

THE Signal

Bimonthly Publication of the Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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April in Las Vegas Means Technology Education for Broadcast/Media Engineers

The SBE is pleased to be a part of two premier educational broadcasting events in April, both held in Las Vegas. The 2020 NAB Show and the 2020 PBS TechCon, provide opportunities for SBE broadcast and media engineers to expand their knowledge on a world-class stage.

For the 26th consecutive year, the SBE is a conference partner with the NAB Broadcast Engineering and IT Conference, the longest running and largest of the NAB Show conferences. Kicking off the BEITC on Saturday morning, April 18, is the Ennes Workshop, presented in conjunction with the SBE. Industry veterans Tom Mikkelsen and Stan Moote co-chair a cutting edge lineup, called "Multiplatform SuperSession."

The Ennes program begins with Madeleine Noland, president of ATSC, who will provide an update on the progress of ATSC 3.0 and various market transition activities.

Next up is a panel of experts in a supersession called Multiplatform is Key. It will include tangible examples and finish up with a panel moderated by IABM CTO Stan Moote, to debate the various opportunities to simplify workflows.

Next Generation Audio is the next session, continuing on the multi-



The SBE @ PBS TechCon returns to Las Vegas in April.

see [EDUCATION](#), p. 8

Put the SBE on Your NAB Show Calendar

The 2020 NAB Show is about two months away, but don't put off making your plans on how you'll allocate your time at the convention. The exhibit floor is of course part of your plans, and you'll likely review the list of sessions you want

to attend, but add the many SBE events to your convention calendar now.

The SBE Ennes Workshop is the traditional kick-off for the convention on April 18. Part of the Broadcast Engineering and IT Conference sessions, the SBE Ennes Workshop continues to draw large crowds every year. The SBE is also partnering with PBS TechCon again to present a day-long workshop at the MGM Grand Hotel. More info on both events is in the companion NAB Show article above.

One never-miss SBE function is the annual SBE Membership Meeting, which will be followed by a reception. With the changes in the NAB Show schedule for 2020, the Membership Meeting will be held on Monday, April 20 in N257. Watch the SBE website or stop at the SBE booth on-site for the room location. The Membership

Meeting provides up-to-date information on all the SBE activities and programs, and it includes a milestone-service recognition of SBE chapter certification chairs, and updates on the society's plans, programs and government relations efforts. Everyone attending will be eligible to win prizes.

see [NAB SHOW](#), p. 8



The SBE Membership Meeting will be held on Monday, April 20 this year.

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317-846-9000 www.sbe.org

Stay Connected: Renew Your SBE Membership!

With an ever-increasing array of educational benefits available to members, SBE membership is of greater value to the broadcast media technical professionals than ever before. Annual membership renewal for SBE Member, Associate, Senior, Student and most Fellow members is underway. Renewal letters and membership cards are in the mail to you. The due date for membership renewal is April 1. Those in the Member, Senior, Fellow and Associate categories that chose the SBE MemberPlus option in 2019 may renew with SBE MemberPlus in 2020, or can revert to traditional membership.

Membership dues for the SBE MemberPlus option remains at \$175 and includes all of the benefits of traditional membership, plus access to all archived SBE webinars and any new webinars the SBE presents during the membership year (through March 31, 2021) at no extra charge. That's more than 80 technical broadcast and media webinars available to you 24/7/366.

Traditional membership dues for Member, Senior, Associate and Fellow members remain at \$85. Student membership stays at \$25. For the first time, SBE Student Members may choose to take the SBE Student MemberPlus option for \$90 when they join or renew. Traditional SBE membership provides discounted education, certification programs and member services as well as opportunities for member interaction in local chapters and with members across the United States and in 30 other countries. The SBE network of 115 SBE chapters

provides opportunities for education, local SBE certification exams and professional and social interaction with local technical media professionals. Traditional membership also allows members to take part in the SBE Mentor Program, and access SBE social media and the SBE WEBxtra monthly online meeting.

The fastest way to renew your membership is online at the SBE website, sbe.org. Click on "Renew Membership" in the upper right-hand corner of the home page. The online system is secure and accepts Visa, MasterCard and American Express. The system automatically generates a receipt, sent to your email address. You will need your member number and SBE website password to access the renewal system. If you have forgotten your number or password, there is an automated retrieval system available to you on the renewal page. Your membership can also be renewed through the mail, using the renewal form and return envelope mailed to you.

The SBE By-laws allow for a grace period if dues are not paid by April 1. However, current SBE MemberPlus members

see **RENEW**, p. 9



Certification Question

Answer on page 6

Which layer of the OSI model is responsible for encryption?

- A. Data Link
- B. Session
- C. Network
- D. Presentation
- E. Application

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LETTER FROM THE PRESIDENT

By Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE
SBE President
wpecena@sbe.org

It's a New Decade of Change

As we look back over the past 10 years, the broadcast industry has seen plenty of change in listener and viewer media consumption. And so has the technology we support changed. We saw the birth of an array of smart speakers for the home, over-the-top (OTT) streaming services and ATSC 3 or NextGen TV. We also saw the birth and quick demise of mobile DTV (ATSC 2) and 3D TV technology. "Cable cutting" became a familiar term with consumers dropping traditional cable and satellite content delivery in favor of a multitude of Internet-delivered content providers. Even over-the-air (OTA) broadcast reception has seen growth as the concept of "free" TV is promoted. Yes, the new year and a new decade are underway with plenty of change ahead for the broadcast engineer.

For the radio broadcast engineer, the notice of proposed rule-making (NPRM) to allow all-digital AM broadcast operation is likely to become reality this year. The voluntary, market-based decision to cease analog AM transmission in favor of digital transmission is the most significant change to occur to AM broadcast in many years. I do not view this as the sole solution to the growing AM environmental issues, but see as an important step in providing technology relief to those AM broadcasters who choose to implement when and if the time is right for their specific market. Your SBE supports this NPRM.

For the fortunate TV broadcast engineer, the year begins with a brief breather from a busy 2019 for those wrapping up repack for one or more stations. Others may be sweating through the process, logistics and challenges as Phase 8 wraps up next month (March 13), or even looking to July 10 for phase 10 to bring the repack to an official close. Many in the industry question whether or not the repack can really be completed with obstacles ranging from weather delays to adequate qualified manpower to get the work completed. I see more challenges than likely success stories ahead for the industry. One thing for sure, the definition of "completed" is likely to be altered. The Federal Communications Commission (FCC) stated that 70% of the repack was completed in December 2019. Whereas the FCC might define completed as the pre-repack RF channel is vacated, many broadcasters can be found operating with temporary

**"To improve is to change;
to be perfect is to change often."**

~ Winston S. Churchill

post-repack transmission facilities often significantly reducing their coverage. These broadcasters will define completed as when they implement permanent facilities achieving equal coverage prior to repack implementation.

And the radio broadcast engineer may not be left out of the repack as many FM broadcast facilities have been or will be affected in situations where shared TV and FM transmission facilities are involved. Fortunately, the FCC has allocated some funding to offset the costs to the radio broadcaster who must provide alternate transmission facilities while TV repack work is being performed.

ATSC 3 or NextGenTV implementation is on the horizon for many in 2020 in at least the top 40 US markets based on commitments made by several broadcast groups that included Fox, NBC, Sinclair and the Pearl coalition. By the time the ink is dry for this issue of *The Signal*, the 2020 Consumer Electronics Show (CES) will have come to a close, and the reality of NextGen TV consumer devices will be known for sure as to what might be found in stores by the 2020 holiday buying season.

Society involvement

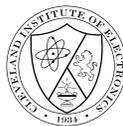
With 2020 underway, the Society needs your help. While we add new members each year, we also lose members. I encourage each of you to invite your fellow colleagues to look into SBE membership. Some may have let their membership lapse in the past, and I suggest these former members take another look at the SBE today and the programs offered. Others new to the industry may not be aware of the SBE and the programs available. Encourage these individuals to consider SBE membership and utilize the education and certification programs offered to benefit their career.

Your Board of Directors will have a busy year ahead as we look to insure programs and services meet the needs of our members in professional development, certification, and frequency coordination. We will also address change as John Poray, executive director of the SBE, has announced his retirement at the end of 2020. John has served the Society since 1992 and has led significant growth in all aspects of the SBE.

I personally want to know your suggestions, comments and concerns. Your feedback is essential to our collaborative effort to insure the Society meets member needs as our industry continues to change. Please reach out to me at wpecena@sbe.org or by phone at 979-845-5662 for a more personal exchange.

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Chapter Check

Chapter 46 • Baltimore

Chapter 46 held its holiday party on Dec. 18 at the Hearst WBAL studios.





EDUCATION UPDATE

By Shane Toven, CBRE, CBNT
Field Engineer, Educational Media Foundation (K-LOVE/Air1)
stoven@sbe.org

An Introduction to Audio Over IP

Computer networking has been around for decades now, dating back to when ARPANET was first conceived in the late 1960s to interconnect the military, large university computer systems, and eventually large businesses. It was one of the first implementations of what is known as a packet-switched network, as opposed to the circuit-switched networks of the telephone company. This technology allowed simultaneous connections to be created between multiple systems rather than simply establishing point-to-point connections between mainframes and terminals. In the late 1970s, the protocol stack we know as TCP/IP was created, forming the foundation for all modern computer networking and the Internet.

Applications for broadcasters

For years, broadcasters used discrete point-to-point connections between devices to carry audio and logic, somewhat like the phone company's circuit-switched approach. Punch blocks, patch bays, and routers allowed more flexibility, but the typical broadcast facility was still relatively cumbersome to modify once designed and built. As facilities started to consolidate, the amount of wiring grew exponentially with each additional network, remote source, studio, or transmission path.

By the 1990s, networked computing was commonplace. Broadcasters eventually adopted networking for office applications and later for audio playback, but the studio interconnects remained much as they had always been. There was an early audio-over-Ethernet (not AoIP) standard known as Cobranet developed during this time, but it really was not well-suited to broadcast applications for a variety of reasons. It wasn't until about 2003 that the late Steve Church conceived the idea for audio-over-IP and developed the first broadcast AoIP protocol called Livewire. This protocol used standard IP networking to transport real-time audio and control around the broadcast facility, carrying over a single Ethernet cable what had previously required hundreds of discrete connections.

More AoIP standards develop

Around 2006, another AoIP standard known as WheatNet was developed. After the initial skepticism when AoIP first hit the marketplace a few years earlier, many broadcasters were finally starting to see that IP networking was a viable (and flexible) option for transporting audio and control signals around their facility. A third AoIP standard known as Dante was also emerging around this time, though it was initially more targeted at live and installed audio, likely as a replacement for aging Cobranet installations. Unfortunately, each of these standards had their own device ecosystem and they were not cross-compatible.

While each of these standards continued to gain popularity among various groups of users, the fact that they were not compatible with each other continued to be a hindrance to more widespread adoption of AoIP. In 2010, yet another standard called Ravenna emerged. This promised to be an open standard without any proprietary licensing. It still was not directly compatible with any of the existing standards, but it was one of many partners laying the groundwork toward an official AES standard for AoIP which was ratified in 2013 as AES67.

All the major AoIP equipment manufacturers eventually incorporated AES67 support, at long last creating basic interoperability between AoIP equipment from different manufacturers. The one major drawback to AES67 alone, however, was that it did not address other needs such as transporting control information across the network. Although the manufacturers all supported AES67, they continued to use their own AoIP protocols and proprietary methods to provide device discovery and control.

The next standard: Control

Another AES standard was ratified as AES70 in 2015 and updated in 2018. This standard promises to complement AES67 by providing a method for passing control between devices. AES70 has not yet been widely implemented by broadcast AoIP device manufacturers, but it does provide the groundwork for standardizing control methods on an AoIP network. There are a number of methods for passing control across an IP network (proprietary or

otherwise) so this lack of a standardized control method has not been quite as big an issue as actually passing audio between devices. In fact, AES70 can coexist quite comfortably alongside other control methods or AoIP standards.

In the coming months, the SBE will be offering a series of webinars going deeper on audio over IP, how it fits into a broadcast facility, the underlying technologies behind it, and how it all works together. I encourage you to join these webinars to discover how AoIP can streamline your next studio installation, adding significant flexibility, while being far easier to remotely configure and troubleshoot.

SBE Awards Nominations

Recognize individual and chapter achievement by considering a nomination for the SBE Awards Program. Outstanding engineers, educators or mentors can be acknowledged with the Robert W. Flanders SBE Engineer of the Year or the James C. Wulliman SBE Educator of the Year awards.

Chapters can recognize their own Chapter Engineer of the Year, who is then automatically considered for the Robert W. Flanders SBE Engineer of the Year award.

The SBE Freedom Award recognizes an individual or group that has performed extraordinary service to the United States through the use of media technology. The SBE Technology Award recognizes the person, group or company that has developed innovative new technology or systems for media technology. The Best Technical Article, Book or Paper recognizes a notable technical published or presented work.

Many SBE members are highly qualified and deserving of recognition. Likewise, many chapters do an excellent job promoting the ideals and goals of the SBE. Please nominate these members and chapters so they can receive the recognition they deserve.

Find all the details on the SBE awards at sbe.org/awards. If you have any questions or need more information, contact Certification Director Megan Clappe at mclappe@sbe.org or Awards Committee Chair Tom McGinley at K7QA@aol.com.

For more information on any SBE education program, contact Education Director Cathy Orosz: corosz@sbe.org or 317-846-9000.



CERTIFICATION UPDATE

By Megan E. Clappe
Certification Director
mclappe@sbe.org

Certification 2019: By the Numbers

In 2020, the SBE Program of Certification recognizes 45 years of existence. The SBE is marking the milestone with regular posts to our social media sites. But to know where you're going, you need to know where you've been. For that, I prepared this

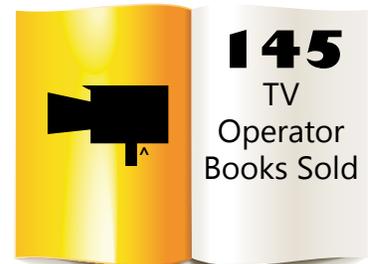
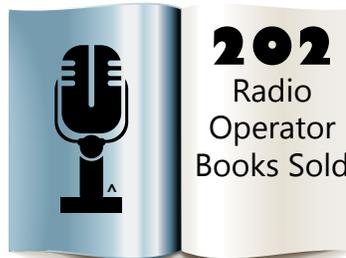
summary of Certification achievements from 2019.

Encourage your colleagues and other SBE members to become SBE certified in 2020. There's plenty of information on the SBE website. You can also contact me with any questions.



Total Certifications Held

Total People Certified



Some images: * freedesignfile.com ^ BSGStudio

EQ Answer from page 3

The answer is D

The presentation layer receives the data from the application layer and translates it into a format and syntax that is readable by other computers. This layer is also able to provide encryption and compression if the application layer asks it to do so.

SBE Certification Achievements

CONGRATULATIONS

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Thomas Gray, Jonesboro, LA - Chapter 105
Marlin Jackson, Uniontown, WA - Chapter 21

Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB)
Ernest Harvey, Jr., Harahan, LA - Chapter 72

Certified Senior Television Engineer (CSTE)
Richard Torpey, Bay Shore, NY - Chapter 15

Certified Broadcast Networking Engineer (CBNE)
Thomas Gray, Jonesboro, LA - Chapter 105

Certified Broadcast Networking Technologist (CBNT)
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Urban Stieess, Los Angeles, CA - Chapter 47

Certified Broadcast Technologist (CBT)
Urban Stieess, Los Angeles, CA - Chapter 47

Certified Television Operator (CTO)
Urban Stieess, Los Angeles, CA - Chapter 47

Certified Professional Broadcast Engineers® and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59½ years old and are current members of the SBE may be granted Life Certification if so requested. All certified who have retired from regular full-time employment and are at least 59½ years old may be granted Life Certification if they so request. If the request is approved, the person will continue in his/her current level of certification for life.

NOVEMBER EXAMS

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Sean Anker, Dedham, MA - Chapter 11
Zsoft Vicsacsan, Glendale, AZ - Chapter 9
Alfredo Walker, Miami, FL - Chapter 53

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Jonathan Sanelli, Albertson, NY - Chapter 15
Chico Wilkerson, Hemet, CA - Chapter 131

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Royce Cacacho, Winnetka, CA - Chapter 47
Matthew Converse, Antigo, WI - Chapter 80
April Orci, San Antonio, TX - Chapter 69
Ismail Out, Charlotte, NC - Chapter 45

SPECIAL PROCTORED EXAMS

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Mohamed Elsiefy, Saudi Arabia

Alabama Broadcasters Association
Certified Broadcast Technologist (CBT)
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Ronald Clements, Hueytown, AL - Chapter 68

Alabama Broadcasters Association (cont)
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Tyler Grandy, Boise, ID - Chapter 115
Eric Hunter, Boise, ID - Chapter 115
Jason Johansen, Bridgton, ME - Chapter 110
Charles Leslie, Alabaster, AL - Chapter 68

Alabama Broadcasters Association (cont)
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Damian Molina, North Hollywood, CA - Chapter 47
Michael Pappas, Auburn, AL - Chapter 118
Steifon Passmore, Florence, AL - Chapter 111
Jared Ricker, Nampa, ID - Chapter 115

CERTIFIED BY LICENSE

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Chase Browning, Richmond, VA

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Michael Walker, Norfolk, VA

Shannon Wilson, Mt. Pleasant, SC

Got your SBE Certification pin?
sbe.org/pins



RECERTIFICATION

Applicants completed the recertification process either by re-examination, point verification through the local chapters and national Certification Committee approval and/or met the service requirement.

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Jason Knapp, Columbus, OH - Chapter 52
James Stitt, Cincinnati, OH - Chapter 33

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Charles Keiler, Ft. Lauderdale, FL - Chapter 53

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Paul Nowakowski, Greensburg, PA - Chapter 20
Anthony Searcy, Byram, MS - Chapter 125

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Brian Kerkan, Deltona, FL - Chapter 120
Anthony Searcy, Byram, MS - Chapter 125
Brian Urban, Georgetown, TX - Chapter 67

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Mark Dubosky, Jacksonville, FL - Chapter 53
Bradley Eleeson, Sioux Falls, SD
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Todd Hausser, South Beloit, IL - Chapter 24
Geoffrey King, Decatur, GA - Chapter 5
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Stephen Zelenko, Pittsburgh, PA - Chapter 20

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Jonathan Hunt, Santa Monica, CA
Kelly Kiser, Plainwell, MI
Jason Melton, Columbus, GA
Sean Mina, Soddy Daisy, TN
Walter Streefer, Wishawaka, IN
Patrick Thorpe, Gaithersburg, MD
Mark Watson, Missoula, MT
Philip Williams, Jupiter, FL
Craig Wood, Middleton, WI

Certified Radio Operator (CRO)
Anddy Curiel, Los Angeles, CA
Adam Leon, Arcadia, CA
Laura Maraiio, Staten Island, NY

SBE Compensation Survey Launches in April

The SBE launched its annual Compensation Survey in 2016 to provide valuable industry information to our members. In April, the SBE will post its fifth survey, and we need your help in gathering and supplying the most accurate information. As an SBE member, you will have free access to the survey results as a benefit of your membership. Do you know if your earnings are in line with other professionals in your field or your market? There's no need to ask around, because the survey will provide that information, and gather it from many sources. The SBE is your trusted source. Launching April 1, the fifth Compensation Survey will provide practical information to SBE members about individual compen-

sation (salary and benefits) based on the type of broadcast or multimedia involvement, market size and years of experience. SBE members will have access to the full report. We encourage every SBE member to participate to provide a large sample base of responses. All responses are anonymous. The surveys continue to provide good information, and strong participation ensures that we can provide the most accurate and useful data. On April 1, look for a link to the survey in our regular email communications and on the SBE website. The results will be published in July.



EDUCATION from p. 1

platform theme. The session focuses on Next Generation Audio (NGA) and how consumers will experience audio content in optimized quality, lining up with whatever platform they are using. The promise of NGA is to free producers from having to create multiple audio mixes by producing a multi-purpose audio package.

Then comes, Understanding Internet for Video Transport, with Malik Kahn, former chairman of LTN Global. The Internet has become key for multiple platform delivery, backhauls and net distribution feeds. Malik explains how, where and why redundancy is essential.

IP/SMPTE ST 2110 Update and Implementations comes next with Karl Paulsen, CTO at Diversified. IP is vital for multiplatform operations. Karl will review some of the installs and how ST 2110 and SDI work in harmony.

BXF and TAXI Standards for Multi-Platform Distribution will be presented by Chris Lennon, president of MediAnswers. With recent developments in the fields of content delivery specifications, HDR, AFD, Proxies, Captioning/Subtitling and Automated QC have broadened the relevance of BXF (Broadcast Exchange Format). Chris will give an update on BXF and explain how the TAXI (Trackable Asset Cross-Platform Identification) initiative will provide an open, standardized means of tracking content across all forms of distribution. It will address many use cases, including audience measurement, ad insertion, second screen apps and a wide array of others.

The SBE @ PBS TechCon

After a successful partnership in 2019, the SBE is again providing a program for the PBS TechCon. Held at the MGM Grand Hotel and Casino, the SBE program will be presented on Saturday, April 18.

The morning of the day-long session focuses on audio quality. Most have a fair grasp of the basics of microphones and how to capture sound, but there are nuances in capturing the best possible sound. We have arranged an instructor who is deeply experienced and can explain this topic in terms broadcast engineers can best relate to. That instructor is Steve Savanyu, who has a penchant for clear and precise explanation of the most esoteric and technical aspects of transducer physics and technology. He is an adjunct professor of audio for video at Kent State University. Audio Technica will facilitate and support the program with the equipment necessary to demonstrate and teach miking and mixing.

The afternoon topic is "Managing Modulation for NextGen Broadcast." The program will focus on the decision points of ATSC 3.0 implementation. Experts will discuss the modulation/workflow profiles that are most realistic for various uses: datacasting, mobile file downloads, low and high resolution content, emergency communication and potential other uses of NextGen transmission.

How to attend

To participate in the Ennes Workshop at the 2020 NAB Show, register for the full BEIT Conference through the NAB Show website. BEITC registration includes all BEITC sessions (Saturday through Wednesday) and admission to the largest broadcast/media exhibition in the world. SBE members are eligible for a \$100 discount off the non-NAB member registration fee.

To attend the SBE sessions as part of the 2020 PBS TechCon and Beyond, register through the SBE website, sbe.org. Members of the SBE and employees of PBS and NPR member stations get discounted prices. Register for just the morning session, the afternoon session or register for both at a further discount.



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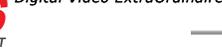
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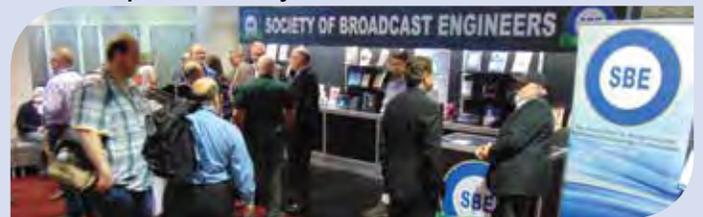
Dielectric



NAB SHOW from p. 1

You'll want to get to the meeting early as well, because the first people in line will receive a special SBE memento.

Following the Membership Meeting, join the SBE for a Membership Reception. Light snacks and drinks are made possible from the generous support of several Sustaining Member sponsors. They are listed above.



Attending the NAB Show on a budget? To get a free exhibits-only pass for the convention, watch the SBE website and SBE-news for the registration code.

A complete SBE event schedule will be posted on the SBE website. There you'll also find another helpful resource to plan your convention time: our SBE Sustaining Member Online Resource Guide. With these resources, you'll find details for several committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

Grow the Society: Recruit a New Member

As an SBE member, you know the benefits of being part of the society. The annual SBE Membership Drive begins March 1, and this is your opportunity to help the society grow. When you do, you might receive some personal benefit as well. The theme this year is Going, Growing, Knowing. With 56 years of history, the SBE provides broadcast engineers career advancement (Going), professional development (Growing) and ongoing education (Knowing).

Talk to your colleagues who are not familiar with the SBE, but could benefit from membership. While anyone can join the SBE at any time during the year, there's an added benefit to joining during the SBE Membership Drive, held from March 1 to May 31.

If you recruit a new member during the Drive and your name is



on the sponsor's line of the membership application, your name will be entered into the member drive drawing for prizes donated from our sustaining members. If you recruit a new sustaining member, you'll earn five entries into the prize drawing. Prizes include logo items, books and more. The grand prize is airfare and hotel to attend the SBE National Meeting held in conjunction with the 2020 SBE Chapter 22 Broadcast and Technology Expo in Syracuse, NY, Sept. 23, 2020.

As a further bonus, for every new member you sponsor you will receive \$5 off your 2021 dues (up to \$25). Need more incentive? If you recruit three or more new members, your 2021 membership will be upgraded to SBE MemberPlus.

Start recruiting now, and make sure your recruits list your name on their SBE membership application so you get the credit.

RENEW from p. 3

who do not renew by April 1 at the MemberPlus level, will lose their MemberPlus status at that time. Their membership will revert to traditional membership during the grace period, and they will not have free access to SBE webinars until they renew with the SBE MemberPlus option. Don't let it slip! Be sure to renew by April 1.

For the first time, Life Members (which traditionally pay no dues) now have the opportunity to take the SBE MemberPlus option and receive access to all SBE educational webinars at a bargain price. Life members may choose to pay \$175 for the SBE Life MemberPlus benefit. A letter was sent to all Life Members in late January explaining the option. To sign-up for SBE Life MemberPlus, contact the SBE national office by calling Scott Jones at 317-846-9000 between 8:30 a.m. and 4:00 p.m. EST, M-F.

SBE members may apply for traditional Life membership if they are at least 65 years of age, are fully retired from broadcast engineering work and have been a member of SBE for at least 15 consecutive years at the time of applying for Life member status. There is a one-time \$85 application fee (or annual \$175 fee if opting for Life MemberPlus). After acceptance, traditional Life members pay no further dues for the rest of their lives and receive all of the traditional member benefits. Life members who choose to take the Life MemberPlus option will renew annually and pay the current MemberPlus fee. Life MemberPlus is available to Life members at the same, annual \$175 rate as it is to other members.

Members of five years or more who have at least 15 years of experience in broadcast engineering or allied fields and can show demonstrated responsibility in supervision, equipment design, physical plant design, marketing and/or equipment systems integration, are eligible to be designated as a Senior Member (and SBE Senior MemberPlus). There is no cost to apply for Senior membership. Applications for Senior and Traditional Life Membership are available

on the SBE website. Click on Membership/ Membership Categories.

Balloting for the annual election of the national board of directors will be conducted online and through the mail in July 2020. More than 90 percent of the election ballots cast in 2019 were submitted using our web-based balloting system. All voting members are encouraged to use the electronic ballot method as it is quick, easy and saves the society printing, mailing and postage expense.

Members who prefer voting by mail may opt-out of electronic balloting by checking the appropriate box on their member renewal form (available on both the paper renewal and the online renewal form). The January letter to Life Members also provides the opt-out opportunity.

If you have questions about your membership renewal, please contact Scott Jones at the SBE National Office at 317-846-9000 or kjones@sbe.org.

Going to the NAB Show? The SBE can help you plan your exhibit hall rounds.

The SBE Sustaining Member Resource Guide gives you quick access to the booth locations for those companies that support the SBE.

Your time at the convention is valuable. Let the SBE help you plan ahead.

The Guide will be online in mid-March at sbe.org.



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LEGAL PERSPECTIVE

By Chris Imlay, CBT
SBE General Counsel
cimlay@sbe.org

The T-Band, Round Two

Last summer, I wrote an article for *The Signal* called “Let’s Talk About the T-Band,” referring to the rather odd plan to auction television channels 14-20 (470-512 MHz) after the Middle Class Tax Relief and Job Creation Act, passed by Congress in 2012. Since then, the status of this 42 megahertz of valuable television spectrum (and, in 11 metropolitan areas, including Boston, MA; Chicago, IL; Dallas/Fort Worth, TX; Houston, TX; Los Angeles, CA; Miami, FL; New York, NY and northeastern NJ; Philadelphia, PA; Pittsburgh, PA; San Francisco/Oakland, CA; and Washington, DC and the MD/VA suburbs of DC), channels 14-20 are allocated for land mobile radio (LMR) use has gotten murkier and murkier. Interference problems have arisen in this band resulting from the TV repack and FCC is creeping closer to the time when mandatory spectrum auctions are going to be required. Let’s look into this again.

On Oct. 30, 2019, Senator Edward Markey (D-MA), a communications veteran, introduced legislation (S.2748), entitled “Don’t Break Up the T-Band.” That legislation proposed to repeal the section of the Middle Class Tax Relief and Job Creation Act of 2012 that requires the FCC to reallocate and auction the T-Band spectrum. After its introduction, the bill was referred to the Senate Committee on Commerce, Science, and Transportation. Co-sponsors of the legislation were Senators Charles Schumer (D-NY), Elizabeth Warren (D-MA), Kirsten Gillibrand (D-NY), and Robert Casey (D-PA). The plan of the legislation was to protect incumbent land mobile (especially public safety) licensees in the 11 T-band markets who heavily use it and who can’t really migrate to another band, the cost of which is simply too high. Furthermore, the original plan, to auction channels 14-20 in the 11 land mobile T-Band markets in exchange for 700 MHz public safety spectrum, was essentially leapfrogged by the auction of the 614-698 MHz band resulting in the TV

repack now ongoing.

Although Senator Markey gained Commerce Committee support to add the “Don’t Break Up the T-Band” legislation to Senator Wicker’s “5G Spectrum Act of 2019” (S.2881), Senate Majority Leader Mitch McConnell (R-KY) pulled the 5G bill from the consideration of the full Senate. This left no pending legislation to repeal the mandate to repurpose T-Band spectrum by auctions that are scheduled to start in 2021. The 2012 legislation requires that within nine years of enactment (i.e., by Feb. 22, 2021), the FCC must take certain steps to begin an auction and start to relocate the T-Band land mobile licensees. The deadline for all public safety T-Band licensees to have relocated from the T-Band spectrum is two years after the date when competitive bidding is completed.

While it was initially anticipated that some version of Markey’s bill might be reintroduced into the Senate (and the House) in early 2020 (given that there was in 2019 a great deal of Congressional interest on this issue than at any time since passage of the Middle Class Tax Relief and Job Creation Act was signed into law in 2012), it now appears that the issue is dead for the near future on Capitol Hill. Whether it can be reactivated in an election year is unclear, though FCC Chairman Pai on Dec. 2, 2019 issued a statement calling on Congress to repeal the mandate to auction the T-Band.

The FCC, hedging its bets, released a public notice on Dec. 2, 2019, confirming the fact that it is “suspending the processing of applications to renew T-Band” licenses. The Wireless Telecommunications Bureau and the Public Safety and Homeland Security Bureau announced that, until further notice, they will accept, but not grant, applications to renew Part 22 and Part 90 licenses for operation in the 470-512 MHz band. They will also allow T-Band land mobile licensees to continue to operate after their licenses expire in that band.

Meanwhile, the Repack goes on. In the process of “repacking” television broadcast stations to make room for additional wireless services, the FCC has assigned Channel 14 (470-476 MHz) to TV stations in various markets around the country. The potential for interference from Channel 14 television broadcast operation to

land mobile stations operating below 470 MHz has long been recognized, and FCC rules require TV permittees on Channel 14 to “submit evidence that no interference is being caused [to LMR systems] before it will be permitted to transmit programming...” The rules state that the TV permittee “must reduce its emissions within the land mobile channel...that is receiving interference caused by the TV emission producing a vertically polarized signal and field strength in excess of 17 dBu at the land mobile receive site.”

LMR licensees in markets such as New York, San Francisco and Jacksonville, FL, have been contacted by Channel 14 permittees so they can participate in testing for interference. Although some assume that only frequencies from 468 MHz and up are likely to be affected, interference sufficient to prevent a land mobile system from being keyed up has been detected as far down as 461 MHz in one instance in which the broadcast and LMR sites were separated by only one mile. It is unclear whether broadcaster-funded filtering at either or both of the broadcast transmitter and LMR receivers will alleviate the problem. Locating alternative spectrum for either the TV or LMR systems is problematic to say the least. FCC involvement would be needed, absent creative and cooperative solutions, especially where public safety LMR systems are involved.

Nor is Channel 14 the only T-band interference concern as between broadcasters and land mobile stations. There are ongoing issues with interference from TV Channel 16 stations, which are assigned for Public Safety-only use in Los Angeles and New York, and for general use in Dallas. The FCC Wireless Bureau has asked business/industrial and land transportation licensees in Dallas whether there are alternative channels to which the T-Band licensees could relocate. The response was that there are few, if any, exclusive UHF channels available in the market and certainly nowhere near a sufficient number for replacement purposes. It is unclear who would pay for such a move if alternative spectrum were available.

The plan for T-Band land mobile operation is far from clear, and broadcasters who are involved in repack situations in channels 14 through 20 need to be vigilant. Stay tuned.

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FOCUS ON SBE

By John L. Poray, CAE
SBE Executive Director
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SBE Program of Certification Reaches 45

In November 1975, after much discussion and planning, the SBE launched its certification program. The first stage of the program was a grandfathering provision that in the first 24 months saw more than 1,100 engineers granted the Senior Broadcast Engineer certification by an SBE Certification review board.

By 1977, the first exams were taken, and though it started slowly, the program steadily gained acceptance and respect from industry engineers and employers. At the beginning, there were just three certification levels: Associate Broadcast Engineer, Broadcast Engineer and Senior Broadcast Engineer, recognizing entry, intermediate and advanced levels of knowledge. Today, there are 15 different SBE certifications that include broadcast engineering, broadcast IT, specialist topics and master control operations. Nearly 3,000 individuals currently hold one or more SBE certifications and thousands of others have held SBE certification over the course of the past 45 years.

SBE certification has served to demonstrate and verify the knowledge and experience of those who obtain it to current and potential employers, other broadcast engineers and to themselves. In a time when no FCC mandated license exists for broadcast engineers, it became, and remains today, the best way to verify knowledge and experience of technical professionals within our industry.



The SBE Program of Certification owes its success to many people. Members of the SBE Board of Directors that served from 1972 through 1975 spent many hours discussing a new licensing or certification concept. Three men, Jim Wulliman, Ben Wolfe and John Wilner, are largely credited with getting the program off the ground through presentations to members and the industry to explain and “sell” the new program, as well as draft the first exam questions. Additional members, all respected in the industry, have served on the SBE National Certification Committee over the past 45 years and are credited with expanding the program, both in participation and in its breadth to reflect the variety of technical knowledge required within the broadcast engineering field. Wulliman became the first chair of the Certification Committee and also served for 21 years as Certification Director, handling many of the administrative chores, mostly after retiring from his own broadcast engineering career. National committee chairs that followed have included David Carr, Terry Baun, Chriss Scherer, Jim Bernier and our current chair, Ralph Hogan.

The SBE Program of Certification would also not be where it is today without the efforts of volunteer certification chairs at the chapter level who promote the program locally and serve or

arrange for exams as proctors. Some of these volunteers have been serving in this capacity for more than 25 years.

Our thanks too, go to the two national staff members who have served as Certification Director after Wulliman retired from that position. Linda Baun, who served the SBE for 14 years, 11 as certification director, and our current certification director, Megan Clappe, who has been with the SBE for 16 years, 13 of those in the certification director role.

The SBE Program of Certification has helped countless members over the years in their careers. If you haven’t availed yourself of the opportunity, there is no time like the present. Visit the sbe.org/certification pages for information about all of the certification levels and the exam process.

Tribute to John Lyons, CPBE

Since our last issue went to press, we lost a stalwart of the industry and the SBE, John Lyons of the Durst Organization in New York City. Since his passing on Nov. 29, 2019, much has been said about John’s many contributions to the industry. I would add that he was a 48-year member of the SBE, was an active member of SBE Chapter 15 in New York, and served on the national SBE Board of Directors in the 1970s, fairly early in his career. Perhaps more importantly, John would go out of his way to help you if you needed something, was always affable, yet professional in manner. He will be missed, especially by the New York City broadcasting community, where he contributed so much. Our condolences to his family and many friends.



Lyons

Transitions

In early January I shared with SBE President Wayne Pecena my plans to retire at the end of 2020. By the time December rolls around, I will have been with the SBE 28 years of what will be a 43-year career. Serving as the SBE’s executive director has been a rewarding experience for me, working with so many great members and leaders of this organization. During the latter part of this year I’ll have more to say about that. But for now, know that Wayne and the Board will be working diligently to identify and hire the next executive director and I look forward to helping them with the process.

Upcoming Webinars

Add these Webinars by SBE to your calendar

Wireshark - Trouble Shooting: Feb. 13

AoIP Module 1: Feb. 25

RF201 - TV Combiners: March 12

AoIP Systems Module 2: March 24

sbe.org/webinars





ENGINEERING PERSPECTIVE

By Ron Tellas
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State Legislatures Consider Low-voltage Laws

In October 2019, I was invited to attend the first-ever Connected Technology Industry Legislative Summit in Indiana to discuss topics not often discussed in wire and cable, but could drastically change the way we work. You may not realize that the 2019 legislative sessions brought on an unprecedented number of bills related to licensing, Power over Ethernet (PoE), low-voltage lighting and connected devices. Reading through these bills, it became obvious that they would impact who can install and integrate this technology.

NSCA (a trade association for commercial integrators) and CEDIA (a trade association for residential integrators) have been working closely with members to mitigate this type of state legislation, but knew it was time to get more people

legislation that limits the use of integrators and low-voltage installers when deploying structured cabling that delivers PoE. Other topics of discussion included:

- How to better understand the codes and compliance issues that govern cabling work
- Common legislative interests
- Confusion about industry classifications
- What to call low-voltage installers for U.S. Department of Labor and insurance purposes
- Workforce development that unites around common goals
- Requiring electrical licenses

In 2019, the NSCA says it has monitored more than 130 bills across 35+ states that could completely alter cable installation. Table 1 shows a few examples from 2019.

plugging and plugging a phone would violate the laws being presented. Other reasons have to do with the fact that it's new technology.

The NSCA has been successful in protecting the interests of its members so far. Chuck Wilson, NSCA executive director, says, "The proposed language is often so confusing that no legislator could have any idea how to read it. Many times, they need help understanding it and time to do additional research to discover what truly makes sense."

Reclassifying Installers

During the Connected Technology Industry Legislative Summit, we also discussed the industry's need for a new O*NET occupational code assignment for low-voltage installers (the actual term is yet to be agreed on). This would unify data-cabling installers in all industry segments under one name with like training and job responsibilities. (This information is managed by the U.S. Office of Management and Budget for use in collecting statistical information on occupations.)

In the past, low-voltage installers have been listed as part of a soon-to-be obsolete Electronic Equipment Technicians classification (to illustrate its obsolescence, duties included the repair of camcorders). To make this new classification a reality, the industry needs to help support and define the job title and its use in the commercial space.

Belden fully supports the work of NSCA, CEDIA and others that attended the Connected Technology Industry Legislative Summit as they mitigate legislation that would negatively impact integrators and low-voltage installers.

To get involved, you can join an association so your voice is heard. This will allow you to keep track of the latest developments, obtain training and certification, and give you a voice to address your concerns.

Editor's note: The SBE continues to watch for legislative actions such as this that would have an effect on our members. If you know of similar government activities, contact the SBE national office.

Arizona HB 2181	Registrar of contractors; licensing; exemption
Hawaii SB 423	Clarifies that a specialty contractor, acting as subcontractor, isn't prohibited from taking and executing a construction contract involving two or more crafts or trades if the performance of the work is incidental and supplemental.
Idaho SB 1009	Electrical contractors and journeymen; amends existing law to provide for licensure of electrical installers.
Maryland HB 164	Altering the purpose, composition, powers, and duties of the State Board of Master Electricians; authorizing the Board to issue apprentice licenses and journeyman licenses under certain circumstances.
North Dakota SB 2359	North Dakota Century Code, relating to the regulation of electricians and power limited technicians
New York A3748	Establishes voluntary licensure of master electricians by Department of State.
Texas HB 1141	Relating to an exemption from licensing requirements for certain electrical work.

Table 1. A sample of the 130 bills being considered across more than 35 states that could alter cable installation.

involved. They hosted the Connected Technology Industry Legislative Summit to bring together industry professionals from many associations, including Building Industry Consulting Service International (BICSI), Communications Cable & Connectivity Association (CCCA), Continental Automated Buildings Association (CABA), Electronic Security Association (ESA), Security Industry Association (SIA) and Telecommunications Industry Association (TIA).

Sixteen companies in total – including a few manufacturers – discussed the state

In simple terms, much of this proposed legislation would require an electrical license to plug in PoE ports or pull and install PoE cable. An extreme case in Pennsylvania had proposed legislation on the table that would have required a licensed electrician to install any cabling carrying more than 10 volts.

Why is this happening? Some people incorrectly believe that PoE is dangerous, despite their coming into contact with PoE cables every day. Simply un-

WEBINAR

Belden offers a free webinar called "An Up-Close Look at Recent PoE Legislation: Should Licenses be Necessary?" bit.ly/2Z99f5k

- AC Video Solutions • 2014**
Andrea Cummis 201-303-1303
Consulting, Systems Design/Integration
- AEQ Broadcast International • 2015**
Peter Howarth 954-581-7999
Broadcast Audio, Video and Communications
- American Tower Corporation • 2000**
Peter A. Starke 781-926-4772
Development/Construction/Management
- Audemat-Worldcast Systems Inc. • 2000**
Christophe Poulain 305-249-3110
Control Manufacturer
- AVCOM of Virginia, Inc. • 2010**
Tom Pagonis 804-794-2500
Spectrum Analyzers
- Belden Electronic Division • 1991**
Rose Lockwood 203-500-4743
Fiber and Copper Cabling Infrastructure
- Blackmagic Design • 2012**
Terry Frechette 408-954-0500
Production Switchers, Digital Cameras,
Routers, Video Editing and Monitoring, Color
Correction, Video Converters
- Bracke Manufacturing LLC • 2012**
Patra Largent 949-756-1600
RF & Microwave Components
- Broadcast Depot • 2018**
John Lackness 305-599-3100
TV, Satellite, Radio, IP
- Broadcast Devices, Inc. • 2015**
Robert Tarsio 914-737-5032
Audio/RF Support Products
- Broadcast Electronics Inc. • 1978**
Tom Beck 217-224-9600
Radio Equipment Manufacturer
- Broadcast Software International • 2016**
Marie Summers 888-274-8721
Radio Automation, Audio Logging
- Broadcast Supply Worldwide • 1986**
Shannon Nichols 800-426-8434
Audio Broadcast Equipment Supplier
- Broadcasters General Store • 2004**
Buck Waters 352-622-7700
Broadcast Audio Video Distributor
- Burk Technology • 2019**
Tom French 978-486-0086 x613
Transmitter Facility Control Systems
- Calrec Audio • 2016**
Helen Carr 703-307-1654
Audio Mixing Equipment
- Camplex • 2017**
Daniel Coscarella 800-445-7568 x7409
Fiber Optic Cable Assembler
- Canon USA Inc. • 1985**
Larry Thorpe 201-807-3300,
800-321-4388
Broadcast Lenses & Transmission Equipment
- Cavell, Mertz & Associates Inc. • 2011**
Gary Cavell 703-392-9090
Consulting Services
- Comrex Corporation • 1997**
Chris Crump 978-784-1776
Audio & Video Codecs & Telephone Interfaces
- Continental Electronics • 1976**
Dale Dalesio 412-979-3253
TV and Radio Transmitters
- CueScript • 2014**
Michael Accardi 203-763-4030
Teleprompting Software & Hardware
- Davicom, Division of Comlab, Inc. • 2014**
Louis-Charles Cuierrier 418-682-3380 x512
Remote Site Monitoring and Control Systems
- DEVA Broadcast • 2015**
Toddr Ivanov 305-767-1207
Monitors, IP Audio Codecs, RDS/RBDS
Encoders, Audio Processors, Broadcast Tools
- Dialight Corporation • 2006**
US Headquarters 732-919-3119
FAA Obstruction Lighting, LED Based
- Dielectric • 1995**
Cory Edwards 207-655-8131
TV & FM Transmission & Cellular Products
- Digital Alert Systems, LLC • 2005**
Bill Robertson 585-765-1155
Emergency Alert Systems
- DoubleRadius, Inc. • 2012**
Jeffrey Holdenrid 704-927-6085
IP Microwave STL
- Drake Lighting • 2015**
Dave Sheppard 270-804-7383
FAA Obstruction Lighting - Medium and High
Intensity
- DTS Inc./HD Radio Technology • 2014**
Rick Greenhut 443-539-4335
HD Radio Technology
- du Treil, Lundin & Rackley, Inc. • 1985**
Jeff Reynolds 941-329-6000
Consulting Engineers
- The Durst Org. - 4 Times Square • 2004**
John M. Lyons, CPBE 212-997-5508
TV/FM/Microwave Tower Site
- DVEO - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- Econco • 1980**
Debbie Storz 800-532-6626,
530-662-7553
New & Rebuilt Transmitting Tubes
- ENCO Systems Inc. • 2003**
Ken Frommert 800-362-6797
Layout and Automation Solutions
- ERI - Electronics Research • 1990**
David White 812-925-6000
Broadcast Antennas, Transmission Line,
Filters/Combiners, Towers and Services
- Florical Systems • 2008**
Shawn Maynard 877-774-1058
Television Broadcast Automation
- Fujifilm/Fujinon • 1986**
Gordon Tubbs 973-686-2769
Broadcast & Cine Lens Products
- GatesAir • 1977**
Dave Hopson (TV) 513-445-5243
Mark Goins (Radio) 513-899-9124
Broadcast Equipment Manufacturer
- Heartland Video Systems, Inc. • 2011**
Dennis Klas 920-893-4204
Systems Integrator
- Highlights, Inc. • 2016**
Timothy Nash 352-564-8830
Obstruction Lighting Maintenance
- Hitachi Kokusai Electric Comark • 2013**
Jack McAnulty 413-998-1523
Manufacturer Broadcasting Transmission
Equipment
- iHeartMedia, Inc. • 2019**
Troy Langham 918-664-4581
Radio Group Owner
- IMT-Vislink • 2009**
John Procacci 908-747-3011
Wireless Video Systems
- Indiana Broadcasters Association • 2019**
Dave Arland 317-701-0084
Indiana Association for Radio & TV
Broadcasters
- Inovonics Inc. • 2012**
Gary Luhrman 831-458-0552
Radio Broadcast Equipment
- JAMPRO Antennas Inc. • 2011**
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB
- JVC Professional Video • 2014**
Edgar Shane 973-317-5000
Professional Video Products, Camcorders,
Display Monitors, Recording Decks
- Kathrein USA Inc. • 1985**
Les Kutasi 214-238-8835
Antennas for Broadcasting & Communications
- Kintronc Labs, Inc. • 2015**
Joaquin Raventos 423-878-3141
Radio Broadcast Antenna Systems - ISO9001
Registered Company
- LBA Technology Inc. • 2002**
Javier Castillo 252-757-0279
AM/MMW Antenna Equipment & Systems
- Linkup Communications Corporation • 2017**
Mark Johnson 703-217-8290
Satellite Technology Solutions
- LYNX Technik • 2007**
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer
- Markertek • 2002**
Wesley Brewer 800-522-2025
Specialized Broadcast & Pro-Audio Supplier
- Micronet Communications Inc. • 2005**
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning
- Microwave Video Systems • 2011**
Warren J. Parece 781-665-6600
Microwave Equipment Rental, Sales & Service
- Moseley Associates Inc. • 1977**
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television
- MusicMaster • 2014**
Shane Finch 352-351-3625
Advanced Music Scheduling Solutions
- Nascar Productions • 2014**
Abbey Kielcheski 704-348-7131
Live/Post Production Services
- National Association of Broadcasters • 1981**
Industry Trade Association 202-429-5340
- National Football League • 1999**
Ralph Beaver 813-282-8612
Game Day Coordination Operations
- Nautel Inc. • 2002**
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer
- Nemal Electronics Int'l Inc. • 2011**
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber
Optic
- Neutrik USA, Inc. • 2012**
Kathy Hall 704-972-3050
Ruggedized Optical Fiber Systems
- NPR Distribution Services • 2019**
Dan Riley 202-513-2624
Your Content Delivery Partners
- Orban Labs, Inc. • 2011**
Mike Pappas 480-403-8300
Audio Processing AMFMTV
- Pasternack Enterprises • 2001**
Christine Hammond 949-261-1920
Coax & Fiber Products
- Potomac Instruments • 1978**
Zachary Babendreier 301-696-5550
RF Measurement Equipment Manufacturer
- ProAudio.com- A Crouse-Kimzey Co. • 2008**
Mark Bradford 800-433-2105 x560
Proaudio Broadcast Equipment Distributor
- Propagation Systems Inc. - PSI • 2010**
Doug Ross 814-472-5540
Quality Broadcast Antenna Systems
- QCommunications • 2019**
Tony zumMallen 816-729-1177
Services Behind the Scenes
- Quintech Electronics and Communications Inc. • 2002**
James Herbstritt 724-349-1412
State-of-the-art RF Hardware Solutions
- QVC • 2011**
Kevin Wainwright 484-701-3431
Multimedia Retailer
- Radio Frequency Systems • 2015**
Eddy Vanderkerken 214-471-6693
Broadcast Infrastructure Manufacturer
- RF Specialties Group • 2008**
www.rfspecialties.com
Everything from the Microphone to the
Antenna
- Rohde & Schwarz • 2003**
Walt Gumbert 724-693-8171
Transmitters, Test & Measurement, Video
- Ross Video Ltd. • 2000**
Jared Schatz 613-228-0688
Manufacturer, Television Broadcast Equipment
- Sage Alerting Systems Inc. • 2010**
Harold Price 914-872-4069 x113
Emergency Alert Systems Products
- SCMS Inc. • 2000**
Bob Cauthen 800-438-6040
Audio and RF Broadcast Equipment Supplier
- Seacom Erectors, Inc. • 1997**
John Breckenridge 360-793-6564
Tower/Antenna Erections
- SEG • 2014**
Chris Childs 913-324-6004
Supply Chain Products and Services
- Shively Labs • 1996**
Dale Ladner 888-SHIVELY
FM Antennas & Combiners
- Shure Incorporated • 2012**
Bill Ostry 847-600-6282
Microphones, Wireless Systems, Headsets
- Sierra Automated Systems and Eng. Inc. • 2011**
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms
- Solid State Logic • 2014**
Steve Zaretsky 212-315-1111
Digital Audio Mixing Consoles, Networked
Audio Routing, Embedded Audio Solutions
- Staco Energy Products Co. • 2010**
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- SuiteLife Systems • 2019**
Kenneth Miller 310-405-0839
Manage. Monitor. Control
- Sutro Tower Inc. • 1989**
Eric Dausman 415-681-8850
Broadcast Tower Leasing
- Technical Broadcast Solutions, Inc. • 2018**
Robert Russell 215-983-0855
Engineering and Consulting Services
- Teledyne e2v US • 1997**
Dominic Piarulli 845-578-6137
Electronic Components
- Teletream/Tektronix Video • 1977**
Theresa Cantrell 503-627-3791
Video Test & Measurement, Equipment
Manufacturer
- Televs USA, LLC • 2018**
Andy Ruffin 937-475-7255
ATSC 3.0 Transmission Solutions, Antennas
- Telos Systems/Omnia/Axia • 2003**
John Bisset 216-241-7225
Telos Systems Talk-Show Systems
- Teradek • 2011**
Jon Landman 949-743-5783
Camera-top ENG Solutions
- Tieline The Codec Company • 2003**
Dawn Shewemaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor
- Wheatstone • 2010**
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors
- Wireless Infrastructure Services • 2006**
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey
Services

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Member Spotlight: Joe Geerling

Member Stats

SBE Member Since: 1982
SBE Certification: CPBE, CBNT
Chapter: 55 St. Louis
Employer: Covenant Network
Position: Director of Engineering and Technology
Location: St. Louis
I'm Best Known For: Finishing large projects on time and on budget.

Q What do you value most about your SBE involvement?

A The SBE is where I went from being a curious electronics enthusiast who got a radio gig, to learning the trade from mentoring engineers like Ed Bench, and trading experiences with fellow young engineers like Sam Caputa.

Q What got you started in broadcast engineering?

A My grandfather volunteered me to help with a station being built under the Docket 8090 expansion. I was working at McDonnell Douglas at the time. I saw two very different ways of using my



Joe accepts the NAB Crystal Radio Award at the 2017 NAB Show on behalf of KMOX. No one else from the station was able to attend.

knowledge of electronics. A very compartmentalized world building fighter planes and missiles or the world where you conceive, propose, buy, build, install and train users.

Q Who do you consider to be a mentor?

A The late great Ed Bench was a humble teacher who taught me a lot about FM antenna systems, how RF moves and is controlled, how cool you can be under pressure, and a dedication to helping others.

Q What do you like most about your job?

A I just changed jobs from a large radio company to a very small company. I feel I am back to what drew me into radio in the beginning - listening, learning the needs, and working from concept to completion.

Q When I'm not working, I...

A ...love time with my family. I love teaching my kids, and now their kids. We rip broken electronics apart and fix some. Playing with new tech like my Mavic drone. And keeping an eye on the great teams in St. Louis like Cardinal Baseball and Blues Hockey.

Q What's your favorite gadget?

A My favorite gadget is my Mavic drone with the 4K camera. I do everything from inspecting guy anchors and beacons to checking the leaves in the gutter. My nerd dream would be to connect my FLIR thermal sensor and my bandscanner2 to the drone.



In Memoriam

John Lyons, CPBE
Member #1576
1948 - 2019

Fellow
Past Board Member

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SBE Fellow Nominations Are Open

There is still time to recognize a broadcasting peer who has contributed to the success of an SBE chapter or broadcasting. The membership grade of SBE Fellow is the highest in the society, and it honors those who have exhibited a dedication to the advancement of the broadcast engineer, the field of broadcast engineering and the Society of Broadcast Engineers itself. To date, 85 members have been recognized with the honor in the society's more than 55 years of existence.

To nominate a member, candidates must be proposed in writing by a voting SBE member to the Fellowship Committee. The nomination must include a comprehensive professional history of the nominee and an explanation of why the candidate is deserving of this honor. The nomination must also include the written endorsements of at least five other voting SBE members. Nominations are confidential. No others besides the nominators and the members of the Fellowship Committee should be aware of the nomination. The nominee should not know that he or she has been nominated.

Nominations for 2020 must be received no later than March 27, 2020, for consideration. The Fellowship Committee will bring the names of nominees to the Board of Directors for consideration and election at the April 19, 2020, meeting. The SBE secretary will notify those elected. Recipients will be recognized at the SBE National Awards Dinner on Sept. 23 during the 2020 SBE National Meeting to be held in Syracuse, NY.

Submit your nominations in a single package to: Fellowship Committee Chair Troy Pennington, CSRE, CBNT; 6156 Hampton Hall Way; Hermitage, TN 37076; or to tpennington@sbe.org.

Candidates Sought for SBE Election

The annual election of officers and directors to the national SBE Board of Directors will take place this summer. The SBE Nominations Committee seeks qualified candidates who are voting members (Member, Senior, Fellow or the designated representative of a SBE Sustaining Member) in good standing (dues paid). Candidates must hold an engineering level of SBE certification (CBT or higher or CBNE) and maintain it the entire duration of service on the Board, if elected. Candidates should have a desire to serve and lead as a member of the board and through service as a national committee chair or member. Members of the Board represent all members, not a specific region or chapter. It is suggested that candidates have previous experience as a leader in his or her local chapter, or other volunteer leadership experience, prior to running for the national SBE Board.

Members of the Board are expected to attend two regularly called meetings each year: in the spring, held during the annual NAB Show, and in the fall, at the annual SBE National Meeting. Other meetings may be called via conference call during the year.

The national SBE board includes 12 directors, four officers and the immediate past president. Directors serve two-year terms and officers serve one-year terms. Six director seats will be contested in 2020 as will all four officer positions. The SBE By-laws limits the number of terms for elected members of the Board.

If interested, contact SBE Nominations Committee Chair Jim Leifer, CPBE, at jleifer@sbe.org or 561-301-3466. A nomination slate will be assembled by the committee by May 1. Other qualified members may be nominated by members no later than July 2.

The election runs from July 17 to Aug. 19. Those elected will be installed at the SBE National Meeting in Syracuse, NY, on Sept. 23.

WELCOME TO THE SBE

NEW MEMBERS

Everest Balladares - San Francisco, CA
 Peden K. Barber - Montgomery, AL
 Stephan Barreres - Plainview, NY
 Deran Browne - Bellingham, WA
 R. Scott Childers - Romeoville, IL
 Colin Darschewski - Glendale Heights, IL
 Kenneth E. Fox - Athens, AL
 Mark A. Goodman - San Diego, CA
 Brian Haywood - Columbia, MD
 Nicholas J. Hottinger - Boise, ID
 Jason Johansen - Bridgton, ME
 Justin Lange - Minneapolis, MN
 Becky A. Meiers - Sitka, AK
 Ron P. Milione - Huntington Station, NY
 David J. Mitchell - Brentwood, TN
 Preetam Mohanty - Bhubaneswar, Odisha, India
 Damian Molina - North Hollywood, CA
 Alberto Negron - Redlands, CA
 Thomas Nowik - Portland, CT
 Allen Palmer - Garner, NC
 Michael T. Pappas - Auburn, AL
 Steifon J. Passmore - Florence, AL
 Mathew M. Petronelli - New York, NY
 Shawn M. Provencher - Salem, MA
 Jeffrey Schultz - East Brunswick, NJ
 Chuck E. Stanley - Raleigh, NC
 Jim Steinhart - Milwaukee, WI
 Dean Swope - Bethel, AK
 Lawrence C. Thompson - Portales, NM
 Ronnie Williams - Miami, FL
 Jay Yogeshwar - Staten Island, NY

NEW STUDENT MEMBERS

Nicholas R. Morin - Denton, TX
 Hector Munoz - Sunrise, FL

NEW ASSOCIATE MEMBERS

Charles J. Leslie - Alabaster, AL
 Ryan A. Zondervan - Pella, IA

RETURNING MEMBERS

Christopher W. Boone - New Orleans, LA
 Edwin A. Bukont - Gallatin, TN
 Ronald R. Clements - Hueytown, AL
 Stacey W. Culbreath - Sicklerville, NJ
 Bruce R. Hart - Akron, OH
 Roy E. Kellerman, Jr. - Northville, MI
 Geoffrey D. King - Decatur, GA
 Christopher J. Lapp - Chatham, ON
 Lucretia R. Lee-Arceneaux - Decatur, GA
 Troy C. Majeska - Davenport, FL
 Gregory W. Ristau - Kent, WA
 John P. Schlusser - Poughkeepsie, NY
 Brian T. Vita - Peabody, MA
 Joseph M. Wade - Brandon, MS

RETURNING ASSOCIATE MEMBERS

E. Len Doughty - Norman, AR



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MEMBERS ON THE MOVE



◀ **Mario Hieb**, CPBE, CBNT, is chief engineer at KSE Radio Ventures/Altitude Radio, Denver.

▶ **Randy Woods**, CBNE, is director of technology at New Hampshire Public Radio, Concord, NH.

▶ In November, **Mark Richer**, past president of the ATSC, was named to the Giants of Broadcasting and Electronic Arts for 2019 by the Library of American Broadcasting Foundation.

▶ **Charles Lelievre**, CBRE, is manager, system engineering & reliability, Direct-



to-Consumer & Digital Enterprises at NBCUniversal/Peacock, New York City.

▶ **Christopher Boone** is engineering manager at iHeartMedia, New Orleans.

▶ **Fred Baumgartner**, CPBE, CBNT, received the 2019 Lee de Forest Award from the Radio Club of America for significant contributions to the advancement of radio communications.

▶ **Nathan Russell**, CBNE, is a broadcast field engineer at Alpha Video, Tallahassee, FL.



Have a new job? Received a promotion? Send your news to Chriss Scherer at cscherer@sbe.org.

MARK YOUR CALENDAR

S	M	T	W	T	F	S
SBE Certification Exams						
Local Chapters						
Feb. 7-17, 2020 sbe.org/certification						
Application deadline closed						
SBE WEBxtra						
online						
Feb. 17, 2020 sbe.org/webxtra						
SBE WEBxtra						
online						
March 16, 2020 sbe.org/webxtra						
SBE Membership Meeting						
NAB Show						
April 20, 2020						
SBE Certification Exams						
NAB Show						
April 21, 2020 sbe.org/certification						
Application deadline March 9, 2020						



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