

THE Signal

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Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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Grow New Talent with Technical Professional Training

In December, the SBE announced the launch of the Technical Professional Training Program as part of an ongoing effort to help those new to broadcast and media engineering gain the knowledge and experience they need to fill available industry positions. As technology continues to advance, the need for qualified technical personnel increases. The SBE TPT was designed to make it easier not only for individuals to take advantage of several SBE programs, but for employers, station groups, state broadcaster associations and other groups to identify and train new talent for the future.

Broadcast engineers have been aware of and lamented the problem of an aging technical talent pool and a significant reduction in young talent entering the field. Broadcasting and media are technology-based, and the impetus to grow if not maintain a broad technical talent pool has not been taken up on the business side. The TPT is an ideal platform to help the larger effort address the problem.

For a single fee and one application form, the TPT participant receives many SBE member benefits.

- SBE membership including SBE MemberPlus

- Access to all Webinars by SBE through SBE MemberPlus
- A copy of the *SBE Broadcast Engineering Handbook*
- Enrollment in the SBE Mentor Program
- A copy of SBE CertPreview
- The application fee to take the SBE CBT certification exam

As an SBE member, you can help grow the talent pool by promoting the SBE Technical Professional Training Program to your employer and other broadcast organizations. The application fee for a young person entering the field is an investment in that person's future. While the cost of enrolling in the program might be rich for an individual, it can likely be easily justified and paid for by a station, station group or other broadcast organization.



see [TPT](#), p. 8

New SBE Certification: ATSC3 Specialist

The Society of Broadcast Engineers, in its continuing effort to advance its Program of Certification, has added a new Specialist Certification to its offerings: The ATSC3 Specialist. The new level of certification was developed by the Society of Broadcast Engineers Certification Committee, chaired by Ralph Hogan, CPBE, DRB, CBNE, with direct assistance from the Advanced Television Systems Commit-

In addition to various certification levels that require a certain time of professional career experience and cover a broad knowledge base, the SBE offers several Specialist Certifications, each one focusing on a specific understanding of a technology. Existing Specialist certifications include the 8-VSB Specialist (8-VSB), AM Directional Specialist (AMD), and the Digital Radio Broadcast Specialist (DRB). The first SBE Specialist Certification was offered in 2005. To apply for a specialist certification, an individual must currently hold certification on the Broadcast Engineer, Senior Broadcast Engineer, Professional Broadcast Engineer or Broadcast Networking Engineer Certification level.

The initial idea to create the SBE ATSC3 Specialist Certification began in 2018. The SBE Certification Committee worked closely with key ATSC members for input on suitable information to include in the exam. The Certification Committee also

worked with several SBE members with direct experience installing ATSC 3.0 systems. From this, a set of questions was created, beta tests were conducted, the questions were reviewed and adjusted and additional beta testing was held. The final question pool covers a mix of practi-

see [ATSC3](#), p. 15



tee. The first ATSC3 SBE Certification exams will be made available during the February 2021 SBE exam period. The application deadline to take those exams was Dec. 31, 2020. You can still apply to take the exam during another exam window or through private proctoring.

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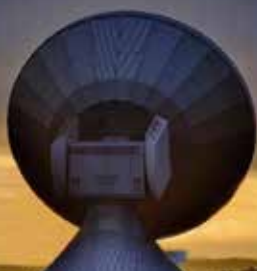
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PRESIDENT

Wayne M. Pecena, CPBE, 8-VSB, ATSC3, AMD, DRB, CBNE

Texas A&M University/KAMU | College Station, TX
wpecena@sbe.org

VICE PRESIDENT

Andrea Cummis, CBT, CTO

WLV-TV | Bethlehem, PA
acummis@sbe.org

SECRETARY

Kevin Trueblood, CBRE, CBNT

WGCU Public Media | Estero, FL
ktrueblood@sbe.org

TREASURER

Ted Hand, CPBE, 8-VSB, AMD, DRB

Cox Media Group | Charlotte, NC
thand@sbe.org

DIRECTORS

Steve Brown, CPBE, CBNT

Woodward Radio Group | Appleton, WI
sbrown@sbe.org

Roswell Clark, CPBE, CBNT

Cox Media Group | Clearwater, FL
rclark@sbe.org

Mark Fehlig, PE, CPBE, 8-VSB, ATSC3

Consulting Engineer | Walnut Creek, CA
mfehlig@sbe.org

Kirk Harnack, CBRE, CBNE

Telos Alliance | Nashville, TN
kharnack@sbe.org

Charles "Ched" Keiler, CPBE, 8-VSB, CBNE

HC2 Broadcasting/E Three Services | Ft. Lauderdale, FL
ckeiler@sbe.org

Thomas McGinley, CPBE, AMD, CBNT

McGinley Enterprises | Missoula, MT
tmcginley@sbe.org

Geary Morrill, CPBE, CBNE

Alpha Media | Saginaw, MI
gmorrill@sbe.org

Jason Ornellas, CBRE, CRO

Bonneville International | Sacramento, CA
jornellas@sbe.org

Chris Tarr, CSRE, AMD, DRB, CBNE

Magnum Media | Mukwonago, WI
ctarr@sbe.org

Shane Toven, CPBE, CBNT

Educational Media Foundation | Antelope, CA
stoven@sbe.org

Dan Whealy, CBTE

Quincy Media | Waterloo, IA
dwhealy@sbe.org

Fred Willard, CPBE, 8-VSB, CBNT

Univision | Washington, DC
fwillard@sbe.org

IMMEDIATE PAST PRESIDENT

James E. Leifer, CPBE

American Tower | Boston, MA
jleifer@sbe.org

SBE NATIONAL STAFF

James Ragsdale | Executive Director

jragdale@sbe.org

Megan E. Clappe | Certification Director

mclappe@sbe.org

Cathy Orosz | Education Director

corosz@sbe.org

Chriss Scherer, CPBE, CBNT

Member Communications Director

cscherer@sbe.org

Debbie Hennessey

Sustaining Membership Manager

dhenessey@sbe.org

Scott Jones | Database Manager

kjones@sbe.org

RJ Russell, CPBE, ATSC3

Frequency Coordination Manager

rjrussell@sbe.org

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

Candidates Sought for SBE Election

The annual election of officers and directors to the national SBE Board of Directors will take place this summer. The SBE Nominations Committee seeks qualified candidates who are voting members (Member, Senior, Fellow or the designated 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 as a member of the board and through service as a national committee chair or member. Members of the Board represent all members, not a specific region or chapter. It is suggested that candidates have previous experience as a leader in his or her local chapter, or other volunteer leadership experience, prior to running for the national SBE Board, but this is not required.

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

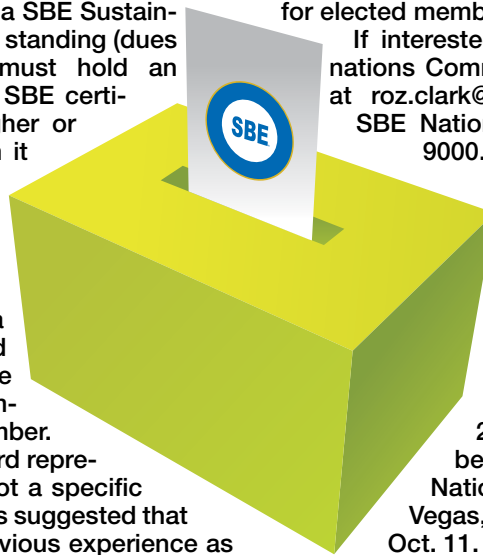
The national SBE board includes 12 di-

rectors, 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 2021 as will all four officer positions. The SBE By-laws limits the number of terms for elected members of the Board.

If interested, contact SBE Nominations Committee Chair Roz Clark at roz.clark@cmg.com or via the SBE National Office at 317-846-9000. A nomination slate will

be assembled by the committee by May 3. Other qualified members may be nominated by members no later than July 12.

The election runs from July 23 to Aug. 25. Those elected will be installed at the SBE National Meeting in Las Vegas, currently planned for Oct. 11.



Certification Question

Answer on page 6

Microwave and satellite RF systems typically use:

- A. open-wire line.
- B. resonant coax.
- C. air-dielectric coax.
- D. waveguide.



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LETTER FROM THE PRESIDENT

By Wayne Pecena, CPBE, 8-VSB, ATSC3, AMD, DRB, CBNE
SBE President
wpecena@sbe.org

2021: Now What?

Just a short time ago, I felt that 2020 would never end, and now I can't believe we are already through the first month of 2021 as I flip the page to February on Scott Fybush's Tower Site Calendar. The challenges that 2020 provided only reinforce the hope for better times ahead for the industry, our profession and each of us individually.

For the SBE, 2021 has brought about several new programs and benefits for our members. Last month, the Technical Professional Training program (TPT) was launched. The TPT provides a structured approach to train entry-level technology professionals in radio and TV broadcast engineering. The program provides each participant with a SBE MemberPlus membership, a copy of the *SBE Broadcast Engineering Handbook*, pairing with a mentor through the SBE Mentor Program and SBE Certified Broadcast Technologist (CBT) preparation through the CertPreview as a guide to prepare for the CBT certification exam. The program provides ease of a one-time application and \$475 fee payment whether by an individual, a group broadcasters or a state broadcast associations seeking to advance broadcast engineering education in their state.

The ATSC3 specialist certification has been launched with the first exams scheduled to be given this month. The exam was developed with extensive input from industry professionals and the ATSC, and seeks to cover a mix of technology standards and practical application. While

there is not a single text that might be used for preparation, there is a wealth of information available to aid in the exam preparation as well as references for the exam. Your SBE MemberPlus member-

"I like the dreams of the future better than the history of the past."
~ Thomas Jefferson

ship provides ATSC 3.0-specific webinars and presentations. As a reminder, SBE certification exams are open book except for the essay question included with some exams.

Webinar content continues to be provided with a goal of two new webinars each month. 2021



The essentials for starting 2021.

Last month featured Jeff Welton of Nautel, who provided an in-depth look at the MA3 all-digital AM mode of operation recently authorized by the FCC. Be sure to see Jeff's MA3 guest column in this issue of *The Signal*.

The first webinar of the eight-part IP Networking 2021 webinar series was also completed by yours truly. This webinar series is a refresh and remake of previous IP networking webinar content.

While the fundamentals of IP networking have not changed over time, the capabilities and implementation aspects have. The eight-part webinar series will cover network hardware perspectives, network topology models, networking standards, TCP/IP network protocols, LAN & WAN technologies, Ethernet switching, IP routing, troubleshooting and cybersecurity always with a focus upon practical implementation techniques. The 2021 IP Networking webinar series continues later this month and each month through August.

And last but certainly not least, the SBE began the year with new office leadership. Please welcome James "Jim" Rags-

dale who took the executive director role on January 1. Jim comes to the SBE from Anderson University where he held the leadership position of vice president of finance. Jim's professional background includes BA and MBA degrees and non-profit management experience in health care and ministry administration. Jim of course takes over for John Poray who retired at the end of 2020 after 28 years with the SBE as executive director. We continue to offer John congratulations and thanks for his service to the SBE.

Unfortunately, our industry continues to face challenges in 2021 as well as opportunities. The authorization of all-digital AM offers hope for survival for some AM broadcasters. Continuing technology advancements bring further information technology opportunities to the broadcast technical plant. Virtualization of the technical facility is now a reality, and I suggest will become the norm in the future. The NAB Radio Technology Committee's Next-Generation Radio Architecture working group has been leading this development with the involvement of SBE Board members Jason Ornellas and Roz Clark. As ATSC 3.0 roll-outs continue at a rapid pace in markets across the US, the ATSC3 specialist certification offering is timely. The future may be uncertain, but it is certain that technology will continue to evolve and the need for continuing professional development for the broadcast engineer.

With 2021 underway, I trust you are keeping up with your new year's resolutions. I would like to ask you adding one additional resolution to your list. Recruit one new member to the SBE this year. The collective efforts of each member soliciting a new member will insure the success of the SBE and ensure the ability to provide the needed services to further the broadcast engineer.

I personally want to know your suggestions, comments and concerns. Your feedback is essential to our collaborative effort as we all seek the "new normal" ahead. Please reach out to me at wpecena@sbe.org or by phone at 979-845-5662 for a more personal exchange. Always, a sincere thank you to those I have heard from. In the meantime, stay safe, stay healthy and keep learning!

Ennes Workshops in 2021

ENNES WORKSHOP

Ennes Workshops, through the Ennes Educational Foundation Trust, are a way to

bring affordable education to members locally.

To host an Ennes Workshop in 2021, contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

sbe.org/ennes_workshop



EDUCATION UPDATE

By Jeff Welton, CBRE
Regional Sales Manager, Central US, Nautel
jwelton@nautel.com

The Details of All-Digital AM

On Oct. 27, 2020, the FCC issued a Report and Order authorizing the use of MA3 mode, all digital HD Radio technology on the AM bands. As a manufacturer representative, I noticed two things happening almost immediately. First, a wave of requests regarding what would be required from an equipment and infrastructure perspective to accommodate an MA3 transition from analog (or from MA1, hybrid mode, in some cases).

Secondly, there was a plethora of posts on various social media platforms, decrying this as the death of AM radio and providing lots of (mostly erroneous) conjecture on what it would do to the band. This article is aimed at providing at least a glimpse of reality, both in what is needed and what it can (or can't) do.

First things first, this is *voluntary*. There is no mandated schedule to convert to digital on the AM band, as there was with television. Whether that is a good thing or not is outside the scope of this article, but the change, should a station choose to make it, is purely its own decision. As to audio quality, that is more a function of setup than the technology. MA3 has two modes, core and enhanced. In enhanced mode, there are 40kb/s available and the secondary and tertiary sidebands can provide stereo information. Repeated studies have shown that, with appropriate processing employing perceptual coding, at 48 kb/s very few people can detect any artifacts. In fact, stereo audio can be reproduced acceptably as low as 36 kb/s. Figure 1 is a graph of listener opinion vs bit-rate, as determined by Dr. Elynn Sheffield during Perceptual Tests of iBiquity's (now Xperi) HD Coder at Multiple Bit Rates.

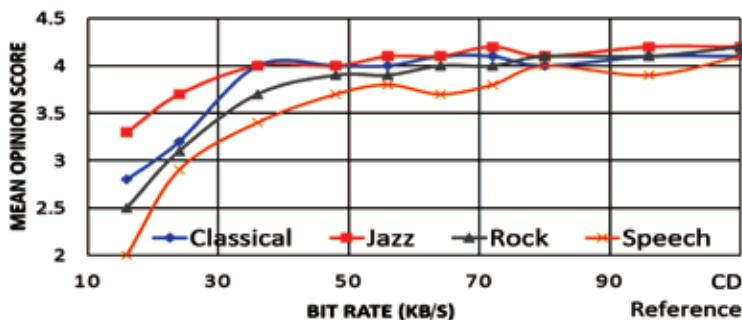


Figure 1. Listener opinion results at various bit-rates.

As can be seen, very little difference occurs in the opinion score above about 40kb/s, especially with music formats. Again, this is, of course, highly dependent on processing and audio setup, so care should be taken in these areas. However, harkening back to the AM stereo days, this is not anything surprising – or, for that matter, when solid state transmitters started to replace tube transmitters 30 years ago and folks started to hear every hum and hiss in the studio. It is something to be aware of, though – audio quality is very much subject to GIGO principles (garbage in = garbage out).

I have heard some of the best in our industry speak toward audio and overall sonic quality and there are as many opinions as there are people to have them. One common thread, though,

is that virtually every part of the system can have an impact on the sound of a station. This is even more critical in analog, where sideband reflected power, or asymmetrical loading of the transmitter by the antenna system, can have an impact on how things sound and how the station performs.

This is less an issue in MA3 mode, as the modulation is purely digital code, however, the same things that impact sound quality on an analog station can also impact RF performance in MA3 mode – how far the digital signal covers and how fast receivers lock onto the signal, for example. Running into a high reflected power can cause intermodulation between the digital carriers and have a direct impact on the ability of a receiver to decode the signal. Further back in the transmission chain, PDM frequency of the transmitter, as well as Crest Factor Reduction, can both influence the ability of a receiver to acquire the station. Dave Kolesar, of Hubbard Radio, Washington, DC, and Mike Raide of Xperi Corporation, presented a paper at the NAB BEIT Conference in 2020 on that topic. It is worth reading, if you have an interest in MA3.

As a result, it is critical to speak to your manufacturer about what you want to accomplish if considering a switch to MA3. Some transmitters may be able to handle core mode MA3 just fine, but not be able to operate in enhanced mode. Others may not be able to do either – another point to consider is something referenced in the FCC Report and Order, linked at the beginning of this article... power measurement, as a result of the Peak-to-Average Power Ratio, needs to change. In an all-digital world, rather than measuring carrier power and adding modulation, it's necessary to measure channel power of the modulated signal. That requires thermocouple ammeters or spectrum analyzers, so methodology does need to be considered.

On that topic, it is useful to take look at the bandwidth of the various modes of operation, as one of the rumors frequently heard involves adjacent channel interference. While it is still a possibility, relative to an MA1 hybrid (AM+HD) signal, the odds of interference are reduced significantly, at least in the primary and secondary contours of the listening area.

In an analog world, power is focused on the carrier frequency, with audio sidebands out to ± 10 kHz. While, as mentioned

see [MA3](#), p. 8

Education Almanac

Webinars by SBE

February 25: 2021 IP Networking, Part 2 - A Focus On Ethernet Switching
March 25: 2021 IP Networking, Part 3 - A Focus On Everything Layer 3

sbe.org/webinars

Have an idea for a webinar?

Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.

Leadership Development Course

June 8-10: Atlanta

sbe.org/ldc



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



CERTIFICATION UPDATE

By Megan Clappe
SBE Certification Director
mclappe@sbe.org

Help Yourself Stand Out to Employers

With so many layoffs and reorganizations in the broadcasting field you might be thinking about how you can stand out to current or future employers. One way is to become SBE certified. How do you become certified? Read on and find out.

The Society of Broadcast Engineers' Program of Certification began more than 45 years ago as a way to recognize and raise the professional status of broadcast engineers by providing a standard of professional competence. It has become recognized in the industry as the primary method of verifying the attainment of educational standards. All SBE Certifications are based on eligibility for the years of work in broadcasting.

Entry-Level Certifications

Certified Television Operator (CTO) and *Certified Radio Operator (CRO)* are targeted to the entry-level, non-technical pool of applicants filling board operator and master control positions in today's radio and television marketplace and include the opportunity to be tested and certified.

Certified Broadcast Technologist (CBT) consists of either AM/FM or TV questions. Content of these questions will consist of electronic fundamentals, FCC rules pertaining to operating tolerances and safety. Alternately, if you hold a valid FCC Amateur Extra Class license or a valid General Class license and have two continuous years or three out of the last five years work experience in broadcast engineering or a related technology, you can apply for the CBT certification without taking the exam.

Certified Broadcast Networking Technologist (CBNT) demonstrates a basic familiarity with networking hardware as utilized in business and audio/video applications in broadcast facilities. This exam will consist of questions on network topologies and layouts, common network protocols, wiring standards and practices, maintenance, troubleshooting and connectivity issues and challenges unique to broadcast-based networks.

5-Year Certifications

The following certifications require a minimum of years' experience of broadcast engineering or a related field experience. You may substitute the years of experience to supplement the year requirement (see acceptable substitutions below).

Certified Audio Engineer (CEA), *Certified Video Engineer (CEV)*, *Certified Broadcast Radio Engineer (CBRE)* and *Certified Broadcast Television Engineer (CBTE)* consist of questions regarding safety, problems, operation practices and theory.

Certified Broadcast Networking Engineer (CBNE) is for experienced broadcast professionals having significant experience in IP networks and associated storage and playout technologies employed in radio and television operations.

10-Year Certifications

Certified Senior Radio Engineer (CSRE) and *Certified Senior Television Engineer (CSTE)* consist of questions regarding safety, problems, operation practices and theory.

For the 5-year or 10-year certifications you may substitute the years of experience by holding a state registered professional engineer's license, a bachelor's degree, an associate's degree or years of related accredited education can be substituted, year for year (up to 4 years).

20-Year Certification

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

The application form must include three letters of reference. Two must be from a Certified Professional Broadcast Engineer, certified senior engineer or state-registered professional engineer. At least one other letter of reference must be from a person who has supervised your work. If the supervisor is certified at one of the above-mentioned levels, that reference will be counted as two letters. In addition, candidates must submit a resume and a statement showing why you believe your professional experience, educational background and training qualifies you for certification.

Your application will then go for review to your SBE local chapter certification chair and then to the National Certification Committee.

Specialist Certifications

Certified 8-VSB Specialist (8-VSB), *Certified AM Directional Specialist (AMD)*, *ATSC3 Specialist (ATSC3)* and *Certified Digital Radio Broadcast Specialist (DRB)* certifications were created to establish a benchmark of individual strengths. To apply for the Specialist exams you must first be certified on the 5-, 10- or 20-year level.

All SBE certifications are valid for a period of five years, at which time you will need to recertify by professional credits. These credits will be valid from the 5-year period of your certification. Credits can be obtained by continuing your education, working in the broadcasting field, attending seminars, SBE meetings, active membership in SBE or other national technical broadcasting societies.

Employer Notification

When you apply for certification, you have the option to request a letter to be sent to your employer from the SBE president. This letter states that you have obtained a level of SBE Certification. While the certification itself looks good on a resume, this letter "steps it up" to acknowledge your efforts for career improvement in the broadcast engineering field. (Certification applicants can request the employer letter when they complete the certification or recertification application.) The employer letter is only sent when the applicant passes an exam.

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



Answer from page 3

The answer is D

Waveguide is specifically designed to operate with minimum signal loss in the higher frequency ranges of radar, microwave and satellite, which all use frequencies above 2 GHz.

SBE Certification Achievements

CONGRATULATIONS

LIFE CERTIFICATION	<p>Certified Professional Broadcast Engineer (CPBE) Rusty Armitage, Knoxville, TN - Chapter 113 Frank Giardina, Hoover, AL - Chapter 68 Randall Kerbawy, Beckley, WV - Chapter 116 Fred Nahil, Port Saint Lucie, FL - Chapter 88 Thomas Weeden, Dodgeville, WI - Chapter 24</p>	<p>Certified Professional Broadcast Engineer (CPBE) AM Directional Specialist (AMD) Larry Wilkins, Prattville, AL - Chapter 118</p> <p>Certified Broadcast Networking Technologist (CBNT) Larry Wilkins, Prattville, AL - Chapter 118</p>	<p>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.</p>
CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)	<p>Christopher Tarr, Mukwonago, WI - Chapter 28</p> <p>Applicants must have 20 years of professional broadcast engineering or related technologies experience in radio and/or television. The candidate must be currently certified on the Certified Senior Broadcast Engineer level.</p>		
NOVEMBER EXAMS	<p>Certified Broadcast Radio Engineer (CBRE) Ryan Corwin, Rochester, MN - Chapter 17 Christopher Ranck, Salisbury, MD - Chapter 46</p> <p>Certified Broadcast Television Engineer (CBTE) Samuel Jones, Euless, TX - Chapter 67</p> <p>Certified Audio Engineer (CEA) Cory Finch, Rindge, NH - Chapter 110 Cleve Massey, Weatherford, TX - Chapter 67</p>	<p>Certified Broadcast Networking Engineer (CBNE) Ryan Corwin, Rochester, MN - Chapter 17 Jose Herrera, Springfield Gardens, NY - Chapter 15 John Huntley, Rockford, IL - Chapter 96</p> <p>AM Directional Specialist (AMD) John Huntley, Rockford, IL - Chapter 96</p>	<p>Certified Broadcast Networking Technologist (CBNT) Elizabeth Delaquess, Lincoln, NE - Chapter 74 John Skiba, Chicago, IL - Chapter 26 Corey Toby, Tallahassee, FL - Chapter 106</p> <p>Certified Radio Operator (CRO) Christopher Alloway, Anchorage, AK - Chapter 89 Dan Mariska, Minneapolis, MN - Chapter 17</p> <p>Certified Television Operator (CTO) Dan Mariska, Minneapolis, MN - Chapter 17</p>
CERTIFIED BY LICENSE	<p>Certified Broadcast Technologist (CBT) Wendy Bolling, FPO, AE</p>	<p>Armen Karlozian, Clovis, CA - Chapter 66 Alan Schmelz, Armuchee, GA - Chapter 5</p>	<p>Marc Tarplee, Rock Hill, SC - Chapter 45</p>
CERTIFIED RADIO OPERATOR (CRO)	<p>Sean Ashcraft, Muncie, IN</p>		
CERTIFIED TELEVISION OPERATOR (CTO)	<p>Tyler Garner, Roanoke, VA</p>		
RECERTIFICATION Applicants completed the recertification process either by re-examination, point verification through the local chapters and national Certification Committee approval and/or met the service requirement.	<p>Certified Professional Broadcast Engineer (CPBE) Paul Kempter, Palm Harbor, FL - Chapter 39 Kenneth Scott, Seattle, WA - Chapter 16</p> <p>Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB) AM Directional Specialist (AMD) Digital Radio Broadcast Specialist (DRB) Wayne Pecena, College Station, TX - Chapter 99</p> <p>Certified Senior Television Engineer (CSTE) Timothy Williams, Kearney, NE - Chapter 87</p> <p>Certified Broadcast Networking Engineer (CBNE) Vincent Moses Edralin, Sr., Gardena, CA - Chapter 47</p> <p>Wayne Pecena, College Station, TX - Chapter 99 Michael Streby, Wausau, WI Joshua Wood, Los Angeles, CA - Chapter 47</p> <p>Certified Broadcast Radio Engineer (CBRE) William Epperson, Chippewa Lake, OH - Chapter 70</p>	<p>Certified Broadcast Television Engineer (CBTE) David Baker, Addison, IL - Chapter 26 John Langer, Manhattan, KS - Chapter 3 Todd Nunes, Los Angeles, CA - Chapter 47 Christopher Wilde, Washington, DC - Chapter 37</p> <p>Certified Broadcast Television Engineer (CBTE) 8-VSB Specialist (8-VSB) Michael Streby, Wausau, WI</p> <p>Certified Audio Engineer (CEA) Gustavo Contreras, Key Biscayne, FL - Chapter 53</p> <p>Certified Broadcast Networking Technologist (CBNT) William Epperson, Chippewa Lake, OH - Chapter 70 John Pooley, Manchester, NH - Chapter 11 Timothy Williams, Kearney, NE - Chapter 87</p>	<p>Certified Broadcast Technologist (CBT) Jerron Collins, Chesapeake Beach, MD Dale Ladner, Bridgton, ME James Markus, Stamford, CT - Chapter 14 Brian Olinger, Haymarket, VA - Chapter 37 John Pooley, Manchester, NH - Chapter 11 James Sherred, Atkinson, NC - Chapter 93 Kenneth Hittson, Fort Smith, AR</p> <p>Certified Television Operator (CTO) Michael Acosta, Los Angeles, CA Tom Dailey, Denver, CO Shawn Morgan, Moreno Valley, CA Megan Shaw, Bozeman, MD Lawrence Smith, Bozeman, MT Adam Stone, Woburn, MA William Thompson, Raleigh, NC Timothy Weeks, Fort Mill, SC</p> <p>Certified Radio Operator (CRO) Lisa Sovulewski, San Corenzo, CA</p>



Got your SBE Certification pin?
sbe.org/pins

Increase the Power: Recruit a New SBE Member

You're an SBE member, so you already know the value of being part of the association for broadcast and multimedia technology professionals. Beginning March 1, you can help your colleagues and associates to enjoy the benefits of membership by recruiting them to join the SBE during the annual SBE Membership Drive. The theme this year is "Add Power to Your Profession."

When you recruit a new member, you might receive some personal benefit in addition to helping the society grow. Talk to your colleagues who are not familiar with the SBE, but could benefit from membership. While anyone can join the SBE at any time during the year, there's an added benefit to joining during the SBE Membership Drive, held from March 1 to May 31.

If you recruit a new member during the Drive and your name is on the sponsor's line of the membership application, your name

will be entered into the member drive drawing for prizes donated from our sustaining members. If you recruit a new sustaining member, you'll earn five entries into the prize drawing. Prizes include logo items, books and more from the SBE and many sustaining members. The grand prize is airfare and two nights' hotel to attend the SBE National Meeting held during the 2021 NAB Show in Las Vegas, Oct. 11, 2021.

As a recruiter, for every new member you sponsor you will receive \$5 off your 2022 dues (up to \$25). Need more incentive? If you recruit three or more new members, your 2022 membership will be upgraded to SBE MemberPlus. Start recruiting now, and make sure your recruits list your name on their SBE membership application so you get the credit.

Current prize providers include Comark, Dielectric, LBA, Orban, Telos Alliance and the SBE.





Want to be a mentor or a mentee?

The SBE Mentor Program pairs an experienced broadcast engineer with someone who is a newer broadcast or multi-media technology professional. The SBE Mentor Program provides a means for SBE members to share knowledge and experience.

Want to know more or participate?

sbe.org/mentor

TPT from p. 1

As has been noted, the SBE TPT is designed to be deployable by group broadcasters, independent broadcasters and state associations.

Information about the TPT is on the SBE website (sbe.org/tpt) including a one-page information sheet that can be shared.

The SBE has provided the tools to groom new talent. Help the SBE apply those tools for our industry.

MA3 from p. 5

earlier, antenna bandwidth and symmetry can have an impact, this is mostly negated by the fact that channel power decreases rapidly as you move away from carrier and because most radios simply do not have sufficient fidelity to hear out to 10 kHz. Indeed, average roll off is closer to 3.5 kHz. Thus, issues with poorly tuned or maintained, or narrowband, antenna systems, while still present, are much less noticeable.

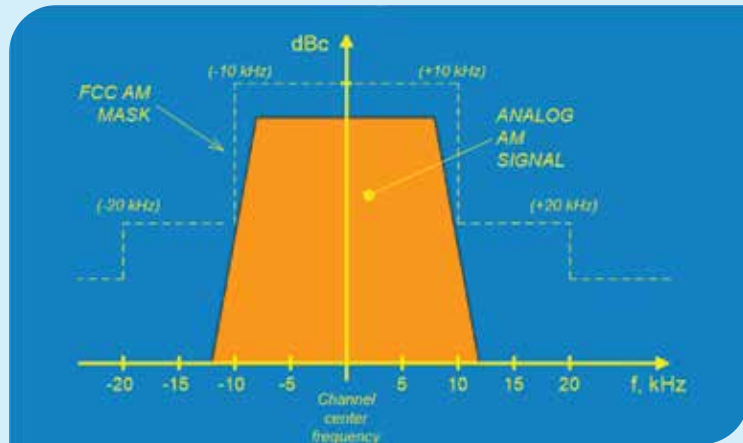


Figure 2. An analog AM broadcast signal and the spectrum mask.

In a hybrid MA1 situation, where the digital carriers are on the outer edges of the analog carriers, these factors become much more apparent, having a very direct impact on range and the ability of receivers to acquire the signal. Depending on inter-modulation between the digital and analog signals, both self-interference and second-adjacent interference can also result.

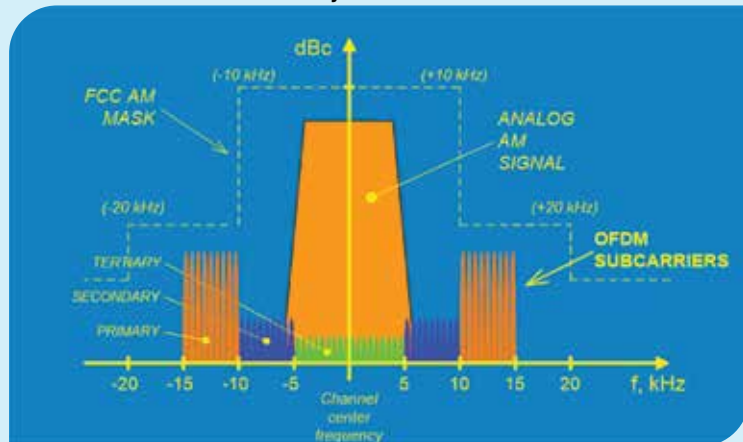


Figure 3. The hybrid MA1 mode of operation.

Even with the digital carriers a nominal 20dB down from the analog carrier (or 1% of relative power), this provided the platform for several interference issues on the second adjacents, especially with the larger stations.

In an MA3 world, even with enhanced mode enabled and the secondary and tertiary carriers turned on, that issue becomes much less a potential problem.

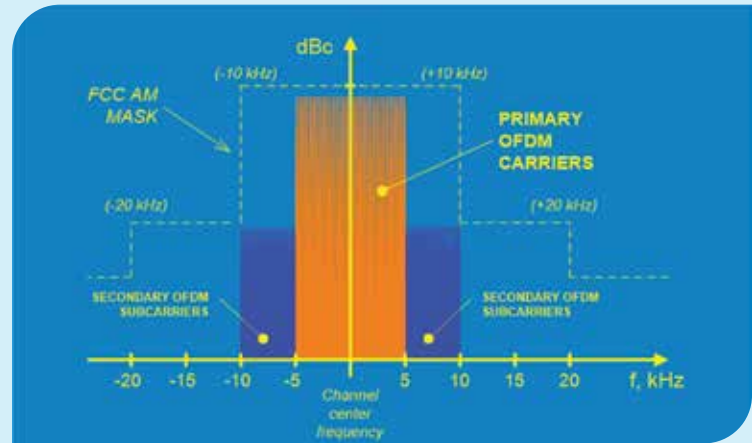


Figure 4. The all-digital MA3 operating mode.

Here, the primary carriers only go out to 5 kHz from the center frequency and secondary/tertiary carriers, if enabled, only go to 10 kHz and are at -20 dBc relative to the center frequency. Beyond 10 kHz, there is nothing. So, while first adjacent interference, especially in the far field, could potentially still be an issue, second adjacent interference should not be.

On that note, I will wrap this up with a short summary – MA3 is approved, it is voluntary only, there are things to consider and you should consult your manufacturer, as well as have some serious discussions on what you wish to accomplish. Core mode offers better audio quality than analog, but with the risk of artifacts, even with perceptual coding. Enhanced mode reduces artifacts with higher bitrates and adds data (artist, song title, album art/station logo, for example), but may require additional considerations for equipment. The processing and entire transmission system will need to be looked at to ensure best possible performance. This technology can work, and work quite well, but it is very much a function of the whole system.

Thanks are due to David Kolesar at Hubbard Radio in DC, for his work testing and learning the limits of an MA3 implementation, and for sharing his experiences. Thanks also to Mike Raide at Xperi and to David Layer at the NAB, for their work with the early MA3 testing, in 2014 and 2015.

Stay Connected: Renew Your SBE Membership Now!

Working through the pandemic the past year has made communication more of a challenge and even harder to develop professional relationships. Maintaining your membership can help you do both. With an ever-expanding array of educational benefits available to members, SBE membership is of greater value to the broadcast and media technical professional than ever before. Annual membership renewal for Member, Associate, Senior, Student and most Fellow members of the SBE is underway. Renewal letters and membership cards are in the mail to you. The due date for membership renewal is April 1.

Membership dues for the SBE MemberPlus option remains at \$175 and includes all of the benefits of traditional membership, plus access to all archived SBE webinars and any new webinars the SBE presents during the membership year (through March 31, 2022), at no extra charge. That's more than 90 technical broadcast and media webinars available to you 24/7/365.

Traditional membership dues for Member, Senior, Associate and Fellow members remain at \$85. Student membership stays at \$25. SBE Student Members may choose to take the SBE Student MemberPlus option for \$90 when they join or renew. Traditional SBE membership provides discounted education, certification programs and member services as well as opportunities for member interaction in local chapters and with members across the United States and in 18 other countries. The SBE network of 114 SBE chapters provides opportunities for education, local SBE certification exams and professional

and social interaction with local technical media professionals. Traditional membership also affords members the opportunity to take part in the SBE Mentor Program, and access to the annual SBE Compensation Survey results, SBE social media and the SBE WEBxtra monthly online meeting.

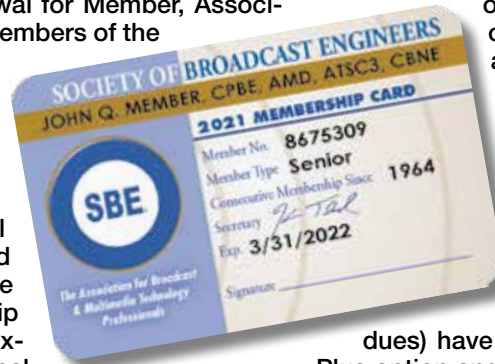
The fastest way to renew your membership is online at sbe.org. Click on "Renew Membership" at the top of the home page. The online system is secure and accepts Visa, MasterCard and American Express. Your membership can also be renewed through the mail, using the renewal form and return envelope mailed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

While the SBE By-laws allow for a grace period if dues are not paid by April 1, SBE MemberPlus benefits expire April 1 if not renewed. Membership will revert to traditional membership during the grace period.

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

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

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



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LEGAL PERSPECTIVE

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

2020 Year-End Update: Where Do We Stand?

As I write this at the end of the abysmal 2020, what is the status of regulatory issues we have been watching? Here are a few updates of interest to broadcast engineers.

The economic stimulus package passed in December by Congress and ultimately signed by the President includes, among a myriad of funding initiatives, the repeal of Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012. The 2012 legislation had required that, within nine years of enactment (i.e., by Feb. 22, 2021), the FCC must take certain steps to begin an auction and start to relocate T-Band land mobile licensees out of TV channels 14-20. The new stimulus legislation allows the FCC to terminate the open docket on the T-Band auction, which everyone viewed as a failure in the making. Public safety and Business and Industrial LMR licensees can now remain in the band in eleven markets.

However, in the process of “repacking” television stations after the 608-698 MHz auction, the FCC assigned Channel 14 (470-476 MHz) to TV stations in various markets around the country. The potential for interference from Channel 14 television broadcast operation to LMR stations operating below 470 MHz has long been recognized, and FCC rules require TV permittees on Channel 14 to “submit evidence that no interference is being caused [to LMR systems] before it will be permitted to transmit programming...” The rules state that the TV permittee “must reduce its emissions within the land mobile channel... that is receiving interference caused by the TV emission producing a vertically polarized signal and field strength in excess of 17 dBu at the land mobile receive site.” Interference sufficient to prevent an LMR system from being used has been detected as far down as 461 MHz in one instance in which the broadcast and LMR sites were separated by only one mile. Broadcaster-funded filtering at either or both of the broadcast transmitter and LMR receivers has been shown to alleviate adjacent band interference problems but not, of course, co-channel interference. Locating alternative spectrum for either the TV or LMR systems is problematic.

There are also ongoing interference cases from TV Channel 16 stations, which is assigned for public safety-only use in Los Angeles and New York, and for general use in Dallas. The Land Mobile Communications Council (LMCC) has recently established a task force to pursue a number of harmful interference resolution approaches. LMCC filed two letters with the FCC that listed specific interference incidences across the country and offered varied resolution suggestions. These include moving the TV stations (again) to different channels; allowing affected private LMR stations access to available UHF remote pickup broadcast channels, and allowing DTV stations to operate at reduced power and still being entitled to “must carry” status on local cable systems. The SBE is actively participating in the LMCC task force work, so as to offer technical solutions and at the same time avoid unreasonable restrictions on broadcast stations and on broadcast auxiliary spectrum.

Moving Up the Band

With respect to the 2 GHz band, the SBE, together with the NAB and the DOD are still engaged in the accommodation at 2025-2110 MHz of a variety of important military facilities that

were displaced from the 1.7-1.8 GHz AWS-3 bands, when the AWS-3 band was auctioned several years ago. DOD applications being accommodated in the 2 GHz band so far include tactical radio relay operations at military facilities (and soon, National Guard facilities in all states as well). Also under consideration for 2 GHz are displaced DOD high-altitude video downlinks covering wide terrestrial geographic areas (an especially difficult effort due to the large footprint at ground level); small, hand-launched aeronautical unmanned aircraft video downlinks, and Tactical Targeting Network Technology (TTNT), which is a secure, robust IP-based waveform that permits ad hoc mesh networks at a battle site. It shares secure voice, video and data across a dynamic battlespace. We continue to enjoy great cooperation from the DOD folks, and they respect their obligation to not constrain broadcast operations.

If only the Earth Exploration Satellite Service was as reasonable. 450 MHz, 2 GHz and 7 GHz Earth Exploration Satellite Service (EESS) uplink applications are being filed at a great rate and granted by the International Bureau at the FCC, without reference to the interference potential to co-channel RPU or TV STLs, ICRs, TV translator relay or TV pickups, and without reference to terrain shielding, duty cycle of the uplink or the expected total number of EESS low Earth orbit satellites in the constellation. On Nov. 12, 2020, the SBE wrote to the FCC’s International Bureau, complaining about the process for EESS satellite uplink application processing in the 2 GHz band. The IB at the FCC has acknowledged our concern and we expect a meeting on the subject with FCC staff early in 2021 about the problem. In the SBE’s view there is fundamental incompatibility between non-government EESS or other satellite uplinks in the 2 GHz band and ongoing BAS, CARS, LTTS and DOD uses of the band, each of which has priority over any EESS operation premised on Footnotes US346 and US347 to the Table of Allocations.

The FCC’s decision to permit unlicensed 5G Wi-Fi devices and other unlicensed broadband devices in the 1200 MHz of spectrum in the 5.925-7.125 GHz (6 GHz) band is still on appeal to the United States Court of Appeals. Of most concern to broadcasters: relatively high-powered unlicensed devices operating in the BAS 6425-6525 MHz and 6875-7125 MHz bands, without any automatic frequency control circuitry required.

The FCC said that the risk of harmful interference to outdoor electronic news gathering receivers from indoor unlicensed devices is “negligible” and that “[n]ews truck operators will be able to improve their link budgets by slightly adjusting the positions of their trucks or shooting locations.” A large number of parties disagreed, and appealed this FCC decision, which the FCC is defending. A decision is expected in early to mid-2021.

Finally, the FCC on Dec. 10 authorized the ATSC 3.0 television standard and updated the Commission’s rules regarding ancillary and supplementary services. The FCC clarified the basis on which to calculate ancillary and supplementary fees; retained the existing standard of derogation of broadcast service; reaffirmed the freedom of noncommercial educational television stations (NCEs) to provide ancillary and supplementary services; and declined to adjust the fee imposed on ancillary and supplementary services, subject to revisiting the issue later.

Stay safe!



FOCUS ON SBE

By James Ragsdale
SBE Executive Director
jragsdale@sbe.org

Meet the New Executive Director

I am excited to join the Society of Broadcast Engineers in the role of Executive Director. Retired Executive Director John Poray and the board of directors have done a great job of positioning the SBE to serve the future needs of broadcast engineers. Through my experience in leadership within technology industries, non-profit organizations, and membership-based organizations, I developed a skillset that I think will serve this organization and its members well. Since I am not a broadcast engineer, I bring a different perspective to the organization that I think will be helpful. Research of the media broadcasting industry shows many challenges and exciting opportunities in the field. My strong interest in developing people professionally and personally fits well with the mission of this organization. This interest in development extends to staff, chapter leaders, volunteers, and members.

Since I am new to your organization, I will share some of my personal story. I was born in Zambia, East Africa. My family returned to the U.S. when I was beginning grade school, so I had limited experience living outside of the country. However, this experience has given me an appreciation for diversity and curiosity for learning.

After graduating from Anderson University (Anderson, IN), I began my career in banking where I worked for nine years. While in banking, I completed my MBA at Indiana University. Upon completion of my MBA, I was asked to assist in forming and staffing a private primary care medical practice for four physicians, which we developed into a hospital-owned group practice over the next eight years.

I have had the opportunity to shape organizations through management and financial oversight in banking, healthcare technology, non-profit, and higher education.

My experience in the non-profit industry included five years' experience at a religious denomination headquarters and 11 years' experience at Ascension Technologies, a nationwide healthcare technology company. While at Ascension Technologies, I worked collaboratively with health system senior leadership supporting major technology project implementations. In all my experiences, process improvement has been an energizing part of my work. I especially enjoyed analyzing and improving work processes.

My most recent role, as VP for finance in higher education included serving on the President's Cabinet and overseeing the business office, human resources, physical plant, food services, housekeeping, mailing services, campus health clinic, and security department.

My experience at the religious denomination headquarters taught me that leading a membership-based organization requires a different approach than other non-profit organizations. The members are also consumers and their needs must be constantly evaluated. The resources of the organization must be optimally deployed to sustain the long-term health of the organization and provide valued benefits to its members.

My experience in higher education taught me much about how essential it is to develop a strong strategic plan and constantly measure performance against that plan. Leadership must have the courage to evaluate the results and adjust the plan based on new information and developments.

Career Strength

One of the strengths I can bring to the SBE is a desire to learn about various fields of study, as evidenced by my previous positions in banking, medical management and finance, non-profit leadership, and higher education. As I began researching the needs of the broadcasting industry, I became increasingly excited about the opportunities for potential growth in this field. I am excited to work with the board, staff, and members to refine and execute the strategic plan, which I believe positions us well for the future in a time of great transition for broadcasting.

In my short time studying and assessing the SBE, I have observed two singular strengths. First, it has developed financial strength over its history. It has maintained a lean organizational structure with a small national staff. This staff possesses a diverse skillset and works collaboratively together. The organization has been very disciplined to live within its financial resources, focusing on meeting the needs of its members.

Second, this organization's members are committed to developing each other's technical skills. This has led to an extraordinary breadth of educational opportunities through webinars, with content contributed by its members. A member-led committee is evaluating the ongoing educational needs and addressing them through the development of a growing library of online materials.

In addition, the Certification Program developed by our member-led committee continue to address the developing technical needs of the industry. This gives members the opportunity to demonstrate their value to employers who are looking for an edge in a demanding industry. If you are a member who has not utilized these career-building services, I encourage you to browse the new sbe.org website, and look for opportunities to invest in your peers through participation in your local chapter and the national organization.

I am excited to get to know each of you. I hope to meet you at a chapter meeting, the leadership development course, or one of the broadcasting industry national meetings. The success of the SBE will be measured by the success of each of you.

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ENGINEERING PERSPECTIVE

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

Chapters Still Meet Successfully

Every aspect of life has been affected by the pandemic, and chapter operations are not immune. While in-person gatherings are restricted if not completely prohibited, chapters can still meet virtually.

Some chapters have seen an increase in meeting attendance using the available online tools. I spoke to several chapter leaders about what has worked for them to maintain their chapter bonds. It should

also be noted: Virtual chapter meetings still count toward a chapter earning a rebate, but the meeting reports still need to be filed with the National Office.

David Ratener, CPBE, CBNT

Chapter 16 Seattle

Chapter 16 Seattle has held virtual meetings since the lockdown started in May 2020. Our chapter, like many, have jumped into using Zoom to meet, and purchased a Zoom subscription to allow more participants. We hold our board meeting at 6:30 p.m. on the 2nd Monday of the month. The board meeting covers the chapter business, which includes an update on the monthly presentation selected by chapter Vice Chair Alex Brewster.

We hold our chapter meeting the following Wednesday, conducting the chapter business first and then going into the presentation, again, all via Zoom. We have had up to 30 people join. Of course attendance depends on the presentation topic.

On Dec. 12, the chapter held its Christmas party. There were 14 in attendance, and it seemed to work well. Near the end of the meeting, we had two Santa Clauses to award gifts. The Santas' elf picked names from a hat, and the Santas would call the name of the winner. It was dueling Santas!

The gifts were held by Treasurer Michael Brooks at his station, KING FM. The winners went there to retrieve their prizes. I won the *SBE Broadcast Engineering Handbook*, courtesy of Nautel. The grand prize was a weekend at a BnB owned by Marty Hatfield. All in all the members were very happy with the meeting, probably because they all won something.

Thanks to the Chapter 16 board members for spending all the time they did on working out the details on putting the Christmas party together. They did a great job.

While the traditional broadcast companies are willing to accommodate us with Zoom meetings – and I thank them all for it – the chapter is discussing non-broadcast topics for presentations.

Tom McNichol, CBTE

Chapter 22 Central NY

For many years, Chapters 22 (Central NY), 57 (Rochester, NY) and 58 (Northeast NY) have arranged for presenters to meet with our chapters over a three-day period each month. Manufacturers were excited to be able to get this kind of exposure. This insured quality presentations at our meetings, which in turn helps to increase meeting attendance.

In early 2020, I was contacted by chairs from Chapters 1 Binghamton and 2 Northeastern PA asking if they could be part of the presenter tour in the same week each month. All agreed it would provide even more benefit to manufacturers, and we would be able to attract good presenters. When businesses began shutting down per state restrictions, we had to cancel the March meeting. The Chapter 22 officers decided to use Zoom for future meetings during the pandemic. Chapters 1, 2, 57 and 58 were on board to join us.

We have found that approximately 1/3 of those who register do not actually attend, usually due to work or personal commitments that come up. Our meetings start at 7 p.m. with short chapter business meetings. Our presentation starts at approximately 7:20 p.m.

We arranged for Thad Fink from Unimar to present at our May meeting to discuss "FAA Advisory for Infrared." While the original Unimar meeting was going to include a factory tour, Thad was still able to accomplish that by providing a virtual tour after his presentation. 52 SBE members registered for that meeting.

We have still held quality virtual meetings including presentations from several major manufacturers. Interest from manufacturers to present remains high for 2021. While we are anxious to be able to meet in person again, the Zoom model may be something to consider integrating in the future. The presenters at in-person meetings always provide a meal for attendees, which helps with attendance, but Zoom meetings make it easier for members to attend for many reasons, such as bad weather or just the time to travel to and from a meeting site.

We plan to meet virtually for a good part of 2021 and maybe longer. By word of mouth, members from other chapters from around the country have participated in our meetings. If you would like to be on our mailing list for meeting announcements, contact me at tom.mcnicholl@sbe.org.

Conrad Trautmann, CPBE

Chapter 15 New York City

New York Chapter 15 didn't meet at all in the first eight months of 2020. Our first attempt at getting the chapter back together was a Zoom call in September held at noon with 16 attendees. Our October meeting had 12 attendees, but attracted some out-of-town members as far away as Minnesota and Alaska.

In November, we started to see some momentum building with 26 attendees. We made a more concerted effort to promote the meeting, using Facebook, Twitter and the chapter email reflector. We discovered that only about 50 of our 150 members subscribed to the reflector, so we pushed an email to the other 100 members to let them know we were active again.

We booked meetings through December, but we'd only get four in for the year. SBE National's rules require five meetings to qualify for the chapter rebate. Not wanting to forfeit that, we squeezed in a social meeting for members on Dec. 2, and this one was scheduled in the evening at 6 p.m. Much to our surprise, it brought out many members (25 this time) that hadn't been able to attend during the day. Chapter 15 Vice Chair Jeff Schick acted as the emcee and put together an agenda of activities that included an online engineering quiz show using kahoot.it, a story telling session for members to share their best broadcast stories and then a raffle of Amazon gift cards at the end. This substituted for our annual social dinner in NYC and was a smashing success.

We're hoping to be able to meet in person again sometime in 2021, but for now, this format is working. We like hosting guest engineers from other chapters and recording the Zoom event makes the meetings available to those who missed the meeting because of a conflict.



- AC Video Solutions • 2014**
Andrea Cummins 201-303-1303
Consulting, Systems Design/Integration
- American Tower Corporation • 2000**
Peter A. Starke 781-926-4772
Development/Construction/Management
- Audemat-Worldcast Systems Inc. • 2000**
Christophe Poulain 305-249-3110
Control Manufacturer
- Belden Electronic Division • 1991**
Rose Lockwood 203-500-4743
Fiber and Copper Cabling Infrastructure
- Blackmagic Design • 2012**
Terry Frechette 408-954-0500
Production Switchers, Digital Cameras,
Routers, Video Editing and Monitoring, Color
Correction, Video Converters
- Bracke Manufacturing LLC • 2012**
Patra Largent 949-756-1600
RF & Microwave Components
- Broadcast Depot • 2018**
John Lackness 305-599-3100
TV, Satellite, Radio, IP
- Broadcast Devices, Inc. • 2015**
Robert Tarsio 914-737-5032
Audio/RF Support Products
- Broadcast Electronics Inc. • 1978**
Perry Priestly 217-224-9600
Radio Equipment Manufacturer
- Broadcast Software International • 2016**
Marie Summers 888-274-8721
Radio Automation, Audio Logging
- Broadcast Supply Worldwide • 1986**
Shannon Nichols 800-426-8434
Audio Broadcast Equipment Supplier
- Broadcasters General Store • 2004**
Buck Waters 352-622-7700
Broadcast Audio Video Distributor
- Burk Technology • 2019**
Jim Alinwick 978-486-0086 x7404
Transmitter Facility Control Systems
- Calrec Audio • 2016**
Helen Carr 703-307-1654
Audio Mixing Equipment
- Complex • 2017**
Daniel Coscarella 800-445-7568 x7409
Fiber Optic Cable Assembler
- Canon USA Inc. • 1985**
Larry Thorpe 201-807-3300,
800-321-4388
Broadcast Lenses & Transmission Equipment
- Cavell, Mertz & Associates Inc. • 2011**
Gary Cavell 703-392-9090
Consulting Services
- Comrex Corporation • 1997**
Chris Crump 978-784-1776
Audio & Video Codecs & Telephone Interfaces
- Continental Electronics • 1976**
Dale Dalesio 412-979-3253
TV and Radio Transmitters
- CueScript • 2014**
Michael Accardi 203-763-4030
Teleprompting Software & Hardware
- Davicom, Division of Comlab, Inc. • 2014**
Louis-Charles Cuierrier 418-682-3380 x512
Remote Site Monitoring and Control Systems
- 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 Holdenrip 704-927-6085
IP Microwave STL
- Drake Lighting • 2015**
Dave Sheppard 270-804-7383
FAA Obstruction Lighting - Medium and High
Intensity
- DTS Inc./HD Radio Technology • 2014**
George Cernat 443-539-4334
HD Radio Technology
- du Treil, Lundin & Rackley, Inc. • 1985**
Jeff Reynolds 941-329-6000
Consulting Engineers
- The Durst Org. - 4 Times Square • 2004**
212-997-5508
TV/FM/Microwave Tower Site
- DVE0 - Division of Computer Modules Inc. • 2011**
Laszlo Zoltan 858-613-1818
Everything About Transport Streams
- Econco • 1980**
Debbie Storz 800-532-6626,
530-662-7553
New & Rebuilt Transmitting Tubes
- ENCO Systems Inc. • 2003**
Samantha Bortz 248-827-4440
Playout and Automation Solutions
- ERI - Electronics Research • 1990**
Zachary Bailey 812-925-6000
Broadcast Antennas, Transmission Line,
Filters/Combiners, Towers and Services
- Floral Systems • 2008**
Shawn Maynard 877-774-1058
Television Broadcast Automation
- Fujifilm/Fujinon • 1986**
Gordon Tubbs 973-686-2769
Broadcast & Cine Lens Products
- Heartland Video Systems, Inc. • 2011**
Dennis Klas 920-893-4204
Systems Integrator
- Highlights, Inc. • 2016**
Timothy Nash 352-564-8830
Obstruction Lighting Maintenance
- Hitachi Kokusai Electric Comark • 2013**
Jack McAnulty 413-998-1523
Manufacturer Broadcasting Transmission
Equipment
- iHeartMedia, Inc. • 2019**
Troy Langham 918-664-4581
Radio Group Owner
- Indiana Broadcasters Association • 2019**
Dave Arland 317-701-0084
Indiana Association for Radio & TV
Broadcasters
- Inovonics Inc. • 2012**
Gary Luhman 831-458-0552
Radio Broadcast Equipment
- JAMPRO Antennas Inc. • 2011**
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/T2, ISDB-T, DAB
- JVC Professional Video • 2014**
Edgar Shane 973-317-5000
Professional Video Products, Camcorders,
Display Monitors, Recording Decks
- Kathrein USA Inc. • 1985**
Les Kutasi 541-879-2312
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
- Linkup Communications Corporation • 2017**
Mark Johnson 703-217-8290
Satellite Technology Solutions
- LYNX Technik • 2007**
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer
- Markertek • 2002**
Adam June 845-246-2357
Specialized Broadcast & Pro-Audio Supplier
- Micronet Communications Inc. • 2005**
Jeremy Vize 972-422-7200
Coordination Services/Frequency Planning
- Microwave Video Systems • 2011**
Warren J. Parece 781-665-6600
Microwave Equipment Rental, Sales & Service
- Moseley Associates Inc. • 1977**
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television
- MulticAM Systems • 2020**
Mary Ann Seidler 207-776-5338
Fully automated live video production
- MusicMaster • 2014**
Jerry Butler 352-231-8922
Advanced Music Scheduling Solutions
- Nascar Productions • 2014**
Abbey Kielcheski 704-348-7131
Live/Post Production Services
- National Association of Broadcasters • 1981**
Industry Trade Association 202-429-5340
- National Football League • 1999**
Michael Katzenoif 212-450-2368
Game Day Coordination Operations
- Nautel Inc. • 2002**
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer
- Nemal Electronics Int'l Inc. • 2011**
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber
Optic
- Neutrik USA, Inc. • 2012**
Kathy Hall 704-972-3050
Ruggedized Optical Fiber Systems
- NPR Distribution Services • 2019**
Dan Riley 202-513-2624
Your Content Delivery Partners
- Orban Labs, Inc. • 2011**
Mike Pappas 480-403-8300
Audio Processing AMFMTV
- Pasternack Enterprises • 2001**
Christine Hammond 949-261-1920
Coax & Fiber Products
- Potomac Instruments • 1978**
Zachary Babendreier 301-696-5550
RF Measurement Equipment Manufacturer
- ProAudio.com- A Crouse-Kimzey Co. • 2008**
Mark Bradford 800-433-2105 x560
Proaudio Broadcast Equipment Distributor
- Propagation Systems Inc. - PSI • 2010**
Doug Ross 814-472-5540
Quality Broadcast Antenna Systems
- QCommunications • 2019**
Tony zumMallen 816-729-1177
Services Behind the Scenes
- 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**
David Zack 815-478-3240
Antennas, Transmission Line, Filters &
Combiners
- Rohde & Schwarz • 2003**
Walt Gumbert 724-693-8171
Transmitters, Test & Measurement, Video
- Ross Video Ltd. • 2000**
Jared Schatz 613-228-0688
Manufacturer, Television Broadcast Equipment
- Sage Alerting Systems Inc. • 2010**
Harold Price 914-872-4069 x113
Emergency Alert Systems Products
- SCMS Inc. • 2000**
Bob Cauthen 800-438-6040
Audio and RF Broadcast Equipment Supplier
- Seacomm Erectors, Inc. • 1997**
John Breckenridge 360-793-6564
Tower/Antenna Erections
- SEG • 2014**
Chris Childs 913-324-6004
Supply Chain Products and Services
- Shively Labs • 1996**
Dale Ladner 888-SHIVELY
FM Antennas & Combiners
- Shure Incorporated • 2012**
Bill Ostry 847-600-6282
Microphones, Wireless Systems, Headsets
- Sierra Automated Systems and Eng. Inc. • 2011**
Al Salci 818-840-6749
Routers, Mixers, Consoles, Intercoms
- Solid State Logic • 2014**
Steve Zaretsky 212-315-1111
Digital Audio Mixing Consoles, Networked
Audio Routing, Embedded Audio Solutions
- Staco Energy Products Co. • 2010**
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS
- SuiteLife Systems • 2019**
Nigel Brownett 310-405-0839
Manage. Monitor. Control
- Sutro Tower Inc. • 1989**
Eric Dausman 415-681-8850
Broadcast Tower Leasing
- Synthax Inc. • 2020**
Derek Badala 603-591-6735
Audio Codecs and Converter Solutions
- Technical Broadcast Solutions, Inc. • 2018**
Robert Russell 215-983-0855
Engineering and Consulting Services
- Telos Systems/Omnia/Axia • 2003**
John Bisset 216-241-7225
Telos Systems Talk-Show Systems
- Teradek • 2011**
Jon Landman 949-743-5783
Camera-top ENG Solutions
- Tieline The Codec Company • 2003**
Dawn Shevemaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer
- Unimar Inc. • 2001**
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor
- Wheatstone • 2010**
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors
- WideOrbit • 2012**
Jim Hammond 415-675-6700
Radio Automation and Playout
- Wireless Infrastructure Services • 2006**
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey
Services

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Member Spotlight: Matthew Anderson

Member Stats

SBE Member Since: 2013
Chapter: 47 Los Angeles
Employer: iHeartMedia Los Angeles
Position: Director Broadcast Engineer
Location: Los Angeles
I'm Best Known For: Thinking outside the planet. If it doesn't exist, we'll dream it up.

Q What do you value most about your SBE involvement?

A The SBE is a great place to share knowledge and learn. The webinars and educational components of the SBE are really one of a kind!

Q What got you started in broadcast engineering?

A I got my ham radio license (K16KHB) in high school with influence from my Dad. In college I thought law enforcement was my calling, but after being involved with San Diego State college radio (KCR) and an internship at the PBS station (KPBS), I knew this wasn't something I could leave behind.



Matthew (left) at search and rescue training off Angeles Crest Highway.

Q What do you like most about your job?

A I surprisingly like the emergency response part of the job, I enjoy thinking fast and coming up with out of the box solutions. I wish I could pick the times of these emergencies but such is life.

Q What's something people don't know about you?

A I'm on a search and rescue team in Los Angeles County. Our team responds to vehicles that go over the side along with lost/injured hikers. Our area is Angeles Crest Highway, which is the highway that leads to Mt. Wilson.

Q Do you have a nickname?

A Kevin can you hear me? While working in San Diego, I accidentally used talkback down what I thought was a local remote. It happened to be the remote for the syndicated Fox Sports show Jay Mohr. I shouted down the line "Yo, Kevin, can you hear me?" It aired and for the next year I became the top 5 sound drop used on that show. I still haven't collected any royalties.

Nominations Open for SBE Awards

SBE Engineer of the Year award recipient? SBE Educator of the Year award recipient? It could be you or someone you nominate. The national award nominations need to be submitted to the National Office by June 15.

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

This will be the ninth year that the Chapter Engineer of the Year award is awarded by SBE Chapters. The chapter honorees are then entered into consideration for the national Robert W. Flanders SBE Engineer of the Year award. Each chapter establishes its own criteria for the chapter award. Individuals can also be nominated directly for the national award.

Of the many awards recognizing chapters that are presented each year, a local chapter or SBE member makes 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 about these and any of the SBE National Awards, 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.

SBE Leadership Development Course

Save the Date: June 8-10, 2021

The SBE has presented the SBE Leadership Development Course since 1997, but its roots go back to 1965. This intense course is designed specifically for broadcast engineers who have or aspire to have management responsibilities. The SBE offers the course in cooperation with instructor Rodney Vandever, a professional leadership and management trainer and a professor of Organizational Leadership and Supervision at Purdue University.

The course will be held in Atlanta. Registration covers the course and materials, a light breakfast each day, classroom beverages, and access to the Leadership Development Webinar Series of three webinars.

Bring a team and share the experience of this highly interactive event. Come, enjoy, learn and have some fun growing as a leader in the process.

Designed to take technically adept people and instill in them sound leadership, supervisory and management skills, the SBE Leadership Development Course is equally beneficial for those who are already in management and for those without prior management or supervisory experience.

Take the course to enhance your leadership style in communication, team dynamics, motivation, conflict management and generational issues.

Register now and get more info online.

sbe.org/ldc

WELCOME TO THE SBE

NEW MEMBERS

Derick R. Abbey - Rochester, NY
Wendy E. Bolling - FPO, AE
Matthew H. Corchado - Columbus, OH
Ryan J. Feeney - Zebulon, NC
David F. Gleason - La Quinta, CA

Adam D. Goodine - Durham, NH
Jason M. Gordon - West Bend, WI
Joel C. Harrison - Hermitage, TN
Karlie Huckels - Loveland, CO
Raphael Isenhuth - Viernheim, Germany

Daniel Lamphere - Cheney, WA
Jean-Paul Littleton - Silver Spring, MD
Joseph McKenzie - Jacksonville, FL
Luis S. Melendez Navarro - Vega Alta, PR
Sam Reiman - Chicago, IL

Don Vaccari - White Plains, NY
Tyler Voigt - Eagle Lake, MN
John N. Wilcox - Rochester, MN

RETURNING MEMBERS

Jonathan B. Bernstein - Washington, DC
Larry C. Marini - Seattle, WA
Stephen D. Smit - Eagan, MN

Michael L. Stockwell - San Jose, CA
Adam Stone - Woburn, MA
Lamonte B. Tyler - Gwynn Oak, MD

Charles Williamson - Middletown, NY
Dave Zur - Centennial, CO

NEW STUDENT MEMBERS

Edward R. Mabeza - Baldwin, NY
Benjamin R. Peters - New Berlin, WI

ATSC3 from p. 1

cal application and technology standards.

"The SBE is grateful to the ATSC for its help in assembling the exam question pool," said SBE Certification Chair Ralph Hogan. "As is the practice in creating any level of SBE Certification, a group of subject matter experts is consulted."

"I also extend my thanks to the ATSC members who helped in the exam development process. As the foremost experts on ATSC 3.0, their contributions were invaluable. I was also continually impressed by the SBE's methodical exam development process, ensuring that the exam would fairly and accurately assess a candidate's understanding of ATSC 3.0. Individuals who successfully pass the exam will have earned a truly meaningful certificate," added Madeleine Noland, president of ATSC.

Like all SBE Certifications, the exam questions will continue an ongoing review process to ensure the information being covered is relevant and current. Certifications are valid for five years, and then must be renewed or advanced to a higher level. The SBE launched its program of certification in 1975.

Exams must be completed within three hours and consist of 50 multiple-choice questions (two points each) and one essay question (20 points maximum). Specialist certification examinees are provided one essay question to answer. Exams are pass/fail, and a score of 84 is a passing grade.

The SBE provides a list of suggested references to help prepare for all SBE certification exams. The SBE also offers the SBE CertPreview practice test software. The ATSC3 portion of CertPreview should be available later this year. Go to sbe.org/certification for more information.

ATSC3 on the SBE WEBxtra

The December 2020 edition of the SBE WEBxtra included a segment with SBE Certification Committee Chair Ralph Hogan talking about the ATSC3 Specialist. Watch it on the SBE YouTube Channel. Go to the WEBxtra playlist.



sbe.org/youtube

SBE Compensation Survey Launches in April

The SBE launched its annual Compensation Survey in 2016 to provide valuable industry information to our members. On April 1, the SBE will post its sixth survey, and we need your help in gathering and supplying the most accurate information.

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

The Compensation Survey provides practical information to SBE members about individual compensation (salary and benefits) based on multiple demographics. SBE members will have access to the full report. We need every SBE member to participate to provide a large sample base of responses. All responses are anonymous. The surveys continue to provide good information, and strong participation ensures that we can provide the most accurate and useful data.

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



Nominate a Member for SBE Fellow

There is still time to recognize a broadcasting peer who has contributed to the success of an SBE chapter or broadcasting. The membership grade of SBE Fellow is the highest in the society, and it honors those who have exhibited a dedication to the advancement of the broadcast engineer, the field of broadcast engineering and the Society of Broadcast Engineers itself. To date, 87 members have been recognized with the honor in the society's more than 55 years of existence.

To nominate a member, candidates must be proposed in writing by a voting SBE member to the Fellowship Committee. The nomination must include a comprehensive professional history of the nominee and an explanation of why the candidate is deserving of this honor. The nomination must also include the written endorsements of at least five other voting SBE members. Nominations are confidential. No others besides the nominators and the members of the Fellowship Committee should be aware of the nomination. The nominee should not know that he or she has been nominated.

Nominations for 2021 must be received no later than March 26, 2021, for consideration. The Fellowship Committee will bring the names of nominees to the Board of Directors for consideration and election at the April 2021, meeting. The SBE secretary will notify those elected. Recipients will be recognized at the SBE National Membership Meeting and Awards Presentation on Oct. 11 during the 2021 SBE National Meeting to be held during the 2021 NAB Show in Las Vegas.

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

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MEMBERS ON THE MOVE



◀ **Charles Bullet** is chief engineer at Entercom/CBS Radio San Francisco.

▶ **Dave Ratener**, CPBE, CBNT, is chief engineer at Salem Media, Seattle.



Have a new job? Received a promotion? Send your news to Chriss Scherer at cscherer@sbe.org.

MARK YOUR CALENDAR

S	M	T	W	T	F	S	
SBE Certification Exams Feb. 5-15, 2021 <i>Application deadline closed</i>			<i>Local Chapters</i> sbe.org/certification				
SBE WEBxtra Feb. 15, 2021			online sbe.org/webxtra				
SBE WEBxtra March 15, 2021			online sbe.org/webxtra				
SBE WEBxtra April 19, 2021			online sbe.org/webxtra				
SBE WEBxtra May 17, 2021			online sbe.org/webxtra				
SBE Certification Exams June 4-14, 2021 <i>Application deadline April 16, 2021</i>			<i>Local Chapters</i> sbe.org/certification				
SBE Leadership Development Course Jun 8-10, 2021			Atlanta sbe.org/lc				
SBE WEBxtra June 21, 2021			online sbe.org/webxtra				
SBE WEBxtra July 19, 2021			online sbe.org/webxtra				
TAB Convention & Trade Show Aug. 3-4, 2021			Austin, TX tab.org				
SBE Certification Exams Aug. 6-16, 2021 <i>Application deadline June 11, 2021</i>			<i>Local Chapters</i> sbe.org/certification				
SBE WEBxtra Aug. 16, 2021			online sbe.org/webxtra				
Broadcasters Clinic Sept. 8-10, 2021			Madison, WI wi-broadcasters.org				
SBE WEBxtra Sept. 20, 2021			online sbe.org/webxtra				
NAB Show Oct. 9-13, 2021			Las Vegas nabshow.com				
SBE WEBxtra Oct. 18, 2021			online sbe.org/webxtra				



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