

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 Events, Sessions Highlight NAB Show

The 2019 NAB Show is packed with exhibits, sessions and plenty of opportunities to meet with manufacturers, vendors and colleagues. As you plan how you will spend your time at the convention, be sure you include the many SBE events on your convention calendar. While the Ennes Workshop and the SBE at PBS TechCon highlight the SBE's educational offerings on Saturday, the highlight for SBE members is the annual Membership Meeting, which will be followed by a reception.

The Membership Meeting will be held on Tuesday, April 9, at 5:00 p.m. in room N234. The Membership Meeting brings you up to date on all the SBE activities and programs, and it includes a milestone-service recognition of SBE chapter certification chairs, and updates on the



The SBE Membership Meeting (left) and Member Reception highlight the SBE events at the NAB Show.

society's plans, programs and government relations efforts. Everyone attending will be eligible to win prizes, including an URSA Broadcast camera (courtesy of the Membership Meeting sponsor Blackmagic Design), a \$250 Amazon gift card, and three restaurant gift cards.

You'll want to get to the meeting early as well, because the first 125 people in attendance will receive an SBE-logged commemorative coin.

The Membership Reception starts im-

see [NAB SHOW](#), p. 14

SBE Awards Recognize Actions of Your Peers

Who will the next SBE Engineer of the Year award recipient be? It could be you, it could be someone you nominate. This will be the seventh year that the Chapter Engineer of the Year award is nominated by SBE Chapters. The chapter

honorees are then entered into consideration for the 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. For the national award, nominations need to be submitted to the National Office by June 14.

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 13 awards recognizing chapters that are presented each year, a local chapter or SBE member make 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 re-

ceive the recognition they deserve.

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.



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

Attend the 2019 Leadership Development Course August 6-8

Make your plans today to attend the 2019 Leadership Development Course, Aug. 6-8 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 to help technically adept people 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 2019 SBE Leadership Development Course will again be taught by Rodney Vandevor, 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 want to consider sending a group of employees to the course to share the experience of this highly interactive event. Registration includes all course materials, three days of instruction, the Leadership Development Webinar Series of three webinars, a certificate of completion, light



The Leadership Development Course class of 2018.

breakfast and afternoon snacks. SBE Members receive a discount on registration.

It will take place Aug. 6 through Aug. 8 at the Hyatt Place Atlanta Airport South, 1899 Sullivan Rd., College Park, GA. A special room rate of \$118 is available for Leadership Conference attendees. The cost of the conference is \$670 for SBE Members and \$725 for non-members.

Register at sbe.org/ldc. Questions? Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.



Certification Question

Answer on page 6

Broadcast delivery of the linear components of a service may be carried by one or more ROUTE sessions or one or more MMTP sessions.

- A. True
- B. False



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LETTER FROM THE PRESIDENT

By Jim Leifer, CPBE
SBE President
jleifer@sbe.org

More from the SBE and the NAB Show

March is here, and we are looking how the first quarter is wrapping up. I am pleased to say that SBE WEBxtra, our chapter of the web, is going better than expected. One of the strategic directives was to develop alternative ways to reach and attract new members. Some members do not have a local chapter within driving distance to attend our local chapter meetings, while others cannot get away from the station or family obligations for an evening meeting. This addresses those situations. Board Member Kirk Harnack has been our lead on this project. His employer, the Telos Alliance, has allowed him to work with Member Commu-

nications Director Chriss Scherer to take this from an idea and we just completed our third episode. They are posted on our YouTube channel so you can watch when you have the time. The last concept of this idea is to have subject matter experts who do not travel to SBE local chapter meetings present at an SBE WEBxtra for a deep dive in their areas of expertise. Being web-based, we can spend the time necessary to ask those questions. Go to the SBE website for more information, and watch it at sbe.org/youtube. Thank you to Kirk for his tireless efforts.

The next subject I want to announce is that for more than two decades, the SBE

has been a partner with the NAB Show. This continues in a few weeks, and we look forward to seeing you there. We also have partnered with PBS TechCon this year for a full day event that is open to everyone, not just PBS station employees. Registration is required. Go to the SBE website for registration information.

Put in your calendars to stop by the SBE Spring Membership Meeting and Member Reception at the NAB Show. Tuesday April 9, at 5 and 6 p.m. respectively. Special recognitions, giveaways and prizes at the meeting; prizes, food and beverages at the reception. I will be there, so please come up and say hi.

Still Time to Renew Your SBE Membership

It is not too late to renew your membership in the SBE and retain your membership benefits. Those in the Member, Senior, Student, Associate and Fellow membership categories may renew online at 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. If you have forgotten your number or password, there is an automated retrieval system available to you on the renewal page.

When renewing, consider joining the more than 900 members who chose the SBE MemberPlus option. 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, 2020. That's more than 80 webinars covering a broad range of broadcast/media technology, regulatory and safety topics. It includes our current series on ATSC 3.0, the popular eight-part RF101 and five-part (and growing) RF201 series, five-part Fundamentals of IP Networking series and many more.

You may also renew by completing and returning the renewal

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 2018: If you did not renew by April 1, please be aware that your SBE MemberPlus option benefits ended on April 1, 2019 and your membership was automatically converted to traditional membership. If you renew during the grace period (or after), you can restore your free access to all SBE webinars by taking the MemberPlus option.

form with payment that you received in early February by mail 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.

Please note: an unfortunate error in production of the SBE membership cards caused the membership expiration date to read March 31, 2019, instead of March 31, 2020, on many cards. If you would like a corrected card, please contact Scott Jones at the SBE national office at kjones@sbe.org or 317 846-9000.



Participate in the 2019 SBE Compensation Survey

The SBE is conducting its fourth (and ongoing) compensation survey now. The SBE launched this annual effort to provide practical information to SBE members about individual compensation (salary and benefits) based on the type of broadcast or multimedia involvement (beyond just radio and TV), market size and years of experience. SBE members will have access to the full report.

The 2018 survey enjoyed a successful response rate, but as with any survey, a larger sample pool will pro-

vide more reliable results.

We encourage every SBE member to participate to provide a large sample base of responses. All responses are anonymous. With your help we can provide a useful and practical resource to SBE members. Find the survey link in email communications and on the SBE website.

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





EDUCATION UPDATE

By Wayne M. Pecena, CPBE, 8-VSB, AMD, DRB, CBNE
Chair, SBE Education Committee
wpecena@sbe.org

Fundamentals of IP Networking, CBNT Study Topics

How does an SBE chapter go about seeking technology professional development and the CBNT certification for 30 or so of its members? Chapter 48 Denver turned to the SBE Technical Presenters Group. As a result, I had the honor and pleasure to spend a day in Denver last month with members of SBE Chapter 48 and the SMPTE Rocky Mountain Section.

Broadcast engineers are well aware of the rapid changing technology occurring in the broadcast engineering field. IP networking is one of those areas that has become a must for the broadcast engineer. You know you need to know, but what exactly do you really need to know?

My approach to understanding networking begins with the Open Systems Interconnection or OSI Model and specific emphasis on the first four layers, the Data Flow Layers. The OSI Model is an abstract model that defines how a network host communicates across a network with another host device. The practical result is that the model provides the terminology found in networking, whether Internet Protocol (IP)-based or not, as the model was developed in a multi-protocol environment long before Ethernet and IP dominated the industry.

The Physical Layer (layer 1) represents the electrical aspects of the network, the physical aspects whether wired or wireless, and how bits as the Physical Data Unit (PDU) are represented.

The Data-Link Layer (layer 2) defines how bits are packaged into frames as the PDU and how the frames are created. Error correction is also implemented at this layer to correct any malformed bits passed from layer 1 by a cyclic redundancy check (CRC) process. The Ethernet switch is the fundamental building block of an Ethernet network and operates at layer 2. The physical address of a host device is defined at this layer by the Media Access Control (MAC) address. The Ethernet Carrier-Sense Multiple Access with Collision Detection (CSMA/CD) algorithm within the Ethernet standard may be invoked at layer 2 when required.

The Network Layer (layer 3) defines how packets are created from frames and how packets are interchanged between networks. The IP router is the fundamental network device found at layer 3 and is the fundamental device providing inter-routing or IP packet forwarding between networks. The virtual address of a host device is defined at this layer or the Internet Protocol (IP) address whether version 4 or version 6 (IPv4 or IPv6).

The Transport Layer (layer 4) controls how data is sent between hosts devices or how much data is transferred. The Transport Control Protocol (TCP) is implemented at layer 4 and provides the guaranteed data transfer capability of IP. The non-guaranteed data transfer provided by the User Datagram Protocol (UDP) is also implemented at layer 4. Applications executed

on the host device are also indexed based upon port numbers implemented at this layer and can be TCP or UDP numbered.

CBNT Preparation

What more do you need to know for the SBE CBNT certification? Based on the recommended study resources shown on the SBE website, you need an understanding of cable type designators, their appropriate use, and their proper installation techniques whether utilizing twisted-pair copper or fiber cabling. You need a practical understanding of circuit-switched

Wide Area Network (WAN) circuit types such as ISDN, Sonet, and T-carrier or DS-carrier telco circuits often found in broadcast application use. And network connectivity troubleshooting is often a fundamental responsibility of the broadcast engineer. I use the term "CBNT Study Topics" to address these specific areas of knowledge for those seeking certification.

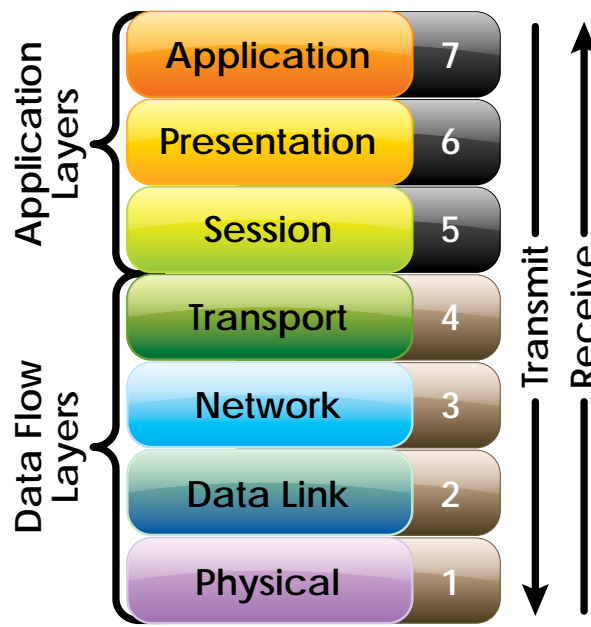
The day in Denver ended with the Certified Broadcast Networking Technologist (CBNT) exam administered for those seeking certification. I hope that everyone found the day to be beneficial and everyone was successful in achieving the CBNT certification.

If you find your chapter or your state broadcaster's association conference in need of an in-person delivered professional

development technology presentation or tutorial, consider bringing a member of the SBE Technical Presenter Group to your event. Speakers are available to speak on a wide variety of broadcast engineering topics. For more information on this program, or to arrange a presentation for your group, contact SBE Education Director Cathy Orosz (corosz@sbe.org) at the National Office.

Webinar Watch

As 2019 is underway, look for the continuing ATSC 3.0 webinar series as well as the Advanced RF series of webinars. A new "Introduction to Networking for ATSC 3.0" webinar series begins next month. Your SBE MemberPlus membership gives you access to the latest SBE webinars as well as the entire webinar on-demand library at no additional cost. If you failed to select the SBE MemberPlus option when you renewed, you can upgrade your membership at any time. Your SBE Education Committee is here to help achieve your professional development goals. Let us know your thoughts on current and future programs, lend your advice and guidance to your SBE Education Committee to help establish the right mix of educational content to meet your professional development needs.



The Data Flow Layers of the OSI Model provide the foundation for understanding networking.

For more information on any SBE education program click the Education tab at sbe.org, or contact Education Director Cathy Orosz at the SBE National Office at 317-846-9000 or corosz@sbe.org.



CERTIFICATION UPDATE

By Ralph Hogan, CPBE, DRB, CBNE
SBE Certification Committee Chair
rhogan@sbe.org

ATSC 3.0 Specialist Certification Nears Completion

In May 2018, the SBE and the ATSC announced a cooperative effort to develop a new Specialist level of SBE certification that will benchmark an individual's proficiency in the ATSC 3.0 System standard. Since then, select members of the SBE Certification Committee have been diligently working with participants from the Technology Group on ATSC 3.0 (TG3) standards to develop both the ATSC 3 Specialist Certification and appropriate SBE CertPreview questions. The groups have met monthly since June 2018 to discuss the scope and categories of suitable questions for the exam (multiple-choice and essay) and CertPreview.

Shortly, the SBE Certification Committee will conduct beta exams of the questions to ensure the exams match the stated goals of the ATSC 3.0 specialist certification exam. The specialist certification will concentrate on the Physical Layer up to the STL including security. The current plan is for CertPreview to be rolled out in the second quarter of 2019, and the exam is tentatively scheduled for release during the August 2019 exam period.

The SBE ATSC Specialist exam will be composed of 50 multiple choice questions (open book and internet allowed) and one essay question (closed book) requiring a written response. Examinees have three hours to complete the exam.

Recognizing Service

The strength of the SBE Certification Program exists in the volunteer efforts of the local chapter certification chairs and the members of the national Certification Committee. These SBE members will be recognized for their service at the SBE Membership Meeting held during the NAB Show, but I also want to thank them for their service here. Locally, some are new to their positions, and one has reached an amazing milestone. Regardless of tenure, everyone's efforts with SBE certification are valuable. Thank you for all you do.

Certification Service Anniversaries

	William Gellhaus, CPBE, CBNT; Chapter 18 Benjamin Brintzer, CPBE, AMD; Chapter 45 Matthew Saplin, CBTE; Chapter 58	
	Charles "Buc" Fitch, CPBE, AMD; Chapter 14 Michael Graziano, CEV, CBT; Chapter 14 Mark Simpson, CPBE, AMD, DRB, CBNE; Chapter 32 Kishore Persaud, CPBE, CBNT; Chapter 46 David Davis, CPBE, CBNT; Chapter 67 Dave Grant, CPBE; Chapter 102	
	Gary Stigall, CPBE; Chapter 36 Thomas Lowther, CSRTE, CBNT; Chapter 145	
	Chris Heck, CPBE; Chapter 76	
	Frank Maynard, CPBE; Chapter 82	
	William Kozel II, CSRTAVE, CBNT; Chapter 70	
	Certification Committee Dane Ericksen, PE, CSRTE, 8-VSB, CBNT	

Answer from page 3 The answer is A
There are two transport protocols defined in ATSC 3.0: ROUTE/DASH and MMT. The real-time (linear) components of a given service can be transported using one or the other of the two protocols, but not both. Note that the non-real-time components of a service (e.g., data files) can only be transported using ROUTE.

SBE Is All About Education in Las Vegas

The SBE presents two educational events on April 6.

ENNES SBE Ennes Workshop

WORKSHOP 9 a.m. - noon, LVCC N262
As it has for 25 years, the SBE presents the Ennes Workshop program at the 2019 NAB Show on Saturday, April 6. The morning session runs from 9 a.m. to noon at the Las Vegas Convention Center.

Business as Usual: Constant Change is the focus of the presentations. The presentations cover a range of topics, but they have one thing in common: Broadcast technology is changing, and you need to keep up with it.

Each presentation examines a different aspect of broadcast technology. Topics include: What is the Future of our Business?; Displays: Bigger, Better, Cheap; Artificial Intelligence in Media; Strategies in Replacing Retiring Staff - Doing More with Less; ATSC 3.0 Update; Ensuring End-to-End Video Quality at Facebook; and Understanding Future Data Center Design Concepts.

NAB Show conference registration required. nabshow.com

SBE @ PBS TechCon

9 a.m. - 5 p.m., Flamingo Las Vegas Hotel



ATSC 3.0 and the rapid launch of NextGen Broadcast are the drivers behind the first-ever SBE/PBS TechCon collaborative tutorial day. It's open to anyone eager to learn what ATSC 3.0 means for the future of broadcast, not just PBS station employees.

Periodically, broadcast goes through an extensive revamp. The launch of TV, FM, DTV - and now NextGen Broadcast - are pervasive and swift. Several dozen NextGen stations take to the air this year, and the pace is likely to pick up. Broadcast engineers need to understand the potential of ATSC 3.0 and see what's under the hood: the architecture, equipment, configurations, and options that go into NextGen.

This program track is where you as a broadcast engineer will learn what to do with NextGen Broadcast. There will only be one big launch technical program, and this is it.

Advance registration required. bit.ly/SBEatPBS

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION

Certified Professional Broadcast Engineer (CPBE)
 Paul Black, Pleasant Hill, CA - Chapter 40
 Michael Hendrickson, Lakeville, MN - Chapter 17
 William Hubbard, Green Bay, WI - Chapter 80
 Gary Pearcey, Stone Mountain, GA - Chapter 5
 Thomas Wixon, Lancaster, CA - Chapter 47

Certified Professional Broadcast Engineers and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59½ years old and are current members of 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.

FEBRUARY EXAMS

Certified Broadcast Radio Engineer (CBRE)
 John Bracken, Montecito, CA - Chapter 47
 Chris Stevens, Broken Arrow, OK - Chapter 56
Certified Broadcast Television Engineer (CBTE)
 Emzy McClure, III, Ottawa Hills, OH - Chapter 104
Certified Broadcast Networking Technologist (CBNT)
 Muthana Al-Wazni, Springfield, VA - Chapter 60

(CBNT cont.)
 Connor Crookshank, Bonney Lake, WA - Ch. 16
 Jeffery Dela Cruz, Tacoma, WA - Chapter 16
 Jonathan Hollon, N. Richland Hills, TX - Chapter 67
 Mason Jennings, Puyallup, WA - Chapter 16
 Emzy McClure, III, Ottawa Hills, OH - Chapter 104
 Elias Sanders, Atlanta, GA - Chapter 5
 John Tiesi, Albuquerque, NM - Chapter 34

Certified Broadcast Technologist (CBT)
 David Clark, Phoenix, AZ - Chapter 9
Certified Radio Operator (CRO)
 Kim Brickman, Alameda, CA - Chapter 40
 Zeb Navarro, Oceanside, CA - Chapter 36
 Stephen Pavlik, Austin, TX - Chapter 79

SPECIAL PROCTORED EXAMS

Certified Broadcast Television Engineer (CBTE)
 David Jackson, Magnolia, TX - Chapter 105

Alabama Broadcasters Association
Certified Broadcast Technologist (CBT)
 Brian Dougherty, Carthage, IL - Chapter 49
 Billy Sheen, Kosciusko, MS

SBE CERTIFIED SCHOOL COURSE COMPLETION

DINFOS
Certified Broadcast Technologist (CBT)
 Mahari Grant, Ashburn, VA - Chapter 37

CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)

Walcott Denison, III, Peoria, AZ - Chapter 9
 Michael Everhart, Molalla, OR - Chapter 124
 Robert Stratton, Cocoa, FL - Chapter 42
 Richard Wright, Trinity, FL - Chapter 39

Applicant 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.

CERTIFIED RADIO OPERATOR (CRO)

Robert Hageny, Oswego, NY - Chapter 22
 Collin Leddy, Milledgeville, IL
 Evan Matsler, Rancho Cordova, CA
 Matt Pacini, Roseville, CA
 Valerie Rostkowski, Brooklyn, NY - Chapter 15
 John Skiba, Astoria, NY - Chapter 15
 Anthony Timmons, Easthampton, MA
 Kelvin Tsao, Rancho Cordova, CA
 Anthony VanHook, Sacramento, CA

Cave City High School
 Kaleb Conrey-Taylor, Evening Shade, AR
 Shelby Crafton, Batesville, AR
 Alexis Cresswell, Evening Shade, AR
 Darin Evans, Cave City, AR
 Dylan Garrett, Cushman, AR
 Thomas Greathouse, Cave City, AR
 Braydee Haworth, Cave City, AR
 Cheyenne King, Cave City, AR
 Nova Leininger, Cave City, AR
 Ann Moser, Cave City, AR

Cave City High School (cont.)
 Ashley Olinger, Evening Shade, AR
 Sean Peer, Cave City, AR
 Jessica Platz, Evening Shade, AR
 Charles Roberts, Evening Shade, AR
 Jersey Rodriguez, Strawberry, AR
 Kenneth Self, Sidney, AR
 La Shaun Starbuck, Cave City, AR
 Angel Teague, Cave City, AR
 Sara Varner, Batesville, AR
 James Gordon Walley, Cave City, AR
 Mikah Warren, Cave City, AR

CERTIFIED TELEVISION OPERATOR (CTO)

Israel Alejandro, Allentown, PA
 James Brestin, Indianapolis, IN
 Elizabeth Brito, Hialeah, FL
 Thomas Ferguson, Pasadena, CA
 Chance Holmes-Snowden, Whiteville, NC
 Steve Hurlley, Chicago, IL
 Keith Jacoby, Bozeman, MT

Dan Jensen, Brownsburg, IN
 Charlina Johnson, Altadena, CA
 Eric Kuglin, Raleigh, NC
 David Malone, Schenectady, NY
 Terry Manus, Concord, NC
 Mark Niederkorn, Chicago, IL
 Valerie Rostkowski, Brooklyn, NY - Chapter 15

John Skiba, Astoria, NY - Chapter 15
 Paul Spinelli, Kingsville, MD - Chapter 46
 Terrance West, Bozeman, MT
Bates Technical College
 Doug Berry, Auburn, WA
 Branson Gustafson, Puyallup, WA

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)
 William Greep, Chaska, MN - Chapter 17
Certified Professional Broadcast Engineer (CPBE)
8-VSB Specialist (8-VSB)
 William Magliocco, Atlanta, GA - Chapter 5
Certified Senior Television Engineer (CSTE)
 Glenn Axelrod, Framingham, MA - Chapter 11
Certified Broadcast Networking Engineer (CBNE)
 Glenn Axelrod, Framingham, MA - Chapter 11
 James Glanz, Brooklyn, NY - Chapter 15
 William Magliocco, Atlanta, GA - Chapter 5
Certified Broadcast Radio Engineer (CBRE)
 Donald Bohrer, San Antonio, TX - Chapter 69
 Louis Caesar, Jr, New York, NY - Chapter 15
 Brian Cunningham, Buffalo, NY - Chapter 133
 Guillermo Franco, Presidio, TX - Chapter 38
 James Glanz, Brooklyn, NY - Chapter 15
 Brian Gullikson, Saint Paul, MN - Chapter 17
Certified Broadcast Television Engineer (CBTE)
 Kenneth Fuller, Studio City, CA - Chapter 47
 Robert Scott, Corpus Christi, TX - Chapter 29
 Robert Sulecki, Indianapolis, IN - Chapter 25
Certified Audio Engineer (CEA)
 Jay Champagne, Chicago, IL - Chapter 26

Certified Broadcast Networking Technologist (CBNT)
 Steven Crum, Newport, MI - Chapter 104
 Tom Dailey, Morrison, CO - Chapter 48
 Eric Kuglin, Raleigh, NC - Chapter 93
 Charles Sell, Toledo, OH - Chapter 104
Certified Radio Operator (CRO)
 Dan Arias, Spring Hill, FL
 Elizabeth Hall, Pasadena, CA
 Robert Hageny, Oswego, NY - Chapter 22
 Alvaro Montealegre, Tampa, FL - Chapter 39
 Valerie Rostkowski, Brooklyn, NY - Chapter 15
 John Skiba, Astoria, NY - Chapter 15
 Anthony Timmons, Easthampton, MA
Certified Broadcast Technologist (CBT)
 Michael Alston, Portland, OR - Chapter 124
 Chris Ark, Seattle, WA - Chapter 16
 John Bimrose, Raleigh, NC - Chapter 93
 Yezmin Blue, Tacoma, WA - Chapter 16
 Ronald Brownlow, Ruskin, FL - Chapter 39
 Craig Clark, Raymond, ME - Chapter 110
 James Clark, Valley Stream, NY - Chapter 15
 Ben Ellis, Tuscaloosa, AL - Chapter 68
 Paul Kaminski, Johnson City, NY - Chapter 1
 Llewelyn Kennedy, FPO, AP - Chapter 101
 Ronald Kumetz, Alburgh, VT - Chapter 110
 Jerry Manes, Mableton, GA - Chapter 5

Certified Broadcast Technologist (CBT) (cont.)
 Ronald Merkel, Gardendale, AL - Chapter 68
 Gregory Schmitke, Moorhead, MN - Chapter 17
 Nicholas Slade, Ottawa, Ontario Canada
 Bill Tidwell, Valdosta, GA - Chapter 7
 Timothy Trendt, Platteville, WI - Chapter 24
Certified Television Operator (CTO)
 Israel Alejandro, Allentown, PA
 James Brestin, Indianapolis, IN
 Elizabeth Brito, Hialeah, FL
 Philip Brooks, Oklahoma City, OK - Chapter 85
 Orvin Debban, Holdrege, NE - Chapter 87
 Steve Hurlley, Chicago, IL
 Keith Jacoby, Bozeman, MT
 Dan Jensen, Brownsburg, IN
 Charlina Johnson, Altadena, CA
 Eric Kuglin, Raleigh, NC
 David Malone, Schenectady, NY
 Terry Manus, Concord, NC
 John Pooley, Burlington, VT - Chapter 11
 A.J. Roberts, Peoria, IL
 Valerie Rostkowski, Brooklyn, NY - Chapter 15
 Chris Rundel, Topeka, KS
 John Skiba, Astoria, NY - Chapter 15
 Paul Spinelli, Kingsville, MD - Chapter 46
 Michael Tonges, Canton, OH - Chapter 70



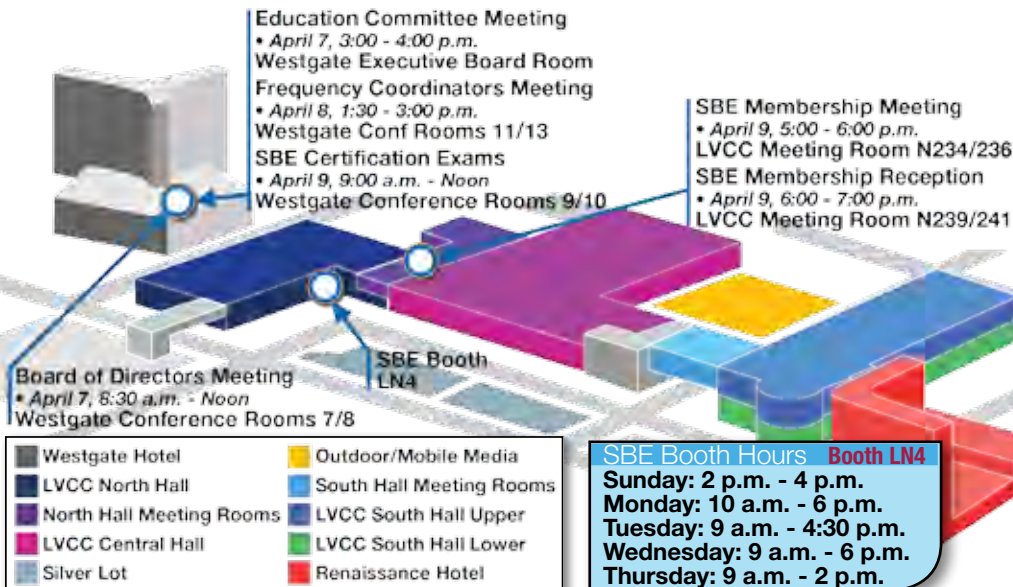
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SBE Event Sponsors

SBE Event Schedule

- Saturday, April 6**
- **SBE @ PBS TechCon** 9 a.m.-5 p.m.
Session registration required
Flamingo Hotel Las Vegas
 - **SBE Ennes Workshop** 9 a.m.-12 p.m.
NAB Conference registration required
LVCC N262/264
 - **SBE Certification Committee Meeting** 6:30-11 p.m.
Westgate Conference Room 7
- Sunday, April 7**
- **SBE Board of Directors Meeting** 8:30 a.m.-12 p.m.
Westgate Conference Rooms 7/8
 - **SBE Education Committee Meeting** 3-4 p.m.
Westgate Executive Board Room
 - **SBE Frequency Coordination Committee Meeting** 4:15-5:15 p.m.
Westgate Executive Board Room
- Monday, April 8**
- **Frequency Coordinators Meeting** 1:30-3 p.m.
Westgate Conference Rooms 11/13
 - **Fry's Gift Card Daily Booth Giveaway**
Courtesy of Nema Electronics
- Tuesday, April 9**
- **SBE Certification Exams** 9 a.m.-12 p.m.
Westgate Conference Rooms 9/10
(Advance registration required)
 - **Fry's Gift Card Daily Booth Giveaway**
Courtesy of LinkUp Communications
 - **SBE Spring Membership Meeting ... 5-6 p.m.**
Blackmagic URSA Broadcast camera,
plus other prizes
LVCC N234/236
 - **SBE Member Reception** 6-7 p.m.
Multiple prize giveaways
LVCC N239/241
- Wednesday, April 10**
- **Fry's Gift Card Daily Booth Giveaway**
Courtesy of Blackmagic Design



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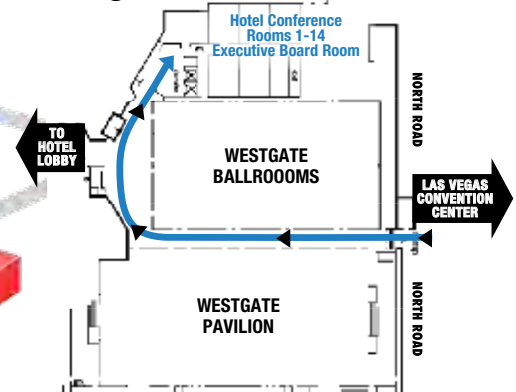
SBE Booth Sponsors



Frequency Coordinators Meeting



Westgate Conference Rooms



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.

Prizes include logo items, books and more. The grand prize is airfare and two nights hotel to attend the SBE National Meeting, held in conjunction with the annual Wisconsin Broadcasters Clinic in Madison, WI, Oct. 15-17, 2019.

And as a further bonus, for every new member you sponsor you will receive \$5 off your 2020 dues (up to \$25). Full details are on the SBE website. Follow the link on the home page.

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 Juan C. Cordero - Centennial, CO
 Samantha Cyr - The Woodlands, TX
 James Georgiades - Cleveland, OH
 Mahari S. Grant - Ashburn, VA
 Tina J. Kocab - Kirtland, OH
 Daniel Lane - Clayton, NC
 Kyle J. Looker - Parchment, MI
 Eric K. Mithamo - Lansing, MI
 Chad M. Olig - Fond du Lac, WI
 MaryJane Peters - Seaside, CA
 Edward A. Pitts - Valdosta, GA
 Frederick H. Springall - Montgomery, AL
 Kirk Van Bogelen - Kalamazoo, MI
 James Vonderhaar - Kalamazoo, MI
 Mason A. Washer - Springfield, VT
 Yugi Zang - Woodland Hills, CA

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 Jake Mankin - Bella Vista, AR

NEW ASSOCIATE MEMBERS

Shahanshah Manzoor - Fremont, CA

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 Cindy Y. Boyden - Karns City, PA
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 Samuel F. Fiotti - Shavertown, PA
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Joe W. Hartmann, Jr. - Aydtlett, NC
 Christopher Hernandez - Allen, TX
 Edward Hernandez - Tucson, AZ
 Dwayne M. Jones - Houston, TX
 Charles G. Kemp - Orlando, FL
 George D. Markle - Kalamazoo, MI
 Charles S. Price - Vidor, TX
 Tony A. Reina - Houston, TX
 Marshall A. Rice - Creve Couer, MO
 Mark J. Ruddy - Pittston, PA
 Robert Rutledge - Oklahoma City, OK
 Bryan A. Shaw - Easton, MD
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RETURNING STUDENT MEMBERS

David W. Lankinen - Roseville, MN

2018 SBE Financial Year in Review

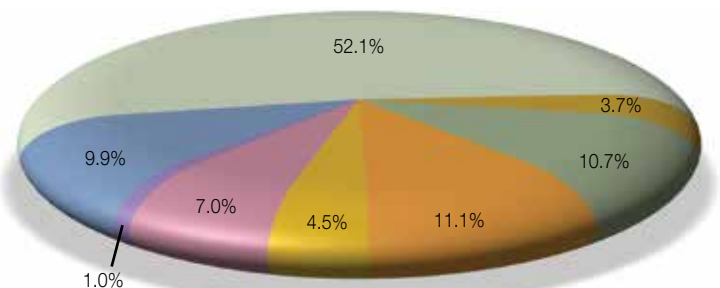
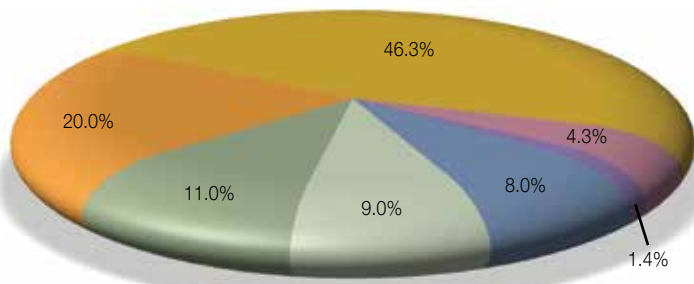
The Society of Broadcast Engineers, Inc. completed 2018 with net revenue from all operations of -\$124,671. Gross income from all sources was \$675,668 while expenses were \$800,339. The value of SBE savings and investments as of Dec. 31, 2018 were \$958,086. Total SBE assets as of Dec. 31, 2018 were \$990,623, a decrease of \$124,702 over 2017. Long-term invest-

ment loss totaled \$139,843.

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

Membership Dues	46.3%
National Meeting	4.3%
Other Income	1.4%
Publications/Advertising (non-Cert)	8.0%
Sustaining Member Dues	9.0%
Certification	11.0%
Education	20.0%



Expenses from All Sources

Member Services	52.1%
National Meeting	3.7%
Administration	10.7%
Certification	11.1%
Chapter Rebates	4.5%
Communication w/Members	7.0%
Depreciation	1.0%
Education	9.9%



LEGAL PERSPECTIVE

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

The Mid-Band Battle Rages

In mid-February, the SBE filed comments in response to the Notice of Proposed Rulemaking in Docket 18-295. The FCC proposes to allow unlicensed mobile broadband in the 5.925-7.125 GHz (6 GHz) band “while ensuring that the licensed services operating in the spectrum continue to thrive.” The FCC said that expanding the use of this spectrum “will advance the Commission’s efforts to make broadband connectivity available to all Americans, especially those in rural and underserved areas.” The notice would allow, in the 6.425-6.525 GHz and 6.875-7.125 GHz BAS bands, operation of indoor unlicensed devices at low power, but without automated frequency control. The FCC said that the itinerant nature of mobile services makes the use of AFC impractical. The combination of lower power and indoor operations would, it says, protect licensed services operating on these frequencies from harmful interference.

The SBE has a different perspective. We argued that the compatibility of these unlicensed devices operating at the parameters proposed in the same bands as incumbent, mobile Part 74 broadcast auxiliary (BAS) stations, Part 101 Local Television Transmission Service (LTTs) licensees, and Part 78 Cable Television Relay Service (CARS) licensees, is not adequately addressed in the notice. Nor, the SBE said, does the Commission have sufficient information about the potential aggregate effect of the proposed, unlicensed broadband devices on the incumbent users in what the FCC refers to as the U-NII-6 (6.5 GHz) and U-NII-8 (7 GHz) BAS bands. The SBE urged the FCC to defer the addition of unlicensed devices in either of the two BAS bands, pending the development and evaluation of compatibility studies.

We noted that the 6.5 and 7 GHz bands are used intensively by broadcasters for ENG daily in all markets. The 7 GHz band is increasingly used for mobile ENG (as well as fixed BAS facilities) due to the severe overcrowding (and now difficult shar-

ing arrangements with non-broadcast services) in the 2 GHz band, and the difficult, high-noise environment of the 2.5 GHz band. We also noted that the 7 GHz band is shared now with fixed wireless backhaul. All of this makes any additional unlicensed mobile broadband operation exceptionally difficult, given the itinerant mobile character of broadcast ENG operation and the reliability called for in operation from unpredictable locations.

The specific problems noted were these: (1) The power level proposed for indoor unlicensed devices is too high; (2) There is no duty cycle limitation for mobile broadband devices proposed. (3) The out-of-band emission limits proposed for devices in the entirety of the 6 GHz band are insufficient; and (4) There is no possibility that unlicensed broadband mobile devices, indoors or outdoors, can sense a temporary receive location in a stadium or other indoor location. There is a “hidden transmitter effect” that makes this spectrum sharing plan ineffective. Finally, (5) who is going to do enforcement in this band? Certainly not the FCC, which hasn’t the enforcement resources to police the deployment of these new Wi-Fi devices (or any other Part 15 devices for that matter). The bottom line with any unlicensed device is that if unauthorized deployment or unauthorized device configuration cannot be addressed prior to the point of sale, the rule is not enforceable at all when the devices are deployed by consumers.

Based on Assumptions

One of the principal assumptions in the FCC proposal is that there is no difference in interference potential to incumbent services between: (a) a single unlicensed broadband device in the band, and (b) the aggregate effect of millions of these devices operating simultaneously in a given environment. That is a specific assumption that the FCC says it made. The only authority for that premise, however, is an engineering study commissioned by Apple, Broadcom Corporation and others, which makes the claim without explaining the study’s methodology. Even if that study’s unsupported conclusions about aggregate interference are correct, the study assumed a duty cycle of each unlicensed mobile transmitter of 0.5% (over

an unspecified period of time), while the Commission’s proposed rules permit a continuous duty cycle at full power output for these devices all of the time. In point of fact, the Commission has no idea what the RF noise floor is in the 5.925-7.125 GHz band, in any RF environment.

The assumption that there is no difference between a single emitter and millions of aggregate emitters is counterintuitive; but worse, it is “flying blind.” The Commission gets only one bite at the apple here: once the unlicensed mobile broadband devices are authorized and deployed by consumers, they cannot be regulated thereafter. Nor can they be regulated in indoor venues such as football stadiums, arenas, and other event venues where ENG and video production is ongoing.

The SBE concluded with specific suggestions: (1) the FCC would be in full compliance with its legislative obligations if it made available only 5925-6100 MHz for unlicensed mobile broadband. This would eliminate the adverse interaction between BAS, LTTs and CARS operation at 6.5 GHz and 7 GHz. (2) The power level should be reduced. The proposed limit of 250 milliwatts for access points in the 6.5 and 7 GHz bands is far too high. (3) There should be a duty cycle limit of 0.5% measured over a period of one second. Finally, the out-of-band emission mask proposed in the Notice, -7 dBm/MHz is too high. The SBE suggested that a realistic limit is -61 dBm/MHz to encourage spectrum efficiency and frequency re-use. (4) Finally, indoor operation of these devices calls for a reliable means of ensuring against interference to receive locations than is proposed. The SBE suggested the use of registered beacon fence devices. These would allow commercial users to transmit (on already used control channels) a signal that informs access points in their fence area, so that the access points will not transmit or allow transmission. This is especially urgent in sports stadiums, performance arenas, and other areas to preclude interference to ongoing entertainment productions and video production at indoor news events.

Put These Webinars by SBE on Your Calendar

April 17: RF201: Module 6
May 2: RF Safety 2019
sbe.org/webinars

LINK

Read the FCC Notice
<http://bit.ly/18-295>



FOCUS ON SBE

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

This Year's NAB Show Week: A Lot to Choose From

For those of you making your way to Las Vegas for the annual NAB Show this month, you'll find even more educational offerings than usual. The NAB Broadcast Engineering and Information Technology Conference (BEITC) will offer its usual extensive array of speakers and topics over a six-day period. The SBE is pleased to be a producing partner with the NAB once again on the BEITC, now for the 25th consecutive year. The NAB Show website has a complete rundown of all the sessions and speakers that will fill a few North Hall session rooms of the Las Vegas Convention Center.



The SBE membership meeting will be held Tuesday afternoon during the NAB Show.

Kicking off the BEITC on Saturday, April 6 is the Ennes Workshop, presented by the SBE. This year's program is organized by Tom Mikkelsen and Stan Moote, both veterans of the industry. Tom is recently retired as president of National Teleconsultants in Glendale, CA and Stan is CTO of IABM, the international association that represents broadcast manufacturers and is based in Toronto. Tom and Stan have pulled together five excellent presentations that fill the morning, among them, Ioannis Katsavounidis from Facebook, talking about how they ensure end-to-end video quality, and John Footen, managing director at Deloitte Consulting, on strategies in replacing retiring staff and doing more with less.

Also on Saturday, April 6, just a few blocks away at the Flamingo Las Vegas Hotel, PBS will hold its annual technical conference in the days leading up to the NAB Show. In conjunction with PBS TechCon, the SBE is presenting a full-day tutorial on ATSC 3.0, NextGen Broadcast, organized by SBE Fellow Fred Baumgartner. Fred is director, Next Gen Broadcast Implementation at One Media - Sinclair Broadcast.

Fred has put together the most comprehensive program on ATSC 3.0 this industry has seen to date. If your station has ATSC 3.0 in its future, you will not want to miss this. It's open to anyone, not just PBS station engineers. The deadline to register was April 1, but if you are eager to learn what ATSC 3.0 means for the future of broadcast, it may not be too late. It's affordable

at \$95 for SBE members and PBS member station employees and includes lunch. Register through the SBE at bit.ly/SBEatPBS.

It's unfortunate that these two sessions are opposite each other as none of us can be in two places at once. We couldn't avoid that, so we humbly suggest that you bring two from your facility and cover them both!

The Ennes Workshop is a part of the NAB BEITC and requires NAB Conference registration to attend. Register at the NAB website and NABshow.org.

I hope to see many of you in Las Vegas during the show. Be sure you include the SBE Spring Mem-

bership Meeting (LVCC N234/N236) and the member reception (LVCC N239/241) that follows in your schedule. They will be held at 5 p.m. and 6 p.m. respectively on Tuesday, April 9.



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ENGINEERING PERSPECTIVE

By Chris Tarr, CSRE, AMD, DRB, CBNE
Chair, SBE Mentor Committee
ctarr@sbe.org

Business Etiquette for Engineers

Often, tech people get a (sometimes deserved) reputation for being awkward in business situations. We let our intellect get in the way of proper interactions in the office. As a manager, it surprises me how often I see emails from the technical department with spelling, grammar, and punctuation errors, or are simply poorly written. Fair or not, we're judged by those impressions. It takes a little effort to make a good impression, but it pays dividends. I've come up with some tips to help you along the way.

First, don't be a machine! Empathy goes a long way. Try not to "talk down" when describing technical things to non-technical people. It's easy to make people feel stupid when we bombard them with technical jargon. You end up not getting your point across and making the other person feel bad for not understanding you. Also, remember that when someone comes to you with a problem, it's their biggest problem in their day, even if it's number 127 in yours. Treat each person's problem as if it's your highest priority. Communicate often, and assure them that they made the right choice trusting you to solve their problem.

Speaking of communication, communicating to co-workers, vendors, and peers is something we do all the time, but often think nothing about. Unfortunately, nothing kills credibility faster than poorly written email, or angry phone calls. Always proofread your email. Write once, and read three or four times. Use spell-check. Ask yourself, "Is this clear and concise?" Remember that email lives forever, so anything you send can become part of your "permanent record." Never send email or make phone calls when you're angry. Take a deep breath and relax. Set your message aside and re-read it later before sending. Try taking a short walk before making that phone call.

Another important part of proper business conduct is face-to-face interaction. It's important to have a good working relationship with your co-workers. It's not hard to do if you remember a few things. Humans by nature are defensive. We tend to strike back when we feel attacked. That's why it's important to put yourself in the other person's position before speaking. Remember that sometimes it's just better to be helpful than to be right.

Yes, perhaps that person shouldn't have clicked on that link. They probably feel bad. There's no reason to beat that dead horse! Instead, be helpful and get them back in business. Praise publicly, criticize privately – there's no need to air your dirty laundry in public.

No Wrong Answers

As the people that others come to for help, it's sometimes hard to admit that we don't have the answer to a question. We feel like people will think less of us if we don't have immediate answers. Avoid falling into the trap of handing out a wrong answer, just to prove you have one. There's nothing wrong with saying "I don't know the answer, but I will find out for you!" Then actually follow-up! People will respect the fact that you took the time to research and come back with the

right answer to their question, and you learn in the process.

I often joke that I have an address book of people smarter than me. Over time I've built up a list of trusted colleagues that have different strengths, and I'm not afraid to call on them if I need help with a problem. Conversely, they have no problem at all calling on me if there's a problem I can help them out with. We offer our advice and help to each other freely, and it really helps when I get into a jam. It's all about networking, and it's something that is critically important to do. We may think we have all the answers, but the truth is, we don't and that's okay.

Also, be prepared to hear another side to a solution or problem. We all like to believe that since we've "been there, done that" that our solutions are the best ones. There may be a better way than your way. More than once, someone who was far removed from the problem came up with a better solution, simply because they had a more objective view than mine. It really helped my relationship with that person, since they felt good about finally helping me!

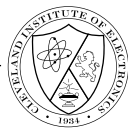
Really, business etiquette revolves around respect. Respect for people's time, intellect, emotions, ideas, and experience. If you are mindful and respectful of other people, your actions will show that, and you will find that you will be shown plenty of respect in return.



Keep a few simple tips in mind and ensure success on the business side of broadcast engineering.

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AEQ Broadcast International • 2015 Peter Howarth 954-581-7999 Broadcast Audio, Video and Communications	Dielectric • 1995 Cory Edwards 207-655-8131 TV & FM Transmission & Cellular Products	LBA Technology Inc. • 2002 Javier Castillo 252-757-0279 AM/MW Antenna Equipment & Systems	Ross Video Ltd. • 2000 Jared Schatz 613-228-0688 Manufacturer, Television Broadcast Equipment
American Tower Corporation • 2000 Peter A. Starke 781-926-4772 Development/Construction/Management	Digital Alert Systems, LLC • 2005 Bill Robertson 585-765-1155 Emergency Alert Systems	Linkup Communications Corporation • 2017 Mark Johnson 703-217-8290 Satellite Technology Solutions	Sage Alerting Systems Inc. • 2010 Gerald LeBow 914-872-4069 Emergency Alert Systems Products
Audemat-Worldcast Systems Inc. • 2000 Christophe Poulain 305-249-3110 Control Manufacturer	DoubleRadius, Inc. • 2012 Jeffrey Holdenrid 704-927-6085 IP Microwave STL	LYNX Technik • 2007 Steve Russell 661-251-8600 Broadcast Terminal Equipment Manufacturer	SCMS Inc. • 2000 Bob Cauthen 800-438-6040 Audio and RF Broadcast Equipment Supplier
AVCOM of Virginia, Inc. • 2010 Tom Pagonis 804-794-2500 Spectrum Analyzers	Drake Lighting • 2015 Dave Sheppard 270-804-7383 FAA Obstruction Lighting - Medium and High Intensity	Markertek • 2002 Wesley Brewer 800-522-2025 Specialized Broadcast & Pro-Audio Supplier	Seacomm Erectors, Inc. • 1997 John Breckenridge 360-793-6564 Tower/Antenna Erections
A-Ware Software/MusicMaster • 2014 Shane Finch 352-351-3625 Advanced Music Scheduling Solutions	DTS Inc./HD Radio Technology • 2014 Rick Greenhut 443-539-4335 HD Radio Technology	Micronet Communications Inc. • 2005 Jeremy Lewis 972-422-7200 Coordination Services/Frequency Planning	SEG • 2014 Chris Childs 913-324-6004 Supply Chain Products and Services
Belden Electronic Division • 1991 Sales 800-235-3361 Cable and Connectivity	du Treil, Lundin & Rackley, Inc. • 1985 Jeff Reynolds 941-329-6000 Consulting Engineers	Microtech Gefell GmbH • 2016 Udo Wagner +49 36649-82245 Microphones	Shively Labs • 1996 Dale Ladner 888-SHIVELY FM Antennas & Combiners
Blackmagic Design • 2012 Terry Frechette 408-954-0500 Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters	The Durst Org. - 4 Times Square • 2004 John M. Lyons, CPBE 212-997-5508 TV/FM/Microwave Tower Site	Microwave Video Systems • 2011 Warren J. Parece 781-665-6600 Microwave Equipment Rental, Sales & Service	Shure Incorporated • 2012 Bill Ostry 847-600-6282 Microphones, Wireless Systems, Headsets
Bracke Manufacturing LLC • 2012 Patra Largent 949-756-1600 RF & Microwave Components	DVEO - Division of Computer Modules Inc. • 2011 Laszlo Zoltan 858-613-1818 Everything About Transport Streams	Middle Atlantic Products • 2005 David Amoscato 973-839-1011 Equipment, Mounting, Solutions	Sierra Automated Systems and Eng. Inc. • 2011 Al Salci 818-840-6749 Routers, Mixers, Consoles, Intercoms
Broadcast Depot • 2018 John Lackness 305-599-3100 TV, Satellite, Radio, IP	Econco • 1980 Debbie Storz 800-532-6626, 530-662-7553 New & Rebuilt Transmitting Tubes	Moseley Associates Inc. • 1977 Bill Gould 805-968-9621 x785 Digital STLs for Radio and Television	Silvus Technologies • 2015 Mark Tommey 617-816-6588 Wireless Video Mesh Network
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Broadcast Electronics Inc. • 1978 Tom Beck 217-224-9600 Radio Equipment Manufacturer	ERI - Electronics Research • 1990 David White 812-925-6000 Broadcast Antennas, Transmission Line, Filters/Combiners, Towers and Services	National Association of Broadcasters • 1981 Industry Trade Association 202-429-5340	Staco Energy Products Co. • 2010 Paul Heiligenberg 937-253-1191 x128 Manufacturer of Voltage Regulators, UPS
Broadcast Software International • 2016 Marie Summers 888-274-8721 Radio Automation, Audio Logging	Floral Systems • 2008 Shawn Maynard 877-774-1058 Television Broadcast Automation	National Football League • 1999 Ralph Beaver 813-282-8612 Game Day Coordination Operations	Sutro Tower Inc. • 1989 Eric Dausman 415-681-8850 Broadcast Tower Leasing
Broadcast Supply Worldwide • 1986 Shannon Nichols 800-426-8434 Audio Broadcast Equipment Supplier	Fujifilm/Fujinon • 1986 Gordon Tubbs 973-686-2769 Broadcast & Cine Lens Products	Nautel Inc. • 2002 Jeff Welton 877-662-8835 Radio Broadcast Transmitter Manufacturer	Technical Broadcast Solutions, Inc. • 2018 Robert Russell 215-983-0855 Engineering and Consulting Services
Broadcasters General Store • 2004 Buck Waters 352-622-7700 Broadcast Audio Video Distributor	GatesAir • 1977 Dave Hopson (TV) 513-445-5243 Mark Goins (Radio) 513-899-9124 Broadcast Equipment Manufacturer	Nemal Electronics Int'l Inc. • 2011 Benjamin L. Nemser 305-899-0900 Cables, Connectors, Assemblies and Fiber Optic	Tektronix Inc. • 1977 Jim Lang 503-627-2980 Video Test & Measurement, Equipment Manufacturer
Calrec Audio • 2016 Helen Carr 703-307-1654 Audio Mixing Equipment	Heartland Video Systems, Inc. • 2011 Dennis Klas 920-893-4204 Systems Integrator	Neutrik USA, Inc. • 2012 Kathy Hall 704-972-3050 Ruggedized Optical Fiber Systems	Teledyne e2v US • 1997 Dominic Piarulli 845-578-6137 Electronic Components
Camplex • 2017 Daniel Coscarella 800-445-7568 x7409 Fiber Optic Cable Assembler	Highlights, Inc. • 2016 Timothy Nash 352-564-8830 Obstruction Lighting Maintenance	NPR Distribution Services • 2019 Dan Riley 202-513-2624 Your Content Delivery Partners	Televue USA, LLC • 2018 Andy Ruffin 937-475-7255 ATSC 3.0 Transmission Solutions, Antennas
Canon USA Inc. • 1985 Larry Thorpe 201-807-3300, 800-321-4388 Broadcast Lenses & Transmission Equipment	Hitachi Kokusai Electric Comark • 2013 Jack McAnulty 413-998-1523 Manufacturer Broadcasting Transmission Equipment	Orban Labs, Inc. • 2011 Mike Pappas 480-403-8300 Audio Processing AMFMTV	Telos Systems/Omnia/Axia • 2003 Denny Sanders 216-241-7225 Telos Systems Talk-Show Systems
Cavell, Mertz & Associates Inc. • 2011 Gary Cavell 703-392-9090 Consulting Services	iHeartMedia, Inc. • 2019 Troy Langham 918-664-4581 Radio Group Owner	Pasternack Enterprises • 2001 Christine Hammond 949-261-1920 Coax & Fiber Products	Teradek • 2011 Jon Landman 949-743-5783 Camera-top ENG Solutions
Comrex Corporation • 1997 Chris Crump 978-784-1776 Audio & Video Codecs & Telephone Interfaces	IMT-Vislink • 2009 John Procacci 908-747-3011 Wireless Video Systems	Potomac Instruments • 1978 Zachary Babendreier 301-696-5550 RF Measurement Equipment Manufacturer	Tieline The Codec Company • 2003 Dawn Shewmaker or Jacob Daniluck 317-845-8000 Audio Codec Manufacturer
Continental Electronics • 1976 Dale Dalesio 412-979-3253 TV and Radio Transmitters	Inovonics Inc. • 2012 Gary Luhman 831-458-0552 Radio Broadcast Equipment	ProAudio.com - A Crouse-Kimzey Co. • 2008 Mark Bradford 800-433-2105 x560 Proaudio Broadcast Equipment Distributor	Unimar Inc. • 2001 Thad Fink 315-699-4400, 813-943-4322 Tower Obstruction Lighting Designer, Manufacturer, Distributor
CueScript • 2014 Michael Accardi 203-763-4030 Teleprompting Software & Hardware	JAMPRO Antennas Inc. • 2011 Alex Perchevitch 916-383-1177 DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB	Propagation Systems Inc. - PSI • 2010 Doug Ross 814-472-5540 Quality Broadcast Antenna Systems	Wheatstone • 2010 Jay Tyler 252-638-7000 IP Consoles, Routers & Processors
D2D Technoloies • 2018 Jessica Colyer 619-248-0618 PSIP & EAS Insertion, IP Gateways, Multiplexers, SRT Transmission	JVC Professional Video • 2014 Edgar Shane 973-317-5000 Professional Video Products, Camcorders, Display Monitors, Recording Decks	Quintech Electronics and Communications Inc. • 2002 James Herbstritt 724-349-1412 State-of-the-art RF Hardware Solutions	Wireless Infrastructure Services • 2006 Travis Donahue 951-371-4900 Repacking Services - West Coast Turnkey Services
Davicom, Division of Comlab, Inc. • 2014 Louis-Charles Cuierrier 418-682-3380 x512 Remote Site Monitoring and Control Systems	Kathrein USA Inc. • 1985 Les Kutasi 214-238-8835 Antennas for Broadcasting & Communications	QVC • 2011 Kevin Wainwright 484-701-3431 Multimedia Retailer	
DEVA Broadcast • 2015 Todor Ivanov 305-767-1207 Monitors, IP Audio Codecs, RDS/RBDS Encoders, Audio Processors, Broadcast Tools	Kintronc Labs, Inc. • 2015 Joaquin Raventos 423-878-3141 Radio Broadcast Antenna Systems - ISO9001 Registered Company	Radio Frequency Systems • 2015 Eddy Vanderkerken 214-471-6693 Broadcast Infrastructure Manufacturer	
		RF Specialties Group • 2008 www.rfspecialties.com Everything from the Microphone to the Antenna	

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Member Spotlight: Jade McClelland

Member Stats

SBE Member Since: 2015
Chapter: 90 Southwest Florida
Employer: WOKE-LP
Position: Program Director (by day),
Broadcast Engineer (by night)
Location: Fort Myers, FL
I'm Best Known For: Being the only woman in the room! Also pioneering the market's first urban LPFM radio station in Fort Myers, FL, WOKE-LP.

Q What do you value most about your SBE involvement?

A The mentorship and networking. I've learned more in the past three years at SBE meetings than I ever could on my own (sorry, Google!)

Q What got you started in broadcast engineering?

A Growing up watching my dad fix and solder almost everything under the sun, I've always been technically inclined. But after starting my radio journey in programming at WBTT-FM and spending about four years in an editing bay with RCS' NexGen – I ended up becoming absolutely obsessed with radio automation. Fast forward a few years later, my next employer



Jade in the WOKE-LP (94.9 The City) studio

something not far from it.

Q What's your favorite gadget?

A Without a doubt, my little Progressive Electronics 200EP "audio sniffer" (or, a signal probe/tone generator, as they're more commonly called).

picked up on this – and offered me a position in the engineering department. The rest is history!

Q Who do you consider to be a mentor?

A In radio programming, Scrap Jackson was my mentor. On the engineering side, I've been blessed with several: Steve Sauer, John Demshock, Hal Kneller, and Kevin Trueblood.

Q When I'm not working ...

A ...I'm one of THOSE people; the kind that never stops talking shop. I guess it's because I'm living what I love. When I'm not working, I'm talking, tinkering, or thinking about "work" – or

Nominations Committee Seeks Board Candidates

By Vinny Lopez, CEV, CBNT

The SBE Nominations Committee work has begun. Members of this committee include: Roz Clark, CPBE, CBNT, of Clearwater, FL; Kirk Harnack, CBRE, CBNE, of Nashville; Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT, of Greenville, SC; and chairman Vinny Lopez, CEV, CBNT, of Syracuse, NY.

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 2019 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 number of years 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, Vinny Lopez, CEV, CBNT, at valopez@sbgvtv.com or 315-477-9423. 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 12.

The election takes place from July 26 through Aug. 28. Those elected will be installed into office during the SBE National Meeting in Madison, WI, on Oct. 16.

NAB SHOW from p. 1
mediately after the meeting at 6:00 p.m. in room N239. Light snacks and drinks are made possible from the generous support of several Sustaining Member sponsors. Two \$100 Amazon gift cards will be given away.

The SBE booth is once again in the North Hall lobby just off the Grand Lobby. The official booth number is LN4. We're not too far from Starbucks.

Check the complete event schedule on page 8 of this issue. We also have an NAB Show events page on our website (sbe.org/nab), which is also linked from the home page.

Another helpful resource to plan your convention time is our SBE Sustaining Member Online Resource Guide (sbe.org/guide). With these resources, you'll find details for several committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

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MEMBERS ON THE MOVE



◀ **Mark Richer** will retire as the president of the ATSC later this year.

Matt Saplin, CBTE, is chief engineer at WMHT-TV/FM, WEXT-FM and WRHV-FM, Altamont, NY.

▶ **Joe Tymecki**, CPBE, is VP engineering and technology at Vermont Public Radio.



In honor of **Barry Thomas**, Denver-based KSE Radio Ventures has named its employee of the month award the Barry Thomas Employee of the Month Award. Barry, an SBE Fellow and past president, was the director of engineering for KSE.



◀ **Richard T. Reyes**, CBT, CBNT, CTO, is the media operations engineer at the University of Nevada, Las Vegas.

MARK YOUR CALENDAR

S M T W T F S

Webinar: RF201 Module 6

online
April 17, 2019 sbe.org/webinars

Webinar: SBE RF Safety Course

online
May 2, 2019 sbe.org/webinars

Webinar: AM Tower Webinar

online
May 16, 2019 sbe.org/webinars

Webinar: ATSC 3.0 Networking Module 1

online
May 22, 2019 sbe.org/webinars

SBE Certification Exams

Local Chapters
June 7 - 17, 2019 sbe.org/certification
Application deadline April 19

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

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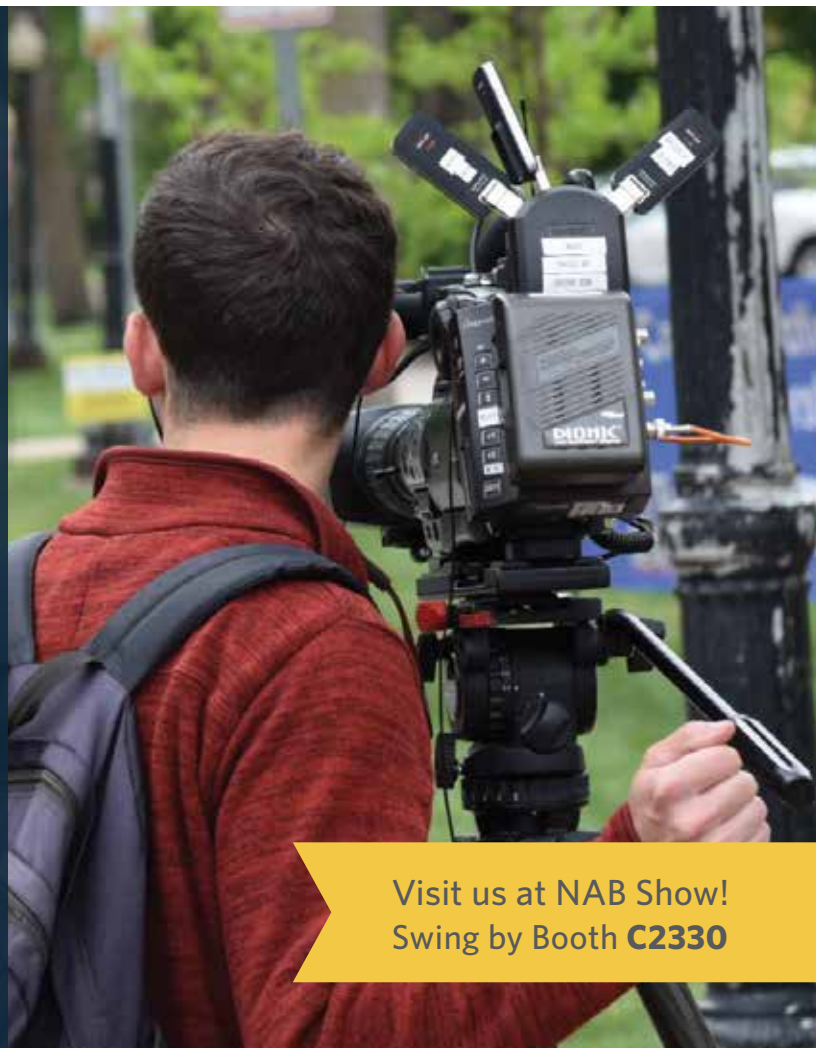
- Jeff Nelson, News Director

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