

THE Signal

Bimonthly Publication of the Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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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; Emer- ionic 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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SBE National Office
317-846-9000 www.sbe.org

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



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

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 nomi-

nee 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.



Certification Question

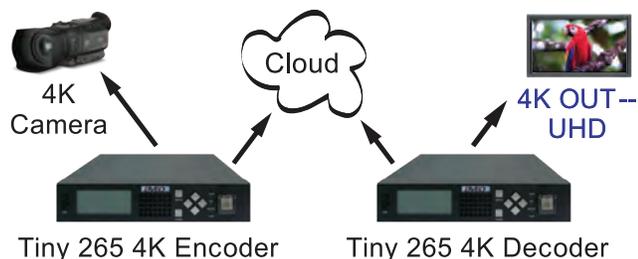
Answer on page 6

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.

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.

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.



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.

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



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.

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

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.



The ATSC 3.0 Ecosystem of Network(s)

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.

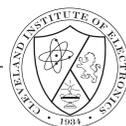
Only the surface of networking technology has been touched on in this article. For a more in depth tutorial, look to a new SBE webinar series in 2019, "Networking for ATSC 3.0." The goal of the webinar series will be to focus on the fundamental knowledge base and practical aspects of building and supporting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

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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 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

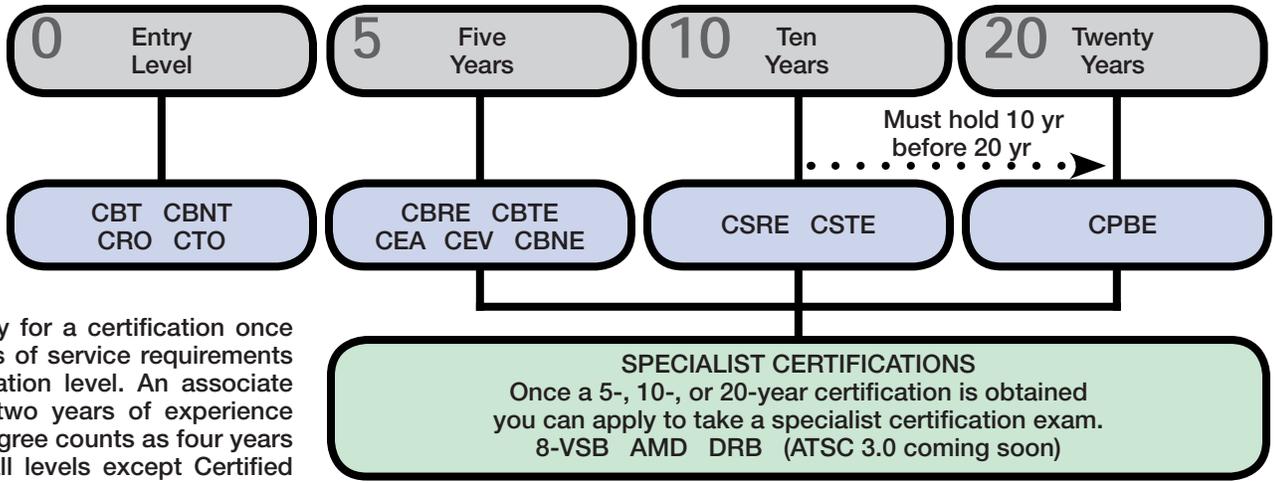
Broadcast engineers may hold multiple certifications. SBE certifications are listed from highest experience to least experience. Multiple certifications held with the same experience requirement are listed in a prescribed order. Specialist certifications are listed immediately after their corresponding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



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)



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.

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
 Elián Garcia, Cleveland, TX
 Ryan Henry, Cleveland, TX
 Javier Hernandez, Cleveland, TX
 Luis Hernandez, Cleveland, TX
 Yacelin 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



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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Awards Dinner

THE TELOS ALLIANCE®



Awards Reception



SBE Booth



Fellows Breakfast



Membership Meeting Webcast



Held in conjunction with the Media Resource Expo





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!

LINK

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



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 RF101 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.



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.

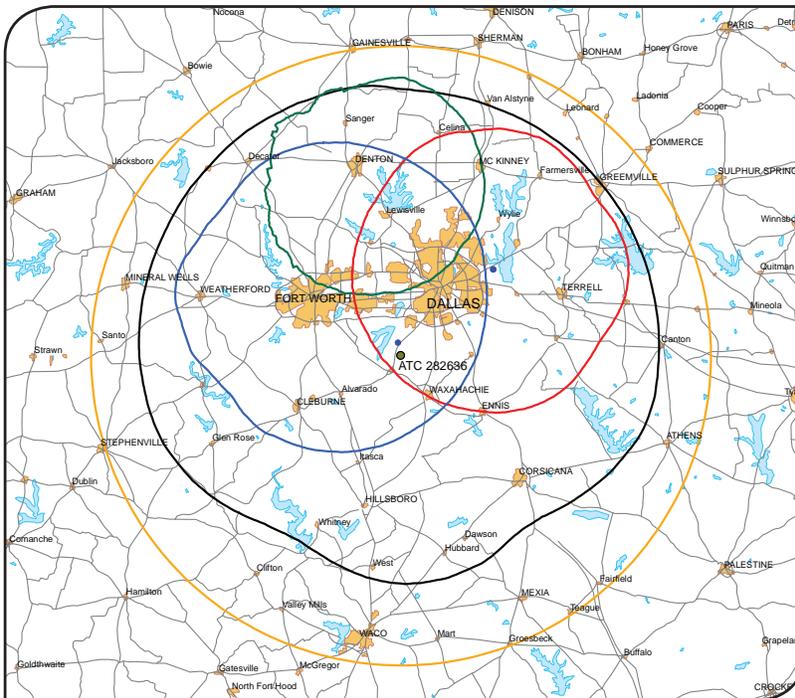
NextGen Broadcast (ATSC 3.0 is *multimedia* and outperforms AM and FM delivery in terms of coverage and penetration) is voluntary and it has three distinct parts: spectrum, transmission and the platform. As you might expect, the first deployments are all about transmission, and there are a surprising 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.

305 Broadcast • 2015 Alfonso Lopez 305-406-3560 Broadcast Equipment Supplier	Dialight Corporation • 2006 US Headquarters 732-919-3119 FAA Obstruction Lighting, LED Based	Lawo AG • 2017 Michael Dosch 888-810-4468 AoIP Consoles & Virtual Radio	Ross Video Ltd. • 2000 Jared Schatz 613-228-0688 Manufacturer, Television Broadcast Equipment
AC Video Solutions • 2014 Andrea Cummis 201-303-1303 Consulting, Systems Design/Integration	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	Sage Alerting Systems Inc. • 2010 Gerald LeBow 914-872-4069 Emergency Alert Systems Products
AEQ Broadcast International • 2015 Peter Howarth 954-581-7999 Broadcast Audio, Video and Communications	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	SCMS Inc. • 2000 Bob Cauthen 800-438-6040 Audio and RF Broadcast Equipment Supplier
American Tower Corporation • 2000 Peter A. Starke 781-926-4772 Development/Construction/Management	DoubleRadius, Inc. • 2012 Jeffrey Holdenrid 704-927-6085 IP Microwave STL	LYNX Technik • 2007 Udo Russell 661-251-8600 Broadcast Terminal Equipment Manufacturer	Seacom Erectors, Inc. • 1997 John Breckenridge 360-793-6564 Tower/Antenna Erections
ATV Broadcast, LLC • 2016 Doug Smith 317-258-6280 Telecommunications Consulting Group	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	SEG • 2014 Chris Childs 913-324-6004 Supply Chain Products and Services
Audemat-Worldcast Systems Inc. • 2000 Christophe Poulain 305-249-3110 Control Manufacturer	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	Shively Labs • 1996 Dale Ladner 888-SHIVELY FM Antennas & Combiners
AVCOM of Virginia, Inc. • 2010 Tom Pagonis 804-794-2500 Spectrum Analyzers	du Treil, Lundin & Rackley, Inc. • 1985 Jeff Reynolds 941-329-6000 Consulting Engineers	Microtech Gefell GmbH • 2016 Udo Wagner +49 36649-82245 Microphones	Shure Incorporated • 2012 Bill Ostry 847-600-6282 Microphones, Wireless Systems, Headsets
A-Ware Software/MusicMaster • 2014 Shane Finch 352-351-3625 Advanced Music Scheduling Solutions	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	Sierra Automated Systems and Eng. Inc. • 2011 Al Salmi 818-840-6749 Routers, Mixers, Consoles, Intercoms
Belden Electronic Division • 1991 Sales 800-235-3361 Cable and Connectivity	DVE0 - Division of Computer Modules Inc. • 2011 Laszlo Zoltan 858-613-1818 Everything About Transport Streams	Middle Atlantic Products • 2005 David Amoscatto 973-839-1011 Equipment, Mounting, Solutions	Silvus Technologies • 2015 Mark Tommey 617-816-6588 Wireless Video Mesh Network
Blackmagic Design • 2012 Terry Frechette 408-954-0500 Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters	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	Snell Advanced Media • 1995 John Shike 650-703-4906 Video Equipment Manufacturer
Bracke Manufacturing LLC • 2012 Patra Largent 949-756-1600 RF & Microwave Components	ENCO Systems Inc. • 2003 Ken Frommert 800-362-6797 Playout and Automation Solutions	Nascar Productions • 2014 Abbey Kielchski 704-348-7131 Live/Post Production Services	Solid State Logic • 2014 Steve Zaretsky 212-315-1111 Digital Audio Mixing Consoles, Networked Audio Routing, Embedded Audio Solutions
Broadcast Depot • 2018 John Lackness 305-599-3100 TV, Satellite, Radio, IP	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 Devices, Inc. • 2015 Robert Tarsio 914-737-5032 Audio/RF Support Products	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 Electronics Inc. • 1978 Tom Beck 217-224-9600 Radio Equipment Manufacturer	Frontline Communications • 2015 Tracy Brink 727-280-8843 Broadcast Vehicle Manufacturer	Nautil 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
Broadcast Software International • 2016 Marie Summers 888-274-8721 Radio Automation, Audio Logging	Fujifilm/Fujinon • 1986 Gordon Tubbs 973-686-2769 Broadcast & Cine Lens Products	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
Broadcast Supply Worldwide • 1986 Shannon Nichols 800-426-8434 Audio Broadcast Equipment Supplier	GatesAir • 1977 Dave Hopson (TV) 513-445-5243 Mark Goins (Radio) 513-899-9124 Broadcast Equipment Manufacturer	Neutrik USA, Inc. • 2012 Kathy Hall 704-972-3050 Ruggedized Optical Fiber Systems	Teledyne e2v US Inc. • 1997 Dominic Piarulli 914-593-6828 Electronic Components
Broadcasters General Store • 2004 Buck Waters 352-622-7700 Broadcast Audio Video Distributor	Heartland Video Systems, Inc. • 2011 Dennis Klas 920-893-4204 Systems Integrator	Orban Labs, Inc. • 2011 David Rusch 480-403-8300 Audio Processing AMFMTV	Televue USA, LLC • 2018 Andy Ruffin 937-475-7255 ATSC 3.0 Transmission Solutions, Antennas
Calrec Audio • 2016 Dave Lewty 805-305-5711 Audio Mixing Equipment	Hilights, Inc. • 2016 Rob Sobol 352-564-8830 Obstruction Lighting Maintenance	Pasternack Enterprises • 2001 Christine Hammond 949-261-1920 Coax & Fiber Products	Telos Systems/Omnia/Axia • 2003 Denny Sanders 216-241-7225 Telos Systems Talk-Show Systems
Complex • 2017 Daniel Coscarella 800-445-7568 x7409 Fiber Optic Cable Assembler	Hitachi Kokusai Electric Comark • 2013 Jack McNulty 860-763-1100 Manufacturer Broadcasting Transmission Equipment	Pebble Broadcast Systems • 2016 David Russin 720-638-7171 Television Broadcast Playout Automation	Teradek • 2011 Jon Landman 949-743-5783 Camera-top ENG Solutions
Canon USA Inc. • 1985 Larry Thorpe 201-807-3300, 800-321-4388 Broadcast Lenses & Transmission Equipment	IMT-Vislink • 2009 John Procacci 908-747-3011 Wireless Video Systems	Potomac Instruments • 1978 Zachary Babendreier 301-696-5550 RF Measurement Equipment Manufacturer	Terrestrial Inc. • 2003 Billie Layman 888-373-4832 FCC Broadcast Auxiliary Licensing Services
Cavell, Mertz & Associates Inc. • 2011 Gary Cavell 703-392-9090 Consulting Services	Inovonics Inc. • 2012 Gary Luhrman 831-458-0552 Radio Broadcast Equipment	ProAudio.com - A Crouse-Kimzey Co. • 2008 Mark Bradford 800-433-2105 x560 Proaudio Broadcast Equipment Distributor	Tieline The Codec Company • 2003 Dawn Shewemaker or Jacob Daniluck 317-845-8000 Audio Codec Manufacturer
Comrex Corporation • 1997 Chris Crump 978-784-1776 Audio & Video Codecs & Telephone Interfaces	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	Unimar Inc. • 2001 Thad Fink 315-699-4400, 813-943-4322 Tower Obstruction Lighting Designer, Manufacturer, Distributor
Continental Electronics • 1976 Dale Dalesio 412-979-3253 TV and Radio Transmitters	JVC Professional Video • 2014 Edgar Shane 973-317-5000 Professional Video Products, Camcorders, Display Monitors, Recording Decks	QVC • 2011 Kevin Wainwright 484-701-3431 Multimedia Retailer	Verizon Digital Media/Services • 2015 Nabil Kanaan 310-302-3383 Media Intelligence and Logging Solutions
CueScript • 2014 Michael Accardi 203-763-4030 Teleprompting Software & Hardware	Kathrein USA Inc. • 1985 Les Kutasi 214-238-8835 Antennas for Broadcasting & Communications	Radio Frequency Systems • 2015 Eddy Vanderkerken 214-471-6693 Broadcast Infrastructure Manufacturer	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	Kintronc Labs, Inc. • 2015 Joaquin Raventos 423-878-3141 Radio Broadcast Antenna Systems - ISO9001 Registered Company	RF Specialties Group • 2008 www.rfspecialties.com Everything from the Microphone to the Antenna	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	L3 Electron Devices • 2017 Mark Strohecker 570-326-3561 CEAs, IOTs, Thyratrons	Rohde & Schwarz • 2003 Walt Gumbert 724-693-8171 Transmitters, Test & Measurement, Video	
DEVA Broadcast • 2015 Todor Ivanov 305-767-1207 Monitors, IP Audio Codecs, RDS/RBDS Encoders, Audio Processors, Broadcast Tools			

**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?

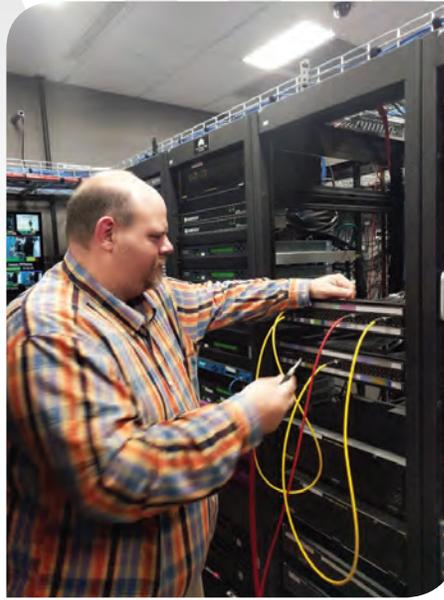
A Networking with other broadcast professionals in my market and elsewhere.

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
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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. 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: Black-magic 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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