

THE Signal

Bimonthly Publication of the
Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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SBE Elects Andrea Cummis as President

The Society of Broadcast Engineers announced the results of the 2021 election for the national board of directors on Aug. 26. Andrea Cummis, CBT, CTO, was elected as the society's president. Cummis is the chief technical officer of PBS39/WLVT-TV, in Bethlehem, PA. She is the first woman to be elected to hold the office. She is a member of SBE Chapter 15 in New York City.

Regarding the election, President-elect Cummis said, "I look forward to serving the Society and its members. President Wayne Pecena has led the society through an interesting and unusual time, and as everyone looks forward to a return to normal, I'm pleased that the society is still growing and thriving. I'm eager to work with the Board of Directors and the membership so we can expand our membership and outreach to the media professionals among us."

Others serving one-year terms as officers, which begin on Oct. 11, 2021, are:

- Vice President: Ted Hand, CPBE, 8-VSB, AMD, ATSC3, DRB; Chapter 45 Charlotte; Charlotte, NC
- Secretary: Kevin Trueblood, CBRE, CBNT; Chapter 90 Southwest FL; Ft. Myers, FL

- Treasurer: Jason Ornellas, CBRE, CRO; Chapter 43 Sacramento; Sacramento, CA
Serving two-year terms on the board of directors, which also begin Oct. 11 are:
- Zhulieta Ibisheva, CBTE, CBT; Chapter 50 Hawaii; Honolulu, HI
- Jeff Juniet, CBTE; Chapter 42 Central Florida; Casselberry, FL
- Charles "Ched" Keiler, CPBE, 8-VSB, CBNE; Chapter 53 South Florida; Ft. Lauderdale, FL
- Geary S. Morrill, CPBE, AMD, CBNE; Chapter 91 Central Michigan; Saginaw, MI
- David Ratener, CPBE, CBNT; Chapter 16 Seattle; Seattle, WA
- Dan Whealy, CBTE; Chapter 96 Rockford; Waterloo, IA

The national board of directors of the SBE is responsible for the development of policy and determines the programs and services the society provides to its nearly 5,000 members. Those elected



Cummis

see **ELECTION**, p. 8

Include the SBE in Your NAB Show Plans

First, the 2020 NAB Show was converted to a virtual event, and then 2021 NAB Show was delayed six months. The long wait of meeting in-person in Las Vegas has ended. The 2021 NAB Show, which is also the site of the SBE 2021 National Meeting, is packed with exhibits, sessions and plenty of opportunities to meet with manufacturers, vendors and colleagues. As you plan how

you will spend your time at the convention, be sure you include the many SBE events on your convention calendar.

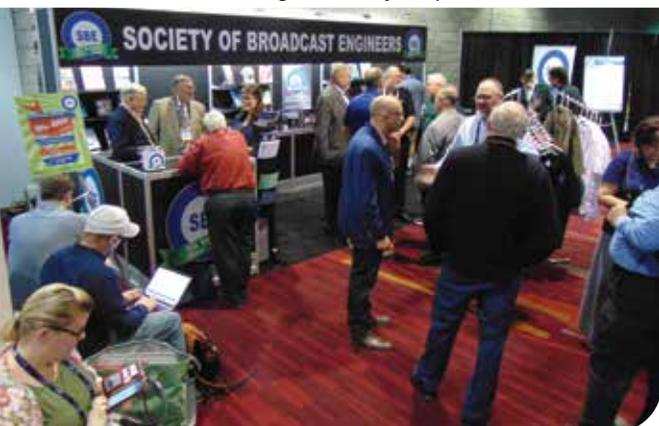
One highlight of the convention is the SBE Ennes Workshop, which will be held Saturday, Oct. 9 at 9 a.m. in LVCC S219. The Workshop kicks off the Broadcast Engineering and IT Conference at the convention.

The main event of the SBE National Meeting will be the annual Membership Meeting and Awards Program (MMAAP), which will be followed by a reception. The Membership Meeting will be held on Monday, Oct. 11, at 5:00 p.m. in room S219. The MMAAP includes updates on SBE activities and programs, and is accented by the swearing in of the new SBE officers and board members. The honorees of the 2021 SBE Awards Programs will be recognized, including the Robert L. Flanders SBE Engineer of the Year award to Chris Tobin. The SBE's newest Fellow

member, SBE Certification Director Megan Clappe, will be recognized as well.

Everyone attending the MMAAP will be eligible to win prizes, including a Blackmagic Studio Camera 4K Pro, one of three \$25 restaurant gift cards or one of two SBE-logoed hats. You'll want to get to the meeting early as well, because the first 125 people in attendance will receive an SBE-logoed tote bag.

see **NATIONAL MEETING**, p. 9



The SBE booth will be in the north lobby of the LVCC.

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Repack Deadline

October							2021
SUN	MON	TUE	WED	THU	FRI	SAT	
26	27	28	29	30	1	2	
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	27		6	
24	25	26	27	28	29	30	

REPACK DEADLINE (circled in red on Oct 8)

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Plan Now to Host an SBE Ennes Workshop in 2022

ENNES WORKSHOP

SBE Ennes Workshops were created in 1991 through the Ennes Educational Foundation Trust in an effort to bring affordable education to members locally. The Ennes Educational Foundation Trust, through its Education Foundation Committee, offers periodic workshops and seminars around the United States. Programs are typically one day in length and are very affordable to attendees. These programs feature multiple topics and speakers that provide television and radio engineers with the latest information in broadcast and media technology.

Attendance typically ranges from 35-65 people. Workshops are planned in several cities across the U.S. each year. At times these are held in conjunction with a larger show, event or state broadcaster association event. Attendees are often engineers, technicians and others who do not go to the NAB Show or fall conventions.

Typically, presentations are around 45 minutes in length, and there are sometimes separate radio and television program tracks for much of the day. The SBE encourages more tutorial-oriented programs of greater length, as well as topics of interest to both radio and television attendees. Presenters are selected based on providing a well balanced, informative and interesting program for those attending.

The SBE realizes that presenting at the Ennes Workshops requires a commitment of time and expense, and the SBE appreciates the contributions of all participants. Presenting is a unique opportunity to reach a group of engineers on a personal basis in an educational setting.

While 2022 seems some time away, the time to plan for next year is now. Talk to your chapter leaders and set a plan now. The SBE can help assemble the program. More information about SBE Ennes Workshops is available online at sbe.org/ennes_workshop.

To host an SBE Ennes Workshop with your chapter or state broadcaster association, contact SBE Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.



Certification Question

Answer on page 6

Nominal power means:

- A. The 40 IRE units of a NTSC television carrier
- B. The power of an AM broadcast station as specified in a system of classification
- C. The exact power at any given point in time
- D. Nothing



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LETTER FROM THE PRESIDENT

By Wayne Pecena, CPBE, 8-VSB, AMD, ATSC3, DRB, CBNE
SBE President
wpecena@sbe.org

I Bid You Farewell

This is my last Letter from the President for *The Signal*, as my tenure as your president will come to an end at the annual Membership Meeting and Awards Program in Las Vegas. This is a bittersweet moment for me. It has been my honor to serve as your president. The past two years have simply flown by for me. For my last column, you might expect me to elaborate on accomplishments during my tenure. I would like to take a different approach. Accomplishments are past events and the future should now be the focus. I would like to mention a few things that I did not accomplish during my two-year tenure, all good intentions aside. I offer my thoughts and maybe a little challenge to the next SBE leadership team to accomplish things I did not.

Change is at least one aspect of life that you can count on. The last 18 months have brought significant change to our industry, and in many cases, to lives. The Society must also change with the times. Easy to say, and far more difficult to specify exactly what and how. The last strategic plan (2018) should be revisited and possibly updated to reflect changes in the industry and member needs.

Take a hard look at the technology on which the Society relies. The webinar platform is one specific area that needs a significant upgrade. If I could have picked just one thing to get done, it would have been an improved webinar platform. However, there are more behind-the-scene systems to keeping the society running. There is an accounting system, a database system, records storage, a website to continuously enhance content and many more to evaluate for effectiveness in delivering the society needs in an efficient manner.

Expanding the SBE membership has been on the radar for some time. The reality is that there are fewer traditional broadcast engineers in the industry. But, there are increasing positions in media technology, information technology and other related fields. Actively seek and engage these new and potentially younger members by providing services that advance their careers. Education and certification come first to my mind. The media broadcast engineer and the broadcast IT engineer are two job titles that I see more of these days. Keep an open mind, as the definition of the broadcast engineer is changing more to the "broadcast/IT" engineer or "media engineer."

Sure, RF is still needed, but likely to become a specialty area as the use of internet technology increases as a content delivery medium.

The SBE should continue a strong emphasis on professional development and certification. SBE education programs and certifications are cornerstone services of the Society. Continue to keep the content current and on topics that are of interest and benefit to the membership. Online certification exams would be a plus as well.

And most important, stay connected with the membership and connect with potential new members. It is a continuous process to understand the needs of the members and provide the services that

the members want and need to better their professional life. Maintain the member connections by any and all means available whether social media, online resources or good ole face to face contact. And go where

potential new members are rather than relying on them to find the SBE.

"How lucky I am to have something that makes saying goodbye so hard."

~ Winnie the Pooh

A Group Effort

Any accomplishments over the past two years were the direct result of the work of others. Our staff at the national office kept the Society running and launched a new certification during the COVID lockdown. Our officers, board members and committee chairs quickly adapted to Zoom meetings instead of face-face meetings to insure the Society needs were being fulfilled. Our local chapter chairs were instrumental in adopting the use of conferencing technology to keep local chapter meetings alive, engaging the local membership and in some cases reviving local chapter participation. A sincere thank you to everyone for your dedicated service to a truly unique professional society of unique members.

Congratulations to our officers and board members that were elected and re-elected during our last election. A special congratulations and welcome to our new board members who join the board this month. An important facet of the annual fall Membership Meeting is the swearing in of the next leadership team for the SBE. I have the distinct pleasure and honor to hand the gavel to the first woman president of the Society.

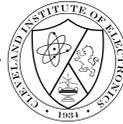
Back to Las Vegas

Speaking of the NAB Show, the SBE has a full slate of events planned as we return to a somewhat normal schedule of events ranging from the traditional Saturday Ennes Workshop, committee meetings and the Membership Meeting and Awards Program to be held on Monday afternoon. You will find complete details for all planned activities in this issue of *The Signal*. I hope you will be able to attend and be sure to stop by the SBE booth in a familiar location in the LVCC North Hall concourse.

As I sign off from this column, I will take a brief fade to black, and later fade up as the immediate past president. In this less visible role, I want to return my focus to educational program development, which I consider to be my roots with the SBE. In closing, a last thank you for your support and thank you for everything *you* do for your Society to benefit the broadcast engineer and media technology professional. It has been my honor to serve!

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EDUCATION UPDATE

By Karl Paulsen
Chief Technology Officer, Diversified
kpaulsen@diversifiedus.com

Cloud Media Production, End to End

Getting to a cloud-based production environment takes more than simply understanding the terminologies. Cloud computing is an application-based solution (a.k.a. infrastructure in the cloud) having both front-end and back-end components. End-to-end cloud ecosystems continually change, driving users to be early and often in terms of capabilities, components, and the workflow architecture.

User access typically employs browsers and usually an Internet Service Provider (ISP) for connectivity. Direct connection portals, available by cloud service providers as a cost-add component may also provide faster, more secure connectivity. In this case, the closer to the POP, the better.

The primary cloud computing component is its backend, responsible for securing, storing, and/or processing data on often proprietary central servers, compute stacks, databases, and storage sets. Cloud computing's multi-faceted databases, servers, and applications often include orchestration, storage, and monitoring.

Cloud providers enable users to deploy compute and storage services in their own either public or private clouds; with each provider eager for users to experiment among many competitive platforms.

Media-specific and Cloud Forward

Capabilities in cloud services are steadily reaching into media-specific offerings. Global connectivity (Fig. 1) coupled with rapid content exchanges strengthen those capabilities; with the provisioning of services increasing at exponential rates.

Applications for media-production are becoming a way of operating for some. Cloud-forward initiatives are expanding beyond back-office offerings to storage and compute functions. Cloud services now provide full time program playout which include sports, gaming, OTT services, and delivery - even end-to-end production using products from providers who previously offered only CER positioned server architectures.

Major media organizations now combine technologies, taking hardware out and replacing it with on-ramps and off-ramps into

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.

the cloud, located almost anywhere. Dynamic scalability and high-performance storage and compute capabilities enable fundamental changes in how content is assimilated into the ecosystem.



Figure 1. Cloud service providers and overall benefits are described in this example of global connectivity.

GPU-based virtual machines are now using infrastructure-as-code software applications that were formerly run on dedicated pizza-box servers. Organizations are steadily shifting away from central equipment rooms, past outsourced data-centers and directly into cloud environments. Media-workflows are becoming cloud native, ignoring how things used to be done and placing them into unconstrained, non-inter-dependent environments.

Cloud-Native Automation and Configuration

Automation is a key factor in making cloud-native media-production succeed. Servers are no longer mainstream. Configurations in single function devices as single operations are evaporating. Plug-in management once custom tailored and then tweaked to meet the operational needs are now orchestrated in multiple functional requirements without discrete, complex or time consuming adaptations.

Once confirmed and capability requirements refined, automation just happens. Using dashboard functional abstraction, users ignore the nuances of manually moving files around services typically steeped in interfaces that must be accessed and configured for each successive use or application. In the cloud, flows become continuous, repeatable, scalable, and monitorable.

Using configuration management tools, images of application specific interfaces (APIs) land on pooled resource servers that seldom see the light of administrators. Sys-

tems boot up, configure for the applications, and the user starts their creative tasks.

Once the activity is fulfilled, automation stops the processes, halts the billing, and collapses the system. Users may confirm the "end" command or simply walk away. Requirement to spin-up, change or adjust something can be rapidly re-established, corrected, and then workflows may resume.

New capabilities, brought in as a consequence of COVID-19, are being applied to next-gen-production ecosystems. Previous content supply chains are now becoming cloud native. Ground-based analysis, transformation, or quality control are now exception-based background tasks kept in the new cloud model.

Keys to the Future

Microservices and containerization are keys to future cloud-based production infrastructures. Spinning up only what it is needed is where cloud production services are headed. Entire catalogs of capabilities are becoming cloud-native services, heretofore never established except through purpose built, discrete hardware and software usually doing only one specific function or operation.

Reliable, secure, scalable, protected, and cost-effective media-production - without the annoyances of managing a complex local infrastructure - are changing the face of media. Whether hosted in the cloud, in a regional co-lo site, or even in your own private datacenter, these concepts are real, available, and are here today.

If you're not currently using these kinds of services, you probably will in short order.

Portions of this article appeared in the July 2021 issue of TV Technology.

Education Almanac Webinars by SBE

Oct. 21: SIP Module 2 Service and Troubleshooting Techniques for VoIP

Oct. 28: Virtualized Environment

Nov. 4: Use of Drones for Broadcast Signal Measurement

Nov. 18: SIP Module 3 End-to-End Case Studies on Virtualized VoIP System In the Cloud

Dec. 9: SIP Module 4 EBU/3326 Guidelines and Requirements

sbe.org/webinars





CERTIFICATION UPDATE

By Megan Clappe
SBE Certification Director
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The Credit You Deserve

The SBE certification program is the only professional recognition available to broadcast engineers. Established in 1975, SBE certification recognizes and raises the professional status of broadcast engineers by providing standards of professional competence. Through the years, it has become recognized in the industry as the primary method of verifying the attainment of educational standards. With the industry constantly changing, the SBE-certified engineer must keep up with those changes.

There are many common questions from those not familiar with SBE certification. An-

swering every possible question about SBE certification is best left to the information on the SBE website (sbe.org/certification). Another helpful resource is the *SBE Certification & Membership Handbook*, which is also available online (sbe.org/cert_handbook).

The chart below has the foundation information to help you decipher the various levels and requirements of SBE certification. The first section outlines the various levels and the professional experience requirement (if any) that is needed. Notice that in all but one case (CPBE), one does not need to hold a previous level of certification to obtain the next level.

The Specialist Certifications were added to the program as a way for individuals to show a deeper understanding of a specific area of broadcast technology. Note that to obtain a Specialist Certification, one must hold a host certification first.

Displaying Certifications

SBE certifications can be listed by the full name or with the corresponding initial abbreviation. Within broadcast engineering and multimedia technology circles, the initials are often understood. On a resume or social media professional site, the full name may be more effective in conveying the accolade.

On a business card, if only one certification is held, it's easy to add the letters after one's name. When more than one SBE certification is held, there is a standard on how they should be listed. SBE certifications are listed from highest (most experience required) to lowest. Specialist certifications are listed after their corresponding category certification and in alphabetical order. Following this practice ensures consistency across the industry.

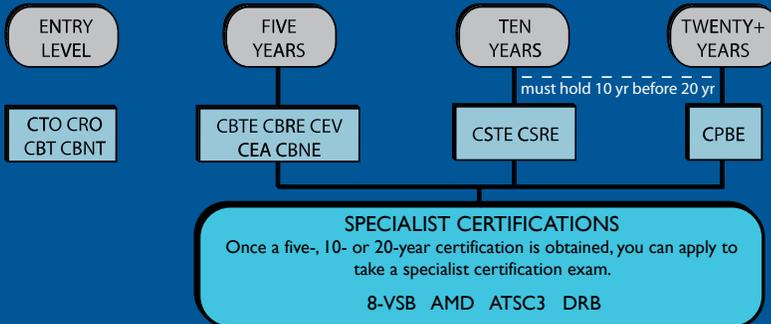
Those holding SBE certification can also display the SBE Certified logo on their business cards or other professional use. The logo is available online at the SBE website, under the **About** tab. Select **Press Resources**.

WHAT YOU NEED TO KNOW ABOUT SBE CERTIFICATIONS

The SBE certification program is the only professional recognition available to broadcast engineers, which provides standards of professional competence. It is the primary method of verifying the attainment of educational standards in the industry.

YEARS OF EXPERIENCE

SBE certifications are based on years of experience in the broadcast engineering field. Broadcast engineers can apply for a certification once they meet the year requirements. An associate degree counts as two years of experience and a bachelor's degree counts as four years of experience. No experience is required for entry level.



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 (most experience required) to lowest. Specialist certifications are listed after their corresponding category certification and in alphabetical order.

EXAMPLES:

Joe Brown, CSRE,AMD, CBNT
Kevin Jones, CBT, CBNT, CRO
Heather Cosby, CSTE, ATSC3, CBRE, DRB
Ray Osmond, CPBE, 8-VSB, AMD, CBNT

Most certifications stand alone however, some certifications supersede and replace existing certifications.

CBTE replace with → CSTE replace with → CPBE
CBRE replace with → CSRE replace with → CPBE
CBNT replace with → CBNE

CERTIFICATIONS IN PRINT

Certifications may be referred to in various ways in text, including levels or general terms. The colors used with the following general terms correspond with the certifications in the below levels.

GENERAL TERM KEY: operator, technologist, audio engineer, video engineer, senior certification, professional certification, networking technologist, broadcast engineer, networking engineer, specialist

OPERATOR LEVEL

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

TECHNOLOGISTS LEVEL

Certified Broadcast Technologist (CBT)

BROADCAST NETWORKING LEVEL

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

SPECIALIST LEVEL

8-VSB Specialist (8-VSB)
AM Directional Specialist (AMD)
ATSC 3.0 Specialist (ATSC3)
Digital Radio Broadcast Specialist (DRB)

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)

Answer from page 3

The answer is B

Nominal power is a measurement of a mediumwave radio station's output used in the United States. AM broadcasters are licensed by the Federal Communications Commission to operate at a specific nominal power, which may be (and usually is) different from the transmitter power output.

For non-directional stations, nominal power is normally equal to the RF power presented to the antenna, as determined from the base current and the antenna's nominal impedance at the carrier frequency.

For directional stations, nominal power is normally equal to the RF power at the common point (the point at which the transmitter output branches off into separate phasing networks for each tower).

SBE Certification Achievements

CONGRATULATIONS



LIFE CERTIFICATION	<p>Certified Professional Broadcast Engineer (CPBE) AM Directional Specialist (AMD) Stephen Lockwood, Seattle, WA - Chapter 16</p> <p>Certified Broadcast Radio Engineer (CBRE) John Roberts, Lawton, OK - Chapter 85</p> <p>Certified Television Operator (CTO) Orville Cole, Shady Spring, WV - Chapter 116</p>	<p>Certified Professional Broadcast Engineers and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59½ years old and are current members of the SBE may be granted Life Certification if so requested. All certified who have retired from regular full-time employment and are at least 59½ years old may be granted Life Certification if they so request. If the request is approved, the person will continue in his/her current level of certification for life.</p>	
JUNE EXAMS	<p>Certified Broadcast Radio Engineer (CBRE) Daniel Ferreira, Jr., Easthampton, MA - Chapter 14</p> <p>Certified Broadcast Television Engineer (CBTE) John Neuhaus, Morristown, NJ - Chapter 15</p>	<p>Certified Broadcast Networking Engineer (CBNE) Mikie Fierro, Moreno Valley, CA - Chapter 131 William Harrison, Alexandria, VA - Chapter 37 Noe Rodrigueuz-Jimenez, El Paso, TX - Chapter 38</p> <p>ATSC 3 Specialist (ATSC3) Brad Jurens, Chicago, IL - Chapter 26</p>	<p>Certified Broadcast Technologist (CBT) Alexis Grazdan, Oklahoma City, OK - Chapter 85 Jonathan Rickert, Post Falls, ID - Chapter 21</p> <p>Certified Television Operator (CTO) Alexis Grazdan, Oklahoma City, OK - Chapter 85</p>
AUGUST EXAMS	<p>Certified Audio Engineer (CEA) Kevin Muenchow, College Station, TX - Chapter 99</p> <p>Certified Radio Operator (CRO) James Belizario, McLean, VA - Chapter 37 Andrew De Junco, Milwaukee, WI - Chapter 28</p>	<p>Certified Broadcast Networking Technologist (CBNT) Chase Browning, Chicago, IL - Chapter 26 Alexis Grazdan, Oklahoma City, OK - Chapter 85 Selah Konur, Leesburg, VA - Chapter 37</p>	<p>Certified Broadcast Technologist (CBT) Kevin Campbell, Glendale, CA - Chapter 47 Cody Mathis, Cleveland, TX - Chapter 113 Zachary Neace, Windermere, FL - Chapter 42</p>
SBE CERTIFIED SCHOOL COURSE COMPLETION	<p>Certified Broadcast Technologist (CBT) <i>DINFOS</i> Mallory Crofts, Clearwater, KS - Chapter 3</p>		
CERTIFIED BY LICENSE	<p>Certified Broadcast Technologist (CBT) Brett Erieg, Aiken, SC - Chapter 101</p>	<p>Daniel Gunter, LaFayette, AL - Chapter 118 Peter Hamlett, Columbia, SC - Chapter 101</p>	<p>James Hoge, Longwood, FL - Chapter 42 Kody Joiner, St. Petersburg, FL - Chapter 39</p>
CERTIFIED RADIO OPERATOR (CRO)	<p>Megan Amoss, Baltimore, MD</p>		
CERTIFIED TELEVISION OPERATOR (CTO)	<p>Sean Peer, Cave City, AR</p>		
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.	<p>Certified Professional Broadcast Engineer (CPBE) Robert Army, Jr., Moreno Valley, CA - Chapter 131 Carl Dole, Williamsburg, IN - Chapter 25 Frederick Krampits, Chicopee, MA - Chapter 14 John Pfisterer, Oakdale, NY - Chapter 15 Leonard Watson, Wheaton, IL - Chapter 26</p> <p>Certified Senior Television Engineer (CSTE) Edward Weibe, Pasadena, MD - Chapter 46</p> <p>Certified Broadcast Networking Engineer (CBNE) Michael Cernak, Clearwater, FL - Chapter 39 Brian Olinger, Haymarket, VA - Chapter 37 Steven Pacheco, Addison, IL - Chapter 26 Marisabel Santana, Laurel, MD - Chapter 132</p> <p>Certified Broadcast Radio Engineer (CBRE) Adam Carlson, Chaska, MN - Chapter 17 Richard Hardy, Tulsa, OK - Chapter 56 Jason Ornellas, Sacramento, CA - Chapter 43 Ben Overbaugh, Phoenix, AZ - Chapter 9 Gregory Schmitke, Fargo, ND - Chapter 17</p>	<p>Certified Broadcast Television Engineer (CBTE) Thomas McNicholl, Whitesboro, NY - Chapter 22 Joshua Witmer, Washington, DC - Chapter 37</p> <p>Certified Audio Engineer (CEA) Joshua Wyatt, Goodhue, MN - Chapter 17</p> <p>Certified Broadcast Networking Technologist (CBNT) Louis Caesar, Jr., New York, NY - Chapter 18 David Costanza, Harrisburg, PA - Chapter 41 Randy Garrett, Louisville, KY - Chapter 35 Robert Hawthorne, Odenton, MD - Chapter 132 Frederick Krampits, Chicopee, MA - Chapter 14 Michael Lemmond, Mechanicsville, VA - Chapter 60 Kevin Olden, Adrian, MI - Chapter 104 Paul Spinelli, Kingsville, MD - Chapter 46 Gerald Tremblay, Roseville, CA - Chapter 43 Brian Truong, Perry Hall, MD - Chapter 132</p>	<p>Certified Broadcast Technologist (CBT) Gregory Carter, Fairport, NY - Chapter 57 Cory Chibry, Yellowknife, NT Richard Dalton, Lynnwood, WA - Chapter 16 Michael Elliott, Richland, WA - Chapter 51 Dan Ethen, Santa Rosa, CA - Chapter 40 Robert Hawthorne, Odenton, MD - Chapter 132 Brant Herrett, Santa Cruz, CA - Chapter 40 Paul Spinelli, Kingsville, MD - Chapter 46</p> <p>Certified Television Operator (CTO) James Fogarty, Allentown, PA Dale Jones, Grand Junction, CO Craig Koster, Boise, ID Rob Martin, Seattle, WA Paul Spinelli, Kingsville, MD</p> <p>Certified Radio Operator (CRO) Andrea Cardenas, Baldwin Park, CA Michael Cornell, Suring, WI Robert Taylor, Lincoln Park, NJ</p>

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Chapter 74 Omaha
SBE Chapter 74 Omaha hosted an Engineering Session at the Nebraska Broadcasters Convention Aug. 11, 2021. Topics included FCC and Broadcast Legal Matters, Recruiting Future Engineers, Spectrum Analyzers and the History of SAs, and Virtual Studios and ATSC3.



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ELECTION, continued from p. 1

will begin their terms on Oct. 11, 2021, during the SBE Membership Meeting and Awards Presentation, at 5 p.m. PT, during the SBE National Meeting at the 2021 NAB Show. They will join the other six directors who have another year remaining in their terms:

- Stephen Brown, CPBE, CBNT; Chapter 80 Fox Valley; Appleton, WI
- Roswell Clark, CPBE, CBNT; Chapter 39 Tampa Bay Area; Clearwater, FL
- Kirk Harnack, CBRE, CBNE; Chapter 103 Nashville; Nashville, TN

- Thomas McGinley, CPBE, AMD, CBNT; Chapter 16 Seattle; Missoula, MT
- Shane Toven, CPBE, DRB, CBNE; Chapter 43 Sacramento; Antelope, CA
- Fred Willard, CPBE, 8-VSB, CBNT; Chapter 37 District of Columbia; Washington, DC
- Wayne Pecena, CPBE, 8-VSB, AMD, ATSC3, DRB, CBNE, of College Station, TX, continues serving on the board as immediate past president.



2021 SBE election Board of Tellers: Chapter 25 members Tom Weber, Doug Garlinger, Bill Cherry, Dale Smiley, Desi Kelly, and Chuck Kelly.

NATIONAL MEETING, continued from p. 1

The Member Reception starts after the MMAP at 6:15 p.m. in rooms S226/S227. Light snacks and drinks are made possible from the generous support of several Sustaining Member sponsors. Several prizes will also be awarded at the reception: one \$250 Amazon gift card from the SBE, two \$100 Amazon gift cards from Jampro, a gift certificate for four Maine lobsters from Dielectric, and four \$25 Amazon gift cards from Tieline.

The SBE booth is once again in the North Hall lobby just off the Grand Lobby, but across the hall from the 2019 location. The official booth number is LN4. We're not too far from Starbucks. On Sunday, Monday and Tuesday, the SBE will hold a booth drawing at 5 p.m. Drop your business card each day for a chance to win a \$200 Amazon gift card courtesy of the booth drawing sponsors Nema Electronics, Linkup Communications and Blackmagic Design.

Check the complete event schedule on page 14 of this issue. We also have an NAB Show events page on our website (sbe.org/nab), which is also linked from the home page.

The SBE Board of Directors will meet on Sunday for its fall meeting. Several SBE committees will also meet during the convention.

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

Thanks to these SBE Sustaining Members for their support of the SBE at the NAB Show



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LEGAL PERSPECTIVE

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

That FM Translator Is Killing Me! Make It Stop!

One byproduct of the very substantial increase in FM translator construction permits and licenses as part of the FCC AM revitalization project in recent years has been an increase in the number of complaints of interference from FM translators to full-power FM radio stations and LPFMs. It seems timely to take a look at the substance of those complaints; what the FCC's policies are in adjudicating them, and what showings a station has to make in connection with an interference complaint against an FM translator that is co-channel or adjacent-channel to a full-power station, LPFM or another FM translator.

The FCC last spoke on the subject of the showings necessary to make a case of interference against an FM translator in May 2019. It noted that originally FM translators were to provide fill-in service for terrain-shielding issues for FM stations, but with AM revitalization, the purpose of having them changed substantially. The FCC noted that the number of licensed FM translators has grown from approximately 1,850 in 1990 to approximately 8,048 in 2019, and that number is significantly higher now. With the increased crowding of the FM broadcast band, the number of instances of interference might be expected to grow.

In 2019, the FCC became disillusioned with the complaint process that was in place at the time. It said that some FM stations had raised interference claims against relatively distant translator stations with insufficient evidentiary support that were based on anticompetitive motivations. At the time, baseless interference claims could be very damaging, because a translator station then could be forced to cease operations due to just one unresolved listener complaint. Also, at the time, translators that tried to avoid or remedy interference by changing channels that were not first-, second-, or third-adjacent, or intermediate frequency (IF) channels were faced with a major change status; a huge disincentive.

The 2019 rules created a far more flexible process to remedy interference. They allowed translator licensees to remediate interference either caused to or received from another broadcast station by changing channels to any available same-band frequency as a minor change. The FCC also strengthened complaint requirements, reducing the role of listeners in the complaint resolution process, and instead adopted a more objective technical set of requirements for complaints. It also set an outer signal strength limit on actionable complaints, but it provided a process to waive that limit in specific, special circumstances.

So what do I need to do if I believe that there is interference to my station from an FM translator? First, there must be listener complaints. The number of interference complaints needed from listeners in a given case is dependent on the number of people within the protected signal contour of the victim station. The protected contour is the 54 dBu contour for a non-reserved band Class B FM station, the 57 dBu contour for a non-reserved band Class B1 FM station, and the 60 dBu contour for all other classes of FM stations

(including LPFMs). The number of separate listener complaints to be submitted with the interference complaints is six for stations with populations within the protected contour less than 200,000, and there is a sliding scale to a maximum of 25 complaints for stations with populations in the protected contour of more than 2 million. LPFMs need submit only three listener complaints, provided the LPFM station serves fewer than 5,000 people within its protected contour.

Submitting a Complaint

The contents of the listener complaints are very specific, and the victim radio station can help the listener prepare the complaint. Listener complaints must be dated within one year of each other, and none can be dated more than 12 months before the date of submission of an interference claim to the Commission. All listener complaints must be signed and dated by the listener and contain the following information: (1) the complainant's full name, address, and phone number; (2) a clear, concise, and accurate description of the location where the interference is alleged to occur; (3) a statement that the complainant listens to the desired station using an over-the-air signal at least twice a month (in order to demonstrate the complainant is a regular listener); and (4) a statement that the complainant has no legal, employment, financial, or familial affiliation or relationship with the desired station (to demonstrate the complainant is a disinterested party).

Listener complaints are not enough by themselves. A complaining station must submit the listener complaints along with the following:

- A. A map plotting the specific location of the alleged interference in relation to the complaining station's 45 dBu contour;
- B. A statement that the complaining station is operating within its licensed parameters;
- C. A statement that the complaining station licensee has used commercially reasonable efforts to inform the relevant translator licensee of the claimed interference and attempted private resolution;
- D. Undesired/Desired signal data demonstrating that at each listener location the ratio of undesired to desired signal strength exceeds -20 dB for co-channel situations, -6 dB for first-adjacent channel situations or 40 dB for second- or third- adjacent channel situations, calculated using the Commission's standard contour prediction methodology.

Item C above is interesting, because it calls for an informal attempt by the victim station to resolve the interference with the FM translator licensee privately before filing a complaint with the FCC. This is beneficial in that it allows the FM licensee a fair shot at either fixing the interference or establishing that the cause of the interference is something other than the FM translator's normal operation. For example, interference could be attributable to tropospheric ducting (especially in coastal areas) and temperature inversions that affect all classes of FM stations. Or perhaps a contributing factor is the performance of the victim station. Misaligned or mistuned antennas can create null points that would be more susceptible to interference than those properly tuned or aligned. Transmitter output power may fluctuate more during certain times of the year due to fluctuations in supplied electric power.

The 2019 rules and policies adopted by the FCC make the process of resolving an interference problem involving an FM translator both transparent and fair for all concerned.

SBE Leadership Development Course Returns in 2022

Plans are being made to hold an SBE Leadership Development Course in 2022. The date has yet to be announced. Include it in your budgeting for next year.

sbe.org/ldc



FOCUS ON THE SBE

By James Ragsdale
SBE Executive Director
jragdale@sbe.org

Outreach!

We know that we need to grow our membership to ensure the long-term health of the broadcast engineering field, as well as continue the development of new technologies in broadcasting. I have addressed that need in previous *Signal* articles, but I've been brainstorming recently with members about how we can do this. I've reached out to a few members who joined more recently, asking them how they became connected to the SBE. I've been asking them for suggestions for how we could reach non-members in the broadcast field, showing them the value in joining the SBE.

Another way that I have been working to grow our membership is by talking to other organizations in the broadcast engineering field who are interested in the expertise that the SBE brings. I've had the opportunity to speak to the National Alliance of State Broadcasters Associations. Their state directors have voiced enthusiastic support for our effort to develop new technical talent. Many are going so far as to commit dollars from their budgets to provide annual membership dues and scholarships in the Technical Professional Training program. I've heard many praises about our new TPT program. I am very thankful for the foresight that our board showed in developing that member benefit.

Another area of potential growth in our membership is through educational organizations. We have many opportunities to provide expertise and advice to local high school broadcasters. Please be watching your local high schools for an opportunity to encourage their students in the technical aspects of broadcasting, so that they understand that being in front of the camera isn't the only way to work in broadcasting. Many students enjoy the work behind the camera but don't know how to develop that interest into a career.

I have heard many stories from our seasoned broadcast engineers about how a more experienced broadcast engineer encouraged them to pursue their career. You could be that person for a local high school student.

Of course, there also are programs after high school where technical talent and interest can be developed. Take a look at our website at sbe.org. Under the Certification tab, click on SBE-Certified Schools. Students at these schools need to be encouraged and mentored. If any of the schools are nearby, investigate opportunities to offer your experience to them in an advising/mentoring role.

The SBE has been contacted by two schools that are setting up new programs for teaching and researching ATSC 3.0 technology. As this technology becomes more widely visible, it will attract students and teachers at many levels. This development will provide opportunities to grow our membership. Chapter leadership may have the opportunity to invite local educators to attend your monthly programs.

To sum up, I see so much opportunity to grow our organization, bringing new energy into our national programs and local chapters. Please evaluate these ideas for application to your situation and chapter. I know that we have big opportunities over these next few years and that you will do the work needed to produce growth in our organization and in the broadcasting industry.

Chapter Check

Chapter 41 • Central Pennsylvania
SBE Ennes Workshop



On Aug. 27, SBE Chapter 41 Central PA hosted an SBE Ennes Workshop. With a theme of "Transitioning to ATSC 3.0," presentations included the topics *Next-Gen Broadcasting* from Fred Baumgartner, CPBE, ATSC3, CBNT, ONEMedia, and Javier

Ruano, *Televés USA; PLPs, OFDM and Other Key Aspects of ATSC 3.0* from Perry Priestley, Broadcast Electronics/Elenos Group; *Industry Conversion from ATSC 1.0 to ATSC 3.0* from Mark Aitken (pictured above), ONE Media 3.0; and *Using Drones for ATSC 3.0 Proofing* from Phil Larson, QForce.



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ENGINEERING PERSPECTIVE

By Larry Wilkins, CPBE
Chair, SBE EAS Advisory Group
Director of Engineering Services, Alabama Broadcasters Association
lwilkins@al-ba.com

Initial Review of the August EAS NPT

On Aug. 11, 2021, the Federal Emergency Management Agency (FEMA) along with the Federal Communications Commission (FCC) conducted an EAS National Periodic Test (NPT) at 2:20 p.m. Eastern Time. These tests are required by the Integrated Public Alert Warning System (IPAWS) modernization act adopted in 2015. Previous nationwide EAS tests were conducted in 2011, 2016, 2017, 2018 and 2019.

The testing process is designed to evaluate the effectiveness of the FEMA public alert and warning systems to distribute an

emergency message nationwide and the operational readiness of the infrastructure for distribution of a national message to the public.

FEMA has two distribution networks that are used to relay alert messages of national importance. The first uses Primary Entry Point (PEP) facilities located around the country. The original system has grown from the 31 sites established in the 1990s to 77 facilities today. These facilities receive national alerts and tests via a VSAT network with a dial up telephone system backup.

The second distribution system is the IP-based IPAWS network. All EAS participants are required to monitor this network. To back up the IPAWS network, participants are also required to monitor the two local sources that are part of the PEP distribution system.

The NPT Purpose

The August 11 NPT was designed to test the effectiveness of the PEP system in the absence of internet connectivity and did not utilize the IPAWS network. Early reports from around the country indicates that although there were some areas that encountered various technical issues, the number of successful receptions and relays was improved over previous tests.

All participants are required to report to an

online site the status of the test at their facility. All this information will be compiled and released by FEMA and the FCC at a later date.

Some of the issues experienced include:

1. Failure to receive the test from either monitor source. This could involve failure at the PEP station or improper set up of local EAS equipment.
2. Reception of the header data but no audio. We have seen this when receiving source is from a cable box.
3. Reception of multiple alert tones
4. Low or distorted audio

In a dialog with Al Kenyon, IPAWS Customer Support Branch chief, on Aug. 20 we learned that of the 77 PEP facilities, all but seven, one of which was taken off the air by a lightning strike, successfully received and relayed the test. Data from those with issues are being reviewed.

Kenyon said, "Comparing preliminary ETRS Form 2 data with equivalent preliminary data from 2019, we see about a 5% increase in reported NPT message reception, and a 6% increase in reported message retransmission by all EAS Participants."

He added, "We would like to thank those who have posted observations and recommendations to the various EAS lists. We do read those comments, and some of your recommendations have been incorporated as recommended action items in my initial After-Action Report."

Kenyon encourages any EAS participants that have not yet submitted ETRS data to do so as soon as possible, saying, "Yes, they may have missed the Form 2 deadline, but please try to get it done anyway."

The State Emergency Communications Committees (SECC) along with state broadcaster associations had issued information for several months about the test and encouraged participants to check their systems for correct operation. Primarily this involved the following:

- Assuring stations use the latest firmware for the equipment
- Verify stations are monitoring the correct sources for the area
- Verify stations are receiving RWTs from both monitor sources
- Verify the NPT and other incoming filters are programmed correctly

The SBE encourages stations to contact their State Emergency Communications Committee or state broadcaster association with any questions concerning EAS compliance.

The EAS Pedigree

As a bit of history, the first emergency alerting system began in 1951 with the Conelrad System, which was replaced in 1963 with the Emergency Broadcast System (EBS). The system we now use is the Emergency Alert System (EAS), which replaced EBS in 1997. In 2006 work began on an internet-based alert aggregation and distribution system that now serves as an overlay to the EAS daisy-chain distribution system. The Integrated Public Alert Warning System was launched in April 2012 in response to an executive order signed by President George W. Bush to establish a new program to integrate and modernize the nation's existing population warning systems.

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Patra Largent 949-756-1600
RF & Microwave Components
- Broadcast Depot • 2018**
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TV, Satellite, Radio, IP
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Robert Tarsio 914-737-5032
Audio/RF Support Products
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Perry Priestley 217-224-9600
Radio Equipment Manufacturer
- Broadcast Software International • 2016**
Marie Summers 888-274-8721
Radio Automation, Audio Logging
- Broadcast Supply Worldwide • 1986**
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Broadcast Audio Video Distributor
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Transmitter Facility Control Systems
- Calrec Audio • 2016**
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Cris Alexander 303-481-1800
Media Company
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Michael Accardi 203-763-4030
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Conrad Traumann 212-419-2940
Audio Media Company
- Davicom, Division of Comlab, Inc. • 2014**
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Remote Site Monitoring and Control Systems
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David Jennings 732-919-3119
FAA Certified Obstruction Lights
- Dielectric • 1995**
Cory Edwards 207-655-8131
Radio & TV Antenna Systems and Monitoring
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Bill Robertson 585-765-1155
Emergency Alert Systems
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Jeffrey Holdenrid 704-927-6085
IP Microwave STL
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Intensity
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George Cernat 443-539-4334
HD Radio Technology
- du Treil, Lundin & Rackley, Inc. • 1985**
Jeff Reynolds 941-329-6000
Consulting Engineers
- The Durst Org. - 4 Times Square • 2004**
212-997-5508
TV/FM/Microwave Tower Site
- DVEO - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- Econco • 1980**
Debbie Storz 800-532-6626, 530-662-7553
New & Rebuilt Transmitting Tubes
- ENCO Systems Inc. • 2003**
Samantha Bortz 248-827-4440
Playout and Automation Solutions
- ERI - Electronics Research • 1990**
Zachary Bailey 812-925-6000
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- Floral Systems • 2008**
Shawn Maynard 877-774-1058
Television Broadcast Automation
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- Highlights, Inc. • 2016**
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- JVC Professional Video • 2014**
Edgar Shane 973-317-5000
Professional Video Products, Camcorders,
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- Kathrein USA Inc. • 1985**
Les Kutasi 541-879-2312
Antennas for Broadcasting &
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- Kintronc Labs, Inc. • 2015**
Brad Holly 423-878-3141
Radio Broadcast Antenna Systems - ISO9001
Registered Company
- LBA Technology Inc. • 2002**
Jerry Brown 252-757-0279 x228
AM/MW Antenna Equipment & Systems
- Linkup Communications Corporation • 2017**
Mark Johnson 703-217-8290
Satellite Technology Solutions
- LYNX Technik • 2007**
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Industry Trade Association 202-429-5340
- National Football League • 1999**
Michael Katzenoff 212-450-2368
Game Day Coordination Operations
- Nautel Inc. • 2002**
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer
- Nemal Electronics Int'l Inc. • 2011**
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber
Optic
- Neutrik USA, Inc. • 2012**
Kathy Hall 704-972-3050
Ruggedized Optical Fiber Systems
- NPR Distribution Services • 2019**
Dan Riley 202-513-2624
Your Content Delivery Partners
- Orban Labs, Inc. • 2011**
Mike Pappas 480-403-8300
Audio Processing AMFMTV
- Pasternack Enterprises • 2001**
Christine Hammond 949-261-1920
Coax & Fiber Products
- Potomac Instruments • 1978**
Zachary Babendreier 301-696-5550
RF Measurement Equipment Manufacturer
- ProAudio.com - A Crouse-Kimzey Co. • 2008**
Mark Bradford 800-433-2105 x560
Proaudio Broadcast Equipment Distributor
- Propagation Systems Inc. - PSI • 2010**
Doug Ross 814-472-5540
Quality Broadcast Antenna Systems
- QCommunications • 2019**
Tony zumMallen 816-729-1177
Services Behind the Scenes
- Quintech Electronics and Communications Inc. • 2002**
James Herbstritt 724-349-1412
State-of-the-art RF Hardware Solutions
- QVC • 2011**
Kevin Wainwright 484-701-3431
Multimedia Retailer
- Rohde & Schwarz • 2003**
Walt Gumbert 724-693-8171
Transmitters, Test & Measurement, Video
- Ross Video Ltd. • 2000**
Jared Schatz 613-228-0688
Manufacturer, Television Broadcast
Equipment
- Sage Alerting Systems Inc. • 2010**
Harold Price 914-872-4069 x113
Emergency Alert Systems Products
- SCMS Inc. • 2000**
Bob Cauthen 800-438-6040
Audio and RF Broadcast Equipment Supplier
- SEG • 2014**
Chris Childs 913-324-6004
Supply Chain Products and Services
- Shively Labs • 1996**
Dale Ladner 888-SHIVELY
FM Antennas & Combiners
- Shure Incorporated • 2012**
Bill Ostry 847-600-6282
Microphones, Wireless Systems, Headsets
- Sierra Automated Systems and Eng. Inc. • 2011**
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms
- Solid State Logic • 2014**
Steve Zaretsky 212-315-1111
Digital Audio Mixing Consoles, Networked
Audio Routing, Embedded Audio Solutions
- Staco Energy Products Co. • 2010**
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- SuitLife Systems • 2019**
Nigel Brownnett 310-405-0839
Manage. Monitor. Control
- Sutro Tower Inc. • 1989**
Raul Velez 415-681-8850
Broadcast Tower Leasing
- Synthax Inc. • 2020**
Brittany Hilton 754-206-4220
Audio Codecs and Converter Solutions
- Technical Broadcast Solutions, Inc. • 2018**
Robert Russell 302-414-0055
Engineering and Consulting Services
- Telos Systems/Omnia/Axia • 2003**
John Bisset 216-241-7225
Telos Systems Talk-Show Systems
- Teradek • 2011**
Jon Landman 949-743-5783
Camera-top ENG Solutions
- Tieline The Codec Company • 2003**
Dawn Shewmaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor
- Wheatstone • 2010**
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors
- WideOrbit • 2012**
Jim Hammond or Brad Young 415-675-6700
Radio Automation and Playout
- Wireless Infrastructure Services • 2006**
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey
Services

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Member Spotlight: Aaron Fairfield

This month's profilee joined the SBE through the SBE Technical Professional Training Program.

Member Stats

SBE Member Since: February 2021

Chapter: 145 Magic Valley (Idaho)

Employer: CSN International

Position: Field Engineer

Location: Twin Falls ID

I'm Best Known For: My ability to lead and communicate effectively, adapt and learn quickly.

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

A. I enjoy the ability to communicate with others in the IT/RF field and learn from their experiences. There is a wealth of information available and there are SBE professionals more than happy to share their knowledge.

Q. What got you started in broadcast engineering?

A. I started my career in IT server administration and soon moved to the United States Air Force Reserve embarking on my current RF engineering journey. I wanted a broader understanding of our communications system and how they work together and I got what I wished for.

Q. Who was your mentor or who in the industry do you admire?

A. Patrick McLaughlin, a mentor and friend whom I met and worked with at Intuit, put time and effort into making me a



Aaron enjoying some fun time with his daughter.

better technician. He didn't pull punches when it came to getting the job done and is one of the most skilled, professional and knowledgeable technicians I know.

Q. What do you like most about your job?

A. I like knowing I support millions of listeners across the U.S who depend on us to keep the network operating. At the end of the day I know my work is appreciated and it's a satisfying feeling. There is plenty of opportunity to travel and visit new and remote locations as well.

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

A. ...am usually at the gym or running a few miles around town. I also enjoy mountain biking, hiking and exploring a new area, a trip to a national or state park, reading a good book, deep sea diving and relaxing at a good coffee shop.

Q. What's something people don't know about you?

A. I am a conservationist at heart and passionate about animal welfare.

I took up dog obedience training to assist families in having a healthy relationship with their furry friends and worked with animal adoption organizations to get them in permanent homes.

SBE National Meeting/NAB Show Schedule of Events

SBE @ the 2021 NAB SHOW
Where Content Comes to Life

Saturday, October 9

SBE Ennes Workshop

9 a.m. – 12 p.m.

» NAB BEIT Conference registration required

LVCC room S219/S220

Certification Committee Meeting

6:30 – 10 p.m.

Westgate Executive Boardroom

Sunday, October 10

SBE Board of Directors Meeting

8:30 a.m. – 12 p.m.

Westgate Meeting Room 11-14

SBE Education Committee Meeting

3 – 4 p.m.

Westgate Meeting Room 11-14

SBE Frequency Coordination Committee Meeting

4:15 – 5:15 p.m.

Westgate Meeting Room 11-14

SBE Booth Amazon Gift Card Giveaway

5 p.m.

SBE Booth LN4, sponsored by Nemal

Monday, October 11

SBE Membership Meeting and Awards Program

5 – 6 p.m.

LVCC S219

SBE Booth Amazon Gift Card

Giveaway drawing sponsored by Linkup Communications

Membership Meeting prize drawings: Blackmagic Studio Camera 4K Pro, Two SBE-logoed hats, Three \$25 restaurant gift cards

SBE Member Reception

6:15 – 7:15 p.m.

LVCC S226/S227

Tuesday, October 12

SBE Frequency Coordinators Meeting

9 – 11 a.m.

LVCC S228

SBE Booth Amazon Gift Card Giveaway

5 p.m.

SBE Booth LN4, sponsored by Blackmagic Design

Want to be a mentor or a mentee?

SBE Mentor Program



The SBE Mentor Program pairs an experienced broadcast engineer with someone who is a newer broadcast or multimedia technology professional. The SBE Mentor Program provides a means for SBE members to share knowledge and experience.

Want to know more or participate?

sbe.org/mentor

NAB
2017

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SIGNAL MONITORING



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- ▶ The 551 collects histograms of signal parameters and displays HD Radio™ album artwork, station logos and similar visuals on the front panel display and remote Web interface.
- ▶ Front-panel alarms and/or rear-panel 'tallies' indicate Audio Loss, Low Signal, RDS Errors, HD Loss, HD Power, FM/HD1 Alignment, HD Artist Experience, and many others.
- ▶ Spectrum graphs include RF Baseband, MPX and Left/Right Audio. O-Scope views for MPX, Pilot, RDS and all Audio Channels.
- ▶ Measures real-time audio diversity delay between the FM and HD1 broadcast.
- ▶ Fulltime off-air program audio is available simultaneously as L/R-analog, AES3-digital and Dante®-based AES67 AoIP streaming, all with adjustable levels, plus a multi-listener Internet IP stream and front-panel headphone jack.

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