SBE Events Abound at the 2018 NAB Show

The NAB Show is just days away. As you plan how you will spend your time at the convention, 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 10, at 5:00 p.m. in room N234. The Membership Meeting brings you up to date on all the SBE activities and programs, and it includes a milestone-service recognition of SBE chapter certification chairs, and updates on the society’s plans, programs and government relations efforts. Everyone attending will be eligible to win prizes, including an URSA Broadcast camera (courtesy of the Membership Meeting sponsor Blackmagic Design), a $250 gift card for Amazon and restaurant gift cards.

You’ll want to get to the meeting early as well, because the first 100 people in line will receive an SBE-logoed smartphone stand.

The Membership Reception starts immediately after the meeting at 6:00 p.m. Light snacks and drinks are made possible from the generous support of several Sustaining Member sponsors.

The Next SBE Engineer of the Year

Who will the next Engineer of the Year award recipient be? It could be you, it could be someone you nominate. This will be the sixth year that SBE Chapters will nominate their own Chapter Engineer of the Year award recipients. The chapter honorees are then entered into consideration for the Robert W. Flanders SBE Engineer of the Year award. Each chapter can establish its own criteria for the chapter award. Individuals can also be nominated directly for the national award. For the national award, nominations need to be submitted to the National Office by June 15.

There are other honors as well. The James C. Wulliman SBE Educator of the Year; the SBE Technology Award; the John H. Battison Award for Lifetime Achievement; Facility Innovation of the Year; Best Technical Article, Book or Program by an SBE Member; Best Article, Paper or Program by a Student Member; and the Freedom Award are among the accolades. There are also a series of statistical awards.

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

For information on all the award categories, both individual and chapter, please visit sbe.org/awards or contact Megan Clappe at mclappe@sbe.org. Recognition by your peers is the highest honor. Honor your colleagues today.
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SBE National Office
317-846-9000 www.sbe.org

SBE Membership Drive Runs through May 1

The SBE Membership Drive began on March 1, and it carries the theme Get Ahead with the SBE. 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.

Recruit a new member during the Drive, and you 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. And if you recruit three or more Regular or Associate Members or one Sustaining Member you will also receive an upgrade to SBE MemberPlus for the remainder of the 2018 membership period.

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 annual Media Resource Expo 2018 in Danvers, MA. Oct. 2-3, 2018.

And as a further bonus, for every new member you sponsor you will receive $5 off your 2019 dues (up to $25).

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

Question
Answer on page 6

Certification Question

For the ATSC 8-VSB system, the symbol rate is:

A. 4.5 MHz
B. 5.082138 MHz
C. 10.76 MHz
D. 19.39 MHz

SBE®

Recruiter prizes as of March 7:

305 Broadcast: $250 Amazon gift card
Cavell Mertz & Associates: $250 gift certificates (2) for the SBEStore or SBE Bookstore
Comrex: long-sleeved shirt; care package (5); drinking glasses; iPad case and koozie (3); insulated bag, hat and koozie
Davicom: $100 Amazon gift card
DVEO: tropical shirts and sunglasses
Fujifilm/Fujinon: Fuji Instax Mini 9
Hitachi-Comark: personal speaker systems (2)
JVC: sports headphones (5)
Katleen: ARRL Antenna Handbook
LBA: Webinar gift certificate
Shively: $250 L.L. Bean gift card
Tieline: barbecue sets (2); $25 Visa gift cards (2)
Wheatstone: FM-55 audio processor

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**LETTER FROM THE PRESIDENT**

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

**The SBE Yearly Meeting in the Desert**

Well it’s that time where we all seem to gather in the desert for a week or two of seeing old friends, making new friends, looking at new stuff and learning new technologies. It is the 2018 NAB Show.

There are a lot of events planned and I wanted to focus on a couple of them. When you look for us at the convention, the SBE booth will be in a different spot this year. We will be on the 1st floor of the Las Vegas Convention Center, North Hall lobby near the Starbucks. Come by to renew your membership or just to say hello to fellow members. Don’t forget the MemberPlus option when renewing your membership.

The SBE Membership meeting and reception will be held on Tuesday, April 10. The Membership meeting will be held in LVCC N234/N236 at 5:00 p.m.

It all starts with the Ennes Workshop presented by the SBE from 9 a.m. to noon on Saturday. You must have a NAB Conference-level registration to attend. The BEITC will be ongoing with papers given by many fellow SBE members. I encourage you to take some time to support your fellow SBE members and enjoy the show.

Of course, I need to thank our SBE Sustaining Members, many of which will be exhibiting at this year’s show. Please let them know you appreciate their support of your society.

Sunday morning we will have our spring Board of Directors meeting and you are welcome to attend. The SBE will hold several committee meetings during the week, and we thank those involved for your participation. I encourage anyone who wants to get involved to reach out to me or one of the other members of the SBE Board of Directors. We encourage participation from all of our members.

But be sure to save time to attend the membership meeting on Tuesday at 5 p.m. and the member (and friends!) reception after that. We invite you all to attend.

Finally, I want to thank all our national staff and members of the board of directors who find the time to help put this show together each year.

If you see me, please take a minute and say hi. I promise to make time for everyone.

**Still Time to Renew Your SBE Membership**

It is not too late to renew your membership in the SBE and retain your membership benefits. Those in the Member, Senior, Student, Associate and Fellow membership categories may renew online at sbe.org. Click on “Renew Membership” in the upper right-hand corner of the website home page. The online system is available 24/7, is secure and accepts Visa, MasterCard and American Express. The system automatically generates a receipt, sent to your email address. You will need your member number and website password to access the renewal system. If you have forgotten your number or password, there is an automated retrieval system available to you on the renewal page. The renewing member will receive an automated email message confirming the receipt of the payment.

When renewing, consider the new SBE MemberPlus option. For just $175, the MemberPlus option provides you with access to all archived SBE webinars and all new SBE webinars produced through March 31, 2019. That’s more than 62 webinars covering a broad range of broadcast/media technology, regulatory and safety topics. It includes the popular eight-part RF101 and five-part Fundamentals of IP Networking series. It also includes the current four-part Broadcast Infrastructure Cybersecurity series.

You may also renew by completing and returning the renewal form with payment that you received in early February by mail to the SBE national office: Society of Broadcast Engineers; 9102 N. Meridian St., Suite 150; Indianapolis, IN 46260; or by fax at 317-846-9120.

Members with questions about their renewal, or those who did not receive a renewal reminder in the mail, can contact Scott Jones at the SBE National Office at 317-846-9000 or kjones@sbe.org.

**Explore the Webinars by SBE Archive**

By now you know that SBE MemberPlus grants you unlimited access to more than 60 Webinars by SBE. While the SBE streams a new, live webinar regularly, all our webinars are archived and ready for on-demand playback. The latest webinar series covers Broadcast Infrastructure Security. Other recent offerings include the eight-part RF101 series and the annually updated RF Safety webinar. But there are many more subjects available.

In general, webinars fall into one or more of three categories: broadcast technology, broadcast operations, or FCC rules and regulations. It’s likely there are several topics that interest you. Looking to brush up or learn more about RF? Check out the Transmitter Maintenance Checklist or AM Directional Antenna Modeling. Need to advance on the IT side? There’s the IP Networking series, the Advanced IP Networking series and IPv6 for Broadcasters.

Maybe you need to get more information about digital radio. If so, IP Microwave STLs, Deploying Artist Experience via HD Radio, HD Radio Advancement and Trends, or Streaming Radio: a Tutorial for Broadcasters are for you.

Take some time to browse the list of available Webinars by SBE. If you have SBE MemberPlus, they are all free. If you don’t have MemberPlus, you can purchase any webinar you want.

sbe.org/webinars
What Is On Your Bookshelf?

2018 is well underway and I hope the year brings prosperity and successes in both your personal and professional life. Keep in mind that continuous learning is a key success trait of the technology professional and a new year brings an opportunity to set your professional development goals for the year. Your own self-study is an important aspect of self-learning and your personal library becomes a valuable resource for your professional development. Books and self-study have been a part of my life since my teen years when studying for an amateur radio license, and later the Second and First Class radiotelephone licenses. Several of these legacy texts from the 1960s and 1970s are my prized personal possessions. The American Radio Relay League (ARRL) provided my first introduction to electronics, radio circuitry, and antenna theory with the ARRL Amateur Radio Handbook. Electronic Communications by Robert Shrader (1967) became my Second- and First-Class license study guide. The now classic Harold Ennes series of broadcast engineering texts provided my first broadcast engineering knowledge upon becoming employed at a TV station in the early 1970s.

As the SBE Education Committee chair I am often asked, “What are some good books to learn broadcast engineering?” This has often been a challenging question to answer as my bookshelf today, which began with a handful of books, now fills several book cases. The Harold Ennes series, which became the industry standard of the past, is no longer published and is only beneficial today as a history tutorial of past technology. The market is full of books pertaining to specific areas of current broadcast technology from notable authors such as Jerry Whitaker, Charles Poynton, Jim Boston, and Peter Symes. In some aspects it is easier to recommend a bookshelf of books rather than narrowing the recommendation to two or three texts that might by be easier on your wallet.

Fortunately, there are three currently published texts that I feel every broadcast engineer should have access to if not on their own personal bookshelf. The ARRL Amateur Radio Handbook (2018) is still around and is an incredible source of electronics, radio, and RF propagation theory. Basic electronics, RF theory, and advanced digital mediums of digital communications are well presented. Even if you have no ambition of becoming an amateur radio operator, this text is an invaluable reference, although you might find the ham radio bug to have bitten you after even a quick look at the diverse topics featured. And the ARRL Handbook is a bargain at a street price of less than $50. The SBE Broadcast Engineering Handbook (2016) is in my opinion the Ennes hand-

book of today with a foundation of theory plus a nuts-and-bolts approach to practical broadcast engineering. Theoretical basics and practical implementation knowledge cover diverse topics ranging from chief operator duties, to solid-state AM/FM/DTV transmitters, to digital workflow, to project management, to IP networking. The National Association of Broadcasters Broadcast Engineering Handbook (2017) rounds out my broadcast engineer’s personal library recommendations. I have considered the NAB reference as the consulting engineer’s handbook. The 17th edition still includes the classic FCC F(50,50) contour charts for coverage prediction, but has been significantly updated to reflect the broadcast technology in use today.

I consider these three as reference texts as you are not likely to read cover to cover as these three volumes combined comprise in excess of 4,100 pages of technical content. In some cases, the SBE and NAB handbooks overlap in content, but the content is presented from theoretical to practical perspectives between the two writings. Each provides a wealth of knowledge whether you are seeking to solve the problem of the day, or wanting to grasp a new area of broadcast technology, or needing guidance in planning a facility upgrade. Even the spectrum of amateur radio modes includes digital TV transmission operated as an amateur TV (ATV) station. Whether you are just starting out in the broadcast industry or you are a seasoned broadcast engineer with years of experience, these three books should be in your personal library. The ARRL and the SBE books are available from the SBE Bookstore at discounted member pricing.

What is your favorite personal library text? Please let me know by email at wpecena@sbe.org.

Cybersecurity

The SBE four-part Cybersecurity 2018 webinar series began this past January and will continue through the end of this month. The webinar series seeks to provide a fundamental understanding of IP network security principals and best practice cybersecurity implementation techniques. The Broadcast Infrastructure Cybersecurity – part 4 webinar will be held on Tuesday, April 24 at 2 p.m. ET and will focus upon network security verification by use of penetration testing tools. With your 2018 MemberPlus SBE membership, this webinar series and all SBE webinars in the on-demand library are available to you at no additional cost.

Your SBE Education Committee wants to know your professional development needs. Send your advice and guidance to your SBE Education Committee to help establish the right mix of educational content to meet your professional development needs.
CERTIFICATION UPDATE
By Megan Clappe
Certification Director
mclappe@sbe.org

Certification Service 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 behind the SBE is 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 chairs.

Every year at the annual membership meeting during the 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 the volunteers who devote so many hours to the SBE and the certification program.

Finally, I want to mention a longtime member of the Certification committee who finished his tenure with the committee at the beginning of the year. Terry Baun, CPBE, AMD, CBNE, spent more than 20 years working on the certification committee as a member and chair. Thank you for the countless hours you have devoted to the advancement of broadcast engineers.

This year we will celebrate an anniversary for one member of the National Certification Committee. Troy Pennington, CSRE, CBNT, has been a member of the committee for 25 years.

As a side note: I’m pleased to also mention that Larry Wilkins, CPBE, AMD, CBNT and a longtime member of the certification committee has been awarded the Radio World Excellence in Engineering Award.

Answer from page 3
The answer is C

Allowing for Nyquist filter roll-off in the 6 MHz channel; the baseband half-power passband is 5.38 MHz. The symbol rate can be twice the passband. Therefore, 5.38 MHz \times 2 = 10.76 MHz.

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Designed specifically for broadcast engineers who have or aspire to have management responsibilities to acquire and develop skills of sound leadership, supervision and management.

Registration includes course materials, three days of instruction, a certificate of completion, light breakfast items each day and classroom beverages.

The cost to attend is $670 for SBE members, and $725 for non-members.

sbe.org/ldc
Participate in the 2018 Compensation Survey

The SBE is conducting its third (and ongoing) compensation survey now. The SBE launched this annual effort 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.

The 2017 survey enjoyed a successful response rate, but as with any survey, a larger sample pool will provide more reliable results.

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. Highlights of the survey will be reported in The Signal. The full report will be available for download to members from the SBE website.
SBE Schedule of Events

Saturday, April 7
- SBE Ennes Workshop ............... 9 a.m.-12 p.m.
  Conference registration required
  LVCC North Hall Meeting Room N262/264
- SBE Certification Committee Meeting .... 6:30-11 p.m.
  Westgate Resort Conference Room 7

Sunday, April 8
- SBE Board of Directors Meeting .... 8:30 a.m.-12 p.m.
  Westgate Resort Conference Rooms 8 and 9
- SBE Education Committee Meeting .... 3-4 p.m.
  Westgate Resort Conference Room 7
- SBE Frequency Coordination Committee
  Meeting .................................. 4:14-5:15 p.m.
  Westgate Resort Conference Room 7

Monday, April 9
- Fry’s Gift Card Daily Booth Giveaway
  Courtesy of Nemal Electronics

Tuesday, April 10
- SBE Certification Exams ............... 9 a.m.-12 p.m.
  LVCC N220 (Advance registration required)
- SBE Frequency Coordinators Meeting . 1:15-2:45 p.m.
  (Sponsored by T-Mobile) LVCC N220
- Fry’s Gift Card Daily Booth Giveaway
  Courtesy of LinkUp Communications
- SBE Spring Membership Meeting ........ 5-6 p.m.
  Blackmagic URSA Broadcast camera
  giveaway, plus other prizes
  LVCC North Hall Meeting Room N234
- SBE Member Reception .................. 6-7 p.m.
  Multiple prize giveaway
  LVCC North Hall Meeting Room N239

Wednesday, April 11
- Fry’s Gift Card Daily Booth Giveaway
  Courtesy of Blackmagic Design

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Don’t Forget the Resource Guide
There’s lots more information about SBE Sustaining Members and their convention
booth locations in the online Sustaining Member Resource Guide.
sbe.org/sections/guide
Nominations Committee Seeks Board Candidates

By JT Tucker, CSRE, AMD, CBNE

The SBE Nominations Committee work has begun. Members of this committee include: Robert Combs, from Spring, TX; John George Jr., from Lexington, SC; Martin Stabbert, CPBE, from Reno, NV; Joe Snelson, Jr., CPBE, 8-VSB, from Aurora, CO; and chairman Justin Tucker, CSRE, AMD, CBNE, from Charleston, SC.

The SBE Nominations Committee seeks qualified candidates who are voting members (Member, Senior, Fellow or the designated representative of a SBE Sustaining Member) in good standing (dues paid). Candidates must hold an engineering level of SBE certification (CBT or higher, or CBNE) and maintain it the entire duration of service on the Board, if elected. Candidates should have a desire to serve and lead, not only as a member of the board, but through service as a national committee chair or member. Members of the Board are “at large,” meaning they represent all members, not any one specific region, state, city or chapter.

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

The national SBE board includes 12 directors, four officers and the immediate past president. Directors serve two-year terms and officers serve one-year terms. Six director seats will be contested in 2018 as will all four officer positions. The SBE By-laws limit the number of terms of elected members of the Board.

Directors may serve three consecutive terms. The secretary and treasurer may serve up to four consecutive terms and the president and vice president may serve up to two consecutive terms. The maximum number of years anyone may serve on the board is ten consecutive years.

Members interested in offering their candidacy and serving on the national Board if elected are encouraged to contact the chairman of the SBE Nominations Committee, Justin Tucker, CSRE, AMD, CBNE, at jttucker@sbe.org or 843-277-1270. A slate of nominees will be assembled by the committee by May 1. Other qualified members may be nominated by members in good standing no later than July 6.

The election takes place from July 20 through Aug. 22. Those elected will be installed into office during the SBE National Meeting in Danvers, MA, on Oct. 3.

2017 SBE Financial Year in Review

The Society of Broadcast Engineers, Inc. completed 2017 with net revenue from all operations of $26,320. Gross income from all sources was $789,060 while expenses were $762,740. The value of SBE savings and investments as of December 31, 2017, were $1,096,389. Total SBE assets as of December 31, 2017, were $1,116,924, an increase of $21,801 over 2016. Long-term investment gains totaled $32,453.

A percentage breakdown of SBE income from program operations and expenses is provided here. A financial statement will be published in the June issue of The Signal, following completion of the Society’s annual financial audit.
Are Broadcasters Really First Responders?

I attended a hearing of the Senate Commerce Committee recently, at which both the ARRL and the NAB had witnesses testify on the respective importance of amateur radio and broadcasting in emergency alerting and disaster response. The FCC had a very compelling witness also: Ms. Lisa Fowlkes, the chief of the Public Safety and Homeland Security Bureau testified on the FCC’s investigation of erroneous emergency alerts. It was really riveting testimony from all witnesses, and the hearing was fascinating. It dealt specifically with the “false alarm” of an imminent missile attack in Hawaii recently; how such a thing could happen; why it took more than half an hour to rescind the alert and calm the panic in Hawaii; and how to make sure such a nightmare never happens again. On a broader basis, the hearing provided insight into the function of broadcasters, mobile wireless service providers and amateur radio operators in emergency alerting. The testimony of the NAB was, I thought, simply excellent. It stressed the important role of broadcasters in front-line emergency alerting, and the reliance of the general public on broadcasters to disseminate emergency information in real time. The NAB has asserted that in a disaster situation, 57 percent of the public turns to radio and television broadcast stations for updates and information in emergencies. This is an impressive number in a time of ubiquitous text messaging and other alerting platforms.

So broadcasters are indisputably “kings of the hill” in emergency alerting. But is it fair to call them “first responders”? One might question that label, inasmuch as it is traditionally associated with, and limited to, police, fire and rescue and EMS personnel. Years ago, I prepared some testimony for an ARRL witness at a Congressional hearing about federal support for first responders in spectrum allocations. I likened Amateur Radio ARES and RACES participants to first responders. For that, I had my hand headed to me by the then-CEO at ARRL. He told me in no uncertain terms that this would not sit well with first responders who were the principal served agencies of ARES and RACES. I never drew the analogy again.

Last September, the Senate passed S. 102, the Securing Access to Networks in Disaster Act (SANDy as it came to be known; referencing the 2012 superstorm Sandy that ravaged the East Coast). S. 102 was a slightly different bill than H.R. 588, passed in January 2017 by the House, but they have the same basic intent. Since the House and Senate bills are different, the differences had to be resolved by Congress before being sent to the President for signature. Both bills have the same effect with respect to the role of broadcasters in emergencies. They provide for access by “essential service providers” to emergency locations and disaster sites “necessary for establishing temporary or restoring wireline or mobile telephone service, internet access service, radio or television broadcasting, cable service, or direct broadcast satellite service.” Both bills specify that the term “essential communications services” means “wireline and mobile telephone service, internet access service, radio and television broadcasting, cable service, and direct broadcast satellite service.” This is a great thing. It allows broadcast engineers to access disaster locations to restore broadcast service during or following a major disaster, and it acknowledges the important role of broadcasters in emergency alerting. Some states have adopted “first informer” state statutes that have the same effect. But access by broadcasters in this context must be uniform throughout the 50 states and territories in order to solve the problem of access to disaster areas for re-institution of broadcast service.

Inside Radio last September reported the passage of the SANDy Act by the Senate and claimed that the bill “...designat(ed) radio and TV as ‘first responders’ during natural disasters.” Actually, the legislation doesn’t do that exactly. “Essential service providers” and “first responders” are not at all synonymous, and the latter term is not found anywhere in either bill. NAB has carefully avoided misuse of the term “first responders” as well, and good for them for doing so. The NAB was quoted as saying that when hurricanes hit, as they did last fall, “…hometown radio and television stations play a lifesaving role as ‘first informers’ during times of emergencies, and this legislation will provide local broadcasters with access to vital resources to stay on the air when disaster strikes.” First informers: absolutely. Access to disaster sites to restore broadcast facilities by broadcast engineers: critical. “Essential Service Providers”: absolutely valid description of broadcasters and broadcast engineers. Congress needs to get this legislation to the President pronto and he needs to sign it without any further delay.

But let’s not confuse roles here. “First responder” is a term that should be limited to those who really fit the classic description. The term is defined in U.S. Homeland Security Presidential Directive, HSPD-8, which provides the following definition: “…those individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers as defined in section 2 of the Homeland Security Act of 2002 (6 U.S.C. § 101), as well as emergency management, public health, clinical care, public works, and other skilled support personnel (such as equipment operators) that provide immediate support services during prevention, response, and recovery operations.”
Making the Most of SBE MemberPlus

On January 2 of this year, the SBE rolled out a new membership option called SBE MemberPlus. The intent is to provide an increased membership value and more affordable access to SBE educational content.

Traditional membership is still available. For annual membership dues of $85, it includes bi-monthly issues of The Signal and e-publications including SBE-News, SBE Legislative and Regulatory Alerts and Updates and the SBE Career Advancement Newsletter. Also included are SBE social media outlets, SBE JobsOnline, SBE Compensation Survey results, access to group life insurance and legislative and regulatory advocacy. Traditional membership also provides members with discounts for SBE certification, education programs and purchases at the SBE Bookstore. Members located near one of the 114 local SBE chapters affiliated with the national SBE can participate in their monthly meetings.

The SBE MemberPlus option includes all of the benefits of traditional membership, plus, free access to all of the archived webinars the SBE has produced. It also includes any new SBE webinars we produce during the current membership cycle. The membership cost for the SBE MemberPlus option is $175 per year.

So far, the reception to SBE MemberPlus has been excellent. As of March 6, more than 330 members have chosen the SBE MemberPlus option while renewing their membership and another 25 new members have joined who also chose the option. Those 355 members now have access to 62 archived webinars at no additional cost. They also can register for the two remaining modules of the four-part Broadcast Infrastructure Cybersecurity webinar series we are currently presenting, at no cost, and any other SBE webinar to be presented through March 31, 2019.

Webinars by SBE cover a wide range of technical, regulatory and safety topics. There are even a few in the category of leadership, management and communications. They are created and presented specifically for SBE by industry experts. Completion of any SBE webinar qualifies for one SBE recertification credit.

SBE webinars are all available online, around the clock, for access whenever the time is right for you. Members who have chosen the MemberPlus option still register through the SBE website as before. The registration system recognizes the SBE MemberPlus member and converts the cost to $0. Once registered, an automated email is sent within minutes that provides the link to the webinar.

So, what are the webinar topics available to you? A sample is shown here.

Some members who have already renewed their membership at the traditional level have asked if they can convert to SBE MemberPlus. The answer is, yes. To convert your traditional membership, contact Scott Jones at the SBE national office at 317-846-9000, or email Scott at kjones@sbe.org. You’ll just pay the difference between the two membership options.

I encourage any member who would value the additional educational benefits to consider SBE MemberPlus. The additional membership cost with pay for itself with just the second webinar you take. You will also get the most out of your SBE membership.

Here are just some of the available Webinars by SBE

- SBE Broadcast Infrastructure Cybersecurity - Four Part Series
  - Module 1 - Introduction & Network Security Principals
  - Module 2 - Understanding the Firewall
  - Module 3 - Understanding Secured Remote Access
  - Module 4: Security Verification Through Penetration Testing (Live - April 24, 2 p.m. - 3:30 p.m. ET)
- SBE RF Safety Course
- Using Drones in Broadcast Operations
- Fundamentals of IP Networking – Five Part Series
  - Part 1 - Introduction to IP Networking Standards & Physical Layer
  - Part 2 - Ethernet Switching Fundamentals and Implementation
  - Part 3 - IP Routing and Internetworking Fundamentals
  - Part 4 - Building a Segmented IP Network Focused Upon Performance & Security
  - Part 5 - Cybersecurity Fundamentals & Securing the Network
- HD Radio Diversity Delay Field Observations
- Importance of Proper Grounding
- SBE RF101: Broadcast Terrestrial Transmission Systems - Eight Part Series
  - Module 1 - Introduction to Radio Frequency (RF)
  - Module 2 - Transmission Lines
  - Module 3 - Towers, Antennas and Transmission Systems
  - Module 4 - Antenna Gain - Feed-line Loss
  - Module 5 - Modulation Fundamentals
  - Module 6 - AM, FM, TV RF Propagation
  - Module 7 - RF Test and Measurement
  - Module 8 - FCC Regulations
- IP Network Troubleshooting – Three Part Series
- Update on ATSC 3.0: What it will Mean to Broadcasters
- Managing Your Contract Engineering Business
- Leadership Development Series for Broadcast Engineers
  - Part 1 - The Function and Nature of Leadership
  - Part 2 - Communication
  - Part 3 - Motivation
- Recent Updates to the AC 70/7460-1L for Tower Lighting
- Springtime Maintenance to Keep You on the Air
- Streaming Radio: a Tutorial for Broadcasters
- Chief Operator Responsibilities - What Should I Be Doing?
- TV White Space Devices & Wireless Microphones
ATSC 3.0 at the NAB Show: The Road to Next Generation Television

ATSC 3.0, the next generation broadcast television system, has moved from development to deployment. The 2018 Winter Olympics in PyeongChang, just concluded, was broadcast in 4K video over ATSC 3.0 nationwide in South Korea. Here in the U.S., with approval by the FCC for use of ATSC 3.0, trial implementations are already underway and large-scale deployments are being planned. These efforts and more will be highlighted at the NAB Show.

In addition to displays from many companies in the broadcast equipment ecosystem gearing up for ATSC 3.0, the ATSC itself is coordinating key displays and demonstrations about ATSC 3.0 at the convention. The focus of the exhibits this year shifts from “what’s possible” with ATSC 3.0 to “what’s happening” with deployment.

In the Grand Lobby of the Las Vegas Convention Center, the “Road to ATSC 3.0” exhibit will showcase early deployments of the next-generation TV technology, including test markets that are developing in the U.S. and the South Korean networks that are already using ATSC 3.0 over the air.

In the Futures Park area of LVCC North Hall, ATSC Implementation Teams will showcase two key technologies:

• The ATSC Advanced Emergency Alert Implementation Team will demonstrate end-to-end flow of advanced emergency alerting content. In times of emergency, broadcasting is the most reliable means of disseminating information to the public. ATSC 3.0 supports advanced emergency alerting capabilities, including a wake-up function that enables a receiving device in “sleep” or “stand-by” mode to recognize the presence of an emergency alert and wake up to present the emergency message to the consumer. Broadcasters will have the ability to send not only the basic alert information (text and audio), but also associated rich media (such as evacuation and weather maps, video clips, information on shelters, and recovery after the event), which can be geographically targeted.

• The Personalization and Interactivity Implementation Team will demonstrate a practical implementation of the interactive content environment, showing a common program with core advertisements and alternate ads that can be seamlessly inserted into live broadcasts. The ATSC 3.0 interactive content environment is comprised of a standard W3C User Agent with known characteristics, a WebSocket interface for obtaining information from the receiver and controlling various receiver functionality, and an HTTP interface for accessing files delivered over broadcast. Interactive content can be delivered over broadband or broadcast, or both. Capabilities include targeted ad insertion, on-demand content, flexible use of display real estate (e.g., “screen mash-up” and picture-in-picture), tickers, graphics, etc.

The goals of ATSC 3.0 are to improve the television viewing experience with higher audio and video quality, improved and more flexible reception on both fixed and mobile devices, and more accessibility, personalization, and interactivity. The ATSC is also addressing changing consumer behavior and preferences, providing TV content on a wide variety of devices. Furthermore, the ATSC is working to add value to the broadcasting service platform, extending its reach and adding new business models—all without the restriction of backward compatibility with the legacy system.

ATSC 3.0 is being built to last. Technology advances rapidly and so methods to gracefully evolve have been built into the core of the system. An essential capability is to signal when a layer or components of a layer evolve—including the ability to signal minor version changes and updates, and major version changes and updates. The goal of this flexibility is to avoid disruptive technology transitions, and to enable graceful transitions from one technology to another.

The ATSC 3.0 standard enables system options for the broadcast industry that include high robustness, spectrally efficient operating points, flexible configuration of operating modes, a robust bootstrap process that includes signaling basic system parameters, channel bonding options for spectrum sharing, and many other capabilities.

In summary, ATSC 3.0 represents a significant step forward in capabilities for a broadcast television system. It provides a set of flexible capabilities for broadcasters that enable new services and new business cases. The concepts of flexibility, extensibility, and scalability are in the core of the system and will allow graceful evolution over a long period of time.

Work in ATSC is open to all with a direct and material interest in the work. If you are interested in participating in any of the ongoing work of the organization, please contact the author. All ATSC standards and recommended practices can be downloaded at no charge from the ATSC website at atsc.org.
Member Spotlight: Brian Wood

**Freinwald Receives NAB Honor**

The National Association of Broadcasters (NAB) will present the NAB Engineering Achievement Awards at the 2018 NAB Show. Among the recipients is SBE Fellow member Clay Freinwald of Freinwald Technical Services, Auburn, WA. He and his fellow recipients will be recognized at the We Are Broadcasters Celebration on April 10 during the convention.

Freinwald will receive the 2018 Service to Broadcast Engineering Achievement Award. Clay Freinwald began his broadcast engineering career in 1961 and has held various technical positions at numerous stations and station groups, including Tacoma News Tribune, Viacom and Entercom. He is a Fellow member of the Society of Broadcast Engineers (SBE). He served on the SBE Board of Directors and as vice president from 2005 to 2007.

He is a founding member of the Broadcast Warning Working Group, helping broadcasters and others understand and implement EAS technology. Freinwald has served as chairman of the Washington State EAS Committee for more than 20 years and chaired the SBE EAS Committee for a decade.

Established in 1959, the Engineering Achievement Award recipients are nominated by their peers for significant contributions to advancing the state of the art in broadcast engineering.

**NAB SHOW from p. 1**

moved to the North Hall lobby just off the Grand Lobby. The official booth number is LN5. We’re near Starbucks.

Check the complete event schedule on page 8 of this issue. We also have an NAB Show events page on our website. Another helpful resource to plan your convention time is our SBE Sustaining Member Online Resource Guide. Find it at the SBE website. With these resources, you'll find details for several committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

See you in Las Vegas!
Add the SBE Ennes Workshop to Your NAB Plans

By Tom Mikkelsen

Once again, the SBE is coordinating the Ennes Workshop program at the 2018 NAB Show on Saturday, April 7. This program will be our 23rd year since it first began in 1995. Please note due to various reasons this year is a two-part morning session only, running from 9 a.m. to 12 noon at the Las Vegas Convention Center. “Tomorrow’s Media Tool Box – Today” is the focus of the presentations. It is one thing to discuss and predict the unknown future of media, however we have knowledge and tools available today that will help you dovetail tomorrow’s media into your day-to-day projects and workflows.

IP is on everyone’s minds, not so much as a question anymore, but more about how to use it correctly and take advantage of its benefits. The first half of our morning session will focus on IP networking, implementation in the real world, and a presentation of how IP will be used in the new OTT/OTA systems.

Part two of our morning will shift the Media Toolbox focus to Social Media influencing viewership, an understanding of Microservices, and then concluding with implementation of cyber security in our station operations.

The schedule of presentations follows. We look forward to seeing our members and attendees participate in this always topical and timely discussion of issues in the broadcast industry on Saturday morning 9 a.m. to noon at the LVCC.

9:00 a.m. - 9:10 a.m. Welcome
Tom Mikkelsen, Senior Account Executive, National TeleConsultants; John L. Poray, CAE, Executive Director, Society of Broadcast Engineers

9:10 a.m. - 9:35 a.m. IP Networking for Real Time Video
Robert Welch, Technical Solutions Lead, Arista Networks
ST 2110 is all about professional media over managed IP networks. Welch reveals the considerations and design architectures for building, maintaining and operating the all IP real time workflow.

9:35 a.m. - 9:55 a.m. Is IP Real?
Stan Moote, CTO, IABM
The panel will hit the hard facing details about real time IP from the supplier through system integrator to end-users. Stan will prime the discussion with current industry questions. Attendees are welcome to also ask questions from business through to technical matters about real time IP in general including SMPTE ST-2110.

9:55 a.m. - 10:20 a.m. Next Gen is OTT/OTA
Fred Baumgartner, CPBE, CBNT, Director Next Generation TV Implementation, ONEMedia/Sinclair Broadcast
Next Gen is an overlay of the existing Internet. This IP-based overlay is the ultimate over-the-top (OTT) platform being broadcast over-the-air (OTA). Linear TV as we know it stops at the ATSC 3.0 air chain and from that point; it is the world of streaming video, ad-tech and the user experience (UX).

10:40 a.m. - 11:05 a.m. Social Media Drives Local TV Viewership
Emily Stone, Director of Multi-Platform Content, WTTG, Fox 5
Social media is considered as a necessary evil by many broadcasters, so the question comes down to how to not only accept it, but also how to capitalize on social interactions. The secret is about having a compelling social media strategy tied directly into station activities – but what does this really mean?

11:05 a.m. - 11:30 a.m. What are MicroServices and Why Should We Care?
Glodina Lostanlen, Chief Marketing Officer, Image Communications
Microservices are the software-based building blocks that have been instrumental to the success of Google, Amazon and essentially every other digital business that has gained commercial prominence in the past decade. It is critical to broadcast companies’ long-term success to understand and begin to adopt a microservices-based architecture.

11:30 a.m. - 12:00 p.m. Cyber Security Hygiene in IP Broadcast Systems
Denis Onoucha, Chief Information Security Officer, Arqiva
Everyone knows cyber security is a key element in the media and entertainment business. The question is how to implement this in a practical manner. Denis will explain how to deal with tangible items like change management, passwords, the reality of air gaps, maintenance and legacy equipment.
MARK YOUR CALENDAR

SBE Compensation Survey
online
April 1 - May 15, 2018
sbe.org

NAB Show
Las Vegas, NV
April 7 - 12, 2018
nabshow.com

Ennes Workshop
NAB Show
April 7, 2018
sbe.org/ennes

SBE Certification Exams
NAB Show
April 10, 2018
sbe.org/certification
Application deadline closed

SBE Membership Meeting
NAB Show
April 10, 2018
sbe.org

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

Joe Geerling, CPBE, CBNT, is director of engineering, Entercom St. Louis.
Al Kenyon is IPAWS customer support branch chief at FEMA in Washington, DC.
> Dave Dybas, CBRE, AMD, has launched AM-Detuning.com to serve telcom providers.
Kent Randles, CBRE, is director of operations for Entercom Portland, OR.

Kevin Ruppert, CPBE, CBNT, has been promoted to chief engineer of WISC-TV, Madison, WI.
David Bialik, CBT, is director of stream operations at Entercom, New York.
Jason Ornelas, CBRE, CRO, is market chief engineer of Bonneville Sacrament following the CBS/Entercom merger.

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