NewBay Media

RADIOWORLD

NOVEMBER 18, 2009 | The News Source for Radio Managers and Engineers | $2.50 | RADIOWORLD.COM

INSIDE

L.A. Broadcasters Plan for Next Time

Many Revisit Auxiliary Transmitter Plans After Mount Wilson Wildfires

UCLA Department of Physics and Astronomy

A dramatic webcam image from the evening of Aug. 29 captures the glow of fires as well as facility lights.

BY RANDY J. STINE

LOS ANGELES — Many engineers with facilities on Mount Wilson are reacting to the recent wildfires that nearly claimed their main broadcast sites, taking steps to bolster disaster preparedness.

The Mount Wilson telecommunications antenna farm, one of the busiest and largest broadcast antenna sites in the nation, was spared damage from the wildfires that spread across the San Gabriel Mountains in late August and early September.

Mount Wilson, approximately 25 miles northeast of downtown Los Angeles, is home to nearly every Class B FM in the city — 20 FMs in all. The cluster at the mountaintop facility, located within Angeles National Forest, includes broadcast and two-way communication antennas.

Approximately a dozen broadcast towers dot the 5,700-foot peak, which is also home to the Mount Wilson Observatory and Park. Local engineers say the site is an RF tangle like no other.

Fire reached to within a quarter-mile of the broadcast site, engineers said, threatening transmitter buildings. Local broadcast historians recall the location has been threatened before, as in the early 1990s.

Observers were left to speculate about how bad the damage could have been.

At stake for broadcasters was millions of dollars in capital loss, said Tony Neece, president of the Mount Wilson

(continued on page 3)

In 1941, Stations Confronted 'Moving Day'

Many Had to Give Up Their Accustomed Places on the Dial

BY JAMES E. O'NEAL

The Federal Communications Commission was created in 1934 and thus marked its 75th anniversary this year. This is the last in a series of articles about the commission.

As the final voice in setting down rules and regulations for America's radio and television stations, the FCC has been responsible for some major changes in the way we do business.

ROOTS OF RADIO

Witness the recent transition to digital-only emissions for full-power television broadcasters. Not only did this require stations to create new digital infrastructures; in many cases they had to purchase new transmitters, antennas and even towers. The majority of stations changed operating frequencies.

This was not the first such major change affecting broadcasters. There was another upheaval, back even before

(continued on page 6)

IT IS THE MOST MUSICAL OF ALL PROCESSORS...

VORSIS GOES TO 11!

It's been said that D-Minor is the saddest of all keys. But to truly understand that, you need to be able to HEAR D-Minor. That's where Vorsis comes in. Because, you see, it's also been said that Vorsis is the most musical of all processors - this coming from engineers around the world. No matter which Vorsis processor you choose, you can be assured your legions of fans out there will be getting the cleanest, most detailed sound you can deliver. And, as a bonus, you'll save money doing it!

Using Vorsis is as easy as owning it. Just pick a preset from the many that cover just about every format there is, and you're off! Want to tweak things to get your own signature sound dialed in? Vorsis' toolset is unparalleled, offering you deep control over every nuance of your sound.

There are a ton of technical particulars that we're sure you'll want to read about, so we've made it easy to find them on our website. Grab 'em. Read 'em. And give us a call. We'll be happy to get you set up before you find yourself residing in the "where are they now?" file.

WHEATSTONE VORSIS

It's Time YOU Won The Ratings War.™

phone 1.252.638-7000 | www.vorsis.com | sales@wheatstone.com

MOUNT WILSON

(continued from page 1)

Fire Safe Council, a group formed by communications tenants earlier this year to launch improved fire prevention initiatives.

"Had the fire burned over Mount Wilson, the damage would have ranged from moderate to catastrophic, depending on several factors.

"Masonry buildings with sound, fire-resistant roofs, closed eaves and overhangs, with all air intakes screened and other wall openings filled with fire-safe foam, probably would have survived without major damage," Neece said.

Restoration of burned-out facilities likely would have been delayed due to the continued threat of fire and the fragile conditions of roadways to the site, Neece said.

In addition to broadcasters, there are numerous other communications sites on Mount Wilson, which if lost would have severely interrupted commerce affecting the infrastructure and economy of Southern California, Neece said.

This year's close call left broadcast engineers here reassessing their auxiliary transmitter sites and wondering what might have happened had wildfire disabled Mount Wilson for a long period of time.

"There is no question that we are now in evaluation mode and rethinking strategies," said Saul Perez, chief engineer for KPWR(FM).

The Emmis station has a full-power backup on Flint Peak in Glendale, Calif., approximately 30 miles from Mount Wilson, a safe distance from the recent wildfires.

Fred Holub, CBS Radio, Los Angeles

CBS has a range of backup options, including a disaster vehicle with a 2,000-watt frequency agile transmitter that can be used in a pinch as a radio station on wheels.

Perez said Emmis spent money beefing up the backup site before the recent wildfire, adding better monitoring and modulation gear recently.

"We really consider that more of an alternate main site than a backup. If we ever had to broadcast from that site for an extended period of time we could sustain ourselves very well."

Some broadcasters find themselves with low-power backup transmitter sites that are not suitable for a long-term fix if needed, several area engineers said.

"We are always in disaster preparedness mode and have had disaster plans in place. This was a good test of our plans," said Scott Mason, director of engineering for CBS Radio in Los Angeles.

'DIVERSE BACKUP SITES'

CBS Radio's four Mount Wilson FMs have auxiliary transmitters in the Verdugo Mountains, Mason said.

"We believe in geographically diverse backup sites for all of our FMs."

CBS has a range of backup options, Mason said, including a disaster vehicle with a 2,000-watt frequency agile transmitter that can be used in a pinch as a radio station on wheels.

The 30-foot truck features a transmitter cabinet and a studio, a 60-foot mast, built-in generator, transmitter and Armstrong wideband antenna, Mason said. "We had [the truck] in place during the fire. It's our toolbox on wheels."

Despite the auxiliary site options, CBS is not satisfied with its current situation.

"We initially built the back-up sites just to stay on the air in the metro. That won't be good enough over a long haul if we had to use it for six to 12 months. We are working to find the capital to build aux sites to maximum available power," Mason said.

Norm Avery, chief engineer for Citadel's KLOS(FM), said, "One of our main concerns was the ingestion of soot and debris by our transmitter for KLOS on Mount Wilson. As a precaution we shut down Mount Wilson for about a week and switched to our backup transmitter on Mount Harvard, which doesn't use outdoor air for cooling, only conditioned air." Mount Harvard is less than one mile from Mount Wilson but was not threatened by the wildfire.

"Our Mount Wilson transmitter currently uses about 35 percent outdoor air," Avery said.

Since the fire, Citadel has placed orders for two new solid-state transmitters, which will be enclosed within a building that will circulate its own conditioned air, he said.

"We will have a huge new level of protection at Mount Wilson," Avery added.

Clear Channel already had plans in place to consolidate

(continued on page 5)

For Alerting, 'Progress Has Been Limited'

A Recent GAO Report About IPAWS Is Worth Absorbing

FROM THE EDITOR

Paul McLane

A document written on Capitol Hill recently merits more attention that it has received.

The U.S. Government Accountability Office submitted the report to a House subcommittee in September. The topic was public alert and warning.

As most RW readers know, FEMA, the Federal Emergency Management Agency, is responsible for the Emergency Alert System and for developing a new Integrated Public Alert and Warning System, or IPAWS, which will supersede EAS and constitute the nation's public alert system.

The GAO examined the status of EAS, progress in implementing the new system and challenges involved. It surveyed emergency management directors and talked with officials of FEMA, DHS and NOAA, as well as other participants and "stakeholders" like alerting companies and consumer groups.

BLUNT

I found the language in the report surprisingly succinct, unlike much of what comes out of the Washington bureaucracy.

"As the primary national-level public warning system, EAS is an important alert tool, but it exhibits longstanding weaknesses that limit its effectiveness," the authors wrote in the summary.

"EAS allows state and local officials limited ability to produce public alerts via television and radio. Weaknesses with EAS include lack of reliability of the message distribution system; gaps in coverage; insufficient testing; and inadequate training of personnel.

"Further, EAS provides little capability to alert specific geographic areas. EAS does not ensure message delivery for individuals with hearing and vision disabilities, and non-English speakers."

These weaknesses aren't new, of course, and GAO noted that FEMA does have projects to address some of them.

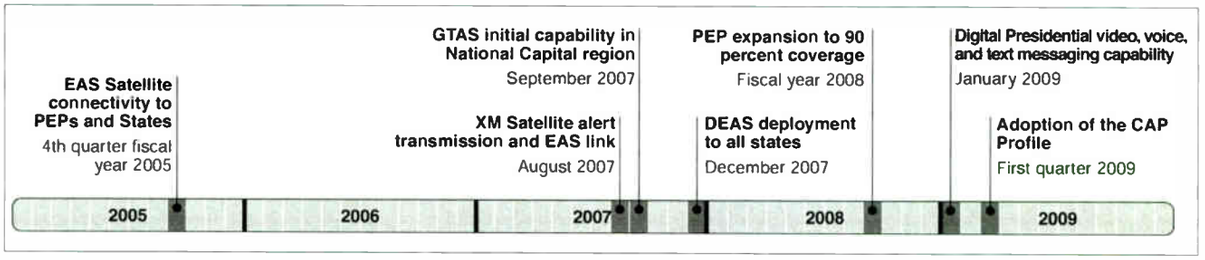
"However, to date, little progress has been made and EAS remains largely unchanged since GAO's previous review, completed in March 2007. As a result, EAS does not fulfill the need for a reliable, comprehensive alert system," the authors continued.

They pointed out that the IPAWS program, conceived five years ago, aims to integrate new and existing alert capabilities, including EAS, into a comprehensive "system of systems."

"However, national-level alert capabilities have remained unchanged and new technologies have not been adopted," they found.

"IPAWS efforts have been affected by shifting program goals, lack of continuity in planning, staff turnover and poorly organized program information from which to make management decisions. The vision of IPAWS has changed twice over the course of the program and strategic goals and milestones are not clearly defined, as IPAWS operated without an implementation plan from early 2007 through June 2009."

The result, they wrote, was that as state and local governments go about creating their own alert systems, "IPAWS program implementation has stalled and many of the functional goals of IPAWS, such as geo-targeting of messages and dissemination through redundant pathways to multiple devices, have yet to reach operational capacity."



The GAO report included examples of incomplete IPAWS projects with missed timelines.

It said FEMA had done pilot projects without assessing outcomes or lessons learned and "without substantially advancing alert and warning systems." It criticized FEMA for not periodically reporting on IPAWS progress.

The GAO continued by saying that although public warning depends on cooperation of people and organizations, "many stakeholders GAO contacted knew little about IPAWS and expressed the need for better coordination with FEMA. FEMA has taken steps to improve its coordination efforts, but the scope of stakeholder involvement is limited.

"FEMA also faces technical challenges related to systems integration, standards development, the development of geo-targeted and multilingual alerts, and alerts for individuals with disabilities."

LIMITED PROGRESS

The authors concluded that FEMA had made limited progress in implementing this hoped-for comprehensive alert system.

"Management turnover, inadequate planning and a lack of stakeholder coordination have delayed implementation of IPAWS and left the nation dependent on an antiquated, unreliable national alert system. FEMA's delays also appear to have made IPAWS implementation more difficult in the absence of federal leadership as states have forged ahead and invested in their own alert and warning systems."

(continued on page 12)

THIS ISSUE

NOVEMBER 18, 2009

MOUNT WILSON

(continued from page 3)

backup sites for its four Mount Wilson FMs even before the fire this fall, said Terry Grieger, chief engineer for the company in Los Angeles.

"Just this year we approved a new ERI combiner system at our Briarcrest auxiliary site in the Hollywood Hills. It turned out the new FM combiner was delivered during the first week of the fire."

A crew from Electronics Research Inc. including President/CEO Tom Silliman arrived within days to tune the combiner and test the new auxiliary site.

"We crammed a lot of work into just a few days time, but the backup transmitter site was ready if we needed to utilize it," Grieger said.

ACCESS

Clear Channel also called in one of its mobile emergency response vehicles. The vehicle, usually stationed in San Diego, has a frequency agile 5,000-watt transmitter, antenna, processing equipment, satellite-delivered audio system and generator.

"Perfect in a pinch for getting a station up on the air quickly," Grieger said.

Tom Koza, engineering manager for Univision in Los Angeles, said since the fires, the broadcaster has decided to invest in a permanent auxiliary broadcast site for its two Mount Wilson FMs. "After a full review we are now pursuing options at Flint Peak."

Lack of access to the Mount Wilson broadcast sites during and in the weeks following the fires has caused concern for broadcasters.

"We would have been unable to reach our Mount Wilson site even if it had been damaged," said Citadel's Perez. "We are working to develop relationships with law enforcement and CalTran (California Department of Transportation) to make sure we have proper permits and credentials for access."

Radio World reported in the Sept. 9 issue that the Society of Broadcast Engineers is talking to the Federal Emergency Management Agency and other parties to figure out the best way to accomplish such a goal in all states.

ONGOING EFFORT

The non-profit Mount Wilson Fire Safe Council applied for and was granted $200,000 in state grants for fire prevention work, including clearing of overgrown brush, according to the Los Angeles Times.

However, that money was not received prior to the wildfire this fall, officials told the newspaper.

Fire experts have advised the group also to consider construction of a fire buffer zone around the perimeter of the communications site, the report concluded.

Local observers said Southern California's rainy season, which begins in January, likely will bring a new challenge for broadcasters.

"With so much vegetation burned away, there is very little holding the soil together. It is easy to imagine mud slides this winter that could render Mount Wilson inaccessible by the mountain road," said CBS Radio's Scott Mason. "At least it will wash away the orange fire retardant from the mountainsides that was left behind."

Mount Wilson hosted its first radio station transmitter site in 1946 when the former KFI(FM) signed on the air.

At the time this story went to print, the so-called Station fire, the one that most threatened Mount Wilson, was 98 percent contained, according to fire officials.

Two firefighters died in fighting the fire, which was believed to have been set, when their truck plunged off a mountain road.

MOUNT WILSON FM STATION LIST

KAMP	CBS
KBIG	Clear Channel
KCBS	CBS
KHHT	Clear Channel
KHTV	Venture Technologies
KIIS	Clear Channel
KKGO	Mt. Wilson FM Broadcasters
KKLA	Salem Communications
KLOS	Citadel
KLVE	Univision
KOST	Clear Channel
KPCC	Pasadena Area Community College District
KPFK	Pacifica Foundation
KPWR	Emmis Communications
KRTH	CBS
KSCA	Univision
KSWD	Bonneville
KTWV	CBS
KUSC	University of Southern Calif.
KXOS	Emmis

Source: Dennis Doty, transmitter engineer for NBC Universal in Los Angeles

1941

(continued from page 1)

there was commercial television.

At the appointed time — in the wee hours of a spring morning in 1941 — most U.S. radio stations were ordered to cease operating on frequencies that had been assigned to them as far back as the 1920s, and to move to new locations on the dial. About 90 percent of the nation's 862 AM stations were issued frequency relocation orders by the FCC.

This "moving day" amounted to the first large-scale project by the commission and had roots that went back to 1938, when the FCC was only four years old. A treaty was signed that year in Havana by representatives of the United States, Canada, Mexico, Cuba, Haiti and Dominican Republic to reapportion North America's broadcasting channels. This was known as the North American Regional Broadcasting Agreement, or NARBA.

More than 70 years after terms were hammered out in Havana, it's not entirely clear who made the first move to bring these players together in shuffling AM frequencies, but it's likely that the state of radio in Mexico was a key factor.

DR. BRINKLEY, AGAIN

Ever since medical and radio renegade John Brinkley thumbed his nose at the Federal Radio Commission in 1931 and set up shop with the first of the "border blasters" just across the Rio Grande from U.S. soil, Brinkley and others like him had been a thorn in the side of the FRC and its successor, the FCC.

Courtesy Library of American Broadcasting

'Moving day' orders were generated by an FCC headed by Chairman James L. Fly. He oversaw commission activities between 1939 and 1944. Other memorable actions during his chairmanship included the raising of FM and television broadcasting from experimental to commercial status.

Brinkley and his ilk out-watted most U.S. stations and sometimes even operated between U.S. frequencies. (Brinkley's XER parked its hundreds of thousands of watts on 735 kHz for a time, tearing holes in the coverage of multiple U.S. and Canadian stations. Brinkley was not alone in such shenanigans; a 1931 issue of Citizen's Radio Call Book Magazine indicates that other Mexican stations had operated on such oddball channelizations as 547, 632, 857, 923, 962, 965 and 1333 kHz.)

Brinkley's impotency and prostate cures along with those targeting colonic problems from his wife's XEAW were enough of an embarrassment to the U.S. government. But when coupled with Norman Baker's advertisements for charlatan cancer treatments on XENT and scores of preacher creatures hawking religious nostrums and forgiveness for minor and major sins — all for a love offering — it had become just too much.

The nighttime ionosphere over North America positively glowed from the skywave energy booming out of the superpower transmitters situated on Mexico's *frontera del Norte* — and just out of reach of the FCC. However, the Mexican government politely refused to take any action, so long as these broadcasting mavericks were prompt in sending their *mordida* to Mexico City.

The collective intelligence of the U.S. government didn't back off from its attack on the blaster problem and eventually got the Mexican government's attention by waving about something that the neighbor to the south didn't have: cleared broadcasting channels.

This had been a sore spot for some time. Under a previous international agreement, Canada had six clear frequencies and the United States possessed a whopping 40. Washington made it known that this inequity might be addressed *if* the Mexican government would get on board with the U.S. Department of State and the FCC to reel in the border blasters, and *if* the Canadians would agree to the necessary frequency swaps, and *especially if* a large number of U.S. stations could shift dial positions to accommodate the deeding of key frequencies to Mexican stations seeking clear-channel status.

This quid pro quo was sufficient to gain the attention of the Mexican government and in1938, signatories gathered in Havana to ink the deal, shake hands and celebrate over Cuban rum and cigars. Mexico walked away with six promised clear slots; U.S. parties winked collectively and silently bid adieu to Dr. Brinkley and the rest of the radio fringe that populated the banks of the Rio Grande.

That was the easy part.

The next was getting word out to most U.S. broadcasters that it would be necessary for them to give up their accustomed places on the dial and steer their kilocycles elsewhere.

MOVING NOTICE

Someone must have put in a lot of long sleepless nights in figuring out the logistics of who would move where in those pre-computer days of the late 1930s. However, it was finally done and this announcement appeared in the FCC's "Sixth Annual Report" for the fiscal year ending on June 30, 1940:

In conformity with the provisions of the North American Regional Broadcasting Agreement, the Federal Communications Commission on September 11, 1940 filed with the State Department its proposed reallocation of frequencies in the standard broadcast band, to go into effect simultaneously with the pact, on March 20, 1941.

It went on to explain how this was to be accomplished in terms of frequency shuffling, and the effects of the change on listeners. It explained that the planned large-scale reassignment of frequencies would make for a better world.

(continued on page 8)

Fallout from the frequency shift affected another U.S. sector: the radio serviceman. An estimated 10 million sets with push buttons needed resetting, offering an unprecedented opportunity to cash in. (The majority of radio owners were not about to tweak oscillator and RF stage trimmers to bring in the new frequencies.)

1941

(continued from page 7)

[T]he correlated shifting of the frequencies of some 100 broadcast stations in Canada, and of numerous stations in Mexico and Cuba will serve to eliminate in considerable measure the long-complained of interference from these sources, and thereby improve broadcast reception in the North American generally. Interference from Mexican and Cuban stations has been particularly objectionable to the rural listeners. ***The Havana pact contains no provision for continued operation of high-powered stations just across the Mexican border.*** *[Author's emphasis]*

The report noted that America's broadcasters would not have to replace their transmitters, merely swap out their quartz crystals. It went on to state that while this was a small item, "it will take some time to obtain the 2,000 or more crystals from the few manufacturers who grind and calibrate them to order."

How the FCC arrived at this number is uncertain, but it's speculated that each shuffled U.S. broadcaster would need a main and backup crystal (approximately 1,550) and the rest would go to stations in Canada, Mexico, Cuba and other island nations affected by NARBA.

This was a lot of quartz to grind by the handful of companies — including Bliley, Monitor Piezo Products and Valpey Crystal — that produced radio crystals.

Incidentally, it was reported in the publication Radio and Television Retailing that both the FCC and the NAB were urging broadcasters to swap crystals to ensure "readiness of equipment at the deadline." Just how broadcasters were to do this in a timely manner is uncertain, as in 1941 there was no FedEx, UPS or USPS Priority Mail.

The FCC's report failed to address the necessary retuning of the nearly 800 transmitters and antennas on "moving day."

While most stations had their resident "sparks" on payroll, some had to rely on consulting firms to handle the retuning. In some cases this amounted to no more than moving up 10 or 20 kHz. However, for some the move was much more drastic, with their final homes several hundred kHz away.

There was considerable paperwork too, generating revenue for communications law firms.

Most stations experienced a surge in overtime pay as the date drew near, with dress rehearsals being conducted during experimental hours to make sure everything would go smoothly in the early hours of March 29. Clyde Hunt, CE of Washington station WJSV (later WTOP and now WFED), offered comments in a March 1941 Washington Post article:

"That means that when WJSV signs off for the night, these weeks, we replace the present crystals with the ones we will be using and test during the dead of night. Then, before the station goes back on the air, we have to switch crystals again so Art Godfrey will come in over 1460 and not 1500 kilocycles."

Rehearse the nation's stations did, and few slip-ups were reported at sign-on time on March 29, 1941.

FCC Chairman James Fly was particularly happy, stating in another Post article:

"The number of channels in the broadcast band has been increased somewhat, and in various ways each channel is to be more intensively used," he said. "In short there's going to be more room on the air, and it's going to be more equitably distributed. For listeners, then, the chief advantage will be better service and less interference."

Courtesy Public Library of Charlotte & Mecklenburg County (N.C.)

Some stations got out the word to listeners not to look for them in their accustomed dial positions after March 28 with newspaper ads such as this one. News also was spread through on-air announcements, door knob tags and even electric company billing statements.

Fly couldn't help making a dig at the Brinkley crowd.

"Bootleg stations are outlawed," he commented, acknowledging that at least a dozen of the radio renegades "have been in operation along our borders using 'superpower' and aiming their signal directly at this country through the use of directional antennas. Thus the stability of our whole broadcasting system seemed threatened ..."

'THE CHANCE OF A LIFETIME'

Another crowd — a very large one — was rubbing its hands with glee, but not particularly over the demise of the Brinkleyesque broadcasters.

These were the nation's radio servicemen, who stood to profit greatly on "moving day" due to the large number of push button-equipped radios that would need to be reset so that John and Jane Doe could find their big band, drama, comedy and soap broadcasts. (It wasn't just the present generation of Americans who had trouble resetting digital clocks and the like. A lack of technical savvy existed in the 1940s too.)

Radio and Television Retailing, which was a serviceman's publication, noted that some 10 million push button radios were in the hands of consumers and that "the public will thus at least require advice and, in many cases, the services of experienced radiomen."

It reported that while the average charge for push button resetting was $1, the Philadelphia Radio Service Men's Association advocated $2 and in New York City it was pegged at $1.50 for jobs done in the home and $1 for sets brought to the shop. (A 1941 dollar had the buying power of about $14.50 today.)

It was speculated that if a serviceman didn't have his pockets stuffed full of cash at quitting time on March 29, something was very wrong.

Radio tube manufacturer Sylvania, in an ad in the March 1941 issue of the magazine, put it in words that anyone could understand: "March 29 brings — the Chance of a Lifetime to Servicemen." The company offered "door knob hangers" and other promotional material to help servicemen spread the word about the impending frequency change.

RCA went further by preparing a special "Moving Day" kit for dealers that included an advertising proof sheet for placement in local newspapers and a transcription with spot announcements to be aired over local stations. Both offered the suggestion that while servicemen were changing out the push button settings, this would be an ideal time for them to check and replace any weak tubes (with genuine RCA bottles, of course) to ensure that the customer's radio would continue to operate at peak performance.

WAS IT ALL 'SWEETNESS AND LIGHT'?

Aside from the small percentage of listeners who somehow didn't get the word, the massive change in radio facilities went reasonably well.

The FCC's "Seventh Annual Report" for 1941 reported that "the change was accomplished smoothly due to the cooperation of station licensees, equipment manufacturers and consulting engineers in making prior adjustments to transmitters and antenna systems."

Interestingly, the 1941 report observed that "802 of the 893 standard broadcasting stations then authorized in the United States changed frequencies." (This is variance with the FCC's 1940 figure of 777 of 862 stations being relocated.)

The report did observe that some stations were not able to make the frequency hop on schedule.

"In some instances, stations with directional antennas were not able to make readjustments by March 29 and were permitted to operate at night with reduced power pending readjustment. In some cases where stations were assigned a channel requiring new or different directional antenna they were enabled to operate with limited power until they could make the necessary installation."

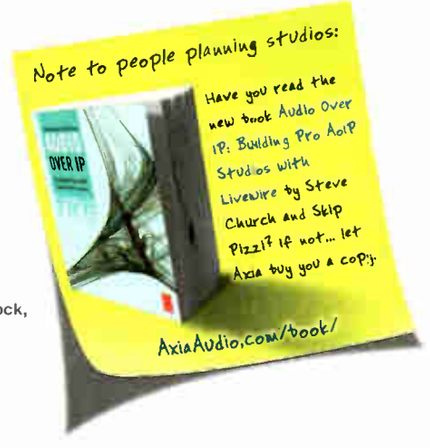
One of these was Birmingham's CBS affiliate, WAPI, which had been operating on 1140. A CBS ad in Radio and Television Retailing noted that the station might be relocating to 1170 "for some time after March 29" before moving to 1070.

KFAB in Lincoln, Neb., also was listed as a problematic station. Its pre-move frequency was 770 kHz and its new spot should have been 1110, but it was

(continued on page 10)

EVERYBODY WANTS ONE.

And who could blame them? Omnia ONE is the most flexible processor ever built. Yes, it can be used for FM processing. Or AM processing. Or netcasting or even studio production and mastering. Everybody wants more for their money. Omnia ONE delivers. And of course, the ONE has the smooth, punchy, brilliant sound that has made Omnia the #1 processor brand in radio. Everybody can now sound amazing. And we do mean everybody. In less than two years, we have sold more than 2,000 units, making ONE the most successful new processor introduction of all time. Go ask a broadcaster who has an Omnia ONE. You won't have any trouble finding ONE.



Omnia
A Telos Company

24/7 SUPPORT

Radio Never Sleeps. Neither do we. We're here for you, anytime, with free round-the-clock, 24/7 technical support. Call +1-216-622-0247.

OmniaAudio.com

1941

(continued from page 8)

noted that it might be spending some time parked at 780 before this was possible. (It is assumed that the station would continue to operate synchronously with Chicago's WBBM as it had for some years, since WBBM was also shifting to 780 on moving day.)

Another exception was San Jose, Calif., station KQW, which operated on 1010 before the big switch. It should have moved directly to 740, but for a number of reasons this didn't happen until 1947.

Perhaps the biggest fly in the ointment was the relocation of Albuquerque's KOB. The 1941 resettlement spawned possibly the longest-running bit of litigation in radio history.

Prior to NARBA, KOB had been operating on 1180 kHz with 10 kW. In 1940 it received the commission's blessings to run 50 kW on that frequency and officially was designated as a Class I clear-channel station, meaning that it was the only operation in the country on 1180 at night.

The NARBA required KOB to vacate 1180 and the commission initially parked it on 1030 kHz. This didn't sit well with the owners of Boston's WBZ, which also operated on that frequency, and they argued that the new interloper was severely damaging their nighttime coverage to the west. (WBZ was a Class I-A clear.)

The FCC then on a temporary basis — until a more suitable spot could be found — parked KOB on 770.

This is where the situation began to worsen.

New York's WJZ (now WABC) was the flagship of the Blue (later the ABC) network and was also assigned to operate on 770. The station's owners would argue that to put someone else on its cleared nighttime frequency amounted to discrimination, as neither of the other two major network NYC flagship stations had to share frequencies (CBS and NBC).

However, just a few months later, and before any real solution could be provided, the United States found itself in a world war. The FCC had many other priorities and KOB continued to operate on 770 throughout the war years via a "special service authorization," the equivalent of today's STA.

The legal skirmish over nighttime supremacy on 770 kHz involved a generation of lawyers before finally being settled in WABC's favor.

FALLOUT

Although the original NARBA treaty has been superseded by a more recent agreement, it did give the nascent FCC its first opportunity to flex its regulatory muscles in a big way some 70 years ago, and permanently affected most North American AM stations.

It also created several legacies, including the rather special 660, 770, 880 channelization in NYC. (Somehow the 1960s and '70s "Sev-en-ty-se-ven, W-A-B-C" jingles just wouldn't have had their alliterative magic if they'd reflected the station's pre-move frequency of 760 kHz.)

The move also created a mystery that has puzzled more than one later-generation station engineer — namely, why a station's transmitting antenna is electrically longer than it really needs to be.

James O'Neal is technology editor for TV Technology and a frequent Radio World contributor. For more radio history, click on Roots of Radio under Columns at radioworld.com.

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

Selected content from Radio World's "The Leslie Report" by News Editor/Washington Bureau Chief Leslie Stimson. To receive the free, bimonthly e-mail newsletter, subscribe at www.radioworld.com/subscribe.

'RADIO RESCUE PLAN' DRAWS ATTENTION

Twenty-two public comments had been filed at the FCC by late October in response to the "Radio Rescue Petition" filed this summer by the Minority Media Telecommunications Council. Comments regarding RM-11565 were due on Oct. 23.

The group wants the FCC to set up an "AM transition federal advisory committee," modify AM nighttime coverage rules, replace the minimum efficiency standard for AMs with a minimum radiation standard, tweak certain FM classes in Zones I and IA, create a new "L" class of LPFMs and relax main studio rules.

It also wants the FCC to extend the three-year period for new CPs, look into a new radio agreement with Cuba, hold tutorials on radio engineering rules, create a "broadcast public engineer" position to help small businesses and nonprofits and make other changes.

The most strident responses are those in regards to re-purposing TV analog Channels 5 and 6 for radio, proposals made by other groups and an issue MMTC supports.

Island Broadcasting and the Association of Maximum Service Television, as well as ABC and NAB, oppose this proposal. NAB said it agrees with MSTV, which said the proposal "ignores the fact that hundreds of television stations — including full-power stations and Class A, low-power television stations, and translator stations — already operate on these channels." NAB also said "the envisioned reallocation of TV Channels 5 and 6 for radio service could significantly disrupt post-transition digital television service. It supports many of the MMTC's proposals and says the FCC should concentrate on the ones that don't disrupt DTV service.

Island Broadcasting, licensee of low-power TV station WNYZ in New York, called the proposal "unwise and unwarranted" while ABC TV called the issue moot because the FCC has said the continued use of Channels 5 and 6 for television service is in the public interest.

Broadcast engineer Dana Puopolo supported the idea, saying about 30 TV stations are using these channels, "all of which could easily be migrated elsewhere," allowing "thousands" of FM allotments to be created. AMs that would like to move to those FM frequencies should be given preference to move after a "reasonable period" of simulcasting, and after that those owners should give up their AM frequency, he writes.

So did a number of smaller broadcasters filing jointly, like Multicultural Radio.

Of course TV would be reluctant to give up any of this spectrum. However that doesn't mean that none of this spectrum shouldn't be re-purposed for radio. It's interesting that one of the proposals called for the FCC to start giving AMs the attention the agency now gives LPFMs, and give the AM service some help — including being allowed to migrate to a new, expanded FM band.

'PUBLIC' ENGINEER, TUTORIALS PROPOSED BY MMTC

Minority Media Telecommunications Council has proposed that the FCC conduct tutorials on radio engineering rules at its headquarters and at industry conferences and create an engineering position specifically to help small business and nonprofits with routine engineering matters. The so-called "Broadcast Public Engineer" would prepare routine technical exhibits for small businesses and nonprofits, doing what can be done with available software without field testing, and set up an engineering hotline. (See page 45.)

The commission may already be thinking this way. As I reported in the Oct. 21 issue, at a session at the NAB Radio Show Media Bureau Chief Peter Doyle said that something like a third of the initial 1,300 LPFM construction permits had lapsed and some coaching might have helped those applicants.

DRIVER DISTRACTION ISSUE COULD INCLUDE RADIO

Radio needs to pay attention to the distracted driving discussion taking place on the Hill.

Two bills introduced so far in Congress focus on banning texting while driving, but they don't exclude other distractions. In fact, the bill discussed Oct. 28 in the Senate Commerce Committee, the "Distracted Driving Prevention Act of 2009," states that within one year of enactment, the Secretary of Transportation would prescribe regulations "on the use of electronic or wireless devices — including cell phones and other distracting devices."

The Federal Communications Commission would play a role also, especially in educating the public about the new law, should it be approved.

Chairman Julius Genachowski told lawmakers the FCC would try to get better data on what drivers actually do in the car to see "if there are technologies that will help us steer this in the direction we all want."

Genachowski added he stressed to FCC employees the importance of complying with President Obama's recent executive order banning the use of federal devices to text while driving. He asked employees to go further and avoid driving while texting at all.

Right now, the bill's focus is on commercial drivers, but lawmakers want to extend the impact to all drivers, especially teens.

It was clear during the hearing some lawmakers consider anything other than driving a distraction, like drinking coffee, or using the CD player in the radio. For example, Sen. Byron Dorgan, D-N.D., ticked off several other distractions, like using maps and the "hundreds of channels of satellite radio" in the car.

This is something to watch as the definition of "other devices" becomes clear.

If your equipment budget looks like this...

give us a call.

JETSTREAM MINI

A reduced equipment budget doesn't mean you have to cancel your studio project, or even give up the features you want. Logitek's cost-effective IP audio solutions give you the flexibility you need for audio routing, distribution and mixing – for about a third of the price you've come to expect. Our advanced hardware designs and networking protocols not only make your project less expensive, they make it easier to implement.

Logitek
Console Router Systems

Call us at **800.231.5870** or check out **JetStream IP Audio** routing solutions at **logitekaudio.com**

NEWSWATCH

MoM PROCEDURES: The Media Bureau of the Federal Communications Commission has clarified procedures for verifying the performance of AM directional antennas using "moment method modeling." A notice issued Oct. 29 (DA 09-2340) is intended to provide general guidance, according to the agency, which said the staff would make specific rulings in response to actual applications on a case-by-case basis.

MSN DIRECT TO SHUTTER: Citing reduced demand and a proliferation of other data technologies, Microsoft will discontinue its MSN Direct datacasting service at the end of 2011. MSN Direct provides location-based services — traffic reports, weather, gas prices, stock quotes — to navigation systems using FM subcarrier signals; it also provides messaging services to Smart Watches and other devices. MSN Direct has infrastructure in 134 cities. After Jan. 1, 2012, "navigation devices supporting MSN Direct will continue to be operational as navigation devices but will no longer receive MSN Direct services such as traffic, weather, fuel prices, etc.," according to Microsoft.

CLEAR CHANNEL LEADERSHIP: Randall Mays intends to give up his roles as president and chief financial officer of Clear Channel Communications to become the company's new vice chairman. A search is underway for a new CFO; when that person is hired, Randall's brother Mark Mays will take on the president's role. This is the latest in a series of management changes at Clear Channel since its takeover last year by private equity firms Bain Capital and THL Partners.

FM CP WINDOW DELAY: The FCC moved the filing window for 67 non-commercial CPs for vacant non-reserved FM band frequencies to February (from December). Several non-profit entities pressed the commission for more time to prepare applications for the vacant NCE FM allotments on Channels 221 through 300. The new application window opens Feb. 19, 2010 and closes Feb. 26, 2010.

HARRIS REVENUE: Revenue at the Harris Broadcast division in the company's fiscal first quarter was $119 million, down about 25 percent from the same period a year ago and about 8 percent off the most recent calendar quarter. The company said the report "reflects the global economy and delayed capital spending by broadcast and media customers, as well as seasonally slow spending, primarily in Europe and the Middle East."

ALERTING

(continued from page 4)

GAO laid out recommended steps for FEMA. These involve setting goals and milestones, prioritizing in consultation with everyone involved, reporting periodically to Congress and the secretary of Homeland Security, establishing a plan to verify the dependability of systems in use, and better training.

Also, with IPAWS years from full implementation, they reiterated that FEMA should work with the FCC on a plan to verify the dependability and effectiveness of the EAS relay distribution system, and said participants should have the training and technical skills to issue effective alerts. They also said that "a lack of training and national-level testing raises questions about whether the [EAS] relay system would actually work during a national-level emergency."

The authors also said that the DHS had agreed with all of its suggestions and was acting on them. But GAO worried that "FEMA's planned actions to address some of the recommendations might be insufficient."

I don't envy those who have to try to build an alerting infrastructure for the country. It's a sprawling job with a sprawling list of people, companies and organizations, all with their own interests to push.

Further, this report's sweeping conclusions may downplay meaningful progress. As RW reported in a story about EAS and IPAWS this summer, broadcasters recently have expressed renewed trust in FEMA and its efforts under recent management.

But for anyone familiar with EAS or interested in the challenges of creating an effective replacement, the GAO report is recommended reading. I hope government officials involved have already taken its findings to heart.

You can find the PDF at *www.rwonline.com/uploadedFiles/Radio_World/GAO_emerPrep.pdf.*

"Go ahead caller… you're on the air."

Telos Nx12: 12 lines. No waiting.

Telos was first to use Mp3 technology, first to see the possibilities of ISDN, first to bring a DSP-based product to broadcasting, a hybrid by the way. Breakthroughs and innovations adopted years later by everyone else.

So, let's take our next call, shall we?

It's the Nx12, our most powerful performer, giving you the one-two punch of the latest Telos hybrid technology and audio processing by Omnia for the cleanest, most consistent call quality ever.

Nx12 has four advanced digital hybrids, each with its own AGC, noise gate, and caller override dynamics using carefully tuned DSP algorithms. Each also includes DDEQ, a sophisticated multi-band equalizer, which analyzes and adjusts received audio spectral characteristics so that calls sound smooth and consistent despite today's wide variety of phone sets and connection paths.

Limited Time Offer.

Buy an Nx12 and Desktop Director
Get a second Desktop Director and Assistant Producer Software
FREE!

Your favorite dealer has the details.

Let's face it, most people today are calling in on a cell phone. We get it. So, the Nx12's hybrids incorporate special echo cancellation for tricky cellular and VoIP calls. Unique to Telos, the Nx12 has an adaptive function that reduces the possibility of feedback in open speaker applications. So go ahead… put that talkshow on remote with an audience.

Available in analog or ISDN Versions. Nx12 can connect to as many as 12 analog POTS lines or up to 6 ISDN BRI lines (which would provide 12 caller channels). A digital switch matrix inside the Nx12 connects the lines to hybrids. The Nx12 works with all Telos control surfaces including the Desktop Director, Call Controller, and Console Director. Talent and producers benefit from the unique Telos features, such as our exclusive Status Symbol visual call management icons which clearly show line and caller status.

And, it's backed by the best support team in the business. The highly caffeinated 24/7 support techs.

Telos

AUDIO | NETWORKS

Radio Never Sleeps. Neither do we. We're here for you, anytime, with free round-the-clock, 24/7 technical support. Call +1-216-622-0247.

PowerStation: the new console system from Axia.

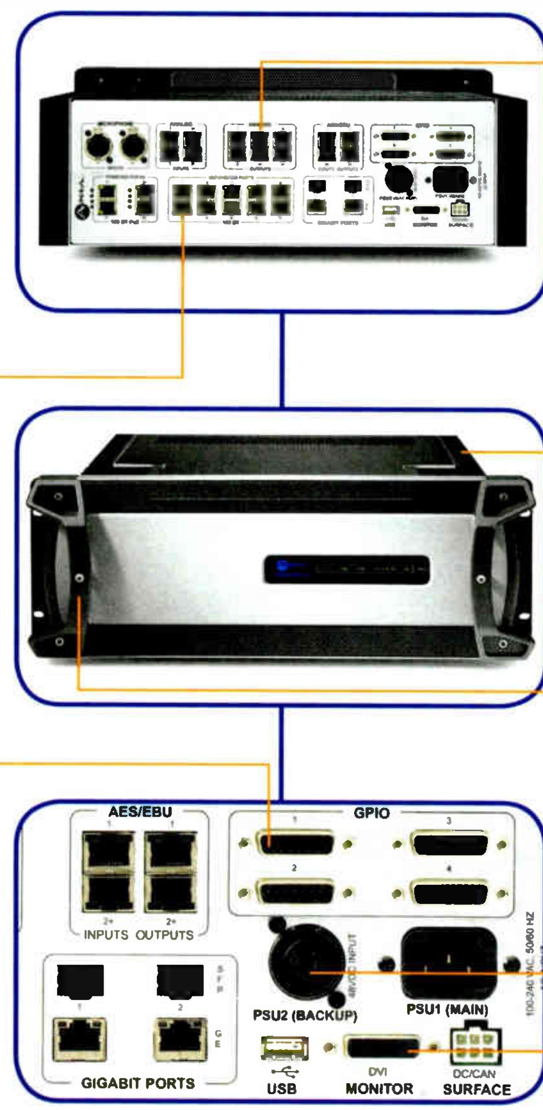
Because there's no such thing as too much uptime.

All stops removed • Twenty years from now, you'll have forgotten this ad. But you'll still have your PowerStation, the full-featured one-box IP-Audio console/router system hardened with **industrial-grade components** and redundant power capabilities. Tough enough to take a football to the groin and keep on going. PowerStation **minimizes setup** and **maximizes "bang for the buck."** Engineered without compromise for broadcasting without interruption.

Easy as π • PowerStation combines a console DSP engine with audio and logic and a network switch, **all in one box.** As its name implies, there's a whole lot o' muscle inside that burly frame, but that doesn't mean it's complicated. In fact, setting up PowerStation **couldn't be easier:** connect your studio gear with standard CAT-5 cables, connect your console with just one cable, name your sources and set preferences with a browser, and you're ready to rock. PowerStation makes building studios about 3.14 times easier than ever.

GPI Oh! • **GPIO ports are built in** to PowerStation — no breakout boxes or add-on converters needed. One day, you might not even *need* logic ports: more and more products from companies like 25-Seven Systems, Audio Science, ENCO, Google Radio Automation, International Datacasting, Omnia Audio, Radio Systems and Telos (to name just a few) use the Livewire™ standard to send their audio and logic control directly to Axia networks over a **single CAT-5 connection.**

Everything's included • Yeah, we said *everything*: PowerStation combines half-a-dozen essential tools into one compact unit. No hidden extras to buy, no "gotchas" after purchase. Inside that muscular chassis you'll find a **bulletproof mixing engine** capable of handling consoles up to 40 faders, a beefy power supply (with optional **redundant power**), machine control ports, and **audio I/O**, all in one box. And of course, since it's from Axia, the IP-Audio experts, a studio built with PowerStation can stand alone — or it can become a part of a large network quite easily. Thanks to **PowerStation Simple Networking**, you can daisy-chain up to 4 PowerStations directly for easy multi-studio installation without the need for a separate core switch. Just another way Axia makes IP-Audio easy.



You're covered • Axia has the most comprehensive warranty in the industry — **5 years parts and service** And (not that you'll need it), **free 24/7 technical support**, 365-days-a-year. We've got your back, my friend.

E-I-E I/O • Finding space in the equipment racks is like living in a barnyard: too many chickens, never enough coops. So our team of obsessive designers fit **an entire studio's worth of inputs, outputs, logic and network connections** – plus an advanced DSP mixing engine and a massive console power supply – into just 4 RU. There's inputs for 2 mics, 4 analog inputs and 2 AES/EBU inputs, with 6 analog and 2 AES outputs. 4 GPI/O logic ports round things out. Want even more? Just connect the PowerStation Aux to instantly *double* the I/O — or plug some Axia Audio Nodes into its **built-in Ethernet switch.**

Fan free • PowerStation is **silent and fanless.** Because studios today are already full of PCs, laptops and playout servers clicking, whirring and generating heat — who needs more of that? Not only is there no in-studio noise with PowerStation, those **big extruded heat sinks** are just plain cool. No pun intended (or maybe it was. We're like that, you know).

Built like a tank • Remember when consoles were built to last? We do. At Axia, we're all about the long haul. **There are no compromises:** PowerStation uses only best-of-the-best components. Like studio-grade Mic preamps and A/D converters. A rigid, steel-framed, EM-tight chassis that shrugs off RF like Walter Payton brushing off tackles. An industrial CPU designed for high reliability in harsh environments. Beefy extruded heat sinks. Big, brawny handles to make rack-mounting easy. (And it looks cool, too.)

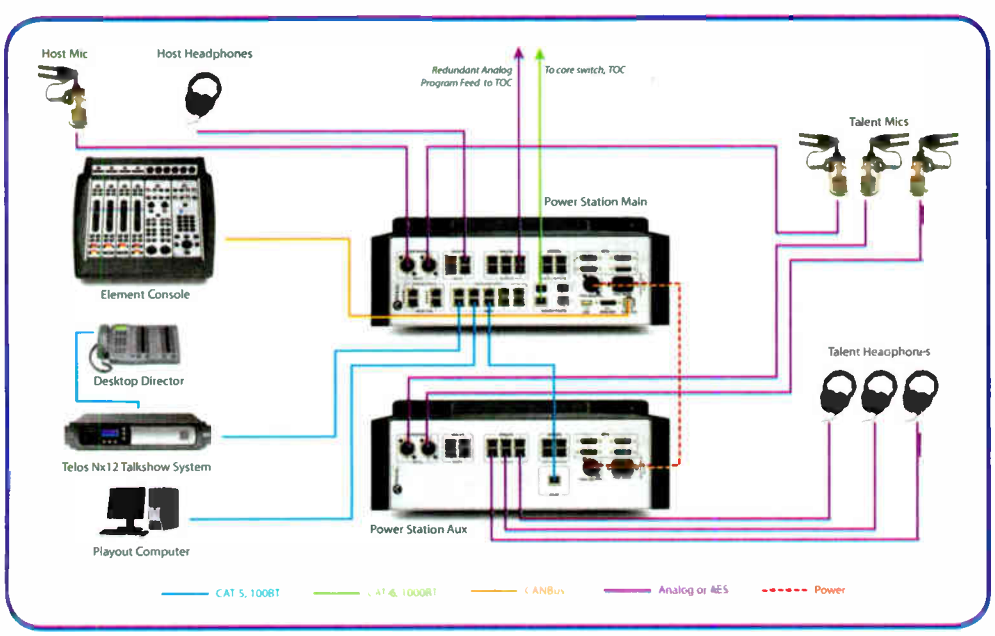
Redundant power redundancy • The power supply is the heart of any broadcast equipment, right? That's why PowerStation is **hardened against failure** with a **super-duty power supply** that sports enough amps to power an arc welder. And for those of you who like to wear a belt *and* suspenders, there's even a connection for **redundant auxiliary backup power** – with automatic switchover, naturally – that kicks in if it's ever needed.

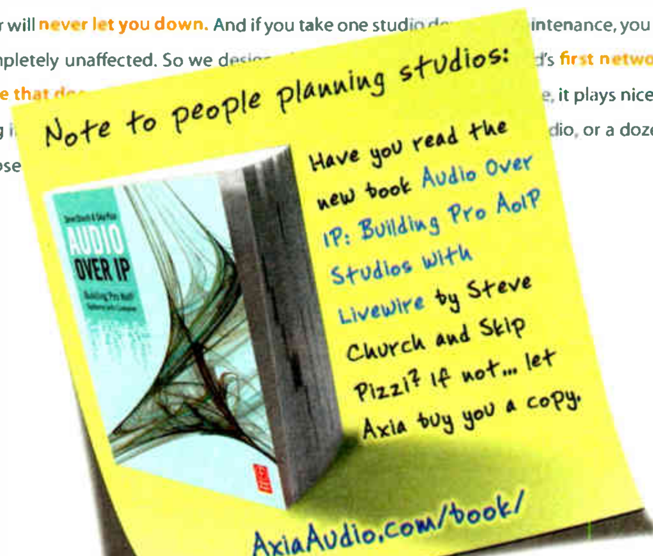
Screen play • Yep, that's a DVI connector. **Your favorite monitor** – standard or widescreen – plugs in to present the console operator with Axia's "so easy an overnight jock could do it" **info-center display.** Meters, timers, fader assignments, mix-minus settings and more, all on-screen, on-demand.

Element 2.0 • With more than 1,000 consoles already on the air, Element is a huge hit. And now, thanks to suggestions from our clients, it's better than ever. Element 2.0 has cool features like Omnia™ **headphone processing** presets to give talent that "air sound", **super-accurate metering** with both peak and average displays, **one-touch phone recording** with automatic split-channel feed, **automatic mix-minus** for every fader, an eight-channel **Virtual Mixer** that lets you combine multiple audio streams and control them with a single fader, and metallic bronze or silver module overlays. And we haven't even begun to tell you about Element's **Show Profiles** that instantly recall talent's favorite settings, its **built-in Telco controls**, fully-integrated **talkback/IFB** and **Mic processing** by Omnia. And durable? Element is nearly indestructible, ready to take whatever pounding ham-fisted jocks dish out and keep going. You want examples? Element's **avionics-grade switches** are rated for more than two million operations. What look like ordinary rotary controls are, in reality, **bullet-proof optical encoders** — no wipers to wear out or get noisy. The silky-smooth **conductive-plastic faders** actuate from the side, not the top, so dirt and grunge stay out. The **high-impact Lexan** module overlays have their color and printing applied on the back, where it **can't wear or chip off**. The frame is made from **thick aluminum extrusions** that are stronger than truck-stop coffee. To find out even more about Element, visit AxiaAudio.com/Element/ . Grab some coffee and prep for a good, long read — remember, our marketers get paid by the word.

Come together, right now • Now that you know what you can do with PowerStation, let's build a studio. The diagram below shows how a typical Talk Studio might look. Mics and headphone feeds plug into the built-in Mic inputs and Analog outputs... your playout PC, using the **Axia IP-Audio Driver** for Windows®, connects to a built-in Ethernet port... and so does the Telos Nx12 Talkshow System (which sends 12 lines of caller audio, mix-minus and take/drop/next commands over **one skinny CAT-5 cable**). Send a **backup audio feed** to your TOC for extra peace of mind. And after all that, there's still plenty of I/O left to plug in the turntables for the Saturday night Oldies show.

The standalone network • You want your console to be more than just reliable — you want it **built like a battleship.** You want the absolute peace of mind that comes from knowing your gear will **never let you down.** And if you take one studio d... intenance, you want the rest to be completely unaffected. So we desi... d's **first networked broadcast console that d...** e, it plays nice with others, but unplug i... dio, or a dozen, at any pace you choose





AXIA
A TELOS COMPANY

AxiaAudio.com

Osprey-Fade Creates STL Headaches

Station Seeks Help in Dealing With Raptors on Its Dipoles

Here's a dilemma. Ospreys have made a nest atop your STL tower. The nest isn't affecting anyone; in fact, it has drawn a crowd to watch the raptors. Things are fine — until your STL starts to fade.

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

An inspection from the ground reveals that the birds are using the STL dipoles as perches as well as tables across which to lay fish while feeding.

Bruce Blanchard is engineering manager for Salisbury University's WSCL-(FM) and WSDL(FM) in Salisbury, Md. The college has adopted these birds, which return each year; there's even a webcam so students and faculty can watch the activity. (The solution isn't a hunting rifle!)

Bruce wonders if you have had similar issues with nesting birds and STL antennas. If so, how did you solve it? Bruce doesn't think the tower will handle the wind load of radomes on each STL antenna; are there other options?

One thing that comes to mind, based on similar problems with satellite dishes, is to use something like a CoolWhip container to snap around the dipole. But the question of keeping it watertight could be an issue. Another thought is changing the dipole polarity. Vertical polarity makes the dipole less of a perch, but depending on paths, this may not be feasible.

Send in your suggestions to *johnbisset@myfairpoint.net*. If you've already developed a solution, include a high-resolution photo.

Bill Betlej owns Bampro Services in Staunton, Va. In addition to providing technical services, he designs and builds a lot of custom boxes; his quality is first-class.

He enjoyed our warning in the Oct. 21 *Workbench* about not making assumptions about what's on the other side of tower fences. The comment reminded Bill of the brown tag with red lettering that accompanied every Bogen Audio Amplifier. It read:

IMPERATIVE!
Do not attempt to operate unless you thoroughly read and understand the instructions.
DO NOT ASSUME ANYTHING.
David Bogen

As Bill says, these are "good words that work in a variety of circumstances."

Bill Betlej can be reached at *bbtlej@mbc.edu*.

Do you have a before-and-after worst transmitter building photo you can share?

Fig. 2 shows one; we'll keep the identity a secret. Yes, it's in a flood plain, and yes, the building is no longer level — it's infested with termites!

But in the spirit of "before and after," look at Fig. 3 — same station, new cabinet, no termites or flood plain.

Fig. 1: Any thoughts on how to discourage birds from perching on your STL feed?

With all the duties piled on the engineering department these days, working more efficiently becomes a necessity.

Robert Richer has labored in all stages of radio station management over the years. He is based in Connecticut and wrote in about a software package that will improve your productivity called Dragon NaturallySpeaking. It's speech recognition software from Nuance Communications and is very accurate. Retailing for about $100, we find it online for less than that. You can read more at *www.nuance.com/naturallyspeaking/products/*.

The program interfaces to any Windows-based application and turns voice into text three times faster than most people are able to type. Add to that

Fig. 2: Some towers are hazardous to climb. This building looks hazardous even to enter.

Fig. 3: Same station, after the upgrade ...

99 percent accuracy and you can see how your efficiency can improve.

Think out loud and "type" e-mails or memos simply by speaking. If you prepare a monthly report for your general manager, dictate the contents as you walk through the transmitter building — no more jotting down notes on scraps of paper and then trying to correlate them into a document later.

Here's another application: Use your voice to create a command that involves multiple key strokes or mouse clicks. I suppose this would include saying "Shut down the computer." The software will translate that command to click on the START button, click SHUT DOWN, then OK on the "SHUT DOWN WINDOWS" box.

Eight reviews we saw on the Google Product site are about equally divided as to pros and cons; overall the software rated four out of five stars there.

No termites eating this enclosure!

Robert has been amazed at the accuracy and simplicity of this software and has shared it with colleagues who have had similar results. The price won't bust the bank and the software may give you more time.

Reach Robert at *robert.richer@snet.net*.

No, Fig. 4 is not some Photoshop trick; the batteries are real. Someone really goofed at the Duracell plant!

Thanks to retired KFI(AM)/KOST (FM) Chief Engineer Marvin Collins for passing along this photo, which you also may have seen on the blog at RW's Web site.

Although the 9 Volt battery contact clips are wired properly, the battery case is reversed. Unless you looked at the case body, you wouldn't notice anything, but Marv was working at his workbench and connected clip leads to the terminals, referencing what was printed on the body of the battery. The circuit didn't work! He pulled out his meter and found the problem after measuring across the terminals

Marvin points out that because the battery contact clips *are* wired properly, the only hazard is if you refer to the terminal markings on the body of the battery.

No idea how many batteries were affected, but if you do circuit work, measure the voltage before you hook things up.

Thanks, Marvin, for sharing an important caution — and maybe for saving some experimenters a lot of head scratching.

Fig. 4: Don't let your eyes play tricks on you. Use your voltmeter to be sure.

Marvin Collins can be reached at *kfiam640@aol.com*.

John Bisset marked his 40th year in broadcasting last month. He is international sales manager for Europe and Southern Africa for Nautel and a past recipient of SBE's Educator of the Year Award. Reach him at johnbisset@myfairpoint.net. *Faxed submissions can be sent to (603) 472-4944.*

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

Audio Over IP Install in Central America

Antoine Assists in Axia Install at Audio Video in Tegucigalpa

BY DAVID ANTOINE

This is one in a series of occasional articles about station infrastructures.

One of the cool things I love about being an engineer is the opportunity to help get a new facility up and running and on the air.

FIRSTPERSON

In March I had the privilege of traveling to the Central American country of Honduras to assist with a studio upgrade and installation of new Axia equipment they purchased.

I was hired by Axia as a freelancer to assist. The project struck me as a cool one, and I thought I'd share the experience with RW readers, out of interest not only in the Axia infrastructure but the project in general.

Audio Video owns and runs eight radio stations in Honduras, four national and four regional. The main studios and offices are located in the capital city of Tegucigalpa.

There are three regional offices, one each in La Ceiba, San Pedro Sula and Choluteca. There are approximately 40 antenna sites nationwide, the most in Honduras. All operated and maintained by a staff of 160.

Radio America is their flagship station; it celebrated 60 years of existence in 2008 and is famous for its objectivity and comprehensive coverage of the news, broadcasting at 610 kHz 10 kW and 94.7 MHz 10 kW. It received an upgrade in its infrastructure and a new air studio within the multilevel building that houses six of the eight stations, both AM and FM.

Audio Video owns eight stations in Honduras, four national and four regional.

CAT-6

Audio Video's General Manager Chris Mueller and Director of Engineering Joseph Banegas decided to build a facility that would be modern and last a few years yet still be technologically current and offer some flexibility for growth and expansion.

This involved a reworking and rethinking of the current method of delivering audio throughout the plant. With a 20-year background as an IT and network manager, Banegas leaned toward options that would utilize Cat-6 and Ethernet.

His research led him to Axia, and with the help of Alfonso Lopez of 305 Broadcast out of Miami, Audio Video purchased an Axia 24-input Element console with an embedded Telos call director and several Axia nodes that would facilitate the switch from analog delivery of audio to audio over IP technology.

Audio Video purchased and installed several Cisco 2690 switches, interconnected via fiber-optic cable, and ran Cat-6 cable from each control room to what would become the Master Control for the six stations. This new master control would now centralize the I/O from each studio and also facilitate the connections of the outputs from each studio to the STL transmitters transporting the audio to transmitter sites around Tegucigalpa and surrounding areas.

My main purpose for the onsite visit was to make sure the Axia equipment purchased was set up and configured properly and to train the staff on how to use it and connect it.

The engineers and technicians from Audio Video had installed the new racks and run and terminated Cat-6 cables throughout the multilevel facility. They'd mounted the newer equipment and placed and powered up the new Element console. The Livewire network had been preconfigured by local Cisco engineers onsite according to specifications and was online.

The new Radio America air studio, which was patterned after the existing original studio, was finished and ready for broadcast use. The new control room had that new equipment smell and was ready for connectivity to the new master control. A couple of racks housed both the new and existing equipment to be used in the new Radio Americas studio. All that was left was for the Axia nodes and the console to connect to the Livewire network.

Training of the staff began shortly after my arrival and introductions by Josef Banegas as the engineer sent from to assist with the installation. One of the technicians named Mario Fernandez spoke pretty good English and became my interpreter for the remainder of my visit.

My Spanish was sorely lacking but although a challenge at times not a complete hindrance. I learned a long time ago under similar circumstances in Mexico how to communicate technical terms in broken Spanish.

ON THE HUB

I started by explaining to the staff the concepts of Livewire audio delivery and how Axia takes advantage of that. Using my laptop and lots of hands-on illustrations, I was able to have them configure the nodes and have them connect to the Livewire network. Next was discussing how Axia treats inputs and outputs of analog audio and makes it available on the Livewire network.

This lead to an introduction to the StudioHub standard of using Cat-5 and Cat-6 cables to move the analog audio around their facility. They had purchased a few dozen male and female XLR studio hub dongles for this purpose. They now were able to route audio from each of the console outputs of the six air studios and up to the new Master control and eventually into the Livewire network.

Since they'd preinstalled the Cat-6 cables it was just a matter of using the StudioHub dongles to connect the analog audio to the nodes and ultimately into the Livewire network. Once they understood the concepts they ran with it. I basically went about from studio to studio, signing off on the connections as they wired them between the console outputs and the nodes.

Master Control Rack with Cat-6 cables entering from the studios.

Audio Video has a capable and experienced full-time technical staff that does excellent work installing and maintaining their broadcast facilities.

Once all the studios were connected physically and identified on the Livewire network, the console was configured and set up to match the needs and demands of a high-energy, 18-hour-per-day talk show format.

Radio America is number 1 in news and talk in Honduras. Maintaining that winning edge was paramount during this process of upgrading. It was important to give the board operators a system that was familiar in its functionality and operation.

Radio America would switch to the new on-air studio on an overnight. It was important for that happen as smoothly as possible without any dead air. The live

talk programming ended at 11 p.m. and they switched to playback of prerecorded shows from their Broadcast Electronics AudioVault system.

One Axia node mounted in the old studio rack served to facilitate access to the audio from that studio and allow us to bring it up as an input on the new Element console, thus making for a smooth transition when the time came to make the switch.

At approximately 4:30 a.m. on Saturday March 14 the changeover happened without a hitch due to good planning, having so much pre-wiring and preprogramming done.

The board operators had been trained throughout the previous two days and the morning show board operator took the new console like a seasoned pro.

FEED INTERRUPT

After crashing for most of Saturday and returning late afternoon to see how the board operators were doing, I was able to concentrate on a custom application that was critical to the success of this installation and upgrade.

They needed a way to interrupt all the feeds to each station simultaneously whenever the president wants to address the country, then return to normal program feeds once finished. They had purchased a button panel that was console-mounted for that purpose.

One of the items purchased as part of the install was an Omnia 8.X audio processor. The Omnia would serve to feed separate processed audio for all six stations.

Axia offers flexibility in the way it routes the audio via the Livewire network. A routing scheme was designed onsite that would allow for a button assigned on the button panel that when engaged would switch the input audio from each studio to a single feed that carried the president's audio. Another assigned button would allow them to resume the normal audio feeds from the six studios. Using a routing software application called Pathfinder, I was able to make this happen with the button push as requested.

Since the Axia was now managing the connections from all the studios into their STLs and also routing the audio from their AudioVault, they were afforded the flexibility they were seeking when embarking upon the studio upgrade project.

Additional management of the networked audio was made possible by software purchased to allow remote and local management of the Axia/Livewire network. Iprobe provides device discovery and management on the Livewire network. Iprofiler is a logging application. Ipdriver uses the NIC card on the PC that it is installed to playback and record any audio available on the Livewire network into any installed audio editor.

Radio America tech staff, from left: Ramón León Canaca, Selvin Vivas, Allan Zapata, Carlos Mario Rosales and Mario Fernández.

Overall the installation and upgrade went pretty smoothly, and the engineers and the air talent were impressed with the flexibility and performance of the Axia system. IP audio is alive and well in Honduras, Central America.

David Antoine, CBRE, CBNT is the chief engineer for WBGO(FM) in Newark, N.J. He has been a broadcast professional in the New York radio market for 28 years. He can reached at dantoine@wbgo.org.

RW welcomes story topics about new and unusual station infrastructure projects.

Smile! You're on Video for Radio

Stations That Want to Put Themselves On 'TV' Have Many Things to Consider

BY ALAN R. PETERSON

Time to put the phrase "a face for radio" to bed forever. Today's demand for the "Next Big Thing" is making radio performers the new TV stars on the Internet.

Cameras like the Samsung SC-MX20 can record to a flash RAM card and also output live analog composite video to a dedicated encoding computer via a video input card.

TECHTIPS

Forward-thinking station owners and radio networks are streaming live video images of their studios and high-profile talent in full performance mode. The Air America Network, where I work, already streams numerous shows.

Streaming live video can be remarkably inexpensive, with minimal startup costs, or it can be highly produced — and high-priced — with multiple live cameras, fancy graphics and real-time interaction with hosts.

For loyal listeners, it becomes a more enhanced, value-added experience to "share the moment" with the hosts. For new listeners, it is an enticement to bring them into the fold. And for stations, it offers new opportunities for non-traditional revenue.

LAYING IT OUT

If you are in the planning stages of adding a video stream, it could be a lot more involved than pointing a webcam at the jock position.

First, what is the intent? Do you want to capture "cool moments" in the studio, such as a famous guest or crazy stunt? Or do you plan to stream the live performance of your morning team or prominent talk host? There are particular aspects of both that will influence the build and the method of operation.

Second, what can you afford? The cable images seen on "Howard TV" are the product of good set design, proper lighting, moving cameras mounted on ceiling tracks and trained personnel running it all. That means considerable expense.

On the other hand, what can you say about the pixely, locked-down "security camera" appearance seen on Rush Limbaugh's webcast? For him, it works just fine.

If you don't need flying graphics and all the fireworks, you can save a bundle.

WATCH THE BIRDIE

Your first consideration is a camera. Nothing else is important if you cannot acquire an image. This can be anything from a simple webcam up to a multiple camera setup with switcher and graphics.

The simplest setup possible is a point-and-forget webcam directed at the host or ensemble and the free Windows Media Encoder on a plain vanilla PC. The video stream is encoded and sent out via your facility's Internet connection to your company's ISP.

Unfortunately, the gritty, jumpy image from a locked-down webcam really does resemble a convenience store security camera — uninteresting to watch for more than a few moments. Also, typical standalone USB devices have a limited range of 16 feet or so without a repeater. The encoding computer must be near the action and not off in a rack room.

On the positive side, several webcams and their associated computers can be distributed inexpensively to each position in the ensemble's studio, and a video chat-site such as PalTalk can be employed. Talent and audience can interact in real time in a chat room and video windows of each individual performer and audience member.

Stepping up a level, there are consumer solid-state camcorders. The price jumps from about $30 to around $200 per camera, but better image quality and versatility under bad lighting conditions offset the cost. Cameras such as the Samsung SC-MX20 can record to a flash RAM card and also output live analog composite video to a dedicated encoding computer via a video input card.

The best you can get and still stay affordable would be PTZ (pan, tilt, zoom) cameras such as the Sony EVI-D70. These cameras are also locked down but can track the action of anything in the studio and zoom in on interesting items or performance moments. These can also head skywards to more than $1,000 per camera.

If surplus ENG analog cameras can be obtained from a local TV station changing to all-digital, it might be worth it to take a look through their "junk closet" for workable units. Pro cameras come with an extra connection for the sync input — very important for a reason you will shortly see.

ARTSY

To get those great host/guest cut shots and add artistic flow to a video production, you need multiple cameras and a video production switcher.

Switchers are not cheap. It is easy to go $18,000 or more on this component alone, especially if you are seeking HD capabilities.

Again, someone else's surplus gear can prove a bargain. Used analog switchers from Grass Valley Group, For-A, Panasonic and Sony turn up all the time and are tempting choices. But sync issues with consumer-type gear will prove difficult.

Analog video signals feeding a switcher must be synchronized and arrive at the switcher at the same time. When they do not, the image tears or jumps badly when crossfaded or cut from camera to camera. The sync input previously mentioned allows all cameras to lock to a standard clock signal, so each camera is in step with the others. A frame synchronizer or a time base corrector (TBC) solves this problem, but one is required for each camera at additional expense, so the bargain switcher can turn out to be anything but.

Smaller "prosumer" switchers such as the Focus Enhancements (formerly Videonics) MX-4 have built-in synchronizers, so even analog camcorders with A/V output jacks can work. Of note is the diminutive Datavideo HS-500, combining a switcher and monitor screens in a portable case, and the Edirol V-8, designed for live performance and education.

(continued on page 24)

MORE INFO

Find products mentioned in this article:

Adobe	www.adobe.com
Boinx	boinx.com
Corel	www.corel.com/servlet/Satellite/us/en/Content/1150905725000
Consolidated Video	www.convid.com/la/default.aspx
Datavideo	www.datavideo.us
Edirol	www.edirol.com
ej4	www.instatntvideopresenter.com
Focus Enhancements	www.focusinfo.com
For-A	www.for-a.com
Grass Valley Group	www.thomsongrassvalley.com
Magix	www.magix.com/us
NewTek	www.newtek.com/tricaster
Panasonic	www.panasonic.com/business/provideo/cat_mixers_studio.asp
Pinnacle	www.pinnaclesys.com
PalTalk	www.paltalk.com
Samsung	www.samsung.com/us
Sony	www.sony.com/index.php
Viewcast	www.viewcast.com

Radio, at Your Service

Third-Party Operators May Help Radio Succeed in New Business Ventures

In the Nov. 4 issue we considered how the convergence of radio and Internet might work, given the expected growth in devices that connect both media, essentially for the first time.

Now let's look at the possible third parties that might rise to the occasion and help broadcasters benefit from this and other anticipated trends.

Again, the idea is not wholly new. There have been precedents for these kinds of partnerships in the television environment, and even some early work in the radio space on similar processes, but recent developments (like tagging) have spurred the concept to new levels of awareness and interest.

To assist our discussion, let's explain the basics and define some terms.

The premise begins simply, with a broadcaster's transmission of data generated by another party. Such "datacasting" also is an old idea, as in the paging and other services that FM stations long have transmitted via their subcarriers. What's different here is that this third-party data is *program-associated*. In other words, it's a "hybrid" datacast model, where data generated by others references the station's own program content.

For example, the tagging process described last time includes data from a third party that is generated in response to the song a station is currently playing, which the station then transmits via its RDS and/or HD Radio datacast channel(s). Thus externally produced data is synchronized to the station's internally generated content — a truly new mechanism, provided by an entity that we'll call a "Service Bureau."

Of course, tagging is only one of many features that such an arrangement would allow. Let's explore them.

A LITTLE HELP

The Service Bureau concept allows a station to extend the value of its own signal's distribution and/or content with little or no extra effort on the station's part.

Service Bureaus could amplify the value of radio stations' content creation and audience-delivery assets.

In the case of tagging, the station's playlist and audience are leveraged to help a music store sell its product, and the station benefits with a commission on the sale. Yet the station did nothing to engage the transaction beyond initially setting up a deal with a Service Bureau and then going about its normal broadcast processes. The Service Bureau takes care of all the other connections and work that enable the transactions.

Another existing example is "title and artist scrubbing," by which a Service Bureau simply verifies the spelling and formatting of the now-playing data from a station's music playout system and transcodes it as necessary for proper presentation on multiple platforms (e.g., RDS-PS, RDS-RT+, HD Radio PSD, a station's Web site text window, streaming media player metadata, etc.).

This illustrates another value of the Service Bureau in that it can provide content for any number of service platforms or distribution channels, whether they are transmitted by the station (e.g., via RDS) or not (e.g., via the Internet), and at no additional encumbrance to the station.

Moreover, the Service Bureau can continue to research new options in this regard — perhaps even influencing their development on broadcasters' behalf — and quickly add them to the suite of distribution services when mature and appropriate.

In this respect, the Service Bureau is like a publicity agent for the station, continually seeking out venues to spread the word for its client, while the client concentrates on maintaining and developing its traditional business.

Where the Service Bureau idea really earns its keep is in aggregation. Beyond handling multiple output streams and formats as just described, there may be cases where the Service Bureau also manages several "input" services and puts them together in optimum fashion for the station's benefit.

An early example of this is found in tagging, where a single Service Bureau can manage and insert tags for its client stations from *multiple* online music stores. Again, the station sets up a one-time deal with a single third party, and the Service Bureau takes it from there.

Metaphorically, the Service Bureau acts like the center point in the hourglass, where all the grains of data "sand" must pass on their way from the source domain above to the user domain below. This enables easy and ongoing abstraction of the broadcaster's content and/or delivery value to other entities via the Service Bureau's engagement.

By the way, we've been considering the Service Bureau as a true third-party operator, but for a large enough collection of stations, the group might instead set up its own *internal* Service Bureau that provides such processes for its members.

THE BIG PICTURE

Skip Pizzi

THINKING AHEAD

Beyond these applications, there are other, more forward-looking opportunities that a Service Bureau model offers. Consider that a given Service Bureau likely would have arrangements with many stations, both within a single market and around the country. These established relationships would allow the development of *collective* applications, whereby a group of separate but cooperating stations could act in an aggregated fashion through a Service Bureau for their mutual benefit. Again, each station would need to deal only with the Service Bureau, and the Bureau could identify and pursue such affinity-based opportunities on all stations' behalf.

One example we've discussed previously involves the creation of a collective electronic program guide (EPG). Here the Service Bureau collects schedule and other data from radio stations in a given market, and delivers it back to "bearer" stations in that market (i.e., those who might transmit the data via an HD Radio EPG format currently under development) in an appropriately aggregated form. The Bureau can also provide EPG data back to stations or others who wanted to include it in their web content.

Further, the Bureau could manage, host and appropriately filter the collective EPG data for online presentation to any Web browser anywhere, or — even more interestingly — to the "connected radios" (i.e., broadcast radio + wireless Web browser on the same device) we discussed in the last issue.

This cooperative (or "co-opetitive") approach would provide something new to the broadcast sphere, allowing a many-to-many model to emerge in a world that previously has existed as an archetypal, one-to-many environment.

Finally, as the Service Bureau modality proliferates, any given station could engage with *multiple* Bureaus to provide a rich and diverse set of new capabilities, all with low incremental burden to station operations.

Doing business with properly designed Service Bureaus could amplify the value of radio stations' content creation and audience-delivery assets. These concepts exemplify the next steps and new connections that radio broadcasters will need to implement if they are to flourish in a new-media world.

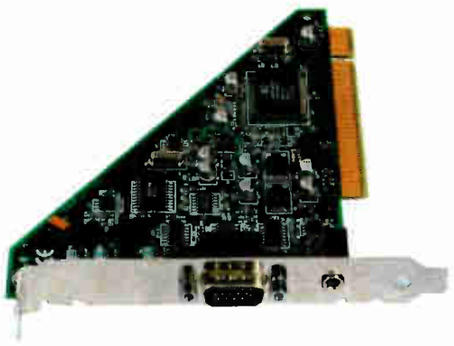
Skip Pizzi is contributing editor of Radio World. Follow him on Twitter at http://twitter.com/skippizzi.

VIDEO

(continued from page 20)

On a greater level, PC-based switchers such as the NewTek TriCaster and the VidBlaster from the company of the same name combine everything: camera switching, graphics, clip playback and the ability to create virtual sets with no actual physical scenery involved.

For the Mac, BoinxTV combines powerful switching, mixing recording and streaming in a single software suite.



A Viewcast Osprey 210 capture card is an easy way to get a video signal into a PC for encoding.

So how does one get a video signal into a PC for encoding? The simplest and quickest way to get up and running is with a Viewcast Osprey 210 capture card. The oddly triangular PCI card handles a single analog video input and unbalanced stereo audio. Connect your switcher output and smile for the camera.

It should be noted that even unsophisticated solo webcam streaming can benefit from graphics, and without a switcher/CG combination. A company called Consolidated Video offers LiveAlpha, a $100 software plug-in for the Windows Media Encoder which can overlay graphics during live streaming.

Talk hosts can, unfortunately, come across quite dull when shown at their mic turret and little else. But place them in front of a green screen and punch in a new background such as a virtual news set, and suddenly the presentation looks a lot more interesting.

One such capable product is the Instant Video Presenter, from ej4. Simply place a green or blue background behind the performer, and start rolling.

Similar in function is Visual Communicator from Adobe, which also adds a teleprompter to the screen.

READY FOR MY CLOSEUP

But while many jocks have grand dreams of being the next Howard on camera, Barry Thomas, vice president of engineering of Lincoln Financial Media, notes that not everyone is as enamored with the all-seeing eye.

In June, Thomas wrote in an online SBE Digest discussion, "It's usually a matter of days or weeks ... before the studio webcam is turned away or covered with a sheet of paper by announcers that object."

Equally hazardous is the potential for performers to get so wrapped up in the video aspect of the broadcast, they forget they are doing a radio show. Newcomers to video streaming sometimes ham it up so much that the radio audience can become alienated.

And what of empty studios and voicetracked stations? Quite often a video feed of almost any daypart consists of illuminated console buttons in a dark room.

Joshua Smith, assistant engineer for WSTR(FM) and WQXI(AM), Atlanta, said, "If you are going to integrate visual aspects to your radio broadcasts you would be better off creating complimentary media — Web-only bits, Flash games, extra-length or exclusive content interviews or performances — rather than try to make a radio show act more like a TV show."

Because in-studio video is often intended to capture a compelling event, Thomas said a better solution would be to keep an easy-to-use device at hand like a Flip video camera or a high-quality camera like a Canon XL-2. A computer (Mac or PC) with a low-cost, basic video editor and encoder with posting tools can get Web content up quickly.

The editing aspect is necessary. Raw video on the station Web site without any trimming or editing often comes across as amateurish. Affordable, easy-to-find editing and encoding software includes Adobe Premiere Elements, Vegas from Sony, Movie Edit Pro from Magix, the Pinnacle Studio line, the Corel VideoStudio (formerly ULead) and others.

On the Mac platform, Final Cut Express is the program of choice for video users on a budget.

Free programs with limited features include iMovie for the Mac and the Windows Movie Maker, both included as part of each operating system; VideoSpin from Pinnacle and the ZweiStein editor. Do a search for "free video editor."

As Thomas told Radio World, "There is a reason why TV stations employ editors, operators and camera persons — even stations with robotic or fixed camera systems. Their job is to create compelling video."

Alan Peterson, KJ4IVD, is the assistant chief engineer for the Radio America Network in Washington and has been associated with Radio World as a writer and editor since 1989. Reach him at apeterson@radioamerica.org.

MARKETPLACE

BROADCAST DEVICES SWP-200 PROVIDES RF SUPPORT

From Broadcast Devices comes the SWP-200 Calibrated RF Power Meter & RF Switch Controller, suitable for digital and analog forward and reflected power measurements.

The system provides complete control of one to four RF switches. The SWP-200 can be interfaced to your existing four-port switches and can be supplied optionally with interface cables for most such switches made.

The SWP-200 can operate in "hands off" (preprogrammed) or manually controlled modes. It provides one-button control of four-port switches, manages interlock closures and provides transmitter control in a chassis that occupies a single rack unit.

Additional features include RF failure and RF safety sensing to protect a switch from damage if RF is present and a switch command is called for. A proprietary three-strike reflected power protection system is included to interrupt interlocks upon high reflected power. Transient events such as lightning are ignored, thus there is less lost air time.

The SWP-200 also can be used in AM radio applications to control multiple open-frame contactors.

A new optional Web LAN Port board allows Internet connection and display of data including forward power pressure, reflected power fault and fault reset, temperature and switch position.

For information contact Broadcast Devices in New York state at (914) 737-5032 or visit www.broadcast-devices.com

MIDDLE ATLANTIC GOES VERTICAL

Middle Atlantic Products has a specialized rack system built with a specific purpose in mind: to accommodate satellite or cable boxes vertically.

The Vertical Rackmount System shelf clamps components in place with adjustable card slides on the bottom shelf.

"This high-density mounting system saves space in the rack compared to the less efficient alternative of placing each satellite or cable box on individual shelves," it states.

Though the target market is sports bars, hotels and the like, the system would benefit any user of such multiple boxes.

Space is provided between components for cooling. Features include a cable management system at the rear for neater installation and air circulation.

A power strip bracket, sold separately, can be mounted to the rear of the bottom VRS shelf.

For information contact the company in New Jersey at (800) 266-7225 or visit www.middleatlantic.com.

"WOW, I COULDA HAD A VP-8!"

VORSIS VP-8 IS THE BEST AUDIO PROCESSOR FOR UNDER $3K. PERIOD.

The Vorsis VP-8 Digital Audio Processor delivers clean detailed sound at a great price. In fact, you can easily spend two to three times more and still not match the VP-8's performance.

Installation and setup takes only minutes. The VP-8 is loaded and ready to go for FM, AM, FM-HD, AM-HD, streaming, and studio processing. It's great sounding presets are carefully tailored for your format and media. No need to spend endless hours tweaking, the VP-8 will make your station sound great, right out of the box.

For FM stations, expect a sound that easily holds its own with your high-power major market competitors. Listeners comment that with the VP-8 they now hear the rest of the music! AM stations often experience a dramatic increase in coverage area along with greatly improved intelligibility and sound quality.

The VP-8 is also ideal for streaming audio, studio processing, as a versatile backup processor or as an STL protection limiter.

Of course, if tweaking is your thing, VP-8 lets you under the hood with a complete toolset – in the VP-8, nothing is hidden. With its 4-band AGC/compressor and 8-band limiter, the VP-8 boasts more bands than any other processor in its price range to give you a very clean, loud, competitive sound that doesn't destroy the music.

It also includes features rarely found even on top-of-the-line processors: a reference-grade stereo encoder for FM, built-in test oscillator, diversity delay, multi-point headphone monitoring, and extensive metering.

The bottom line? The Vorsis VP-8 gives more bang per buck than any other audio processor in its class (and then some). And since Vorsis is designed and built by Wheatstone here in the US, you know it'll hold up and be supported 24/7 for years and years.

Intrigued? Call us or visit us on the web to learn more or set up a demo. You'll be happy you did. Vorsis—more listeners listening more.

WHEATSTONE VORSIS

Radio has evolved. Your sound should too.™

phone 1.252.638-7000 | www.vorsis.com | sales@wheatstone.com

My Microsoft Zune HD Impresses

Author Likes Digital Performance, Simple Net Browsing, Photo Storage

BY AMANDA ALEXANDER

The Microsoft Zune HD is a portable digital media player like no other, with the ability to display video, play music as well as explore the Internet — all at a simple touch on the screen.

FIRSTPERSON

Oh yes, it also tunes FM analog and HD Radio, making it a product of more than usual interest to radio broadcasters.

This unit weighs a mere 2.6 ounces. The included USB cable allows the user to charge the device and sync with its Zune Software from a computer. Fully charged, it will provide just under 24 hours of constant play, well beyond the endurance of other MP3 players in my experience. (Microsoft states on the Zune Web site that it can deliver 33 hours of music play.) Other players have given me about 12 hours or so of use.

The Zune unit retails for just under $220 for the 16 GB unit and around $290 for the 32 GB version from Best Buy. Prices vary with other retailers.

The day I got home with the Zune HD, I opened the box, followed the instructions, installed the software on my computer, let the unit charge and started playing around with it.

The touchscreen is a selling point of the product but my frustration began to rise when the screen did not work properly; it would stay on only intermittently and finally stopped working altogether.

I returned to Best Buy that night; they had their people look at it before allowing an exchange. Thankfully, the problem remained apparent while I was in the store. They provided another that I took home and charged. The replacement worked fine. I loaded my music onto the unit, as well as some pictures.

One can load any kind of music files using the associated software. It is a process similar to iTunes, with the difference that the Zune software does not save the music in a format that only it can read.

I've been able to download music easily through Zune Marketplace and then burn it in MP3 format to a CD for back-up purposes. However, you cannot choose the quality of your audio downloads. I like 256 kilobits per second audio quality; this sounds like CD quality to me. From what I hear when listening to the music I have downloaded through Zune, it has to be less than 256 kbps because I can hear a few artifacts in certain songs.

Overall, my experience with the Zune software was a good one. The Marketplace portion of the Zune site is easy to navigate and you can purchase music with a simple click of a button.

FM AND MORE

Now it was time to play.

The screen is easy to navigate. I immediately went to the "Music" section to see how everything looked. You can view stored music based on "Artist," "Playlists," "Songs," "Genres" and "Album." Within the "Artist" category, you are given other options of what to look at.

You can view albums and songs by artist, associated artwork, a biography of the artist and a list of related artists. The system is simple to maneuver through. Simply slide a finger across the screen to allow the categories to scroll.

A "Videos" category allows you to watch movies, TV shows, music videos and more. To get these on the Zune you have to purchase them. Many movies can be rented for a short time as well.

The unit came with a three-minute video that shows off the ability of the device. It can also play HD Video, though not on the unit itself. An optional dock and cable to hook it up to your HDTV are available for purchase.

The "Pictures" category is something that continues to astound me. I uploaded several pictures of flowers that I'd taken earlier. On a computer, the color and clarity of these pictures are remarkable; you can see the dew on the petals and the hues are distinct. On the Zune, it's the

(continued on page 28)

PRODUCT CAPSULE

Microsoft Zune HD 16 GB

Thumbs Up
+ Wireless Internet (with local Wi-Fi connection)
+ Downloadable movies/TV shows
+ FM radio, analog and HD
+ Long battery life

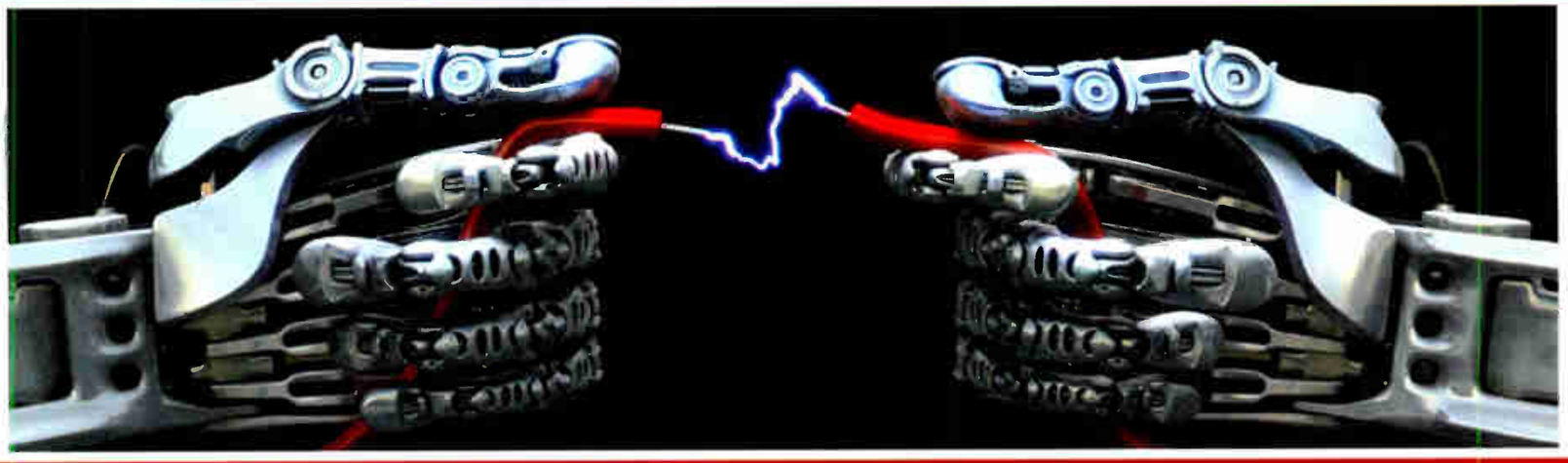
Thumbs Down
– On-screen keyboard doesn't always do what you want
– Touch screen can be too sensitive
– Tuner not always sensitive enough to pick up many multicast signals
– No AM

Price: List price just under $220

Availability: Best Buy, Wal-Mart, Amazon.com and Microsoft
Info: *www.zune.net/ZuneHD*

Automation

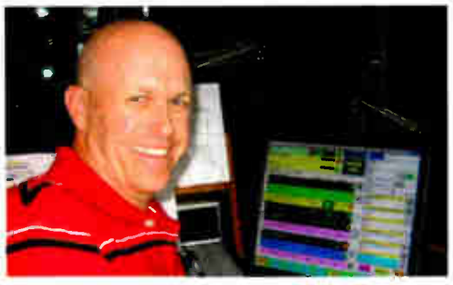
Simple • Powerful • Redundant



Not since Axia audio-over-IP was introduced to the broadcast industry have we at BGS been so excited! It is with great enthusiasm we'd like to invite you to take a look at the new Op-X Radio Automation delivery system for any single or multi-station cluster. Op-X works seamlessly with Axia IP-Audio networks or as a stand-alone system.

*"The merging of traffic and music logs takes a mere :30 seconds, making it among the easiest I have ever worked with. Once you get used to your adjustable personal color scheme, everything is pretty easy to follow. The best part about this system is the LACK of "dead-air" or "hangups" during automation. PD's will breathe a sigh of relief at this. Another thing that stands out is the absolute ease with which you can build your personal hot keys for each air talent. If you organize your show properly ahead of time and know where you are going, this system will make your show much easier and let you concentrate on *sounding good* on the air."*

~ Jim Franklin, Program Director
WVBO, Appleton/Oshkosh - Wisconsin



"Opx is very functional and easy to use. One the best features is the log merge. On our old system it took minutes and with Opx it takes only seconds"

~ John O'Dea , Operations Manager
WNNK-FM, Harrisburg - PA

"A fast paced station needs a system that can keep up and is easy to use. Op-X gives us the tools we need to deliver the sound Houstonians have come to expect from KRBE."

~ Leslie Whittle, Program Director
KRBE, Houston - TX

If you're looking for an audio delivery system~ you owe it to yourself to find out more about Op-X. Give us a call or email info@bgs.cc!

Broadcasters General Store

352-622-7700 • www.bgs.cc

Op-X RADIO AUTOMATION

BSI

AXIA

ZUNE HD

(continued from page 26)

same. I can even zoom in on each picture. (The Zune HD itself does not include a camera.)

WHAT ABOUT THE RADIO?

The unit includes an FM tuner, but no AM. The antenna is the headphone cable. I have read various reviews recommending that people use a long headphone cable to help provide better reception of stations.

Scrolling through frequencies is simple. Just slide your finger across the "dial" on the screen and watch the frequencies roll by.

If you come upon an HD Radio station that airs HD2 or HD3, this information shows up as text under the frequency. You then can select the HD channel to which you want to listen; the song or program title is displayed. The unit also displays RDS of FM analog stations that are encoding.

You can bookmark your favorite stations for easy tuning later as well.

I did a drive-around while listening to local stations and found that once the station locked in HD, it stayed locked for the most part. The unit was connected to the Aux port of my JVC AHD39. The only time it would lose the HD signal was when I got to an area where the analog signal normally is weak.

The author with her Zune HD.

I would also listen to music while doing various work around the office over a few days. I like to lock in HD on my Boston Acoustics HD tabletop radio, which does have the rat-tail antenna attached. The Zune HD does find stations in HD better than the Boston Acoustics does in my office building. However, although I can find all the same stations, the BA in my office does not pick up many multicast channels.

The analog experience also was good. In my office there is a local FM station whose signal gets noisy if I don't put my rat-tail antenna on the BA in just the right place. With my Zune, I did not have this problem. The performance was crystal clear.

After purchasing the Zune HD, I also decided to try out the new Insignia Portable HD radio, another recently introduced product of interest to broadcasters.

I did a quick reception comparison and found that the Insignia receiver has better sensitivity, making it easier to find and lock to stations than the Zune HD. I compared many of the same stations, and while the Insignia would find an HD2 or HD3 for a particular station, the Zune HD often would not.

MARKETPLACE

A Zune category called "Marketplace" allows you to browse for music and apps that can be downloaded from your PC or from the unit using a Wi-Fi connection. There is also a "Social" category that allows you to sync with your friends' Zune HD players and send messages.

There are different "Settings" to adjust in the unit as well. Here you can tell your unit what wireless connections to connect to and change the display settings, music, radio, the clock, screen lock, Internet and language.

Available apps for the unit include games, a calculator and a weather app. A wireless Internet connection is required to download these through the "Marketplace," as mentioned.

I've seen criticism about a lack of apps compared to other popular devices, though more have come out recently. Certainly, the available Zune games are nothing compared to those for the iTouch. Chess, Goo Splat, Hexic, Shell Game of the Future, Space Battle 2, Sudoku, and Texas Hold 'Em look like basic cartoon games. Microsoft needs to create or encourage that to better compete with iTouch.

Internet browsing on the unit is simple. Connect to your local Wi-Fi and you're off to the races. I found the on-screen keyboard a bit difficult to use. If you don't hit the letter you want just right, it doesn't work right.

At 3.3 inches, the screen is not really big enough for useful browsing. I have found it comparable to a Blackberry or other smartphone screen in size. For a brief view of a page, keep the screen vertical. This makes the font very small, to the point that you cannot read it. Turn it horizontal and the letters become bigger

and you can see what you are looking at.

The unit keeps a history of what you have done. If you want to listen to an artist you heard not that long ago, you can easily find that song without having to browse through everything. You can also "Pin" items to the home screen for easy selection and browse for anything new on the player. It also shows whatever is playing at the time, if anything.

APPLE COMPARISON

I have found in comparison that the Zune HD is easier to navigate than the Apple iPod. The main thing that sets apart the Zune from the iPod for me is the fact that I can create a playlist from the player as I go. Instead of having to add an entire album, I can add one song. Then I can easily tell it to save the playlist.

How does the Zune HD compare to the iTouch?

According to its Web site, the iTouch comes in 8, 32 or 64 GB. The Zune HD comes in 16 GB and 32 GB. There is not much difference between the graphics on the iTouch and Zune HD. The iTouch also includes maps, serving as your own personal GPS navigation unit. The iTouch also includes a Voice Control that allows you to do just that, control its functions vocally.

The iTouch has earphones that come with a remote and mic to use with voice memos. Both players will play video and can download TV shows or movies for later viewing. The big feature that sets the Zune HD apart from the iTouch are its HD Radio and video capabilities.

MY TAKEAWAY

As far as I can tell, Microsoft delivers on its promises for the Zune HD (see *www.zune.net/ZuneHD).*

> **If the Zune HD** had a phone in it, it'd be the best thing in the market right now.

The most surprising thing for me was the touchscreen (once it worked). The company tells buyers that "Enhanced entertainment is vivid with a 3.3 inch touchscreen." I agree. As I noted, the graphics from personal photos of mine look just as great on the Zune HD as they do on a PC.

The Wi-Fi also was a surprise. Microsoft says you can buy and stream music as long as there is a Wi-Fi connection and you can also sync it with a PC through Wi-Fi. After going through the steps and setting it up to sync wirelessly, I tried it out and it worked great.

I found the Internet browsing feature lacking, particularly because of the small font size, which made it difficult to navigate Web pages.

The most notable thing advertised is that the unit lets you "live your life in HD." Although I was unable to test the HD video, the radio performance was what I expected, if not better.

To read what others have said, I went to Amazon.com, did a search for Zune HD and read the worst, one-star reviews of the 16 GB model I'd purchased.

Several people have had a defective headphone jack; some don't like the ear buds. Others beef about a lack of apps. While I agree with that, it is a new player and it will take time to get new apps created.

Some consumers complained about the unit not having speakers. It is an MP3 player. I have never had a player with speakers. Why would this be any different? You wear headphones, that is your speaker.

Screen brightness seems to be another common issue. When used outside, people say it is hard to see the screen. While I had this problem at first, I was able to fix it by adjusting the brightness of the screen to its highest setting. Now when I am outside I can see the screen with no problem.

This unit ended up impressing me a great deal. I came into the Zune HD expecting that the company would use an audio format exclusive to the unit, as Apple does. I also did not expect the radio to be anything to write home about. I was wrong about both.

Also, this is not a bulky player. I can store thousands of my favorite songs on the unit for play later on. I can view various movies and TV shows. If I am in a place where there is free Wi-Fi, I can surf the Internet. This is by far better than the Blackberry Curve I have.

The main reason the Zune HD is of interest to Radio World readers, though, is the HD Radio capability.

Microsoft may have helped prompt the market with FM-HD in a handheld MP3 player; we'll see now if other companies follow its path with HD Radio. Skeptics wonder if the Zune line has the market penetration to make much difference, but HD Radio proponents believe the addition of digital radio to Zune is an important step.

In my opinion, if the Zune HD had a phone in it, it'd be the best thing in the market right now. This unit is definitely worth the cost.

Amanda Alexander, CBT, is chief engineer for Crawford Broadcasting's four-station Denver cluster.

Tanner Is Confident in PPM Assurance

With Burk, D.C. Cluster Makes Sure Arbitron Ratings Are Never Lost

USERREPORT

BY SCOTT K. TANNER
Engineering Manager
Radio One Washington

WASHINGTON — Radio One owns five stations in the Washington market. When the Radio One stations here switched to the new Arbitron PPM measuring system, it became apparent to engineering that we needed a solution for monitoring the stations for PPM encoding and, equally as important, the ability to switch from a primary encoder to a secondary encoder in the event of a failure.

After all, in the PPM environment, if you are not encoding, you may as well have the transmitter turned off.

SOLUTIONS

The immediate solution was to purchase a remote control and connect the PPM monitor's alarm output to the new Burk Plus remote for encoder failure reporting. Engineering would receive the call and then remotely control an IP-controlled power strip to turn off the primary encoder and power up the secondary encoder.

The problem with this solution is that you are not encoding while going through the switching process, which takes time with this method. That means no ratings for a period of time.

I thought there had to be a better way.

I remembered seeing an advertisement in Radio World for the new Burk Technology PPM Assurance System. I called my vendor, Broadcasters General Store, to ask some questions about this system. BGS' Chris Shute recommended that I speak with Steve Dinkel at Burk.

When Steve and I spoke he recommended a demo. I asked the Radio One VP of Engineering John Mathews to attend the demo as I thought this might be a sound solution companywide.

As a result of actually seeing the system in operation and what it could do, and given its cost-effectiveness, Radio One then purchased the system for every market that is currently in PPM.

HOW IT WORKS

The system is well thought out. Users can configure the system for any of the three PPM configurations recommended by Arbitron. This makes system setup a breeze.

The configuration for Washington contains two encoders per station for the main STL, a primary and secondary (of course we have additional encoders on the backup STL and auxiliary transmitter sites). If the primary encoder fails we just power up the secondary unit.

Scott K. Tanner stands in front of a rack of equpment including the Burk Technology PPM monitor.

So you think to yourself, "Why not leave both encoders powered up?"

If you have two encoders operating simultaneously, both feeding the transmitter, the decoding system at Arbitron becomes confused and you'll get no ratings. In the case of running both encoders hot and switching the program feed downstream, the Burk PPM Controllers have relays to control an audio switch.

Another big plus is that the Assurance Monitor has built-in silence sensors for each of the four stations it monitors and controls. In the event of loss of program audio, it will send a message that notes the problem is a loss of audio and not an encoder failure. This helps isolate the source of the problem and greatly helps in troubleshooting.

The way it works is that the program material is connected to the primary encoder and is also looped to the secondary encoder, where the main program output to the STL is provided.

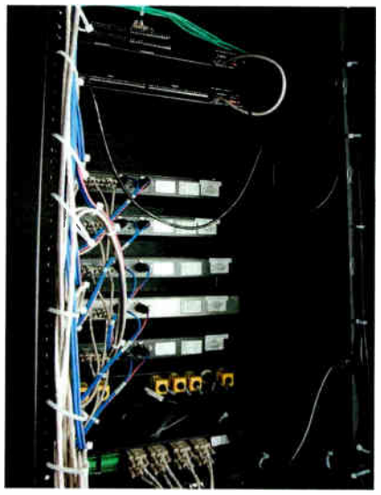
The PPM monitors are connected to the Assurance Monitor system by a serial cable.

The PPM encoders are connected to the Assurance Controller system also by a serial cable.

Both systems communicate through the LAN, which provides a lot of flexibility for installation of the Arbitron gear and the Burk system.

FAILURE DETECTION

When the Burk Assurance Monitor detects a failure, it sends a command to the Burk Assurance Controller, which then automatically switches from the primary encoder to the secondary encoder by throwing a relay to disconnect the power to the primary and energizing the secondary. All is done seamlessly without human intervention.



The Back View

The system then sends an e-mail to inform the engineers, programmers and manager (or whomever you designate).

Installation was a breeze. If you purchase the optional cables with the system, it is plug-and-play. Unit configuration is done via the LAN with the onboard Web server. Once the units are configured and connected to the LAN, the system automatically comes up. All wiring is done via standard RS-232 interface.

There are other useful features. Automatic testing allows automated testing of the primary and secondary encoders. This verifies the proper operation of all encoders and takes another "to-do" off your list.

With the "Exception Log" you can not only verify proper operation of your encoders, it also logs all actions taken by the PPM Assurance system. If during the scheduled test mode the system fails, it will log the failure and notify the preprogrammed e-mail list of the failure.

If the programming or management staff has doubts about the encoding, they simply go through the log and print verification.

The bottom line is the system works and alerts preprogrammed individuals or groups to detected failures. I believe this to be a sound engineering solution packaged in an attractive system.

You may now be thinking, "What about all that money spent on the remote control and IP power strips?" Not to worry. The remote is installed as a backup to the Burk PPM Assurance system. Since there is no ESI (Enhanced Speech Interface) in the Assurance system, I have the Burk Plus connected to the monitors as well so the engineering staff is notified via the phone of the failure/switching. The remote control is also used to monitor the studio generator, UPS and TOC temperature.

As for my expensive IP power strips, they have been redeployed to a transmitter site.

A win for everyone!

For information, contact Burk Technology at (800) 255-8090 or visit www.burk.com.

TECHUPDATE

BELAR LAUNCHES MONITOR

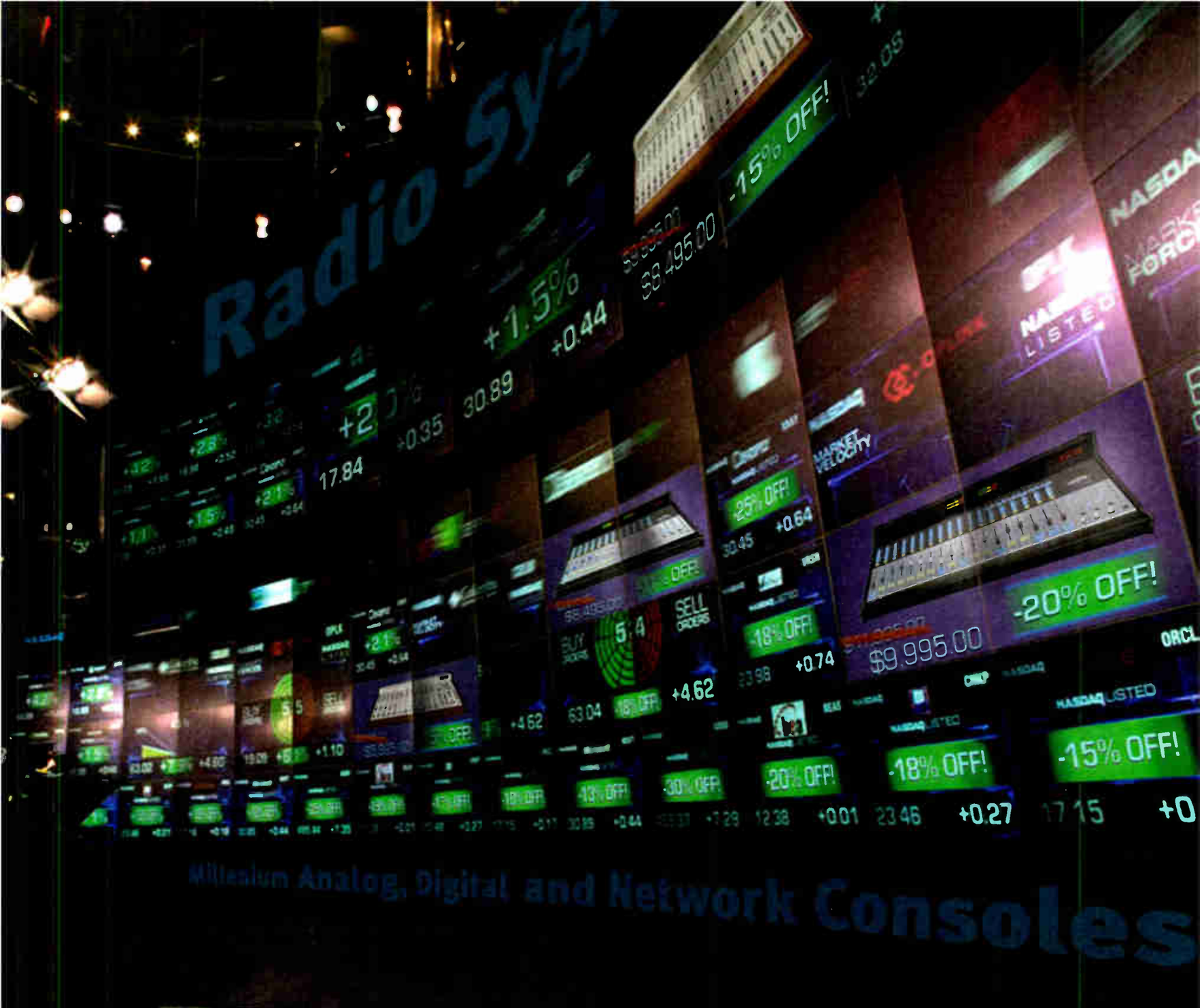
Belar Electronics Labs' FMCS-1, soon to ship, is also named the "FM Solution."

Designed to be available in a basic model or a more feature-filled configuration, the FMCS-1 handles FM RF carrier measurements, AM and sync AM noise measurements, variable BW digital IF and composite filtering, RDS injection/phase and full data decoding, peak and RMS measurements. The RF input is frequency agile.

The "complete" unit adds items such as a spectrum analyzer for RF, composite and FFT analysis and dual SCA decoders.

An RJ-45 connector links the FMCS-1 to the Internet for remote monitoring. A headphone output allows for local monitoring.

For information, contact Belar Electronics Lab at (610) 687-5550 or visit www.belar.com.



YEAR END RECOVERY

Millenium Analog, Digital and Network Consoles are now priced thousands of dollars less than their nearest competition. Contact your Radio Systems' distributor for a quote on broadcast's best value of the year!

radio SYSTEMS 601 Heron Drive • Logan Township, NJ 08085 • Phone: 856-467-8000 • Fax: 856-467-3044 • www.radiosystems.com

TECHUPDATES

DAYSEQUERRA MONITOR SEEKS HD ALIGNMENT

DaySequerra's TimeLock algorithm in the M4DDM automatically maintains alignment of HD Radio MPS analog and HD-1 digital audio.

The M4DDM also provides tools to measure, monitor and issue alarms for AM/FM and HD1-8 multicast signals, PAD and RBDS data. The M4DDM has a full-time digital output for confidence monitoring and six assignable alarm outputs for loss-of-carrier, program audio and OFDM sidebands as well as HD Radio data and RBDS data payloads.

The M4DDM comes with DaySequerra's M4DDM Remote Dashboard software, a proprietary PC-based application for remote control monitoring, logging and alarms with e-mail and SMS notification.

The M4DDM is compatible with existing HD Radio NE-IBOC Gen I and Gen II AM and FM installations using: 1) the M4DDM's internal digital audio delay; 2) audio processors such as Omnia Audio's Omnia-5EX HD with the appropriate Ethernet protocol; or 3) iBiquity MPS Framework version 4.3.2 or later. The M4DDM also is compatible with any new installation of Embedded Exporters from Broadcast Electronics, Continental, RVR, Harris and Nautel.

For information, contact DaySequerra at (856) 719-9900 or visit www.daysequerra.com.

DAVICOM OFFERS TRANSMITTER REMOTE CONTROL SYSTEMS

Davicom says many leading broadcasters and telecom operators rely on Davicom MAC units to monitor and control their transmitter sites and unattended studios remotely, allowing them to reduce their operating costs and downtime.

Immediate access to real-time site information like transmitter status, RF power, antenna VSWR, audio/video levels, mains power presence, temperature, tower lighting, fire alarm and building security status can be just a mouse click away.

MAC units provide automation with decision-making features and commands that go beyond conventional telemetry systems, it says.

For information, contact Davicom, a division of Comlab Inc., at (418) 682-3380 or visit www.davicom.com.

AUDIO PRECISION UPS THE ANTE

Noting its 25th year in business, test equipment manufacturer Audio Precision has developed a 1 MHz option for the APx525 family of two- and four-channel audio analyzers. The development may be of particular interest to audio equipment designers.

Called the BW52 High-Bandwidth option, the enhancement brings the analyzer's FFT performance up to 1 MHz, 24-bit amplitude resolution and 2 Hz of frequency resolution.

AP Chairman and cofounder Bruce Hofer noted, "Compared to the previous state of the art, an FFT of this length and resolution is like trading a pair of reading glasses for the Hubble telescope."

The BW52 option is compatible with the Apx520, APx521, APx525, APx526 analyzers and will be available in January 2010.

For information, contact Audio Precision at (800) 231-7350 or visit www.ap.com.

HOW MUCH POWER?

Musician/inventor Keith McMillen says he got tired trying to guess whether batteries in various pieces of equipment would last through a show. Battery testers currently on the market never satisfied him so he invented his own.

The handheld battery-operated (9V) Batt-O-Meter uses a gold-plated standard right-angle 1/4-inch power plug to suss out the life expectancy of installed 1.5 V (AA, AAA) or 9 V batteries. It can also test single batteries, including 3 V batteries.

Separate settings account for differences between alkaline, carbon-zinc and rechargeable batteries. Onboard auto-sensing algorithms and a microprocessor determine time remaining for the battery and display on an LCD screen.

For information, contact Keith McMillen Instruments at (510) 502-5310 or visit www.keithmcmillen.com.

LBA DISTRIBUTES SCHOMANDL RF POWER MONITOR

The versatile Schomandl 3024 Digital RF Power Monitor provides true RMS and peak power measurements across the 0.5–2700 MHz frequency range. The power monitor can be used to 1,000 kW with appropriate coax-mounted sensor units.

It can be programmed to accept a variety of power couplers, up to four systems, including most existing customer-installed units. A number of external alarm and data modes are available. The 3024's Web-enabled features allow users to monitor remote AM/FM/TV RF sites with ease.

For information, contact LBA Group at (800) 522-4464 or visit www.lbagroup.com.

FREE WEBINAR
December 8, 2009

Radio World TechCast
360° Roundtable
"What to Watch for in 2010"

Radio World Hosts:

Paul McLane, U.S. Editor in Chief

Skip Pizzi, Contributing Editor

Guest Speakers:

James Cridland, Radio Futurologist

David H. Layer, Senior Director, Advanced Engineering, NAB Science & Technology Department

Jeff Littlejohn, Executive Vice President, Distribution Development, Clear Channel Radio

On Tuesday, December 08, 2009 at 12:00 noon Eastern time, Radio World will present a live Webinar. Please be our guest from your desktop or laptop for a stimulating 60 minute discussion about the most important technical trends that will affect radio broadcast engineers, managers and owners in 2010. We have assembled a panel of radio's thought-leaders along with our editor, Paul McLane and contributing editor, Skip Pizzi.

A unique aspect of this Webinar is that you the attendee will help determine the specific topics to be discussed when you register. Don't miss this rare opportunity to learn more about radio's most pressing technologies for the 2nd decade of the 21st century.

Join us FREE of charge – be sure to register at the link below in advance or on the day of the event.

Go Here To Register
http://www.radioworld.com/webinars7

RADIO WORLD
The News Source for Radio Managers and Engineers

TECHUPDATES

DK-TECHNOLOGIES ADDS SOFTWARE

DK-Technologies has tackled concerns about audio loudness by introducing measuring software that targets this problem. The software can be incorporated into all audio meters in DK's flagship MSD range (MSD600M++, PT0600M, PT0660M and PT0660M-LS).

The new loudness software was developed in response to requests from broadcasters and production houses, including SKY, ITV, the BBC and RAI in Italy. It is designed to examine the issue of the perceived loudness of audio signals. It incorporates ITU Recommendations BS.1770 and BS.1771, which specify the algorithms that should be used to measure audio program loudness. DK's Loudness software, which is based on an extension of the Leq(RLB) algorithm to cover stereo and monophonic audio signals, is able to display the loudness of the individual audio channels, as well as the sum of the left and right signals. It can be used in any broadcast or post-production facility as a health check during production or prior to transmission. The company says it is particularly useful for radio broadcasters who are dealing with frequently changing program material or material that comes from a number of different sources.

Although all meters in DK's MSD range can be upgraded to incorporate loudness measurement, a specific tool for this purpose is the standalone MSD100C Loudness meter. This offers a selection of working modes, including "Fast" mode for real-time viewing of loudness, "Integrated" mode for measuring the loudness of a recorded section or the complete recording and "Gated" mode for viewing loudness of audio material with long pauses.

With selectable digital and analog stereo inputs, the MSD100C Loudness meter displays left and right channel loudness as well as the summed loudness. It also delivers the information as a numeric readout. The meter uses the Loudness Units (LU) scale, covering a range from –18 dB to +9 dB. It also features an audio vector oscilloscope, phase correlation meter displays, VGA color display and VGA output for external display.

The MSD100C Loudness meter is available for a variety of languages and can be delivered with various scales to suit different broadcasters, while still maintaining the consistent loudness measurement as set out by the ITU.

For information, contact DK-Technologies at (800) 421-0888 or visit www.dk-technologies.com.

TFT UPDATES EAS LINE

TFT Inc. has introduced upgrades and additions to its EAS911 EAS encoder/decoder and new products in support of its EAS product line. The latest firmware (V.87.2EN for English and V.87.1SP for Spanish) correct the UTC offset on the new dates for switching between daylight saving time and standard time. Another new feature is the ability to drive a second character generator on a slave port.

Two new products add AES/EBU interrupt capability for digital audio streams. The Model 619 is a single-channel unit while the Model 629 will handle two AES/EBU streams independently. Both may be paralleled with the Model 940A analog program interrupt unit.

The Model 2008 CAP-to-EAS converter adds Common Alerting Protocol capability to any EAS911 Encoder/Decoder. The Model 2008 functions like an ordinary receiver and features text-to-speech transfer as an option.

For information, contact TFT Inc. at (408) 943-9323 or visit www.tftinc.com.

SAGE EAS SYSTEMS EVOLVE

Sage Alerting Systems continues to keep its eye on the evolving Emergency Alert System rules, including the Common Alerting Protocol. Compliance testing for the new CAP standard may start as soon as this month.

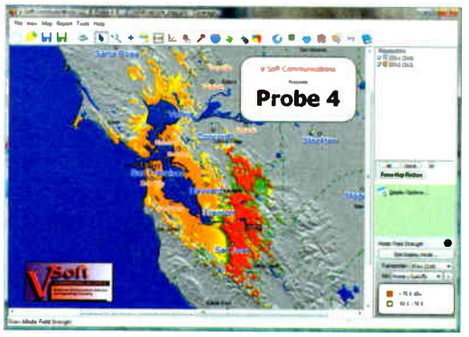
Sage says it is committed to providing a free software update to its users when FEMA and the FCC announce the final CAP rules, now expected to occur in 2010. In the meantime, the Sage Digital ENDEC continues to be a popular choice for broadcasters who are installing new studios or transmitters, refurbishing old stations or getting ready for the future.

With its digital AES/EBU and analog audio outputs, expanded automation interfaces for multiple stations, ability to e-mail logs (including received audio), remote control capabilities via LAN and many other features, the new ENDEC is suitable — as a drop in replacement for users' existing classic ENDEC or as a new installation.

Current owners of a Sage Digital ENDEC should check the support section on the Sage Web site for the latest downloadable firmware update, adding new features on the ENDEC's real-time control page and enhanced multi-station control.

For information, contact Sage Alerting Systems at (914) 872-4069 or visit www.sagealertingsystems.com.

PROBE 4 LAUNCHED



V-Soft Communications recently released Probe 4, a major version of its award-winning RF propagation analysis software. The program is a computer tool for predicting radio propagation, even for difficult prediction studies, for FM, TV and DTV.

The core calculation engine in Probe has been upgraded to take advantage of newer computers with multiple cores. This means an improvement in performance with faster calculation times. The terrain profile viewer has been replaced with a more versatile tool where items such as units, line types and number of divisions on each axis are user-configurable.

The program's interface has been updated to allow the culling of stations based on their antenna heights, powers and channel relationship, rather than a fixed distance from the reference. Probe 4 features a new 307(b) service counting system that allows for fast calculation, plotting and population reporting of the number of services at all locations within a station's coverage area.

As a bonus, Probe 4 is now bundled with several new sources of data including an updated USGS Tiger street, roads, lakes and river databases. This database set adds new streets, roads, lakes and rivers to the database developed by the Census Bureau during the 2000 census.

Also included is an updated Tiger Boundary Dataset. With this dataset, Probe 4.0 can plot additional political boundary data from the 2006 U.S. Census Tiger database. This database includes 2006 city boundaries, urban area boundaries, county lines, county subdivision boundaries, landmark boundaries and land mark data points.

Included as well is the U.S. Decennial Census database. This is the SF1 database that includes county and racial breakdowns.

The added Tower Database allows FCC registered towers to be plotted on Probe 4 maps. A new Point Search function allows the user to click on a point on the map and identify nearby cities and FCC ASR towers.

And added is the Duopoly Database, a precompiled distance-to-contour AM, FM and TV database for use with the service counting feature of Probe 4.

For information, contact V-Soft Communications at (800) 743-3684 or visit www.v-soft.com.

SHOWCASE

Receivers

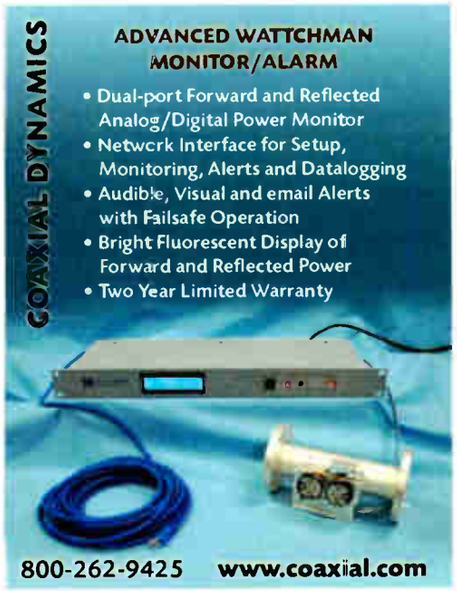
DAYTON INDUSTRIAL CORPORATION
2237 Industrial Blvd., Sarasota, FL 34234
Tel: (941) 351-4454 Email: sales@daytonindustrial.com
Web Site: www.DaytonIndustrial.com

OUTSTANDING specifications and pricing on professional quality receivers for EAS, monitoring and translators. The AFC3 is a three receiver rack mount that is configured to your EAS or monitoring specific application. Each receiver has internal frequency selection (PLL) switches, frontpanel controls and indicators, and rear panel connections.

Price: Approximately $1300
(depending on receiver choice)

Select three receivers from our FM or FM/SCA, NOAA Weather, Public Service and/or AM Monitor/Receivers. All receivers are PLL(synthesized) designs using the latest state of the art components and are available as stand alone receivers as well as in AFC3 combinations.

Quality Receivers Designed and Manufactured in the USA since 1980.



TECHUPDATES

INOVONICS MONITORS AM

The Inovonics 525 is a wideband AM broadcast receiver utilizing a highly linear phase-locked detector to provide accurate off-air measurements of AM carrier modulation.

A distinctive feature is its ability to resolve the amplitude modulation component of a station's main carrier during HD Radio digital transmission.

Positive and negative modulation are shown simultaneously on a high-resolution LCD screen that may be switched to display received signal strength and asynchronous noise that could compromise modulation measurement accuracy. Measurement response is always flat to 10 kHz, but a menu-controlled low-pass filter provides audio monitor cutoff between 10 kHz and 2 kHz in 1 kHz steps. This lets the user preview the effect of pre-transmission audio filtering or to simulate consumer radio response.

Additional features include menu-driven setup, five station presets, two sets of peak flashers and remote "tally" alarm outputs for overmod, carrier loss and program audio loss. The 525 comes with a weatherproof outdoor loop antenna.

For information, contact Inovonics at (800) 733-0552 or visit www.invon.com.

BROADCAST TOOLS: REMOTE CONTROL FROM THE WEB

The Site Sentinel 4 from Broadcast Tools provides a cost-effective solution for Web-based site remote control, in one-third of a rack width.

It was designed from a user's point of view, so the functionality to control site equipment in included, as are accessories that many manufacturers consider optional. Each metering (analog), status/digital, stereo silence sensor, temperature sensor and power failure input can be controlled and/or monitored over any IP network including private networks, IP-based industrial control networks and the Internet.

Users can operate the product using a browser or Web-enabled mobile device, while e-mail notification may be configured to alert up to four recipients when alarms are detected. The user may also enable a sound effect to play on the user's PC when an alarm is generated. Logging of selected system status along with the site ID may be e-mailed in time spans from once an hour to once a day.

The Site Sentinel 4 is equipped with four high-resolution 10 V buffered metering channels, while each of the four optically isolated status channels may be configured for 5 VDC to 24 VDC wet or dry (contact closures) status/digital monitoring. The four control channels are equipped with independent SPST 1 amp relays and may be latched on, off or pulsed with user-configured timing along with user programmable action sequences. The temperature monitoring is within the range of –67 to 257 degrees Fahrenheit (–55 to 125 degrees Celsius).

The Site Sentinel 4 also is equipped with a power controller port. By pairing this feature with an optional external AC power control unit (such as the Middle Atlantic RLM-15-1C, RLM-20-1C or RLM30-L530-1), remote rebooting of equipment is possible.

SNMP and SMTP username and passwords are supported.

For information, contact Broadcast Tools at (360) 854-9559 or visit www.broadcasttools.com.

RTW DIGITALMONITOR 10500X-PLUS HAS LOUDNESS DISPLAY

According to RTW, the DigitalMonitor 10500X-Plus is a high-performance, cost-effective system for monitoring digital stereo audio signals. Adding to its features it now boasts a hardware platform with integrated loudness display.

The loudness display, in compliance with ITU guideline BS.1771, provides two bar graphs for the individual channels and two additional bar graphs for overall loudness of individual signals. It also shows both integrated value with a dynamic time window, and the result of long-term integration. The display can be selected as an alternative to the usual peak meter bar graphs, with presets enabling the user easily to switch between modes.

More features include full-screen mode, which displays individual instruments being used; Stereo Sound Analyzer, a stereo version of the RTW Surround Sound Analyzer; AES3 signal input supporting sample rates up to 96 kHz; parallel XLR output for integration into digital studio environments; and an output for optional external VGA display.

The RTW DigitalMonitor 10500X-Plus is part of the RTW Loudness family product line of solutions for monitoring the loudness of stereo, multichannel and surround signals in a range of applications.

For information, contact RTW at 011-49-221-709130 or visit www.rtw.de.

TUNWALL RADIO ADDS PLATE OPTION

Tunwall Radio has expanded its line of switch controllers with the TRC-1P. It is a one-switch controller with all of the functions of the standard Tunwall TRC-1 but also includes plate on/plate off functions for both transmitters.

The TRC-1P is designed for one coax switch, two transmitters, one antenna and a dummy load. The TRC-1P can also be used with RF contactors for nondirectional

AM stations. The key switch-selected auto function will transfer to the aux transmitter upon failure of the main transmitter. The dummy load ready light works with the load interlock logic for automatic load protection.

No user programming is required for the TRC-1P. The preprogrammed PLC (programmable logic controller) provides control and logic for the coaxial switch and transmitters. The coaxial switch plugs into nine-pin AMP connector on the controller, and transmitter and remote control connections are made to barrier strip terminals.

Unlike many controllers, Tunwall Radio controllers are compatible with all standard coaxial switches. Optional controller-to-switch cables are available.

For information, contact Tunwall Radio at (330) 995-9642 or visit www.tunwallradio.com.

ACOUSTICS

ANTENNAS/ TOWERS/CABLES

WANT TO SELL

ERI SHPX-4AE antenna tuned to 100.7MHz FM, great cond, boxed, BO. C Coleman, 231-947-0003 x.27 or engineering@wklt.com.

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

AM phasors and parts. bob@wwok.net or 864 918 4740.

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

It's free and it has been expanded. The only cost is to keep us informed as to how the system is performing and let us know how you are using it. DIY-DJ, is a Linux based radio automation system and now sports a record scheduler (DIY-DJ-RECORDER) which allows you to schedule the recording of a network or any other program for replay later as well as a basic logging system. Beside these additions the system schedules music, does voice tracking (ALWAYS hit the vocal), create a shell, live assist, exact time events, join satellite feeds, automated temperature announce, do unattended remote events and more. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

COMPLETE FACILITIES

CONSOLES/MIXERS/ ROUTERS

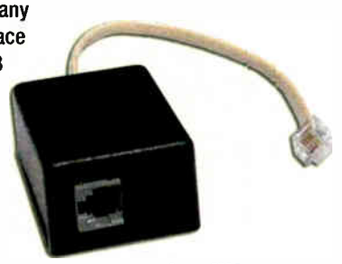
Used 8-Channel Arrakis 12000 series broadcast audio console, includes pwr sply, includes 2 TPM2 modules (mono mic level w/pan cntrl) & 5 TPM3 modules (stereo line level w/mode cntrl), fully functional, was used for 3 yrs & replaced by a Telos Axia digital system. Seth Lind, This American Life, 212-624-5027 or seth@thislife.org.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

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 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

Delta Electronics RCS 1-V remote control system, new, used, junk, any way shape or form. R Burkhardt, reburkhardt@wbaa.org or 765-494-3968, 7-4 weekdays.

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 recording gear, amplifiers, preamps, outboard, radio or mixing consoles, microphones, etc. Large lots acceptable. 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.

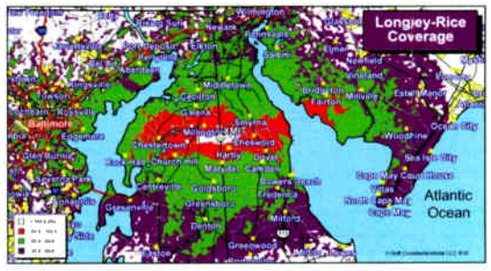
RECORDING & PLAYBACK HARDWARE

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-687-6357.

Schnader telescriptions 16 mm musical films produced in the early 50 s. Bill Cook, 719-687-6357.

Standard Short-tune series. Bill Cook, 719-687-6357.



REMOTE & MICROWAVE

STATIONS

WANT TO SELL

For Sale: AM in Rome, NY, xlators in Enid, OK, Jacksonville, NC, Temple, TX. Email mraley@bbnradio.org.

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.

TEST-METERING-MONITORING

WANT TO SELL

Gentner GSC3000 I/O 15 main unit, $595; Voice/DTMF unit, $495; Relay output unit, $195. garyw@k104fm.com.

BROADCAST EQUIPMENT EXCHANGE

CONSULTANTS

EMPLOYMENT

Young radio professional seeks on-air opportunity. Fun and quick witted, loyal, diligent and hard working. Digital, boards, copywriting and published poet. Rusty Dawson, 469-237-7015; rusty85@gmail.com.

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, 917-324-8466 mitchell-rakoff@yahoo.com.

Happy, energetic lady willing to travel to you. Self-starter that will fulfill above and beyond expectations. Seeking position with your station. On-air experience. M.collier72@yahoo.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.

DISTRIBUTOR DIRECTORY

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

SPACE IS AVAILABLE

Call David
615-776-1359

or email
dcarson@nbmedia.com

TRANSMITTERS/EXCITERS/TRANSLATORS

WANT TO SELL

Harris HT20FM 20kW FM xmtr; Belar FMM-2 FM modulation monitor; Belar FMS-2 FM stereo monitor; Belar SCM-1 FM SCA monitor; Bird Wattcher # 3127A; Burk TC-8 remote cntrl, all are still in service & available Spring 2010 after move to new site, $10000/all, will consider donation to non-profit organization. Mark Brockmeyer, kmaengineering@kmaland.com or 712-246-5270.

Versacount Loral EX-80 exciter, good cond, $750. M Taylor, 417-451-5636.

CCA AM 10,000 D – Call John KQSS **928-595-0263** between 10 & 6 PM Pacific Time.

WANT TO BUY

25kW AM xmtr wanted. bob@wwok.net or 864-918-4740.

AM Phasors, Phasor Parts, Phase Monitors, Rf Switches, AM Transmitters. Continental Communications 314-664-4497, Contcomm@Sbcglobal.Net

TUBES

OPINION

'SIGN OFF': NOT FOR ME

The commentary by Paul Thurst of Pamal Broadcasting really struck a nerve with me.

For the sake of nighttime interference and "wasted electricity," he wants AM stations to turn off from midnight to 6 a.m.

READER'SFORUM

My radio station welcomed the 33 watts at night given to us in 1987. My electricity consumption is about $2 per night. I don't run air conditioning at night. Our signal is heard well, around 7 miles, as it is free of power lines, fluorescent lights and other objectionable sources. We are also the only station in a community of 12,000.

There are no radio stations operating on our frequency in Wisconsin, going north to the North Pole. My tower lights likely use more electricity than my transmitter does.

If Paul really wants to save electricity alone, he should go to the all-night gas station down the road and ask them to kill some of their sodium vapor lights burning all night. In fact, in my community, two city-owned spotlights shine at the local church steeple; those burn more CO_2, SO_2 and NO_x than our station does. And don't get me started on how many floodlights are shining on the American flag in our town.

It's a "quality of life" issue. Do you really want to give up overnight radio broadcasting in small and medium markets?

If the amount of nighttime interference on AM that Paul Thurst hears all night is truly objectionable, he should be advocating that all crystal oscillators in AM transmitters be converted to a GPS-based "frequency synch" that would get everyone zero-beating at the exact frequency they're licensed for. Somebody dropped the ball when this was proposed in Radio World a few years ago.

As to his comments about Jim Bohannon, Larry King or others, I frankly find overnight programming to be unique and excellent, including George Noory, Bruce Williams and even the "Wall Street Journal" reports designed for the overnight hours.

Finally, our transmitter site is 10 miles from two nuclear plants with three operating reactors. I can't see how a radio station could turn their back on 25 percent of their operating schedule. Bad weather and other emergencies don't take a vacation during the overnight hours.

MMTC

(continued from page 45)

The addition of the Broadcast Public Engineer position to the other commission resources for the public would ultimately provide significant efficiencies to the commission by reducing the number of inadequately and inaccurately completed applications filed. Accordingly, the position of Broadcast Public Engineer would not only support the public interest by furthering the mission of the OCBO to remove barriers to participation by small entities, women and minorities, but it may also improve the commission's processing of broadcast applications generally.

This proposal is also consistent with President Obama's stated objective of making federal agencies more open and transparent.

The full petition is posted at the organization's Web site at www.mmtconline.org.

To read filed comments about it visit http://fjallfoss.fcc.gov/ecfs2/, *choose Search for Filings and enter RM-11565 in the Proceeding box.*

Thank you for allowing me to advocate for full-service broadcasting, especially on the AM band.

Mark Heller
President/General Manager
WGBW(AM)
Two Rivers, Wis.

'SIGN OFF': A GOOD IDEA

Cheers to Paul Thurst for his commentary "Sign Off, and Save Some Money" (Aug. 12). It shows an enlightened attitude toward re-embracing the practice of years ago: stations actually signing off, such as from midnight to 6 a.m.

A few stations still do. The revered KNXR 97.5 Rochester, Minn., for example, which takes great care with its audio, has resisted the notion of consolidation in the local marketplace and has not embraced IBOC, has for years signed off at 1 a.m. local time.

Not only is there a savings in electrical consumption, signing off evidences stewardship of our precious resources in showing the public and other businesses a concern over energy consumption. It also psychologically shows to the listener that the hours such a station is on the air are usually hours when there is a live person on duty, and a facility where time checks and weather forecasts with current temperatures can be believed.

Too, signing off helps free up a frequency for the casual listener or the DXer, who can then enjoy the hobby of trying for distant stations on or adjacent to the channel thus cleared. I know many engineers and even station owners have come into the field from having experienced it first as DXers, or even ham radio operators.

Once I toyed with the idea of urging stations in a market to rotate the nights they stayed on the air during the wee hours. A country station might be on Monday night (Tuesday morning), a rock station Tuesday night, a Christian station another night, a public station a different night. In the largest markets, perhaps one station of each format could stay on, with that station rotating with other stations having similar formats from night to night or week to week. Of course, this opens the possibility of antitrust violations, but that's not such a consideration with conglomerates, with one owner controlling five to seven local stations.

Yes, Paul Thurst is right that the industry could save energy and provide a more interference-free dial for listeners, at least part of the 24-hour period we call a "day."

Bruce F. Elving
Esko, Minn.

The author publishes the "FM Atlas" and was founder of the FMedia! newsletter.

POINTED DIGITAL QUESTIONS

I have to give you credit that you ran Bob Savage's article on IBOC ("How Do I Know I'm Winning the Argument?" RW Engineering Extra, Aug. 19).

He posed some very pointed and significant questions. Then it becomes like the difference between Fox and NBC and the Obama administration. One's in the tank and the other raises valid questions.

Sure would be great to see the "radio trades" ask and answer those pointed questions. The Sept. 9 issue [of RW] seems to be a propaganda piece for iBiquity.

Jim Jenkins
Owner/General Manager
WAGS Radio
Bishopville, S.C.

RADIOWORLD
Vol. 33, No. 29 November 18, 2009

Next Issue of RADIO WORLD December 2, 2009
Next Issue of ENGINEERING EXTRA December 9, 2009

E-mail: radioworld@nbmedia.com
Web site: www.radioworld.com
Telephone: (703) 852-4600
Business Fax: (703) 852-4582
Editorial Fax: (703) 852-4585

For address changes and subscription renewal, please visit radioworld.com and click on the "Subscription" button. To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, e-mail the editor at radioworld@nbmedia.com.

EDITORIAL STAFF
EDITOR IN CHIEF, U.S. Paul J. McLane
NEWS EDITOR/WASH. BUREAU CHIEF Leslie Stimson
GEAR & TECHNOLOGY EDITOR Brett Moss
TECHNICAL ADVISER Thomas R. McGinley
TECHNICAL EDITOR, RWEE Michael LeClair
PRODUCTION EDITOR, RWEE Karen Lee
CONTRIBUTING EDITOR John Bisset
CONTRIBUTING EDITOR Skip Pizzi
INTERNATIONAL EDITOR IN CHIEF T. Carter Ross
LATIN AMERICA EDITOR IN CHIEF Rogelio Ocampo
LATIN AMERICA EDITOR Karina Gerardi
MANAGING EDITOR, WEB Brian Smith
EDITORIAL ASSISTANT, MILAN Peter Finch

EDITORIAL CONTRIBUTORS
W.C. Alexander, Steve Callahan, James Careless, Harry Cole, Mark Durenberger, Charles Fitch, Ty Ford, Harold Hallikainen, Craig Johnston, Paul Kaminski, Peter King, Mark Lapidus, Daniel Mansergh, Sharon Rae Pettigrew, Carl Lindemann, Ted Nahil, James O'Neal, Tom Osenkowsky, Ken Deutsch, Rich Rarey, Tom Ray, Randy Stine, Richard Strickland, James G. Withers, Tom Vernon.

ADMINISTRATION & PRODUCTION
PUBLISHER John Casey
EDITORIAL DIRECTOR T. Carter Ross
PRODUCTION DIRECTOR Davis White
PRODUCTION PUBLICATION COORDINATOR Karen Lee
ADVERTISING COORDINATOR Caroline Freeland

CIRCULATION
ASSOCIATE CIRCULATION DIRECTOR, AUDIENCE DEVELOPMENT Anne Drobish
CIRCULATION MANAGER Kwentin Keenan
CIRCULATION COORDINATOR Michele Fonville

SUBSCRIPTIONS
Radio World, P.O. Box 282, Lowell, MA 01853
TELEPHONE: 888-266-5828 (USA only 8:30 a.m.–5 p.m. EST)
978-667-0352 (Outside the US) FAX: 978-671-0460
WEB SITE: www.myRWNews.com
E-MAIL: newbay@computerfulfillment.com

CORPORATE
NewBay Media LLC
PRESIDENT AND CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
CONTROLLER Jack Liedke
GROUP CIRCULATION DIRECTOR Denise Robbins
VICE PRESIDENT OF WEB DEVELOPMENT Joe Ferrick

VIDEO/BROADCAST GROUP
EXECUTIVE VICE PRESIDENT Carmel King
VICE PRESIDENT / SALES DIRECTOR Eric Trabb

ADVERTISING SALES REPRESENTATIVES
US EAST & LATIN AMERICA: John Casey, jcasey@nbmedia.com
T: 330-342-8361 | F: 330-247-1288
US WEST & CANADA: David Carson, dcarson@nbmedia.com
T: 615-776-1359 | F: 866-572-6156
EUROPE, AFRICA, MIDDLE EAST: Raffaella Calabrese, rcalabrese@broadcast.it
T: +39-02-7030-0310 | F: +39-02-7030-0211
JAPAN: Eiji Yoshikawa, callems@world.odn.ne.jp
T: +81-3-3327-5759 | F: +81-3-3322-7933
ASIA-PACIFIC: Wengong Wang, wwg@imaschina.com
T: +86-755-83862930/40/50 | F: +86-755-83862920
CLASSIFIEDS: David Carson, dcarson@nbmedia.com
T: 615-776-1359 | F: 866-572-6156

Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 810 Seventh Avenue, 27th Floor, New York, NY 10019. Phone: (703) 852-4600, Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

REPRINTS: Call or write Caroline Freeland, 5285 Shawnee Rd., Ste. 100, Alexandria, VA 22312-2334; (703) 852-4600; Fax: (703) 852-4583

Globe graphic ©iStockphoto.com / Edward Grajeda

Comrex BRIC-Link

provides reliable, high quality, cost-effective IP audio transmission over dedicated links.

plus

ISM Band 5.x GHz IP Radios

from Trango Systems, Tranzeo, Motorola, Tsunami and others available at BGS provide a low-cost, unlicensed, line of sight data link.

equals

Perfect, low cost STL solution

Use with BRIC-Link's linear and FLAC modes for full bandwidth audio with minimal delay. Easy to set up. Low operating cost.

Available from:

Broadcasters General Store

www.bgs.cc • 352-622-7700

BRIC-Link

Put Comrex on the Line

COMREX

www.comrex.com

FINALLY...FAILSAFE NETWORKED AOIP.

WHEATSTONE E-SERIES & WHEATNET-IP ARE YOUR BEST CHOICE BY A LONG SHOT.

When it comes to networking your facilities, there's only one best choice. Wheatstone. For years, we've been the network/control surface choice of top broadcasters. And with good reason – we care.

Wheatstone's Audio-Over-IP product is the best in the business. Here's why:

1. WheatNet-IP is easiest for a station to implement and configure. It is, hands down, the easiest in the industry. No need for Wheatstone to provide factory on-site assistance unless you really WANT us there. The manual and app notes will have you up, running and stable in less time than any other system.

2. WheatNet-IP is a natural for large facility multi-station networking (and for smaller facilities too!). It uses the IGMP features of Ethernet Layer 3 switches to identify a multicast packet, see which ports are requesting that packet, and send it only to those ports. Traffic control is maintained and system bandwidth is optimized.

3. Redundancy is critical. A typical WheatNet-IP installation has multiple levels of redundancy. Each BLADE holds the complete map of the entire system within its onboard memory – we call it distributed intelligence – a system with 50 BLADEs has 49 backups with failover in the event of a failure. Cisco Stackwise technology provides redundancy in the central core TOC switch. A WheatNet-IP/E-Series console studio complex can stand alone, even if the TOC goes down, with backup analog or digital program audio feeding a back end router independent of the core Gigabit infrastructure.

4. Modular is better. Why would you want to combine your switch, mix engine and I/O into one box? Beats us. With WheatNet-IP, you install only what you need, where you need it. We believe in not overselling.

5. Manufacturing quality is very important. Wheatstone is proud to have the best track record in the business for build-quality, reliability and intelligent functionality. With far more up-and-running installations than anyone else, this is where we really shine. An investment in WheatNet-IP and E-Series control surfaces today will reward you with a future-proof, failsafe networking/control environment that's infinitely updatable and in for the long run.

6. WheatNet-IP has an advantage. Take a look at your entire environment. Wheatstone is a perfect partner because we are always there, always innovating. Built into every WheatNet-IP BLADE are features others just didn't think of – handy utility mixers, silence detection, crosspoint routing control, headphone monitoring of any source, lots of logic GPIO, and comprehensive metering of audio I/O, not just signal-presence indicators. And, in the hugely unlikely event that a BLADE needs to be replaced, you just plug in a new one and enter the BLADE number. That's it.

7. Wheatstone is local. WheatNet-IP and the E-Series, just like ALL Wheatstone products, are designed, engineered and built from start to finish in our New Bern NC USA facility. Everyone who works on our products is 100% knowledgeable and immediately available. You can relax – as with the famous insurance company, you ARE in good hands.

With WheatNet-IP, we think we've done our homework. In fact, we know we have. And we're happy to say that we've got the best product on the market. To learn more, and there's a LOT more, get us on the phone or visit us on the web. We'll be happy to meet with you and get you everything you need.

Wheatstone

Audio Networking—Simply Evolved

phone 1.252.638-7000 | www.wheatstone.com | sales@wheatstone.com