

THE Signal

Bimonthly Publication of the Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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SBE Announces 2020 Award Winners

Over the last 29 years, the SBE Awards program has awarded the Robert W. Flanders SBE Engineer of the Year and James C. Wulliman SBE Educator of the Year awards 28 and 27 times. This year, there are three recipients: RJ Russell, CPBE, for the engineer honor, and Fred Baumgartner, CPBE, CBNT, and Roland Robinson, CBTE, CBNT, CTO, for the educator honors.

RJ Russell has been an SBE member for 21 years. During that time, he has served as director, treasurer, and vice president on the National Board of Directors as well as serving on several national SBE committees. RJ also has held officer positions in various local chapters.

RJ's tenure in our industry has been a long and fruitful one. He served proudly in the United States Marine Corps as a cryp-

tography technician. After service in the military, he worked for several stations, including those owned by Media General, Sinclair, Cordillera, Catamount, Sunbelt, Univision, E.W. Scripps, and Fox.

RJ worked as a broadcast engineering manager on the Sprint Nextel Project from 2004-2008, assisting many television stations with the 2 GHz repack and reimbursement program.

While employed by Brigham Young University, RJ was instrumental in the design and construction of a new 100,000 square foot BYU broadcast center and associated transmission paths and signals.

More recently, RJ has spent many countless hours working on the ATSC 3 project station in Cleveland and continues to do that to this day.

In 2019, RJ accepted the critically im-

portant position of SBE frequency coordination manager as an independent contractor through his company TBSI. RJ has a vast and unique knowledge of the frequency coordination process and is the SBE's major representative to the Department of Defense and its contractors in the SBE/DOD/NAB transition process at 2 GHz. Through the direct involvement of RJ, who is respected very highly by the DOD, FCC and NTIA, the SBE and its members, broadcast licensees, and the



Russell

see [AWARDS](#), p. 14

SBE National Meeting is September 22-23 in Syracuse, NY

The Society of Broadcast Engineers 56th SBE National Meeting will be held in Syracuse, NY on Sept. 22-23, 2020. The

event is being held in conjunction with the annual SBE Chapter 22 Broadcast & Technology Expo, presented by Chapter 22 of Central New York. As of this writing, both events are still scheduled to take place and will follow CDC, state and local guidelines for participants.

The SBE National Meeting includes the SBE National Awards Reception and Dinner on Wednesday, Sept. 23, recognizing outstanding achievement by SBE members and chapters (see Award Winners article in this issue of *The Signal*). Also on the 23rd, the SBE Annual Membership Meeting will take place and be streamed live with the support from Blackmagic Design, Dielectric, Jampro and Shively, so members not able to attend in person can watch.

The Expo takes place on the 23rd and includes broadcast technology sessions and a broadcast/media equipment and services tradeshow. The Expo was held for 45 consecutive years before taking a

see [NATIONAL MEETING](#), p. 8



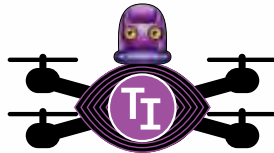
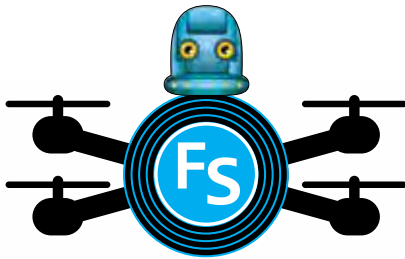
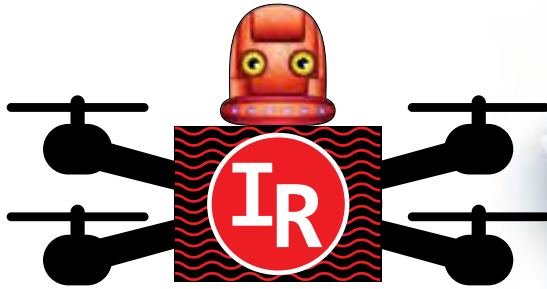
The Holiday Inn Syracuse-Liverpool is the site of the 2020 SBE National Meeting.

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

SBE Election: Vote by August 19

The annual election of SBE officers and directors is currently underway. Up for election are all four officers for one-year terms and half the 12 directors for two-year terms.

All ballots are due by 4:30 p.m. EDT on Aug. 19. Voting is via an online ballot, except for those members who have opted out of electronic voting this year or who have not provided the SBE national office with an email address. They will receive their ballots through the mail. An email test message was sent on July 6, and the ballot link was sent to valid email addresses on July 17. Reminder emails were also sent if an online vote was not yet cast.



Pecena

For members who received a paper ballot in the mail, your ballot must be received in the SBE National Office by mail, express delivery or in person (no facsimiles) by 4:30 p.m. ET on Aug. 19.

If you have not yet cast your vote, do so today.

SBE Election Candidate Slate

Officers:

President: Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE

Chapter 99 Bryan, TX; College Station, TX

Vice President: Andrea Cummis, CBT, CTO

Chapter 15 New York; Bethlehem, PA

Secretary: Kevin Trueblood, CBRE, CBNT

Chapter 90 Southwest Florida; Estero, FL

Treasurer: Ted Hand, CPBE, 8-VSB, AMD, DRB

Chapter 45 Charlotte; Charlotte, NC

Directors

(top six vote recipients will be elected):

Stephen Brown, CPBE, CBNT

Chapter 80 Fox Valley; Appleton, WI

Roswell Clark, CPBE, CBNT

Chapter 39 Tampa Bay Area; Clearwater, FL

Kirk Harnack, CBRE, CBNE

Chapter 103 Nashville; Nashville, TN

Zhulieta Ibisheva, CBTE, CBT

Chapter 50 Hawaii; Honolulu, HI

Mark Johnson, CSRE

Chapter 106 Panhandle; Panama City Beach, FL

Gary Kline, CBT

Chapter 5 Atlanta; Atlanta, GA

Thomas McGinley, CPBE, AMD, CBNT

Chapter 16 Seattle; Missoula, MT

Shane Toven, CSRE, CBNT

Chapter 43 Sacramento; Antelope, CA

Fred Willard, CPBE, 8-VSB, CBNT

Chapter 37 District of Columbia; Washington, DC

Upon request by FCC enforcement personnel, a television operator must be able to shut down the station transmitter:

- A. Immediately
- B. Within 3 minutes
- C. Within 3 hours
- D. As soon as notification is made to station management.

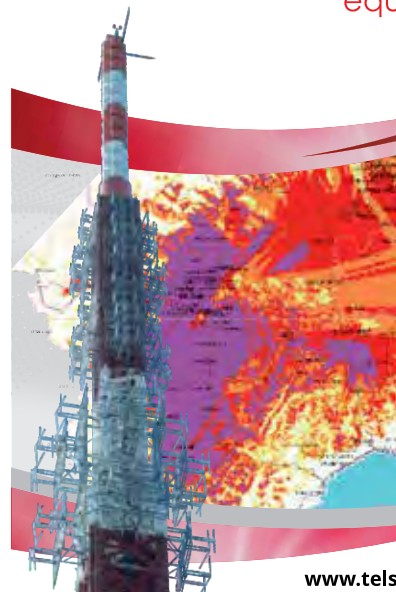


**Certification Question
from the operator certifications**

Answer on page 6



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LETTER FROM THE PRESIDENT

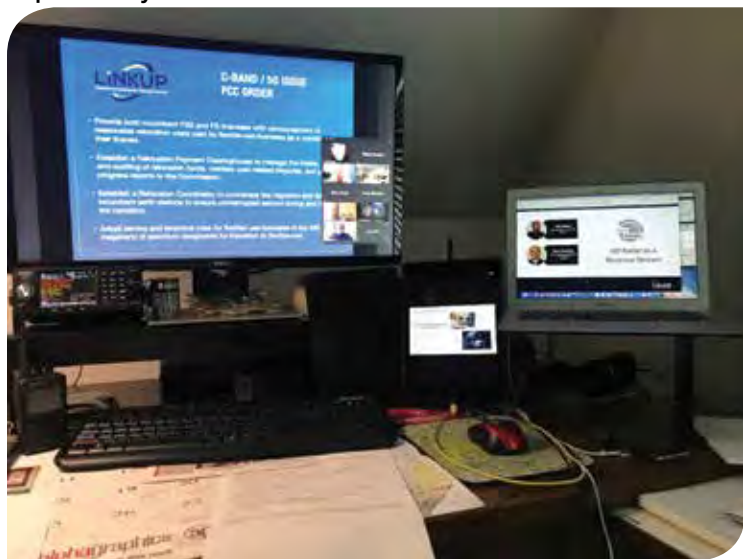
By Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE
SBE President
wpecena@sbe.org

Is Your Glass Half Full or Half Empty?

In the February 2020 issue of *The Signal*, I titled this column “It’s a New Decade of Change.” I wrote of the changes occurring in the broadcast industry and the engineer. I had no concept of the change we were about to encounter and now have undergone in the past months with COVID-19. If you told me the country would come to a halt, I would have said you are crazy. And now here we are, beginning some sense of recovery, redefining normal and trying to get on with our lives. Unfortunately, there are hardships and casualties. Stations have furloughed staff and others permanently cut staff. I hope the effect on you personally was minimal. With engineering budgets and staff already minimized well before COVID-19, I can see the impact on engineers in the industry not as severe as other areas of station operation. I am sad to see the effect on our local business community with the impact likely with us for some time to come.

“A pessimist is one who makes difficulties of his opportunities and an optimist is one who makes opportunities of his difficulties.”
~ Harry S. Truman

leagues. SBE online events have been with us for several years that range from live and on-demand webinars, to the monthly SBE WEBxtra chapter of the web. The cancellation of every in-person industry event so far this year has created a surge in the available online webinars, tutorials and chapter meetings. I personally have enjoyed the opportunity to engage in local chapter meetings that have moved online. The list of available online resources seems endless, as I have enjoyed the cancelled-conference online-replacement events from the NAB, the IEEE/BTS and BE/Elenos. Others have become routine with Nautel Tuesday Transmission Talk or the Alabama Broadcasters Association monthly Engineering Day. And the BDR Thursday Lunch has provided guest presentations from many of the gurus of our industry. All of the events have provided an opportunity that I would never have been able to participate with in-person. All these events represent unique continuing education opportunities and many qualify for SBE recertification credit. An opportunity I have for learning is a glass half-full moment.



Webinar congestion can easily occur. Attempting to watch three at once is not practical even if you have the technology.

It is easy to fall into the “glass is half empty” mindset as many days are filled with personal challenges, whether family or work. The work-at-home movement has provided many opportunities for the broadcast engineer to catch up with projects and the endless list of things needed to be done. Transmitter sites seem to be the perfect social distancing location. Many have put the finishing touches on the TV spectrum repack process as phase 10 came to an end last month. While the FCC can wave the victory flag, many stations face considerable future work to say they are truly complete. ATSC 3 roll-outs continue across the country with Las Vegas, Nashville and Salt Lake City joining the ranks of operational ATSC 3 stations. The individuals involved in these areas have plenty to do, and have some exciting new technology implemented. Their glasses are definitely half full.

Making Good Use of Time

Your SBE leadership team has been busy with several key initiatives in progress. The search for the next executive director is well underway. Be sure to read Joe Snelson’s update in this issue of *The Signal*. Joe chairs the Executive Director Search Committee and provides an excellent summary of actions to date and what is to come. The Certification Committee, chaired by Ralph Hogan, continues to develop the ATSC 3 certification. The new certification is now in the second round of beta testing. And the Electronic Communications Committee, chaired by Roz Clark, continues leading the rebuild of the SBE website. Look for the official launch this fall with not only a new look, but also new functionality features for the membership. With the FCC as active as ever, our Government Relations Committee, chaired by Kevin Trueblood, the Frequency Coordination Committee, chaired by Ted Hand with insight from SBE General Counsel Chris Imlay, have a full plate of issues. Unfortunately, efforts to secure broadcast spectrum for other services continues.

And special thanks goes to the dedicated SBE staff members as the national office continues to keep the business side of your association moving right along while observing the state of Indiana and the Indianapolis work-at-home guidelines. The phone continues to be answered, the mail opened, and inquiries responded to while taking the precautions to stay safe and healthy.

I personally want to know your suggestions, comments and concerns. Your feedback is essential to our collaborative effort as we all seek to navigate the “new normal,” and your SBE leadership makes the right decisions to insure the society meets our member needs as our industry continues to change. Please reach out to me at wpecena@sbe.org or 979-845-5662 for a more personal exchange. Always, a sincere Thank You to those I have heard from. In the meantime, look for those positives in your half-full glass, stay safe and stay healthy!

Using Extra Time

Many of us have found some of that extra time filled with attending the numerous online events offered by our industry col-



EDUCATION UPDATE

By Geary Morrill, CPBE, CBNE
Chair, SBE Education Committee
gmorrill@sbe.org

Mini Sessions for Viewing (and Learning) Pleasure

Recently the Education Committee was advised of a series of basic info sessions regarding disciplines and test equipment that may not often be seen by SBE members. These short (5-15 minute) brand-agnostic video sessions provide information that can be useful for new techs and as a refresher for more seasoned members. Prerequisites are indicated to help to explain concepts and technical language being used. These videos are on the Rohde-Schwarz YouTube Channel. A playlist has been added to the SBE YouTube Channel.

The Education committee will consider submissions of short (<15 min) educational (non-selling or brand specific products and/or services) presentations from Sustaining Members deemed to be

of educational value to SBE members in the interest of providing a broad range of technical education opportunities.

Submissions will be reviewed by the Education Committee to ensure these guidelines are followed, with credit given to the Sustaining Member in any promotion of the session(s). Nothing herein precludes the Committee from approaching a Sustaining Member to consider expanding any such presentation in depth, creating a Webinars by SBE when deemed appropriate.

Thanks to Walt Gumbert of Sustaining Member Rohde & Schwarz for sharing these educational opportunities for the benefit of all SBE members

Understanding Amplitude Modulation

bit.ly/AmplitudeModulation

Understanding Basic Power Sensor Measurements

bit.ly/PowerSensorMeasurement

This presentation walks through different types of power sensors and their capabilities, as well as their common traits and how they're used.

Understanding Basic Spectrum Analyzer Operation

bit.ly/SpectrumAnalyzerOps

A spectrum analyzer is a very useful tool for measuring RF signals. This video provides basic instruction on how to configure and operate spectrum analyzers, including explanations of the four most basic configuration parameters: center/span, reference level, resolution bandwidth, and video bandwidth.

Understanding Channel Power

bit.ly/ChannelPower

This video provides a general technical introduction to the concept of channel power and different ways channel power measurements can be made using a spectrum analyzer. Prerequisite: Understanding Basic Spectrum Analyzer Operation for those new to spectrum analyzer operation.

Understanding EMI Debugging with Oscilloscopes

bit.ly/EMIOscilloscope

Electromagnetic interference is unintended/undesired RF emission from an electronic device that creates problems for other electronic devices. This session shows how you can identify and remediate troublesome EMI emissions from a device.

Understanding Frequency Modulation

bit.ly/UnderstandingFrequencyModulation

Understanding Frequency Shift Keying

bit.ly/FrequencyShiftKeying

FSK is a special kind of FM scheme used to transmit digital information (1s and 0s) by switching between discrete frequencies. Prerequisite: Understanding Frequency Modulation.

Understanding OTA Power Measurements

bit.ly/OTAPower

Many new beam forming technologies (Wifi, 5G & automotive radar) require Over The Air power measurement using Integrated wideband antenna modules. Prerequisite: Understanding Basic Power Sensor Measurements.

Understanding Passive Intermodulation (PIM)

bit.ly/PassiveIntermodulation

This presentation discusses differences between active and passive Intermodulation products, and how both are determined.

Understanding Single Sideband

bit.ly/SingleSideband

Single sideband is a special form of AM modulation primarily used for voice transmission, and can also be used for data. Prerequisite: Understanding Amplitude Modulation.

Understanding S-Parameters

bit.ly/SParameters

This session describes what S parameters are and how they are useful in network analysis of devices consisting of one or more ports. Prerequisite: Understanding VSWR and Return Loss will help to grasp the concept of S parameters.

Understanding the Smith Chart

bit.ly/SmithChart

The most common use of a Smith Chart today involves impedance matching and the design of matching networks. Created in 1939, the Smith Chart predates current computational devices and allows solving calculations using a compass, ruler and pencil rather than algebraic computation. While less important

today, it still proves useful when visualizing the tuning of a network. Prerequisites: Understanding S-Parameters and Understanding VSWR and Return Loss.

Understanding Third Order Intercept

bit.ly/ThirdOrderIntercept

RF devices operating within their design range produces linear operation. Operating devices outside their linear range can create distortion in the form of harmonics and inter-modulation products. This session discusses how TOI (IP3) calculations are made using a Spectrum and/or Network Analyzer.

Understanding VSWR and Return Loss

bit.ly/VSWR_ReturnLoss

Matching impedances between a transmitter and an antenna is important to ensure maximum power transfer. An impedance mismatch results in RF energy reflected back to the source, where it can cause damage. This video provides a basic introduction to voltage standing wave ratio (VSWR) and return loss, and explains how these measurements are used in radio frequency applications.

Understanding Zero Span Measurements

bit.ly/ZeroSpanMeasurements

Zero span measurements are commonly used to measure audio demodulation, trigger level in gated measurements, channel power and noise measurements as well as pulsed and time-varying signals. Prerequisite: Understanding Basic Spectrum Analyzer Operation.

Education Almanac

Upcoming Webinars

August 13: AoIP Module 6: AES67 Basics - What It Is, and What It Is Not

sbe.org/webinars



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

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



CERTIFICATION UPDATE

By Megan Clappe
Certification Director
mclappe@sbe.org

Certification Starts with the Operators

Are you interested in SBE certification? This is the start of a new series that will cover the various SBE certifications that are available.



While SBE Certification is not an FCC requirement, it is evidence of an individual's qualifications to serve as an operator at a broadcast station and will certainly be useful when an individual seeks employment or advancement. Each radio and television station has its own policies and procedures, and many have written station manuals. However, the FCC Rules and basic operator procedures apply to all stations. The Certification Handbook for Radio Operators and the Television Operator's Certification Handbook fill the

needs of broadcast stations and operators today. The SBE Radio and Television Operator Certifications are a great way to demonstrate to a prospective employer that you have acquired the basic knowledge to operate a radio or television station and comply with FCC rules and regulations.

The History

In the early 1980s, and as part of its deregulation process, the FCC abolished the mandatory requirement for radio station operators and engineers to hold an FCC license of any class. That left the industry without a tool for measuring a perspective employee's proficiency in station operations. Since that time, the Society of Broadcast Engineers certification program has become the industry's benchmark standard for gauging an individual's knowledge, skills, and abilities required for the opera-

tion of a broadcast station. To have standard teaching and testing material, the SBE Certification Handbook for Radio Operators was created. The Handbook helps operators learn more about the technical and business facets of a radio station. Its broad-scope contents are extremely helpful to seasoned professionals as well as anyone who is new to the radio station business. The Handbook is currently in its third edition and is utilized by schools, stations and individuals throughout the United States.

Add the TV Portion

The SBE National Certification Committee, in cooperation with the Ennes Educational Foundation Trust, developed the Certified Television Operator's Handbook and Television Operator Certification to target the entry-level, non-technical pool of applicants that fill master control positions in today's television marketplace. It also provides a good first step for those interested in pursuing a technical career in broadcast engineering.

Just like the radio operator, there was once a requirement that television operators hold a First Class FCC license. This provided employers with an indication that the applicant had demonstrated enough technical knowledge to pass elements one through four of a federal government exam. In 1994, the SBE developed the Television Operator Certification to assist employers in evaluating applicants. Many stations now make certification a requirement for employment for their operators. Now in its 7th edition, the book and certification cover the latest developments in digital television.



Both exams are designed for the entry level, non-technical pool of applicants that fill master control positions in today's television marketplace. These exams are unique that they cover the material included in their corresponding handbooks. Go to sbe.org/certification for more information.

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EQ Answer from page 3

The answer is B

This shutdown may be required by the FCC when the television station is causing harmful interference.

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION

Certified Professional Broadcast Engineer (CPBE)
Michael Graves, Avon, NY - Chapter 57
Jeffrey Tucker, Danville, IN - Chapter 25

Certified Broadcast Technologist (CBT)
James Paluzzi, Hammond, LA

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.

JUNE EXAMS

Certified Broadcast Television Engineer (CBTE)
Thomas Adams, New Orleans, LA - Chapter 72
Jonathan Hollon, North Richland Hill, TX - Chapter 67

Certified Broadcast Networking Technologist (CBNT)
Kelsey Johnson, Woodbridge, VA - Chapter 37

Certified Radio Operator (CRO)
Drew Bodker, Colorado Springs, CO - Chapter 48

SBE CERTIFIED SCHOOL COURSE COMPLETION

Certified Broadcast Technologist (CBT)
Southern Alberta Institute of Technology
Liam Alexon
Murray Emery
Benford Gould

Joe Hall
Frances Kootnekoff
Danny Lee
Wansik Lee
Robert Rhyno

Andrew Shaw
Igor Sukhermin
Kurt Tkach
Michael Whitmore
Austin Yeo

CERTIFIED RADIO OPERATOR (CRO)

Ford HS Media Arts
Matthew Grugel, Quinlan, TX
Jess Morris, Quinlan, TX

CERTIFIED TELEVISION OPERATOR (CTO)

Michael Arden, Westminster, CO



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.

Certified Professional Broadcast Engineer (CPBE)
James Alexander, Wildomar, CA - Chapter 131
Sean Downs, Waukesha, WI - Chapter 28
Wayne Murphy, Pooler, GA - Chapter 131
Laurence Wood, Berkeley, CA - Chapter 40

Certified Senior Radio Engineer (CSRE)
Jeffery Caudell, San Antonio, TX - Chapter 69
Van Craft, Anchorage, AK - Chapter 89

Certified Senior Television Engineer (CSTE)
Randy Garrett, Louisville, KY - Chapter 35

Certified Broadcast Networking Engineer (CBNE)
Robert Army, Jr., Moreno Valley, CA - Chapter 131
Jeffrey Biernat, Murrieta, CA - Chapter 131
Craig Holderbaum, Annandale, NJ - Chapter 120
Chris Verdi, New London, NH - Chapter 110

Certified Broadcast Radio Engineer (CBRE)
Matthew Anderson, Burbank, CA - Chapter 47

Certified Broadcast Television Engineer (CBTE)
William Hooper, Glendale, CA - Chapter 47
Roland Robinson, Tacoma, WA - Chapter 16

Certified Video Engineer (CEV)
Ascencion Marquez, Bethesda, MD - Chapter 37

Certified Broadcast Networking Technologist (CBNT)
James Alexander, Wildomar, CA - Chapter 131
Sean Downs, Waukesha, WI - Chapter 28
William Hooper, Glendale, CA - Chapter 47
Michael Simmonds, St. Paul, MN - Chapter 17

Certified Television Operator (CTO)
Roberto Alcaraz, Fallbrook, CA
Nick Grbac, South San Francisco, CA
Klonaris Ingram, Hoover, AL
Ken Jaquess, Los Angeles, CA
Galen Rosenberg, Quinlan, TX
Franklin Turner, Lakewood, CA

Certified Radio Operator (CRO)
Brandy McNellis, Centennial, CO
Joseph Pestovich, Denver, CO

Certified Broadcast Technologist (CBT)
Ricardo Alfarro-Zayas, San Juan, PR - Chapter 142
Robert Carlugh, Boca Raton, FL - Chapter 53
Je'Quan Gold, Arlington, VA - Chapter 147
Michael Graziano, Suffield, CT - Chapter 14
Blaine Hackbarth, South Milwaukee, WI - Chapter 28

Ken Jaquess, Los Angeles, CA - Chapter 47
Eric King, Ludlow, MA - Chapter 14
William Mixter, Hanover, PA - Chapter 41
Dave Morris, Erwin, NC - Chapter 147
Joseph Norris, Mobile, AL - Chapter 68
Michael Parrish, Lakeland, FL - Chapter 42
Geoffrey Peacock, Mobile, AL
Elaine Poppell, St. Johns, FL - Chapter 7
Chad Thielen, Schaumburg, IL - Chapter 26

Ennes Educational Foundation Trust Creates New Scholarship

The Harold Ennes Educational Foundation Trust, the educational foundation affiliated with the SBE that grants scholarships, presents broadcast engineering programs and provides funding for SBE related educational projects, has added a new scholarship. Ennes Trustees recently announced the formation of the Gino Ricciardelli Scholarship, recognizing the SBE Charter, Life and Fellow member who died in 2018. Ricciardelli, a long-time supporter of the SBE and a founding member of SBE Chapter 1, willed a significant part of his estate to the Trust.

The Trust now offers five scholarships:

- John H. Battison SBE Founder's Scholarship
- Harold E. Ennes Scholarship
- Robert D. Greenberg Scholarship
- Gino Ricciardelli Scholarship
- Youth Scholarship (specifically for graduating high school seniors)

The new scholarship was approved at the trustees' meeting on May 19. The trustees also increased the amount of all Ennes scholarships from \$1,500 to \$2,500. Scholarships are awarded annually based on eligible applications received by July 1.

Ennes Trustee Dale Scherbring, CPBE, provided insight into creating the new scholarship. "Gino was a great example of a dedicated broadcast engineer. His leadership throughout his

career will be honored by using his generous financial gift to continue to grow and educate youth and professionals in the broadcast industry. I am honored to assist in recognizing Gino Ricciardelli."

On the creation of the scholarship, Paul Kaminski, CBT, chair of SBE Chapter 1 Binghamton, said, "Gino was instrumental in making the transition from analog to digital television in the Binghamton market. At an age when many engineers would have retired, his contributions

to the process made that transition easier for all involved. His legacy of professionalism, competence and dedication will live on through the Ennes Scholarship that bears his name."

Separately, the Trust also approved funding a new version of the SBE Certification sample test software called SBE CertPre-view that takes advantage of current technology.



Gino Ricciardelli speaks at the 2014 SBE National Meeting.

Update: SBE Executive Director Search



Snelson

By Joe Snelson, CPBE, 8-VSB

In January of this year, the SBE announced that Executive Director, John Poray, would be retiring at the end of this year. John has been our Executive Director for 28 years. A lot has been accomplished under his leadership and we appreciate his years of service to the SBE. We are now in the process of seeking a replacement for John and want to share with our members how we are going about finding his replacement and give you an update on the progress.

In March of this year, SBE President Wayne Pecena proposed to the Board that a five-person Executive Director Search Committee (EDSC) be formed with the goal of seeking out qualified candidates for the position and presenting a finalist to the Board for approval. Serving on the EDSC is SBE President Wayne Pecena, Vice President Andrea Cummis, Immediate Past President Jim Leifer, General Counsel Chris Imlay and Past President Joe Snelson, who serves as the Committee Chair. John Poray serves as a non-voting ex officio member.

One of the first tasks undertaken by the committee was establishing a timeline of tasks and milestones with the goal of hiring a new executive director before the end of year 2020. The tasks of the committee include writing a job description, qualifications, proposing a fair compensation package, posting of the position, interviewing candidates and presenting a finalist with at least one alternate to the Board.

In addition to the EDSC, SBE President Pecena formed an Executive Director Search Advisory Group to seek input on what should be expected from the SBE Executive Director in terms of duties and responsibilities and the qualifications required to meet those objectives. This group of around 20 members consisted of SBE members and headquarters staff. Their input was used by the EDSC to finalize the job description of the executive director.

Once the EDSC finalized the job description and a proposed compensation package, they were brought before the Board at the April Board meeting. After the Board's approval, the next order of business for the EDSC was to get the job opening posted. The opening was posted on June 1 and closed on June 30.

The EDSC is currently reviewing the applications and resumes submitted by the candidates and narrowing them down to undergo a first round of interviews. The initial interviewing process is taking place by video conferencing and was scheduled to be completed by the end of July.

The next step is to conduct face to face interviews, subject to any regulations due to COVID-19, in early September with the top finalists from the first round of interviews to further narrow it down to a finalist with at least one alternate. The name of the finalist, and alternate(s), will be presented to the Board during the annual SBE National Meeting in late September. Once approved by the Board, if the offer made to the finalist is accepted, then an announcement will be made to SBE members and the general public shortly after the National Meeting.

As you can see the EDSC has a lot of work before it for the second half of the year with the goal being a new Executive Director coming on-board by mid-December.

NATIONAL MEETING from p. 1

four-year break beginning in 2015. Chapter 22 brought the event back in 2019. The Expo draws broadcast engineers from all over New York state, surrounding states and Canada.

The National Meeting begins on Tuesday afternoon, Sept. 22, with the fall meeting of the national SBE Certification Committee from 2:00 to 4:00 p.m. The fall meeting of the SBE Board of Directors follows from 6:00 to 10:00 p.m. Attendance at the Board meeting is open to any member of the SBE. On Wednesday, activities begin with the annual SBE Fellows Breakfast, sponsored by Kathrein, a reunion of SBE Fellow members including this year's inductees, Ralph Beaver, CBT, and Jim Leifer, CPBE.

On Wednesday, the SBE Annual Awards Reception and Dinner begins with the reception at 5:00 p.m., followed by the dinner at 6 p.m. The dinner will feature a guest speaker and the presentation of the society's major awards, including the Robert W. Flanders SBE Engineer of the Year and James C. Wulliman SBE Educator of the Year awards. The dinner program will conclude with the presentation of Fellow honors to Beaver and Leifer.

The SBE will also present awards to chapters and individual members during the dinner program. Chapter awards include: Best Chapter or Regional Educational Event, Best Chapter Communications, Most Certified Chapter, Highest Member Attendance and Greatest Growth in New Members. Winners of local Chapter Engineer of the Year awards will also be recognized. Individual (or company) awards include: Technology Award, Best Technical Paper, Article, Book or Program by an SBE Member.

Tickets (\$16) for the SBE Awards Reception and Dinner are available for purchase at the SBE website. The other SBE National Meeting events are free with your Chapter 22 Broadcast and Technology Expo registration (also free).

The Expo features exhibitors, both regional and national, showing radio/audio technology, television/video technology and broadcast IT. Expo hours are 8:30 a.m. to 5:00 p.m. Anyone working in the broadcast/media field, including those that work in non-technical positions in broadcast and media are invited to attend. You do not need to be a member of the SBE to attend. Register for free at sbe22.org. Lunch is available for a nominal charge.

The SBE National Meeting and Chapter 22 Broadcast and Technology Expo will be held at the Holiday Inn Syracuse-Liverpool, conveniently located at Exit 37 of the New York State Thruway at 441 Electronics Parkway, Liverpool, NY 13088.

Individual attendees may make hotel reservations directly through Holiday Inn reservations at 888-465-4329. Ask for the Society of Broadcast Engineers special rate of \$109 plus tax per night. A limited room block has been set aside for our guests. Check-in is 3:00 p.m. and check-out is 12:00 p.m. Free parking is available to all Expo/National Meeting attendees.

Companies wishing to exhibit may register at the SBE Chapter 22 website, sbe22.org. Go to the 2020 Expo page/Exhibitors. Booths are assigned on a first come, first served basis. Booth set-up is Tuesday, Sept. 22 from noon to 8 p.m., and Wednesday, Sept. 23 from 7:30 a.m. to 8:00 a.m.

Save the dates and plan to make your way to Syracuse for the Chapter 22 Broadcast and Technology Expo and SBE National Meeting!

Register for the SBE National Awards Dinner
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Register for the SBE22 Broadcast & Technology Expo
sbe22.org/2020-expo/

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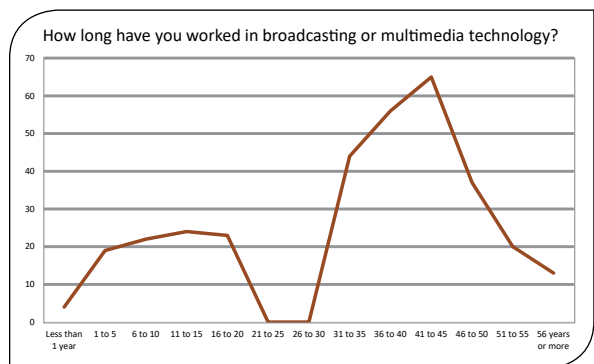
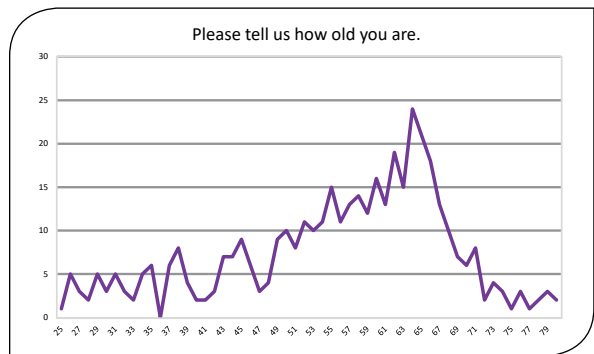
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2020 SBE Compensation Survey

The SBE conducted its fifth compensation survey in April and May. The survey goal is to provide practical information to SBE members about individual compensation (salary and benefits) based on the type of broadcast or multimedia involvement, market size, and job title category. 424 respondents answered survey questions about salary.

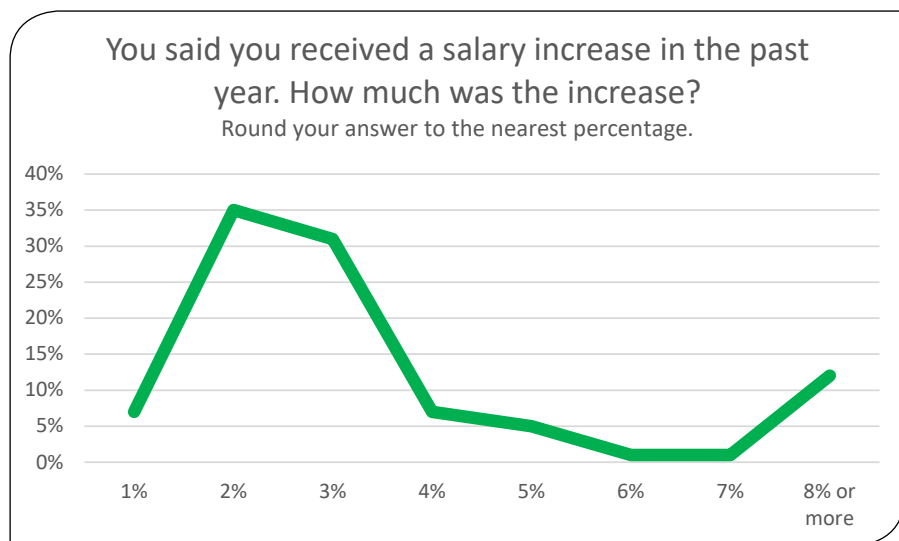
We asked if respondents received a raise in the last year, and if so, how much, and to report benefits received. We also asked about contract engineering rates and practices.



Respondents were asked if they held any broadcast- or media-relevant professional certifications. We compared salaries of respondents with and without SBE Certification and reported the trend compared to past salaries. Typically, those who hold SBE certification earn a higher wage than those who do not.

The survey report is available via the SBE Bookstore and is free to SBE members as a member benefit. You will need your SBE website login to access it. Also, the PDF report is password protected. The password is noted on the download page. Non-members can purchase the survey via the SBE Bookstore.

If you participated in the survey this year, thank you. We encourage your participation next year so we can provide the most useful results.



Ennes Workshops in 2021

Let the SBE bring the information to you. Consider scheduling an SBE Ennes Workshop in 2021 now.

ENNES WORKSHOP

Ennes Workshops, through the Ennes Educational Foundation Trust, are a way to bring affordable education to members locally. The Ennes Educational Foundation Trust, in cooperation with the SBE, offers periodic workshops and seminars around the United States. Programs are typically one day in length and feature multiple topics and speakers that cover the latest information in broadcast and media technology.

To host an Ennes Workshop in 2021, contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

sbe.org/ennes_workshop/



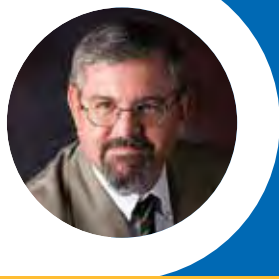
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LEGAL PERSPECTIVE

By Chris Imlay, CBT
SBE General Counsel
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The Space Segment: Sharing Has Its Limits

In October 2004, the FCC released a Report and Order in Docket 00-258 that changed United States Footnote US346 in the Table of Allocations, authorizing limited sharing of the 2 GHz ENG band (2025-2110 MHz) by the Department of Defense (DoD) Space Operation Service at 11 specific locations for satellite uplinks. Due to the participation in the docket by SBE and others, the footnote was written to carefully protect ongoing BAS, CARS and LTTS operations for ENG and video production. It read, in part, as follows:

US346 Except as provided for below and by footnote US222, Federal use of the band 2025-2110 MHz by the space operation service (Earth-to-space), Earth exploration-satellite service (Earth-to-space), and space research service (Earth-to-space) shall not constrain the deployment of the Television Broadcast Auxiliary Service, the Cable Television Relay Service, or the Local Television Transmission Service. To facilitate compatible operations between non-Federal terrestrial receiving stations at fixed sites and Federal earth station transmitters, coordination is required. To facilitate compatible operations between non-Federal terrestrial transmitting stations and Federal spacecraft receivers, the terrestrial transmitters in the band 2025-2110 MHz shall not be high density systems (see Recommendations ITU-R SA. 1154 and ITU-R F 1247)...

The referenced ITU Recommendations were both based on the fact that the 2 GHz band is small; it is shared extensively with dissimilar mobile applications; and there is unpredictable and often insufficient distance separation between satellite uplinks and ENG or other terrestrial applications in the band. Recommendation ITU-R SA.1154 concludes that sharing with high density mobile services in this band is not feasible and should be avoided. At WRC-15, the ITU adopted footnote 5.391, which precludes the deployment of high density mobile service systems in the 2025-2110 MHz band: "5.391 In making assignments to the mobile service in the frequency bands 2025-2110 MHz and 2200-2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154-0, and shall take that Recommendation into account for the introduction of any other type of mobile system." It was long ago determined that Earth stations are incompatible with low density mobile service (i.e. ENG, CARS and LTTS) systems unless sufficient RF isolation exists between the mobile systems and the earth station.

Recognizing this, for the 11 DoD satellite uplink sites, extensive negotiation over a period of years with SBE representatives and DoD technical personnel resulted in a successful memorandum of understanding that facilitated DoD operation at the 11 sites with reliable protection for BAS operation. The DoD and its contractors were then, and they are now exceptionally professional and easy to work with in connection with federal systems migrating into the 2 GHz band.

There is not an equivalent degree of cooperation coming from the 2 GHz Earth Exploration Satellite Service (EESS) uplink us-

ers, however. Applications for new EESS uplinks in the 2 GHz ENG band are being filed at a great rate and granted regularly by the International Bureau at the FCC without reference to the interference potential to co-channel 2 GHz ENG operations, and without reference to terrain shielding, duty cycle of the uplink or the expected total number of EESS Low Earth Orbit (LEO) satellites in the constellation. EESS use of 2 GHz TV BAS channels is on a secondary basis to Part 74 use. Use of 2 GHz for EESS telemetry, telecommand and control (TT&C) by Earth-to-space uplinks is permitted by the US347 footnote to the Part 2 Table of Frequency Allocations:

US347 In the band 2025-2110 MHz, non-Federal Earth-to-space and space-to-space transmissions may be authorized in the space research and Earth exploration-satellite services subject to such conditions as may be applied on a case-by case basis. Such transmissions shall not cause harmful interference to Federal and non-Federal stations operating in accordance with the Table of Frequency Allocations."

In conversations between the SBE and Comsearch, the SBE questioned a coordination notification for a 2 GHz fixed EESS uplink revealed an assumption by Comsearch (and other commercial coordinators) that a teleport's location would allow them to determine that there were not any identifiable conflicts to the uplink spectrum based on paths in their database. However, a commercial coordinator cannot possibly conclude from an FCC or other database search that EESS uplink operation at a given location will not conflict with Broadcast Auxiliary, LTTS, CARS or DoD operations in the 2 GHz band. All of those operations include mobile and itinerant components, and the 2 GHz band is the principal band used by television broadcasters for electronic news gathering, which is ubiquitous and completely unpredictable. There are few fixed BAS links in the FCC database, but there are mobiles and temporary receive sites that do not show up in the database at all.

There are extraordinary coordination efforts ongoing now among the SBE, the NAB and the DoD to accommodate DOD operations, fixed and mobile, which have been displaced from the AWS-3 bands, at 2 GHz. We also coordinate in real-time with NASA, which is also a sharing partner in this band. These require real-time coordination, which is incompatible with EESS uplinks, absent coordination. As the SBE sees it, there is a fundamental incompatibility between non-government EESS uplinks in the 2 GHz band and ongoing broadcast ENG, CARS, LTTS and DOD use of the band due to the ubiquitous, unpredictable operation of all of those services, each of which has priority over any proposed EESS operation premised on footnotes US346 and US347 or otherwise. One-time, commercial coordination at the time of licensing of the EESS uplink is not in any sense an effective means of complying with the non-interference requirements of the several footnotes. The commercial coordinators' databases include only fixed, point-to-point facilities and fixed receive sites.

We are now in the process of taking this up with the International Bureau at FCC, and noting our objection to the grant of a large number of potentially interfering satellite uplink facilities without coordination, in violation of the applicable footnotes to the Table of Allocations.

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FOCUS ON SBE

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

Ennes Trust Reaches 40-Year Milestone

In 1980, SBE Chapter 25 in Indianapolis wanted to recognize one of its members, Harold Ennes, after his sudden passing. Ennes was well known in the national broadcast technical community and beyond for the many textbooks he authored in the 1960s and 70s that became, for many, their bible of broadcast engineering knowledge. Ennes (pronounced "EN-es") was a member of the national SBE Certification Committee and made many contributions to the early development of the Certification Program.

The chapter felt the best way to recognize Ennes' dedication to learning and broadcast technology was to create the Harold Ennes Scholarship Fund Trust. The first scholarship initiated by the Trust was named for Ennes and was available to current members of the SBE interested in expanding their technical knowledge. Later, aspiring broadcast engineers became eligible as did non-members. In 1981, to encourage greater growth, the Scholarship Trust was transferred by Chapter 25 to the SBE national organization to administer.

Over the years, additional scholarships were created as funding permitted. The second scholarship memorialized Robert D. Greenberg, an active SBE member who held the SBE Certified Professional Broadcast Engineer (CPBE) certification. The scholarship recognized Greenberg's contributions to the broadcast industry through his efforts as a bureau chief with the FCC.

The Youth Scholarship was established in 1999, in conjunction with the creation the Youth membership category within the SBE. The scholarship is offered to graduating high school seniors to help encourage and further their education with an objective of entering the technical broadcast and media career field.

John Battison, the founder of the Society of Broadcast Engineers, was memorialized with the creation of the John H. Battison Founder's Scholarship, recognizing the instrumental role Battison played in the formation of the SBE. The creation of the scholarship was announced on Sept. 11, 2012, the 97th anniversary of Battison's birthday.

The newest scholarship, created in May

of this year, memorializes the contributions of Gino Ricciardelli, a Charter, Life and Fellow member of SBE who, for more than 50 years, contributed much to the betterment of SBE Chapter 1 in Binghamton, NY, the national SBE and the broadcasting industry. Funding for the new scholarship is made possible through a significant bequest from the Ricciardelli estate.

Over the years, the purposes of the Trust were expanded. In 1991, the Trust began the presentation of broadcast engineering-related educational programs; the "Ennes Workshops," that continue today.



Harold E. Ennes

These one-day programs featuring multiple topics led by subject matter experts from around North America are presented three to four times each year, typically sponsored by a local SBE chapter or state broadcasters association. The

first Ennes Workshop, moderated by Jim Wulliman, CPBE, past president of the SBE and long-time chair of the SBE Certification Committee, was presented in Cincinnati with Chapter 33, Southwest Ohio, as a prize for that chapter's achievement of winning the annual SBE Membership Drive the previous year. In the years following, Rick Farquhar, CPBE; Jerry Whitaker, CPBE, 8-VSB; and Fred Baumgartner, CPBE, CBNT, all served as volunteer moderators and organizers of the workshops.

In 1995, in cooperation with the SBE, the first Ennes Workshop was presented as part of the annual NAB Show in Las Vegas. Over the next 25 years, these programs eventually filled the opening day of the NAB Broadcast Engineering Conference (now Broadcast Engineering and IT Conference), attracting crowds in the hundreds.

The name of the Trust was changed in 1995 to the Harold Ennes Educational Foundation Trust to fully embrace its expanded role. By then, the Trust had begun providing funding for publishing SBE technical books and manuals and other education-related projects of the SBE. In the aftermath of the attacks that took place on September 11, the Trust raised in excess of \$250,000 in support of the families of six broadcast engineers and

technicians who lost their lives that day while working on broadcast facilities at the top of the World Trade Center in New York City.

Among the goals of the Ennes Trust are to encourage the entry of young people into broadcast technical fields, to provide access to affordable technical media training courses and to encourage development of educational programs of value to the broadcast engineering community. Achievement of these goals could not have been possible without the leadership of many individuals. In addition to those I've already mentioned, they include Richard Rudman, CPBE; Jack McKain, CPBE; Bob Goza, CPBE; David Carr, CPBE, 8-VSB; and hundreds of speakers who have presented at the more than 100 Ennes Workshops held since 1991.

Three trustees, appointed by the Society of Broadcast Engineers Board of Directors, are responsible for the operation of the Ennes Educational Foundation Trust. The current trustees are Doug Garlinger, CPBE, 8-VSB, CBNE, member of Chapter 25, who has been a trustee since the beginning; Tony Peterle, CPBE, and Dale Scherbring, CPBE. The current members of the Ennes Scholarship Committee are Kenny Elcock, CPBE; Jim Skinner, CPBE, CBNT; and Tom Weber, CPBE, CBNT.

The Ennes Trust is supported financially through donations from the SBE membership, SBE chapters, industry manufacturers and suppliers. Donations can be made to: Ennes Educational Foundation Trust; c/o Society of Broadcast Engineers, Inc.; 9102 N. Meridian Street, Suite 150; Indianapolis, IN 46260.

The work of the Ennes trustees and Scholarship Committee is supported by members of the staff of the SBE, at no cost to the Trust. They include Cathy Orosz, SBE education director (Ennes Workshops), and Debbie Hennessey, sustaining member manager (Ennes Scholarship administration). I have been pleased to serve for many years as treasurer of the Trust.

Thousands of SBE members and others have benefited from the work of the Ennes Trust over the past 40 years. We like to think that Harold would be very pleased to see that his life's work to help educate broadcast engineers continues to this day.



ENGINEERING PERSPECTIVE

By Lindsay Bold, CPBE
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NextGen TV Takes to the Air in Las Vegas

On May 26, 2020, at 10:00 a.m., the Las Vegas market became the first in the nation to deploy a full-power (1000 kW) commercial NextGen TV station. The target date for light up was moved twice – once from the CES convention in January and a second time from the NAB Show in April – as a result of the COVID-19 pandemic.

Station	Affiliation	Resolution	PLP	Profile	PSP Logical	OTA Channel
KVCW	CW	720p	PLP 0	Robust	33.1	29.1
KLAS	CBS	1080i	PLP 1	Fixed	8.1	29.2
KTNV	ABC	720p	PLP 1	Fixed	13.1	29.3
KSNV	NBC	1080i	PLP 1	Fixed	3.1	29.4

Allocated Data per Station: 6.958 Mb/s, Total Data Bandwidth: 23.5494 Mb/s

The initial work to coordinate Las Vegas station owners on a potential market deployment began in September 2018, resulting in an initial plan in May 2019. Channel mapping proposals, hosting agreement negotiations and engineering connectivity planning began in June. The first of many engineering deployment meetings occurred on July 29, 2019. Equipment lists were created, inter-connectivity between stations established, and transmission systems were modified. It was a cooperative effort; the participants included EW Scripps Co., Nexstar Media Group Inc., and Sinclair Broadcast Group Inc., all coordinated by BitPath (formerly Spectrum Co).

The local station engineering teams, headed by Greg Rogers of KTNV (ABC), Tim Foley of KLAS (CBS), and Lindsay Bold of

KVCW (CW) and KSNV (NBC), began their work configuring the Ateame and Harmonic 1.0 encoders, adding the day of transition stream configurations with multicasts to feed the 1.0 and 3.0 host stations via LTN Global. To accommodate the FCC-mandated channel sharing among the participating stations to create the ATSC 3.0 and 1.0 hosts, programming streams were moved in a balanced way so that no one station was burdened more than others in 1.0 hosting and all stations shared equally in 3.0 capacity. Ateame encoders were deployed for NextGen TV. Ross-Nielsen Watermark cards needed to be added to incorporate watermarking in the HDSI infrastructure, and audio encoding needed to be changed to meet the requirements. Redundant network switches were added to the design. The 3.0 host's SAF STL was configured to add a 60 Mb IP trunk along with the current 1.0 ASI streams. In addition, the PSIP generator was modified to reflect current and day of transition configurations for the ATSC 1.0 stations.

MVPD systems were notified prior to transition day, and follow up calls were made to confirm reception changes in the 1.0 signals. The DigiCap Scheduler/Gateway was configured on the output of the Ateame 3.0 encoder to process and package

all the elements of the protocol stack then deliver an STLTP to the Vortex exciter in the Acrodyne two-cabinet IOT transmitter. All systems testing was performed prior to the transition day, which made the day virtually problem-free.

On transition day, people from all over worked virtually. At 9:00 a.m. on May 26, the new configurations for the 1.0 channel sharing over-the-air were enabled. MVPDs confirmed that they were receiving the new 1.0 program streams and then waited. At 9:59:50 a.m., the ATSC 1.0 exciter was switched off and the ATSC 3.0 exciter went online. At 10:00 a.m. the NextGen TV transmitter started its broadcast.



Black Mountain in Las Vegas, the site of the ATSC 3.0 installation.



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
Anthony Fox, Newport News, VA
John Frercks, Princeton, NJ
Timothy Parish, Sacramento, CA
Mark Richer, Arlington, VA
SBE Chapter 55, St. Louis, MO

John H. Battison Founder's Scholarship
John Frercks, Princeton, NJ

Robert D. Greenberg Memorial Scholarship
John Frercks, Princeton, NJ

Youth Scholarship
John Frercks, Princeton, NJ

sbe.org/ennes

Who is an SBE Mentor? It Could Be You!

Do you have a specific expertise you would like to share and have a desire to help others grow and excel in their career? Get involved in the SBE Mentor program. The SBE Mentor program currently involves 35 mentors and 31 mentees representing 22 states plus Guam and Canada.

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What does it take to be an SBE mentor?

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- Desire to help others grow and excel in their careers.
- Positive attitude toward the profession and learning.

sbe.org/mentor

<p>AC Video Solutions • 2014 Andrea Cummis 201-303-1303 Consulting, Systems Design/Integration</p>	<p>DoubleRadius, Inc. • 2012 Jeffrey Holdenrid 704-927-6085 IP Microwave STL</p>	<p>Linkup Communications Corporation • 2017 Mark Johnson 703-217-8290 Satellite Technology Solutions</p>	<p>Ross Video Ltd. • 2000 Jared Schatz 613-228-0688 Manufacturer, Television Broadcast Equipment</p>
<p>AEQ Broadcast International • 2015 Peter Howarth 954-581-7999 Broadcast Audio, Video and Communications</p>	<p>Drake Lighting • 2015 Dave Sheppard 270-804-7383 FAA Obstruction Lighting - Medium and High Intensity</p>	<p>LYNX Technik • 2007 Steve Russell 661-251-8600 Broadcast Terminal Equipment Manufacturer</p>	<p>Sage Alerting Systems Inc. • 2010 Harold Price 914-872-4069 x113 Emergency Alert Systems Products</p>
<p>American Tower Corporation • 2000 Peter A. Starke 781-926-4772 Development/Construction/Management</p>	<p>DTS Inc./HD Radio Technology • 2014 Rick Greenhut 443-539-4335 HD Radio Technology</p>	<p>Markertek • 2002 Adam June 845-246-2357 Specialized Broadcast & Pro-Audio Supplier</p>	<p>SCMS Inc. • 2000 Bob Cauthen 800-438-6040 Audio and RF Broadcast Equipment Supplier</p>
<p>Audemat-Worldcast Systems Inc. • 2000 Christophe Poulain 305-249-3110 Control Manufacturer</p>	<p>du Treil, Lundin & Rackley, Inc. • 1985 Jeff Reynolds 941-329-6000 Consulting Engineers</p>	<p>Micronet Communications Inc. • 2005 Jeremy Vize 972-422-7200 Coordination Services/Frequency Planning</p>	<p>Seacomm Erectors, Inc. • 1997 John Breckenridge 360-793-6564 Tower/Antenna Erections</p>
<p>Belden Electronic Division • 1991 Rose Lockwood 203-500-4743 Fiber and Copper Cabling Infrastructure</p>	<p>The Durst Org. - 4 Times Square • 2004 212-997-5508 TV/FM/Microwave Tower Site</p>	<p>Microwave Video Systems • 2011 Warren J. Parece 781-665-6600 Microwave Equipment Rental, Sales & Service</p>	<p>SEG • 2014 Chris Childs 913-324-6004 Supply Chain Products and Services</p>
<p>Blackmagic Design • 2012 Terry Frechette 408-954-0500 Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters</p>	<p>DVE0 - Division of Computer Modules Inc. • 2011 Laszlo Zoltan 858-613-1818 Everything About Transport Streams</p>	<p>Moseley Associates Inc. • 1977 Bill Gould 805-968-9621 x785 Digital STLs for Radio and Television</p>	<p>Shively Labs • 1996 Dale Ladner 888-SHIVELY FM Antennas & Combiners</p>
<p>Bracke Manufacturing LLC • 2012 Patra Largent 949-756-1600 RF & Microwave Components</p>	<p>Econco • 1980 Debbie Storz 800-532-6626, 530-662-7553 New & Rebuilt Transmitting Tubes</p>	<p>MulticAM Systems • 2020 Mary Ann Gordon 207-776-5998 Fully automated live video production</p>	<p>Shure Incorporated • 2012 Bill Ostry 847-600-6282 Microphones, Wireless Systems, Headsets</p>
<p>Broadcast Depot • 2018 John Lackness 305-599-3100 TV, Satellite, Radio, IP</p>	<p>ENCO Systems Inc. • 2003 Samantha Bortz 248-827-4440 Layout and Automation Solutions</p>	<p>MusicMaster • 2014 Jerry Butler 352-231-8922 Advanced Music Scheduling Solutions</p>	<p>Sierra Automated Systems and Eng. Inc. • 2011 Al Salci 818-840-6749 Routers, Mixers, Consoles, Intercoms</p>
<p>Broadcast Devices, Inc. • 2015 Robert Tarsio 914-737-5032 Audio/RF Support Products</p>	<p>ERI - Electronics Research • 1990 Zachary Bailey 812-925-6000 Broadcast Antennas, Transmission Line, Filters/Combiners, Towers and Services</p>	<p>Nascar Productions • 2014 Abbey Kielcheski 704-348-7131 Live/Post Production Services</p>	<p>Solid State Logic • 2014 Steve Zaretsky 212-315-1111 Digital Audio Mixing Consoles, Networked Audio Routing, Embedded Audio Solutions</p>
<p>Broadcast Electronics Inc. • 1978 Perry Priestly 217-224-9600 Radio Equipment Manufacturer</p>	<p>Floral Systems • 2008 Shawn Maynard 877-774-1058 Television Broadcast Automation</p>	<p>National Association of Broadcasters • 1981 Industry Trade Association 202-429-5340</p>	<p>Staco Energy Products Co. • 2010 Paul Heiligenberg 937-253-1191 x128 Manufacturer of Voltage Regulators, UPS</p>
<p>Broadcast Software International • 2016 Marie Summers 888-274-8721 Radio Automation, Audio Logging</p>	<p>Fujifilm/Fujinon • 1986 Gordon Tubbs 973-686-2769 Broadcast & Cine Lens Products</p>	<p>National Football League • 1999 Michael Katzenoff 212-450-2368 Game Day Coordination Operations</p>	<p>SuitLife Systems • 2019 Nigel Brownnett 310-405-0839 Manage. Monitor. Control</p>
<p>Broadcast Supply Worldwide • 1986 Shannon Nichols 800-426-8434 Audio Broadcast Equipment Supplier</p>	<p>GatesAir • 1977 Dave Hopson (TV) 513-445-5243 Mark Goins (Radio) 513-899-9124 Broadcast Equipment Manufacturer</p>	<p>Nautel Inc. • 2002 Jeff Welton 877-662-8835 Radio Broadcast Transmitter Manufacturer</p>	<p>Sutro Tower Inc. • 1989 Eric Dausman 415-681-8850 Broadcast Tower Leasing</p>
<p>Broadcasters General Store • 2004 Buck Waters 352-622-7700 Broadcast Audio Video Distributor</p>	<p>Heartland Video Systems, Inc. • 2011 Dennis Klas 920-893-4204 Systems Integrator</p>	<p>Nemal Electronics Int'l Inc. • 2011 Benjamin L. Nemser 305-899-0900 Cables, Connectors, Assemblies and Fiber Optic</p>	<p>Synthax Inc. • 2020 Derek Badala 603-591-6735 Audio Coders and Converter Solutions</p>
<p>Burk Technology • 2019 Jim Alinwick 978-486-0086 x7404 Transmitter Facility Control Systems</p>	<p>Hilights, Inc. • 2016 Timothy Nash 352-564-8830 Obstruction Lighting Maintenance</p>	<p>Neutrik USA, Inc. • 2012 Kathy Hall 704-972-3050 Ruggedized Optical Fiber Systems</p>	<p>Technical Broadcast Solutions, Inc. • 2018 Robert Russell 215-983-0855 Engineering and Consulting Services</p>
<p>Calrec Audio • 2016 Helen Carr 703-307-1654 Audio Mixing Equipment</p>	<p>Hitachi Kokusai Electric Comark • 2013 Jack McAnulty 413-998-1523 Manufacturer Broadcasting Transmission Equipment</p>	<p>NPR Distribution Services • 2019 Dan Riley 202-513-2624 Your Content Delivery Partners</p>	<p>Televue USA, LLC • 2018 Andy Ruffin 937-475-7255 ATSC 3.0 Transmission Solutions, Antennas</p>
<p>Camplex • 2017 Daniel Coscarella 800-445-7568 x7409 Fiber Optic Cable Assembler</p>	<p>iHeartMedia, Inc. • 2019 Troy Langham 918-664-4581 Radio Group Owner</p>	<p>Orban Labs, Inc. • 2011 Mike Pappas 480-403-8300 Audio Processing AMFMTV</p>	<p>Telos Systems/Omnia/Axia • 2003 John Bisset 216-241-7225 Tels Systems Talk-Show Systems</p>
<p>Canon USA Inc. • 1985 Larry Thorpe 201-807-3300, 800-321-4388 Broadcast Lenses & Transmission Equipment</p>	<p>Indiana Broadcasters Association • 2019 Dave Arland 317-701-0084 Indiana Association for Radio & TV Broadcasters</p>	<p>Pasternack Enterprises • 2001 Christine Hammond 949-261-1920 Coax & Fiber Products</p>	<p>Teradek • 2011 Jon Landman 949-743-5783 Camera-top ENG Solutions</p>
<p>Cavell, Mertz & Associates Inc. • 2011 Gary Cavell 703-392-9090 Consulting Services</p>	<p>Inovonics Inc. • 2012 Gary Luhrman 831-458-0552 Radio Broadcast Equipment</p>	<p>Potomac Instruments • 1978 Zachary Babendreier 301-696-5550 RF Measurement Equipment Manufacturer</p>	<p>Tieline The Codec Company • 2003 Dawn Shewmaker or Jacob Daniluck 317-845-8000 Audio Codec Manufacturer</p>
<p>Comrex Corporation • 1997 Chris Crump 978-784-1776 Audio & Video Coders & Telephone Interfaces</p>	<p>JAMPRO Antennas Inc. • 2011 Alex Perchevitch 916-383-1177 DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB</p>	<p>ProAudio.com- A Crouse-Kimzey Co. • 2008 Mark Bradford 800-433-2105 x560 Proaudio Broadcast Equipment Distributor</p>	<p>Unimar Inc. • 2001 Thad Fink 315-699-4400, 813-943-4322 Tower Obstruction Lighting Designer, Manufacturer, Distributor</p>
<p>Continental Electronics • 1976 Dale Dalesio 412-979-3253 TV and Radio Transmitters</p>	<p>JVC Professional Video • 2014 Edgar Shane 973-317-5000 Professional Video Products, Camcorders, Display Monitors, Recording Decks</p>	<p>Propagation Systems Inc. - PSI • 2010 Doug Fross 814-472-5540 Quality Broadcast Antenna Systems</p>	<p>Wheatstone • 2010 Jay Tyler 252-638-7000 IP Consoles, Routers & Processors</p>
<p>CueScript • 2014 Michael Accardi 203-763-4030 Teleprompting Software & Hardware</p>	<p>Kathrein USA Inc. • 1985 Les Kutasi 541-879-2312 Antennas for Broadcasting & Communications</p>	<p>QCommunications • 2019 Tony zumMallen 816-729-1177 Services Behind the Scenes</p>	<p>WideOrbit • 2012 Jim Hammond 415-675-6700 Radio Automation and Playlist</p>
<p>Davicom, Division of Comlab, Inc. • 2014 Louis-Charles Cuierrier 418-682-3380 x512 Remote Site Monitoring and Control Systems</p>	<p>Kintronc Labs, Inc. • 2015 Joaquin Raventos 423-878-3141 Radio Broadcast Antenna Systems - ISO9001 Registered Company</p>	<p>QVC • 2011 Kevin Wainwright 484-701-3431 Multimedia Retailer</p>	<p>Wireless Infrastructure Services • 2006 Travis Donahue 951-371-4900 Repacking Services - West Coast Turnkey Services</p>
<p>Dielectric • 1995 Cory Edwards 207-655-8131 TV & FM Transmission & Cellular Products</p>	<p>LBA Technology Inc. • 2002 Javier Castillo 252-757-0279 AM/MW Antenna Equipment & Systems</p>	<p>Radio Frequency Systems • 2015 Eddy Vanderkerken 214-471-6693 Broadcast Infrastructure Manufacturer</p>	<p>Rohde & Schwarz • 2003 Walt Gumbert 724-693-8171 Transmitters, Test & Measurement, Video</p>

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

Member Spotlight: Veronica Mazuca

Member Stats

SBE Member Since: 2007
SBE Certifications: CBTE, CBNT
Chapter: 79 Austin
Employer: Texas State University
Position: Video Network Specialist II
Location: San Marcos, TX
I'm Best Known For: "I don't know what they would do if you weren't here."

Q What do you value most about your SBE involvement?

A I appreciate the knowledge gained from networked communication experts, via the SBE Webinars and WEBxtra installments. I also find benefit in the certification opportunities provided by the Society, this helps me demonstrate to both myself and my employer that I have the specialized skillsets necessary to effectively perform my job.

Q What got you started in broadcast engineering?

A Stage crew for live theater was my first love. Live television news caught my attention and I enrolled in my local community college RTF program. Then I started reading Broadcast Engineering magazine and thought it was



Veronica keeping it all working.

interesting. I gained my first engineering position shortly after graduating with my electronics degree.

Q Who do you consider to be a mentor?

A Ray Childress, "the Colonel," was my mentor. He was pretty rough-

and-gruff, but he would pass on any expertise, if you were willing to learn. He didn't just tell you the rote actions, he explained why you were doing things a certain way.

Q What do you like most about your job?

A I like the variety of duties and that nothing is static. With IP technology taking a firm hold, we have a whole new realm to conquer and contain. The high protocols and standards that broadcast professionals achieve has always given me great pride to be a part of this industry.

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

A ...like to watch live sports preferably in-person, but mainly on television. I have truly missed having the avail-

ability of my relaxation diversion. There is nothing special or unusual about my hobby, but I have really come to appreciate the entertainment value of live sport, especially during these challenging times.

AWARDS from p. 1

DOD have benefited from the careful, meticulous planning that RJ has worked exceptionally hard on to maximize DOD-coordinated use of 2 GHz without constraint on broadcasters. He has also assisted in effectuating the SBE local frequency coordinator stipend program, where local coordinators receive a gratuity if requested for their volunteer coordination work on behalf of their local chapters. RJ is presently overseeing preparation of a national database of 2 GHz users that will facilitate the work of SBE frequency coordinators, and he has revitalized the program at a difficult time in the history of volunteer frequency coordination.

Fred Baumgartner has been an SBE member for 47 years and has given countless hours to furthering the education of today's broadcast engineers through his work with the Ennes Educational Foundation. For 17 years he spearheaded the annual Ennes Workshop during the NAB Show, and in 2019 produced the SBE NextGen TV seminar during the PBS TechCon. One nominee said of Baumgartner, "He was supportive of my goals re: SBE and helped get me in touch with others in the organization to help me grow in my involvement and education."

Roland Robinson has been an SBE member for 24 years. He is an instructor of classes in Broadcasting and Video Production at Bates Technical College in Tacoma, WA. Robinson has taught at Bates for more than ten years, implementing an SBE-approved certification curriculum in his broadcast classes. The curriculum was recently renewed unanimously by the SBE National Certification Committee, the members being impressed by the curriculum presented by Robinson.

Robinson also serves on the Washington State Emergency Communications Committee (SECC) and provides a valued ser-

vice to Washington State broadcasters by creating and maintaining the complex Required Monthly Test (RMT) schedule.

MultiCAM Systems has won the Technology Award for the Air Bridge. Air Bridge is a new video solution for including remote guests in your shows or conferences. Up to four guests can be live at the same time, and up to 12 guests can be on the waiting list. Users send a link to the guests. Once that link is opened, the guest is connected to the show with the host's permission.

Chapter 37 in Washington, DC, has won the Best Educational Event for the NextGEN TV Summit held Jan. 16, 2020. The event was held in conjunction with SMPTE. Fred Willard, who helped produce the event, said, "We were amazed at the number of folks that traveled great distances to attend this event. It was truly regional. Thomas Janner from Rohde and Schwarz flew from Germany just to present."

Statistical Awards

Median chapter membership is 29 members, so Class A chapters are those with 29 members or fewer, and Class B are those chapters with 30 members or more.

Percentage Growth of New Members

Class A – 106 Florida Panhandle

Class B – 103 Nashville

Highest Percentage of Certified Members

Class A – 115 Southern Idaho

Class B – 131 Inland Empire

Highest Percentage of Member Attendance at Meetings

Class A – 112 Western Wisconsin

Class B – 69 Alamo Area

WELCOME TO THE SBE

NEW MEMBERS

Emmanuel M. Alcaide - Toronto, ON
 Brian A. Armstrong - Norfolk, VA
 Sam Ascencio - Commerce City, CO
 Sean T. Ashcraft - Muncie, IN
 Cody Barber - Baltimore, MD
 Robert B. Brown - Fairfield, CA
 Aaron A. Carter - Bangor, ME
 Long Cui - Flushing, NY
 Todd A. Davis - Cleveland, OH
 Chris L. Frazier - Centennial, CO
 Charles V. Gennaro - Nekoosa, WI

Joey Guy - West Monroe, LA
 Roosevelt Henry - Beaumont, TX
 Elias Koppenhaver - Fargo, ND
 Sara D. Lillard - South Lake Tahoe, CA
 Richard McGuane - Castle Rock, CO
 Robert Melgard - Boise, ID
 Wayne Mills - Hagerstown, MD
 Steve Murray - Minneapolis, MN
 Jeffrey Nelson - Thornhurst, PA
 Joann Nilson - Ann Arbor, MI
 Sean E. Peterson - Chicago, IL

Udaya Ravi - Round Rock, TX
 Carrie Samarco - Pittsburgh, PA
 Carlos Sepulveda - Parker, CO
 Ryan Sherwood - Lorton, VA
 Steven Vann - Aurora, CO
 Cynthia M. Welsh - Sarasota, FL
 Ronniere M. Whaley - Philadelphia, PA

NEW STUDENT MEMBERS

Solie J. Bates - Poughkeepsie, NY
 Murray Emery - Calgary, AB
 Je'Quan O. Gold - Arlington, VA
 Joey R. Hall - Calgary, AB
 Quinton A. Joseph - Boston, MA
 Frances Kootnekoff - Calgary, AB
 Danny J. Lee - Calgary, AB
 Wansik Lee - Calgary, AB
 Richard Nelson - Missouri City, TX
 Robert J. Rhyno - Calgary, AB
 Andrew Shaw - Calgary, AB
 Kurt A. Tkach - Veteran, AB
 Loren W. Toy - Seattle, WA
 Michael R. Whitmore - Calgary, AB
 Austin Yeo - Calgary, AB

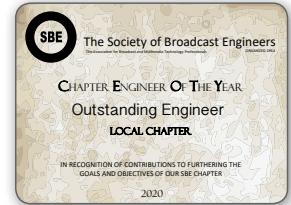
RETURNING MEMBERS

Dan J. Baker - Buena Park, CA
 Robert E. Ballou - Hampstead, MD
 Paul E. Cargill - Evansville, WI
 Jeffrey C. Cave - Acworth, GA
 Kerry A. Check - Pittsburgh, PA
 Ron Davis - Nephi, UT
 Lawrence S. Enroth - Joshua Tree, CA
 Ruben Garcia - Amherst, MA
 Mark E. Gebhart - Littleton, CO
 David P. Higgins - Walkersville, MD

Scott Husband - Simi Valley, CA
 Paul A. Leroux - Lakewood, CO
 Jose O. Marmol - Quincy, IL
 Henry A. McKelvey - Capitol Heights, MD
 Donny A. Newman - Oklahoma City, OK
 Clayton R. Roney - Jacksonville, FL
 Luis Santillan - Thornton, CO
 Kevin White - Bentonville, AR
 Christopher P. Wilde - Washington, DC

Chapter Engineers of the Year for 2020

In conjunction with the SBE National Awards program,



SBE members who are honored by chapters as a chapter engineer of the year are automatically entered into consideration for the Robert W. Flanders SBE Engineer of the Year award. Seven SBE members were selected by their chapters for the local honor this year.

- Louis Libin
15 New York City
 - Michael Brooks, CBRE
16 Seattle
 - Harold Schardin, CPBE, CBNT; 17 Minneapolis (posthumously)
 - Dave Kolesar, CBT, CBNT
37 District of Columbia
 - Noe Rodriguez-Jimenez
38 El Paso
 - James Georgiades
70 Northeast Ohio
 - Martin Jury
80 Fox Valley
- Each honoree receives a plaque and will be featured in the next issue of *The Signal*.

Membership Drive Brings 27 New Members

The 2020 SBE Membership Drive, themed "Going, Growing, Knowing – Join the SBE," brought in 27 new members. The Drive ran from March through May. Each member who recruited a new member was entered into a drawing to win prizes donated by several SBE Sustaining Members and the SBE. These new members were recruited by 24 existing members, who represented 21 SBE chapters.



receives an expense-paid trip to the SBE National Meeting in Syracuse, NY, this September, is Paul Easter of Rosenberg, TX. All the prize winners are listed here. Thanks to the SBE Sustaining Members who donated prizes for the Membership Drive.

Recruiters also earned \$5 off their 2021 dues renewal for each new member recruited. Watch for details on the 2021 Membership Drive next spring.

The Grand Prize winner, who

BGS: \$100 Amazon gift card	Paul Easter; Rosenberg, TX	Heartland Video Systems: backpack office pack	Gary Blievernicht; Dewitt, MI
BGS: \$100 Amazon gift card	James Ellett; Savannah, GA	Heartland Video Systems: blanket and-swag	David Morgan; Portsmouth, VA
BSW: Audio-Technica ATHM40x headphones	William Hackbarth; Duluth, MN	Heartland Video Systems: short sleeve polo shirt, knit cap, and swag	Arthur Hoover; Baton Rouge, LA
Cavell Mertz & Associates: \$125 SBE Store/SBE Bookstore gift certificate	David Boltz; Castle Rock, CO	Heartland Video Systems: wireless charging pad and swag	John Lindner; West Falls, NY
Cavell Mertz & Associates: \$125 SBE Store/SBE Bookstore gift certificate	Don Chapman; Houston, TX	LBA Group: SafeONE personal RF monitor	Michael Gill; Columbia, SC
Cavell Mertz & Associates: \$125 SBE Store/SBE Bookstore gift certificate	Dana Lyons; Nashville, TN	LBA Group: SafeONE personal RF monitor	Fee Lee; Centerville, VA
Cavell Mertz & Associates: \$125 SBE Store/SBE Bookstore gift certificate	Wayne Ozio; Beaumont, TX	Orban: 1101e card and breakout cable	Wayne Ozio; Beaumont, TX
Comark: insulated tumbler and notepad	David Boltz; Castle Rock, CO	SBE: \$25 SBE Store/SBE Bookstore gift certificate	James Ellett; Savannah, GA
Comark: insulated tumbler and notepad	Paul Easter; Rosenberg, TX	SBE: copy of SBE CertPreview	Stephen Jaskela; Burnham, ME
Comark: insulated tumbler and notepad	William Hackbarth; Duluth, MN	SBE: one Webinars by SBE registration	Don Chapman; Houston, TX
Comark: insulated tumbler and notepad	John MacGugan; Liberty, MO	SBE: SBE-logoed notebook	Timothy Coucke; Big Lake, MN
Comark: insulated tumbler and notepad	Wayne Ozio; Beaumont, TX	SBE: SBE-logoed notebook	William Magliocco; Atlanta, GA
Comark: insulated tumbler and notepad	William Ruck; San Francisco, CA	SBE: SBE-logoed t-shirt	Dana Lyons; Nashville, TN
Comrex: Rugged Geek RG2000 jump starter/booster/power pack	David Morgan; Portsmouth, VA	SBE: trip to the SBE National Meeting	Paul Easter; Rosenberg, TX
Dielectric: Dielectric-logoed polo shirt	Carl Cutforth; Mountain Lakes, NJ	Telos Alliance: Telos swag pack	Keith Kintner; Kingman, AZ
Dielectric: Dielectric-logoed polo shirt	Gary Rixner; Scranton, PA	Telos Alliance: Z/IPStream X/2 license	Ted Hand; Charlotte, NC
Fujifilm: Instax camera	Tim Costley; Pelham, AL	Tieline: \$25 Starbucks gift card	Rick Hartman; Oklahoma City, OK
Heartland Video Systems: \$100 Amazon gift card, magnet, & brochure	Michael Gill; Columbia, SC	Tieline: \$25 Starbucks gift card	Wayne Ozio; Beaumont, TX
		Tieline: Tieline-logoed polo shirt	Paul Easter; Rosenberg, TX
		Tieline: Tieline-logoed polo shirt	James Ellett; Savannah, GA
		Wheatstone: FM-55	Ted Hand; Charlotte, NC

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MEMBERS ON THE MOVE



▶ **Denise Mastrullo**, IT engineer WAVY-TV, promoted to assistant chief engineer, WAVY-TV, Portsmouth/Norfolk, VA.

▶ **Chris Connely**, CBT, CEA, has moved to and now offers contract engineering services based in the Peyton, CO, area after more than 20 years with the Educational Media Foundation.



▶ **Steve Tuzeneu**, CBT, is the general manager/chief engineer of WIHS-FM, Middletown, CT.



▶ **Zhulieta Ibisheva**, CBTE, CBT, is chief engineer of ION Media Networks, Honolulu, HI.

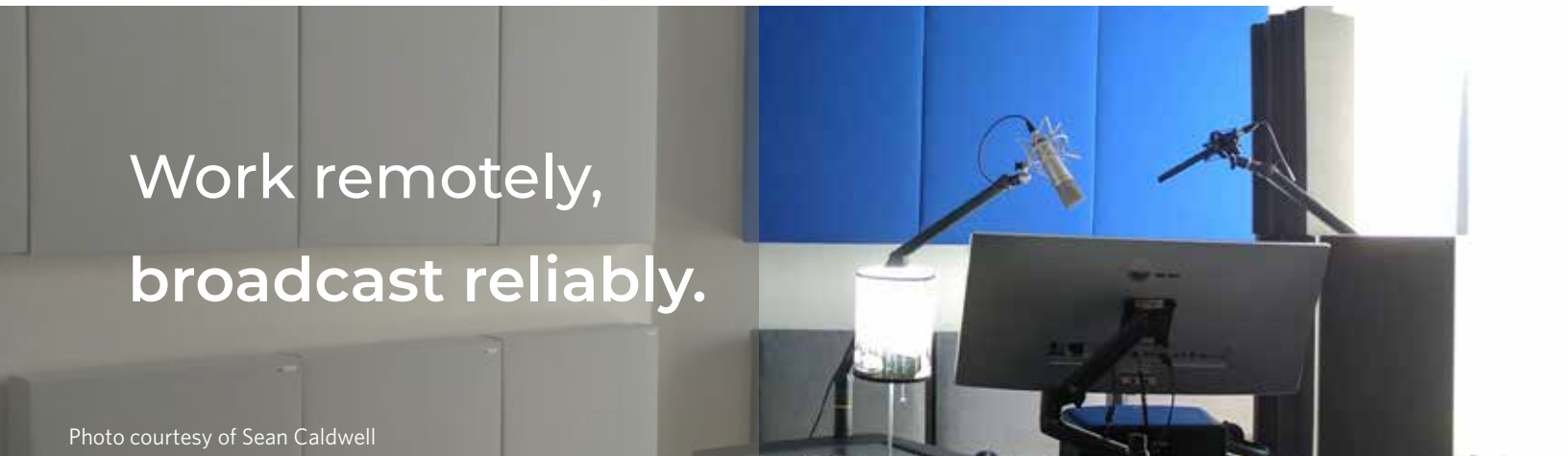


▶ **Ralph Hogan**, CPBE, DRB, CBNE, received the IEEE-USA Award for Distinguished Literary Contributions Furthering Public Understanding and the Advancement of the Engineering Profession.

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 <i>Local Chapters</i>						
Aug. 7-17, 2020 <i>sbe.org/certification</i>						
<i>Application deadline closed</i>						
SBE WEBxtra <i>online</i>						
Aug. 17, 2020 <i>sbe.org/webxtra</i>						
SBE National Meeting <i>Syracuse, NY</i>						
Sept. 22-23, 2020 <i>sbe.org</i>						
SBE WEBxtra <i>online</i>						
Sept. 21, 2020 <i>sbe.org/webxtra</i>						
SBE WEBxtra <i>online</i>						
Oct. 19, 2020 <i>sbe.org/webxtra</i>						
SBE Certification Exams <i>Local Chapters</i>						
Nov. 6-16, 2020 <i>sbe.org/certification</i>						
<i>Application deadline Sept. 21, 2020</i>						
SBE WEBxtra <i>online</i>						
Nov. 16, 2020 <i>sbe.org/webxtra</i>						
SBE WEBxtra <i>online</i>						
Dec. 21, 2020 <i>sbe.org/webxtra</i>						



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Photo courtesy of Sean Caldwell

ACCESS NX

A sleek, portable IP audio codec that allows you to go anywhere



BRIC-Link II

A cost-effective IP audio codec, perfect for home studios

