



National Meeting Concludes in Boston

Continuing the tradition of partnering with regional broadcast events, the SBE held its National Meeting in Danvers, MA, in conjunction with the Media Resource Expo. Held Oct. 3, the conference drew attendees from around New England with a trade show exhibit floor and multiple technical sessions. Several SBE board members participated as session presenters.

The SBE National Meeting included a meeting of the SBE Certification Committee, the Board of Directors meeting, Fellows Breakfast and Membership Meeting, and concluded with the Awards Dinner.

The SBE Membership Meeting included an update on society activities, a discussion of ATSC 3.0 between SBE President Leifer and ATSC President Mark Richer, and the swearing-in of the recently elect-



The 2018-2019 directors and officers are sworn in by SBE General Counsel Chris Imlay.

ed directors and officers. The Membership meeting was streamed live, thanks to local support from WGBH-TV and several SBE members, including Vinny Lopez, CEV, CBNT; Sinclair Broadcast Group;

Robert Yankowitz, CPBE; WBZ-TV; Emeric Feldmar; WGBH-TV; Shane Best; Sutro Tower; Marc Carbone; WBZ-TV; Steve

see **MEETING**, p. 15

Update from the SBE National Board Meeting

The SBE Board of Directors met Oct. 2 for its regular fall meeting during the 2018 SBE National Meeting, held in Boston. The four and a half hour meeting covered many agenda items. Here is a partial recap.

The Board approved recommendations from the Strategic Planning Task Group that take the next step towards imple-

mentation. President Leifer is establishing five, short-term task groups, each to address one or more objectives generated during the strategic planning conference held in Indianapolis on June 9. The task groups are focusing on membership, public relations, branding, education and certification. Read more about this in President Leifer's column on page 4 in this issue of *The Signal*.

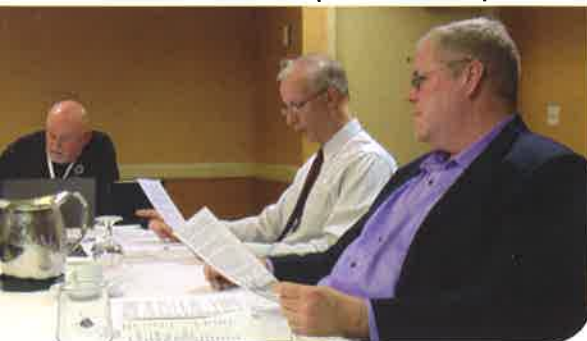
The Board approved an operating budget for 2019 that includes no change in membership dues levels for any member category.

The Board approved the establishment of a Technologies Committee. The committee's purpose is to make recommendations to the Board regarding emerging media technologies that the SBE should incorporate into its education and certification programs. Establishment of this committee was one of the outcomes of the strategic planning conference.

The Board approved President Leifer's appointments of national committee chairs to serve through the National Meeting in 2019. A complete list is on page 4 of this issue of *The Signal*.

Recommendations were received from the 2019 SBE National Meeting Host Site

see **ACTIONS**, p. 14



Secretary Wayne Pecena, Executive Director John Poray, and President Jim Leifer at the SBE Board of Directors meeting.

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wpecena@sbe.org

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jim.bernier@sbe.org

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rclark@sbe.org

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acummis@sbe.org

Mark Fehlig, PE, CPBE, 8-VSB
Jampro Antennas/Alan Dick | Walnut Creek, CA
mfehlig@sbe.org

Ted Hand, CPBE, 8-VSB, AMD, DRB
Cox Media Group | Charlotte, NC
thand@sbe.org

Kirk Harnack, CBRE, CBNE
The Telos Alliance | Nashville, TN
kharnack@sbe.org

Stephen H. Lampen, CBRE
Consultant | San Francisco, CA
slampen@sbe.org

Vinny Lopez, CEV, CBNT
WSTM/WTVH/WSTQ-TV | Syracuse, NY
vlopez@sbe.org

Thomas McGinley, CBPE, AMD, CBNT
McGinley Enterprises | Missoula, MT
tmcginley@sbe.org

Kimberly K. Sacks, CBT
iHeartmedia | Loveland, CO
ksacks@sbe.org

Shane Toven, CBRE, CBNT
Educational Media Foundation | Laramie, WY
stoven@sbe.org

Kevin Trueblood, CBRE, CBNT
WGCU Public Media | Estero, FL
ktrueblood@sbe.org

IMMEDIATE PAST PRESIDENT

Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT
Simpsonville, SC
jmassey@sbe.org

SBE NATIONAL STAFF

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

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

Cathy Orosz | Education Director
corosz@sbe.org

Chriss Scherer, CPBE, CBNT
Member Communications Director
cscherer@sbe.org

Debbie Hennessey
Sustaining Membership Manager
dhennessey@sbe.org

Scott Jones | Database Manager
kjones@sbe.org

Carol S. Waite | Certification Assistant
cwaite@sbe.org

The Signal is published bimonthly by the Society of Broadcast Engineers, Inc., 9102 North Meridian Street, Suite 150, Indianapolis, IN 46260. Questions or comments regarding editorial content or design should be referred to Chriss Scherer at 317-762-9723 or cscherer@sbe.org. For advertising, contact Debbie Hennessey at dhennessey@sbe.org. SBE is a registered trademark of the Society of Broadcast Engineers.

SBE National Office
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SBE Fellow Nominations Open

by Troy Pennington, CSRE, CBNT

Chair, SBE Fellowship Committee

SBE members: Do you know an SBE member who has contributed to the success of an SBE chapter or the broadcast industry? Has this person exhibited a dedication to the advancement of the broadcast engineer, the field of broadcast engineering and the Society of Broadcast Engineers itself? Someone like this deserves to be recognized for his or her efforts. Consider nominating him or her for the SBE Fellow rank of membership. The SBE is now accepting nominations for 2019.

Fellow membership is the highest level of SBE membership. It's a form of recognition for someone who has contributed significantly to the society, the field of broadcast engineering or its allied professions, or by disseminating his or her broadcast knowledge and promoting its application in practice. Eighty-four members have been recognized with the honor in the society's almost 55 years of existence.

To nominate a member, candidates must be proposed in writing by a voting member to the Fellowship Committee. The nomination must include a comprehensive professional history of the nominee and an explanation of why the candidate is deserving of this honor. The nomination must also include the written

endorsements of at least five other voting SBE members. All nominations are to be kept confidential. No others besides the nominators and the members of the Fellowship Committee should be aware of the nomination. Moreover, the nominee should not be made aware that he or she has been nominated.

Nominations for 2019 must be received no later than March 15, 2019, for consideration. The Fellowship Committee

will bring the names of nominees to the Board of Directors for consideration and election at the April 2019 meeting. The SBE secretary will notify those elected. Awards will be presented at the SBE National Awards Dinner during the 2019 SBE National Meeting to be held in Madison, WI. Submit your nominations to Fellowship Committee Chair Troy Pennington, CSRE, CBNT; 6156 Hampton Hall Way; Hermitage, TN 37076, or to tpennington@sbe.org.



SBE Fellows gather at the Fellows Breakfast during the 2018 SBE National Meeting.



Certification Question

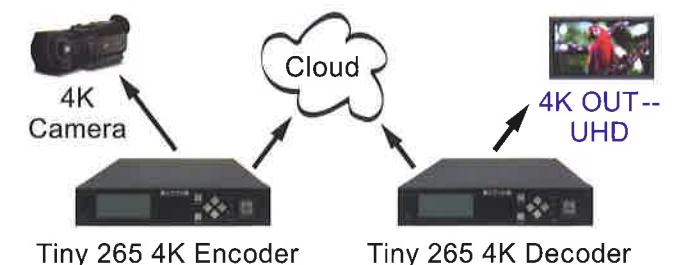
Answer on page 6

To avoid damage to technical equipment while putting out a fire, the fire should be put out with:

- A. carbon dioxide.
- B. dry chemicals.
- C. water.
- D. a wet blanket.



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LETTER FROM THE PRESIDENT

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

Strategic Plan Begins to Take Shape

I wanted to spend time in this article letting you know what steps we have taken since our strategic planning meeting held this summer. On June 9, 2018, the SBE conducted a professionally facilitated, all-day strategic planning meeting attended by members of the Board, chapter chairs and national staff. The results were a list of 46 action steps to accomplish objectives of growing and retaining membership, attracting new and younger members to the SBE, and increasing participation in SBE activities among members.

recommendations, which identified 14 priority action steps, The Board of Directors voted to establish five task groups, enlist three of our existing committees and create a new Technologies Committee to research the resources and outline the steps needed to accomplish the objectives of the 14 action steps. The task groups will be chaired by a member of the Board and consist of several other SBE members, including other Board members. Each task group will have a member of the SBE staff assigned to it to serve as staff liaison.

Task Group 1	Task Group 2	Task Group 3	Task Group 4	Task Group 5
Expanding SBE Membership Scope Research non-traditional tech professionals and generate a list of other media that use similar skills and knowledge as traditional SBE members. Research unique qualities of perceived generational differences and create programs to meet the needs of Millennials and Gen Z.	Expanding Member Participation Create monthly virtual program for member engineers, technicians and other broadcast professionals, wherever they may be.	Public Relations/Marketing Research the advantages and disadvantages of redefining Society mission and name/branding.	Public Relations/Marketing Develop a "first responder" broadcast team, activated to help other broadcasters in time of disaster. Promote the field of broadcast engineering to the industry and public. Use testimonials of station management where the broadcast engineer "saved my bacon."	Website, App and Social Media Bring website up to date, while keeping it functional. Research the advantages and disadvantages of an APP and its application to SBE.

I enlisted a special Strategic Planning Task Group to review the 46 action steps with the intent to prioritize, group and refine them to a manageable number. This group brought its recommendations to the Board at the board meeting held on Oct. 2, 2018. The Board adopted the

The first action, creation of a Technologies Committee, has been completed. The committee is chaired by Shane Toven. Five task groups, outlined in the table, were established to investigate core elements and develop plans for the society to implement.

In addition to their regular duties, we asked the Certification, Publications, Social Networking and the newly formed Technologies committees to add a few tasks to their duties. And finally, the Executive Committee will conduct a regular review of these task groups to aid and assist in their duties so we can move forward with these objectives.

I wanted you to see the different areas where we will need membership assistance. If you have ideas and want to contribute, please let me know. There is a lot to do and we could use everyone's expertise in developing a plan to take the society forward.



Chapter 25 • Indianapolis

On Nov. 1, the Indiana Broadcasters Association held an SBE Ennes Workshop. Presenters included Jeff Welton, CBRE, 2018 the James C. Wulliman SBE Educator of the Year.



EDUCATION UPDATE

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

Networking for ATSC 3.0

ATSC 3.0 promises to revolutionize the television broadcast industry with integration of traditional over-the-air (OTA) signals and broadband-delivered content. Improved video codecs will deliver higher bandwidth content such as 4K UHD over the current MPEG-2-based ATSC 1.0 standard. ATSC 3.0 expects to offer the consumer enhanced emergency alerting and an array of interactive services. A key attribute of the ATSC 3.0 standard is the use of the Internet Protocol (IP) as the transport platform. IP allows the integration of OTA content and terrestrial-delivered broadband content. Home gateway devices will likely serve as the hub for OTA ATSC 3.0 reception in the home while seamlessly integrating broadband and over the air delivered content.

My first impression of an ATSC 3.0 transmitter facility was that the familiar BNC connector was missing from the exciter backplane. Instead, an RJ-45 was utilized as the signal input interface. The change of an input connector from a BNC to a likewise familiar RJ-45 connector sounds simple. However, the implications of a seemingly simple connector change are far more complex. Moving from an ASI baseband interface to an Ethernet-based IP interface brings a drastically different technology knowledge base into play. It comes as no surprise, that station engineers deploying an ATSC 3.0 plant will need a solid understanding of networking and Information Technology (IT) to successfully support the end to end eco-system. The eco-system can be viewed as one incorporating individual networks of the broadcast station, the ATSC 3.0 transport system, the home network, and the public Internet to enable interactive applications.



The ATSC 3.0 Ecosystem of Network(s)

Copper, fiber or wireless

What exactly does a solid understanding of networking technology really mean in terms of competencies and knowledge? Whereas the overall scope can be complex, a beginning point is a focus upon the fundamentals which begins at the Physical or layer 1 as defined by the Open Systems Interconnection (OSI) model. Today, this is clearly Ethernet that can be implemented via twisted-pair copper, fiber optic, or wireless. In reality it would likely be common to find all three physical media utilized in a system. In addition to the familiar RJ-45 connection, an interface transceiver slot for a small form-factor pluggable (SFP) is becoming common to address a wide range of Ethernet types, especially where fiber optic connectivity is used.

At the Data Link Layer or layer 2, the use of virtual local area networks (VLAN) is likely to become a required attribute of the ATSC 3.0 network. The use of VLANs allows creation of isolated network segments or subsets to be implemented across a common physical infrastructure. This isolation also allows a broadcast domain reach to minimize network traffic as well as providing a foundation for network security.

At the Network Layer or layer 3, concepts such as packet filtering, subnet addressing, and network interoperability are

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.

found. And at the Transport or layer 4, the use of the User Datagram Protocol (UDP) can be found for over-the-air broadcast content delivery. The Transmission Control Protocol (TCP) can be found when the interactive applications are enabled by the return link availability.

Cloud service technology offers opportunity for discrete application processing to be moved from the traditional broadcast plant rack room to the cloud environment. I feel this will especially be the case when the interactive aspects of ATSC 3.0 applications are involved.

It's clear as we are deep in networking technology: Cybersecurity must be at the forefront of most system design requirements and not left as an afterthought. The IP integration with the public internet in the consumer's home brings numerous interactive application possibilities. This integration also opens the door to cybersecurity risks and potential threats. Each of the individual networks within the end-to-end eco-system brings individual risk, threats, and necessary protections.

Only the surface of networking technology has been touched on in this article. For a more in depth tutorial, look to a new SBE webinar series in 2019, "Networking for ATSC 3.0." The goal of the webinar series will be to focus on the fundamental knowledge base and practical aspects of building and supporting an ATSC 3.0 network infrastructure.

Also in 2019, the ATSC 3.0 webinar series will continue as well as the Advanced RF series of webinars. Your MemberPlus SBE 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 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.

National Committee Chairs Named

SBE President Jim Leifer has appointed chairs of the various national committees for the coming year to oversee the activities of society functions. Contact them via the SBE website or the National Office.

Awards	Tom McGinley, CPBE, AMD, CBNT	International.	Charles W. Kelly Jr.
By-Laws	Ted Hand, CPBE, 8-VSB, AMD, DRB	Membership.	Steve Brown, CPBE, CBNT
Certification	Ralph Hogan, CPBE, DRB, CBNE	Mentoring.	Kimberly K. Sacks, CBT
Chapter Liaison	Mark Fehlig, CPBE, 8-VSB	Nominations.	Vinny Lopez, CEV, CBNT
Education.	Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE	Publications.	Andrea Cummis, CBT, CTO
Fellowship	Troy Pennington, CSRE, CBNT	Social Networking	Kirk Harnack, CBRE, CBNE
Finance	Roswell Clark, CPBE, CBNT	Sustaining Membership	Stephen H. Lampen, CBRE
Frequency Coordination	R.J. Russell, CPBE	Technologies	Shane Toven, CBRE, CBNT
Government Relations	Kevin Trueblood, CBRE, CBNT		

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CERTIFICATION UPDATE

By Doug Garlinger, CPBE, 8-VSB, CBNT
Member, SBE Certification Committee
dgarlinger@sbe.org

Certification Levels Explained

The SBE certification program is the only professional recognition available to broadcast engineers that provides standards of professional competence. It is the primary method of verifying the attainment of educational standards in the industry. Here is some useful information to help you decipher the various levels and requirements of certification.

Years of experience

SBE certifications are based on an individual's years of experience in the broadcast engineering field. Broadcast engineers can apply for a certification once they meet the years of service requirements for a given certification level. An associate degree counts as two years of experience and a bachelor's degree counts as four years of experience for all levels except Certified Professional Broadcast Engineer. No experience is required to take the exam for operator levels CRO, CTO and the engineering entry level CBT.

Life certification is available to those who are retired or may also be granted to professional broadcast engineers and senior broadcast engineers who have maintained certification continuously for 20 years and are current members of the SBE upon application.

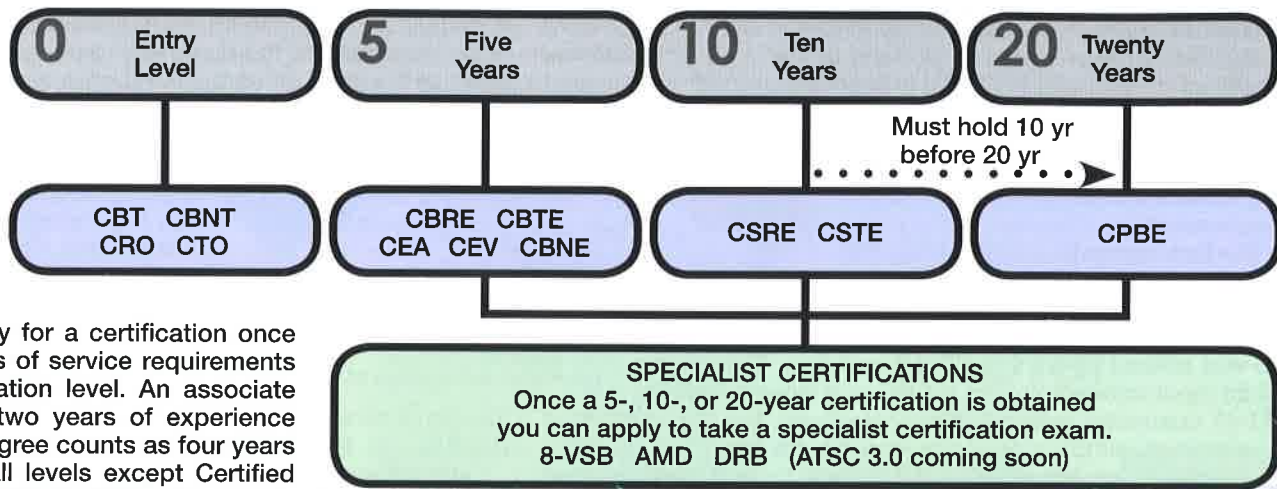
Listing certifications

Broadcast engineers may hold multiple certifications. SBE certifications are listed from highest experience to least experience. Multiple certifications held with the same experience requirement are listed in a prescribed order. Specialist certifications are listed immediately after their corresponding host certification and in alphabetical order. Here are some examples.

- Rafael Garcia, CSRE, AMD, CBNT
- Kevin Granger, CBT, CBNT, CRO
- Brandon Truong, CSTE, CBRE, DRB
- Nicole Jackson, CPBE, 8-VSB, AMD, CBNT

To determine the proper order of listing multiple certifications not covered by the examples show here, consider this list, which includes every current certification in the order they should be noted: CPBE, CSRE, CSTE, CBRE, CBTE, CEA, CEV, CBNE, 8-VSB, AMD, DRB, CBT, CBNT, CRO, CTO.

Most certifications stand alone however, some certifications supersede and replace existing certifications. CBTE is replaced with CSTE, which is replaced with CPBE. CBRE is replaced with CSRE, which is replaced with CPBE. CBNT is replaced with CBNE.



SPECIALIST CERTIFICATIONS
Once a 5-, 10-, or 20-year certification is obtained you can apply to take a specialist certification exam.
8-VSB AMD DRB (ATSC 3.0 coming soon)

Names and abbreviations

All levels of SBE Certification are placed into specific categories as well. Here are those categories.

Operator Level

- Certified Radio Operator (CRO)
- Certified Television Operator (CTO)

Technologist Level

- Certified Broadcast Technologist (CBT)

Broadcast Networking Level

- Certified Broadcast Networking Technologist (CBNT)
- Certified Broadcast Networking Engineer (CBNE)

Engineering Level

- Certified Broadcast Technologist (CBT)
- Certified Audio Engineer (CEA)
- Certified Video Engineer (CEV)
- Certified Broadcast Radio Engineer (CBRE)
- Certified Broadcast Television Engineer (CBTE)
- Certified Broadcast Networking Engineer (CBNE)
- Certified Senior Radio Engineer (CSRE)
- Certified Senior Television Engineer (CSTE)
- Certified Professional Broadcast Engineer (CPBE)

Specialist Level

- Prerequisite that the applicant must first hold a 5-year, 10-year or 20-year level certification.
- 8-VSB Specialist (8-VSB)
- AM Directional Specialist (AMD)
- ATSC 3.0 Specialist (coming soon)
- Digital Radio Broadcast Specialist (DRB)

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION

- Certified Professional Broadcast Engineer (CPBE)
Ken Holden, Clovis, CA - Chapter 66
- Jerry May, Lexington, KY - Chapter 35
- Certified Audio Engineer (CEV)
Mark Friedman, Green Bay, WI - Chapter 80
- Certified Broadcast Television Engineer (CBTE)
David Kuether, Brea, CA - Chapter 47
- Certified Broadcast Networking Technologist (CBNT)
Mark Friedman, Green Bay, WI - Chapter 80

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.

AUGUST EXAMS

- Certified Senior Television Engineer (CSTE)
Chuck Primrose, College Station, TX - Chapter 99
- 8-VSB Specialist (8-VSB)
Daniel Brown, Natick, MA - Chapter 11

SPECIAL PROCTORED EXAMS

- AMITRA
Certified Broadcast Radio Engineer (CBRE)
Roberto Salazar Galicia, Escobedo, Nuevo Leon
- Alabama Broadcasters Association
Certified Broadcast Radio Engineer (CBRE)
David Wilson, Smyrna, TN - Chapter 103
- Certified Broadcast Technologist (CBT)
Jonathan Hubauer, Oneonta, AL - Chapter 68
Chris Jackson, Cedar Rapids, IA - Chapter 65
James Ullery, Ponca City, OK - Chapter 56

CERTIFIED BY LICENSE

- Certified Broadcast Technologist (CBT)
Byron Johnson, Ayden, NC - Chapter 93
Nathan Tate, Jr., Decatur, AL - Chapter 118

CERTIFIED RADIO OPERATOR (CRO)

- Robert Duenas, APO AP
- Brandon Gardiner, APO AP
- Colten Hansen, APO AP
- Tommy Jackson, Moreno Valley, CA
- Anthony Kelley, FPO AP
- Kena Lashley, Los Angeles, CA
- Clayton Maciel, Sunland, CA
- Alan Main, Columbus, GA
- Alyssa Mata, APO AP
- Gladys Nieves, APO AP
- Joaquin Silva Duarte, Compton, CA
- Hui Sung Sin, APO AP
- Thea SM, APO AP
- Won Yong Song, APO AP
- Hyun Woo Sung, APO AP
- Osiris Hernan Santamaria Tenorio, APO, AP
- Remeek Wheeler, APO, AP
- Evan Wilson, APO, AP
- Cleveland High School
Dylan Alsobrooks, Cleveland, TX
- Elian Garcia, Cleveland, TX
- Ryan Henry, Cleveland, TX
- Javier Hernandez, Cleveland, TX
- Luis Hernandez, Cleveland, TX
- Yaelin Medina, Cleveland, TX

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)
Dennis Eversoll, Lenexa, KS - Chapter 59
Timothy Neese, Swannanoa, NC - Chapter 86
- Certified Broadcast Networking Engineer (CBNE)
Steve Laskowsky, Bethany, OK - Chapter 85
- Certified Broadcast Television Engineer (CBTE)
Jason Barger, Castle Rock, CO - Chapter 48
Daniel Brown, Natick, MA - Chapter 11
Michael Budronis, Tampa, FL - Chapter 39
- Certified Broadcast Networking Technologist (CBNT)
David Baker, Addison, IL - Chapter 26
Daniel Brown, Natick, MA - Chapter 11
Patrick Wahl, Chippewa Falls, WI - Chapter 112
- Certified Broadcast Technologist (CBT)
Ronnie Barnes, Menifee, CA - Chapter 131
Ron Davis, Gig Harbor, WA - Chapter 16
Damion Giunta, Highlands Ranch, CO
William Ingram, Cleveland, TX - Chapter 105
Kate Landow, Denver, CO - Chapter 48
Mary Beth Leidman, Indiana, PA - Chapter 20
Greg Miller, Quinton, VA - Chapter 60
Michael Sheffer, W. Palm Beach, FL - Chapter 39
Joshua Smith, E. Longmeadow, MA - Chapter 11
Teresa Shaw, Eagle Point, OR - Chapter 141
Jeremy Preece, Roseville, CA - Chapter 131
Jeff Windsor, Oswego, NY - Chapter 22
- Certified Television Operator (CTO)
Nicole Alexander, Wildomar, CA - Chapter 131
Heather Carter, Bozeman, MT
Darnell Laval, Jersey City, NJ
Allen Mou, Rowland Heights, CA - Chapter 47
Certified Radio Operator (CRO)
Kyle Smith, Los Angeles, CA
Gene Wisniewski, Wendell, ID - Chapter 145

SBE Mentor Program Looks to 2019

The SBE Mentor program is wrapping up its second year and looking forward to serving SBE members in 2019. 'We are proud to say that we have representation of mentors and mentees in half of the states; but, we continue to work toward our goal to have participation in all 50 states,' said Kimberly Sacks, CBT, SBE Mentor Committee chair and SBE board member.



This is Kimberly's second year of chairing the SBE Mentor Committee that includes Wayne Pecena, Jeff Keith and Thomas McGinley.

You can be a part of this important effort. Volunteer as a mentor or offer your expertise as a presenter for one of the quarterly webinars. Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org to learn more about how you can get involved in this program.



In Memoriam

Robert Reymont, CPBE
Member #2266
1946 - 2018

Life Member
Board of Directors
1991-1997



In Memoriam

Jack McKain, CPBE
Member #5013
1930 - 2018

Fellow Member
SBE President 1987 - 1989
Ennes Educational
Foundation Committee

Answer from page 3

The answer is A

While dry chemicals will also put out a fire, it will leave a powder residue that is hard to clean out of electrical equipment. Carbon dioxide removes the oxygen from around the blaze, which it needs to continue to burn.



A. Jim Leifer stands with the 2018-2019 Board of Directors after being sworn in. B. The SBE Board of Directors met on Oct. 2 in Danvers, MA. C. The chapter awards were presented to representatives at the Awards Dinner. D. Mark Persons delivers his comments after receiving the Robert W. Flanders SBE Engineer of the Year Award. E. Jeff Welton received the James C. Wulliman SBE Educator of the Year Award. F. John Ahern accepts the SBE Technology Award for the Davicom Cortex 360. G. The Membership Meeting was streamed live. H. SBE President Jim Leifer led the Membership Meeting. I. ATSC President Mark Richer provided the keynote at the Awards Dinner. J. The 2017-2018 SBE Board of Directors receive certificates for their year of service. K. Jerry Massey, the SBE's newest Fellow, receives his honor as he is flanked by other SBE Fellows. L. Peering over the shoulder of the video crew that streamed the Membership Meeting live. M. The SBE National Meeting concluded with the annual Awards Dinner. N. Technical Broadcast Solutions sponsored a booth drawing. TBS President RJ Russell (l) hands the \$200 Amazon gift card prize to winner Andrea Cummis. O. Awards Dinner sponsor the Telos Alliance also provided a \$250 Amazon gift card prize. Winner Vinny Lopez (l) receives his prize from Kirk Harnack of the Telos Alliance. Background: Vector Graphics

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LEGAL PERSPECTIVE

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

Flexible Use and its Various Meanings

As of this writing, the SBE is moving from one battleground to another. The Comments in the C-Band downlink docket, 18-122, have been filed, and the reply comment date is less than one month away. As it turns out, there are a lot of different views expressed in the comments (more than 130 as of now) about what to do with the band 3.7-4.2 GHz and how, as the FCC put it, to “expand flexible use” in that band and to develop “mechanisms for clearing for mobile use” and considering whether to allow “point-to-multipoint use on a shared basis in portions of the band.” In July, when the FCC released the order and notice of proposed rulemaking in this Docket, it labeled the proceeding “Expanding Flexible Use of the 3.7 to 4.2 GHz Band.” Another purpose of the notice was to “collect information from FSS earth stations and space stations to provide a clear understanding of the operations of current users.” The FCC has done a good job of ascertaining the actual number of C-band receive only Earth stations, because the number of registered dishes jumped from a bit over 3,000 before this proceeding was announced to, reportedly, more than 16,000.

The SBE’s comments in this docket represented some outside-the-box thinking by its Government Relations Committee and its Executive Committee. We argued that the vast number of registrations that have occurred since the Commission opened the filing window for registrations indicates that there are far more C-Band receive-only Earth stations than were assumed to exist when the Commission issued its notice of inquiry in Docket 17-183 in August 2017. Because no one believes that there is co-channel compatibility between 5G networks and Fixed Satellite Service downlinks, and because the SBE takes the Commission at its word that it “proposes [in this proceeding] to protect incumbent earth stations from harmful interference” as the Commission increases the intensity of terrestrial use in the band, it is pretty clear that the identification of the 3.7-4.2 GHz band as a candidate band for 5G rollout in the United States may have been made due to a premise

that has since been shown to be inaccurate. The premise was that the number of receive-only C-Band Earth stations was manageably low and that geographic separation could be used as a means of accommodating the 5G/flexible use overlay in the band. Clearly, given the number of C-Band receive-only dishes that are critical to program delivery daily at all times, that was a flawed premise.

The SBE also noted that broadcasters have very little alternative to the use of their existing C-band antennas at studios. If interference from a commercial wireless provider in the 3.7-4.2 GHz band occurs and the program feed is interrupted, the broadcast programming ceases. It is not possible in most cases for cost reasons to move a C-Band dish to a new location away from a studio, and program delivery by other means, such as conversion to Ku-Band program reception, is cost-prohibitive. So, to accommodate compatible sharing, geographic separation or frequency separation are the two options principally available.

Another option

There is another option however, that solves a lot of problems at once. The European Commission has identified the band 3.4-3.8 GHz as a candidate band for 5G in Europe. In fact the rest of the world, except China and the United States, is focused on 3.4-3.8 GHz. So the FCC’s proposal to make the 3.7-4.2 GHz band available for flexible use in the United States would severely limit international harmonization in the mid-band for 5G rollout. A better plan would be for the FCC to allow the entire 3.7-4.2 GHz band to continue to be used for C-band receive-only antennas and full-band, full-arc protection could be afforded. The FCC could consider as an alternative for mid-band 3G rollout the band 3.4-3.8 GHz. This would create far fewer compatibility issues and foster international harmonization that would expedite 5G rollout. The limited overlap between the European 5G allocation and the C-band downlink band in the United States is only 3.7-3.8 GHz. That level of overlap could be accommodated easily and compatibly by permitting that 100 MHz segment to be used not by the 5G commercial broadband service providers for wide area coverage, but in-

stead by manufacturing facilities that can implement local, private networks in that 100 MHz as part of the “Industry 4.0” or “fourth industrial revolution” which has the promise of vastly boosting industrial manufacturing output in the United States by incorporating 5G technology in the manufacturing process. Those local, private networks could be registered like C-band downlink antennas and everyone gets protected.

What did the other comments filed in the docket say? They were all over the map. There was a good showing by broadcast interests, but the major broadband service providers argued that C-band downlinks were inefficient and the entire 3.7-4.2 GHz band should be auctioned. That doesn’t sound much like “flexible use” at all. Many comments focused on some division of the 3.7-4.2 GHz band. The SBE likes its plan better. What is in the 3.4-3.7 GHz segment? Mostly military radars now, but almost ten years ago, the FCC identified that entire segment as a fast-track band for broadband reallocation. In some bands, “flexible use” as the FCC defines it in terms of various types of spectrum overlay, simply doesn’t work. This is one of those cases.

Time now to switch to the 6 GHz battleground. The FCC in late October released the notice of proposed rulemaking in Docket 18-295. The comment date is not yet determined as of this writing. The FCC proposes to allow unlicensed use in the 5.925-7.125 GHz (6 GHz) band “while ensuring that the licensed services operating in the spectrum continue to thrive. Expanding 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 FCC’s proposed action provides that in the 6.425-6.525 GHz and 6.875-7.125 GHz BAS bands, unlicensed devices would be limited to indoor use and operate at low power, but without automated frequency control. FCC said that the itinerant nature of mobile services makes the use of AFC impractical. The combination of lower power and indoor operations would, they say, protect licensed services operating on these frequencies from harmful interference. Game on!



FOCUS ON SBE

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

SBE MemberPlus...

It has been almost one year since the SBE began to offer the SBE MemberPlus option. If you are not aware of what this is, those who choose the option receive a significant increase in membership value. Access to all live and archived webinars the SBE produces during the membership year, at no additional cost. With the never-ending changes in technology, most SBE members look for ways to keep up at a reasonable cost. Our members’ desire to learn about new technology was one of the reasons the SBE created this membership option.

Over the past several years, the SBE has produced a significant number of technical broadcast and media webinars of interest to our members, more than 70 and climbing, many of them on evergreen topics. After the live presentation, each webinar is archived and available on the SBE website 24/7/365. The SBE is grateful to the many talented and knowledgeable individuals, all subject matter experts, who have presented webinars for the SBE in the past and in the future.

In the traditional membership model, members who pay annual dues of \$85 would pay an additional \$59 for each webinar they wanted to take. With SBE MemberPlus, which has an annual cost of \$175, there is no additional cost to take as many of these webinars as you want. Just taking two webinars more than pays for the higher dues cost.

We had heard from members that paying for multiple webinars was cost prohibitive, no matter if they were paying for it themselves or if their employer was. So for an additional \$90 investment, a significant educational benefit was now within reasonable reach of many members.

You may wonder how SBE MemberPlus has been received. I am happy to tell you that since January 2, when it first became available, we saw far more members take the option than we

ever anticipated. As of this writing, 871 members have chosen SBE MemberPlus. That number represents more than 20% of all renewing Members and Senior Members, and more than 41% of all new members.

Those 871 members have been using their expanded benefit in a big way. Through September, SBE MemberPlus members had registered for 2,023 SBE webinars. That is 96% of the total webinars taken this year and the total is far more than any previous year!

As of the end of September, 488 new members have joined and, as I mentioned earlier, 41% have chosen the SBE MemberPlus option. It’s safe to say that the added membership value has helped attract many of them.

When membership renewal comes around in a couple of months, we encourage those who are SBE MemberPlus members will choose to renew and maintain that status. We also hope that if

you passed on it the first time around, you will choose the SBE MemberPlus option when you renew.

Looking ahead to 2019, the SBE Education team is planning a full slate of new webinars, including our series on ATSC 3.0 and more in our series on Advanced RF. The ATSC 3.0 series will begin in January with Networking for ATSC 3.0. Our growing archive of webinars includes the popular, eight-part SBE RF 101 Terrestrial Transmission series, the SBE basic and advanced series on IP Networking and many more.

If your employer has not been willing to cover the cost of traditional dues in the past, let them know about the expanded educational benefit. They may just decide that the added educational benefit, which potentially could help their station’s performance and bottom line, is worth the investment and be willing to pay for it.



The SBE MemberPlus Option

Individuals can choose to join or renew with the SBE as a traditional Regular, Senior or Associate member at the low-cost rate of \$85. They receive access to SBE publications, social media outlets, job listings, compensation survey results and access to a life insurance program at no additional cost. Traditional SBE membership also provides member discounts for SBE certification, education programs and purchases at the SBE Bookstore, and the opportunity to participate in local chapters affiliated with the national SBE

SBE MemberPlus has all the benefits of traditional SBE membership, plus access to all the archived Webinars by SBE and all new webinars the SBE produces during the membership year, at a cost of \$175. Currently, there are more than 70 webinars archived and available online, with more added every month, that cover a wealth of topics of interest to broadcast and media engineers and technicians.

Free access to the extensive SBE webinar education resource is an enormous benefit. For less than the cost of two SBE webinars, the member who opts for SBE MemberPlus has access to archived programs including the eight-part SBE RF-101 series and five-part Fundamentals of IT Networking, as well as the current Advanced RF and ATSC 3.0 series.

Q: Can I upgrade my Regular membership to SBE MemberPlus at any time?

A: Yes. Annual membership renewal takes place on April 1, but an SBE member can pay the difference from Regular membership to SBE MemberPlus at any time to add the benefit.

Q: If I join the SBE midyear, can I prorate any portion of my dues?

A: New SBE MemberPlus members who join from October through December pay the full SBE MemberPlus rate and then will pay a prorated SBE MemberPlus amount at their first renewal cycle the next year, just as new

traditional Regular members do. This will sync those members with the April 1 membership cycle.

Q: Can I renew before April 1 to take advantage of SBE MemberPlus?

A: Yes. Members can elect to renew their membership as early as January 2 each year to access the SBE MemberPlus program. Get up to an additional three months of SBE webinars free!

Q: What if I do not renew my SBE membership by April 1?

A: SBE MemberPlus members who do not renew by April 1 lose the SBE MemberPlus benefit at that time. Their membership reverts to traditional Regular membership and remains active until the three-month grace period ends June 30. The SBE MemberPlus benefits are reinstated if the member renews after April 1.

Apply or upgrade to SBE MemberPlus at the SBE website, sbe.org/join.

LINK

The SBE's FCC Filing
<http://bit.ly/C-band>



ENGINEERING PERSPECTIVE

By Fred Baumgartner, CPBE
 Director, NextGen Deployment
 ONEMedia
 fbaumgartner@sbe.org

ATSC 3.0 Is On the Air

The road to NextGen Broadcast started as ATSC 1.0 launched. In the beginning, it was about upgrading the modulation used for TV. 8-VSB doesn't perform well for mobile, can't be adjusted for different locations and uses, and doesn't support boosters very well. Along the way, OTT changed how we view and interact with video content. As advertising dollars moved to more effective and efficient "digital-advanced advertising" and viewing embraced mobile devices, the future became clear – the 70-year old TV experience had to be updated or the business of broadcasting as we know it would fade to black.

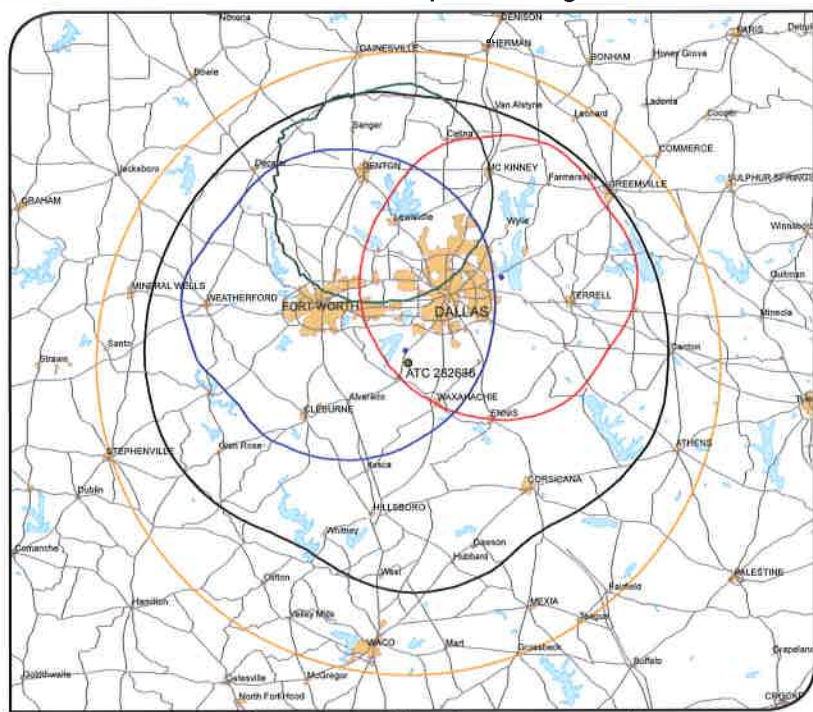
NextGen Broadcast (ATSC 3.0 is multimedia and outperforms AM and FM delivery in terms of coverage and penetration) is voluntary and it has three distinct parts: spectrum, transmission and the platform. As you might expect, the first deployments are all about transmission, and there are a surprising number on the air. Korea has working 3.0 systems, and it covered the Olympics in 4K this year. Sinclair has been operating a single-frequency network (SFN) in Baltimore/Washington since 2015. By mid-2016, WRAL-EX, Raleigh, NC, began full-time NextGen broadcasting with their current HD service and a 4K demo loop.

The NAB and the Consumer Technology Association also began tests in Cleveland in 2016 using a high-VHF transmitter owned by Tribune's WJW. Primarily, the testing is about coverage. ATSC 3.0 has the ability to generate different waveforms for different "physical layer pipes," so a mobile service can be sent with a lower, more robust bit rate and content sent to home gateways and TVs can be sent with higher, less robust bit rates. Getting to the optimum combinations is going to take some experience and field measurements. SFN systems are designed using predictive tools -- which can be very complex and incorporate considerable local "clutter" data. Much of the field data is used to improve the design tools.

Pearl TV (one of the industry groups promoting NextGen TV) with E.W. Scripps Company, Fox Television Stations, Meredith Local Media Group, Nexstar Media Group, TEGNA, Telemundo Station Group and Univision Communications, lit up Phoenix. This group had to deal with the collective spectrum issues really for the first time. Existing stations needed to work together to find homes for all the 1.0 programming displaced as the one station converted to 3.0. Agreements had to be made and a regulatory process updated to accommodate the NextGen transition.

The regulatory piece included notifications to MVPDs (cable and satellite) as well as on air announcements of the changes. Phoenix also became an effective on-the-air integration and interoperability test site.

That takes us to the Dallas SFN project. Announced at the 2017 NAB Show by Spectrumco, the primary stake holders include American Tower Corporation and several broadcasters. Three UHF SFN sites (see attached coverage prediction map, courtesy Progira) with two transmitters each are ready to support two big sticks. On the transmission side, the desire is to



American Tower Corporation and several broadcasters are operating three UHF SFN sites) with two transmitters each. Map courtesy of Progira.

drive test a production level SFN that is capable of stitching two 6 MHz signals together. On the platform side, the goal is a fully functional NextGen experience – or as close as the evolving state of the art allows. Sinclair has purchased first-generation home gateways and will shortly be providing engineering samples of a nearly universal receiver chip. They also built a state of the art drive test vehicle. Currently, the first 6 MHz SFN in Dallas is slated to be turned on early in 2019. The organizational and practical challenges of bringing together this many parties to create an entirely new broadcast platform are evident in the revised timeframe, but the lessons learned will help speed up future ATSC 3.0 deployments.

There are more than a few 3.0 signals on the air already. Last month, Weigel Broadcasting launched ATSC 3.0 operations in the Windy City. "Chicago 3.0" began operations in September from the Willis Tower. News Press Gazette (NPG) also turned on a 3.0 test station in Santa Barbara, CA. WKAR in Lansing, MI, is the first public up, ready to experiment with things like distance learning.

I think the take away is this; First and foremost, there is an incredible level of cooperation and sharing. More than I have ever seen before in this industry. Second, there are a lot of stations on the air or nearly on the air, and I am vaguely aware of some rather aggressive rollout plans being crafted. Third, the RF part is mostly a waveform change, and in some cases adding SFN support for better coverage and penetration – where the real heavy lifting is, is in the platform. Expect to hear and see more from places like Santa Barbara, Phoenix, Chicago, Lansing and Dallas as tests and demonstrations pop up. The FCC doesn't even have the forms approved, and already, there are stations on the air. And they look pretty good.

SUSTAINING MEMBERS

Support the companies who support the SBE and the industry

- 305 Broadcast • 2015**
Alfonso Lopez 305-406-3560
Broadcast Equipment Supplier
- AC Video Solutions • 2014**
Andrea Cummis 201-303-1303
Consulting, Systems Design/Integration
- AEQ Broadcast International • 2015**
Peter Howarth 954-581-7999
Broadcast Audio, Video and Communications
- American Tower Corporation • 2000**
Peter A. Starke 781-926-4772
Development/Construction/Management
- ATV Broadcast, LLC • 2016**
Doug Smith 317-258-6280
Telecommunications Consulting Group
- Audemat-Worldcast Systems Inc. • 2000**
Christophe Poulain 305-249-3110
Control Manufacturer
- AVCOM of Virginia, Inc. • 2010**
Tom Pagonis 804-794-2500
Spectrum Analyzers
- A-Ware Software/MusicMaster • 2014**
Shane Finch 352-351-3625
Advanced Music Scheduling Solutions
- Belden Electronic Division • 1991**
Sales 800-235-3361
Cable and Connectivity
- Blackmagic Design • 2012**
Terry Frechette 408-954-0500
Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters
- Bracke Manufacturing LLC • 2012**
Patra Largent 949-756-1600
RF & Microwave Components
- Broadcast Depot • 2018**
John Lackness 305-599-3100
TV, Satellite, Radio, IP
- Broadcast Devices, Inc. • 2015**
Robert Tarsio 914-737-5032
Audio/RF Support Products
- Broadcast Electronics Inc. • 1978**
Tom Beck 217-224-9600
Radio Equipment Manufacturer
- Broadcast Software International • 2016**
Marie Summers 888-274-8721
Radio Automation, Audio Logging
- Broadcast Supply Worldwide • 1986**
Shannon Nichols 800-426-8434
Audio Broadcast Equipment Supplier
- Broadcasters General Store • 2004**
Buck Waters 352-622-7700
Broadcast Audio Video Distributor
- Calrec Audio • 2016**
Dave Lewty 805-305-5711
Audio Mixing Equipment
- Complex • 2017**
Daniel Coscarella 800-445-7568 x7409
Fiber Optic Cable Assembler
- Canon USA Inc. • 1985**
Larry Thorpe 201-807-3300, 800-321-4388
Broadcast Lenses & Transmission Equipment
- Cavell, Mertz & Associates Inc. • 2011**
Gary Cavell 703-392-9090
Consulting Services
- Comrex Corporation • 1997**
Chris Crump 978-784-1776
Audio & Video Codecs & Telephone Interfaces
- Continental Electronics • 1976**
Dale Dalesio 412-979-3253
TV and Radio Transmitters
- CueScript • 2014**
Michael Accardi 203-763-4030
Teleprompting Software & Hardware
- D2D Technologies • 2018**
Jessica Colyer 619-248-0618
PSIP & EAS Insertion, IP Gateways, Multiplexers, SRT Transmission
- Davicom, Division of Comlab, Inc. • 2014**
Louis-Charles Cuierrier 418-682-3380 x512
Remote Site Monitoring and Control Systems
- DEVA Broadcast • 2015**
Todor Ivanov 305-767-1207
Monitors, IP Audio Codecs, RDS/RBDS Encoders, Audio Processors, Broadcast Tools
- Dialight Corporation • 2006**
US Headquarters 732-919-3119
FAA Obstruction Lighting, LED Based
- Dielectric • 1995**
Cory Edwards 207-655-8131
TV & FM Transmission & Cellular Products
- Digital Alert Systems, LLC • 2005**
Bill Robertson 585-765-1155
Emergency Alert Systems
- DoubleRadius, Inc. • 2012**
Jeffrey Holderlid 704-927-6085
IP Microwave STL
- Drake Lighting • 2015**
Dave Shepard 270-804-7383
FAA Obstruction Lighting - Medium and High Intensity
- DTS Inc./HD Radio Technology • 2014**
Rick Greenhut 443-539-4335
HD Radio Technology
- du Treil, Lundin & Rackley, Inc. • 1985**
Jeff Reynolds 941-329-6000
Consulting Engineers
- The Durst Org. -- 4 Times Square • 2004**
John M. Lyons, CPBE 212-997-5508
TV/FM/Microwave Tower Site
- DVEO - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- Econco • 1980**
Debbie Storz 800-532-6626, 530-662-7553
New & Rebuilt Transmitting Tubes
- ENCO Systems Inc. • 2003**
Ken Frommert 800-362-6797
Playout and Automation Solutions
- ERI - Electronics Research • 1990**
David White 812-925-6000
Broadcast Antennas, Transmission Line, Filters/Combiners, Towers and Services
- Floral Systems • 2008**
Shawn Maynard 877-774-1058
Television Broadcast Automation
- Frontline Communications • 2015**
Tracy Brink 727-280-8843
Broadcast Vehicle Manufacturer
- Fujifilm/Fujinon • 1986**
Gordon Tubbs 973-686-2769
Broadcast & Cine Lens Products
- GatesAir • 1977**
Dave Hopson (TV) 513-445-5243
Mark Goins (Radio) 513-899-9124
Broadcast Equipment Manufacturer
- Heartland Video Systems, Inc. • 2011**
Dennis Klas 920-893-4204
Systems Integrator
- Hilights, Inc. • 2016**
Rob Sobol 352-564-8830
Obstruction Lighting Maintenance
- Hitachi Kokusal Electric Comark • 2013**
Jack McAnulty 860-763-1100
Manufacturer Broadcasting Transmission Equipment
- IMT-Vislink • 2009**
John Procacci 908-747-3011
Wireless Video Systems
- Inovonics Inc. • 2012**
Gary Lührman 831-458-0552
Radio Broadcast Equipment
- JAMPRO Antennas Inc. • 2011**
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB
- JVC Professional Video • 2014**
Edgar Shane 973-317-5000
Professional Video Products, Camcorders, Display Monitors, Recording Decks
- Kathrein USA Inc. • 1985**
Les Kutasi 214-238-8835
Antennas for Broadcasting & Communications
- Kintronc Labs, Inc. • 2015**
Joaquin Flaventos 423-878-3141
Radio Broadcast Antenna Systems - ISO9001 Registered Company
- L3 Electron Devices • 2017**
Mark Strohecker 570-326-3561
CEAs, IOTs, Thyratrons
- Lawo AG • 2017**
Michael Dosch 888-810-4468
AolP Consoles & Virtual Radio
- LBA Technology Inc. • 2002**
Javier Castillo 252-757-0279
AM/MW Antenna Equipment & Systems
- Linkup Communications Corporation • 2017**
Mark Johnson 703-217-8290
Satellite Technology Solutions
- LYNX Technik • 2007**
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer
- Markertek • 2002**
Wesley Brewer 800-522-2025
Specialized Broadcast & Pro-Audio Supplier
- Micronet Communications Inc. • 2005**
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning
- Microtech Gefell GmbH • 2016**
Udo Wagner +49 36649-82245
Microphones
- Microwave Video Systems • 2011**
Warren J. Parepa 781-665-6600
Microwave Equipment Rental, Sales & Service
- Middle Atlantic Products • 2005**
David Amoscato 973-839-1011
Equipment, Mounting, Solutions
- Moseley Associates Inc. • 1977**
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television
- Nascar Productions • 2014**
Abbey Kielcheski 704-348-7131
Live/Post Production Services
- National Association of Broadcasters • 1981**
Industry Trade Association 202-429-5340
- National Football League • 1999**
Ralph Beaver 813-282-8612
Game Day Coordination Operations
- Nautel Inc. • 2002**
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer
- Nemal Electronics Int'l Inc. • 2011**
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber Optic
- Neutrik USA, Inc. • 2012**
Kathy Hall 704-972-3050
Ruggedized Optical Fiber Systems
- Orban Labs, Inc. • 2011**
Dave Rusch 480-403-8300
Audio Processing AMFMTV
- Pasternack Enterprises • 2001**
Christine Hammond 949-261-1920
Coax & Fiber Products
- Pebble Broadcast Systems • 2016**
David Russin 720-638-7171
Television Broadcast Playout Automation
- Potomac Instruments • 1978**
Zachary Babendriker 301-696-5550
RF Measurement Equipment Manufacturer
- ProAudio.com- A Crouse-Kimzey Co. • 2008**
Mark Bradford 800-433-2105 x560
Proaudio Broadcast Equipment Distributor
- Propagation Systems Inc. - PSI • 2010**
Doug Ross 814-472-5540
Quality Broadcast Antenna Systems
- Quintech Electronics and Communications Inc. • 2002**
James Herbstreit 724-349-1412
State-of-the-art RF Hardware Solutions
- QVC • 2011**
Kevin Wainwright 484-701-3431
Multimedia Retailer
- Radio Frequency Systems • 2015**
Eddy Vanderkerken 214-471-6693
Broadcast Infrastructure Manufacturer
- RF Specialties Group • 2008**
www.rfspecialties.com
Everything from the Microphone to the Antenna
- Rohde & Schwarz • 2003**
Walt Gumbert 724-693-8171
Transmitters, Test & Measurement, Video
- Ross Video Ltd. • 2000**
Jared Schatz 613-228-0688
Manufacturer, Television Broadcast Equipment
- Sage Alerting Systems Inc. • 2010**
Gerald LaBow 914-872-4069
Emergency Alert Systems Products
- SCMS Inc. • 2000**
Bob Cauthen 800-438-6040
Audio and RF Broadcast Equipment Supplier
- Seacomm Erectors, Inc. • 1997**
John Breckenridge 360-793-6564
Tower/Antenna Erections
- SEG • 2014**
Chris Childs 913-324-6004
Supply Chain Products and Services
- Shively Labs • 1996**
Dale Ladner 888-SHIVELY
FM Antennas & Combiners
- Shure Incorporated • 2012**
Bill Ostry 847-600-6282
Microphones, Wireless Systems, Headsets
- Sierra Automated Systems and Eng. Inc. • 2011**
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms
- Silvus Technologies • 2015**
Mark Tommey 617-816-6588
Wireless Video Mesh Network
- Snell Advanced Media • 1995**
John Shike 650-703-4906
Video Equipment Manufacturer
- Solid State Logic • 2014**
Steve Zaretsky 212-315-1111
Digital Audio Mixing Consoles, Networked Audio Routing, Embedded Audio Solutions
- Staco Energy Products Co. • 2010**
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- Sutro Tower Inc. • 1989**
Eric Dausman 415-681-8850
Broadcast Tower Leasing
- Technical Broadcast Solutions, Inc. • 2018**
Robert Russell 215-983-0855
Engineering and Consulting Services
- Tektronik Inc. • 1977**
Jim Lang 503-627-2980
Video Test & Measurement, Equipment Manufacturer
- Teledyne e2v US Inc. • 1997**
Dominic Piarulli 914-593-6828
Electronic Components
- Televue USA, LLC • 2018**
Andy Ruffin 937-475-7255
ATSC 3.0 Transmission Solutions, Antennas
- Telos Systems/Omnia/Axia • 2003**
Denny Sanders 216-241-7225
Telos Systems Talk-Show Systems
- Teradek • 2011**
Jon Landman 949-743-5783
Camera-top ENG Solutions
- Terrestrial Inc. • 2003**
Billie Layman 888-373-4832
FCC Broadcast Auxiliary Licensing Services
- Tieline The Codec Company • 2003**
Dawn Shewmaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer, Manufacturer, Distributor
- Verizon Digital Media/Services • 2015**
Nabil Kanaan 310-302-3383
Media Intelligence and Logging Solutions
- Wheatstone • 2010**
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors
- Wireless Infrastructure Services • 2006**
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey Services

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

Member Spotlight: Donald Ohse

Member Stats

SBE Member Since: March 2017
Chapter: 85 Central Western Oklahoma
Employer: Oklahoma's News 4, Tribune Media Broadcast
Position: Assistant Chief Engineer
Location: Oklahoma City, OK
I'm Best Known For: Radio frequency and volunteer involvement at my Life.Church and community with my amateur radio club.

Q What do you value most about your SBE involvement?

A Networking with other broadcast professionals in my market and elsewhere.

Q What got you started in broadcast engineering?

A Amateur radio. It is because of amateur radio I am in broadcasting. With the relationships I made via amateur radio when I was laid off from the local cable company, I had a job the very next day here at Oklahoma's News 4.

Q What do you like most about your job?

A I do different stuff every day and love what I do. I have a great team at work.



Donald working in his most comfortable environment.

Q Who do you admire in technology?

A Albert Einstein was once asked to explain radio communication, and he supposedly gave the following answer: You see, wire telegraph is a kind of a very, very long cat. The only difference is that there is no cat.

Q When I'm not working ...

A ...I'm working the airwaves with amateur radio.

Q What is something most people don't know about you?

A I played piano for a year.

Q What's your favorite gadget?

A It would have to be APRS. It has so many uses other than just what you think.

Q Do you have a nickname?

A The RF Sheriff. I have an uncanny ability to hunt down interference to weather radar and two-way radios and shut down the interference.

Chapter Check

Chapter 59 • Kansas City
 In October, Chapter 59 Kansas City gathered at the National WWI Museum and Memorial for a behind-the-scenes technical tour of the facility. The J.C. Nichols Auditorium is outfitted for video production and streaming of ceremonies, presentations and lectures.



ACTIONS from p. 1

Selection Committee. The Board voted to hold the 2019 SBE National Meeting in conjunction with the 2019 Broadcasters Clinic in Madison, WI, hosted by the Wisconsin Broadcasters Association and the four SBE Chapters of Wisconsin. The national meeting was last held in Madison in 2015.

The Board also voted to hold the 2020 National Meeting in Syracuse, NY, in conjunction with the SBE Chapter 22 Broadcast and Technology Expo. Chapter 22 announced in September that it plans to bring back its expo beginning in 2019. The Expo, which was last conducted in 2014, was held previously for 45 consecutive years.

Other information provided during the meeting included that 70 SBE chapters

qualified for cash rebates in 2017 from the national SBE and received checks totaling more than \$36,000 in June of this year. Chapters qualify by holding at least five meetings each year and filing reports of attendance and meeting content with the national office.

A new SBE chapter is under formation that covers the Northern Panhandle of Florida and far southern areas of Georgia and Alabama. Three organization meetings had been held by the end of September.

The next SBE Board of Directors meeting is tentatively scheduled for Sunday, April 7 in Las Vegas, NV. The next SBE Executive Committee meeting will be on Saturday, Jan. 26 in Orlando, FL.

Schedule an Ennes Workshop in Your Area

Each year the Society of Broadcast Engineers and the Ennes Educational Foundation Trust present a number of one-day educational programs for broadcast engineers, called Ennes Workshops. These programs feature multiple topics and speakers that provide television and radio engineers with the "nuts and bolts" information they need to do their jobs. An Ennes Workshop can serve as a highlight of your chapter's program year.

The SBE is currently scheduling Ennes Workshops for 2019. The cost to bring an Ennes Workshop to your area is typically shared through participant registration fees, sponsorships and chapter support. Some state broadcaster associations have also supported these programs financially, either as a part of one of their events or as a stand-alone event.

ENNES

EDUCATIONAL FOUNDATION TRUST.

To find out how your chapter can host an Ennes Workshop for the broadcast engineers in your community, contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

WELCOME TO THE SBE

NEW MEMBERS

Brian Alley - Greenfield, MA
 Steven R. Arens - Tucson, AZ
 Jigar Bhakta - Cameron, TX
 Bryan Cabotaje - Alexandria, VA
 Cullen Cockrell - Milton, MA
 Matthew Corradi - Prescott, AZ
 Aaron L. Donnelly - Atwater, OH
 Stephen E. Etheridge - Albany, GA
 Alexander Flavin - Silver Spring, VA
 Alexander B. Goehring - Staunton, VA
 Jonathan G. Hubauer - Oneonta, AL
 Jeff Hunt - Roanoke, VA
 Chris Jackson - Cedar Rapids, IA
 Kelsey J. Johnson - Woodbridge, VA
 Joe Jurneke - Brighton, CO
 Fatima L. Kelley - Columbus, GA
 Andy Kenyon - Denver, CO
 David L. Lawyer - Flower Mound, TX
 Thein Linn - Yangon, Myanmar
 Dana R. Lyons - Memphis, TN
 David R. Mitchell - Charlotte, NC
 Thomas W. Moog - Cameron, NC
 Carl D. Nelson - DeKalb, IL
 Jeffrey K. Oestreich - Saint Charles, MO
 Jose A. Otero - Denver, CO
 George Puzo - Suffolk, VA
 David Rahmoeller - Pinellas Park, FL
 Christopher G. Rhoads - Estero, FL
 Torrie J. Robinson - Brooklet, GA
 Cliff Rogers - Marietta, GA
 Carlos Rosado - Guayanilla, PR
 Maysam Sarfean - Alexandria, VA
 Brandon S. Smallwood - Greenwood, SC
 Charles A. Spivey - Louisville, KY
 Geoffrey Steadman - Brighton, MA
 Adam P. Tarnowski - Hardin, KY
 Michael D. Turner - Topeka, KS
 James M. Ullery - Ponca City, OK
 Thomas Van Stockum - Wappingers Falls, NY
 Scott A. Vince - Columbia, PA
 Patrick H. Watson - Huntsville, AL
 Matt Wood - Salem, VA
 Jason P. Yaser - Evansville, IN

NEW STUDENT MEMBERS

Joshua J. Gill - Phenix City, AL

RETURNING MEMBERS

Donald L. Bargmann - Plymouth, WI
 Gregory A. Benson - Yuba City, CA
 Ed Boyer - Kissimmee, FL
 Matthew C. Brandes - Angier, NC
 Jonathan R. Clark - Medford, OR
 Ernie Ensign - Arlington, VA
 Charlie F. Farr, Jr. - Virginia Beach, VA
 Mark Gleeson - Torrance, CA
 Carmen A. Hall - Antioch, TN
 Canice Hong - Pasadena, CA
 Ernest J. Kain - Kenner, LA
 David J. Kuether - Brea, CA
 Rod E. Lindheim - Arlington, MA
 Romualdo M. Lintag - Mountain View, CA
 Larry C. Marini - Carrollton, TX
 James D. Parker - Huntsville, AL
 Francis J. Poliso - Williamstown, NJ
 Thomas J. Ryan - Tarzana, CA
 Eli L. Sanders - Atlanta, GA
 David S. Segal - Rosenberg, TX
 Stephen E. Sparks - Sacramento, CA

RETURNING ASSOCIATE MEMBERS

Shane W. Carpenter - Sacramento, CA

MEETING from p. 1

Baracsi; WGHB-TV; and Andrea Cummis, CBT, CTO; WLVT-TV. SBE President Jim Leifer, CPBE, led the meeting.

President Leifer was sworn in for a second, one-year term as was Vice President RJ Russell, CPBE. Jim Bernier, CPBE, CBNE, was sworn in for his second term as treasurer, and Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, was inducted to serve his second term as secretary. Directors beginning their two-year terms included Stephen J. Brown, CPBE, CBNT; Roswell Clark, CPBE, CBNT; Kirk Harnack, CBRE, CBNE; Vinny Lopez, CEV, CBNT; Thomas R. McGinley, CPBE, AMD, CBNT; Shane Toven, CBRE, CBNT; and Ted Hand, CPBE, 8-VSB, AMD, DRB, CBNT. They join six other directors on the Board who are in the middle of their two-year terms and Immediate Past President Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT.

The webcast was made possible through the financial support of seven SBE Sustaining Member sponsors: Blackmagic Design, Dielectric, Drake Lighting,

DVEO, IMT, Vislink, Lawo, and Technical Broadcast Solutions.

A highlight of the National Meeting was the 2018 SBE Annual Awards Dinner. Among the members recognized for achievement were Mark Persons, CPBE, AMD, CBNT, of Brainerd, MN, with the Robert W. Flanders SBE Engineer of the Year Award, Jeff Welton, CBRE, of Hacketts Cove, NS, with the James C. Wulliman SBE Educator of the Year Award. SBE Sustaining Member Davicom received this year's SBE Technology Award for the Cortex 360 Site Management System. One member was elevated to the highest SBE membership level of Fellow: Jerry Massey.

ATSC President Mark Richer provided the keynote presentation for the evening. At the close of the dinner, President Leifer invited everyone to attend the 2019 SBE National Meeting in conjunction with the 2019 Broadcasters Clinic in Madison, WI, hosted by the Wisconsin Broadcasters Association and the four SBE Chapters of Wisconsin.

For Your 2019 Calendar: SBE Leadership Development Course

Since 1997, the SBE has presented the SBE Leadership Development Course, which was first taught in 1965. The National Association of Broadcasters sponsored the course from 1965 to 1995. This intense course is designed specifically for broadcast engineers who have or aspire to have management responsibilities. It's designed for technically adept people to acquire and develop the skills for sound leadership, supervisory and management skills. The SBE Leadership Development Course is equally beneficial for those who are already in management and for those without prior management or supervisory experience.

The SBE course is taught by Rodney Vandever, a professional leadership and management trainer and a professor of organizational leadership and supervision at Purdue University.

Leadership has two different meanings that will be explored. First, leadership is the catalyst that transforms potential into a new reality yielding positive results. As a leader, you can be the catalyst to help bring about needed change in yourself, others and your organization. Secondly, leadership is the art and science of getting the job done through the willing efforts of others. The key point is that lead-

ership is both an art and a science. This course explores both meanings.

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 ex-



Leadership Development Course class of 2018.

perience 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 breakfast items and classroom beverages. SBE Members receive a discount on registration.

Course plans are being finalized, but the event is expected to be held the first or second week of August 2019, in Atlanta. More information and registration will be available at sbe.org/ldc or by contacting the National Office.

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MEMBERS ON THE MOVE



◀ **David Bialik** has received the Audio Engineering Society Distinguished Service Award to honor three decades of service to AES convention committees and the creation and development of the conventions' broadcast track.

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

MARK YOUR CALENDAR

Webinar: ATSC 3.0 Module 4

Online
Jan. 30, 2019 sbe.org/webinars

S. Carolina Broadcasters Assoc. Winter Conference & Broadcast Exhibition
USC Alumni Center; Columbia, SC
Jan. 31, 2019 scba.net

SBE Certification Exams
Local Chapters
Feb. 1 - 11, 2019 sbe.org/certification
Application deadline Dec. 31

SBE Certification Exams
NAB Show
April 9, 2019 sbe.org/certification
Application deadline March 1

SBE Certification Exams

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

SBE Certification Exams
Local Chapters
Aug. 2 - 12, 2019 sbe.org/certification
Application deadline June 3

SBE Certification Exams
Local Chapters
Nov. 1 - 11, 2019 sbe.org/certification
Application deadline Sept. 24

SBE National Meeting
Madison, WI
Oct. 15-16, 2019 sbe.org

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