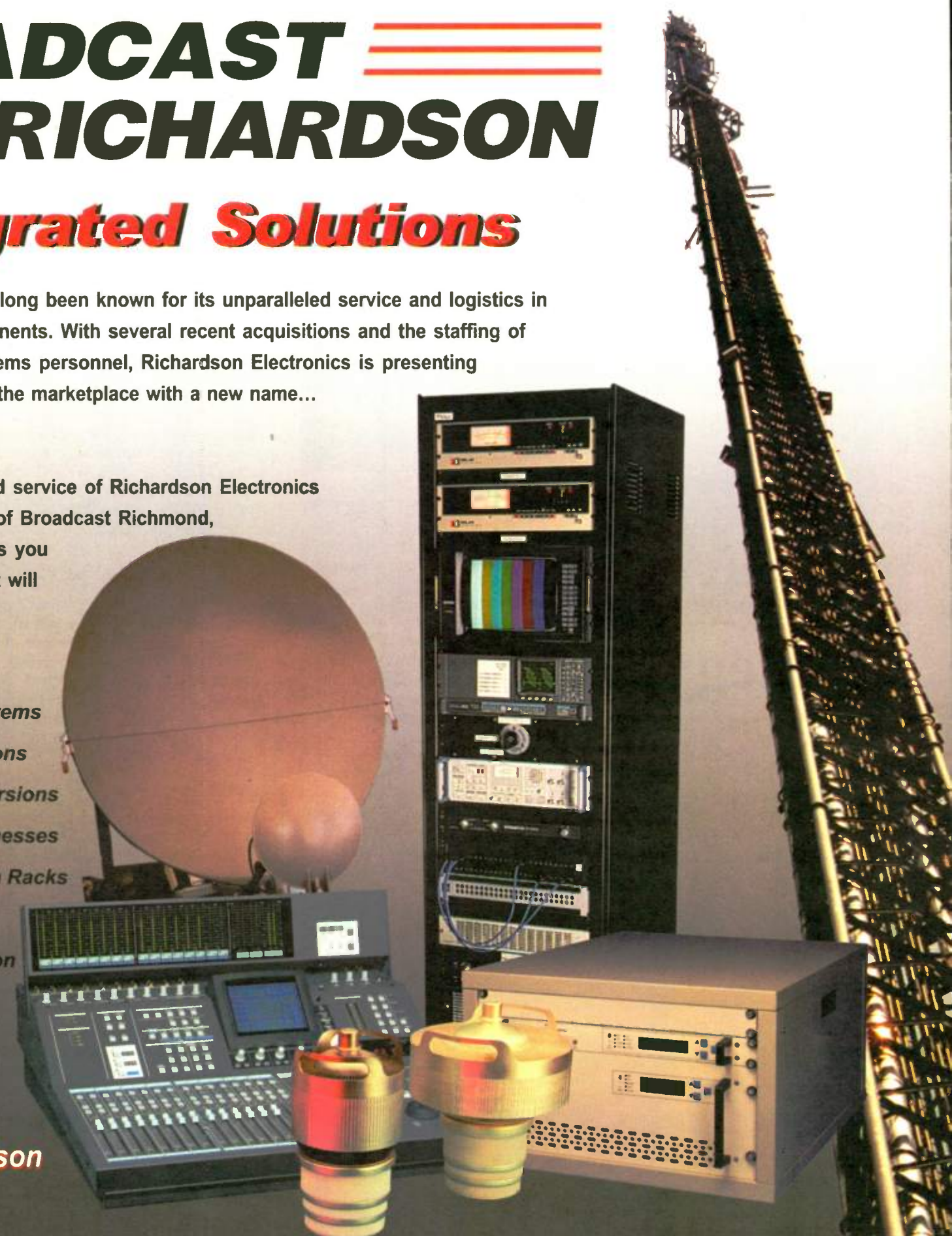
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How to Find, Build Sales Staffs

Paul Kaminski & Laura Dely

George Hyde has heard the same lament from hundreds of radio managers in search of salespeople — good people are hard to find.

The executive VP of the Radio Advertising Bureau training division is an authority on training and building radio sales staffs. He said the good employees are indeed out there somewhere. "It's not that they're nonexistent — it's just that we do a lousy job of finding them."



George Hyde

Hyde said radio managers face a public perception problem: Radio is thought of as an entertainment industry, not a business.

"I don't know how many kids come out of graduate school with an MBA and look around and say 'Yeah, I want to be in the radio business.'"

Hyde said that although Wall Street pays a lot more attention to the industry and it is much better run than in the past, radio has failed to communicate effectively to the public at large that it offers well-compensated career opportunities.

"And that constricts the recruitment pool from day one," Hyde said.

One of the best places to look for people is from referrals from inside your staff, according to Hyde.

"No. 1: People who are good employees, people who are on your staff who are the '10s,' they hang around with 10s — they know other '10s.' No. 2: They'd like to work with 10s," Hyde said.

The ability to tap into that resource depends not only on your internal employee relations, but also your image in the community. And with consolidation, Hyde said radio has become a substantial force in the public arena, with the ability to shape public opinion that was non-existent in the days before Congress deregulated the industry.

"Today, radio station clusters are substantial enterprises in their communities, as well as substantial economic forces," Hyde said. "With readership dropping, they probably have more influence than the newspapers in their communities."

Hyde said radio should do a better job in marketing the radio industry, particularly in the recruitment arena. "Bottom line — if you're got a job in your radio station and you're not using your station to advertise that, you're not doing the job."

Once hired, new salespeople need training so they can contribute positively

to station goals.

That training has to include a mix of product knowledge and marketing knowledge. Hyde said training must include listening, a skill he called "most important in sales and management," as well as technical/computer and presentation skills.

As part of the training evaluation, Hyde recommends that managers promise to accompany a station salesperson on a call.

Maslow's Pyramid

Hyde's favorite method to demonstrate salesperson retention is a pyramid that depicts Maslow's Hierarchy of Human Needs.

Behavioral theorist Abraham Maslow developed a theory about the rank and satisfaction of various human needs and how people pursue these needs.

Hyde said the needs at the base — food and shelter, for example — support the top: self-actualization, the highest goal of humankind.

In the radio station leitmotif, self-actualization is evidenced by independence

and creativity. To get there, Hyde said supervisors must rethink their perceptions of what people want.

Hyde cites a recent survey that reported a divide between employees' wants and supervisors' idea of their staff's



Maslow's Hierarchy of Human Needs

needs. In the survey, the employees' most important management attribute was appreciation for work done, while the supervisors surveyed thought that good wages were most important to employees.

How to Hire, Keep Your Very Best

George Hyde offers these tips to build and retain the best sales staff possible.

1. When recruiting, know what you're looking for.
2. Recruit within the station as well as externally. And consider non-traditional employment approaches.
3. Monitor the community-wide perception of your company, not just that of your station(s).
4. Make screening of applicants a formal process, using a standard checklist for your screening interviews.
5. Conduct personal interviews with job finalists according to a standard format.
6. When checking references, be persistent as well as creative.
7. Immediately after hiring, work with new employees to identify their training needs, and develop a plan to meet those needs.
8. Provide systematic employee evaluations and opportunities for recognition.
9. Learn to listen to your staff.
10. Lead by example. Be a credit to yourself, your family and your company.

Radio Rockets to Record Growth

Radio revenue grew by 50 percent on average in most major markets since 1994. Charlotte, N.C., grew the fastest in that time, and Los Angeles will soon be radio's first billion-dollar market.

Those are among the findings of Duncan's Radio Market Guide 2000. The report considered 173 major markets and noted that revenue growth has been exceptionally strong since Congress deregulated the industry in 1996.

Charlotte posted the greatest five-year gain in revenue of all the markets measured — a 121 percent increase since 1994. Seven other markets more than doubled their revenues, including Las Vegas; San Francisco; Raleigh-Durham, N.C.; Austin, Texas; Wilmington, N.C.; Atlanta; and Salt Lake City.

According to Duncan's, Los Angeles consistently is the nation's top-billing market. It predicts the City of Angels will top \$1 billion in radio revenues in 2004. In 1999, its revenues rose 17.9 percent to \$790 million.

The report projects aggregate revenue growth in the large markets will be 30 percent, with Las Vegas, Austin and Raleigh-Durham leading the list at almost or slightly more than 50 percent growth.

Overall radio's revenues grew by 12.9 percent in 1999, to \$15.5 billion, Duncan's said. The 173 large markets tracked by Duncan's rose to 14.4 percent to \$10.46 billion.

For more details on this report, visit Radio World's Web site, at www.rwonline.com

America's Fastest-Growing Markets

Source: Duncan's American Radio

Rank 1994 - 1999	Proj. Rank 1999 - 2004	Market	Growth % ('94 - '99)	Proj. Growth % ('99 - 04)
1	5	Charlotte, N.C.	121.1	44.4
2	1	Las Vegas	117.9	51.0
3	N/R	San Francisco	117.2	N/R
4	3	Raleigh-Durham, N.C.	116.5	45.8
5	2	Austin, Texas	111.6	49.9
6	4	Wilmington, N.C.	110.9	45.8
N/R	6	Boise, Idaho	N/R	44.3
7	7	Atlanta	110.7	42.5
8	14	Salt Lake City	100.5	40.1
9	8	Jacksonville, Fla.	95.7	42.5
N/R	9	Albuquerque, N.M.	N/R	42.2
10	10	Phoenix	95.2	42.0
11	N/R	Fayetteville, N.C.	89.0	N/R
12	N/R	Boston	87.8	N/R
13	11	Denver	85.2	41.4
14	12	Orlando, Fla.	85.1	41.4
15	N/R	Seattle	84.9	N/R
N/R	15	Portland, Ore.	N/R	40.1
16	13	Dallas-Fort Worth	84.5	41.0
N/R	16	West Palm Beach, Fla.	N/R	39.5
17	N/R	Houston	81.1	N/R
N/R	17	Fort Meyers-Naples, Fla.	N/R	39.1
18	N/R	Manchester, N.H.	79.2	N/R
N/R	18	Columbus, Ohio	N/R	38.9
19	19	Lafayette, La.	78.7	38.4
20	N/R	Cincinnati	77.2	N/R
N/R	20	Tampa-St. Petersburg, Fla.	N/R	38.4

Not rated (N/R) markets are those that did not reach the respective top 20 listing.

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from the editors of

Radio World

PROMO POWER

Run Better Promotion Meetings

The Weekly Gathering Is Your Chance to Coordinate Your Staff to Woo Clients and Boost Revenue

Mark Lapidus

At least once a month, somebody will ask the question — as if it hasn't been posed before — "Isn't there a better way to have a promotion meeting?"

Before I even have time to respond, the question is followed by statements like "they go on forever" or "we sure spend a lot of time arguing" or "sales always dominates the meeting."

If you haven't revisited your promotion meeting strategy in the past year, please join me now on a topic that necessitates annual review — *the promotion meeting: always a work in progress.*

Some managers say they don't need promotion meetings. I'll agree that there are those few radio stations where an exceptional marketing director or program director who is empowered to make solo decisions can cut to the chase.

But for every one of these situations, there are hundreds of others in which a marketing director, program director, promotion director and general sales manager need to collaborate to make decisions.

Most stations need one weekly meeting and should allocate 90 minutes. Any day of the week is fine, except Friday, when some of your managers must prepare three days' worth of liners, promos and music logs.

Top of the morning

The meeting should be held in the beginning of the day when everyone is fresh and so any interested salespeople are able to attend easily without missing appointments.

The written agenda — created by the

promotion director — should begin with sales requests.

I have seen GSMs represent all the salespeople at one station so that they're able to stay on the streets.

However, this can work only if you've got a superior GSM who can avoid the communication problem between what the client is trying to

most of the content you discuss will be sales-oriented, you must require your salespeople to have individual advance appointments with your promotion or marketing director to explain their client's goals and then brainstorm possible solutions.

The best of the ideas are the ones that the account executive should bring to the meeting. That holds equally true for your national clients. Determine what they want and what they're offering prior to the group meeting.

The promotion meeting is the preeminent meeting of the week — the ultimate weekly test for any radio station.

accomplish and what you're willing to offer. It's like playing the kids' game of telephone, where the message is distorted when passed through too many people.

After the sales requests are done, a quick review is in order of the past week's appearances and contests. Next comes a look at the future station events and remotes.

Finally, programming promotions may be detailed, but be realistic: The marketing and programming staffs are talking throughout each day and shouldn't use this meeting for anything other than review or for simple planning.

So, what's the primary secret to a better, more efficient meeting? Because

Never allow your national team to bring an awful promotion or prize to the meeting. The next time you're told "we have to give away a free cell phone with no airtime" or "we've got \$10 oil-change certificates," explain why that is unacceptable and try to reach a worthy conclusion before wasting anyone else's time.

For tracking purposes, it's vital to have proper forms that capture all the information you're discussing and a place where all managers sign off that they have accepted the details presented.

An effective chairperson needs to keep the meeting orderly and moving. You've probably got a lot of creative and aggressive people sitting around your table. Never permit the discussion to deteriorate into a yelling match. If voices are being raised or the same points are being reiterated, diplomatically ask for calm and move to the next subject.

Order

The challenge facing some managers these days is having multiple promotion meetings (for the many stations now corporately owned). I've never seen a combined meeting work well, but I'd love to hear from folks who are willing to share their success stories.

If there's only one thing you take away from this article, let it be this (especially the next time you're an hour into a promotion meeting and you're dying to get out of there): This is the preeminent meeting of the week. If you correctly solve both the client and programming challenges placed before you at the weekly meeting, you'll generate additional revenue and ratings — making the promotion meeting the ultimate weekly test for any radio station.

Do you have pictures of your station's last promotional event? Contact Laura Dely at LD@imaspub.com

Mark Lapidus is president of Lapidus Media, a consulting company. Contact him at marklapidus@yahoo.com

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SOUND ADVICE

Audio Sweetening in Radio Theater

Sokol — and Some Alien Voices — Bring 5.1 Surround To Radio-Theater Production of 'Dracula'

Mike Sokol

By the time this column is published, there will be a first-time merging of two technologies and broadcast eras.

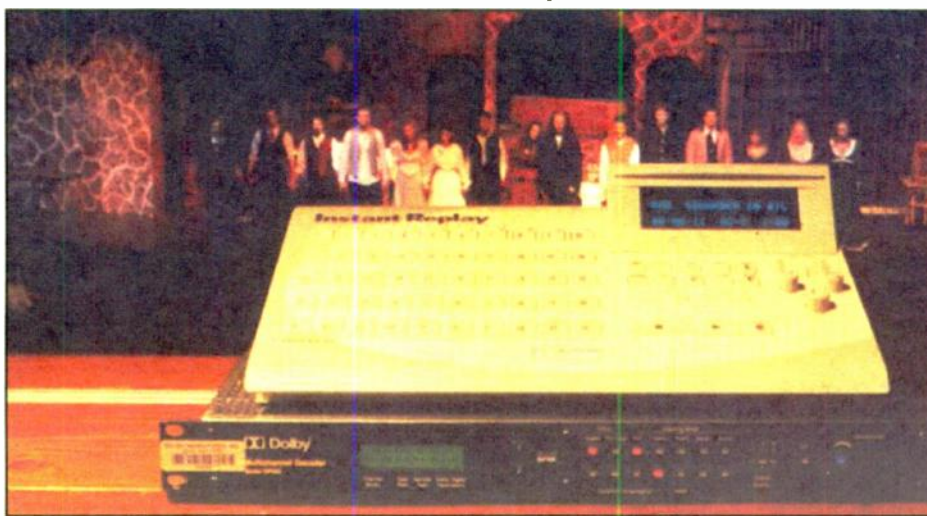
I have been involved in the latest 5.1 Surround techniques for music and broadcast for some time. For five years I engineered a monthly radio-theater program from Shepherdstown, W.Va., known as the "Rumsey Radio Hour."

Steamboat Rumsey

Named after James Rumsey, who — according to local historians — preceded Robert Fulton as the inventor of the steam-powered boat, the "Rumsey Radio Hour" was a one-hour takeoff of the "Prairie Home Companion" (sorry, Garrison) that featured comedy sketches, fake commercials and murder mysteries.

I am an audio engineer and longtime fan of old radio-theater dramas such as

in front of an audience just as if it were broadcast live, with only minimal editing to cut out the real clunkers. Regionally, it was quite successful and ran on about a



Instant Replay Dolby 5.1 Setup in Use During 'Dracula' Production

"The Shadow." So this show was a real treat for me to record and produce.

We performed and recorded the show

dozen radio stations.

So, when Dave Dull from the Robinwood Encore Players hit me up with a new project that was produced in the tradition of a radio-theater production, I jumped at the chance to participate. Then I heard who was promoting this style of college theater drama — none other than Leonard Nimoy and John de Lancie of "Star Trek" fame.

That's right. Mr. Spock and Q are involved in a theater program that is teaching college students the techniques used decades ago for radio theater.

The production company is called Alien Voices. With the help of Dramatic Publishing, the company has republished some great classic stories as radio drama pieces to be performed live in a college theater.

This October we did "The Lost World," by Sir Arthur Conan Doyle; "Mark of the Beast," by Rudyard Kipling; "The Canterville Ghost," by Oscar Wilde; and "The Cask of Amontillado," by Edgar Allan Poe.

Not only is this a great way to introduce

See SOKOL, page 48 ▶

PRODUCT EVALUATION

Neumann Microphone Heads for Broadcast

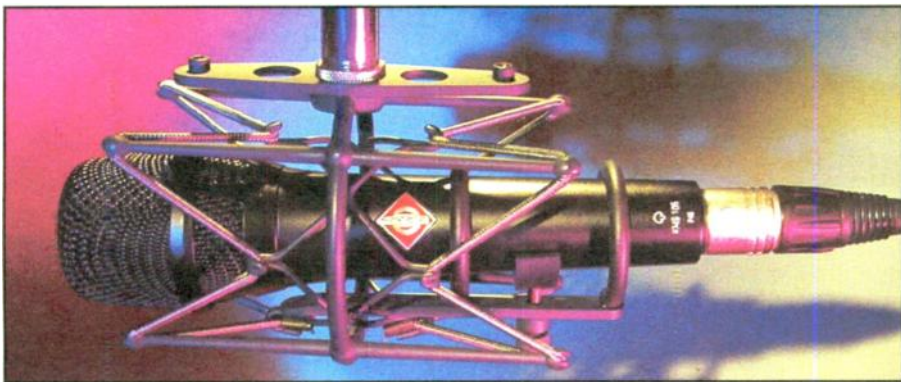
Can the Supercardioid KMS 105 Condenser Keep Up With the Dynamic Big Boys?

Ty Ford

I remember the first time I saw the KMS 105.

I recall thinking to myself — and saying to the Neumann reps — "As good as this mic sounds, getting proper attention for it is going to be very difficult.

Getting the ball rolling took some effort, but the KMS 105 won several industry awards in the last 12 months as a live sound and vocal microphone. These awards would not have come unless a large number of people thought it was a thoughtfully designed piece at the right price.



Neumann isn't the first name that comes to mind for a hand-held, front-address microphone. Besides, the KMS 105 is a condenser. The market leaders in live sound and broadcast are usually dynamics."

I was right.

Live vocal mics typically get "eaten." Think about some of the most important features — each is tailored for voice response; most mics are pop-resistant and have a very tight pattern to reduce the possibility of feedback.

See NEUMANN, page 49 ▶

You'll find endless features and more than forty cool effects in every box of Cool Edit Pro!

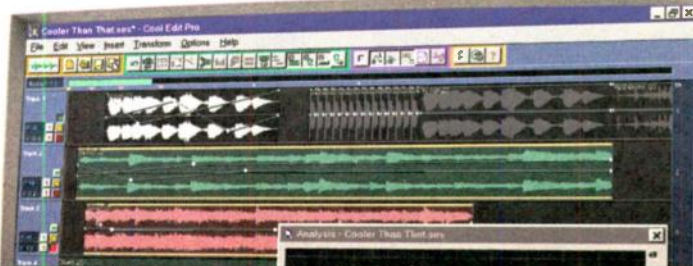
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...good sound stuff!

Syntrillium SOFTWARE CORPORATION



PUBLIC DOMAIN

Code Creation for Web Automation

The Making of AudioLocker, an Online Automation System for National Public Radio Web Services

Rich Rarey

I'm just nuts about automation, and probably many other engineers are too. I find it deeply satisfying to watch machinery perform a programmed routine I've created. This may stem from the feeling of power over the inanimate.

We're not speaking about word processing macros here, but the kind of automation that can read transmitter logs, play audio files, command switchers and call you at home when there's a problem.

Usually teams of people write, test and debug these automation products and armies of marketing folk barrage the industry with colorful brochures and multidigit pricelists.

But in this case, I was an army of one, writing a little piece of software that played audio files for NPR's online services. The project turned into an application that eventually became available to all NPR member stations.

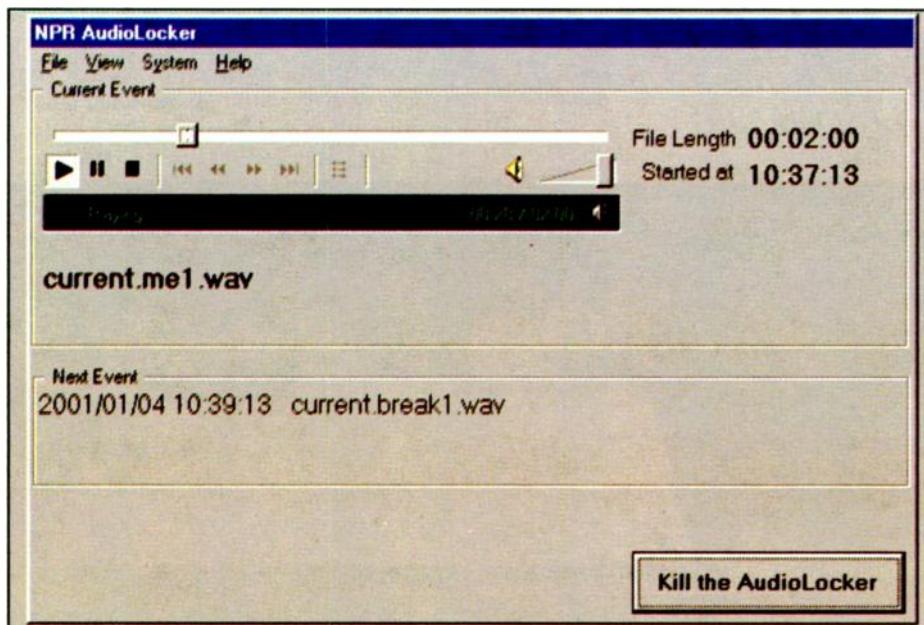
What's the combination?

The story began in the cold blustery months of 1999.

I was tasked with taking two HP Vectra tower computers and building them into Linux servers, replete with e-mail, modem, FTP and HTTP services. These servers were to become "Armstrong" and "Fessenden" — the main intake points for reporters sending audio files to NPR.

I didn't know spit about Linux, or Unix for that matter, and was having a time stuffing my brain with the arcane notions of this super-fine operating system.

The NPR Webmaster at the time, Robert Holt, encountered his own challenges. He had to develop a flexible audio file playback scheme, under deadline, so that NPR could join the Internet audio-streaming crowd.



NPR AudioLocker Interface

Rob found the existing applications for scheduled playback to be too limiting, too proprietary or too expensive. He wanted to use a rapid-application-deployment programming language like Microsoft's Visual Basic, but didn't have time to learn fully the nuances to make the project materialize under his deadline.

One afternoon we happened to be hanging around his office, moaning our fates, when the idea struck. Why not switch tasks with each other?

Rob knew Linux/Unix, I knew Visual Basic. When our management agreed, we set about our respective tasks.

My obsession about automation came into play. In the early 1990s, I developed an application that automated the trans-

port control of 36 tape recorders, ostensibly for a university media department. The system was a sweet, tight application, compiled in QuickBasic 4.5, that ran under DOS. Although this application never went anywhere, the source code was invaluable for reuse in the automated player project.

I made up a working title for the pro-



ject — AudioLocker. The name is an homage to Broadcast Electronics' venerable AudioVault, which, although robust and ready to go, wasn't suitable for this application at that time. BE has since enhanced its product line to make AudioVault accessories do the things AudioLocker was designed to do.

Code the message

Before writing any Visual Basic code, Rob and I developed a set of rules and qualifications that AudioLocker had to meet — essentially, we wrote the help file first. This keeps one's sanity and focus.

NPR's Online Division already recorded "All Things Considered," "Morning Edition," "Talk of the Nation" and "Weekend Edition" as standard .WAV files — at least one audio file per hour — for conversion to RealAudio, so we planned on supporting .WAV and other popular audio file formats.

With this requirement in place, our job was to create the concept of "groups of files" so that Net listeners could hear the entire program, one file played after another. The files would have a programmed day and time-of-day "window" where the files within the group would be played.

With a working set of rules in place, I began to build AudioLocker by component parts. Those details will appear in the next *Public Domain*.

AudioLocker is available to NPR member stations — source code and executable file — by browsing to www.euonline.org

Rich Rarey, CEA, CBNT is the master control supervisor at National Public Radio. Reach him at rrarey@npr.org

Rules of the AudioLocker

The rules for creating and operating the AudioLocker were important to our understanding of what direction we were to undertake. The following is the outline of the rules we've created.

1. Operations

A. The system plays groups of audio files during certain times of day. The files within a group are played in sequence until that group's "end time" is reached or exceeded.

B. The audio files are of any length because they are cut-down versions of NPR programs. The files can be uncompressed .WAV, .AIFF, .MP2 and other files supported by the Microsoft ActiveMovie Control, version 2.0.

C. AudioLocker does not "fill time" to pad a file's length to an hour or half-hour, but rather, AudioLocker continues to play the files within a group, in sequence, until that group's end time is reached or exceeded.

D. A group will not start playing any sooner than its "start time" and no later than the longest audio file in the previous group — minus one second. For example, if a group's end time is 13:59:59 and a file within that group ends at 13:59:59, another file within that group will play. After that file finishes, a new group will be loaded and the first available file in the new group will play.

E. AudioLocker is day-sensitive and supports overnight services whenever a group is programmed to play past midnight.

F. All activity is printed to a log.

G. A manual control panel is available by menu and gives the user the power to force the next event to interrupt the current file immediately and to "insert" a file of the user's choosing as a "one-time" event. The inserted file, if available, will play after the current file ends, and only will play once. The AudioLocker playlist resumes after the inserted file finishes.

H. AudioLocker is fault-tolerant of missing or unavailable audio files, and simply skips over the unavailable file. This file will be played, if it becomes available, after the other valid files in the group have been played.

I. If a group has no valid files at all, a file called emergency.wav will play until that group's end time is reached or exceeded.

J. If a gap in the schedule exists where no files were schedule to play, AudioLocker will continue to play the previous group. If AudioLocker was started during this schedule gap, the emergency.wav file will play until a group is found which has a start time equal to or earlier than the present time of day.

K. Schedules can be written with any plain-text word processor, and loaded into AudioLocker's database in one of the following ways:

1. Before AudioLocker starts by using the "load" command line parameter.
2. After the current file finishes playing.
3. After the current group's end time is reached or exceeded.
4. Or, the user may cancel the file load, and restore the previous schedule.

L. A copy of the database can be saved as a plain-text file — menu: File | Save Schedule As —, which is suitable for editing and/or reloading at a later date.

M. The plain-text schedule may include comments prefaced with a single apostrophe (') as the first character on the line

N. The minimum number of files in any group: one. Maximum number: currently limited to 1,024.

2. Limitations

A. 1,024 lines of schedule can be displayed and setting MAX_ARRAY to the desired number, and recompiling the program can overcome this limitation.

B. There is no practical limitation to the number of lines in the database.

C. As of version 1.16, there is no provision for repairing the database or compacting the database from within AudioLocker.

D. Schedules are not checked for correct timings, group overlaps, or other problems, only for correct syntax.

E. AudioLocker does not check the predicted "next event" time with the time-of-day when a file stops; it simply plays the next event as calculated when the original file started playing. If a file is stopped or paused for any appreciable amount of time, then allowed to finish, the next event file will be played, regardless of the group's end time being reached or exceeded.

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analog and digital I/O in the same router frame. Go direct ana-

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World Radio History

Sokol

► Continued from page 45

performers to some great dramatic works, it's a cost-effective and efficient way to produce a college theater program.

Because of the radio broadcast style of the production, there are no elaborate sets, no fancy costumes, no expensive RF mics and no tedious script memorization involved. Only the most basic of audio production equipment is required — four vocal mics on stands across the front of the stage and a sound-effects table where the various sound beds and effects are generated.

This production was set up just as the original classic-radio programs were produced more than five decades ago and exactly how we did it for the "Rumsey Radio Hour" some 10 years ago.

I cheated a little and recorded the show to a multitrack for later mixing and sweetening with laugh tracks for spots where jokes bombed on the studio audience. Don't tell anyone we ever did that.

Can't leave it alone

One of the hardest things to do right in this style of production is to achieve consistently produced live sound effects. After several years of muddling though botched effects, I finally began pre-recording them in my studio, then putting them on carts for cued playback during the performance.

This worked quite well, because the theater tech can read a script and hit the start button on a cart machine for the proper sound rather than crunching potato chips to simulate walking on gravel in real time.

In the final year of production of the "Rumsey Radio Hour," computer-based .WAV editors were becoming commonplace, so we loaded all the effects onto a hard drive, allowing the SFX operator to put up a cue list in order. Then it was as simple as hitting the spacebar for the next sound effect or musical segue.

However, if you read back to the first

paragraph in this piece, I allude to 5.1 Surround Sound. And indeed, the Robinwood Encore Players and I participated in the world's first live Dolby Digital Surround production in a college theater. As you'll remember from one of my earlier articles, the performance was Bram Stoker's "Dracula" and it had all the sound effects you would expect from a great thriller piece.



The Sound Effects Booth for Alien Voices Production of 'Dracula'

I prerecorded and mixed all the effect cues in 5.1 Surround in my studio, encoded them as Dolby Digital AC-3 .WAV files and put them on a 360 Systems Instant Replay for the performance.

Because a Dolby Digital data file can contain up to six discrete audio tracks in the space of a PCM Stereo Pair, the stock Instant Replay was able to store the 50 sound effects in 5.1 Surround.

When the AES/EBU output of the Instant Replay was patched into a Dolby Digital 562 decoder, the compressed audio was converted back to the original six analog surround tracks I had mixed in the studio. We patched the decoder into a surround sound system in the theater and the rest is history.

Of course, this technique should work with any compression codec that can package its data in a PCM audio structure, so I predicted that this would also work with Dolby E as well as DTS Surround. Since then, we have confirmed that an Instant Replay will interface perfectly with the surround files, and that's the codec we plan to use for our Alien Voices production.

chase scenes and barroom brawls in 5.1 Surround really gets my creative juices flowing. In addition, a few bullets ricocheting around the room will be fun.

Of course, we're going to video the show and record a multitrack audio master of the whole production in surround, which will then include the live performance. I'm pushing the TV production class to its limits to make it all work and actors and theater techs are really psyched for this one.

After all, how many tech students and actors can put on their résumé that they worked on a live 5.1 Surround performance?

Interested? Here's how

By the way, we're trying to hook up college theaters with the local advanced audio engineering classes so that everyone can join in the surround fun. If you know of a theater group that's interested in the possibility of doing 5.1 Surround effects for their next production, let me know at mikes@modernrecording.com and I'll forward them a white paper on the technology involved and a step-by-step guide on how to go about doing it.

Other information is available at the 360 Systems (www.360systems.com), Minnetonka Audio for Surcode DTS (www.minnetonkaaudio.com) and DTS Digital Theater Systems (www.dts-online.com) Web sites.

If you want to combine surround sound with old-time radio theater as well, so much the better. Check out www.alien-voices.com for information on the radio theater plays available.

Mike Sokol is an audio engineer, computer geek and technical writer. He teaches workshops around the country on 5.1 Surround production for music and broadcasting. Visit www.modernrecording.com for his latest surround workshops, which are free to audio students and professionals. 📧

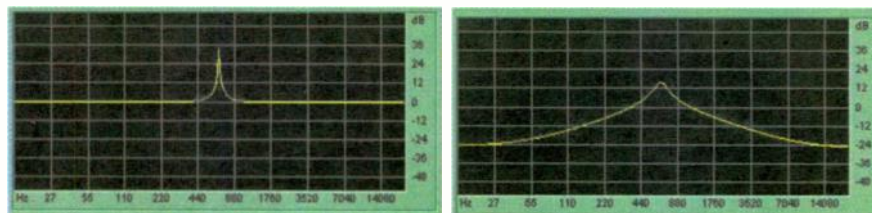
Q for You, Too

There are two articles in *Studio Sessions* that refer to *Q* — Ty Ford's Neumann KMS105 review and Mike Sokol's "Audio Sweetening in Radio Theater."

One such reference is directed at John de Lancie, a well-known character actor who found wide popularity on "Star Trek: The Next Generation" during the early 1990s.

This sidebar has nothing to do with him.

The *Q Factor* is applied to anything that has a resonant nature, such as a filter, a Helmholtz resonator, or even a Coke bottle when blown across the top. As used in Ty Ford's review of the Neumann microphone, it refers to the sharpness or selectivity of an EQ stage.



The graph with the 'peaky' look shows the response of a parametric EQ with a high Q factor. The broad-bottomed bell shows a low Q setting.

In a bandpass filter, the *Q* is equal to the ratio of the center frequency to the overall bandwidth of the filter stage at the -3 dB points. For those used to seeing the bell-shaped response of a bandpass stage on a digital display, the *Q* can be simply described as changing the width of the bell.

A high *Q* number causes a very narrow bell shape, and hence a narrower range of affected frequencies. A lower number broadens the bell, causing a wider range of frequencies to be enhanced.

The Parametric Equalizer module included in many computer-based digital audio editors offers control over the *Q Factor*, as can be seen in the figure shown. As might be discerned from the visual image, the audio affected by the filter with the higher *Q* number will sound "peakier" than the one with the broad-bottomed bell.

— Alan R. Peterson

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Neumann

► Continued from page 45

Mic feedback is not usually a problem in radio station air studios unless you have the cans turned up *really loud* and turn your head so that one ear is right by the mic.

Regular cardioid condenser mics frequently pick up too much detail, including sound bouncing off the studio glass, hard drives, computer cooling fans and motors.

When the pattern is too tight, your Morning Zoo starts sounding off-mic every time someone turns his or her head. Oh yeah, and a lot of jocks like to eat the mic too.

That is why the radio market has held onto the EV RE20 (and RE27) this long: the RE mics are fairly forgiving about where you work them, they don't have too much proximity effect, and you can't hear the fans and drives all that much.

Neumann has positioned the KMS 105 as a vocalist microphone. There are no roll-offs or pads on the unit.

The works

The mic is a supercardioid, pressure-gradient transducer with a sensitivity of 4.5 mV/Pa, a self-noise of 18 dB-A and a maximum SPL of 150 dB. It requires a full 48 VDC phantom supply, consumes 3.5 mA and wants to see a load of at least 1 kohms.

Unscrew the headgrille and you'll reveal the inner workings of the pop filters and capsule. There are four pop filters. A second finer metal mesh screen that sits about 1/2-inch below the first one complements the coarse metallic outer screen.

A third screen is built around a circular plastic support that slips over the capsule. It sits about 1/2-inch above the diaphragm and also covers the side ports of the capsule.

The fourth filter is finer yet and is integrated into the top of the capsule itself. You can pop the KMS 105, but it is definitely pop-resistant. If you have chronic poppers, you'll need extra help.

The 3/4-inch K 105 capsule was developed from the K 50 capsule, found in the KMS 150, KM 150 and KM 185 microphones.

The K 105 capsule features a supercardioid pattern. This pattern is achieved through specially modifying the response of the K 50 pressure gradient transducer.

The capsule itself unscrews from the body, revealing a spring that is mounted on a slender circuit board that runs down through a metallic tube inside the handle. A small gold-plated probe on the bottom of the capsule fits into the center of the spring, connecting the capsule to the circuit board.

This configuration makes the capsule easily replaceable in the field. A small rubber-like isolation bushing separates the metallic tube from the body.

Whereas most condenser mics are a lot more sensitive than most dynamics, the sensitivity of the KMS 105 is only slightly more sensitive than a dynamic microphone, making it easily interchangeable with dynamic mics.

The mic is barely 5 dB louder than an original Sennheiser 421. By comparison, the KMS 105 also makes the 421 sound darker or covered, even with the 421's presence peak.

The unit is about 2 to 3 dB hotter than

the ElectroVoice RE27 N/D. With none of its filters engaged, the RE27 sounds brighter and somewhat metallic relative to the KMS 105.

Engaging the HF roll-off on the RE 27 reduces the metallic sound and makes the two mics sound more similar, but each has different midranges and slightly different proximity effects. The RE27 definitely builds a lower and larger bass note than the KMS 105.

Response to range

The KMS has a fairly flat response down to 50 Hz at a distance of about two inches. Many mics that have a presence peak that begins somewhere between 2 kHz and goes up to 6 kHz, but the KMS 105 remains basically flat until about 6 kHz. From there, it rises to 12 kHz and is back down to 0 dB by 15 kHz. That frequency range exhibits a lot of "air," which results in an open sound.

By comparison, the RE27 — with treble tilt on — sounded like someone had dropped a blanket on it. With respect to the tightness of the patterns, both RE27 and KMS 105 begin to fall off at about the same distance; either side to side or directly back.

If you have become addicted to the low frequency "whun" or heft of the

RE20/27, the KMS 105 will sound thinner on the bottom. That is not to say the KMS 105 lacks bass response. It has it, but at a slightly higher frequency.

The bass response of the KMS 105 does not fill the headphones as thickly as does the RE20/27. This can be either good or bad. On my voice, the RE20/27 can get too thick unless I am at least four inches away.

In an effort to quantify the low-end differences, I recorded a voice track using the KMS 105 through my GML mic preamp and into my Audicy workstation. With no EQ, I thought my voice sounded good and not particularly lacking in low end.

However, it did not have that RE 20/27 low-end sound. I EQed the track by adding 3.5 dB at 88 Hz with a middle-wide Q. This filled the speakers with a low-end presence similar to that of the RE 20/27.

I also tried +2.3 dB at 133 Hz and +2.1 dB at 110 Hz with some success, but at those frequencies I started to hear some muddiness in the lower midrange.

Neumann has just finished a prototype suspension mount for the KMS 105, pictured. Price and availability information for the mount are still in the works. The KMS is priced at \$595.

Product Capsule:

Neumann KMS 105 Microphone



Thumbs Up

- ✓ Supercardioid condenser with dynamic mic plug-and-play sensitivity
- ✓ With adjustments it can sound like a dynamic



Thumbs Down

- ✓ No roll-off
- ✓ No pad
- ✓ Requires phantom power

For more information contact Neumann USA in Connecticut at (860) 434-5220, fax (860) 434-3148 or visit the Web site at www.neumannusa.com

I am waiting to see if the KMS 105 will be received by the broadcast market as well as it has been received by the live-sound market.

With as much mic processing as there is in broadcast today, adding a touch of bottom should be easy. If there is enough initial interest from broadcast, a special KMS 105B is not impossible, but you did not hear that from me.

Reach Ty Ford on the Web at www.jagunet.com/~tford

◆ PRODUCT GUIDE ◆

Products for Radio Air & Production Studios

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Wavetek Unveils Meterman Test Gear

The Wavetek Meterman is a line of 60 test and measurement products for shop, tool bench, boat, home or back pocket.

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wrong-input user warning beepers, a line of accessories and patented ergonomic T-shape designs.

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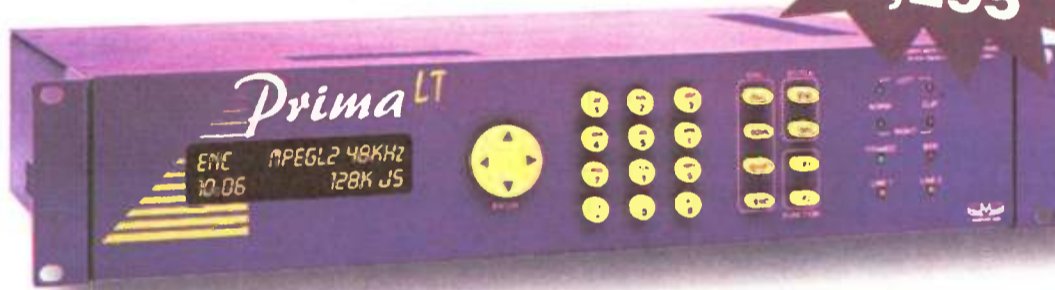
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World Radio History



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Radio World

Remote Broadcast

February 14, 2001

USER REPORT

All-in-One Matrix Goes to Mexico

Combo Product From Comrex Circumvents Most Trouble While Retaining Ease of Use

by **Allen J. Singer**
Assistant Engineer
WRRM(FM)/WMOJ(FM)

CINCINNATI Today's radio engineer works in a fast-paced environment. The engineer must keep the stations on the air and the equipment working at its peak performance. He or she might have to double as the network administrator and must coordinate remote equipment with the promotions department.

When multiple stations are involved, and any of the stations is remote-intensive, equipment coordination can get hectic.

The arsenal

A typical station might have ISDN units and Marti RPU equipment. ISDN requires additional phone company installation and hefty fees. Marti requires a clean shot and preferably little atmospheric interference.

Sometimes heavy moisture in the air can ruin a good shot.

In typical cases the RPU will provide good, mostly clean audio. ISDN, of course, is usually excellent.

The engineer does not work in a perfect environment. The engineer must deal with multiple simultaneous remotes on a given weekend.

department and engineers — especially the engineers.

The HotLine has been around for a few years and provides good POTS codec audio. At WRRM(FM) "Warm 98" and WMOJ(FM) "Mojo" in Cincinnati, we have both the HotLine



Warm 98's 'Jim and Randi in the Morning' live on remote using the Comrex Matrix

and the new Matrix.

The Matrix uses the same codec as the HotLine and Vector, but has added flexibility for future expansion and changes in technology.

The Matrix is a strong addition to our remote broadcast equipment arsenal. Warm 98 does a fair amount of live remotes, but Mojo — a jammin'

The Matrix contains a two-channel, mic/line mixer, a POTS codec, an optional eight-hour battery backup and a slot to add expansion modules. Currently, Comrex offers a module adapter for a GSM wireless phone and an ISDN module. Thus the system has the ability to become a portable ISDN unit or a wireless phone codec.

Live from ...

The unit also can connect to our studio HotLine and, if we bought the ISDN module, we could connect it to the Telos Zephyr.

Just like the HotLine, the Matrix can be plugged into any POTS line — preferably a stand-alone line, not one that goes through a phone switch. The

connection ends up staying stable and the audio is quite good. The unit also provides for talkback over the same phone line, which obviously helps a lot for jock cues.

Warm 98 and Mojo have been using the Matrix for almost three months in shopping malls, nightclubs and bars. One of the first times the Matrix was used was when we did "Mojo Mexico."

The morning show broadcast live from Cancun, Mexico, in October 2000. We had arranged for a phone line to be installed and the line worked the night before the broadcast. The morning of the broadcast, the line had been pulled.

The chief engineer, my boss, was on site in Mexico. I was at the station in Cincinnati running the show there. He ended up plugging the Matrix into a hotel phone jack — which Comrex did

See MATRIX, page 53 ▶

The system has the ability to become a portable ISDN unit or a wireless phone codec.

Also, how many times has he or she heard a promotions person say on a Tuesday, "We're doing the afternoon guy's show live this Friday across town. You knew, didn't you?"

What to do? No time for ISDN, and the Marti is tied up that afternoon and wouldn't work at that location anyway.

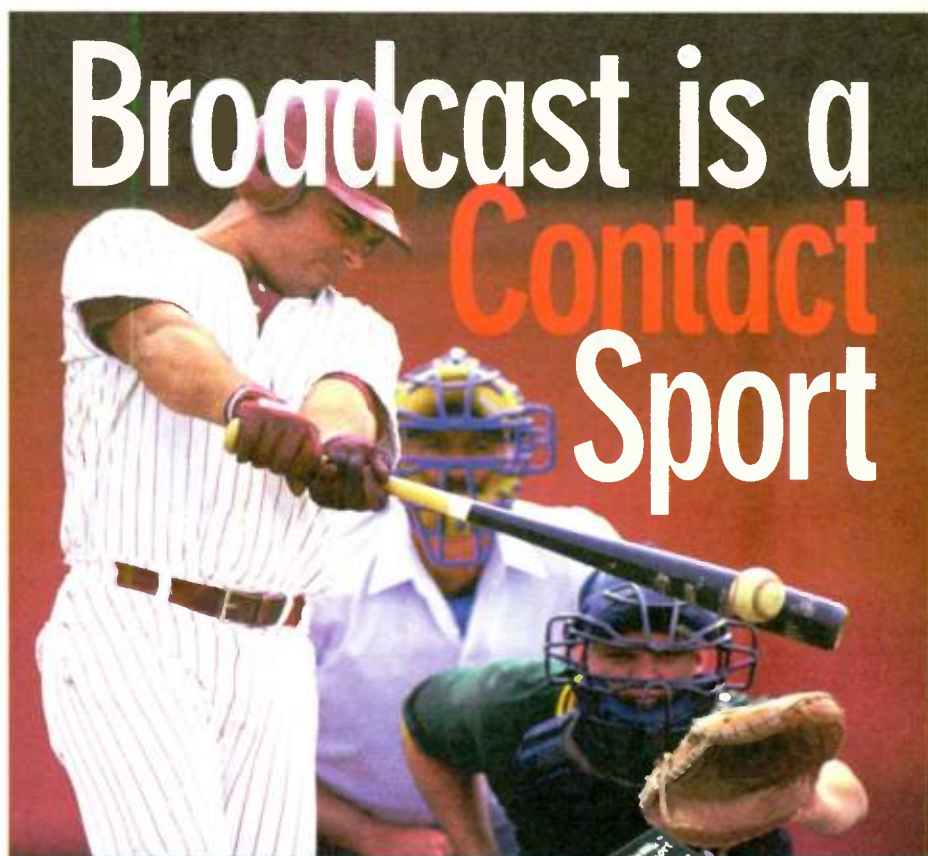
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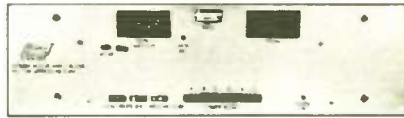
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USER REPORT

Remote Connections Made Easy

Daptor One Wireless Adapter Receives a Workout, Connects Cell Phone to JK Mixer

by **Jim Roope**
Correspondent
CNN Radio

LOS ANGELES As a news correspondent, I consider the ability to go live on the network or file stories from the scene of news using sound gathered at the scene very important. Because news is a time-sensitive business, speed and ease also matter.

ing this time and he suggested several places that I may find such an interface or companies that might make the item. After a while, he became as frustrated as I was in unsuccessful attempts to find this piece of equipment.

The hookup

He mentioned in passing that JK Audio was developing an interface that would do what I needed and

for that unit should be compatible. Third, I needed something yesterday.

Joe Klinger sent a Daptor One Wireless Adapter test unit and admitted that he was nervous about how satisfied I would be with it. I acknowledged his concern and put it to work right away. I was amazed.

My biggest surprise was that I experienced no delay whatsoever. The current hands-free piece that I use in the car has an annoying delay that disrupts conversations.

Connection made

With the Daptor One hooked up through the RemoteMix3, I never experienced delay and the transmission was clean, clear and free from RF.

A little flutter can come into play if the cell phone is less than about a foot from my mic, but that problem is definitely avoidable. The unit has more than enough cable to provide a safe distance between the mic and phone.

Furthermore, the cord is long enough to place the phone on the dash

and the RemoteMix and MD player on the seat.

After the first time I used the Daptor One, I was sitting in my car in the parking lot of the Criminal Courts Building in downtown Los Angeles, I got out of the car and enthusiastically told the parking lot attendant about it. He didn't care but I had to tell someone. I was thrilled.

As long as I have a good cell signal, the Daptor One comes through like a



Joe Klinger sent a Daptor One Wireless Adapter tester unit and admitted that he was nervous about how satisfied I would be with it.

I spent weeks searching for a data interface that would enable my Star Tac cellular telephone to connect with my JK Audio RemoteMix3 remote broadcast unit. I could not find anything through a cellular phone dealer, my service provider or an electronics or broadcast supplies store that would turn my cell phone connection into an RJ11 to connect to the RemoteMix unit.

I was working with Wayne Reed of JK Audio's technical support staff dur-

would work with any cell phone. I said to him that as soon as it was done, I'd buy the first one.

In a later conversation, Wayne asked if I would consider testing this interface. I jumped at the chance. I had three reasons not to worry about beta testing the product.

First, I feel JK Audio makes some of the finest broadcast equipment in use today. Second, the company makes the RemoteMix3, so an interface made

need an external mixer when we use the Matrix and the promotions department can easily break down the equipment after a broadcast without engineering help.

Because the Matrix contains its own mixer, the extra equipment needed is minimal. Normally all we need is the Matrix, a couple of mics and headphones. And with this small

Matrix

► Continued from page 51

not recommend — and I had to call the hotel front desk using a phone plugged into the studio Matrix and ask the clerk to connect me to that extension.



Comrex Matrix

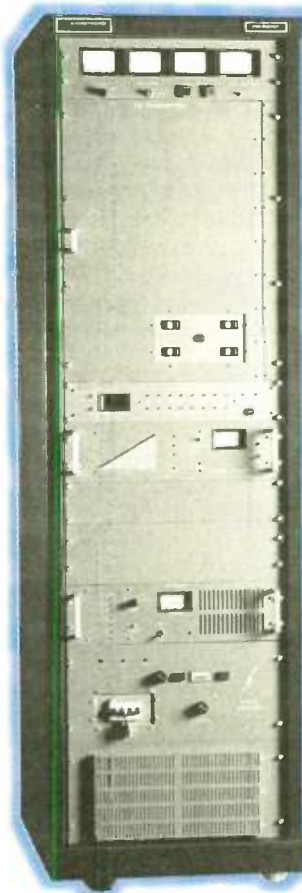
I then switched the Matrix to connect when the far-end Matrix answered. After we figured out how to do that, the remote went fine.

Our staff likes the flexibility and portability of the Matrix. We don't

amount of equipment and a phone line, we can do a remote practically anywhere.

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The BOS offers 12 N.O. dry contact switches with status LEDs in a desktop panel. The ROS is similar, but in a single-space rack unit. The PBB-24 provides 24 momentary buttons that can be programmed to output ASCII character strings.

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The SRC-8 provides a means of adding 8 channels of remote control to RF, wireline and fiber type STL systems and may also be used with dedicated modems (full & half duplex models).

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TECH UPDATES

Shure Sends Preamp to Field

The Shure FP24 is a portable two-channel mixer/preamplifier designed for professional field production applications. The unit features a dynamic range exceeding 110 dB, a bandwidth of 10 Hz to 50 kHz and low-distortion characteristics.

The FP24 has up to 66 dB of gain, transformer-balanced inputs (assignable to the L-C-R outputs), a slate microphone, 1 kHz tone oscillator and a headphone-monitoring amplifier.



Input transformers are designed to provide quiet operation and freedom from RF interference, while high-current, balanced output drivers should maintain signal integrity over long cable runs.

The unit's high-pass filters function at 6 dB per octave with either 80 or 160 Hz corner frequencies, and are inserted prior to any active element of the circuitry to maximize headroom.

The system is equipped with "unclippable" peak limiters with adjustable thresholds and is powered internally from a pair of AA batteries or externally from a DC supply.

The display includes dual-color LEDs, which indicate clipping and limiter activity for each channel, and seven-segment LED output meters with three selectable levels of brightness, one of which is visible in direct sunlight.

In addition, the FP24 links with the Shure FP33 mixer using the A33LK cable accessory kit. This combination can accept a stereo microphone, hardwired shotgun and a pair of wireless lavalier mics, with all five microphone inputs receiving 48 volts of phantom power.

The unit has a suggested retail price of \$855.

For more information contact Shure Inc. in Illinois at (847) 866-2200, fax (847) 866-2279 or visit the Web site at www.shure.com

Aeta Racks Up The Scoop Reporter

Scoop Reporter II from Aeta Audio is a portable audio codec offering both POTS and ISDN facilities for field reporting. Each comes with Aeta Express Profiles software for PC- programmability. This enables 99 presets to be downloaded from a PC to the codec. The software enables the PC to print out a list of profiles along with the corresponding dial-up numbers, algorithms (G.711, G.722, ISO/MPEG Layer II and J.52) and line type (POTS or ISDN).

The Scoop Reporter II has an internal battery D cell battery back-up that can provide over two hours of operation in the event of a power failure. The system features external 12-volt capability for use with cigarette lighters or remote trucks with 12V supplies.

A rack-mounted studio version of the Scoop Reporter II — known as the Scoop Reporter II RM — is available. The RM model is the field unit minus the battery backup and mixer functions. The unit automatically can detect whether the incoming signal is a POTS or ISDN connection.

For more information contact Aeta Audio in New Jersey at (973) 659-0555, fax (973) 659-9555 or visit the Web site at www.aetausa.com



Marti Develops Amps and Synths

Marti Electronics is reengineering its STL and frequency-agile RPU lineup of products. Last fall, Marti introduced the new STL-10, which incorporates a new RF amplifier design.

This design also will be incorporated into the STL-15C, the Marti composite STL. The STL-15C synthesizer design will be used in the matching receiver by late summer this year.

Other models will receive the amplifier and synthesizer design. Currently Marti offers the SRPT-40 for the 450/455 MHz bands, and the SRTP-40E for VHF and export bands from 150 MHz to 500 MHz. These will be merged into a common unit that will be available for the different bands.

For more information contact Marti Electronics in Texas at (817) 645-9163, fax (817) 641-3869 or visit the Web site at www.martielelectronics.com

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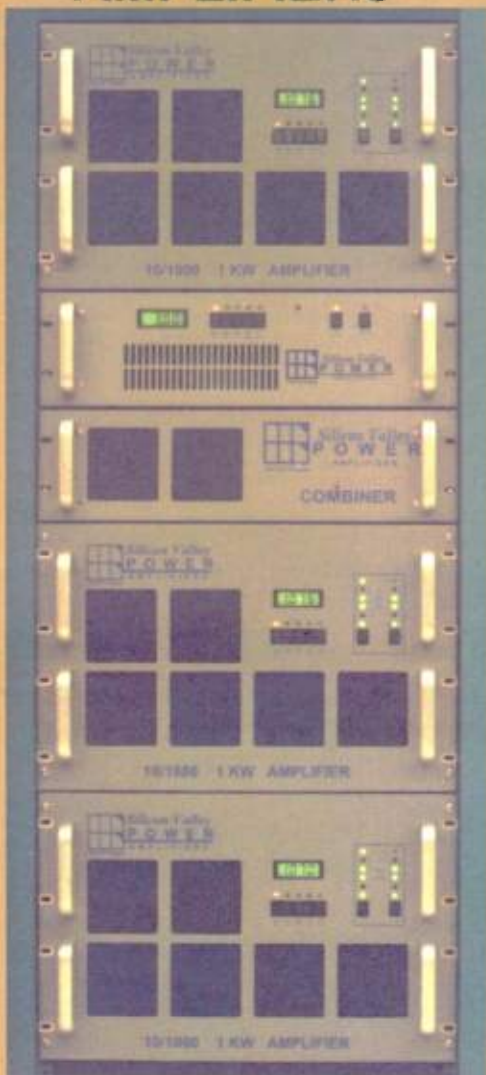
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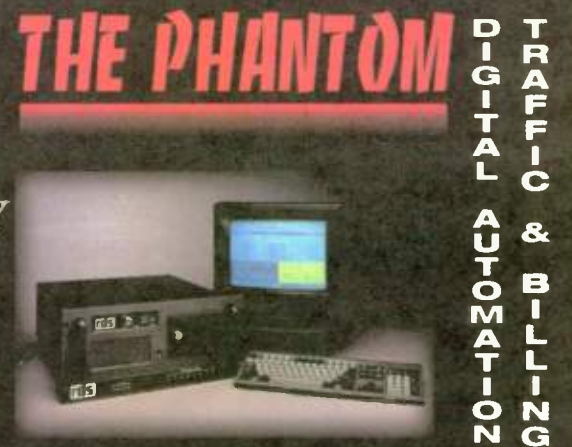
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TECH UPDATES

LPB Mixes on Remote With Blue 5c

Blue 5c from LPB is a remote or studio mixer aimed at the LPFM, Webcasting or remotes market.

The unit features five stereo channels, 10 stereo inputs, stereo program bus, stereo cue bus, stereo program bus, stereo cue bus, mono telephone bus, remote starts, muting and transformer balancing for RF immunity. The model also has RJ-45 Ethernet Cat-5 connectivity, two independent headphone amps and input follow muting.



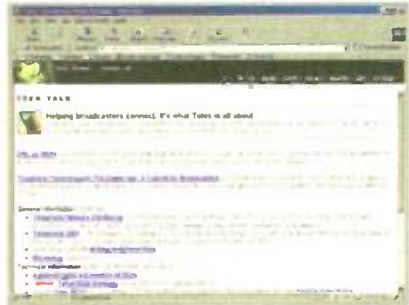
The Blue 5c line input has a range of -10 dBm to +4 dBm. Total harmonic distortion is measured at 0.04-percent; signal-to-noise registers better than -80 dB. The unit has an external 110 VAC power supply and a 240 VAC supply also is available.

The list price for the Blue 5c is \$1,295.

For more information contact LPB Inc. in Pennsylvania at (610) 644-1123, fax (610) 644-8651 or visit the Web site at www.lbcinc.com

Telos Web Site Promotes Tech Talk

Broadcasters increasingly have come to rely on ISDN to send and retrieve audio at a moment's notice. While most ISDN hookups are seamless, even experienced engineers encounter problems from time to time.



Telos Systems has compiled a library of ISDN and broadcast telephony information in its Web site in the Tech Talk section. Resources range from a glossary of telco and ISDN terminology to a treatise on whether DSL will displace ISDN for broadcast audio.

For more information contact Telos Systems in Ohio at (216) 241-7225, fax (216) 241-4103 or visit the Web site at www.telos-systems.com

KD Kanopy Gives Radio Shelters

KD Kanopy designs, manufactures and distributes multi-purpose, portable canopies, tents and signage products. The company has been providing radio remote tents to radio stations since 1984.

One of its offerings is the KD Majestic, a shelter with a one-piece adjustable frame made of aluminum. The fittings are made of fiber-reinforced dyndidiom and are designed to provide strength and stability to the unit. The tent weighs 48 pounds. The fabric is made of durable high-tenacity oxford polyester fabric, which is fire-retardant, water-resistant and UV-protected.

For more information contact KD Kanopy in Colorado at (800) 432-4435, fax (303) 650-5093 or visit the Web site at www.kdkanopy.com



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BE AM1A Solid State 1kW AM transmitter, currently in service, available April/May 2001, on 1270. John Mulhern, KSCB, 1410 N Western Ave, Liberal KS 67901. 316-624-3891.

Continental 831-D2 2.5 KW FM with exciter, \$2900. Tom Toenjes, KJTY, 6120 Riley Cr, St Marys KS 66536. 785-437-6549.

CSI T-20-F, 20 KW FM with exciter, \$10,500. Tom Toenjes, KJTY, 6120 Riley Cr, St Marys KS 66536. 785-437-6549.

CSI-T-25-A1 25KW AM transmitter, early 80's model in good condition, BO. Angie Sugalski, WBXR, POB 444, Spartanburg SC 29304. 864-585-1885.

InfoMax LPAM transmitter system. whip antenna, cable, ground plane, plane system, FCC certified, legal coverage, approx 1/2 mile, new, \$800/BO COD. Douglas Neatrou, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

LPB Breadbox 30 watt Am transmitter, on 1270. John Mulhern, KSCB, 1410 N Western Ave, Liberal KS 67901. 316-624-3891.

Panaxis ACC100 LPFM micro transmitter, FCC certified, in waterproof case with power supply, hardly used, \$160 COD. Douglas Neatrou, Radio Omega, 379 N 9th St, Lebanon PA 17046. 717-270-6651.

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◆ READER'S FORUM ◆

Uncle Sam's radio

Dear RW.

Don Messer of the International Broadcasting Bureau refers to the virtues of affiliate station rebroadcasting ("Messer: Another View," Nov. 22, 2000), and he is right to point out that for now it has an audio quality advantage over shortwave.

Alas, experience has also shown that these overseas affiliates tend to drop rebroadcasting during crises or when there are political disagreements with the United States or its allies.

For all the moaning about international broadcasting being too much of a crisis medium, that's the way the news business works — CNN, VOA, whatever — and for the government's official broadcast voice, that is when it is most needed. If Congress and the executive branch want this national security mission to be effective, the Voice needs to stay reasonably clear of gatekeepers, and for the most part only shortwave can accomplish this.

Otherwise, the only way to be certain of remaining on the air via local overseas affiliates is to air music and innocuous commentary.

Lawrence Magne

Editor-in-Chief

Passport to World Band Radio

International Broadcasting Services Ltd.

Penn's Park, Pa.

Mack: Renaissance man

Dear RW.

Many thanks to Paul McLane for his brief tribute to the longtime voice of Cleveland Radio, Wayne Mack ("From the Editor," Nov. 8, 2000).

One of many treasures from my short

career in Cleveland is a transcription of a special "commemorative" program that Wayne produced and hosted for WGAR when they switched frequencies in 1944. It features the full WGAR Orchestra and Chorus and celebrates many of the programs that had been featured on that station throughout the 1930s.

Part entertainment, part news, this program stands out. To me it is what a special commemorative program should be.

Radio Historian Jim Davison and I had the pleasure of attending Wayne's 85th birthday party. He was an engaging, entertaining renaissance man. Radio will never be the same without him.

John Landry

Audio and Satellite Engineer

ABC Radio Networks

New York, N.Y.

Low hopes for IBOC

Dear RW.

Looks as if time has come for testing the highly debatable IBOC system. WSM(AM) 650 of Nashville switched off the C-Quam AM stereo system and is set to begin testing of the IBOC system soon.

IBOC is a bad idea. Having listened to WSM for the past few nights, the audio quality of the analog signal sounds flat and as about as exciting as Webcast-quality audio. With the production of new digital receivers many years away, listeners will have to endure more degrading of AM stations.

As if that's bad enough, with the poor quality of AM and AM/FM radios, what sounds like telephone quality now will sound much worse when a station starts transmitting IBOC. The reason: a 5 kHz roll-off filter is installed in order to make

Codec cats

Dear RW.

Thanks for putting in the picture and little story about "Zephyr" and "Omnia" ("From the Editor," Nov. 22, 2000).

Now that you've made them both "famous," we've got to live with their inflated egos!! :)

Frank Foti

President

Omnia Audio (Cutting Edge)

Cleveland, Ohio

**Radio Should Join Cornerstone Effort**

Challenges loom to broadcasters' First Amendment rights: potential new content regulations, possible free airtime mandates for political candidates, calls for a return to the Fairness Doctrine, better and more children's programming, proposals for public service announcement minimums.

Late last year, NAB President and CEO Eddie Fritts issued nothing less than a call to arms to the broadcast industry at the Freedom Forum's seminar on the "Electronic Media and the First Amendment in the 21st Century."

He warned, "There really isn't any doubt that content regulation will be a hot topic for the next Congress and the next FCC. Now is a good time to review how broadcasters view these issues, their commitment to serving the public interest and how the First Amendment applies to an increasingly competitive electronic market."

The NAB joined the Magazine Publishers of America, the Newspaper Association of America, American Association of Advertising Agencies, National Cable Television Association and the Gannett Foundation, as a sponsor of a public education campaign that will celebrate the First Amendment through 2003: the Cornerstone Project.

The Media Institute, a nonprofit research organization that advocates a strong First Amendment and excellence in journalism, is the organizer of the Cornerstone effort. Through public service announcements for print and broadcast media, traveling exhibits and publications, articles and op-ed pieces and a national symposium in Washington, D.C., next September, the Cornerstone Project is a worthy attempt to guide Americans to value and understand the importance of the First Amendment.

As Fritts said at the Cornerstone's launch shortly after the Freedom Forum conference, "Broadcasting as we know it in the United States would not exist without a strong First Amendment."

Radio broadcasters who hear from vociferous critics about their most popular hosts — who may push the line of "decency" from time to time — no doubt will support the Cornerstone Project wholeheartedly. But all terrestrial broadcasters, especially those who are or soon will be on the Internet, should be attentive and supportive of the Cornerstone Project.

Watch your mailboxes. The Cornerstone Project soon will send radio broadcasters an invitation to join their efforts.

Accept and join the fight.

— RW

the conversion to digital broadcasting.

Why not leave things as they are on the AM band? We don't need a system that depends on sending a digital stream to your receiver, only to be disrupted by natural and man-made noises.

Can one imagine the receiver switching from digital to analog? Oh boy!

What if the switching time has a delay? Picture this: mid-summer, lots of static crashes, and you're listening to a station transmitting IBOC. And this promo comes on, kinda like the AMAX promos. Each time there's a static crash, you hear something like this:

"Welcome to the w——ld of IBOC. Hi—— qualit—— digital AM S——. Today's new super tech——gy!"

The "——" means loss of information. Instead of hearing the static crash and making out the program content, you hear nothing. I doubt the receiver would pop over to analog and back to digital that quick.

End result: loss of more listeners.

What needs to be done for AM is a push for better receivers. The technology

is there. Ham radio operators have access to this in new and improved transceivers with DSP.

While we're at it, let's make AM stereo receivers standard equipment. FM stereo is standard, why not AM stereo? What do we do to halt this nonsense on the airwaves?

Bob Carter

Operations/Engineering

Ray-DIO biz

Elizabeth City, N.C.

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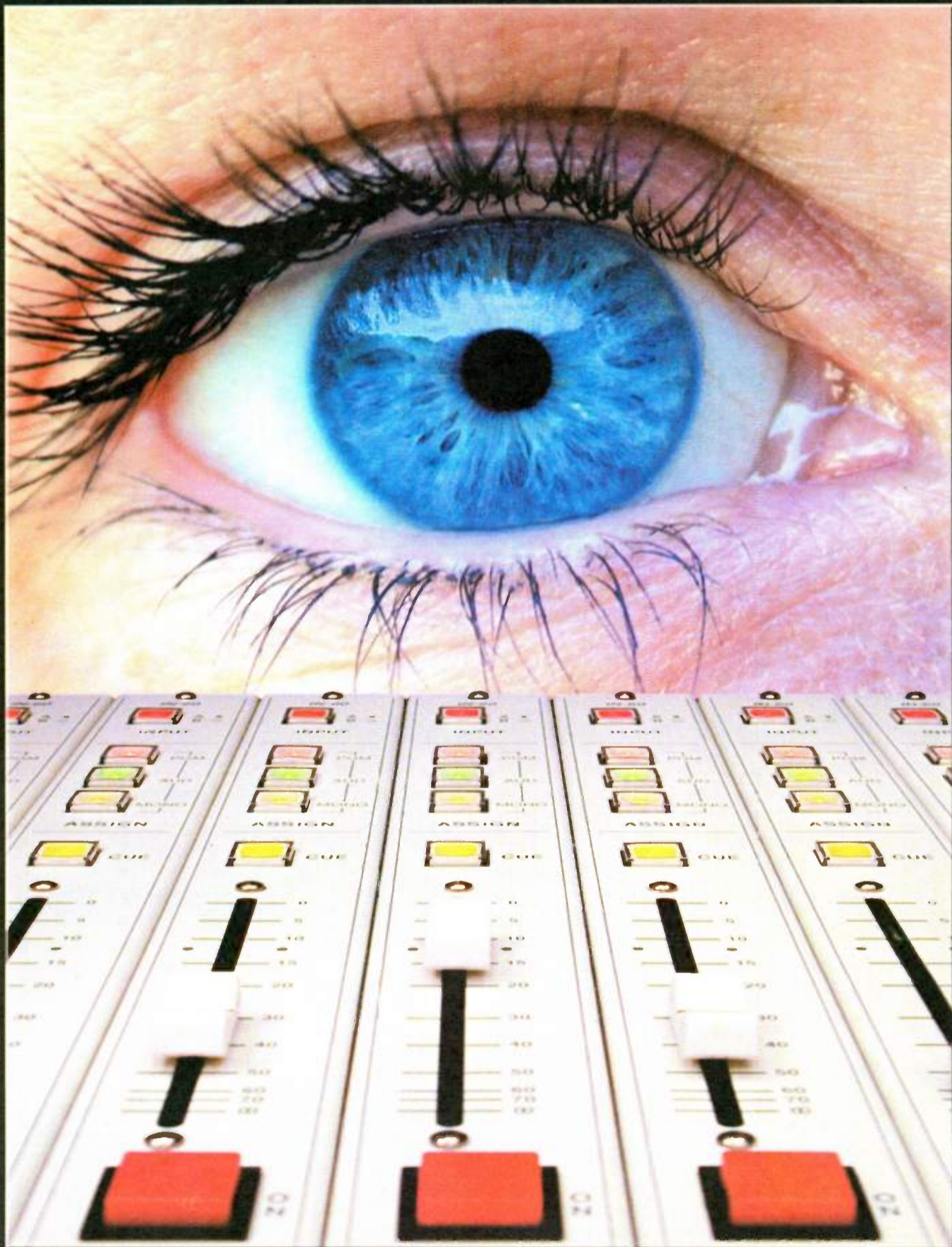
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