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INSIDE

Automation Fight Takes Another Twist

Mission Abstract Data Responds to Setback

BY RANDY J. STINE

WILMINGTON, DEL. — Broadcasters' hopes that a patent dispute would go away quickly — after last year's favorable finding from a U.S. Patent

AUTOMATION

and Trademark examiner — may have faded a bit now that the decision has been challenged.

PTO examiner Jason Proctor is considering amendments to patent claims submitted by Mission Abstract Data, the company that sued several broadcast owners in federal court in March 2011 over the hard-disk automation systems they use.

A federal judge issued a stay in the

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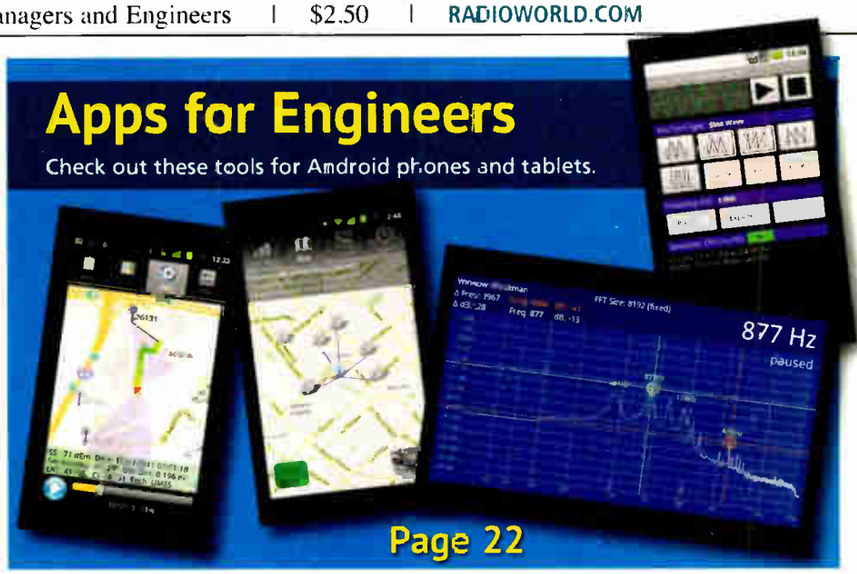


When It Comes to Text, Concise Display Is Best

NRSC RDS Group Sets Out Guidelines For Stations and Manufacturers

BY ALAN JURISON

Consumers have become accustomed to seeing title and artist information displayed when listening to music on all types of devices. In addition, as radio receiver designs evolve, more of them are displaying program-associated data via RDS/RBDS and HD Radio technologies.

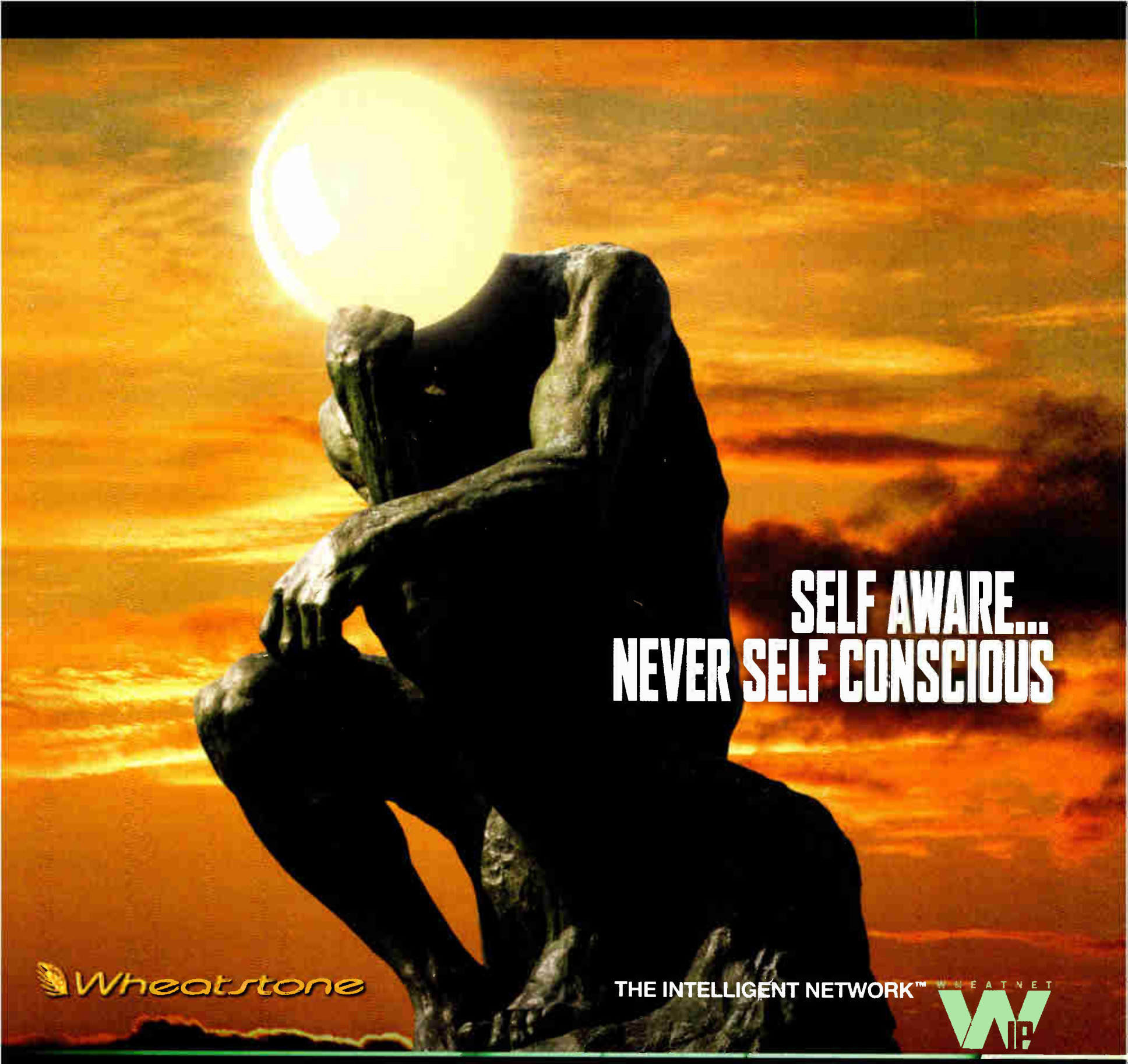
However, what's lacking is "a cohesive consumer experience across devices and even stations," according to Steve Davis, chairman of the RDS Usage Working Group of the National Radio Systems Committee and senior vice president of engineering and capital management for Clear Channel Radio.

"Some use one field for a station slogan, while others might use that for title and artist. This leads to frustration and even sometimes people incorrectly thinking their radio 'isn't working.'"

Members of the working group wanted to answer the question, "How can we best encourage receiver manufacturers to include displays with larger amounts of text?"

It sounds like a simple query, but in order to make recommendations to the industry, the RUWG decided to do an

(continued on page 8)



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Digital LPTVs Worry Noncom FMs

NPR Believes All Adjacent NCE FMs Need Protection; H&E Seeks Interference Prediction Criteria

BY LESLIE STIMSON

WASHINGTON — Protection of NCE FMs against potential interference from low-power television stations on Channel 6 in the future is being debated. Meanwhile, the last vestige of ambiguity in the FCC rules regarding so-called "Franken FMs" is closer to being stamped out.

The commission is reviewing public comments about rules governing the transition of low-power television to digital. The Media Bureau proposed such rules in July.

Petitions for reconsideration involving radio were filed in the fall by NPR and engineering consulting firm Hammett & Edison. The organizations agreed that NCE FMs need to be protected from potential interference from digital low-power Channel 6 TV stations, but they disagreed on whether noncoms are afforded any such protection in the proposed rules, and whether the FCC needs to spell out specifically how and in what circumstances NCE FMs need interference protection.

NPR believes the FCC proposals appear to limit LPTVs and TV translators to protecting only *first*-adjacent NCE FMs from potential interference. It wants the agency to spell out protection for *all* "adjacent" NCE FMs in the new LPTV rules.

NPR stated there's no technical reason why LPTV television Channel 6 stations operating with substantially increased power would cause interference to first adjacent NCE FM stations but not second-, third-, or other "adjacent" NCE FM stations. Indeed, NPR says its testing demonstrated a substantial likelihood of interference throughout the reserved portion of the FM band.

Hammett & Edison concurred that NCE FMs are protected from interference from LPTVs on Channel 6 in theory, but argued that the language is not meaningful without a Part 74 rule regarding the impact on radio from LPTV, TV translator and TV boosters.

"Section 74.703(b) of the commission's rules discusses the obligation of a secondary LPTV/TV translator/TV booster station not to cause interference to the reception of existing TV signals, but makes no mention of interference to the reception of FM signals," Hammett & Edison states.

It asked rhetorically how a digital LPTV licensee can know there may be a problem if it obtains a CP and builds a facility, in the absence of benchmarks.

In its petition for reconsideration, NPR asked the FCC to clarify that LPTVs must protect noncom FMs from interference from adjacent LPTV Channel 6 stations and include that obligation in its rules governing the LPTV service.

The network also asked the commission to specify that LPTVs using TV Channel 6 to provide an FM radio service "in lieu of a bona fide television service" are operating without commission authority. That's a reference to so-called "Franken FMs" — Franken as in Frankenstein — that operate analog aural carriers on 87.7 MHz.

As RW has reported, NPR believes those LPTVs are causing interference to member stations; the LPTVs say they're operating within the law. NPR wants the commission to clarify the situation, especially if it authorizes Channel 6 LPTVs to operate with increased power.

The FCC, meanwhile, has not stepped in to illuminate the "Franken" situation, which will end regardless when LPTVs go digital.

TECHNICAL STANDARDS

H&E calls for technical standards for "D06-into-NCE FM stations." The firm suggested that if the commission wants to go this route it should open a rulemaking on the issue specifically.

"We do not want to see a nonexistent protection requirement for DTV-into-NCE FM arbitrarily and capriciously established," stated H&E, adding that it's past time for the FCC to finish updating its rules to reflect the reality of current digital TV operations.

The reply comment period for those petitions ended in mid-December, and NPR and H&E submitted comments about each other's filings.

NPR said the commission doesn't need to reconsider its LPTV Report & Order based on the H&E petition.

"To address concerns raised by NPR about potential interference to NCE

(continued on page 5)

> **We do not** want to see a nonexistent protection requirement for DTV-into-NCE FM arbitrarily and capriciously established.
>
> – Hammett & Edison

He Hears a Bounty of Listening Options

Riismandel: 'It's an Amazing Time for Radio and Audio Media'

Paul Riismandel is co-founder and technology editor for RadioSurvivor.com and the advisor to student-run WNUR(FM) at Northwestern University. He has written on the Radio Survivor blog about his favorite radios to buy or give as gifts. I chatted with him via email recently about radio models and listening habits.

The holidays may be past but the question remains an interesting one. What is your favorite radio? Why?

That's a difficult question, because to me different radios have different purposes, from portable listening to DXing. But for everyday use my absolute favorite is the Tivoli Model One. It's a classic and simple analog design with precise tuning, very good sensitivity (especially on FM) and a pleasing, well-rounded sound that's equally appropriate for voice and music.

Where can someone buy a high-quality AM radio these days?

These days I think you have to go online or to Radio Shack, which I think still stocks a few Etons or Radio Shack rebranded Etons with credible performance. Amazon has had the stalwart RCA (formerly GE) Superadio III in stock, which is renowned for the quality of its AM reception and sound. Although I've never tried one myself, I know that many people like the C.Crane CCRadio, which is available directly from the company.

Tivoli Model One AM/FM table radio

What other models do you like?

I almost always travel with a radio. When I'm packing light I like the Kaito WRX911, which is only a little bigger than a smartphone and costs less than $25. It has an analog tuner with AM, FM and nine shortwave bands packed into it. It's not designed for DXing but still brings in strong stations well, including powerful international broadcasters like Deutsche Welle and Radio Netherlands.

At work I use the Tivoli Audio Songbook, which is their portable digital AM/FM. It's pretty rugged and comes in nice primary colors. Mine is blue and often attracts attention from visitors. I don't think it's quite as sensitive as the Model One, but it still does a remarkable job in my windowless office, which is situated in the interior of an early '70s-vintage poured concrete building.

Kaito WRX911

You and I probably pay more attention to radio product models than the average consumer. Do you think many Americans still talk about going out and "buying a radio"?

I think people tend to take radio for granted until the electricity goes out, they can't get cell reception or their computer is on the fritz.

It seems to me that at holiday time folks often like to give so-called emergency radios that run on crank or solar power. When there's recently been bad weather or some other disaster that causes the power to go out for more than a day, people get reminded that they can turn to radio for information and entertainment long after their smartphone battery has died.

I'd be curious to know if stores had a run on radios when Hurricane Irene was threatening the East Coast.

Have Internet "radio" and personalized "radio" platforms changed your own radio listening habits?

Honestly it's an amazing time for radio and audio media, and having this bounty of listening options has truly changed my listening habits.

I've been listening to Internet radio since it first became feasible in the late 1990s. At that time it was thrilling to listen to unique stations in other cities or countries that I might not otherwise hear. I still do that now, but I also supplement with services like Pandora, Rdio and Spotify, alongside a steady diet of podcasts.

I use the personalized radio platforms to check out new music or artists I've heard about, or when I want something a little more customized to my mood than a typical broadcast playlist. Many of the podcasts I listen to are radio programs, so catching them by podcast lets me listen on my schedule.

At the same time, I still turn on the "real" broadcast radio first thing every morning. With all these options, if anything I consume more "radio," rather than less.

Other thoughts about the state of the radio product marketplace?

Radio refuses to go away, it just converges with other technologies. So while the variety of single-purpose radio receivers has dwindled, you still find radio receivers bundled into so much audio gear.

For instance, my Android smartphone has a surprisingly capable FM radio. I like it because it uses less power than listening to Internet streams, and, of course, it uses absolutely no data. Just about every car on the road and in the showroom still has a radio, even if it is a truly multifunctional device. Yet, I still can walk around the corner to my local Walgreens and buy a radio for about 10 bucks that will play for days on a set of AA batteries.

What are your favorite listening devices? Tell us at radioworld@nbmedia.com.

With all these options, if anything I consume more 'radio,' rather than less.

– Paul Riismandel

FROM THE EDITOR

Paul McLane

THIS ISSUE

JANUARY 18, 2012

LPTV, NCE FM

(continued from page 3)

FM stations, the commission affirmed the secondary status of LPTV stations and their obligation to protect primary services, including NCE FM radio stations, from interference," it wrote.

"While the Hammett & Edison petition agrees that such protection is required, it seeks reconsideration of the Second Report and Order based on a lack of technical criteria for predicting when such interference might occur." NPR urged the agency to reject the H&E petition. The network is not opposed to the development of further technical standards to predict the occurrence of LPTV-to-NCE FM interference, but believes that's a matter "separate from an obligation to ameliorate interference that an LPTV station actually causes."

Hammett & Edison agrees that the FCC erred by restricting interference protection rights of a noncommercial FM from a TV Channel 6 LPTV or TV translator only to first-adjacent channel NCE FMs.

"A secondary TV Channel 6 LPTV or TV translator station, especially one operating at the now allowed 3 kW effective radiated power, could cause interference to an NCE FM station operating on any of the reserved channels, not just FM Channel 201 (88.1 MHz)," it wrote in comments in December.

"NCE FM stations on FM Channel 202 (88.3 MHz) or FM Channel 203 (88.5 MHz) would presumably be less susceptible to adjacent-channel interference from a digital TV Channel 6 station, but not immune to adjacent-channel interference.

"For FM Channels 204 through 220 (88.7–91.9 MHz), brute force overload interference could be created to NCE FM listeners close to a TV Channel 6 transmitter."

TIMING

H&E believes the commission needs to develop technical criteria defining both digital TV Channel 6-into-NCE FM interference, and NCE FM-into-digital TV Channel 6 interference. Such technical rules would also provide the commission with a benchmark to use in determining whether a particular application should be granted, H&E believes.

As far as timing for the transition, the FCC in July proposed a Sept. 15, 2015 deadline for low-power television stations to transition to digital. Among other things, the FCC proposed requiring existing analog and digital LPTVs in the 700 MHz band (Channels 52–69) to cease operations in the 700 MHz band by Dec. 31, 2011.

The National Translator Association said in public comments the Dec. 31 construction deadline is unworkable and asked that it be extended to June 30, 2013. Other commenters requested delaying the deadlines as well. NPR opposes efforts to delay the LPTV transition.

NEWSROUNDUP

MEASUREMENT: Arbitron said audience estimates derived from in-house server log files of Internet music services should not be compared with its survey-based Portable People Meter radio estimates. Arbitron publishes a "description of methodology" but suggests some Internet measurers do not, and it questions whether all online listeners should be counted as "exposed" to content. For example, it said, server measurement may indicate that a listening session has begun but this does not necessarily mean a listener is present throughout the session, whereas PPM uses a motion detector and requires a minimum amount of motion per day. The comments appeared intended as a response to data from Pandora and others who use Internet data in their marketing against traditional radio.

MORE MEASUREMENT: Meanwhile, Arbitron is collecting streaming data from over-the-air clients that also stream their signals. Once the firm has enough streaming data, it said, it will be able to make decisions about combining Web listening with radio PPM and diary data. Stations and advertisers want cross-platform measurement in order to measure and reach all listeners using all devices. "It's all about audio consumption, not just radio vs. digital," said Arbitron Senior Vice President of Digital Media & Analytics Paul Krasinski. He told attendees at the Arbitron Client Conference in Baltimore that 89 percent of those who listen online also listen to over-the-air radio.

AUTOMATION

(continued from page 1)

related patent infringement litigation until the patent claims are decided, as RW has reported. At least one patent attorney feels the USPTO has fast-tracked its reexamination in light of that federal patent infringement case.

Meanwhile, several Washington-based communications attorneys confirmed to Radio World that the company had sent another batch of collection letters to radio broadcasters in December asking them to sign licensing agreements.

PATENT REEXAMINATION

The patents held by Mission Abstract Data describe a system and method for a programmable digital audio system for radio stations where the music is stored in a digital database from which it is recalled during radio station operation.

In October the examiner in large part dismissed the claims pertaining to radio broadcasters, specifically the "radio transmission of music retrieved from an online digital database stored in a hard drive." The examiner overturned 15 of 29 challenged claims within the first patent and five of 10 claims in the second.

Radio automation supplier Broadcast Electronics, which is not a defendant in the patent infringement lawsuit, had requested the "ex-parte" patent reexamination. Ex-parte reexaminations are initiated by the public, according to the USPTO's website. Since 1981, claims in such reexaminations were changed in 64 percent of the cases, according to the Patent Office.

In December, Mission Abstract Data responded to the findings of the reexamination. A company representative met with the examiner in person; MAD then amended some of the rejected claims for reconsideration while cancelling others that had been rejected, according to MAD documents filed last month with the USPTO.

Specifically, Claims 14 and 21 of Patent 5,809,246 were canceled because their subject matter was included in other amended claims, according to Mission Abstract Data. Its response addresses Claims 1 and 4 and changed them to "further specify that the computer system is connected to a local-area network and that the remote music source is accessed over a wide-area network."

U.S. Patent and Trademark Office

Claims 1 and 4 describe a music transmission system involving a computer memory storing a database comprising a plurality of music. The amendments appear to involve networking and how the music is retrieved, according to a patent attorney familiar with the latest developments.

The patent holder's representative at the meeting is identified as Lawrence Aaronson, an attorney with Atlanta-based intellectual property law firm McKeon, Meunier, Carlin & Curfman. He provided background and briefly described the methods for operating the music transmission system claimed in the patents, according to MAD documents filed with the Patent Office.

The amendments are meant "to show the claims are different from the way in which the examining attorney viewed them to be too similar to the prior art," said Kevin Goldberg, communications attorney at law firm Fletcher Heald. He is not associated with the case.

The MAD report to the USPTO, obtained by RW, included a summary of the meeting between Aaronson and the patent examiner, including the examiner's initial reactions to the arguments.

Aaronson argued that a 1992 Arrakis Digilink operators manual and 1993 Dalet advertisement that appeared in Radio World, which had been presented as "prior art" evidence, fail to suggest a "RAID disk array storage" as indicated in the amended Claim 4.

"Nowhere does the Digilink Ops Manual teach or suggest connecting the nodes or the Digilink network to a wide-area network," according to Aaronson, quoted in the USPTO document. "As such, the reference fails to teach or suggest accessing remote music source over a wide-area network."

The MAD summary document submitted to the USPTO also indicated, "The Reexamination Panel tentatively agreed that such an amendment [Claim Number 4] would distinguish over the applied prior art and indicated they would consider the amendment."

Goldberg said, "I think it is significant that one statement made in the interview summary makes it seem as though the examiner agreed that an amendment" of Claim Numbers 1 and 4 "might result in a different outcome."

JUST ONE BITE?

Bill Ragland, a patent attorney with Womble Carlyle Sandridge & Rice who is not involved in the suit, said these amendments are critical to Mission Abstract Data's attempts to reverse the examiner's decisions.

"This is a normal part of the process. The patent holder is responding to the arguments of the examiner trying to change his mind. Then [the examiner] must decide whether the patent holder's amendments support the request to overcome the initial rejection and the prior art," Ragland said.

The patent rights-holder is allowed a second response in an ex-parte reexamination should the examiner again reject some of the claims, he said; but the patent owner typically has a more difficult time overcoming the limitations.

"You usually only get one bite of the reexamination apple. You can respond again, but with fewer amendments. The patentee also can try to negotiate changes with the [PTO] examiner," he said.

Ragland acknowledged the swiftness at which the Mission Abstract Data patent review is progressing. "My supposition is that someone in the patent office has determined that this case deserves to go to the front of the line and needs to be decided because of the litigation."

The patent owner ultimately may appeal the examiner's rejections to the Patent and Trademark Board of Appeals, according to Ragland.

Meanwhile, Mission Abstract Data, which also does business as DigiMedia, continued to send letters to radio broadcasters claiming the radio station owes them licensing fees for use of the patent.

The National Association of Broadcasters is urging members who receive the letters to consider several options including seeking legal advice and contacting their automation system supplier for guidance, according to its December electronic publication "The NAB Pulse."

NAB also suggests that broadcasters ask their insurance carriers whether those companies provide coverage for such a case.

Repeated attempts by Radio World to reach Mission Abstract Data representatives have been unsuccessful. The broadcasters involved in the ongoing litigation have also declined comment.

BACKGROUND

Several radio groups were plunged into the unknown when Mission Abstract Data filed the lawsuit in U.S. District Court for the District of Delaware in March 2011, alleging patent infringement by broadcast groups, including CBS Radio, Beasley Broadcasting, Cox Radio, Greater Media and Cumulus.

There has been intrigue over those who are associated with the plaintiff. RW previously confirmed that at one time patent holding company Intellectual Ventures owned MAD. Former Microsoft Chief Technology Officer Nathan Myhrvold founded IV in 2000.

Intellectual Ventures owned Mission Abstract Data when MAD acquired the two patents in question in 2007 from Haltek America Inc., according to an assignment history from the U.S. Patent and Trademark Office. Others listed in the assignment history as holders of the patents through the years include IM Networks (formerly Sonicbox Inc.), Concert Technology Corp. and Hahek America, though the latter appears to have been a typo for Haltek, subsequently corrected in the patent records.

The inventor named on the patents, Robert Goldman, apparently was an executive with Haltek at one time.

Bloggers on sites such as TechCrunch.com have disparaged Intellectual Ventures, the IP licensing company, as a "patent troll" that they say exists mainly to extract patent-licensing fees from other companies and whole industries. Intellectual Ventures told Radio World in 2011 that it no longer owns the patents.

United States District Judge Leonard P. Stark granted a stay in the hard-disk automation patent suit in November, effectively placing on hold the legal case as Mission Abstract Data and the defendants work through the reexamination process.

1664: Just what it looks like. Two tin cups and a string. But it transmitted sound!

1876: Alexander Graham Bell's commercially viable telephone.

1900: Phones become fixtures in more well-to-do and steam-punk homes.

1920: Every home is working toward having a telephone!

1936: The advent of the dial desk phone. No more asking the operator to connect you.

1963: Push buttons usher in the thoroughly modern world. Touch tones enter pop culture.

1983: The mobile phone is a reality. Plots in all TV shows get a boost!

2004: IP Telephones begin to become the staple of modern business.

2007: Smartphones are complete communications centers. AND they can sound great!

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PAD DISPLAYS

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in-depth analysis and make suggestions based on hard facts.

The group surveyed broadcasters on how RBDS is being used, and asked manufacturers how RBDS is implemented. It then crafted guidelines that members hope will help guide radio stations display the data in the most consistent fashion for a repeatable user experience, according to Davis.

The guidelines, contained in "NRSC-R300 Program-Associated Data Field Length Study," will also help manufacturers by ensuring them that the experience will be similar on a given device across multiple stations, he said.

RBDS Subcommittee Chair Barry Thomas echoed the notion of consistent display. Through the working group, the subcommittee has been working on a companion piece to the recently-adopted NRSC-4-B standard, a guideline for broadcasters and receiver manufacturers' use of RBDS, a "best practices" document that can be used by engineers and programmers, according to Thomas, who's also vice president of engineering for Lincoln Financial Media.

"It became clear that we needed data to inform discussions about title and artist display sizes, and message repetition guidelines," Thomas said. "The working group initiated what we believe to be the most comprehensive analysis of its kind. With this research, we can offer recommendations for field lengths, interleaving and repetition based on statistical analysis, not inference."

SONG DATA

In order to best educate the industry, the most logical solution would be to cultivate statistics from a large group of song material that might be displayed on RDS/RBDS and HD Radio receivers.

Clear Channel provided its database of approximately 149,000 individual songs with title, artist and, when applicable, album to the working group for analysis.

The database included various program formats, including pop, rock, classical, jazz, Latino, talk and others. Guided with this information, data analysis and statistics, the RUWG was able to generate the R-300 guideline summary for receiver manufacturers, automation system vendors and broadcasters to follow.

The overall findings in the report are summarized in the image Fig. 1, showing the combined cumulative distribution function (CDF) of the Artist, Title and Album fields.

Here, one can see visually how each of these three fields relates to the maximum amount of characters available in the database. So, for instance, you can represent 90 percent of the song titles in 30 characters or less. This can help receiver manufacturers better prepare and justify larger displays for PAD data and automation system vendors plan and prepare for how long song titles can be in their data structure.

A 30-character display can also help broadcasters to make sure their automation systems, RBDS/RDS and HD encoders can pass the appropriate amount of data from their internal databases to their listeners.

Another good way of summarizing the numerical findings of the report is in Table 1.

This allows the user of the report to select a percentile of characters he or she would want to cover. For example, to cover 96 percent of all possible artists, you would need 36 characters. Titles would need 32 characters and albums without year would need 48.

For purposes of comparison, the satellite radio market, meaning SiriusXM, has standardized on a 36-character limit per field, meaning coverage to the 98th percentile for title, 96th percentile for artist and 82nd percentile for album with year removed.

Other parts of the report encourage receiver manufacturers to use larger displays. It notes that receiver displays in the marketplace use various implementations of "scrolling" and "paging" that allow the receiver to display a field that has more characters than does the display. But larger displays help drivers:

For in-car applications, larger displays mean that the driver can observe more information with one glance, and spend more time with their eyes on the road. There is a limit to how much information can be captured in the one glance. Nevertheless, with a static display, the driver can determine when to glance back to read the rest of the information. Scrolling/paging, on the other hand, requires the driver to glance repeatedly until the next block of text is displayed or scrolled. (Page 18 of the report)

The RUWG also recommends that broadcasters eliminate extraneous text. Concise text is most effective for getting the actual title, artist and album information onto the display.

Extra text, such as the phrase "Now Playing," will lengthen the time it takes for a driver to observe the real information being conveyed on the display (i.e., Title, Artist, Album). It adds 12 characters to the required text length, and removes the key information (the Title) from the prime location (the beginning of the text string on the display).

As an example, consider a dot-matrix display of 20 characters width. This display can handle 73 percent of Artist fields in the sample database. However, if "Now Playing" is prefixed to the transmitted text, the display can handle only 14 percent of Artist fields before scrolling.

Some radios page between "first half of text" and "second half of text" at the press of a button. The 20-character display in the 2010 Ford Fusion allocates 19 characters to RT, with such an option to flip between the first and second half of the text. However, due to the display length, there are only 19+19 = 38 characters available for RT, in total. That 38 characters, if used for transmission

(continued on page 10)

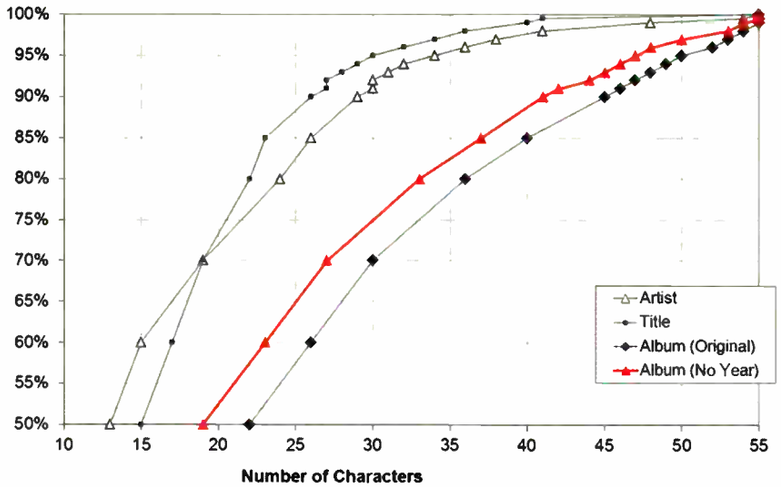

Fig. 1: Combined CDF for string lengths in Artist, Title and Album fields

Percentile of String Lengths	Field (character count)			
	Artist	Title	Album (Original)	Album (No Year)
50%	13	15	22	19
60%	15	17	26	23
70%	19	19	30	27
80%	24	22	36	33
85%	26	23	40	37
90%	29	26	45	41
91%	30	27	46	42
92%	30	27	47	44
93%	31	28	48	45
94%	32	29	49	46
95%	34	30	50	47
96%	36	32	52	48
97%	38	34	53	50
98%	41	36	54	53
99%	48	40	55	54
99.5%	54	41	55	55
100%	55	55	55	55

Table 1: Minimum displayable character counts required to support certain percentiles of string lengths without scrolling/paging or truncation

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PAD DISPLAYS

(continued from page 8)

of only the Artist field, would be enough for 98 percent of Artist fields. However, if "Now Playing" is prefixed, that figure drops to 85 percent. (Pages 18–19)

RETHINK

Looking toward the future, the RUWG also recommends that broadcasters consider rethinking the way they transmit the RadioText (RT), the longer, 64-character field for RDS/RBDS.

For greatest compatibility with existing non-RT+ receiver displays, it said, the use of RT+ for multi-field concatenation in a single RT message may not be as effective as using RT+ on a series of independent RT messages sent sequentially over a period of time.

Breaking this down to a real-world example, given the variety of receivers on the marketplace, it might be wise to split a Title/Artist/Album transmission into three separate RT transmissions with time delays between each of them. For instance:

Title
(delay)
Artist
(delay)
Album
(delay)

While each of these items is displayed, you could tag each with the appropriate *RT+ Item.Title, Item.Artist, Item.Album* descriptor, allowing RT+ capable receivers up to 64 characters per field should they employ the maximum field length permissible for RT transmissions.

If you consider employing this newer methodology of RT transmissions, it should be combined with RT+ for maximum effectiveness, and the time delays between RT messages would have to be selected carefully. The delays would depend on your overall RT group sequence/RT transmission rate. See *radioworld.com/article/rds-optimize-radiotext-send-rate/3111* as a primer to that topic. Stations using the recommendations in that article could get away with new RT messages anywhere from every 10–20 seconds. However, those using some of the factory default RT transmission settings would need delays in the range of 30–40 seconds.

In summary, said Davis, "Our hope is to provide a set of guidelines to help stations and manufacturers work together so that consumers get the experience they have come to expect and we can both maximize this technology."

Download the NRSC-R300 report at *www.nrscstandards.org/Reports/NRSC-R300.pdf*.

Alan Jurison most recently was a regional IT manager/broadcast engineer for Cumulus Broadcasting in Syracuse, N.Y. He holds several SBE certifications including CSRE, AMD, DRB and CBNT. Opinions are his own. Reach Jurison at ajurison@gmail.com.

Radio World News Editor/Washington Bureau Chief Leslie Stimson contributed to this report.

NEWSROUNDUP

ASYMMETRICAL: The FCC extended deadlines to comment on the proposal to allow FM stations more routinely to raise HD Radio power levels unevenly. Right now stations need a waiver to operate with asymmetric digital sideband power levels. Comments so far overwhelmingly support the idea. In a joint filing, Beasley, CBS Radio, Emmis, Entercom, Greater Media, Journal, Lincoln Financial and Radio One, as well as manufacturers Continental, Harris and Nautel, wrote that "implementation of this creative and flexible approach will allow more FM broadcasters to increase HD Radio power to the maximum permissible levels," helping the continued rollout of HD. Not all comments favored it. Jonathan Hardis, a member of the National Radio Systems Committee who works for the National Institute of Standards and Technology but was commenting as an individual, said the commission should instead develop a "complete technical standard" for IBOC. Comments to Docket 99-325 were due Jan. 3, replies are due Jan. 24.

FEMA ALERTING: New York City has become the first jurisdiction with public alerting authority access to IPAWS OPEN, the FEMA Internet gateway to next-gen emergency alerting. That's according to FEMA IPAWS Program Manager Al Kenyon, who posted a status update on the SBE EAS listserv. RW has reported that FEMA's alerting training course for the gateway is now available. Regional, state and local alerting authorities must complete the course to be authorized to use IPAWS OPEN to send alerts via EAS and cell phones. "The City of New York Office of Emergency Management worked closely with FEMA IPAWS during the development of this training course, with OEM staff taking beta versions of the training course," Kenyon wrote.

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What Happens When the Spots Come On?

BY LESLIE STIMSON

Radio delivers more than 93 percent of its lead-in audience during the average commercial break, according to a recent study from Arbitron, Media Monitors and Coleman Insights.

The companies said their findings dispel a misperception common among advertisers, agencies and even radio executives, that most of radio's audience goes away when ads come on.

The implication: Radio's ability to deliver audience for its commercials far exceeds advertisers' expectations, according to the companies.

"Now that the Portable People Meter service can track radio audiences across 48 top markets, we can demonstrate how radio constantly replenishes its audience with new listeners during commercial breaks," according to Arbitron Senior Vice President of Marketing Bill Rose.

The companies studied radio ratings data and commercial occurrence data in "What Happens When the Spots Come On: 2011 Edition," an update of a 2006 study of radio audience behavior during commercial breaks.

For the latest study, Arbitron, Media Monitors and Coleman Insights analyzed 18 million commercial breaks, 62 million minutes of commercials and 866 stations for a year of audience data. They compared the audience level for each minute of a commercial break to the audience for the minute before the commercials began.

According to the firms, key findings include:

- One- to three-minute commercial breaks deliver radio audiences levels that are practically the same as the lead-in audience.
- Longer spot breaks of four- to six minutes or mores delivered an average minute audience that was nearly 90 percent of the lead-in audience.
- Commercial breaks in morning drive deliver 97 percent of their lead-in audience, on average.

Further, they said there is little difference by market in terms of the average audience delivery during commercial breaks. Of the 48 markets studied, three markets with the highest percentage delivered an average of 95 percent of their lead-in audience levels during commercial breaks and the three markets with the smallest percentage delivered an average of 91 percent of their lead-in audience levels.

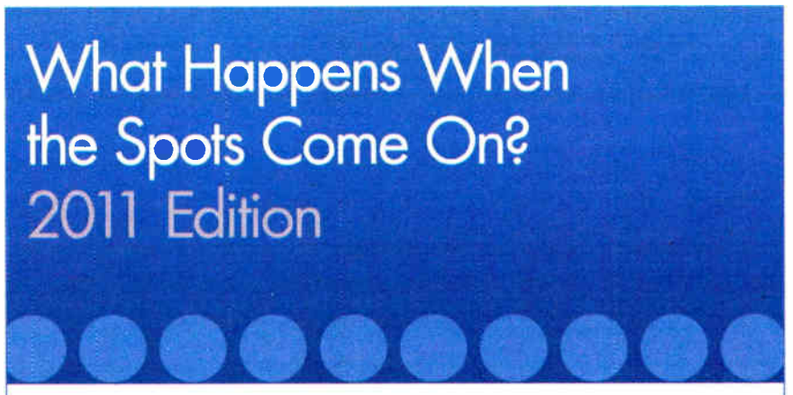
Also, audience delivery during commercial breaks was consistent throughout the year. Radio commercial breaks delivered between 93 percent and 94 percent of lead-in audience levels during each month of the year.

These findings stand in contrast to the perceptions of the advertiser/agency industry and even of radio broadcasters about the impact of commercials on the radio audience, according to the research firms.

In an Internet poll by Arbitron and Coleman Insights, people identifying themselves as members of the advertiser/agency industry (362 responses) said that, on average, the size of the audience during a radio commercial break is only 68 percent of the size of the audience before the commercial began. On average, respondents identifying themselves as members of the radio industry (1,178 responses) believe radio holds only 78 percent of the audience during commercials.

"The incredible ability of radio stations to deliver audiences during commercial breaks suggests that programmers should not obsess over their stations' spot placement strategies," according to Coleman Insights President/Chief Executive Officer Warren Kurtzman.

"There is no doubt that running excessive commercial inventory can undermine a station's brand and hurt its long-term performance, but we see very little evidence that commercials cause nearly as much audience tune-out in the short term as many radio industry professionals believe."



The following tables provide estimates of the audience for radio commercial breaks ranging from one to six minutes in duration. These estimates are expressed as a percentage of the audience for the minute prior to the start of each respective commercial break.

Percent of Lead-In Audience by Demographic

	Minute 1 Breaks	Minute 2 Breaks	Minute 3 Breaks	Minute 4 Breaks	Minute 5 Breaks	6+ Minute Breaks	Weighted Average
P6+	100	99	96	92	97	85	93
Teens	100	97	93	88	84	81	90
18-34	100	96	91	87	82	80	89
25-54	100	98	94	90	86	84	92
35-64	100	99	96	93	88	86	93
65+	100	101	100	98	95	92	98
Male 6+	100	99	96	92	88	85	93
Female 6+	100	99	96	91	86	84	92
Black P6+	100	98	96	93	90	88	94
Hispanic P6+	100	97	94	91	87	86	92
Other P6+	100	99	96	92	86	83	92

*How to read: For Persons 6+, the audience delivery of an average minute of all commercial breaks was 93% of the size of the audience for the minute prior to the start of the commercials. For a six-minute commercial break, the audience delivery of an average minute was 85% of the lead-in minute.

Percent of Lead-In Audience by Daypart

	Minute 1 Breaks	Minute 2 Breaks	Minute 3 Breaks	Minute 4 Breaks	Minute 5 Breaks	6+ Minute Breaks	Weighted Average
Total M-SN (24/7)	100	99	96	92	87	85	93
Mon-Fri 5A-9A	100	100	98	95	94	93	97
Mon-Fri 9A-3P	100	100	97	92	87	85	92
Mon-Fri 3P-7P	100	99	94	90	86	84	90
Mon-Fri 7P-Mid	100	98	93	88	83	81	90
SA/SN 6A-Mid	100	98	94	90	86	84	92

*How to read: For Persons 6+, the audience delivery of an average minute of all commercial breaks was 93% of the size of the audience for the minute prior to the start of the commercials. For a six-minute commercial break during morning drive (M-F 5AM-Mid), the audience delivery of an average minute was 93% of the lead-in minute.

NEWSROUNDUP

CC CTO: The commission hired a new chief technology officer. Henning Schulzrinne, right, has been an engineering fellow at the FCC since 2010 and is a professor in the School of Engineering at Columbia University. Schulzrinne will guide the agency's work on technology and engineering issues, together with the FCC's Office of Engineering and Technology. He is known for development of protocols that enable voice over IP and other multimedia applications, according to the commission. Schulzrinne will be based in the Office of Strategic Planning and Policy Analysis. He replaces Douglas Sicker, who left for NTIA in the fall, according to an FCC spokesman.


Courtesy Columbia University

HD RADIO: Ford said it will offer HD Radio on the new C-Max Hybrid and C-Max Energi Plug-in Hybrid, available in mid-2012. HD Radio will be included as standard in the Sony Audio system with MyFord Touch. The C-Max hybrids will be Ford's first dedicated hybrid vehicle line and first multi-activity vehicle line in North America, according to the automaker. The hybrids will be built in Wayne, Mich. Digital radio is or will be available as a factory installed feature on 22 car brands, according to iBiquity Digital.

RAY KLOTZ: Sierra Multimedia President/CEO Ray Klotz passed away Nov. 14 at a hospice in Springdale, Ark. He was 60; Klotz had been diagnosed with cancer.

Which is better for streaming: hardware or software?

Telos ProSTREAM:
Internet streaming in a box.

Everyone knows the answer is *hardware* — like a Zephyr! Introducing Telos ProSTREAM, the professional netcoder for Internet streaming, with Omnia multi-band processing built right in.

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And such audio…amazing. Thanks to our partnership with Fraunhofer (FhG), we were able to build a processing architecture that's specially optimized for MP3 and MPEG-AAC encoding algorithms. The result: detailed, commanding, blow-you-out-of-your-office-chair streaming audio, even at aggressive bit rates.

Telos

Telos-Systems.com/ProStream/

Omnia A/XE:
Internet streaming in a server.

Obviously, the correct answer is *software*, with the power to stream multiple channels from a single PC. Meet Omnia A/XE, the professional all-in-one software solution for Internet streaming.

Omnia A/XE can turn a couple of lonely servers into a supercharged streaming network. It runs in the background as a Windows service and can process and encode multiple streams in various formats simultaneously. Just hook up your audio, choose a bit rate and processing preset, select your Shoutcast or Wowza server, and *Voila!* Streaming audio, simple as A, B, C.

And that audio packs the clean, clear competition-crushing punch Omnia is famous for. Each stream is sweetened with its own adjustable wide-band AGC with three-band compressor/limiter, EQ and low-pass filter, and precision look-ahead final limiter. The result: clean, clear streams with more presence and character than you ever thought possible.

Omnia

OmniaAudio.com/AXE/

Stars Sundance on KPCW(FM)

When the Famous Film Festival Comes to Town, Station Fires Up

BY MARIO HIEB

KPCW(FM) is a community-owned and -operated station on Swede Alley in Park City, Utah, a resort town in the mountains of northern Utah.

FIRSTPERSON

Each January, Park City is host to the largest film festival in the United States, the Sundance Film Festival. The entire town goes into high gear for the event, and KPCW is no exception. In addition to the normal broadcast schedule, the station provides in-depth coverage of Sundance along with originating remote broadcasts and providing broadcast facilities to out of town media.

RESOURCES

A small facility at 2,000 square feet, KPCW has two fully configured studios, the live air studio and the Joe Wrona Production Studio. A smaller studio is used mainly for news production, and there is a mini studio in the pledge room. During Sundance, the pledge room becomes a green room where guests wait for their interviews.

The air and production studios utilize Harris RMX consoles; the other two use smaller Harris NetWave units. All other technical gear including two Harris Envoy frames reside in a six-rack equipment wall. The Harris system has the flexibility and depth required to do the complex setups that take place during Sundance.

Audio production and news editing go on despite the special festival programming and ISDN sessions. Live interviews with actors, directors, writers and critics take place in the air studio during morning and afternoon drive shows. A one-hour daily Sundance-themed program, "The Daily Buzz," is hosted by Eugene Hernandez of the Lincoln Center and originated from the production studio.

Last year our festival coverage began with a two-hour remote from a local Whole Foods market, which donated 5 percent of their profits that day to KPCW. The setup included a full remote studio with IFB audio coming from the main studio, all under the control of a volunteer audio engineer. The remote audio was transmitted to the main studio via a Marti transmitter.

KPCW did a live remote for the festival at a local store at last year's festival. From left are Roger Crawford, station remote engineer; Katie Noble and Nell Larson, hosts of the 'This Green Earth' program; and guest Diane Bell, writer and director of 'Obselidia.'

A BLOCK AWAY

Over the years, KPCW has originated a multitude of ISDN sessions for NPR, BBC and other news organizations. The KPCW studios are one street away from the center of Sundance activity on Main Street in Park City. This makes it convenient for celebrities, film critics and other attendees to be interviewed.

Most ISDN sessions take place in the Joe Wrona Production Studio, which features a multibus Harris RMX console. The numerous program busses on the RMX are useful for creating mix-minus monitor feeds for the talent and custom program feeds to the destination.

The ISDN unit is a Musicam USA CDQ Prima LT Plus that can be configured for most any compression algorithm and data rate. All ISDN sessions are planned carefully and scheduled by the KPCW production department. When possible, test sessions are conducted to verify the ISDN links and to verify audio quality.

Isabella Rossellini sits in the KPCW studios for the 2011 Sundance Festival.

Photo by Stephen Speckman

Ticket box office at the 2011 festival

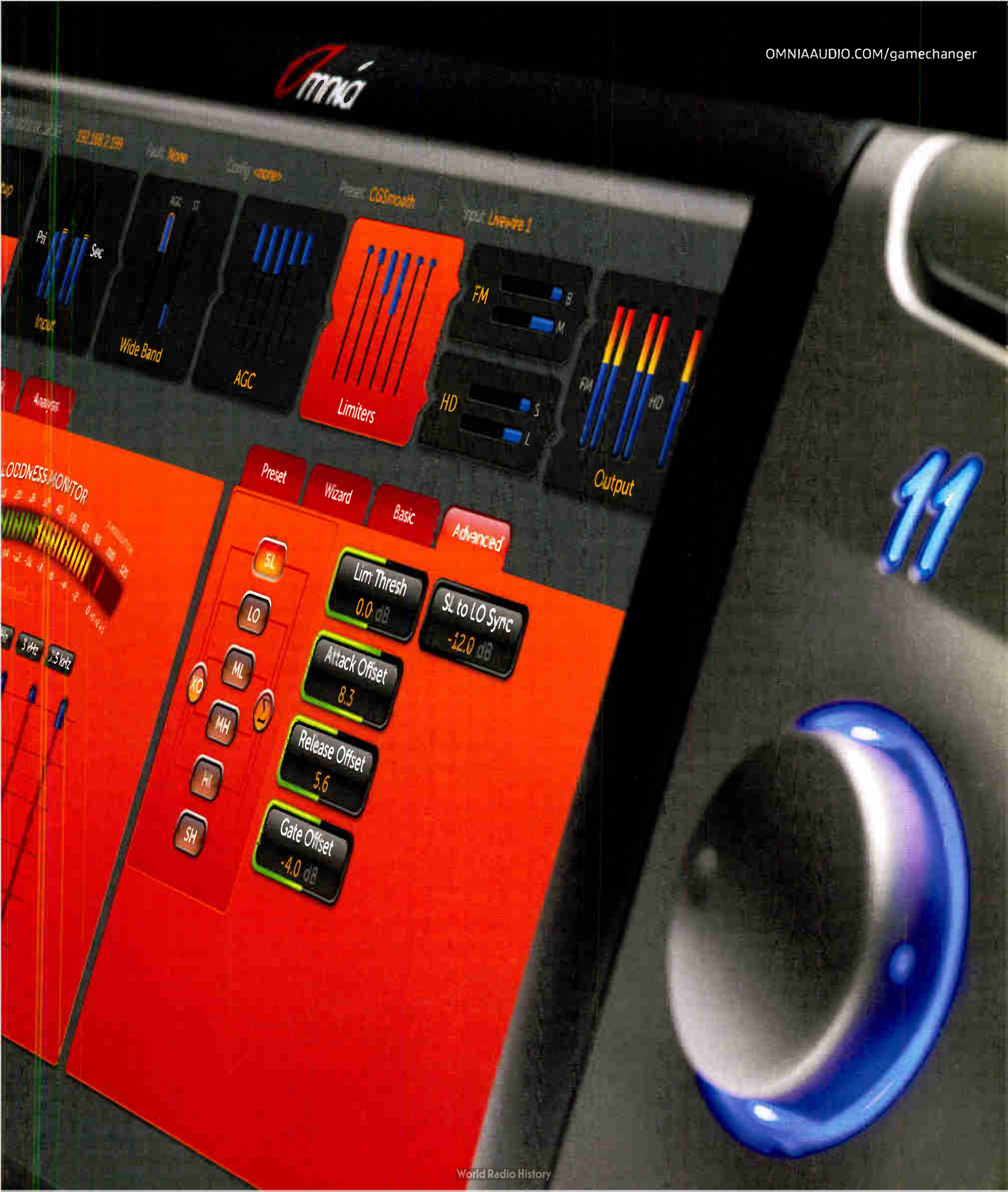
Eugene Hernandez of Lincoln Center

Australian Craig "Hutchy" Hutchison airs a four-hour talk show live from KPCW. The show is produced from Australia with show material sent via email. The studio IFB system allows Hutchy to take phone calls from home in real time.

The broadcast schedule during Sundance changes on a daily, often hourly, basis. The staff of KPCW has learned how to adapt to last-minute interviews and ISDN feeds.

The 2012 festival runs Jan. 19–29.

Mario Hieb, P.E., is chief engineer of KPCW(FM).



Does Your Outpost Have the Basics?

When Planning a Site Survival Kit, Don't Forget the Toilet Paper

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

Contract Engineer Ihor Slabicky has been gathering supplies for his "outpost," better known as the remote transmitter site. He suggests a few items to add to your own list, which we discussed a while back.

Fig. 1: Sealable bags are great not only for holding parts but for keeping things dry.

First is toilet paper, preferably in a Ziploc brand or similar sealable bag to keep the paper dry.

I've seen engineers go further and create a portable potty by heading to Lowes and picking up a plastic contractor bucket. Add a cheap toilet seat, a few rolls of TP and a box of kitchen-sized garbage bags. If you're stuck at your site for a while, you may be grateful for this rudimentary solution. (Feel free to add a can of air sanitizer.) Fig. 2 shows a bucket with screw-on lid.

In his survival kit, Ihor also includes matches, a disposable butane lighter and candles.

Here's an item you probably forgot: a two- to three-day supply of your prescription drugs. Don't want to use prescription bottles? Place them in a plastic film container (if you can find one).

Be sure periodically to use up these medications and refresh your supply, since they do lose potency over time. Don't get stuck with medicines that are years old.

As a non-smoker I wouldn't have thought of this, but Ihor reminds smokers to add some extra smokes. The alternative is quitting cold turkey.

A couple of items that don't require batteries are a wind-up flashlight and a wind-up radio. Both are useful.

When we compiled our list last year, bottled water topped it, even if you have water service at the site. Pumps require electricity, and if electrical service and your generator quit, you still need water to survive. Ihor suggests scouring the supermarket for a great buy on its own brand. Water in bulk is cheap.

Just as you keep your supply of prescription meds fresh, Ihor suggests doing the same for water and food. You don't want to get stuck with really old food. (Maybe make this part of your scheduled battery replacement regime.)

Ihor once explored the contents of a civil defense bomb shelter and discovered some canned crackers. His first thought was, "I'd rather be bombed than have to eat those!"

Some instant coffee in a small jar, some tea bags, sugar packets and creamer, all sealed in a Tupperware-type container, round out your consumables.

Mylar "space" blankets are cheap, as we've mentioned before (and if you run marathons, they are sometimes given out there). Pick up a couple.

Speaking of blankets, keep at least one old one in the trunk of your car.

Fig. 2: A plastic bucket with lid can help store your survival items; or use one to create a rudimentary potty.

Fig. 3: Keep a few days of your prescription drugs on hand, just in case.

Gather your site supplies and place them in a large clear plastic storage bin.

Other ideas? Email them to me at *johnpbisset@gmail.com*.

With regard to our recent tips about cleaning corroded battery terminals, Ihor is a firm believer in petroleum jelly.

He has found that a light coating on electrical contacts diminishes or even eliminates corrosion. It also increases equipment life.

For example, he coated the bases of light bulbs used in outdoor fixtures. This extended service life to a more reasonable 9+ months, probably closer to the life expectancy of the bulbs.

Ihor coats the contacts by placing some petroleum jelly on a swab, swiping it all over the base and then using a napkin to wipe it around. Then he wipes off the excess. For batteries, Ihor puts a light film of petroleum jelly on both battery terminal ends rather than on the springy metallic contacts.

Also in the Dec. 1 issue we discussed using vinegar for cleaning terminals. Ihor has tried ketchup. This sounds

(continued on page 18)

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KSFO Staff Photo, 1942

ROOTS OF RADIO

BY JOHN SCHNEIDER

Shown in the black-and-white photo below are staff members of KSFO in San Francisco, standing in front of the station's brand-new transmitter plant, located on Islais Creek in the southeast part of the city.

The Blaw-Knox tower on the roof of the building is for the station's 5 kW AM signal on 560 kHz. The four sets of transmission lines moving off to the left are for KWID, the 100 kW shortwave station that KSFO owner Wesley I. Dumm built in 1942 at the request of the government. Its curtain antennas were supported by wooden poles off to the left of the photo.

Photos courtesy of Penny Wilkes and Art Leberman

Its signals were heard throughout the Pacific during World War II, making the station a critical link for war news and government information. The station eventually became part of the Voice of America after the war.

The identities of most of the people are not known (can you help?), but they are wearing picture ID cards, probably a wartime security measure.

The KSFO transmitter building is still in use, as seen in the recent photo. There is now a rendering plant where the shortwave antennas were located.

John Schneider is a lifelong radio history researcher. Write the author at jschneid93@gmail.com. *This is one in a series of photo features from his collection. Find more under the Columns/Roots of Radio tabs at* radioworld.com.

WORKBENCH

(continued from page 16)

funny; but ketchup contains quite a bit of vinegar, and its thick consistency means it will stick to corroded contacts. Its consistency also eliminates a splash area, required for applying vinegar. When the contacts are cleaned, wipe off the ketchup and wash well with distilled water.

Ihor Slabicky can be reached at *ihorbuy@gmail.com*.

Contract Engineer Bill Betlej, who also works for Mary Baldwin College, recalls a label that the Bogen Amplifier Co. affixed to its amplifiers (Fig. 4).

The warning "do not assume anything" probably is just as applicable today as when it appeared 30 years ago on the amplifier Bill is now repairing.

Fig. 4: Heed the warning.

Even old-salt engineers would do well to abide by this warning. With that in mind, make a resolution not to work on high-voltage/high-current transmitter equipment alone. Bring the PD, if you must.

"I will not work when I am tired." "I will stay away from tower sites during ice storms (falling ice) or lightning storms (electric shock)." Simple resolutions like this, if kept, help ensure that you'll be around to read this column next year.

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

Author John Bisset has spent 43 years in the broadcasting industry, and is still learning. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.

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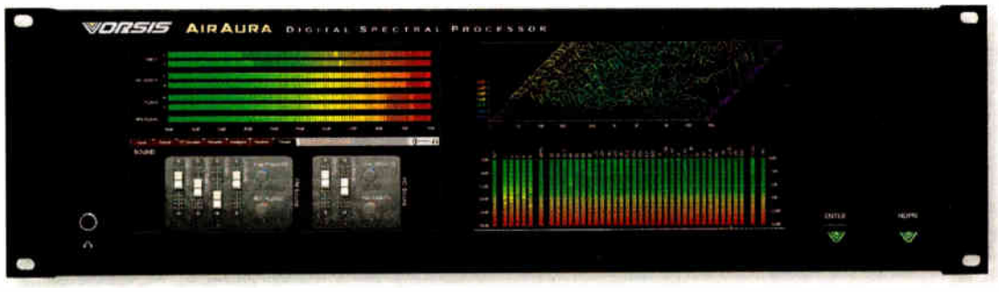

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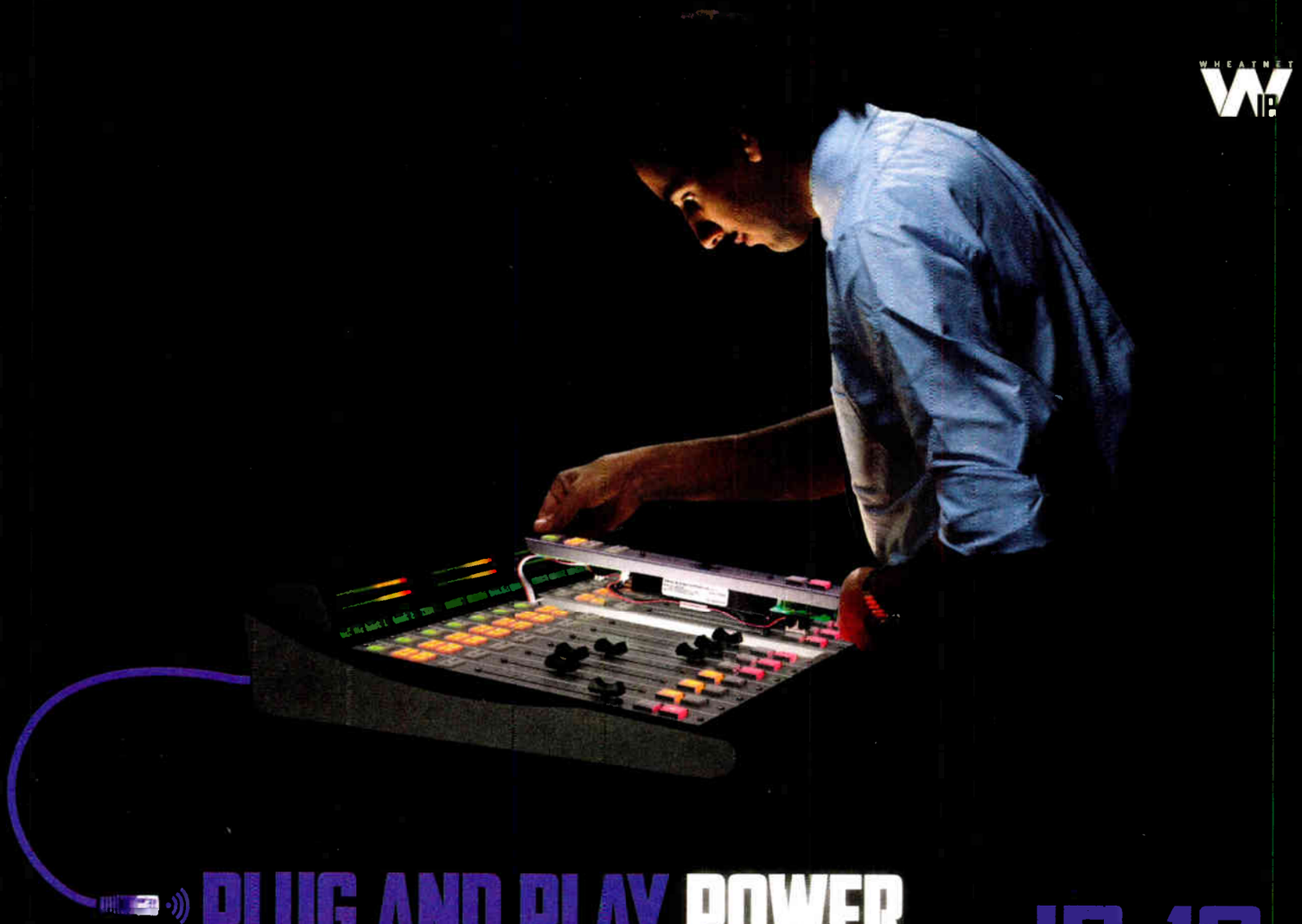

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AUDIOARTS

Apps for Engineers: Android Phones and Tablets

A Look at the Marketplace for Users With Froyo, Gingerbread and Honeycomb Versions

BY LAURA MIR

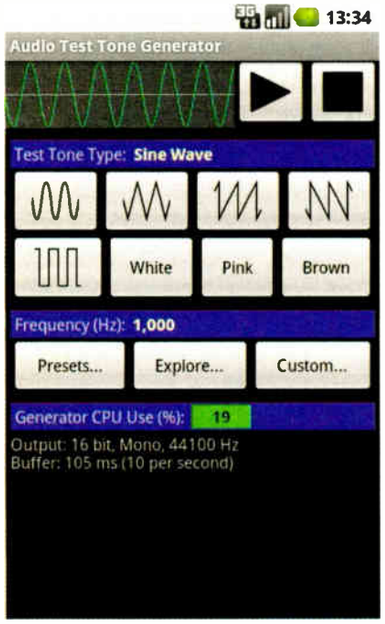
As the smartphone and tablet market continues to experience exponential growth, applications for those devices

TECHTIPS

also are on the rise. This time we look at the Google Android marketplace for users on platform versions Froyo, Gingerbread and Honeycomb. (Updated versions of the Android operating system are named after dessert items.)

Audio Test Tone Generator from Digital Antics Ltd. is a real-time signal generator for sound engineers and broadcast professionals.

Users choose from a variety of test tone types: sine, triangle, square, sawtooth, noise types; pink, white and brown; and custom frequency selections from 2 Hz to 20 kHz. There is an option for frequency sweep as well as a generated waveform display.

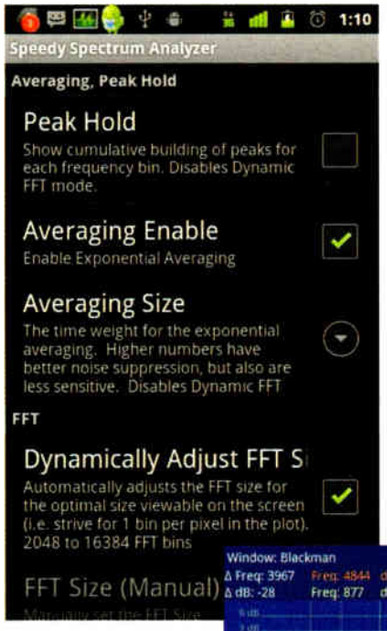


The latest version (1.1.1) includes coarse and fine sliders to explore wave frequency selections. Engineers can pinpoint troubling frequencies that are feeding back or resonating by making these fine adjustments. Audio Test Tone is a convenient signal generator that offers a complete test solution at an affordable, portable price.

Price: $7.99

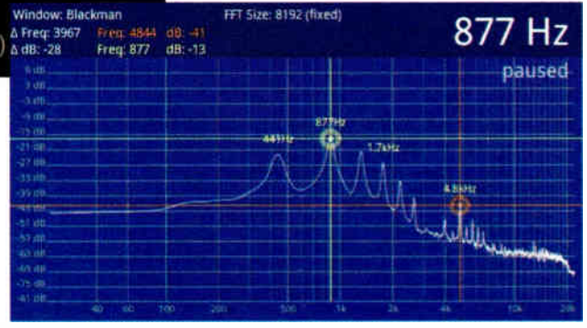
Speedy Spectrum Analyzer by Electron Chaos has more than 125 five-star reviews, making it the top spectrum analyzer on the app market. Speedy Spectrum is a pro-grade FFT/Spectrum Analyzer that has a developer who is engaged and supports this app across all Android platforms, and encourages users to submit update requests. The features are impressive:

- Logarithmic & Linear frequency axis
- Supports pinch-to-zoom on any signal section
- Pan (vertical and horizontal) by simply dragging the screen
- Dynamically adjusting FFT size, up to 16,384 bins (for 2–3 Hz accuracy), based on the optimal size for your screen
- Exponential averaging (adjustable)
- Peak hold
- Share and save screen snapshots
- Range set, full audio range from 20 Hz up to 22 kHz
- Peak & valley measurements with crossbar tools
- Adjustable dB levels for ceiling/floor



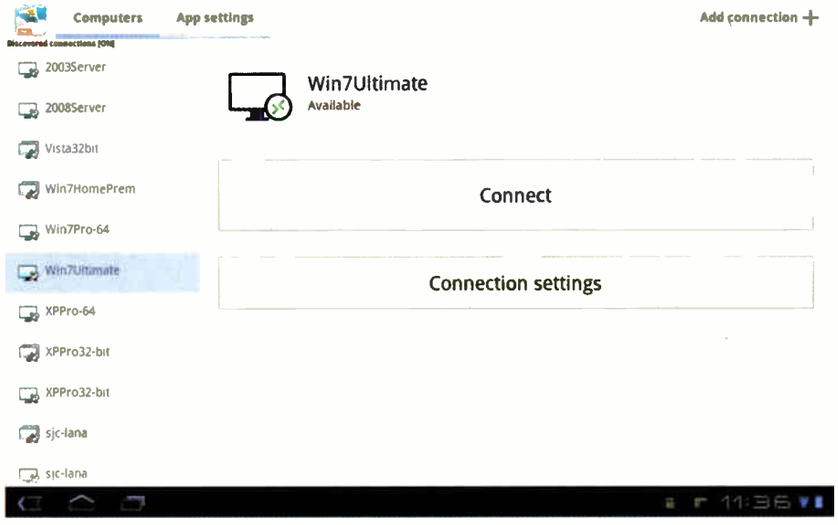
As demonstrated in the screen shot at right, the detail delivered in this app is worthy of a larger tablet display. The ability to save and send snapshots can aid any engineer seeking to document work or get remote assistance in the field.

Price: $4.99



Android phones and tablets are also excellent for accessing studio servers, codecs and other network attached devices through virtualized desktop technology.

PocketCloud Remote RDP/VNC by WYSE is an amazing free tool (Pro RDI is $14.99) to access a remote PC on your network.



The basic free application offers the user three connection options: RDP (Remote Desktop Protocol), VNC (Virtual Network Computing) or Auto Discovery (through your Google account). The control interface is responsive and intuitive. The response time and interface working on the remote device is smooth and reactive, the next best thing to standing in your TOC on the actual PC or server.

PocketCloud also makes a great access point to your office desktop. With this app you can stop toting around thumb drives with important documents, drawings and documentation, and access your computer's data from your phone or tablet when needed. You can make changes and save and remotely print documents without heading back to the office.

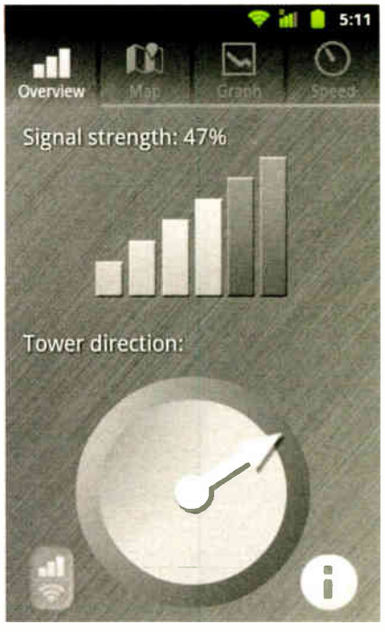
The PRO application is well worth the $14.99 price for anyone needing control of multiple computers, audio support and/or encryption. The Pro upgrade includes RDP 256-bit NLA/TLS encryption, VNC 128-bit encryption, RDP Sound with auto-bandwidth mode, Auto-fit and extended resolutions for RDP, VMWare View support, secure tunneling for VNC auto discovery, third-party app integration (URL scheme) and RDP File Redirection.

Price: Basic is Free, Pro is $14.99

On a remote it is all about bandwidth to get the best audio/video back to master control.

With **OpenSignalMaps** from Staircase 3 Inc., users turn their Android devices into a sophisticated WiFi, GSM, CDMA, 4G, 3G and 2G mapping device.

You need not be in doubt that the signal you need will be where you need it. Take your phone or tablet on a site survey, scan and save the speed test results



(continued on page 24)

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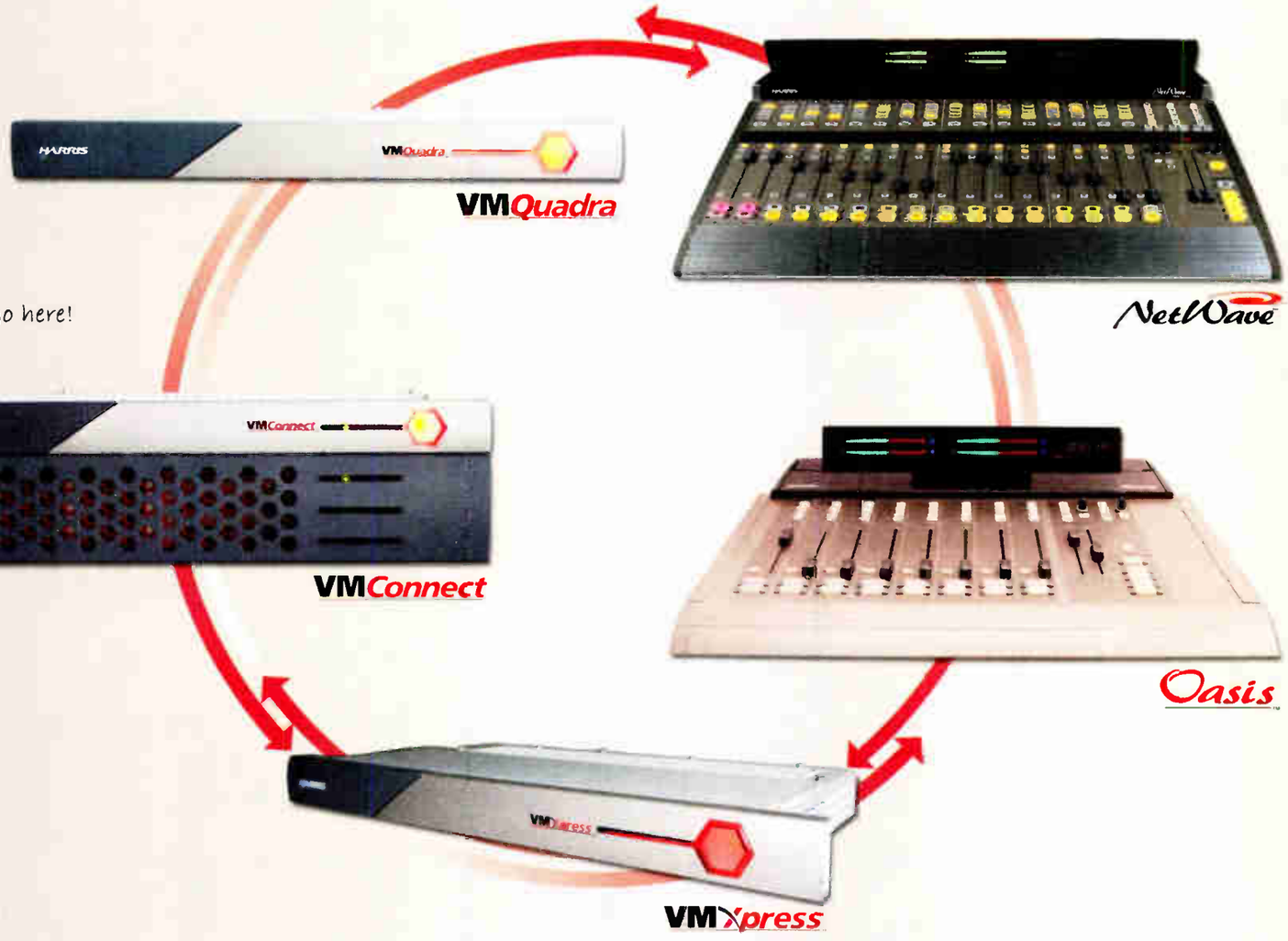

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Andy Cole	866-205-6905	Southern Gulf
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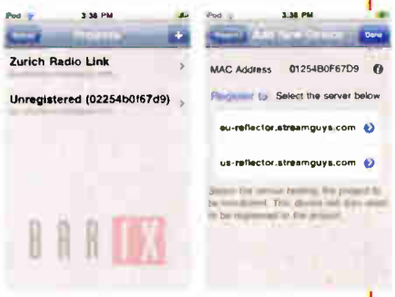
SCMS INC.
YOU KNOW WE KNOW RADIO

*Data source: BIA/Kelsey Local Media Watch, March 28, 2010

scmsinc.com

MARKETPLACE



NICE REFLECTION: IP interconnect and networking equipment manufacturer Barix has an iOS app to monitor audio streams using Barix's Reflector IP audio distribution service. It can provide information on connectivity, network statistics and provide live feed monitoring. CEO Johannes G. Rietschel said the app allows broadcasters to listen and check streams from a common mobile device with "trivial setup and at no cost." The free app functions with iPhones, iPads and iPod Touch.

Info: Apple Apps Store or www.barix.com

TIELINE 4G: Courtesy of a new modem module, users of Tieline Technology G3 codecs now can access Verizon's 4G LTE network in the field. The module allows for use of USB 4G modems, notably Verizon's Wireless 551L 4G LTE USB modem and Pantech's UML290 USB modem. The module card is user-installable. Tieline Vice President of Sales for the Americas Mary Ann Seidler said the module enables customers to connect to Verizon 4G LTE networks and achieve higher bit rates and better audio quality during remote broadcasts. "The module fits into our existing Commander G3 Field and i-Mix G3 remote broadcast codecs and customers simply attach the 4G LTE USB modem to go live over 4G."

Info: www.tieline.com

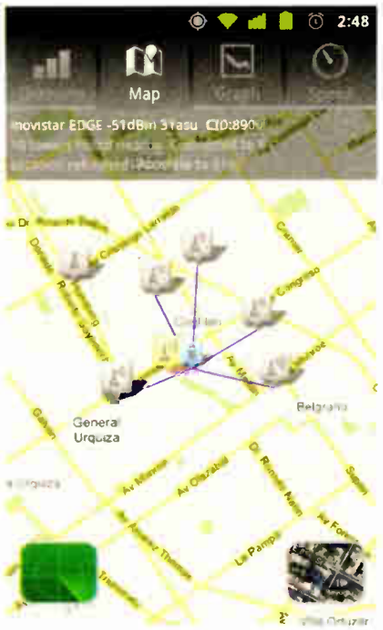
QUEEN CITY: Part of Arcadia Publishing's city/regional history line of broadcast books, "Cincinnati Radio" by Mike Martini digs into the past half-century of the Queen City's airwaves, ending in 1971. Martini, a local veteran radio jock, also heads up the Media Heritage museum, a Cincinnati-area broadcast museum. Martini made use of the Media Heritage archives in putting the book together. Many of the pictures previously were unpublished. Back in the day, Cincinnati radio hosted a number of up-and-comers such as Doris Day, Rosemary Clooney, Andy Williams, "Fats" Waller, Red Barber, Red Skelton and "Grandpa" Jones, later of Hee Haw fame. Broadcaster and equipment manufacturer Crosley also was based there. Price: $21.99.

Info: www.arcadiapublishing.com/theme/Broadcasting

APPS

(continued from page 22)

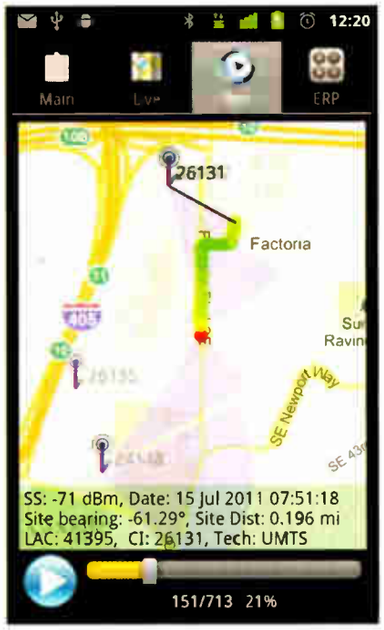
to the SD Card. The app supplies detailed signal direction, a signal graph and map and radar views of cell towers and WiFi APs. The networks that are mapped with



this app are Orange, Vodafone, O2, 3, AT&T, Sprint, Verizon, Movistar, Claro and many others.

Price: Free

Another useful tracking and mapping device is the free **RF Signal Tracker** by Ken Hunt. This tracking device allows drive tests with your Android and a full tank of gas. Users can monitor RSSI (received signal strength indication) for the phones and the serving cell locations. Users can map, record, save, playback data and analyze signal stats.



Useful app features include:

- Map and record your color coded signal strength as you travel
- Play back, pause, jump to any part of recorded data
- Share current RSSI with Twitter, Facebook, whatever you can share with
- Sector coverage zones describing sector orientation and beamwidth
- One-cell tracking to examine coverage of a single cell site
- Sound and vibration notification on handover
- Export recorded data to XML, KML or CSV files
- Import older recorded data for playback
- WiFi MAC address, BSSID, supplicant state
- WiFi network access points identified.
- EIRP/ERP and Free Space Loss calculators
- Big picture of entire drive test or site survey
- Adjust GPS power settings

Price: Free

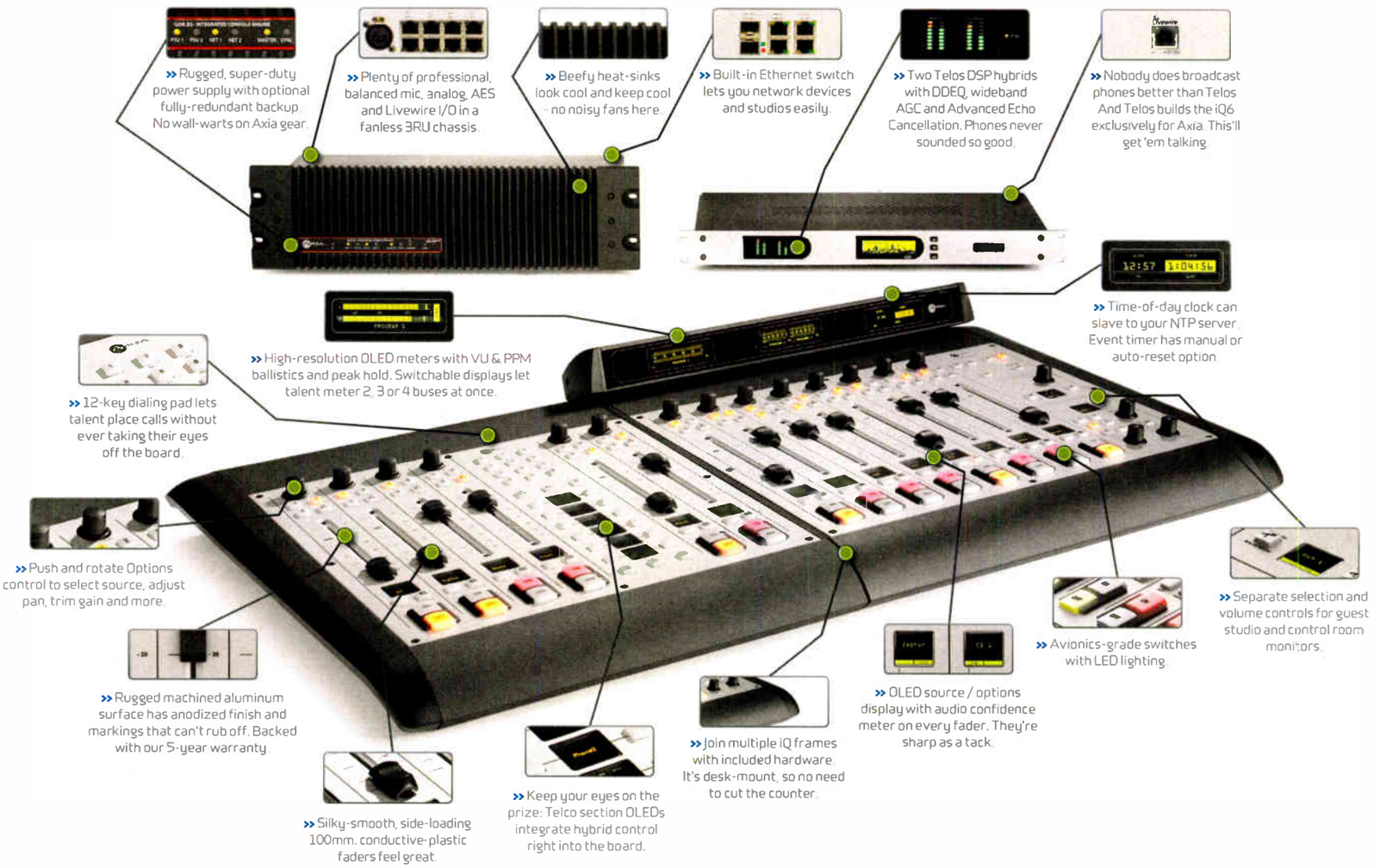
I'm looking for more engineering-friendly applications to share with RW readers. What apps have you found helpful in your job? Drop me an email with your suggestions care of *radioworld@nbmedia.com*.

Broadcast engineer Laura Mir, CBNT, is a board member of SBE Chapter 37. She wrote about apps for the iPhone last July.

There's only one question on this iQ test: Where'd they hide the switch?

You've heard the buzz about IP consoles, and you love all the things they can do. Only one thing held you back: you figured you'd have to call Mr. IP Genius just to plug it in. Then you saw iQ, and everything changed. Axia deep-sixed your switch configuration worries by putting an Ethernet switch right into the console. Mixing engine, power supply, I/O, and a built-for-broadcast switch all in one neat, fan-free rack unit. There's zero switch configuration, zero finger-pointing from tech support, zero "kinda-maybe" compatibility issues. And only Axia does it.

iQ really passes the test. You'll be able to send audio instantly to any studio. Eliminate distribution amps, punch blocks, patch bays, sound cards — and that rat's nest of wire in the ceiling. Control everything with a browser, even over the Internet. Connect to scads of Livewire-ready broadcast gear with just an Ethernet cable. Solder? What's that? Yeah, building this studio will be more fun than a bucket of ping-pong balls on top of the News booth door. You pull the trigger and smile as you imagine the first of many weekends without a 3AM phone call. Smart guy.



www.AxiaAudio.com/iQ

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25-Seven PDM Keeps It Clean at GCN

Email Alerts Verify That 'F'-Bombs Miss Their Target

USERREPORT

BY GEORGE PRONDZINSKI
Chief Engineer
Genesis Communications Network

EGAN, MINN. — Genesis Communications Network (*www.gcnlive.com*) is a rapidly growing, 24/7 talk radio network based in the Minneapolis-St. Paul area that provides programming to 350 AM/FM stations, XM Satellite Radio, shortwave and Internet audiences.

GCN delivers some 395 hours per week of programming via affiliates and directly to listeners using four satellite uplinks and multiple Internet streams to accommodate a range of browsers, apps, podcasts, along with streamed and on-demand telephone listen lines. There is an enormous responsibility on our part to provide profanity-free programming.

DELAY ACTION

Profanity needs to be dealt with at the point of production before distribution.

Our foremost concern is the immediate fines that could be imposed on affiliate stations. Next would be the degradation of affiliate trust that we have painstakingly earned over a great deal of time. Simply pulling the caller off-air, or pushing mute after the fact, and saying "Oops" when the FCC knocks on your door, won't cut it. In today's economy, profanity fines can put you out of business or at least, set you back on years of hard work and achievement.

When presented with the idea of protecting our programming, I was not looking forward to scheduling every event seven to eight seconds early in our automation, to cue affiliate stations and adjust for satellite and T-1 delay. When we got our first 25-Seven Systems PDM in 2008 to "drive it around the block," the real ticket for GCN was the ability to enter and exit delay before and after commercial breaks to keep our automation programming simple. Next was the ability for a show host, hundreds of miles away from our facility, and right smack in the conversation on air, to "dump" objectionable content using PDM's built-in Web interface.

PDM's PD Alert feature is beyond incredible in the event of a profanity incident. Peace of mind for the board op, the host and management is the result. We are usually put at ease within seconds due to this one feature.

PD Alert sends out emails to multiple recipients with details and attached audio of each profanity event, thus answering the questions that flood our minds and disrupt our workflow when a dump event occurs.

It provides an immediate means for key personnel beyond the board op and host to monitor frequency of dump events, and, if needed, make better decisions as to the risk of certain programs. In short, it's the "tattletale" you will never have to add to the payroll.

The PDM's noise specs, headroom figures and sound quality are within our needs and specifications for the quality media product we've set out to accomplish. The support on the PDMs for GCN has been wonderful. 25-Seven has listened to our needs and requests, and I believe we have been a part of developing the PDM into what it is.

On several occasions I've opened up an Internet path into our PDMs to allow the engineers at 25-Seven to SSH in to review our system log files, check settings and update software.

We run four PDMs 24/7 on the main feed out of each of our four mixers before the board distribution amp which delivers to one of our four main channels and our two recording computers for our archives, podcasts, on-demand players and emergency replay.

Just the other night, I was with a colleague who was running a show. He put a call on air and almost immediately the caller went "blue" on our host. The dump button was hit; the call hung up and the host got onto the next call while the buffer was rebuilding. But the next caller dropped three "f"-bombs consecutively. The dump was pressed again, the "bypass" was pressed and seamlessly we were rebuilding from 0.

This all happened in just under a minute.

Within seconds, we were listening to audio in the PD Alert e-mail to verify what got dumped. Result: the last half of the "k" on the last "f"-bomb got out. A close call, no doubt. PDM kept us clean and in good graces with our affiliates, once again.

For information, contact Geoff Steadman at 25-Seven Systems in Massachusetts at (888) 257-2578 or visit www.25-seven.com.

ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to bmoss@nbmedia.com.

THIS CODEC HAS BEEN THROUGH TWO WARS, MULTIPLE ELECTIONS, FLOODS, FAMINE, EARTHQUAKES, HURRICANES, MARATHONS, CHAMPIONSHIP GAMES, REGATTAS, LOTS OF CONCERTS AND WAY TOO MANY CLUB EVENTS TO ADMIT.

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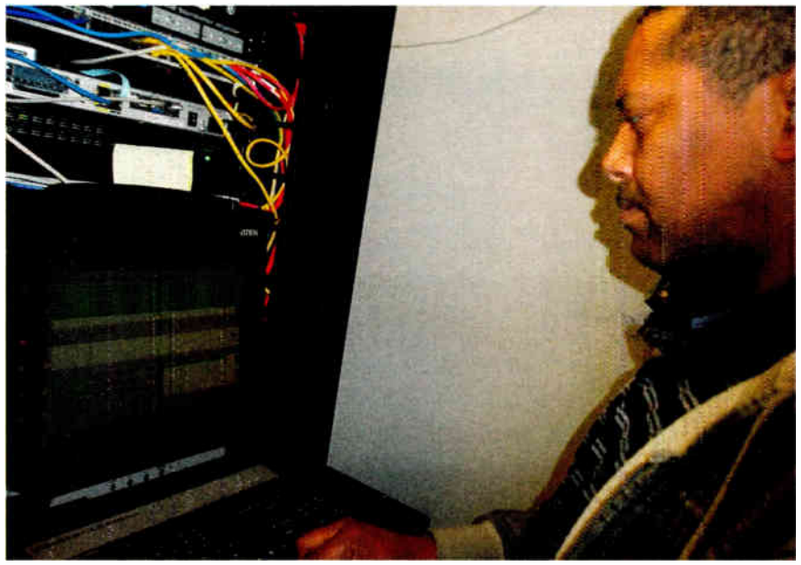
Yahoo Sports Station Scores With Stirlitz

Radio/Internet Sports-Talk Outlet Enjoys User-Friendly Logger

USERREPORT

BY A.D. RIGMAIDEN
Engineer/IT
Yahoo Sports Radio/
KGOW(AM) 1560



A.D. Rigmaiden accesses the Stirlitz Media Logger from a rack station.

HOUSTON — There are times when you are given a task and the first thing that comes to mind is, "Why me?" In this case, not so. I have the honest privilege of talking about a product I love, a program that actually works, and works well.

The Stirlitz Media Logger, represented in the U.S. by Broadcast Electronics, is the most user-friendly broadcast logger program with which I have been affiliated. I started the research for this article by asking my production guys what they viewed as the pros and cons for the logger. I heard many pros and only a few cons.

Setup for the program is straightforward, just your typical Windows setup file. Once the program is installed and executed, actually setting up the stations with Media Logger is almost self-explanatory. Fill in the fields under "add," run the appropriate audio into the sound card port and start recording.

Access to the logger is another plus. As long as your computer is on the same subnet and network, you can access the logger files from anywhere. Remote access is also a breeze. The middle of the logger screen has an access configuration button to add users and user rights. The logger can be set up with a public IP address in order to get to it remotely, or you can route setup in your Internet router and you are set. Remote control and emailed alarms are included so that you don't miss critical audio.

The best aspect of the program is the user interface, Stirlitz Media Player. Once the setup has been accomplished on the player, monitoring and extracting audio from the logger is simple.

You have the option of accessing audio in increments of months, days, hours, minutes and seconds. It's as easy as clicking the audio you want to listen to and drag it up. Once you have the audio you are looking for pulled up, exporting it is just as easy. Mark in the start of your audio, mark out the end of your audio, add to list. Click "export to file" and pick your location path.

You can pick the file format: MP3, WMA or PCM. There is also the ability to change the speed and volume of the audio that you are listening to. You can place a bookmark to return to your work area at a later time.

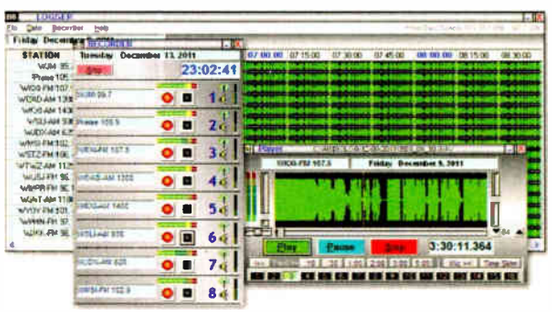
The Stirlitz Media Logger ... is the most user-friendly broadcast logger program with which I have been affiliated.

It is refreshing to get a chance to talk about a product that works and doesn't have many "issues." The only issue that should be considered is making sure that you have a good quality computer and a good Internet connection for remote access. Overall the Stirlitz Media Logger and Media Player are well worth it.

For information, contact Gene McAneny at Broadcast Electronics in Illinois at (217) 592-4428 or visit www.bdcast.com.

TECHUPDATE

PRISTINE LOGGER MONITORS RADIO AND TV



Pristine Systems says its Logger digital audio logger, monitor and alert system is a radio and television audio logging product to meet compliance, proof, audit, programming, management and engineering needs.

Logger handles 16 stereo (or 32 virtual mono) channels of logging and a variety of WAV audio devices, and AM, FM, TV tuner boards. Many popular audio storage formats are supported.

Tools provide the program director or consultant with quick review or detailed analysis of an entire market. Time-based and microphone skimmer modes are included for capturing the desired portions of programs.

A "Virtual Radio"-style player allows switching between multiple stations during playback and simulates listening to a radio in real-time.

Real-time monitoring of audio level and RF signal strength (requires ASI tuner boards) with an extensive alarm system provides quick alerts to help avoid lost air time. Logger can send alert emails or text messages for off-air conditions. A Web server is included for listening to audio files over the network. English and Spanish languages are supported.

For information, contact Pristine Systems in California at (800) 795-7234 or visit www.pristinesys.com.

The future is calling.
(It's for you.)

These days, nearly everything is networked. And now, so are your broadcast phones. Meet Telos VX, the multi line, multi-studio, networked talkshow system.

VX uses standard Ethernet to connect all the phones, hybrids and consoles around your facility, transporting caller audio, mix-minus, POH and control logic on one skinny cable. Connect to POTS, ISDN-PRI, or even BRI telco lines via standard gateways, and *voila*, they're available for use anywhere in your facility. And if you decide you want to use VoIP services, VX can do that too.

VX is so scalable, it can manage multiple simultaneous talkshows in the largest facilities. Yet it's cost-effective even for a few studios. Audio is clean and consistent, because dedicated, third generation Telos hybrids manage each individual call. Even conferences are crystal-clear. You can deploy VX "virtual phones" in production rooms, news workstations, or anywhere there's a PC with a USB mic and headset. Got a hot talkshow that suddenly demands more lines in a certain studio? Just a few keystrokes at a computer and you're set.

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Axia iProfiler Logger Handles Big Jobs

Multiple Programs and Multiple Archives Are No Problem for Systems in Austin

USERREPORT

BY ANDREW DICKENS
Engineer
KOOP(FM)

AUSTIN, TEXAS — Axia iProfiler is a simple but powerful system for automatically logging audio.

KOOP(FM) installed the Axia iProfiler system a few years ago because we wanted to be able to retain archives of the many live radio shows that we produce every week. The recordings that we make are used for many purposes including personal archives, copies of shows that we can give to guests and preparing shows for life on the Internet.

When we began researching options to archive our shows we determined that what we wanted was a system that would run in the background and make sure that recordings were made, day in and day out. We found that Axia Audio's iProfiler fit our needs. As a bonus, it offers tight integration with our existing Axia studio network.

IProfiler consists of a server program and a client program.

The server program records and encodes the audio and manages the archived audio files. The client program lets users extract audio from the archives.

We use a computer tucked away in our rack room to host the server application. The client application is installed on studio and public computers. The client/server architecture makes it easy for programmers and guests to access the archives but also protects the server component from unintentional changes. User names and passwords can be created to control access to individual archives.

In our setup we have 84 individual archives that record each show into its own dedicated archive. We also have a general archive that records continuously while we are on the air, and a handful of archives that we have set up for other special purposes.

DETAILS

Any source on the Axia network can be defined as an audio source for archiving, and the IP audio driver can support up to 24 audio sources simultaneously.

Engineer Sean Mason configured the Axia iProfiler for KOOP(FM).

Each archive can be configured to record to an MP3 at bit rates up to 320 kbps. Options for each archive allow you to determine how long each segment will be before breaking into a new file. We typically record in 15-minute increments. Scheduling options allow you to schedule recurring dates and times for each archive to record. You can also use Axia GPIO inputs to trigger one of several types of skimming behavior within an archive. We use GPIO to trigger a special purpose archive to record EAS events and have used them in the past for other random troubleshooting applications.

Housekeeping options can be set for each archive. In our setup we limit each archive to about four weeks of data, after which older files are deleted and replaced with newer recordings. These limits can be set by amount of disk space or number of days or turned off entirely. Backup options allow you to automatically copy archives to other drives or FTP destinations.

IProfiler has worked well for us and requires minimal maintenance after the initial setup.

Setting up a large number of archives can be a time-consuming process. We would like an option to duplicate existing archive setups so that each one does not need to be created from scratch. Reviewing the setup of a large number of archives can also be tedious. It would be nice if iProfiler could provide a view which showed all scheduled events or let you quickly compare settings between all of your archives. An option to record linear files without MP3 compression would be handy as well.

IProfiler has met our needs and is a good balance between simplicity and providing useful functionality.

For information, contact Axia Audio in Ohio at (216) 241-7225 or visit axiaaudio.com.

SHIFTING EXPECTATIONS

DEFINE YOUR EVOLUTION IN THE WORLD OF CHANGING CONTENT

The demand for content anytime, anywhere has set in motion a kaleidoscope of infinite consumption options that are enabling unlimited paradigms for success. From rethinking the creative process to revolutionizing delivery — and, ultimately, redefining the viewer and user experience — no aspect of the content lifecycle has been left untouched. Broader-casting® professionals are leading the evolution by responding to shifts and shaping expectations.

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Why We Still Believe in Shortwave

God Has Given Us the Ionosphere; Our Job Is to Make Use of It

BY CHARLES CAUDILL

The author is president/CEO of World Christian Broadcasting. These are his remarks about shortwave broadcasting to the recent HFCC B11 Conference in Dallas. HFCC manages global databases of international shortwave and is part of the International Telecommunication Union.

IN THE NEWS

It is a great pleasure and an honor to greet each of you on behalf of World Christian Broadcasting and our international station KNLS, Anchor Point, Alaska. Soon, shortly after the beginning of 2012, we will be able to greet you on behalf of Madagascar World Voice, our new station on the island of Madagascar. I also bring you greetings from Kevin Chambers, our director of engineering and Andy Baker, our vice president of development. They are here today.

That new station and the some $11 million we are spending on expansion is the reason I have been asked to speak to you today. On numerous occasions, I and others of our management team have been asked, "Why are you expanding your use of shortwave when most everyone else is cutting back by reducing the number of languages they broadcast, thereby reducing the number of people they employ and thus reducing their budgets by numbers like $14 million and even $40 million each year?"

That is a great question and one that we have given much consideration.

Charles Caudill

We are a non-profit corporation. One hundred percent of our income is derived from donations. Obviously, we must act wisely and be excellent stewards of the funds we receive or those funds will stop coming. Believe me, our donors are well aware of the changes that are occurring in the shortwave community, so we have found it necessary to communicate those decisions clearly and truthfully.

Here is at least a part of our thinking process as we have made our decision to expand our shortwave capabilities and our determination that the future of shortwave broadcasting is bright!

MORE LISTENERS THAN EVER

The Mission Statement for World Christian Broadcasting states that WCB exists so that people in places best served by broadcast media become aware of the Good News of Jesus Christ and want to hear more. Quite frankly, we can think of no way to better accomplish that than through shortwave broadcasts.

Since July 23, 1983, for more than 28 years, we have used that tried-and-true method to reach our listeners with that message of hope. It appears we have more listeners today than ever before.

We feel our content, our message, is key to retaining those listeners. We use a magazine format. We talk about the news, current events, sports, health, medicine and spiritual things. We draw the line, however, in trying to tell our listeners what to do. They must make their own decisions as to what they should do or what risks they should take. It is they, after all, who must live with the consequences of their actions.

During those 28 years we have learned that building relationships with our listeners is not an easy thing. Finding listeners is hard. Keeping them is hard. Our efforts are all about listener engagement — the making of personal, finely cultivated relationships that are as satisfying for our listeners as they for us.

Gone are the days when broadcasters could just shine the spotlight on themselves and expect the listener to accept whatever may be said. That lazy, ineffectual approach of talking to listeners is so over that we need a new word for just how over it is.

Our goal is to make friends with each individual listener. Relationships with listeners are very much like those with friends and family members. Neglect, arrogance, abuse and other negatives are damaging. Respect, nurturing and communication are beneficial. It pays to be honest, to be genuine, to be vulnerable and to be the best we can possibly be.

As with all relationships, it takes time, it's a little scary, but it is definitely worth the extra effort to let our listeners know we honestly care about them, their family and their future. We at World Christian Broadcasting try to never forget that there may be another broadcaster out there with a similar mission whose programming staff also has a deep dedication to engagement. And we know they'll be more than happy to give our listeners what they need and deserve. The message is key. Even one soul is worth the effort.

BUDGET REALITY

Another reason we have opted for shortwave for our future is that our budget is limited.

In order to make that budget go as far as possible, there is no question that we can reach more people on a regular basis with shortwave than with any other method. With an annual budget of

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11	Tieline Technology	www.tieline.com
2, 20, 21, 40	Wheatstone Corporation	www.wheatstone.com

something over $3 million, we will be able to broadcast 50 to 60 hours daily from our two broadcast facilities. Those 50 to 60 hours will be produced by six different services: English, Russian, Chinese, Arabic, Latin American and African.

Obviously, we cannot do everything on that limited budget, but we can literally talk to millions of people using shortwave. We don't have the luxury of being able to cut $40 million or even $14 million from our budget as some international broadcasters can. Our idea is that God has given us the ionosphere. Our job is to make use of it.

There are millions of analog receivers in the world — some say 600 million, some say 1.5 billion, some say as many as three billion. Regardless of the number, those receivers will not be turned off tomorrow. Those receivers will have listeners for years and years.

Look around; even though technology advances with great rapidity, there are still newspapers. I receive mine every morning. There are still AM radios and FM receivers and they are still making more. And you can still buy books. They are still being published. Even though Amazon is making a fortune selling electronic digital reading devices, they still sell books.

My point is, no medium disappears overnight. Our belief is that shortwave will be here for a long, long time.

Sure, we use other media and will continue to use the Internet and social media. After all, we do own the words, so as long as we can afford it we will continue to send our messages out in any way possible — but, our future is shortwave.

The transmitter building of the Madagascar World Voice facility, with a generator building at left. In the background are three of the four towers and MWV's three antennas.

Our job is to 'take the Gospel into all the world.' Unfortunately, relatively few people in some parts of the world have access to the Internet.

NET ACCESS

Our job is to "take the Gospel into all the world." Unfortunately, relatively few people in some parts of the world have access to the Internet.

Let me give you an example. Only 1 percent of the people of Madagascar have access to Internet. Kevin Chambers and his wife Nancy live there most of the year. They are not only familiar with the lack of internet accessibility, they are also aware that most of that access is not reliable enough to listen to a broadcast. Interestingly, most of those people who do use the Internet in Madagascar use an Internet café.

Another example would be the much larger population of China. A recent report stated that two-thirds of the people of China do not have Internet access and it is a fact many of those who do — go to Internet cafes for communication. It is our belief that folks using an Internet café will not spend their money to listen to a religious message.

Sure, there is a very large group of people in China who can afford the computers necessary to be involved with the internet. There are literally millions. But the fact remains that there are many more millions who cannot make that purchase — just as there are millions in the United States or any country who can't afford that kind of purchase.

The best way to reach those folks is with shortwave broadcasts. We simply don't want to miss the potential audience of some 870 million Chinese listeners who don't have access to internet.

A similar problem occurs when we would like to send out messages via satellite. Millions and millions do not have satellite receivers. Someone recently made a presentation to our Russian Service. They wanted our Russian programs and they wanted us to pay to broadcast them via satellite. Just a little research revealed we would have very few listeners because of the price of the phones and other receivers that are available in Russia.

Interestingly, there are still many broadcasters using shortwave to reach the Russian people. I went on the Internet last week and found that for the B-10 season there are 6,500 hours each week being sent throughout Russia in the Russian language. Forty percent of that total is being sent out by the Voice of Russia and Radio Mayak. The Russian broadcasters know that if you want to reach the more remote areas of Russia, you must use shortwave.

Even though many technology changes have occurred in Russia since Perestroika, most of those changes have occurred in the large metropolitan centers, especially Moscow and St. Petersburg. Of course, we want to reach those areas, but we also want to reach Siberia — shortwave is the only way. There is little or no Internet or cell phone capability in Siberia.

SMART PHONES

What about the use of smart phones? Many have applications that can receive satellite broadcasts.

During 2009, 2.2 million cell phones were sold in Russia. In 2010 that increased to 4.3 million. Nearly all of those are in St. Petersburg and Moscow. Estimating that there may be as many as 10 million to 12 million cell phones in Russia, it would not be feasible for us to spend the money to buy time on a satellite. By the way, the average smart phone in Russia in 2010 cost $500. For 2011 they have decreased in price to $400. Not many of us would want to spend that kind of money.

There is no indication that the Russian government will be willing to spend the money necessary to build an infrastructure of fiber optics that will allow the east and far eastern parts of Russia to catch up with St. Petersburg and Moscow. Shortwave will remain the primary means of communicating with the remote areas of Russia — by the Russians and by World Christian Broadcasting.

ACCESS

Very clearly, there is another aspect of communicating with our listeners that we must consider. In some countries there are gatekeepers — governments that do not want their citizens to hear certain messages. It is much less difficult and less expensive to block Internet messages than shortwave messages. In fact, there are no cheap ways to jam shortwave. There will always be a fear in some countries as to who is watching and listening to any kind of communication, but fortunately, shortwave listening is very private.

The last thing I want to mention as being the reason we will continue to use shortwave is DRM.

We have bought into the DRM philosophy and technology. Our transmitters are digital-ready. If there were sufficient numbers of receivers out there, we would begin our broadcasts from Madagascar in digital rather than analog. We believe that when it becomes possible for inexpensive DRM receivers to be available worldwide, shortwave broadcasts will increase in number, just as the quality of the reception improves.

We believe there will be commercial opportunities available that are not apparent with our analog broadcasts. We certainly feel we will be able to sell time to program producers, who want to get a quality-sounding message around the world. We are anxious for that day to come.

I am sure I have not given you any new ideas. I am just as sure that those of you who are decreasing the number of hours you send out via shortwave have considered the same things we considered and I have mentioned. We simply have come to different conclusions.

Nevertheless, we are quite confident in our decisions and let me leave you with this: Our special thanks to those who are decreasing your shortwave hours — you have just left a larger audience for World Christian Broadcasting.

The above text is courtesy of the National Association of Shortwave Broadcasters.

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Cloud Computing

What We've Learned From Our Friends in the U.S. and Europe

COMMENTARY

BY HARI SAMRAT

The author is director of studio products for manufacturer Broadcast Electronics.

As part of the studio design and support team for a global company, I often find myself comparing the cultures of two world powers. Europeans definitely win hands-down when it comes to taking time off to enjoy a long summer holiday, although it's hard to beat a good American-made movie for some quality time off.

Each brings entirely unique skill sets and technology to studio operation as well. At BE, we are always asking what we as an automation company can learn from our friends on both sides of the ocean.

Certainly, European broadcasters have benefited from the U.S. "live and local" franchise as independent and commercial radio evolved and matured in these markets. Likewise, U.S. broadcasters, in light of station consolidation, have benefited from the European network enterprise model.

ONE VS. MANY

I can remember when most U.S. studios were geared toward single-station operation. Content management system integration was nonexistent because the number of cuts coming out of those stations, even a news station, was fairly small and manageable, and all the content was local in any case.

Not so for European broadcasters, who had lots of content to manage across large news networks. They readily adopted the CMS mindset from their fellow television broadcasters, who were probably just down the hall in the same facility.

When U.S. station consolidation took hold in recent years, those of us developing automation systems began to look long and hard at the CRM model to solve the problems that come with networked operations. Systems rooted in the U.S. radio culture like our AudioVault were retooled to manage large music libraries and workflow adequately in these complex environments.

At the same time, our European friends started to take notice of the flexibility and affordability of U.S. radio systems. They needed to add a little more live-and-local into the mix as commercial radio began to grow in these countries. Their systems tended to be proprietary and slow to adapt, especially to the new Internet opportunities that made it difficult to grow with the times.

What we learned developing automation systems for the highly unpredictable and commercial U.S. market transferred easily to the modern European studio. As Windows platforms with Ethernet connectivity, systems like the AudioVault FleX are foundationally reliable yet dynamically changeable. U.S. and European broadcasters have been able to adapt at the rate of change, such as being able to connect devices through audio-over-IP protocols as that technology became available and incorporating the latest audio editor for better voicetrack capability, for example.

ALONG COMES THE CLOUD

Now, along comes cloud computing, which seems to be the great lesson learned from both operational models.

Cloud computing essentially moves radio away from the limitations of the physical studio to a virtual existence in the cloud, where tasks and resources take place in a network shared by multiple studios. It removes the server as the center of all activity, eliminating a single point-of-failure, and replaces it with a multi-engine, component-based infrastructure for shared redundancy and flexibility.

As it happens, cloud computing takes advantage of the enterprise model the Europeans have perfected over the years, and puts that into an open, easily adaptable environment that has been so important to the live and local model put forth by U.S. stations. It is the best of standardized PC technology and proprietary systems.

Recognizing this, we at BE made the decision to move to a separate playout engine and user interface with the release of AudioVault FleX two years ago.

Separating the playout engine from the user interface opens the door to several interesting possibilities: The engine and the user interface can now be hosted in different environments or multiple engines can be chained together to form active-passive pairs for redundancy, with multiple user interfaces connected to a single engine.

Cloud computing takes advantage of the enterprise model the Europeans have perfected over the years.

Needless to say, without this separation of the user interface and the playout engine it is impossible to move to a cloud platform. This coupled with the availability of IP-based GPIO control, like the RIOT box from BE, makes automation-on-the-cloud a near possibility.

When this happens, stations will realize huge operational benefits.

Instead of installing and maintaining a suite of software for each studio or each PC, one application makes it possible for station personnel merely to log into a Web-based service that hosts all the programs the user would need for his job. We're talking some very serious cost containment benefits in terms of hardware and software, not to mention support infrastructure.

Add to this new capabilities for sharing syndications, libraries and talent for less. It also makes possible the integration of traditional over-the-air radio with digital formats like Web streaming and social media. This is going to be important to stations on both sides of the ocean as broadcasters meet the challenge of incorporating mobile interactivity and social media without disrupting business and content as usual.

BE's new line of Commotion mobile interactive products for the studio is an excellent example of the radio-on-the-cloud model. The entire suite of products is available in a SaaS (Software as a Service) model, whether setting up a DJ Wall for interacting with listeners online or "crowdsourcing" music playlists from listeners voting in on their iPhones and Androids or through Facebook, Twitter or Google.

Our education doesn't stop at the studio door. As the Internet, mobile devices and satellite change the world, and the world gets smaller, it seems there is something new to learn every day.

Hari Samrat has an engineering background with an emphasis on computer science. He was a designer and architect of BE's Flex architecture, and leads new studio developments for the AudioVault FleX and The Radio Experience (TRE) lines, including cloud computing and mobile interactive initiatives. He is co-inventor of a device to extend the reach of talk radio to the hearing impaired.

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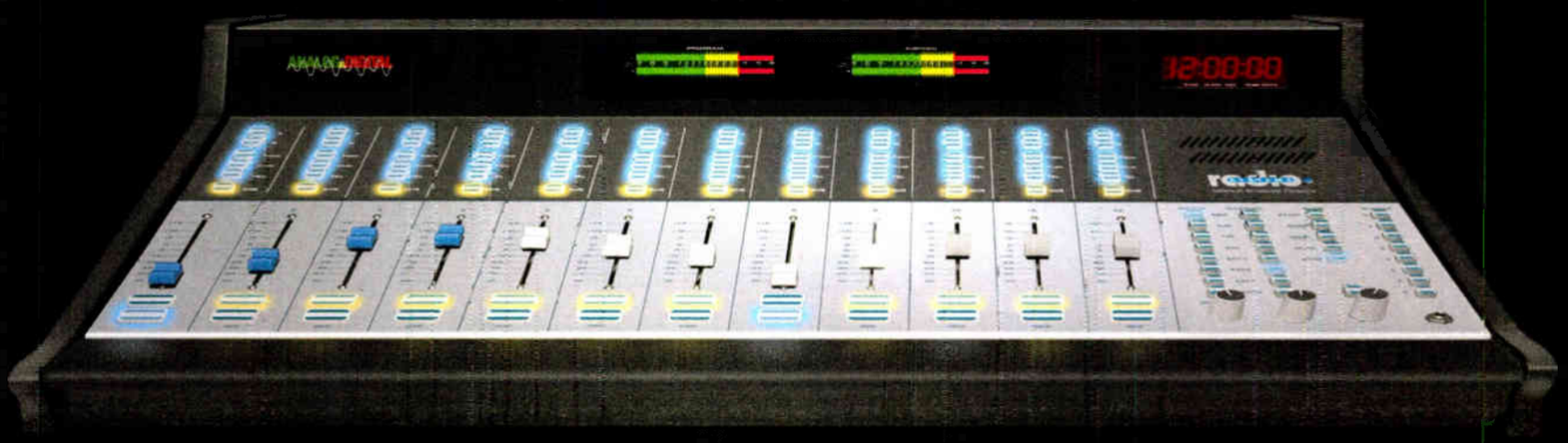

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