

THE Signal

Bimonthly Publication of the Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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Add the SBE NAB Show Events To Your Calendar

With the NAB Show just around the corner, be sure you include the many SBE events on your convention calendar. While the Ennes Workshop launches the convention on Saturday, the highlight for SBE members is the annual Membership Meeting, which will be followed by a reception. The Membership Meeting will be held on Tuesday, April 19, at 6 p.m. in room S225. The Membership Meeting brings you up to date on all the SBE activities and programs, and it includes a milestone-service recognition of SBE chapter certification chairmen, and updates on the society's plans, programs and government relations efforts. Everyone attending will be eligible to win prizes, including a Blackmagic Design Micro Studio Camera 4K (courtesy of the Membership Meeting sponsor Black-

magic Design), a \$300 gift card for Fry's Electronics and restaurant gift cards.

You'll want to be one of the first in line as well, because the first 135 people at the meeting will receive an SBE-logoed padded luggage handle.

The Membership Reception starts immediately after the meeting at 7 p.m. also in room S225. Light snacks and drinks are possible from the generous support of several Sustaining Member sponsors. They are listed on page 9. There will also be a prize drawing at the reception. Five B&H Photo \$100 gift cards will be given away, courtesy of B&H Photo.

Check the complete event schedule on page 8 of this issue, and also in the SBE Sustaining Member Resource Guide and NAB Show Exhibitor Listings. You'll find



The 2015 Member Reception

details for several committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

See you in Las Vegas!

SBE Broadcast Engineering Handbook Now Available

The SBE Broadcast Engineering Handbook: Hands-on Guide to Station Design and Maintenance is the latest in a series of books offered by the Society of Broadcast Engineers focused on broadcast technologies, station operation, and professional certification. The broadcast industry has embarked on perhaps the most significant transition of technologies and business models in the history of modern radio and television. Nowhere is this transition more evident than in the studio, where IT technologies are becoming the norm. With these and other changes in mind, the SBE undertook a project to produce a comprehensive handbook with McGraw-Hill that covers key areas of interest to broadcast engineers. This book is divided into seven major sections, plus an extensive annex. Each section focuses on a particular area of expertise.



- Section 1: Regulatory Issues
- Section 2: RF Systems
- Section 3: DTV Transport
- Section 4: IT Systems
- Section 5: Production Systems
- Section 6: Facility Issues
- Section 7: Broadcast Management
- Annex: Appendix A—Reference Data and Tables, Appendix B—The Electromagnetic Spectrum, Appendix C—Standards Organizations and SI Units

The goal of the handbook is to provide a concise overview of technologies, principles and practices of importance to radio and television broadcast engineers, and to provide pointers to additional detailed information. Led by noted industry author, Jerry C. Whitaker, CPBE, 8-VSB as editor-in-chief, more than 50 subject matter experts have contributed to this book, which will sure to be an important addi-

tion to any broadcast and media engineer's toolbox.

The book is approximately 950 pages and includes many diagrams and photos. Order your copy through the SBE Bookstore at the SBE website (www.sbe.org and click on SBE Store). The book retails for \$199 but members of the SBE may purchase it for \$159, plus shipping, a 20% discount.

IN THIS ISSUE

- 3 Membership Drive
- 4 Letter from the President
- 6 Certification Recognition
- 8 SBE @ the NAB Show
- 10 Protect Your Licenses
- 11 22 Years With The BEC
- 12 UASs for Broadcasters

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Entercom Greenville, LLC | Greenville, SC
jmassey@sbe.org

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iHeart Media - Miami | Boynton Beach, FL
jleifer@sbe.org

SECRETARY

Ted Hand, CPBE, 8-VSB, AMD, DRB
Cox Media Group | Charlotte, NC
thand@sbe.org

TREASURER

Andrea Cummis, CBT, CTO
AC Video Solutions | Roseland, NJ
acummis@sbe.org

DIRECTORS

Tim Anderson, CPBE, DRB, CBNE
GatesAir | Mason, OH
tanderson@sbe.org

Benjamin Brinitzer, CPBE, AMD
iHeart Media | Charlotte, NC
bbrinitzer@sbe.org

Mark Fehlig, CPBE, 8-VSB, CBNT
Mark Fehlig, PE | Lafayette, CA
mfehlig@sbe.org

Mike Hendrickson, CPBE, CBNT
Amerian Public Media Group | Lakeville, MN
mhendrickson@sbe.org

Ched Keiler, CPBE, 8-VSB, CBNE
E Three | Ft Lauderdale, FL
ckeiler@sbe.org

Jeff Keith, CPBE
Wheatstone Corporation | New Bern NC
jkeith@sbe.org

Gary Kline, CBT, CBNT
Kline Consulting | Atlanta, GA
gkline@sbe.org

Wayne M. Pecena, CPBE, 8-VSB, AMD, DRB, CBNE
Texas A&M University/KAMU | College Station, TX
wpecena@sbe.org

Kevin Plumb, CPBE
ESPN Technology | Bristol, CT
kplumb@sbe.org

RJ Russell, CPBE
Fox 29 Philadelphia | Philadelphia, PA
rjrussell@sbe.org

Kimberly Sacks, CBT
www.optimod.fm | Lanham, MD
ksacks@sbe.org

Eric Schecter, CBRE
CBS Radio - Phoenix | Phoenix, AZ
eschecter@sbe.org

IMMEDIATE PAST PRESIDENT

Joe Snelson, CPBE, 8-VSB
Meredith Corporation | Henderson, NV
jsnelson@sbe.org

SBE NATIONAL STAFF

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

Megan E. Clappe | Certification Director
mclappe@sbe.org

Kristin Owens | Education Director
kowens@sbe.org

Chriss Scherer, CPBE, CBNT | Member Communications Director
cscherer@sbe.org

Debbie Hennessey | Sustaining Membership Manager
dhennessey@sbe.org

Scott Jones | Database Manager
kjones@sbe.org

Carol S. Waite | Certification Assistant
cwaite@sbe.org

The Signal is published bimonthly by the Society of Broadcast Engineers, Inc., 9102 North Meridian Street, Suite 150, Indianapolis, IN 46260. Questions or comments regarding editorial content or design should be referred to Chriss Scherer at 317-762-9723 or cscherer@sbe.org. For advertising, contact Debbie Hennessey at dhennessey@sbe.org. SBE is a registered trademark of the Society of Broadcast Engineers.

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

SBE Membership Drive Runs Through May 31

The SBE Membership Drive began on March 1, and it carries the theme The Road To Success. The SBE is the only organization that is devoted to the advancement of all levels and types of broadcast engineering, and SBE membership is the best way to take full advantage of all the organization has to offer.

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. The grand prize is airfare and hotel to attend the SBE National Meeting held in conjunction with the 2016 Ohio Association of Broadcasters Engineering Conference in Columbus, OH, Oct. 26-27.

And as a further bonus, for every new member you sponsor you will receive \$5 off your 2017 dues (up to \$25).

Full details are on the SBE website. Follow the link on the home page.



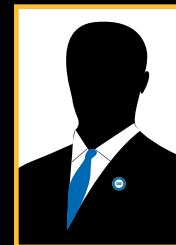
Certification Question

Answer on page 6

A non-directional AM, a non-directional FM or a TV station has been constructed according to the terms of its construction permit and program tests have begun. How many days are allowed to complete equipment performance measurements and file an application for license to cover the outstanding construction permit?

- A. 30 days
- B. 20 days
- C. 10 days
- D. 1 calendar week
- E. 1 calendar month

Who will be the next Robert W. Flanders SBE Engineer of the Year Award recipient?



It could be you. It could be someone you nominate.

The SBE National Awards Program is now accepting nominations for chapter and individual awards to recognize the efforts of SBE members and chapters for their contributions to the SBE.

Full details and the nomination forms are available online.

Don't wait. Nominate a member or a chapter today.

sbe.org/awards



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LETTER FROM THE PRESIDENT

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

Are You Ready for the NAB Show? The SBE Is.

Time seems to be flying faster because it seems like the 2015 NAB Show was just a couple of months ago! No matter how time is flying for us, the convention is here again, and it's time for us to have the opportunity to see what's new and meet colleagues from all across the world. This year as in the past, your Society of Broadcast Engineers will attend the NAB Show, and we are looking forward to meeting you.

Once again, the SBE, in partnership with the NAB, is sponsoring the Broadcast Engineering Conference. This is a great opportunity for you to catch up on the new technologies in addition to gaining a better understanding of present technologies and operations. These sessions are being presented by leaders in their fields, and many of these are SBE members themselves. If you come to Las Vegas early, the SBE will present the all-day Saturday Ennes Workshop. When you attend, get there early as it's always a packed house. SBE member Fred Baumgartner CPBE, CBNT, has worked all year to put this together, and this year we have many exciting topics covering television, radio, IT and more. This is one event you can't afford to miss.

The SBE booth (L30) is where you will find the SBE staff and board members. In

addition, you can check out the SBE Bookstore, renew your membership or join the SBE. The SBE booth will be in the same location as last year at the north end of the second floor lobby of the LVCC South Hall. In your travels to and from the Broadcast Engineering Conferences, take time to stop in. We want to meet you.

We have a very special event happening at the SBE booth on Sunday, April 17 at 3 p.m. PT, and you are invited to attend. We'll hold a press conference to announce the release of the new SBE Broadcast Engineering Handbook: Hands-on Guide to Station Maintenance and Design. Come and meet the authors, look at the new book, and share in our excitement in this announcement.

Don't forget the SBE membership meeting and reception. Mark your calendar for Tuesday, April 19 at 6 p.m. Room S225 for the Membership Meeting immediately followed by the reception in the same room. Come early and receive a neat door prize! I look forward to seeing you there.

While you are roaming the vast exhibits, look for SBE Sustaining Member placards in exhibitors' booths. When you see that placard, tell that exhibitor you appreciate their sustaining membership in the SBE.

Sustaining Members not only provide financial support to the SBE, but many participate in the Broadcast Engineering Conference, the Ennes Workshops year round, SBE Webinars and the SBE University, giving you educational training for your career.

On another topic, let me talk about membership. Here is how you can help the SBE and also reduce your next year's membership dues. Between now and May 31 for every new member you recruit to the SBE, you will receive up to \$5 off your next year's membership dues up to \$25. What better way to bring a new member into the SBE and also to reduce your next year's dues? And yes, there will be prizes given as well. A drawing will be held on June 4, and the grand prize will be a trip to the SBE National Meeting to be held in Columbus, OH, including airfare within the continental US, two nights at the Crowne Plaza Hotel and all registration for all the SBE events and conferences. There are also many other great prizes that will be awarded. For all the details be sure to visit the SBE website.

I am looking forward to meeting as many of you as I can at the NAB convention, so if you see me, introduce yourself. Safe travels, and I will see you soon.

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Compensation Survey

The SBE is conducting its first (and ongoing) compensation survey now. The goal is to provide practical information to SBE members about individual compensation (salary and benefits) based on the type of broadcast or multimedia involvement (beyond just radio and TV), market size and years of experience. SBE members will have access to the full report.

We encourage every SBE member to participate to provide a large sample base of responses. All responses are anonymous. With your help we can provide a useful and practical resource to SBE members. Find the survey link in email communications and on the SBE website.





EDUCATION UPDATE

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

Why Do I Need a Subnet Mask?

The Ethernet-based IP network has become an integral part of the broadcast technical facility. IP addressing can become a challenging aspect of designing and managing a network of host devices especially when public routable IPv4 addresses are involved. The scarcity and/or cost of public addresses create a need to optimize the IPv4 address deployment.

An IP host on an Ethernet network requires two types of addresses. The Layer 2 Media Access Control address (MAC address) is a unique hardware address that identifies the host within a network subnet or broadcast domain. At Layer 3, the IP address identifies a specific network that the host is connected to. If a host should move from one network to another, the IP address must change.

The IP address is a key component of the Layer 3 functionality, whether IPv4 or the newer IPv6 format. Several key points should be kept in mind with regards to IP addressing and these points should be considered as rules to observe:

- Each network must have a unique network ID
- Each host must have a unique host ID
- Every IP address must have a subnet mask
- An IP address must be unique if global routing is in use

The IPv4 address is a 32-bit binary address and provides 4,294,967,296 or 2^{32} possible addresses. The 32-bit binary address is difficult to comprehend and manipulate, so a short-cut notion is commonly used. The 32-bit binary address is divided into four 8-bit sections, which are referred to as octets. Each octet represents one byte of data. The octet is converted from binary to a decimal format and each octet is separated by a decimal point to form the dotted-decimal expression format.

Behind the mask

The IPv4 address is actually comprised of two parts that specify the network address and the host address components. Recall that each IP address must have an address mask. The IP address mask determines where the separation point between the network address and the host address occurs. The mask for an IPv4 address is also a 32-bit address also expressed in dotted-decimal format such as 192.168.100.254.

The original implementations of IPv4 addressing utilized a class system to organize the entire range of possible IPv4 addresses ranging from Class A to Class E. Address classes A, B, and C are intended to be used for internetworking, and each class has a default mask address pre-determined and referred to as the default mask. Class A address space provides a smaller number of network addresses, but a large number of host addresses are available. Class C address space provides a large number of network addresses with a small number of available host addresses. The subnet mask became implied based upon the address class determine by the numerical value of the first octet. And since the boundaries were fixed, optimal address allocation was impossible. Thus, Classful addressing has been abandoned today when public address space is involved. The address mask could no longer be implied and had to be explicitly stated with each IP address.

The ability to specifically state the mask for each IP address allowed flexibility in the right-sizing of the number of networks and the hosts per network to better fit the specific network deployment. Variable-length subnet masks (VLSM) allowed the subnet mask to be specified on a bit-by-bit basis for the 32-bit IPv4 address mask.

Classless Inter Domain Routing (CIDR) was developed and routing protocols quickly updated to reflect the growing and widespread use of classless IP addressing. CIDR provided a shorthand ability to explicitly express the address mask. A slash notation scheme was developed as a short-hand approach to fully expressing the mask in dotted decimal notation. The CIDR notation technique allowed an IP address such as 192.168.100.254 with an address mask of 255.255.224.0 to be expressed as 192.168.100.254/19. The slash notation at the end of the IP address indicates the number of bits contained in the dotted-decimal address mask. See Figure 1. When IPv6 addressing is involved, CIDR notation is ex-

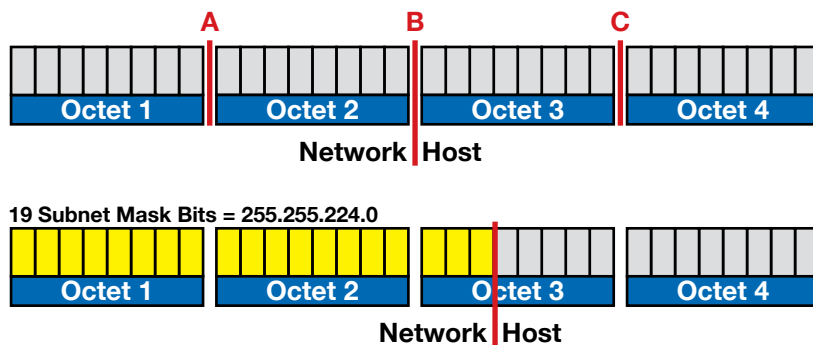


Figure 1. Classful IP addressing fixed the subnet mask based on the address class. Variable-length subnet masks allow the subnet mask to be set to any bit position.

clusively used. The subnet mask must now be explicitly stated and is the key for the IP host device to properly determine the network and the host portions of the IP address.

Learning is a continuous process for the broadcast engineer. Take advantage of SBE professional development events to learn a new technology, enhance your current skills, or add a certification to your personal professional portfolio. Continuous learning is a key trait of the successful technology professional and the SBE Education Committee is at work to bring you quality professional development programs covering relevant broadcast industry topics delivered in different mediums to meet your needs. Your comments, ideas for future programs, and feedback are always welcome!

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sbe.org/webinars

For more information on any SBE education program, contact Education Director Kristin Owens: kowens@sbe.org or 317-846-9000.



CERTIFICATION UPDATE

By Megan E. Clappe
SBE Certification Director
mclappe@sbe.org

Recognition of Milestones

The SBE is made up of a multitude of volunteers. There are seven employees who work at the National Office, but the real momentum of the SBE is because of those who dedicate their personal time to further the goals and objectives of broadcast engineering through the SBE. This includes, but is not limited to, the Board of Directors, all the various SBE committees in addition to the Certification Committee, and the local chapters including the chapter certification chairmen.

Every year at the annual membership meeting during NAB Show, the SBE recognizes the local certification chairmen who devote volunteer time to the Program of Certification. These local certification chairmen receive a plaque on the recurring five-year anniversaries. What follows is a list of those who will be recognized in April. Thank you very much to all of the volunteers who devote so many hours to the SBE and the certification program.

The annual SBE Membership Meeting will be held at the 2016 NAB Show on Tuesday, April 19, from 6 to 7 p.m., in Room S225 of the Las Vegas Convention Center.

40+ Years

George Werl, Jr., CPBE; Chapter 17

35+ Years

Chuck Ingle, CPBE, AMD; Chapter 96

30 Years

Richard Burden, CPBE; Chapter 47

20+ Years

John Collinson, CPBE, 8-VSB, AMD, CBNE; Chapter 39

20 Years

Terry Reynolds, CPBE; Chapter 89
Noel Richardson, CPBE; Chapter 116
Charles Grider, CBRE, CBNT; Chapter 118

During the Membership Meeting, we will also present certification chairmen pins to the following local certification chairmen who are in their first year of service.



1st Year Recognition

Paul Kaminski, CBT; Chapter 1
Robert Reite, CBT; Chapter 2
Ronald Rockrohr, CBTE; Chapter 59
Kenneth Colwell, CSRE, DRB, CBNT, CBT; Chapter 65
David Brett, CBT; Chapter 122

15+ Years

George Marshall, III, CSRE; Chapter 15

15 Years

Steve Rowell, CPBE; Chapter 42
James Sams, CSTE; Chapter 80
Richard Hyatt, CPBE, CBNT; Chapter 110

10 Years

Emir Hadziahmetovic, CSTE; Chapter 101

5 Years

Alan Alsobrook, CSRE, AMD, CBNT; Chapter 7
Richard Dyer, CBTE; Chapter 54
Stanley Mancari, CBT; Chapter 78

This year we also celebrate six anniversaries for members of the National Certification Committee.

25 Years

Doug Garlinger, CPBE, 8-VSB, CBNT

20 Years

Ralph Hogan, CPBE, DRB, CBNE
Rick Ryan, CPBE

15 Years

Joe Snelson, CPBE, 8-VSB
Larry Wilkins, CPBE, AMD, CBNT

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Answer from page 3

C. 73.1620(a)(1)

The permittee of a non-directional AM or FM station, or a non-directional or directional TV or Class A TV station, may begin program tests upon notification to the FCC in Washington, DC, provided that within 10 days thereafter, an application for a license is filed with the FCC in Washington, DC.

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION

Certified Professional Broadcast Engineer® (CPBE®)
 Clarence Beverage, Marlton, NJ - Chapter 18
 Thomas Daniels, Missouri City, TX - Chapter 105
 David Gooding, Elkhart, IN - Chapter 30
 Steve Paugh, Madison, WI - Chapter 24

Certified Broadcast Radio Engineer™ (CBRE®)
 Robert Kruppenbacher, Doylestown, OH - Chapter 70

Certified Broadcast Television Engineer™ (CBTE®)
 Richard Klein, Waterford, NY - Chapter 58
 David Raymond, Nashua, NH - Chapter 110
 Clifton Tillman, Cordova, TN

Certified Broadcast Networking Technologist® (CBNT®)
 Clifton Tillman, Cordova, TN

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.

NOVEMBER EXAMS

Certified Broadcast Networking Technologist® (CBNT®)
 Julian Adamaitis, Seattle, WA - Chapter 16

CERTIFIED PROFESSIONAL BROADCAST ENGINEER® (CPBE®)

Lindsay Bold, Liberty, NC - Chapter 84
 Carl Swanson, Washington, DC - Chapter 37
 Dexter Wilson, Sellersburg, IN - Chapter 35

Applicant must have had 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.

SPECIAL PROCTORED EXAMS

Certified Broadcast Networking Engineer™ (CBNE™)
 Timothy Kyobe, Kampala Uganda

Alabama Broadcasters Association Certified Broadcast Technologist® (CBT®)
 Sean Edwards, Bridgton, ME
 Dale Ladner, Casco, ME
 Jonathan Rodgers, Dothan, AL
 Matthew Smith, Norway, ME

SBE CERTIFIED SCHOOL COURSE COMPLETION

Certified Broadcast Technologist® (CBT®)
Cleveland Institute of Electronics
 Joseph Spampinato, Bethel Park, PA - Chapter 20

DINFOS
 Kurt Caylor, La Habra, CA - Chapter 131
 Sergio Ceniceros, San Diego, CA - Chapter 36
 Jerron Collins, Chesapeake Beach, MD - Chapter 37

CERTIFIED BY LICENSE

Certified Broadcast Technologist® (CBT®)
 Aaron Speer, Silsbee, TX - Chapter 134

RECERTIFICATION

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

Certified Professional Broadcast Engineer® (CPBE®)
 Patrick Caffrey, Cheyenne, WY - Chapter 74
 Samuel Cox, Escondido, CA - Chapter 36
 Frank Giardina, Hoover, AL - Chapter 68
 John Gober, Auburn, AL - Chapter 118
 Alan Kilgore, Oconto Falls, WI - Chapter 80
 Samuel Killen, Henrico, VA - Chapter 60
 William Murdoch, La Grange, IL - Chapter 26
 Fred Nahil, Port Saint Lucie, FL - Chapter 88
 Robert Russell, Philadelphia, PA - Chapter 32
 Thomas Saylor, Troy, ID - Chapter 117
 Thomas Weeden, Madison, WI - Chapter 24

Certified Professional Broadcast Engineer® (CPBE®) 8-VSB Specialist™ (8-VSB™)
 Kenneth Drewes, Des Moines, IA - Chapter 109

Certified Professional Broadcast Engineer® (CPBE®) 8-VSB Specialist™ (8-VSB™) AM Directional Specialist™ (AMD™)
 Larry Wilkins, Prattville, AL - Chapter 118

Certified Professional Broadcast Engineer® (CPBE®) 8-VSB Specialist™ (8-VSB™) AM Digital Radio Broadcast Specialist™ (DRB™)
 Wayne Pecena, College Station, TX - Chapter 99

Certified Professional Broadcast Engineer® (CPBE®) AM Directional Specialist™ (AMD™) Digital Radio Broadcast Specialist™ (DRB™)
 Mark Simpson, Marana, AZ - Chapter 32

Certified Professional Broadcast Engineer® (CPBE®) Digital Radio Broadcast Specialist™ (DRB™)
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 Gregory Carter, Fairport, NY - Chapter 57
 James Ferguson, Mount Vernon, OH - Chapter 52
 Gregory Foss, Riverside, CA - Chapter 131
 William Gaddis, Tuscaloosa, AL - Chapter 68
 John Gober, Auburn, AL - Chapter 118
 Charles Griffin, Plantation, FL - Chapter 53
 William Harris, Albuquerque, NM - Chapter 34
 J. Eric Hoehn, Washington, DC - Chapter 37
 Mark Hoenecke, Wausau, WI - Chapter 80
 Debbie Jones, Corona, CA - Chapter 131
 Jeffrey Koscho, Clinton, MD - Chapter 37
 Thomas Lowther, Twin Falls, ID - Chapter 145
 Frank McLemore, Smiths Station, AL - Chapter 118
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 Robert Gilmore, Shelton, CT - Chapter 14
 Christopher Hays, La Canada, CA - Chapter 47
 William Hoctor, Salisbury, MD - Chapter 37
 Timothy Holt, Chardon, OH - Chapter 70
 Douglas Melanson, Yuma, AZ - Chapter 9
 Dewey Newton, Canton, GA - Chapter 5
 Gordon Stankey, Regina, Saskatchewan, Canada
 Jeremy Wilkinson, Bowling Green, KY - Chapter 103

SBE Schedule of Events

Ask the Experts

These SBE members or employees of SBE Sustaining Member companies are presenting or speaking at the NAB Show.

Jay Adrick; GatesAir
Timothy Anderson; GatesAir
Harvey Arnold, CPBE; Sinclair Broadcast Group
Fred Baumgartner, CPBE, CBNT; Ennes Educational Trust
Kevin Berndsen; GatesAir
David Brender; Copper Development Association
Andrew Calvanese; Wheatstone
Tim Carroll; Telos Alliance
Cindy Cavell; Cavell, Mertz and Associates
Garrison Cavell; Cavell, Mertz and Associates
Rich Chernock; Triveni Digital
Jim Dalke, CPBE, 8-VSB, AMD, CBNT; Dalke Broadcast Services
Jeff Detweiler; DTS/HD Radio
Steve Dove; Wheatstone
Ashruf El-Dinary; DTS/HD Radio
Mike Erickson; Wheatstone
Dan Fallon; Dielectric
Bruce Franca; NAB
Bogdan Frusina; Dejero Labs Inc
Giovanni Galvez; Veststream
Rob Gonsalves; Avid
Bill Hayes; Iowa Public Television
Bob Higginbotham; Defense Spectrum Organization
William Hooper; National TeleConsultants
Martyr Horspool; GatesAir
Doug Houston; WCPO-TV
Tariq Islam; NAB
Eric T. Johnson; National TeleConsultants
Alan Jurison, CPBE, AMD, DRB, CBNE; iHeartMedia
John Kean; Cavell Mertz & Associates Inc.
Junius Kim; GatesAir
Wayne Kube; Kube Broadcast Consulting
Karl Lahm; Univision Communications
David Layer; NAB
James Leifer, CPBE; iHeartMedia
Louis Libin; Sinclair Broadcast Group

Jack Linder; Jack Linder Consulting
Fadi Malak; DTS/HD Radio
Sam Matheny; NAB
Joe Mauk; Telos Alliance
David Maxson, CPBE; Isotrope
Robert Meuser, CPBE, CBNT; Engineaux Inc
Fred Morton, CSRE; Falls Media
Russ Mundschen; DTS/HD Radio
Alison Neplokh; NAB
Steve O'Donnell; NASCAR
Keyur Parikh; GatesAir
Michael Payne; Vislink
Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE; Texas A&M University - KAMU
Keith Pelletier; Dielectric
Skip Pizzi; NAB
John L. Poray CAE; Society of Broadcast Engineers
Rich Redmond; GatesAir
Mike Rhodes; Cavell, Mertz and Associates
Dan Ryson, CBT; Cavell, Mertz and Associates
Andrew Sachs; Volicon
Philipp Schmid; Nautel Limited
Joe Seccia; GatesAir
Greg Shay; Telos Alliance
Paul Shulins, CBRE; Greater Media
Thomas Silliman; Electronics Research Inc.
Derek Small; Dielectric
Milford Smith; Greater Media
Joe Snelson, CPBE, 8-VSB; Meredith Local Media Group
Manuel Sone; Electronics Research, Inc.
Paul Stewart, CRO; Enco Systems
Ken Tankel, CPBE; Linear Acoustic
Barry Thomas, CPBE, DRB, CBNE; Thomas Media
Mark Tommey; Silvus Technologies
Kevin Usher; Avid
S. Merrill Weiss, CPBE; Merrill Weiss Group
Robert Weller; NAB
Joel Wilhite; Harmonic
Nick Wymant; Radio Frequency Systems

Saturday, April 16

- **SBE Ennes Workshop** 8 a.m.-5:40 p.m.
Conference registration required
LVCC South Hall Meeting Room S219
- **SBE Frequency Coordination Committee Meeting** 3 -5 p.m.
Westgate Resort Conference Room 8
- **SBE Certification Committee Meeting** 6:30-11 p.m.
Westgate Resort Conference Room 7

Sunday, April 17

- **SBE Board of Directors Meeting** 8:30 a.m.-12 p.m.
Westgate Resort Conference Rooms 7 and 8
- **SBE Broadcast Engineering Handbook Press Conference** 3 p.m.
LVCC exhibit booth L30
- **SBE Education Committee Meeting**. 3-4:30 p.m.
Westgate Resort Conference Room 7

Monday, April 18

- **Fry's Gift Card Daily Booth Giveaway**
Courtesy of Nema Electronics

Tuesday, April 19

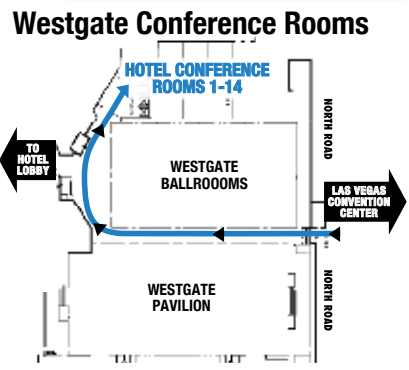
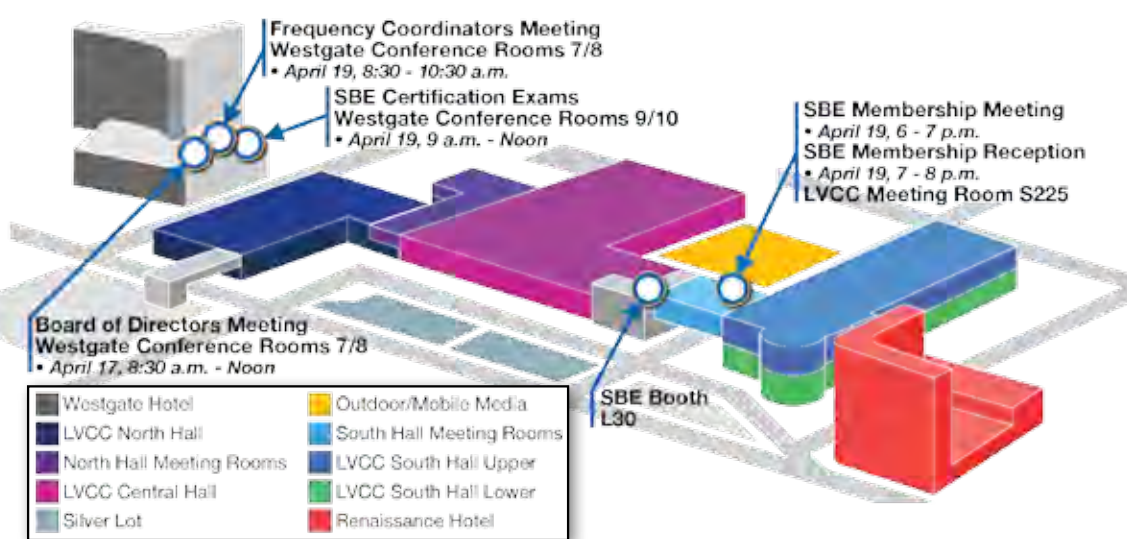
- **SBE Frequency Coordinators Meeting** 8:30-10:30 a.m.
Westgate Resort Conference Rooms 7 - 8
- **SBE Certification Exams**. 9 a.m.-12 p.m.
Westgate Resort Conference Rooms 9 - 10
- **Fry's Gift Card Daily Booth Giveaway**
Courtesy of Ka You Systems
- **SBE Spring Membership Meeting**. 6-7 p.m.
Blackmagic Design Micro Studio Camera 4K giveaway, plus other prizes
LVCC South Hall Meeting Room S225
- **SBE Member Reception** 7-8 p.m.
Five \$100 B&H Photo Video Pro Audio gift cards giveaway
LVCC South Hall Meeting Room S225

Wednesday, April 20

- **Fry's Gift Card Daily Booth Giveaway**
Courtesy of Blackmagic Design

SBE Booth Hours
Booth L30

Sunday: 2 p.m. - 4 p.m.
Monday: 10 a.m. - 6 p.m.
Tuesday: 9 a.m. - 5:30 p.m.
Wednesday: 9 a.m. - 6 p.m.
Thursday: 9 a.m. - 2 p.m.



SBE Event Sponsors

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Don't Forget the Resource Guide

There's lots more information about SBE Sustaining Members and their connection booth locations in the Sustaining Member Resource Guide. Your copy was included in this issue of *The Signal*. We'll also have copies available in our booth during the convention.

Visit the SBE Booth to...

The Society of Broadcast Engineers is in booth L30. We're in the lobby at the north end of the South Hall upper level near the escalators. What can you do at the booth?

- *Browse the books.* A wide range of books from the SBE Bookstore are available for purchase.
- *Show your SBE pride.* Pick up something with the SBE logo to show your pride in membership, such as a shirt, tumbler or pin.
- *Renew your membership or join.* You can renew or join online or via mail, but if you're already there, take care of business.
- *Meet the staff and board.* Have a question about the SBE or our services? Your questions can be answered in person.
- *Win a prize.* We have a daily booth drawing, so stop by and drop your entry into the box.
- *Meet colleagues.* Because the SBE booth is not on the exhibit floor, it's an ideal place to meet before moving on.

Candidates Sought for SBE Board of Directors

The SBE is governed by a volunteer, elected Board of Directors. Those who have served on the board have worked at broadcast stations, as consultants, for manufacturers, in education and government. They come from across the country.

If you are interested in running for a seat on the national SBE Board of Directors, contact a member of the Nominations Committee by April 25. The annual election will be held this summer. Qualified candidates include voting members (Member, Senior, Fellow or the designated representative of a SBE Sustaining Member) who are in good standing (dues paid). Candidates must hold an engineering level of SBE certification (CBT or higher or CBNE) and, if elected, maintain the certification the entire duration of service on the Board. Candidates should have a desire to serve and lead, not only as a member of the board, but through service as a national committee chair or member. Members of the Board represent all members, not any one specific region, state, city or chapter. It is suggested that candidates have previous experience as a leader in his or her local chapter, or other volunteer leadership experience, prior to running for the national SBE Board.

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

For more information, or to express your interest to run, contact any member of the SBE Nominations Committee: Chairman - RJ Russell, Chapter 18, Philadelphia, rjussell@sbe.org or 215-982-5310; Mark Simpson, Chapter 32, Tucson, mark.simpson@townsquaremedia.com; and Jim Schoedler, Chapter 48, Denver, jschoedler@usa.net.

Chapter Check

Chapter 59 Kansas City

Chapter 59 Kansas City met in March and held an open forum meeting. Various discussion topics included the NAB Show, RF interference, ideas for upcoming meeting presentations, transmitter site maintenance, and data service providers.

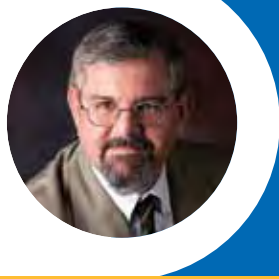


Chapter 111 Huntsville, AL

The 2015 SBE National Meeting was held in October. Kirk Harnack, CBRE, CBNE, then serving on the Board of Directors, accepted the chapter award for Greatest Growth in New Members on behalf of Chapter 111, and he presented it to the chapter leaders upon his return. Pictured are Chapter Chair Kevin Kidd, CSRE, AMD; Harnack; Secretary Dave Spindle; Vice Chair Rick Korab; and Treasurer Hal Beach.



Chapters: Send your meeting and event photos to cscherer@sbe.org.



LEGAL PERSPECTIVE

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

Fixed BAS Licenses and TV Pickups: Protect Yourself!

I have written before about the need to police your own BAS licenses. Yes, it can be expensive to correct a fixed-link license to correct the azimuth or specify a receive-site location because you have to go through the FCC's ill-conceived prior-coordination-notice process to do so. But it has to be done and it has to be done now.

I have praised my long-time friend Howard Fine for his volunteer crusade to urge licensees to add missing or incorrect receive site data in fixed, point-to-point link licenses (including aural STLs) and TV pickup licenses. Howard has contacted engineers, licensees and communications lawyers for licensees about this. He knows which licenses are bad and which aren't, and it is easy to find out in the FCC's ULS which licenses have missing or obviously incorrect receive sites. Howard is still at it, and good for him for doing so.

He reminded me recently that the SBE frequency coordinators have, in BAS bands such as 7GHz, which are shared with other radio services, protected BAS licensees because they know where every fixed link is. But you cannot rely on these volunteers. You have to register your receive site to be protected against interference to that site. It is as simple as that. Howard reports that his recent survey of the database that still more than 15 percent of licenses were either missing receive site data altogether or reflected other obviously incorrect license data. Many, for example, show the same coordinates in both Locations #1 and #2. Location #2 is supposed to be the receive site. Occasionally, a license will transpose the coordinates between locations 1 and 2.

This stemmed from the time that the FCC was manually inputting Part 74 licenses into the ULS database. (Honestly, take it from an old guy, they used to keep these records on 3x5 cards). That was at a time when spectrum wasn't crowded and we weren't having to share bands with potentially very incompatible sharing partners, as we are now.

Howard categorizes the "bad license data" into three groups: (1) those with missing receive site data entirely (i.e. no location #2 at all); (2) those in which the bearing (azimuth) does not match the coordinates, or else there is other clearly bad technical data in the license); and (3) the Facility ID number for the main station is missing from the license. Not specifying a Facility ID for the main station creates difficulties in license renewals and it disallows tracking of BAS licenses when a main station is assigned. In addition to these common errors, there are also quite a few duplicate licenses. These arise from a licensee's relocating a studio, applying for a new license instead of modifying the old one, and then leaving the old one in the database undeleted. This is not a small problem. Howard says that one TV licensee has 99 "bad" licenses (his term) and another licensee has more than 70.


What to Do

The Commission's policy is to not protect a licensee if the license is not correct, regardless of the reason for it. The Commission's rules do in fact require a licensee to ensure that the license has correct data in it.

Our sharing partners have been active in this effort as well, for their own reasons. The SBE, NAB and the National Spectrum Management Association (NSMA) have joined with broadcast licensees, consultants, commercial frequency coordinators, fixed service licensees and fixed service en-

gineers have formed a working group to deal with BAS and fixed service sharing issues. The group has had monthly meetings since 2010 and has developed NSMA recommendations for BAS and FS frequency sharing. The group has prepared a presentation to the FCC to address database issues. Its other tasks include development of procedures to ensure compatibility between FS and BAS uses; create interference calculation and coordination methodologies; and to determine geographic separation requirements. The NSMA working group plans a presentation to the FCC soon, with the objectives of enlisting the FCC's help to correct inaccurate data in the ULS database; add missing data for existing BAS stations; provide ongoing industry awareness, and to enlist the FCC's cooperation to take constructive steps to provide a positive incentive to licensees that will encourage improvement of the license data. NSMA is not at all focused on enforcement or assessing blame on anyone for the current situation; the group just wants to get the database fixed.

The FCC last issued a public notice about this issue on Feb. 10, 1999. That notice was not seen by a large segment of the industry because online monitoring of FCC releases was not as widespread then as it is now. Among the actions the group will ask the FCC to take include issuing a new public notice; sending a letter to approximately 1,000 licensees requesting data correction, and to withhold enforcement, so as to encourage broadcasters in a positive way to make necessary corrections of licenses. For the SBE's part, we will continue to encourage licensees to fix the databases. To some extent, this is a self-correcting problem because interference to a TV pickup receive site or a fixed BAS link receive site is the penalty for not doing this. But that is the hard way around. Let's not wait that long.



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Correction

The link provided in the February issue to Steve Johnson's Ambient Noise paper was incorrect. The correct link is www.wd8das/nab-paper.pdf



FOCUS ON SBE

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

SBE Co-Presents NAB BEC for 22nd Year

It's April, which means it's time for the annual NAB Show in Las Vegas. Elsewhere in this issue of *The Signal*, you'll find information about the SBE's participation in the show, including the Spring SBE Membership Meeting and Reception, information about the SBE exhibit booth, the meeting of SBE and affiliated frequency coordinators and more.

The SBE's participation also extends to the annual NAB Broadcast Engineering Conference (BEC), held as a part of the NAB Show. This six-day conference is the longest in length and longest running conference at the show and is recognized as the largest and most important conference for broadcast and media engineers and technicians in the world. The SBE is pleased to be a co-presenter of the conference for the 22nd consecutive year.

The conference is managed by the NAB Technology Department and guided by the volunteer BEC Committee, which includes a number of SBE members. They include BEC Chairman Alan Jurison, CPBE, AMD, DRB, CBNE, of iHeartMedia; Jim Leifer, CPBE, also of iHeartMedia; RJ Russell, CPBE, of Fox29 Philadelphia; Kim Sacks, CBT, of www.optimod.fm; and Milford Smith of Greater Media. Also serving on the committee are Pete Sockett of Capitol Broadcasting, Ted Stoner of Univision

Communications, and Ray Thurber of Scripps Media. Representing the Ennes Educational Foundation Trust and the SBE is Fred Baumgartner, CPBE, CBNT, of Nautel, who plans and chairs the day-long Ennes Workshop program held the first day of the BEC.

Committee members determine BEC session topics, select papers from hundreds of submissions and moderate the sessions. Our thanks to these volunteers and staff for their efforts to make this the preeminent broadcast technical conference in the world.

Contract and Consulting Engineers

A significant number of SBE members make part or all of their living providing consulting or contract engineering work. The SBE provides support for these members specifically aimed at their special needs. We announced last August that, after four years without, a new professional liability insurance program was now available, designed for those in the broadcast engineering field. This coverage, underwritten by a unit of Lloyds of London, is available through the Hays Companies of Washington, DC. For more information, contact Henry Cifuentes at 202-263-4018 or hcifuentes@hayscompanies.com.

The SBE also offers an inexpensive way

for contractors and consultants to advertise their businesses. The SBE Contract and Consulting Engineer Directory is an alphabetical listing by state and name that includes information about the services offered, geographical area served and contact information. The directory is located at the SBE website, Membership Directory section under "Contract Engineers." About 60 members are currently listed. The directory is accessible to anyone. For more information or to place your listing, contact Chriss Scherer at cscherer@sbe.org.

The SBE also has available at no charge to members a sample contract written by legal counsel with input from contract engineers. The sample contract includes many of the contract items that contract engineers require. To request a copy of the sample contract, contact Scott Jones at kjones@sbe.org.

Farewell to a Friend

The SBE national office has been located in Indianapolis, IN, since the mid-1970s. Since the SBE first moved here, members of Indianapolis Chapter 25 have helped move the office several times, provided used office equipment to us, and have just been generally very supportive of the staff and our function here. They have also counted the ballots for the annual national board of director's election each year.

I'm sad to say that we lost one of those long-time Chapter 25 members with the passing of David Fort in



Dave Fort

February. Dave, who had been ill for several months, was a regular at the annual ballot count and was well known among the local engineering community here, having worked for a number of broadcasters over his 40+ year career. Since 1999, Dave was one of the five local members who made up the NFL Game Day Coordination crew handling the games of the Indianapolis Colts, and had worked on the frequency coordination crew for the 2012 Super Bowl that was held here. The staff of the national office expresses our condolences to Dave's family and friends.

Renew Your SBE Membership and Stay Connected

It's not too late to renew your membership in the SBE. Those in the Member, Senior, Student, Associate and Fellow membership categories may renew online at www.sbe.org. Click on "Renew Membership" in the upper right-hand corner of the main page.

The online system is available 24/7, is secure, and accepts Visa, MasterCard and American Express. The system automatically generates a receipt that will be sent to your email address. You'll need your member number and website password to access the renewal system. If you have forgotten your number or password, there

is an automated retrieval system available to you on the renewal page. An automated email message is sent to the renewing member confirming renewal and payment.

You may also renew by completing and returning the renewal form you received in early February by mail to the SBE National Office (SBE; 9102 N. Meridian Street, Suite 150; Indianapolis, IN 46260) or by fax at 317-846-9120.

If you have questions about your renewal, or if you did not receive a renewal reminder in February, contact Scott Jones at the SBE National Office at 317-846-9000 or kjones@sbe.org.





Engineering Perspective

By Doug Houston
Director of Engineering, WCPO-TV
doug.houston@wcpo.com

FAA Approval Required for UAS Broadcast Operation

Unmanned aircraft systems (UAS) are a hot topic, and their use for station newsgathering has gained a lot of interest. But stations need to know a few things before safely, effectively and legally using them.

The path for broadcasters and digital media to commercially operate a UAS for newsgathering operations is attainable with a dedicated, focused plan. Here are some current tips and facts for a successful UAS FAA application and operation.

- The UAS pilot in command (PIC) must have an FAA airman certificate, Recreational, Private or Commercial with a medical and current Biennial Flight Review (BFR). This could change.

- Seek out an FAA-approved UAS flight school for proper training and procedures. From that training develop a UAS operations manual for your flight operations. This will be needed for FAA certification. This training can help you develop flight operations skills for a two-person operation and determine the best UAS system and quad copter for your requirements.

- Application and approval for an FAA Section 333 waiver is required to operate commercially. Once an FAA waiver is

approved, a certificate of operations (COA) will be issued determining your flight requirements.

- Determine with risk management your appropriate insurance coverage.

- Train and operate no different than any flight operation: Safety first!

Recent developments indicate a changing landscape regarding the FAA attitude towards UAS operations.

The News Media Coalition along with the Mid Atlantic Aviation Partnership led by Virginia Tech have submitted to the FAA the results of the Coalition training and development of UAS newsgathering procedures outside Washington, DC, and at Virginia Tech in 2015. Participants for the Coalition include E.W. Scripps, Gannet/TEGNA, Sinclair Broadcast Group, Univision, The Associated Press, The Washington Post, The New York Times, ABC, NBC/Universal, Reuters, Capital Broadcasting, Getty Images US, and Advance Publications. The recommendations to the FAA from the Phase I and Phase II training sessions suggest journalists can operate safely without a manned pilot's certificate under controlled conditions with appropriate training.

On Feb. 24 The U.S. Department of Transportation announced the Federal Aviation Administration (FAA) is establishing an aviation rulemaking committee with industry stakeholders to develop recommendations for a regulatory framework that would allow certain UAS to be operated over people who are not directly involved in the operation of the aircraft. The FAA is taking this action to provide a more flexible, performance-based approach for these operations than what was considered for Micro UAS. The committee will begin its work in March and issue its final report to the FAA on April 1.

"The Department continues to be bull-



DJI Inspire 1 and Phantom 2 quadcopters used for journalist training.

ish on new technology," said U.S. Transportation Secretary Anthony Foxx. "We recognize the significant industry interest in expanding commercial access to the National Airspace System. The short deadline reinforces our commitment to a flexible regulatory approach that can accommodate innovation while maintaining today's high levels of safety."

Some TV stations have already obtained their Section 33 waiver and are starting newsgathering operation with UAS systems. Stay tuned as this new technology develops as a viable newsgathering tool and the evolving relationship with the media and FAA makes headway.

SBE Ennes Workshop

Doug Houston will discuss UASs at the BEC SBE Ennes Workshop on April 16 during the 2016 NAB Show.

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Peter A. Starke 781-461-6780
Development/Construction/Management
- Audemat-Worldcast Systems Inc. • 2000**
Christophe Poulain 305-249-3110
Control Manufacturer
- AVCOM of Virginia, Inc. • 2010**
Tom Pagonis 804-794-2500
Spectrum Analyzers
- AVDB Group • 2014**
Maria Cody 720-940-7131
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- Broadcast Microwave Services Inc. • 1997**
Jim Kubit 805-581-4566
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- 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
- Canon USA Inc. • 1985**
Larry Thorpe 201-807-3300,
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Broadcast Lenses & Transmission Equipment
- Cavell, Mertz & Associates Inc. • 2011**
Gary Cavell 703-392-9090
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Chris Crump 978-784-1776
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- Comsearch • 2004**
Tim Hardy 703-726-5651
Frequency Coordination Services
- Continental Electronics Corporation • 1976**
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- Davicom, Division of Comlab, Inc. • 2014**
Guy Fournier 418-682-3380
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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
- 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
- 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
- DVEO - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- e2v • 1997**
Mark Strohecker 914-593-6831
Electronic Components
- Econco • 1980**
Debbie Storz 800-532-6626,
530-662-7553
New & Rebuilt Transmitting Tubes
- Emerson Network Power/Avocet • 2014**
George Morgan 917-592-0956
Avocet High Performance KVM
- 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
- 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
- Geppo/General Cable • 1995**
Mike Vivian 859-572-8000
Innovative Cabling & Custom Solutions
- Graham Brock, Inc. • 2012**
R. Stuart Graham 912-638-8028
Technical Consultation - Radio/TV
- Heartland Video Systems, Inc. • 2011**
Dennis Klas 920-893-4204
Systems Integrator
- Hitachi Kokusai Electric Comark • 2013**
Jack McNulty 860-763-1100
Manufacturer Broadcasting Transmission
Equipment
- IEWC • 2014**
Matt Granard 425-286-1900
Global Connectivity Solution Provider
- Image Video • 1997**
Zach Wilkie 416-750-8872 x228
Under Monitor Tally Display Systems,
Monitor Design and Manufacture Broadcast
Equipment
- Inovonics Inc. • 2012**
Gary Luhrman 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**
Michael W. Bach 541-779-6500
Antennas for Broadcasting & Communications
- Kintronc Labs, Inc. • 2015**
Joaquin Raventos 423-878-3141
Radio Broadcast Antenna Systems - ISO9001
Registered Company
- LBA Technology Inc. • 2002**
Javier Castillo 252-757-0279
AM/MW Antenna Equipment & Systems
- LYNX Technik • 2007**
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer
- Markertek • 2002**
Wesley Brewer 800-522-2025
Specialized Broadcast & Pro-Audio Supplier
- Maxell Corporation of America • 1991**
sales 973-653-2400
Data/Broadcast Video Media
- Micronet Communications Inc. • 2005**
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning
- Microtech Gefell GmbH • 2016**
Michael Miltzer +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
- Midwest Digital Corp. • 2015**
Brian Falatovich 708-790-4040
New and Used Broadcast Sales
- MoreCom Inc. • 2009**
Kyle Moorehead 763-533-5535
Networking & AV Construction
- Moseley Associates Inc. • 1977**
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television
- Nascar Productions • 2014**
Abbey Kielcheski 704-348-7131
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- 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
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- Neutrik USA, Inc. • 2012**
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David Rusch 480-403-8300
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- Pasternack Enterprises • 2001**
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- 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 Stokey 308-284-3007
Audio and Video Content Management
- RDL • 2004**
David Zovod 928-778-9678 x104
Audio, Video, Control & Test Equipment
Manufacturer
- RF Specialties Group • 2008**
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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
- Seacom Erectors, Inc. • 1997**
John Breckner 360-793-6564
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- 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**
Steve Gillen 781-221-4000
Signiant Content Delivery Software
- Silvus Technologies • 2015**
Mark Tommney 617-816-6588
Wireless Video Mesh Network
- Snell Advanced Media • 1995**
John Shike 818-556-2616
Video Equipment Manufacturer
- 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 Helligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- Superior Electric • 1995**
Michael J. Miga 860-507-2052
Power Protection Equipment
- 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
- Teletream • 2013**
Mark Wronski 530-470-1337
Transcoding, Captioning, Workflow
Automation
- 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
- Thomson Video Networks • 2014**
Matt Tietze 301-537-6288
Video Compression and Processing
- Tielne The Codec Company • 2003**
John Lackness or Jacob Daniluck 317-845-8000
POTS, ISDN, Codecs & A/V Products
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor
- Vislink Inc. • 1991**
Mike Payne 978-671-5700
Video Microwave Systems and Services
- Volicon • 2015**
Russell Wise 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
- WnewTech Corporation • 2014**
Luiz Santiago 310-220-5664
Systems Integration

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Member Spotlight: Richard Bach

Member Stats

SBE Member Since: 2001
Certifications: CBTE
Chapter: 72 New Orleans
Employer: WGNO/WNOL-TV
Position: Engineer
Location: Metairie, LA
I'm Best Known For: my exploits in ham radio and ham TV, including constructing New Orleans first-and-only ATV repeater in 1984 first in time to go live from the World's Fair.

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

A. I enjoy finding out about new technologies through the SBE meetings and seminars.

Q. What got you started in broadcast engineering?

A. I got started in broadcasting because a CE was listening to my discussions with one of his engineers about the building of my ham TV station. He listened for years and when he had an opening he called. I told him I had no interest in "fixing TVs," he then corrected me and said, "No, broadcast TV." I said, "Sure; I have not tried that yet." He then said to show up at WVUE and I would have the job. When I asked about an interview, he said "I have been listening to you for years, just do not barf on my desk and you're hired."



Richard in front of his collection of press credentials.

Q. What do you find most satisfying in your job?

A. The one overwhelming thing I like about my position is that I get to play with the same stuff I use for my ham TV station. Just after Katrina hit New Orleans we made arrangements for backup transmitters and what was supposed to be a portable studio. What we got was a generator pod and two double-wide trailers. My ham station was on the second floor of my condo, so I hauled a majority of my ham equipment to the double-wides to get us back on the air long before any other station.

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

A. ...play soccer, dabble in some woodworking and music creation.

Q. Do you have a nickname?

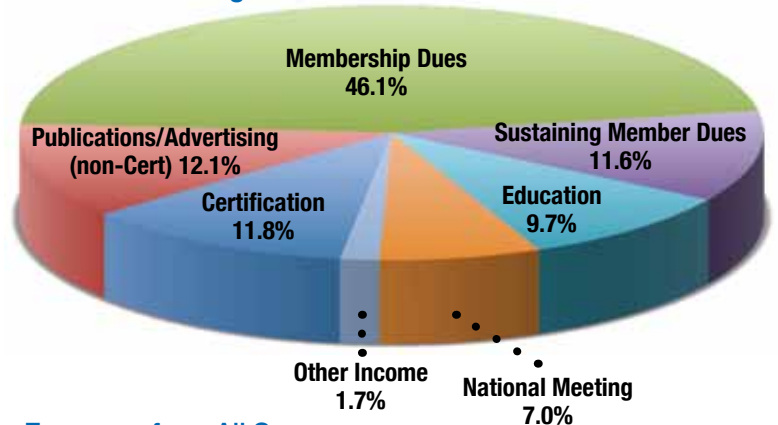
A. I got my Ham ticket in high school and a WWII vet teacher hung the nickname Sparks on me and it stuck throughout school.

2015 SBE Financial Year in Review

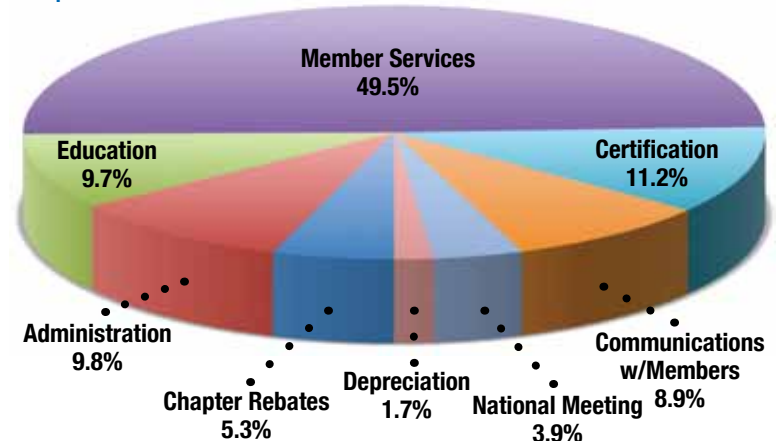
The Society of Broadcast Engineers, Inc. completed 2015 with net revenue from all operations of -\$65,914. Gross income from all sources was \$650,851 while expenses were \$716,764. The value of SBE savings and investments as of Dec. 31, 2015 was \$1,056,114. Total SBE assets as of Dec. 31, 2015 were \$1,067,926, a decrease of \$65,640 over 2014. Much of the drop in net-revenue and total assets was due to a drop in the unrealized gain/loss of long-term investments by \$40,287. Long-term investment interest and dividends were \$34,831 bringing net long-term investments for the year to -\$5,384.

A percentage breakdown of SBE income from program operations and expenses is depicted at right. A financial statement will be published in the June issue of *The Signal*, following completion of the Society's annual audit.

Income from Program Sources



Expenses from All Sources



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 Ruben Araza - Vail, AZ
 Thomas W. Backus - Knoxville, TN
 John M. Banks - Kerrville, TX
 James M. Brownell - Huntsville, AL
 Ann E. Bruun - Tulsa, OK
 Christopher D. Burns - Cincinnati, OH
 Christopher M. Carnes - Palm City, FL
 Amr Abdel Dayem - Thousand Oaks, CA
 Sheldon B. DeFriez - Lilburn, GA
 Felimen B. Dela Cruz - Doha, Qatar
 H. Lee Delaney - Lexington, KY
 Shawn D. DeWeerd - Grand Rapids, MI
 Joseph W. Ducote - Fremont, CA
 Sean C. Edwards - Bridgton, ME
 Kelly Ethridge - Sachse, TX
 Bret M. Falchetto - Springfield, MO
 Steve Floyd - Fairfax Station, VA
 Eric French - Columbus, OH
 Gary E. Gallinger - Indianapolis, IN
 Brandon J. Gibson - Maineville, OH
 Jon W. Grubbs - Wheeling, IL
 Timmie R. Haverland - Fort Bragg, NC
 Stephen C. Hinton - Cincinnati, OH
 John W. Hutson - Houston, TX
 Joseph Iwanicki - Brooklyn, NY
 Gregory Jones - Cincinnati, OH
 Eric R. Kaniu - Millbury, MA
 Paul W. Lockhart - Huntsville, AL
 Rick Loesch - Nags Head, NC
 Luke J. Lukefahr - St. Genevieve, MO
 Mike MacKenzie - Phoenix, AZ
 Marcus Marshall - Silver Spring, MD
 Michael T. Nah - Monrovia, Liberia
 Darryl W. Niederbaumer - Harrison, OH
 Steven M. Pacheco - Romeoville, IL
 Michael J. Petz - Fairview Heights, IL

Ward Presley - Huntsville, AL
 Kevin J. Quick - South Glensfalls, NY
 Brian Reilly - Nashville, TN
 John Roberts - Lawton, OK
 Jonathan W. Rodgers - Dothan, AL
 Mitchell Savini - Evans, GA
 John W. Schueler - Colora, MD
 Zach Shore - Washington, DC
 Matthew P. Smith - Norway, ME
 Joseph W. Spampinato - Bethel Park, PA
 Aaron C. Speer - Silsbee, TX
 Joshua Taylor - Pontotoc, MS
 Michael B. Travis - Odenton, MD
 James K. Vanaman - Viera, FL
 James R. Waltrip - Seattle, WA

NEW STUDENT MEMBERS

Charles G. Arbogast - Little Elm, TX
 Chi Wing Chong - Hong Kong, China
 Michael M. Davis - Hueytown, AL
 Michael Frushour - Brookfield, IL
 Gavin S. Hornak - Long Grove, IL
 Hon Chung Lam - Hong Kong, China
 Cheuk Hong Lam - Hong Kong, China
 Chun On Lee - Hong Kong, China
 Hiu Chung Leung - Hong Kong, China
 Ying Kit Ling - Hong Kong, China
 Wai Leung Pok - Hong Kong, China
 Tsz Hei So - Hong Kong, China
 Yee Sum To - Hong Kong, China
 Pang Chun Yeung - Hong Kong, China

NEW ASSOCIATE MEMBERS

Dale S. Ladner - Casco, ME

RETURNING ASSOCIATE MEMBERS

Jo'el Roth - Lakewood, WA
 Brian R. Walker - Warrenton, OR

RETURNING MEMBERS

Charles M. Abell - The Woodlands, TX
 Ibrahim A. Badr - Southington, CT
 Lowell G. Beckner - Apollo Beach, FL
 Keith A. Bosworth - Belleville, MI
 James R. Broadwater - Fort Worth, TX
 Ronald E. Brownlow - Omaha, NE
 James W. Cooper III - Greer, SC
 Michael N. Djokoto - Accra, Ghana
 Matthew Dombard - Huntingdon Valley, PA
 Mitchell L. Doty - Bay Shore, NY
 Michael N. Gay - Mableton, GA
 Melissa A. Guenster - Quincy, IL
 Terry L. Glaze - Broken Bow, NE
 Jason M. Horvath - North Huntingdon, PA
 Michael H. Howey - Sterling, VA
 Greg Ireland - Cincinnati, OH
 Alan H. Kline - Des Moines, IA
 Bill Knott - St. Charles, MO
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 Wilfred A. Meys - Superior, WI
 Greg T. Reams - Cincinnati, OH
 Matthew C. Rockwell - Cambridge, WI
 Michael H. Tran - Lenexa, KS
 Daniel G. Ullmer - Salem, VA
 Chris L. Waldrup - Tracy City, TN
 Chris R. Wartes - Bothell, WA
 James A. Wilson - Quincy, IL

Recruit a new SBE member during the 2016 SBE Membership Drive. More info on page 3.

MEMBERS ON THE MOVE

➤ **Robert Ferguson** is now system support engineer at the Telos Alliance. He is based in the Dallas/Ft. Worth area.



Will Shifflett, CBT, has accepted a job at Oklahoma State University as engineer for the School of Media and Strategic Communications.



➤ **Andrew Lombard, CBTE**, is director of engineering for Fox Television in Phoenix.

Michael Streby, CBTE, 8-VSB, CBNE, is now chief engineer of KDLT-TV, Sioux Falls, SD.



➤ **Richard Friedel** of Fox Networks has been elected the board chairman of the ATSC for 2016.



➤ **Keith Kintner, CPBE, CBNT**, has retired from the University of Wisconsin Oshkosh Radio-TV-Film department, where he has worked for the past 12 years.

➤ **Steve Griesbach** has been named market director of engineering for the Las Vegas cluster of Beasley Broadcast Group stations.



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

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THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS

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 Britt Lockhart, Yukon, OK
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 Robert Sleight, Apex, NC
 Richard Thomas II, Okemos, MI
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