

THE Signal

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Society of Broadcast Engineers



The Association for
Broadcast and
Multimedia Professionals

www.sbe.org

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SBE Activities Highlight NAB Show

It's time again for the NAB Show, packed with exhibits, sessions and plenty of opportunities to meet with manufacturers, vendors and colleagues. As you plan to make the best use of your time at the convention, include the many SBE events on your convention calendar. While the SBE Ennes Workshop highlights the SBE's educational offering on Friday and Saturday, the main event for SBE members is the annual Membership Meeting, which will be followed by a reception.

The SBE Ennes Workshop will be held in the Westgate Casino and Resort. The meeting rooms are on the south side of the facility. All other SBE events will be held in the Las Vegas Convention Center. Except for the Frequency Coordinators meeting and the SBE booth, all other events will be held in the West Hall, which was new in 2022.

The Membership Meeting will be held on Monday, April 17, at 5:00 p.m. in LVCC W216-W218. 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 a Studio Camera 6K Pro (courtesy of Membership Meeting



The SBE Ennes Workshop provides two days of instruction.

sponsor Blackmagic Design), three restaurant gift cards, and two SBE-logoed hats. You'll want to get to the meeting early as well, be-

see **NAB SHOW**, p. 8

Recruit a New Member During the Membership Drive

The annual Society of Broadcast Engineers membership drive is underway. The drive is an effort to recruit new members to the society, and you can benefit from your recruiting efforts as you help the Society grow.

When you recruit a new member during the Member Drive, you will be entered into the drawing for prizes donated from our Sustaining Members and the SBE. 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.

You already know the benefits of being part of the soci-

ety, so share it with your colleagues. Need a list? Go to sbe.org/SBEreasons.

The annual SBE Membership Drive began March 1, so recruit someone now through May 31 to be eligible to win a prize. The grand prize is airfare and hotel to attend the SBE National Meeting, planned to be held during the 2023 Midwest Broadcast & Multimedia Technology Conference in Columbus, OH, in September.

As a further bonus, for every new member you sponsor you will receive \$5 off your 2024 dues (up to \$25).

Take membership forms to your next chapter meeting and encourage your guests to join the SBE.

SBE Sustaining Members who have contributed prizes are noted on page

14. It's quite a list of items, ranging from logoed apparel to gift cards to broadcast equipment. We thank these SBE Sustaining Members for their support.

Start recruiting now, and make sure your recruits list your name on their SBE membership applications so you get the credit. There's a space on the online form and the fillable PDF. Full details about the Membership Drive are at sbe.org/drive.



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We speak more languages

Dante^{1,2}

Livewire+

RAVENNA

WheatNet-IP²

AES67

ST 2022-7

Ember+

NMOS

ST 2110-30



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1 = Coming Soon | 2 = Requires an additional internal card

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SBE Awards: Nominate Today!

Who will be the next Robert W. Flanders SBE Engineer of the Year award recipient? Perhaps you know someone worthy of the honor. Nominate that person today. Individuals can also be nominated directly for the national award. National award nominations need to be submitted to the National Office by June 15.



Also, Chapter Engineer of the Year award recipients, nominated by SBE Chapters, are automatically 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.

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.

Of the 13 awards recognizing chapters that are presented each year, a local chapter or SBE member submits 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 more information about all the SBE National Awards, visit sbe.org/awards or contact Megan Clappe at the national office or by email at mclappe@sbe.org. Recognition by your peers is the highest honor. Honor your colleagues today.

2022 Finances in Review

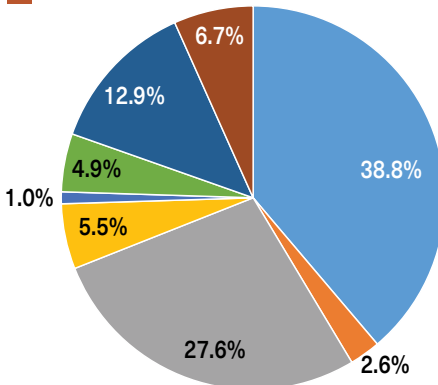
The Society of Broadcast Engineers, Inc. completed 2022 with net revenue from all operations of -\$260,475. Gross income from all sources was \$804,187, while expenses were \$1,064,662. The value of SBE savings and investments as of Dec. 31, 2022, were \$1,359,767. Total SBE assets as of Dec. 31, 2022 were \$1,770,007. Long-term invest-

ment loss totaled -\$204,116.

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

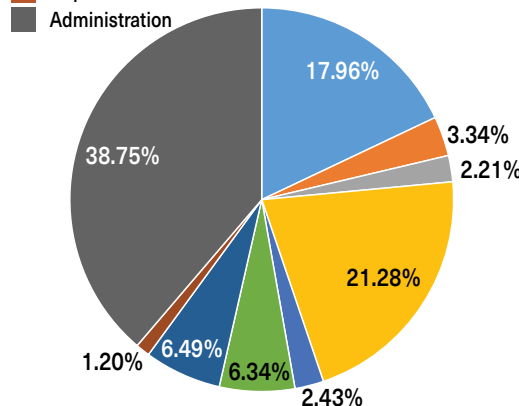
Income

- Frequency Coordination
- Publications/Advertising (non-Cert)
- Membership Dues
- Sustaining Member Dues
- National Meeting
- Certification
- Education
- Other Income



Expenses

- Frequency Coordination
- Communications w/ Members
- Chapter Rebates
- Member Services
- National Meeting
- Certification
- Education
- Depreciation
- Administration



Certification Question

Which layer of the OSI model is responsible for encryption?



SBE CERTIFIED

Answer on page 6

- A. Data Link
- B. Session
- C. Network
- D. Presentation
- E. Application



LETTER FROM THE PRESIDENT

By Andrea Cummis, CBT, CTO
SBE President
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A Student's Introduction to Broadcasting

It's hard to believe another NAB Show is almost here. I hope to see many of you at the Membership Meeting and the annual Member Reception on April 17 in Las Vegas. This issue of *The Signal* is loaded with all the details about everything the SBE is doing at the convention. Take a few minutes and add all the SBE events to your calendar. Also, stop by the SBE booth and say hello. You'll be able to meet your elected SBE leaders and the SBE staff.

A while back I wrote an article about Andy Gladding and the broadcast engineering program at Hofstra University. This month I turn my column over to one of the students there, Karoline Otavalo, so she can tell you more about the program.

Karoline is a sophomore at Hofstra University where she is majoring in audio/radio productions, with a minor in mass media. Karoline grew up in Queens, NY, and her hobbies include painting and reading comedy books.

WRHU at Hofstra University, is an all-student-run, four-time Marconi award-winning radio station. WRHU is known for its affiliations with many local New York sports teams including the Ducks, Nets, Islanders, and Riptide. These unique affiliations allow students to train as sports broadcasters in addition to all the behind the scenes positions.

WRHU has many different productions that allow students to find

their passion and get involved as soon as they pass the training class's final exam. Students are taught to engineer, create packages, and produce shows. WRHU produces its morning show (Morning Wake Up Call, which airs from 7 to 9 a.m.), News Show (that airs from 5 to 5:30 p.m.), music slots (from various genres like alternative, pop, and many more) and covers various sports shows like the Islanders and many more. Students are responsible for writing and creating the material to be aired during these shows.

During the training class, which takes place in the summer, spring, and fall, students are taught the different aspects of radio production, and shadow different shows; therefore, if you come in undecided, trainees can try different aspects of radio. Trainees are also assigned a mentor who guides them and helps them with any radio-related questions throughout the training class. At the end of the training class, students are given a written and practical exam that allows them to be fluent in all aspects, from theory to hands-on practice.



Otavalo

For example, consider a trainee who loves radio but wants to be behind the scenes rather than on air. There are many opportunities to understand behind-the-scenes radio work, like Tech Thursday, which meets every week from 7 to 9 p.m. Students are taught how to work with different programs such as ProTools, and they build and understand from scratch how each piece of equipment works.

My Own Story

As a sophomore audio/radio production engineer who joined the WRHU station in the fall of 2022, I have worked with many mentors and learned so much from the other students. The station provides hands-on experience and opportunities for all the students in the program. The great thing about WRHU is that it is inclusive. All majors are welcome to join the station, whether they have experience or not because the station is all about hands-on learning.

I have always been a fan of understanding how audio works and the details of how audio impacts emotion and the overall ambiance of a room. With an audio/radio productions major, I can better understand how to use sound to provoke different emotions and settings. I also look forward to learning more about how broadcasters shape a radio station's image in the marketplace. Everyone in the world of communication/broadcasting plays a significant role in how the final product turns out, and everyone plays a crucial role in producing a show. Within the major, I have been learning about ProTools software and how tone is so crucial to evoke emotion depending on the goal of your radio station/podcast. I have also been learning how to operate analog and digital audio boards.

As someone who just started this major with minimal experience, I can attest that the WRHU training class prepares students for the real world of radio, broadcasting, and even engineering. I have gained many skills, like board operating, proper ways to use a microphone, and setting up before a community volunteer comes in on weekends. I have brought my skills to my major and feel comfortable when working with different materials.

The WRHU experience has taught me so much. The best part for me has been working with all the mentors and the other students who are part of the program.

Register Now to Attend the Leadership Development Course in August

Register today for the SBE Leadership Development Course, Aug. 2-4, 2023 in Atlanta. Don't miss this team-building course that explores the nature of leadership, the difference between being a manager and being a leader, how to build a winning team, the importance of attitude in the leadership position, communication insights and much more.



The SBE Leadership Development Course class of 2022.

This three-day course is an intensive study of successful leadership and management, designed specifically for broadcast engineers and is led by Dr. Abram Walton. Dr. Walton is the founder of Ivory Bridge Group, a management consulting and training firm. He is also a full-tenured professor at Florida Tech, specializing in management and innovation.

The SBE Leadership Development Course will take place Aug. 2 through 4 at the Courtyard by Marriott Atlanta Airport West; 3400 Creek Pointe Drive; East Point, GA. A special room rate of \$129 is available for Leadership Course attendees. The cost of the three-day course is \$720 for SBE members and \$775 for non-members.

Register at sbe.org/ldc. Questions? Contact Education Director Cathy Orosz at 317-846-9000 or corosz@sbe.org.



EDUCATION UPDATE

By Wayne M. Pecena, CPBE, 8-VSB, AMD, ATSC3, DRB, CBNE
SBE Immediate Past President
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The Ultimate Network Security

The broadcast station today relies on an information technology (IT) infrastructure based on the Internet Protocol (IP), whether it's a small radio station or a major market, state-of-the-art ATSC 3.0 TV facility. Protecting the infrastructure against cyber threats grows more challenging each year for the broadcast IT engineer, and it's a constant cat-and-mouse game with threat actors. Threats are constantly evolving, and the cybersecurity precautions implemented must evolve as well. New Federal Communications Commission (FCC) regulations will likely add Emergency Alert System-focused cybersecurity compliance requirements later this year. With or without FCC intervention, the broadcast station must address cybersecurity upfront rather than as an afterthought.

The recent Skyview Network cyber event that disrupted content distribution to affiliate stations highlighted the potential vulnerability of the broadcast IT system. While the Skyview incident was isolated to the network's core IT infrastructure, the impact could have been more severe if the reach had included the more than 10,000 Skyview affiliate stations connected via satellite. The typical broadcast station affiliate likely has connected the Skyview XDS satellite receiver-decoder to its local network to allow file download of content. Current EAS system operation requires that a station's encoder-decoder be connected to the public internet to allow polling and receipt of IP-based alert messages from authorities.

The "air gap" is an effective approach to network security and provides the ultimate isolation from any foreign intervention. While extremely effective, it is not practical in the modern broadcast facility. Reality requires that we interconnect our IT infrastructure to other external IT environments, whether required by regulations or required to achieve our business goals. Remote access to our broadcast network infrastructure is the norm rather than the exception.

Achieving the Goal

The CIA Triad defines cybersecurity goals as confidentiality, integrity and availability. To achieve these goals, principals such as Defense-in-Depth (DiD), network segmentation and the Principal of Least Privilege (PLP) are often applied to create effective cyber protections. DiD states that multiple structured cybersecurity measures must be implemented rather than reliance on a single protection, such as a lone firewall. The structured approach follows the data-flow layers of the Open Standards Interconnection (OSI) model, commonly including physical infrastructure security, Ethernet port security, packet filtering, encryption and authentication employing multifactor authentication (MFA). PLP states that the minimum access rights are granted to users, devices and applications to achieve their business function. Often referred to as "deny by default" practices separate administrative and user account rights on Microsoft-based systems.

Network architecture is critical to implementation of cybersecurity precautions and should be considered the starting point. The network should be segmented in lieu of the traditional flat design. The segmented or layered network breaks down a larger flat network into smaller individual networks, or independent segments. Each of these segments is an independent subnet or broadcast domain. Perimeter security was once the norm for network resource protection,

however in today's threat landscape, internal network protection techniques are required. The segmentation reduces the attack surface by limiting the reach that an infected host has to reach other host devices often referred to as "east-west" movement throughout the network.

Build that network

The popular approach to building a segmented network utilizes the virtual local area network (VLAN) capabilities of a managed Ethernet switch. Host devices are assigned to a designated VLAN through the switch configuration. VLAN implementation allows one physical network infrastructure to transport multiple networks over a common shared medium. Logical segmentation is commonly utilized although physical segmentation can be deployed although creating a more complex infrastructure in equipment and network cabling with far less flexibility.

When intra-VLAN communications is required between hosts, Layer 3 routing and packet filtering is utilized to limit what hosts can communicate with each other. Packet filtering is the most basic firewall technique providing stateful filtering with permit or deny decisions made based upon individual IP addresses, ports, protocols or logical combinations of these parameters. A stateful firewall (capable of monitoring all aspects of network traffic) can also be implemented between VLANs where more complex packet filtering is required.

While security protection is the goal of segmentation, network performance is often realized by the smaller broadcast domains and elimination of unnecessary network traffic. Network traffic is isolated to an individual VLAN rather than being distributed across all segments.

It is yet to be seen what the adopted FCC EAS cybersecurity regulations will require. If the Payment Card Industry (PCI) Data Security Standard (DSS) should be referenced as a guide in the regulations, network segmentation will be a requirement for broadcast stations. An EAS VLAN in the broadcast station network architecture could likely be the norm in compliance.

Cybersecurity precaution implementation can be complex. Effective cybersecurity protection can be achieved with a focus on the fundamentals which begins with network segmentation. Further DiD techniques add further protection through physical security precautions, Ethernet switch port security, packet filtering, encryption and authentication for remote access. The air-gap may not be a practical approach, but always question if a critical broadcast system host device needs network access. Keep in mind that public Internet access and remote access are not always the same. If network access is required, implement the IP connectivity in a secure manner with cyber protections addressed up front on day one rather than after a cyber-attack.

Education Almanac

Webinars by SBE

May 11: 2023 RF Safety Course

sbe.org/webinars

SBE Ennes Workshops

Apr. 14-15: SBE Ennes Workshop at the NAB Show

Contact the SBE to arrange an SBE Ennes Workshop in your area.

sbe.org/ennes_workshop

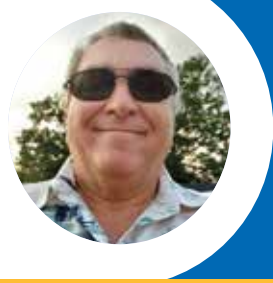
Leadership Development Course

Aug. 2-4: 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 George Marshall, CPBE,
Chapter 15 New York Former Certification Chair
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One Final Exam

After 22 years as the Certification Chair for Chapter 15 New York, I finally managed to convince the members of SBE 15 that it's time for someone else to step up and take a turn at getting members certified. It's been fun sometimes, seeing people you've known for years pick up their certifications. It's been hard other times, like Covid (need I say more?). But it's always been satisfying seeing those for whom you arranged and proctored tests have their names appear in *The Signal* with their brand-new certification. Knowing that you played a large part in making that happen. And, as it happened, my last proctored exam session was probably one of my most interesting, and annoying, sessions. So let me tell you a story.

A young woman reached out to me to express her desire to become SBE certified. Nothing unusual there except that she could only take the exam on a Saturday. You see, she is employed in the broadcast department of a cruise ship and can only take the exam on a day when the ship is docked. She reached out to me because the ship was homeported in New York at the time. I expressed my understanding of the situation and told her that whatever dates she could get off the ship, I would meet her in the city, and we would do the exams. She wanted to

knock out two of them: the CTO and CBT.

We picked two dates, and we were all set. Or so we thought. After we made our plans, two non-US crew members jumped ship in New York and all employees without a US visa or passport were now restricted to the ship in New York until further notice. Now what? With the support of her managers on the ship, they petitioned the corporate HR department to allow me to board the ship and administer the tests. This process took almost two months (and a lot of submitted documentation) before permission was granted for me to come aboard. And now we're down to crunch time because the ship is moving from New York City to Los Angeles. We pick the next-to-last Saturday, figuring if there's an issue we can meet the next Saturday if needed. She also made the decision to take both tests on one day. It's not something we encourage, but it was her decision.

Exam Day Arrives

The big day comes, and I head into the city. Of course, it would have to be the first really cold day of November (it snowed overnight) and the wind is blowing as it usually does in the city as I'm walking to the ship. I get to the pier at 8 a.m. like I was told, but

can't get on. The "early boarding" list hasn't made it to security yet. I wait in a tiny lobby with about 80 transitional crew members for 45 minutes until pier security comes and gets me. I trade my driver's license for a pier visitor badge and I'm escorted to the crew gangway where I am stopped again. This time by ship security who says I am not on their list. Seems the ship security didn't have the updated list and I had to wait, again, until the new list was supplied, and I could board – after trading my passport for a ship visitor badge. So now I'm ready go, except I must wait for the ship's doctor to arrive and give me medical clearance to board. Cleared by the doc, I make it through the scanner, get the wand (hip replacement), join my examinee, who has been waiting outside security the whole time, and we head up to a conference room. It's been two and a half hours since I arrived on the pier, but we have finally made it to test time and I begin proctoring my last exams as the Certification Chair for SBE Chapter 15.

And, as I write this, taking pride in all the exams I have arranged and proctored over the last 22 years, I received word that Carmen has passed both her tests, and can now sign her correspondence Aishwarya Carmen Godbole, CBT, CTO.

Volunteer Recognition

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

Every year at the annual membership meeting during the NAB Show, the SBE recognizes the local certification chairs who devote volunteer time to the Program of Certification. These local certification chairs receive a plaque on the recurring five-year anniversaries and a pin on their first year. 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!

Chapter Certification Chairs

Stephen Lockwood, CPBE, AMD; Chapter 16
Bob Lawrence, CBRTAVE; Chapter 72
Charles Mikowski, CPBE, 8-VSB, CBNT; Chapter 102



5 YEARS Matthew Saplin, CBTE; Chapter 58
Vincent Atwood, CBTE, CBNE; Chapter 132

James Cole, CPBE; Chapter 9



15 YEARS Steve Epstein, CPBE; Chapter 143

Ed Roos, CPBE; Chapter 88



35 YEARS Samuel Straus, CPBE; Chapter 60

Donald Strauss, CPBE; Chapter 55



National Certification Committee

Troy Pennington, CSRE, CBNT; 30 Years



Answer from page 3

The answer is D

The presentation layer receives the data from the application layer and translates it into a format and syntax that's readable by other computers. This layer is also able to provide encryption and compression if the application layer asks it to do so.

SBE Certification Achievements

CONGRATULATIONS



LIFE CERTIFICATION	<p>Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB) AM Directional Specialist (AMD) James Dalke, Federal Way, WA - Chapter 16</p> <p>Certified Broadcast Networking Technologist (CBNT) James Dalke, Federal Way, WA - Chapter 16</p> <p>Certified Broadcast Technologist (CBT) Robert Lyon, Draper, UT - Chapter 62 Sidney Shumate, Harrisonburg, VA - Chapter 37 Philip Torti, Rochester, NY - Chapter 57</p> <p>Certified Television Operator (CTO) Philip Torti, Rochester, NY - Chapter 57</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>				
FEBRUARY EXAMS	<p>Certified Senior Radio Engineer (CSRE) Stephen Palau, Riverside, CA - Chapter 131</p> <p>Certified Broadcast Radio Engineer (CBRE) David Leishman, Antelope, CA - Chapter 43</p> <p>Certified Broadcast Television Engineer (CBTE) Patrick Reilly, Menands, NY - Chapter 58</p> <p>Certified Audio Engineer (CEA) Craig Fincher, Fort Worth, TX - Chapter 67</p>	<p>Certified Video Engineer (CEV) Craig Fincher, Fort Worth, TX - Chapter 67</p> <p>Certified Broadcast Networking Technologist (CBNT) Megan Amoss, Baltimore, MD - Chapter 46 Aaron Donnelly, Atwater, OH - Chapter 70 Emily Eahrow, Farmington Hills, MI - Chapter 82 Brandon Graham, Largo, FL - Chapter 39 Paul Kaminski, Johnson, City, NY - Chapter 1 Nishantha Udugama, Stanton, CA - Chapter 47</p> <p>Certified Broadcast Technologist (CBT) Isabella DaSilva, Jacksonville, FL - Chapter 7 Sean McGee, Perry, IA - Chapter 109</p> <p>Certified Radio Operator (CRO) Alvaro Montealegre, Tampa, FL - Chapter 39 Martin Reyes, Ocala, FL - Chapter 39</p> <p>Certified Television Operator (CTO) Matthew Doherty, Tustin, CA - Chapter 47 Jennifer Humphries, Saint Petersburg, FL - Chapter 39</p>			
SPECIAL PROCTORED EXAMS	<p>Certified Broadcast Networking Technologist (CBNT) Tyler Woodward, La Crosse, WI - Chapter 112</p> <p>Certified Broadcast Technologist (CBT) Moriah LeFlore, Colby, KS - Chapter 3</p>				
SBE CERTIFIED SCHOOL COURSE COMPLETION	<p>Certified Broadcast Technologist (CBT) <i>DINFOS</i> Caleb Bryan, Virginia Beach, VA - Chapter 54</p>				
CERTIFIED BY LICENSE	<p>Certified Broadcast Technologist (CBT) Joseph Davenport, Burbank, CA - Chapter 47</p>				
CERTIFIED RADIO OPERATOR (CRO)	<p>Christopher Leake, Austin, TX William Winger, Twin Falls, ID</p>				
CERTIFIED TELEVISION OPERATOR (CTO)	<p>Sarah Louis, Bedford, TX</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.	<table border="0"> <tr> <td> <p>Certified Professional Broadcast Engineer (CPBE) R. Brett Gilbert, Jenks, OK - Chapter 56 Daniel Smith, Perris, CA - Chapter 131</p> <p>Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB) Steven Scott, Las Vegas, NV - Chapter 128</p> <p>Certified Senior Television Engineer (CSTE) Jonathan Soloman, Columbia, MD - Chapter 46</p> <p>Certified Broadcast Networking Engineer (CBNE) R. Brett Gilbert, Jenks, OK - Chapter 56 Debbie Jones, Corona, CA - Chapter 131 Eric Papenfuss, Nekoosa, WI - Chapter 80 Jonathan Soloman, Columbia, MD - Chapter 46</p> </td> <td> <p>Certified Broadcast Radio Engineer (CBRE) Timothy Berry, Knoxville, TN - Chapter 113 Michael Brooks, Mercer Island, WA - Chapter 16 William Gaddis, Tuscaloosa, AL - Chapter 68 Bret Huggins, San Antonio, TX - Chapter 69 Saul Perez, Northridge, CA - Chapter 47 Jeff Welton, East Chester, NS</p> <p>Certified Broadcast Television Engineer (CBTE) Michael Nudi, Oakdale, PA - Chapter 20</p> <p>Certified Broadcast Television Engineer (CBTE) 8-VSB Specialist (8-VSB) Daniel Zillich, Albuquerque, NM - Chapter 34</p> <p>Certified Video Engineer (CEV) Michael Belanger, Morrow, OH - Chapter 33 Gustavo Contreras, Key Biscayne, FL - Chapter 53</p> </td> <td> <p>Certified Broadcast Networking Technologist (CBNT) Brandon McKinney, St. Peters, MO - Chapter 55 Steven Scott, Las Vegas, NV - Chapter 128</p> <p>Certified Broadcast Technologist (CBT) Timothy Berry, Knoxville, TN - Chapter 113 Alexandra Curtin, Henderson, NV - Chapter 128 Andrew Levine, N. Shirley, NY - Chapter 15 Greg Miller, North Chesterfield, VA - 60 Angel Ramos, Spring Valley, CA - Chapter 36 Dan Wilson, Paducah, KY</p> <p>Certified Television Operator (CTO) Connor Crookshank, Anchorage, AK Steven D'Ambrozio, Valatie, NY Michael McCormick, Ogallala, NE - Chapter 87 Justin Shearin, Henderson, NV</p> <p>Certified Radio Operator (CRO) Jeffrey Crutchfield, New Johnsonville, TN</p> </td> </tr> </table>		<p>Certified Professional Broadcast Engineer (CPBE) R. Brett Gilbert, Jenks, OK - Chapter 56 Daniel Smith, Perris, CA - Chapter 131</p> <p>Certified Professional Broadcast Engineer (CPBE) 8-VSB Specialist (8-VSB) Steven Scott, Las Vegas, NV - Chapter 128</p> <p>Certified Senior Television Engineer (CSTE) Jonathan Soloman, Columbia, MD - Chapter 46</p> <p>Certified Broadcast Networking Engineer (CBNE) R. Brett Gilbert, Jenks, OK - Chapter 56 Debbie Jones, Corona, CA - Chapter 131 Eric Papenfuss, Nekoosa, WI - Chapter 80 Jonathan Soloman, Columbia, MD - Chapter 46</p>	<p>Certified Broadcast Radio Engineer (CBRE) Timothy Berry, Knoxville, TN - Chapter 113 Michael Brooks, Mercer Island, WA - Chapter 16 William Gaddis, Tuscaloosa, AL - Chapter 68 Bret Huggins, San Antonio, TX - Chapter 69 Saul Perez, Northridge, CA - Chapter 47 Jeff Welton, East Chester, NS</p> <p>Certified Broadcast Television Engineer (CBTE) Michael Nudi, Oakdale, PA - Chapter 20</p> <p>Certified Broadcast Television Engineer (CBTE) 8-VSB Specialist (8-VSB) Daniel Zillich, Albuquerque, NM - Chapter 34</p> <p>Certified Video Engineer (CEV) Michael Belanger, Morrow, OH - Chapter 33 Gustavo Contreras, Key Biscayne, FL - Chapter 53</p>	<p>Certified Broadcast Networking Technologist (CBNT) Brandon McKinney, St. Peters, MO - Chapter 55 Steven Scott, Las Vegas, NV - Chapter 128</p> <p>Certified Broadcast Technologist (CBT) Timothy Berry, Knoxville, TN - Chapter 113 Alexandra Curtin, Henderson, NV - Chapter 128 Andrew Levine, N. Shirley, NY - Chapter 15 Greg Miller, North Chesterfield, VA - 60 Angel Ramos, Spring Valley, CA - Chapter 36 Dan Wilson, Paducah, KY</p> <p>Certified Television Operator (CTO) Connor Crookshank, Anchorage, AK Steven D'Ambrozio, Valatie, NY Michael McCormick, Ogallala, NE - Chapter 87 Justin Shearin, Henderson, NV</p> <p>Certified Radio Operator (CRO) Jeffrey Crutchfield, New Johnsonville, TN</p>
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Got your SBE Certification pin? sbe.org/pins



ENNES EDUCATIONAL FOUNDATION TRUST

The trust offers scholarship and educational programming and grants that benefit broadcast engineering and the broadcast engineer. Submit tax-deductible donations, payable to the Ennes Educational Foundation Trust, to the Society of Broadcast Engineers; 9102 N. Meridian St., Suite 150; Indianapolis, IN 46260.

- John H. Battison Founder's Scholarship**
Edmund Berkey, Alexandria, VA
John Frercks, Princeton, NJ
William Harris, Albuquerque, NM
Kishore Persaud, Catonsville, MD
Thomas Weber, Greenwood, IN
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THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS

- Youth Scholarship**
Michael Baker, Glen Burnie, MD
Edmund Berkey, Alexandria, VA
Marc Fenton, Moreno Valley, CA
John Frercks, Princeton, NJ
Stephen Hawes, Berkeley, CA
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Kishore Persaud, Catonsville, MD
John Peterson, Fargo, ND
Thomas Weber, Greenwood, IN

- Gino Ricciardelli Scholarship**
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Gary Talkiewicz, Binghamton, NY
Thomas Weber, Greenwood, IN

- General Fund**
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Alexander Goehring, Stow, OH
Stephen Hawes, Berkeley, CA
Britt Lockhart, Yukon, OK
Alexander Marbella, Rowland Heights, CA
Peter Tanz, Green Bay, WI

Nominations Committee Seeks Board Candidates

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

The SBE Nominations Committee is beginning its work to assemble a slate of candidates for the upcoming SBE election. I have again been appointed to chair the Nominations Committee.

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.

SBE Sustaining Members Providing Prizes

Sunday

SBE Booth Drawing \$200 Amazon Gift Card Giveaway, sponsored by **Nemal Electronics**

Monday

SBE Membership Meeting

The first 125 people in attendance receive a pair of SBE-logoed luggage tags courtesy of **Blackmagic Design**
SBE Booth Drawing \$200 Amazon Gift Card Giveaway, sponsored by **Linkup Communications**

Blackmagic Design Studio Camera 6K Pro

SBE Member Reception

AC Video: \$100 Amazon gift card

Burk Technology: PRF-1 RF sensor

Drake Lighting: \$100 Amazon gift card

Kathrein: SBE Broadcast Engineering Handbook

Markertek: Sescom SES-CT1 cable tester

Tieline: Four \$25 Amazon gift cards

Orban: PCn100 processing software license

Tuesday

SBE Booth Drawing \$200 Amazon Gift Card Giveaway, sponsored by **Blackmagic Design**

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 2023 as will all four officer positions. The SBE By-laws limits 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 time 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 SBE Nominations Committee Chair Wayne Pecena, at wpecena@sbe.org or via the SBE National Office at 317-846-9000. A slate of nominees will be assembled by the committee by April 14. Other qualified members may be nominated by members in good standing no later than June 30.

The election takes place from July 14 through Aug. 15. Those elected will be installed into office during the SBE National Meeting, planned to be held in Columbus in September.

Participate in the 2023 SBE Compensation Survey

The SBE is conducting its eighth (and ongoing) compensation survey. Launched to provide practical information to SBE members about individual compensation (salary and benefits) based on facilities, market size and years of experience, SBE members will have access to the full report.

While each annual survey has seen a successful response rate, your participation is important to provide the large sample pool for the most reliable results.

All survey responses are anonymous. Find the survey link in email communications and on the SBE website. With your help we can provide a useful and practical resource to SBE members.

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



SBE Schedule of Events

Friday, April 14

SBE Ennes Workshop @ the NAB Show

Advance registration required

9:00 a.m. - 4:30 p.m.

Westgate Conf. Rooms 7, 8, 9, 10

Saturday, April 15

SBE Ennes Workshop @ the NAB Show

9:00 a.m. - 4:30 p.m.

Westgate Conf. Rooms 7, 8, 9, 10

Certification Committee Meeting

6:30 - 10 p.m. • LVCC W230

Sunday, April 16

SBE Board of Directors Meeting

8:30 a.m. - 12 p.m. • LVCC W230

SBE Education Committee Meeting

2 - 3 p.m. • LVCC W230

SBE Booth Drawing

5 p.m. • SBE Booth LN4, sponsored by Nemal Electronics

Monday, April 17

SBE Frequency Coordinators' Meeting

9 - 11 a.m. • LVCC N263

SBE Membership Meeting

5 - 6 p.m. • LVCC W216-W218

SBE Booth Drawing, sponsored by Linkup Communications

SBE Member Reception

6:15 - 7:15 p.m. • LVCC W226

Tuesday, April 18

SBE Certification Exam Session

9 a.m. - noon • LVCC W201

Advance registration required

SBE Booth Drawing

5 p.m. • SBE Booth LN4, sponsored by Blackmagic Design

NAB SHOW, from p. 1

cause the first 125 people in attendance will receive a pair of SBE-logoed luggage tags.

The Membership Reception starts after the Membership Meeting at 6:15 p.m. in W226. Light snacks and drinks are made possible from the generous support of several SBE Sustaining Member sponsors. Lots of prizes will also be awarded, including gift cards, broadcast equipment and more. Check the list of event sponsors on page 9 of this issue.

The SBE booth is LN4, which will be located in the North Lobby of the LVCC. This is the same location as in 2022, which is in view of Starbucks. Be sure to check the complete event schedule on the SBE NAB Show events page on our website (sbe.org/nab), which is also linked from the home page.

Another helpful resource to plan your convention time is our SBE Sustaining Member Online Resource Guide (sbe.org/guide). All these sources provide details for SBE committee meetings, the board of directors meeting, SBE certification exams, and the daily booth prize drawing.

The SBE Thanks These Sustaining Members for Sponsoring Events at the NAB Show

<p>MEMBERSHIP MEETING SPONSOR</p> 	<p>MEMBER RECEPTION GOLD SPONSOR</p> 	<p>MEMBER RECEPTION BRONZE SPONSOR</p> 	
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- SBE PRESENTATIONS ZOOM OR LIVE



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LEGAL PERSPECTIVE

By Coe Ramsey, Patrick Cross and Noah Hock
SBE Regulatory Counsels
cramsey@sbe.org, prcross@sbe.org, nhock@sbe.org

Two Notable Waivers of FCC Rules

As engineers, broadcasters, and communications attorneys we often live and die by the myriad and far-reaching rules of the Federal Communications Commission, diligently (dare we say lovingly) set down in Title 47 of the Code of Federal Regulations. The FCC's Rules (with a capital R) guide nearly every decision facing a broadcast station. However, at times it may behoove us to remember that the Commission reserves the right to waive its Rules, and in certain circumstances the FCC has explicitly laid out situations when a waiver is appropriate. This article will discuss two such notable cases: the Raleigh waiver, and the Mattoon waiver.

Waiver of FCC Rules

FCC Rules may be waived by the Commission "for good cause shown," but the Commission has made it clear that waivers are rare, and parties seeking such an exception generally face an uphill battle. An applicant must lay out with particularity the reasons why a waiver is warranted, and one will only be granted if (1) special circumstances exist that warrant deviation from the usual rule, and (2) allowing a deviation better serves the public interest. While these baseline requirements remain applicable to all waiver requests, in certain circumstances the Commission has identified common scenarios when a waiver of FCC Rules may be appropriate, and will generally be considered favorably if an adequate showing is made.

Raleigh Waiver. A Raleigh waiver may be applicable to noncommercial educational (NCE) stations seeking to expand their coverage area, but unable to do so without receiving contour overlap with adjacent stations. Under FCC Rules prohibited overlap occurs when one station's interference contour overlaps another station's service contour. In these cases, the station seeking to expand its service contour such that it will be overlapped by a second station's interference contour is said to "receive" overlap, while the station whose interference contour is overlapping is said to "cause" the overlap.

While such overlap is generally prohibited, an NCE station may request a Raleigh waiver if the proposed expansion would: (1) receive – not cause – overlap from (2) second- or third-adjacent channel stations, and (3) the benefit to the public of increased NCE service "heavily outweighs" potential interference in a small area. When these elements are present, the Commission has delegated authority to the Media Bureau to waive the applicable rules if the overlap received is 10 percent or less of the NCE station's proposed expanded service area.

In one important caveat to a Raleigh waiver, the station request-

ing the waiver will generally be required to accept a condition on its license that future modifications of the station causing the overlap will not constitute a per se modification of the receiving station's license. In this way, the station causing the overlap will not be completely restricted from requesting revisions to its service contour in the future due to the overlap granted by waiver. As such, stations requesting a Raleigh waiver should note that the Commission may look favorably on subsequent requests to move or even marginally expand the caused overlap.

For anyone interested in seeing the application of a Raleigh waiver in action, a recent order to show cause issued by the Media Bureau (DA 23-82) addresses both the elements of an initial waiver of received overlap as well as the subsequent expansion of caused overlap.

Mattoon Waiver. A Mattoon waiver arises in the context of a proposed relocation of an FM translator. Normally, a translator relocation will only be considered a minor modification if the proposed 60dbu contour of the relocated translator overlaps at some point with the 60dbu contour as currently licensed. If the proposed move is far enough that there will be no contour overlap (referred to herein as a long distance relocation), a major modification is required, and thus will only be permitted in certain filing windows. Because of this, some translator licensees attempt to achieve a long distance relocation through a series of "hops" – filing multiple minor modifications each moving the translator a short distance, but with the aggregate effect of a relocation that would have required a major modification if requested in a single, initial application. This practice is disfavored by the Commission and will generally be denied if discovered, or worse. In a recent similar and particularly egregious example, a licensee was accused of utilizing a hopping scheme to relocate several low-power television stations using a series of minor modifications, and in a Consent Decree (DA 22-232) agreed to pay a \$250,000 fine and relinquish nearly 100 LPTV and translator licenses.

In spite of this, the Commission acknowledges that longer distance relocation of a translator may be in the public interest under certain circumstances, particularly when being used to rebroadcast an AM station. As such, the Media Bureau has previously exercised its authority to grant Mattoon waivers to treat a long distance translator relocation as a minor modification if: (1) the applicant does not have a history of requesting a series of "hops" or otherwise abusing minor modification rules; (2) the proposed relocation site is mutually exclusive with the translator's current license facility; and (3) the translator will rebroadcast a proposed AM primary station. To further reinforce the last element, if a Mattoon waiver is granted, the applicant will be required to accept a condition that the translator will rebroadcast the proposed AM primary for four years of on-air operations (exclusive of silent periods). Original guidance on Mattoon waivers also included preservation of adequate spectrum for LPFM stations in the analysis, but subsequent FCC decisions have not always analyzed that issue. Nonetheless, it is worthwhile to be aware of this earlier consideration, particularly given rumblings of a forthcoming LPFM filing window.

We all strive to comply with the FCC's Rules in many different contexts, but every once in a while it is important to be reminded that they are not inviolate. So next time you need to make adjustments to your NCE or translator facilities, keep these waiver options in mind – they may be just the ticket!

Host an SBE Ennes Workshop

ENNES WORKSHOP

Host a local educational event for your chapter or region. SBE Ennes Workshops are a full day of practical, technical information from industry experts. Bring one to your chapter.

sbe.org/ennes_workshop



FOCUS ON THE SBE

By James Ragsdale
SBE Executive Director
jagsdale@sbe.org

Invest in Yourself and Others

Many of you have invested in yourself this year, learning new technologies for your jobs or for the broadcast engineering industry. You attended classes, webinars, or studied written materials. However, some of you have invested in growing the knowledge of your peers, by donating to the Ennes Educational Foundation Trust. And others who came before donated to the Trust, leaving a legacy of educational opportunity. Each year, the Ennes Trust names recipients of five scholarships:

- John H. Battison SBE Founder's Scholarship (open to anyone)
- Harold E. Ennes Scholarship (open to anyone)
- Youth Scholarship (specifically for graduating high school seniors)
- Robert D. Greenberg Scholarship (open to anyone)
- Gino Ricciardelli Scholarship (open to anyone)

A minimum of five \$2,500 scholarships will be awarded in 2023.

Each year, the Ennes Educational Foundation Trust offers these scholarships to deserving candidates who aspire to a career in the technical aspects of broadcasting. Scholarship awards are used for tuition, room and board or textbook costs at post-secondary educational institutions, or for other technical training programs approved by the Scholarship Committee. Preference is given to applicants who are SBE members; however, any individuals otherwise eligible, including graduating high school seniors, are encouraged to apply. The application deadline is July 1 each year. Go to sbe.org/scholarship.

In addition to the SBE, there are other organizations supporting the broadcast engineering field. One of our peer organizations, the Association of Federal Communications Consulting Engineers (AFCCE), has a scholarship program. AFCCE awards cash scholarships each Spring and Fall to junior, senior and graduate engineering students who have an intention to pursue a career in telecommunications engineering.

Through its Scholarship Committee, AFCCE also administers the joint IEEE Broadcast Technology Society/AFCCE Jules Cohen Memorial Scholarship, the E. Noel Luddy Memorial Scholarship sponsored by Dielectric, Inc. as well as the Byron St. Clair Memorial Scholarship.

Scholarship applications are accepted from college students undertaking an undergraduate or graduate program at an accredited U.S. college, university or technical

school studying engineering or science and related to the telecommunications field. AFCCE administers several scholarships described in greater detail below. A single application will automatically enter you into consideration for all scholarships for which you are eligible.

The AFCCE Scholarship

The goal of The AFCCE Scholarship is to provide financial assistance to students who are undertaking a full-time undergraduate or graduate program at an accredited college or university with a major in engineering or science and related to the telecommunications field. Only Junior/Senior students and graduate students are eligible.

The AFCCE Scholarship generally ranges from \$500 to \$2,500 per semester depending upon the qualifications of the candidate as well as the candidate's demonstrated interest in pursuing a career in the telecommunications consulting engineering or related fields. Since 2006, AFCCE has awarded on average more than \$15,000 annually for the AFCCE Scholarship.

The IEEE Broadcast Technology Society/AFCCE Jules Cohen Memorial Scholarship

The IEEE Broadcast Technology Society (BTS) is a scientific and educational organization whose purpose is to advance the theory and practice of electrical and electronic engineering as it relates to the technology of broadcasting. BTS funds a memorial scholarship award for undergraduate (Junior/Senior) or graduate engineering students interested in a career in broadcast engineering honoring the memory of a long-time member of both AFCCE and BTS, Jules Cohen. Scholarship amounts are either \$5,000 or \$10,000. Students receiving an award may re-apply and are eligible to receive addition-

al awards, subject to a limit of \$15,000. Unsuccessful applicants may re-apply.

The E. Noel Luddy Scholarship

In 2010, broadcast antenna manufacturer Dielectric Communications established a scholarship honoring E. Noel Luddy (1917-2013). The E. Noel Luddy scholarship provides up to \$2,500 per year to Junior, Senior and graduate students who are majoring in engineering or other fields associated with the broadcast and telecommunications industries.

Byron St. Clair Memorial Scholarship

In 2018, the National Translator Association (NTA) established a scholarship in Byron's name, to be administered by AFCCE. The fund provides scholarships for promising undergraduate (including first & second year and community college students) and graduate students at accredited U.S. universities, colleges and technical schools interested in broadcast engineering or technology.

Application Deadlines

Applications deadlines are October 31 for the Spring semester and May 31 for the Fall semester. Applications received after the cut-off dates may be held for consideration for the next semester.

The SBE wants you to know that there are many opportunities to help pay for you to pursue further education and training. Also, we want to thank you for your willingness to invest in yourselves and your peers. This passion for broadcast engineering shows the selfless desire of our members to improve the world around us. If you know someone who would be a good candidate for any of these scholarships, please let them know how to apply.

Chapter Check

Chapter 53 South Florida

The chapter met at the Nema1

Electronics cable and connector manufacturing facility in Miami on Jan. 21. There was a one hour tour demonstrating the entire manufacturing process of typical broadcast cables (fiber and copper) from raw materials to finished product. Live extrusion, twisting, planetary cabling, and braiding operations as well as CNC connector manufacturing were all demonstrated. Attendees asked questions of the machine operators and gained a new perspective on the manufacturing process. After the tour, the group had lunch in the facility and continued with additional questions and answers about broadcast cabling.





ENGINEERING PERSPECTIVE

By Geary Morrill, CPBE, AMD, CBNE
Chair, SBE Education Committee
Regional Director of Engineering - Midwest, Alpha Media
gmorrill@sbe.org

Builds Aren't the Same Post-Pandemic

When it was decided to relocate Alpha Media's Louisville cluster post-pandemic from their longtime downtown location, we knew it was going to be a big undertaking. But as is often the case, the journey from Point A to Point B was full of "interesting" twists and turns.

Louisville's market manager had taken our initial location criteria, and identified three locations that would fit the bill (including line-of-sight to all five transmitter locations). After walk-throughs, we identified the 9300 Hurstbourne Building, a 13-story high-rise that is affectionately known by locals as "The Flashcube Building" East of downtown Louisville as our preference.



Studio 1 - A room with a view.

It started to become challenging when we were notified shortly after signing our lease that the building was being sold. In the process, new owners brought a new building engineer into the picture, and that meant he had to be brought up to speed on our project.

It's fair to note that an undertaking of this magnitude exceeds the average building tenant's requirements. Since this building is typically only occupied during "normal" business hours, the chillers in use are taken off line after hours and on weekends. This required the addition of mini-splits for the studios and TOC to support a 24/7 operation. Additionally, output from the emergency generator at ground level had to be routed to the 6th floor suite TOC where the transfer switch lives. Then there was the issue of locating our rooftop antennas.

Previous ownership had contracted with Phoenix Tower International for rooftop RF management, so we had to pause while the new ownership determined whether that relationship was going to continue. Already in existence on the roof was an AT&T cellular site, which we determined wasn't going to interfere with us RF wise, but locating our antennas was another matter. Fortunately, a reinforced cinder-block elevator penthouse provided us a suitable mounting location that allowed us to "see" our receive sites through apertures in the RF permeable glass facade that surrounds the penthouse, effectively hiding the cellular installation.

In order to route the transmission line from the rooftop antennas to the TOC, it was necessary to bring them down thru the building return air plenum that runs the complete height of the structure

into the basement where AT&T's equipment is located. Fortunately, there is a hatch at the roof level and existing snap in attachment for cable clamping also utilized by our AT&T friends. Installation is quite the opposite of scaling a guyed tower. In this case rappelling down the return plenum was in order.

As the rooftop location wasn't conducive to locating a C band Receive antenna there, we borrowed a trick utilized in a recent build in Gurnee, IL where we located the satellite antenna and receivers at a transmitter site, linked back to the studios over a hi-cap, bi-directional microwave link that delivers audio, metadata and contact closures over Axia AoIP, and also provides backup connectivity to the studio location using the fiber drop installed there.

The studios are built on Axia AoIP topography and utilize Wide Orbit Automation for Radio v 5.0 for playout.

Since the pandemic has taught us all the meaning of supply chain issues, we ordered all materials to complete this build well in advance. Still, we have materials that remain on back-order as the cutover was being made. Not the least of which is a pair of 6' high performance 11G antennas for the high cap link to the WDJX transmitter site. Fortunately, the internet connectivity that was planned to back up the RF and 11G links are all in place and Comrex BRICLinks are doing yeoman duty in the interim. And the acoustical windows for the showcase studios are also casualties of supply chain delays, forcing their installation to be delayed.

Because the majority of studio gear was being replaced at the new site, very little downtime was experienced as each of the stations were cut over to their new "digs". The existing streaming hardware was replaced with a Telos Z/IPStream X/2 appliance and telco converted to Telos VX utilizing the Vonage hosted service. Hardware for a couple 3rd party services (Futuri & Jelli) were easily migrated to the new facility.



TOC is the heart of the WOAFR/Axia infrastructure.

I don't believe it can be over-stressed to allow for the inevitable supply chain snafus. From the conversations I've had with suppliers, I fully expect this to be the case well into the foreseeable future.

AC Video Solutions • 2014
Andrea Cummis 201-303-1303
Consulting, Systems Design/Integration

American Tower Corporation • 2000
Tiffany Yu 603-930-9091
Development/Construction/Management

BB&S Lighting • 2023
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Manufacturer and Developer of High-end
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Barnfind-USA, Inc. • 2021
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Routers, Video Editing and Monitoring, Color
Correction, Video Converters

Bracke Manufacturing LLC • 2012
Patra Largent 949-756-1600
RF & Microwave Components

Broadcast Depot • 2018
Tim Jobe 305-281-7540
TV, Satellite, Radio, IP

Broadcast Devices, Inc. • 2015
Robert Tarsio 914-737-5032
Audio/RF Support Products

Broadcast Electronics Inc. • 1978
Perry Priestley 217-224-9600
Radio Equipment Manufacturer

Broadcast Software International • 2016
Marie Summers 541-338-8588
Radio Automation, Audio Logging

Broadcast Supply Worldwide • 1986
Shannon Nichols 800-426-8434
Audio Broadcast Equipment Supplier

Broadcasters General Store • 2004
Shane Finch 352-622-7700
Broadcast Audio Video Distributor

Burk Technology • 2019
Matt Leland 978-486-0086 x703
Transmitter Facility Control Systems

Calrec Audio • 2016
Helen Carr 703-307-1654
Audio Mixing 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

Crawford Broadcasting Company • 2021
Cris Alexander 303-481-1800
Media Company

CueScript • 2014
Michael Accardi 203-763-4030
Teleprompting Software & Hardware

Cumulus Media, Inc. • 2021
Conrad Traumann 212-419-2940
Audio Media Company

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
Radio & TV Antenna Systems and Monitoring

Digital Alert Systems, LLC • 2005
Bill Robertson 585-765-1155
Emergency Alert Systems

DoubleRadius, Inc. • 2012
Jeffrey Holdenrid 704-927-6085
IP Microwave STL

Drake Lighting • 2015
Dave Sheppard 270-804-7383
FAA Obstruction Lighting - Medium and High
Intensity

DTS Inc./HD Radio Technology • 2014
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
Tom Bow 212-997-5508
TV/FM/Microwave Tower Site

Econco • 1980
Debbie Storz 800-532-6626, 530-662-7553
New & Rebuilt Transmitting Tubes

ENCO Systems Inc. • 2003
Samantha Bortz 248-827-4440
Layout 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

Heartland Video Systems, Inc. • 2011
Dennis Klas 920-893-4204
Systems Integrator

Hilights, Inc. • 2016
Timothy Nash 352-564-8830
Obstruction Lighting Maintenance

Hitachi Kokusai Electric Comark • 2013
Jack McAnulty 413-998-1523
Manufacturer Broadcasting Transmission
Equipment

Indiana Broadcasters Association • 2019
Dave Arland 317-701-0084
Indiana Association for Radio & TV
Broadcasters

Inovonics Inc. • 2012
Gary Luhrman 831-458-0552
Radio Broadcast Equipment

Jampro Antennas Inc. • 2011
Alex Perchevitch 916-383-1177
DTV, FM-HD Radio, DVB-T/TT, ISDB-T, DAB

Kathrein USA Inc. • 1985
Les Kutasi 541-879-2312
Antennas for Broadcasting &
Communications

Kintronc Labs, Inc. • 2015
Brad Holly 423-878-3141
Radio Broadcast Antenna Systems - ISO9001
Registered Company

latakoo • 2021
Paul Adrian 214-683-0791
Media Workflow Automation

LBA Technology Inc. • 2002
Jerry Brown 252-757-0279 x228
AM/MW Antenna Equipment & Systems

Linkup Communications Corporation • 2017
Mark Johnson 703-217-8290
Satellite Technology Solutions

LumenServe • 2023
Bear Poth 512-423-8323
Tower Lighting

LYNX Technik • 2007
Steve Russell 661-251-8600
Broadcast Terminal Equipment Manufacturer

MaestroVision • 2021
Claude Turcotte 888-424-5505
Broadcast Automation Software

Markertek • 2002
Adam June 845-246-2357
Specialized Broadcast & Pro-Audio Supplier

Micronet Communications Inc. • 2005
Jeremy Lewis 972-422-7200
Coordination Services/Frequency Planning

Moseley Associates Inc. • 1977
Bill Gould 805-968-9621 x785
Digital STLs for Radio and Television

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
Ralph Beaver 813-282-8612
Game Day Coordination Operations

Nautel Inc. • 2002
Jeff Welton 877-662-8835
Radio Broadcast Transmitter Manufacturer

Nemal Electronics Int'l Inc. • 2011
Benjamin L. Nemser 305-899-0900
Cables, Connectors, Assemblies and Fiber
Optic

Neutrik USA, Inc. • 2012
Fred Morgenstern 704-916-0368
Ruggedized Optical Fiber Systems

Orban Labs, Inc. • 2011
Mike Pappas 480-403-8300
Audio Processing AMFMTV

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

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

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

NEW SUSTAINING MEMBER



NEW SUSTAINING MEMBER



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

Staco Energy Products Co. • 2010
Paul Heiligenberg 937-253-1191 x128
Manufacturer of Voltage Regulators, UPS

SuiteLife Systems • 2019
Nigel Brownnett 310-405-0839
Manage. Monitor. Control

Sutro Tower Inc. • 1989
Raul Velez 415-681-8850
Broadcast Tower Leasing

Synthax Inc. • 2020
Brittany Hilton 754-206-4220
Audio Codecs and Converter Solutions

Technical Broadcast Solutions, Inc. • 2018
Robert Russell 302-414-0055
Engineering and Consulting Services

Televs USA, LLC • 2021
Andy Ruffin 937-475-7255
Antennas Transmitters Measurement
Distribution

Telos Systems/Omnia/Axia • 2003
John Bisset 216-241-7225
Talk-Show Systems

Teradek • 2011
Jon Landman 949-743-5783
Camera-top ENG Solutions

Tieline The Codec Company • 2003
Dawn Shewmaker or Jacob Daniluck 317-845-8000
Audio Codec Manufacturer

Unimar Inc. • 2001
Thad Fink 315-699-4400, 813-943-4322
Tower Obstruction Lighting Designer,
Manufacturer, Distributor

Vizrt Group • 2022
Anne Hrubala 917-771-8330
More Stories. Better Told.

Wheatstone • 2010
Jay Tyler 252-638-7000
IP Consoles, Routers & Processors

WideOrbit • 2012
Brad Young 415-675-6700
Radio Automation and Layout

Wireless Infrastructure Services • 2006
Travis Donahue 951-371-4900
Repacking Services - West Coast Turnkey
Services

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Location: Phoenix, AZ
Chapter: 9 Phoenix
I'm Best Known For: Being an RF broadcast engineer. There are fewer and fewer RF engineers in our industry.

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

A. The camaraderie with the other engineers in the market.

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

A. When I was in high school, one of my instructors started a radio club and taught us about how a radio station works. When I started college, I worked at the student-owned radio station and later became a master control operator at the local PBS station.



Ben takes in a Nascar race.

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

A. Mike Mundt and Ken Segota, who worked with me at KUID while I attend-

ed the University of Idaho. I started as a master control operator and when I graduated I was working at a broadcast engineer. Perry Priestley, whom I worked with at Varian TVT and was later part of Harris Corporation.

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

A. The variety of the job. One day I might be working at my desk in the office, the next I might be working on transmitter or microwave equipment of some mountain top.

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

A. ...watch Nascar and play Sudoku.

Q. *What's your favorite gadget?*

A. The Raspberry Pi

Still Time to Renew Your SBE Membership

It is still not too late to renew your membership in the Society of Broadcast Engineers and retain your membership benefits. If you are a Member, Senior, Student, Associate or Fellow member, you may renew online at sbe.org. Click on "Renew Membership" in the upper right-hand corner of the website home page (or the hamburger drop-down menu on a mobile device). 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, but if you don't have them handy, there is an automated retrieval system available to you on the renewal page.

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2024. That's more than 100 webinars covering a broad range of broadcast/media technology, regulatory and safety topics.

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Traditional and MemberPlus Members

Membership renewal was due April 1. SBE By-laws provides for a three-month grace period (extends through June 30). If you chose the SBE MemberPlus option in 2022 and you did not renew by April 1, be aware that your SBE MemberPlus option benefits ended on April 1, 2023, and your membership was automatically converted to traditional membership for the duration of the grace period. If you renew during the grace period (or after), you can restore your free access to all SBE webinars by taking the SBE MemberPlus option.



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- Telos: iTunes gift card, Telos swag bag
- Tieline: Three Yeti insulated cups

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- A copy of SBE CertPreview
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- One \$25 gift certificate for the SBE Store/SBE Bookstore
- An SBE-logged hat
- Two SBE coffee mugs and magnets

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WELCOME TO THE SBE

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 Alec M. Bell - Wilmette, IL
 Iris Berkeley - Boulder, CO
 Anoo Bharania - Bethesda, MD
 Harry Bingaman - Northumberland, PA
 Jeffrey D. Bowen - Flint, MI
 Isaiah S. Briscoe - Richmond, VA
 Caleb R. Bryan - Virginia Beach, VA
 Jonathan Burtner - Nashville, TN
 Jared P. Chamberlain - Bethesda, MD
 Casey Cheek - Austin, TX
 Roshaine Chin - Kingston, Jamaica
 Bryant J. Colon - Chicago, IL
 Sam Cook - Alexandria, VA
 Dan Coronado - Los Angeles, CA
 Aaron C. Cox - Doe Run, MO
 Travis L. Cronen - East Helena, MT
 Stephen A. Darsey - Fort Worth, TX
 Joseph L. Davenport - Burbank, CA

John W. Davis - Rockingham, VA
 Kevin Ebersohl - Bethesda, MD
 Eric F. Espeut, III - Washington, DC
 McKay J. Everhart - Molalla, OR
 Simeon T. Fields - Mena, AR
 Allen Fream - Greensburg, PA
 Kyle J. Grandillo - Brooklyn, NY
 Phil T. Hannon - Monroe, LA
 Bryan Harley - Fresno, CA
 Christopher Harris - Norfolk, VA
 Matt Hock - University Center, MI
 Jessica A. Holderfield - Dothan, AL
 Stephen Hoover - Pittston, PA
 Hannah L. Huber - Borden, IN
 Michael Hutz - Philadelphia, PA
 Brian C. Jamison - Columbia, SC
 Reginald Jean - Woodland Hills, CA
 Daniel R. Jones - Terre Haute, IN
 William G. Judge - Cape Coral, FL

Mark J. Kewman - Sacramento, CA
 William King - Chandler, AZ
 David J. Knight - Meridian, MS
 Brendon G. Krantz - Chicago, IL
 Dan Lamatsch - St. Paul, MN
 Andrew L. LeBlanc - Gulfport, MS
 James J. Loukoutos - Orland Park, IL
 Kenny R. McAllister - Jackson, MS
 Michael P. McCann - Alexandria, VA
 Connor R. McDonald - Wichita Falls, TX
 Byron N. Oliver - Phoenix, AZ
 Salvatore Paglia - West Hills, CA
 Richard L. Parker, III - Tucson, AZ
 Venardo M. Patterson - Hanover, Jamaica
 Greg Phillips - Alexandria, MN
 John D. Philyaw - Halethorpe, MD
 Christopher A. Pulliam - Aiken, SC
 Dan J. Rapela - Washington, DC
 Patrick Reilly - Menands, NY

Michael J. Rivera - El Paso, TX
 Bryan Roberts - Bethesda, MD
 Noah W. Roleson - Greenwood, IN
 Christopher J. Roth - Silver Spring, MD
 Anthony C. Sanzeri - Henderson, NV
 Paul A. Schumann - Littleton, CO
 Spencer M. Six - Canoga Park, CA
 Gabriel J. Spears - Lake Mary, FL
 David Stiefel - Chicago, IL
 Wesley K. Stingley - Omaha, NE
 Dianna Strong - Dothan, AL
 Michael B. Thomas - Greenville, NC
 Richard L. Thordarson - Memphis, TN
 Jenna Touchette - Chicago, IL
 Gary A. Valdez, Jr. - San Antonio, TX
 Steve G. Vincent - Sacramento, KY
 Mark A. Wendell - Van Nuys, CA
 Matt Witzel - Mifflintown, PA
 David W. Woodward - Ada, OH

NEW STUDENT MEMBERS

Scott R. Day - Kalamazoo, MI
 Brendan Loring - Charlotte, NC
 Sean P. Meade - Muskegon, MI
 Ashley Rollo - Freehold, NJ

NEW ASSOCIATE MEMBERS

Diana Amaya - San Antonio, TX
 Max Herrle - Tallahassee, FL

Brian D. Allred - Boise, ID
 Justin L. Atkin - Vancouver, WA
 Rusty D. Backer - Cape Canaveral, FL
 Kristie A. Colombo - Rochester, NY
 Charles Contreras - Hudson, MA
 Erik Costa - Bowling Green, KY
 Dennis R. Dutra, Jr. - York Harbor, ME
 Mohanad A. Faisal - Bethany, CT
 John Fortune - Terrebonne, OR
 Michael A. Heim - New Middletown, OH
 Edward C. Hickey - Reno, NV

RETURNING MEMBERS

Raynell P. Jacobs - Gonzales, LA
 Mike W. Johnson - White City, OR
 Troy J. Jones - Shreveport, LA
 Aaron J. Jones - Mount Pleasant, MI
 Daniel R. Kaiser - Foxboro, MA
 David R. Krauskopf - Austin, TX
 Jeffrey D. Lovetinsky - Henderson, NV
 Matthew J. Marino - Odenton, MD
 Michael M. Morkavage - Pittston Twp, PA
 Stephen D. Palau - Riverside, CA
 Drew D. Pinkey - Atlanta, GA

Evan Roberts - Woodbridge, VA
 Jake Skiba - Chicago, IL
 Nishantha A. Udegama - Stanton, CA
 Christian L. Vang - Smyrna, GA
 Alejandro M. Vazquez - Knoxville, TN

In Memorium

Willie W. Smith - Ashland, MO
 Chad F. Hagedorn - Tacoma, WA
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MEMBERS ON THE MOVE



◀ **Ben Brintzer**, CPBE, AMD, is senior Tiger team engineer at iHeartMedia, Marietta, GA.

▶ **Rich Redmond** is president and CEO of Elenos, Quincy, IL.



▼ **Chris Tarr**, CPBE, AMD, CBNE, is the broadcast chair of the Wisconsin EAS Committee. He takes the position over from **Gary Timm**, who retired from the role on March 1.



John Mackey, CPBE, 8VSB, DRB, CBNE, is a senior broadcast engineer for Western Communications, Beaverton, OR.

▶ **Michael Saffell** is regional director of engineering for Hearts Television, Milford, NH.

Jacob Cummings is a staff engineer for Cumulus Media Kansas City and Topeka.



▶ **Michael Streby**, CBTE, 8VSB, CBNE, is regional director of engineering/IT for Gray Television, Sioux Falls, SD.



▶ **Jo Addalia**, CBTE, is vice president, broadcast technology, at Heart Television, Winter Park, FL.



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SBE Ennes Workshop @ the 2023 NAB Show Las Vegas April 14-15, 2023 sbe.org/ennes_workshop						
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SBE Membership Meeting April 17, 2023 NAB Show						
SBE WEBxtra April 17, 2023 sbe.org/webxtra <i>online</i>						
SBE WEBxtra May 15, 2023 sbe.org/webxtra <i>online</i>						
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