THE Signal
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SBE
The Association for Broadcast and Multimedia Professionals

www.sbe.org
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Nominations Open for SBE Awards

Who will the next national SBE Engineer of the Year award recipient be? It could be you, it could be someone you nominate. This will be the eighth year that the Chapter Engineer of the Year award is awarded by SBE Chapters. The chapter honorees are then entered into consideration for the national Robert W. Flanders SBE Engineer of the Year award. Each chapter can establish its own criteria for the chapter award. Individuals can also be nominated directly for the national award. The national award nominations need to be submitted to the National Office by June 15.

There are other honors as well. The James C. Wulliman SBE Educator of the Year; the SBE Technology Award; Facility Innovation of the Year; Best Technical Article, Book or Program by an SBE Member; Best Article, Paper or Program by a Student Member; and the Freedom Award are among the accolades. There are also a series of statistical awards.

Of the many awards recognizing chapters that are presented each year, a local chapter or SBE member makes nominations for 10 of them. 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.

Nominate an SBE member or a chapter for an award.

For information about these and any of the SBE National Awards, please visit sbe.org/awards or contact Megan Clappe at mclappe@sbe.org. Recognition by your peers is the highest honor. Honor your colleagues today.

NAB Cancels NAB Show, SBE Events Affected

On March 11, the National Association of Broadcasters announced that the 2020 NAB Show would not be held in April due to the evolving situation involving the coronavirus (COVID-19). From the NAB's announcement:

"In the interest of addressing the health and safety concerns of our stakeholders and in consultation with partners throughout the media and entertainment industry, we have decided not to move forward with NAB Show in April. We are currently considering a number of potential alternatives to create the best possible experience for our community."

With the announcement, the SBE events and meetings scheduled to coincide with the April NAB Show have been cancelled. This includes the SBE Ennes Workshop, held in conjunction with the BEIT Conference, and the SBE at PBS TechCon educational programs.

The NAB has indicated that it is looking at potential alternatives to hold the show at a later date. Like everyone else, the SBE will await further word from the NAB

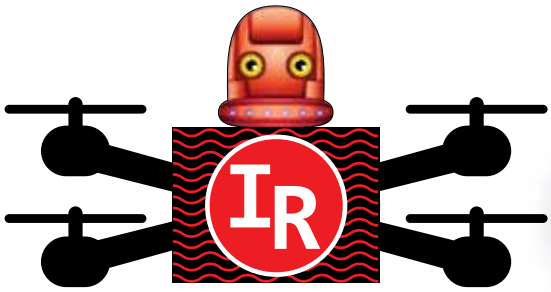
see CONVENTION, p. 9


The SBE planned many events to be held at the NAB Show.

IN THIS ISSUE

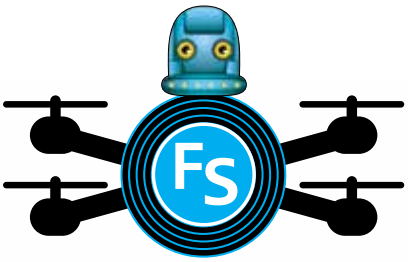
COMMUNICATIONS, LLC

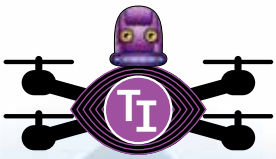
QComm stands for “Quality Behind the Scenes”



Alert! Alert!

Burnouts will prevent critical messages from reaching your viewers. Accurate IR Reports will keep you safe from burnouts during this critical time. Call us!





QComm provides:

Drone Services:
- Coverage Verification through Field Studies
- Infrared Report to prevent burnouts

Installation Services:
- Install transmitters and components (OVER 76 installed and counting)
- Decommissioning (Over 29 decommisssioned and counting)

Project Management Services:
- Vendor Management
- FCC 399 Processing and RFAS Rebuttals
- 399 close out and audit document packages

Engineering and Design
Site Surveys
Disaster Plans

REPACK.TV

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SBE National Office
317-846-9000 www.sbe.org

Not Too Late to Renew Your SBE Membership

It is still not too late to renew your membership in the Society of Broadcast Engineers and retain your membership benefits. Those in the Member, Senior, Student, Associate and Fellow membership categories may renew online at www.sbe.org. Click on "Renew Membership" in the upper right-hand corner of the website home page. The online system is available 24/7, 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 website password to access the renewal system, but if you don't have them handy, there is an automated retrieval system available to you on the renewal page.

When renewing, consider joining more than 1,000 fellow SBE members who have chosen the SBE MemberPlus option over the past year. For $175, the SBE MemberPlus option provides all of the benefits of traditional membership, plus access to all archived SBE webinars and all new SBE webinars produced through March 31, 2021. That's more than 90 webinars covering a broad range of broadcast/media technology, regulatory and safety topics. It includes our series on ATSC 3.0/Next-Gen TV, the popular eight-part RF101, nine-part (and growing) RF201, five-part Fundamentals of IP Networking series and many more.

You may also renew your membership by mail, completing and returning the renewal form and your payment to the SBE national office: Society of Broadcast Engineers, 9102 N. Meridian Street, Suite 150, Indianapolis, IN 46260; or by fax at 317-846-9120.

Note to SBE Traditional and MemberPlus Members

Membership renewal was due April 1. SBE By-laws provides for a three-month grace period (extends through June 30). To those members who chose the SBE MemberPlus option in 2019: If you did not renew by April 1, please be aware that your SBE MemberPlus option benefits ended on April 1, 2020 and your membership was automatically converted to traditional membership for the duration of the grace period. If you renew during the grace period (or after), you can restore your free access to all SBE webinars by taking the SBE MemberPlus option.

CQ Certification Question

Answer on page 6

The "inverse distance field" is the term used to describe which relationship between field strength and distance?
Field strength is...

A. directly proportional to distance.
B. inversely proportional to power.
C. inversely proportional to distance.
D. equal to the power divided by the distance.

LETTER FROM THE PRESIDENT

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

The Suitcase is Back in the Closet

Like many of you, I was preparing for the annual trek to the National Association of Broadcasters (NAB) annual convention in Las Vegas. The suitcase was already dusted off and I was evaluating the need for a new pair of shoes to endure the week or so away. When word came that the NAB Show was cancelled (or at least postponed), the suitcase went back into the closet, and there was no need to go shoe shopping. Whereas the announcement did not come as a surprise, it was disappointing when it became official. And not only was the NAB Show cancelled, it meant the numerous related events from the PBS TechCon, the APRE PREC, the IEEE-BTS, and of course the various SBE programs and events held in conjunction with the NAB Show.

I want to offer a sincere thank you to the many individuals that have worked to put together the various SBE-sponsored programs and events at the NAB Show that were instantly wiped off the calendar. The SBE had a robust schedule of professional development events lined up beginning on Saturday with the Ennes Workshop and the SBE at PBS TechCon. Tom Mikkelsen, Stan Moote and Fred Baumgartner lead these programs and deserve a special thank you. And of course, a hearty thank you to the SBE national office staff who insures that the myriad of logistics details are handled for the various educational programs to the membership meeting, committee meetings and stocking the SBE exhibit booth. For me, my procrastination might have paid off for once as my four various presentations to be delivered in April were barely in the works and deadlines *were* looming.

By the time this issue of *The Signal* reaches your mailbox, I hope our country has returned to some sense of normal. Normal might just be defined as the basic necessities of life existing on the grocery store shelves. Social and professional events are likely to be impacted for some time to come as the Center for Disease Control advisories as of mid-March (when this column goes to print) extend well into May with social distancing becoming the new norm.

Back to Business

I trust you have renewed your annual SBE membership by now. If you have not yet renewed, I trust you will do so today to not miss taking advantage of SBE member benefits such as the MemberPlus option, where webinar content continues to be added monthly. Also note that beginning this year, the SBE offers a MemberPlus option for Student members and Life members. Take advantage of "social distancing" and remain engaged in the SBE, by catching up on some continuing education through webinars and viewing the monthly SBE WEBxtra. Remember, both of these events earn recertification credits and are available on-demand if your schedule does not allow attendance during the live event. For our amateur radio operator/ham members, don't overlook the SBE Chapters of the Air. The HF Hamnet Chapter of the Air takes place on the second Sunday of every month at 0000 GMT on or around 14.205 MHz. Member Hal Hostetler, WA7BGX serves as net control. The SBE UHF/VHF Hamnet is Monday night at 9 p.m. ET (6 p.m. PT) worldwide via a wide range of connection options. (Go to sbe.org/hamnet for details.) Jack Roland, CBRE, AMD, CBNT, KEØVH, is net control.

Speaking of certification, it is one of the key benefits the SBE offers its members and contributes to the advancement of the broadcast engineering industry as a whole. Many professions offer certification in their respective fields. One of those is the American Society of Association Executives' Certified Association Executive (CAE) certification. The CAE is the highest professional credential offered in the association industry. I mention this specific certification as our own Executive Director John Poray holds the CAE credential and was recently renewed based on his meeting the required education and leadership activity requirements. The CAE as well as the SBE certification programs serve as industry standards to assess experience, knowledge and skills in their respective industry roles. Congratulations to John for his continued achievement.

> **"Get certified; a professional certification easily moves you at least a thousand rows ahead of others with similar knowledge."**
>
> *~ Wasay Syed*

Broadcasters seem to be in a continuous challenge to retain allocated spectrum. The re-allocation of 6 GHz spectrum is just one recent proposed rulemaking under consideration by the Federal Communications Commission. Be sure to read SBE General Counsel Chris Imlay's column in this issue regarding reallocation of portions of the 6 GHz spectrum from broadcasters. Chris has filed ex parte comments in this matter with the FCC on behalf of SBE and represents the strongest position made by SBE to date.

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 recruitment efforts will be rewarded during April and May during the SBE Membership Drive. As a recruiter, you can receive a reduction of your 2021 membership dues or even win a trip to the 2020 SBE National Meeting in Syracuse, NY. Several SBE Sustaining Members have contributed prizes. Act today as the recruitment program ends May 31!

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. A sincere *thank you* to those I have heard from. Stay healthy!

EDUCATION UPDATE

By Fred Engel, CPBE
Chief Technology Officer
UNC-TV Public Media North Carolina; Research Triangle Park, NC
fengel@unctv.org

UNC-TV, ATSC 3.0/NextGen TV and Public Safety

I have worked in this exciting and changing business for more than 40 years. It has been gratifying to have had a front-row seat in cutting-edge technological innovation. Early in my career, I participated in the development of stereo audio for analog broadcast television, very early high-definition television production work, and (my favorite) with our team at Kentucky Educational Television where we engineered a live video event with astronauts on the International Space Station who were interviewed by middle school students. Now I find myself in the latter part of my career immersed deeply in ATSC 3.0/NextGen TV. What a ride!

UNC-TV is North Carolina's statewide PBS network. Our licenses are held by the University of North Carolina System, and we broadcast from 12 full-power UHF transmitters and 25 translators to serve our state. Our microwave and tower network, shared for decades with more than 40 federal, state and local public safety communications organizations, is critical to the well-being of our citizens. The shared infrastructure along with our emergency weather-related announcements coordinated with the North Carolina Department of Public Safety has been a pillar of our mission.

We have kept our eye on developments with ATSC 3.0/NextGen TV since it was first introduced. We see immediate benefit to the consumer in higher picture quality, a greatly enhanced listening experience, interactivity with internet-connected TVs, advanced emergency alerting, and the promise of much improved over-the-air reception (including mobile).

With ATSC 3.0's advanced video encoding, HEVC, and overall channel data carrying capacity increase, we are looking at how to provide an exceptional viewing experience for our viewers, but also to determine how to use the leftover data capacity within the channel.

In 2016, members of the North Carolina public safety community approached us with a very real problem. Analog voice pager service, based on 1960s technology and used by 80% of volunteer firefighters in the United States, is an alert system that needs a refresh. After several discussions, it was hypothesized that ATSC 3.0/NextGen TV might be an effective technology to address this critical technology need. The next step was to write a white paper (link below) that describes the problem in detail and the potential solution.

The white paper was followed by the creation of a proof of concept whereby 911 dispatch data was tunneled to the WRAL/Capitol Broadcasting Company's Raleigh, NC-based ATSC 3.0/NextGen TV experimental transmitter and successfully decoded and displayed. This work resulted in UNC-TV winning the prestigious National Association of Broadcasters 2017 Pilot Innovation Challenge Grant First Prize, a competition of 150 national and internal applicants, for creative uses of broadcast technology.

Vendor community members joined the UNC-TV engineering team to commission the end-to-end research environment, which is being used to further test public safety communication concepts.

The Public Safety Research Center

The next step for us was to develop a facility to continue the research. We have created the Public Safety Research Center of North Carolina. The Center has all the needed ATSC 3.0/NextGen TV systems, from encoder to receiver, to test various configurations and applications with the goal of researching, testing and, hopefully, deploying public safety communication applications.

ATSC 3.0/NextGen TV's use of OFDM, the multi-carrier modulation scheme, promises to provide far better OTA reception than the current technology. With the added benefit of creating Physical Layer Pipes (PLPs) customized for delivering multiple quality-of-service applications, we will fine tune our designs to best meet the need for our consumer audience and public safety communications needs. One of the focus areas will be on-body receivers to test the robustness of delivery and reception to validate our hypothesis.

UNC-TV plans to take these lab tests to the field, hopefully soon. We have identified one of our transmission facilities in the state where we have significant overlap from other transmission sites. We have begun the process of research on coverage predictions and legal concerns to determine if this is feasible. With this launch, we hope to make this facility available as a living, broadcast lab to field test equipment and applications, especially those focusing on public safety communications.

These are exciting times with a new technology that may provide applications far beyond the dreams of those who designed it. It is our intent to explore those opportunities with partners who share that same vision for curiosity and innovation.

WHITE PAPER
unc.tv/paging

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

Education Almanac

Upcoming Webinars

April 29: AoIP Series, Module 3 – Manufacturer Deep Dive
May 14: RF Safety Webinar
sbe.org/webinars

Ennes Workshop

May 29: El Paso, TX
sbe.org/ennes_workshop

Leadership Development Course

August 4-6: Atlanta
sbe.org/ldc

Have an idea for a webinar?
Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

CERTIFICATION UPDATE

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

Big Thanks for the Volunteer Efforts

The SBE is made up of a multitude of volunteers. There are seven employees who work at the National Office, but the real momentum of the SBE is because of those who dedicate their personal time to further the goals and objectives of broadcast engineering through the SBE. This includes, but is not limited to the Board of Directors, all the various SBE committees in addition to the Certification Committee, and the local chapters including the chapter certification chairmen.

Every year at the annual membership meeting during the NAB Show, the SBE recognizes the local certification chairs who devote volunteer time to the Program of Certification. These local certification chairs receive a plaque on the recurring five-year anniversaries. While the NAB Show is not being held in April, we still want to recognize their efforts.

Thank you very much to all the volunteers who devote so many hours to the SBE and the certification program!

Chapter Certification Chairs

Ryan Phillips, CBTE, CBNT, CBT, CTO: Chapter 16
Doug Irwin, CPBE, AMD: Chapter 47
Joe Davis, CPBE: Chapter 54
Keaton Scovel, CBRE: Chapter 109
Vincent Atwood, CBTE, CBNE: Chapter 132
Michael Rubeck, CBNE: Chapter 132 — 1 YEAR

Paul Kaminski, CBT: Chapter 1
Robert Reite, CBT: Chapter 2
Ronald Rockrohr, CBTE: Chapter 59
Kenneth Colwell, CSRE, DRB, CBNT, CBT: Chapter 65
Hal Kneller, CPBE, AMD, DRB, CBNE: Chapter 90 — 5 YEARS

Gary Hartman, CPBE: Chapter 22
David Halperin, CBRE: Chapter 38
Juan Gonzalez, CSTE: Chapter 53 — 10 YEARS

George Marshall, CPBE: Chapter 15
Eric Hoehn, CSRE, CBNT: Chapter 37 — 20 YEARS

John Collinson, CPBE, 8-VSB, AMD, CBNE: Chapter 39 — 25 YEARS

Chuck Ingle, CPBE, AMD: Chapter 96 — 40 YEARS

George Werl, Jr., CPBE: Chapter 17 — 45 YEARS

National Certification Committee

James Bernier, CPBE, CBNE — 25 YEARS

CQ Answer from page 3

The answer is C

Field strength is inversely proportional to distance. The strength of an electric field as created by source is inversely related to square of the distance from the source. This is known as an "inverse square law". Electric field strength is location dependent, and its magnitude decreases as the distance from a location to the source increases.

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION

Certified Professional Broadcast Engineer (CPBE)
Joseph Geerling, Florissant, MO - Chapter 55

Certified Senior Radio Engineer (CSRE) AM Directional Specialist (AMD)
Brien Laufer, Torrance, CA - Chapter 47
Thomas Oliver, Villa Hills, KY - Chapter 35

Certified Senior Radio Engineer (CSRE) Digital Radio Broadcast Specialist (DRB)
Kenneth Colwell, Davenport, IA - Chapter 65

Certified Senior Television Engineer (CSTE) 8-VSB Specialist (8-VSB)
Brien Laufer, Torrance, CA - Chapter 47

Certified Senior Radio Television Engineer (CSTE)
William Bobich, Columbus, OH - Chapter 52
David Riffle, Rohnert Park, CA - Chapter 40

Certified Broadcast Television Engineer (CBTE)
Donald Jones, Trotwood, OH - Chapter 33

Certified Broadcast Networking Technologist (CBNT)
Kenneth Colwell, Davenport, IA - Chapter 65
Joseph Geerling, Florissant, MO - Chapter 55
Donald Jones, Trotwood, OH - Chapter 33

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.

CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)

Randall Kerbawy, Beckley, WV - Chapter 116
Catalin Popescu, P.E., Syracuse, NY - Chapter 22

Applicants must have 20 years of professional broadcast engineering or related technologies experience in radio and/or television. The candidate must be currently certified on the Certified Senior Broadcast Engineer level.

FEBRUARY EXAMS

Certified Broadcast Radio Engineer (CBRE)
Christopher Furphy, Mesa, AZ - Chapter 9

Certified Audio Engineer (CEA)
Matthew Higdon, Los Angeles, CA - Chapter 47

Certified Broadcast Technologist (CBT)
Jason Murphy, Portales, NM - Chapter 34

Certified Broadcast Networking Technologist (CBNT)
Ian Cushman, Nashville, TN - Chapter 103
Michael Gibson, Lancaster, CA - Chapter 47
Raymond Mayberry, Henrico, VA - Chapter 60
Luis Sandin, Crownsville, MD - Chapter 132
Jonathan Sanelli, Albertson, NY - Chapter 15

Certified Radio Operator (CRO)
Mark Smith, Wolcott, CT - Chapter 14

Certified Television Operator (CTO)
Paul Colton, Superior, CO - Chapter 48
Brandon King, Charlotte, NC - Chapter 45
Ismail Otu, Charlotte, NC - Chapter 45
Mark Smith, Wolcott, CT - Chapter 14

SPECIAL PROCTORED EXAMS

Certified Broadcast Networking Technologist (CBNT)
Jackson Buraczewski, Mequon, WI - Chapter 28
Daniel Powell, Phoenixville, PA - Chapter 18

Certified Broadcast Technologist (CBT)
Jackson Buraczewski, Mequon, WI - Chapter 28

Got your SBE Certification pin?
sbe.org/pins

CERTIFIED BY LICENSE (CBT)

Wesley Boyd, Girard, OH - Chapter 122

R. Scott Childers, Romeoville, IL - Chapter 26

CERTIFIED RADIO OPERATOR (CRO)

Robert Merrigan, Glasgow, MT

Killeen Career Center
Brandon Davidson, Harker Heights, TX
E'Manuel Estrada, Ft. Hood, TX
James Fortson, Killeen, TX
Joseph Huerta, Killeen, TX
Taylor Jones, Killeen, TX

Killeen Career Center (cont.)
Anjelica Lopez, Killeen, TX
Demico Moore, Harker Heights, TX
Dawson Schultz, Killeen, TX
Ta'Shaiya Smith, Killeen, TX
Noah Stewart, Killeen, TX

Pasadena City College
Marlene Adame, Montebello, CA
Ryan Browne, La Canada Flintridge, CA
William Hawkins, Altadena, CA
Randy Jones, Altadena, CA
Bryan Leon, Pico Rivera, CA
John Moriarty, Los Angeles, CA
Derick Nguyen, San Gabriel, CA
Brandon Weathersby, Pasadena, CA

CERTIFIED TELEVISION OPERATOR (CTO)

Joshua Baker, Whiteville, NC

Chastity Kennedy, Crystal River, FL

Robert Merrigan, Glasgow, MT

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.

Certified Professional Broadcast Engineer (CPBE)
Charles Dube, East Longmeadow, MA - Chapter 14
Michael Patton, Baton Rouge, LA - Chapter 72
Tony Peterle, Miami, FL - Chapter 53

Certified Senior Radio Engineer (CSRE)
William Bowin, Galion, OH - Chapter 52
Russell Hines, Cincinnati, OH - Chapter 33
Alan Shea, Butler, IN - Chapter 30
Donald Smith, Raleigh, NC - Chapter 93
Ron Thompson, Long Beach, CA - Chapter 47
Ashley Wallen, Inglewood, CA - Chapter 47

Certified Broadcast Radio Engineer (CBRE)
Christopher Howard, Dubuque, IA

Certified Broadcast Television Engineer (CBTE)
Christopher Castro, Kansas City, MO - Chapter 59
Edward Hinch, Groton on Hudson, NY - Chapter 15
James Kelly, Vancouver, WA - Chapter 124
Rem Roberti, Los Angeles, CA - Chapter 16
Chris Thomas, Seattle, WA - Chapter 16

Certified Broadcast Radio Engineer (CBRE) Digital Radio Broadcast Specialist (DRB)
Jeremy Preece, Roseville, CA - Chapter 131

Certified Broadcast Television Engineer (CBTE) 8-VSB Specialist (8-VSB)
Michael Galik, Clearwater, FL - Chapter 39

Certified Video Engineer (CEV)
Steven Pingelski, Cohoes, NY - Chapter 58

Certified Broadcast Networking Engineer (CBNE)
Michael Galik, Clearwater, FL - Chapter 39
Ryan Krupa, Rocky Hill, CT - Chapter 14

Certified Broadcast Networking Technologist (CBNT)
Sheryl Bowin, Galion, OH - Chapter 52
William Bowin, Galion, OH - Chapter 52
Jack Roland, Wheat Ridge, CO - Chapter 48
Alan Shea, Butler, IN - Chapter 30
Joshua Smith, East Longmeadow, MA - Chapter 11
Mark Wittkoski, Coopersville, MI - Chapter 102

Certified Broadcast Technologist (CBT)
Christopher Castro, Kansas City, MO - Chapter 59
Gilbert Greer, Lancaster, PA - Chapter 41
Joshua Hager, Anaheim, CA - Chapter 47
Stephen Hendrix, Cameron, MO - Chapter 59
Robert Holden, Powell, TN - Chapter 113
Joel Humke, Centennial, CO - Chapter 48
David Jones, Largo, FL - Chapter 39
James Kelly, Vancouver, WA - Chapter 124
Eric Khentigan, Cromwell, CT - Chapter 14
Gabriel Lopez, Atlanta, GA - Chapter 5
George Smith, Jr., Sonora, TX - Chapter 69
Mitchell Worby, Tacoma, WA - Chapter 16

Certified Television Operator (CTO)
Mark Flynn, Topeka, KS
Rodney Freed, Martin, TN - Chapter 103
Diane Goad, Columbus, GA
Cherish Myers, Las Vegas, NV

Certified Radio Operator (CRO)
Philip Masciantonio, New York, NY

2020 SBE Compensation Survey Open

The SBE is conducting its fifth (and ongoing) compensation survey. Launched to provide practical information to SBE members about individual compensation (salary and benefits) based on facilities, market size and years of experience, SBE members will have access to the full report.

While each annual survey has seen a successful response rate, your participation is important to provide the large sample pool for the most reliable results.

All survey responses are anonymous. Find the survey link in email communications and on the SBE website. With your help we can provide a useful and practical resource to SBE members.

Highlights of the survey will be reported in *The Signal*. The full report will be available for download to members from the SBE website. Take the survey today.

Webinars by SBE Spotlight
The Audio Over IP Webinar Series

Audio over IP is everywhere. Sure, there are some analog signals in use, but most new installations are routing signal via IP. While the earlier systems were manufacturer islands, standards have developed to allow equipment from different manufacturers to easily interface. There are currently three SBE webinar modules prepared. Modules 1 and 2 are available on demand. Module 3 will stream live on April 29.

You can register to attend any one or all the webinars in the series. SBE MemberPlus members can access all Webinars by SBE for free.

Module 1 - IP Networking for Real-Time Media Networks

The AoIP Webinar series began with a review of IP networking fundamentals found in and required by an IP network infrastructure supporting real-time media content. Wayne M. Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, took a deep dive in the hardware typically required by a media content network, the specific use of VLANs to create a segmented network, the implementation of multicast in a LAN environment, and quality of service (QoS) practices to insure quality of experience (QoE) performance.

Module 2 - AoIP Basics

This Module provides an entry-level understanding of the concepts of audio over IP and how it can be utilized in a modern facility. The different standards, how they can be integrated into modern facilities, and how they compare to the traditional analog and digital studio systems are covered. The presenter is Kevin Trueblood, CBRE, CBNT, associate general manager, technology and operations at WGCU Public Media in Fort Myers, FL. He is also the national secretary and chair of the SBE Government Relations Committee. He is also vice-chair of SBE Chapter 90 in Southwest Florida.

Module 3 - How AES67 Builds on 15 Years of AoIP Success

Despite more than 10,000 AoIP-based audio consoles working today and more than a half-million AoIP streams in operation at any given time, some aspects of AoIP remain mysterious. This webinar covers AES67 to provide a better understanding of IP multicast, the possibility of mixing AoIP and other data on an IP network, the potential points of failure, and connecting facilities without using IP-audio codecs. The presenter is Kirk Harnack, CBRE, CBNE, who is a member of the SBE Board of Directors. He is a senior solutions consultant at the Telos Alliance, and is a partner VP of engineering of South Seas Broadcasting, Inc., Delta Radio, LLC, and Kaua'i Broadcast Partners.

sbe.org/webinars

More Webinars by SBE
2020 RF Safety Course

The SBE has presented the RF Safety Course for many years. Each year, the course material is updated to provide the latest information on and an overview of RF radiation issues and practices for broadcasters. The topics covered include:

- Proving compliance at a broadcast site
- Biological effects of RF radiation
- The distinct differences between RF radiation and ionizing radiation
- FCC, OSHA, state & local regulations
- Workplace hazards
- Transmitter sites
- SNG and ENG vehicles
- Remote operations
- The unique issues at AM stations
- RF hazard protection equipment
- Proper (and compliant) signage

The course is designed for technical broadcast station personnel and managers who need to have an understanding of RF safety issues and regulations.

It is recommended that those taking the SBE RF Safety Course have at least some basic knowledge of electronics and understand the concept of frequency and power.

The presenter is Stephen Lockwood, CPBE, AMD, senior engineer and partner with Hatfield & Dawson Consulting Engineers. With more than 35 years of experience in the field of broadcasting and telecommunications engineering, he is a Registered Professional Electrical Engineer (PE) in Washington, Alaska, and Wyoming, and holds a BS in electrical engineering and a BS in engineering physics from Oklahoma Christian University.

sbe.org/rfsafety

Chapter Check

Chapter 99 • Bryan/College Station, TX

Chapter 99 gathered at the Feed Barn in Bryan for a meal, presentation on audio processing, fellowship and hands-on look at the Telos "toy van." Dan Giesler of GBS and Paul Kriegler of The Telos Alliance made the tour stop.

Chapter 42 • Central Florida

In March, Chapter 42 learned about T-Mobile's 600 MHz deployment and the wireless mic repack.

Working Remotely

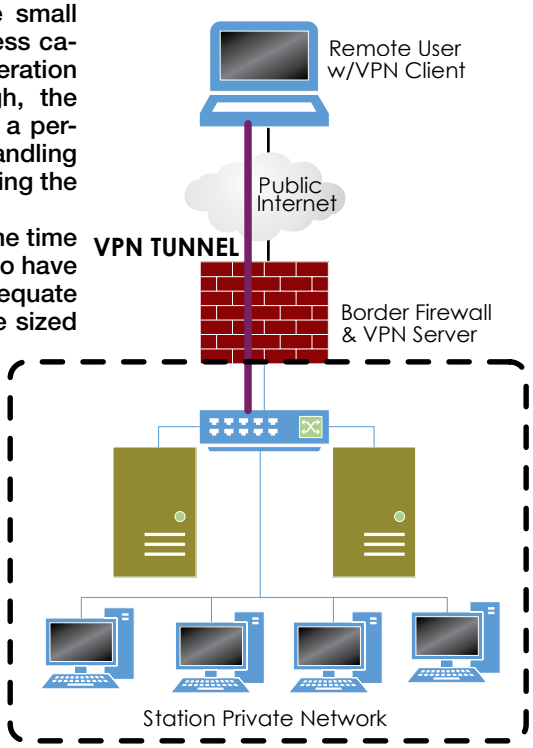
By Wayne M. Pecena, CPBE, 8-VSB, AMD, DRB, CBNE

The COVID-19 coronavirus has had a major impact in all of our lives and will likely continue to affect us for some time. Our professional lives have likely seen an emphasis on "working from home" or remote access to the workplace as staffing at the studio has been minimized or even eliminated.

Many stations are already prepared for this mode of operation as consolidation has dictated automation in lieu of board operators, and favored several stations being operated from a centralized hub or mothership location. Remote operation has been the norm for such operations. Even the small local station likely has some remote access capability to provide access for a 24×7 operation when abnormalities occur. Often though, the business side of the station is based on a person in the office answering the phone, handling the accounting, opening the mail, depositing the checks and so the list goes on.

I have maintained a home office for some time and have found three critical capabilities to have in place to really operate efficiently. Adequate Internet access is a given, and it must be sized for the specific tasks you intend to perform. The adoption of online document storage in lieu of paper files is a must. No matter how well you plan, you will always need a file you do not have when you are elsewhere, like working in a hotel room. The marketplace is full of cloud-based storage offerings ranging from free to modest fee-based. In reality, you will likely end up with several services. Beyond the technology, the proper environment can enhance your productivity while working from home. Lisa Thal offered "Seven Tips to Effectively Work Remotely" in the March 16 issue of *Radio Ink*. Her tips range from establishing a dedicated workspace to minimizing distractions, to providing a structured day (including establishing quitting time) and even how you should dress. The notion of wearing your PJs all day may sound comfortable, but is not the most effective approach in getting the day's work accomplished.

Maintaining communications with other staff members can also be challenging with the telephone, email, and texting as the more common approaches. Once again, the marketplace is abundant with applications to help you keep in touch and share information. One such popular application is Slack (slack.com). Slack creates a private chat room with file sharing among team members. Zoom (zoom.us) is one of many video and audio conferencing systems available to hold a virtual meeting with team members inside and outside the organization.



Use a virtual private network (VPN) for secure remote access.

Staying Connected

Remote access to station resources becomes an essential capability when operating from the home base. Once of the major advantages of an IP-based infrastructure is the flexibility provided for remote access. However, remote access must be implemented in a secure manner. In general terms a virtual private network (VPN) should be used for any remote access application. A VPN establishes a private (authenticated and encrypted) tunnel across the public internet to allow access to the organizations private network resources. A VPN can be setup as a network-to-network connection or simply provide single host-to-network connectivity.

The VPN can offer different tunneling protocols and security mechanism based on the Open Standards Interconnection (OSI) model. The Point-to-Point Protocol (PPP) enables a direct virtual connection between two network interconnected hosts. The Network Layer (Layer 3) of the OSI model, Internet Protocol Security or IPsec encapsulates the IP packet inside an encrypted IPsec packet. IPsec, often enabled with Later Two Tunneling Protocol (L2TP), is commonly utilized with IPsec to create an authenticated and encrypted tunnel. Transport Layer Security (TLS) at the transport layer can be used to encrypt the entire communications between all hosts on the remote network rather than just individual packets. This approach is a popular method to securely connect the remote transmitter site to the station's studio network. TLS also overcomes two of the major challenges that IPsec faces such as firewalls and Network Address Translation (NAT). IPsec is commonly implemented at an organization's border firewall. Once again, the marketplace is full of VPN solutions ranging from open-source software to dedicated VPN hardware.

When working remotely, work to be productive by establishing the proper environment, having the proper tools at your disposal and don't lose sight of cybersecurity precautions. Crisis times provide an opportunity to drop one's guard, but these same crisis times often lead to opportunities for the cybercriminal. And most importantly, insure you and your family stay healthy!

CONVENTION from p. 1

and consider options for taking part.

The SBE also planned to hold several meetings and events, including a meeting of the SBE Board of Directors and several national committees. The SBE is making arrangements for these groups to meet electronically to conduct their business.

The SBE had a Certification exam session scheduled to be held during the convention. Those who applied to sit for exam in Las Vegas have been contacted so alternate arrangements can be made.

LEGAL PERSPECTIVE

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

Preserving the C-Band: FCC Plays King Solomon?

On March 3, 2020, the FCC released the final, adopted version of its Report and Order and Order of Proposed Modification in the long-awaited 5G docket proceeding. Considering the single-minded intention of the FCC to roll out 5G in the United States, and to auction the bulk of the band 3.7-4.2 GHz to commercial broadband providers, broadcasters dependent on C-Band downlinks for program delivery didn't fare as badly as they could have. But is the accommodation made for the C-band downlinks really a workable plan?

What the Report and Order in Docket 18-122 actually did was to reallocate the 3.7-4.2 GHz band (the C-Band). The FCC has ordered that existing satellite operations be "repacked" (a term we have heard a lot lately, meaning essentially displaced) into the upper 200 MHz of the band, between 4.0 and 4.2 GHz. The C-band downlinks were corralled up there to protect aeronautical operation above 4.2 GHz that was incompatible with commercial 5G broadband. The FCC decided to auction the bottom 280 MHz, between 3.7 and 3.98 GHz, to commercial broadband for 5G deployment. This leaves a 20 MHz guard band between 3.98 and 4.0 GHz, to protect the C-band dishes from interference. The Report and Order asserts that the FCC crafted this "in a manner that ensures the continuous and uninterrupted delivery of services currently offered in the band." But does it really do that? The FCC is in hurry-up mode in implementing this band division and has scheduled a public auction for later this year, with a robust transition schedule to ensure that a significant amount of spectrum is made available quickly for upcoming 5G deployments. Is this workable for satellite program delivery via C-band dishes? Is 200 MHz sufficient for the repack of existing satellite services?

Fairness in spectrum allocations decision-making is rarely achieved, because there is almost always a preferred outcome determined in advance. In this case, the FCC's only real priority was to roll out 5G, and try to keep up with the rest of the world in the process. It said so in the Report and Order. It couldn't do that quickly by moving all the 16,000 or so registered C-Band receive-only facilities out of the band entirely to some to-be-determined equivalent spectrum, as the commercial mobile broadband advocates urged the FCC to do. So the King Solomon approach here of splitting the 3.7-4.2 GHz band and repacking C-Band incumbents into the 200 MHz residual band was the fastest way to get the 5G commercial mobile auction bidders to the table and to get 5G rolled out. At the same time, when the FCC first envisioned this process, there were only a few thousand registered C-Band dishes, and during the registration process triggered by the docket proceeding, the number quickly quadrupled. It became an issue. A more fair way to proceed from the SBE's perspective would have been for the FCC to internationally harmonize the 5G mid-band spectrum allocation, and match the European plan to use 3.4-3.8 GHz instead of 3.7-4.2 GHz. Had the FCC done this, the C-band would have been left largely alone. But prior decisions by the FCC in the CBRS proceeding affecting the band 3.5-3.7 GHz going back to 2015 made it difficult for the FCC to backtrack.

Is It Enough?

Is 200 MHz enough? The FCC found "that incumbent space station operators will be able to maintain the same services in the upper 200 MHz as they are currently providing across the full 500 MHz of C-band spectrum." In the best case, from the perspective of the individual broadcaster, there will be necessary some new filters and possibly a new LNB. The Report and Order probably precludes any backup transponders though, so reliability will suffer.

The reimbursement plan for the C-Band users is not particularly clear, given the urgency of the repack schedule the FCC established. On the one hand, the numbers seem to be workable: $9.7 billion in accelerated payments to a fixed number of incumbent earth station operators sounds reasonable, since there are about 16,000 registered C-band dishes in the database. The FCC did provide also that no C-band user has to vacate the lower 300 MHz until the compensation is paid. But if this reimbursement process is anything like the UHF TV repack process, it will be problematic. The sticky point in the TV-band repack is in getting approvals. For anything remotely complicated, it is an engineer's nightmare. It would seem that the FCC has created a process that builds in a good amount of delay in the 5G rollout. A September 2020 deadline for the transition seems quite optimistic. Those of us who recall the complexity of the 2 GHz BAS Nextel repack, and before that, the 800 MHz rebanding process and the land mobile radio narrowbanding process (all of which, admittedly, involved vastly different, much larger numbers of rebanding participants in the process) are skeptical about this transition date.

In terms of reimbursement, it was well-understood that, unless a C-Band dish was registered, it would not be protected from the "flexible uses" that the FCC intended for the band. There was plenty of time to register C-band antennas during either the April-July 2018 window, or during the FCC's extension of that window, which was provided by the FCC at the SBE's request. The industry sounded the alarm pretty loudly at the time. No C-band dish owner should have been unaware of the registration deadline. The registration application fee was a few hundred dollars per dish. That fee is not preclusive. Also, the FCC waived during the 2018 registration window the mandatory frequency coordination requirement. It was made as easy as could have been done at the time.

Overall, the proceeding ended about as well as could have been expected. There was a good chance that the entire band would be reallocated for 5G commercial broadband. A good deal of advocacy on this subject by the NAB, the SBE and the C-Band FSS industry helped avoid total displacement. Still, there is a lot of work to be done before the transition is complete and reimbursement is effectuated.

Chapter Check

Chapter 24 • Madison, WI

Chapter 24 held its February meeting at the new Hamel Music Center on the University of Wisconsin campus.

FOCUS ON SBE

By John L. Poray, CAE
SBE Executive Director
jporay@sbe.org

The Proverbial Plan B

Events since February have certainly caused changes for all of us. In our homes and work, our routines to a great degree have been disrupted. Many of us are working from home. Kids in most areas of the U.S. and other countries are home as well. In-person activities have been cancelled, the financial markets have been on a roller coaster – mostly down-hill. All with a great degree of uncertainty of when the threat of the COVID-19 virus will pass, or at least become manageable. We've all had to come up with a "Plan B."

It's in times like these that broadcasters come to the fore and demonstrate their importance and reliability to local communities, providing news and information to help citizens understand and cope with the current COVID-19 pandemic. Members of the SBE are a critical cog in that effort, ensuring broadcast stations keep their programs on the air, on cable and satellite systems, and streamed over the internet. Thank you for what you are doing.

During this time, we have asked our SBE chapters not to meet in-person, but rather, use virtual means at their disposal to meet. We've noted that a number of them began doing so in March with more using technology to stay connected in April. You can earn recertification credit by attending virtual chapter meetings, just as you can by attending traditional, in-person meetings. The chapter secretary or someone else the chapter authorizes, can take roll at the beginning of the meeting and submit the report to the national office.

Online Learning

The accessibility of the SBE webinar library makes this a great resource anytime, but perhaps now, even more, when in-person events are limited or cancelled. You can access more than 90 SBE webinars 24/7 at the SBE website (sbe.org/education). We continue to present new webinars during this time. At the time of this writing, the SBE has presented a half dozen new webinars since January 1, and another is scheduled for April 29: AoIP - Module 3, "How AES67 Builds on 15 Years of AoIP Success," with Kirk Harnack, CBRE, CBNE, senior systems consultant with the Telos Alliance. On May 14, it's the 2020 SBE RF Safety Course, with Stephen Lockwood of Hatfield & Dawson Consulting Engineers.

The SBE also has 13 online SBE University Courses that provide a more in-depth treatment to topics. They are structured like a text book, with chapters and a quiz after each chapter to help you retain what you just read. Both the archived webinars and the SBE University Courses are convenient to your schedule and budget. If you are a SBE MemberPlus member, the webinars are free. You can earn SBE recertification credit for these as well.

image: BSGStudio

You can prepare now to take an SBE certification exam later this year. The SBE CertPreview programs are downloadable to the computer of your choice. The sample questions will help you prepare by providing you with insight on areas you need to shore up your knowledge.

Be sure to renew your membership if you haven't yet, so you can access these programs for the least cost – or in the case of the SBE webinars, for no additional cost when you choose the SBE MemberPlus membership option.

During this period of health concerns surrounding COVID-19, the SBE national office continues to provide you with services and support. Through March 30 and likely beyond, employees are working remotely from home with access to our office network system. A small staff presence is in the office each day to handle basic and essential business tasks.

I hope each of you, and your family and friends, remain safe and healthy during this period. We all look forward to getting back to normal, and Plan A.

ENGINEERING PERSPECTIVE

By Darrell Gordon, CBT, CBNE
Chair, SBE Chapter 93 Raleigh, NC
dargordo@gmail.com

SBE Chapter 93 Rebuilds NC Reading Service

The North Carolina Reading Service (NCRS) is a non-profit organization serving the blind and visually handicapped throughout North Carolina. Boasting more than 150 volunteers and an estimated audience that exceeds 1,100 listeners, NCRS has been active for more than 30 years and maintains three studios in a small office park in midtown Raleigh, NC.

In addition to reading national and world news, NCRS delivers local news, weather, grocery listings, obituaries, select magazine content, exercise programs, health maintenance programs and other material for the benefit of the visually handicapped. Grateful listeners heartily agree with the NCRS tagline "We breathe words into your life."

In early 2018, Darrell Gordon, SBE Chapter 93 chair and a volunteer at NCRS, observed that the malfunctions and failures of the ancient (40 years old), donated equipment were negatively affecting the critical mission of NCRS. But now, with strong financial support from its benefactors and board of directors, NCRS was financially able to undertake a studio hardware rebuild. Unfortunately, NCRS had no volunteer resources familiar with the technology upgrade process to install it, nor adequate funds to hire contractors.

NCRS Executive Director May Tran and Darrell Gordon opening the new equipment as it arrives.

At that same time, SBE Chapter 93 was recovering from years of inactivity and looking for a way to reboot the chapter. The struggling chapter voted unanimously to form a Studio Refresh project and set out to rebuild the NCRS studios as a community service project. Six SBE members formed a group, and over the next ten months selected and installed new AoIP surfaces, networking equipment and automation systems. They rewired the entire facility and added advanced monitoring, studio switching and UPS capabilities. SBE members serving on the committee were Allen Sherrill, Keith Harrison, Darrell Gordon, Dan Lane, Ric Goldstein, and Bob Schule.

The new studio in operation.

SBE Chapter 93 was honored by NCRS at its November 2019 GALA Event. Executive Director May Tran enthusiastically said "Thank you, thank you and thank you to SBE Chapter 93 for your time, dedication and expertise! Everything is possible at NCRS because of our wonderful SBE volunteers."

NCRS distributes its content via cable TV, internet streaming, podcasting, and a dedicated FM SCA channel provided by a local NPR FM station. Using a mix of live readers, production, and automation equipment, NCRS is on the air 24/7 and is managed by Tran and three part-time employees. SBE Chapter 93 continues to support NCRS in 2020.

SBE Membership Drive Begins

Recruit a new member during the Member Drive, and you 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. And if you recruit three or more Regular or Associate Members or one Sustaining Member you will also receive an upgrade to SBE MemberPlus.

You already know the benefits of being part of the society, so share it with your colleagues. The annual SBE Membership Drive began March 1, so recruit someone now through May 31 to be eligible to win a prize. 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.

SBE Sustaining Members who have contributed prizes include BGS, BSW, Cavell Mertz & Associates, Comark, Comrex, Dielectric, Fujifilm, Heartland Video Systems, LBA Group, Orban, the Telos Alliance, Tieline and Wheatstone. The SBE has donated some prizes as well. See the full list at sbe.org.

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

SUSTAINING MEMBERS

Support the companies who support the SBE and the industry

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
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
Jim Alinwick 978-486-0086 x7404
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
Todor 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 Shepeard 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
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
Samantha Bortz 248-827-4440
Playout 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

Hilights, 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

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/MW 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
Adam June 845-246-2357
Specialized Broadcast & Pro-Audio Supplier

Micronet Communications Inc. • 2005
Jeremy Vize 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
Jerry Butler 352-231-8922
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 Infratructure 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

Seacomm 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
Nigel Brownett 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

Telestream/Tektronix Video • 1977
Theresa Cantrell 503-627-3791
Video Test & Measurement, Equipment Manufacturer

Televes 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 Shewmaker 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

Members With 25 or More Years of Membership
New Sustaining Members
Become a sustaining member.
Apply online or call 317-846-9000.

Member Spotlight: Eric Adler

Member Stats

SBE Member Since: 2010
Chapter: 1 Binghamton, NY
Employer: Binghamton University
Position: Event Support and Integration Engineer
Location: Binghamton, NY
I'm Best Known For: Problem solving acumen. Able to approach problems with a different point of view.

Q. *What do you value most about your SBE involvement?*

A. Sharing knowledge with other members and visitors. Both learning from each other and teaching others.

Q. *What got you started in broadcast engineering?*

A. I got my start in broadcasting at Waldwick Jr/Sr High School, with Roberta "Sals" Salsbury's video production classes. After working in a post-production house through high school and community college, I joined WTOP-TV, the on-campus student television station at SUNY Oswego, where I served as the student chief engineer during the move of the station across the campus.

Eric setting up the cameras at the Hausler Broadcast Studio, Events Center, Binghamton University, overlooking the Dr. Bai Lee Court.

Q. *What do you like most about your job?*

A. I enjoy working to help students and staff have a better understanding of broadcasting and broadcast technology as well as solving problems in order to allow the university to present itself with the highest quality.

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

A. ... work on personal projects at home and at Triple Cities Makerspace. I am one of the co-founders of Triple Cities Makerspace, Inc., which operates a non-profit collaborative workshop environment providing resources for members of the community to make various things.

Q. *What's something that most people may not know about you?*

A. I am an avid home cook and aspiring baker.

Nominations Committee Seeks Board Candidates

By Jim Leifer, CPBE

The SBE Nominations Committee is beginning its work to assemble a slate of candidates for the upcoming SBE election. I have been appointed to chair the Nominations Committee.

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, not only as a member of the board, but through service as a national committee chair or member. Members of the Board are "at large," meaning they represent all members, not any one specific region, state, city or chapter.

Members of the Board are expected to attend two 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 of elected members of the Board. Directors may serve three consecutive terms, the secretary and treasurer may serve up to four consecutive terms, and the president and vice president may serve up to two consecutive terms. The maximum time anyone may serve on the board is ten consecutive years.

Members interested in offering their candidacy and serving on the national Board if elected are encouraged to contact the chairman of the SBE Nominations Committee, Jim Leifer, at jleifer@sbe.org or 561-301-3466. A slate of nominees will be assembled by the committee by May 1. Other qualified members may be nominated by members in good standing no later than July 2.

The election takes place from July 17 through Aug. 19. Those elected will be installed into office during the SBE National Meeting in Syracuse, NY, on Sept. 23.

ENNES
EDUCATIONAL FOUNDATION TRUST

The trust offers scholarship and educational programming and grants that benefit broadcast engineering and the broadcast engineer. Submit tax-deductible donations, payable to the Ennes Educational Foundation Trust, to the Society of Broadcast Engineers; 9102 N. Meridian St., Suite 150; Indianapolis, IN 46260.

THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS

Harold E. Ennes Scholarship
Jay Adrick, Cincinnati, OH
Thomas Alderson, Spokane, WA
Jamie Baumann, San Antonio, TX
Jorge Conde, Guayama, PR
Rachel Copher, Milwaukee, WI
William Harris, Albuquerque, NM
Stephen Hawes, Berkeley, CA
Kevin Hornberger, Plainfield, IL
John Peterson, Fargo, ND
Jan Pritzl, Milwaukee, WI
Thomas Rogers, Fort Worth, TX
Robert Sleight, Apex, NC
Tom Weber, Greenwood, IN
S. Merrill Weiss, Metuchen, NJ

Robert E. Greenberg Scholarship
William Harris, Albuquerque, NM
Richard Rudman, Santa Paula, CA
Milford Smith, Lawrenceville, NJ
Tom Weber, Greenwood, IN
S. Merrill Weiss, Metuchen, NJ

Youth Scholarship
William Cordell, Richmond, TX
Marc Fenton, Moreno Valley, CA
Gregory Foss, Riverside, CA
James Grimes, Evanston, IL
William Harris, Albuquerque, NM
Stephen Hawes, Berkeley, CA
Robert Lacey, Jr., Methuen, MA
Peter Magee, Morris, AL
Richard Rose, Villa Grove, IL
Tom Weber, Greenwood, IN
S. Merrill Weiss, Metuchen, NJ

John H. Battison SBE Founder's Scholarship
Ronald Gaier, Kettering, OH
William Harris, Albuquerque, NM
Britt Lockhart, Yukon, OK
John Peterson, Fargo, ND
John Turner, Mountain Lakes, NJ
Tom Weber, Greenwood, IN
S. Merrill Weiss, Metuchen, NJ

sbe.org/ennes

WELCOME TO THE SBE

NEW MEMBERS

Nayif S. Abutayeh - Orland Park, IL
Chuck Bachus - Coral Springs, FL
Jeff Balzer - Milford, OH
James B. Bass - Waco, TX
William Bennett - Tallahassee, FL
Henry C. Buchanan - McKinney, TX
Kenneth S. Cameron - Verona, VA
Alshadera D. Dawson - Durham, NC
Myron Feldman - Valrico, FL
Michael Gill - Columbia, SC
Wendell Handy - Los Angeles, CA
Troy L. Harper - Groves, TX
Gregory S. Harvey - Hamburg, NY
Tonya Holroyd - Chapin, SC
Andrew Hyde - Charleston, SC
Godwin C. Ihuoma - Port Harcourt, Nigeria
Scott Jordan - Roanoke, VA
Christopher Joyce - Fairfield, CT
Mike W. Jugert - Waco, TX
Logan J. Kessler - Scottsbluff, NE
Selah Konur - Leesburg, VA
Matt Leikam - Lincoln, NE
Stella Maner - Florence, AL
Luke L. Marlowe - Newnan, GA
Justin D. Maynard - Bryan, TX
Robert L. Meadows - Astoria, OR
Robert M. Merrigan - Glasgow, MT
Thomas J. Miesen - Redondo Beach, CA
Nicholas J. Miracle - Sterling, CO
Roy Nixon - Myrtle Beach, SC
Graham Nystrom - Astoria, OR
Nancy E. O'Connor - Brunswick, GA
Josef Orsak - Bryan, TX
Andrew N. Pigg - Odessa, TX
Ahmad A. Raad - Beirut, Lebanon
Noe Rodriguez-Jimenez - El Paso, TX
Alexandra N. Rolfe - Albuquerque, NM
Alan J. Schmelz - Armuchee, GA
Bob Simmons - Langdon, ND
Mark W. Smith - Wolcott, CT
Ivory Sostand - China, TX
Jared R. Stuemke - Carlinville, IL
Mostafa M. Tamish - Hawally, Kuwait
Lucas R. Thompson - Odessa, TX
Timothy A. Tinney - Carrollton, GA
Joseph J. Tuck - Metairie, LA
Brandon Tyler - Long Island City, NY
Mike Verbic - DeKalb, IL
Tony Waters - Conyers, GA
Cleveland P. Wedderburn - Greenbelt, MD
Glen E. Whaling - St. Albans, WV
Nickilos J. Wolfer - Frederick, MD

NEW STUDENT MEMBERS

Jonathan Klingerman - Berwick, PA
Bryce Linton - Vacaville, CA

NEW ASSOCIATE MEMBERS

John F. Garziglia - Washington, DC
Annie J. Hawkes - Newton, MA
Robert J. Poor - Huntsville, AL

NEW YOUTH MEMBERS

Isaiah M. Dickson - Brookhaven, PA

RETURNING MEMBERS

Kurt M. Bauer - Lincoln, NE
Adam C. Beason - Los Angeles, CA
Larry J. Brown - Waco, TX
Ian D. Cushman - Nashville, TN
Michael P. Doenges - Rutland, VT
Joseph C. Ferrara, PE - Titusville, FL
Andrew M. Hall - Tacoma, WA
Robert Henning - Mishawaka, IN
Robert S. Hershey - Dillsburg, PA
William D. Hicks - Austin, TX
Emery J. Hudson - San Francisco, CA
David L. Lawyer - Irving, TX
Samuel N. Lewis - Chattanooga, TN
Gabriel E. Lopez - Atlanta, GA
Lee A. Miller - Lufkin, TX
William G. Moede - Appleton, WI
Stephen M. Poole - Warrior, AL
Richard N. Rhodes - Sour Lake, TX
David R. Riffle - Rohnert Park, CA
Scott A. Todd - Isanti, MN
Lee A. Williams - Jean, NV
Mitchell J. Worby - Tacoma, WA

Attend the 2020 Leadership Development Course

Make your plans today to attend the 2020 Leadership Development Course, Aug. 4-6 in Atlanta. The SBE is proud to continue its offering of the SBE Leadership Development Course, an SBE tradition since 1997.

The three-day course is specifically designed for broadcast engineers who have or aspire to have management responsibilities. The SBE Leadership Development Course is for technically adept people to acquire and develop skills for sound leadership, supervisory and management skills. The course is equally beneficial for those who are already in management and for those without prior management or supervisory experience.

The 2020 SBE Leadership Development Course will again be taught by Rodney Vandeveer, a professional leadership and management trainer and professor of organizational leadership and supervision at Purdue University.

The three-day event challenges attendees to refine leadership skills and better understand and improve interaction with others. Broadcast organizations may consider sending a group of employees to share the experience of the highly interactive course. Registration includes all course materials, three days of instruction, the Leadership Development Webinar Series of three webinars, a certificate of completion, light breakfast and afternoon snacks. SBE Members receive a discount on registration.

It will take place Tuesday, Aug. 4 through Thursday, Aug. 6 at the Hyatt Place Atlanta South; 1899 Sullivan Rd.; College Park, GA 30337. Need overnight accommodations? The SBE has a block of rooms at $125/night. Make room reservations at 888-HYATT-HP or hyatt.com. Use the reservation code G-SB20 as the group/corporate number. Make room reservations by July 20, 2020, for the special rate.

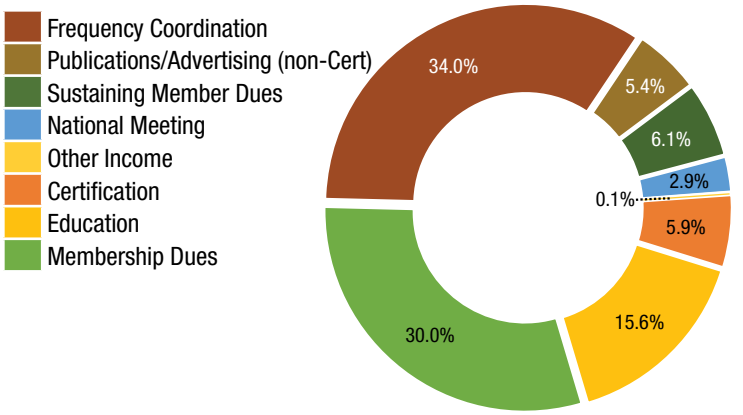
The cost of the conference is $670 for SBE Members and $725 for non-members. Registration in now open! Register at sbe.org/ldc. Questions? Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

2019 SBE Financial Year in Review

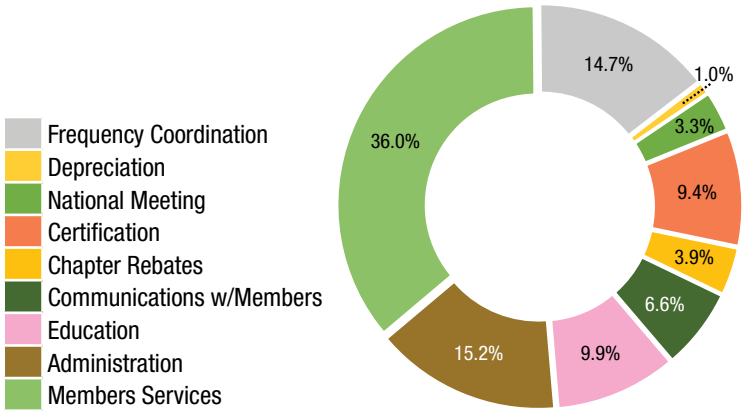
The Society of Broadcast Engineers, Inc. completed 2019 with net revenue from all operations of $220,144. Gross income from all sources was $1,181,351 while expenses were $961,835. The value of SBE savings and investments as of Dec. 31, 2019 were $1,195,339. Total SBE assets as of Dec. 31, 2019 were $1,210,994, an increase of $220,143 over 2018. Long-term investment gain totaled $84,160.

A percentage breakdown of SBE income from program operations and expenses is depicted in the accompanying charts. A financial statement will be published in the June issue of *The Signal*, following completion of the Society's annual financial audit.

Income from Program Sources



Expenses from All Sources



Members On The Move

Maria Laing is senior vice president at Mr. Master, Agoura Hills, CA.
Junta Tokunaga, CBNT, has started a new position as broadcast engineer/IT admin at Herring Broadcasting Inc.

John Davis adds responsibilities as sales and support manager at Logitek Electronic Systems.
Chad Kelley was promoted to production/operations manager at KWave (KWVE).
Kirk Chestnut, CPBE, is a staff engineer at KSHB-TV, Kansas City.

Joe Geerling, CPBE, CBNT, is director of engineering at Covenant Network, St. Louis.

Randy Hisle, CBTE, CBNE, is broadcast engineer/lead at DynCorp International, Marshall Islands.
Rick Jesse, CBRE, is national director of engineering, Stephens Media Group, Tulsa, OK.

Shane Toven, CBRE, CBNT, is a senior broadcast engineer with EMF, Rocklin, CA.

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 WEBxtra
online
April 20, 2020 — sbe.org/webxtra

Webinar: AoIP Series, Module 3
online
April 29, 2020 — sbe.org/webinars

SBE WEBxtra
online
May 18, 2020 — sbe.org/webxtra

SBE Certification Exams
Local Chapters
June 5-15, 2020 — sbe.org/certification
Application deadline April 17, 2020

SBE Leadership Development Course
Atlanta
Aug. 4-6, 2020 — sbe.org/ldc