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INSIDE

FCC Order Aims to Strengthen EAS

Commission adopts "six zeroes" and plans Electronic Test Reporting System

ALERTING

BY RANDY J. STINE

WASHINGTON — New rules for Emergency Alert System participants crafted by the FCC are meant to maximize the overall effectiveness of the U.S. public warning system.

The commission in June released its Sixth Report and Order continuing a long process to improve EAS and bring consistency to the alerting space following the first national EAS test in 2011. Among the issues settled by the FCC is a new national location code of "six zeroes" (000000) and a requirement for broadcasters to file future national test EAS data electronically.

The first nationwide test used "Washington, DC" as a location code; a number of encoders/decoders failed to recognize the code as being relevant to their areas. The new "six zeroes" will pertain to every state and U.S. territory, the FCC said in its report and order.

In addition, broadcasters will now need to configure their EAS gear to process a National Periodic Test event code for future nationwide tests of the system. Broadcasters must comply within 12 months of the rules' effective date, July 30.

Most of the adopted changes had been recommended by the FCC's Communications Security, Reliability and Interoperability Council, which consists of device manufacturers, broadcasters, public safety officials and others. There are some CSRIC recommendations on which the FCC has yet to act, several observers said.

NEXT TEST

EAS experts have been pushing for a second national EAS test in 2015, but FEMA said recently it will not schedule a national EAS test date until after the broadcaster compliance date. It now appears the soonest a second test could be scheduled would be the second half of 2016.

The Federal Emergency Management Agency is responsible for the initial transmission of presidential alerts and overall administration of the system; the FCC says its own role is to adopt, administer and enforce EAS.

FEMA continues to offer support to state broadcast associations wishing to coordinate statewide EAS testing using NPT messages. Thus far, successful tests have been conducted in West Virginia, Michigan, Ohio, Kentucky and Tennessee, according to FEMA.

"Our next regional test is scheduled to take place on Sept. 16 in conjunction with the state broadcast associations of Maine, Vermont, New Hampshire, Massachusetts, Connecticut and Rhode Island," said Al Kenyon, Integrated

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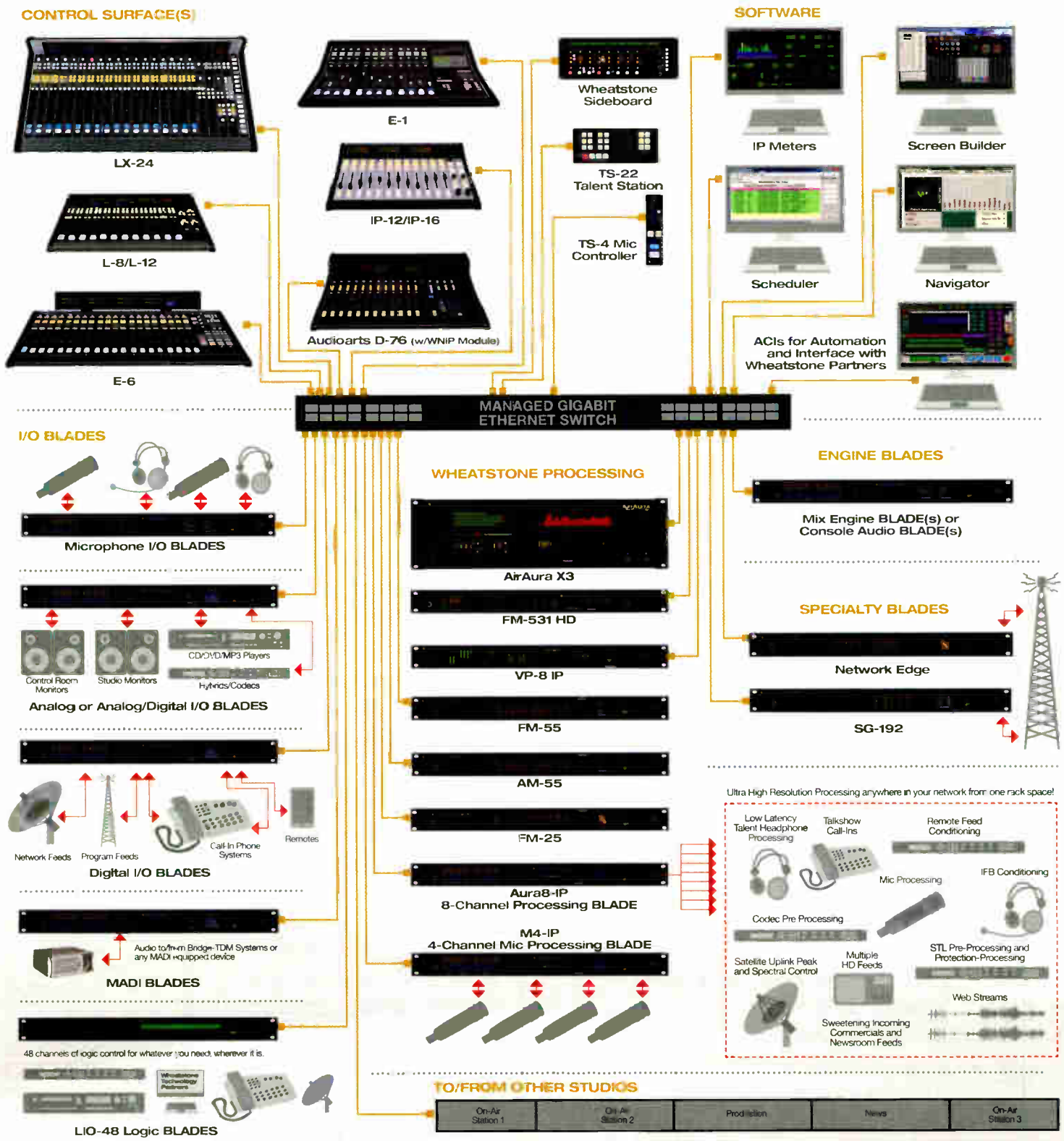
THE INTELLIGENT NETWORK



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NewBay Media

FM Plans Vary, Country to Country

Norway prompts discussion; approaches differ to idea of switching off FM services

BY DAVIDE MORO

OSLO — No one in the United States is talking seriously about a "sunset" of analog FM service — the concept of an AM analog sunset is controversial enough.

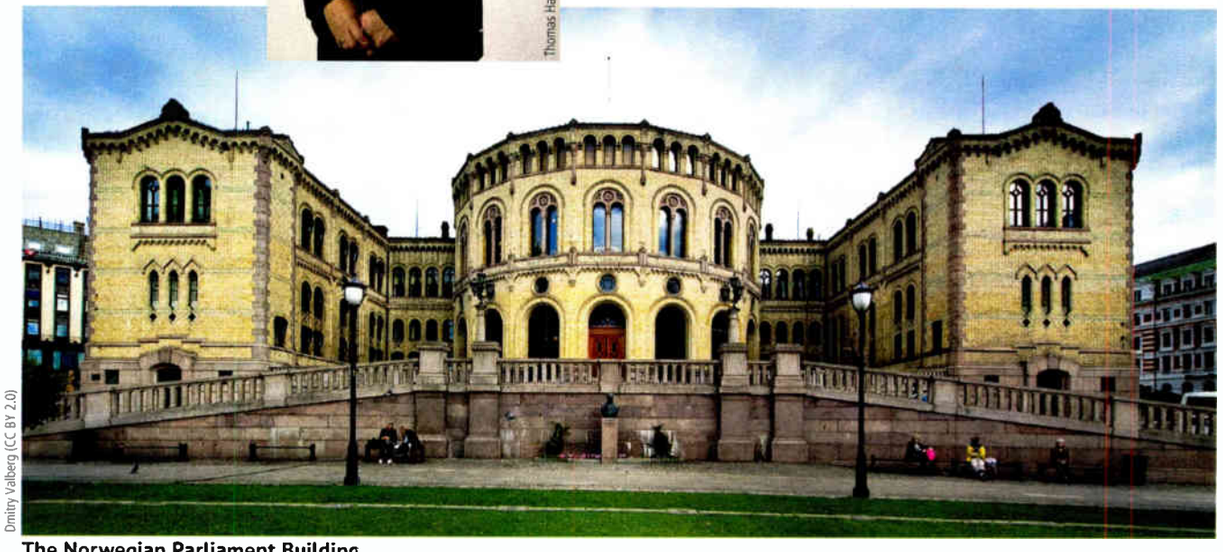
But that's not the case in some countries.

Until recently, there had been no firm statements from any government regarding a switch-off of FM band broadcasts. But Thorhild Widvey, Norway's minister of culture, shook things up in April when she announced that the government had set 2017 "for the switch-off of Norway's FM radio stations." It was apparently the first country to make such a commitment. Norway plans a transition to a DAB+ digital system.

(About 200 local stations, mainly in small towns and villages, will remain on FM for at least five more years, to avoid extra costs on the stations and to guarantee regional content.)

Thomas Haugersveen/Statsministerens kontor

Thorhild Widvey is Norway's minister of culture.



Dmitry Valberg (CC BY 2.0)

The Norwegian Parliament Building

CONSUMERS' POINT OF VIEW

The process provides some insight into the kinds of questions that a spectrum transition raises.

Ann Hege Skogly, senior communications adviser at Forbrukerrådet, the Consumer Council of Norway, said consumers should be prepared and stay informed.

"Our concerns were the consumers' predictability and safeguarding their rights. We don't hold technical expertise so we didn't participate in that discussion. Our concern is that the consumer is well informed about the process," she said. Retailers, she said, "must inform the client that FM receivers will only receive smaller local radio stations after switch-off. If you now buy an FM radio, and you don't receive this information, then you have a reason to complain."

The successes of digital rollouts have varied widely around the world, as do questions of a possible FM band sunset.

In neighboring Sweden, the National Audit Office presented a report to the parliament in April warning of possible dangers in transferring to digital radio. According to the report, the planned transition to terrestrial digital radio is "associated with considerable risks, because the government's preparations for the transition are inadequate; there is no clear listener perspective; there are deficiencies in the technical assessments; and the transfer is probably not cost-effective for the national economy."

Furthermore, several public institutions and many radio stakeholders in Sweden answered a public consultation promoted by the country's Ministry of Culture; the process produced little agreement about the digital transition.

According to Nina Wormbs, associate professor at the Swedish Royal Institute for Technology and a government adviser, "The consultation confirmed the various positions already expressed in the past, with no noticeable new elements, other than an exception made for the possible need of managing a limited spectrum overlap between some Band III frequencies used for DAB radio and some military equipment."

Wormbs said discussion about the transition from FM to digital radio is a hot one in Sweden, but people are just talking about technology, guessing about which could be the best-performing standard.

MEDIA POLICIES AND DEMOCRACY

"There is no ultimate and final standard," Wormbs added. "From time to time a new standard or codec appears and supersedes the previous one. There is more to this than just technology and standards. I believe that we should think of the national media policy too."

Peter Mac Avock

Nina Wormbs is associate professor at the Swedish Royal Institute for Technology.

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More Data: A First Look at RDS2

Faster transmission capacity should improve the experience and allow more services

The international group RDS Forum, meeting in Switzerland, announced it plans an updated Radio Data System standard, to launch in 2016. It said it hopes to establish this in collaboration with the U.S. NRSC RBDS subcommittee, with the goal of "a unified platform for FM broadcasting and data services worldwide."

Radio World touched base with Alan Jurison in his role as chair of the NRSC RDS Usage Working Group to ask his observations about the effort.

Radio World: *What would this standard do?*

Alan Jurison: RDS2 is being developed by the RDS Forum, the mostly European organization that maintains the IEC version of the RDS specification. It proposes to add up to three additional data subcarriers at 66.5, 71.25 and 76.0 kHz in addition to the existing 57 kHz carrier (see Fig. 1). Many of the RDS2 features are to address some of the limitations of the original RDS specification (now referenced as RDS1). RDS2 allows for additional text string length in RadioText, which can be important. NRSC Report NRSC-R300 ("Program Associated Data Field Length Study") found that it's easy to exceed the current RDS1 64-character length when transmitting song title/artist/album text. RDS2 offers a length of 128 characters. There is also support in RDS2 for a basic station logo transmission. RDS2 will also have other applications which will be helpful in international markets with extended character sets and alternate frequency switching for lower frequencies.

RW: *Why is higher transmission capacity important?*

Jurison: The faster transmission capacity of RDS2 allows for improvement of the existing RDS experience, and for more services. For example, faster RadioText transmission rates would permit receivers to display the RadioText sooner and not be truncated as it might be under the existing RDS1 standard. The increased speed and character

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FROM THE EDITOR

Paul McLane

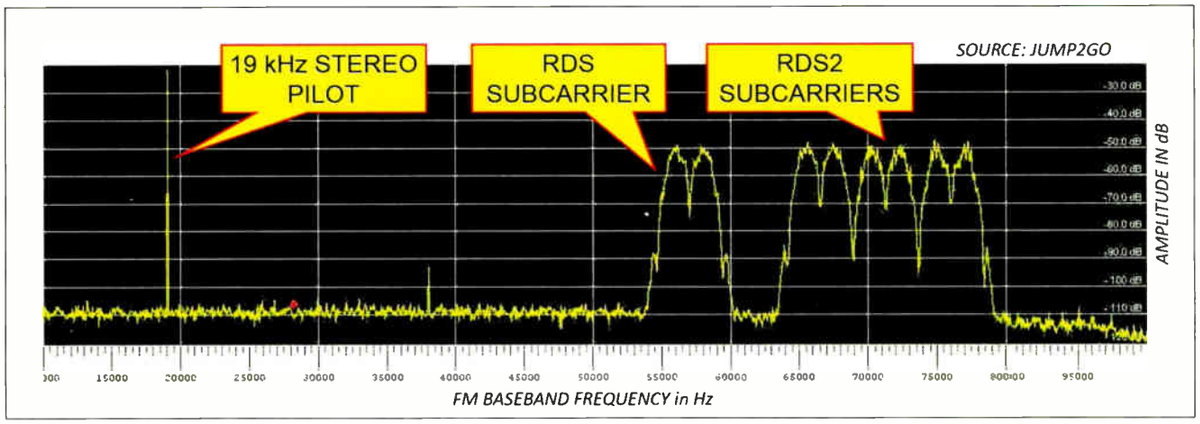

Fig. 1: RDS2 offers the ability to transmit up to three more subcarriers along with the legacy RDS subcarrier, as shown in this image from Jump2Go and printed in NAB's Radio TechCheck newsletter.

THIS ISSUE

JULY 15, 2015

FM PLANS

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Wormbs said that many people listen to Internet radio but they don't think about how the content is reaching them. "If we follow the Internet trend and choose to deliver everything via the Web, everything would be flowing through a single platform. I see a potential problem of democracy in this."

In June, the Swedish government announced that it is delaying its planned switch from FM to digital DAB+ broadcasting. According to the Swedish Minister for Culture and Democracy Alice Bah Kuhnke, there isn't enough support to justify a transition to digital at this point in time.

"The government's view is that our present radio solution, the FM network, is not vitiated by such defects that a move (to DAB+) is justified," said Kuhnke in an article published in Svenska Dagbladet. "The future of radio is central to our whole society... The government will now follow the trend for the future of radio listening vigilantly and will continue to be careful to have broad parliamentary support for media policy."

Finland launched DAB in 1998, but it was the first country in the world to shut down its DAB digital radio network in 2005. At present in Finland, there are no DAB broadcasts.

In Denmark, on April 28, Minister of Culture Marianne Jelved and media representatives of all the parliamentary parties entered into an agreement, which amends its decision to switch off FM. Under the new agreement, the country will make a decision about when to turn off all FM bands once digital radio listening has reached 50 percent.

"An FM switch-off is inevitable — but we need listeners. The question is when this will happen," said Jelved. Another transition is also in place: The country's DAB channels are to be converted to DAB+ by late 2016.

While some German public and commercial radio broadcasters are undecided, in November 2014, ARD, the association of public broadcasters, committed itself to transferring FM radio to DAB+, emphasizing that the simulcast phase (FM and DAB+) should be kept as long as necessary to give users sufficient time for transition, and should be as cost-effective as possible. Although directors of the ARD have not published a fixed date for analog shutdown, Willi Steul, director of Deutschland Radio, said that this could happen in 2025.

In October 2014, the German Federal State of Saxonia-Anhalt approved a law in order to retain FM broadcasting at least until 2025. Markus Kurze, vice chairman of the Christian Democratic Union's parliamentary group, said this decision "ensures that FM radio ... will continue to be a popular media. If most households use analog radio, then this way of broadcasting must be retained."

U.K. AND SWITZERLAND

In the United Kingdom, the Department for Culture Media and Sport confirmed at the end of March the renewal of analog radio licenses for the three national commercial networks and more than 60 local commercial radio stations for a further five years. Though this was officially presented as a consequence of modifications to applicable laws, observers took it as a sign that the radio industry and government aren't yet ready for a total digital radio switchover.

"We believe this important change will continue to support the whole of commercial radio and provide the necessary stability for the sector as a whole as it moves towards a digital future," said U.K. Minister for the Digital Economy Ed Vaizey.

Switzerland chose a voluntary transition model. According to the Radio and Television Ordinance adopted in November 2014 by the Federal Council, as of Jan. 1, 2015, local radio stations can cease their FM broadcasts in areas where they ensure effective DAB+ coverage. Dec. 1, 2014, representatives of the public broadcaster SRG and private radio stations presented a roadmap to phase out FM broadcasting to the Federal Councillor Doris Leuthard. The transition from analog to digital radio broadcasting is to take place in two phases. By the end of 2019, all FM stations must also broadcast digitally on a DAB+ platform.

From 2020 onward, radio stations will cease FM broadcasting gradually, and in a coordinated manner. The goal of the local radio industry is to conclude analog FM broadcasts by 2024.

Davide Moro reports on the industry for Radio World from Bergamo, Italy.

Ed Vaizey is U.K. minister for the digital economy.

Policy Exchange (CC BY 2.0)

EAS

(continued from page 1)

Public Alert and Warning System national test technical lead. "While preparing for these regional tests we've had an opportunity to renew the dialog between broadcasters and state emergency management officials about how EAS can be better used to serve the whole community."

This regional testing, performed ahead of the compliance period specified in the rulemaking, is designed to be conducted in a no-risk environment for participants, Kenyon said.

EAS observers asked by Radio World to participate in this story shared a range of opinions on how successful new EAS rules will be and how much of an impact the new rules will have on broadcasters.

Adrienne Abbott, Nevada EAS chair, described the latest R&O as "focused on the next national EAS test" with a little side commentary on other issues, like the visual text produced by EAS equipment.

Abbott said she expects most broadcasters will already have the EAS equipment in place needed to interpret the new codes successfully.

"On the surface, it appears that there are no significant changes that would require broadcasters to purchase new equipment. The changes can be easily made by station staff. Engineers in Nevada say they've been able to update their equipment with a minimum of fuss," Abbott said.

UPDATES

Ed Czarnecki, senior director of strategy and global government affairs for the Digital Alert Systems division of equipment manufacturer Monroe Electronics, said customers will need to modify a few settings on their equipment to comply with the FCC order.

"We don't see many significant changes for radio stations using DASDEC equipment. Radio stations and EAS manufacturers have 12 months to meet the requirements of the order, which include adjusting how both the NPT and EAN react to the new national geocode, as well as existing local FIPS codes."

Czarnecki said DASDEC currently supports the "six zeroes" location code, as well as immediate auto-forwarding of the NPT message for transmission.

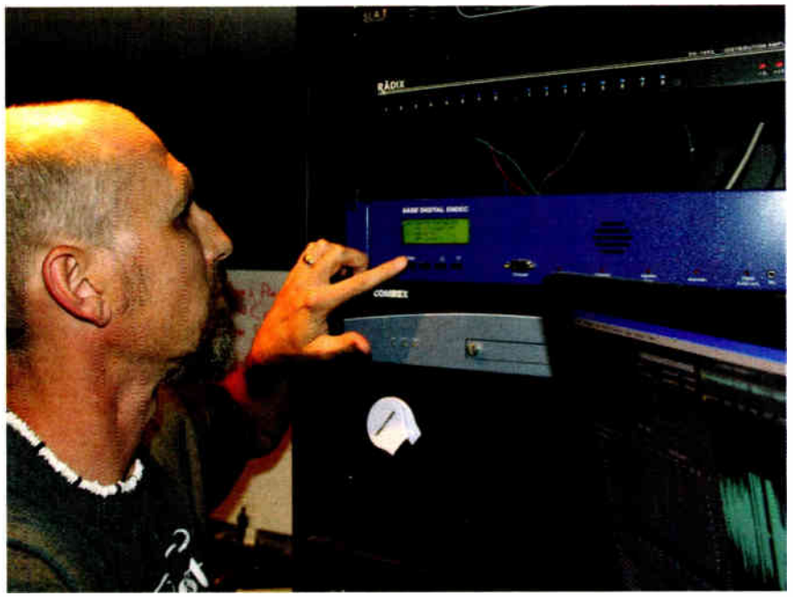
"However, to further streamline functions for DASDEC users, and to accommodate the change in allowing EANs to target specific state/local FIPS codes, we are likely to issue an additional software update soon. We will contact DASDEC users when this software update is available."

The countdown clocks to initiate updates begin 30 days after the R&O is published in the Federal Register, EAS experts said.

"Many broadcasters will need to make some sort of change to their settings to add the NPT alert, add the '000000' code, or both," said Harold Price, president of Sage Alerting Systems.

Sage CAP/EAS ENDEC users (Model 3644) will upload a firmware update, Price said. "By this time, [our customers] have been through the process of updating firmware and settings. This will be no different. The FCC has allowed plenty of time for everyone to make the required changes."

Users of some older-model Sage ENDEC models will need replacements, Price said. The FCC mentions in a footnote in the R&O that users of non-CAP model 1822 will need to replace their hardware.



Steve Baker, program director of WQLK(FM) in Richmond, Ind., checks his Sage EAS box.

> **The FCC has allowed** plenty of time for everyone to make the required changes.
>
> – Harold Price

"Model 1822 will not be updated since support for that product ended in 2011. Users of that equipment will need to acquire new hardware. We don't have exact numbers, but we feel that only a small number of stations remain on the old equipment," Price said.

A significant development since 2011 has been the addition of alerting using the Internet-based Common Alerting Protocol. CAP was not included in the first national test, since TV and radio stations were not required to have CAP-

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RDS2

(continued from page 4)

count would make analog FM RDS2 transmissions more comparable to HD Radio PSD or Internet streaming services on a descriptive, textual basis. Increased data rates also open the possibility of new applications, like the basic station logo, but also perhaps things that we have not envisioned yet. It's still early on, but perhaps RDS2 could be used to improve capacity or functionality for emergency alerting. There has been a lot of work being done with RDS1 and emergency alerting; perhaps RDS2 could provide an enhancement. Internationally, the need for a data rate increase is significant to improve the transmission capacity of RDS-based traffic services, or RDS TMC. However, the need for the bandwidth for RDS TMC in the United States may not be necessary as both major national networks — Broadcaster Traffic Coalition and iHeartMedia's Total Traffic and Weather Network — have transitioned to HD Radio-delivered services. While both networks still maintain a RDS TMC network to support existing devices, most, if not all new designs in the U.S. are using HD delivery of traffic information. But in international markets, RDS2's additional capacity could be very helpful for traffic message delivery, as HD Radio is not authorized in all countries.

***RW:** Will existing RDS receivers be compatible with the new format(s)?*
Jurison: RDS2 is designed to be backwards-compatible with RDS1. Existing RDS1 units should continue to work with the original RDS1 57 kHz subcarrier portion of the RDS2 signal, but will not decode the three new RDS2 subcarriers being proposed.

***RW:** Has the NRSC been involved in this effort?*
Jurison: The NRSC has a liaison relationship with the RDS Forum and has worked closely with that group over the years to maintain and better harmonize the two RDS standards documents (the IEC version in Europe and NRSC-4-B in the U.S.). NAB's Senior Director, Advanced Engineering David Layer represented the NRSC at the recent RDS Forum meetings in Glion, and agreed to serve on the RDS Forum Working Group that will incorporate RDS2 into the standard.

***RW:** What action must be taken for this to become official?*
Jurison: Following the RDS Forum meeting in June, the RDS Forum (working with the NRSC) will develop an updated draft version of the IEC RDS Standard which includes RDS2. That draft will then need to be approved by the IEC, the standards body that issues the RDS Standard.

***RW:** What else should broadcasters in the U.S. and elsewhere know about this right now?*
Jurison: One of the points made during the RDS Forum meeting was that it's important for broadcasters to express support for this improved technology so that chip makers and receiver manufacturers will be inclined to include it in their products. I expect that in parallel with the standards-development effort, the RDS Forum and the NRSC will be encouraging broadcaster interest and participation in this work.

EAS

(continued from page 6)

compliant EAS equipment until June 30, 2012.

NEW ETRS

The FCC is creating a new Electronic Test Reporting System and is mandating that all EAS participants use it to file test results electronically with the FCC immediately following any nationwide EAS test (see box). Broadcasters had identified a number of problems with the previous electronic filing system.

Not all EAS stakeholders are satisfied with the commission's latest R&O. At least one EAS expert says the FCC was late in acting to fix EAS and blames the commission for some in the EAS community becoming disenchanted.

Richard Rudman, a founding member of the Broadcast Warning Working Group, a public-private partnership of some of the country's top warning experts, called FCC action on EAS "much, much too slow."

"The palpable effect has been to lose the hearts and minds of many of us who had high hopes for major improvements to the county's public warning system by the EAS. The R&O does not begin to address all these inconsistencies and errors," said Rudman, who is also vice chair of California's EAS SECC.

Rudman also feels the FCC is too focused on national level EAS compliance and monitoring in the latest R&O: "We have to remember that most emergencies are local."

Nevada's Abbott, also a member of BWWG, is concerned about a "rather cavalier" attitude that the FCC is taking toward the EAS State Emergency Communications chairs and committee members.

"Apparently they haven't learned yet that we are not the State Emergency Coordination Committee. The SECC's are left out of the electronic reporting process," Abbott said. "The FCC Mapbook thing is an entirely different discussion."

(At press time, BWWG filed with the FCC a list of recommended EAS "next steps." We'll report on those next issue.)

Also, the FCC is directing its Public Safety and Homeland Security Bureau to host a workshop in collaboration with FEMA to address the improvement of alert accessibility, according to the report and order.

The workshop, expected to take place yet this summer, also will look at ways to expand the use of EAS by emergency managers at the state and local levels.

COMING: NEW EAS FORMS TO FILL OUT

For broadcasters, interacting with FCC databases has sometimes been a source of frustration. But the commission is hopeful that a planned system for stations report the outcome of nationwide EAS tests will involve a minimum of filing hassle, and help it create an EAS "Mapbook" to illustrate how alerts are propagated.

The FCC used a temporary electronic filing system to gather data in the first nationwide test four years ago. An advisory council subsequently recommended that it also develop a federal government database to contain EAS monitoring assignments.

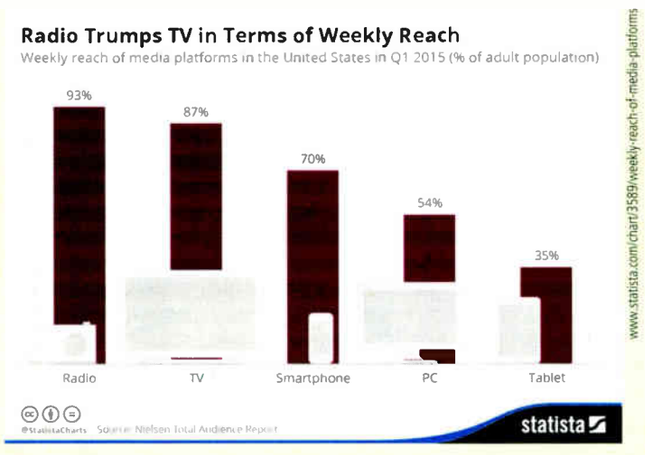
So when the commission issued its R&O to strengthen EAS, one of its actions was to require that participants file future test data via a planned Electronic Test Report System that would help accomplish both objectives.

The commission plans three forms for EAS participants (such as radio and TV stations) to fill out. Participants will have to update information yearly and as required by updates or waivers to State EAS Plans.

The FCC also plans to integrate information that it obtains into State EAS Plans, consolidating those into an EAS Mapbook. Its goal is a centralized database containing all EAS monitoring assignments and alert distribution pathways, "enabling new analyses of alert distribution at the national, state and local levels." The new system is supposed to be able to create maps that indicate the propagation of an EAN throughout the EAS architecture.

NEWSROUNDUP

AUDIENCE: Nielsen issued a report focusing on the reach of audiences on different devices, as well as how often consumers use these devices and for how long. "Radio and traditional television still have the largest reach of any of the platforms analyzed," according to a summary. "Specifically, radio reaches nearly 223 million adult listeners weekly and television reaches over 209 million adult viewers — that's 93 percent and 87 percent of all U.S. adults, respectively."



LAWSUIT: The lawsuit by Capitol Records against satellite radiocaster Sirius/XM concerning pre-1972 music, which is not covered under standard royalty schemes, was settled. According to a release from the Recording Industry Association of America, the litigants settled for a lump sum of $210 million to cover the playing of music recorded before 1972. The settlement also covers several other interested record companies such as ABKCO Music & Records, Sony Entertainment, UMG Recordings and Warner Music Group.

SWEDEN: The Swedish government is pumping the brakes on its planned switch from FM to digital DAB+ broadcasting. In a recent article in the Swedish newspaper Svenska Dagbladet, Swedish Minister for Culture and Democracy Alice Bah Kuhnke writes that there isn't enough support to justify a transition to digital at this point in time.

APPLE: Apple Music began streaming. The subscription music service went live as part of iOS 8.4, available for iPhones and iPads, according to tech publication The Verge. "The service is available inside of a redesigned version of iOS' Music app, which has been changed to almost entirely focus on the streaming service," it reported. Apple digital radio station Beats 1 also went live.

PIRATES: Should building owners be put on the hot seat for hosting pirate stations? The idea came up in remarks of FCC Commissioner Michael O'Rielly to a meeting of the New York State Broadcasters Association. "Most building owners wouldn't allow tenants to conduct illegal gambling sites, sweatshops or drug activities, why should they be allowed to be so passive with regards to illegal pirate radio stations?" O'Rielly asked, according to a transcript. "Shouldn't there be an added burden to make sure building owners don't knowingly lease or rent to pirates?" He said he didn't "want to go overboard" because he believes in property rights; "but it seems like accepting a complete ignorance excuse is insufficient." He said such an idea may require a change in law, "but if it is something that may help the cause, I'm willing to assist you in that effort."

JELLI: The cloud-based ad platform supplier, having taken a much more visible role in U.S. commercial radio's ad transaction universe as of this spring, recently closed on a financing agreement with investors that include Relay Ventures, Intel Capital, First Round Capital, iHeartMedia and Universal Music Group. It said the $21 million from this round brings its total amount raised to $37.6 million.

FEES: Commenting on proposed FCC regulatory fee reforms, the NAB said some of the commission's suggestions need more specifics and others should be abandoned outright. The FCC had noted that radio licensees more than double TV licensees in number, yet total fees collected from each category differ only slightly. In response, the NAB said it supports the idea of making fees more aligned to the number of FCC employees devoted to a particular service, but it called for more specifics and information on how previous fees have been calculated to develop a comparison. Regarding proposed changes to the station class system, the NAB expressed opposition to the ideas of assessing radio station fees based on market rank instead of population served, and of eliminating the distinction between the types and classes of radio stations in determining fees.

OBIT: Dennis Silver, a familiar engineering face in Utah and neighboring states, passed away at age 73 in Salt Lake City. He built a career as an independent radio/TV contract engineer throughout the desert western U.S. and became active in translators — licensing and installation. He was a member of the National Translators Association.

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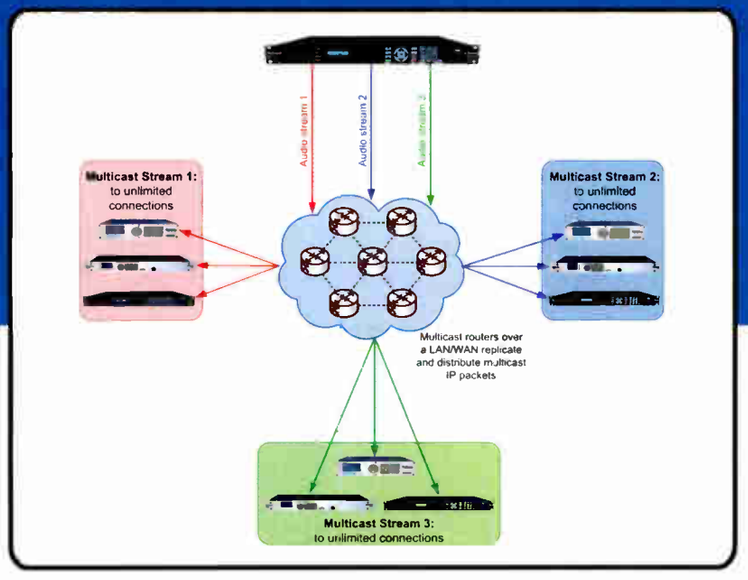
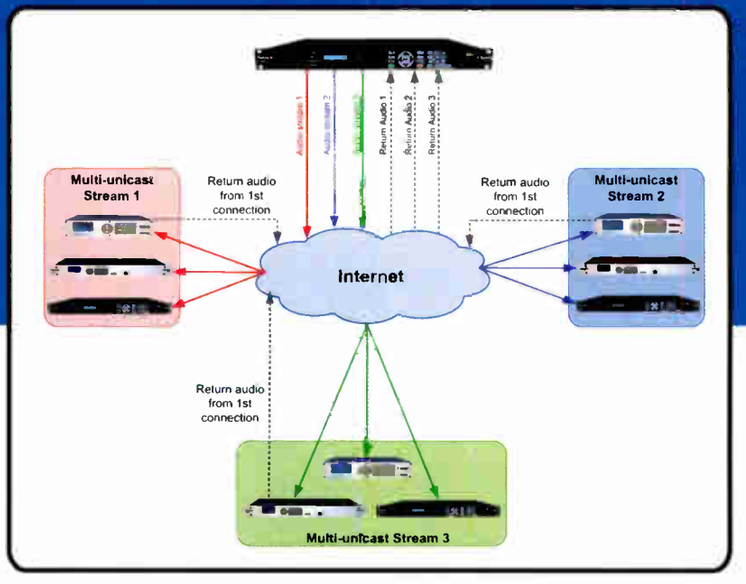


3 Simultaneous Multi-unicast Audio Streams
(up to 50 endpoints in total)



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Earn Your Extreme Engineering Badge

Certain problems call for efforts that go above and beyond the call of duty

WORKBENCH
by John Bisset
Read more Workbench articles online at radioworld.com

KQED San Francisco's CE Larry Wood and I were chatting about engineering experiences that rarely see the light of day. Larry knows many engineers who have been through much tougher experiences than he.

As broadcast engineers, we are expected to deal smoothly with the many types of problems that happen daily. Nonetheless, some problems are special, rare enough that trying to solve them can be considered going above and beyond the call of duty.

Getting recognition for these "extreme" job experiences is difficult. Sometimes our bosses may say "well done." Larry has even received a bonus once or twice in his career. A few times, he has been recognized in staff meetings too, which is nice. Often, the broadcast engineer gets no credit at all; worse, you're made to feel like this is just part of your job.

Such "special efforts" don't fit easily on a résumé or CV. Larry is certified by the SBE, but there's no part of his CPBE certification indicating the many extra broadcast "life experiences" he has been through.

With tongue in cheek, Larry proposes we create the broadcast engineering equivalent of Boy Scout merit badges. They could be called EEBs or Extreme Engineering Badges. Larry has even given thought about what would be necessary to earn one, and offers a few suggestions.

He has experienced all of the EBBs below. What are yours? I'd like to hear.

Photos by Chris Crump

Check out this actual merit badge from the Boy Scouts. Above, Life Scouts Michael Cobb and Konnor Sanders, from Troop 597 in Dacula, Ga., show off their radio badges.

- Plate transformer insulated from ground by sitting on 2x4s due to short in the windings
- Replace/repair a stolen AM ground system
- Endure a *full* FCC inspection
- Experience a tower falling
- Getting back on the air and rebuilding after a fire at the studio or transmitter site
- Dealing with an automation system main storage crash
- Replace a large coax switch *by yourself*
- Driving through extreme storms to get to a transmitter site, or to refuel the generator
- Dealing with roof leaks at the transmitter site
- Getting shocked while cutting Belden 8451 that someone wired to 120 VAC
- Operating a three-phase transmitter on two phases by giving the blower a spin to get it turning

Maybe we should also grant a badge for extreme remotes … like from Hawaii using Switched 56, in the days before ISDN, the equipment showed up late, and with smoke coming from the wet telco wiring after the remote started. Or how about the popular "installation of a new transmitter," where you move the equipment and do the AC wiring, HVAC, control and RF plumbing all by yourself, with no bonus or overtime?

Drop me a line with your suggestion of how to earn the RW Extreme Engineering Badge (and what it should look like). Email to *johnpbisset@gmail.com*.

Larry Wood also sent in a couple of suggestions for engineers who plan new rack rooms.

First, keep in mind that as we transition more and more toward everything Ethernet, many servers are deeper

(continued on page 12)

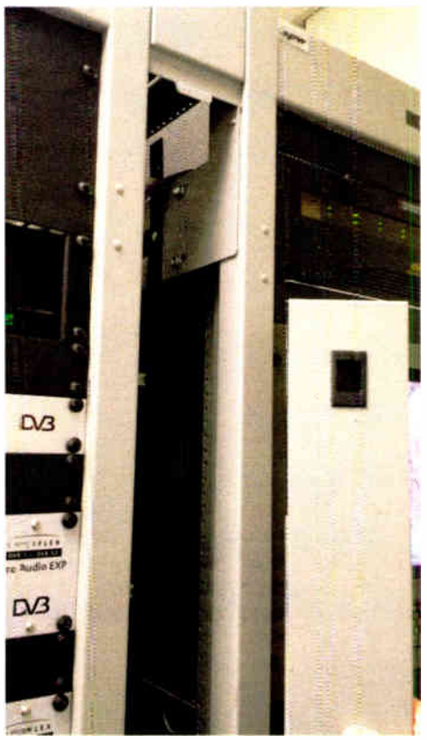

Fig. 1: Building a rack room? Consider using rack dividers with removable covers.

Fig. 2: The divider provides plenty of space to route cables.

NOW AVAILABLE!

Like Clockwork

ANALOG FM & HD1 PERFECTLY IN SYNC

Inovonics' new JUSTIN 808 maintains time alignment between analog FM and HD1 channels to within 23 microseconds (±1 sample)! No more lost words, stuttering, echoes, or level shifts. The entire sync process is 100% automatic. Using your actual off-air signal and powerful autocorrelation algorithms, the JUSTIN 808 keeps analog and digital modes faultlessly in step, hour after hour, day after day. Nothing to do but sit back and watch in awe as it does its thing.

- Precise time alignment between analog FM and HD1
- Automatic phase correction and RMS gain leveling
- Insert in either the FM or HD Radio AES digital feed
- Full Web interface for remote control, metering, etc.
- SMS/email alarms for loss of signal and loss of audio
- Extensive data logging with graphic display
- Auto failover with relay bypass

What are users saying about the JUSTIN 808?

"I found it (JUSTIN 808) to be very easy to set up and install, but most importantly, it gets the job of time and amplitude alignment done perfectly, so the blend is virtually undetectable."
– Paul Shulins, Greater Media Boston.

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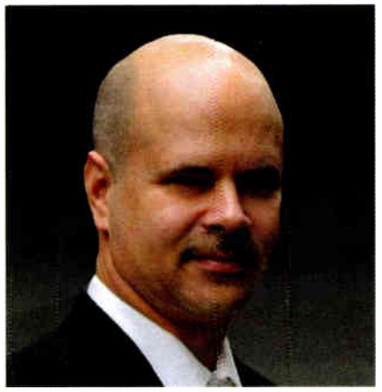
Sprite Media Customizes Digital Signage

Signs can be informative, aesthetically pleasing

Q&A

BY MICHAEL BALDERSTON

Jeff Schick is director of technology for Sprite Media and a former radio engineer who worked with Clear Channel, Westwood One and Emmis Communications in New York. Sprite Media launched in January with the primary focus of bringing digital signage to the world of radio. Digital signs have made their presence felt in many business sectors, and Schick believes that digital signage can help "push the radio station into the future."



Jeff Schick

Radio World: *What does Sprite Media do?*

Jeff Schick: We provided digital signage specifically for radio. We have the TV displays that you've probably seen in fast-food restaurants, coffee shops, real estate offices and gas stations; they're all over the place. But we're doing the screens specifically for radio stations.

RW: *How is this different than what other signage companies offer?*

Schick: As far as I know, nobody is doing this for the radio business. There are plenty of traditional sign guys who make the old-fashioned signs that are going into this, but I'm the other way. I'm a TV/radio guy going sideways into making these displays. So the display should have more of a TV image rather than someone just slapping a PowerPoint up.

RW: *How can they be applied to radio studios?*

Schick: There are different screens. You can have one in the lobby, you can have in the DJ booth, one for the staff, you can have one for the program director, one in the newsroom, and they all serve different functions and have different content on them. For example, the DJ would have a Twitter feed so he can relay information. The lobby screen can have a welcome message for guests. That message can be controlled by the receptionist or a staff member who can just go on an app on their phone and type in new names and it goes right to the display. These are live signs that are plugged into the Internet.

We have newsfeeds and we have zippers, so anything that is happening in the news will go to the screen as soon as the news source reports it. There's also some cool stuff like QR codes. So let's say you're in the lobby of the radio station. You can just swipe your phone and the Facebook page would come up, or the web page, it's whatever you want. Plus there are opportunities for the radio station to advertise.

RW: *What makes this a thing of value for radio stations?*

Schick: The signs have the different purposes, as I mentioned. If radio stations have guests waiting in their lobby for 30 minutes, a digital sign can make that wait time seem much less. During that wait time, radio stations can take the opportunity to pass along station information and upcoming station events. Someone in the waiting room who is a captive audience can find out a lot more about the station while they're there, whether they are a sponsor or someone who won concert tickets.

As far as the DJ or a screen for program director, this helps workflow. A program director can type in on their phone when something important happens ... that can immediately appear on what I call the whiteboard on the screen, appearing in the DJ studio so that every jock doing a shift can look up and see something informative that deals with the station.

I was just talking with another radio engineer and he said usually when some big event happens he has to either call or email the jock, but when the jock leaves that information may not make it to the next one. So there's workflow and consistency with it. This is right in front of you as opposed to a disc jockey searching on the Internet for one thing or another. Plus, the whole social media concept that a lot of radio stations are going into, which is you'll have your Twitter feed right in front of you.

I look at this as what Web pages were 10 years ago. Ten years ago some stations had them and some didn't, but now just about every radio station has a Web page. I see this as something that will grow. There are also promotional things you can do with these screens, you can put a screen in the shopping mall, which will display the current song on the air, news about the station, there's a lot of stuff you can do. Think of it like a Chinese restaurant menu, there are a lot of options on it.

Courtesy of Sprite Media

Sprite Media's digital signage can be designed for lobbies, newsroom and, as shown here on the top screen, the DJ booth.

WORKBENCH

(continued from page 10)

than the standard equipment rack. Check with your automation equipment provider as to the rack dimensions of its servers. Consider investing in deep racks so there's no problem closing the rear door or pinching cables coming out of the rear of equipment.

In addition to the deep racks, in Larry's rack room, he specified racks with vertical rack dividers, seen in Fig. 1. This option separates the two racks with a removable divider cover. As you can see, the divider covers are latched, but can be removed easily to gain access to cable runs between the racks and going down into the raised floor. Fig. 2 shows the space between the racks, with the cover removed. In Fig. 3, you can see how neat the wiring can be having this space between the two racks to run wires and cables.

Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send tips to johnpbisset@gmail.com, *Fax to (603) 472-4944.*

Author John Bisset has spent 46 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.

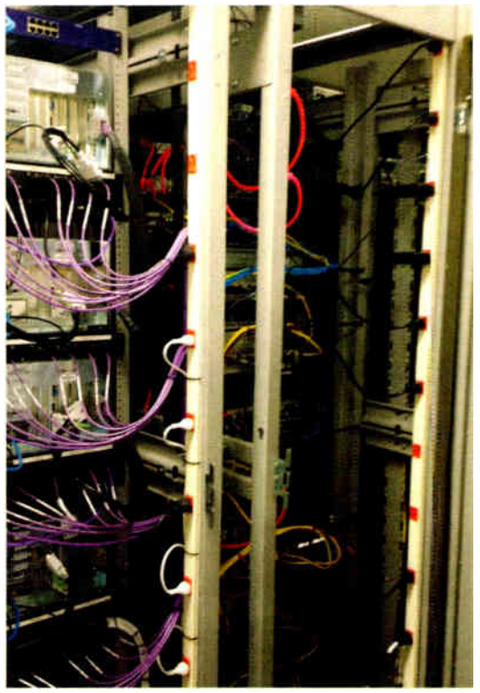


Fig. 3: Wiring can be routed neatly through the chase created by the rack divider.

HIGH CAPACITY
EVENT STUDIO TRANSMITTER LINKS

outdoor unit

TAKE ADVANTAGE OF WIRELESS HIGH PAYLOAD STL/TSL CAPACITY

Moseley EVENT STL/TSL systems provide up to 155 Mpbs combined IP, T1/E1 payloads. Multi-station clusters can convey multiple linear uncompressed audio pairs for a truly cost-effective STL/TSL link. Connect your existing T1/IP audio hardware directly into the EVENT system, or use Moseley Rincon for your audio payloads. An optional DVB-ASI module is available for full duplex video.

EVENT systems are fully bi-directional including a Software Defined Indoor Unit (SDIDU) and Outdoor Unit (ODU), eliminating the need for costly waveguide hardware. The ODU is available in the license free 5.8 GHz band, or licensed 11, 18, or 23 GHz bands. Appropriate external antennas are selected based on path length.

indoor unit

INTELLIGENT SYSTEM DESIGN

Spectrum-scalable digital radios with user-selectable data rates enable broadcasters to have greater flexibility in STL planning and future growth. The integrated T1/E1 and Ethernet interfaces allow for a combination of T1/E1 and IP packet data.

IP APPLIANCES AND APPLICATIONS

Offer IP transmitter control, surveillance security, and site monitoring to reduce downtime, and protect valuable station assets while saving travel time to the site.

REMOTE MIRRORED SERVERS

From the transmitter site, offers backup of business records and programming content to get you back on the air quickly in the event of a studio outage.

EMAIL AND INTERNET ACCESS FROM THE TRANSMITTER SITE

Saves engineers time accessing manuals or technical support from manufacturers during maintenance sessions.

SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)

Full SNMP package with GUI provides easy monitoring and configuration changes.

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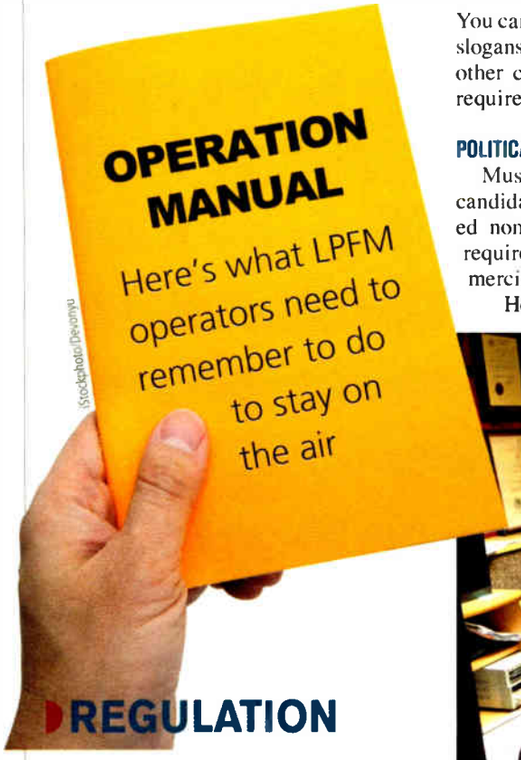
Making a List, Checking It Twice



BY PETER GUTMANN

In the first two installments of this series, we addressed some considerations for building out a low-power FM station and FCC rules that need to be taken into account in preparing for launch. Read those parts at radioworld.com/lpfmregulation. *In this article, we'll look at some of the requirements that govern actual station operation.*

STATION IDENTIFICATION

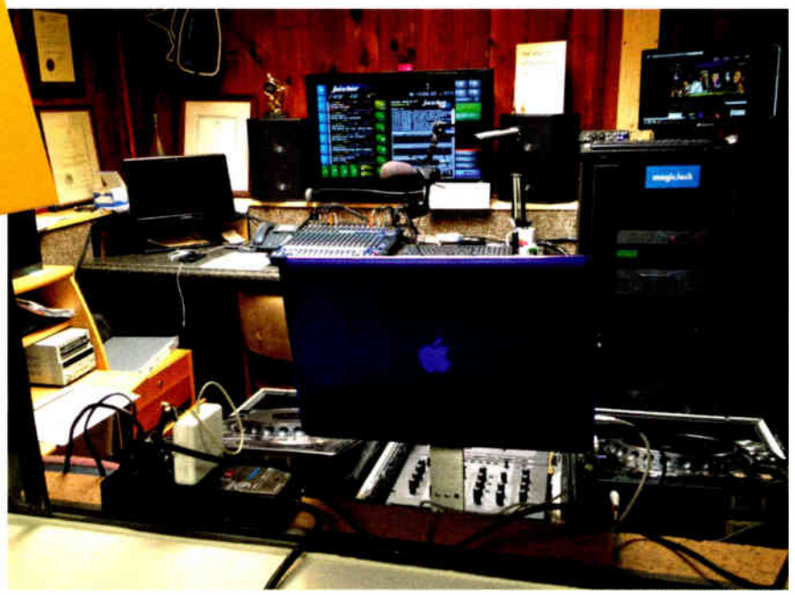
Regardless of whether your programming is locally produced or acquired from an outside source, you need to include your own legal IDs at sign-on, sign-off and as near to the top of each hour as a natural break in the programming will permit.

No matter how you brand or publicize your station, the legal ID must consist of the call sign and community of license. If you wish, you can add the name of the licensee, frequency or channel number and/or network affiliation between the call sign and community. You can precede or tag it with additional slogans, targeted coverage areas and other creative elements, so long as the required content is intact.

POLITICAL ACCESS

Must LPFMs grant access to federal candidates? No — Congress exempted non-commercial stations from this requirement that applies to all commercial stations.

However, if you choose to allow a "use" by a legally qualified candidate (that is, positive use of a candidate's voice, other than in most news programming), then the equal opportunity, noncensorship and record-keeping requirements all apply. In addition, whether or not you allow access you must keep a file of all requests for broadcast time made by or on behalf of a candidate. And while we're on the subject, LPFMs can't support or oppose any candidate for political office.



KMGG studios in Albuquerque, N.M., show a nice LPFM setup.

EEO

The FCC's formal Equal Employment Opportunity recruitment and outreach procedures only apply to stations with five or more full-time employees (30 or more hours per week). While few LPFM stations are likely to pass this threshold, once you do, you are expected to follow the required notification procedures for every full-time opening and to engage in the required number of outreach activities every two years.

LOGS

LPFM stations are required to maintain station logs. However, the content is minimal, requiring only information concerning extinguishment or malfunctions of tower lights (including FAA notification), an explanation of station outages (including due to servicing or replacement of equipment), operation that diverges from licensed parameters and reports of the weekly and monthly EAS tests (together with the reasons for any failure and corrective actions). Each entry should be dated and signed by the responsible person who entered the data. Logs should be kept for two years and must be made available to an FCC inspector.

The FCC publishes a convenient LPFM self-inspection checklist that explains these and other operational requirements.

EAS

LPFM stations must have a current (2007) copy of the FCC's EAS Operating Handbook, which can be downloaded at *http://tinyurl.com/fcc-eas*.

All personnel should be familiar with the EAS requirements and procedures that are applicable to LPFM. This includes certified decoding equipment that monitors your two EAS stations assigned in your state EAS plan. During periods of unmonitored operation, it must be configured to automatically interrupt programming and transmit the audio portion of any EAS message received. Weekly EAS activation tests should be received from each source station and logged. Monthly tests must be both received and transmitted (and logged).

Although LPFM stations are not required to generate the EAS codes and Attention Signal, they must transmit the monthly EAS test script, which can be found in the EAS Handbook. If defective EAS equipment cannot be repaired or replaced within 60 days then an extension must be obtained from the FCC District Director of your area.

TOWERS

If your tower is required to be registered with the FCC (generally because it is more than 200 feet tall or found by the Federal Aviation Administration to be near a flight path), then the FCC Antenna Structure Registration number must be posted in a visible location at the site. You also need to monitor tower obstruction lighting every 24 hours, either directly or with an automatic alarm system. All required painting and lighting must match specifications on the Antenna Structure Registration (which reflects the requirements imposed in an underlying FAA study). The FAA must be notified within 30 minutes of any outage and again upon correction of the condition.

OPERATING POWER

Transmitter power output must be maintained between 90 and 105 percent of licensed values, determined by either the direct or indirect method. Operation at lower power, or going silent altogether, requires notification to the FCC within 10 days and special temporary authority beyond 30 days.

INTERFERENCE COMPLAINTS

During the first year of operation, LPFM stations are required to investigate complaints of blanketing interference within 125 meters of the antenna site. Remedial action is required, unless the problem is due to malfunctioning reception equipment, high-gain antennas, booster amplifiers, mobile receivers or non-RF devices.

LPFM stations are also responsible for correcting interference caused by spurious emissions, interference to the reception of any full-service FM station within its 70 dBu contour or city

(continued on page 15)

Minneapolis Station Shows "Pride"

Madonna songs kick off the launch of this HD subcarrier

In June, the iHeartMedia Minneapolis cluster launched 96.7 Pride Radio, targeting the local lesbian, gay, bisexual and transgender community — and apparently nothing quite says LGBT lifestyle like 24 straight hours of Madonna songs, which is how KQQL(HD3) celebrated its inaugural day on the air, as well as two weeks of commercial-free music.

To learn more about the station's programming strategy, Radio World turned to the station's program director, Don Parker.

As he described it, "96.7 Pride Radio's focus is to be a fun, entertaining destination for local LGBT listeners and allies who enjoy a blend of pop and dance music. The station's programming is guided by a combination of local listeners' interests, Minneapolis-St. Paul's LGBT community, Pride Radio branding and LGBT on-air personalities discussing their lives and interests.

"Like our communities and listeners, our personalities have varied experiences that shape who they are as individuals," he continued.

"For instance, afternoon personality Houston, based in Washington, brings his experience as one of the key organizers of the Capitol Pride celebration each year and works extensively with many LGBT organizations and talent. Evening personality Pacey moonlights as a personal trainer and is very passionate about fitness and living a healthy lifestyle." He said the station personalities aim for a blend of "community, lifestyle and entertainment."

Other Pride Radio outlets include iHeartRadio's WITH(HD2) in Washington; WSRS(HD2), Worcester, Mass.; WKTU(HD2), New York; KBIG(HD2), Los Angeles; KIOI(HD2), San Francisco; KHTS, San Diego(HD2); KPLV(HD2), Las Vegas; WYYY(HD2), Syracuse, N.Y.; WRDA(HD2), Atlanta; and WKSS(HD2), Hartford, Conn.

(continued from page 14)

of license, and interference to the reception of certain third-adjacent channel stations.

The FCC publishes a convenient LPFM self-inspection checklist that explains these and other operational requirements. It can be downloaded at *http://tinyurl.com/fcc-lpfm4*. It's somewhat out of date, as it discusses 10-watt LPFM stations, which the commission originally planned but then decided in 2012 to not authorize. Yet it provides helpful guidance and can prompt relevant questions that your legal counsel or engineer can answer.

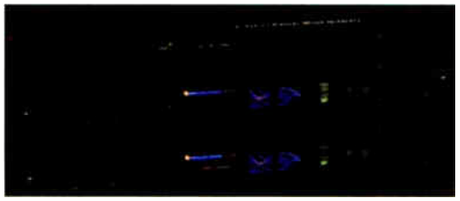
In our final installment, we'll consider upgrades, translators, sales and other elements of long-range planning.

Peter Gutmann is attorney with Womble Carlyle Sandridge & Rice LLP. He can be reached at pgutmann@wcsr.com.

Cruising Main Street

Beasley's new WheatNet-IP remote studio near historic Las Vegas' Fremont Street is a modern throwback to the days when listeners and artists could walk into any radio station on Main Street with a request or a record album.

"It's sort of like being back in high school again when everyone cruised (downtown) Fremont street with their radios turned up," says Tom Humm, who was raised in the area and is now the Vice President and Market Manager for Beasley Media Group, Las Vegas.



Above: The two BLADE-3s and the VMI that power the virtual console pictured in the top photo (created with Screen Builder).

Below: Lamar Smith, Beasley Las Vegas Regional Engineering Manager, and Mike Cooney, VP of Engineering and CTO of Beasley Broadcast Group standing outside the studio

The new Beasley Media/Cox Business Broadcasting Studio built for Beasley Media Group's five Las Vegas stations sits adjacent to a busy amphitheater in Downtown Container Park, the area's newest shopping and entertainment center constructed of cargo containers stacked on top of each other. With the help of a fiber optic communications link sponsored by Cox Business and our WheatNet-IP audio networking, the group can seamlessly link its new remote studio to its main studio on Durango Drive some 15 miles away.

For the entire story... INN24.wheatstone.com

Super Duper Mic Processing

In the M1, M2 and M4-IP mic processors, the A/D converters and all the processing run at 96kHz (or 88.2kHz in a 44.1kHz context). This is done for three reasons:

1. Reduced latency. This is the time delay through the processor, end-to-end. An unfortunate aspect of digital systems is that such delays are endemic and cumulative, so any opportunity to reduce them must be seized. It is particularly crucial where presenters are involved: any significant delay can be seriously disturbing to them, and even short delays can produce comb-filter coloration when the talent's own voice, heard via bone-conduction, mixes with the headphone audio. This colors their perception of what they sound like. Mess with an artist's self-perception at your peril. In short, running at a super-rate halves the conversion times - the major source of latency in a processor - shaving a big chunk off the delay.

For the other two reasons... INN24.wheatstone.com

EDGE Network Interface to Wireless IP Links

You know those inexpensive wifi IP radios everyone's talking about for short studio-transmitter hops or for getting the signal back to the studio from the ballpark?

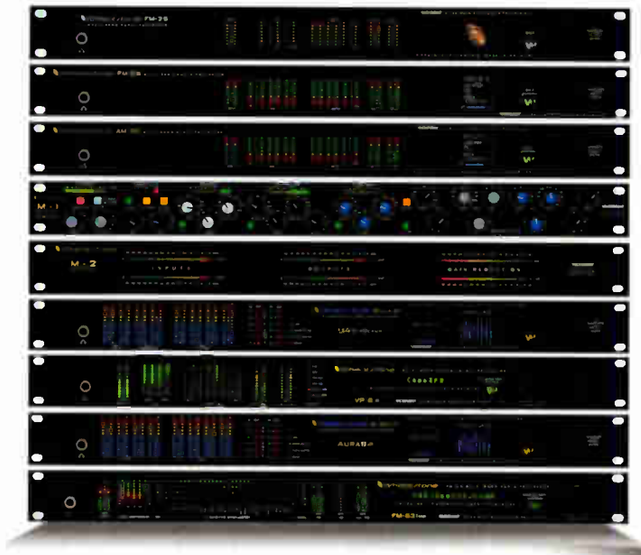
We have something for that, and it even won a Best of Show award from Radio World and Radio magazine.

We call it the Network EDGE, a cost-effective solution for interfacing between high-quality, low-latency studio networks such as WheatNet-IP and low-bandwidth STL connectivity options such as IP wireless radios.

Just click here! INN24.wheatstone.com

Broadcast Audio Processing Perfectionist?

IF SO, WE'VE GOT SOME REALLY COOL STUFF TO SHOW YOU...



Wheatstone gives you the power to sculpt perfect clarity, loudness, and sweetness with absolute precision – the sound you've always heard in your head, but couldn't quite get with traditional processors.

- SST (Sweet Spot Technology) can invisibly manage spectral balance and program density to create a truly natural and superior listening experience.
- Wheatstone's 31-band Limiter lets you dig into any audio and give it the volume your audience demands without introducing perceived distortion. It virtually eliminates listener fatigue.
- Bass Tools go right for the gut. They process on a sidechain and let you dial in exactly what you choose to put back into the mix.
- Multipath Limiter can help remedy multipath blend in car stereos by reducing excessive L-R (difference) transmission.
- Baseband 192 keeps your signal chain pristinely digital – from input straight out to your exciter or transmitter.

Of course, it all comes together seamlessly to deliver the finest audio you can imagine.

Think about the difference YOU can make with audio tools this powerful.
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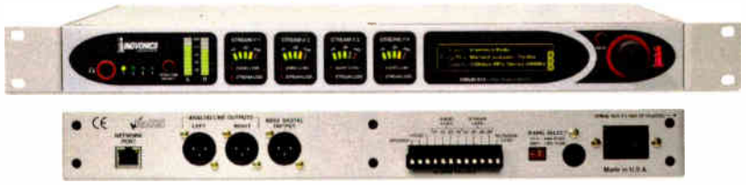
Wave art: iStockphoto/seamartini

INOVONICS TELLS WHAT SIMON SAYS

The Inovonics Simon 614 is an Internet radio monitor.

It can monitor up to four independent Internet radio streams simultaneously. Independent in this case means that the monitoring utility is not time-shared and each stream receives individual attention on a full-time basis.



According to Inovonics, Simon sets up using the front-panel jogwheel and OLED display. Each stream is associated with its own local alarm tallies for stream loss and audio loss. Any stream may be monitored for audio quality using the balanced analog and AES digital outputs, as well as a front-panel headphone jack.

The Simon 614 has an SNMP-compliant Web interface that echoes local stream failure alarms with email and/or SMS-text messaging. Stream failures are logged for follow-up analysis. Accurate audio levels and essential metadata are presented locally on the front-panel readouts and remotely through the Web interface.

The unit has been engineered for compatibility with popular audio network protocols: HLS, HTTP/S, MMS over HTTP or TCP, RTMP, RTSP, RTP, TCP, UDP and TLS, and virtually all encapsulation formats including MP4, OGG, WEBM, MPEG-TS, MP3, FLAC, WAV, AAC, AC3, DTS, Vorbis, WMA 9, Opus, MP2, AMR, Speex, ALAC, WavPack and MPEG-4 ALS.

Info: www.inovonicsbroadcast.com

APT SURESTREAMER ENSURES THE STREAM

The WorldCast/APT SureStreamer is an add-on device inserted between an existing IP audio codec and an IP network, allowing the user to "SureStream" their audio content between locations. Using either two separate wired Internet connections or one wired/one wireless (i.e., DSL plus 3G/4G), the APT SureStreamer sends the same audio content over divergent paths for increased redundancy. The SureStreamer ensures that one seamless, reconstructed stream is produced by the decoder; drop-outs or interruptions to any of the constituent connections are therefore negated or corrected.

The company says DSL charges cost on average 5–10 percent that of a T1/E1 line, making the cost benefits of operating two public Internet connections versus one synchronous link clear. However, it continues, an open Internet link will not inherently deliver the reliability and clarity that broadcasters would expect from a T1/E1 link. SureStream enables broadcasters to achieve consistent audio quality with no dropouts and sophisticated jitter compensation. The output can remain seamless when one of the contributory links suffers a complete loss of connection while also maintaining a consistent latency; this is useful for remote broadcast applications and local content insertion.

Other novel applications for the SureStreamer are emerging. It can be used as a "remote broadcast hub," with a connection to software or hardware codec by Wi-Fi or wired connection the SureStreamer can add SureStream protection to remote audio from the ballpark or remote event back to the studio.

Info: www.worldcastsystems.com

BROADCAST ELECTRONICS INTRODUCES STX 10

Broadcast Electronics says that the new STX 10 10 kW FM transmitter has been designed to offer a combination of audio quality, reliability, redundancy, serviceability and efficiency in a compact design.

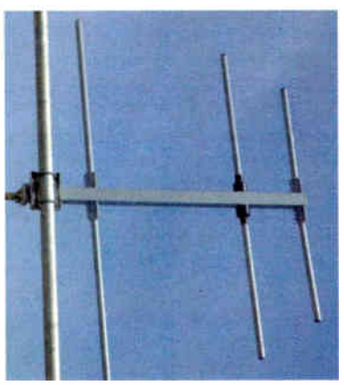
With an efficiency of greater than 70 percent AC to RF, according to the company, the STX 10 will save on electricity costs beginning immediately.

The STX 10 is equipped with four power amplifier modules and seven power supplies. Power amplifier and power supply modules are hot-swappable so there's no reason to take the transmitter off-air to install a spare. The combiner will auto-adjust to the power change when a module is added or removed. Auxiliary power supply options are available for the PA power supplies and controller power supply, providing a redundancy configuration for harsh electrical environments. The transmitter has a redundant cooling system, allowing it to operate at full power with a fan failure.

The STX 10 can fit in a standard 19-inch EIA rack that is 30 inches deep. Not only is it easily transportable to any transmitter location, but the small form-factor also reduces shipping costs.

With IP connectivity at the transmitter site, the STX 10 will provide important transmitter operating conditions and control options from a laptop, tablet or smartphone.

Info: www.bdcast.com



JAMPRO RAISES NEW ANTENNAS

Antenna maker Jampro has new FM antennas available.

The J3YF is a three-element FM yagi antenna with two versions available — a medium/high-power model and a smaller low/medium-power model. Maximum power for the high-power model is 13 kW and 5 kW for the lower power antenna.

These are for the 87.5–108 MHz range and can be polarized horizontally or vertically for directional, semidirectional and omnidirectional patterns. The units are made of hot-galvanized steel, Teflon insulators and silicone O rings. They ship with pipe mounting hardware.

Info: www.jampro.com

AKG EXPANDS "K" HEADPHONE LINE

Microphone and headphone maker AKG has long been known for its K line of headphones, familiar faces to broadcasters. Now there's a new member of the long-serving K line.

The K553 Pro has a closed-back design and sport hefty 50 mm drivers with the large earpads that AKG uses for much of the K line. They can be folded flat for easy transport.

A 3.5 mm to 1/4-inch adapter comes with them.

Info: www.akg.com/pro

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BSI
RADIO AUTOMATION SOFTWARE

KLOTZ INTRODUCES TOUCHSTONE CONTROLLER

The Touchstone controller from Klotz Communications features "Touch'n Tactile" technology, providing operators with advanced ergonomic control and instant access to signal processing and important mixer data, says the company.

With a touch-sensitive LCD monitor and integrated tactile actuators, the Touchstone controller allows for the control of audio processing, software and hardware utilities such as radio mixers, DAWs or audio/video routers as

well as program associated data (videos, pictures and text).

Fitted with USB, Ethernet and RS-232 interfaces, the Touchstone controller includes widgets for the management of faders, push-buttons and rotary knobs that can be positioned anywhere on the screen. In addition, users can modify widgets with individual graphics and configure the system to control any device connected to the control network, including routers, DSP engines and other third-party equipment.

In combination with Klotz Communications' router control software, the Touchstone controller can be configured to control complex routers and console networks. The unit, available in multiple layouts and custom configurations, can also be connected to VADIS equipment.

Info: www.klotzcommunications.com

ORBAN HAS SOFTWARE AUDIO PROCESSOR

Orban says its Model 1600 Optimod-PCN is broadcast-quality audio processing available both as a software-only product for Orban-approved Windows 7 (and higher) computers and preinstalled on a host Windows computer. It is compatible with Windows sound I/O devices that support Windows WASAPI audio.

The host computer can be configured at the factory to run the audio processing software and MPEG4 AAC/HE-AACv2/MP3 streaming audio codecs (from Orban partner Modulation Index) software natively on its Intel processor. Depending on its ordered configuration, the 1600 can run multiples instances of monophonic, stereo or surround processing (up to 7.1 channels), and these can be mixed and matched as required.

The 1600 is suited for mastering, netcasts and digital radio broadcasting, and is suitable for both live streaming and on-demand programming. Optimod-PCN uses the power of Intel's x86 architecture provide a consistent, well-produced sound by performing stereo enhancement, automatic gain control, equalization, multiband gain control, peak-level control and automatic loudness control.

Orban says its MX peak limiter technology uses a psychoacoustic model to achieve a favorable tradeoff between loudness, transient punch, and distortion artifacts.

Second-generation Optimix stereo and 5.1 surround upmixer provides uncolored automatic upmixing. It also provides downmix compatibility.

Orban Stereo Synthesizer can create a spacious stereo or surround output from mono program material.

Optimod-PCN's setup, metering and subjective loudness control incorporate contemporary concepts of "target loudness" based on the ITU-R BS.1770 loudness measurement algorithm and on Orban's third-generation refinements to the CBS (Jones & Torick) loudness controller and loudness metering technology. Users can set and verify the target loudness of the output easily.

Info: www.orban.com

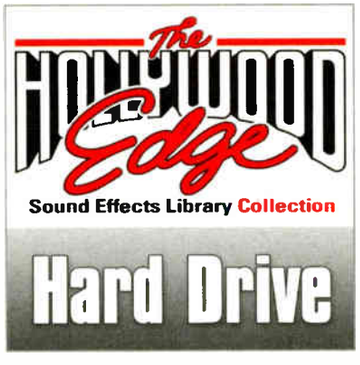
DAVICOM STRIKES BACK AT LIGHTNING

Remote control and monitoring equipment specialist Davicom has a new sensor module for its remote control and monitoring platforms. The DVLD-1 is designed to give warning of the presence and approach of potentially hazardous lightning activity in the vicinity of a transmission site.

The company says that it uses a sophisticated statistical algorithm to provide an estimation of the distance to the storm and to reject potential man-made disturbers. It can detect cloud-to-cloud and cloud-to-ground lightning but reject man-made noise and interference. Range of detection is around 25 miles (40 kilometers).

When connected to a Davicom Remote Monitoring and Control Unit, it can be used to switch to an auxiliary power source (UPS) or to temporarily shut down critical equipment during a thunderstorm.

Info: www.davicom.com



SOUND IDEAS PUMPS UP THE SOUNDS

Over the past few months, sound library publisher Sound Ideas has added several libraries to its offerings.

The Hollywood Edge is familiar to sound designers and has been used on productions large and small. A release explains: "The Hollywood Edge sound effects have been an integral part of Hollywood production over the years and have attracted testimonials from the likes of Oliver Stone and Martin Scorsese. The Hollywood Edge provided high-end, professional and royalty-free special effects and music for all media use."

The addition brings along more than a half-a-million effects.

"Voice Kit Sound Effects" has 18,000 featuring babies, children, teens, adults and seniors. The company says it includes "vocal Foley (laughs, coughs, burps, gasps, groans, grunts, screams, yells, yawns, sighs) from all the voice artists, offering a total of 850 adult vocal Foley effects and 209 baby and child vocal Foley effects." Specialty voices include: "auctioneers, broadcasters, dispatchers, monsters, aliens, munchkins, opera divas and zombies."

It is available as a three-DVD collection with 24-bit/96 kHz WAV files or downloadable with 24/96 versions along with 16-bit/48 kHz and 16-bit/44.1 kHz WAV files.

"Wind Sound Effects" is a two-DVD collection of 200 24-bit/96 kHz files, that are also available as 24/96 versions along with 16-bit/48 kHz and 16-bit/44.1 kHz WAV files. Each cut is two minutes.

A release says that effects are of "variety of different strengths and kinds of wind are included: light, low, medium, heavy, whistling, whipping and gusting winds. Featured in the collection are both urban and rural settings, broken branches and blowing debris, hurricane strength disasters, eerie howling canyon winds, bitter cold arctic blasts and some gentle breezes."

Info: www.sound-ideas.com

AMPEGON EXPANDS HIGH-POWER SW TX LINE

The Ampegon TSW product line of shortwave transmitters includes the 100 kW TSW 2100, the 300 kW TSW 2300 and the 500 kW TSW 2500. According to the Swiss firm, the lineup has "major technical advances" in its transmitter control system, the motor drive tuning system and the measurement acquisition system.

The TSW line is fitted with a unified control system with embedded PC and FPGA technology for network-based communication, which includes remote control from anywhere in a LAN environment. A touchscreen on the front panel provides operation.

It also features an integrated DRM modulator, RF exciter, analog and digital audio signal inputs as well as digital processing (filtering, leveling, modulation schemes).

DC motor technology permits faster and more accurate positioning of the transmitter tuning circuits, says Ampegon, leading to automated frequency changes.

The onboard pulse step modulators have 97+ percent efficiency, Ampegon says. They also have short circuit protection and can be switched on and off independently.

Info: www.ampegon.com

GENELEC UNVEILS SUBWOOFER

Powered monitor maker Genelec has released the 7040A, what it calls an "ultra-compact" subwoofer. The 7040A is designed for music creation, sound design applications and audio and video production work, according to the company.

The 7040A features Genelec's Laminar Spiral Enclosure technology, which allows the 7040 to achieve a high sound pressure level and move high volumes of air without distortion, Genelec said. It is also designed to complement Genelec's 8010, 8020 and M030 active monitors.

Calibration of the Genelec 7040A subwoofer to the listening environment is done using DIP switches located on the subwoofer connector panel. These controls address typical monitoring placement configurations.

Using a 6.5-inch woofer and a Genelec-designed Class D amplifier, the 7040A produces 100 dB. External dimensions of the 7040 are 16.125 x 13.75 x 8.125 inches, weighing 25 pounds and it is able to fit into a 19-inch rack.

Info: www.genelec.com

ENCO SERVES RADIO

ENCO Systems' ENCO 1 is an all-in-one server for radio automation and content management. The company says it can replace individual workstations in a facility and work across a network.

The hardware features space for multiple drives in a mirroring array for redundancy. Additional redundancy comes in the form of dual power supplies and network connections.

A small, inexpensive client box in a control room or studio is all that is needed to communicate with the main server. Not surprisingly, the ENCO Server can be operated remotely for cluster and network service.

Equally unsurprising, the piloting automation and content management software is provided by ENCO, notably its well-known DAD system. The system operates on a "virtual machine" model wherein it uses memory to create separate user environments as needed, making it scalable and able to ameliorate hardware bottlenecks and failures.

General Manager Ken Frommert said, "We're helping ENCO DAD automation customers reclaim rack space and reduce maintenance, while enhancing the facility-wide control that comes with networked, IP audio technologies; and the redundancy that broadcasters require to protect their on-air assets."

ENCO recently released DAD 15.0.

Info: www.enco.com

AXEL FALCON XT IS FLEXIBLE

The Falcon XT digital audio processor from Axel technology features five-band architecture, dual-band AGCs, three-band equalizer, stereo enhancer, speech detector and four limiters.

An internal stereo generator ensures an accurate MPX signal and the RDS encoder, available as an option, provides two data sets, each with a wide range of services.

These include static programmable PS 60 messages, 16 radio text messages, alternative frequency to receive the best frequency as a function of the "coverage area," traffic program/traffic announcement to listen to traffic information and functions such as EON, M/S, DI, CT, PI, PTY and PIN. Switching between the data sets takes place by means of serial commands, GPIO or TCP/IP from a radio automation system.

Falcon XT's MPX power control, brilliance control, expander, overdrive, bass enhancer and harmonizer minimize unwanted noises, the firm says. The unit features analog and digital I/O (over XLR connectors), two independent MPX outputs and two additional inputs with different functionality.

The Falcon XT is fitted with an aux input (SCA) for use with the external RDS encoder as well as an input that allows users to switch audio from another processor MPX so as to create a subnet managed by the automation system. Outputs include audio fault input changeover.

The unit can be controlled remotely via Windows-based client software and receive commands by Ethernet TCP/IP, USB, RS-232 port and four GPIOs.

Info: www.axeltechnology.com

AUDIENT DELIVERS USB INTERFACE

Founded by former DDA and Soundcraft console designers David Dearden and Gareth Davies, Audient has moved beyond consoles, its initial area of activity, and added preamps and processors. The latest is a small USB interface.

Taking the form of a petite two-channel mixer, the iD14, has two Audient Class A preamps along with a 1/4-inch JFET instrument input. Thrown in is a TOS square optical ADAT input. All outputs to a USB 2.0 port.

The preamps have the expected 48 V phantom power. Burr-Brown A/D-D/A conversion is up to 24-bit/96 kHz. Using Audient's ScrollControl, the all-metal iD14 expands to offer control over 10 input channels and four output channels. There are also main monitor and headphone outputs.

Info: www.audient.com

SENNHEISER WORKS WITH APOGEE

Microphone maker Sennheiser has worked with digital hardware company Apogee Digital to develop a clip-on microphone system for handheld devices.

The system consists of Sennheiser's MKE 2 digital lavalier microphone and Apogee's ClipMic interface/digital converter capable of 24-bit/96 kHz performance. The device connection end features a Lightning connector, which optimizes the system for use with Apple iDevices such as iPhones, iPads and iPod Touches.

Included in the package are a metal windshield, foam windscreen and carrying pouch.

Sennheiser Director Audio Recording Wolfgang Fraissinet said, "The fact that we feed the mobile device with a professionally converted digital signal results in the best possible sound quality."

Info: www.sennheiser.com

More Summer of Products in our next issue!

RADIAL PROVIDES LAPTOP AND TABLET AUDIO ACCESS

Here's a problem-solver for a problem you may not have realized you needed solved. Once it is, though, many promising audio production opportunities come to mind. How do you reliably get audio from a laptop/tablet computer into a signal chain? One professional solution is Radial Engineering's Trim-Two, something of a DI box for laptops/tablets.

The Trim-Two takes the audio from a laptop's/tablet's (usually) 1/8-inch headphone output, isolates it, balances it and outputs it to stereo XLR connectors or dual mono. From there it can be sent to monitors or a mixer. It also has 1/4-inch and RCA inputs as well for other pieces of equipment or instruments such as a keyboard. A level control is included. The Trim-Two is passive and needs no power. Like Radial's other little boxes, it's made of practically indestructible 14-gauge steel.

Info: www.radialeng.com

Mobile Me, Mobile You

Create demand for your own product by maxing out mobile engagement

"On average, Americans are now checking their smartphones 156 times per day," a media expert proclaimed at a lecture I attended in June.

A quick search on my mobile device (what else?) brought up various studies from the last three years, showing people using smartphones between 100 and 300 times a day. While I couldn't easily find a recognizable research report — unless you live by the UK's "Daily Mail" — it's clear just by observing people that there is something intense going on with the human connection to mobile devices.

What does this growing device dependence mean for the radio industry?

NUMÉRO UNO

The industry as a whole must put effort toward having the FM chip turned on that already exists on most phones.

Wait — you didn't know that your iPhone and most other phones have an FM chip that needs only to be activated? You're not alone. Anecdotally, I've yet to locate one person outside broadcasting who has any idea that this capability exists. The NAB is trying to get mobile manufacturers to turn the chip on. However, the phone companies, who make money when we all use data, prefer to encourage consumers to use streaming apps. The telecoms claim that demand for non-streamed live radio is small.

Emmis CEO Jeff Smulyan knows you have a smartphone in your hand.

Jeff Smulyan, CEO of Emmis, did a terrific interview on NPR a few months ago concerning this issue, and I highly recommend you give it a listen or at least have a look at the transcript. I love the title *npr.org* used for the article: "The Hidden FM Radio Inside Your Pocket, And Why You Can't Use It."

One of the things Jeff mentions is that while HTC and Motorola chips haven't been blocked, it appears that your phone company still has to turn on the chip. He also says Jot Carpenter, vice president of government affairs for CTIA — The Wireless Association, is not in favor of turning on the chip until smartphone consumers create a demand.

PROMO POWER

Mark Lapidus

To me, this sounds like an opportunity for our medium. Radio excels in creating demand for products and services. Our industry must come together and create a massive promotional campaign!

CALL TO ACTION

Recorded and live messaging should be created to explain to listeners that free broadcast radio is available on their phones without paying for streaming data and without massive battery consumption. Further, as FEMA points out, in emergencies when cell signals disappear this integrated radio will still work without a data connection. This truly can save lives.

These messages should run during the same time period across the USA, for maximum reach and frequency for at least one month on commercial and public radio stations and networks. I'm sure one of the team members leading this initiative can come up with an easy call

(continued on page 24)

Is College Radio Still Viable?

Higher education institutions are keeping up in the mobile media age

CONTINUING ED

BY DICK TAYLOR

Is college radio still viable in today's media environment?

This very topic was tackled at a couple of sessions at the Broadcast Education Association 2015 Convention in Las Vegas in April.

The organization is made up of the professors, instructors and advisors mentoring the next generation of radio broadcasters at colleges and universities across the United States.

Spoiler alert: The short answer to this article's question is "yes."

"ON AND GONE"

College radio is vibrant and growing in ways of which you might not be aware.

Today's college station might be available only online, like *UTARadio.com* at the University of Texas at Arlington.

It might be a 100-watt low-power FM station, such as WACC(LP) at Asnuntuck Community College in Enfield, Conn.

It might be a 16,500-watt educational FM station, like KVSC at St. Cloud State University in St. Cloud, Minn., that also operates four HD signals, a 24/7 sports streaming station, a streaming music station, a special streaming station for the growing Somali immigrant population in the city, plus two LPFM stations.

Or it might be a college radio station like Virginia State University's WVST that originates programming heard on Sirius/XM, in addition to those programs it broadcasts to its home service area of Petersburg, Va.

One thing is clear: Today's college radio is very active on all media platforms and current students are learning about a wide variety of programming venues. Many of today's college radio stations are run like a business with strict programming guidelines and expectations.

Higher education is very accepting of today's technological advances and is working with students to be skilled to operate on all these platforms.

Chad Roberts at Central Michigan University told the audience in Las Vegas that, in addition to *live* performance radio, they also teach students how to voice-track. His guidelines to students were to keep it "tight, bright, on and gone." Keep your breaks shorter than 90-seconds maximum and remember, one thought to a break.

Lance Liguez at University of Texas at Arlington said that today's students are very engaged in radio. He's especially seen an increase in the number of students who want to pursue sports radio; both play-by-play and sports talk.

INDISTINCT CLASSIFICATIONS

Liguez, like most of the other educators I spoke with, does not classify radio as merely those audio products that emanate from either an AM or FM transmitter, but rather as any audio-based product. Educators consider streaming, podcasts and satellite all forms of radio. Higher education is very accepting of today's technological advances and is working with students to be skilled to operate on all these platforms.

I know my students do not distinguish between AM/FM and podcasting, satellite or streaming as one being "radio" and the others not; it's all radio, and it all is easily accessible via their smartphone.

Monica Wicke, a student staff member at UTA Radio, is on the air.

Drawing these false lines of distinction is not new. When radio came on the scene and began to broadcast news, newspaper journalists — who were called the Fourth Estate — would refer to radio journalists as the Fifth Estate. Today, we consider them all to be one and the same.

Speaking of news, many college radio stations have active radio news departments and can often be seen winning radio news awards for both long-form and short-form news broadcasts at competitions, including those held by Hearst and the Associated Press. However, Liguez did express concern that he's beginning to see students coming up who are more interested entertainment-style news over the more serious news of the day.

Jim Gray, who oversees KVSC, the public radio service of St. Cloud State University, does such a good job of training his students in the NPR style of radio that when they leave school, commercial broadcasters tell him, they love hiring his students but they have to keep them off the air for 30 days to "flush the KVSC out of them."

The second most popular position in radio that students are interested in pursuing is becoming on-air personalities; especially morning shows personalities.

Colleges do differ in the amount of programming formatics they enforce on their students, but even those colleges that consider their stations to be "free form" still have basic program elements that everyone must follow.

Often the difference between strict programming formatics and not is tied to whether the college offers a degree program in radio broadcasting. When colleges or universities offer broadcasting degrees, their student radio stations are run more like a business. Those that don't are more likely to run their student radio stations like a club.

When I earned my FCC Third Class license back in 1967, it was called a "Radiotelephone Operators License." And when I teach my class in the history of broadcasting in America it reminds me that radio has never been the same from the moment it was born. It has been growing, changing and morphing almost every year of its existence. Radio has always been in a state of constant change.

Maybe the FCC was ahead of its time when it named its operator's license, since today most students listen to radio via their cellular telephone. As I meet incoming freshmen during student orientations, I'm seeing students who think that's the way radio's always been delivered. Because to them, that's the way it always has been.

But when a college decides to sell the FCC license of its student radio station and move to an all-online radio experience, what's the impact on its students, faculty and its learning program? I take a look at that in my next column.

Dick Taylor is a Certified Radio & Digital Marketing Consultant and assistant professor of broadcasting at Western Kentucky University in Bowling Green, Ky. He is director of the KBA WKU Radio Talent Institute and remains on the board of the New Jersey Broadcasters Association.

Comment on this or any story. Write to radioworld@nbmedia.com.

MOBILE

(continued from page 23)

to action: Calling, texting, creating and promoting an online petition using a vehicle such as Change.org, or emailing the appropriate agency or person.

What else does mobile phone use mean to our industry? It means radio station websites *must* look great on a smartphone. There are still far too many that are desktop-only and look ridiculous on a phone. If you can't afford responsive design right now, at least have a mobile site created until you can budget appropriately. Also keep in mind that a lack of a mobile-responsive website really hurts in the new Google search rankings.

Do you use SMS text messaging to accept song requests, topics for talk shows, or news and traffic reports from listeners? Don't imagine for a second that Twitter is enough. That's just an excuse to save money. The average Joe still uses text a lot and will text you for contests a lot faster than he will call you to hear a busy signal. "I'll take caller 100!" Come on, you don't have to do that anymore. When people text you, they can receive a great message back immediately instead of feeling like they are ignored by a phone that may or may not answer.

How much do you talk about mobile apps on the air? If the answer is never or rarely, you're missing out on a compelling piece of water cooler chat. Don't believe me? Ask your audience for app recommendations. Have your personalities try out apps and report on the positives and negatives. Feel compelled to make money with this idea? How about "An App a Day," sponsored by someone who wants to promote their own cool app!

I now wonder how many times a day I check my own phone. Today I installed a free app called "Checky" that will tell me exactly how often I'm engaged with my iPhone while I have my face pointed toward it. At least I have a benchmark. And hey, if the number exceeds 150, I may seek professional help.

The author is president of Lapidus Media. Contact him at marklapidus@verizon.net.

A Really Remote Communication Solution

Does a satellite phone make sense for an engineer? Amanda Hopp tries out the Inmarsat IsatPhone 2

SHORT TAKE

BY AMANDA HOPP

When I was asked to take a look at Inmarsat's IsatPhone 2 I was intrigued. While here in Denver, I don't have much need for a satellite phone — all four of our sites have a landline and cellphone access. But there are many engineers who have sites in areas where cellphone and landline access are scarce.

The biggest reason to have phone access at any site would be for emergencies. We do deal with high voltage and if someone gets hurt we might need to call 911. I don't think people realize just how dangerous this job is, but when you are elbow-deep in a transmitter one mistake could cost you your life. Another reason engineers would need a phone at a site is for technical support.

The Inmarsat IsatPhone 2 looks exactly how you would picture a satellite phone. It is a large "candy bar "phone. It comes with a carrying case that you can put on your belt. It comes with a car charger as well as a wall charger. It has your typical keypad, and a call and end button, and the buttons are easy to see. The onboard menu is useful.

The company says the phone is dust-, splash- and shock-resistant. It says battery life should be eight hours of talk and up to 160 hours of standby time. The battery is replaceable.

One extra item it has is an emergency assistance button that will send out your GPS location to a preprogrammed emergency number (not 911).

The IsatPhone 2 is very much like a cellphone: It can do voice calls, text messages and email. However, the text and email functions are limited, and if you send a text with more than 160 characters it becomes two or more texts.

When outside, and with a clear view of the sky, the phone finds the satellite fast. Inmarsat maintains its own geostationary satellite fleet so connecting shouldn't be a problem.

Making a phone call is easy. Just dial the country code (00 for the United States) then 1 and the number. It does usually take several seconds before you hear the ring and I noticed the line would cut in and out at times. I expected this though, since it is a satellite connection.

There is a delay of 2–3 seconds when talking; this is definitely something to keep in mind. You cannot just interrupt and talk over someone. Because of the delay, parts may be lost, which is disconcerting for us as we are so used to the lightning-fast world of a quick back-and-forth conversation. The overall quality of the calls using the phone was surprisingly good. It sounded no different than a cellphone.

The phone allows for hands-free operation with a speaker or a plug for a headset. This is great if you need your hands to do some work while being on the phone. The only real downside, and it's a biggie, is the phone antenna needs to be pointing up towards the sky to work, which can easily be forgotten. If you are working inside of a building it doesn't work.

Therefore I can't recommend it as standard equipment for engineers. That being said though, for those engineers who work and maintain extremely remote sites, (contractors, I'm especially addressing you), I could make a recommendation for this phone.

For information, contact Inmarsat in England at 011-44-20-7728-1000 or visit www.inmarsat.com.

FREE SOFTWARE

Checking in on Czech Plug-ins

Today we pay a virtual visit to Prague, the Czech Republic, home of MeldaProduction (*www.meldaproduction.com*).

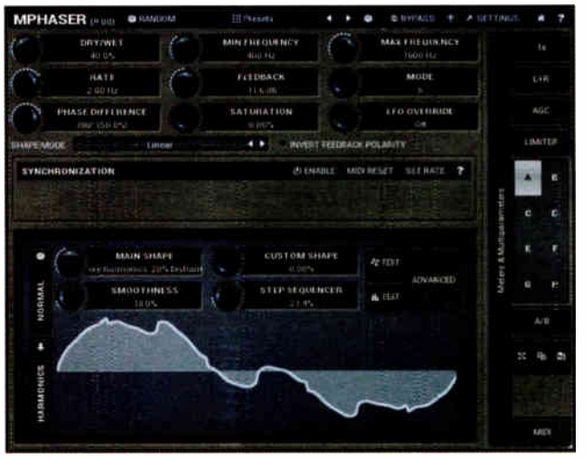
There we find the MFree Effects Bundle, a sizable helping of free versions of many of the company's commercially available VST plug-ins. Contained in a single downloadable zip file, the bundle includes MAnalyzer, MAutoPan, MAutoPitch, MBandPass, MComb, MCompressor, MEqualizer, MFlanger, MFreqShifter ... (breathe) ..., MLoudnessAnalyzer, MNoiseGenerator, MPhaseer, MOscillator, MTremolo ...

You get the idea. For the complete list, just visit the website. It's quite a pile of freebies. Unfortunately, it does not include any of their reverb or delay plug-ins.

Melda MEqualizer

Melda MCompressor

Melda MLoudnessAnalyzer



Melda MPhaser

These plug-ins contain features that I've yet to see in others, especially free ones.

As is the case with most free versions of commercially available effects, some features are disabled. Most notably, these don't include any presets, nor can any user presets be saved. There are also a few "ticklers" on the interface, suggesting you upgrade to the paid version, but these are by no means intrusive.

Speaking of interface, these plug-ins are easy and intuitive to navigate. Many parameters are shown as horizontal bars. When the mouse pointer is placed over one, a small up-down arrow appears. Left-click dragging adjusts the parameter. For effects such as EQ or compression, a graphical interface is provided to make frequency, bandwidth, or threshold adjustments. Other features common to all the plug-ins are programmable preset "hot keys," A/B comparison, mono summing, mid-side and surround settings and AGC.

This last feature provides gain compensation, ensuring that the output level of the effect matches the input level. Another interesting feature is the Morphing control. This allows the plug-in to morph from one setting to another in real time. This feature is automatable. Many of the effects include a limiter button, which engages a safety limiter, keeping levels from peaking above 0 dB, thus protecting your audio chain, speakers, and even your ears. While MeldaProduction advises against keeping it on all the time, as it does eat into CPU processing power, it's handy for experimenting with extreme settings.

That's what seems to set these plug-ins apart from others. They contain features that I've yet to see in others, especially free ones. While they don't directly affect the audio, they are handy nonetheless. One example is the Areas button in the MEqualizer. It presents colored overlays on the EQ graph, indicating what certain frequency bands affect. For drums, it will show areas like "Bass boom" or "Snare punch." Need to include some written notes with a particular track? The MNotepad offers a window where notes can be typed and attached as a plug-in.

These plug-ins come in both 32-bit and 64-bit versions for Windows XP, 7 and 8. Just visit *www.meldaproduction.com/plugins/bundles* to find the MFree Effects Bundle.

— Curt Yengst, CSRE

CONSULTANTS

ACOUSTICS

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AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@yahoo.com.

AUTOMATION EQUIPMENT

WANT TO SELL

DIY-DJ Version 2.0 is now available. Over 500 copies of DIY-DJ, a Linux based radio automation system, have been distributed and now version 2.0 is available. Voice tracking, join satellite feeds, do unattended sports and remote events, temperature announce, scheduler, automatic cut editing on import, and much more. It's FREE. If you are using version 1.0 or would like to try DIY-DJ, go to krwsfm.com, register and down load your free full version. The only thing we ask is that you let us know if and how you are using the software. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

CONSOLES/ MIXERS/ROUTERS

Radio Systems RS-12 console, power supply module out, also a few sliders not working but input boards with spare board also working, make offer for any part of console; AudioArts R-5 12-chnl console cue system with some cue and other buttons not working but power supply and all sliders work, again make offer. Pick up or shipping can be discussed. kent@wheatlandradio.com or 307-322-5926.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO SELL

1934 RCA 77A double ribbon microphone, originally used by Arthur Godfrey at WFBR Baltimore. 100% perfect condition. Contact Bill Cook, 719-684-6010.

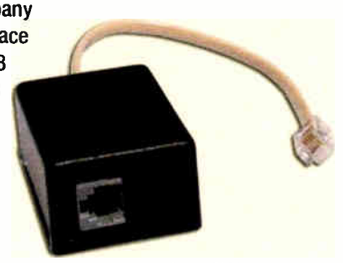
WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@yahoo.com.

MISCELLANEOUS

WANT TO SELL

Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's – 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com



WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

Wanted: schematics for McMartin gear, such as LR 1004 limiter, MS-10 amp, etc, also want CCA gear, and always looking for the same gear everyone else in these classifieds are looking for, so contact me too! Richmix8@gmail.com or skype:richmixlive.

RECEIVERS/ TRANSCEIVERS

WANT TO SELL

Free sample SCA decoder. 417-881-1846.

RECORDING & PLAYBACK HARDWARE

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-684-6010.

Schnader telescriptions 16 mm musical films produced in the early 50 s. Bill Cook, 719-684-6010.

Standard Short-tune series. Bill Cook, 719-684-6010.

TAX DEDUCTIBLE EQUIPMENT

Donations Needed: All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: Dan@WIECradio.org.

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The following distributors serving the broadcast industry would be glad to help you with any of your requirements.

EMPLOYMENT

HELP WANTED

Major Market Non-Commercial radio station has an opening for a **Maintenance Engineer**. As one of the nation's largest and most respected NPR-member organizations, WBEZ 91.5 FM Chicago, we are home to such shows as This American Life, Sound Opinions, and Wait Wait...Don't Tell Me.

This position is responsible for regular maintenance and installation of all studio broadcast equipment and digital audio library, and serves as the right hand person to our Chief Engineer for transmitter maintenance for two radio stations. SBE certification preferred. We offer a comprehensive benefits package and relocation assistance for the right candidate. Email resume to jobs@wbez.org.

EOE/M/F/D/V

POSITIONS WANTED

Are you a small market station needing a good nuts & bolts engineer in the Los Angeles area? I will make your station shine! CET, fully FCC Licensed. Available for Full/Part-time/Contract work. Available immediately. Mitchell Rakoff, 909-446-6820, mitchellrakoff@yahoo.com.

Driven, passionate, and dedicated individual, searching to become a member of a close knit broadcasting crew to achieve a common goal. Tommy, 918-977-0810 or abstommy4341@yahoo.com.

I am a vastly diverse professional with a passion for broadcasting. I am proficient in many different broadcasting areas, including on-air, production and copywriting. I am very energetic, informed, and reliable. I stay optimistic and I am looking forward to working with you! Sheba Fisher, shebasfish@yahoo.com or 405-637-6560.

Experienced radio station manager seeks new management opportunity. More than 39 years experience in radio. Willing to relocate. Family-friendly format(s) preferred. Send details about your management opening to: radiogm@hotmail.com.

Broadcaster who's a tenacious, reliable team-player trustworthy. Very business-mined, organized with strong leadership traits. Shines in production, delivery/show prep. Andre, 214-556-7862; andremcdonald@hotmail.com.

Dedicated, Quick-Witted and Insightful Personality! On-air, as a news/sports, or commercial writer, or as a member of your production staff! John, 304-703-7555 or lejomc77@gmail.com.

Extremely knowledgeable and articulate racing writer/talk show host Adam Amick is available for shows, correspondent, features, etc. Check out www.bleacherreport.com for samples. Call 214-384-5812 or email: adam@rubbinsracingshow.com.

Moldable/trainable broadcaster who's industrious, with positive attitude and great work ethics. Good musical background, plus copywriting skills. Go's with the flow. Kyle, 715-896-7307; abskyle718@yahoo.com.

Asset with drive to win! Well-rounded, creative broadcaster, social media maven, promotional skills w/active voice, bringing growth and community awareness/involvement. Coco, 469-601-3050 or ne_mitchell@yahoo.com.

Enthusiasm, versatility, and perseverance. Focused on quality work, long term results for station, and desire to grow on a daily basis. Mike, 405-639-1092 or pastormikemcclintock@icloud.com.

TRANSMITTERS/EXCITERS/TRANSLATORS

TUBES

READER'SFORUM

A ROYALTY PAIN

The argument over artist royalties has been a battle royale with radio and television broadcasters since the formation of the first musicians' and actor's unions and song-publishing powerhouses like ASCAP, BMI and SESAC.

I can't figure why we haven't put this entire issue to rest after nearly 100 years and put the burden squarely on the backs of the end consumer, where this issue belongs. We used to do it when record sales were at their peak, and we can still do it today, even though vinyl is not as big as it once was.

Instead of relying on the royalties for airplay from a relative "few" thousand broadcasters, why not get the royalties from the millions of end users who are enjoying the product? Believe you me, we don't sit around in our offices all day listening to the "sweet" sounds of what we play simply because we like to listen to music all day. We're running a business, and many of us just play what we're told to by the chart gurus, not because we like it or enjoy it.

I've had the belief for a couple of decades now that we can put the royalty issue to rest simply by implementing an inexpensive royalty fee on all blank media — CDRs, CDRWs, DVDRs, DVDRWs, memory sticks, magnetic tape, any blank media that can hold a file could have a tiny fee attached to it, including the CD/DVD burners and hard drives. Just a penny per blank CD, $5 per memory stick would do the trick and en masse much more revenue than squeezing the turnip blood out of broadcasters. How about gleaning millions of contributors to the "pot" annually, instead of relying on just a few broadcasters? People buy blank media constantly. It would be transparent and not much money to the end consumer and could be collected like a sales tax.

Of course, then, the high-priced lawyers would have nothing much to wrangle broadcasters about if we did it the sensible way, would they?

Also, we could simplify the copyright laws so no one is a criminal any longer for copying something because we would have already paid the royalty through purchase of the blank media. You have to "pay to play" streaming audio or video, so why not put the royalties right in there with it? Put it on the back of the consumer, not the providers of content (broadcasters). Makes too much sense, doesn't it?

Marvin Walther
Chief Engineer
Carroll Broadcasting
Tawas City, Mich.

FREE RADIO

Responding to "Keep Radio Free and Vibrant," May 20 issue:

Right now it is a symbiotic relationship, but that only works if both sides recognize the mutual advantages and play fair with each other. I suppose it would be too sarcastic to suggest that radio stations charge music companies to play their music, still …

Tom Dooley
WWSX(LP)
Rehoboth Beach, Del.


OPINION

RADIOWORLD

Keep Radio Free and Vibrant

Free Radio Alliance advocates for copyright reform protections

COMMENTARY

BY PEGGY BINZEL

Peggy Binzel

freeradio

UAV AND RADIO

Barry Thomas, director of engineering for Wilks Broadcast Group, with his DJI Phantom 1 drone.

I really enjoyed the article "Up There in the Sky! It's a Bird! It's a Plane" by Randy J. Stine in the June 3 issue. As an operator of unmanned systems, and an avid listener of radio, I like to see different technologies fused together.

George Mann
Vice President of Information Technology
Unmanned Ad-hoc Industries
Spring, Texas

BLIND BROADCASTERS

Just a few months ago we purchased a radio station in St. Augustine, Fla., WBHU(FM). As any broadcaster would do we reached out to community leaders for discovery of local needs and wants. Then something unusual happened.

Flagler Broadcasting owner Jim Martin remembered a story in the Dec. 3 issue of Radio World about Monte Sieberns, a blind DJ at WJOT in Wabash, Ind. That story inspired Martin to make a call to the Florida School for the Deaf & Blind in St. Augustine. We were eagerly invited to meet with top school officials, teachers and students.

Monte Sieberns uses the Braille Sense U2 in the studio.

The campus is comparable to any college with dorms, football field, lake, boats, tennis and auditorium.

At this amazing school there are no handicaps. The blind students easily make there way from class to class. They have a keen sense of today's technology and all have enthusiasm for bright futures in the business world.

We were told that despite their skills, passion and optimism for the future, statistics say only 20 percent will be employed despite their capabilities, not disabilities.

Many of the students with broadcast and music interests have visited our Beach 105.5 studios. One student sang a station jingle, others will produce commercials and some love telemarketing. In the fall we will have them sell "Don't Text & Drive" campaigns.

Sometimes the best resources are hidden behind the impossible. At the Florida School for the Deaf & Blind, nothing is impossible.

Thank you, Radio World.

David L. Ayres
Vice President/General Manager
Flagler Broadcasting
St. Augustine, Fla.

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READER'SFORUM

COMMUNITY AM WAS HERE FIRST

I am asking the commission to dismiss the rulemaking by REC Networks to allow LPFMs a power increase to 250 watts ("LPFMs Wanna Grow," *radioworld.com*). I am the owner/operator of a small AM station near a metropolitan area. I feel that REC Networks is asking for more and more for LPFMs, and before we know it, they will be asking that LPFMs be allowed to be full commercial stations.

The AM revitalization rules that Commissioner Pai and Chairman Wheeler have [proposed] really don't help stations like mine. My station is a "Class D" daytimer with low-power nighttime authorization that does not cover my community of license, due to a Class A station that was once a Class 1-B Station on my assigned frequency; it is 730 miles from my transmitter site. My station relies on revenue to stay on the air and serve the public. We AMs were here first, and a vast majority of these stations are locally home-owned and -operated, not owned by corporations on Wall Street or a smaller corporation that owns all the stations in town and nearby small towns.

REC Networks is going overboard with this, helping LPFMs over stepping their boundaries by asking for more power. I feel it is absurd. To me, they are going to push and push to make LPFMs commercially competitive against other major FMs, AMs that have FM translators, and really hurt small, standalone AMs with no chance of having a translator or a nighttime power increase owned by individuals, minorities or families, like my facility.

My station has an application that has been granted a FM translator at our tower site, but we are not the licensee. The licensee is asking *way* too much money for the license of the translator, more than it's worth, so it leaves me no option. The investment of buying the FM translator is a financial burden, putting me into debt that would be foolish. I am also an AM activist, and I believe the AM band has suffered enough with competition, especially with the FCC allowing LPFMs to exist.

When the idea of LPFMs was proposed in the 1990s, it was to give a nonprofit organization or school a chance for a non-commercial station and relieve the problem of pirate, low-power broadcasters causing interference. The LPFM applicants got what they wanted, so they should be grateful and stop trying to put small 250- to 1,000-watt commercial AM stations out of business.

T. Scott Bailey
President/General Manager
WMRO(AM)
Gallatin, Tenn.

AMPEX MEMORIES

Courtesy of the website AmericanRadioHistory.com

In response to Read Burgan's "My Love Affair With an Ampex Recorder," June 17 issue:

Read, what a kick and a trip down memory lane to read your article about the Ampex 600 series.

Like you, I have been a longtime fan of this particular machine, and even bought a couple off eBay recently to convert to solid state and use for hobbyist location recording.

We had a 600 at our junior high school in the mid-1950s, and I quickly became one of the few budding audio nuts who got "checked-out" on that very expensive machine by our principal. The school had an American DR-330 ribbon/dynamic quasi-cardioid mic that went with it, and when live orchestra recordings with that mic were played back through the companion 620 amplifier-speaker, I swore that there was no discernible difference between the live performance and the playback. And those were 12-year-old ears, too!

My company kept old Ampex 350-series machines alive by providing solid-state electronics, much to the dismay of Ampex, Revox and, particularly, Otari. Over the years, we sold some 10,000 channels of electronics, meaning that about two-thirds of that number were new recorders that were not sold.

Our Canadian distributor, based in Vancouver, tried to talk me into building a drop-in replacement for the Model 600, which was very popular among Canadian broadcasters. We never did, maybe should have. The electronics I have in mind to bring my 600 deck back to life will probably use a design we came out with at the very end of the magnetic recording era, electronics for mag-film recording. Mag-film was still in common use in Hollywood even after broadcast and recording studios went digital. So the 600 will have the advantage of "OLX" or Oxide Linearity Extension, a sort of pre-distortion inspired by Scully and 3M designs, plus "HFX," which was our version of Dolby's "HX Pro," the adaptive biasing technique.

It turns out that adaptive bias was not a Dolby development at all, but an idea patented back in the 1950s by Nathan Haynes of the Amplifier Corp. of America. Dolby came unglued when we introduced "HFX," and threatened us with a lawsuit. I mailed them a copy of the Haynes patent and never heard another word. It sure works well, even giving a decided top-end headroom advantage at 15 ips.

Jim Wood
Founder
Inovonics
Felton, Calif.

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