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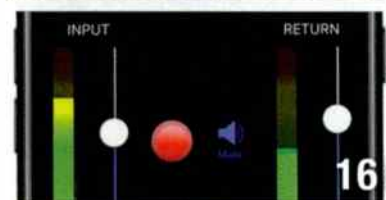
From the beginning and even after switchover to DVB-S2, Alouette has been managing its own MCPC satellite uplink for satellite transmission with its partner in the space segment, Globecast – Eutelsat.

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On the cover: Radio Alouette has over 36 years of continuous broadcasting operations and is a leader in regional radio. Headquarters is based in Herbiers, Vendée, and named after the Mont des Alouettes.



FIND THE MIC AND WIN!

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Make the Most of Your Summer Vacation



It's officially midsummer, my favorite time of the year. The snow is gone, the streams are down, and the days are long. When I think of July my mind turns to vacation. Getting away from the day-to-day grind of the job is still important, even when you love the work you do.

I suppose the case could be made that I'm one of the lucky ones. I work with a staff who will continue to "mind the store" in my absence. I know you may not be that fortunate. It's one of the things that make this career

difficult for so many — you can never really, truly get away from the job because your mobile phone effectively tethers you to the station.

If you find yourself in this position, I suggest, when the time comes for a raise, ask for more vacation time, as well. If you can't get the pay bump, you may be able to get a little more time off instead. Make sure you add a line to the budget if you need to pay someone to keep an eye on the station while you are gone.

Escaping the US in the summer makes for a great vacation, so we're doing just that in this month's issue. The July Facility Showcase features Alouette, a regional commercial broadcaster in western France. They recently updated their program distribution method to 43 stations around the country in an interesting way.

About three years ago we covered the topic of electronic newsgathering, and we're updating it this month. Is it fair to say the mobile phone is now the most common way to get news actualities for radio? Likely so. Check out some specifics in the Trends in Technology column.

This month, we present the 2017 Best of Show winners, selected at the NAB Show. The products were chosen by working engineers, and each winner is worthy of your attention.

Ground systems are of vital importance to those maintaining AM radio stations. Jeremy Ruck shares some of his wisdom on this topic. Out of sight, out of mind is not a philosophy you should follow in your AM work.

Many of us have means by which we record shows for later playback, or alternatively, download them (say via FTP) for later use. Our Field Report is all about using DJB's Radio Spider for just that purpose. The fact that you can automate much of this process is bound to make your job a bit easier.

Lee Petro is our expert on FCC matters, and in this issue, he discusses details that you'll want to know in the event you plan on participating in the next translator window, coming up July 26.

In this month's Tech Tips, we share some ideas for how to minimize the risk of using UPSs at the transmitter site.

And finally, the Wandering Engineer gets in the last word with his Sign Off column. What does it mean when recruiters begin to show up at the annual NAB Show Ham radio reception? (Maybe you might get that raise after all.)

Here's wishing you a great summer! 

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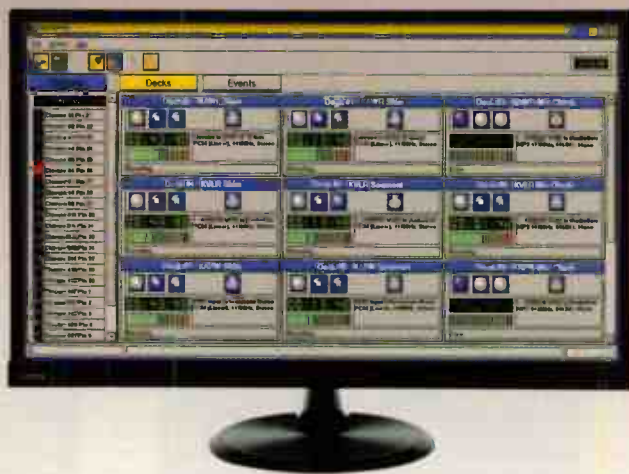


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Avoid Catastrophic UPS Failures With This Checklist

by Doug Irwin, CPBE AMD DRB

The omnipresent nature of micro-processor equipped broadcast equipment has also made the presence of uninterruptible power supplies ubiquitous in studio facilities and at transmitter sites.

While I never pine for the days of tape machines, cart machines or turntables, I do sometimes long for the days before UPSs became a necessary evil.

UPSs are hard to be without, especially at remote sites, where AC power blackouts, brownouts or even short glitches can upset microprocessors.

Consider some strategies that could help you avoid the (almost) inevitable UPS failure that takes the station off the air.

SINGLE POINTS OF FAILURE

Single points of failure — one piece of equipment, the failure of which that “kills” the radio station — are a popular topic of discussion in this column.

Often, single points of failure are found in inherited systems, but sometimes you will inadvertently create one when installing new gear without a clear plan. UPSs easily fall in to this category because they often just get racked up in order to “protect” a new piece of gear that is particularly susceptible to power hits.

They are added to a rack, plugged into raw AC power, and then the new gear gets plugged

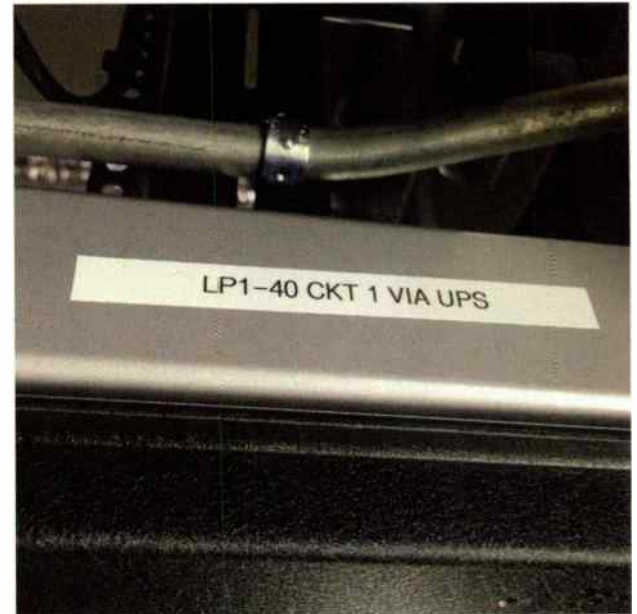
into the back of the UPS, and we’re on our way back to the studio or home. Later, more equipment gets plugged in, and then something else, and on and on.

Of course, the nightmare scenario is that the main and backup systems get plugged into the same UPS, and then it conks out on you — not because of the load, but because of a component failure, or more likely, battery failure.

Say you plugged in two STLs or two audio processors to the UPS. It fails, and then you’re left with nothing but dead-air until you get there to move the AC power cords around.

STRATEGIZE AC POWER SOURCES

One way to get around that scenario is by using multiple UPSs and being certain that



The resolution of UPS failures is made faster by having power strips in the back of the rack organized and labeled. Circuit breaker “trips” are easier to resolve if the breaker is labeled as well.

all critical gear is plugged into different units. Consider these steps:

- **Have one UPS per rack.** If you have multiple racks, consider having a UPS at the bottom of each rack. Also make sure that each UPS is fed from a separate AC circuit breaker. You wouldn’t want a single breaker trip or a failure to kill power to more than one rack, right?
- **Don’t connect main and backup systems to the same UPS.** Engineers organize stuff in racks in different ways. I like to separate main and backup systems into different racks, which is why I place one UPS per rack. It’s easier to organize power feeds in this fashion.
- **Main and backups in the same rack call for clearly labelled power strips.** If you have only one rack, or you have mains and backups in the same rack already, then install a specific AC outlet strip fed by a separate UPS and plug backups into that, instead.
- **Keep mains on UPS.** Keep backups on raw power. If you simply don’t have room



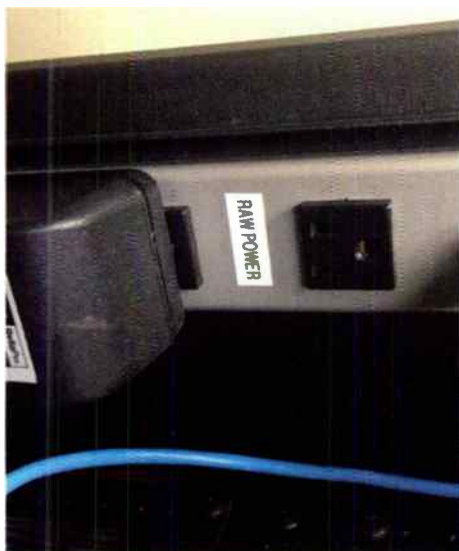
Put a label on the UPS, either when it is new or when the batteries are changed.

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Use labels to identify power strips that are not powered by UPS.

for two UPSs, then keep backups plugged into raw power instead. Make sure your remote control, used for the switching, isn't plugged into the UPS.

TYPES OF UPS

You likely know there are two types of UPSs: those that only switch over to battery power when there is a power failure, and those that are online all the time.


I prefer the latter because I find that the former allow surges and brownouts to pass right through (depending on the length of the event, of course).

Online UPSs use double-conversion, meaning they take the AC power, rectify it, and then use the DC to generate a sine-wave output. There's no switchover time because the batteries are diode-combined into the DC source for the 60 Hz oscillator.

One advantage to the off-line type is that the batteries can be easier to swap out. Keep that in mind.

An example of the online type would be those made by Falcon electric, and a typical off-line brand would be APC.

Remember to label new UPSs with information about when they were new or when new batteries were installed. It's a good idea

to note this information in your maintenance records, too. 

Irwin is the vice president of engineering for iHeartMedia's Los Angeles region. Contact him at dirwin@nbmedia.com.

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Alouette Prepares for Satellite Transition

by Frederic Bourgeois

One of four studios used to manage Radio Alouette programming.

Alouette is a French regional radio broadcaster in the western region of the country. Operating 43 frequencies, Alouette now covers 15 local departments (perhaps best described as local administrations). The key to its success is its regional focus and its closeness to its listeners. The broadcaster is known for its wide variety of formats and a prudent use of cutting-edge technology.

Based in Herbiers, Vendée, since 1981, and named after the Mont des Alouettes — a peak that has been legendary since the time of the Gauls — Alouette has expanded into a regional network. President Bertrand de Villiers has crafted a local musical style, as well as a team that feels like a family and shares common goals, which include:

- Serving listeners by offering a varied and regionally-oriented radio program.
- Supporting regional events such as sports, culture, fine arts, concerts and shows.
- Expanding areas of coverage in cooperation with our regulatory authority, the CSA (Conseil Supérieur de l'Audiovisuel). We do this by securing rights for newly available FM frequencies or by repurchasing bankrupt radio broadcasters if their frequencies are in our coverage area.

- Making wise technological decisions for the present and at the same time keeping an eye out for interesting future developments.

TECHNOLOGICAL OPTIONS

Alouette makes technical decisions internally, after consulting with our technical and human resources teams, and we always meet with manufacturers on our own premises.

In 2017, satellite transmission for Alouette's network of stations will undergo a monumental change. We will be switching from one proprietary standard to a new one, DVB-S2, which is designed to be interoperable with all current and future media protocols, whether satellite-based or IP-based.

We had four major goals in mind for the new system:

- Flexibility for transmission sources and coding algorithms.
- Keeping technology as simple and cost-efficient as possible.
- Optimization of quality by use of a well-constructed redundancy concept.
- A solution tailored to the requirements of regional broadcasting.

Since 1996, Alouette has been managing its own multi-channel-per-carrier satellite uplink

with its partner in the space segment, Globecast — Eutelsat. That is the main reason why we are not participating in the NSTR project for the change to DVB-S2 standard, which is a merger of several French broadcasters using a common satellite uplink.

Although we didn't need access to the NSTR satellite uplink, Alouette engineers were curious why the NSTR project team had chosen a system solution from 2wcom and also interested in their experiences with this system. The positive feedback from the NSTR team in combination with a visit from 2wcom CEO Werner Drews in the summer of 2016 (plus a competitive bid) were the main reasons why the Alouette DVB-S2 project team chose to work with the German company.

From the beginning, cooperation between both companies' sales teams and engineers has been based on respect and trust, which resulted in a very productive collaboration. We quickly understood that their products are keeping pace with our needs as a broadcaster with a strong regional orientation.

As a further stroke of good luck, 2wcom was also designing its own eight-channel audio MPEG encoder, the MM08E. The main differences between this encoder and the devices of alternative manufacturers that we reviewed were

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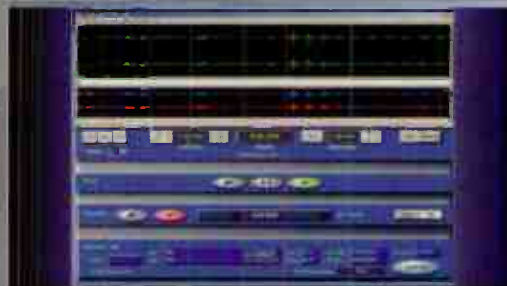
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cost-efficiency and configuration simplicity.

To ensure a trouble-free switchover to the DVB-S2 standard we started a test phase in February 2017, obtaining one of each device that were planned for our new system, and I and my technical team took a very close look at all of the functions and interoperability with our system on-site. This was particularly important with regard to the broadcasting of local content.

A PERFECT FIT

We got the very first MM08E at our station and have been in lively dialogue with 2wcom engineers regarding our testing results. Its MPEG encoder can be used in IP and SAT system environments with a great deal of flexibility. The product also offers a wide selection of codecs (Enhanced apt-X, AAC, MPEG I/II Layer 2/3, PCM), as well as RDS data. It generates multiple streams independently.

Transmission of ancillary data and switching contact information (GPIO) can be forwarded via integrated interfaces. In case we need more hardware channels, activation can

and DualStreaming to avoid IP packet loss), controlling (HTTP, Telnet, NMS and SNMP) and monitoring (IP and MPEG parameters via SNMP v2c and relay, headphone output and alarm, source switch and event logging).

Combined with the eSIRC (Satellite Inband Remote Control) Server and its DSR02+ satellite receivers, this homogeneous global solution enables us to distribute and broadcast local programs and fully control the entire channel with a satellite IP solution. With 2wcom eSIRC, we chose web-based software for remote control that meets our needs for comfort, cost reduction and economical use of available time.

Equipping FlexDSR02+ with SIRC option and an SD card makes it possible to use the whole range of enhanced functions of eSIRC. As a result, our technicians are able to completely access eSIRC management system via web interface from any computer within the network to upload data files to the internal memory of integrated FlexDSR02+ receivers (such as firmware, audio, reports and configuration).

All content stored on internal memory of remote devices is mirrored within the eSIRC, and so our network operators can track the state of internal memory on all integrated devices without the need for a physical connection. If a certain file is scheduled to be uploaded, it will also be stored in the local mirror of the concerned device. As storage space of each device is accessible via web interface and also via FTP, we are able to upload files directly to the system via FTP for distribution via satellite. In case a greater volume of data has to be processed and there is no satellite capacity for it, we have can synchronize content stored on the internal memory cards with the eSIRC mirror by FTP.

Currently, we have 38 industrial computers at each of the sites to manage local news. They receive daily content and programming specific for every city, and are connected by an ADSL line to our master server situated in the head office. Our self-developed software enables every computer to be started in sequence by one or several contact relays coming from our current satellite receiver and encoding audio

be managed via software updates. The MM08E offers well-constructed redundancy, including two hot-swappable slide-in power supplies, ensuring operation without interruption.

After several weeks working intensively with the device, we have been impressed by its dependability. Our technical staff have concluded that it is a very complete and competitively priced product rounded out by offering functions for quality management (MPEG FEC



Satellite distribution equipment shown in Alouette's rackroom: uplink encoders and confidence receivers.

signals in different formats like MPEG II Layer I to MP3 and AAC. This technology is reliable, but requires regular maintenance.

Because Alouette covers a large area in western France, we did not wish to use only a terrestrial IP technology but also wanted to guarantee availability by using satellite. Some towns in our coverage area simply do not have enough ADSL quality. After evaluating a range of possible products we choose 2wcom's FlexDSR02+ satellite receivers to handle transport streams via satellite (DVB-S/S2), ASI input and IP, while also managing elementary audio streams and Icast streams via IP.

This device is able to process all common coding algorithms, like Eapt-X, AAC, MPEG I/II Layer 2/3 or PCM, it's perfect for our goal of flexibility. Regarding our quality requirements, this multipurpose device offers a sophisticated concept for audio quality and redundancy options such as Pro-MPEG FEC and DualStreaming to avoid IP packet losses. It also includes an effective link redundancy between the satellite and terrestrial IP by providing advanced functions making it possible to pass over automatically from a satellite reception in one flow to a global TS-IP.

During the concept and testing phase, we also had the chance to check the quality of 2wcom's customer service. It was key that the people



The technical team responsible for the DVB-S2 project (from left to right): Frederic Bourgeois (technical director), Stephane Ayreault (IT manager), Vitor Nunes (network and studio engineer) and Yvon Daviaud (low and high frequency engineer).

involved could work quickly and efficiently together to interface our Zenon Media computerized broadcast systems with 2wcom's broadcast solutions. For the final switchover to DVB-S2, at least three of the MM08 encoders will be deployed in the technical room, as well as one eSIRC Server and 38 DSR02+ satellite receivers.

This major switchover involves 43 pieces of receiving equipment has already started and will be finished by September. Our internal structure will ultimately enable us to multiplex three programs at once, for a start. Alouette manages 16 frequencies of its own; the other 27 are divided between Towercast and TDF.

MORE ON THE FM SYSTEM

Among their 43 transmitters, Alouette has at least one of historical significance, located at Mont des Alouettes, with an authorized power of 10 kW ERP — one of only a few commercial stations authorized at that level of power in France. This particular site uses a 12-bay Kathrein

antenna type 754 154 with circular polarization, at a height of 86 meters above ground.

Alouette's other sites are at power levels between 100 and 2,000 Watts ERP. About 95 percent of Alouette's transmitters are made in France by Eceso, with the balance manufactured by GatesAir (type ZX).

At most of sites Alouette uses two-bay omnidirectional antennas made by ITAS. Along the west coast, the company uses other panel-mounted dipoles, by Kathrein for additional directionality.

Back at the studio headquarters, the company uses much that U.S. broadcasters would find familiar — Audio Arts D75 consoles and Pro Tools editing systems.

What makes Alouette special is that it has retained its powerful sense of family and team spirit, supported by a chief executive who emphasizes



Alouette's engineering lab where devices are tested and evaluated

wise technological choices. This human element helps to ensure that Alouette will remain among the most vital broadcasters in France. **O**

Alouette thanks Werner Drews, Nicole Petersen, Anke Schneider, Sönke Schmidt, Ralph Magnussen, Kai Gerkens, Stephan Preuss and Tork Niendorf.

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by Lee Petro

Window Opens on New FM Translators

The FCC announced the dates for the upcoming window for the filing of new FM translator applications to be associated with AM stations: The filing window opens on July 26 and closes at 6 p.m. on Aug. 2. The window is limited to those Class C and Class D AM stations that did not participate in the 2016 filing windows.

By way of background, the commission adopted rules in 2015 to permit AM stations to rebroadcast their signals on FM translator

stations so long as the FM translator signal remained within the primary service contour of the AM station. In 2016, the FCC opened two filing windows. The first permitted Class C and Class D AM stations to acquire existing FM translator authorizations and move them up to 250 miles. The second extended these rights to all AM stations, so long as they had not participated in the first filing window. Overall, applications to move more than 1,000 FM translators were filed in 2016.

Now that the dust has settled on moving

existing FM translators, the FCC will permit AM licensees to file for new FM translator authorizations where there is available spectrum. The process is fairly straight forward, but a quick overview of the process will help avoid tripping over the start line.

Allocation considerations that will allow for a vacant channel are not readily met in each community holding AM licenses that wish to apply for a translator. Indeed, in many circumstances, there will be more than one AM licensee interested in an available vacant FM channel.

For this reason, the commission will make AM licensees file two different applications: The FCC Form 175 auction application, along with a slimmed-down version of the FCC Form 349 construction permit application. The FCC Form 349 provides the “Tech Box” engineering information needed by the Media Bureau for it to determine whether there are conflicting applications that will proceed to auction. The FCC Form 175 will be used in the case of mutually-exclusive applicants that are unable to resolve their engineering conflicts through settlement or minor change amendments to their technical proposal. Both applications are required to be filed during the filing window.

For the FCC Form 349, applicants will need to identify the AM station to which the FM translator will be associated. Assuming the FM

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DATELINE

July 27 — Responses due for stations receiving EEO Audit letter dated June 12.

Aug. 1 — Annual EEO Public File Reports placed in public file for stations with five or more full-time employees in California, Illinois, North Carolina, South Carolina and Wisconsin.

Aug. 1 — Mid-Term EEO Report filed with FCC and placed in public file for stations with 11 or more full time employees in California.

translator is authorized and constructed, the FM translator is required to remain associated with that AM facility and may only be assigned to a third party if the AM station is sold as well.

A licensee may only file for one new FM translator facility of an associated AM station, but if the licensee owns more than one AM station, they are permitted to submit separate FM translator application, so long as they identify different AM stations in the Tech Box.


The FCC Form 175 is the standard form used for FCC auctions. In addition to listing the applicant's name and authorized bidders, it requires the listing and the identification of ownership interests of 10 percent or more in the applicant, including stock, limited partnership interest, LLC membership interests, and any party holding an indirect ownership interest of 10 percent or greater in the applicant. The FCC Form 175 also permits the applicant to claim New Entrant Bidding credit for those licensees with limited other media interests, and it requests the disclosure of any joint bidding arrangements or other agreements relating to the FM translator application. Finally, the FCC Form 175 requires that applicants cross-reference their FCC Form 349 engineering proposals by providing the CDBS filing number(s).

Once the window closes, and the FCC confirms that it has received a complete FCC Form 175, the Media Bureau's engineers will run

studies to determine which proposals can be granted immediately because they do not conflict with other proposals. Conflicting proposals will be released on a public notice, which will trigger a limited window for settlement agreements, dismissal requests, and minor change amendments.

Over the years, applicants filing in previous filing windows have run into problems when the engineering information contained in the Tech Box was not accurate. Therefore, all applicants should double-check their proposals prior to submission to confirm their accuracy.

Another road-block is for noncommercial licensees that indicate in their auction applications that they will be operating the station as a noncommercial facility. The FCC is not permitted to auction noncommercial facilities, so applicants that indicate noncommercial operation run the risk of being dismissed if their applications are mutually-exclusive with commercial FM translator proposals.

The FCC has pledged to open one last filing window for all AM licensees that had not participated in the first three filing windows. The date for that filing window will be set after the FCC has received and processed the applications filed in the upcoming window. 

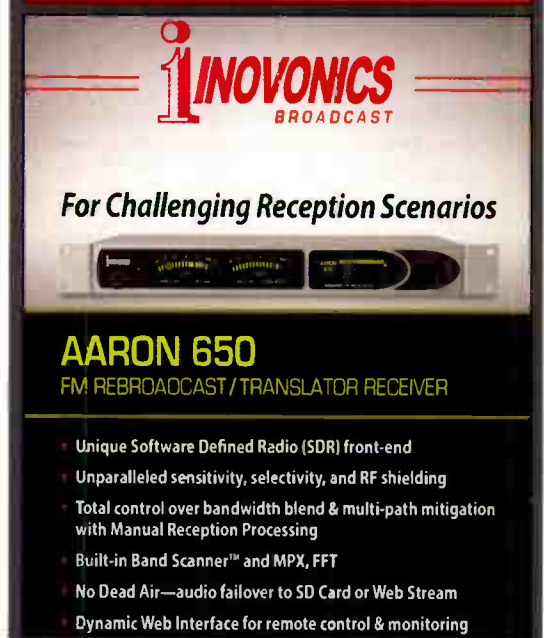
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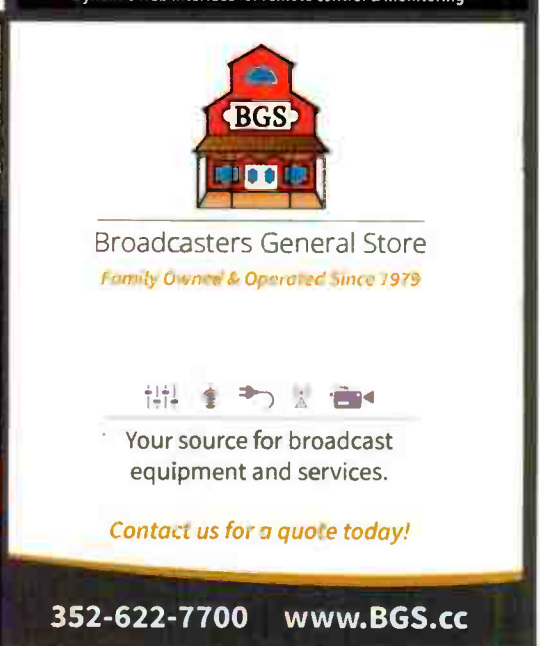
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Electronic Newsgathering for Radio

by Doug Irwin, CPBE AMD DRB

Live newsgathering is alive and well in radio. As expected, the use of smartphones and apps has increased since I last contributed an article on electronic newsgathering in 2014. (Read it here: <https://tinyurl.com/ybja6ct8>).

Let's look at what's available now and how apps are used in the field.

Report-IT Live is Tieline's application enabling iOS smartphones to communicate directly with their codecs located at the station's studio/headquarters.

Among its features are the ability to use 3G, 4G or Wi-Fi; 15 kHz audio bandwidth, real-time two-way interviews with the studio; the ability to pre-record audio files (with bandwidth up to 20 kHz), which are then sent via FTP automatically; SmartStream PLUS functionality, for dual redundant IP streaming over cellular and Wi-Fi; and forward error correction and automatic jitter buffering with minimum and maximum jitter configuration. Report-IT also includes support for Burli and Nétia Radio-Assist ingest and content management software; and TwistedWave or Nétia iSnippet audio editing apps for iPhone. (A free trial is available if you download Report-IT Lite for iPhone.)

Report-IT Enterprise is a version of the app for Android and iOS that supports secure deployment with full remote control of every user account from anywhere with an internet connection.

It can scale up for a very large number of users; in fact there's no upper limit. A member of the engineering staff (as administrator)



configures the connection settings for each user, including a username and password, and this information is stored on Tieserver. (Broadcasters purchase a subscription to Tieline's Tieserver in packs of 10.) When a user launches the free app on their smartphone or tablet, they enter the username and password for the account created by the administrator and hit "connect" to go live.

SIP for Report-IT Enterprise is a new feature included in the July software release. In the past, users had to connect to a Tieline codec to stream audio back to the studio using Opus or Tieline's Music Algorithm. Now, users can opt to connect to non-Tieline codecs as well. SIP for Report-IT Enterprise will facilitate streaming live audio to N/ACIP 3326 compliant codecs in SIP mode using algorithms Opus Mono, Opus Voice, G.711 and G.722. New and existing users will be able to upgrade their Tieserver subscription to access the SIP for Report-IT Enterprise feature as required.

Report-IT Enterprise is available for a free trial on both Android and iPhone at www.tieline.com/register.

LUCI AND LINPHONE

Luci (www.luci.eu/) and Linphone (www.linphone.org/) are applications that work with iPhones and Android smartphones. Both allow remote talent to do live reports using their smartphone and the cellular telephone network (and perhaps some accessories with make the job easier — we'll get to those a little later).

Linphone is an open source SIP phone, available on mobile and desktop environments (iOS, Android, GNU/Linux, MAC OSX, Windows Desktop, Windows 10 UWP). More specifically, it works on these mobile platforms:

- Apple iOS 8 to 10 (ARM v7, ARM 64)



Report-IT as it appears on an iPhone.

- Google Android 4.1 to 7 (ARM v5 to v7, x86)
- BlackBerry OS10 (ARM v7)
- Windows 10 UWP : mobile and desktop (ARM v7)

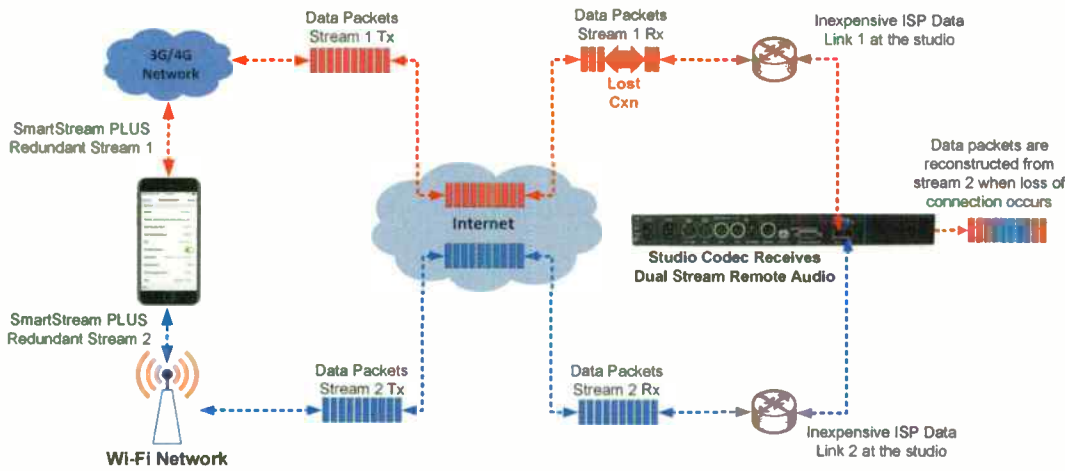
Among its features, we have the following: audio (and HD video) calls; multiple calls management (pause and resume); call transfer; audio conferencing (merge calls into a conference); instant messaging; display of advanced call statistics; echo cancellation; call quality indicator; and support for secure communications (zRTP, TLS, SRTP).

Advanced Linphone features include support for the following audio codecs: OPUS, SILK, SPEEX, G.722, AMR-WB (G.722.2), AMR-NB, GSM 6.10, ILBC, G729, ISAC, BV16, G.711 and Codec2; integration with push notification (requires compatible SIP server); ICE support (RFC5246) to allow peer-to-peer audio and video connections without media relay server; low bandwidth mode for audio calls over 2G networks; call handover across network access type change (start a call in Wi-Fi and continue in 3G); the ability to configure multiple proxy accounts with different transports (UDP, TCP, TLS); and finally, IPv6 (dual stack and v6-only support).

Linphone is available for free on the Google Play Store and Apple iTunes.

Luci is compatible with the following platforms:

- All iPhone devices 4S or newer and all iPad devices
- Apple Mac computer/laptops (macOS 10.7 minimum)
- PC/laptop/netbook with Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10
- Linux computers PC/laptop/netbook
- Android phones and tablets



The basic idea behind the use of redundant streams for Report-IT.

Among its features are use of RTP over UDP low-delay streaming, in a duplex fashion, so that it includes a return channel; N/ACIP compatibility; one-way shoutcast/icecast streaming; the ability to record while broadcasting; the ability to play prerecorded material while broadcasting; stream cloning (sending redundant streams via 3G, Wi-Fi and Ethernet

simultaneously); support for codecs MP2, AAC, AAC-HE, AAC-LD, AAC-ELD, AAC-HEV2, G711, G722, ULCC, and linear as well as a 24-bit ULCC audio codec, 44.1 to 384 kHz sample-rate; and ASIO support on Windows.

Current Luci versions include Luci Live for iPhone and Android, priced around \$300.

If you want to start out spending less money,

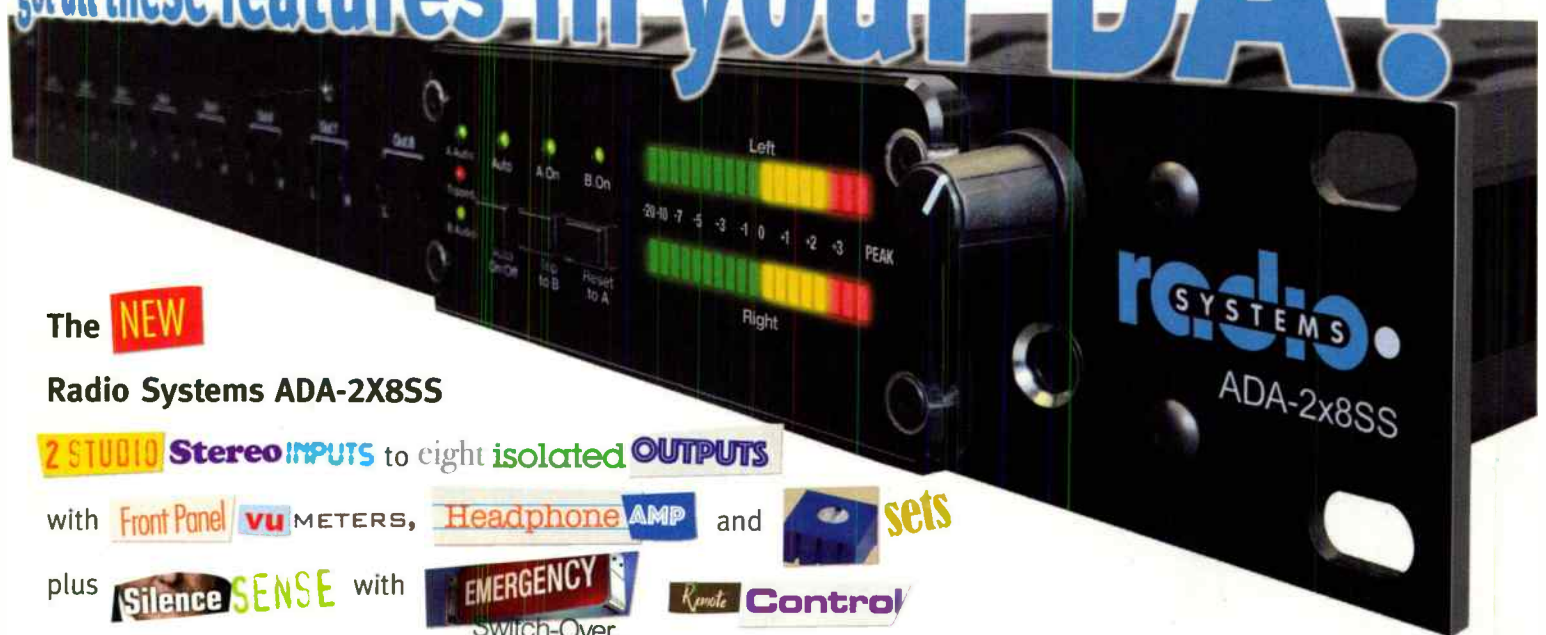
then consider Luci Live Lite. This version doesn't include the record, edit and FTP functions and limits the codec choice to G.722 or Luci's ULCC codec. Other than that, it retains the same functionality as the more expensive version. This version costs about \$30.

Now that we've learned a little bit more about both Luci and Linphone, let's look at what codec manufacturers say about their compatibility and use.

Linphone has been tested on Comrex codecs. One codec choice with LinPhone is the Opus audio algorithm, and that has been included in Comrex codecs starting with firmware 3.0. LinPhone doesn't require registration and can dial directly to the IP address of your codec. "It's also very easy to set up and use," according to Comrex's technical notes on Linphone set up (available here: <https://tinyurl.com/y8ce76c4>.)

CONTINUED ON PAGE 20

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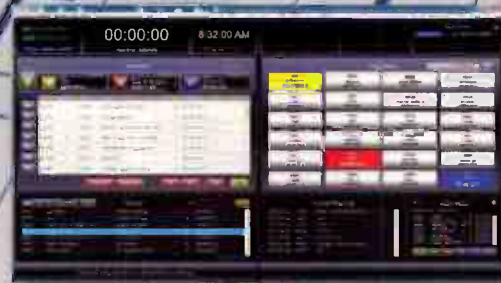
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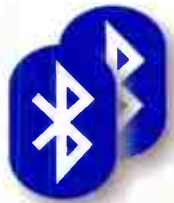
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Powerful, compact, portable, and not needing a land line to take incoming calls, the 'ARC-talk-Blue' is ideal for talk studios or remotes that require a mic mixer with telephone caller interface. The revolutionary console features 5 high quality mic channels plus phantom power. Channels 6 & 7 on the console can be paired to any Bluetooth enabled audio device such as your Cell phone, MP3 player, MP3 recorder-editor, and more. Each 'Blue' channel features a button you push to connect an incoming caller and push again to disconnect from the caller. The channel One mic features 'Talk' buttons to talk to each Blue caller off line. No external hybrids are needed. OR... you can pair any Bluetooth enabled audio device such as an Ipad, Tablet device, or MP3 player and stream full bandwidth, high quality stereo (A2DP) audio into the console. The 'ARC-talk-Blue' also features a built in USB PC sound card on channel 8 so that you can play audio from your PC while recording the console Program output with your favorite software. Once again, Arrakis is 'The Leader' in Radio console evolution. Follow the Leader and visit our website today.



...the Bluetooth phone interfaces work with BOTH cell phones and Bluetooth headset enabled land lines.

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CONTINUED FROM PAGE 17

In their technical literature, Comrex calls Luci Live “a professional mobile broadcast application that enables studio-quality reportage to be streamed via laptop or mobile phone from anywhere in the world. Luci Live has been specifically optimized for broadcast workflow.” Its on-screen controls emulate console faders, and features such as audio capture, editing and FTP upload enable broadcast-ready content to reach their destination in a matter of minutes.

With use of Comrex hardware codecs on the “far end” Luci Live can deliver HE-AAC audio in both directions with moderate delay. Connections can be made via the industry-compatible N/ACIP protocol (which uses SIP) or the native Luci RTP mode. (Comrex’s notes for setting up Luci Live and Luci Live Lite are here: <https://tinyurl.com/yazwjmk6>.)

The Telos Z/IP one also supports Luci Live and Luci Live Lite app as well. (A short video showing you how to configure the system is found here: <https://www.telosalliance.com/support/ZIP-ONE-LUCI-Live-Lite-Configuration>). In this application the Z/IP one will use the G.722 codec. If you have a Z/IP already, you’ll need to be running software version 1.7.0 or later.”

MAKING USE OF THE NEW TOOLS

So what are the practical aspects of using these new tools in the field? I asked KFI field reporter Eric Leonard, who is a power-user.

“I record using one of two iPhone applications, using either the built-in microphone [which in newer hardware Apple has disabled manual gain control — automatic only] or a Luci.eu ‘miki’ adapter cable to connect to external microphones or audio sources,” Leonard said.

He cited a few reasons for this:

- Even though there are an increasing variety of external iPhone microphones with built-in A-to-D converters, which then connect to an iPhone’s lightning

connector, there are some peculiar audio control issues in Apple’s hardware that are not entirely addressable by the user.

- There is the possibility of conflicting sample rates that iPhone applications can command out to the external hardware.
- Depending on the external device there are gain conflicts.
- And, in the iPhone 7, there is a lack of a headphone output for most digital microphones, which means more gear and workarounds for live reporting via VOIP applications.

“So even though the newest Rode, IK Multimedia, Tascam and Apogee Audio microphones and interfaces allow far better fidelity — I own and have tried them all — they lack the reli-

works just like any other audio recorder.

“Those sound bites can also be transferred to the full version of Luci Live and played “live” during reports via the station’s [Comrex] Access... Again, a hiccup — the Ferrite-edited audio files are incompatible with Luci for playback, so an intermediate application (“TwistedWave”) is needed for an onboard iPhone audio conversion. Sounds more complicated than it is — it’s actually quite fast and simple,” Leonard explained.

So, how does this methodology sound back at the studio? Leonard provided a link to a sample of his work: <https://tinyurl.com/ybubc4vs>. The report was recorded on an iPhone 7 using a Shure Beta 58 with the mic connected to the iPhone via the miki cable, and sent to the station via the Luci Live app, using the AAC codec to a Comrex Access. The audio clip you’ll hear part of the way



The Telos Z/IP ONE supports Luci Live and Luci Live Lite.

ability and ease of use for what I do.”

He went on to describe the typical process by which he makes recordings and edits: “Workflow is to typically record audio in an application called ‘Ferrite,’ which was specifically designed with journalists in mind by a developer in the EU. It’s a little counter-intuitive at first, but once well practiced, is extremely fast for gathering, editing and sending complete pieces from the field.”

Leonard uses one of three methods to actually file his reports: via email back to the KFI newsroom; via the KFI RPU system; or via Luci Live for “real time” applications.

But Leonard needs a work-around for email.

“Unfortunately, Ferrite only outputs audio files in Apple’s uncompressed format, M4A, or unusual stereo WAV files that are incompatible with our station broadcast computers. Since the newsroom can’t accept M4A or the WAVs without conversion, I use another iOS app called ‘Workflow’ that can be triggered inside the Ferrite output stage to, in a single function, convert the file to mono, convert the mono file to MP3 44.1 128k and generate an email pre-addressed to the newsroom.

“Edited sound bites can also be cued and played through the Ferrite app during live reports, when using the analog mixer and RPU transmitter in the news-mobile. In that configuration it

through was inserted via the Luci app.

“There are a number of situations in which the iPhone isn’t the best choice for recording — long court or meeting feeds, difficult audio situations, etc. — and in those moments, I use a tiny Sony audio recorder marketed for dictation and music recording [the SX-2000]. Excellent audio quality with built-in or external mic/line sources, virtually unlimited internal memory, a massive built-in lithium battery that never seems to run down, etc. It’s even remote-controllable via BlueTooth link from a smartphone — so no more 50-foot cable runs. Park the recorder, adjust levels, start/stop — from the back of the room.”

In case you’re still skeptical, I’ll share some final words from Leonard:

“Having my broadcast material on the phone also makes it much easier to repurpose the audio to create video clips or slide shows for the station’s website, rather than having to use multiple devices to achieve the same result. For me, the advantages of using the iPhone as an ENG device far outweigh the disadvantages. That’s almost a separate discussion — but there’s no question I carry less gear, I’m more productive, and I waste a lot less time by consolidating gathering, writing, production and transmission into a single device.”



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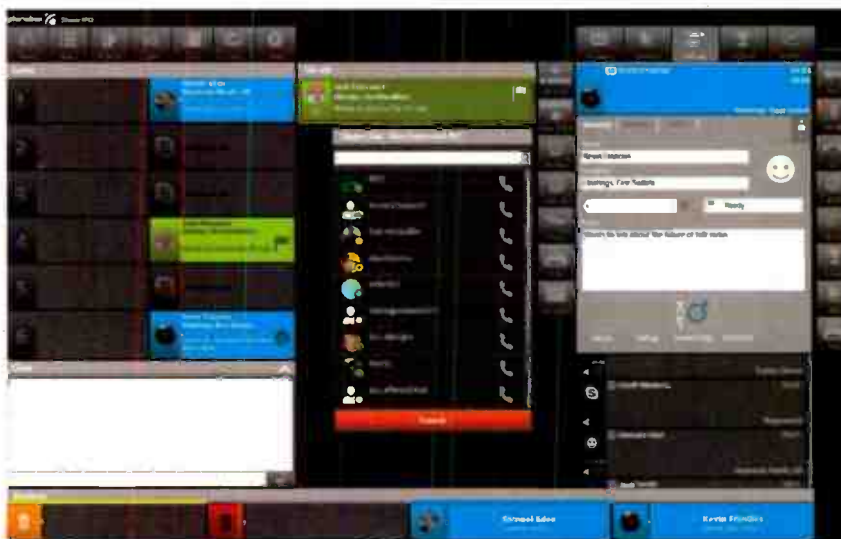
Broadcast Bionics has been working in partnership with Microsoft to develop a solution fitting Skype calls into the demanding workflow of radio broadcasters. The result is Skype TX for Radio, a real game-changer in audio quality, cost and simplicity of operation for talk radio, remote hosts, guests and reporters in the field. Transforming the way broadcasters make and receive Skype calls in the studio and integrating Skype seamlessly alongside traditional phone calls, SMS and social media.

For the first time, radio stations can deliver full multiline talkshow and contest formats using Skype. With multiple, codec-quality calls, all from a single PC. In fact, Skype TX for Radio delivers up to 16 lines from a single Skype TX for Radio server (or virtual machine), making the system highly affordable and hugely scalable.

Stations have access to millions of global Skype users who can all make codec quality contributions directly from their mobile phone, desktop or web browser. Skype TX for Radio opens new interactive possibilities for developing countries, enables a single point of contact for global broadcasters and allows interaction with podcast/streaming stations without access to traditional phone lines.

Skype TX for Radio can even accept traditional phone calls without a phone line for Skype accounts with a Skype number. Skype TX for Radio is seamlessly integrated alongside existing radio workflows through the PhoneBOX4 user interface. PhoneBOX4 combines Skype calls with traditional phone lines as well as SMS and social media.

Skype TX for Radio integrates access to the full Skype directory and search functionality into PhoneBOX4 as well as adding



PhoneBOX4's caller history, analytics, visual talkback and recording functionality to Skype calls. Call details and even the Skype avatars can all be displayed on Virtual Director, so streaming video and content shared on Facebook and Twitter becomes even more compelling.

Using Skype TX for Radio, reporters can contribute immediately to update rapidly changing situations, sports commentary or results, without the need for taking specialist broadcast hardware into the field. Skype TX for Radio has the capacity to allow Skype to be included in the call for action in talkshows and contests. Accepting up to 14 calls per Skype account and supporting multiple Skype accounts, lines and devices. Offering a high-quality way to accept, answer and screen high volumes of calls.

For high-quality audio, from anywhere in the world, Skype TX for Radio is the answer.

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by Jeremy Ruck, PE

AM Ground Systems

Let's face it. Civilians generally view engineers as wizards. When they turn on the wireless at all hours of the day and night, music and voices ethereally float out from a small box.

Equally mysterious are the antennas we use in our trade, especially those for AM. Wait. All those towers together are the antenna? What do you mean part of the antenna is below ground? Yeah.

Thus far, nearly all of our AM topics have been in places where the sun shines. Now, we

move to subterranean levels. We are not going as far below the surface as the land of H.G. Wells' Morlocks, but far enough below the dirt to be somewhat mysterious, and definitely mostly out of sight.

Unfortunately, out-of-sight usually means out-of-mind, and by extension, surprise problems.

The simplest antenna that can be constructed is a dipole, which structurally is a wire that is one-half wavelength long and connected in the middle to a transmission line. The standard non-directional AM antenna is a vertical design with a radiator above ground, and ground system below the surface of the site. Electrically, a vertical is a dipole with half its length buried in the ground, or comprising an above-ground counterpoise.

The standard such ground system consists of at least 120 radials of one-quarter wavelength. Fig. 8 of Section 73.190 of the Federal Communications Commission's rules provides a graph of the effective field at 1 km for 1 kW using that type of ground system, while varying the vertical height of the radiator.

(Note that this is the commission's standard system, and some stations, especially older ones, may have other configurations. There is no shortage of articles and discussions available concerning varying lengths and quantities of radials and their effects on efficiency. In general, more radials seem to be preferred over fewer at longer lengths.)

Installed ground systems typically require a small amount of maintenance if site conditions are good.

MANAGE CONDITIONS

But tree and plant roots are common ground system destroyers. Consequently, the field around an AM antenna system should



Usually, a system will have a ring and screen around the base of the tower where all of the radials are connected together. Check the integrity of this structure, including the brazed joints.

look just like a golf course fairway. Regular mowing and spraying will keep newly installed systems looking this way and will reduce damage to radial wires and ground straps. Roots from trees tend to grow radially from the trunk, and so ensure that an adequate buffer zone is present between trees at the edge of the radial field and the radials themselves.

Less common, but even more insidious to ground systems, are pipelines.

Pipeline product can carry small amounts of water and salts, which over time will corrode the internal structure of the pipe. Externally, an electrochemical reaction can occur due to soil content, moisture, and other structures in the vicinity corroding and pitting the pipeline from the outside inwards. To mitigate these effects, modern pipelines typically use an epoxy coating.

Additionally, they also employ a cathodic protection system, which electrically charges the pipeline. This forces other materials in the vicinity to corrode to the pipeline, instead of the pipeline itself corroding and spilling product.

The issue here for our ground system is the level to which the pipeline is charged, how well their sacrificial anodes are maintained and to what degree the epoxy coating on the pipeline is compromised. If aligned against our favor, we can find that our ground system is eaten away at a significant rate. This effect can be reduced by providing cathodic protection to the antenna ground system itself, through providing our own sacrificial anodes. This, of course, adds



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The NOVIA 272 is a comprehensive FM airchain processor and includes the stereo-multiplex generator and a full-function dynamic RDS/RBDS RadioData encoder.

Processing combines “gain-riding” AGC, r.m.s. leveling, parametric EQ, enhanced bass “punch,” multiband compression, wideband and independent high-frequency final limiting and composite clipping.

The internal RDS/RBDS encoder is compatible with common playout systems to present dynamic song title and artist information.

In addition to quick and easy front-panel setup, an IP interface enables total remote control of the NOVIA 272 using any PC or mobile device. This interface also accepts streamed program sources, allows remote audio monitoring and provides full SNMP support.

Program audio failure alarms trigger local tally closures and instantly dispatch SMS/email notifications to selected personnel. Alarms are also logged for later analysis.

Setup and operation are simplified with 10 factory processing presets, and 10 additional presets may be user-defined. An internal scheduler is included for dayparting



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- GPIOs, web/email/SNMP for controls and alarms
- Built-in real-time clock and headphone jack
- Analog, AES-digital, streaming in; MPX/streaming out
- Complies with North American and European standards
- Adaptable HF limiting and variable composite processing
- Built-in RDS/RBDS; compatible with all automation
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an additional layer of maintenance, in that the sacrificial anodes need to be checked regularly and replaced when needed.

In addition to pipeline cathodic protection, cathodic protection of guy anchors for towers can also pose a problem. That type of system seems to be much more popular and prevalent for larger guyed towers than AM arrays. However, if your facility uses these devices, be sure to keep a watchful eye on the ground system.



Fence structural integrity should be carefully maintained, and the area immediately around the tower bases should be kept free of weeds and brush.

HOW TO SPOT PROBLEMS

Developing issues with ground systems can usually be noted in a couple of ways. Since the ground system provides the current return path, as previously discussed, its proper functioning is directly tied to the radiation efficiency of the antenna, and by extension coverage.

In the March 2016 edition of this column, we touched on main lobe efficiency problems, and the fact that they may go undetected as a result of rule changes (Read it online here: <https://tinyurl.com/yadeaxtj>). Occasionally, spot-checking locations in the main lobe of coverage will provide seasonal trends to consider and may provide an indication of developing ground system problems.

Another way of seeing changes in ground system performance is through shifts in the antenna impedance. If you do not have a bridge or network analyzer handy, changes in impedance can be noted by antenna current shifts.

In a directional antenna, as long as the

pattern has not shifted, you may observe changes in the current value, while the ratios between them should remain fairly constant. The impedance of a vertical antenna is tied to not only the radiator height, but also the quantity and length of ground radials. Ground conductivity can also impact, so if an issue is observed, consider the environmental conditions between measurement sets, and keep in mind that multiple data sets over an extended

period of time may be necessary to determine an actual trend.

If there is a question over the integrity of the ground system, an inspection should be performed.

Usually, a system will have a ring and screen around the base of the tower where all of the radials are connected together. Check the visual integrity of this structure including the brazed joints. Tin-lead solder should never be used in this application, due to the location of both metals on the galvanic series, and the propensity for such joints to decay from chemical reactions in the soil. Rather, joints should be made by brazing with alloys that contain at least 5 percent silver.

Additionally, a check with a field strength meter can be performed. Holding the field strength meter close to the earth, as you pass over radials, you should see a slight deflection in the measured field strength. Move steadily outwards from the tower to ensure that the

CONTINUED ON PAGE 28

PARAVEL SYSTEMS

WallTime NTP Clock and Notification System

Keep Your Staff Informed and On Time

The WallTime NTP Clock & Notification System from Paravel Systems is the first device to combine several essential services for your studio into one streamlined product. WallTime eliminates the need for expensive synchronized studio clock systems and for the studio notification and alert devices of the past. WallTime provides two primary display modes: an Analog Clock display with widgets and a Notification Status & Alert Monitor.

The Analog Clock display features an always accurate NTP synchronized analog clock that can be customized with wallpaper images to display station logos or other graphics on a large easy to read clock face. Adjacent to the analog clock, two user-selectable widgets can be displayed to provide additional information. There are several widgets to choose from including a Digital Clock display, programmable show Segment Counters, Alert Notifications, an html Text Viewer that can display metadata from automation systems, an On-Air light and more.

The full screen Notification & Alert Display provides simultaneous status display for up to 36 signal inputs and an NTP synchronized digital clock. When an alert state is triggered, the notification field will illuminate and the alert message can be displayed in a large alert window at the bottom of the screen or as a full-screen attention grabber that will assure that your staff is immediately informed of any important alert messages. You can also remotely send message text to a WallTime display. This is great for getting a show host's attention in the studio

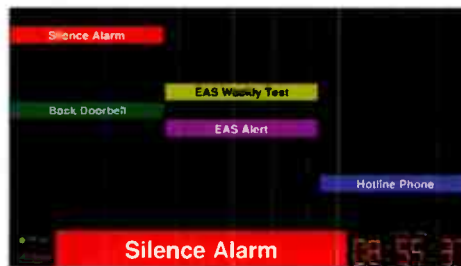
or for communicating important information with staff during remote broadcasts.

WallTime interfaces directly with Axia Livewire GPIO and with standalone Ethernet GPIO devices. This allows status inputs to be shared between multiple WallTime units throughout your facility without the need to install any additional wiring. The number of potential status input sources is virtually unlimited.

The WallTime unit is a microcomputer that attaches directly to the back of a standard computer monitor or television display. An HDMI input is required. For the best display resolution, use with a monitor capable of displaying a resolution of 1920x1080 (1080P).

WallTime's NTP synchronized clock is kept always in sync using Network Time Protocol (NTP). A WallTime purchase includes the WallTime device, power supply, HDMI cable and Velcro for attaching the unit to the back of your monitor.

The WallTime NTP Clock & Notification System from Paravel Systems will keep your staff informed and on time.



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Radio Spider Simplifies Importing

by Alan Simpson

The DJB Radio Spider is designed to save hours of work every week by downloading files and sending them to your automation system automatically. According to their web page, Radio Spider “works with almost any brand of radio automation software that supports file imports.”

Since 2011, I have used almost every feature of Radio Spider at one time or another and even managed to find several unreported minor bugs (which were fixed quickly), leaving a stable, great piece of software. In fact, DJB’s Ron Paley even gave us Radio Spider II in 2013 because he wanted me to help beta test it. (I am looking forward to Radio Spider III, which will be able to handle Drop Box, Google Drive, RSS and has more features.)

As you can see in Fig. 1, we use Radio Spider for downloading ABC news, spots and shows from FTP and http websites, as well as from folders that contain individual show downloads.

The original setup requires a bit of a learning curve, but with examples it isn’t too hard to master. The display during setup really helps the process. Plus, DJB customer support is patient and thorough in explaining what I didn’t figure out on my own. Most support is provided by email, but they have called me back when needed — especially for initial setup and installation issues when the OS or computer was replaced. The one thing about email support is you can get answers at any time — I have even got answers on weekends, after hours, etc. but generally by next working day.

As you can see in Fig. 2, setup can be fairly straightforward for FTP downloads.

Some shows download into their own folder using their software. We use Fetcher, Media Shooter Pro and Synchronicity programs provided by networks that automatically download to folders so Radio Spider can then import to automation for us. The folder doesn’t have to be on same computer that Radio Spider is installed on, but we do that as best practice.

Some shows are difficult at best to import (for example, every USRN show we have ever carried). But Radio Spider has a macro for that, as long as folder and content names are not random. The macro display is very detailed.

I have only had to get help a half dozen times over the last four years, and Fig. 3 shows one of those times. I got most of it right without help, but had to get some support. Then USRN started putting random version numbers in folder name and that necessitated help from a Scripting expert (more on that later).

The only thing Radio Spider can’t do that I needed was handle random data in folder path name — because you can’t use wild characters to find a folder, which is a design flaw in the way Microsoft handles folders.

I have a script in text form that was custom written by the late Kevin Watkins, which handles that issue on a case-by-case instance. It removes random



Fig. 1: Radio Spider is used to automatically download news, spots and shows from FTP and HTTP sites, as well as from folders that contain individual show downloads.

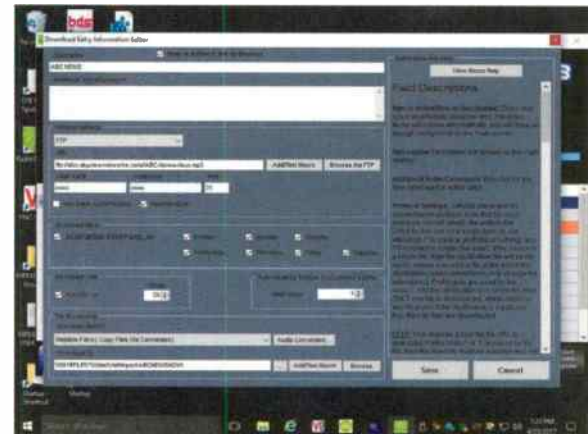


Fig. 2.: Configuration page for the setup of FTP downloads.

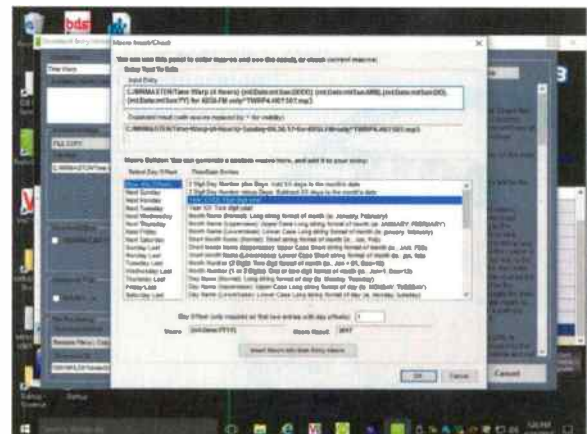


Fig. 3: Configuration page for development of macros.

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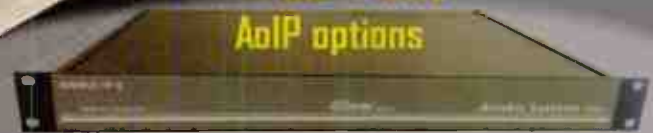
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Fig. 4: Radio Spider can be configured to send email alerts to end-users.

version numbers in the path by renaming the folder to what it would be without random revision numbers and overwriting older versions that had been so renamed also so Radio Spider can then do what it does. Watkins gave me permission to share it with everyone. It's available at radiomagonline.com/spiderscript.

Anyone with experience in scripts should be able to modify it for their own use. I have done so several times now, although I have to look up everything on internet. "Modifying" is the only scripting I have done.

Later, USRN even started putting the word "revised" in some folder names with random version numbers, too. The script Watkins provided has two sections: One for removing random revision numbers in the regular version; and a second to remove random version in the versions with "revised" in the folder name.

Radio Spider has been one of the best software investments we have made to make importing reliable. It even offers email alerting (see Fig. 4). Part-time talent isn't wasted on time consuming chores when you make use of Radio Spider. 📧

Simpson is the chief engineer/IT operations lead for Jonesboro Radio Group.

RFENGINEERING

CONTINUED FROM PAGE 24

length of the radials has not been truncated, and dig as necessary to confirm their existence and location.

Of course, any construction at or in the vicinity of the site that may disturb radials should be closely examined.

In addition to physically identifying the extent of potential damage, it may also be illustrative to computer model the antenna system. Additionally, field and impedance measurements should be performed both prior to and following construction activities.

If locations are known ahead of time, identification of damage to radials should be straightforward. Repair of damaged radials is equally straightforward.

The surfaces of the wire should be well prepared and then brazed together. If the radials are large enough, a very elegant solution is to utilize a small section of copper tubing for the splice. This procedure can make a very strong

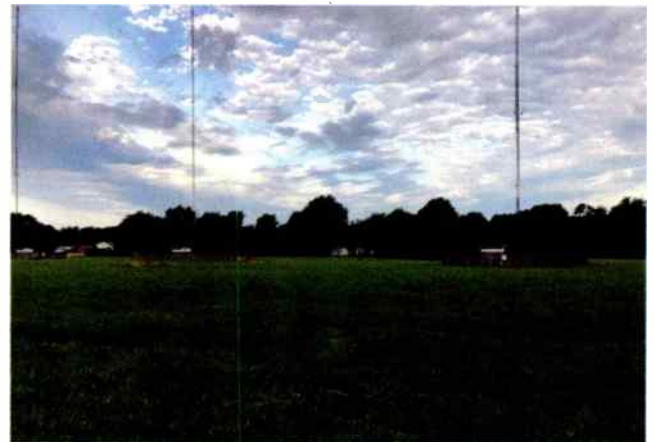
physical connection that also avoids metal fatigue problems that can occur in the wire by bending and forming the physical connection prior to brazing.

In addition to radial breakage, damage to straps can also occur.

Such damage should be repaired through brazing, and not the permanent installation of a pair of fast release locking pliers. In this case, and all others where brazing is performed, consider using a carburizing or reducing oxyacetylene flame. With oxyacetylene sufficient heat is developed to easily flow the filler metal into the joint, and the ratio of fuel to oxygen can be controlled. In the carburizing flame, an excess of fuel is present, which prevents the base metal from being oxidized, thereby retaining much of its shiny appearance, reducing brittleness, and maintaining ductility.

Finally, here's a cautionary tale.

I remember one engineer who attempted to increase the ground conductivity around the base of his station's tower by purposely introducing salt into the soil. Apparently, he had read about people using a solution of magnesium sulfate (Epsom salts) around ground rods, and figured this would be good at



The field around an AM antenna system should look just like a golf course fairway — weed-free!

the base of the tower. Since water softener salt, sodium chloride and/or potassium chloride, is used by people to kill weeds in sidewalk cracks, two birds would be killed with one stone. The problem is the ground system itself was killed, as were the next three or four installed over the ensuing decade.

In conclusion, ground systems are relatively simple, and maintaining them does not typically take much time. As long as you keep the site mowed, prevent people from plowing the ground, and periodically check impedances and field strengths, they should last for many years. 📧

Ruck is the principal engineer of Jeremy Ruck and Associates, Canton, Ill.



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www.radiomagonline.com/bos2017

(Photos by Chris Wygal)

LOGITEK

Helix Radio incorporates multi-touch technology with a suite of familiar controls to offer customizable operation. The console combines simple menus with the convenience and easy operation of physical buttons and smooth faders. Helix Radio is available in sizes ranging from 6 to 24 faders. Each includes a Monitor module and an HDMI output. Touch-sensitive faders are motorized for integration with automation systems. Powered by Logitek's JetStream AoIP platform, Helix Radio offers the functionality needed for efficient operation.

Logitek Director of Sales Frank Grundstein accepts the Best of Show Award from Doug Irwin. The company won for the Helix Radio digital console.



Doug Irwin presents the plaque to GatesAir Solutions Architect Keyur Parikh.

GATESAIR

The Intraplex IP Link MPXp is the first codec to support AES192 digital and analog composite signals over a digital IP path in the same solution. IP Link MPXp provide flexible sampling rates (16, 20 and 24 bits) and sample size to optimize IP network bandwidth utilization based on the FM services being transported. With bandwidth reduction tech and signal parameter selection, broadcasters can transport uncompressed AES192 signals as low as 1.8Mb/s.



WHEATSTONE

The AirAura X4 includes 31-band limiting, but utilizes it directly with the X4 clipper, providing an audio blueprint. With front and back end processing working in concert, the need to make loudness compromises is diminished. The X4 has a redesigned bass processor, enhanced controls in the iAGC, and RDS capabilities. It includes Wheatstone's HD/FM audio alignment. AES insert points let customers insert ratings encoders into the processing system, enabling the iAGC to operate ahead of the encoder.

Doug Irwin and Wheatstone's Jeff Keith, Mike Erickson and Steve Dove pose with the AirAura X4 digital spectral processor.



Doug, Derek Pilkington, Geoff Steadman and Frank Foti of the Telos Alliance.

TELOS ALLIANCE

With TVC-15 Watermark Analyzer & Monitor, broadcasters can detect, monitor and analyze how well programming elements support watermarking. Every 400 milliseconds, TVC-15's tone verification codec analyzes the code symbols in any audio you feed it, whether live or recorded. A front panel graph of your station's watermark density provides a moment-by-moment display; you can also download reports to look at encoding quality over hours, days and weeks. Stations with a Voltair watermark monitor and processor, can use TVC-15 to automatically adjust enhancement levels.





Paravel Systems co-founder Fred Gleason poses with Doug Irwin.

PARAVEL SYSTEMS

The WallTime NTP Clock & Notification System offers an Analog Clock display with widgets and a Notification Status and Alert Monitor. Adjacent to the analog clock, two user selectable widgets can be displayed, including a Digital Clock display, programmable show Segment Counters, Alert Notifications, an HTML Text Viewer and an On-Air light. The Notification & Alert Display provides simultaneous status display for up to 36 inputs and an NTP-synchronized digital clock.

WORLDCAST SYSTEMS

The DB37 Adapter enables existing Burk remote control customers to switch to the Audemat Control. It bridges the connections between the Audemat Control and Burk IP-8 wiring panels. The unit offers I/O termination panels with screw terminal connectors to enable connection to real-world signals. It also features an extractible modem and removable SSD disk. The voice modem offers DTMF for traditional remote notification and control.

Tony Peterle, Christophe Poulain and Grégory Mercier of WorldCast Systems. The company won for the DB37 adapter for Audemat Control.



ORBITAL MEDIA NETWORKS

The OMNiStreamer receiver is a dual network-path HLS or RTP audio appliance, delivering audio, over public internet, WAN or local network. OMNiStreamer has dual-network paths for connections, Store & Forward, automation control relays, PAD Data pass-through, Fraunhofer AAC LC and HE audio, scheduled program playback and local content payout. PAD and other data is passed by UDP and serial delivery. The OMNiStream Server software runs on a Linux server.

Orbital Media Networks President Mike Hagans shakes hands with Doug Irwin.



Scott Marchand, left, and Philipp Schmid pose with the HD Radio SFN display.

NAUTEL

The HD Radio SFN solution enables two or more transmitters to work together, giving broadcasters options for reaching listeners in challenging locations. Advantages include: a hybrid FM+IBOC booster installation that minimizes interference, time synchronization between all nodes of the SFN and seamless hand-off from one transmitter to the next. Digital radio transmission in the form of IBOC or other orthogonal frequency division multiplexing standards is ideally suited for this.





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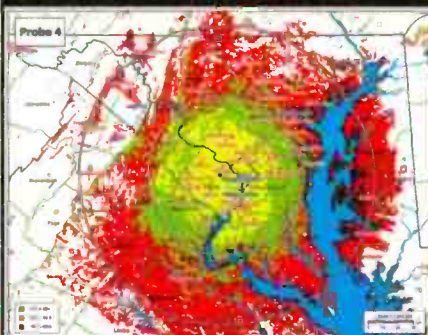
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Wanted: Broadcast Gypsies

by The Wandering Engineer

Every NAB Show has its surprises. It's Wednesday night, and Julie is handing out her business card with a wrapped piece of candy attached. I am hoping to hear David Layer call out my name and win "the" radio at the Ham reception, but this is maybe better.

Shows open and shows close. Broadcast engineering is show business, providing the fundamental and primordial rubrics we live by.

Admittedly, there are some very long-running shows. We all know a few broadcast engineers who came into the business at some station or started with a manufacturer and are "lifers" — those who work an entire lifetime in one place. For broadcast engineers, that can be seven decades.

The odds are monstrously slender, so the stories behind these matchless careers are just that — exceptional. Keep in mind, a mere nine decades ago, broadcasting was struggling to make a go of it; radio receivers weren't exactly rolling off the assembly line, and A and B+ batteries were heavy, expensive and short lived.

However, most of us are broadcast gypsies. We change markets and employers; sometimes to grow and find better recompense, sometimes because, while we're good with the status quo — ownerships and goals change and so must we.

As we swap hats, we eventually find that we know a lot of people in a lot of places. We don't need LinkedIn, though it does have its purposes. When we meet on a mountain, at a trade show or at an SBE meeting, we speak of the movements of our fellow broadcast engineers and compare our paths, discovering



they often cross.

If we need help at any level, we can find someone in any place who is pleased and honored to help another member of the broadcast engineering family. There may be one or two degrees of separation between any of us, but in the end, there's really no separation at all.

No wonder we're apprehensive about who will follow us. We can make any well-meaning, over-reaching, towel-ringing mother-in-law look amateurish.

But let's make one thing absolutely clear: It is not our job to replace ourselves. We do not violate the laws of business any more than we violate the laws of physics. We are special, but not in that way.

Broadcasters need all matters of staff. The mix of talent, technical, administrative, management, sales and on-and-on workforce... all crazy enough to *want* to be in this wacky corner of show business, despite other perfectly good professions coveting our skillsets (many more respectable and better paying). That's why broadcasting is a lot more interesting than a fast food restaurant — although, as a business, a restaurant is more similar to broadcasting than it is different.

However, this passion is a lot more pleasurable for people with our obsession. Broadcasters, even conservative ones, work with a more diverse universe of people than almost any other business. Even Broadway barely gives us

a run for our money when it comes to bizarre and outlandish personalities. With only one life to live, I wouldn't want to miss out on *this* one.

It's the folks with the license and investment who need to agonize over where *all* of their workforce components come from. It's their job to put together all the pieces.

For a long time, broadcast engineering supply outstripped demand as the industry consolidated, as the pie was cut smaller and as the technology improved faster than natural attrition.

So when Julie Milius, a recruiter for Salem Communications, is working the line of broadcast engineers waiting to get into the traditional Wednesday night ham radio reception at NAB Show, it means something.

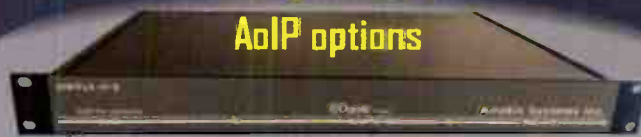
First, Julie is one sharp recruiter — there's no more target-rich environment than here. Second, when you hire recruiters (I'll bet you've seen a rise in recruitment, too) it's a *very* good sign of the industry's health. That leads to increasing incentives and even investment in training and growth opportunities. If broadcasters do that, we'll get the next generation of broadcast gypsies. **0**

The Wandering Engineer is an industry stalwart who has been in broadcasting since the days of Marconi and Tesla. He gives his thoughts on the current state of broadcast engineering and the broadcast engineer.



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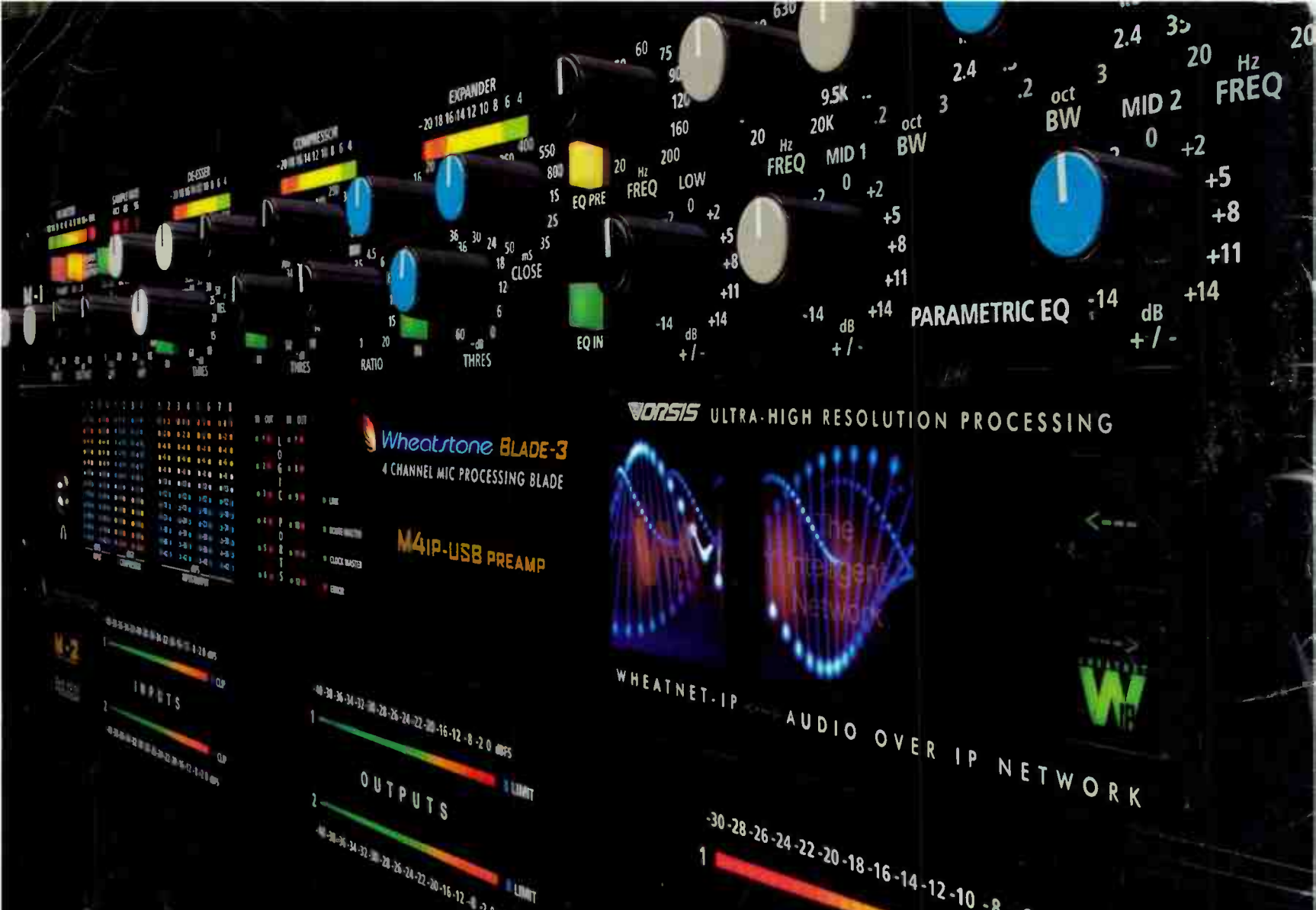
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Wheatstone Voice/Mic processors give you everything you need to make voices grab listeners by the ears.

For our SQ (Super Quiet) mic pres, we emulated and hot-rodged legendary studio preamps to sound incredible for modern radio.

Our compressors, limiters, & EQs are maximized for vocal smoothness, allowing your talent to stand out on-the-air.

Wheatstone's Graphical User Interfaces give you deep, intuitive control to tweak our world-class presets and save those you create.

The result? Voices that can sound superhuman.

Wheatstone M-Series Voice/Mic Processors

M-1: single channel with knobs and buttons • M-2: dual channel with multiband compression • M4-IP USB: four-channel networkable BLADE-3

Learn more at wheatstone.com/superhuman-voices



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World Radio History