

# THE Signal

Bimonthly Publication of the Society of Broadcast Engineers



The Association for Broadcast and Multimedia Professionals

[www.sbe.org](http://www.sbe.org)

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## SBE Education at NAB Show and PBS TechCon

The SBE focus on educational opportunities is a cornerstone of the organization, and the upcoming NAB Show is an ideal outlet to continue this effort. The SBE has produced the Ennes Educational Workshop with the NAB for many years, and will do so again on April 6. But as the breadth of technology expands, so does the SBE's commitment to providing learning opportunities.

This year, the SBE has also partnered with PBS to participate in the PBS TechCon by offering a daylong track of sessions covering ATSC 3.0 and NextGen.

### The SBE at PBS Tech Con

PBS has produced a technical program called Tech Con since 1978. This year, PBS has teamed with the SBE to provide a daylong technical program about ATSC

3.0 and NextGen at the Flamingo Hotel. Registration is required separate from PBS TechCon registration, and SBE and PBS members can attend for a special \$95 rate. Register at [bit.ly/SBEatPBS](http://bit.ly/SBEatPBS). The SBE track runs from 8 a.m. to 5 p.m., and includes lunch.

The topics to be covered will provide you with what you need to know to launch your NextGen station. Among those are the regulations that dictate the requirements of the transition and technical compliance. These include MVPD notifications, carriage and 1.0 host requirements and agreements. Meeting these obligations and preserving station cash flow require that broadcast engineers have a good handle on how far ATSC 1.0 content com-



The SBE presents two educational sessions this year.

pression can be pushed and at what cost. It's valuable to have a firm grasp of video quality measurements. It's a broadcast engineer's role to competently fill in the technical specifications in each of these legal arrangements.

see [EDUCATION](#), p. 15

## Join the SBE at the 2019 NAB Show

The 2019 NAB Show is less than two months away, but the time to make your convention plans is now. While you will no doubt plan time on the exhibit floor, and you'll review the list of sessions, be sure to include the many SBE events on your convention calendar.

While the SBE Ennes Workshop is the kick-off for the convention on April 6, the highlight for SBE members is the annual Membership Meeting, which will be followed by a reception. The Membership Meeting will be held on Tuesday, April 9. Watch the SBE website or stop at the SBE booth on-site for the room location. The Membership Meeting brings you up to date on all the SBE activities and programs, and it includes a milestone-service recognition of SBE chapter certification chairs, and updates on the society's plans, programs and government relations efforts. Everyone attending will be eligible to win prizes.

You'll want to get to the meeting early as well, because the first people in

line will receive a special SBE memento.

The Membership Reception starts immediately after the meeting. Light snacks and drinks are made possible from the generous support of several Sustaining Member sponsors. They are listed on page 8. (Additional sponsorships are

see [NAB](#), p. 15



The SBE will again exhibit at the NAB Show in 2019.

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

# Recruit a New SBE Member

The SBE Membership Drive returns again, and will kick off on March 1. The theme this year is Invest in Yourself, Invest in Your Future: Join the SBE. With 55 years of history, the SBE provides broadcast engineers the best in certification, continuing education, government relations and career opportunities. And you can help continue that tradition. The SBE is the only organization that is devoted to the advancement of all levels and types of broadcast engineering.

line of the membership application, your name will be entered into the member drive drawing for prizes donated from our sustaining members. If you recruit a new sustaining member, you'll earn five entries into the prize drawing. Prizes include logo items, books and more. The grand prize is airfare and hotel to attend the SBE National Meeting held in conjunction with the 2019 Broadcasters Clinic in Madison, WI, Oct. 15-17.

And as a further bonus,

## INVEST IN YOURSELF IN YOUR FUTURE JOIN the SBE



As a member, you know the benefits of membership. But chances are you have a colleague or two who are not familiar with the SBE, but could benefit from membership. While anyone can join the SBE at any time during the year, there's an added benefit to joining during the SBE Membership Drive, held from March 1 to May 31.

If you recruit a new member during the Drive and your name is on the sponsor's

for every new member you sponsor you will receive \$5 off your 2020 dues (up to \$25). Need more incentive? If you recruit three or more new members, your 2020 membership will be upgraded to SBE MemberPlus.

Start recruiting now, and make sure your recruits list your name on their SBE membership application so you get the credit.

The "inverse distance field" is the term used to describe which relationship between field strength and distance?



**Certification Question**

Answer on page 6

- A. Field strength is directly proportional to distance.
- B. Field strength is inversely proportional to power.
- C. Field strength is equal to the power divided by the distance.
- D. Field strength is inversely proportional to distance.




## PICK UP YOUR COMPETITORS AND MONITOR THEM IN-HOUSE



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## LETTER FROM THE PRESIDENT

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

### More from the SBE and the NAB Show

The SBE has increased its efforts in providing educational opportunities over the years, and that extends to the NAB Show this year. I am pleased to announce the SBE will present a daylong session at the PBS Tech Con at the Flamingo hotel in Las Vegas on April 6, 2019. The program slate is full of great information at this established event that is open to everyone, and not just PBS employees of member stations.

Separate registration is required to attend. See the article in this issue about the SBE's involvement with PBS Tech Con for more information.

The SBE is also continuing its long-standing relationship with the NAB to present the Ennes Educational Workshop for the 25<sup>th</sup> consecutive year. Conference registration for the NAB Show grants you admission to the Workshop. Both events are being held April 6.

We are thrilled to partner up with PBS and the NAB during the



week. This gives our members expanded choices on what education they want to select. Check the SBE website for the latest updates and additions to both programs.

It's also that time of year again when your SBE membership is due for renewal. I am pleased to tell you that we will again be adding more content for those who have chosen the SBE MemberPlus option. To date, we can say that we have had thousands of webinars viewed by our SBE MemberPlus members, and with the new content expect to see even higher Webinars by SBE participation in 2019. Remember the day you add SBE MemberPlus to your membership, you will have access to all the Webinars by SBE.

I also have a change to the SBE Board of Directors to report. Kimberly Sacks, who also chaired the Mentor Committee, has resigned her director seat for personal reasons. I want to thank Kim for everything she has done as a board member and specifically with the Mentor Committee. A replacement director will be appointed to fulfill her term.

### Recognize Your Peers in the SBE Awards Program

Nominate SBE members and chapters for the 2019 SBE award season. Please consider your chapter and chapter members when you think about these awards. There may be an individual in your chapter who has been an outstanding engineer, educator or mentor for new broadcast engineers. Recognize that person by nominating him or her for the Robert W. Flanders SBE Engineer of the Year or the James C. Wulliman SBE Educator of the Year awards.

This will be the seventh year that the Chapter Engineer of the Year award is nominated by SBE Chapters. Each chapter has the opportunity to nominate one of their own members. If your

chapter hasn't taken this opportunity, you are encouraged to do so this year.

The SBE Freedom Award recognizes an individual or group that has performed extraordinary service to the United States through the use of media technology. The SBE Technology Award recognizes the person, group or company that has developed innovative new technology or systems for media technology. Maybe someone you know has written a notable technical article or presented a technical paper at a meeting or program. These are a few of the awards that are presented each year by the SBE.

Of the 13 awards that are available each year, the local chapter or SBE members nominate for 10 of them. Many SBE members are highly qualified and deserving of recognition. Likewise, many chapters do an excellent job promoting the ideals and goals of the SBE. Please nominate these members and chapters so they can receive the recognition they deserve.

Find all the details on the SBE awards at [sbe.org/awards](http://sbe.org/awards). If you have any questions or need more information, contact Certification Director Megan Clappe at [mclappe@sbe.org](mailto:mclappe@sbe.org) or Awards Committee Chair Tom McGinley at [K7QA@aol.com](mailto:K7QA@aol.com).



#### *In Memoriam*

**Edwin Karl, CPBE**

Member #602

1941 - 2018

Fellow

Past Board Member

Author, SBE Canon of Ethics

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## EDUCATION UPDATE

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

# Is Broadcast IT Different?

Information technology (IT) is clearly engrained into the broadcast technical facility, and IT knowledge has become a major competency requirement for the broadcast engineer to be successful in his or her career. Many broadcast engineers have simply learned the necessary IT skills over time through self-study, SBE webinar attendance, or through on-the-job trial and error. Those more fortunate may have had the opportunity to attend more formal education opportunities through their local college or university. Many new entrants to the broadcast engineering field are coming from the IT industry armed with a solid knowledge base of traditional IT skills. Often the question arises, are the traditional corporate IT skills the same as those needed in the broadcast environment? Like many technology questions, the answer is often not simple and results in the answer of “it depends.”

The broadcast industry shares many of the fundamentals also found in corporate IT such as IP networking, cybersecurity mitigation, and enabling enterprise cloud service offerings. However, IT in the broadcast environment can present unique and sometimes unfamiliar requirements which can challenge the corporate IT professional skill set. Such demands of real-time 1.5 Gb/s media streams, video content media files ranging from a few hundred gigabytes (GB) to a few terabytes (TB), and advanced networking feature implementations. These features may include enabling multicast, implementing Quality of Service (QoS) and use of the Precision Time Protocol (PTP).

PTP or IEEE-1588 is one such unique feature found in the broadcast IP technical facility. Whereas not unique to the broadcast industry, PTP provides the timing synchronization into the sub-microsecond range (typically 100 nanoseconds) required in the broadcast facility. Precision timing is not new to the broadcast industry as GPS-based master clock gen-lock systems have been a mainstay of the broadcast station providing time code and black gen-lock reference signals. I may likely over-simplify PTP, but I see it simply as the gen-lock reference for the IP-based technical facility where the single Ethernet-based transport includes both the media content and synchronization information.

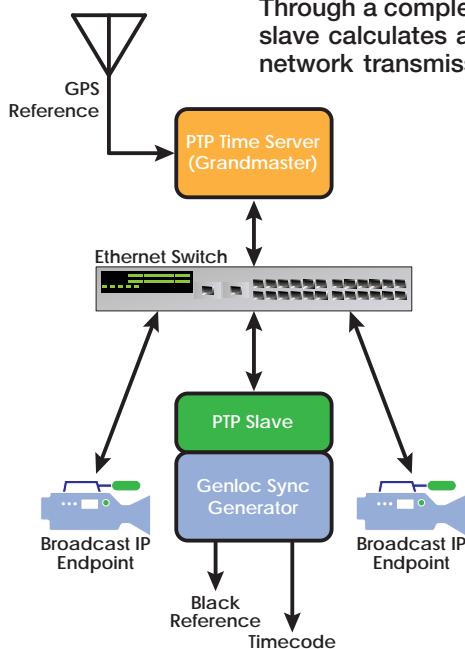
IEEE-1588-2008 is the current standard, which is also known as PTP version 2. I should note that there is no backward compatibility with the original PTP standard or IEEE-1588-2002. The standard describes a hierarchical master-slave architecture with clock or timing synchronization information distributed across individual local area network (LAN) segments. Compatible Ethernet switches convey or distribute the information through a PTP message to individual devices requiring synchro-

nization information. PTP-capable Ethernet switches can be found from many product manufacturers such as Arista, Cisco, IBM and many others. The PTP capability is often implemented in the switch small form-factor pluggable (SFP) optical adapter commonly used by the switch to interface the various Ethernet formats. The PTP messages use the User Datagram Protocol (UDP) for transport. The Grandmaster clock is considered the master and is typically GPS referenced. The master sends time epoch information event messages or a timestamp to individual slave clocks at a regular interval (typically every 1 or 2 seconds). Through a complex algorithm defined by the IEEE standard, the slave calculates a time reference and can compensate for any network transmission latency encountered. The PTP standard specifies the epoch time the same as Unix time or January 1, 1970.

The PTP standard recognizes two types of PTP aware network devices. The Transparent Clock (TC) device forwards the received time message with an offset representing the latency occurring within the TC device. Whereas the Boundary Clock (BC) device provides a re-generated event message based upon the received master time event message. This approach minimizes the network traffic impact upon the grandmaster and is more suited to a large network with multiple network segments.

PTP is just one unique capability required by the broadcast facility. Whereas timing and synchronization may be foreign to many IT professionals, the broadcast engineer is likely very familiar with master sync generators and gen-locked devices. He or she must only apply the same fundamentals to the IT environment with some new terminology and technology imple-

mentations. Timing in the IP environment is just as crucial as in the SDI facility. Keep in mind that PTP is also used in the industrial automation and financial transaction industries. Individuals from these industries might be a perfect fit for the broadcast industry. They also likely share a mindset of high-reliable 24x7 operational support.



Simplified PTP architecture in the broadcast facility. Transparent clock-based (TC) example.

### Update on Webinars

As 2019 is underway, look for the continuing ATSC 3.0 webinar series as well as the Advanced RF series of webinars. A new “Introduction to Networking for ATSC 3.0” webinar series begins early this year as well. SBE MemberPlus gives you access to the latest SBE webinars as well as the entire webinar on-demand library at no additional cost. If you failed to select SBE MemberPlus when you renewed, you can upgrade your membership at any time.

Your SBE Education Committee is here to help achieve your professional development goals. Let us know your thoughts on current and future programs, and lend your advice and guidance to help establish the right mix of educational content to meet your professional development needs.

For more information on any SBE education program click the Education tab at [sbe.org](http://sbe.org), or contact Education Director Cathy Orosz at the SBE National Office at 317-846-9000 or [corosz@sbe.org](mailto:corosz@sbe.org).



# CERTIFICATION UPDATE

By Megan Clappe  
SBE Certification Director  
mclappe@sbe.org

## Just the Certification Facts

As you're reading this, we are already one month in to 2019. Since this is the first certification article of 2019, I want to give you a rundown of the numbers and events that took place over the last year.

With the impending implementation of ATSC 3.0 and with a

new certification reflecting that information, 2019 should be one for a lot of change in our industry. If you are interested in SBE certification, I would encourage you to visit our website or contact me if you have any questions.

## Certification 2018 By The Numbers

Newly Certified in 2018



Recertifications in 2018



Total Current Certifications Held



Life Certifications granted:



Current number of chapter certification chairs:



Operator Certification Books sold:



CertPreview tests purchased:



### Special exam sessions

NAB Show  
Las Vegas

AES Convention  
New York City

AMITRA Annual Congress  
Acapulco

ABA Engineering Academy  
Birmingham, AL



Images: freevectors.net (globe), All-Free\_down-load.com (school), 3lan.com (book), zcool.com.cn (scroll), BSGStudio (remainder)

High Schools  
13

Colleges  
7



Schools using the Radio or TV Operator Certification Handbooks



### The answer is D

Electromagnetic radiation in free space follows the inverse square law where power density varies inversely with the square of the distance from the source. Since received electric field strength is expressed in voltage units per meter (e.g. mV/m), and derived from power, the electric field varies inversely proportional to its distance from the source. This means every time you double the distance from the source the field strength drops by half while power drops by one-quarter.

# SBE Certification Achievements

## CONGRATULATIONS

### LIFE CERTIFICATION

**Certified Senior Television Engineer (CSTE)**  
Rick Owen, Pacifica, CA - Chapter 40

**Certified Audio Video Engineer (CEAV)**  
Mike Curran, San Diego, CA - Chapter 36

**Certified Video Engineer (CEV)**  
William Dyess, Dearborn Heights, MI - Chapter 37

**Certified Broadcast Technologist (CBT)**  
Joseph Patris, Jr., Newington, CT - Chapter 14  
Robert Spain, Thermopolis, WY - Chapter 129

Certified Professional Broadcast Engineers and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59½ years old and are current members of SBE may be granted Life Certification if so requested. All certified who have retired from regular full-time employment and are at least 59½ years old may be granted Life Certification if they so request. If the request is approved, the person will continue in his/her current level of certification for life.

### NOVEMBER EXAMS

**Certified Senior Radio Engineer (CSRE)**  
Thomas Bosscher, Hudsonville, MI - Chapter 102

**Certified Broadcast Radio Engineer (CBRE)**  
Angel Ramos, Spring Valley, CA - Chapter 36  
Glen Tapley, Odenville, AL - Chapter 68

**Certified Broadcast Television Engineer (CBTE)**  
Charles Babir, Bainbridge Island, WA - Chapter 16  
Geourg Bashour, Skokie, IL - Chapter 26  
Brandon Bouche, Garner, NC - Chapter 93  
Ryan Phillips, Seattle, WA - Chapter 16  
Eli Sanders, Atlanta, GA - Chapter 5

**Certified Video Engineer (CEV)**  
Brandon Bouche, Garner, NC - Chapter 93

**8-VSB Specialist (8-VSB)**  
Brad Jurens, Chicago, IL - Chapter 26

**Certified Broadcast Networking Technologist (CBNT)**  
Mark Corless, Menifee, CA - Chapter 131  
Mikie Ferro, San Jacinto, CA - Chapter 131  
Patricia Nelson, Rossville, GA - Chapter 5  
Jose Ramos, Lake Elsinore, CA - Chapter 131  
Matthew Woeppel, Charlotte, NC - Chapter 45

**Certified Broadcast Technologist (CBT)**  
Jose Betancourt, Albuquerque, NM - Chapter 34  
Jonathan Hollon, North Richland Hills, TX - Chapter 67  
Mark Metzler, Weymouth, MA - Chapter 11

**Certified Radio Operator (CRO)**  
Shane Davis, Rocklin, CA - Chapter 43  
S.C. (Bud) Kress, Rocklin, CA - Chapter 43  
Nigel O'Shea, Madison, WI - Chapter 24  
Nicholas Owens, Rocklin, CA - Chapter 43  
Kevin Van Streetkerk, Folsom, CA - Chapter 43

**Certified Television Operator (CTO)**  
Marlina Lewis, Bristol, CT - Chapter 15

### SPECIAL PROCTORED EXAMS

**Certified Senior Television Engineer (CSTE)**  
Glenn Anderson, Richmond, TX - Chapter 105  
Austin Thomas, Conroe, TX - Chapter 105

**AES Exam Session**  
**Certified Senior Radio Engineer (CSRE)**  
Anton Mittag, White Plains, NY - Chapter 15

**AMITRA**  
**Certified Broadcast Radio Engineer (CBRE)**  
Burley Stapley, Findlay, OH

**Certified Broadcast Technologist (CBT)**  
Andrew Schildberg, Tucson, AZ - Chapter 32

**Alabama Broadcaster Association**  
**Certified Broadcast Technologist (CBT)**  
Joshua Gill, Phenix City, AL  
William Harrison, Alexandria, VA  
Jason Melton, Columbus, GA  
James Parker, Huntsville, AL  
Christopher Rhoads, Estero, FL  
Patrick Watson, Huntsville, AL

### CERTIFIED BY LICENSE

**Certified Broadcast Technologist (CBT)**  
Edward Best, Durham, NC  
Glen Yakushiji, Washington, DC - Chapter 37

### SBE CERTIFIED SCHOOL COURSE COMPLETION

**DINFOS**  
Daniel Vernatter, Scott AFB, IL - Chapter 55

### CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)

**Certified Professional Broadcast Engineer (CPBE)**  
Robert Hinkle, Louisville, KY - Chapter 35  
Paul Thurst, Kerhonkson, NY - Chapter 58

Applicants must have 20 years of professional broadcast engineering or related technologies experience in radio and/or television. The candidate must be currently certified on the Certified Senior Broadcast Engineer level.

### CERTIFIED RADIO OPERATOR (CRO)

Edward Best, Durham, NC  
Cole Collins, St. Petersburg, FL  
Zach Gofferey, Indianapolis, IN  
Matthew Huber, Carmel, IN  
Hunter Krause, Seminole, FL  
Joshua Lawson, Greenwood, IN  
Eric Matthews, Louisville, KY  
Luis Sanchez, Aguirre, PR  
Calvin Studebaker, Largo, FL  
Kojin Tashiro, Floyd's Knobs, IN

**Pasadena City College**  
Kyle Dobson, Burbank, CA  
Cameron Girsakis, Los Angeles, CA  
Juston Heavens, Pasadena, CA  
Colin Jenkins, Los Angeles, CA  
Paul Ratliff, N. Hollywood, CA  
Glenn Soracco, Sunland, CA  
Osvaldo Tadeo, Pacoima, CA

**St. Ambrose University**  
Danzell Douglas, Merrville, IN  
Christian Dzekunskas, Henry, IL  
Carter Foley, Bettendorf, IA  
Tom Greenwood, Davenport, IA  
Oliden Herrera, Davenport, IA  
Adam Metzger, Davenport, IA  
Rebecca Moews, Indianola, IA  
Abbey Nimrick, McHenry, IL  
Michael Pace, Bettendorf, IA  
Edgar Rodriguez, Muscatine, IA

### CERTIFIED TELEVISION OPERATOR (CTO)

Victoria Brace, Clearwater, FL  
Jackson Buraczewski, West Allis, WI  
S. Erik Etheridge, Albany, GA

**Dubiski Career High School**  
Maria Salazar, Grand Prairie, TX  
Raquel Rivera, Grand Prairie, TX

**Cleveland High School**  
Cesar Briceno, Cleveland, TX  
Ana Espinoza, Cleveland, TX

### RECERTIFICATION

Applicants completed the recertification process either by re-examination, point verification through the local chapters and national Certification Committee approval and/or met the service requirement.

**Certified Professional Broadcast Engineer (CPBE)**  
Paul Claxton, Moreno Valley, CA - Chapter 131  
Andrew Funk, Atlanta, GA - Chapter 5  
Kishore Persaud, Cantonville, MD - Chapter 46  
John-Erick Rempillo, Windsor, ON

**Certified Professional Broadcast Engineer (CPBE)**  
**8-VSB Specialist (8-VSB)**  
Charles Mikowski, Grand Rapids, MI - Chapter 102

**Certified Broadcast Networking Engineer (CBNE)**  
Paul Claxton, Moreno Valley, CA - Chapter 131  
Darin Hall, Tulsa, OK - Chapter 56

**Certified Broadcast Radio Engineer (CBRE)**  
Kirk Harnack, Nashville, TN - Chapter 103  
Matthew Stadtmueller, Frederick, CO - Chapter 48

**Certified Broadcast Radio Television Audio Video Engineer (CBRTAVE)**  
Lewis Lawrence, Jr., Destrehan, LA - Chapter 72

**Certified Broadcast Television Engineer (CBTE)**  
David Desrochers, Rochester, MA - Chapter 11  
Robert Dickinson, St. Thomas, VI - Chapter 146  
Lance Feder, Loveland, OH - Chapter 33  
Elizabeth Wolfe Hamrick, Columbus, OH - Chapter 52

David Haralambou, Marlborough, MA - Chapter 11  
Mark Seekins, Columbus, OH - Chapter 52  
Joseph Wargo, Lyndhurst, OH - Chapter 70  
Jeffery Whaley, Winston, GA - Chapter 5

**Certified Broadcast Networking Technologist (CBNT)**  
Raymond Bagby, Weartherford, OK - Chapter 85  
Ronnie Barnes, Menifee, CA - Chapter 131  
David Desrochers, Rochester, MA - Chapter 11  
Charles Mikowski, Grand Rapids, MI - Chapter 102  
Horace Murray, Glen Burnie, MD - Chapter 37  
Kishore Persaud, Cantonville, MD - Chapter 46  
Charles Youngs, Atlanta, GA - Chapter 5

**Certified Senior Television Engineer (CSTE)**  
Richard Torpey, Bayshore, NY - Chapter 15

**Certified Audio Engineer (CEA)**  
James Powell, Birmingham, AL - Chapter 68  
Charles Youngs, Atlanta, GA - Chapter 5

**Certified Broadcast Technologist (CBT)**  
David Bialik, New City, NY - Chapter 15  
Joann Colameco, Wilmington, DE - Chapter 18  
Yvonne Ewry, Jurupa Valley, CA - Chapter 131  
Charlie Farr, Jr., Virginia Beach, VA - Chapter 54  
Chad Hagedorn, Tacoma, WA - Chapter 16  
Donald Mussell, Jr., Kilauea, HI - Chapter 53  
Charles Sawner, East Syracuse, NY - Chapter 22  
William Shifflett, Middleton, WI - Chapter 24  
Craig Wells, Plant City, FL - Chapter 39  
Britny Williams, Madison, WI - Chapter 24  
Travis Wussow, Madison, WI - Chapter 24

# SBE Fellow Nominations Are Open

by Troy Pennington, CSRE, CBNT  
Chair, SBE Fellowship Committee

There is still time to recognize a broadcasting peer who has contributed to the success of an SBE chapter or broadcasting. The membership grade of SBE Fellow is the highest in the society, and it honors those who have exhibited a dedication to the advancement of the broadcast engineer, the field of broadcast engineering and the Society of Broadcast Engineers itself. To date, 84 members have been recognized with the honor in the society's more than 50 years of existence.

To nominate a member, candidates must be proposed in writing by a voting SBE member to the Fellowship Committee. The nomination must include a comprehensive professional history of the nominee and an explanation of why the candidate is deserving of this honor. The nomination must also include the written endorsements of at least five other voting SBE members. Nominations are confidential. No others besides the nominators



SBE Fellows gather at the 2018 SBE National Meeting Awards Banquet.

and the members of the Fellowship Committee should be aware of the nomination. The nominee should not know that he or she has been nominated.

Nominations for 2019 must be received no later than March 15, 2019, for consideration. The Fellowship Committee will bring the names of nominees to the Board of Directors for consideration and election at the April 7, 2019, meeting. The SBE secretary will notify those elected. Awards will be presented at the SBE National Awards Dinner during the 2019 SBE National Meeting to be held in Madison, WI.

Submit your nominations in a single package to:  
Fellowship Committee Chair Troy Pennington, CSRE, CBNT;  
6156 Hampton Hall Way; Hermitage, TN 37076; or to  
tpennington@sbe.org.

# SBE Mentor Program Continues to Grow

The SBE Mentor Program is now in its third year and the SBE is proud of these accomplishments:

- Grown representation of mentors and mentees to include more than half of the states. We continue to work to have participation in all 50 states.

- Provided a quarterly Mentor Webinar series with a Kick-Off/Welcome Meeting, followed by three webinars in 2018 that covered transmitter site safety, leadership development communications, and building ATSC 3.0 stations.
- Enhanced mentor/mentee communications and support through the Facebook group. This communication vehicle is a valuable networking tool and a 24/7 resource for industry information.

The program is off to a great start in 2019 with new pairings and another Kick-Off webinar. More mentors and mentees are welcome to join the program. Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

If you are a mentor or mentee and will attend the 2019 NAB Show, be sure to add the SBE Membership Meeting on Tuesday, April 9 to your schedule, and notify Cathy Orosz. There will be an opportunity to meet other mentors and mentees face-to-face and be recognized for your participation in the program.



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*Where Content Comes to Life*

<p>Thanks to these SBE Sustaining Members for their support of the SBE at the NAB Show</p> <p><b>Membership Meeting Sponsor</b></p> 	<p><b>SBE Booth Sponsors</b></p>   
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<p><b>Reception Bronze Sponsors</b></p>     	



*In Memoriam*

**Barry Thomas, CPBE,  
DRB, CBNE**  
Member #10068  
1962 - 2018

**Fellow Member**  
SBE President 2007 - 2009



# Membership Renewal Time Is Here

Annual membership renewal for Member, Associate, Senior, Student and most Fellow members is underway. Renewal letters and membership cards are in the mail to you. The due date for membership renewal is April 1. Those in the Member, Senior and Associate categories that chose the SBE MemberPlus option in 2018 may renew with SBE MemberPlus in 2019, or can revert to traditional membership. Fellow members, who are not also Life members, also have that option.

Membership dues for the SBE MemberPlus option remains at \$175 and include all of the benefits of traditional membership, plus, access to all archived SBE webinars and any new webinars the SBE presents during the membership year (through March 31, 2020), at no extra charge.

Traditional membership dues for Member, Senior, Associate and Fellow members remain at \$85. Student membership is \$25. Traditional SBE membership provides education, certification programs and member services as well as opportunities for member interaction in local chapters and with members across the United States and in 30 other countries. The SBE network of 114 SBE chapters

provides opportunities for education, local SBE certification exams and professional and social interaction with local technical media professionals.

You can renew your membership online at the SBE website, [www.sbe.org](http://www.sbe.org). Click on "Renew Membership" in the upper right-hand corner of the home page. The on-line system is secure and accepts Visa, MasterCard and American Express. The system automatically generates a receipt, sent to your email address. You will need your member number and SBE website password to access the renewal system. If you have forgotten your number or password, there is an automated retrieval system available to you on the renewal page.

The SBE By-laws allow for a grace period if dues are not paid by April 1. However, current SBE MemberPlus members that do not renew by April 1 at the MemberPlus level, will lose their MemberPlus status. Their membership will revert to traditional membership during the grace period and they will not have free access to SBE webinars until they renew with the SBE MemberPlus option.

Life Members of the SBE don't have to renew their membership. In the spring you'll receive a letter that provides an update on SBE activities and an opportunity for you to edit your contact information. Life members are those who are at least 65 years of age, are fully retired from broadcast engineering work and have been a member of SBE for at least 15 consecutive years at the time of applying for Life member status. There is a one-time \$85 application fee. After acceptance, Life members pay no further dues for the rest of their life and receive all of the tradi-

tional member benefits. Life members do not automatically receive

the MemberPlus benefit. That is available to them at the same \$175 rate as it is to other members.

Members of five years or more who have at least 15 years of experience in broadcast engineering or allied fields and can show demonstrated responsibility in supervision, equipment design, physical plant design, marketing and/or equipment systems integration, are eligible for Senior Membership. There is no cost to apply for Senior membership.

Applications for Senior and Life Membership are available on the SBE website. Click on Membership/Membership Categories.

Balloting for the annual election of the national board of directors will be conducted online and through the mail in July 2019. More than 90% of the election ballots cast in 2018 were submitted using our web-based balloting system. All voting members are encouraged to use the electronic ballot method as it is quick, easy and saves the society printing, mailing and postage expense.

Members who prefer voting by mail may opt-out of electronic balloting by checking the appropriate box on their member renewal form (available on both the paper renewal and the on-line renewal form). The letter to Life Members will also provide the opt-out opportunity.

If you have questions about your membership renewal, please contact Scott Jones at the SBE National Office at -317-846-9000 or [kjones@sbe.org](mailto:kjones@sbe.org).



## MARK YOUR CALENDAR

### Mentor Program Kick-off Webinar

online  
February 13, 2019 [sbe.org/mentor](http://sbe.org/mentor)

### Webinar: ATSC 3.0 Module 5

online  
February 27, 2019 [sbe.org/webinars](http://sbe.org/webinars)

### SBE Certification Exams

NAB Show  
April 9, 2019 [sbe.org/certification](http://sbe.org/certification)  
Application deadline March 1

### Webinar: SBE RF Safety Course

online  
May 2, 2019 [sbe.org/webinars](http://sbe.org/webinars)

### Webinar: AM Tower Webinar

online  
May 16, 2019 [sbe.org/webinars](http://sbe.org/webinars)

### SBE Certification Exams

Local Chapters  
June 7 - 17, 2019 [sbe.org/certification](http://sbe.org/certification)  
Application deadline April 19

### SBE Certification Exams

Local Chapters  
Aug. 2 - 12, 2019 [sbe.org/certification](http://sbe.org/certification)  
Application deadline June 3

### SBE Chapter 22 Expo

Syracuse, NY  
Sept. 25, 2019 [sbe22.org/2019-expo](http://sbe22.org/2019-expo)

### SBE National Meeting

Madison, WI  
Oct. 15-16, 2019 [sbe.org](http://sbe.org)

### WBA Broadcasters Clinic

Madison, WI  
Oct. 15-17, 2019 [wi-broadcasters.org](http://wi-broadcasters.org)

## Coming in April: The Fourth SBE Compensation Survey

The SBE launched its annual Compensation Survey in 2016 to provide valuable industry information to our members. In April, the SBE will post its fourth survey, and we need your help in gathering and supplying the most accurate information.

As an SBE member, you will have free access to the survey results as a benefit of your membership. Do you know if your earnings are in line with other professionals in your field or your market? There's no need to ask around, because the survey will provide that information, and gather it from many sources. The SBE is your trusted source.

Launching April 1, the fourth Compensation Survey will provide practical information to SBE members about individual compensation (salary and benefits) based

on the type of broadcast or multimedia involvement, market size and years of experience. SBE members will have access to the full report. We encourage every SBE member to participate to provide a large sample base of responses. All responses are anonymous. The first three surveys have provided good information, and strong participation ensures that we can provide the most accurate and useful data.

On April 1, look for a link to the survey in our regular email communications and on the SBE website. The results will be published in July.





## LEGAL PERSPECTIVE

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

# Thank You Mats Järllström

In 1979, when the FCC proposed to eliminate the First Class Radiotelephone license, the SBE and others vigorously opposed the action, saying that the absence of FCC regulation of broadcast station operators would trigger a hodgepodge of non-uniform state licensing requirements for broadcast station operators. The FCC dismissed the argument, saying that, “radio communications, since its inception, and by its very nature, has always extended across state lines. The states have never concerned themselves with radio operator licensing. [The commenters] gave no indication that the individual states might be inclined to begin any form of radio related regulation...”

Since then, however, some states have regularly attempted to regulate the practice of broadcast engineering by attempting to prohibit broadcast engineers from calling themselves engineers (or in some states, prohibiting broadcast engineers from doing their jobs at all) unless they are registered PEs in the state in which they practice their professions. It is broader than that, of course; no matter the type of engineering, states such as Texas, Washington, Ohio and Oregon have had statutes regulating one of two things: (1) what you can do as a practicing engineer without PE registration; or (2) what you can call the work that you do. The second type of statute is the more prevalent, and the first is the more dangerous.

Some consulting engineers who are not registered PEs in the states that limit the use of the term “engineer” have worked around that by calling their businesses “telecommunications consulting firms.” There are exemptions from some state registration statutes that apply to employees of business entities (the theory

being that those employee engineers do not hang out a shingle and offer engineering services to the general public). But the fear that SBE had back in 1979 was realized for broadcast engineers in an uncomfortably large number of cases.

The SBE has consistently made arguments that broadcast engineers should not be subject to state regulation because their branch of engineering is in an area completely occupied by Federal law and regulation; and therefore, state licensing of broadcast engineers is preempted by the Supremacy Clause of the Constitution. We have in court proceedings and before state licensing boards argued that those who perform technical functions at FCC-licensed, FCC-controlled radio facilities – instrumentalities of interstate commerce – are not subject to the state police power. We have had some success with this argument over the years in individual cases; but not always.

### Engineering a Win

In the very last days of 2018 a Federal Court in Oregon issued an important decision that stands to benefit broadcast engineers in these kinds of cases, based on a completely different theory of law. The Oregon Board of Examiners for Engineering and Land Surveying was found to have violated the First Amendment to the U.S. Constitution when it levied a fine on Mats Järllström, a Swedish electronics engineer living in Oregon, who was fined for referring to himself as an engineer and, quite literally, for doing math without a PE registration. The story is compelling. Mats has won the right to use the term “engineer” in describing his profession. Here’s what happened:

Oregon regulations prohibit individuals from referring to themselves as engineers unless they have PE registration in Oregon. Non-PE engineers risk being fined simply for using the title in the state. Järllström, in 2015, emailed the Oregon State Board of Examiners for Engineering and Land Surveying to note that the state’s automated traffic light camera system used a flawed design. His wife in 2013 had received an automatically generated ticket while driving in Oregon.


Järllström showed that the equation used to catch red light runners was incorrect. For describing himself as an

engineer in letters offering fixes for the equations governing Oregon traffic camera systems, the State board opened an investigation in 2015, and in 2016, fined Järllström \$500 for practicing unlicensed engineering.

Järllström sued the Oregon State Board of Examiners. He argued that his First Amendment right to free speech had been hindered by Oregon’s rules. He sought relief on behalf of himself and others who are similarly situated to him. He said that he “brings this federal civil-rights lawsuit to vindicate his and others’ constitutional right to speak out on any topic—however complex it may be—and to describe themselves truthfully using the word ‘engineer.’” Similarly, he alleged that the statutes “prohibit and prevent [him] from describing himself publicly using the word ‘engineer,’ and these laws are enough to chill or silence other persons of ordinary firmness from speaking in this way.”

On Dec. 28, Järllström won his case. (Read the ruling at the link below.) The decision of the United States District Court for the District of Oregon held, among many other things that the word “engineer” is different than the other title restrictions courts have upheld in the past. Unlike “M.D.” or “certified public accountant,” there is no fixed meaning to the title “engineer.”

On the contrary, said the Court, “there are many different types of engineers. Courts have long recognized that the term ‘engineer’ has a generic meaning separate from ‘professional engineer,’ and that the term has enjoyed ‘widespread usage in job titles in our society to describe positions which require no professional training.” In summary, the Court said that the Oregon “title laws” prohibit a substantial amount of protected speech...The record demonstrates that the threat to free expression is not merely hypothetical. Therefore, “from the text of [the law] and from actual fact,” the Court holds that the Title laws are substantially overbroad in violation of the First Amendment.

Thanks, Mats, from the broadcast engineering community. Nice work. 

### LINK

Read the court ruling  
[http://bit.ly/jarlstrom\\_case](http://bit.ly/jarlstrom_case)

### Put These Webinars by SBE on Your Calendar

- February 27: ATSC 3.0 Module 5
- May 2: RF Safety 2019
- May 16: AM Tower Webinar



[sbe.org/webinars](http://sbe.org/webinars)



## FOCUS ON SBE

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

# 55 Years for the SBE!

It doesn't seem like five years have already passed since the SBE celebrated a half-century of serving broadcast engineers. But here we are, approaching April 5, 2019, the 55th anniversary of the organization meeting held at the Chicago Hilton Hotel during the 1964 NAB Convention. Approximately 100 people attended that meeting, chaired by John Battison, who later became the SBE's first president.

The Society has come a long way in 55 years. Among the many advancements have been the addition of the certification program in 1975, a national network of volunteer frequency coordinators several years later, beginning educational programming after receiving the Ennes Educational Foundation Trust in 1980 from Chapter 25 of Indianapolis, and expanding our educational offerings to include on-line webinars and courses in the 2000s.

Membership has expanded from that small group in the beginning to more than 5,000, and a network of 114 chapters. Some of those members are located outside the U.S., in 25 other countries.

The broadcast/media industry has changed tremendously since the SBE began, and the Society has instituted many changes to meet the changing needs of our members. During 2019, we are going to take a weekly pictorial look back at SBE through the years, "SBE Throw-back Thursday." It will appear in SBE social media posts.

We are also going to recognize the anniversary with a commemorative SBE Member 55<sup>th</sup> Anniversary pin. A limited number of these pins are now available through the SBE National Office Store for the same price as regular member pins, \$14, plus \$3 shipping (within the US). Go to the SBE Store at [www.sbe.org](http://www.sbe.org) to order online, or order when renewing your membership.



The SBE 55<sup>th</sup> anniversary pin.

### Recognizing Good Work

Beginning this year, and then annually, the SBE is going to recognize one SBE chapter as the "SBE Chapter of the Year." Chapters won't nominate themselves, but rather a group of chapters will be selected as finalists based on statistics kept at the national office. Among the criteria will be chapter meetings and programs, attendance, communications, member growth and percentage of certified members. The finalists will then be additionally judged base on subjective criteria, such as special programs, events and activities the chapter carries out, programs for high school and college students about careers in technical media fields, etc. The finalists will be judged by the national Board of Directors and the winning chapter will be recognized during the SBE Spring Membership Meeting held during the 2019 NAB Show in Las Vegas. The purpose is to recognize outstanding work by a local chapter, but it is also to illustrate the importance of having active, and productive chapters that are of value to local SBE members. Something we hope all chapters will aspire to.



John Poray presents Barry Thomas with a plaque to mark the end of Barry's second term as SBE president.

### Remembering Barry Thomas

I'm sure most of you heard recently that past SBE President Barry Thomas passed away in December, after a 10-year battle with cancer. Barry didn't let his disease stop him from living life as normally as possible. He continued his impressive and diverse media career and stayed active in industry groups and in leadership roles. I was honored to work with him while he was a member of the SBE Board of Directors over a span of ten years, and especially during his two years as SBE national president from 2007 to 2009. I saw his unwavering commitment to the broadcasting industry, the field of broadcast engineering and those who work within it. His presence, which always lit up a room, will be missed. Our condolences to his family and many friends.

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## ENGINEERING PERSPECTIVE

By Mike Arnold, Ramboll US Corporation and Anthony Flores, AFF Consulting, LLC  
MArnold@ramboll.com  
aflores@affconsultingllc.com

# Managing Lead-Based Paint on Towers

The rapid rise of the communications tower industry in support of the radio and television broadcast, two-way radio, and cellular industries in the last 70 years coincided with extensive industrial use of lead-based paint (LBP). Although the U.S. and other countries have taken steps to reduce use of LBP, LBP has historically been used on the exterior of many infrastructure elements such as bridges, water towers, and industrial buildings, especially those constructed and painted prior to about 1980. In the U.S., current Federal Aviation Administration regulations prohibit the use of lead in paint formulations for aerospace navigation hazard markings on structures such as communications towers. However, LBP has often historically been used to generate the familiar red-orange and white colors on communications towers, and along with past LBP use on other aging infrastructure, represents a significant potential environmental and operational liability. This liability is exacerbated by an increasing sensitivity of the public and of regulatory agencies to LBP management and releases of LBP to the environment.

The science and marketing realities of communications and broadcasting result in towers that are sometimes located in populated and/or environmentally sensitive areas, and managing these structures therefore often includes challenges of being a good neighbor to communities and sensitive environments. LBP has emerged as a key element of that challenge. The development of an LBP management program should be considered as part of operations and maintenance planning for communications structures to ensure safe conditions for workers and the surrounding community, and to address the challenges that the users of these structures face in being good neighbors to those surrounding their tower facilities.

The environmental hazards of LBP are typically realized from releases of paint fragments from weathering or during construction and maintenance activities. The primary route of exposure to lead from LBP under these conditions is usually direct ingestion of the LBP fragments either incidentally by hand-to-mouth contact or, as is sometimes the case with small children, purposeful ingestion of brightly-colored, sweet-tasting paint chips. LBP also represents an inhalation exposure hazard to workers and others in the vicinity when paint dust is generated or when paint is burned, releasing lead-containing fumes.

Evaluating a structure for the presence of LBP is a relatively simple process. Lead levels can be screened in *in situ* paint using an x-ray fluorescence (XRF) analyzer, or paint samples can be collected from the structure and submitted to a laboratory for lead analysis. The U.S. Environmental Protection Agency defines LBP as material containing greater than 0.5% lead by weight (5,000 milligrams per kilogram), or containing greater than 1 milligram of lead per square centimeter of paint.



If your tower has LBP, develop a Lead Control Plan to address the situation before it becomes a problem.

### Make a Plan

If LBP is confirmed on a communications structure, a Lead Control Plan should be developed. The plan should address two key issues: worker safety regarding lead exposure issues and environmental protection related to establishing procedures to limit release of LBP. The plan should be developed by an industrial hygienist in cooperation with the tower contractor to ensure a thorough understanding of the project objectives and acceptable means and methods to be used. This plan should be completed in advance of any activities that could result in worker exposure to LBP or the release of LBP from a structure, such as routine maintenance and structural modifications.

The elements of the plan should be tailored to facility conditions and should include process expectations for minimizing the release of LBP during tower work, a program to monitor and mitigate worker and community exposure to lead, and an LBP waste characterization and disposal plan. Follow-up laboratory testing for leachability of the lead will be needed to address waste characterization data needs. Planning site visits to confirm that contractors are following the Lead Control Plan can be an important element to ensure that the objectives of the planning are being realized.

From a cost perspective, investing in control and containment of LBP releases from a tower is typically more effective than addressing the dispersed LBP fragments once they are released. Costs for cleanup of LBP release events can be very high, especially in densely-populated areas and ecologically-sensitive environments.

LBP control in work zones is typically achieved by using vacuum-equipped and low-energy tooling within a containment area of shrouding designed to capture fugitive paint chips. Effective work area containment can be challenging in practice, as weathered LBP is often released by abrasion by boots and rigging during installation of containment. Wind load design limitations of tower structures often limit the amount of containment shrouding that can be established for a work area at any given time, requiring repeated repositioning when working across larger areas of a tower. This repeated handling of the shrouding materials increases the potential for release of LBP fragments.

In planning tower work that could result in a release of LBP, it is often valuable to develop a public relations plan for community engagement and a technical plan for monitoring and response to incidental paint releases. Although the development and application of a Lead Control Plan can mitigate most releases of LBP, LBP releases can still occur during tower work activities, and can also occur without direct contact with the tower as the LBP weathers, especially under deferred maintenance conditions. To establish baseline conditions in case an LBP release occurs, this phase of the project work may include identifying baseline LBP fragment distribution and lead in soil conditions in the tower vicinity prior to beginning tower work. The plan should be designed to anticipate and addresses reaction from local residents, property owners, media outlets, and environmental regulatory agencies to help mitigate response costs and minimize reputational damage and community standing should an LBP release occur.

<b>305 Broadcast • 2015</b> Alfonso Lopez 305-406-3560 Broadcast Equipment Supplier	<b>Dialight Corporation • 2006</b> US Headquarters 732-919-3119 FAA Obstruction Lighting, LED Based	<b>L3 Electron Devices • 2017</b> Mark Strohecker 570-326-3561 CEAs, IOTs, Thyratrons	<b>RF Specialties Group • 2008</b> www.rfspecialties.com Everything from the Microphone to the Antenna
<b>AC Video Solutions • 2014</b> Andrea Cummis 201-303-1303 Consulting, Systems Design/Integration	<b>Dielectric • 1995</b> Cory Edwards 207-655-8131 TV & FM Transmission & Cellular Products	<b>Lawa AG • 2017</b> Michael Dosch 888-810-4468 AoIP Consoles & Virtual Radio	<b>Rohde &amp; Schwarz • 2003</b> Vait Gumbert 724-693-8171 Transmitters, Test & Measurement, Video
<b>AEQ Broadcast International • 2015</b> Peter Howarth 954-581-7999 Broadcast Audio, Video and Communications	<b>Digital Alert Systems, LLC • 2005</b> Bill Robertson 585-765-1155 Emergency Alert Systems	<b>LBA Technology Inc. • 2002</b> Javier Castillo 252-757-0279 AM/MW Antenna Equipment & Systems	<b>Ross Video Ltd. • 2000</b> Jared Schatz 613-228-0688 Manufacturer, Television Broadcast Equipment
<b>American Tower Corporation • 2000</b> Peter A. Starke 781-926-4772 Development/Construction/Management	<b>DoubleRadius, Inc. • 2012</b> Jeffrey Holdenrid 704-927-6085 IP Microwave STL	<b>Linkup Communications Corporation • 2017</b> Mark Johnson 703-217-8290 Satellite Technology Solutions	<b>Sage Alerting Systems Inc. • 2010</b> Gerald LeBow 914-872-4069 Emergency Alert Systems Products
<b>ATV Broadcast, LLC • 2016</b> Doug Smith 317-258-6280 Telecommunications Consulting Group	<b>Drake Lighting • 2015</b> Dave Sheppard 270-804-7383 FAA Obstruction Lighting - Medium and High Intensity	<b>LYNX Technik • 2007</b> Steve Russell 661-251-8600 Broadcast Terminal Equipment Manufacturer	<b>SCMS Inc. • 2000</b> Bob Cauthen 800-438-6040 Audio and RF Broadcast Equipment Supplier
<b>Audemat-Worldcast Systems Inc. • 2000</b> Christophe Poulain 305-249-3110 Control Manufacturer	<b>DTS Inc./HD Radio Technology • 2014</b> Rick Greenhut 443-539-4335 HD Radio Technology	<b>Markertek • 2002</b> Wesley Brewer 800-522-2025 Specialized Broadcast & Pro-Audio Supplier	<b>Seacom Erectors, Inc. • 1997</b> John Breckenridge 360-793-6564 Tower/Antenna Erections
<b>AVCOM of Virginia, Inc. • 2010</b> Tom Pagonis 804-794-2500 Spectrum Analyzers	<b>du Treil, Lundin &amp; Rackley, Inc. • 1985</b> Jeff Reynolds 941-329-6000 Consulting Engineers	<b>Micronet Communications Inc. • 2005</b> Jeremy Lewis 972-422-7200 Coordination Services/Frequency Planning	<b>SEG • 2014</b> Chris Childs 913-324-6004 Supply Chain Products and Services
<b>A-Ware Software/MusicMaster • 2014</b> Shane Finch 352-351-3625 Advanced Music Scheduling Solutions	<b>The Durst Org. - 4 Times Square • 2004</b> John M. Lyons, CPBE 212-997-5508 TV/FM/Microwave Tower Site	<b>Microtech Gefell GmbH • 2016</b> Udo Wagner +49 36649-82245 Microphones	<b>Shively Labs • 1996</b> Dale Ladner 888-SHIVELY FM Antennas & Combiners
<b>Belden Electronic Division • 1991</b> Sales 800-235-3361 Cable and Connectivity	<b>DVE0 - Division of Computer Modules Inc. • 2011</b> Laszlo Zoltan 858-613-1818 Everything About Transport Streams	<b>Microwave Video Systems • 2011</b> Warren J. Parece 781-665-6600 Microwave Equipment Rental, Sales & Service	<b>Shure Incorporated • 2012</b> Bill Ostry 847-600-6282 Microphones, Wireless Systems, Headsets
<b>Blackmagic Design • 2012</b> Terry Frechette 408-954-0500 Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters	<b>Econco • 1980</b> Debbie Storz 800-532-6626, 530-662-7553 New & Rebuilt Transmitting Tubes	<b>Middle Atlantic Products • 2005</b> David Amoscato 973-839-1011 Equipment, Mounting, Solutions	<b>Sierra Automated Systems and Eng. Inc. • 2011</b> Al Saldi 818-840-6749 Routers, Mixers, Consoles, Intercoms
<b>Bracke Manufacturing LLC • 2012</b> Patra Largent 949-756-1600 RF & Microwave Components	<b>ENCO Systems Inc. • 2003</b> Ken Frommert 800-362-6797 Playout and Automation Solutions	<b>Moseley Associates Inc. • 1977</b> Bill Gould 805-968-9621 x785 Digital STLs for Radio and Television	<b>Silvus Technologies • 2015</b> Mark Tommey 617-816-6588 Wireless Video Mesh Network
<b>Broadcast Depot • 2018</b> John Lackness 305-599-3100 TV, Satellite, Radio, IP	<b>ERI - Electronics Research • 1990</b> David White 812-925-6000 Broadcast Antennas, Transmission Line, Filters/Combiners, Towers and Services	<b>Nascar Productions • 2014</b> Abbey Kielcheski 704-348-7131 Live/Post Production Services	<b>Solid State Logic • 2014</b> Steve Zaretsky 212-315-1111 Digital Audio Mixing Consoles, Networked Audio Routing, Embedded Audio Solutions
<b>Broadcast Devices, Inc. • 2015</b> Robert Tarsio 914-737-5032 Audio/RF Support Products	<b>Floral Systems • 2008</b> Shawn Maynard 877-774-1058 Television Broadcast Automation	<b>National Association of Broadcasters • 1981</b> Industry Trade Association 202-429-5340	<b>Staco Energy Products Co. • 2010</b> Paul Heiligenberg 937-253-1191 x128 Manufacturer of Voltage Regulators, UPS
<b>Broadcast Electronics Inc. • 1978</b> Tom Beck 217-224-9600 Radio Equipment Manufacturer	<b>Frontline Communications • 2015</b> Tracy Brink 727-280-8843 Broadcast Vehicle Manufacturer	<b>National Football League • 1999</b> Ralph Beaver 813-282-8612 Game Day Coordination Operations	<b>Sutro Tower Inc. • 1989</b> Eric Dausman 415-681-8850 Broadcast Tower Leasing
<b>Broadcast Software International • 2016</b> Marie Summers 888-274-8721 Radio Automation, Audio Logging	<b>Fujifilm/Fujinon • 1986</b> Gordon Tubbs 973-686-2769 Broadcast & Cine Lens Products	<b>Nautel Inc. • 2002</b> Jeff Welton 877-662-8835 Radio Broadcast Transmitter Manufacturer	<b>Technical Broadcast Solutions, Inc. • 2018</b> Robert Russell 215-983-0855 Engineering and Consulting Services
<b>Broadcast Supply Worldwide • 1986</b> Shannon Nichols 800-426-8434 Audio Broadcast Equipment Supplier	<b>GatesAir • 1977</b> Dave Hopson (TV) 513-445-5243 Mark Goins (Radio) 513-899-9124 Broadcast Equipment Manufacturer	<b>Nemal Electronics Int'l Inc. • 2011</b> Benjamin L. Nemser 305-899-0900 Cables, Connectors, Assemblies and Fiber Optic	<b>Tektronix Inc. • 1977</b> Jim Lang 503-627-2980 Video Test & Measurement, Equipment Manufacturer
<b>Broadcasters General Store • 2004</b> Buck Waters 352-622-7700 Broadcast Audio Video Distributor	<b>Heartland Video Systems, Inc. • 2011</b> Dennis Klas 920-893-4204 Systems Integrator	<b>Neutrik USA, Inc. • 2012</b> Kathy Hall 704-972-3050 Ruggedized Optical Fiber Systems	<b>Teladyn e2v US • 1997</b> Dominic Piarulli 845-578-6137 Electronic Components
<b>Calrec Audio • 2016</b> Helen Carr 703-307-1654 Audio Mixing Equipment	<b>Hilights, Inc. • 2016</b> Timothy Nash 352-564-8830 Obstruction Lighting Maintenance	<b>NPR Distribution Services • 2019</b> Dan Riley 202-513-2624 Your Content Delivery Partners	<b>Televue USA, LLC • 2018</b> Andy Ruffin 937-475-7255 ATSC 3.0 Transmission Solutions, Antennas
<b>Complex • 2017</b> Daniel Coscarella 800-445-7568 x7409 Fiber Optic Cable Assembler	<b>Hitachi Kokusai Electric Comark • 2013</b> Jack McAnulty 413-998-1523 Manufacturer Broadcasting Transmission Equipment	<b>Orban Labs, Inc. • 2011</b> Mike Pappas 480-403-8300 Audio Processing AMFMTV	<b>Telos Systems/Omnia/Axia • 2003</b> Denny Sanders 216-241-7225 Telos Systems Talk-Show Systems
<b>Canon USA Inc. • 1985</b> Larry Thorpe 201-807-3300, 800-321-4388 Broadcast Lenses & Transmission Equipment	<b>iHeartMedia, Inc. • 2019</b> Troy Langham 918-664-4581 Radio Group Owner	<b>Pasternak Enterprises • 2001</b> Christine Hammond 949-261-1920 Coax & Fiber Products	<b>Teradek • 2011</b> Jon Landman 949-743-5783 Camera-top ENG Solutions
<b>Cavell, Mertz &amp; Associates Inc. • 2011</b> Gary Cavell 703-392-9090 Consulting Services	<b>IMT-Vislink • 2009</b> John Procacci 908-747-3011 Wireless Video Systems	<b>Pebble Broadcast Systems • 2016</b> David Russin 720-638-7171 Television Broadcast Playout Automation	<b>Tieline The Codec Company • 2003</b> Dawn Shewmaker or Jacob Daniluck 317-845-8000 Audio Codec Manufacturer
<b>Comrex Corporation • 1997</b> Chris Crump 978-784-1776 Audio & Video Codecs & Telephone Interfaces	<b>Inovonics Inc. • 2012</b> Gary Lurhman 831-458-0552 Radio Broadcast Equipment	<b>Potomac Instruments • 1978</b> Zachary Babendreier 301-696-5550 RF Measurement Equipment Manufacturer	<b>Unimar Inc. • 2001</b> Thad Fink 315-699-4400, 813-943-4322 Tower Obstruction Lighting Designer, Manufacturer, Distributor
<b>Continental Electronics • 1976</b> Dale Dalesio 412-979-3253 TV and Radio Transmitters	<b>JAMPRO Antennas Inc. • 2011</b> Alex Perchevitch 916-383-1177 DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB	<b>ProAudio.com - A Crouse-Kimzey Co. • 2008</b> Mark Bradford 800-433-2105 x560 Proaudio Broadcast Equipment Distributor	<b>Wheatstone • 2010</b> Jay Tyler 252-638-7000 IP Consoles, Routers & Processors
<b>CueScript • 2014</b> Michael Accardi 203-763-4030 Teleprompting Software & Hardware	<b>JVC Professional Video • 2014</b> Edgar Shane 973-317-5000 Professional Video Products, Camcorders, Display Monitors, Recording Decks	<b>Propagation Systems Inc. - PSI • 2010</b> Doug Ross 814-472-5540 Quality Broadcast Antenna Systems	<b>Wireless Infrastructure Services • 2006</b> Travis Donahue 951-371-4900 Repacking Services - West Coast Turnkey Services
<b>D2D Technoloies • 2018</b> Jessica Colyer 619-248-0618 PSIP & EAS Insertion, IP Gateways, Multiplexers, SRT Transmission	<b>Kathrein USA Inc. • 1985</b> Les Kutasi 214-238-8835 Antennas for Broadcasting & Communications	<b>Quintech Electronics and Communications Inc. • 2002</b> James Herbstritt 724-349-1412 State-of-the-art RF Hardware Solutions	
<b>Davicom, Division of Comlab, Inc. • 2014</b> Louis-Charles Cuierrier 418-682-3380 x512 Remote Site Monitoring and Control Systems	<b>Kintronc Labs, Inc. • 2015</b> Joaquin Raventos 423-878-3141 Radio Broadcast Antenna Systems - ISO9001 Registered Company	<b>QVC • 2011</b> Kevin Wainwright 484-701-3431 Multimedia Retailer	
<b>DEVA Broadcast • 2015</b> Todor Ivanov 305-767-1207 Monitors, IP Audio Codecs, RDS/RBDS Encoders, Audio Processors, Broadcast Tools		<b>Radio Frequency Systems • 2015</b> Eddy Vanderkerken 214-471-6693 Broadcast Infrastructure Manufacturer	

**Members With 25 or More Years of Membership  
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# Member Spotlight: Ben Weiss

## Member Stats

**SBE Member Since:** December 1982

**Chapter:** 59 Kansas City

**SBE Certifications:** CPBE

**Employer:** Weiss Enterprises

**Position:** Owner

**Location:** Kansas City, MO

**I'm Best Known For:** Studio construction and transmitter site construction

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

**A** The fellowship among fellow engineers at chapter meetings.

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

**A** I was interested in audio and recording and spent considerable time at the local radio station watching the operation. Strangely, I never wanted to work at that station but have in recent years as a contract engineer.

**Q** Who do you consider to be a mentor?

**A** The dean of students at the college where I graduated probably is more responsible for my success in radio engineering than anyone else. He showed personal faith in me and encouraged me to pursue my goals.



One of his avocations, Ben mixes audio for a concert video.

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

**A** The freedom to do the job (projects) right the first time.

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

**A** ...I'm recording concerts, flying remote-control airplanes, taking 3D photographs, or restoring old radios and recording devices.

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

**A** I spent 10 days in Seoul, South Korea working with FEBC (Far East Broadcasting Company) teaching studio maintenance to their engineers.

**Q** What's your favorite gadget?

**A** Back in the days of cart decks and reel-to-reel machines, I designed a test jig that made head alignments a snap without using an oscilloscope. I still use it today.

**Q** Do you have a nickname?

**A** My nickname is Bengineering. A GM coined that name. It's stuck around for quite a while.

## Save the Date:

**August 6 - 8, 2019**

**Atlanta, GA  
for the SBE**

# LEADERSHIP DEVELOPMENT COURSE

**Instructor: Rodney Vandever**

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## Candidates Sought for SBE Election This Summer

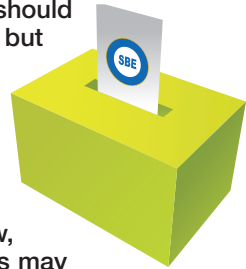
The annual election of officers and directors to the national SBE Board of Directors will take place this summer. The SBE Nominations Committee seeks qualified candidates who are voting members (Member, Senior, Fellow or the designated representative of a SBE Sustaining Member) in good standing (dues paid). Candidates must hold an engineering level of SBE certification (CBT or higher or CBNE) and maintain it the entire duration of service on the Board, if elected. Candidates should have a desire to serve and lead, not only as a member of the board, but through service as a national committee chair or member. Members of the Board represent all members, not any one specific region, state, city or chapter. It is suggested that candidates have previous experience as a leader in his or her local chapter, or other volunteer leadership experience, prior to running for the national SBE Board.

Members of the Board are expected to attend two regularly called meetings each year; in the spring, held during the annual NAB Show, and in the fall, at the annual SBE National Meeting. Other meetings may be called via conference call during the year.

The national SBE board includes 12 directors, four officers and the immediate past president. Directors serve two-year terms and officers serve one-year terms. Six director seats will be contested in 2019 as will all four officer positions. The SBE By-laws limits the number of terms of elected members of the Board. Directors may serve three consecutive terms. The secretary and treasurer may serve up to four consecutive terms and the president and vice president may serve up to two consecutive terms. The maximum number of years anyone may serve on the board is ten consecutive years. The time spent as immediate past president does not count towards the ten-year total.

Members interested in offering their candidacy and serving on the national Board if elected are encouraged to contact SBE Nominations Committee Chair Vinny Lopez, CEV, CBNT, at [vlopez@sbe.org](mailto:vlopez@sbe.org) or 315-477-9423. A slate of nominees will be assembled by the committee by May 1. Other qualified members may be nominated by members in good standing no later than July 12.

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



# WELCOME TO THE SBE

## NEW MEMBERS

Harold J. Addington - Virginia Beach, VA  
Maria C. Albalade - Miami, FL  
Edward P. Best - Durham, NC  
Benjamin Boquist - Bensenville, IL  
Karena M. Bricker - Corvallis, OR  
Ted Chavez - Chicago, IL  
David W. Chung - Hermosa Beach, CA  
William C. Deloney - Abbotsford, WI  
Timothy L. Deterding - Milwaukee, WI  
Douglas R. Ducote - Colorado Springs, CO  
Royce D. Erikson - Marion, IL  
Cary B. Gaffney - Bluffton, SC  
Franklin L. Gilley - New Orleans, LA  
Phillip Haggart - Falmouth, UK  
Brett W. Hammond - Salisbury, MD  
Matt Ingram - Cedar Park, TX  
Hyacinthe Joassainte - Randolph, MA  
Josh Kirkwood - Rockvale, TN  
Job D. Marcello - Oakwood, OH  
Ralph A. Martin - Vacaville, CA  
Spencer D. Miles - Verona, NJ  
Timothy J. Nesbitt - Brooklyn, NY  
James Parkinson - Pflugerville, TX  
Michael J. Politoski - Cookeville, TN  
Sean P. Pompa - Great Falls, MT  
George Rudaj - Bronxville, NY  
Jesse Ruggles - Chicago, IL  
Ellen S. Sanford - Austin, TX  
Jeff Stewart - Edmond, OK  
Brian K. Svoboda - Pflugerville, TX  
Robert Swaggerty - Selinsgrove, PA  
Daniel T. Vernatter - Scott AFB, IL  
Joseph A. Weaver - Houston, TX  
Brandon A. Whittington - Borger, TX  
Anthony L. Williams Fort - Detroit, MI  
Glen S. Yakushiji - Washington, DC  
Graham M. Youngblood - Chapel Hill, NC

## NEW STUDENT MEMBERS

Todd Thaxton - Saddle River, NJ  
Drew Valley - Tacoma, WA

## RETURNING MEMBERS

Ronald E. Brownlow - Ruskin, FL  
Nathaniel Cantu - Houston, TX  
Stanley J. Chayka - Manheim, PA  
Tom P. Dailey - Denver, CO  
Ben E. Ellis - Tuscaloosa, AL  
Llewelyn J. Kennedy - FPO, AP  
Venant J. Massaba - Sussex, WI  
Douglas E. Massengale - Catonsville, MD  
Merrick McQuilling - Stamford, CT  
George S. Melton - McDonald, TN  
Ronald T. Merkel - Gardendale, AL  
Patrick R. Perez - Mesa, AZ  
Antonio E. Puell - Cliffside Park, NJ  
Don W. Shaw - Seattle, WA  
Burlay H. Stapley - Findlay, OH  
Oscar L. Vega - Guayanilla, PR

**INVEST** IN YOURSELF  
IN YOUR FUTURE  
**JOIN the SBE**



Recruit a new member during the SBE Membership Drive and help your colleagues grow while helping yourself to some great benefits.

See page 3 for details.

## EDUCATION from p. 1

Converting a transmitter to 3.0 service and performing the proof-of-performance and acceptance testing will be covered by the engineers that build the transmitters. Further, some studio-to-transmitter links (STL) can be reused or upgraded. While most stations will start with converting a main antenna, many will be looking at extending their coverage and increasing their penetration with the additional boosters that OFDM enables. A foundation for designing (or selecting vendors and partners that can help) planning and building a NextGen distribution system including single frequency networks will be provided.

The center piece of NextGen is the scheduler. The most practical configuration options will be covered, including tradeoffs, system limitations and workarounds. Field measurements of the past and future will be considered, and how they impact an ultra-flexible system where so much is a variable.

Monitoring the performance of the NextGen system will be important, and the test equipment, TVs, dongles and first-day hacks will be covered. The options are early in their development cycle and broadcast engineers will be doing a lot of hand-holding and integrations.

Finally, some of the issues of adoption, timing, budgeting, project planning, the enhanced content and services that NextGen Broadcasting is designed to liberate will be covered. The misunderstandings will be addressed, as will the expected uncertainties. Adoption curves and equipment life cycles will be compared.

## SBE Ennes Educational Workshop

Since 1995, the SBE has produced the Ennes Educational Workshop at the NAB Show, and this year is no exception. With the theme Business as Usual – Constant Change, the sessions, running from 9 a.m. to Noon on April 6, cover a range of topics focused on the ever-changing state of technology.

The Workshop begins at 9 a.m. with opening comments from SBE Executive Director John Poray. He'll welcome attendees and offer an overview of the day's events with an update on SBE activities.

Stan Moote, CTO of the IABM, then presents, "What is the Future of our Business?" This will be a checklist that all managers and technologists need to assist them with today's business with a path to the future.

It's no secret that video displays have grown in size. Joe Kane, president of Joe Kane Productions, provides his insight with "Displays – bigger, better, cheap – What is the Reality?" He'll cover what is real and affordable with a glimpse into the direction of consumers.

Where are we with ATSC 3.0? Madeleine Noland, senior advisor, technology and standards for LG Electronics/Zenith R&D Lab, reveals the early results and tells us the real facts with an ATSC 3.0 update.

Following a break, the Workshop continues with "Strategies in Replacing Retiring Staff – Doing More with Less," presented by John Footen, managing director of Deloitte. Then, Stan Moote of the IABM moderates a panel debate called, "Artificial Intelligence in Media." They will discuss and debate how AI and automation can assist operations and production.

With so many delivery platforms available, Dr. Ioannis Katsavounidis, research scientist, video fundamentals research at Facebook, will discuss "Ensuring End-to-End Video Quality at Facebook" for insight as to how the company delivers live and OTT content at the highest possible video quality.

Wrapping up the Workshop, Steve Lampen, a consultant to Belden Wire and Cable, will present "Understanding Future Data Center Design Concepts." He'll discuss the merits of setting up equipment racks based on facility workflow and the data center concept.

The SBE Ennes Educational Workshop is organized by Tom Mikkelsen, a senior media and entertainment technologist with engineering; operations and project management experience, and Stan Moote, CTO of the IABM.

## NAB from p. 1

available. Contact Debbie Hennessey at the National Office.)

Want a free exhibits pass for the convention? Watch the SBE website and SBE-news for the registration code.



SBE President Jim Leifer leads the SBE Membership Meeting at the 2018 NAB Show.

A complete SBE event schedule will be posted to the SBE website. You'll also find another helpful resource to plan your convention time: our SBE Sustaining Member Online Resource Guide. With these resources, you'll find details for several committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

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## MEMBERS ON THE MOVE



◀ **Mike Waldman**, CPBE, CBNT, has retired from Entercom St. Louis.

▶ **Ted Nahil**, CPBE, has started a new position as regional sales manager, Eastern U.S. at Nautel.



▶ **Robert Weller**, vice president for spectrum policy, NAB, serves on the International Telecommunications Advisory Committee (ITAC) at U.S. Department of State.



▶ **Tim Berry**, CBRE, is the chief engineer at WUOT-FM, the University of Tennessee's NPR affiliate.

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

▶ **Robert Cummings** is VP of technology at KPNB, Reno, NV.

▶ **Ralph Hogan**, CPBE, CBNE, is the president of the IEEE Broadcast Technology Society.

Members of the Advanced Television



Systems Committee (ATSC) elected four industry executives to serve on the ATSC Board of Directors for three-year terms that began in January 2019. Among the newly elected directors are SBE members ▶ **Dave Siegler**, CPBE, Cox Media Group; and **Jim DeChant**, News-Press & Gazette



Broadcasting  
▶ **Gary Liebisch**, CPBE, has retired as the regional sales manager for Nautel.



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- Jeff Nelson, News Director

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