

THE Signal

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Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

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SBE Announces National Awards Winners

The 2017 SBE National Awards, which recognize excellence and achievement by individual members, SBE chapters and Sustaining Member companies, have been announced. The two highest individual awards are the Robert W. Flanders SBE Engineer of the Year and the James C. Wulliman SBE Educator of the Year.

The Robert W. Flanders SBE Engineer of the Year award is presented to a member who has excelled in his or her career while furthering the mission of the SBE. Candidates are nominated by their peers. The winner of the award for 2017 is Steve Brown of Robbinsdale, MN. Brown is a former SBE Chapter 17 chairman and a former member of the SBE National Board of Directors.

The recipient of the James C. Wulliman SBE Educator of the Year award is recognized for outstanding service and excel-

lence in sharing knowledge through teaching other broadcast engineers. The winner of the 2017 James C. Wulliman SBE Educator of the Year award is Tony Peterle, CPBE, of Chapter 53 in Miami. Peterle is the technical support manager at World-Cast Systems and has been instrumental in teaching engineers across the country about SNMP through SBE University, Ennes workshops and SBE Webinars.

Steve Brown has been in broadcast engineering for more than 40 years. Steve recently “hung up his test leads” and has retired for good. Steve’s career began in 1977 as an engineer at WWTC in the Twin Cities. He continued to work as an engineer in Minneapolis until he first retired in 2004, at which time he became a contract engineer. Steve was one of the first engineers to utilize a helicopter to make relative field measurements of an FM radio station. As a contract engineer, Steve was involved in building more than 20 HD Radio stations. He commented that this was the most fun he had as a broadcast engineer.

Tony Peterle began in radio in 1975. He melded his love of flying with his radio career by reporting traffic in Honolulu and Seattle, migrating to the broadcast engineering side of media when he was in Wichita and Kansas City. Now working at World-Cast Systems, Tony has put together many Ennes Workshop tutorials that are given around the country.

IMT Vislink has been awarded the 2017 SBE Technology Award for the launch of Newsnet—a next-generation wireless ecosystem that establishes a bi-directional IP network for ENG use. John Payne spearheaded the effort. Newsnet transforms



Peterle



Brown

see [AWARDS](#), p. 3

2017 Annual Membership Meeting to be Webcast

SBE President Jerry Massey has announced that the 2017 Annual Membership Meeting will be webcast live from Denver, CO, site of the SBE National Meeting. The one-hour webcast will begin at 4 p.m. ET (1 p.m. PT) on Thursday, Oct. 26.

Members who can’t attend in person are encouraged to tune in via their office or home computer or mobile device. No special software is needed to access the program. The SBE has aired a live webcast from the national meeting since 2007, and hundreds of members have watched the event in past years. The volunteer crew producing the webcast includes Vinny Lopez of Chapter 22 Central New York, Shane Toven and Mike Craig of Chapter 48 Denver and the local SMPTE

Section there, and Andrea Cummis of Chapter 15, New York City. SBE Member Communications Director Chriss Scherer is also a part of the technical crew. The webcast stream is made possible with the support of AC Video Solutions, Blackmagic Design, DVEO, DTS/HD Radio, and Micronet Communications. Mark the date and time in your calendar now.

SBE National Meeting Update

The SBE Annual Awards Reception and Dinner will also take place on Thursday, Oct. 26 beginning with the reception at 4:00 p.m., sponsored by Comrex, and dinner at 5:00 p.m., sponsored by the Telos Alliance. The dinner will include a keynote speech from Bob Weller, vice president

spectrum policy for the NAB, and the presentation of the society’s major awards,

see [MEETING](#), p. 8

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msanchez@sbe.org

Justin "JT" Tucker, CSRE, AMD, CBNE
Cumulus Media | Charleston, SC
jttucker@sbe.org

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

AWARDS from p. 1



Payne

of live ENG transmissions and workflows that can now be performed from the field.

Chapter and Individual Awards

Chapters are the lifeblood of the SBE, and 2017 marks the fourth year that the Chapter Engineer of the Year Award has highlighted the achievements of members within their chapters. This year, nine chapters selected their own award recipients. Each winner receives a special certificate and recognition nationally on the SBE website and in the next issue of *The Signal*. The nine chapter winners also were automatically nominated for the Robert W. Flanders SBE Engineer of the Year Award. The 2017 national winner, Steve Brown, represented Chapter 17 as

traditional methods of content news gathering workflows by establishing a high-speed and reliable bi-directional IP network utilizing the exclusive and highly coveted 2GHz BAS licensed spectrum, thereby increasing the number

its Chapter Engineer of the Year.

The 2016 Ohio Broadcast Engineering Conference has won for Best Chapter Regional Educational Event.

James Dalke, CPBE, 8-VSB, AMD, CBNT has won the award for Best Technical Article, Book or Program by an SBE member for his presentation "Using Satellite VSATs for Broadcast STL" during the 2017 NAB Show BEITC.

Statistical Awards

Greatest Growth in New Members

A. Chapter 111, Huntsville, AL; Chapter Chairman Kevin Kidd, CSRE, AMD

B. Chapter 68, Birmingham, AL; Chapter Chairman Tim Costley

Most Certified Chapters

A. Chapter 72, New Orleans, LA; Chapter Chairman Ernest Kain, CBRE, CBNE; Certification Chairman Ernie Harvey, CPBE, 8-VSB, CBNT

B. Chapter 118, Montgomery, AL; Chapter Chairman Wiely Boswell, CBRE, CBNE; Certification Chairman Charlie Grider, CBRE, CBNT

Highest Member Attendance

A. Chapter 112, Western, WI; Chapter Chairman Todd Zschernitz, CBTE

B. Chapter 79, Austin, TX; Chapter Chairman Ed Rupp, CBTE, CBNT

Nominations for the 2018 awards will open in February.



Certification Question

Answer on page 6

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

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



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LETTER FROM THE PRESIDENT

By Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT
SBE President
jmassey@sbe.org

Keeping Busy With the Repack

As you read this, we are in the middle of summer and I, like many of you, are spending a lot of time fixing storm damage, integrating new technologies and generally just keeping things running. It seems like summer is the busiest time of the year for SBE members. I wish you the best of luck in accomplishing your tasks!

This is also a busy time for your national SBE. We are in the middle of national elections for the upcoming new officers and half of the Board of Directors that will serve you in the coming year. Have you voted yet? If you have, I thank you for taking time to cast your vote for those who you want to lead the Society. If you have not voted yet, I encourage you to take time to cast your vote. It only takes a few minutes and your vote is important especially since those elected will be representing you and your wishes. It would be great to have a 100 percent membership vote this year.

In addition to working the mid-summer storms, you may be involved in the early prepping for the TV RF repack. Almost daily, we see in the trades some article regarding the repack, and this issue of *The Signal* is no exception. This will be the hot topic for several years to come. FM mem-

bers: Have you examined the TV repack to see if there is a possibility that one or more of your stations could be affected by reduced power levels or full shut downs during tower modifications? I have recently gone through that routine, and I am now making plans for several stations to stay on the air while collocated TV stations modify their antenna or feedlines and in some cases strengthen the tower.

Education abounds

As I do in every *Signal*, I want you to consider taking some of the SBE's excellent educational opportunities. We are happy that many of you have enrolled in the RF101 webinars. They are still going on with two more webinars in the series to go live. If you did not have time to enroll when the series started, good news! You can pick these up through the SBE's on-demand gateway. Enroll and take the courses at your leisure. This is a great course if you are new to broadcast RF or if you want a refresher course.

I will also mention the great courses the SBE offers through the SBE University. This is a place where you can start to learn. There are great courses such as AM Antenna Systems, FM Transmission

Systems, 8-VSB and Broadcast Audio Processing for both radio and TV. These are only a few of the offerings through SBE University. Go to the SBE website (sbe.org), and click on the education tab. If you want to progress in broadcasting, the SBE has the courses for you.

National Meeting

It will soon be time for the SBE National Meeting. This year it will be in Denver, CO, at the Crowne Plaza, Denver International Airport. We will have our national meeting on Oct. 26 at 2 p.m. MT, and we hope that if you are in Denver, you can join us. If you can't be there in person, the meeting will be streamed, so either way please plan to join us. The national meeting will continue after with the national awards dinner where we will honor three new Fellow members: Frank Giardina, CPBE, director of engineering/IT, Cumulus Media, Birmingham, AL; Ted Hand, CPBE, 8-VSB, AMD, DRB, director of engineering/operations, WSOC-TV, Charlotte, NC; and Robert Hoffman, CPBE, chief engineer, Hubbard Radio, St. Louis, and stations WIL-FM, WARH-FM and WXOS-FM. Congratulations to these three who have exemplified outstanding service to the industry and the SBE!



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Chapter Check

Chapter 58 • Northeast NY



Chuck Zarriello of Com-Tech Sales (r) steps down after 17 years as chairman at Chapter 58. He receives congratulations from incoming Chapter 58 Chairman Nolan Stephany.

Derk van Rijswijk photo.

EDUCATION UPDATE

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

My Network is Secure. Is Yours?

Well, I wouldn't admit it if it wasn't. Information technology (IT) security is focused upon host device security and network infrastructure security. Whereas host device security mitigation is important in the overall broadcast IT ecostructure, let's focus on network security for the moment. Network security has become an extremely important responsibility of the broadcast engineer as more of the broadcast technical facility migrates to or has migrated to an IP-based network infrastructure. The broadcast facility looks more like a data center rather than the traditional broadcast facility of yesterday. It is easy to say, "I have a secure network," but what really is a secure network? The SANS Institute defines network security as a process of implementing physical and software preventative measures to protect the network infrastructure to insure that authorized users and applications are able to perform the permitted functions. To implement the process, the IT industry identifies several characteristics, attributes, and practices that describe a secure network. These attributes and practices include:

- Creating Multi-Layer Sub-Network Domains & Controls
- Restricting User & Application Privileges
- Limiting User & Application Access
- Network Activity Tracking & Logging
- Active On-Going Support & Maintenance

The establishment of multi-layer security domains and controls breaks up the network into multiple isolated subnets or domains based upon application and user grouping. The grouping is further structured by use of a layered approach from less secure to highly secured subnets at the network core. Whereas an access breach to an individual lower level subnet domain may occur, the breach does not give access to all network hosts. This practice is often accomplished with the establishment of a Virtual Local Area Network (VLAN). VLANs allow a common physical network infrastructure to transport multiple isolated subnet domains. This practice is also used to improve network performance by limiting the volume of broadcast traffic within an individual domain.

Restricting privileges to users and applications is based upon the mindset of deny access to everything. Access is then allowed based upon a legitimate user or application need-to-access. Whereas this is a common practice with users, applications are often overlooked and are often provided carte blanche access to the network by default. Default access passwords must be changed in all infrastructure devices and any back-door administrative access eliminated or tightly restricted. Don't overlook

For more information on any SBE education program, contact Education Director Cathy Orosz at the SBE National Office at 317-846-9000 or corosz@sbe.org.

changing default Simple Network Monitoring Protocol (SNMP) community strings. Disable any services that are not required and eliminate the use of unsecure access protocols such as telnet and HTTP. Access within the network and to the network is limited and controlled by the use of firewalls and/or proxy devices. Firewalls are commonplace at the edge of a network for ingress filtering when public Internet access is involved. But don't overlook the use of egress filtering and the use of firewall techniques within the network infrastructure. A simple access control list (ACL) can provide stateless based firewall functionality between the layered subnet domains. Any external access to the core network infrastructure should utilize Virtual Private Network (VPN) encryption techniques.

Network activity monitoring and logging is an important step in proactive network security management. This practice provides an understanding of what is normal network activity, detecting abnormalities, and re-creating the steps that lead up to a security breach. This process could be as simple as a periodic review of network infrastructure activity logs to implementation of an automated exception monitoring and alerting platform. Intrusion prevention systems combine network intrusion detection and firewall integration to create an automated defense environment. It is essential to time synchronize all network monitoring and logging services via Network Time Protocol (NTP) so that event action is accurately reflected. Network infrastructure device software patches must be kept up to date. Network security is not a one-time project. It is a proactive ongoing process of monitoring, assessment, and preventative mitigation actions as threats are constantly evolving. In closing, adopt practices and implement proactive measures to state "my network is secure" with confidence!

Catch up on webinars

Two multi-part SBE webinar series are nearing their final webinars. The multi-part RF101 webinar series wraps up with FCC Regulations in September and Fundamentals of IP Networking – 2017 ends this month with a focus on cybersecurity. If you missed any of the live webinar presentations, remember that all SBE webinars are available on-demand for viewing on your time frame.

Your SBE Education Committee wants to know your career professional development needs. Consider providing your expertise and knowledge to your SBE colleagues through one of many program delivery platforms. Lend your advice and guidance to the SBE Education Committee. Continuous learning is a key trait of the successful technology professional and the SBE Education team is dedicated to bringing you quality professional development programs covering relevant broadcast industry topics delivered in mediums to meet your needs.





CERTIFICATION UPDATE

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

Real Job Security Is Your Ability To Get Your Next Job

I frequently get calls from colleagues who suddenly want to get certified but don't know which level to pursue. The newfound motivation often comes from an approaching merger, likely downsizing, a new GM or a need to relocate to a geographic area where they are not known. SBE certification provides a "currency of competency" that should not be overlooked.

Where do you start? Even if you have 15 or 20 years of experience, I recommend you start at the five-year level. These tests require no essay question and are a good place to start. If you have less than five years of experience, then Broadcast Technologist is a good beginning.

You have a choice to be an employee who simply has a job, or a broadcast professional who is certified by the only national organization that certifies broadcast engineering skills.

The Society of Broadcast Engineer's Program of Certification was created more than 40 years ago as a way to recognize and raise the professional status of broadcast engineers by providing a standard of professional competence.

Entry-Level Certifications

- *Certified Television Operator (CTO), Certified Radio Operator (CRO)*

These two certifications are targeted to the entry-level, non-technical pool of applicants filling board operator and master control positions in today's radio and television marketplace and include the opportunity to be tested and certified. The exam consists of 50 multiple-choice questions. It is closed-book, and you are allotted one hour.

- *Certified Broadcast Technologist (CBT)*

If you hold a valid FCC Amateur Extra Class license or a valid General Radiotelephone license, and have two continuous years or three out of the last five years work experience in broadcast engineering or a related technology, you can apply for the CBT certification without taking the exam. Please contact the national office for more information.

The following exams are all open book for the 50 multiple-choice question portion. If an essay is involved, the essay is closed book.

- *Certified Broadcast Technologist (CBT)*

This exam consists of either AM/FM or TV questions. Content of these questions will consist of electronic fundamentals, FCC rules pertaining to operating tolerances and safety.

- *Certified Broadcast Networking Technologist (CBNT)*

This certification is designed for persons who wish to demonstrate a basic familiarity with networking hardware as utilized in business and audio/video applications in broadcast facilities. This exam will consist of questions on network topologies and layouts, common network protocols, wiring standards and practices, maintenance, troubleshooting and connectivity issues and challenges unique to broadcast-based networks.

Five-Year Certifications

- *Certified Audio Engineer (CEA), Certified Video Engineer (CEV), Certified Broadcast Radio Engineer (CBRE) Certified Broadcast Networking Engineer (CBNE), Certified Broadcast Television Engineer (CBTE)*

These certifications are based on the years of experience you

have in the field of broadcast engineering or related technology. You may substitute the years of experience to supplement the five-year requirement (see acceptable substitutions below). The CBNE exam also includes an essay.

Ten-Year Certifications

- *Certified Senior Radio Engineer (CSRE), Certified Senior Television Engineer (CSTE)*

These two certifications are based on years of experience you have in the field of broadcast engineering or related technology. You may substitute the years of experience to supplement the 10-year requirement (see acceptable substitutions below). There is an essay associated with the senior exams.

For the five-year or 10-year certifications you may substitute the years of experience by holding a state registered Professional Engineer's license (4 years), a bachelor degree (4 years), an associate degree (2 years) or years of related accredited education can be substituted, year-for-year (up to 4 years).

Twenty-Year Certification

- *Certified Professional Broadcast Engineer (CPBE)*

This certification requires 20 years of professional broadcast engineering or related technologies experience in radio and/or television. Educational credits will not be counted towards the 20 years. There isn't an exam associated with this certification; however, the applicant must first be certified on the Senior (10-year) level to apply for the CPBE.

To apply you must fill out the application and include three letters of reference. Two must be from a Certified Professional Broadcast Engineer, Certified Senior Broadcast Engineer or state-registered Professional Engineer. At least one other letter of reference must be from a person who has supervised your work. However, if he or she is certified at one of the above-mentioned levels, that reference will be counted as two letters. In addition to the application and letters of reference, you must submit a resume and a statement showing why you believe your professional experience, educational background and training qualifies you for certification.

Your application will then be reviewed by your SBE local chapter certification chair and then to the National Certification Committee.

continued on page 7

EQ Answer from page 3

The answer is C

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 Professional Broadcast Engineer (CPBE)
Randolph Staley, Borrego Springs, CA - Chapter 131

Certified Professional Broadcast Engineer (CPBE)
8-VSB Specialist (8-VSB)
Dennis Maddox, Fountain Inn, SC - Chapter 86

Certified Professional Broadcast Engineer (CPBE)
8-VSB Specialist (8-VSB) AM Directional Specialist (AMD) Digital Radio Broadcast Specialist (DRB)

Bruce Zieminski, Riverside, CA - Chapter 131
Certified Broadcast Networking Technologist (CBNT)
Dennis Maddox, Fountain Inn, SC - Chapter 86
Randolph Staley, Borrego Springs, CA - Chapter 131
Bruce Zieminski, Riverside, CA - Chapter 131

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.

CERTIFIED PROFESSIONAL BROADCAST ENGINEER

Certified Professional Broadcast Engineer (CPBE)
Jorge Gonzalez, Mayaguez, PR - Chapter 142
Richard Kempik, Yorba Linda, CA - Chapter 131
Eric Morris, Westville, OK - Chapter 56
John Luff, Sewickley, PA - Chapter 20
Norman Wright, Half Moon Bay, CA - Chapter 40

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.

NAB SHOW EXAMS

Certified Senior Radio Engineer (CSRE)
John Brewer, Humble, TX - Chapter 105

JUNE EXAMS

Certified Broadcast Radio Engineer (CBRE)
Ricardo Esparza, South Gate, CA - Chapter 47
Ted McCall, Easley, SC - Chapter 86

Certified Broadcast Television Engineer (CBTE)
Mohanad Faisal, Bristol, CT - Chapter 22

Certified Audio Engineer (CEA)
Scott Eugene, Plymouth, MN - Chapter 17
James Wheeler, Franklin, CT - Chapter 14

Certified Broadcast Networking Technologist (CBNT)
Joseph Bennett, Olathe, KS - Chapter 59
John Cruzat, Brooklyn, NY - Chapter 15

Derrick Dodson, Sacramento, CA - Chapter 43

Certified Broadcast Technologist (CBT)
Anthony Dimsdale, Greenville, SC - Chapter 86

Certified Television Operator (CTO)

Samuel Benezet, Las Vegas, NV - Chapter 128
Michael Boucher, Las Vegas, NV - Chapter 128
John Garcia, Las Vegas, NV - Chapter 128
Ken Johnson, Las Vegas, NV - Chapter 128
Susan Rigby, Las Vegas, NV - Chapter 128
Greg Rogers, Las Vegas, NV - Chapter 128

SPECIAL PROCTORED EXAMS

Certified Broadcast Technologist (CBT)
Southern Alberta Institute of Technology
Jason Gin, Calgary, AB
Jason Dominguez, Baton Rouge, LA
Adam Higgins, Calgary, AB
Kelsey Hover, Calgary, AB
Jeong Jeongjo, Calgary, AB

Southern Alberta Institute of Technology (cont.)

Matthew Kemper, Canmore, AB
Max Shultz, Calgary, AB
Michael Stechly, Mississauga, ON
Zihuan Sun, Calgary, AB
Ming Qu, Calgary, AB
Daniel Carlos Valencia, Calgary, AB

DINFOS

Terence Bolden, FPO, AP
Jonathan Over, Los Angeles, CA - Chapter 47

CERTIFIED BY LICENSE

Certified Broadcast Technologist (CBT)
Craig Fincher, Fort Worth, TX - Chapter 67

RECERTIFICATION

Certified Professional Broadcast Engineer (CPBE)
James Bernier, Alpharetta, GA - Chapter 5
James Leifer, Andover, MA - Chapter 11

Certified Senior Television Engineer (CSTE)
Michael Hoffman, Hermosa Beach, CA - Chapter 47

Certified Broadcast Networking Engineer (CBNE)
James Bernier, Alpharetta, GA - Chapter 5
Jeffery Hartman, Amarillo, TX - Chapter 67

Certified Broadcast Radio Engineer (CBRE) AM
Directional Specialist (AMD)
Steven Callahan, Middleboro, MA - Chapter 11

Certified Broadcast Radio Engineer (CBRE)
David Halperin, El Paso, TX - Chapter 38
Stuart Muck, Fond du Lac, WI - Chapter 80
Joshua Smith, East Longmeadow, MA - Chapter 11

Certified Broadcast Television Engineer (CBTE)
Joseph Addalia, Jr., New Smyrna Beach, FL - Chapter 42

Michael McNamara, Tuscaloosa, AL - Chapter 68
Rick Morris, Wilmette, IL - Chapter 26
William Mutter, Laurel, MD - Chapter 132
Gregory Wynter, Toronto, Ontario Canada

Certified Audio Engineer (CEA)
Paul Jonak, Moreno Valley, CA - Chapter 131

Certified Video Engineer (CEV)
Jeffery Hartman, Amarillo, TX - Chapter 67
Paul Jonak, Moreno Valley, CA - Chapter 131

Certified Broadcast Networking Technologist (CBNT)

David Boyd, Portland, OR - Chapter 124
Jerry Dowd, Matthews, NC - Chapter 45
Edward Dulaney, Kamay, TX - Chapter 67
Brian James, Birmingham, AL - Chapter 68
Nathan McKenzie, Calgary, Alberta Canada
Derek Murphey, Fitchburg, WI - Chapter 24
Patrick O'Gara, Las Vegas, NV - Chapter 128
Norman Phillips, Arlington, TX - Chapter 67
Andrew Terhall, Washington, DC - Chapter 37

Certified Broadcast Technologist (CBT)
Christopher Imlay, Silver Spring, MD - Chapter 37

Certified Television Operator (CTO)
Andrew Humphries, Murfreesboro, TN
Wilson Middleton, Tacoma, WA - Chapter 16
Gabriel Ortega, Roseville, CA
Elizabeth Register, Norfolk, VA

Certified Radio Operator (CRO)

Maria Oliver, San Jose, CA
Johnny Story, Canyon, TX

Specialist Certifications

• *Certified 8-VSB Specialist (8-VSB), Certified AM Directional Specialist (AMD), Certified Digital Radio Broadcast Specialist (DRB)*

These certifications were created by the National Certification Committee to establish a benchmark of individual strengths. To apply for the Specialist exams you must first be certified on the 5-year, 10-year or 20-year level. There is an essay associated with the specialist exams.

All SBE certifications are valid for a period of five years. At which time you will need to recertify by professional credits. These credits will be valid from the 5-year period of your cer-

tification. Credits can be obtained by continuing your education, working in the broadcasting field, attending seminars, SBE meetings, active membership in SBE or other national technical broadcasting societies.

To apply for any of these certifications please complete the application from the SBE website (sbe.org), or you may call the National Office to request an application at 317-846-9000. Exams are given year round at your local chapter during exam sessions.

If you have any questions please contact Megan Clappe at mclappe@sbe.org.

SBE National Election Ends August 23

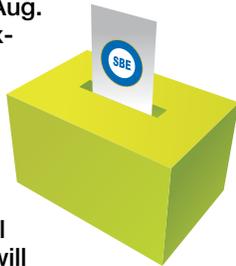
The annual election of SBE officers and directors is currently underway. Up for election are all four officers for one-year terms and half the 12 directors for two-year terms.

All ballots are due by 4:30 p.m. EDT on Aug. 23.

Voting is via the election website, except for those members who have opted out of electronic voting this year or who have not provided the SBE national office with an email address. They will receive their ballots through the mail. An email test message was sent on July 6, and the ballot link was sent to valid email addresses on July 24. Reminder emails will also be sent.

For members who received a paper ballot in the mail, your ballot must be received in the SBE National Office by 4:30 p.m. ET on Aug. 23.

If you have not yet cast your vote, do so today.



SBE Election Candidate Slate

Officers:

President: James Leifer, CPBE; Chapter 11 Boston; Andover, MA

Vice President: RJ Russell, CPBE; Chapter 18 Philadelphia; Philadelphia

Secretary: Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE; Chapter 99 Bryan, TX, College Station, TX

Treasurer: Jim Bernier, CPBE, CBNE; Chapter 5 Atlanta; Alpharetta, GA

Treasurer: Ched Keiler, CPBE, 8-VSB, CBNE; Chapter 53 South Florida; Ft. Lauderdale, FL

Directors: (top six vote getters will be elected):

David K. Bialik, CBT; Chapter 15 New York City; New City, NY

Andrea Cummis, CBT, CTO; Chapter 15 New York City; Roseland, NJ

Mark Fehlig, CPBE, 8-VSB, CBNT; Chapter 40 San Francisco, Walnut Creek, CA

Mike Hendrickson, CPBE, CBNT; Chapter 17 Minneapolis; Lakeville, MN

Stephen H. Lampen, CBRE; Chapter 40 San Francisco; San Francisco

Kim Sacks, CBT; Chapter 48 Denver; Loveland, CO

Dave Siegler, CPBE; Chapter 5 Atlanta; Atlanta

Barry Thomas, CPBE, DRB, CBNE; Chapter 48 Denver; Denver

Kevin Trueblood, CPBE, CBNT; Chapter 90 SW Florida; Estero, FL

MEETING from p. 1

including the Robert L. Flanders SBE Engineer of the Year to Steve Brown of Robbinsdale, MN, and Chapter 17, and the James C. Wulliman SBE Educator of the Year award to Tony Peterle, CPBE, of Worldcast Systems and Chapter 53 in Miami. The SBE Technology Award will be presented to SBE Sustaining Member IMT Vislink and the program will close with the elevation of three members to the grade of SBE Fellow, Robert Hoffman, CPBE; Ted Hand, CPBE, 8-VSB, AMD, DRB; and Frank Giardina, CPBE.

The awards program will also recognize chapter achievement with awards for the Best Chapter or Regional Educational Event, Most Certified Chapter, Highest Member Attendance and Greatest Growth in New Members.

A member will be cited for the Best Technical Paper, Article, Book or Program by an SBE Member and the winners of the chapter-selected Chapter Engineer of the Year awards will be recognized. They are noted on page 11 of

this issue.

The SBE National Meeting is held in conjunction with the Rocky Mountain Audio/Video Expo (AVX), an annual regional exposition and educational event. The Expo attracts more than 100 exhibiting companies and plans more than 45 technical sessions.

Serving as event host is SBE Chapter 48 of Denver and the Colorado Front Range. The SBE National Meeting begins on Wednesday afternoon, October 25 with the fall meeting of the national SBE Certification Committee from 2 to 4 p.m. The fall meeting of the SBE Board of Directors will take place from 6 to 10 p.m. and attendance is open to any SBE member. On Thursday, activities begin with the annual SBE Fellows Breakfast, sponsored by Kathrein, a reunion of SBE Fellow members including this year's inductees. As mentioned earlier, the SBE Annual Membership Meeting will be held from 2 to 3 p.m. MT, webcast live to members around the world.

The SBE National Meeting and the AVX will be held at the Crowne Plaza Denver

International Airport Hotel. The hotel has complimentary shuttle service to and from the Denver International Airport. The hotel is 14 miles from downtown Denver and reachable by Denver's new light-rail system. A station is near the hotel.

AVX registration can be made through the AVX show website (avxpo.biz). The expo and most educational sessions are free if you pre-register. Companies interested in exhibiting can also visit the website for details.

Registration for the SBE National Awards Reception and Dinner is required (\$16) and can be made through the SBE website (sbe.org) or by calling the SBE National Office at 317-846-9000. There is no cost to attend the SBE Annual Membership Meeting.

Make reservations at the Crowne Plaza DIA by calling 866-378-1583 and use the booking code XVA. A limited number of guestrooms with a special rate of \$122 per night plus tax has been reserved for the event.

Chapter Check

Chapter 59 • Kansas City

In February, Chris Childs of SEG discussed the transition from AMC-8 to AMC-18 and SES-11. AMC-8 ceased operation on June 30.



Chapter 36 • San Diego

In July, Chapter 36 hosted Mark Fehlig of Jampro/Alan Dick Broadcast to discuss antennas and the TV repack.



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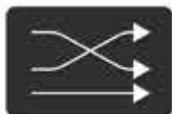
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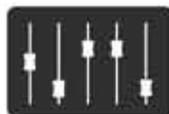
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LEGAL PERSPECTIVE

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

A Cacophony of Noise

One step forward, two steps back. The SBE's mantra with respect to AM improvement is that the band will never get better unless and until the Commission gets a handle on man-made RF noise in the Medium Frequency bands. So we hailed with great fanfare the Commission's Public Notice last year stating that it had tasked its Technological Advisory Council to study changes to the Spectrum Noise Floor over the past 20 years. The TAC assumed that the noise floor in the radio spectrum is rising as the number of devices in use that emit radio energy grows, but found that concrete evidence of increased noise floors was lacking in terms of available quantitative data to support the assumption. So the FCC opened Docket 16-191 asking for comments on how a noise study could be structured, and so that the TAC could add to the available data to answer important questions for the FCC regarding RF noise.

A host of comments were received, including extensive comments filed by the SBE. The SBE suggested that its chapters and members could be a valuable resource in gathering useful data about ambient noise levels. Virtually all comments filed were enthusiastic about the study and offered suggestions about how such a study could be conducted. One

step forward.

There has been dead silence from the Commission since the comment date closed. What happened to the study? According to a source within the TAC, it has been effectively scuttled. The TAC, according to the source, is no longer being tasked with conducting the noise study. Instead, the Commission has asked the TAC to dedicate its time and talent to recommending regulations that can be removed. No public explanation for the abandonment of the noise study has been offered by the Commission, the TAC or anyone else. Two steps back.

And those are big steps back, because the fits and starts on a noise floor study by the TAC goes back to May 26, 1999, when the Commission first officially requested that the TAC study the noise floor and propose new approaches to spectrum management based on emerging and future technologies. The TAC was barely a year old at the time.

To get back in step

In making this request, the Commission noted that electromagnetic noise levels had not been studied for more than 20 years before that time. The request also noted that the "commercially viable range of radio frequency devices has significantly expanded" and that, although these devices were previously limited to the 30 MHz to 3 GHz range, "communications now utilize spectrum up to and including the oxygen absorption bands to 70 GHz." FCC staff summarized the importance of the TAC's efforts in 1999 as follows:

The regulatory limitations the Commission places on intentional and unintentional emissions are premised on long-standing assumptions about the relevant ambient environmental noise. Given the dated nature of the Commission's knowledge underlying those assumptions, as new and innovative radio communications devices emerge it is becoming increasingly important that the Commission base its decisions on a reliable assessment of the noise floor within the United States and its territories.

Does the Commission really want to know what the levels of ambient noise are in different environments, rural, exurban, suburban and ur-

ban? If not, why was the 2016 TAC study commissioned in the first place? Why was it scuttled most recently? Was it due simply to a change in administrations and a focus on further deregulation instead of developing a meaningful long-term fix for AM Radio broadcasting? So far, the Commission is not saying. And neither, publicly, is the TAC.

Not all the Commission's recent steps on RF noise have been backward however, in all fairness. Thanks to the Enforcement Bureau, there was in late May of this year a meaningful, noteworthy enforcement action taken against a company called AFX, which manufactures and distributes RF lighting devices for residential and commercial environments. The Commission found that certain of AFX' under-cabinet RF lighting fixtures were allegedly causing interference to AM and FM radio broadcast reception. The Commission investigated and discovered that this line of lighting devices were unintentional radiators and subject to equipment authorization procedures which had not been followed by the company, which continued during the investigation to market the products. The company brought its product lines into compliance and the Commission and the company entered into a consent decree providing for the payment by the company of a civil penalty to the U.S. Treasury of \$90,000. Additionally, the company will develop a compliance plan, a compliance manual, and do compliance training for its employees; it will establish a compliance officer, and file annual reports with the Commission annually for three years.

A drop in the bucket? No, not really. This is a meaningful enforcement action, and it should send a message to the many, many importers of non-compliant RF devices that pollute the spectrum and make AM reception difficult. Sure, the number of such RF devices is huge, coming into the United States from China and other countries in violation of U.S. Customs laws as well as FCC regulations. But FCC enforcement has always been based principally on deterrence theory. The threat of large fines aimed at importers and distributors of RF noise generators can only help. One step forward again. 🌐

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FOCUS ON SBE

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

Our Honor Roll of Chapters

Each year many SBE chapters qualify to receive a cash rebate of a portion of the SBE membership dues paid by members affiliated with the chapter. In 2016, 70 chapters qualified for the rebate by holding at least five meetings during the calendar year and reporting them to the SBE National Office. A good number of those chapters had as many as 12 meetings during the year.

The qualifications serve as a minimum benchmark that indicate a chapter is providing a satisfactory (or better) program for the SBE members in its area. Providing a quality chapter program is vitally important as it accomplishes two of the

most important objectives of the Society: local educational opportunities and a network of local engineering colleagues. We encourage all chapters to qualify for the rebate each year to help ensure that all SBE members have access to a quality local program.

The 70 chapters that qualified in 2016 are sharing in a total of \$39,468 that was distributed on June 1 of this year. Most chapters will use these funds to supplement their regular operations. Some chapters each year donate their rebate to the Ennes Scholarship Fund or to



Regular chapter meetings are important to a chapter's health. Here, Chapter 45 Charlotte gathered for its annual Christmas get-together last December.

the SBE General Fund. Those donations are much appreciated.

In recognition of qualifying for a rebate during 2016, I am pleased to provide the list below, which represents the SBE Honor Roll of Chapters.

Chapters			
2	Northeast Pennsylvania	55	St. Louis
3	Kansas	56	Tulsa
5	Atlanta	59	Kansas City
7	Jacksonville	66	Fresno
9	Phoenix	67	North Texas
14	Connecticut Valley	68	Birmingham
15	New York City	69	South Texas
16	Seattle	70	Northeast Ohio
17	Minneapolis	72	New Orleans
18	Philadelphia	74	Midland Nebraska
21	Spokane	76	Eugene
22	Central New York	78	Blue Ridge VA
24	Madison	79	Austin
26	Chicago	80	Fox Valley WI
32	Tucson	85	Central Western Oklahoma
33	Southwestern Ohio	88	Palm Beach
34	Albuquerque	90	Southwest Florida
35	Kentucky	91	Central Michigan
36	San Diego	96	Rockford
37	District of Columbia	102	Grand Rapids
38	El Paso	103	Nashville
39	Tampa Bay Area	105	Houston
40	San Francisco	109	Des Moines
41	Central Pennsylvania	111	Huntsville
42	Central Florida	112	Western Wisconsin
43	Sacramento	113	Knoxville
44	Shreveport	115	Southern Idaho
45	Charlotte	118	Montgomery
46	Baltimore	122	Youngstown OH
47	Los Angeles	124	North Oregon
48	Denver	131	Inland Empire CA
49	Central Illinois	133	Buffalo
51	Tri-Cities, WA	141	Medford
52	Central Ohio	145	Magic Valley ID
53	South Florida		
54	Tidewater VA		

Chapter Engineers of the Year Chosen

In conjunction with the SBE National Awards program, SBE members who are honored by chapters as a chapter engineer of the year are automatically entered into consideration for the Robert W. Flanders SBE Engineer of the Year award. Nine people were selected by chapters for the local honor.

- Steve Brown, Ch. 17 Minneapolis
- Jose Antonio Castro, Ch. 38 El Paso
- Stephen Konopka, CBRE, Ch. 80 Fox Valley, WI
- Bill Kozel, CSRTAVE, CBNT, Ch. 70 Northeast Ohio
- Thomas McGinley, CPBE, AMD, CBNT, Ch. 16 Seattle
- Frank McLemore, CPBE, CBNT, Ch. 118 Montgomery, AL
- Dave "Doc" Ohmstede, CPBE, Ch. 109 Des Moines
- Dan Ryson, CBT, Ch. 37 District of Columbia
- Thomas Siglin, Ch. 1 Binghamton, NY

Each honoree will receive a certificate and will be featured in the next issue of *The Signal*.

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ENGINEERING PERSPECTIVE

By Tom Smith, CPBE
Maintenance Technician and Videotape Editor, WHA-TV, retired
tcsmith100@frontier.com

Congestion In The New TV Bands

In the August 2016 *The Signal*, I outlined how much spectrum could be available for the TV station repack after the Incentive Auction was completed. At that time, I used the maximum amount of spectrum the FCC sought for wireless use, 126 MHz, which would have left 28 TV channels from channels 2 through 29 for use by the remaining stations. In the end, the auction went through four stages, which freed 84 MHz for wireless use including guard bands. This left TV broadcaster with 35 channels from channels 2 through 36. Channel 37, which is used for space research, becomes a buffer between TV broadcasters and the wireless providers. In the August 2016 article, I based the estimated number of full-power stations in the repacked TV bands on the number of analog and DTV stations assigned per channel during the DTV transition, which ended in February 2009, when most stations began DTV operation, except for a few stations that provided limited transition information service with their analog channel until June 2009. On April 13, 2017, the FCC released the new table of allotments for the Incentive Auction Repack of the TV band. This table included all the stations that choose not to participate in the auction, or participated in the auction and choose to move to VHF from UHF, or either dropped out of the auction or were not needed by the FCC. The new table of allotments included all the full-power stations that will remain on the air as well as the Class A low-power stations that are given the same primary use protection as a full-power station.

The FCC had to repack 1,166 full-power UHF stations and 333 Class A UHF stations from 38 channels (14 through 51) to 23 channels (14 through 36). Fifteen full-power UHF stations elected to move to low-band VHF along with one UHF Class A. Twelve full-power UHF stations elected to move to high-band VHF along with two UHF Class A stations. One high-band full-power VHF station elected to move to low-band VHF. 145 UHF stations chose to either share a channel or go off the air. The remaining UHF stations were repacked in-band. The FCC had to move nearly 1,000 UHF stations to new UHF channels, and numerous high-band stations to a different high-band channel to make room for the stations moving from UHF to high-band VHF.

So, how congested is the reduced UHF band? In the 2016 article I estimated that one TV channel could carry an average of 70 stations per channel even as the FCC placed up to 80 stations per channel in some instances during DTV transition. Taking out low-band VHF stations from the average number of stations per channel because there are only 54 full-power stations with an additional 7 Class A stations, there is an average of 65.5 stations per channel (53.33 full-power, 11.75 Class A per) (see Figure 1). In the new UHF band, full-power stations average 51 stations per channel with an average of 14.5 Class A stations per channel. The total average of all stations per UHF channel

is 65.5 station per channel. In the high-band VHF band, there is an average of 62 full-power stations and 3 Class A stations per channel with an average of all stations of 69 stations per high-band VHF channel. The highest number of stations on a high-band VHF channel is 70 stations on channel 7; the lowest number of stations on a high-band VHF channel is 59 on channel 9. In the UHF band, the highest number of stations on a channel is 76 on channel 24 with 20 of them being Class A stations. The lowest number of stations on a UHF channel is 48 stations with seven being Class A stations on channel 14.

The FCC computed the separation between stations based on interference contours much like AM stations instead of the old mileage separations. The FCC did set up a mileage table in the original DTV rulemaking, but they are not listed in the current rules as posted on the FCC or Government Printing Office websites. By using the interference contours, the FCC was able to

space stations closer together. The second largest factor in the crowding of the UHF band is Class A stations. Class A stations vary in the area they cover. A Class A station operating with the full allowed radiated power of 15 kW operating from a high rise building or tall tower or a mountain top can cover nearly as much area as a full-power station. Many

other Class A stations may operate with the full ERP, but are on much shorter towers and cover less area which may be less of a factor in the crowding of a particular channel. Because there are fewer Class A stations in the VHF band, there are fewer issues with Class A stations as far as crowding.

Where does this leave us? We still have to try to repack thousands of TV translators and LPTV stations into the remaining TV band. There is also the question that after more than 25 years of freezes on applications for new TV stations, will the FCC accept applications for any new stations? There was a brief period after the DTV transition table of allotments were issued that the FCC allowed applications for the unused analog channels, which added just more than 100 additional stations, but that was 20 years ago, and many markets have grown and may have a need for another station or two. That could include stations for the smaller national networks, Spanish-speaking stations where there has been a growth in Spanish population and some religious broadcasters may want to expend. Finally, will some stations that choose to share a channel decide that it was not a great deal and wish to apply for a new channel in the future if the FCC allows them to?

The new FCC allocations can be found at (https://data.fcc.gov/download/incentive-auctions/Transition_Files) along with other repack databases. Another good information source is rabbitears.info, which has broken down the FCC allocation tables in a number ways and with maps of the new allocations.

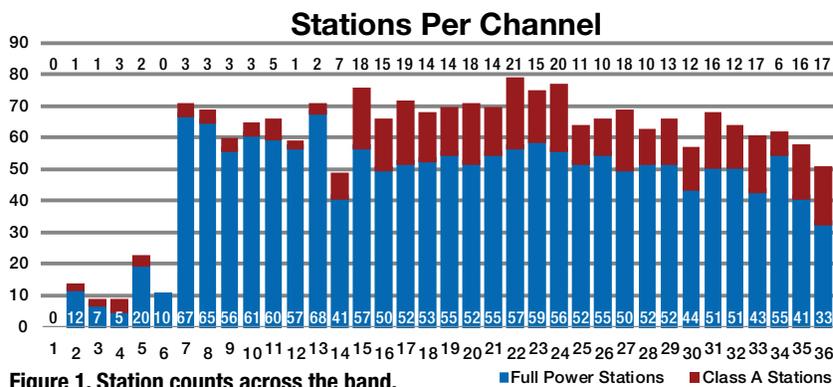


Figure 1. Station counts across the band.

■ Full Power Stations ■ Class A Stations

- 101 Telco Solutions • 2017**
Erik Hoegh-Guldberg 469-732-3589
Dehydrator and Microwave Repair
- 305 Broadcast • 2015**
Anthony Gervasi 305-406-3560
Broadcast Equipment Supplier
- AC Video Solutions • 2014**
Andrea Cummins 201-303-1303
Consulting, Systems Design/Integration
- AEQ Broadcast International • 2015**
Peter Howarth 954-581-7999
Broadcast Audio, Video and Communications
- American Tower Corporation • 2000**
Peter A. Starke 781-926-4772
Development/Construction/Management
- ATV Broadcast, LLC • 2016**
Doug Smith 317-258-6280
Telecommunications Consulting Group
- Audemat-Worldcast Systems Inc. • 2000**
Christophe Poulain 305-249-3110
Control Manufacturer
- AVCOM of Virginia, Inc. • 2010**
Tom Pagonis 804-794-2500
Spectrum Analyzers
- A-Ware Software/MusicMaster • 2014**
Shane Finch 352-351-3625
Advanced Music Scheduling Solutions
- B&H Photo, Video & Pro Audio • 2016**
Israel Low 212-239-7500 x2962
Broadcast Equipment and Workflow Solutions
- Belden Electronic Division • 1991**
Sales 800-235-3361
Cable and Connectivity
- Black Box • 2014**
Brian Kutchna 724-873-6719
HD-KVM Switching & Extension
- Blackmagic Design • 2012**
Terry Frechette 408-954-0500
Production Switchers, Digital Cameras,
Routers, Video Editing and Monitoring, Color
Correction, Video Converters
- Bracke Manufacturing LLC • 2012**
Patra Largent 949-756-1600
RF & Microwave Components
- Broadcast Devices, Inc. • 2015**
Robert Tarsio 914-737-5032
Audio/RF Support Products
- Broadcast Electronics Inc. • 1978**
Tom Beck 217-224-9600
Radio Equipment Manufacturer
- Broadcast Software International • 2016**
Marie Summers 888-274-8721
Radio Automation, Audio Logging
- Broadcast Supply Worldwide • 1986**
Shannon Nichols 800-426-8434
Audio Broadcast Equipment Supplier
- Broadcasters General Store • 2004**
Buck Waters 352-622-7700
Broadcast Audio Video Distributor
- Calrec Audio • 2016**
Dave Lewy 805-305-5711
Audio Mixing Equipment
- Canon USA Inc. • 1985**
Larry Thorpe 201-807-3300,
800-321-4388
Broadcast Lenses & Transmission Equipment
- Cavell, Mertz & Associates Inc. • 2011**
Gary Cavell 703-392-9090
Consulting Services
- Comrex Corporation • 1997**
Chris Crump 978-784-1776
Audio & Video Codecs & Telephone Interfaces
- Comsearch • 2004**
Tim Hardy 703-726-5651
Frequency Coordination Services
- CueScript • 2014**
Michael Accardi 203-763-4030
Teleprompting Software & Hardware
- Davicom, Division of Comlab, Inc. • 2014**
John Ahern 418-682-3380
Remote Site Monitoring and Control Systems
- DEVA Broadcast • 2015**
Toddr Ivanov 305-767-1207
Monitors, IP Audio Codecs, RDS/RBDS
Encoders, Audio Processors, Broadcast Tools
- Dialight Corporation • 2006**
US Headquarters 732-919-3119
FAA Obstruct. Lighting, LED Based
- Dielectric • 1995**
Cory Edwards 207-655-8131
TV & FM Transmission & Cellular Products
- Digital Alert Systems, LLC • 2005**
Bill Robertson 585-765-1155
Emergency Alert Systems
- DoubleRadius, Inc. • 2012**
Jeffrey Holdenrid 704-927-6085
IP Microwave STL
- Drake Lighting • 2015**
Dave Sheppard 270-804-7383
FAA Obstruction Lighting - Medium and High
Intensity
- DTS Inc./HD Radio Technology • 2014**
Rick Greenhut 443-539-4335
HD Radio Technology
- du Treil, Lundin & Rackley, Inc. • 1985**
Jeff Reynolds 941-329-6000
Consulting Engineers
- The Durst Org. - 4 Times Square • 2004**
John M. Lyons, CPBE 212-997-5508
TV/FM/Microwave Tower Site
- DVEO - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- Econco • 1980**
Debbie Storz 800-532-6626,
530-662-7553
New & Rebuilt Transmitting Tubes
- ENCO Systems Inc. • 2003**
Ken Frommert 800-362-6797
Playout and Automation Solutions
- ERI - Electronics Research • 1990**
David White 812-925-6000
Broadcast Antennas, Transmission Line,
Filters/Combiners, Towers and Services
- Fiber Group Inc. • 2016**
Dennis Ford 336-859-2031
Fiber, Video, Satellite and Drone Products
- Floral Systems • 2008**
Shawn Maynard 877-774-1058
Television Broadcast Automation
- Frontline Communications • 2015**
Tracy Brink 727-280-8843
Broadcast Vehicle Manufacturer
- Fujifilm/Fujinon • 1986**
Gordon Tubbs 973-686-2769
Broadcast & Cine Lens Products
- GatesAir • 1977**
Dave Hopson (TV) 513-445-5243
Mark Goins (Radio) 513-899-9124
Broadcast Equipment Manufacturer
- Graham Brock, Inc. • 2012**
R. Stuart Graham 912-638-8028
Technical Consultation - Radio/TV
- Harmonic Inc. • 2014**
Matt Tietze 301-537-6288
Video Compression and Processing
- Heartland Video Systems, Inc. • 2011**
Dennis Klas 920-893-4204
Systems Integrator
- Hilights, Inc. • 2016**
Richard Hickey 352-564-8830
Obstruction Lighting Maintenance
- Hitachi Kokusai Electric Comark • 2013**
Jack McNulty 860-763-1100
Manufacturer Broadcasting Transmission
Equipment
- IWEC • 2014**
Matt Granard 425-286-1900
Global Connectivity Solution Provider
- Inovonics Inc. • 2012**
Gary Lührman 831-458-0552
Radio Broadcast Equipment
- Integrated Microwave Technologies • 2009**
John Payne 908-852-3700
Wireless Video Systems
- JAMPRO Antennas Inc. • 2011**
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB
- JVC Professional Video • 2014**
Lon Mass 973-317-5117
Professional Video Products, Camcorders,
Display Monitors, Recording Decks
- Ka You Systems • 2011**
George Gimourginas 301-585-4302
Audio, Video, IP - Satellite
- Kathrein USA Inc. • 1985**
Les Kutasi 214-238-8835
Antennas for Broadcasting & Communications
- Kintronc Labs, Inc. • 2015**
Joaquin Raventos 423-878-3141
Radio Broadcast Antenna Systems - ISO9001
Registered Company
- L3 Electron Devices • 2017**
Mark Strohecker 570-326-3561
CEAs, IOTs, Thyratrons
- LBA Technology Inc. • 2002**
Javier Castillo 252-757-0279
AM/MW Antenna Equipment & Systems
- Linkup Communications Corporation • 2017**
Mark Johnson 703-217-8290
Satellite Technology Solutions
- LYNX Technik • 2007**
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer
- Markertek • 2002**
Wesley Brewer 800-522-2025
Specialized Broadcast & Pro-Audio Supplier
- Micronet Communications Inc. • 2005**
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning
- Microtech Gefell GmbH • 2016**
Michael Militzer +49 36649-82245
Microphones
- Microwave Video Systems • 2011**
Warren J. Parece 781-665-6600
Microwave Equipment Rental, Sales & Service
- Middle Atlantic Products • 2005**
David Amoscatto 973-839-1011
Equipment, Mounting, Solutions
- Midtown Video • 2016**
Jesse Miller 305-669-1117
Complete Studio Production Support
- Moseley Associates Inc. • 1977**
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television
- Nascar Productions • 2014**
Abbey Kielcheski 704-348-7131
Live/Post Production Services
- National Association of Broadcasters • 1981**
Industry Trade Association 202-429-5340
- National Football League • 1999**
Ralph Beaver 813-282-8612
Game Day Coordination Operations
- Nautel Inc. • 2002**
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer
- Nemal Electronics Int'l Inc. • 2011**
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber
Optic
- Neutrik USA, Inc. • 2012**
Kathy Hall 704-972-3050
Ruggedized Optical Fiber Systems
- Orban Labs, Inc. • 2011**
David Rusch 480-403-8300
Audio Processing AMFMTV
- Pasternack Enterprises • 2001**
Christine Hammond 949-261-1920
Coax & Fiber Products
- Pebble Broadcast Systems • 2016**
Kurt Schini 612-345-0461
Television Broadcast Playout Automation
- PlayBox Technology • 2017**
Van Duke 561-229-0003
Automation Video Playout Server
- Potomac Instruments • 2012**
Guy Berry 301-696-5550
RF Measurement Equipment Manufacturer
- ProAudio.com - A Crouse-Kimzey Co. • 2008**
Mark Bradford 800-433-2105 x560
Proaudio Broadcast Equipment Distributor
- Propagation Systems Inc. - PSI • 2010**
Doug Ross 814-472-5540
Quality Broadcast Antenna Systems
- Quintech Electronics and Communications Inc. • 2002**
James Herbstritt 724-349-1412
State-of-the-art RF Hardware Solutions
- QVC • 2011**
Kevin Wainwright 484-701-3431
Multimedia Retailer
- Radio Frequency Systems • 2015**
Scott Martin 812-589-4755
Broadcast & Telecom Antennas & Systems
- RCS • 2003**
Diana Stokoy 308-284-3007
Audio and Video Content Management
- RF Specialties Group • 2008**
www.rfspecialties.com
Everything from the Microphone to the
Antenna
- Rohde & Schwarz • 2003**
Walt Gumbert 724-693-8171
Transmitters, Test & Measurement, Video
Servers & Storage
- Ross Video Ltd. • 2000**
Jared Schatz 613-228-0688
Manufacturer, Television Broadcast Equipment
- Sage Alerting Systems Inc. • 2010**
Gerald LeBow 914-872-4069
Emergency Alert Systems Products
- SCMS Inc. • 2000**
Bob Cauthen 800-438-6040
Audio and RF Broadcast Equipment Supplier
- Seacomm Erectors, Inc. • 1997**
John Breckenridge 360-793-6564
Tower/Antenna Erections
- SEG • 2014**
Chris Childs 913-324-6004
Supply Chain Products and Services
- Shively Labs • 1996**
Dale Ladner 888-SHIVELY
FM Antennas & Combiners
- Shure Incorporated • 2012**
Bill Ostry 847-600-6282
Microphones, Wireless Systems, Headsets
- Sierra Automated Systems and Eng. Inc. • 2011**
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms
- Signiant • 2012**
Danielle Rita 781-791-4611
Accelerated File Transfer Solution
- Sivus Technologies • 2015**
Mark Tommey 617-816-6588
Wireless Video Mesh Network
- Smarts Broadcast Systems • 2017**
Dave Potratz 800-213-3356
Radio Digital Audio Systems
- Solid State Logic • 2014**
Steve Zaretsky 212-315-1111
Digital Audio Mixing Consoles, Networked
Audio Routing, Embedded Audio Solutions
- Staco Energy Products Co. • 2010**
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- Sutro Tower Inc. • 1989**
Eric Dausman 415-681-8850
Broadcast Tower Leasing
- The Switch • 2011**
Peter Hartz 323-645-8011
Fiber Transmission Provider
- Tektronix Inc. • 1977**
Jim Lang 503-627-2980
Video Test & Measurement, Equipment
Manufacturer
- Teledyne e2v US Inc. • 1997**
Dominic Piarulli 914-593-6828
Electronic Components
- Telemetrics Inc. • 2016**
Anthony Cuomo 201-848-9818
Camera Robotic Control Systems
- Telos Systems/Omnia/Axia • 2003**
Denny Sanders 216-241-7225
Telos Systems Talk-Show Systems
- Teradek • 2011**
Jon Landman 949-743-5783
Camera-top ENG Solutions
- Terrestrial Inc. • 2003**
Billie Layman 888-373-4832
FCC Broadcast Auxiliary Licensing Services
- Tieline The Codec Company • 2003**
Dawn Shewmaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor
- Verizon Digital Media/Services • 2015**
Gary Learner 781-221-7400
Media Intelligence and Logging Solutions
- Wheatstone • 2010**
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors
- WideOrbit • 2012**
Brad Young 214-923-6337
Broadcast Management Software, Automation
and Master Control
- Wireless Infrastructure Services • 2006**
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey
Services

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Member Spotlight: Noel Richardson

Member Stats

SBE Member Since: May 1994

Certifications: CPBE

Chapter: 116 Mountain State (WV)

Employer: West Virginia Radio Corporation/MetroNews Networks.

Includes 32 AM/FM stations plus 6 translators. 58 Network affiliates

Position: Vice President/Engineering

Location: Charleston, WV, with travels to all parts of the state

I'm Best Known For: Being on call statewide and chairman of the state EAS committee. Someone, somewhere is always calling me.



While Noel enjoys building radio stations, he enjoys being in the field with transmitters and tuning units.

Q What do you value most about your SBE involvement?

A Its members, and especially the vast learning material to pull from. The SBE/NAB conferences are never long enough. These could be held every month as there is just so much to learn. The certification process for each level is so well worth the learning efforts. Trying to get young kids involved with RF is tough because they all want to work with computers. There is just something self-satisfying about making an AM work to its fullest potential.

Q What got you started in broadcast engineering?

A I got hooked on radio at age 9 when I built a Heath-kit 100mW transmitter and connected it to a RCA 45 record changer and amp. By age 11, I added a 100W amp and listened to my own station. I took electronics in high school

and 2 years in college before going to Vietnam. Stateside, I was a sonar tech (bad for the ears) in the Navy and on my discharge in Los Angeles, worked at Consolidated Film Industries as a sound-to-film coordinator. I started as a sort of radio intern at RKO's KHJ-AM/FM/TV (more of a cleanup guy). Returned to WV in 1971 and immediately was literally thrown into an AM-directional that had been burned out by a forest fire. I was certainly hooked on AM-RF.

Q Who was your mentor?

A Picking just one is difficult, but I would nominate Jack Layton as he has always taken the time to share his vast knowledge of AM and directional systems and FCC rules as an ABIP inspector. John Bisset has also been instrumental and influential throughout the years.

Q When I'm not working I...

A ...I enjoy re-recording my vast collection of 50 & 60s rock & roll 45s. But I get away from electronics and audio by my continued restoration of a 1970 Firebird, the only car I ever bought new. So that would be my favorite "gadget."

Q You may not know this, but...

A ... my Dad was a judge so staying out of trouble while growing up was indeed a challenge, especially when I ran a long wire antenna from the aforementioned 100W transmitter to a neighbor's garage and almost burned it down. Forgot about the insulator.

Member Drive Brings 39 New Members



The 2017 SBE Membership Drive, which carried the theme "Professional Development Through Membership," brought in 39 new members. Each member who recruited a new member was entered into a drawing to win prizes donated by several SBE Sustaining Members and the SBE.

The Grand Prize winner, who received an expense-paid trip to the SBE National Meeting in Denver this October, is William Kerkhof of Oshkosh, WI. All the prize winners are listed here.

Recruiters also earned \$5 off their 2018 dues renewal for each new member he or she recruited.



Grand prize winner Bill Kerkhoff (l) recruited new SBE member Andy Radig during the annual Membership Drive.

Comark Hitachi Polo shirt	George Hopstetter	Bloomington, IN
Comrex gift pack: bag, hat, glass, handy kit	Duane Myers	Hanover, PA
Comrex gift pack: Liveshot t-shirt, drink holders	Robert Sulecki	Indianapolis, IN
Comrex gift pack: Portable Power Bank, handy kit	James Gay	Macon, GA
Comrex gift pack: t-shirt, drink holders	Rodney Johnson	Kennewick, WA
Dielectric polo shirt	Thomas Weber	Indianapolis, IN
Dielectric polo shirt	Nick Thompson	Edmond, OK
DVEO tropical shirt and sunglasses	Sean Torbett	Sparks, NV
DVEO tropical shirt and sunglasses	Lisa Weiner	Washington, DC
Kathrein donated ARRL Handbook	Curtis Allin	Knoxville, TN
Kathrein donated ARRL Handbook	Truett Smith	Nashville, TN
Pebble Broadcast Systems donated SBE Store \$25 Gift Certificate	William Hicks	Tallahassee, FL
SBE logoed polo shirt	William Hicks	Tallahassee, FL
SBE logoed tumbler	Robert Sharkey	Pittsburgh, PA
SBE trip to National Meeting	William Kerkhof	Oshkosh, WI
Wheatstone FM-55 audio processor	Ruben Garcia	Amherst, MA

WELCOME TO THE SBE

NEW MEMBERS

Salvation Alibor - Ikeja, Lagos, Nigeria
 Stephen Bacica - Frisco, TX
 Eric Bartos - Hancock, MI
 Tony A. Burden - Riverview, FL
 Jerry Butler - El Paso, TX
 Gregory Capelo - Mesa, AZ
 Steven J. Chao - Durham, NH
 Brian S. Clough - Knoxville, TN
 Ryan M. Dale - Delphi, IN
 David DeGraffenreid - Anchorage, AK
 Samuel Dekeym - Staten Island, NY
 Jacques Donaldson - Silver Spring, MD
 Cesar P. Galvez - Redlands, CA
 Andrew Gamel - Lubbock, TX

Jorge E. Gonzalez, P.E. - Mayaguez, PR
 David E. Goodwin - Las Vegas, NV
 Jim Gray - Pierz, MN
 J. P. Haid - Pasco, WA
 Nathaniel C. Harrison, III - Atlanta, GA
 Eric J. Heidendahl - Brighton, ON
 Gregory M. Heiliger - Glensville, PA
 Edward C. Hickey - Reno, NV
 Matthew A. Higdon - Los Angeles, CA
 Matthew Highwood - Indianapolis, IN
 Najee N. Kitchens - Sugar Hill, GA
 John R. MacGugan - Josephine, TX
 Matt V. Maher - Castle Rock, CO
 Martin R. Matthews - Henderson, NV

Jonathan Meyer - Ransom Canyon, TX
 Anton Mittag - White Plains, NY
 David A. Morgan - Portsmouth, VA
 Joseph C. Offerdahl - Fosston, MN
 Donald R. Ohse, II - Oklahoma City, OK
 Jonathan A. Over - Los Angeles, CA
 Bridget Pamboris - East Moriches, NY
 James Poulette - Dublin, NH
 Josh E. Roberts - Lynchburg, VA
 Stacey Rosenberry - Albany, NY
 Russ Sanderson - Cockeysville, MD
 Steve Scheutow - Rochester, NY
 Andrew W. Schildberg - Tucson, AZ
 Scott Schmitt - Alexandria, VA
 Timothy Smith - Bowie, MD

Antone J. Smith - Alexandria, VA
 Tony V. Somma - Las Vegas, NV
 David Spiteri - Sunland, CA
 Michael Steele - Columbus, GA
 Kurt Sutton - Bloomington, IN
 Robert J. Thomes - Mohawk, NY
 Nick A. Thompson - Edmond, OK
 Bob Urberger - St. Louis, MO
 William R. Vickery - Pittsburg, KS
 David J. Werbeck - Cicero, NY
 Mitchell B. White - Richmond, VA
 Bruce Wilde - Buffalo, NY
 Joseph Zarakas - Ossining, NY
 Gary Zocolo - Peninsula, OH

RETURNING MEMBERS

Sean R. Anker - Pepperell, MA
 Christopher R. Aufer - Honolulu, HI
 Marshall H. Behrmann - Jacobus, PA
 Steven M. Blevins - Kingsport, TN
 Edwin A. Bukont - Gallatin, TN
 Max Cherubin - Rancho Cucamonga, CA
 John T. Church - East Troy, WI
 Don Cox - Midlothian, VA
 Brian E. Dugger - McDonough, GA
 Steve N. Garifo - Washington, DC
 Franklyn S. Ginsburg - Frederick, MD

Michael Heilman - Cape Elizabeth, ME
 Michael A. Keith - Helena, AL
 Timothy A. Kelly - Columbus, OH
 Michael R. Marshall - Tallahassee, FL
 Mike McBride - Park City, KS
 James D. Ocon - Fort Collins, CO
 Adam J. Parnau - Brooklyn, NY
 Frank A. Santucci - Wichita, KS
 Andrew K. Terhall - Washington, DC
 Jeffrey M. White - Seattle, WA
 Francis A. Zanker - Taberg, NY

NEW STUDENT MEMBERS

Terence M. Bolden - FPO, AP
 Apurva H. Dave - Kingsville, TX
 Christopher R. Gamelin - Hamden, CT
 Jason Gin - Calgary, AB
 Ge Guo - Calgary, AB
 Adam R. Higgins - Calgary, AB
 Kelsey K. Hover - Calgary, AB
 Jeong Jeongjo - Calgary, AB
 Matthew M. Kemper - Canmore, AB
 Tanner E. Lear - Gig Harbor, WA

Ming Qu - Calgary, AB
 Max E. Shultz - Calgary, AB
 Michael P. Stechly - Mississauga, ON
 Zihuan Sun - Calgary, AB
 Daniel C. Valencia - Calgary, AB
 Keara K. Vig - Tacoma, WA

NEW ASSOCIATE MEMBERS

Gary Ballard - Denver, NC
 Craig A. Fincher - Fort Worth, TX
 Dezmond Rangel - Hampstead, MD

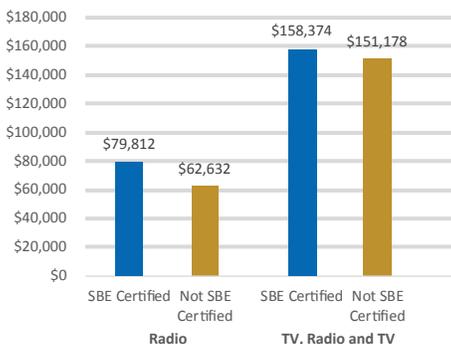
2017 SBE Compensation Survey

The SBE conducted its second compensation survey in April and May. The survey goal is to provide practical information to SBE members about individual compensation (salary and benefits) based on the type of broadcast or multimedia involvement, market size, and job title category.

We also asked if respondents received a raise in the last year, and if so, how much, and to report benefits received. We also asked about contract engineering rates and practices.

Respondents were asked if they held any broadcast- and media-relevant professional certifications. We compared salaries of respondents with and without SBE Certification and reported the results. That chart is shown below.

Salary With and Without SBE Certification



The survey report is available on the SBE website. You will need your SBE website login to access the page. Also, the PDF report is password protected. The password is noted on the download page.



In Memoriam

Ellis Feinstein
 Member #6722
 1935 - 2017

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MEMBERS ON THE MOVE

► **Christopher Boone** is assistant chief engineer and IT director at KRBE-FM, Houston, TX.



► **Tom Oliver** is a network project engineer at Family Radio.



◀ **Ryan Tobin**, California University of Pennsylvania, is an engineering services intern at WGAL.



◀ **Caleb Gordon** was promoted to market engineer for the AlphaMedia five-station cluster in Saginaw, MI. Gordon was also accepted into the NAB Education Foundation Technology Apprenticeship Program.

► SBE Database Manager **Scott Jones** celebrated his 20-year work anniversary with the SBE in July.



Have a new job? Received a promotion? Let your fellow SBE members know. Send your news to Chriss Scherer at cscherer@sbe.org.

MARK YOUR CALENDAR

SBE Certification Exams

Local Chapters
Aug. 4 - 14, 2017 sbe.org/certification
Application deadline is closed

Webinar: RF101 Part 7

Online
Aug. 24, 2017 sbe.org/webinars

Webinar: RF101 Part 8

Online
Sept. 21, 2017 sbe.org/webinars

WBA Broadcasters Clinic

Madison, WI
Oct. 10 - 12, 2017 wi-broadcasters.org

SBE National Meeting

Denver, CO
Oct. 26 - 27, 2017 sbe.org

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