THE Signal
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60 YEARS SBE SINCE 1964
The Association for Broadcast and Multimedia Professionals
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Cummis, Russell, Trautmann Are Newest SBE Fellows

The Fellow honor is the highest membership level in the SBE. Members must have made significant contributions to the broadcast engineering field or the SBE. Candidates are nominated by their peers and voted on by the Board of Directors. Since the Society's founding 60 years ago, 89 members have been honored with the Fellow rank.

At its meeting during the 2024 NAB Show, the SBE Board of Directors elevated three members to the grade of Fellow: Andrea Cummis of Orange, NJ; Robert "RJ" Russell of Magnolia, DE; and Conrad Trautmann of Trumbull, CT.

Andrea Cummis, CBT, the CTO of WLVT-TV Bethlehem, PA, became an SBE member in 1996. She has served on the SBE Board of Directors as president (2021-2023) vice president (2019-2021), treasurer (2009-2011, 2013-2017) and as a director several times between 2003 and 2019. She currently serves as the immediate past president. While she chaired the SBE Publications Committee, the SBE released the *SBE Broadcast Engineering Handbook*. She received the Robert W. Flanders SBE Engineer of the Year Award in 2022.

In her nomination, one endorser said she has "a breadth of expertise in the industry, holding degrees in electrical engineering, law and technology and an MBA. She has reached out to encourage and support – especially women – to enter and advance their broadcast engineering careers." Another nomination noted Andrea's "you-can-do-it attitude towards her employees."


Cummis


Russell


Trautmann

Robert "RJ" Russell, CPBE, ATSC3, CBNT, is president of Technical Broadcast Solutions, Inc., a company he established in 2017, and the frequency coordination manager for the SBE. In his work for the SBE, he manages frequency coordination issues with the US Department of Defense in shared spectrum. He has held high-level engineering positions with Fox, E.W. Scripps, BYU Broadcasting, Sprint-Nextel, as well as engineering positions at multiple broadcast TV stations. He has served the SBE nationally with terms as vice president, treasurer and director. In 2020 he was awarded the Robert W. Flanders SBE Engineer of the Year Award. He became an

see FELLOWS, p. 15

SBE Plans 2024 National Meeting in Madison, WI

The Society of Broadcast Engineers 2024 SBE National Meeting is being held in Madison, WI, on September 10-11, 2024. The event will be held in conjunction with the Midwest Regional Broadcasters Clinic (MRBC), presented by the Wisconsin Broadcasters Association and the Minnesota Broadcasters Association.

The SBE National Meeting includes the SBE National Awards Reception and Dinner, recognizing outstanding achievement by SBE members and chapters. The SBE will also conduct the SBE Annual Membership Meeting on September 11. The meeting will be recorded and presented as the October SBE WEBxtra for local chapters to view.

The Clinic is being held September 10-11 at the Madison Marriott West in Middleton, WI. It includes two full days of learning and networking designed specifically with broadcast engineers in mind. The goal is to provide an opportunity to explore best practices, compliance guidance and the latest technology and equipment available.

see MADISON, p. 8

IN THIS ISSUE

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

Candidates Announced for 2024 SBE Election


Hand

Each year, the SBE membership elects members to serve on the national Board of Directors, the governing body of the society. This includes all four officers for one-year terms and half the 12 directors for two-year terms. Additional candidates may be nominated by the membership. Any eligible member proposed by at least ten members to the national Secretary by June 23 will be added to the ballot.

The election will take place July 8 through August 7. Balloting will be via the election website, except for those members who have opted out of electronic voting this year or who have not provided the SBE National Office with their email address. They will receive their ballots through the mail.

The Nominations Committee is chaired by Jeff Welton, CBRE. Committee members are Joe Snelson, CPBE, 8-VSB, ATSC3, and Kirk Harnack, CBRE, CBNE.

For more information about candidacy, contact SBE Secretary Geary Morrill at gmorrill@sbe.org or SBE Executive Director Jim Ragsdale at jragsdale@sbe.org or 317-846-9000.

Nominations Committee Candidate Slate

Officers:

President – Ted Hand, CPBE, 8-VSB, AMD, ATSC3, DRB*
Chapter 45 Charlotte; Charlotte, NC

Vice President – Kevin Trueblood, CBRE, CBNT*
Chapter 90 Southwest Florida; Estero, FL

Secretary – Shane Toven, CPBE, DRB, CBNE
Chapter 43 Sacramento; Antelope, CA

Treasurer – Geary Morrill, CPBE, AMD, DRB, CBNE
Chapter 91 Central Michigan; Saginaw, MI

Treasurer – Jason Ornellas, CBRE*
Chapter 43 Sacramento; Sacramento, CA


Trueblood


Toven


Morrill


Ornellas

Directors:

David Antoine, CBRE, CBNT*
Chapter 15 New York City; Bronx, NY

Wiely Boswell, CBRE, CBNE
Chapter 118 Montgomery, AL;
Montgomery, AL

Greg Dahl, CPBE*
Chapter 96 Rockford, IL; Rockford, IL

Dustin Hapli, CBNE
Chapter 26 Chicago; Buffalo Grove, IL

Jeff Juniet, CBTE
Chapter 42 Central Florida; Orlando, FL

Josh Lynch, CBTE
Chapter 46 Baltimore; Milton, DE

Sam Wallington, CPBE, CEA
Chapter 103 Nashville; Columbia, TN

Fred Willard, CPBE, 8-VSB, ATSC3, CBNT*
Chapter 37 Washington, DC; Dunkirk, MD


Antoine


Boswell


Dahl


Hapli


Juniet


Lynch


Wallington


Willard

** indicates incumbent*

Additional candidates may be nominated from the membership and will appear on the official ballot.

Certification Question

SBE CERTIFIED

Answer on page 6

The Media Access Control (MAC) address provides a unique physical address for a host device.

A. True
B. False

LETTER FROM THE PRESIDENT

By Ted Hand, CPBE, 8-VSB, AMD, ATSC3, DRB
SBE President
president@sbe.org

NAB Show: That's a Wrap

Well another great NAB Show is in the books. Thank you to everyone who stopped by the SBE booth and attended the Spring Membership Meeting on Monday night.

There was a lot to talk about in Las Vegas. First, I would like to thank everybody that helped in getting the sessions, RF101 and MoIP, put together and those that attended the two-day SBE Ennes Workshop in Las Vegas on the Friday and Saturday before the NAB Show started. The turnout was great, and we had more than 100 people register to attend. My thanks to Jeff Welton, Fred Willard, David Bialik, Education Director Cathy Orosz and Education Committee Chair Geary Morrill. This was a joint effort of the SBE and the NAB. We thank the NAB for its help in the presentation. I want to thank again, Orban as the Gold Sponsor and Dielectric, Drake Lighting, Nautel, Suitelife System, WireCAD and Evertz as Bronze sponsors for their support of the sessions.

On Saturday night, we held the Board of Directors meeting. We had 15 in person and two on Zoom; an excellent turn out. We had some changes to the Society that you will be hearing about in the coming days. We also elected three new Fellows: Andrea Cummis, current IPP; RJ Russell, Frequency Coordination Manager and Conrad Trautmann. They will be installed at the SBE National Meeting in Madison, WI, as part of the Midwest Regional Broadcaster Clinic on September 10 and 11.

Monday, we had my favorite part of the week, the Spring Membership Meeting; another great turnout this year. I want to thank Blackmagic Design for being the meeting sponsor this year as it has in the past. A lot of great prizes were given away. The meeting is a great way to talk directly to members and bring them up to date on what SBE is working on. If you attended this year, make sure its on your schedule for next year.

On Tuesday, we had the roll out of the long-awaited FCC Self-Inspection Guides. Government Relations Committee Chair Ched Keiler led the committee on this. Bob Weller of the NAB was also an important lead on getting the Guides together. These are important documents that can be used by all broadcasters as they prepare for possible FCC inspections. Questions can be asked at guides@sbe.org.

We also had the popular Beer and Ice Cream Social with IEEE/BTS and SMPTE at the end of day on Tuesday. This is a great networking and social event that is growing in popularity each year. Because of the work being done in the North Hall this year, the SBE booth was moved from its normal location in the hallway out front of the North Hall. We were located in the middle of vendors in the West Hall. We understood the need for this and worked with the NAB on the location. A lot of people found us and we appreciate the effort to stop by the booth. We had some nice booth drawings with gift card winners chosen each day.

Troy for his many years of service to the SBE.

The SBE 2024 RF Safety webinar presented live on April 25 and instructed by Stephen Lockwood had 201 registrants. This is an all-time high for a Webinar by SBE. You can watch the replay of this informative webinar on-demand.

A reminder that SBE HF HAMnet meets on the second Sunday of the month on 14.205 kHz (±10 kHz) at 2400Z. Net Control is Hal Hostetler, CPBE, WA7BGX.

The annual SBE Membership Meeting was held on Monday during the convention.

Elections Ahead

The SBE election is just in front of us. Please take time to vote, it's fast, easy and costs nothing. I am a little disappointed that only 20-22% of the membership votes in the elections. I would really like to see that number increase. I led the effort when I was a director on the board to move from paper to electronic ballots. I thought sure it would increase the number of members voting, but it only increased by a small amount. The SBE offers paper ballots for those members who request one, and we are happy to do it. I am distressed when the staff takes the time and funds to mail paper ballots to members but only a fraction of them return to Indianapolis.

I would like to announce that Past President Troy Pennington, who has been the chair of the Fellowship Committee for many years, has decided to step down from that position. Past President Vinny Lopez will now fill that position. I would like to thank

In closing this month's letter, I will be taking a trip across the US in June and July. Just my Subaru and I will travel more than 5,200 miles in 45 days. Since I retired on June 1, I am doing a bucket list item I have wanted to do since I was teenager. I will visit sites and places I have always wanted to see. Some are famous locations in this country, some are little places you would never understand why I drove five hours out of my way to see. I guess we all have things that are special and important to us. Part of this trip will be to stop in Indianapolis for the summer Executive Committee meeting June 21.

As always, contact the great staff of the SBE if you need anything, contact information is available at sbe.org or call 317-846-9000. I am available at president@sbe.org. Comments, corrections or just say hi.

By Greg Buchwald
Distinguished Member of the Technical Staff, Motorola Solutions
gbuchwald@sbe.org

The Folded Unipole AM Antenna: Unpacking Theory and Practice

Part 2

In the first installment in the April issue, we discussed that a folded unipole is an improved case of the shunt fed radiator. Furthermore, the cage seldom encompasses the entire height of the tower. In fact, proper engineering of a folded unipole system should begin with modeling of the tower system. System modeling determines cage dimensions including proper attachment point for connection to the tower. Unfortunately, proper modeling of the tower is often skipped and, instead, an unmodeled cage is constructed. The tie point back to the tower is then determined experimentally. This requires additional tower crew time and can lead to excessive use of materials that additionally load the tower. As a refresher, an annotated image of a folded unipole is shown in Figure 1.

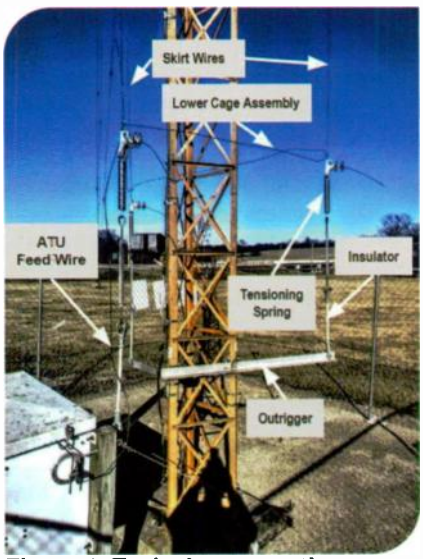

Figure 1. Typical construction and feed configuration of a folded unipole

Delving into an example of a folded unipole, consider the following example: A folded unipole was hurriedly constructed to restore the station to air and the cage was constructed about 40% taller than needed. The tower is 195 feet tall, the cage extends 170 feet but the tie point occurs only 100 feet above ground. Furthermore, a second commonplace shortcut was taken: The tie point was chosen to take place at a height where the resistive portion of the drive impedance was very close to 50 ohms. By doing so, the only theoretical component needed to match the transmitter to the antenna was a series capacitor representing -j200 ohms. While this is common practice, I do not recommend it for 2 reasons: There is no ability to adjust the resistive component slightly if it should shift, and there exists no possibility to invoke phase rotation to produce a symmetrical sideband structure. Allowing but 1 degree of freedom in adjustment of a matching system is generally discouraged.

In the past, one could simply adjust the output network of the transmitter to create an acceptable match to the PA stage but many transmitters today are fixed to match a 50+j0 ohm load with no means of adjustment. While one might purchase an additional matching network accessory for the transmitter, it is far better to utilize a full Tee network at the cage feed point to accomplish this objective. In practice, I prefer to pick a cage tie point that produces between 70 and 120 ohms real; then utilize a Tee network to perform the final match near the cage; feeding the ATU with standard 50 ohm feedline.

To provide a better understanding of the variables in the system, the tower was modeled. Figure 2 depicts base impedance of the tower as found: 39 +j212 ohms. Since the network had only a series capacitive element, intended to tune out the inductive reactance component, the final matching was left to the broadcast transmitter. The main and aux have built-in Tee networks allowing PA matching to the non-50 ohm load. While the original goal was to directly match to 50+j0, it is clear that repairs to the skirt and other modifications of the tower over the ensuing years since the cage was initially installed had modified the base impedance. The simulation nearly exactly matched the measured base impedance.

It is important to understand that, as in any radiating system, physical changes to the structure including repair of the cage, reattachment of severed ground radials, and other factors affect the feedpoint impedance. In this example, the licensed resistive component was 56 ohms. Improvements to the ground system and repairs to the skirt drove the resistive component downward to 39.5 ohms. It therefore follows that, if the theoretical resistive component was 56 ohms, the base current required to produce the licensed 2kW is 5.97 amps. Since the actual base resistive component is 39.5 ohms; the TPO, with a base current of 5.97A, is 1,407 watts resulting in 16% loss of field strength. Modeling of the system indicated that the upper tie point needed to be moved up 11 feet resulting in a 50 ohm resistive condition; however, with modification of the cage required, it was also determined that the current simple series reactive component, a capacitor, would be replaced with a tee network allowing additional degrees of freedom in adjustment.

With installation of a tee network now set, and since a Form 302 would need to be filed with the FCC, it was decided to set the resistive component at the feedpoint within the range of 70 to 120 ohms. Modeling determined that the cage tie point needed to be raised approximately 21 feet. Figure 3 depicts the match accomplished

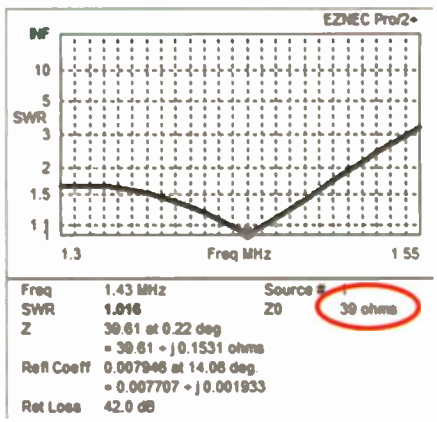

Figure 2. Simulated VSWR plot of the 39.5 ohm folded dipole antenna

see UNIPOLE, p. 14

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.

Education Almanac

Leadership Development Course
Aug. 7-9: Atlanta
sbe.org/ldc

Webinars by SBE
June 13: FM Multipath
sbe.org/webinars

SBE Ennes Workshops
June 8: Syracuse, NY
June 19: Quincy, IL
Sept.7: Jekyll Island, GA
Sept. 24-25: Biloxi, MS
Oct. 21: Wichita, KS

ENNES WORKSHOP

Contact the SBE to arrange an SBE Ennes Workshop in your area.
sbe.org/ennes_workshop

CERTIFICATION UPDATE

By Ralph Hogan, CPBE, ATSC3, DRB, CBNE
Chair, SBE Certification Committee
rhogan@sbe.org

Make 2024 Your Year to Get Certified

We're halfway through the year, and hopefully you're making headway with your goals. Whatever your situation, make 2024 the year that you get SBE certified. There are certification levels for everyone. The eligibility for SBE certification is based on your years of broadcast engineering experience. There are a number of entry-level certifications available if you are just entering the field or only have a few years of experience. From there, the SBE offers certifications if you have a minimum of five or ten years of experience. You don't need to complete one level in order to qualify for a higher certification. All the applications are available on the SBE website. There are two more exam session this year with local chapters, in August and November. If that doesn't work for you, contact SBE Certification Director Megan Clappe to work out an alternate exam time.

Upgrade Your Certification

If you are already certified and have been thinking of taking it to the next level, consider upgrading your certification. If you have held an SBE certification for at least five years, then you probably have the experience required to upgrade to the next level. The process is the same as if you were first applying for a certification: You take an SBE certification exam. Exams consist of 50 multiple-choice questions. The senior certifications and the networking engineer certification also have an essay component.

Most of the exams must be completed within three hours. Most are open book, and notes and access to the internet is allowed, except for the essay (that portion is closed book).

SBE Diamond Project

If you previously held SBE certification and it expired prior to 2023, take advantage of the yearlong Diamond Project. For the SBE's 60th anniversary, the Certification Committee is running a reinstatement project for expired certifications. By completing the application and including a resume or letter stating what you have been doing work-wise since your certification expired and paying the applicable fee, you can get that certification reinstated. More information is available at sbe.org/diamond project.

Employer Notification

Something you may consider when you apply for certification is the option to request a letter be sent to your employer from the SBE President. This letter states that you have obtained a level of SBE Certification. While the certification itself looks good on a resume, this letter steps it up to acknowledge your efforts for career improvement in the broadcast engineering field. (Certification applicants can request the employer letter when they are completing the certification or recertification application.) The employer letter is only sent when the applicant passes an exam.

And once you obtain SBE certification, show it on your business cards and elsewhere with the SBE-certified logo. Download it at sbe.org/CertifiedLogo.

Obtaining certification is a way to stand out to employers and others in the industry. There are many options available to you this year. Make sure you take advantage of them.

SBE Leadership Development Course

Registration is open for the 2024 SBE Leadership Development Course, August 7-9, 2024, in Atlanta. Make plans now to take part in this SBE tradition that started in 1997.

Specifically designed for broadcast engineers who have or aspire to have management responsibilities, the course is for technically adept people to acquire and develop skills for sound leadership, supervisory and management skills. The course is equally beneficial for those who are already in management and for those without prior management or supervisory experience.

The three-day event challenges attendees to refine leadership skills and better understand and improve interaction with others. Registration includes all course materials, three days of instruction, the Leadership Development Webinar Series, a certificate of completion, light breakfast and afternoon snacks.

The cost is $720 for SBE members and $775 for non-members. Register at sbe.org/ldc. Interested in sending a group of five or more from your company? Contact SBE Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

CQ

Answer from page 3

The answer is A

True. Primarily specified as a unique identifier during device manufacturing, the MAC address is often found on a device's network interface card (NIC). A MAC address is required when trying to locate a device or when performing diagnostics on a network device.

ENNES
EDUCATIONAL FOUNDATION TRUST

The trust offers scholarship and educational programming and grants that benefit broadcast engineering and the broadcast engineer. Submit tax-deductible donations, payable to the Ennes Educational Foundation Trust, to the Society of Broadcast Engineers; 9102 N. Meridian St., Suite 150; Indianapolis, IN 46260.

THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS

Youth Scholarship
Jay Adrick, Cincinnati, OH
Gregory Foss, Riverside, CA
Vernon Jackson, Wentzville, MO
Robert Lacey, Jr., Methuen, MA
Kishore Persaud, Catonsville, MD
Matthew Saplin, Altamont, NY
Jonathan Solomon, Columbia, MD
Moshe Waserman, Lomita, CA

John H. Battison Founder's Scholarship
Ronald Gaier, Kettering, OH
Kishore Persaud, Catonsville, MD
Moshe Waserman, Lomita, CA

Robert D. Greenberg Memorial Scholarship
Rachel Copher, Milwaukee, WI
Martin Hadfield, Ocean Shores, WA
Richard Rudman, Santa Paula, CA

Harold E. Ennes Scholarship
Thomas Alderson, Spokane, WA
Peter Allen, Middleton, WI
Ronald Capan, Pittsburgh, PA
Jorge Conde, Guayama, PR
Karl Lahm, Rapid City, MI
William McCombs, Wichita, KS
Kishore Persaud, Catonsville, MD
Matthew Saplin, Altamont, NY
Robert Sleight, Apex, NC
Leslie Sugai, Bayside, NY
John Tyler, Pawcatuck, CT
S. Merrill Weiss, Metuchen, NJ
David Wright, Chapel Hill, NC

Gino Ricciardelli Scholarship
Eric Adler, Binghamton, NY
Cristan Caughill, Honolulu, HI
Kate Landow, Denver, CO

General Fund
Eric Adler, Binghamton, NY
Cristan Caughill, Honolulu, HI
Kate Landow, Denver, CO

sbe.org/ennes

SBE Certification Achievements

CONGRATULATIONS

SBE CERTIFIED

LIFE CERTIFICATION

Certified Professional Broadcast Engineer (CPBE)
James Myers, Mount Wolf, PA - Chapter 41
Robert Yankowitz, New Bedford, MA - Chapter 11

Certified Professional Broadcast Engineer (CPBE) AM Directional Specialist (AMD) Digital Radio Broadcast Specialist (DRB)
Thomas Ray, III, New Windsor, NY - Chapter 15

Certified Audio Engineer (CEA)
Robert Musso, New York, NY - Chapter 15

Certified Broadcast Television Engineer (CBTE)
Michael Kemmerling, Lawrenceville, GA - Chapter 5

Certified Television Operator (CTO)
Joel Rodriguez, Mercedes, TX

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.

FEBRUARY EXAMS

Certified Senior Television Engineer (CSTE)
Christopher Brown, Lehigh Acres, FL - Chapter 90
Gerard DeSantos, Bloomington, CA - Chapter 131
John Pooley, Manchester, NH - Chapter 11

Certified Senior Radio Engineer (CSRE)
Benjamin Koffman, Rochester, NY - Chapter 57

Certified Broadcast Networking Technologist (CBNT)
Daniel Rodriguez, Bryan, TX - Chapter 67

NAB SHOW EXAMS

Certified Senior Television Engineer (CSTE)
Dan Coronado, Los Angeles, CA - Chapter 47

Certified Senior Radio Engineer (CSRE)
Matthew Anderson, Simi Valley, CA - Chapter 47

Certified Broadcast Television Engineer (CBTE)
Dante Donceras, Mississauga, ON

Digital Radio Broadcast Specialist (DRB)
Geary Morrill, Saginaw, MI - Chapter 91

Certified Radio Operator (CRO)
Tim Marchewka, Albany, OR

Certified Television Operator (CTO)
Gregory Kulaga, San Leandro, CA

SPECIAL PROCTOR EXAMS

Certified Broadcast Television Engineer (CBTE)
Daniel Rodriguez, Bryan, TX - Chapter 67

Alabama Broadcasters Association
Certified Broadcast Technologist (CBT)
Kathleen Battista, Kearny, NJ

ABA CBT (cont.)
Darnell Bryant, Havana, FL
Drew Campbell, Albertville, AL
Eric Carter, Tallahassee, FL
Jed Donaldson, Las Vegas, NV

ABA CBT (cont.)
John Lightfoot, Brattleboro, VT
John McCall, Troy, AL
Lloyd Weekes, Roanoke, AL
Jacob Wells, Cookeville, TN
Alex Word, Decatur, GA

CERTIFIED BY LICENSE

Certified Broadcast Technologist (CBT)
Sebastian Franitza, Fort Wayne, IN - Chapter 30

CERTIFIED RADIO OPERATOR (CRO)

Scotty Grathen, Depere, WI
Troy Olsson, Tucson, AZ

Cave City High School
Konner Arnold, Cave City, AR
Garrett Carpenter, Cave City, AR
James Compton, Cave City, AR

Cave City High School (cont.)
Michael Curran, Cave City, AR
Landon Farris, Cave City, AR
Riley Hooker, Cave City, AR
Dawson Lyons, Cave City, AR
Allison Kittrell, Cave City, AR
Orrin Levitt, Cave City, AR

Cave City High School (cont.)
John Payton, Cave City, AR
Kaysen Satterwhite, Cave City, AR
Skylar Scott, Cave City, AR
Sebastian Sosa, Cave City, AR
Matthew Sullivan, Cave City, AR

CERTIFIED TELEVISION OPERATOR (CTO)

Jeanie Phillips, Bedford, TX

Cave City High School
Savannah Barnett, Cave City, AR

Cave City High School (cont.)
Gloria Mundorff, Cave City, AR
John Payton, Cave City, AR

Cave City High School (cont.)
Blakeley Crow, Cave City, AR
Christopher Bunch, Cave City, AR

DIAMOND PROJECT

The following 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)
Jon Blomstrand, Amery, WI - Chapter 17
Mark Hill, Kentwood, MI

Certified Senior Radio Television Engineer (CSRTE)
Kenneth Hunold, Hackettstown, NJ - Chapter 15

Certified Senior Radio Engineer (CSRE)
Mark Hiner, Howard, OH - Chapter 52

Certified Senior Television Engineer (CSTE)
Ry Alford, Flowery Branch, GA - Chapter 5
Jan Andrews, Alexandria, VA - Chapter 37
Garth Sims, Clio, MI - Chapter 91
David Turnmire, Pocatello, ID - Chapter 115

Certified Broadcast Networking Engineer (CBNE)
Kirk Harnack, Nashville, TN - Chapter 103
Brian Reilly, Castle Rock, CO - Chapter 48

Certified Broadcast Networking Technologist (CBNT)
Jan Andrews, Alexandria, VA - Chapter 37
Solomon Bachman, Lancaster, TX - Chapter 67
Jose Luis Bolanos, Cedar Springs, MI
John Fox, Etters, PA - Chapter 41
Mark Jacobson, Chicago, IL - Chapter 26

Certified Audio Engineer (CEA)
Sam Wallington, Columbia, TN - Chapter 103

Certified Broadcast Radio Engineer (CBRE)
Jan Andrews, Alexandria, VA - Chapter 37
Solomon Bachman, Lancaster, TX - Chapter 67
Kirk Harnack, Nashville, TN - Chapter 103
Bradley Rakestraw, New Albany, MS - Chapter 68

Certified Broadcast Television Engineer (CBTE)
Mark Jacobson, Chicago, IL - Chapter 26
Andrew Prouse, Salisbury, MD - Chapter 37
Brian Reilly, Castle Rock, CO - Chapter 48
Reed Wilson, Norman, OK - Chapter 85

Certified Radio Operator (CRO)
Solomon Bachman, Lancaster, TX - Chapter 67

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) AM Directional Specialist (AMD)
Edward Dulaney, Kamay, TX - Chapter 67

Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB) Digital Radio Broadcast Specialist (DRB)
John Mackey, Beaverton, OR - Chapter 124

Certified Senior Television Engineer (CSTE)
Bobby Allen, Jr., Memphis, TN

Certified Broadcast Networking Engineer (CBNE)
John Mackey, Beaverton, OR - Chapter 124
Chris Stevens, Broken Arrow, OK - Chapter 56
Matthew Woeppel, Charlotte, NC - Chapter 45

Certified Broadcast Radio Engineer (CBRE)
Brian Cunningham, Buffalo, NY - Chapter 133
Charles Osgood, Wenatchee, WA - Chapter 16
Chris Stevens, Broken Arrow, OK - Chapter 56

Certified Broadcast Television Engineer (CBTE)
Dennis Dutra, Jr., Boxford, MA - Chapter 11
Jeff Juniet, Casselberry, FL - Chapter 42
Beau Stenkamp-Strahm, Boise, ID - Chapter 115

Certified Audio Engineer (CEA)
Yugi Zang, Woodland Hills, CA - Chapter 47

Certified Broadcast Networking Technologist (CBNT)
Edward Dulaney, Kamay, TX - Chapter 67
Patrick Wahl, Chippewa Falls, WI - Chapter 112

Certified Broadcast Technologist (CBT)
Michelle Bradley, Mardela Springs, MD - Chapter 46
Connor Crookshank, Bonney Lake, WA - Chapter 16
Fuad Cuzmar, Albuquerque, NM - Chapter 34
William Godfrey, Newberry, FL - Chapter 7
Llewelyn Kennedy, Kanagawa, Japan

Certified Television Operator (CTO)
Christopher Caudle, Fuguay Varina, NC
Charlina Johnson, Altadena, CA
Christopher Roach, Luzerne, PA
Heidi Roach, Luzerne, PA

Certified Radio Operator (CRO)
Donald Connelly, Cullowhee, NC
Matthew Egbert, Rocklin, CA
Frances Gonzales, Rocklin, CA

Got your SBE Certification pin?
sbe.org/pins

Show that you're SBE Certified!
sbe.org/CertifiedLogo

SBE CERTIFIED

And be sure it's the current version of the logo!

SBE Board Actions from the NAB Show Meeting

The SBE Board of Directors met during the 2024 NAB Show. In addition to the regular business items, committees provided reports of their activities and projects. Included in this business were several actions taken by the board.

The Bylaws Committee submitted a report to the Board of Directors for consideration recommending the adoption of Article II, Section 3(f), addressing the requirements for removal of an officer or board member. After evaluation by the committee and legal counsel, the board approved the addition. The full text will be published in the next issue of *The Signal*.

SBE Vice President Kevin Trueblood, Executive Director Jim Ragsdale, President Ted Hand, and Secretary Geary Morrill lead a discussion during the board meeting.

The board also received a report from Ched Keiler, chair of the Government Relations Committee and organizer of the *ad hoc* committee assigned the task of developing the SBE Broadcast Station Self-Inspection Guides. Ched announced that the FM and TV Self-Inspection Guides were completed. The SBE presented the new Guides at the NAB Show, joined by a group of key stakeholders on the floor of the West Hall. These guides are available free to SBE members. The committee will continue to work on additional Guides and release them as soon as they are completed.

Jeff Welton, chair of the Nominating Committee, provide the committee's slate of candidates for the 2024 elections of the SBE Officers and Board of Directors. There are five people seeking election to an officer position and eight seeking election to six open board positions. Additional nominations received by the SBE Secretary by June 23 will be added to the slate of candidates.

The Sustaining Membership Committee, chaired by Greg Dahl, reported that there has been recent growth in sustaining membership by state broadcast associations. These members are joining to support the development of the SBE Self-Inspection Guides, which their member stations utilize, and by ABIP inspectors that they hire to provide inspections of their member stations.

MADISON, from p. 1

The SBE National Meeting begins on Tuesday, September 10 with the fall meeting of the SBE Board of Directors from 6 to 10 p.m. Attendance at the Board meeting is open to any SBE member. On Wednesday, activities begin with the annual invitation-only SBE Fellows Breakfast, a reunion of SBE Fellow members including this year's inductees, Andrea Cummis, RJ Russell, and Conrad Trautmann. In the afternoon, the one-hour SBE Annual Membership Meeting will be held. Following the Membership Meeting will be a reception, and then the Annual SBE Awards Dinner. The dinner will feature a guest speaker and the presentation of the society's major awards, including the Robert W. Flanders SBE Engineer of the Year and James C. Wulliman SBE Educator of the year awards. The dinner program will conclude with the presentation of the Fellow honors to Cummis, Russell, and Trautmann.

Tickets for the SBE Awards Reception and Dinner will go on sale at the SBE website in June. Save the dates and plan to make your way to Madison for the Midwest Regional Broadcasters Clinic and the SBE National Meeting.

The SBE @ the NAB Show

A. SBE President Ted Hand presides over the Membership Meeting. B. Ben Nemser of Nemal Electronics draws the Sunday booth winner. C. Ted Hand and Greg Dahl draw the Monday booth winner for LinkUp Communications. D. Sarah Jones of Blackmagic Design draws the Tuesday booth winner. E. New SBE Fellows: RJ Russell, Andrea Cummis, and Conrad Trautmann, with Ted Hand. F. The SBE Board of Directors met on Saturday. G. The Member Reception followed the Membership Meeting on Monday. H. The SBE booth in the West Hall was a busy place. I. The SBE and the NAB debuted the new Station Self-Inspection Guides in the Connect Zone.



LEGAL PERSPECTIVE

By Coe Ramsey, Patrick Cross and Noah Hock
SBE Regulatory Counsels
cramsey@sbe.org, prcoss@sbe.org, nhock@sbe.org

Eye on Enforcement: STAs and Licenses to Cover

As broadcasters are well aware, it is vitally important for radio and television stations to operate in accordance with the technical specifications of their license, as well as the licenses or other authorizations for any auxiliary operations. Of course, throughout a station's lifetime it is inevitable that changes will be required to those specifications. Perhaps the station's transmitter is being upgraded, or the tower from which it broadcasts is decommissioned and operations must move to a different location – any number of reasons could necessitate a change.

It goes without saying that the FCC must be notified of, and generally must approve, technical modifications to a station's licensed parameters, but the station's filing obligations may not end there. As two recent Media Bureau actions show, failure to carefully follow the Commission's procedural requirements can open a station up to significant fines. Specifically, a station must request and properly maintain Special Temporary Authority (STA) for any unexpected or temporary operation at variance from its license, and after a construction permit is granted for modified operations the station must request a License to Cover once the modifications are complete.

Special Temporary Authority. In general, when a station is faced with the need to temporarily operate at meaningful variance from the terms of their license it must request STA from the FCC to do so until the station can resume regular operations or otherwise request a more permanent modification. The FCC may grant STA for various lengths of time depending on the circumstances, but broadcasters should carefully note the STA's expiration date at the time it is granted. The station must either resume normal operations or request an extension of the STA *before* the expiration date.

License to Cover. When technical changes are more permanent in nature, a station must generally apply for a modification to its broadcast facilities. Modification procedures can vary, but for most substantive modifications the FCC will issue a Construction Permit to the licensee authorizing it to implement the approved modification (as opposed to merely modifying the station's existing license). As with an STA, a Construction Permit will always include an expiration date by which the approved modifications must be implemented (usually three years after the Construction Permit is issued). Vitally, when modifications are complete the station must apply for a license to "cover" the Construction Permit – colloquially referred to as a "License to Cover." If a License to Cover is not filed before the Construction Permit expires, the station is no longer authorized to make the modification, and operating under the modified specifications is a violation of FCC Rules.

FCC Enforcement Actions

Two recent Media Bureau actions illuminate the dangers of failing to follow these procedural requirements. Both cases involve low-power television licensees that were each assessed $9,500 forfeitures for failing to file required forms and for unauthorized operation. In the first, a Texas station first failed to file a License to Cover until approximately five months after completing approved modifications, and later operated at reduced power for approximately three months without requesting STA to do so. See Notice of Apparent Liability, DA 23-1203 (Released Dec. 22, 2023); Forfeiture Order, DA 24-328 (Released April 4, 2024).

In the second matter, a Missouri station received a Construction Permit after being displaced by the 2016 incentive auction and repack, and was earlier granted STA to operate on the displacement channel while the displacement application was pending. However, the station did not renew the STA when it expired and then did not file a License to Cover until 2024, four years after construction had been completed (and more than two years after the construction permit had expired). See Notice of Apparent Liability, DA 24-246 (Released March 13, 2024).

In both cases, the FCC found the stations liable for (1) failing to file required forms, which carries a base forfeiture of $3,000 per violation, and (2) unauthorized operation, which carries a base forfeiture of $10,000 per violation. Since each involved failures to both file or renew an STA and to file a license to cover, the base forfeitures were set at $26,000 – i.e., $10,000 for each instance of unauthorized operation, once without STA and once without a valid license, and $3,000 for each failure to file a required form, once for the missed STA extension and once for the missed license to cover application. However, the Media Bureau ultimately reduced the forfeitures to $9,500, because the LPTV stations offer a secondary service (although the Media Bureau further noted that both cases also involved aggravating circumstances causing the reduced forfeitures to nonetheless be somewhat higher than typical for similar forfeitures by LPTV stations).

These actions underscore the importance of understanding and carefully observing the FCC's procedural rules and policies whenever making a change – temporary or permanent – to a station's licensed operations. STA should be promptly requested and maintained for any temporary change in operations, and if a construction permit is granted to modify operations a License to Cover must be promptly filed as soon as modifications are complete. If you are ever unsure of your station's filing obligations, we urge you to proactively reach out to the FCC staff for guidance or consult your regulatory counsel. Understanding your obligations at the beginning of the process could save you thousands of dollars in fines down the road.

Thanks for participating in the SBE Compensation Survey

If you took a few minutes to respond, thank you. If you didn't participate, we hope you will next year.

The results will be compiled and made available in July. It's free to SBE members as a member benefit.

Thank You Membership Drive Recruiters

The annual SBE Membership Drive concluded at the end of May. If you recruited a new member during the Drive, **thank you!**

The prize drawing for recruiters will be held this month. All the recruiters also earned a discount on their 2025 SBE dues. You also helped grow the society and helped someone's career.

By James Ragsdale
SBE Executive Director
jragsdale@sbe.org

Opportunities for Our Enlisted and Veterans

In many of my recent articles here in *The Signal*, I have emphasized the shortage of broadcast engineers. This has been the most consistent comment I have heard from our members and peer organizations. Much of my focus over my three years in the SBE has been on attracting new entrants into the field. The broadcast industry has eliminated many of the entry level jobs in broadcast technology within the broadcast stations, yet everyone says they want experienced staff. And there are those working within content producers who do not think of themselves as broadcast engineers, so they do not realize that they may be qualified to pursue these open positions with some minor education and/or certification.

The SBE has connected with high school programs for several years, supplying them with curriculum such as the *Certification Handbook for Radio Operators* and *Television Operator's Certification Handbook*. Because Certified Radio Operator and Certified Television Operator are operator certifications (rather than engineering certifications), they are administered in a unique way, through the study of a certification handbook and completion of a test based on that material.

Once students have completed studying a handbook, they may fill in the card for certification included in the back of the handbook. They have one year from the purchase date of the handbook to take the exam, and their deadline will be clearly stamped on the card. These exams are given by a special designated proctor or a local SBE chapter. The cost of certification testing is included in the price of the handbook.

Exams consist of 50 multiple-choice questions based entirely on the material in the handbooks. The exams are closed book, and one hour is allotted. Each exam is computer-selected from a pool of questions, and every exam is unique. The exam questions cover essentially the same material as the questions in the sample exam found in the back of each handbook. Passing score for the exam is 70%.

LINK

COOL
www.cool.osd.mil/info/info_for_employers.htm
United States Air Force
afvec.us.af.mil/afvec/af-cool/welcome
United States Army
www.cool.osd.mil/army/index.html
United States Coast Guard
www.cool.osd.mil/uscg/index.html
United States Marine Corp
www.cool.osd.mil/usmc/index.html
United States Navy
www.cool.osd.mil/usn/index.html
Civilian Employees
www.cool.osd.mil/dciv/index.html
Rand Toolkit
www.rand.org/pubs/tools/TL160-1.html
Department of Labor Veterans Employment and Training Service
www.dol.gov/agencies/vets
MilGears
milgears.osd.mil/lp/employers

Educating New Talent

The SBE is building relationships with trade schools and colleges that are providing classes in electronics, content production, and media communications. Our goal is to support their programs by providing practical training in specific subjects beyond their instructor's experience. Some instructors may come from outside broadcast engineering and have students who want to dive deeper into the subjects.

One area of potential sources for new broadcast engineers is military veterans. There are large numbers of transitioning military personnel and veterans seeking employment in the civilian workforce. More than 200,000 service members leave the military each year and the majority will seek civilian jobs. There are approximately 24 million veterans. More than 11 million are under the age of 60 and may be in or seeking jobs in the civilian workforce.

I just recently learned of an on-line resource called Credentialing Opportunities On-Line (COOL). COOL is intended primarily as a resource for service members and Department of Defense civilians seeking credentials. Even though the resource is intended for service members, if you are an employer looking for qualified transitioning service members, there are things here you can use. You can learn more about how military training and experience might relate to your jobs, and about things you can do to help transitioning service members and veterans obtain civilian jobs.

The military services provide intensive high-quality training and experience. They spend tens of thousands of dollars on training individual service members. Service members receive occupational training after basic training ranging in length from eight weeks to one year or more depending on the occupational specialty. Military training is state of the art and supplemented by extensive on-the-job training and experience. Training continues throughout the service member's career, including more advanced job training, leadership training, and specialized skills training.

Transitioning service members and veterans may hold civilian credentials related to your jobs or may be close to attaining them. Transitioning service members or veterans who hold civilian credentials can demonstrate to prospective civilian employers that their training and experience are on par with their civilian counterparts. Often a transitioning service member or veteran may need only limited gap training to qualify for a civilian credential. Programs are available to employers to help them fill these gaps. It may not surprise you that although the Department of Defense oversees the programs, each branch of the military has its own way of accessing it.

The Department of Defense (DOD) SkillBridge Program allows service members within six months of separation from the military to participate in an employer-sponsored civilian job and employment training program, including pre-apprenticeships and internships. Your organization's program could be crafted to help the transitioning service member attain a civilian credential before they have finished their service.

Service members and veterans have extensive soft skills desired by employers. In addition to the high-quality technical training provided in the military, service members gain tremendous non-technical skills such as leadership, communication skills, teamwork and collaboration, problem solving, adaptability, and conflict resolution. The Rand Corporation has developed a toolkit that can help employers understand the value transi-

see VETERANS, p. 14

ENGINEERING PERSPECTIVE

Charles "Ched" Keiler, CPBE, 8-VSB, ATSC3, CBNE
Chair, SBE Government Relations Committee
ckeiler@sbe.org

Understanding the FCC and the SBE Self-Inspection Guides

At the 2024 NAB Show, the SBE released the SBE Self-Inspection Guides for television and FM. The SBE and the NAB presented a session in the Connect Zone at the convention to discuss the Guides in some detail. That session was recorded and is posted to the SBE YouTube Channel.

"We all know the FCC has imposed large fines and penalties on broadcast stations for failing to operate in accordance with FCC Rules. A program of regular compliance assessment, either through self-inspection or through a state's Alternate Broadcast Inspection Program (ABIP) can prepare your station for an unannounced visit by the FCC and avoid potential forfeitures," said SBE President Ted Hand.

He continued, "To help with this, the FCC published Broadcast Self-Inspection Checklists, but it stopped updating those checklists in 2010. Many rules and policies have changed over the past 14 years, but those changes are not centralized or organized into a form that is easy for stations to use. That is no longer true.

"To address this need, the SBE and the NAB have jointly prepared updated (SBE) Self-Inspection Guides that provide straightforward recommendations toward compliance with the FCC's rules and policies. These new guides also provide a standardized framework for ABIP inspectors," Mr. Hand said.

As a part of the broadcast industry, it is important that a document such as the SBE Guides exist and that we can all abide to it as a standard. Many in our industry operate on different scales and interpretations. In order for all to be on the same page so to speak, we need something like the SBE Guides to refer to.

It's also important to understand that the SBE Guides are more than just a part of the Alternative Broadcast Inspection Program. The SBE Guides as well as the old FCC Checklist form the foundation of the Alternative Broadcast Inspection Program itself and are the framework that supports this type of program.

Not Just for ABIP

But the SBE Guides are not just for the Alternative Broadcast Inspection Program. You do not need to be a participant of that program to use the SBE Guides. In fact, we encourage individuals to obtain the appropriate SBE Guide and go through it to determine on their own the issues that their station may face and then address those issues. This is essentially what occurs when your station hires an inspector with the Alternative Broadcast Inspection Program to inspect your station. They follow the steps within the appropriate SBE Guide in order to determine compliance.

Don't get me wrong. There is tremendous value in having an independent inspector look at the details of your station and assist you in doing so. But there is no reason you cannot do a lot of the work yourself. The knowledge that the SBE Guides offers puts you and your station ahead of the game.

These Guides should also be used by ABIP inspectors. It should be noted that it is required that an ABIP inspection be complete. The inspector is obligated to inspect the station completely, including but not limited to all the transmission facilities, control points, origination points for a station such as master control, and access to locations where documents such as the Public Inspection Files and Terms of Authorization are stored. The Guides can be used to assist in making these processes consistent and uniform across all areas.

The SBE Guides are a foundation you can use to build your knowledge of broadcasting from a technical and legal perspective.

While the original FCC Checklists led to the development of the Alternative Broadcast Inspection Program (ABIP), it's important to point out that the SBE Guides are designed to replace the role of the FCC Checklists and expand the future growth of ABIP program.

As was noted, the TV and FM Guides are available now. The AM Guides is expected to be released in the third quarter of 2024. Guides for other broadcast services, including low-power and translator services, are in development and will be released when they are ready.

Did you know that the SBE Guides are currently free to members? Have you downloaded your copy yet? The SBE Guides are available for download from the SBE website under the Legislative/Regulatory and Resources tabs. They are free to SBE members. You can download your own copy at https://sbe.org/self-inspection

The SBE is interested in your feedback on the SBE Self-Inspection Guides and this program. You can send your comments to guides@SBE.org.

Download the Guides: sbe.org/self-inspection

Watch the SBE/NAB session from the 2024 NAB Show at sbe.org/GuidesSession or use the QR code.

Renew Membership by June 30

When you renew your SBE membership on time, you retain all your member benefits without interruption. But if you have not yet renewed, you need to do so today. Renewals were due April 1. If you don't renew by June 30 (the end of the grace period), you will be dropped from the active roll.

Renew online at sbe.org. Click on "Renew Membership" at the top of the website home page. Mobile users can find it in the hamburger drop-down menu. The online system is available 24/7, is secure and accepts Visa, MasterCard and American Express.

When renewing, consider upgrading to SBE MemberPlus. SBE MemberPlus provides you with access to all archived and all new Webinars by SBE. Questions about renewal? Contact Scott Jones at the SBE National Office at 317-846-9000 or kjones@sbe.org.

SUSTAINING MEMBERS

Support the companies who support the SBE and the industry

AC Video Solutions • 2014
Andrea Cummis 201-303-1303
Consulting, Systems Design/Integration

Alabama Broadcasters Association • 2024
Sharon Tinsley 205-982-5001
Alabama Association for Radio & TV Broadcasters

American Amplifier Technology/ Shively Labs • 1996
Steve Wilde 916-978-1899
Quality Broadcast Products

American Tower Corporation • 2000
Tiffany Yu 603-930-9091
Development/Construction/Management

ANCO Wireless • 2024
Scott Gordon 605-496-3475
Broadcast Tower Construction Maintenance

Aqua Broadcast • 2024
Brendan Lofty +44 203411 0387
COBALT FM Transmitters

Barnfind-USA, Inc. • 2021
George Gonos 919-748-7373
Fiber Transport Solutions

Blackmagic Design • 2012
Terry Frechette 408-954-0500
Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters

Bracke Manufacturing LLC • 2012
Patra Largent 949-756-1600
RF & Microwave Components

Broadcast Depot • 2018
Tim Jobe 305-281-7540
TV, Satellite, Radio, IP

Broadcast Devices, Inc. • 2015
Robert Tarsio 914-737-5032
Audio/RF Support Products

Broadcast Electronics Inc. • 1978
Perry Priestley 217-224-9600
Radio Equipment Manufacturer

Broadcast Software International • 2016
Marie Summers 541-338-8588
Radio Automation, Audio Logging

Broadcast Supply Worldwide • 1986
Brian Walker 800-426-8434
Audio Broadcast Equipment Supplier

Broadcasters General Store • 2004
Karly Kerstin McBride 352-622-7700
Broadcast Audio Video Distributor

Burk Technology • 2019
Matt Leland 978-486-0086 x703
Transmitter Facility Control Systems

Cavell, Mertz & Associates Inc., a Division of Capitol Airspace Group, LLC • 2011
Gary Cavell 703-392-9090
Consulting Services

Comrex Corporation • 1997
Chris Crump 978-784-1776
Audio & Video Codecs & Telephone Interfaces

Continental Electronics • 1976
Dale Dalesio 412-979-3253
TV and Radio Transmitters

Crawford Broadcasting Company • 2021
Cris Alexander 303-481-1800
Media Company

CueScript • 2014
Michael Accardi 203-763-4030
Teleprompting Software & Hardware

Cumulus Media, Inc. • 2021
Conrad Trautmann 212-419-2940
Audio Media Company

Davicom, Division of Comlab, Inc. • 2014
Louis-Charles Cuierrier 418-682-3380 x512
Remote Site Monitoring and Control Systems

Dielectric • 1995
Cory Edwards 207-655-8131
Radio & TV Antenna Systems and Monitoring

Digital Alert Systems, LLC • 2005
Bill Robertson 585-765-1155
Emergency Alert Systems

Drake Lighting • 2015
Dave Shepeard 270-804-7383
FAA Obstruction Lighting - Medium and High Intensity

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
Broadcast Antennas, Transmission Line, Filters/Combiners,Towers and Services

Florical Systems • 2008
Shawn Maynard 877-774-1058
Television Broadcast Automation

GatesAir • 1977
Mark Goins 513-459-3710
Radio/TV Transmitters, STL Codecs

Georgia Association of Broadcasters, Inc. • 2024
Allison Fulton 770-395-7200
Georgia Association for Radio & TV Broadcasters

Heartland Video Systems, Inc. • 2011
Dennis Klas 920-893-4204
Systems Integrator

Hitachi Kokusai Electric Comark • 2013
Jack McAnulty 413-998-1523
Manufacturer Broadcasting Transmission Equipment

Indiana Broadcasters Association • 2019
Dave Arland 317-701-0084
Indiana Association for Radio & TV Broadcasters

Inovonics Inc. • 2012
Gary Luhrman 831-458-0552
Radio Broadcast Equipment

Jampro Antennas Inc. • 2011
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB

Kathrein USA Inc. • 1985
Les Kutasi 541-879-2312
Antennas for Broadcasting & Communications

Kentucky Broadcasters Association • 2024
Roger Gribbins 502-460-6712
Kentucky Association for Radio & TV Broadcasters

Kintronc Labs, Inc. • 2015
Brad Holly 423-878-3141
Radio Broadcast Antenna Systems - ISO9001 Registered Company

Iatakoo • 2021
Paul Adrian 214-683-0791
Media Workflow Automation

LBA Technology Inc. • 2002
Jerry Brown 252-757-0279 x228
AM/MW Antenna Equipment & Systems

Leeward Software • 2019
Nigel Brownett 310-405-0839
Manage. Monitor. Control

Linkup Communications Corporation • 2017
Mark Johnson 703-217-8290
Satellite Technology Solutions

LumenServe • 2023
Bear Poth 512-423-8323
Tower Lighting

LYNX Technik • 2007
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer

Markertek • 2002
Adam June 845-246-2357
Specialized Broadcast & Pro-Audio Supplier

MASV • 2024
Jon Riis 613-299-4253
Large File Transfer

Micronet Communications Inc. • 2005
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning

Missouri Broadcasters Association • 2024
Terry Harper 573-636-6692
Missouri Association for Radio & TV Broadcasters

Montana Broadcasters Association • 2024
Dewey Bruce 406-431-2139
Montana Association for Radio and TV Broadcasters

Moseley Associates Inc. • 1977
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television

MSWLab • 2024
Michael Wells 806-433-2923
Broadcast IT Consulting Engineer

MusicMaster • 2014
Jerry Butler 352-231-8922
Advanced Music Scheduling Solutions

National Association of Broadcasters • 1981
Industry Trade Association 202-429-5340

National Football League • 1999
Ralph Beaver 813-282-8612
Game Day Coordination Operations

Nautel Inc. • 2002
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer

Nebraska Broadcasters Association • 2024
Jim Timm 402-933-5995
Nebraska Association for Radio and TV Broadcasters

Nemal Electronics Int'l Inc. • 2011
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber Optic

Ohio Association of Broadcasters • 2024
Christine H. Merritt 614-228-4052
Ohio Association for Radio & TV Broadcasters

Orban Labs, Inc. • 2011
Mike Pappas 480-403-8300
Audio Processing AMFMTV

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

Quintech Electronics and Communications Inc. • 2002
James Herbstritt 724-349-1412
State-of-the-art RF Hardware Solutions

QVC • 2011
Kevin Wainwright 484-701-1431
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

Sierra Automated Systems and Eng. Inc. • 2011
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms

South Carolina Broadcasters Association • 2024
Dody Yarborough 803-732-1186
South Carolina Association for Radio and TV Broadcasters

South Dakota Broadcasters Association • 2024
Steve Willard 605-224-1034
South Dakota Association for Radio & TV Broadcasters

Staco Energy Products Co. • 2010
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS

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

TBC Consoles • 2023
Steve Struhs 631-293-4068
Technical Furniture for Broadcast/AV

Technical Broadcast Solutions, Inc. • 2018
Robert Russell 302-414-0055
Engineering and Consulting Services

Telestream • 2013
Bryn McFadden 530-470-1300
Video and Workflow Solutions

NEW SUSTAINING MEMBERS

Televes USA, LLC • 2021
Andy Ruffin 937- 475-7255
Antennas Transmitters Measurement Distribution

Telos Systems/Omnia/Axia • 2003
John Bisset 216-241-7225
Talk-Show Systems

Teradek • 2011
Jon Landman 949-743-5783
Camera-top ENG Solutions

Texas Association of Broadcasters • 2024
Sydney Haisler Herrmann 512-322-9944
Texas Association for Radio & TV Broadcasters

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
Brad Young 415-675-6700
Radio Automation and Playout

Wisconsin Broadcasters Association • 2024
Michelle Vetterkind 608-255-2600
Wisconsin Association for Radio & TV Broadcasters

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

Member Spotlight: Britt Lockhart

Member Stats
SBE Member Since: 1982
SBE Certifications: CPBE
Employer: Oklahoma State Football Radio Network and NBA Radio. (Retired from iHeart.)
Position: Producer/Engineer
Location: Oklahoma City, OK
Chapter: 85, Central/Western Oklahoma, Chapter Certification Chair
I'm Best Known For: My longtime manager claimed I was "a team player to the n^{th} degree." He also appreciated my ability to provide good solutions and explain them in easy-to-understand laymen's terms for his non-technical mind.

Britt and his son Evan flying to Airventure in Oshkosh, WI.

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

A. The camaraderie and connections with local engineers.

Q. *What got you started in broadcast engineering?*

A. I've always enjoyed tinkering with electronics. In elementary school I received a Radio Shack 100-in-1 electronics project kit and wore it out. I was also given a small transistor radio that I carried everywhere. It was always on as long as I had a good 9V battery. I also started a (PA system) radio station in high school. I was hooked for life.

Q. *Who was your mentor or who do you admire?*

A. The person responsible for my career was my long time boss (and ultimately my friend), Paul Cinnamon.

Q. *What do you like most about your job?*

A. Helping others in every department by giving them the tools they need to make their job easier or more efficient. I also enjoy seeing others become SBE-certified.

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

A. ...enjoy flying my Piper Turbo Arrow 4, traveling, gardening, hunting and bee keeping.

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

A. I was a trumpet player for the state champion Mustang (OK) High School Jazz Band.

Q. *What's your favorite gadget?*

A. Tek spectrum analyzer

UNIPOLE, from p. 5

with this solution and a resistive component of 100 ohms. Figure 4 indicates the close-in match, ±20kHz, with phase rotation, resulting in symmetrical sideband structure.

While the tower is now at DC ground potential, the feed point is not with regard to RF frequencies. A direct or nearby lightning strike will still raise the voltage at the feed point to destructive levels for the network, feedline and transmitter if left unchecked. Horn and ball gaps and other arrestive techniques must still be utilized.

In summary, the folded unipole can be utilized to many advantages: It places the tower at DC ground potential, additional cables may cross the base without isolation techniques, it generally increases the bandwidth of the antenna, and it removes the need for a base insulator. Disadvantages are few but include a slight increase in maintenance and the suggested modeling prior to deployment.

I would like to once again thank Ron Lewallan, K7EL, for permission to use EZNEC to simulate and produce the plots presented herein.

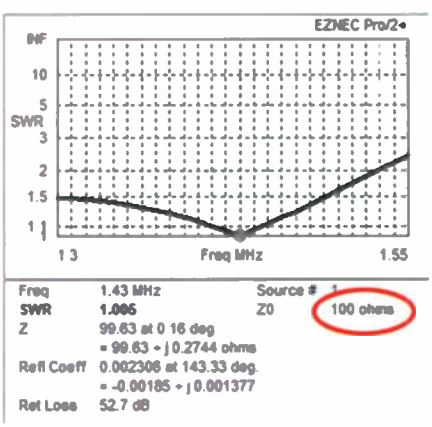

Figure 3. Modeled VSWR plot of proposed 100 ohm folded unipole antenna system

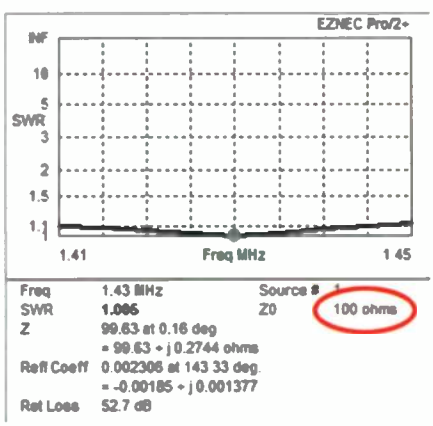

Figure 4. Modeled ±20kHz VSWR with optimized phase rotation; folded unipole

VETERANS, from p. 11

veterans bring to the civilian workplace.

How can COOL help employers assess the transferability of military skills and training? If you aren't familiar with a military occupation, you can find out more about it on COOL. If you know the Military Occupation (MOC), use the Military Occupational Areas tab on the Research Military Occupations tool on DOD COOL. If you don't know what military occupation might relate to your job opening, use the Related Civilian Occupations tab on the Research Military Occupation tool on DOD COOL.

To find transitioning service members or veterans seeking civilian jobs, go to the Department of Labor's Veterans Employment and Training Service (VETS) website.

MilGears is a customized career-building tool developed to assist military members while they serve, through transition, and beyond. MilGears exists to help the service member plan and achieve their goals by highlighting career possibilities and helping them visualize how to reach those goals.

I hope that, as you are looking for that next engineering staff hire, these tools will help you find and hire the right person. If your organization is concerned about building a pipeline of engineering talent within your team, consider using these resources.

WELCOME TO THE SBE

NEW MEMBERS

Roberto C. Bahia - Manila, Philippines
Gregory M. Balos - Moreno Valley, CA
Chancel Bamvi-Miakukila - Frederick, MD
Theodore R. Barnes - Orlando, FL
Shawn Earta - Erie, PA
Kathleen T. Battista - Kearny, NJ
Tiko Bauer - Colorado Springs, CO
Will R. Beesing - Quincy, IL
Roy M. Bellen - Manila, Philippines
Joey S. Benford - Canby, OR
Henry J. Boemer - Villa Rica, GA
Craig D. Bomgaars - St. Cloud, MN
Craig H. Bowman - Durand, MI
Jadon Brown - Simpsonville, SC
Darnell B. Bryant - Havana, FL
Chris Ceragno - Myrtle Beach, SC
Charles Chae - Palisades Park, NJ
Jay Chambers - Ruidoso, NM
Matt Chirdon - University Park, FA
Adam R. Clifton - Salisbury, MD
Brent Clingingsmith - Quincy, IL
Jacob Clingingsmith - Quincy, IL
Toby R. Cobb - Charlottesville, VA
Jesus Collado - Windermere, FL
Jathniel Coronado - Los Angeles, CA
Joshua A. Cox - Knoxville, TN
Adam Culberson - Hemet, CA
Michael Cutts - Etobicoke, ON
Michael J. Daly - Carbondale, IL
Michael deAlmeida - Terryville, CT
William D. Dobbelare - Moline, IL
Patrick E. Donnelly - Tipperary Town, Ireland
Erickson N. Elefante - Caloocan City, Philippines
Cody A. Elkin - Sand Springs, OK
Tshombe A. Farrell - Bowie, MD
Gabriel Foresee - Bellingham, WA
Richard H. Funderburg - Eden Prairie, MN
Nicholas Geisler - Forest Hill, MD
Ryan Gladson - Raleigh, NC
Patrick R. Guzman - Cleburne, TX
David D. Hallmark - Los Angeles, CA
Cole R. Hanson - Eau Claire, WI
Christopher A. Hawes - Erie, PA
Joshua T. Irvine - Charlottesville, VA
Mark A. Jenkins - Wichita, KS
Regis E. Kaminski - Grove City, PA
Davit Kavartskia - New Castle, DE
Larry R. Lambert - Gainesville, FL
Andrew LaValley - Madison, WI
James L. Lovett - Moreno Valley, CA
Brian Malbone - Virginia Beach, VA
Stephen M. Mason - Willits, CA
Hunter R. Massingill - West Lafayette, IN
Ronald Matthews - Millersville, MD
Joel P. McDonald - Bethesda, MD
Jack McGuire - Washington, DC
Thomas Missell - Bloomington, IN
Corey A. Moss - Greer, SC
Christopher L. Oliver - Birmingham, AL
James T. Peoples - Blacksburg, VA
John J. Piacentini - Sand Springs, OK
Michael J. Piekutowski - Edgewater, MD
Daniel Pillo - Los Angeles, CA
Roman V. Porterfield - Fargo, ND
Rick Rios - Ft. Lauderdale, FL
Wesley B. Robertson, III - Bogalusa, LA
Ronald L. Scalfani - Grove, OK
Meachael Schoenrock - Waseca, MN
Anne M. Smith - Rochester, NY
Cyrus Smith - Bozeman, MT
Craig L. Spratley - Victorville, CA
Justin M. Squires - Catonsville, MD
Gary J. Stackhouse - Austin, TX
Mark R. Taylor - Mountain View, CA
James F. Tubbs - Pelham, AL
David R. Turner - Williston, VT
Flor C. Valdez - Phoenix, AZ
Trevor M. Van Dahm - Aubrey, TX
Tim Wardle - Pittsburgh, PA
Jacob R. Wells - Cookeville, TN
Michael Wiggins - Jonesboro, GA
Jeff J. Wilson - Quincy, IL
Alex L. Word - Decatur, GA
Joseph P. Yaeger - East Concord, NY
Roberts Yent - Greenville, SC
Rene Yzaguirre - San Antonio, TX

RETURNING MEMBERS

Emmanuel M. Alcaide - Toronto, ON
Jordan Bitz - Twin Falls, ID
Alan R. Camacho - Fresno, CA
Andrew Q. Cleveland - Omaha, NE
Jonney P. Dotson - Forney, TX
Ron G. Fuller - Arlington, TX
Billy Harrison - Chesapeake, VA
Clinton J. Hermann - Las Vegas, NV
Ernest L. Jones - Winston Salem, NC
Joshua R. Kelly - Independence, IA
Gary E. Knight - Charlottesville, VA
Vahid Maheri - Playa Del Rey, CA
Ted A. McCall - Easley, SC
Robert W. Melgard - Boise, ID
Charles D. Michaels - Miami, FL
Chip Morgan - Bridport, VT
Benjamin A. Neuhart - Gibsonia, PA
Jeffrey K. Oestreich, Jr. - Hendersonville, TN
Jadotte Pierre - Montgomery, AL
Brian D. Reilly - Castle Rock, CO
Glen Rewal - Atlanta, GA
Michael D. Rey - Long Beach, CA
Gregory W. Ristau - Kent, WA
Lou Ristau-Taylor - Kent, WA
Patrick O. Roberts - Oklahoma City, OK
Alfred G. Russo - Bangor, ME
Jessica A. Rye - Wichita, KS
Gerald D. Schultz - Frisco, TX
David M. Skalish - Glenolden, PA
Greg Teagarden - Palm Beach Gardens, FL
Nicholas J. Tobiason - Kalispell, MT
Rakif J. Waters - Greenville, SC
Lee A. Williams - Jean, NV

NEW ASSOCIATE MEMBERS

Justin Little - Lynchburg, VA
Mona Seghatoleslami - Rochester, NY

NEW STUDENT MEMBERS

Joshua A. Griffin - Marion Station, MD
Robert W. James - Chicago, IL
Kevin O'Neill - Mclean, VA

In Memoriam

Wilfred A. Meys - Superior, WI
Ben A. Pflederer - Rockford, IL
Ed Snape - Greenville, SC

FELLOWS, from p. 1

SBE member in 1999. He is also a member of SMPTE, IEEE/BTS, ATSC, and the AFCCE. He is a Marine Corps veteran.

Included in RJ's nomination letters was the comment that he is "brilliant in the area of technical regulatory advocacy work involving the FCC generally, and especially in the critical area of broadcast auxiliary spectrum management." It went on to note that RJ has been "one of the best advocates for broadcast engineering at the FCC." Another nomination noted that RJ has also been an "active participant within local chapters of the Society, serving several tenures as chapter chair in multiple chapters."

Conrad Trautmann, CPBE, is the chief technology officer of Cumulus Media, a position he has held since 2021. He previously served as senior vice president, technology and operations for the company. He first joined Cumulus Media's Westwood One in 2000 as executive vice president, technology. He is responsible for the oversight of companywide broadcast engineering and information technology, as well as purchasing, real estate and facilities management across the company. He serves on the Radio Technology Committee of the National Association of Broadcasters. Conrad joined the SBE in 1985. He has served on the SBE National Board of Directors from 2001 to 2003, 2005 to 2007 and in 2011. He has also served New York Chapter 15 in a variety of roles including chapter chair, treasurer and certification committee chair.

One of Conrad's nominations states that he has, "proved to be an invaluable mentor and technical resource. He takes pride in his craft, supports his teams and selflessly gives all of his energy and focus to his primary professional organization along with those attached to it." Another nomination wrote, "Conrad Trautmann is a true gentleman who can communicate with a group of engineers one moment and then walk into a boardroom and present such a level of confidence like no other."

All three were recognized during the SBE Membership Meeting held on April 15 during the 2024 NAB Show. They will also be recognized at the SBE National Meeting, which will be held in September in Madison, WI.

A list of all those who have been named SBE Fellows is posted on the SBE website at sbe.org/fellows.

Society of Broadcast Engineers, Inc.

2023 Audited Financial Statements — December 31, 2023

Combined Statement of Assets, Liabilities and Net Assets*

ASSETS:	
Cash and cash equivalents	$316,349
Investments	1,499,227
Property & Equipment, Net	10,620
Intangible Assets, Net	240
Total Assets	*$1,826,436*
LIABILITIES and NET ASSETS:	
Liabilities	$18,359
Net Assets	1,808,077
Total Liabilities & Net Assets	*$1,826,436*

2023 SBE Revenue & Expense Statement

INCOME:	
Membership Fees & Support	$327,924
Membership Services	47,041
National Meeting	4,370
Certification Services	54,911
Education Services	201,855
SBE Store/Book Store	14,356
Website	7,695
Frequency Coordination	597,690
Contributions	8,363
Net Investment Return	139,461
Interest	34
Total Revenue	*$1,403,970*
EXPENSES:	
Program Services	$1,043,062
Management & General	304,479
Total Expenses	***$1,347,541***
Net Assets 12/31/2022	$1,751,648
Net Assets 12/31/2023	$1,808,077
Change in Net Assets	*$56,429*

** CPA-conducted financial audit. SBE uses modified cash accounting method. Investments are listed at market value.*

Members On The Move

◀ **Steve Crum**, CBNT, is VP of engineering for TCT Television, Newport, MI.

➤ **Jerry E. Brown**, CPBE, is a sales engineer with RF Specialties-South, Oxford, NC.

▼ **Kenny Elcock**, CPBE, is vice president of technology, NESN, Watertown, MA.

➤ **David Kolesar**, CBT, CBNT, received the 2024 NAB Engineering Achievement Award for Radio.

➤ **Mark Persons**, CPBE, AMD, CBNT, has been inducted into the Minnesota Broadcasters Hall of Fame.

▼ **Tony Peterle**, CPBE, is the proprietor of Tony Peterle Technology Services, based in Central Ohio. He continues his work with Worldcast Systems.

➤ **Shane Toven**, CPBE, DRB, CBNE, is technical m… H… p… A… Logitek.

Send your news to Chriss Scherer at cscherer@sbe.org.

MARK YOUR CALENDAR

S M T W T F S

SBE Certification Exams June 7-17, 2024 *Application deadline closed*	*Local Chapters* sbe.org/certification	
SBE Awards Nominations Deadline June 17, 2024	sbe.org/awards	
SBE WEBxtra July 8, 2024	*online* sbe.org/webxtra	
SBE Leadership Development Course Aug. 7-9, 2024	*Atlanta* sbe.org/ldc	
SBE Certification Exams Aug. 2-12, 2024 *Application deadline June 14, 2024*	*Local Chapters* sbe.org/certification	
…	sbe.org	
…	*online* …e.org/webxtra	
SBE National Meeting Sept. 10-11, 2024	*Middleton, WI* sbe.org	