

# Radio

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July 2007  
RadioMagOnline.com



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Inside  
the new  
Tom Joyner  
studios

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for automation

### FIELD REPORTS

Adam A7 and  
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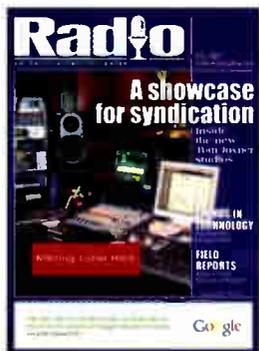


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# Currents Online

Selected headlines from the past month.

## FCC Seeks Comments on Sat Radio Merger

Petitions to deny, comments or informal comments had to be filed by July 9, and replies are due by July 24 in MB Docket No. 07-57.

## Crown Celebrates 60 Years 🔄

Indiana minister Clarence C. Moore founded the company to build reel-to-reel tape recorders for Christian broadcast missionaries to use in remote regions of the world.

## Radio magazine featured in NAB Radio Techcheck

The NAB's June 18 Radio Techcheck newsletter featured the *Radio* magazine Engineer's Notebook section of the *Radio* magazine website.

## FCC Adopts Order Implementing Katrina Panel Recommendations

On May 31, the Federal Communications Commission implemented various recommendations of its independent panel reviewing the impact of Hurricane Katrina on communications networks.

## FCC Releases Second R&O on EAS

The order now requires EAS participants to accept messages using the Common Alerting Protocol (CAP) no later than 180 days after FEMA announces its adoption of standards.

## Music First Coalition Seeks Radio Airplay Royalties

The group's website states that, "Corporate radio has had a free pass for too long." The group wants commercial radio stations to pay performers for playing their music on the air.



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## Site Features

### Enter the Calendar Photo Contest

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### Industry Events

Summer is here, and the fall conventions are in the works. Check the *Radio* magazine Industry Events section to make your plans to attend an upcoming convention or conference.

### Technical Glossary

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## Satellite radio merger? Why not?

**F**ollowing its June 8 request for comments on the proposed merger of Sirius and XM, the FCC's clock has started ticking. Comments and reply comments are due this month, and the overall process has about a six-month window to complete its path through the FCC. Sirius and XM have been waiting for the process to begin, and they repeated that sentiment after the request was issued.

Meanwhile, special interest groups and consumer news outlets continue to add their voices to the debate. Some support the merger; some oppose it. One vocal opponent is the National Association of Broadcasters (NAB).

The NAB has placed print ads opposing the merger, and recently launched a website to promote its stance at [xmsiriusmonopoly.com](http://xmsiriusmonopoly.com). The site includes article links, comments and testimony that oppose the merger. The NAB states its case thoroughly. I think it states its case too thoroughly.

In a Radio Currents news item posted online at [RadioMagOnline.com](http://RadioMagOnline.com) in May, I referred to the NAB activities as a witch-hunt. Needless to say, some people at the NAB didn't like that reference, but that is how I see it.

When the merger announcement was made, it caught everyone's attention. Everyone questioned the move as the obvious antitrust and monopoly arguments were raised. But Mel Karmazin's discussion during the press conference made everyone think that there might be a chance that the merger could be allowed. Obviously the NAB is concerned about the possibility, as is evidenced by the association's full-court press with a blitz and all the heavy artillery at once. I don't think I have ever seen such a relentless fight from the NAB.

After more investigation into the merger idea, I don't believe that it will pass. My conclusion has nothing to do with the NAB's barrage, either. The antitrust element seems solid, and the provision in the FCC licenses that forbids a merger is established. Regardless, I am interested to see how XM and Sirius play their hands as more questions are asked.

So why is the NAB so vocal about this? When radio station owners want to reduce ownership limits, the NAB is right behind the idea. Granted,

it's not a pure monopoly, but it comes close in some markets.

The NAB touts several items as being trouble spots. It claims that satellite radio subscription fees could be raised. That's a non-issue. If the combined company wants to raise its rates, let it. It will likely lose subscribers. The rates will settle at a comfort point without the forced competition.

The NAB says that the merger will limit programming choices. Terrestrial radio consolidation hasn't helped that fight either. But if the sat radio merger will limit programming choices, terrestrial radio should benefit from the returning listeners.

The NAB wants to call attention to the XM and Sirius FCC violations of the past. I would like to see the NAB be as diligent with its own member stations. I'm sure that there are a few stations that operate outside the parameters of their licenses, or have incomplete Public Files, or have missed an EAS test, or have violated indecency rules.

The NAB maintains that satellite radio does not compete with other forms of audio media. I think that's a myopic view of consumer listening habits, but let's consider the idea. If satellite radio competes only with itself, why should the NAB care? The NAB represents terrestrial radio stations. What happens when cell phone company providers merge? Cell providers are trying to deliver audio content via handsets, and that makes it a form of radio. I guess that service won't compete with terrestrial radio either.

I have picked on the NAB here, but it's not the only sat radio merger opponent; it happens to be the most vocal. So what is the NAB afraid of? More generally, what are radio stations afraid of? If terrestrial radio is so strong and vibrant, then one less choice in satellite radio providers shouldn't make a difference.

*Chris Scherer*

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World Radio History

## Being duly diligent in station operations

By John Battison,  
P.E., technical editor, RF

I want to address the people in a radio station engineering department who are responsible for ensuring that the station is operating in accordance with the terms of its license. In the past the term "chief engineer" was always meant the head of the engineering department. However, about the time when the technical qualification requirements of personnel operating radio transmitters were reduced and almost eliminated, the FCC introduced a new title: chief operator.

There has never been a mandated FCC requirement for a chief engineer. The term, however, has been in common use since radio stations had large engineering staffs and station management actually realized the value of the work that the engineering department performs. Today, engineering services and costs are regarded as liabilities and rarely appreciated—until the transmitter dumps and commercial revenue ceases. Then the engineer is called in to repair the transmitter.

The chief operator's responsibility is to take responsibility for the station's technical operation. In certain situations, the chief operator must be a full-time employee of the station and cannot be a contract engineer. Outside of that limitation, anyone can be appointed chief operator regardless of technical ability. The important thing is that a memo is published and on file specifying the appointment as chief operator. Often this memo is overlooked and results in a fine.

Let's discuss what a new chief engineer should do on arrival at his new station.

A person taking over as a chief operator will find a wide range of items that must be checked and operating values that must be kept within limits. This information is contained in the FCC Form 302 (Application for Station License). Additional data is contained in the Engineering Report, which forms part of the official application for license.

To protect his integrity, the new chief operator should ask for all licenses and applications that have been filed in connection with the operation. These must be checked against all operating transmitter systems. Don't forget to include STL and RPU licenses with recent FCC rulings and notices. Any discrepancies must be corrected and records made of the action taken. Much of the work involved with station licenses includes voluminous record keeping and the maintenance of paper trails demonstrating efforts to comply with FCC requirements. Time spent doing this will reduce future headaches.

In connection with checking paperwork, make sure that temporary license modifications are not in force. It is not unusual for a station to be authorized to operate at variance from licensed parameters. This usually means that something is awry in the antenna or transmitter system and it is not possible to achieve the licensed values. A notice from the commission is the usual method of notification and authorization. I have found that these are often misplaced or not available when an inspector appears. Special temporary authorizations (STA) are usually handled in the same way, and once again it's important to have paper proof of the commission's approval.

**All station authorizations should be up to date and posted in an obvious place.**

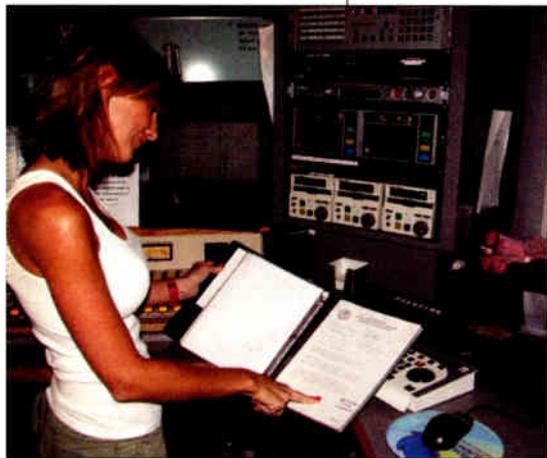
### Check the paperwork

Every station has a precious piece of paper called a station license. In many stations, it is hard to find the most current one. The license provides the authorization for the operation of the transmitter and it must be immediately available, either displayed on the wall or filed in an identified and clearly available folder.

The FCC Rules state that the technical data requested by an FCC inspector must be immediately available. Someone at the station must know where the material is and how to get it. The chief engineer is the natural choice for this responsibility, but it inevitably falls to the chief operator.

### Testing, testing

A frequently overlooked item is EAS tests. I've visited too many stations where I have found far too many logs that failed to show reception or transmission of the prescribed test. Worse still, there was no explanation given of the failure to follow the rules and the actions taken to prevent future failures. Often a simple statement such as "new operator, repeated EAS instructions and gave more written instruction" will earn forgiveness from an inspector. Completely ignoring the blank log space, however, can lead to expensive trouble. Time taken on arrival at a new station to go over current logs can often pay good dividends.



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# Moseley

Stations must maintain all operating parameters within the limits of the license, especially for AM directional stations. I have found that the best way to start is to ensure that the transmitter and antenna system are operating in accordance with the licensed values, preferably at mean values so that there is room in the control range to take up variations in component values.

When you are satisfied that the antenna base operating impedance or common point impedance is correct, check the

antenna base operating current or common point operating current. Do this after adjusting the phasor controls to the licensed operating parameters. When you are satisfied that the system is properly adjusted, take the field strength meter and visit all the official monitor points. If the monitor points fall nicely within limits, you can feel safe that the system is operating as licensed. It is also important to show maximum and minimum legal common point or base operating current in an easily visible and convenient location.

Nondirectional stations rarely have monitor points to check, but there could be exceptions. That's another reason for demanding all engineering and FCC license documentation when taking over a new responsibility. If there are no official designated field strength specification points, one can take informative measurements based on the theoretical service column shown in the original application.

While you're investigating AM field readings, also check that the required NRSC measurements have been made and are on file.

The need to check tower point colors and the lighting system is obvious. Photo cell operation and flash repetition rate require collaboration and verification, and any special or unusual operating requirements contained in the license should be verified as to being in force.

Station management expects to be able to rely on chief engineers and their staff. If engineering personnel offer information and suggestions to improve operations and the bottom line, management will appreciate the value of competent technical personnel.

E-mail *Battison* at [batcom@bright.net](mailto:batcom@bright.net).

Photos by Ben Weiss, CPBE, of KMXV, KCKC, KFKF, and KBEQ, Kansas City.



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# New directional measurement techniques proposed

By Harry Martin

**T**he FCC has requested comments on a proposal to let some, but not necessarily all, AM directional applicants use moment method computer modeling to demonstrate that their directional antennas perform as authorized. The proposal was advanced by a coalition of broadcasters, manufacturers and consulting engineers in May, following several months of meetings and deliberations. The idea is to reduce the burden on AM applicants and the commission's processing staff by eliminating the need to conduct and analyze field strength measurements of directional arrays to verify proper performance.

Historically, the commission has required directional AM applicants to undertake elaborate, labor-intensive measurements to confirm that their arrays are within licensed parameters. Those measurements are then sent to the commission, where staff members review them as well.

But moment method computer programs (also

Meanwhile, the commission has amended its rules to clarify the circumstances and time frames in which a directional AM station must act when it runs into antenna system problems. Two rules—Sections 73.62 and 73.1350—have historically provided conflicting directions. Under the new versions, Section 73.62 requires an AM licensee to identify and address directional antenna problems within 27 hours when operating parameters exceed  $\pm 15$  percent sample current ratio or  $\pm 3^\circ$  phase tolerances required by the rules, or when any monitoring point field strength exceeds 125 percent of the licensed limit, or when the operation at variance results in interference complaints. And Section 73.1350, which requires a scant three-minute response time, will now kick in when the operation at variance poses a threat to life or property or is likely to significantly disrupt the operation of other stations. Variant operations not covered by Section 73.62 or the three-minute provision of 73.1350 must be addressed within three hours.

## Dateline

Aug. 1 is the deadline for radio stations in California, North Carolina and South Carolina to file their biennial ownership reports.

Also on or before Aug. 1, North Carolina and South Carolina stations with more than 10 full-time employees must file an interim EEO report with the FCC using Form 397.

Aug. 1 is the deadline for radio stations in the following states with five or more full-time employees to place their annual EEO reports in their public files and post them on their websites: California, Illinois, North Carolina, South Carolina and Wisconsin.

referred to as Numerical Electromagnetic Code or NEC programs) permit the accurate calculation of actual performance based on certain internal antenna parameters, such as current and phase. The coalition also created draft rules that would permit the use of moment method modeling to assess the effect of nearby reradiators on the pattern.

The coalition's proposal, which is supported by 20 group owners and 10 consulting firms, was submitted to the commission in connection with its long-running inquiry in AM directional antennas (MM Docket 93-177). While not all AM applicants would be eligible to use the proposed modeling approach, it appears that the approach would still save considerable time and effort throughout the industry.

## 90-day lighting inspection rule waived

The FCC has waived the rule requiring that towers subject to lighting requirements be inspected at least every three months to confirm that their lighting systems are operating properly. The waivers apply to tower companies using lighting systems developed by Flash Technology (the Eagle Monitoring System) and Hark Tower Systems. Both systems include alarm notifications set to alarm response centers, automatic 24-hour polling of all tower sites using the systems, and capability for manual contact and diagnostic review of any tower in the system. These systems are backed up through network operations call (NOC) centers.

In granting the waivers the FCC noted that it is working on a rulemaking that would grant exemptions to the 90-day inspection rule for towers employing NOC-based technologies. In the meantime waivers will be granted to others using this technology.

*Martin is a past president of the Federal Communications Bar Association and a member of Fletcher, Heald & Hildreth, Arlington, VA. E-mail martin@fhhlaw.com.*

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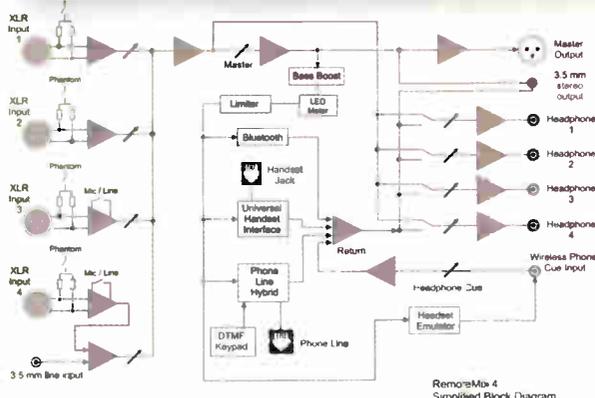
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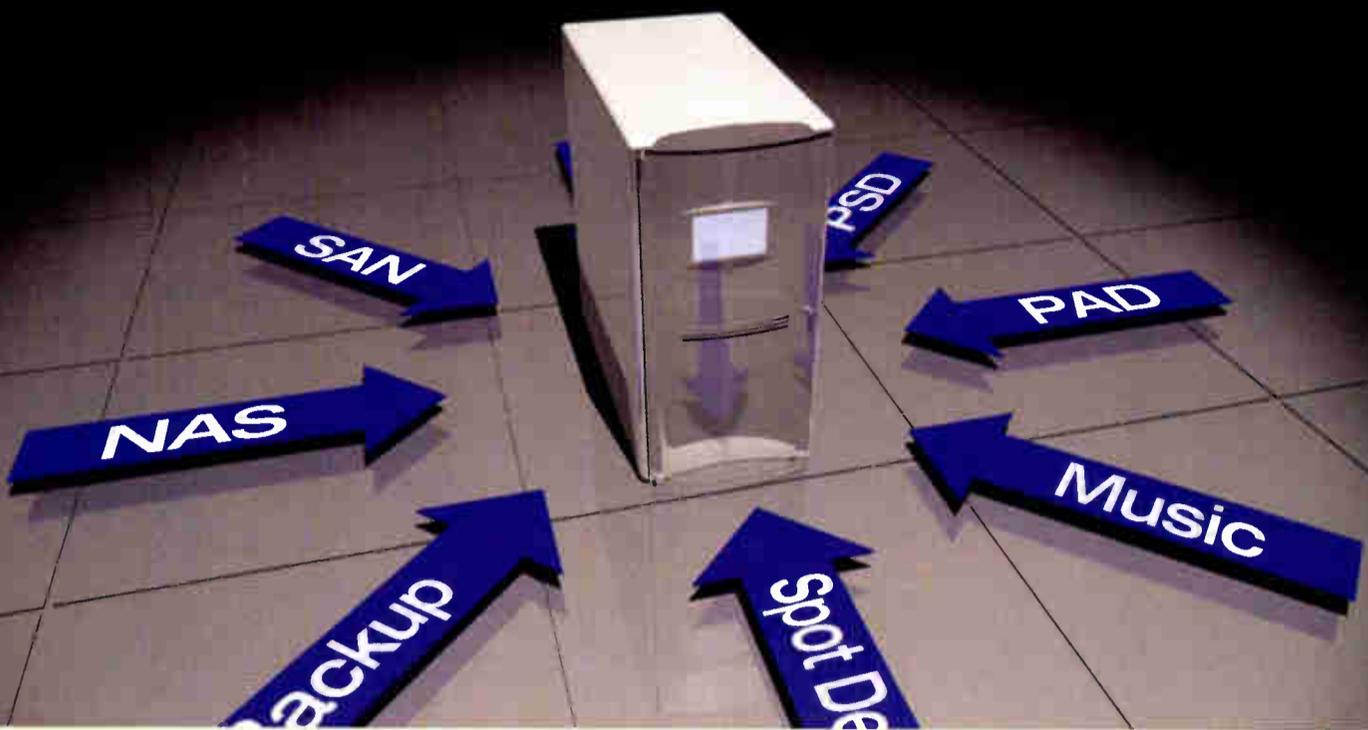
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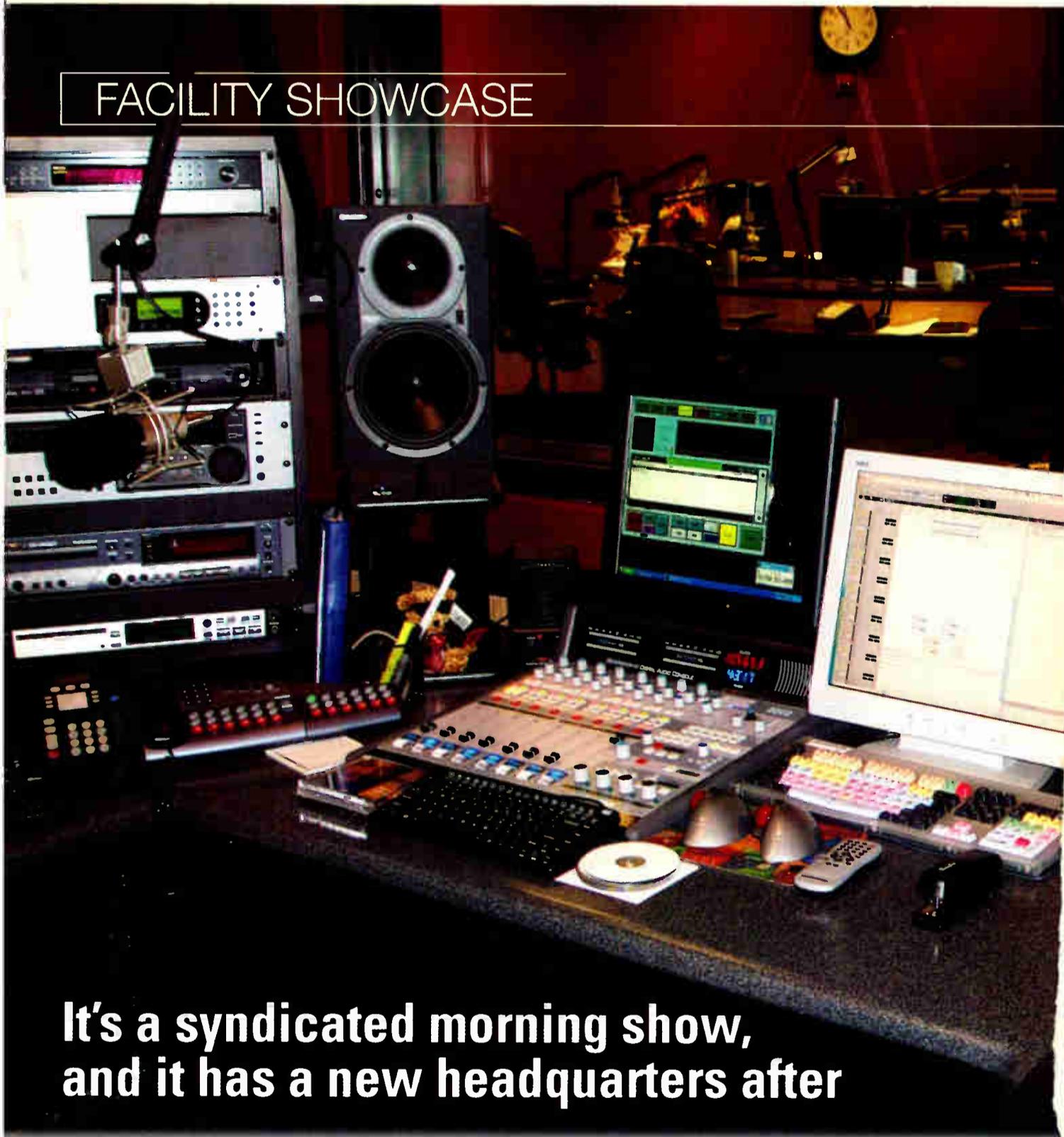
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## TRENDS IN TECHNOLOGY



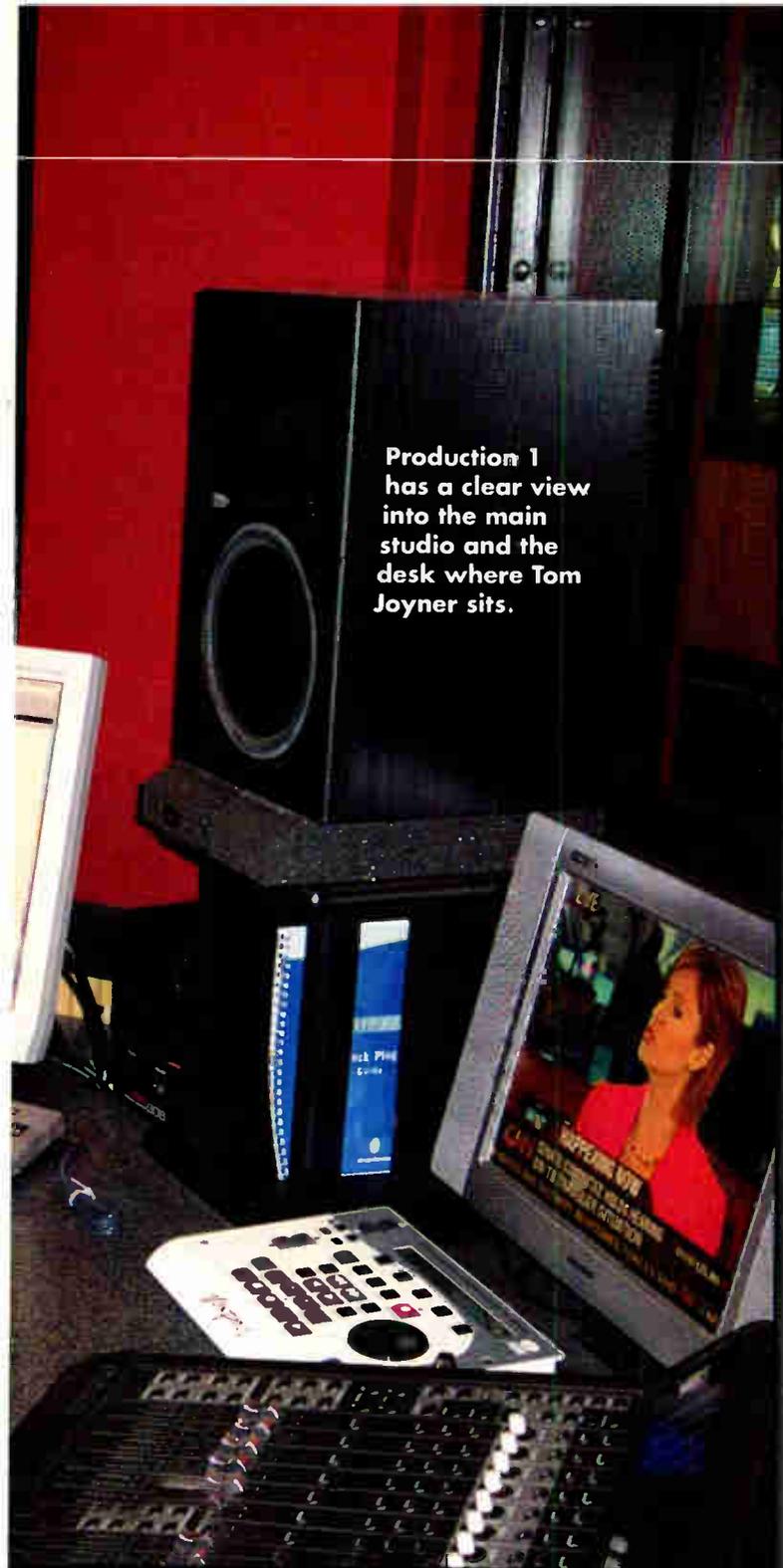
## FACILITY SHOWCASE



It's a syndicated morning show,  
and it has a new headquarters after

# Building a showcase

By Kent Kramer, CBRE



**Production 1  
has a clear view  
into the main  
studio and the  
desk where Tom  
Joyner sits.**

**F**or most engineers, building a showcase studio can be a once in a lifetime opportunity. I've been lucky to be involved in a couple of them during my broadcast endeavors, but my last project was the biggest to date and will probably be the biggest of my career.

The Tom Joyner Morning Show has been housed at ABC Radio Networks in Dallas since it became a syndicated morning show about 14 years ago. The studio it occupied had been its most current home for about the last 10 years. After that much time in one studio, it was time for something new. The old studio was holding up great but the show had outgrown it.

When Joyner formed Reach Media to be the new parent company for his show, he made the decision to build a true showcase studio. It would



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# Building a showcase

the tech center end down to custom fit the cables. Because I had to order the Studio Hub parts before our final cable paths were in place the lengths were in question. Ordering them all one length allowed us to keep the cables dressed in the furniture and use the factory installed connectors in the tight areas under the furniture but still dressing the cables in to a custom length and punching them down to the Studio Hub panels on the back wall of the tech center. It also allowed us to get to runs from each cable with minimal excess cable.

The patch panels make quick work of cross connecting sources and destinations. The biggest lesson learned with Studio Hub—and



**The voice-over booth has three Heil PR 40 mics and Aphex 230 mic processors.**

it was something that I already knew but forgot just once—is that you cannot run any unbalanced source through it. When you do it you'll hear it and you'll know where it comes from right away.

My only other issue with Studio Hub is that no matter how you plan, the cross connect cables are always either too short or too long. Short

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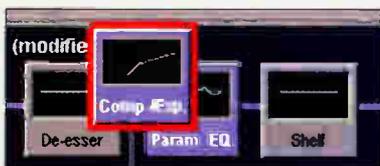
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## Joyner Studio Equipment list

Adobe Audition  
Aphex 230  
Audion Labs Vexpro  
Broadcast Electronics Audio Vault  
Broadcast Tools SRC-8III,  
PBE, WVRC-8  
CDQ 220 Prima  
Comrex Matrix, STAC  
Digidesign Pro Tools HD  
ESE clocks  
Eventide BD-600E  
Harris Intraplex T1, World  
Feed Panel  
Heil PR 20, PR 30, PR 40,  
PL-2T booms, SM-2 shock  
mounts, DT-1/WM-1  
Henry Digistor, Matchbox-HD,  
Micromixer  
Mackie HR-824  
Moseley Starlink T1  
OMT Imediatouch Imedialogger  
Powerware 9125 UPS  
Radio Systems Studio Hub+  
Raritan Paragon II KVM Switch  
Studio Technologies furniture  
(production and master control)  
Tascam CD-01U, CD-RW901  
Telos Zephyr Xstream  
Tieline Imix G3  
Wheatstone Bridge Router, G6 G9

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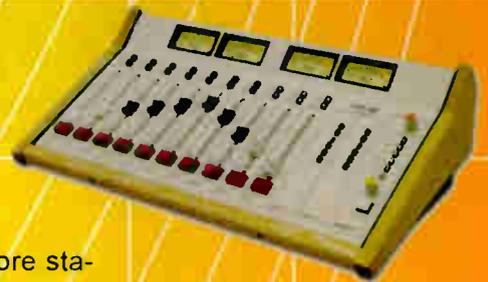
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# Building a showcase

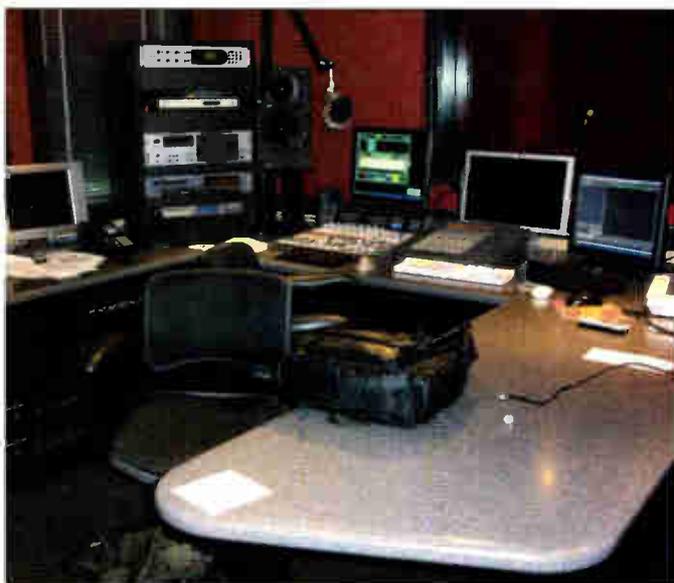


**Another view of Production 1 with the Wheatstone G-6, Audio Vault AVRPS screen and Pro Tools HD system centered for the operator's convenience.**

is easy to fix but it always seems to be fixed into the too long category. Be prepared to have excess cable to deal with. Extra long service loops and wire duct are helpful in hiding the excess.

## Centered on the affiliates

Because we support 115 to 120 affiliates at any given time, being on the air is critical. Redundancy was added wherever possible and more is planned. Each equipment rack in the tech center has a 3kVA Powerware UPS with an extra



**Production 2, centered around a Wheatstone G-6 with the Audio Vault, Pro Tools and DAW screens, faces into the voice over booth.**

battery module. The control room also has one in the room. In the next couple of months we'll be installing a generator that will be able to carry the entire facility.

The Audio Vault features dual redundant servers and 3.2TB of storage to cover the years of archive material that we have at hand. All audio going into the Audio Vault is in real time and is linear. Unfortunately in today's world linear audio is not always possible. With the proliferation of MP3 audio and the vast number of free or inexpensive audio editing software packages it is difficult to control a lot of source material. By keeping the Audio Vault linear at least we can control content we create. The music library was dubbed in real time to correct for level and channel differences where appropriate.

Since moving into the new studio in January we've suffered from massive growing pains. Being in a studio for 10 years under the care of a team of highly talented engineers and then picking up and moving to a brand new studio under the care of a single person has caused some serious retooling of the show from behind the scenes.

Adapting to the new hardware, new software, new facility and making the overall break from "the way we did it" has been one of the biggest tasks undertaken. Keeping our growth as transparent to the listener as possible while keeping our affiliate family happy has always been one of the first and foremost thoughts on our minds. Not only was this a new studio, it was a new concept in a router-based facility, a new audio storage

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**The TJMS control room is built around the Wheatstone G-9. The Vox Pro, Audio Vault, Stac and other auxiliary equipment are naturally within easy reach of the operator.**

system. (we did not use Audio Vault in our ABC studio) and new consoles.

Having a documented plan for what we thought would be best moving forward made changes easier as we discovered how to best implement the technology. As a result, the studios we built represent the plan we devised.

possible today. One thing that has not changed is that adequate planning is still the key ingredient to a project. It's important to have a plan, document the plan and try to stick to the plan. Changes will occur but having a road map makes the changes easier to implement. 

*Kramer is director of engineering for Reach Media/Tom Joyner Morning Show, Dallas.*

## The technology behind Reach Media and the TJMS

### Comrex STAC

Studio Telephone Access Center (STAC) from Comrex puts you in control of your talk shows, call-ins and phoners with great sound, ease of operation and scalable configuration. STAC includes high-performance dual

digital hybrids with AGC and call ducking. A single control surface is included for basic operation, but up to four control surfaces may be used. The

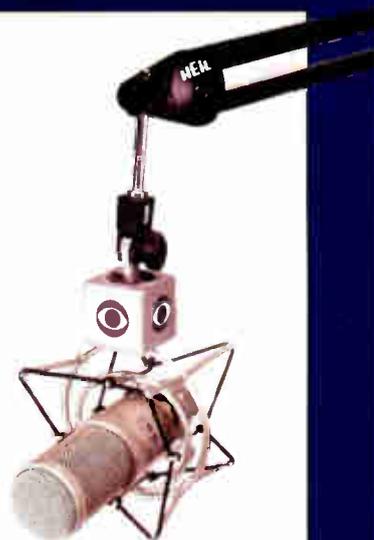
integrated call screening and control interface. STAC IP, is accessible from any networked computer using a standard Web browser. Auto Attendant will automatically answer incoming callers with a custom message and put them on hold. The STAC6 is configured for six lines and can be expanded in the field to a STAC12 for 12 phone lines. The new "Line Clustering" feature allows for sharing of lines between studios. In addition to being the call management system of choice for the Tom Joyner Show, STAC also received a *Radio* magazine Pick Hit award in 2004.

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### Heil PR 40

The Heil PR 40 is the first breakthrough in dynamic microphone technology in over 25 years. Assembled in America, the Heil PR 40 uses a unique combination of a large diameter diaphragm with a proprietary neodymium, boron and iron motor to deliver unequalled performance over the widest response ever: 28Hz. to 18kHz. All Heil microphones exhibit more than 40dB of rear rejection coupled with the internal hum bucking coil making the PR 40 the cleanest, clearest broadcast audio—ever. Mounted on the trademarked Heil PL-2 Topless boom and SM 2 shock mount, the mic brings spectacular performance to Tom Joyner's new studio.

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## Tips, tricks, hints and more

By John Landry, CSRE

### Think small

**H**ow many times has a simple problem or request turned into a major re-engineering project? It's often something that starts out very simple and then requires special mods and creative uses of hardware. Then you discover that one or more steps in the project calls for a tool you don't have (or even think exists). Usually tools make the job, but once in a while the job makes the tool. Here are some hints on where to find that tool.

Everything is smaller in electronics today. And any modifications you plan to make to anything usually requires getting into surface-mounted components. A watchmaker's glass (called a loupe) is ideal for this task, as are a watchmaker's tweezers and other tools. One source of these



tools is Frei and Borel ([www.ofrei.com](http://www.ofrei.com)).

The most useful tool I have found is the Optivisor, a stereoptic 10x magnifier that allows a working distance of 4". That's plenty of room to get the pencil iron in to tack a wire. The Optivisor sells for \$35, and it can be handy for many other tasks.

Another source for small tools and odd parts: your local hobby store. Most carry small tools for RC cars and other projects, and you'll be surprised at the items you might be able to use for other purposes.

### No duh

**L**et's face it: You can't remember everything. I keep a looseleaf binder on my bench that I call my *Duh* Book. In it I have pages of infrequently used, but important information. Cable color codes, serial data pin-outs, conversion charts for tape EQ curves and other items are there for ready-reference. It's a always ready 24/7 and there are no 404-page not found problems.

The most basic of basic rules can be forgotten in a crisis (isn't everything a crisis?) and that even

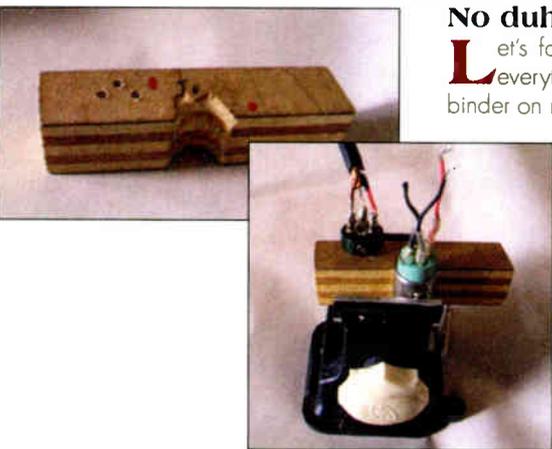
includes how to wire the XLR connector. There are many methods to remember which pin gets which wire: George Washington Bridge (G.W.B) for green/white/blue, or solid rocket booster for shield/red/black. However, remembering which pin is 1, 2 or 3 in that triangular format is a mental block for some folks.

I solved this problem with Landry's Patented XLR Clamp. (It's not really patented; I just call it that.) Take a scrap of wood and drill a 1/2" hole through it. Then saw it in half down the center of the hole. This is now a perfect securing tool for the female XLR. With the addition of three 7/64" holes spaced like the male XLR pins, you will also have a steady place for that connector as well. With some red or white paint, mark where the appropriate wire goes. Now you will be able to correctly make them in your sleep.

### Baked magnetics

**B**y now, most of us have seen how old tapes can start to shed, which makes them impossible to play (and actually destroys them). Often some old bit from a tape has to be re-used, and most production people today have little or no experience with tape. Typically they come to engineering for guidance (sometimes blaming the tape machine). And they always need the tape right now.

Sticky shed can happen to any tape at any age from any manufacturer. It is caused by moisture and can be cured by drying the tape slowly. There are several time and temperature recipes listed in the Engineer's Notebook at RadioMagOnline.com, and most require a convection oven. However, David Josephson at Josephson Engineering has a method to build your own baking chamber: [www.josephson.com/bake\\_tape.html](http://www.josephson.com/bake_tape.html). Print it, and have it ready. In fact, put it in your *Duh* Book. 📖



Landry is an audio maintenance engineer at CBS Radio/Westwood One, New York.

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## Adam Audio A7

By Ron Bartlebaugh,  
CBNT

I remember my days of working at a high-end home audio retail store in the early 1970s when a new speaker brand named Heil showed up at our door. The Heil electrostatic speaker system (ESS) featured a ribbon tweeter that reproduced an incredibly smooth and bright high-frequency response. The speakers were unlike others we had on display that used the more typical dome or horn tweeters. I haven't seen much of the ribbon tweeter technology since then—until now.

Adam Audio has taken the original ribbon tweeter technology developed by Dr. Oskar Heil to a new level of perfection. The company's Accelerated Ribbon Technology (A.R.T.) utilizes a membrane consisting of a lamella folded diaphragm. The single folds of the diaphragm move according to the applied audio alternating current to squeeze air in and out. The squeezing of air is unlike other conventional voice coil products that act like a piston to move air at a 1:1 ratio. The A.R.T. folded diaphragm technology moves air at a 4:1 velocity, thus creating an airflow that is four times greater than the velocity of the diaphragm movement. That effect produces an extremely clean sound with great transient reproduction. Adam Audio uses eight neodyme magnets of the

at the upper edges of the baffle to reduce diffraction from the cabinet's corners.

In addition to an A.R.T. tweeter, the cabinet also houses a 6.5" low-frequency driver that utilizes a new cone material consisting of a woven Rohacell/carbon-fiber sandwich to combine high rigidity and high internal damping with low weight. The low-frequency driver, with its soft roll-rubber surround, produces excellent detail and clarity with good imaging. Early production cabinets were not magnetically shielded. My test pair also was not magnetically shielded; however, the A7 cabinet now comes with a complete magnetic field shielding system.

### Power up

The A7 includes two 50W RMS power amplifiers. One amplifier powers the low-frequency driver, and the other is dedicated to the folded diaphragm ribbon tweeter. The internal crossover frequency of 2.2kHz provides a very smooth transition. Rear-panel amplifier inputs are analog balanced XLR or unbalanced RCA. The rear panel also supports three trim pots: one for tweeter level with an adjustment range of  $\pm 4$ dB and two for low- and high-frequency shelving filters (150Hz and 6kHz), each with an adjustment range of  $\pm 6$ dB. The shelving filters may be of great assistance in aligning the speaker output to a studio room's acoustics when using a pink noise source with an accurate reference analyzer. I found no need for the shelving filters in my test space, which has good acoustical properties. The front baffle of the speaker cabinet houses the system's on/off power switch, a subtle LED power indicator and a low-profile volume control with a nice linearity curve.

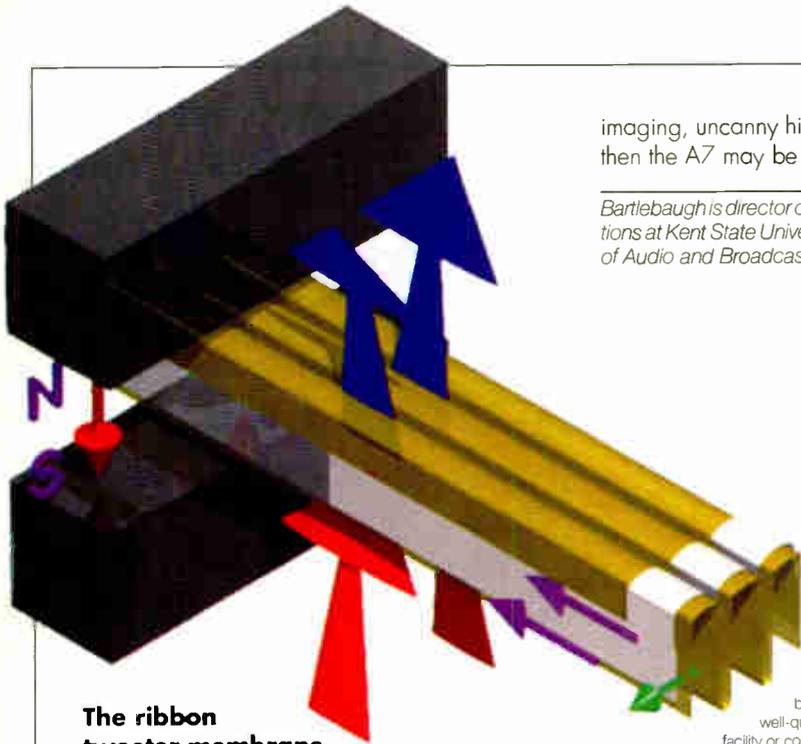
The A7's compact cabinet produces an incredible maximum sound pressure level (SPL) of more than 105dB at 1m with a published THD of less than 1 percent at frequencies above 80Hz. Maximum musical peak SPL at 1m when using a pair of the A7 cabinets is specified to be more than 116dB. The A7's frequency response is 46Hz to 35 kHz

## Performance at a glance

- Small footprint
- High SPL
- Transparent sound
- Two on-board amplifiers
- Rear panel equalization controls
- Excellent imaging
- Unique high frequency clarity

greatest strength available in order to gain the efficiency required for best overall performance. The company's effort to redefine Dr. Heil's ribbon tweeter technology has led to a tweeter design that is superior in musical clarity and transient reproduction.

The company utilizes the A.R.T. in its broad line of studio monitor speakers, including the model A7, which was provided to me for review. The A7, intended for use as a nearfield monitor, is a bass reflex cabinet measuring 7" x 13" x 11" and weighing 17.8 pounds. The sturdy cabinet is built from thick medium-density fiberboard and sports a black paintwork with chamfered sections



**The ribbon tweeter membrane is a folded diaphragm that produce sound waves by squeezing air instead of the traditional piston-effect of a dome tweeter.**

imaging, uncanny high end and a tight low end then the A7 may be the product for you.

*Bartlebaugh is director of engineering for the WKSU Stations at Kent State University in Kent, OH, and president of Audio and Broadcast Specialists, Canton, OH.*

## Adam Audio

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±3dB. The company offers a two-year warranty on the speaker.

My A7 listening tests brought back even more memories of my days spent with the Heil ESS speaker system. Stereo imaging was tremendously accurate and yielded a wide sweet spot. As expected, the high frequencies were incredibly clean and well-defined—even better than some larger and more costly speakers that I have heard.

I wasn't sure what to expect from the 6.5" woofer; but I was pleasantly surprised. The low-frequency response was accurate and smooth, representing what appears to be a well-tuned cabinet. As expected, the A7 isn't going to produce kick-thumping bass, but it does give rise to astonishing reproduction accuracy throughout the audio frequency range with low-end response noticeable well below 100Hz. The midrange audio appeared to be suitably aligned, with any artifacts resulting from the use of a 2.2kHz cross-over frequency being unnoticeable. This speaker system produces an admirable sound level for nearfield monitor use and enables the user an opportunity to monitor audio with accuracy.

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# Sony Sound Forge 9.0

By Chris Wygal

**A** true story: In the early 1990s there was a local AM station outfitted with cart decks, reel machines, and a turntable or two. One day a part-time board operator took his personal PC to work loaded with basic audio editing software.

He patched the machine into the production console and proceeded to work without using the reel machines or cart decks. The general manager saw the computer and asked the part-timer, "How do you plan on using that thing?"

Now nearly 20 years have passed, and the general manager's question has most likely been revised. "How do you plan on *not* using that thing?" The radio industry has accepted the desktop computer with open arms, and non-linear editing capabilities have changed the way we do everything (except for a few rare, die hard voice-over guys from yesteryear who still use the splicing block and razor blade). Radio production and voice talent sound better than ever,

track) needs. The new 9.0 interface works in tandem with video files or 5.1 audio files where more than two stereo tracks are recorded. However, for the sake of this discussion, we'll focus on traditional stereo audio, and how Sound Forge 9.0 meets or exceeds the editing needs of the radio production facility.

## A passing glance

The software's main window displays standard audio editing necessities, made available by clicking in the menu bar, standard tool bar and transport bar. The familiar record, play, pause, rewind and fast-forward transport buttons are readily accessible to help move quickly through the audio file. All of the Sound Forge 9.0 tool bars can be docked, resized, or hidden anywhere within the workspace to help customize the user's need for commands and functions. Having tool bars like "effects" and "process" docked make many of the popular Sound Forge 9.0 functions readily available. For example, when repeatedly working with equalization, the "process" tool bar would be used frequently, so docking it is important. The software comes standard with the expected cut, copy, undo and redo, zooming and saving functions. Essentially, a novice non-linear editor can easily navigate Sound Forge 9.0, quickly customizing it per his or her needs, and an experienced editor will find Sound Forge 9.0 intuitive. A few minutes of experimenting will dissolve the initial anxiety that usually accompanies new software purchases.

An endless list of features and techniques native to Sound Forge 9.0 could be made to describe all of what the software can do. If you're interested in that list, check out the index in the user's manual. However, there are several features worth mentioning. Namely, the plug-in chainer allows the user to monitor (in real time) the applied effects to an audio file. The chainer can be saved, edited and customized as needed, but requires adequate processing resources. The "pre-record buffer" protects the user from missing the start of an event to be recorded. Based on a preset level threshold, Sound Forge 9.0 can commit recorded audio to disk prior to the user

## Performance at a glance

Windows Vista compatible

Includes noise-reduction plug-ins and Mastering Effects bundle

Adjusts parameters in real time

Phase Scope metering software

Adjustable volume and pan envelopes

Includes CD Architect 5.2

and equipment racks are becoming increasingly dusty. Lately, the rack-mounted equipment in a typical production studio is overshadowed by a plug-in package.

The development of PC or MAC-based non-linear editing software has permeated the broadcast market with option after option for creating a digital audio workstation (DAW). The encouraging fact for many is that the software packages available today are affordable. Most can be purchased with plug-ins and tools for well under \$1,000. With that said, Sony is pushing forward in the production of powerful yet easy-to-use audio editing software. Sound Forge, a familiar name, has recently been improved to Sound Forge 9.0, offering an onslaught of features for video and audio editors alike with multichannel (not multi-

hitting the record button.

The system can also repair audio glitches. Occasionally, digitized analog audio will produce unwanted anomalies, usually milliseconds in length. By using the find tool, users can locate glitches easily, and there are several techniques for eliminating them (interpolating, for example). Regions and markers allow for indexing the audio file. Different takes of a voice-over track can be marked for easier location. A region is a section of an audio file that can be used to identify a chorus or verse in a song, or to make notes in a project. How often has your workstation locked up in the middle of a project? Sound Forge 9.0 automatically creates a file that allows the user to recover any unsaved material and changes made prior to the crash.

In addition to the sample of features and techniques mentioned above, Sound Forge 9.0 allows users to define Scott Studios data commands for creating audio files that can be easily inserted in Scott's automation. Sound Forge 9.0 also employs a standard CD extractor and burner within the software. However, the software also comes packaged with CD Architect 5.2, a workhorse CD burning program that forces Red Book standards on burned CDs. CD Architect is worth its weight in gold for production facilities who want to carefully craft their CDs to work flawlessly for their clients.

### The nitty gritty

Once the user is familiar with the initial workspace and numerous functions and tools, it's time to delve into some of the Sound Forge 9.0 features. The system includes Sony Noise Reduction 2.0 and Mastering Effects Bundle by Izotope plug-ins. The noise reduction

EQ, mastering limiter, mastering reverb and multiband compressor functions, and it's Sound Forge's biggest step in letting production people fine tune their audio files and create competitive and punchy production.

The mastering EQ, limiter and reverb come with plenty of presets, with the option to create and save user presets.

## Sony Media Software

**P** 800-577-6642

**W** [www.sonymediasoftware.com](http://www.sonymediasoftware.com)

plug-in is especially powerful in eliminating unwanted hisses, hums and buzzes. By capturing the noiseprint of an audio file, Noise Reduction 2.0 pinpoints and reduces problem frequency levels while preserving the character of recorded material. In addition, the plug-in includes, as an example, the click and crackle removal tool (great for old LPs) as one of more than 40 Noise Reduction 2.0 plug-in functions. These functions are found in the FX Favorites menu and include noise gate, multi tap delay and compressor, along with many others.

The Sound Forge 9.0 meters aid in providing real-time visual reference during the editing process. The meters are dockable windows and include peak meter, PPM, phase scope and mono compatibility. Occasionally, for example, effects on vocal tracks can phase out on the air. The phase scope meter helps users monitor the content of a real-time audio signal to find phase cancellation among the channels in an audio file. The mono compatibility meter helps detect correlations or differences between the channels of a file that can cause phase cancellation when downmixing to mono. Ranges and scales can be set for each meter according to the user's preference and editing environment. The spectrum analysis tools have been updated for multichannel functionality, allowing the user to view frequencies and overtones of different channels within an audio file.

An absolute need in radio production (and engineering) is compression and limiting. The Mastering Effects Bundle offers mastering

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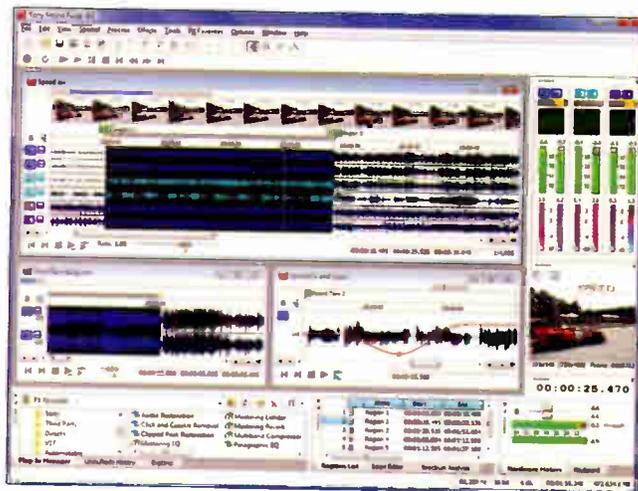


## FIELD REPORT

The four-band multiband processor works exactly like a typical air processor, with threshold, gain, ratio, attack and release settings, plus crossover point settings and master output gain. A multiband processor, when used correctly, can add more dimension and flexibility to audio crafting than that of a simple limiter. However, when using the multiband processing, EQ, reverb and limiting together, the results can be satisfactory.

### A few loose ends

The software's user interface is fully customizable, as users can select color options and save layouts to fit editing styles. The user interface elements, including waveform, selection, envelope colors and default window sizes, can be customized and saved. Plus, keyboard commands can be customized, saved or exported.



The operating screen provides access to all the operating controls, as well as a clear visual display of the project.

Users can adjust the wet/dry mix of effects by changing the envelopes in the data windows (envelopes are lines with moveable place mark points that represent the level of effects applied to an audio file) or by selecting and making changes with dialog boxes open. Either way, effects parameters can be tweaked on the fly.

Sound Forge 9.0 supports the Gracenote Music ID Media Recognition Service. When extracting audio from a CD, users can view CD information, including title, artist and album. Users can also submit album data.

Sony has made audio editing easy, affordable and effective without sacrificing attention to detail and the inclusion of the necessary tools audio editors need in the radio production environment. With Sound Forge 9.0 in the arsenal, strikingly professional audio production quality is an unavoidable end product.

Wygall is the programmer, engineer and Web designer for WRVL in Lynchburg, VA.

Editor's note: Field Reports are an exclusive *Radio* magazine feature for radio broadcasters. Each report is prepared by well-qualified staff at a radio station, production facility or consulting company.

These reports are performed by the industry, for the industry. Manufacturer support is limited to providing loan equipment and to aiding the author if requested.

It is the responsibility of *Radio* magazine to publish the results of any device tested, positive or negative. No report should be considered an endorsement or disapproval by *Radio* magazine.

## Low-power follow-up

**I**n the June issue, we ran a letter from Larry Fuss, the owner of Contemporary Communications and a resident of Nevada. Fuss took my advice and wrote a letter to Senator Harry Reid questioning the senator's action in pressuring the FCC to issue temporary authorization to Radio Goldfield to operate a low-power FM station, despite the fact that the station had previously operated as a pirate station. Senator Reid's letter to Fuss shows that the senator has little regard for the established FCC Rules and laws, and it appears that he is thinking only of his chances at being re-elected. The senator's letter follows.

—Chris Scherer

Dear Mr. Fuss:

Thank you for contacting me regarding Radio Goldfield. I appreciate hearing from you.

On June 10, 2006, the Federal Communications Commission (FCC) ordered Rod Moses, the owner of a low-power-FM radio station called "Radio Goldfield," to immediately terminate operation of the station pending proof of an FCC-issued radio license. Mr. Moses complied with this directive and ceased broadcast of Radio Goldfield.

Having grown up in Searchlight, I recognize the importance of local radio programming to rural residents. Radio Goldfield is Goldfield's only locally operated radio station, and residents rely on the station for vital local news and emergency information. For instance, the station broadcasts timely and reliable information on law enforcement, public safety and school activities that help residents stay informed and engaged in their community.

After hearing from more than 100 residents of Esmeralda County, who identified the significant community benefits that stemmed from Radio Goldfield broadcasts, I sent a letter to the FCC requesting a temporary license for Radio Goldfield until the Commission initiates a proceeding to authorize additional low-power FM stations. In January of this year, the FCC offered Radio Goldfield a temporary license after independently

determining the station's continued broadcasts served the public interest. The FCC response letter cites Section 309(f) of the Communications Act of



1934, which authorizes the commission to grant a temporary license in cases of extraordinary circumstances requiring temporary authorizations in the public interest.

Again, thank you for taking the time to share your thoughts with me. I look forward to hearing from you in the near future.

My best wishes to you.

Sincerely,  
Harry Reid  
United States Senator

# NEW PRODUCTS

www.RadioMagOnline.com

by Kari Taylor, senior associate editor

## Power amplifiers D.A.S. Audio



**Powerpro series:** The new amplifier range consists of four models built in 1RU and 2RU steel chassis. The series comprises four models: PS-200, PS-400, PS-800 and PS-1400. The PS-200 (12kg) and PS-400 (13kg) are 1RU tall and offer power ratings of 100W and 200W per channel at 4Ω. The PS-800 (18kg) and the PS-1400 (21kg), the largest of the amplifiers, are 2RU high and provide 450W and 700W per channel at 4Ω. The amplifiers offer XLR and 1/4" TSR connectors for the inputs and both Speakon NL-4 and binding posts on the outputs (PS-800 and PS-1400 only). Rear-located switches are available for ground lift, operational mode (stereo-bridge-parallel) and input sensitivity selection (0.75V, 1V and 1.4V). Each channel is individually protected against output short-circuits, overloading and overheating.

888-DAS-4-USA; [www.dasaudio.com](http://www.dasaudio.com)  
[sales@dasaudio.com](mailto:sales@dasaudio.com)

## Wireless portable PA system



### Avlex

**Mipro MA-101:** This wireless portable PA system is a UHF phase-locked loop system with 16 selectable frequencies plus automatic channel scan and targeting capability. It is available in two versions: one with a wireless hand-held microphone and the other with a body pack transmitter for use with Mipro's headworn and lavalier microphones or the MU-40GX instrument cable. The scan function automatically searches the local RF environment, identifies and then locks the receiver onto an available, interference-free frequency. The system is driven by a 30W internal amplifier. It accepts input from portable CD/MP3 music players or other line-level sources. There's a line out jack that facilitates hook-up to an external recorder to capture the unit's output or send the signal to a larger PA system. The device provides eight hours of continuous operation from its built-in rechargeable battery.

877-447-9216; [www.avlex.com](http://www.avlex.com)  
[sales@avlex.com](mailto:sales@avlex.com)

## Streaming service

### Jetcast

**Streaming service:** A new streaming technology, Jetcasting allows a station to have unlimited bandwidth at a fraction of the cost. All streams are scalable and secure. Stations retain 100 percent control of their streams and ad revenue. Users can even design a station player skin to add a logo and color scheme.

917-338-1487; [www.jetcast.com](http://www.jetcast.com); [team@jetcast.com](mailto:team@jetcast.com)

## Large diaphragm dynamic mics

### Heil Sound

**Fin, Flame:** The Deco Series of large-diaphragm dynamic microphones features two models: the Fin and the Flame. The Fin is a retro, all chrome mic designed for live vocals. The Flame is a multi-purpose instrument mic with a "big band" look, and for added visual effect, flames on its sides. The Fin offers the same dynamic element as the PR 20. The Flame is smaller than the Fin.

618-257-3000; [www.heilsound.com](http://www.heilsound.com)  
[info@heilsound.com](mailto:info@heilsound.com)



## Analog-to-digital converter

### Broadcast Tools

**ADC-1:** The ADC-1 provides 24-bit A/D conversion. The A/D converter may be configured for sample rates of 44.1kHz or 48kHz or an external word clock from 32kHz to 96kHz. It features balanced stereo analog input and AES outputs via plug-in Euroblock screw connectors. The front panel is equipped with left and right analog input trimmers, LED level meters and power LED indicators. The converter is powered by a surge-protected, internal bi-polar 15Vdc power supply. The unit may be set on a desktop, mounted on a wall or three units may be mounted on the optional RA-1 Rack-Able mounting shelf.

877-250-5575; [www.broadcasttools.com](http://www.broadcasttools.com)  
[bt@broadcasttools.com](mailto:bt@broadcasttools.com)

## Quick change solderless connectors

**Bird Electronic**  
**4200 series:**  
 The Bird 4200



Series offers Quick Change solderless connectors for hundreds of possible connector combinations. The new series of products allows users to quickly change the connectors for different applications while avoiding the need for special adapters, cables or additional units with custom connectors. Power capabilities for the loads and attenuators with the QC option range from 150W to 1.5kW and 3dB to 40dB for fixed attenuators in a DC to 2.5GHz bandwidth.

**866-695-4569; www.bird-technologies.com**  
**sales@bird-technologies.com**

## DRM exciter

### Broadcast Electronics

**AMD 10:** This modulator transforms an existing BE medium-wave transmitter to DRM operation. The new option supports all DRM modes of operation and requires no additional modification to the transmission infrastructure. The unit is offered as an add-on for BE's 4MX transmitter line and as a plug-in module for BE's A and E series transmitters.

**217-224-9600; www.bdcast.com**  
**bdcast@bdcast.com**

## Reflected noise eliminator

### West Coast Magnetics



**2.5kVA Noise Cut Transformer:** This transformer will eliminate reflected noise from a power source and can condition the power supplied to sensitive audio and production equipment. A 2.5kVA, 208Vac, 60Hz transformer is available for order immediately. The transformer incorporates a rack-mount chassis, emergency machine off circuit with on/off contactor, side-to-back forced air cooling and 80dB of noise rejection at 1MHz.

**800-628-1123; www.wcmagnetics.com**

## Recording booth

### Realtraps

**Portable Vocal Booth:** This device mounts on any microphone stand to create a highly controlled environment for recording vocals and spoken narration in acoustically hostile spaces. The vocal booth comprises a pair of 2' x 2' absorbing panels in a fully adjustable V shape. The integrated base attaches easily and securely to any microphone boom stand. The booth can also be placed directly on a table or other flat surface.

**860-210-1870; www.realtraps.com; sales@realtraps.com**

## Open frame rack

### Middle Atlantic Products

**R4:** These four post, open frame racks promote thermal management and support heavier, deeper, broadcast-critical components. The racks can be ordered in two styles. The open frame, four-post rack offers cage nut rackrail for servers or other equipment requiring cage nut mounting hardware, featuring a steel, four post design, 1,000lb weight capacity, and 100 6mm rack screws and cage nuts. The open frame four post rack with 12-24 threaded rackrail for networking, telephone and voicemail equipment, routers and switches, features an aluminum, four-post design, 2,500lb weight capacity, and 100 pieces of 12-24 threaded mounting hardware.

**973-839-1011; www.middleatlantic.com**  
**sales@middleatlantic.com**



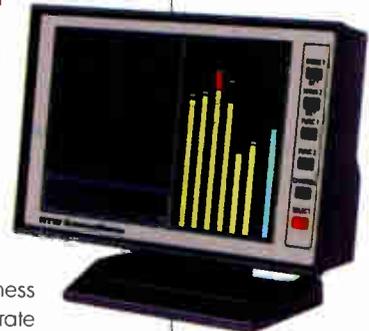
## Surround monitor

### RTW Radio-Technische Werkstätten

#### Surround Monitor 10600:

The digital six-channel surround monitor with Surround Sound analyzer and with VGA output monitors level, correlation, volume and balance of digital surround signals. The monitor offers a digital multi-standard peak meter for as many as six channels with integrated loudness display. Features include separate SPL/LEQU display, analyzer for 3/1 and 5.1 surround formats, sound balance and overall volume displays, and indicators for center presence and phantom sound sources. A 10-fold correlator with low frequency analysis monitors the phase correlation of the surround channels. A 31-band audio spectrum analyzer analyzes individual channels or channel groups.

**+49 221 709130; www.rtw.de**



**HD Radio tuner  
Day Sequerra**



**M4.2R:** Based on the M4.0, the M4.2R provides additional tools to monitor HD Radio broadcast transmissions. This tuner includes six programmable dry, floating alarm relays, RBDS, RF multipath and signal strength displays, an Ethernet interface for streaming PAD data or remote control and the company's Remote Dashboard software, which lets broadcasters remotely tune the unit, alarm key signal parameters and log their data. The tuner also features full time digital audio output, even when tuned to an analog station.

856-719-9900; [www.daysequerra.com](http://www.daysequerra.com)  
[info@daysequerra.com](mailto:info@daysequerra.com)

**Firewire audio interface  
Prism Sound**

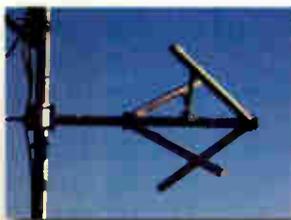


**Orpheus:** This interface delivers audio through a dedicated, integrated Firewire interface. The unit is compatible with Mac and PC computers and offers eight analog recording channels, eight monitoring outputs plus S/PDIF and Toslink optical digital I/O ports. The optical ports can also be used for ADAT, giving the system a maximum capability of 18 concurrent input and output channels plus stereo headphones. The device features four digitally controlled microphone amplifiers and two instrument inputs. These are associated with the first four analog input channels, which are auto-sensing and can automatically select the right input when the signal source is plugged in.

973-983-9577; [www.prismsound.com](http://www.prismsound.com)  
[sales@prismsound.com](mailto:sales@prismsound.com)



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[FMradiosales@mcibroadcast.com](mailto:FMradiosales@mcibroadcast.com)

**UPGRADES and UPDATES**

Version 2.0 of the **Broadcast Electronics** Dashboard software for its IDI 20 importer offers bit-rate tachometers and on-console audio level controls. The software also includes an expanded audio buffer to give the importer greater flexibility when delivering multiple HD Radio channels. ([www.bdcast.com](http://www.bdcast.com))...The **Burk Technology** Arc Plus broadcast facility remote control system now includes a security camera option. The new capability allows broadcasters to use Burk's Auto Pilot Plus software to monitor feeds from remote cameras alongside the telemetry. ([www.burk.com](http://www.burk.com))...The new **Dialight** LED medium-intensity, red-white flashing beacon for marking towers and other aircraft navigation obstacles is now ETL certified to FAA Advisory Circular 150/5345-43F. Dialight offers the beacon as an alternative to Xenon-strobe and incandescent light installations. ([www.dialight.com](http://www.dialight.com))...**RCS** has released its newest version of the RCS HD Importer, which is based on the Ibiquity version 2 platform. The Importer 2 uses the same WAV driver model that the company's Nexgen Digital uses. ([www.rcsworks.com](http://www.rcsworks.com))...The **Auralex Acoustics** Space Array Diffusor has recently passed the requirements of a Class B fire-rating in accordance with ASTM E84, a standard test for surface burning characteristics of building materials. ([www.auralex.com](http://www.auralex.com)) ■

**FM monitoring, remote control  
Audemat-Aztec**



**Silver Remote Control, Silver FM Monitor:** The transmitter remote control system offers TCP/IP built in and is equipped with 16 digital inputs, eight analog inputs, eight relay outputs and one RS-232 interface connection. Alarms can be sent via e-mail using the embedded SMTP server or via phone with the voice/DTMF option. The FM frequency-agile receiver for permanent station monitoring includes an embedded Web server as well as a SMTP server for alarm sending via e-mail. The system monitors automatically, in real time, the quality and continuity of as many as eight FM programs and notifies the person of any problem by sending an alarm. The monitor checks the RF level, modulation, pilot, RBDS and audio levels. It also decodes RBDS and monitors the presence of any RBDS groups.

305-249-3110; [www.audemat-aztec.com](http://www.audemat-aztec.com)  
contact@audemat-aztec.com

**Search system  
Docsoft**

**Element:A/V:** This system allows users to search the spoken content and not just the metadata associated with A/V files. Element: A/V mines the spoken content and also creates a text transcript of the entire digital file. Docsoft can export the text in several formats to accommodate transcription needs as well as time-coded closed caption output. When a search is performed for a keyword from the user's mined A/V files with this system, the results are displayed in context or utterances.

405-236-2466; [www.docsoft.com](http://www.docsoft.com); rrobinett@docsoft.com

**Microphone**

**Sennheiser Electronic**

**MD 5235:** The mic head can be used with all hand-held transmitters of Sennheiser's 5000 Series. The new microphone head makes the SKM 5200 even more versatile. This is the ninth capsule available for the hand-held transmitter.

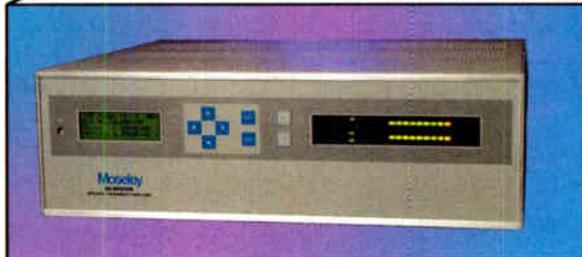
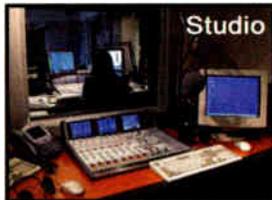
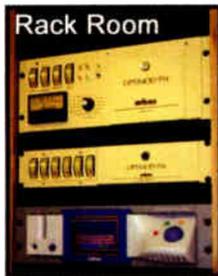
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to discuss your needs  
**1-800-438-6040**  
**Bob, Ernie, Matt or Mike**  
**HQ in Pineville, NC**



**EAS encoder/decoder**

**Harris**

**Sage Endec-HD:**

The new version handles analog and digital signals for EAS distribution and adds remote control capabilities for studio-to-transmitter communications. IP connectivity also is added to allow broadcasters to use standard network components for log printing. This eliminates the need to buy thermal paper required for traditional EAS systems with built-in printers. An analog-to-digital converter can be purchased for broadcasters who need a multiple-channel ready EAS platform for multicast channels, but prefer to retain their existing EAS platforms. The system uses an internal AES/EBU interface, LAN support, and a browser-based interface to support a new generation of EAS users. New hardware features include 10/100 Base-T LAN support, two USB connectors for printers, additional serial ports, future expansion, and four new GPIO inputs for expanded control.

800-622-0022; [www.broadcast.harris.com](http://www.broadcast.harris.com)  
[broadcast@harris.com](mailto:broadcast@harris.com)



**Media conversion**

**Digi-Data**

**Digital Conversion Services:**

These services convert existing antiquated or incompatible media to new IT-standard systems, making data usable and accessible. Digi-Data's services cater to most digital-to-digital media and data scenarios, with the ability to combine many types of formats, databases and images into one system. All conversions are accompanied by a complete audit trail, with a bar code tracking system logging all media in and out. The services update outdated media to new, flexible (current) formats, merge disparate systems into one efficient system, increase productivity with faster, easier data access and decrease discovery time in the event of a legal-based search requirement. Digi-Data supports more than 150 different types of data.

410-730-6880; [www.digidata.com](http://www.digidata.com)

**Chassis connectors**

**Neutrik**

**SCDR:**

The SCDR is a soft plastic cover for the end of several D-size chassis connectors, such as Neutrik's Powercon, Speakon, Opticalcon and XLR. It protects the gap between connector and cable. The protection cover works with all common wires and cables by simply cutting off the cover end to the preferred diameter. The connector protects against electric shock when using Powercon; creates airtight assembly and powered speakers with the XLR; and offers LC dust protection at the rear of the Opticalcon.

732-901-9488; [www.neutrik.com](http://www.neutrik.com); [info@neutrikusa.com](mailto:info@neutrikusa.com)

**AM signal splitter**

**Nautel**

**AM GPS Synchronization, IBOC Signal Splitter:**

The GPS-based synchronization scheme allows for improved AM reception while the IBOC splitter saves costs in generating IBOC signals. The signal splitter allows broadcasters to take advantage of the recent FCC ruling permitting nighttime IBOC AM operations. The splitter keeps costs down by enabling the use of one IBOC generator for two AM transmitters, effectively creating split IBOC signals for daytime and nighttime transmission.

207-947-8200; [www.nautel.com](http://www.nautel.com)  
[info@nautel.com](mailto:info@nautel.com)

**RBDS encoder update**

**Bext**

**FLX series:** The FLX Series now incorporates an optional built-in RBDS encoder. The series includes FLX 350 (350W), FLX (650W) and



FLX 1300 (1,300W). All units are two rack spaces

high and include stainless steel enclosures.

619-239-8462  
[www.bext.com](http://www.bext.com); [sales@bext.com](mailto:sales@bext.com)

**Light detector  
DM Engineering**



**Opto-probe:** A visible light-sensing device, the unit monitors the activity of a LED or other visible light source. The sensor requires 5Vdc that is supplied by the Control Module for

proper operation and produces a logic low when light is detected. The sensor will detect within the range of 400 to 1,200 nm and is ideal for detection ranges from IR to blue. The sensor is provided with a 3' long connecting cable that is terminated in a 3.5mm stereo connector. All activity of the monitored LED or light source is repeated by a LED located in the top of the probe to ensure that the visibility of the monitored light source is not lost. The sensor is attached to the light source to be monitored by means of a 1/2" diameter foam adhesive ring attached to the bottom of the sensor and the control module is attached using the supplied hook and loop material. The power requirement for the entire system is 9 to 12Vdc at 55mA when activated, 3mA quiescent. A 9Vdc unregulated power module is provided.

800-249-0487; [www.dmengineering.com](http://www.dmengineering.com)  
info@dmengineering.com

**Gooseneck mics  
AKG**

**GN 15 ESP, GN 30 ESP, GN 50 ESP:**

Featuring a programmable mute switch and high radio frequency interference immunity, the GN ESP Series gooseneck microphones feature a programmable mute switch to cover a wide range of applications. All versions can be programmed to on/off, push-to-talk or push-to-mute operation. The mics provide an integrated LED ring to display the microphone's status. Fully programmable, the mics feature hidden controls with jumpers inside to prevent users from unintentionally changing settings. All contacts are gold-plated.



818-920-3212; [www.akgusa.com](http://www.akgusa.com)  
akgusa@harman.com

**File transfer  
Unlimi-tech Software**

**File Catalyst 2.0:** Featuring patent-pending acceleration technology with less than 1 percent overhead, on-the-fly compression and byte-level incremental transfers, this system uses software automation to overcome the file transfer inefficiencies associated with packet loss and latency. Not only can system guarantee line speed, it can actually provide effective throughput two to three times greater than line speed. File Catalyst 2.0 application features include: transfer data at line speed, immune to affects of RTT and packet loss, no additional hardware requirements or line upgrades, push and pull files or entire directories, industry standard SSL for control channel, and AES for data encryption and cross-platform support (Windows, Linux, Solaris, Mac OSX).

877-EASY-FTP; [www.filecatalyst.com](http://www.filecatalyst.com)  
info@utechsoft.com

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**Water-cooled tetrode  
Thales Components  
& Subsystems**

**TH 594:** The new water-cooled tetrode is designed for the high-power digital FM radio broadcast market. The tetrode offers 40kW anode dissipation and delivers 35kW of continuous wave power, or 60kW peak power. The tetrode incorporates pyrolytic graphite grids for high mechanical stability and a water-cooled anode for a high power dissipation rating. The tetrode offers high linearity, long life and ease of installation.



+33 1 30 70 36 40  
www.thalesgroup.com/electrondedices

**Personal alert, messaging system**

**Global Security Systems**

**Alert FM:** Alert FM messages are delivered via GSS Net, a digital network of existing FM transmitters around the United States, to multiple receiving devices equipped with a standard FM chip. Overlapping signals from different FM stations ensure that there is always a signal that can be received even when other communications systems are disrupted. This targeted alert and messaging system uses existing FM technology to send mass or personalized alerts about an unfolding emergency to specially-designed receivers or any device equipped with a standard FM chip, such as cell phones, USB drives, smoke detectors, home alarms, clocks or any mobile communication device.

228-255-7220  
www.gssnet.us; info@gssnet.us



**Surround recording mic  
Soundfield Research**

**SPS200:** The A-format microphone for stereo and 5.1 surround recording offers software plug-in A-format to B-format conversion, stereo and surround sound decoding, and manipulation in place of an outboard control unit. The mic captures 5.1-, 6.1-, 7.1-channel audio and simultaneous stereo with variable width and the ability to continuously vary the effective polar pickup pattern and orientation without moving the microphone.

+44 1924 201 089; www.soundfield.com  
sales@soundfield.com

**Audio logger  
Winmedia Software**

**Winlogger 2.7:** This multi-channel audio recorder and logger automation software automatically archives and exports multiple programs to a database, FTP site, podcast or recording media. Audio files can be played during the logging process, which allows it to also be used a profanity delay. The system's delay function can be used to schedule automatic broadcast of programs on a radio station and provide accurate synchronization within milliseconds.

514-984-4912  
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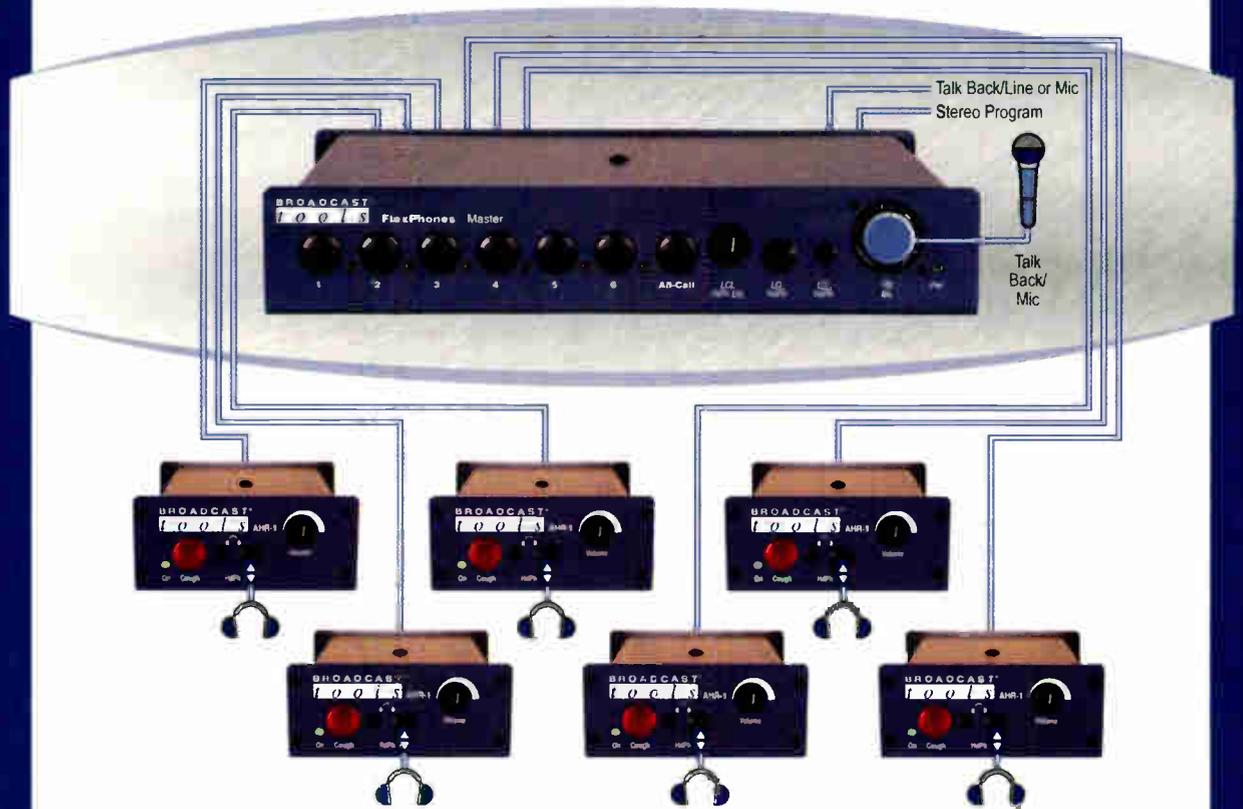
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## FlexPhones Master

The FlexPhones Master is a professional Broadcast/Studio six channel distributed headphone system with independent talkback capabilities. Each of the six channels provides stereo program monitoring and selective talkback with interconnection via CAT5 cable to multiple Active Headphone Remotes (AHR-1) and/or Monitor Selector Interface (MSI). Multiple masters may be cascaded to form larger systems.

The FlexPhones Master is equipped with inputs for stereo program and talkback audio. Rear panel program and talkback trimmers are provided to pre-set maximum input levels. The microphone/line level talkback input is available via a rear panel plug-in euroblock connector, while the front panel XLR connector facilitates the use of a user-provided gooseneck microphone or headset. The front panel is equipped with a level control for local headphones with both 1/4" and 1/8" stereo headphone jacks. The six front panel talkback switches allow the user to independently communicate with each AHR-1 listener and can be configured to insert talkback audio into only the left or both ears and dim either or both program channels. Any combination of switches may be pressed, while the "All-Call" interrupts all listeners. The Talkback function can be remotely controlled. Six RJ45 jacks are provided to distribute audio and power via CAT5 cable to the AHR-1s, which conform to the Studio Hub format. Low-Z balanced audio distribution is used to preclude audio degradation with long cable runs.

## AHR-1 Active Headphone Remote

The Active Headphone Remote (AHR-1) contains a stereo amplifier designed to work with any combination of high-efficiency headphones with impedances between 24 and 600 ohms. The AHR-1 is equipped with 1/8" and 1/4" headphone jacks, level control, user-configured utility momentary pushbutton and LED indicator. Two rear panel RJ45 jacks are provided for connection via CAT5 cable to the FlexPhones Master. The AHR-1 may be desktop mounted, under counter or with the optional HR-1/MP or HR-1/MP-XLR mounting plates, which may be turret or counter-top mounted.



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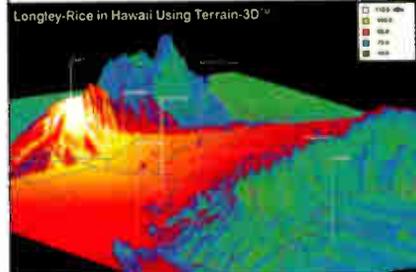
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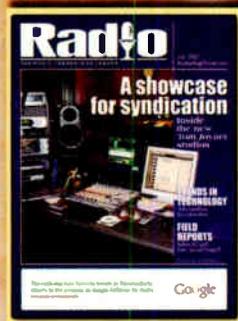
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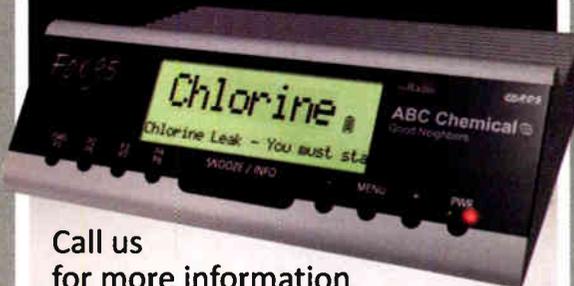
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Meet the professionals who write  
for **Radio** magazine.  
This month: **Facility Showcase**,  
page 24.



**Kent Kramer**  
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Written by radio professionals  
Written for radio professionals

Radio, Volume 13, Number 7, ISSN 1542-0620 is published  
monthly and mailed free to qualified recipients by Penton  
Media, Inc. 9800 Metcalf, Overland Park, KS 66212-2216  
[www.penton.com]. Periodicals postage paid at Shawnee  
Mission, KS, and additional mailing offices. Canadian Post  
Publications/Mail Agreement No. 40597023. Canada return  
address: Bleuchip International, P.O. Box 25542, London,  
ON N6C 6B2. Additional resources, including subscription  
request forms and an editorial calendar are available online  
at www.RadioMagOnline.com. To order single copies call  
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by Kari Taylor, senior associate editor

## Do you remember?



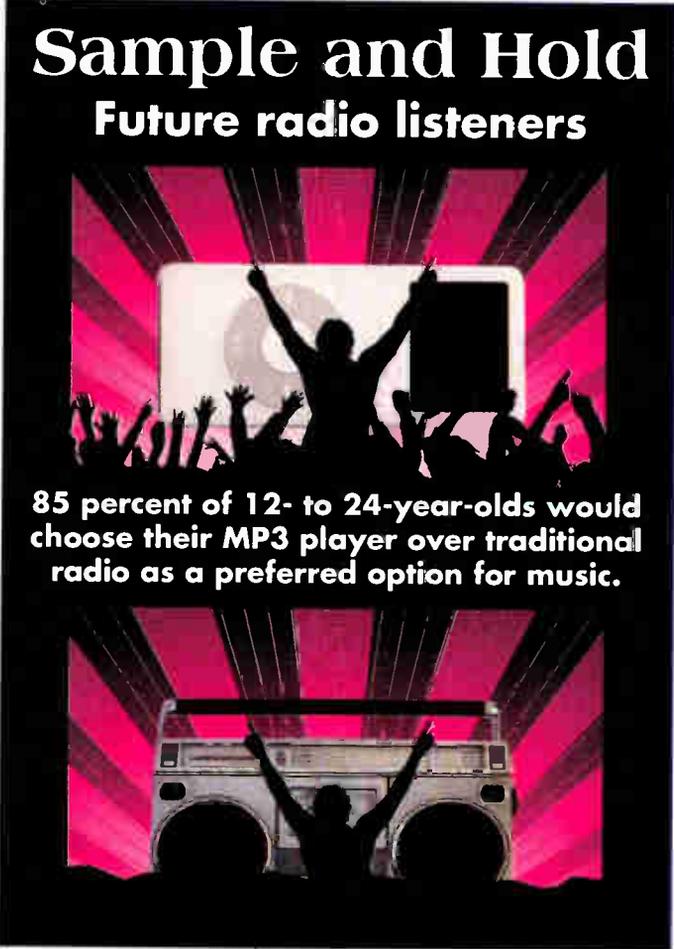
courtesy Cleveland Broadcast Radio Picture Archive

This year, WHK celebrates 85 years of broadcasting in Cleveland. The picture features Warren C. Cox, at the WHK transmitter control console atop the Stuyvesant Building in March 1922. Cox was the founder of 8ACS, which would later become WHK-AM.

In 1922, barely two weeks after President Warren G. Harding brought the first radio into the White House, Warren C. Cox was granted a commercial broadcasting license by the Commerce Department. In 1926, WHK received the first radio license from the federal government, signed by Secretary of Commerce Herbert Hoover. In 1929, WHK produced a daily program providing instruction in arithmetic, one of the first forays into public education on radio.

Today, WHK is licensed to Salem Communications.

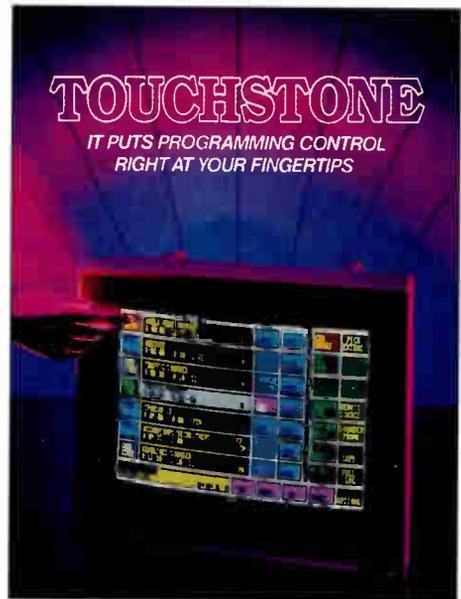
## Sample and Hold Future radio listeners



**85 percent of 12- to 24-year-olds would choose their MP3 player over traditional radio as a preferred option for music.**

Source: University of Southern California Media Lab, *How to Make Music Radio Appealing to the Next Generation*, 2006.

## That was then



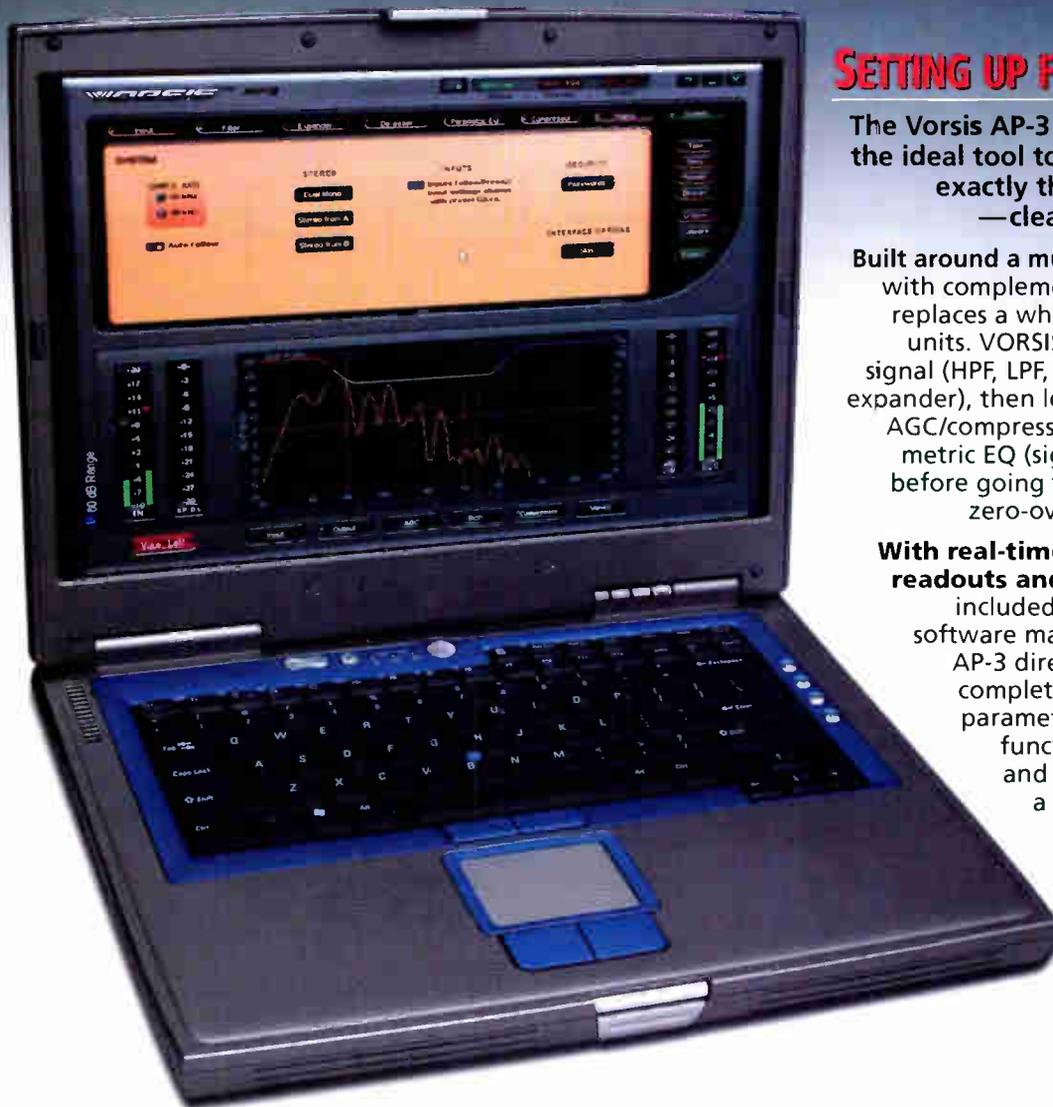
*Broadcast Engineering* magazine published a field report in its April 1987 issue about the Media Touch 2005 control system. The system offered automated or live-assist features to a radio station. It provided a control network that allowed control via a touch-sensitive color CRT screen. The touch screen provided the announcer with easy control of audio sources using a RS-232 databus. The unit was capable of linking with billing and traffic computers, providing integrated accounting and control. Features included a standard 32x6 audio input/output configuration; total harmonic distortion plus noise of 0.008 percent at +8dBm; and hum and noise of -88dBm at +8dBm.

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World Radio History

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