

# 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 Makes NAB Show Plans

The 2024 NAB Show is about two months away. As the date approaches, the SBE continues to finalize the details on all its planned activities for the convention. While you plan your time at the convention, take note of all the SBE events and include them in your schedule.

The SBE Ennes Workshop is the traditional kick-off for the convention. Once again, the Workshop will span two days on April 12 and 13. Part of the Broadcast Engineering and IT Conference sessions, the technology deep dive requires separate registration through the NAB Show website. Full details on the Workshop are noted in this issue of *The Signal*.

The spotlight event for the SBE at the convention is the annual SBE Membership Meeting, which will be followed by a Member Reception. The Membership Meeting will be held on Monday, April 15. Watch the SBE website or stop at the SBE booth on-site for the room location. The Membership Meeting provides up-to-date information 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. With 2024 being the 60<sup>th</sup> anniversary of the founding of the Society, special recognitions will be made at both events.

Everyone attending the Membership Meeting will be eligible to win



The SBE will again have an exhibit booth at the convention.

prizes, including gift cards and SBE-logo wear. The grand prizes, graciously donated by Blackmagic Design, will be two Micro Studio Camera 4K G2s, which will be given to two lucky winners. You'll want to get to the meeting early as well, because the first 100 people in line will receive a special gift. The Member Reception will also have prize drawings. It's a great opportunity to unwind and catch up with

see NAB SHOW, p. 6

## Recruit a New Member During the Membership Drive

You're reading *The Signal* because you are an SBE member. It's one of many benefits of SBE membership. You know the value that SBE membership offers you, so why not share this with a colleague who is not an SBE member? Now is the perfect time to share that value and recruit a new member during the annual SBE Membership Drive, which begins March 1. The theme of the drive this year is "Shape the Future: Recruit a New SBE Member"

The Annual Membership Drive is a great time to introduce your colleagues who are not familiar with the SBE, but could benefit from membership. When you recruit a new member, you might receive some personal benefit in addition to helping the society grow.

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 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 from the SBE and many sustaining members. The grand prize is airfare and two nights' hotel stay to attend the SBE National Meeting, planned to be held this fall.

As a recruiter, for every new member you sponsor you will receive \$5 off your 2025 dues (up to \$25). Need more incentive? If you recruit three or more new members, your 2025 membership will be upgraded to SBE MemberPlus.

In 2023, 65 individual members and three

Sustaining members were recruited. With your help, we can exceed that mark in 2024. Start recruiting now, and make sure your recruits list your name on their SBE membership application so you get the credit.

SBE Sustaining Members: To donate a prize for the Drive, contact SBE Member Communications Director Chriss Scherer. ☉

### IN THIS ISSUE

- 4 Letter from the President
- 5 Recertification Success
- 6 Diamond Project
- 8 Ennes Workshop @ NAB Show
- 10 LPTV Upgrade
- 12 Tube Transmitter Tuning
- 14 Member Spotlight



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# Candidates Sought for SBE Election

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 rep eering 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 as a member of the board and through service as a national committee chair or member. Members of the Board represent all members, not a specific region 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, but this is not required.

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 2024 as will all four officer positions. The SBE By-laws limit the number of terms for elected members of the Board.

If interested, contact SBE Nominations Committee Chair Jeff Welton at jwelton@sbe.org or via the SBE National Office at 317-846-9000. A nomination slate will be assembled by the committee by April 9. Other qualified members may be nominated by members no later than June 23.

The election runs from July 8 to Aug. 7. Those elected will be installed at the SBE National Meeting, held this fall.



# Nominate a Member for SBE Fellow

There is still time to recognize a broadcasting peer who has contributed to the success of the SBE, an SBE chapter or broadcast engineering. 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, 89 members have been recognized with the honor in the society's 60 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 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 2024 must be received no later than March 14, 2024, for consideration. The Fellowship Committee will bring the names of nominees to the Board of Directors for consideration and election at the April 2024 meeting. The SBE secretary will notify those elected. Recipients will be recognized at the SBE Awards Dinner in the fall during the 2024 SBE National Meeting.

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.



## Certification Question



## CERTIFIED

Answer on page 6

Which one of the following statements about series resistive circuits is false?

- A. The same current flows through all parts of the circuits.
- B. The sum of the voltage drops across the resistances in the circuit equals the applied voltage.
- C. The total resistance of the circuit is less than the resistance of any single resistor in the circuit.
- D. The total power expended in the circuit equals the product of the applied voltage and total circuit current.



## LETTER FROM THE PRESIDENT

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

### Pecan Pie With Your Streaming?

I hope everybody had a wonderful and peaceful holiday season. My family had a death just before Thanksgiving, but I have always been proud that I come from a very strong family unit (brothers, sisters, in-laws) and we grieved together and supported each other as a family together.

I had an interesting conversation during Thanksgiving at my sister's. While the nieces and nephews were discussing the new digital devices available today, the discussion moved to streaming and the different kind of services. Here is where it got interesting; I'm age 64, a Baby Boomer, versus a 26-year-old Gen Z'er. I mention that a lot of programming can be seen free over the air (OTA). Just put up an antenna and you can receive many free dot 2 channels, as I call them. "Oh, Uncle Ted that's stealing. I would rather pay Hulu or YouTube than pay the station." Wait? What? Some Gen Z'ers think that putting up an antenna and receiving OTA signal is stealing the signal from the broadcaster.

After sitting down with some pecan pie after the meal, I asked more questions to the Gen Z'er, which at this time wishes she had never brought any of this up in the first place. I assume that Gen Z'ers think that everything has a price in this nothing-is-free world. For the record, I do not place all Gen Z'ers in this box. Just those I was having dinner with on Thanksgiving Day, but I assume there are more roaming the countryside. So, this begs some questions. One: have we failed to get the message out that free, over the air television is actually free? Two: Who failed? The

SBE, NAB, station groups, stations? Answer: All of us and none of us. More promos, more PSAs (remember them?) news stories from the tech reporter, etc. OTA broadcast is still the best way to get news and information to the public. One-to-many, still better than one-to-one. Prove me wrong.

Streaming has become more and more of what television stations are providing to viewers. The days of the station streaming system being a used blade server in back, corner rack is long gone. My station has multiple streaming systems for most of its OTA programming. That blade server in the rack has become just as important as that room full of transmitter out by the tower.

As much as I believe in over the air, we are faced with a new issue. The 'D' word, DRM as in ATSC 3.0. First, let me state I understand the need for DRM. Second, I understand there are many devices that decode DRM without any issues. I own a television set and an STB that decodes DRM without issue. However, there are some STBs that early users purchased that have not been upgraded yet and some seem unable to upgrade. Television set manufacturers, along with STB vendors with units new and old have to figure the DRM issue out; and fast! DRM decoding must be able to happen without the device being connected to the internet. If it doesn't, then ATSC 3.0 with DRM will go Code Blue. If there are bad storms, tornados, hurricanes around me and I lose internet access, then I can't watch television? That kind of defeats the purpose of television and the one-to-many platform.

ATSC 3.0 is not on life support right now, but it could end up in the graveyard next to your 3D television set if this is not fixed in 2024. On the device patents front, this must be straightened out also, but not by the FCC. The FCC has its place, but patent law is not its cup of tea. I don't believe there is anything in the Communications Act of 1934 on these matters concerning patents.

#### Preparing for April

The SBE and the NAB are working hand-in-hand as good partners on the upcoming SBE Ennes Workshop in Las Vegas. The Workshop runs April 12 and 13, 2024. There will be two tracks in the Workshop: RF101 Bootcamp, prepared by Jeff Welton, and Media Over IP Essentials (MoIP), prepared by David Bialik and Fred Willard. There's more about this in this issue of *The Signal*, and additional details will come in the coming weeks. Follow [sbe.org](http://sbe.org) and SBE-news for the latest details.

Just a quick note of thanks to Jim Bernier who after 28 years as a member of the SBE Certification Committee has retired. This was noted in the December issue as well. He chaired the Certification Committee for eight of those years. He brought leadership and broadcast knowledge to the committee; I wish him well in his retirement.

If you need information or have questions, please contact the staff in Indianapolis at 317-846-9000. The staff is ready to help you with any SBE question or need. Any comments or errors on my part, you can contact me at: [president@sbe.org](mailto:president@sbe.org).

### SBE Hamnet Connects Members Around the World

The SBE Hamnet, SBE Chapter of the Air 73, was developed more than 45 years

ago for ham operator-members who are not near a local SBE chapter. The Hamnet has provided an ideal way for broadcast engineers and other amateur radio operators (all are welcome) to contact one another, share technical information, discuss broadcasting techniques and get the latest information on SBE programs and activities on a monthly basis.

The SBE currently has two Hamnets in operation. Both groups have email reminder lists. You can subscribe to them and get more information about SBE Hamnet at the SBE website, [sbe.org/hamnet](http://sbe.org/hamnet).

#### SBE HF Hamnet

The SBE HF Hamnet is held on the second Sunday of every month at 2400 GMT on 14.205MHz. Occasionally, that frequency is busy and you may need to move up or down (no more than 10kHz) to find the SBE meeting. Hal Hostetler, CPBE, WA7BGX, an SBE member since the 1980s, serves as net control. He lives in Tucson, AZ.

#### SBE UHF/VHF Hamnet

The SBE UHF/VHF Hamnet is held the fourth Thursday evening of the month at 9 p.m. ET/6 p.m. PT. The Net is worldwide on AllStar Node 46079, DMR Talkgroup

see [HAMNET](#), p. 15



Hal Hostetler, CPBE, WA7BGX is net control of the HF Hamnet.



## EDUCATION UPDATE

By Geary Morrill, CPBE, AMD, CBNE  
Chair, SBE Education Committee  
gmorrill@sbe.org

# Here's to Your Recertification Success

Just before the end of last year, I had the opportunity to participate in the December SBE WEBxtra. Ostensibly, SBE VP and Social Networking Committee Chair Kevin Trueblood and I were slated to talk about the upcoming SBE Ennes Workshop at the NAB Show this April, but our conversation expanded into another of my favorite subjects: SBE Certification. In my mind, Education and SBE Certification fit like hand in glove.

Inevitably, we touched on the recertification process. The intention is to encourage the certified engineer on a course of continuing involvement and education. We recognize that our industry is driven by change, at a rate that is ever increasing. Unless you're intentionally staying abreast of the latest developments, things can become overwhelming in short order. SBE Certifications are granted for a five-year period, and are renewable.

The recertification process for entry-level certifications consists of either meeting a service requirement, or upgrading to a higher level. If you're at a higher level of SBE certification, there are different paths to consider. You can either accumulate recertification credits, upgrade to a higher certification by exam or simply retake the exam for your current level. The process for CPBE is a bit different, as there is no exam, so should you inadvertently let that grace period expire, you will have to recertify at a Senior level by taking the exam and then going through the CPBE process from scratch. (A great reason to not let that expire, eh?)

I've spoken with quite a few folks who didn't realize how easy it is to accumulate and document the necessary credits for recertification. Depending on level, you'll require between 20 and 30 credits from a minimum of four categories (A thru J). The Application for Recertification provides specifics. Table 1 includes some partial excerpts for the more common categories.

There are also credits given for (among others): successful completion of accredited courses in broadcast engineering or allied fields

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).

as a student (1 per CEU), presentations of significant papers or talks at a national, regional or local level, or publication of a technical article in a national or local chapter publication, attendance at factory or in-station schools (1 credit/10 contact hours).

Recertification credits are reviewed by the local Chapter Certification Committee and approved by the National Certification Committee.

Here's something you may (or may not) be aware of - If you're at least 59½ years old and retired from regular full time employment, and a member with current certification, or 59½ years of age, currently certified at the senior level or above, have maintained continuous certification for 20 years and are a current member, you may be granted certification for life by application with payment of a one-time \$58 fee per certification. A link to the application is on the "Certification Levels" page.

As always, thoughts and suggestions are both welcome and sought. If you'd like to share yours, please drop me a line: [gmorrill@sbe.org](mailto:gmorrill@sbe.org).

**Category A)** You can accumulate up to 2 credits per year thru full-time employment in broadcast engineering.

**Category E)** You can accumulate up to 1 credit per year through active participation in the SBE or other national technical societies (max 2/year).

**Category F)** Active participation as an elected or appointed officer or committee member in the SBE or other technical society at local or national level accrues 1 credit/year (max 2/year)

**Category G)** Attendance at local SBE meetings and other local technical meetings/conferences accrue ½ credit per meeting. Daylong regional or national conference attendance accrues at 1 credit/day. (WEBxtra can count as a local meeting, which is very helpful if there is no local chapter nearby.)

**Category I)** SBE University courses and Webinars by SBE accrue 1 credit per course/webinar. (With Member Plus, these are "all you can eat.") Participation in the Mentee program (including TPT): 1 credit per 10 contact hours.

**Category J)** Participation as an SBE Mentor (including TPT): 1 credit per 10 contact hours.

**Table 1. Highlights of selected SBE recertification categories.**

## Education Almanac

### Webinars by SBE

Feb. 8: Why Worry About Your Air Chain?  
Feb. 15: Applied RF Basics Module 4

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

### Leadership Development Course

Aug. 7-9: Atlanta

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

### SBE Ennes Workshops

June 8: Syracuse, NY  
June 19: Quincy, IL

Contact the SBE to arrange an SBE Ennes Workshop in your area.  
[sbe.org/ennes\\_workshop](http://sbe.org/ennes_workshop)



# SBE Compensation Survey Launches in April



On April 1, the SBE will post its eighth 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 member benefit. The survey will tell you if your earnings are in line with other professionals, based on information gathered from many sources.

The Compensation Survey provides practical information to SBE members about individual compensation (sal-

ary and benefits) based on multiple demographics. SBE members will have access to the full report. We need every SBE member to participate to provide a large sample base of responses. All responses are anonymous. The surveys continue to provide good information, and strong participation ensures that we can provide the most accurate and useful data. In April, look for a link to the survey in our regular email communications and on the SBE website. The results will be published in July.



## CERTIFICATION UPDATE

By Doug Garlinger, CPBE, 8-VSB, ATSC3, CBNE  
Member, SBE Certification Committee  
dgarlinger@sbe.org

# The SBE Diamond Anniversary: A Chance to Catch a Break

It is human nature that we often do not appreciate what we have until it is gone. SBE Certification you earned in past years has a value that may not always seem as important as it should. One day you wake up and realize, "What was I thinking? Why did I let that get away from me?"

Perhaps your reason was financial, or you simply forgot and let it expire. You may have left the industry for a short time and now realize it is tough out there in this economy and "I am better off financially if I return to what I know best." SBE Certification could make the decisive difference in a management lay-off decision, or in a new



hire decision. Even if you plan to retire, it could make the difference in picking up some part-time broadcast engineering employment in the market where you plan to retire, where no one knows you or the station you previously worked.

SBE Certification is the only "currency" in the field of broadcast engineering that demonstrates that you know what you are doing and that you have taken the time to certify your skills and competence with the only organization that certifies those skills.

This year the SBE celebrates its 60<sup>th</sup> anniversary; the diamond anniversary. In honor of this milestone, the SBE is offering you an opportunity to regain your SBE Certification if you allowed it to lapse in

the past. You have the opportunity to obtain that certification again.

All SBE Certification levels are included in the Diamond Project. If you are an SBE member, then the re-certification fee is \$125. However, if you hold the highest level of certification, CPBE, then the re-certification fee is \$200.00. As a CPBE you have the option of paying the \$125 fee and re-instating your previous senior-level CSTE or CSRE rather than your CPBE. If you are not a member of the SBE, then there is an additional \$85 (traditional membership) or \$175 (MemberPlus) fee for all levels of certification.

All the program details and a special Diamond Project application are on the SBE website at [sbe.org/diamondproject](http://sbe.org/diamondproject). Applicants should fill out the Diamond Application and provide a letter to the Certification Committee detailing the work you have been doing over the time that your certification was expired. A resume would also be helpful.

It is arguable that this program is somewhat unfair to a person who has faithfully re-certified every five years. That may be true, but this is a program to allow individuals who are sincerely committed to broadcast engineering to "catch a break" and gain forgiveness. We understand in a time that job positions can be precarious, having an edge with SBE Certification could be the key to standing out to your employer.

If you value certification, then we hope you will avail yourself of this offer before the December 31, 2024 deadline.



Answer from page 3

The answer is C

The total resistance is equal to the circuit resistance.

## NAB SHOW, from p. 1

colleagues.

The SBE will have an exhibit booth, which is an ideal landmark for meeting other people at the convention. While you're there, talk to your elected SBE leaders and the SBE National Office staff. Stop by every day and drop your card in the daily booth drawing on Sunday, Monday and Tuesday at the convention. A \$200 gift card will be given away each day.

The SBE Board of Directors will conduct its spring meeting on the evening of Saturday, April 13. Members are invited to attend as room space allows. The Certification and Education Committees will meet during the convention. The SBE plans to offer SBE certification exams on-site on April 16 as well. Advance registration to take the exam is required.

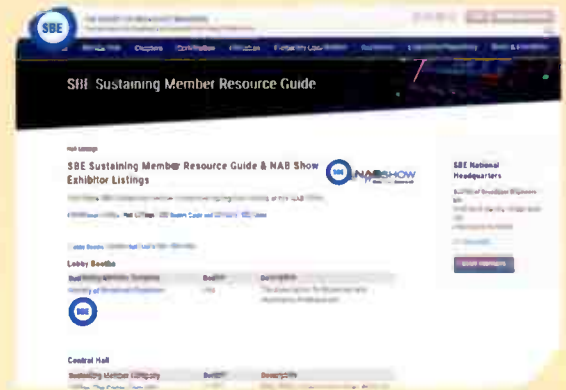
A complete SBE event schedule is posted on the SBE website. There you'll also find another helpful resource to plan your

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.

The NAB will provide a registration code for SBE members to obtain a free exhibits pass and/or \$150 off the NAB Show Conference pass.

### SBE Sustaining Member Resource Guide

The exhibit hall is the biggest attraction at the NAB Show. The SBE also knows your time is valuable. To help you navigate the floor in the quickest time, the SBE provides the SBE Sustaining Member Resource Guide. This online resource lists all the SBE Sustaining Members that are exhibiting at the convention. The information is sorted in



two ways: Alphabetically and by Hall.

Make the most of your time on the exhibit floor, and include the SBE Sustaining Members in your booth visits. When you visit an SBE Sustaining Member be sure to thank them for their support of the SBE.

# SBE Certification Achievements

## CONGRATULATIONS



### LIFE CERTIFICATION

**Certified Professional Broadcast Engineer (CPBE)**  
Walcott Denison, Lynchburg, VA - Chapter 9  
Kishore Persaud, Cantonville, MD - Chapter 46

**Certified Senior Radio Engineer (CSRE)**  
David Caires, Glen Carbon, IL - Chapter 55

**Certified Broadcast Television Engineer (CBTE)**  
James Lien, Pottstown, PA - Chapter 18

**Certified Broadcast Networking Technologist (CBNT)**  
Duane Everts, Parker, CO - Chapter 48  
Kishore Persaud, Cantonville, MD - Chapter 46

**Certified Television Operator (CTO)**  
Terry Manus, Concord, NC

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.

### CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)

Donald Smith, Raleigh, NC - Chapter 93

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.

### NOVEMBER EXAMS

**Certified Senior Television Engineer (CSTE)**  
Stephen Darsey, Fort Worth, TX - Chapter 67

**Certified Broadcast Radio Engineer (CBRE)**  
Matthew Converse, Green Bay, WI - Chapter 80  
Philip Hartman, Dunedin, FL - Chapter 39

**Certified Broadcast Television Engineer (CBTE)**  
Jackson Buraczewski, Cincinnati, OH - Chapter 33

**Certified Broadcast Networking Technologist (CBNT)**  
Jennifer Abney, Tucson, AZ - Chapter 32  
Brian DePalo, Colorado Springs, CO - Chapter 48  
Nelson Durfey, Coweta, OK - Chapter 56  
Joe Neubaum, Tucson, AZ - Chapter 32

**Certified Broadcast Technologist (CBT)**  
Seamus Butcher, Somerville, MA - Chapter 11  
Andrew Hansen, Oshkosh, WI - Chapter 80

**Certified Radio Operator (CRO)**  
Ky Gustafson, Berkeley, CA - Chapter 40  
Justin Little, Lynchburg, VA - Chapter 78

**Certified Television Operator (CTO)**  
Michelle Burks, Los Angeles, CA - Chapter 47  
Joe Sandoval, Converse, TX - Chapter 69

### SPECIAL PROCTORED EXAMS

**Certified Broadcast Television Engineer (CBTE)**  
Umesh Manedi, Duncansville, PA - Chapter 20

**Certified Broadcast Technologist (CBT)**  
Cody Hume, Laramie, WY

**Got your SBE Certification pin?**  
[sbe.org/pins](https://sbe.org/pins)

### CERTIFIED RADIO OPERATOR (CRO)

John Cento, Bowling Green, KY  
Tessema Tessema, Centennial, CO

*East Valley Institute of Technology*  
Dillon Adams, Mesa, AZ  
Adrian Ayala, Mesa, AZ  
Michael Bates, Mesa, AZ  
Adam Beadle, Mesa, AZ  
Aaron Buster, Mesa, AZ  
Heide Beato, Mesa, AZ  
Kylon Conroy, Mesa, AZ  
Joceline Cortez, Mesa, AZ  
Dominic Costana, Mesa, AZ

*East Valley Institute of Technology (cont.)*  
Maya Cruz, Mesa, AZ  
Aidan De Bie, Mesa, AZ  
Cody Gagnon, Mesa, AZ  
Ethan Gilliam, Mesa, AZ  
Madelyn Hadley, Mesa, AZ  
Renee Joaquim, Mesa, AZ  
Paul Lledo, Mesa, AZ  
Luz Macias Lopez, Mesa, AZ  
Kaytin Millican, Mesa, AZ  
Alyssa Munoz, Mesa, AZ  
Diego Puga, Mesa, AZ

*East Valley Institute of Technology (cont.)*  
Jake Richard, Mesa, AZ  
Jason Richey, Mesa, AZ  
Eden Selman, Mesa, AZ  
Nick Shultz, Mesa, AZ  
Madison Stanley, Mesa, AZ  
Rowan Uyleman, Mesa, AZ

*St. Petersburg College*  
Andrew Assad, St. Petersburg, FL  
Joshua Gulliam, Tampa, FL  
Matthew Rowan, Largo, FL  
Bradley Stone, St. Petersburg, FL

### CERTIFIED TELEVISION OPERATOR (CTO)

*Bates Technical College*  
Praxedes Andreve, Tacoma, WA  
Marquise Burton-Rood, Tacoma, WA

Ralph Cordero, Depont, WA  
Jaasiel Dougherty, Lakewood, WA

Christian Leyva, Tacoma, WA  
Eric Randolph, Puyallup, WA

### RECERTIFICATION

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

**Certified Professional Broadcast Engineer (CPBE)**  
Timothy Kelly, Columbus, OH - Chapter 52  
John-Erick Rempillo, North York, ON  
Paul Thurst, Kerhonkson, NY - Chapter 58

**Certified Senior Television Engineer (CSTE)**  
Glenn Axelrod, Framingham, MA - Chapter 11

**Certified Broadcast Networking Engineer (CBNE)**  
Glenn Axelrod, Framingham, MA - Chapter 11  
Timothy Kelly, Columbus, OH - Chapter 52  
Michael Patton, Baton Rouge, LA - Chapter 72

**Certified Broadcast Radio Engineer (CBRE)**  
Glen Tapley, Irondale, AL - Chapter 68  
Thor Waage, Woodburn, OR - Chapter 124

**Certified Broadcast Television Engineer (CBTE)**  
Robert Scott, Corpus Christi, TX - Chapter 29  
Dennis Wallace, Las Vegas, NV - Chapter 128  
Joe Wargo, Lyndhurst, OH - Chapter 70

**Certified Video Engineer (CEV)**  
Todd Nunes, Los Angeles, CA - Chapter 47

**Certified Broadcast Networking Technologist (CBNT)**  
Tom Dailey, Morrison, CO - Chapter 48  
Horace Murray, Glen Burnie, MD - Chapter 37  
Patricia Nelson, Fort Oglethorpe, GA - Chapter 5  
Patrick Perez, Mesa, AZ - Chapter 9  
Kenneth Scott, Seattle, WA - Chapter 16

**Certified Radio Operator (CRO)**  
Kim Brickman, Alameda, CA  
Evan Matsler, Rancho Cordova, CA - Chapter 43  
Jake Skiba, Chicago, IL

**Certified Television Operator (CTO)**  
Orvin Debban, Holdrege, NE - Chapter 87  
Mark Payne, Minneapolis, MN - Chapter 17  
Jake Skiba, Chicago, IL  
Terrance West, Bozeman, MT

**Certified Broadcast Technologist (CBT)**  
Michael Alston, Portland, OR - Chapter 124  
David Bialik, New City, NY - Chapter 15  
Yezmin Blue, Tacoma, WA - Chapter 16  
Chris Connely, Peyton, CO - Chapter 66  
Ron Davis, Gig Harbor, WA - Chapter 16  
Ben Ellis, Tuscaloosa, AL - Chapter 68  
Paul Kaminski, The Villages, FL - Chapter 42  
Ron Kumetz, Alburgh, VT - Chapter 110  
Stephen Pavlik, Antioch, TN - Chapter 103  
Jeremy Preece, Rocklin, CA - Chapter 43  
Christopher Rhoads, Estero, FL - Chapter 90  
Charles Sawner, E. Syracuse, NY - Chapter 22  
Gregory Schmitke, Fargo, ND - Chapter 17  
Timothy Trendt, Platteville, WI - Chapter 24  
James Ullery, Oklahoma City, OK - Chapter 56  
Daniel Vernatter, Mustang, OK - Chapter 55  
Jeff Windsor, Oswego, NY - Chapter 22

### Win a Blackmagic Design Micro Studio Camera 4K G2

Attend the SBE Membership Meeting at the 2024 NAB Show, and you could win a Blackmagic Design Micro Studio Camera 4K G2 in the door prize drawing. Two cameras will be awarded to



two winners. Must be present to win. Thanks to SBE Sustaining Member Blackmagic Design for the prize donation.

Blackmagicdesign

### Nominations Open for SBE Awards

Each year, the SBE Awards Program recognizes the SBE Engineer of the Year, the SBE Educator of the Year and others. It could be someone you nominate. The national award nominations need to be submitted to the National Office by June 15.

There are other honors as well. The SBE Technology Award; Facility Innovation of the Year; Best Technical Article, Book or Program by an SBE Member; Best Article, Paper or Program by a Student Member; and the Freedom Award are among the accolades. There are also a series of statistical awards.

For information about these and any of the SBE National Awards, please visit [sbe.org/awards](https://sbe.org/awards) or contact Megan Clappe at [mclappe@sbe.org](mailto:mclappe@sbe.org). Recognition by your peers is the highest honor. Honor your colleagues today.



[sbe.org/awards](https://sbe.org/awards)

# SBE Ennes Workshop @ the NAB Show

The NAB Show is all about technology, so the SBE Ennes Workshop is the ideal start to the convention. Spanning two days on April 12 and 13 and part of the Broadcast Engineering and IT Conference sessions, the Workshop has two educational tracks: RF101 and Media Over IP Essentials. Registration through the NAB Show website is required for the Workshop.

RF 101 returns from 2023, starting with Ohm's Law and ending with RF broadcast systems and the associated components. While targeted for newer engineers and those with IT backgrounds, it will also be a good refresher for experienced engineers, involving fast-paced sessions presented by industry experts. A group headed by Jeff Welton, CBRE, will present this workshop.

New for 2024 is a track to introduce the essentials of IP-delivered media, covering both video and audio implementations.

The vast majority of audio studio builds today utilize IP infrastructure from the micro-phone forward, and the ATSC 3.0 universe is totally IP-based. Individuals involved with non-broadcast media delivery, whether a house of worship, post-production facility or as an audio-visual professional will also benefit from grounding in the installation and maintenance of modern non-analog facilities. The Media Over IP (MoIP) Essentials workshop is being crafted by David Bialik, CBT, and Fred Willard, CPBE, 8-VSB, ATSC3, CBNT.

At the end of the second day, a joint, 90-minute session on management skills will be presented. Management for Engineering Staff will teach how to speak in terms of ROI, cost of acquisition and cost of ownership/operation: The language owners, managers and financial leaders understand, with a goal toward helping bring engineering back into



the management team. The presenters have worked in engineering and upper management, helping attendees develop the skills needed to properly manage a department.

The two-day workshop includes breaks and lunches. The workshop registration costs \$259, which includes admission to the Exhibit Halls at the NAB Show. The NAB will also provide a registration code for SBE members that offers a free Exhibits pass and/or \$150 off the NAB Show Conference pass. Register at the NAB Show website.

A rundown of the planned presentations follows. The schedule is subject to change. The SBE Ennes Workshop will be held in the LVCC West Hall.

## Friday, April 12

RF101	Media Over IP Essentials
Welcome; Jeff Welton, Nautel	Welcome; Jim Ragsdale, Fred Willard, Geary Morrill
Basic Electronics Fundamentals; Greg Buchwald, Motorola	Welcome to Media Over IP; Martin Dyster, Telos Alliance
Propagation; Karl Lahm, Broadcast Transmission Services	TCP/IP Basics; Andy Butler, PBS
Modulation; John Kean, Capitol Airspace Group	IP Troubleshooting Basics; Mike Liebman, Sirius/XM
Audio Over IP; Kirk Harnack, Telos Alliance	SNMP and Monitoring Protocols, 2110 Integration; Nigel Brownnett, Suitelife systems/NFB Consultants
Regulation; Kevin Trueblood	Audio over IP Compatibility; John Davis, Wheatstone; Greg Shay, Telos Alliance
Proof of Performance; Greg Buchwald, Motorola	Managing SDI, NDI, and 2110 Environments; Mike Bergeron, Panasonic
Test/Masurement; TBD	A Taxonomy of Audio Codecs; JJ Johnston, Immersion Networks
Passive Components; Steve Wilde, American Amplifier Technologies	Understanding SMPTE 2110; John Maihot, Imagine Communications
Troubleshooting; Greg Buchwald, Motorola	Greenfield 2110 Facility Buildout; Jim Beahn, Fox; Nik Kumar
Studio Tips; Josh Bohn, MaxxKonnnect Group	The Hybrid World of SDI and 2110; Steve Holmes, Leader
	IP Deeper Analysis and Troubleshooting: Wireshark and Beyond; Ed Martinez, Stream Guys
	Audio Loudness, Introducing AES77; John Kean, Capitol Airspace Group



## Saturday, April 13

RF101	Media Over IP Essentials
Welcome; Jeff Welton, Nautel	Welcome; Ted Hand, David Bialik, Fred Willard
Transmitter Site Safety; Karl Lahm, Broadcast Transmission Services	Working with Fiber; Javid Butler, HDR Consulting
Broadcast Transmitters; Greg Martin, Rhode & Schwarz	Media Streaming Basics; Greg Oginowski, Modulation Index/StreamS
Site Optimization; Jeff Welton, Nautel	Production Quality Streaming, Web RTC; Andrew Osmond, Evertz
Remote Control, Site Monitoring and SNMP; Tony Peterle, Worldcast Systems	IP for Internal Communications; Kirk Harnack, Telos Alliance; Martyn Dyster, Telos Alliance
Translators; John Kean, Capitol Airspace Group	Working with Documentation; Christian Holbrook, WireCAD
STL/Microwave; John Kean, Capitol Airspace Group	Report from the Field: Lessons Learned Building IP Islands; Dave Donaldson, Gray Media
AM and AM Directionals; Steven Lockwood, PE	IP STL and MPX Formats; Merrill Weiss, MWG LLC
FM/TV Antennas; Steve Wilde, American Amplifier Technologies	Media-Over-IP in the Cloud; Noor Hassan, AWS; Jonathan Solomon, AWS
Single-Frequency Networks; Tony Peterle, Worldcast Systems	The Future of Media Over IP Capstone; Chris Lennon, Ross Video
ROI and How to Speak It; Kevin Trueblood, SBE	
How to Talk Like a Manager Kevin Trueblood, SBE; Cindy Cavell, Cavell, Mertz & Associates; Gary Cavell, Cavell, Mertz & Associates	



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Additional sponsorships are available. Contact Debbie Hennessey for information: [dhennessey@sbe.org](mailto:dhennessey@sbe.org)

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## LEGAL PERSPECTIVE

By Coe Ramsey, Patrick Cross and Noah Hock  
SBE Regulatory Counsels  
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# Opportunity for Qualifying Low Power Television Stations to Apply for Class A Status

After nearly a year of wait and preparation, the Commission has adopted a Report and Order – FCC 23-112 – implementing the Low Power Protection Act (LPPA). As a result, once the Report and Order goes through necessary additional regulatory approvals and the Media Bureau successfully updates its license application form, qualifying low power television (LPTV) stations will have one year in which to apply to the FCC to convert to Class A status.

If you operate an LPTV station, you are no doubt aware that under FCC rules LPTV stations are classified as a secondary service, and therefore may not cause interference to, and must accept interference from, full-power television stations as well as certain land mobile radio operations and other primary services. As a result, LPTV stations can be displaced by full power stations, which makes LPTV stations' existing service profiles inherently subject to some uncertainty.

In early January 2023, Congress sought to change that, at least as applied to certain LPTV stations operating in smaller markets. In particular, Congress enacted the LPPA, which directed the FCC to offer a level of heightened protection to qualifying LPTV stations similar to that previously provided to certain LPTV stations in 2000 under the Community Broadcasters Protection Act of 1999 (CBPA). Similar to the CBPA, the LPPA directs the FCC to provide eligible LPTV stations with a limited window to apply for a Class A license. Designation as a Class A television station provides primary status, and thus a measure of interference protection not currently afforded to LPTV stations.

To implement the new law, including by proposing rules regarding the various eligibility criteria articulated therein, the FCC solicited comment on various aspects of the LPPA via a March 2023 Notice of Proposed Rulemaking. After considering all comments submitted in response to the NPRM, the recent order adopts nearly all FCC implementation proposals.

### The Order and Adopted Eligibility Criteria

Although the order's discussion of the adopted eligibility criteria is too exhaustive to fully discuss here, some of the most important eligibility criteria follow:

- For the 90-day period prior to the LPPA's enactment (i.e., be-

tween October 7, 2022, and January 5, 2023), the station must have satisfied the same requirements applicable to a station that qualified for Class A status under the CBPA, which includes: (1) broadcasting a minimum of 18 hours per day; (2) broadcasting an average of at least 3 hours per week of "locally produced programming"; and (3) complying with the Commission's requirements applicable to LPTV stations.

- The station must demonstrate that the Class A station for which the license is sought will not cause any harmful interference as specified by certain provisions of the Communications Act and FCC rules.
- The station must show that the LPTV station "operates" in a Designated Market Area (DMA), as defined by the Nielsen Local TV Report, with not more than 95,000 television households as of January 5, 2023.
- An eligible LPTV station – from the date of its application for a Class A license and continuing thereafter – must comply with the Commission's operating rules for existing Class A television stations, including various programming and recordkeeping requirements to which LPTV stations are not subject.

The order also provides important gloss on several of the foregoing eligibility criteria.

First, the Order defines the LPPA's use of "operates" to mean that an LPTV applicant's "transmission facilities" – including the structure on which its antenna is mounted – must be located within a qualifying DMA. This is a somewhat stricter standard than another the FCC had articulated as a possibility, which was merely that an LPTV station's protected contour "extends into the geographic area of a qualifying DMA."

Second, in response to commenter advocacy, the order mostly declines to adopt the NPRM's proposal that a station would lose its Class A status if its DMA were ever to exceed 95,000 television households for any reason. Specifically, the Order determines that an LPTV station converting to Class A status pursuant to the LPPA will not lose its Class A status if the station is no longer able to comply with the 95,000 TV household threshold for reasons that "are beyond the station's control," defined as a change in market size due to: "(1) population growth, (2) a change in the boundaries of a qualifying DMA such that the population of the DMA exceeds 95,000 television households, or (3) the merger of a qualifying DMA into another DMA such that the combined DMA exceeds the threshold amount." On the other hand, the Order states that a station converting to Class A status pursuant to the LPPA will lose its Class A status if the size of the market changes "due to a change within the control of the station," such as a site move to a DMA with more than 95,000 television households.

Remember, this summary does not address every aspect of the Order. But if you operate an LPTV station that meets the criteria listed here, you may want to review the Order more closely, or contact your regulatory counsel to discuss whether your station could qualify to apply for Class A status.

### Host an SBE Ennes Workshop

The 2024 SBE Ennes Workshop schedule is filling up. Make plans to host a workshop in your area today.

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

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

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

[sbe.org/ennes\\_workshop](#)

### LINK

#### Report and Order

[docs.fcc.gov/public/attachments/FCC-23-112A1.pdf](https://docs.fcc.gov/public/attachments/FCC-23-112A1.pdf)



## FOCUS ON THE SBE

By James Ragsdale  
SBE Executive Director  
jagsdale@sbe.org

### Spring Excitement

There is a lot going on in 2024 for broadcast engineering education for young broadcasters. I want to highlight a few events that I am involved in, here in Indiana and in Maryland.

In Indiana, where the SBE national office is located, there is an exceptional high school and college educators' organization called the Indiana Association of School Broadcasters. Each year, it holds an annual conference for members. The High School Conference will be held at the Butler University campus on March 11. More than 50 high schools, represented by 700 high school broadcasting students, are expected to attend the conference from around the state of Indiana. A small group of students will be selected to compete live at the conference in the categories of TV news anchor, radio personality, and radio newscast. Students attend educational sessions ranging from sports to marketing in the morning followed by an awards ceremony in the afternoon. The competition encourages students to develop their skills in front of and behind the camera/microphone. The SBE has an opportunity to lead a session on broadcast engineering at this conference.

The IASB is also planning a spring event for educators and their best students at a broadcast station. This event will be broadcast engineering focused. The SBE will be involved in this event and will have the opportunity to give educators and students an introduction to a professional facility.

#### Broadcast Training in Maryland

The event in Maryland will be held in Kent County, on the eastern shore of the Chesapeake Bay on March 19. The radio station WKHS is owned by the Board of Education of Kent County. WKHS will commemorate 50 years' operating this unique broadcast training program. All facets of the station's operation are covered by students and community volunteers. WKHS has a track record of success in employing hundreds still working in the industry. I will be attending, as well as folks from SBE Chapters 37 and 46, and the local SMPTE section. There will be congratulatory speeches and tours of the station. In addition to 50 years of operation, WKHS is also celebrating official integration of the Society of Broadcast Engineers Certified Radio Operators exam into the Maryland State Education curriculum.

These events have some things in com-

mon that I want to highlight because I think that they should be cloned all over the country. First, they involve young people. We as an organization must engage with young people every chance we get. The SBE, in partnership with the Indiana Broadcasters Association and the IASB, is actively pursuing activities that involve young people. In the past, we have struggled to find broadcast-related groups of young people, but we are lucky enough to have these groups already active nearby. The IBA also funds internships for its member stations. Other state broadcast associations do as well.

WKHS is a station that has a long history of educating young people in broadcasting and has committed alumni who noted this anniversary. They took the initiative to plan activities to celebrate the achievement and I was invited to participate. I agreed because I believe that we need to shower attention on programs like this. I hope that many members in the area will join them on March 19, especially our SBE chapters in the vicinity.

The second commonality that these events have is access to technology. We know that many Gen-Z and Generation Alpha students have an interest in technology. Although they don't often have formal training in its use, they are comfortable with it being a part of their lives. In these events, we have an opportunity to show students the

technology commonly used in broadcasting, in both production and transmission. There are many career opportunities using this technology and our members are being asked to develop increasing proficiency in it.

The third commonality in these events is the collaboration with other organizations. Working with state broadcast associations, the IASB, the Kent County School System, local SBE Chapters, and local SMPTE sections shows a willingness to put the needs of broadcast engineers higher than protecting organizational territory. The broadcast industry needs to show this kind of collaboration, to dispel the pop culture myth that broadcasting is no longer relevant.

Finally, these events demonstrate the value that educators bring to the broadcast table. Educators are working daily with the young people that we need to connect with. Educators at the high school and college level are important to instruct and advise broadcasting students, helping them to identify their strengths and weaknesses so that they can focus their attention on the areas that provide them the greatest opportunity.

I'm looking forward to being involved in both events and I hope that I can help some students to identify their interest and opportunities in broadcast engineering. This is going to be an exciting spring!

### SBE Celebrates 60 Years

With the start of the new year 2024, the Society of Broadcast Engineers celebrates its 60<sup>th</sup> anniversary. Officially founded on April 4, 1964, the SBE has grown from its humble beginnings when about 100 broadcast engineers gathered for a meeting at the NAB Convention in Chicago to provide a leading role in broadcast and multimedia education, certification, professional networking, frequency coordination and advocacy for technical professionals working at radio and TV station, production facilities and more.

The Society's roots stretch back to 1961, when the Institute of Radio Engineers (IRE) and American Institute of Electrical Engineers (AIEE) passed a joint resolution calling for a "merger or consolidation into one organization." The two groups did finally join forces in 1963 forming what is known today as the Institute of Electrical and Electronic Engineers (IEEE).

The new organization was perceived by some as not addressing the needs of broadcast engineers. Because of the interest shown in response to an editorial in *Broadcast Engineering* magazine, written by eventual first SBE President John Battison, the organizational meeting held in 1964 formed an organization devoted to the needs and interests of broadcast engineers.

Throughout 2024, the SBE will mark the event in its bi-monthly newsletter, *The Signal*, on the SBE website, in social media posts, and with in-person events at the 2024 NAB Show.



## ENGINEERING PERSPECTIVE

Thomas R. McGinley, CPBE, AMD, CBNT  
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# How to Properly Tune an FM Tube-Type Transmitter

As a member of the SBE Mentoring Committee and mentor of five younger broadcast engineers here in Montana, I've often encountered situations where the local engineer needed help dealing with a legacy FM tube-type transmitter. Most mentors find the younger engineers tasked with maintaining the technical operations of their stations have very good IT and studio operations skills but need assistance when tackling transmitter and RF problems, especially tube-type rigs.

While many stations have upgraded FM transmission facilities to all solid-state, there are still many tube rigs in operation as main or backup units all over, especially in the smaller markets. Finding easy to understand documentation on this topic is not always available in the transmitter manual. Hands-on demonstration of all the ins and outs of dealing with tube rigs by a mentoring engineer with years of experience seems to work better when training another engineer less familiar with the best procedures.

This article cannot cover all the intricacies of tube transmitter operations or all of the common failure modes an engineer may encounter. But we will discuss the key points that need to be considered and followed when properly tuning an FM tube transmitter.

An engineer not well versed in this topic might approach the task by adjusting all available controls to achieve maximum power output without paying close attention to the factory test sheet of measured parameter data. That may work okay at the power amplifier (PA) output stage, but not with the other controls on the transmitter.

### Tuning Triodes

Tube transmitters using grounded grid designs with a triode PA tube (3CX) are simpler to deal with than those using tetrodes (4CX). Grounded grid transmitters like the CCA, CSI, Sparta/Bauer, Bext, Energy Onyx and Armstrong models generally use only a PA tune, PA load and PA input tuning control on the front panel. The PA stage is cathode/filament driven by a lower-power transmitter, or an IPA stage, usually a solid-state, wide-band module or combined modules driven by an FM exciter.

Proper tuning and setup of this type transmitter should start with using a reduced amount of exciter and IPA drive to then see how the IPA stage is matched into the PA. Adjusting the PA input control for minimum reflected power is essential to protect the

IPA output devices and allow maximum power transfer to the PA stage.

If the PA input tuning control cannot achieve a sharp minimum level of reflected power, the tuning shaft coupler set screws may be slipping or there may be problems with other components in the RF input section of the PA cavity. Those include coupling capacitors, the tube socket ring hardware or the tube itself.



The Harris HT series is a common tetrode-based transmitter.

With the PA input properly matched and as IPA power is increased, the PA plate tuning and loading controls need to be alternately adjusted to achieve maximum forward power output. PA plate current should run close to a dip with one side of the dip achieving higher output power than the other side. As drive power is increased towards the desired TPO level, tuning and loading adjustments will change.

### Tuning Tetrodes

Let's take a look at a commonly encountered tetrode tube setup such as a Harris HT model transmitter. Harris produced and sold perhaps thousands of this model in power output levels ranging from 3.5 kW up to 35 kW. Tetrode PA tubes need significantly less drive power than grounded-grid tubes with control grid excitation and the addition of a screen grid. So there are more variables to

be aware of for proper tuning.

As with a grounded-grid transmitter, the first step towards achieving proper tuning and best efficiency is to obtain correct matching between the IPA output and the PA input stage. Reduce both exciter drive power and the screen grid drive voltage, which is usually the transmitter's output power raise/lower control, to about half normal levels. This protects components if the PA stage is significantly detuned.

The HT model transmitters offer both grid tuning and input matching variable controls to tune the PA input to resonance. These controls move sharply so care is needed to find and achieve minimum reflected power to the IPA. After that, exciter and IPA power can be increased to generate more PA output power.

Adjust the PA plate and PA loading controls alternately to achieve a peak in forward power. At this point, about half the desired power output should be obtainable. Now you can start increasing the screen voltage or raise/lower power control while alternately adjusting PA plate tune and loading to increase output power towards full power. Re-check the PA grid/input controls to make sure IPA reflected power stays at a dip.

### Factory Test Data

Identify and be mindful of what the typical operating levels for each stage's metered parameter are for your TPO by referring to the factory test data sheet found in the manual. Any parameter that deviates significantly from its test data value should be suspect and may be the result of improper tuning or setup.

The screen current value is a good indicator of proper PA tuning and loading. If the screen current is too low, the PA loading is too heavy and needs to be readjusted. Conversely, if screen current is too high, the PA loading is too light. The PA grid bias negative voltage adjustment will also impact output power. Lower voltage will allow more output power.

### Extending Tube Life

If you find the IPA drive and screen voltage/current values need to run much higher than the test data specifies to make full power, the PA tube may be soft. You can verify that by adjusting the PA filament voltage

see [TUBES](#), p. 14

<b>AC Video Solutions • 2014</b> Andrea Cummins 201-303-1303 Consulting, Systems Design/Integration	<b>Dielectric • 1995</b> Cory Edwards 207-855-8131 Radio & TV Antenna Systems and Monitoring	<b>LumenServe • 2023</b> Bear Poth 512-423-8323 Tower Lighting	<b>Sierra Automated Systems and Eng. Inc. • 2011</b> Al Salci 818-840-6749 Routers, Mixers, Consoles, Intercoms
<b>American Amplifier Technology/Shively Labs • 1996</b> Steve Wilde 916-978-1899 Quality Broadcast Products	<b>Digital Alert Systems, LLC • 2005</b> Bill Robertson 585-765-1155 Emergency Alert Systems	<b>LYNX Technik • 2007</b> Steve Russell 661-251-8600 Broadcast Terminal Equipment Manufacturer	<b>Staco Energy Products Co. • 2010</b> Paul Heiligenberg 937-253-1191 x128 Manufacturer of Voltage Regulators, UPS
<b>American Tower Corporation • 2000</b> Tiffany Yu 603-930-9091 Development/Construction/Management	<b>DoubleRadius, Inc. • 2012</b> Jeffrey Holdenrid 704-927-6085 IP Microwave STL	<b>Marketek • 2002</b> Adam Jure 845-246-2357 Specialized Broadcast & Pro-Audio Supplier	<b>SuiteLife Systems • 2019</b> Nigel Brownett 310-405-0839 Manage, Monitor, Control
<b>Barnind-USA, Inc. • 2021</b> George Gonos 919-748-7373 Fiber Transport Solutions	<b>Drake Lighting • 2015</b> Dave Shepard 270-804-7383 FAA Obstruction Lighting - Medium and High Intensity	<b>Micronet Communications Inc. • 2005</b> Jeremy Lewis 972-422-7200 Coordination Services/Frequency Planning	<b>Sulro Tower Inc. • 1989</b> Raul Velez 415-681-8850 Broadcast Tower Leasing
<b>BB&amp;S Lighting • 2023</b> Tom Yuhas 800-820-6610 Manufacturer and Developer of High end LED Lighting	<b>DTS Inc./HD Radio Technology • 2014</b> George Cernat 443-539-4334 HD Radio Technology	<b>Moseley Associates Inc. • 1977</b> Bill Goulo 805-968-9621 x785 Digital STLs for Radio and Television	<b>Synthax Inc. • 2020</b> Brittany Hilton 754-206-4220 Audio Codecs and Converter Solutions
<b>Blackmagic Design • 2012</b> Terry Frecheffe 408-954-0500 Production Switchers, Digital Cameras, Routers, Video Editing and Monitoring, Color Correction, Video Converters	<b>du Treil, Lundin &amp; Rackley, Inc. • 1965</b> Jeff Reynolds 941-329-6000 Consulting Engineers	<b>MusicMaster • 2014</b> Jerry Builer 352-231-8922 Advanced Music Scheduling Solutions	<b>TBC Consoles • 2023</b> Steve Struhs 631-293-4068 Technical Furniture for Broadcast/AV
<b>Bracke Manufacturing LLC • 2012</b> Patra Largent 949-756-1600 RF & Microwave Components	<b>Econco • 1980</b> Debbie Stoiz 800-532-6626 530-662-7553 New & Rebuilt Transmitting Tubes	<b>Nascar Productions • 2014</b> Abbey Kielcheski 704-348-7131 Live/Post Production Services	<b>Technical Broadcast Solutions, Inc. • 2018</b> Robert Russell 302-414-0055 Engineering and Consulting Services
<b>Broadcast Depot • 2018</b> Tim Jobe 305-281-7540 TV, Satellite, Radio, IP	<b>ENCO Systems Inc. • 2003</b> Samantha Bortz 248-827-4440 Playout and Automation Solutions	<b>National Association of Broadcasters • 1981</b> Industry Trade Association 202-429-5340	<b>Telestream • 2013</b> Bryn McFadden 530-470-1300 Video and Workflow Solutions
<b>Broadcast Devices, Inc. • 2015</b> Robert Tarsio 914-737-5032 Audio/RF Support Products	<b>ERI - Electronics Research • 1990</b> Zachary Bailey 812-925-6000 Broadcast Antennas, Transmission Line, Filters/Combiners, Towers and Services	<b>National Football League • 1999</b> Ralph Beaver 813-282-8612 Game Day Coordination Operations	<b>Televue USA, LLC • 2021</b> Andy Ruffin 937-475-7255 Antennas Transmitters Measurement Distribution
<b>Broadcast Electronics Inc. • 1978</b> Perry Priestley 217-224-9600 Radio Equipment Manufacturer	<b>Floral Systems • 2008</b> Shawn Maynard 877-774-1058 Television Broadcast Automation	<b>Nautel Inc. • 2002</b> Jeff Welton 877-662-8835 Radio Broadcast Transmitter Manufacturer	<b>Telos Systems/Omnia/Axia • 2003</b> John Bisset 216-241-7225 Talk-Show Systems
<b>Broadcast Software International • 2016</b> Marie Summers 541-338-8588 Radio Automation, Audio Logging	<b>GatesAir • 1977</b> Mark Gair 317-500-7111 Radio, TV, Antennas & STL Products	<b>Nemal Electronics Int'l Inc. • 2011</b> Benjamin L. Nemser 305-899-0900 Cables, Connectors, Assemblies and Fiber Optic	<b>Teradek • 2011</b> Jon Landman 949-743-5783 Camera-top ENG Solutions
<b>Broadcast Supply Worldwide • 1986</b> Brian Walker 800-426-8434 Audio Broadcast Equipment Supplier	<b>Heartland Video Systems, Inc. • 2011</b> Dennis Klas 920-893-4204 Systems Integrator	<b>Orban Labs Inc • 2011</b> Mike Pappas 480-403-8300 Audio Processing AM/FM/TV	<b>Tieline The Codec Company • 2003</b> Dawn Snewmaker or Jacob Daniluck 317-845-8000 Audio Codec Manufacturer
<b>Broadcasters General Store • 2004</b> Karyl Kerstin McBride 352-622-7700 Broadcast Audio Video Distributor	<b>Hitachi Kokusai Electric Comark • 2013</b> Jack McNulty 413-998-1523 Manufacturer Broadcasting Transmission Equipment	<b>Potomac Instruments • 1976</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>Burk Technology • 2019</b> Matt Leland 978-486-0086 x703 Transmitter Facility Control Systems	<b>Indiana Broadcasters Association • 2019</b> Dave Arland 317-701-0084 Indiana Association for Radio & TV Broadcasters	<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>Cavell, Mertz &amp; Associates Inc., a Division of Capitol Airspace Group, LLC • 2011</b> Gary Cavell 703-392-9090 Consulting Services	<b>Inovonics Inc. • 2012</b> Gary Luhrman 831-458-0552 Radio Broadcast Equipment	<b>Propagation Systems Inc. - PSI • 2010</b> Doug Ross 814-472-5540 Quality Broadcast Antenna Systems	<b>WideOrbit • 2012</b> Brad Young 415-675-6700 Radio Automation and Playout
<b>Comrex Corporation • 1997</b> Chris Crump 978-784-1776 Audio & Video Codecs & Telephone Interfaces	<b>Jampro Antennas Inc. • 2011</b> Alex Perchevitch 916-383-1177 DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB	<b>Quintech Electronics and Communications Inc. • 2002</b> James Herbstritt 724-349-1412 State-of-the-art RF Hardware Solutions	<b>Wireless Infrastructure Services • 2006</b> Travis Donahue 951-371-4900 Repacking Services - West Coast Turnkey Services
<b>Continental Electronics • 1976</b> Dale Dalesio 412-979-3253 TV and Radio Transmitters	<b>Kathrein USA Inc. • 1985</b> Les Kutasi 541-879-2312 Antennas for Broadcasting & Communications	<b>Rohde &amp; Schwarz • 2003</b> Walt Gumbert 724-693-8171 Transmitters, Test & Measurement, Video	
<b>Crawford Broadcasting Company • 2021</b> Cris Alexander 303-481-1800 Media Company	<b>Kintronc Labs, Inc. • 2015</b> Brad Holly 423-878-3141 Radio Broadcast Antenna Systems - ISO9001 Registered Company	<b>Ross Video Ltd. • 2000</b> Jared Schatz 613-228-0688 Manufacturer, Television Broadcast Equipment	
<b>CueScript • 2014</b> Michael Accardi 203-763-4030 Teleprompting Software & Hardware	<b>Iatakoo • 2021</b> Paul Adrian 214-683-0791 Media Workflow Automation	<b>Sage Alerting Systems Inc. • 2010</b> Harold Price 914-872-4069 x113 Emergency Alert Systems Products	
<b>Cumulus Media, Inc. • 2021</b> Conrad Trautmann 212-419-2940 Audio Media Company	<b>LBA Technology Inc. • 2002</b> Jerry Brown 252-757-0279 x228 AM/MW Antenna Equipment & Systems	<b>SCMS Inc. • 2000</b> Bob Cauthen 800-438-6040 Audio and RF Broadcast Equipment Supplier	
<b>Davicom, Division of Comlab, Inc. • 2014</b> Louis-Charles Cuierrier 418-682-3380 x512 Remote Site Monitoring and Control Systems	<b>Linkup Communications Corporation • 2017</b> Mark Johnson 703-217-8290 Satellite Technology Solutions	<b>Shure Incorporated • 2012</b> Bill Ostry 847-600-6282 Microphones, Wireless Systems, Headsets	

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# Member Spotlight: Michael Ridinger

## Member Stats

**SBE Member Since:** 2007

**Employer:** Unique Media Systems

**Position:** President and VP of Engineering

**Location:** Enfield, NH

**Chapter:** 11 Boston

**I'm Best Known For:** Degreed Electrical Engineer, became involved in 1991 with the Public Access television sector by starting the station in the town I lived in at the time.

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

**A.** I like being connected with people in our industry and value the service SBE provides.

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

**A.** I started a public access station, and then about 15 years later realized there was an opportunity designing and building access centers in New England.

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

**A.** Nikola Tesla. He could picture something in his mind and run experiments



Michael in the studio he built. He built the console, too.

on it. Basically build it in his head. I also picture things in my head (in no way do I compare myself with Tesla's brilliance). He invented the induction motor, AC power transmission. He had the idea of radio before Marconi (they fought over this at great

length), and he envisioned broadcasting images. I also admire Edison, Ben Franklin, Einstein, Newton, DaVinci.

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

**A.** Being connected with people who provide local access as in this day and age they are the only ones providing news related to local issues and politics.

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

**A.** ...invent. I hold several patents. One is for a direct write-to-wafer method of doping a silicon wafer using a laser without multiple oxide steps to form the pattern. I also designed an insert for shoes that provides shock absorption and cooling by pumping air through the shoe.

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

**A.** I like the full, rich sound of a 12-string guitar. I like to play rock and blues.

## Secure Your Spot at the 2024 SBE Leadership Development Course

**D**on't miss the SBE 2024 Leadership Development Course, August 7-9, 2024, in Atlanta. Secure your place today as space is limited.

Dr. Abram Walton, the founder of Ivory Bridge Group, a management consulting and training firm will teach the course. Walton is also a tenured professor of management at Florida Tech, specializing in management and innovation. He actively researched in the fields of innovation management, business analytics and product lifecycle management and has authored over 100 publications

"Whether you're a high-level manager, or an aspiring leader, this course is packed with insightful team building fundamentals to bring your communication, people and management skills to the next level and beyond. Three days well spent," said Mike Friedman, chief engineer, VPM Radio.

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

The three-day event challenges attendees to refine leadership skills and better understand and improve interaction with others. Broadcast organizations may want to consider sending a group of employees to the course to share the experience of this highly interactive event. Registration includes all course materials, three days of instruction, the Leadership Development Webinar Series of three webinars, a certificate of completion, light breakfast and afternoon snacks. SBE Members receive a discount on registration.

Interested in hosting an LDC workshop? Future locations are being considered. Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

## TUBES, continued from p. 12

control. If PA output power changes directly as filament voltage changes, the tube is near or at end-of-life and should be replaced.

After installing a new or rebuilt tube, always remember to set the filament voltage to its specified voltage for 2 or 3 weeks. Then reduce this voltage to a point just above where forward PA power starts to decrease. This procedure will significantly extend useful tube life.

The last but very important parameter to watch while tuning a tube transmitter is the PA stack temperature. The newer versions of the Harris HT models show that on the multimeter. You can also stick an oven meat thermometer in the PA exhaust stack as a good indicator. A stack temp running a lot higher than 140-160 degrees F is a sign of decreased PA efficiency that will shorten tube life.

This discussion will hopefully help those engineers less familiar with tube transmitter tuning procedures and is just a quick summary of the recommended steps. You can find others through an online search of the topic.

# Keep Your SBE Member Benefits and Renew Your Membership Now

Communication and developing professional relationships are important to your career. By maintaining your SBE membership you can do both. Annual membership renewal for Member, Associate, Senior, Student and most Fellow members of the SBE is underway. Renewal letters and membership cards are in the mail. The due date for membership renewal is April 1.

Membership dues for the SBE MemberPlus option remains at \$175 and includes 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, 2025), at no extra charge. That's more than 100 technical broadcast and media webinars available to you 24/7/365.

Traditional membership dues for Member, Senior, Associate and Fellow members remain at \$85. Student membership stays at \$25. SBE Student Members may choose to take the SBE Student MemberPlus option for \$90 when they join or renew. Traditional SBE membership provides discounted 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 19 other countries. The SBE network of 116 SBE chapters provides opportunities for education, local SBE certification exams and professional and social interaction with local technical media professionals. Traditional membership also affords members the opportunity to take part in the SBE Mentor Program, and access to the annual SBE Compensation Survey results, SBE social media and the SBE WEBxtra monthly online meeting.

The fastest way to renew your membership is online at [sbe.org](http://sbe.org). Click on "Renew Membership" at the top of the home page. The online system is secure and accepts Visa, MasterCard and American Express. Your membership can also be renewed through the mail, using the renewal form and return envelope mailed to you.

While the SBE By-laws allow for a grace period if dues are not paid by April 1, SBE MemberPlus benefits expire April 1 if not re-

newed. Membership will revert to traditional membership during the grace period.

SBE Life Members (who traditionally pay no dues) have the opportunity to take the SBE Life MemberPlus option and receive access to all Webinars by SBE for \$90. To sign-up for SBE Life MemberPlus, contact Scott Jones at the National Office at 317-846-9000 or [kjones@sbe.org](mailto:kjones@sbe.org).

SBE members who are at least 65 years of age, are fully retired from broadcast engineering work and have been an SBE member for at least 15 consecutive years at the time of applying for Life member status may be eligible for Life membership. There is a one-time \$85 application fee (\$175 if opting for Life MemberPlus). Life MemberPlus is renewed annually.

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).



## HAMNET, from p. 4

310847, Yaesu Wires-X "SkyHubLink" room 46361, Echolink W0SKY-L 985839, D-Star XRF031C, YSF Reflector 92722, P-25 10294 and IRLP Reflector 9875. See [SkyHubLink.com/nets](http://SkyHubLink.com/nets) for more details.



Randall Jones, CBT, CBNT, AE7RJ, is net control of the UHF/VHF Hamnet.

The Net is based in Denver both on analog and digital repeaters locally and throughout Colorado, and is easily linked into from anywhere in the world using the above facilities. You can also join via a hotspot or use an internet-linked repeater. Randall Jones, CBT, CBNT, AE7RJ, is Net Control. Contact him at [ae7rj@jonesrw.net](mailto:ae7rj@jonesrw.net). Jack Roland, CBRE, AMD, CBNT, KE0VH, ([ke0vh@outlook.com](mailto:ke0vh@outlook.com)) is also involved.

## Hamnet History

The SBE Hamnet began on HF in 1977. SBE Past President Chuck Kelly was living and working in Durango, CO. His closest regular chapter at that time was in Denver, a more than six hour drive. The chapter number 73 was assigned a few years later. Steve Brown, Rick Farquhar, Troy Pennington have also previously served as Net Control.

## WELCOME TO THE SBE

### NEW MEMBERS

Rob Abele - Johnstown, PA	Sam Lunz - Glenshaw, PA
Sorqan S. Chang-Gilhooley - Los Angeles, CA	Elizabeth F. McCoy - Centralia, WA
Thomas Crowe - Alexandria, VA	Tristan C. McKenna - Quaker Hill, CT
Tyler Daniels - Smithfield, NC	Ryan Meyer - Clara City, MN
Brady Davis - Pendleton, IN	Sam A. Mulvey - Tacoma, WA
Jason E. Dean - Jacksonville, FL	Jason J. Newman - Los Angeles, CA
John Dowdel - Westminster, CO	Jose G. Ramirez - Doral, FL
Brady W. Dreasler - Quincy, Ill	Christopher Rast - Johnston, IA
Sharon K. Gould - Vestal, NY	Adam Robinson - Toronto, ON
Bret Greenburg - Provo, UT	Dylan J. Sheldon - Owings Mills, MD
Zachary C. Harns - San Marcos, TX	Gregory J. Splonskowski - Fargo, ND
Ezequiel Hernandez - Saratoga Springs, LT	Ira C. Stotler - Bonne Terre, MO
Cooper S. Hodges - Maryville, TN	Bruno G. Tariant - Tampa, FL
Raymond Holton - Philadelphia, PA	Douglas J. Weiss - Council Bluffs, IA
Rob Johnstone - Bangor, PA	Mike Zimmerman - Omaha, NE
Nickolas J. Kruger - Ames, IA	

### RETURNING MEMBERS

Charles M. Abell - Dumfries, VA	Adam J. Parnau - Brooklyn, NY
Patrick J. Berger - North Aurora, IL	William J. Patnaud - Morrisville, NC
Francisco J. Bernues - Torrance, CA	Jennifer A. Reedquist - Granite Falls, MN
Donald Bohrer - Helotes, TX	Gerald Tremblay - Roseville, CA
Michael R. Margrave - Sumter, SC	James M. Ullery - Oklahoma City, OK
Arthur C. Morris - Aurora, MO	
Donny Newenhouse - San Francisco, CA	
Esteban I. Ortega - Lomita, CA	

### NEW STUDENT MEMBERS

Kira J. Holden - Lawrence, KS  
 Nicholas Reed - Nolensville, TN  
 Evan W. Roach - Toledo, OH  
 Jason Spiller - Bellmore, NY

### NEW YOUTH MEMBERS

Jack Magoun - Arlington, MA

## In Memoriam

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 Nicholas R. Marasco - Chittenango, NY  
 Jack S. Sellmeyer - Lucas, TX

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## MEMBERS ON THE MOVE



◀ **Doug Lung** of Honouliuli, HI, was awarded the 2023 IEEE/BTS Jules Cohen Award for Outstanding Broadcast Engineering.

▶ **Steve Tuzeneu**, CBT, is chief engineer of WPCV, WLKF, WWRZ, and WONN, Lakeland, FL.



◀ **Al Kornak** is regional sales manager at Cartoni. He is based in Dallas, PA.

▶ **Zhulieta Ibisheva**, CBTE, CBT, is director of technology at NBCUniversal, Washington, DC.



▶ **Alan Jurison**, CPBE, AMD, DRB, CBNE, has received the 2024 *Radio World* Excellence in Engineering Award.



## MARK YOUR CALENDAR

S M T W T F S

- SBE Certification Exams Local Chapters  
Feb. 2-12, 2024 [sbe.org/certification](http://sbe.org/certification)  
*Application deadline closed*

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- SBE WEBxtra online  
Feb. 19, 2024 [sbe.org/webxtra](http://sbe.org/webxtra)

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- SBE Membership Drive Begins  
March 1, 2024 [sbe.org](http://sbe.org)

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- SBE Compensation Survey Opens  
April 1, 2024

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- SBE Dues Renewal Deadline  
April 1, 2024 [sbe.org/renew](http://sbe.org/renew)

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- SBE Ennes Workshop @ the 2024 NAB Show  
Las Vegas  
April 12-13, 2024 [sbe.org/ennes\\_workshop](http://sbe.org/ennes_workshop)

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- 2023 NAB Show Las Vegas  
April 13-17, 2024 [nabshow.com](http://nabshow.com)

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- SBE Membership Meeting NAB Show  
April 15, 2024

Have a new job? Received a promotion? Send your news to Chriss Scherer at [cscherer@sbe.org](mailto:cscherer@sbe.org).

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