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Gen Z Is "Brand Me" — How Should Radio Adapt?

Young adults, born and raised with digital, expect to be influencers and co-creators

BY RANDY STINE

Radio has a lot riding on Generation Z. These teens and 20-somethings are the first generation to have used digital technology since they were old enough to handle a mouse; they don't know a world that is not immersed in social media. They are the on-demand generation.

Where does radio stack up in their connected lives?

VOCAL AND DIVERSE

Gen Z is the demographic after the millennials. Demographers and researchers typically use the mid-1990s to about 2005 as its birth years. Members of Gen Z tend to be adept at technology and the seemingly unlimited entertainment and media options it brings, according to the National Asso-

ciation of Broadcasters, which presented a session about the subject at the fall Radio Show featuring age-appropriate radio professionals.

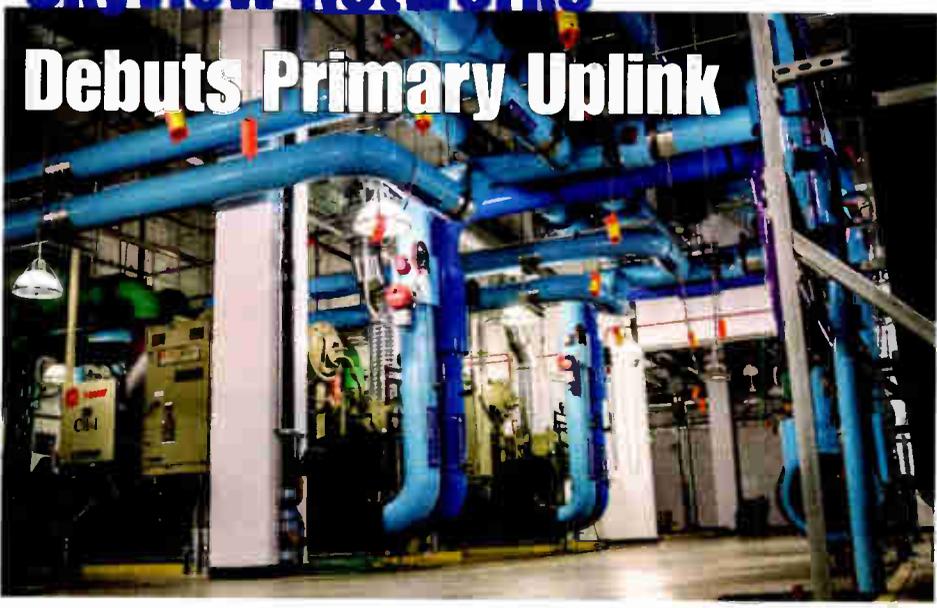
Gen Z right now makes up about 26% of the U.S. population, making it the largest generation group in the United States, and half of Gen Z consist of multi-ethnic groups.

The session was prompted by a report by the Sensis Agency called "We Are Gen Z." It examines a variety of factors affecting the demographic and breaks Gen Z into four categories: White Gen Z, Asian Gen Z, Hispanic Gen Z and Black Gen Z. Sensis is an advertising agency with a focus on cross-cultural marketing.

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Skyview Networks

Debuts Primary Uplink



Peek inside its new audio distribution data center in Phoenix.

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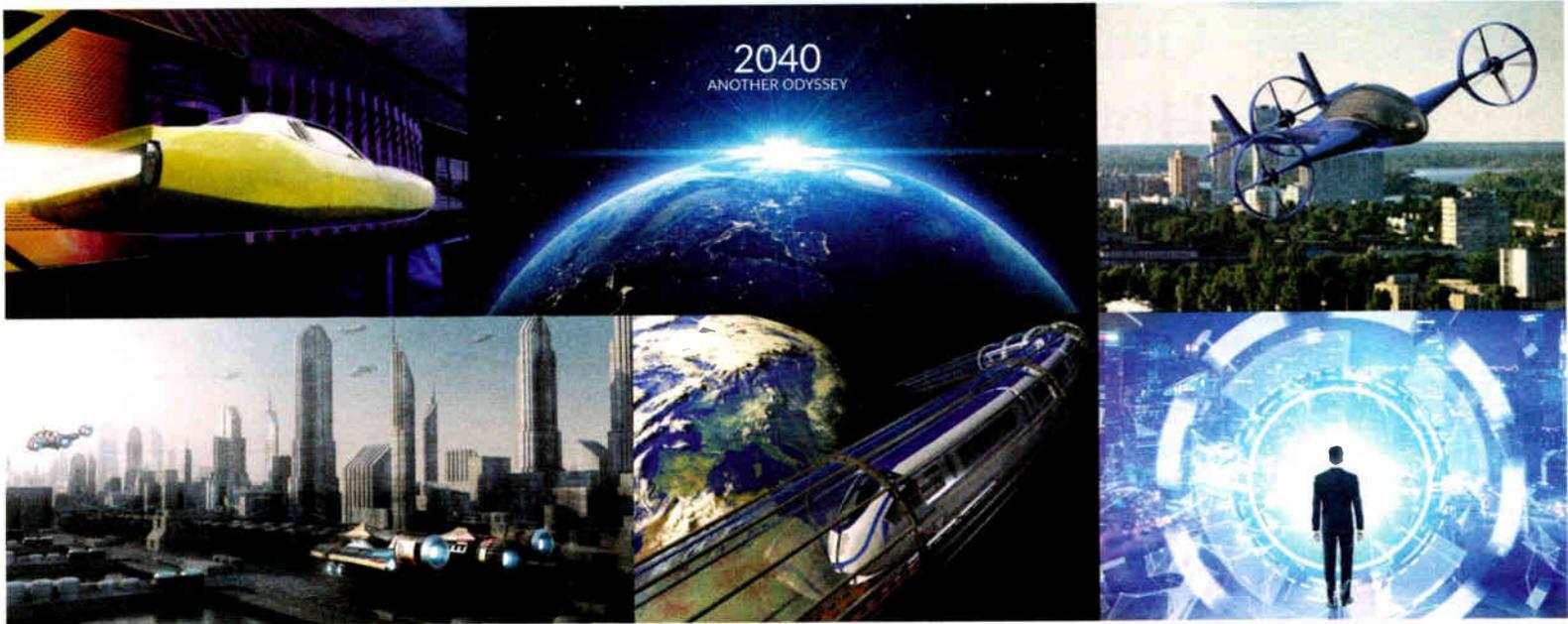
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The habits of Gen Z were discussed at the fall Radio Show. From left: Jose Villa, chief strategy officer of Sensis; Ana Castillejos, on-air personality for "The Kidd Kraddick Morning Show"; Amari Vann, air talent at KVLU(FM); Ashley Wilson, director of country programming in the Kentucky/Indiana region for iHeartMedia; Wilmir Louis, station manager of WSOU(FM); and Zach Sang, host of "The Zach Sang Show" on Westwood One.

GEN Z

(continued from page 1)

Jose Villa, chief strategy officer at Sensis, opened the dialogue by noting the makeup of this age group. "Gen Z is a very diverse generation. Diversity to them means more than just ethnic diversity. They view diversity as gender, beliefs and appearance. It's a very broad definition of the word," he said. "In addition it is a very vocal generation and is willing to use social media as a social reform tool."

Technology is viewed by Gen Z as a tool to express themselves; it's an extension of who they are and what makes them tick, Villa said.

"It's really a generation of Brand Me. Gen Z doesn't differentiate between a celebrity, an influencer and themselves. They see themselves as brands, if they want to be that."

The good news for radio broadcasters, Villa said, is that Gen Z views music as a "huge" source of therapy and stress relief. "And this is a generation with a fairly high stress level about things like getting into the right school and their career choice."

Villa said some traditional media resonate with this media-savvy generation. "We know music plays a central role around Gen Z. We found 75% of Gen Z listens to music to relieve stress, particularly for ethnic groups of Gen Z. Most popular music genres are hip-hop and R&B, which seems to cut across most of the Gen Z groups," he said.

Terrestrial radio is not the primary music listening environment for Gen Z, Villa noted, indeed it ranks mostly as an afterthought. Terrestrial radio reaches 83% of Gen Z, much lower than other generations.

"It's really through social media and the digital platforms that Gen Z is listening to music. When asked what they do often, only 29% say they listen often to terrestrial radio. When we asked about streaming music

online, obviously those numbers jumped significantly," he said.

Terrestrial radio is used by Gen Z for discovering new music, connecting with local DJs and to stay up with local news and events, Villa said.

"There are opportunities for on air talent to be viewed as social media influencers with this generation," Villa said.

A third of older Gen Z'ers say they listen to radio during drive time. About 17% of those 20-somethings agree that radio is their main form of entertainment, according to the data collected by the Sensis Agency.

Digital audio consumption by young Gen Z'ers, those under the age of 17, is led by Spotify and YouTube Music, Villa said, while those 17 and older include SoundCloud among preferences.

"Online radio preferences cater to Gen Z's niche music interests. They are looking for platforms that provide niche music. Listening to traditional radio is much more popular among white Gen Z than black or Hispanic," Villa said.

Sensis data shows that 42% of Gen Z'ers stream video, with YouTube and Netflix the top streaming platforms. Some 87% of them own gaming consoles and about half of that play online video games. And 20% of Gen Z listens to podcasts online.

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Jim Natoli's Lifelong Love Was Radio



When he died, Jim Natoli's niece paid tribute to her uncle through the design of a unique headstone.

BY DAN SLENTZ

When we saw a photo of Jim Natoli's radio-themed headstone, Radio World asked contributor Dan Slentz to find out more about the man it memorializes.

Nestled in Tuscarawas County, Ohio, are the twin communities of Uhrichsville and Dennison. Here stands an AM/FM station built by a broadcast engineer.

The local industry was clay pipe; and the engineer was Ignasio Natoli, whom everyone called Jim. He was a first-

generation American; his mom and dad came from Sicily.

Jim served during World War II as an Army staff sergeant in the Signal Corps, then attended Akron University; he also worked in the FCC's Detroit office administering tests and with regional administration.

In the 1950s, according to family members, Jim took a job as a cameraman at WKYC(TV) in Cleveland; he eventually graduated to engineer over his 30 years there.

Meanwhile, in 1959, Jim and his mother Mary formed Tuscarawas Broadcasting Company with the hopes of putting an AM radio station in their community. After nearly four years, they succeeded in launching 1540 WBTC,



The late Jim Natoli.

which stood for Wonderful Beautiful Tuscarawas County. Jim continued to work for the TV station, commuting that hour drive from home in Uhrichsville and his AM station, and his other job in Cleveland.

In 1970, Jim added 95.9 FM to the AM station, with the call letters WNPQ, which stood for New Philadelphia Quakers. The station was licensed to nearby New Philadelphia; the Quakers was the team name for the high school sports.

Jim retired from WKYC in the early '80s but continued to manage his AM and FM station with the love and passion of a parent. He never married nor had kids, so these stations were truly his love. He continued to work at them until 2016 when he turned 98; he was a daily part of their operation until an injury put him in assisted living. Jim recruited some relatives and trusted friends to keep the station running.

He passed away just short of his 99th birthday, which would have been July 4, 2017. His relatives were willed the

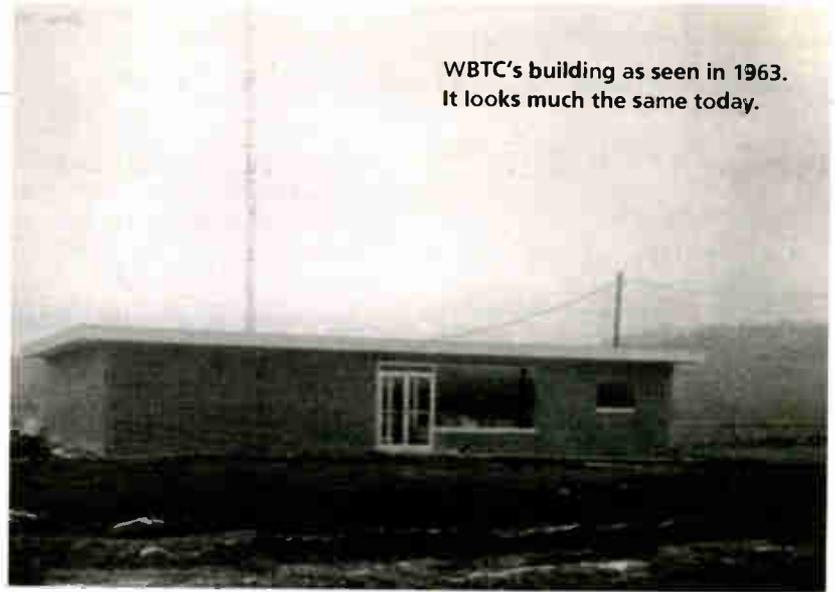
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station and have taken on the responsibility of keeping WBTC and WNPQ on the air and growing with a small staff. The stations carry classic hits and Christian programming, respectively. Jim's dream continues to this day.

When he died, Jim Natoli's niece paid tribute to her uncle through the design of a unique headstone appropriate for a man who lived a life dedicated to his radio love, WBTC(AM) and WNPQ(FM).

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GEN Z

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Villa said there are practical ways to think about engaging with Gen Z.

"This is a generation who believes they are an influencer, so providing them an opportunity to become a part of the marketing plan [is important]. You see this all the time with Instagram and Snapchat. Companies can give Gen Z a role as co-creator and let them run with it and repurpose it," he said. "This generation is masterful at calling BS, and anything that isn't authentic will be called out."

AUTHENTICITY COUNTS

The session then turned to what Villa called a "young and charismatic" group who work in the radio industry. They discussed music listening habits, thoughts about millennials, fashion merchandising and what radio is doing right and wrong to attract an audience.

Zach Sang, host of "The Zach Sang Show," which is distributed by Westwood One, was outspoken. He said radio needs to do a better job of finding people to speak to the Gen Z audience.

"There are a lot of white, middle-aged guys out there who, and I'm sorry, who are rocking the boards and slinging liners

but not relating to who they need to relate to. And stay fresh and speak authentically. We need aspects of our radio stations to genuinely reflect the audience we want to connect to," Sang said.

This generation is masterful at calling BS, and anything that isn't authentic will be called out.

— Jose Villa

Wilnir Louis, station manager of WSOU(FM) in South Orange, N.J., echoed that young consumers sniff out BS. He stressed the need for radio to be more authentic. "And with brands, as a part of Gen Z, we can detect when someone is trying to force their way in. It's a turnover."

In addition, Louis said radio broadcasters need to push away from the narrative of just playing the music.

"You have all of these streaming services around. Gen Z is very much so the on-demand generation. Radio needs to start pushing things so there is more of a connection between the DJ and the audience. I appreciate it when a DJ can engage and express an opinion."

Gen Z is flourishing with how it uses social media, the panel agreed. "Whether it is Twitter or Instagram or YouTube or the new TikTok, digital culture and digital content creation is driving Gen Z," said Louis. "And pop-up shops and visual museums ... people crave that one-on-one experience."

Ashley Wilson, director of country programming for the Kentucky/Indiana region of iHeartMedia, discussed a 22-year-old niece who listens to Spotify all the time. "I asked her when does she listen to the radio and she said, 'Only when I'm tired of my playlist.' Gen Z does not have the patience for long commercial stop sets like what we see in radio now. It just won't work going forward. Of course we need to be profitable, but we need to do a better job figuring out how to integrate the brands and clients we work with and avoid long stop sets."

Wilson also believes in brand extension and creating "connection points" to grab the attention of Gen Z, includ-

ing social media, photos and podcasting. "And experiences and live events. iHeartMedia is very much in the live event business."

Ana Castillejos, on-air personality with "The Kidd Kraddick Morning Show," said Gen Z is unique when it comes to self-perception. "We do consider ourselves brands. The Brand of Me, if you will. Our own personalities are our own personal brand. That's how we see ourselves."

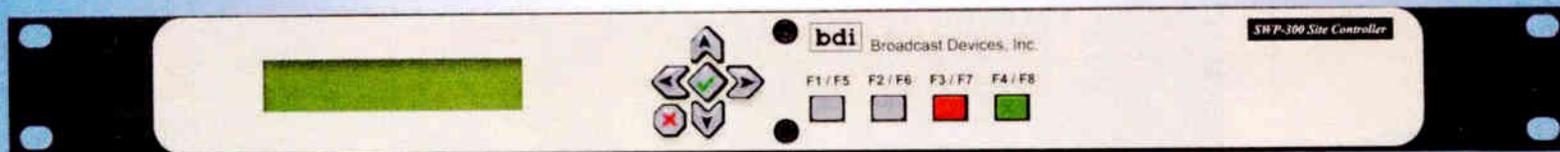
And the speakers agreed that Gen Z is living, or will be living, in a post-racial, post-color and post-culture world.

"Diversity is more than just about color to us now. It's not a label. It's more about who you are as a person. It's way bigger than that now," said Amari Vann, on-air talent at KVLU(FM) in Beaumont, Tex.

Sang sees Gen Z as living in a "post racial, post color and post culture" world.

"We don't see those barriers. We see other humans. We see what is within. We see way more than what is on the surface. We look for authenticity. Radio, if it wants to succeed, needs to speak to this generation," Sang said. "We need to make radio about the experience, making radio experiential. Whether it is creating your own events or having an on-site activation at a local concert in town."

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Skyview Networks Debuts Primary Uplink

Company emphasizes power of new facility and the architecture of its private digital cloud

FACILITY PROFILE

BY PAUL McLANE

Skyview Networks is highlighting a new audio distribution data center in Phoenix, Ariz. The facility, which opened this spring, is a satellite uplink farm and private cloud server system that Skyview says is notable for its broadcast reliability.

The company, founded in 1995, started with a focus on satellite distribution for pro sports and has evolved into a large audio distribution and inventory management provider. The facility processes and distributes ABC Audio, CBS Audio, Local Radio Networks, Alpha Media and professional and collegiate sports organizations; Skyview says it now has capacity to quadruple for new client acquisition.

“With this new primary facility, Skyview Networks’ capability and capacity

more than doubles for its national news and lifestyle networks, and play-by-play sports,” it said in an announcement.

HEAVY USER WORKLOAD

According to a factsheet, the Skyview Networks Audio Distribution Data Center has 10 Megawatts of generating capacity and 100 GBps of Tier 1 Network ethernet to multiple cross-connects in North America, Asia, Europe and South America. It uses 2N+1 redundancy on its power, networking, cooling, uplink, automation and inventory management systems; and it has 300 TB of storage capability (Skyview says this is equivalent to 1.3 times the size of the print collections in the Library of Congress).

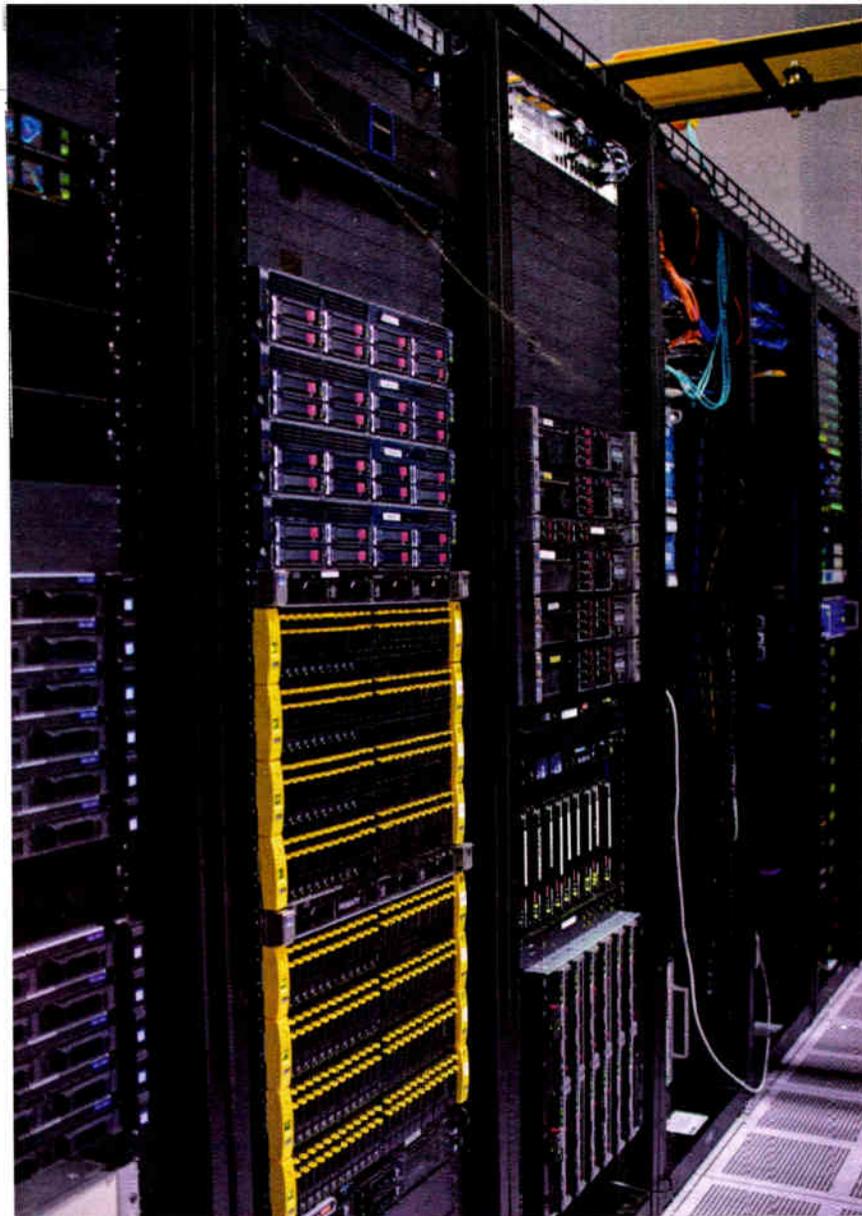
It also has 3 TB of RAM, enough to store its entire library of commercials, “equivalent to four years of audio,” but is using only half.

“Since Skyview Networks’ applications and systems support both internal

(continued on page 10)



Skyview Networks highlights its service level agreement including 2N+1 redundancy (meaning there’s a backup of the backup to each critical system) of Flexential. Pictured are two custom Trane CenTraVac centrifugal water chillers as a primary and redundant internal chiller system. “While the entire facility needs only one of these units to cool all the equipment on both colocation floors, the Tier-IV facility uses two coupled with a 500,000-gallon onsite thermal battery,” the company stated. “This ensures that the operating environment of our advanced technology and transmission equipment is always kept at an optimal temperature.” Flexential pre-plumbed its environment for additional chillers without having to take existing systems offline. “With all these systems kept indoors, the harsh exterior environment of Arizona can be mitigated.”



Skyview Networks uses storage solutions from HPE such as 3PAR and integrates them with a compute solution of HPE Synergy with VMWare, creating a “composable” architecture. CEO Ken Thiele said speed and agility are important for onboarding clients. “Now we can spin virtual machines up or down as needed or change running virtual machine storage and compute performance based on variables such as workload, number of broadcasts, type of broadcast encoding, broadcast SLA, etc.” He cited the composable compute of the HPE Synergy and peer persistent storage synchronization across two 300TB/100TB SSD 3PAR storage arrays.



The primary satellite farm includes four dishes that serve ABC Audio, CBS Audio, TuneIn, Local Radio Networks, Jack-FM and professional sports franchises; it can double to eight dishes on the existing footprint. From left: Primary transmitter (4.2M, dual high-availability 200W transmitters) and three tri-satellite receive dishes (dual-polarity downlinks for various programming, e.g. CNN, MSNBC, CNBC, Bloomberg, TuneIn and IMG college sports programming).

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SKYVIEW

(continued from page 8)

and external users, it averages a 6,000+ user workload daily between its ABC, CBS and sports programming.”

It said the plant qualifies as a “Tier IV” facility, meaning multiple redundant capacity components, dual powered equipment, multiple uplinks and fault-tolerant components including uplinks, computers, storage, chillers, HVAC systems and servers.

Vice President of IT Christopher Horvat said, “The storage environment supports many workloads, including traditional core infrastructure virtual machines — Domain Controllers, management apps, etc. — application servers that include database and web servers, and the main VMs that transcode audio in real time or automate the broadcast networks of ABC, CBS and sports programs. This in full consists of over 5,000 radio stations.”

Horvat said the company aims for “sub-second” business continuity.

“To achieve those results, we maintain warm standby systems end-to-end as a 2N environment, which is why Skyview Networks has two HPE 3PAR systems and 12 blades instead of one 3PAR and six blades. The goal is to have enough capacity that if Skyview Networks’ systems fail on one side, all systems can keep running without an issue. For corruption prevention, the team maintains daily backups of all VM/Hyper-V environment and 15-minute backups of the database environment to allow for an instant restore in case the base data is lost to corruption.”

Horvat also highlighted its monitoring and protection capabilities. “I believe this is the future in software-defined cloud systems and flexible, efficient scalability for client growth,” he stated in an announcement. “As our momentum continues to accelerate in the audio space, we are well-prepared for continued expansion.”

Flexential, a hybrid IT solutions provider, is Skyview’s vendor partner for the collocation services in which Skyview’s uplink facility resides. Horvat said Flexential had the infrastructure (e.g. the ability, look angle, conduit and electrical) at its Phoenix data center to allow Skyview Networks to create its own private cloud using the high avail-



Skyview showcases one of three massive Cummins Turbo-Diesel QSK-95 data center continuous generators. This generator provides 2N+1 uninterruptible power to the facility. Each of the three can put out two Megawatts of electrical generation. “Based on current usage estimates, one generator can power the whole facility for two weeks in the case of an outage using the underground diesel tanks for a total of 40,000 gallons of diesel generating capacity,” according to Skyview.



Dual Marley SPX Evaporative Cooling systems remove heat from the warm water of the cooling system. Combined with the 500,000-gallon thermal battery, Skyview Networks says it can deliver uninterruptible cooling to its broadcast virtualization, automation and transmission systems. In October, Flexential added another series of redundant Marley SPX evaporative cooling systems and another Trane CenTraVac. “This doubled the redundancy by another two evaporative systems to a total of four and one thermal battery, backed by three centrifugal water chillers.”

ability resources that they manage on Skyview’s behalf, such as power, WAN/BGP Networking and cooling. The transmitter farm in the photos is connected to Skyview’s cage on the collocation floor for management and signal multiplexing/modulation and powered by the redundant power infrastructure at Flexential.

Skyview has been seeking a higher profile lately and drawing attention to several of its initiatives. For example, Skyview and Amplifi Media have a partnership offering custom audio solutions for agencies and clients that want to curate branded audio content. Separately it signed a partnership with Local Radio Networks under which Skyview becomes the network sales partner and satellite distribution provider for Jack-FM’s Adult Variety format.

Fox Sports announced a partnership

with the company for USC football and men’s basketball broadcasts, looking to increase the Trojans’ broadcast footprint beyond the West Coast. And Skyview Networks sponsors an annual “audio upfront” event for agencies and media buyers in New York.

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Power switching systems known as Cummins Power Generation Digital MasterControl connect to state-of-the-art diesel generators and the direct substation utility for automatic switching capabilities. The power is then sent to one of four separate UPS systems designed to run the building for 5 minutes on battery power, long enough for the Cummins generators to spin up to balanced power.



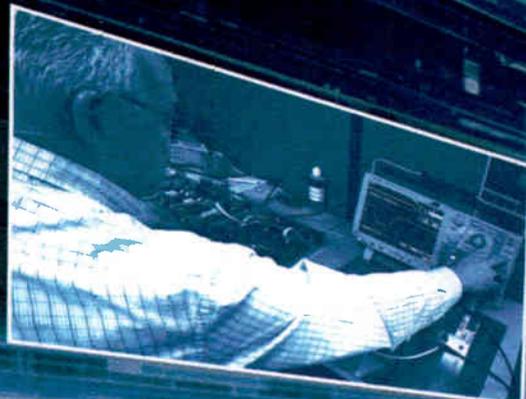
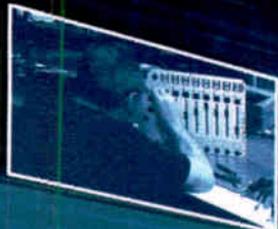
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A Dead Battery Can Ruin Your Station's Day

Also, Frank Hertel reports on a solution to a Windows 7 problem

WORKBENCH

by John Bisset

Email Workbench tips to johnbisset@gmail.com

Jim Leedham is a contract engineer in Omaha, Neb., and maintains many transmitter sites. Several have Broadcast Electronics transmitters. To keep memory presets in the event of a power failure, these rigs have a 9V battery located behind the hinged control panel. As a part of his maintenance procedure, Jim replaces the batteries yearly.

Recently, Jim performed this maintenance task on a BE FM1C1 1kW FM transmitter. However, when he attempted to remove the battery, the battery terminal came with it, seen in Fig. 1. One of the two sockets that make up the battery terminals actually broke off, shown in Fig. 2.

This battery is important. It keeps transmitter presets alive, should there be an AC mains power failure.

Jim was able to cobble a replacement socket until the actual part arrived from BE. But in sharing this tip with Workbench readers, he offers a couple of warnings.

First, place a label on the front panel noting that a battery is inside. Do this as a courtesy to other engineers who may not be familiar with this equipment.

Second, if you maintain these trans-

mitters and encounter a power failure, beware! If the battery is dead, when power is restored and you attempt to restart the transmitter you'll get zero RF output!

Since the battery kept the memory preset, if there's no battery voltage, there's no preset; the power goes to zero. It's a simple process to press the "RAISE" power pushbutton, until the appropriate power level is achieved. As engineers, however, we always seem to look for the worst. It could *never* be as simple as just pressing the "RAISE" power button!

Jim is right, I had this problem on a higher-power BE unit years ago, and wasted time trying to troubleshoot why I had plate volts but no plate current or RF output. Talk about feeling foolish.

So now you know. *Replace* those batteries. Note the date of replacement on the side of the battery with a Sharpie or other brand of marker. If you make a chart of equipment needing batteries, you can replace them all, along with your smoke and fire detectors, at the same time each year.

What's nice about the BE product is that you can replace the battery any time, not just during a maintenance session; that front panel is not interlocked. And if

(continued on page 15)

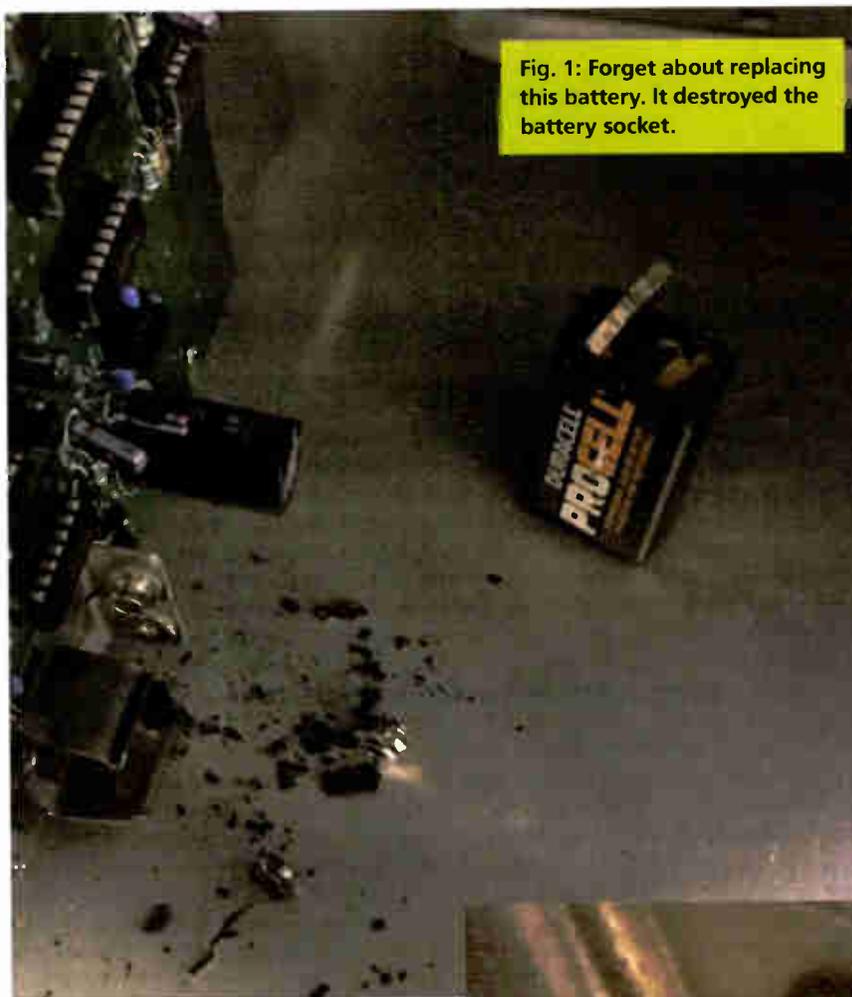


Fig. 1: Forget about replacing this battery. It destroyed the battery socket.

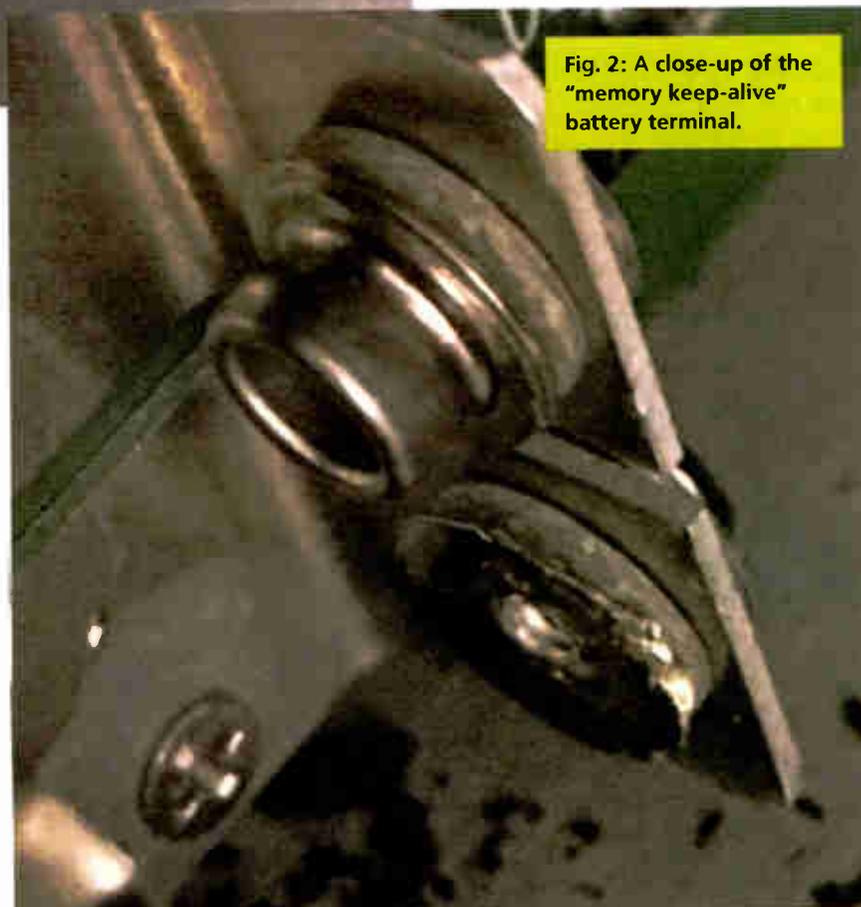


Fig. 2: A close-up of the "memory keep-alive" battery terminal.

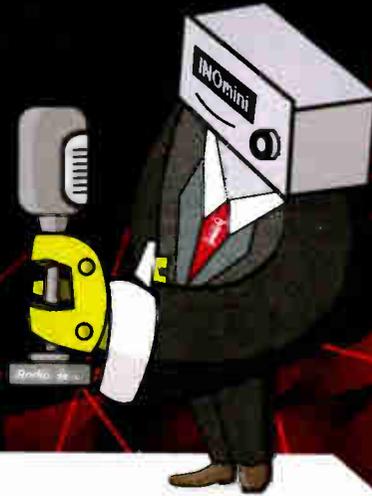
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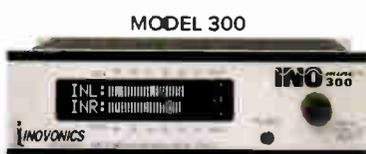
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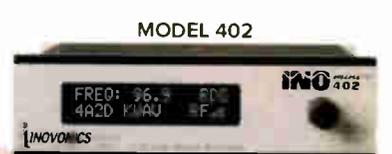
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World Radio History

In Search of New Types of Metadata and Functionality

AES-X242 seeks to define a standardized audio metadata transport method

Q&A

Radio World: What is Project AES-X242 and why did you propose it?

Kent Terry: AES-X242 is an AES project to define a standardized IP transport method for audio metadata associated with AES67 streams. AES67 streams carry audio signals coded as linear PCM but it has limited capacity for transmitting metadata associated with the PCM signals. AES-X242 will define a transport path to go along with AES67 streams, that can carry any kind of metadata that may be used in applications of AES67.

One motivation for this project came from broadcast applications, particularly those related to deployment of Next Generation Audio (NGA) systems that are part of ATSC 3.0. Many of the advanced audio features of ATSC 3.0 require audio metadata within production workflows. Solutions have been developed for existing AES3/SDI based systems, but solutions are also needed for new IP-based systems including



Kent Terry is chair of the AES SC-02-12-R Task Group on Streaming Audio Metadata over IP.

those based on the SMPTE ST 2110 suite of standards.

AES67 proved to be an ideal solution for audio transport within the SMPTE ST 2110 suite (referenced by SMPTE ST 2110-30) and an optimal metadata transport path for these IP-based broadcast systems was desired. Rather than

create a solution specific for broadcast applications it was felt a solution that would benefit all AES67 applications would be beneficial to the industry. For this reason, as well as the expertise in the AES standards community, the project was initiated in the AES.

RW: Why is it important to have a standardized method of transporting time-synchronous audio metadata for the audio carried in AES67?

Terry: AES67 transports only linear PCM audio signals with limited metadata. As AES67 is transported over IP interfaces that can carry other data, there are potentially many ways to transmit audio metadata associated with AES67 streams. Some kinds of metadata can be transmitted during stream initiation, for example metadata that does not vary while a given AES67 stream is active. Other kinds of metadata may change while a stream is active, and may require close time-synchronization with the AES67 stream. It is this latter case where current standards are limited.

The other motivation for a standardized audio metadata transport method relates to audio metadata formats and AoIP systems. Unique transport solutions can be created for specific audio metadata formats and vendor-specific AoIP systems may create their own formats. This can lead to multiple standards and incompatible proprietary metadata transport specifications. In the same way that AES67 defines a set of interoperability recommendations to allow interchange of AoIP signals, AES-X242 will define a common metadata transport that allows interchange of audio metadata between AoIP systems. AES-X242 will be open to all kinds of audio metadata, including standard publicly defined metadata formats as well as private proprietary formats. The key is that the transport solution will be open, interoperable and standardized.

RW: Can you define the term "object-based audio formats"?

Terry: In the most general sense, object-based audio refers to applications where an audio presentation is broken down into individual elements,

(continued on page 16)



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WORKBENCH

(continued from page 12)

your timing is such that the power fails while you're in the process of replacing the battery, at least you know how to get the transmitter back on the air.

By the way, if that scenario happens to you, make sure you buy a lottery ticket!

Frunk Hertel, principal of Newman-Kees RF Measurements and Engineering in Evansville, Ind., has an older computer in his shop that is loaded with a 32-bit version of Windows 7. It is using a known "valid" issue of the operating system.

Recently, while on a phone call with a fellow engineer, Frank turned this com-

puter on and noticed it was sluggish. He traced the slow speed as being due to the computer performing an update.

Frank continued to watch the process, while the long update continued. When it finally rebooted, the computer displayed a persistent screen message stating that his computer had an "Invalid Key." It further stated that it was operating with an "Invalid Copy."

The computer seemed to function normally, but it now presented the persistent message "--- Invalid ---" in the lower right of the screen. At various intervals Frank's work would be inter-

rupted by the presentation of a large message block in the middle of the screen. Canceling the message would let you continue to use the computer. There are other things it also did to try to get Frank to buy a "New Key."

So, Frank went online to seek a fix. He located this site that repaired the problem: www.techfever.com/how-to-fix-windows-7-not-genuine-error/.

If your valid issue of Windows 7 all of a sudden is nagging that your computer has an "Invalid" issue of Windows 7, you might give one of the methods on the site a try.

I really enjoy finding topics that generate great reader comments. The sticky issue of removing audio tape cartridge labels turned out to be one of those topics.

Curtis Media's Dave Dalesky wrote that a former PD showed him how to apply either oil or peanut butter to the old label so it would come off easily. Maybe so, but I also envision the hungry overnight jock licking the carts. Maybe it's a good thing we now trust computers with our audio playback!

Send *Workbench* tips and high-resolution photos to johnpbisset@gmail.com.



Country station KAKT(FM), owned by Stephens Media Group of Medford, became the first commercial HD Radio broadcaster in the Medford, Ore., market, according to GatesAir. The station is delivering two HD Radio channels alongside its main FM program, using a GatesAir HD Radio Gen4 system with transmission, signal processing and IP networking gear.

Dan Sullivan is chief engineer of Stephens Media Group of Medford. The project was through SCMS, a GatesAir channel partner, and included a GatesAir Flexiva FAX20 (20 kW) air-cooled transmitter. Klein-White Broadcast Engineering handled turnkey installation and commissioning.

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AES-X242

(continued from page 14)

or objects, to allow optimization of the presentation for the end user. This is in contrast to channel-based audio where all audio elements are combined into a final presentation mix in a specific channel format, commonly stereo or 5.1. Channel-based audio can be modified for playback to some extent, but object-based audio provides more capabilities.

For example, one use case for dynamic (time-varying) audio metadata is for improved spatial rendering of moving audio objects. In this case the reproduction of these objects can be optimized for the listener playback environment, whether it be headphones, stereo speakers or more than two speakers.

An example that may be useful for sports radio applications is separation of dialog into individual objects, such as different languages or commentary tracks, to allow end users choices of the dialog they wish to listen to. A channel-based approach would require delivering multiple stereo mixes to the end users, but an object-based approach can deliver the dialog tracks as individual mono signals with a common stereo track containing venue audio. This would not only allow all audio to be delivered with a single audio feed (using an object-based delivery format) but can also give the end user finer control over the dialog level as it can be controlled independently from the venue audio. In this use case the objects are not moving spatially, but it can still benefit from a time-synchronous metadata stream, for example when switching to/from ad inserts that may contain different dialog configurations.

RW: What are the parameters you are exploring for sports events; what kind of metadata is involved?

Terry: AES-X242 only defines transport of metadata and does not define audio metadata. That being said, the SC-02-12-R group is interested in the kinds of metadata that will be transported, and sports is an important application.

Metadata that allows customization of the sports program is of particular interest, including identification of dialog objects previously mentioned. This metadata can provide the end user the

ability to customize crowd or environment background, and to select specific commentator dialog. Other metadata may be useful in the production environment such as the ability to localize audio signal sources. The latter case is where dynamic metadata can be used, for example to track moving sound sources such as race cars.

experience, for example selecting different languages or commentary tracks, or selecting preferred mixes for venue sounds or music. Accessibility provides features such as dialog enhancement for those with hearing impairments. Loudness and dynamic range control, particularly for dialog and specific program elements, also goes along with

focus of the AES-X242 is independent of AES70.

RW: Who are the members of the group? How does the AES standards process work?

Terry: Development of AES-X242 has been assigned to the AES SC-02-12-R Task Group on "Streaming audio metadata over IP." Group members include an international group of experts in the field of audio and audio networking, including many that helped develop AES67.

The AES standards process is a consensus system open to anyone materially affected by such standards. We'd recommend connecting with AES for more information.

RW: When should we expect an outcome, and what else should we know?

Terry: Work began on AES-X242 in 2017. Work is well underway and the membership is working toward a goal of having a public draft available toward the end of next year.

AES67 and AoIP in general are mature technologies at this point and likely well known to radio engineers. The use of audio metadata in live workflows, at least in terms of the kind of metadata AES-X242 is capable of delivering, and how that metadata can benefit the radio industry is probably less well known.

Radio engineers may certainly be familiar with types of metadata such as song title and artist for music, but AES-X242 enables new types of metadata and functionality that provide tremendous opportunities to improve radio productions systems and services. The AES SC-02-12-R group certainly welcomes input from radio engineers on applications for AES-X242 and the requirements for these applications.

AES-X242 will define a transport path to go along with AES67 streams, that can carry any kind of metadata that may be used in applications of AES67.

The group developing AES-X242 certainly welcomes input from users to help identify metadata for sports applications and to ensure the final standard supports requirements for transport of this metadata.

RW: In terms a non-engineer can understand, can you give examples of what radio industry users will be able to do thanks to this standard, that they cannot do now?

Terry: The ability to transport and maintain audio metadata in production and distribution workflows can provide improvements to operations, allowing simplification and automation of many functions. As AES-X242 is specifically focused on AoIP applications with AES67, it also goes along with the transition to IT-based methodologies in broadcast applications. This can bring significant cost reductions to production operations as well as allowing new processes that are cost-prohibitive with traditional radio operations. In this regards AES-X242 can provide improvements to existing radio services.

Audio metadata is also needed to provide improved features to end users. Some of the key pillars of the improvements in NGA formats for ATSC 3.0 include immersion, personalization and accessibility, and these features are equally relevant for radio applications.

Immersion is often taken to imply "surround sound," e.g. 5.1 audio, but it more generally means optimizing the audio reproduction for the playback environment. In terms of radio this means that a listener using headphones can listen to a stereo signal optimized for headphone playback, possibly with spatial virtualization, whereas a listener in an automobile with multiple speakers can listen to a multichannel reproduction optimized for that environment.

Personalization refers to the ability for the end user to customize their end

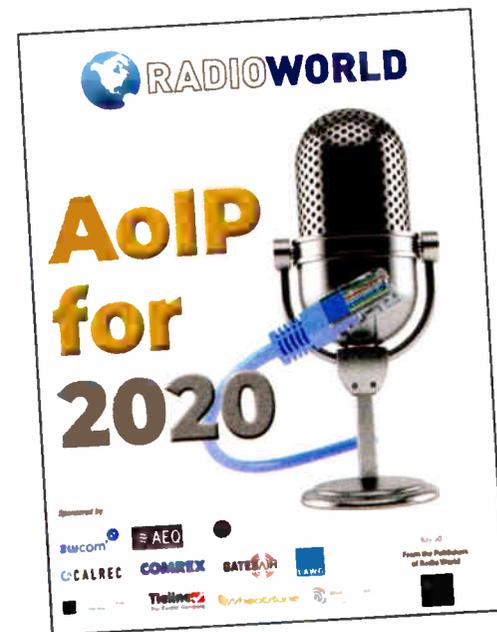
these features. A common denominator is that audio metadata is required to fully realize these features.

The biggest takeaway is that AES-X242 is a component in enabling new features to end users to keep radio attractive to end users and competitive with other media.

RW: How does this work relate or overlap with AES70?

Terry: In terms of scope, they are intended for different purposes. AES70 applies to control and monitoring whereas AES-X242 is related to streaming media transport. In fact AES70 complements AES-X242 as it can be applied to devices that transmit and receive AES-X242 streams. There may be some overlap in function however, as some metadata delivered via AES-X242 can be used for control and monitoring purposes, but in this case AES-X242 would simply be the pipe to deliver this metadata. As AES-X242 is open to any kind of audio-related metadata it can even carry AES70-related metadata if that is deemed to be useful. But again the direct

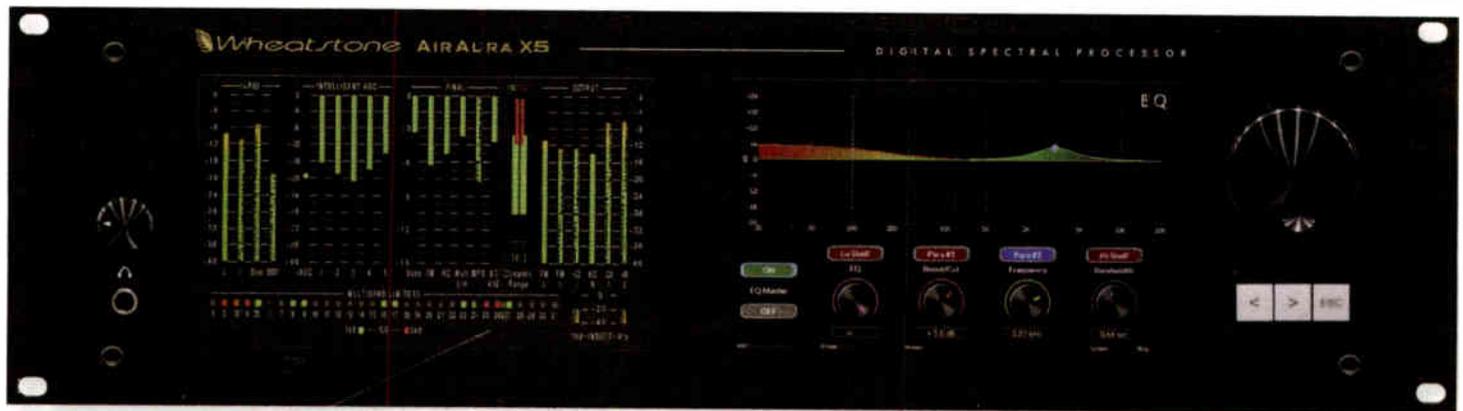
This article is from Radio World's ebook "AoIP for 2020." We've now published more than five dozen ebooks on a wide range of topics that are of interest to the broadcast technologist or manager including AoIP, next-gen codecs, cloud technology, digital radio, RDS, DRM, translators and more. All are free to read. Find recent issues by clicking the ebooks section under Resources at radioworld.com.



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World Radio History

Products in this section are a sampler of those featured by exhibitors at the recent Radio Show in Dallas.



MOSELEY BREAKS OUT MAVERIX WIRELESS LINK

Moseley's new Maverix DT is a dual transceiver, all-weather outdoor, IP radio operating from 6 GHz to 42 GHz, with modulations up to 4096 QAM, and ultrawide bandwidth operation to 112 MHz ETSI and 160 MHz ANSI.

It specs at up to 5.5 Gbps per radio, though is at home at 2.75 Gbps for less-demanding links. It can operate in both licensed Part 74 and Part 101 channels simultaneously.



Web browser interface and SNMP allow convenient remote monitoring and integration into larger networks.

Moseley says that Maverix's high data throughput fulfills audio, data and voice link requirements for even the largest multiple-station radio and TV clusters.

"In addition to bidirectional audio and video transport, Maverix creates a huge data pipe to and from the transmitter site enabling stations to employ money saving IP applications and appliances at the site for control, security, off premises mirrored servers and the like," the company states.

This can provide for adding a live security feed from a transmitter site or utilizing the receiver site as a backup server and archive.

Info: www.moseleysb.com



ENCO DEVELOPS DAD DISASTER RECOVERY

ENCO's DAD Disaster Recovery (DAD-DR) is a cloud-based companion to the company's DAD radio automation system that is ready to take over program and ad playout immediately in case of a natural disaster or critical technical failure.



The company says the system provides a fully-featured clone of a broadcaster's on-premises DAD deployment. DAD-DR stays in continual synchronization with changes made on the local DAD system to ensure that backup content is up to date and that all scheduled ad spots will run.

ENCO notes that disasters that threaten broadcasters' on-air operations aren't limited to natural occurrences such as weather-related events, but can include power outages, targeted cyber-attacks, computer viruses and equipment failure, so having a complete, up-to-date disaster recovery solution is important for keeping stations on the air and protecting advertising revenues.

DAD-DR also makes routine systems maintenance less disruptive, as stations performing on-premises upgrades can switch over to their cloud-based backup during the process to eliminate any risk of on-air impact.

DAD-DR works with ENCO's browser-based mobile control interface, WebDAD, allowing users to remotely update playlists, add new content, voice track shows, and perform library maintenance, even if the station is completely out of commission.

Info: www.enco.com

NEW PROCESSOR FROM WHEATSTONE

Wheatstone is offering a newly developed audio processor, the X5.

According to the company, it features new technologies to help with dynamics control, pre-emphasis management and more.

These include a Limitless FM peak control that reconstructs audio after pre-emphasis has been applied, for a cleaner and clearer high end. Also, the X5's Unified Processing allows the system to share critical information between all processing stages; it also features a redesigned limiter that works directly with the unit's Limitless Clipper.



Additional features include the Live Logger to document X5 settings and activities; a redesigned bass processor and enhancement controls in the iAGC to safely equalize audio; an optional MPX SynLink receiver that can work away from the studio and manage multiple HD and FM audio streams; and AES insert ports via a PPMport, which allows users to insert ratings encoders into the processing system instead of placing them in front of the processor.

Previous features have been updated in the new model, like the Multipath Mitigation algorithm, composite processing system with selectable look ahead limiting or clipping, baseband192 composite AES connectivity and a full set of analysis displays.

Info: www.wheatstone.com

COMREX PUTS NX INTO THE RACK

According to codec maker Comrex, the new Access NX Rack features completely new hardware, allowing for AES67, AES3 or analog audio I/O. It can connect to Wi-Fi and 4G modems, and supports a range of connection protocols and audio encoders.

For remote control there's a new HTML5-based web user interface. Access NX Rack is compatible with all Comrex IP audio codecs as well as the Comrex FieldTap smartphone app.



Access NX Rack includes Comrex CrossLock technology, a proprietary suite of tools for redundant connections over IP networks. By sending two identical streams through two separate networks, Comrex says, CrossLock provides a fail-safe in the event that the primary network falters, the company says.

Access NX Rack also includes HotSwap, a new function included with the latest version of Access firmware. Comrex says that HotSwap allows users to designate one network as a backup that will only engage when the primary network has failed. Fall-over to backup happens in a matter of seconds, and fallback is seamless.

Info: www.comrex.com



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TIELINE UNVEILS VIA DUAL ACTIVE SIM MODULE

Tieline has developed the Dual Active SIM internal module for the ViA remote codec, supporting two active cellular connections.

The company says the module is designed to perform in the most challenging production environments. It supports the use of SIM cards from different telcos simultaneously for diversity when using Tieline's SmartStream Plus dual redundant streaming technology. Users can also bond the two SIM cards to create additional bandwidth using a single robust Fuse-IP link.

"The new ViA dual internal modem will deliver more choice to Tieline customers for wireless remote broadcasting," said Charlie Gawley, VP Sales APAC/EMEA. "The ViA already supports connecting two air cards using USB, however many customers requested an internal module with dual modems to avoid using external dongles. This innovation also means there will be seven different IP interface options from which to choose when going live."

The ViA lets operators connect over dual Ethernet ports, built-in Wi-Fi (no USB modem required), dual air cards, and now the new module with dual internal modems. Any two interfaces can be bonded to deliver secure and robust connections from remote locations in challenging environments. The Dual Active SIM module has four antenna connections to provide antenna diversity for both SIM card connections.

There will be international and U.S. versions of the module to suit various cellular networks.

Info: <https://tieline.com>

NAUTEL ADDS ALL-DIGITAL TO NX TRANSMITTERS

Nautel said digital AM broadcasting capability is available for all of its NX AM transmitter line.

Head of Marketing John Whyte said, "Although all-digital AM operation currently requires an experimental license, we and others feel that this is an exciting direction for the AM band, and Nautel is ready to support broadcasters as they move ahead with their plans."

Whyte added, "Its digital modes provide the precision needed in the spectral mask as well as the in-band signal quality required for digital features such as User Experience metadata. NX transmitters, combined with our digital-ready importers and exporters such as HD MultiCast+, make it easy for AM stations to adopt digital transmission."

Info: www.nautel.com



AXIA DEBUTS QUASAR IP-BASED CONSOLE

Axia Audio says its new Quasar console/control surface takes advantage of the flexibility afforded by IP networking and touchscreens.

It relies upon an IP link, in this case Livewire, to an engine — acting more as a control surface. Much of this surface is occupied by an embedded central touchscreen. Physical faders flanking the screen are themselves surrounded by color OLEDs providing information and customizable functionality.

It will be available in sizes from four to 28 touch-sensitive motorized faders per frame, with support for up to 64 faders in multiple linked frames. Frames can be flush-mounted.

Quasar can access and control inputs, hybrids, codecs and processing, etc., via Livewire. In addition it can be controlled remotely via HTML5-compatible devices.

The system is powered by the new Quasar Engine, with 64 stereo channels, four-band fully parametric EQ, powerful dynamics processing and automixer on every channel, four program busses and eight auxiliary busses.

Info: www.telosalliance.com



INOVONICS 568 SOFIA MONITORS FM/HD RADIO



Inovonics' new Sofia 568 FM/HD Radio SiteStreamer+ is the first of a series of remote off-air monitoring receivers. The company highlights its advanced features for critical monitoring situations.

The web-enabled Sofia 568 is installed at a transmitter site or any remote location with good reception and an internet connection. Streamed audio is accessible from any web-enabled device.

The Sofia 568 provides analog, AES3 digital and AES67 AoIP outputs, along with remote streaming for up to 10 listeners simultaneously. It collects histograms of signal parameters and displays HD Radio album artwork, station logos and similar visuals via web interface. Multiple stations can be sequentially monitored using the programmable StationRotation feature.

Features include remote monitoring of full-time off-air FM and HD Radio signals; HD Radio graphics and related text data displays on the web interface; adjustable off-air output levels for L/R analog, AES3 digital along with Dante/AES67 AoIP; internet listening stream for up to 10 listeners simultaneously; monitoring of multiple transmissions sequentially with StationRotation; alarms and notifications via email and SMS messaging; enhanced alarm logging with no limit to the number of alarms that can be logged; easy set-up and operations; and full SNMP support.

Info: www.inovonicsbroadcast.com



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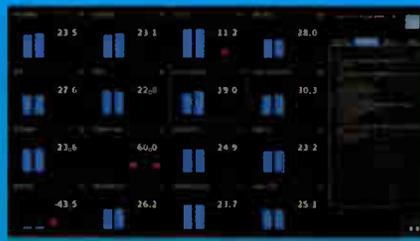
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Let's Untangle the Knotty Mystery of SEO



PROMO POWER



Mark Lapidus

FIND A PARTNER

I am not advocating a big expenditure for an SEO agency.

Many towns — whether large or small — have SEO consultants who would like exposure to a greater pool of potential clients for their SEO services. You guessed it, I am suggesting you seek a full or partial trade of radio advertising in exchange for help with your radio station's digital properties.

You'll want to trade for the value of a monthly retainer, plus a specified number of hours. Partner with an SEO agency (or ad agency that also does quality SEO) that has already licensed a keyword search tool such as Brightedge.

While there are free keyword search tools, I recommend you select a company large enough to actually have a license with a well-known entity. A legitimate keyword search tool will enable your new agency to prioritize the most relevant keywords for you; categorize keywords to maximize the performance of your content; look for opportunities for keywords that you can "own," and provide insight into the competitive landscape.

Why is SEO so important? Entire books have been written to answer this question but they all have the same punchline: Organic search. That is, when a user types a query into Google or another search engine, you

Search engine optimization is not for short-term thinkers but will really pay off over time

It's part art, part science and a lot of mystery.

It's Search Engine Optimization, commonly known as SEO. And no matter what anyone tells you, there

isn't a person on the planet who knows precisely how to manipulate it. Even former Google employees who specialized in SEO offer conflicting advice to clients.

What is a radio station wanting to improve their SEO to do? Let's start by addressing a key concern: How to fund it.

Unless you have an employee with a background in SEO and time on their hands to work extensively with your website and YouTube channel (see my last two columns), you're going to need a specialized agency.

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will achieve the best possible outcome for your website.

This is because the intent of the user determines the success of your metrics. And if someone easily finds what you offer, they will stay on your website or YouTube channel longer because you're giving them what they want.

When users don't get what they're looking for, the opposite occurs, with the traffic "bouncing" off the site with no continued interaction. This is why bounce rates are always so much higher for search engine marketing, when users click on an ad or paid keyword result only to find something that doesn't match their expectations.

Bounce rates are so much higher for search engine marketing, when users click on something that doesn't match their expectations.

Regarding YouTube, it is difficult to obtain great search ranking, but that doesn't mean you shouldn't try. Maybe you've got a few unique in-studio music performances that will surface in search. Make sure they are tagged appropriately and that descriptions are unique, very specific, and totally accurate.

FIVE TIPS

There are several other basic but important ingredients in SEO that I've personally seen make a difference:

1) Getting more inbound links from authoritative websites to your website. He who gives also receives, so perhaps there are several large websites in your market with which you can create a linking agreement. Local newspaper websites, official local government sites (maybe you can get a link for aggregated school closings, or some other service you offer), local television websites, local sports team sites and any

other sites that do well in your city. Tied to this idea is linking from your branded platforms like your YouTube channel and all of your other social channels.

2) Greater internal linking to your own content pieces. Although time-consuming this is easy and can be done gradually.

3) The depth of your website in terms of the number of pages matters, so don't delete pages unless they can't be updated. Over many years, sites grow substantially without your even realizing it.

4) Talk to your SEO company about building and submitting a site map. There is substantial disagreement about whether to submit a site map, or just wait for Google to crawl your site. Unless your SEO company is prepared to fix issues uncovered when constructing the site map, it's probably not worth it to you. However, if your agency specializes in this, it could be effective.

5) Finally, you gotta have patience! SEO is not for short-term thinkers who want results tomorrow. This can be a challenge for radio station managers who

demand immediate ratings results on a near-monthly basis. SEO takes time to work. I've seen results in three months, better results in six months, substantial results in a year.

Fair warning: There are no guarantees with SEO, but like so many creative endeavors, those who are willing to experiment and take chances often win the game.

Mark Lapidus is a multi-platform media, content and marketing executive, and longtime Radio World contributor. Email mark.lapidus1@gmail.com.

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PEOPLE NEWS



Kris Foley
iHeartMedia
named regional president for the South Ohio Region

Gary Cavell

Cavell, Mertz & Associates
honored by IEEE with the 2019 Jules Cohen for Outstanding Broadcast Engineering Award



From left: BTS Vice President Lanny Nass, Gary Cavell and BTS President Ralph Hogan

Evan Swarztrauber
Federal Communications Commission

has joined Chairman Ajit Pai's office as a policy advisor



Piyush Goyal

Ministry of Railways, Government of India
toured The Durst Organization's 1 World Trade Center broadcast facility while visiting W284BW-FM (104.7), which is owned by Touchdown Media



Piyush Goyal (left) and The Durst Organization's John Lyons

Larry Patrick

Legend Communications, Patrick Communications
appointed to the National Association of Broadcasters Radio Board of Directors



Mary Berner

Cumulus Media Inc.
honored by the Alliance for Women in Media Foundation with a 2019 Gracies Leadership Award



David Layer

National Association of Broadcasters
received IEEE's 2019 BTS Symposium Matti Siukola Best 2018 Symposium Paper Award, presented after the paper is given



David Layer (left) and BTS President Ralph Hogan

Sergei Berenson

PlayMPE
named director of engineering



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Angry Audio: Of Gizmos and Gadgets

New company aims at the problem-solver market



The Failsafe Switching Gadget installed (just below the Moseley STL). Note the optional half-rack panel with Angry Audio logo.

PRODUCT EVALUATION

BY CHRIS WYGAL

Broadcast engineers can generally anticipate using a fair amount of creativity. That creativity manifests itself in simple and complex control, monitoring and delivery systems. Engineers spend sleepless nights saying, "This is going to be a great addition to our operation, but how am I going to ...?"

Such was the case during a studio renovation wherein I deployed Yellowtec YT3105 microphone arms. The on-air staff was impressed with the LED tally light that was situated right above the microphone. How, though, do I get that sorcery to work? The pre-installed YT3105 cable has five wires; three for the microphone and two for the LED. I had to build a 5-pin pigtail that would break out the mic and LED connections. This was all hidden above the ceiling where the YT3105 cabling met with a confusion of power supplies and terminal strips to facilitate switch-

ing the LEDs.

In addition to YT3105 LED conundrum, the talent positions in these studios needed headphones. I wanted to put normal turrets in front of each position, but there wasn't enough surface space on the studio furniture. So, this meant the talent got under-the-desk headphone volume boxes and no cough switches.

Fast-forward a few months to another project that involved transporting audio from a satellite downlink site to the studio. There were primary and backup audio paths (T1 and IP). Through an assortment of silence sensors and audio

switches, I can switch to the backup if necessary, but it sure would be nice to have it all in one box.

So, what is there to do about all these issues? Nashville-based Angry Audio is owned and operated by veteran console designer Michael "Catfish" Dosch, who has been associated over past years with well-known brands like PR&E, Axia and Lawo.

Angry Audio understands broadcast engineering and the simple yet annoying problems that it involves. Plus its solutions look really slick. I found the Mic Tally Gizmo, the Guest Gizmo and the Failsafe Switching Gadget. Two words: Problems solved.

MIC TALLY GIZMO

Luckily, I inverted the Yellowtec YT3105 riser poles and supported them from a rigid aesthetic contraption on the ceiling. It allowed me to hide the homemade Y-adaptors and power supplies for the YT3105 LED and microphone harness. However, the Angry Audio Mic Tally Gizmo takes care of all of that by hiding ugly wiring. The rugged steel construction and surface-mount design allow the 5-pin XLR to plug in on the desk right next to the Yellowtec pole mic pole assembly.

Simply drill out a 2 1/8-inch hole in the desk and the Mic Tally Gizmo drops

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in. The back side has a male XLR jack that serves as a pass-through for the mic, a 15 V DC plug (wall-wart is included) to power the YT3105 LED and 1/8-inch jacks for LED logic. There are two logic ports. One activates the red LED and one activates the white. All the Yellowtec YT3105 functions are handled cleanly by the Mic Tally Gizmo. Everything comes to one place, and no homemade adaptations are required. The powder-coat finish looks great on any surface.

GUEST GIZMO

Studio design is evolving in such a way that the room is becoming less heavy. There are fewer equipment racks atop and under studio desks. Now we merely see computer peripherals, speakers and microphones. This lends itself to smaller desk design with less surface space. I experienced this firsthand in the studio design where I had no room for talent surfaces or turrets. The Guest Gizmo is a perfect solution for this.

Just like the Mic Tally Gizmo, the Guest Gizmo boasts a rugged powder-coated steel design. It fits into a 2 3/4-inch hole. The surface-mounted top panel has an illuminated cough button, 1/4-inch headphone jack and volume knob. The built-in headphone amplifier packs plenty of headroom. On the rear of the Guest



Gizmo, inputs are left and right line level via balanced 1/4-inch jacks. A 16 VAC (wallwart included) powers the built-in headphone amp. An additional 1/4-inch TRS jack can be connected to the Insert jack found on the Mic inputs of live-sound mixers, providing broadcast-style remote mic muting even when the board lacks muting logic. The surface-mounted front panel is 3 inches by 3 inches and takes up very little desk space.

FAILSAFE SWITCHING GADGET

We move on from the gizmos to the gadgets. The 1RU Failsafe Switching Gadget is housed in a near-bulletproof half-rack wide steel enclosure. It comes with a 120 V power cord, so there's no additional wall-wart to put in the rack. The Failsafe Switching Gadget monitors audio on the "A" input. When audio fails on the A input, the system switches to the B input. The silence threshold level, manual switching, automatic switch delay and switch recovery behavior are controlled on the front panel. The recovery function allows for deciding how much human intervention is needed in the event of an audio failure.

Basically, the unit will either switch to the B input and stay there indefinitely, or will switch back to the A input when main audio is restored. The two XLR stereo

PRODUCT CAPSULE

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Mic Tally Gizmo
+ Consolidates wiring mess
Price: \$111

Guest Gizmo
+ Useful feature set
+ Strong amplifier
Price: \$166

Failsafe Switching Gadget
+ Offers audio restoration options
Price: \$222

For information, contact Angry Audio in Tennessee at 1-615-763-3033 or visit <https://angryaudio.com>.

inputs and stereo outputs are on the back of the unit as well as a 9-pin D-sub connector for remote A/B input switching, reset and status monitoring. The Failsafe Switching Gadget makes the switch between A and B inputs fully transparent with no clicks, pops or breaks in the audio. The active audio channel is indicated by bright red illuminated buttons on the front panel. When the unit loses power, it switches to the B input.

Angry Audio offers a handful of other ultra-useful appliances and cable adapters that simply make life easier. The construction and quality of the components make for clean and robust audio. Plus, the powder-coated finish and steel construction make the Angry Audio products aesthetically rugged and stylish. As Angry Audio grows its line of gizmos and gadgets, the "How am I going to do that?" factor for radio engineers will be more and more enjoyable.

Know of a product or a company that fellow readers should know about? Tell us at radioworld@futurenet.com.

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Clearing the Air on Short Towers

How to determine your obligation to register, paint or light such towers

COMMENTARY

BY CHRIS IMLAY

The author is general counsel of the Society of Broadcast Engineers.

There is a lot of inaccurate or misleading information being circulated, mostly within the land mobile radio community (but elsewhere as well), about your obligation to paint and light "short towers" (i.e. those between 50 and 200 feet in height) that are not located in close proximity to an airport or heliport, but which are located in rural or agricultural areas.

Here is what broadcast engineers need to know: You *may* have to register your short broadcast tower in an FAA database depending on its location, but you do *not* have to paint or light it unless it is near an airport.

CROPDUSTERS

It all started back around 2013. States became concerned that low-flying agri-



Getty Images/Flanjinis

cultural aircraft were hitting meteorological evaluation towers (METs). There is no history of aircraft hitting short towers generally; the only problem was with respect to METs.

These are temporary structures, often erected in rural areas on short notice, with very low visibility, and they are very hard for pilots to see. They are not on any maps; and for cropdusters and other low-flying aircraft, they posed a real threat if not near other structures.

States that have rural, agricultural areas became concerned that short towers that are not near airports did not have to be lighted or painted according to FAA regulations. Colorado, Washington state, Idaho and a few other western states enacted statutes that regulated all short towers.

In the wake of agricultural aircraft collisions with METs, the National Transportation Safety Board (NTSB) recommended in 2013 that states enact laws (cropduster statutes) requiring marking and registration of METs. FAA Advisory Circular 70/7460-1L concerning Obstruction Marking and Lighting, released Oct. 8, 2016, urged, on a voluntary basis, the marking of METs (only) less than 200 feet or 61 meters in height.

The basic premise for the cropduster

(continued on page 30)

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WYBG 1050, Messina, NY, now off the air is selling: 250' tower w/building on 4 acres; 12' satellite dish on concrete base; prices drastically slashed or make offer. 315-287-1753 or 315-528-6040

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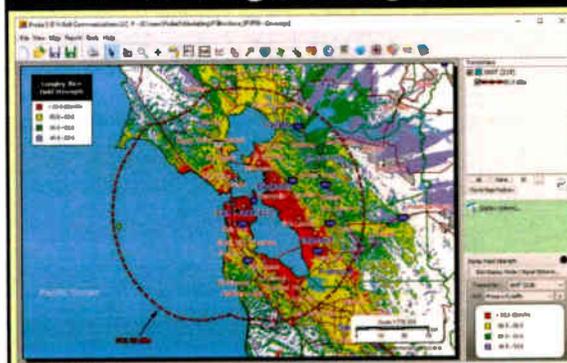
mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

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RADIOWORLD

time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

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SHORT TOWERS

(continued from page 28)

statutes was that short towers are not regulated by the FAA. That was inaccurate. Towers less than 200 feet in height are regulated by the FAA (and notification to the FAA is called for by the FCC) if a tower shorter than 200 feet is to be located in an area that the FAA has determined constitutes a danger to air navigation: that is, where the towers are located within the glide slope of an airport or heliport (see FCC rules, Section 17.7). The glide slope is 100-to-1 for a horizontal distance of 6.10 kilometers from the nearest point of a runway of an airport or heliport, and less for towers closer to the airport or heliport.

Unless such short radio towers were located within the glide slope of airports or heliports, they were not required to be painted or lit because they were not deemed to be an air hazard.

THE FINAL SAY

The FAA has preemptive federal jurisdiction to protect air traffic as necessary in a reasonable exercise of its discretion.

The comprehensive regulation of tower height, marking and lighting by the FAA (in conjunction with the FCC) leaves no room for the states to supplement it. The Supreme Court has concluded that Congress intended to preempt states with respect to aviation safety.

Perhaps because these state cropduster laws were subject to challenge, it enacted H.R. 636, the FAA Extension, Safety and Security Act of 2016 (Reauthorization Act) in July 2016. Section 2110 of that act instructed the FAA to enact rules by July of 2017, requiring painting and lighting of short radio towers that were located in rural areas.

The 2016 act defined towers that are covered as self-standing or guy wire-supported structures: (1) 10 feet or less in diameter at the above-ground base (excluding concrete footing); (2) more than 50 and less than 200 feet tall; and (3) with accessory facilities mounted with antennas, sensors, cameras, meteorological instruments or other equipment.

Covered towers were those located (1) outside the boundaries of an incorporated city or town; (2) on undeveloped land; or (3) on land used for agricul-

tural purposes. Undeveloped land was defined as a geographic area where the FAA determines low-flying aircraft are operated on a routine basis, such as low-flying forested areas with predominant tree cover less than 200 feet and pasture and range land.

Exceptions to the covered tower definition include: (1) structures adjacent to a house, barn, electric utility station or other building; (2) structures within the developed area of a farm immediately surrounding a house or other dwelling such as a yard; (3) structures that support electric utility transmission or distribution lines; (4) structures that are wind-powered electrical generators with a rotor blade radius exceeding six feet; or (5) street lights erected or maintained by government entities.

This was a huge problem of course. Short broadcast towers, if they had to be painted and lit, would have to be removed from most locations due to local land use regulations, and the cost of painting and lighting short towers was prohibitive for most users of them.

With help especially from Sen. James Inhof of Oklahoma (himself a pilot),

the NAB, the SBE, the Association of American Railroads and others, the FAA Reauthorization Act of 2018 was enacted. It amended and clarified the 2016 act by revising the requirements for covered towers, as long as the FAA administrator determines they pose no hazard to air navigation.

The legislation requires covered tower operators or owners to either submit the tower's location and height information into a database to be established by the FAA, or mark the tower consistent with the FAA's 2015 advisory circular (AC 70/7460-IL). Only METs have to be painted and lit.

The FAA has not yet developed its database, which will contain only the location and height of each covered tower. Covered tower operators or owners who elect to submit tower information to the FAA database must do so within one year of the availability of the FAA database. The 2018 act also excludes towers located within the right-of-way of a rail carrier and used for railroad purposes.

This article originally appeared in the SBE Signal newsletter. Visit sbe.org.

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READER'S FORUM

LATE ISSUE

Paul, recently, it seems that I receive print editions of RW describing meetings or conventions that have already happened by the time the issue hits my mailbox. Has it been decided that print readers won't attend anyway, so why give them a heads up on content? It seems that the print timing is at least a month out of sync with reality, for no apparent reason, compared with the digital. It's not clear to me why the digital and print versions aren't more or less synchronous, with a mailing delay for the print.

Gary O. Keener
Keener Technical Services
San Antonio, Texas

Thanks Gary. Nothing has changed in our planning of content (and no one hates more than I to see a well-researched show preview article reach readers after the event). We've been experiencing shipping delays that put recent issues, one issue in particular, in the hands of readers too late. We also have had some disruption around a move of our offices from northern Virginia to downtown D.C., which now is complete. I'm monitoring though to keep our online and print content in better synch. Sorry for the inconvenience. Remember too that you can access a digital version of any current issue at radioworld.com under Resources, if a print copy is running late.

REMOTE CONTROLS

I really enjoyed reading the article by Tom Vernon, "Remote Controls Have a History All Their Own." It brought back fond memories of some Good Old Days when the remote control equipment mentioned was in production. I was the project engineer for all of the analog remote control apparatus listed for Moseley Associates. Nice photo of the TRC-15; that unit sold over 4,500 units while in production.

Tom managed to write an article that covered a wide field of equipment from several manufacturers and he did it very well, accurately and completely. Congrats, Tom!

Jim Tonne

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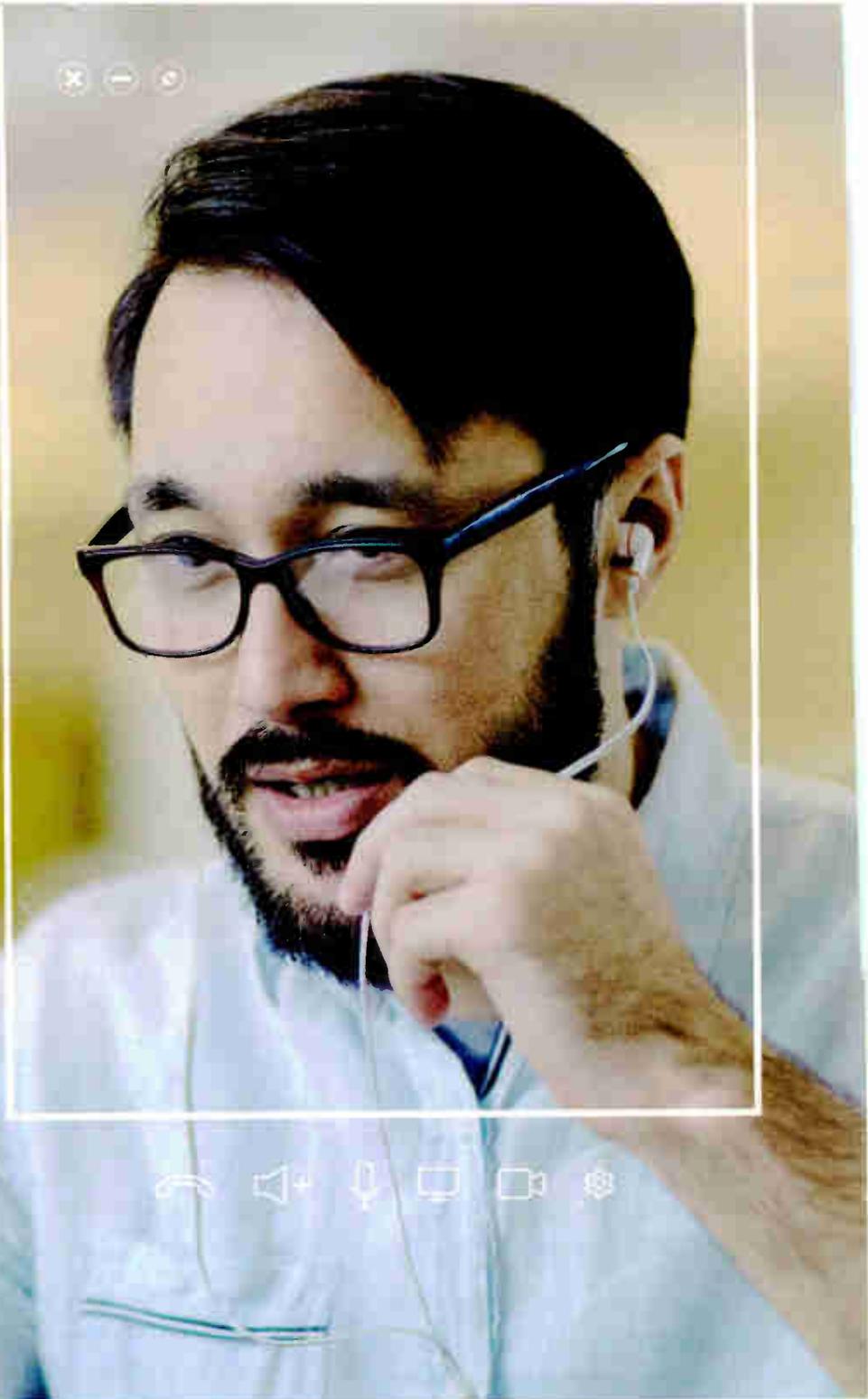
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Broadcast Electronics and ELENOS GROUP have released their Fall/Winter webinar schedule, and there's a lot to see and learn.

These webinars are hosted by Chuck Kelly and have been approved by the Society of Broadcast Engineers for 1/2 recertification credit in Category I for re-certification.

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