

# THE signal

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Society of Broadcast Engineers

**50** SBE  
**YEARS**  
1964-2014

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[www.sbe.org](http://www.sbe.org)

## SBE to Celebrate 50<sup>th</sup> Anniversary in 2014

On April 5, 1964, the Society of Broadcast Engineers was born, the result of years of work, debates and discussions, and even some controversy. What started with roughly 100 engineers at the initial meeting has grown to an organization of 114 chapters and more than 5,000 members found in all fifty states and 20 countries. The society will commemorate its fifty-year history throughout 2014.

A 50th anniversary committee has been working the past few months and has come up with special events and observances to mark the occasion. The aim is that all members have the opportunity to share in the celebration. The committee is co-chaired by Immediate Past President, Ralph Hogan, CPBE, DRB, CBNE and long-time SBE General Counsel, Chris Imlay, CBT. Others on the committee include past presidents, Chriss Scherer, CPBE, CBNT, Barry Thomas, CPBE, DRB, CBNE and all of the national

staff. Here is some of what's planned...

In early February, all members will receive a free special commemorative 50th anniversary sticker enclosed with their membership renewal letter. The peel-off sticker will be great to use in offices, vehicles or any place where you want to show your pride as a member of the SBE.

Beginning with this issue of The Signal, a special 50th anniversary design will be used and each issue will include an article by a significant figure in SBE history and photos that help tell the story of the SBE.

On Tuesday April 8, during the annual NAB Show in Las Vegas, a special 50th Anniversary Member Reception will be held following the annual spring membership meeting. Any member planning to attend the NAB Show will want to include this free event on their schedule, which is expected to draw 300 or more members of the SBE.

A web-based timeline will be built that illustrates key developments in the history of the SBE. Chapters will be encouraged to add their own important dates to the timeline. Also, a PowerPoint presentation will be produced that tells the story of how the SBE began and its development into the largest professional association today dedicated solely to the advancement of the broadcast engineer and the field of broadcast engineering. It will be made available to members and chapters as a download from the SBE website and as a DVD. It will make a great program for a chapter meeting and could also be used before other audiences to help tell the story of the SBE and the important role the broadcast engineer plays in delivering news and entertainment content to the public.

**50TH ANNIVERSARY, page 3**

## Highlights of the National Meeting in Indy

The 2013 SBE National Meeting, held in conjunction with the Indiana Broadcasters Association's (IBA) IT/Engineering Workshop, took place in Indianapolis, Ind. on October 29-30. Chapter 25, host of the national meeting, and the IBA, worked to make the event a success. More than 140 engineers, vendors and guests were in attendance. Tom Weber, CPBE, CBNT, chaired the IBA workshop. Jake Robinson is chairman of Chapter 25.



Paul Brenner, awards dinner keynote speaker, is thanked by President Snelson.

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## 50TH ANNIVERSARY from page 1

A special 50th anniversary SBE logo has been created and will be used throughout the anniversary celebration in publications, other printed materials and the website. Logo items with the 50th anniversary logo will be available including pins, shirts, hats and more.

The celebration will conclude with the 50th Annual SBE National Meeting, October 7-8, 2014 in Verona, N.Y. The event will be held in conjunction with the annual SBE Chapter 22 Broadcast and Technology Expo at the Turning Stone Resort. It will be a great finale to the year.



The SBE will also take advantage of the 50th anniversary to step up its efforts to educate high school and college students about careers in broadcast engineering and work to recruit younger people currently in the field into membership. We'll also work to communicate the importance of the broadcast engineer to the broader broadcast and media industry.

So stay tuned! Details about these events and activities will be released in the days and months ahead. We hope you'll take part in as many of them as you can. ●

## A snapshot in time



The 1975 SBE Board of Directors gathers, most likely at the annual NAB convention. The front row includes SBE presidents James C. Wulliman (2nd from l) of WTMJ, Milwaukee and Robert W. Flanders (4th from l) of WRTV, Indianapolis. Both men made significant contributions to the growth and development of the SBE. Can you identify any of the others?

## Nominations Open for SBE Fellow Candidates

Troy Pennington, CSRE CBNT, Chair, SBE Fellowship Committee

Do you know a member who has made a difference in an SBE chapter over an extended period of time? Someone who has exhibited a dedication to the advancement of the broadcast engineer, the field of broadcast engineering and the Society of Broadcast Engineers itself? Consider nominating him or her for the SBE Fellow rank of membership. The SBE is now accepting nominations for 2014.

Fellow membership is the highest level of SBE membership. It's a form of recognition for someone who has contributed significantly to the society, the field of broadcast engineering or its allied professions, or by disseminating their broadcasting knowledge and promoting its application in practice. Seventy-four members have been recognized with the honor in the society's 49 years of existence.

To nominate a member, candidates must be proposed in writing by a voting 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. All nominations are to be kept confidential. No others besides the nominators and the members of the Fellowship Committee should be aware of the nomination. Moreover, the nominee should not be made aware that he or she has been nominated.

Nominations for 2014 must be received no later than March 14, 2014 for consideration. The fellowship committee will bring the names of nominees to the board of directors for consideration and election at their April 2014 meeting. The SBE secretary will notify those elected. Awards will be presented at the SBE National Awards Dinner during the 2014 50th Anniversary SBE National Meeting to be held in Verona, N.Y.

Submit nominations to Fellowship Committee Chair, Troy Pennington, CSRE CBNT, 6156 Hampton Hall Way, Hermitage, TN 37076 or to troy.pennington@cumulus.com. ●



# LETTER FROM THE PRESIDENT

by Joe Snelson, CPBE, 8-VSB  
SBE President

## Looking ahead to our 50<sup>th</sup> year

Greetings SBE colleagues! This is my first letter in The Signal as president of the SBE. I would like to begin by saying I'm honored to be your president and look forward to working with the officers, board, national office staff and members as we move forward in the next year. I also want to express my thanks to Ralph Hogan for the leadership he has given SBE as president over the last two years. As Ralph passes the baton to me, I know we have several initiatives before us and I'm looking forward to a busy and exciting year. Before I share my thoughts on some of the things we have going on, I would like to take a moment to tell a little about myself and how I got involved in the SBE.

I have been in broadcasting for over 43 years and it is the only career I have ever known. I remember first hearing of the SBE early in my career when I was in the office of the chief engineer of my first TV/FM station and noticed a certificate hanging on the wall. When I asked about it he told me that he was a charter member of an organization that he joined in 1964. Of course, it was the SBE. At that time, the SBE would have been around eight years old. It was when I moved to Kansas City a few years later that the broadcast engineers in the area decided it was time to form a local SBE chapter. We did and Chapter 59 became a reality, which makes me a member of the SBE for over 35 years. I have served as vice chairman, secretary/treasurer, frequency coordinator and certification chairman on the local chapter level. In 2001, I began to get involved on the national level when I joined the national Certification Committee. In 2009, I was elected to the board and became the chairman of the national Frequency Coordination Committee.

One of my first duties as president was to appoint committee chairs to the various national committees that we have. Of those, I have actively participated in

the two committees I mentioned above and would like to give you a brief update.

The first is the national Certification Committee. As you read in the October issue of The Signal, Jim Bernier has stepped down as chairman of the committee. Jim is a close friend and is the one who got me involved on the national level of the SBE. Jim has been on the committee for eighteen years and served as chairman for the last eight years and has done an outstanding job leading it. In Jim's place I have appointed Ralph Hogan, Immediate Past President, as chairman of the committee. I have worked with Ralph for many years on the Certification Committee and I know he has a passion for seeing our certification program continue to advance.

The second is the national Frequency Coordination Committee that I have chaired for the past four years. I am pleased to have Dennis Wallace as chair of that committee. Dennis is a partner in the broadcast consulting firm of Meintel, Sgrignoli and Wallace. He is an expert on conducting field measurements for digital and mobile digital television. His expertise in RF propagation and interference will be a valuable asset as the SBE continues to deal with issues concerning BAS encroachment from other services.

Another major event for the SBE that I'm proud to be a part of is the celebration of our 50th anniversary. Over the next year we will be celebrating our 50th with various activities. We already kicked it off with the amnesty program for those individuals whose certification had lapsed. Other activities will be shared beginning in this month's issue of The Signal and continuing through October of next year. At our recent SBE National Meeting in October, we unveiled the 50th anniversary logo, which you see displayed in this issue of The Signal, and you will continue to see throughout the year. I believe this is not only an opportunity to celebrate the society envisioned by our founder, John

Battison, but it also gives us an opportunity to increase our visibility to other industry organizations and be a tool to help draw potential newcomers into the broadcast engineering field and the SBE.

Over the next year we will continue to execute the tactics for the strategies developed from the strategic planning meeting held in June, 2012. Some of those strategies included the formation of committees to look into rebranding, national awards, chapters, membership and youth outreach.

A branding committee explored how SBE is known to members, non-members, sustaining members and industry leaders. The committee worked for several months developing survey questions, conducting surveys and tabulating the results. The committee's report was submitted to the board at the October 2013 national meeting.

A membership/youth task group was formed to explore who members of the SBE are currently and who should be in future. They also took on how the SBE should further support our members and chapters. Similar to the branding committee, a survey was created and sent out. Their report was also submitted to the board at the October meeting.

Another committee is exploring how we can further support our chapters with training for chapter leadership. The local SBE chapters are the lifeblood of SBE.

A committee was formed regarding the SBE's 50th anniversary. Their report was also submitted to the SBE board along with a logo specifically designed for the 50th anniversary. It was unveiled at our national meeting as I mentioned earlier.

As you can see, we have a lot going on. I must stop for now but I look forward to sharing more with you in future issues. Until next time, I trust you and yours will have a safe and happy holiday season. See you next year!

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## LEGAL PERSPECTIVE

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

# The S-Band, BAS and MSS: Protecting Our Grandfather

The "S-Band" commonly refers to the band of frequencies from 2 to 4 GHz. Broadcasters don't use that terminology much; it is used more by satellite folks. We refer to the 2 GHz BAS band (2025-2110 MHz) and the 2.5 GHz BAS band (2450-2483.5 MHz), which is more precise for our purposes. SBE has written a lot about the 2 GHz band and the threats to continued BAS access to 2 GHz, and you will hear much more about that in the very near future, as there are active negotiations now among the Department of Defense, the NTIA, NAB and SBE about the band. Very little has been written lately, however, about the 2.5 GHz band. To some extent, the 2.5 GHz BAS band is an afterthought for both ENG and video production because of the terribly high noise levels in the 2450-2483.5 MHz band due to Part 15 unlicensed and Part 18 industrial, scientific and medical devices operating there. There are changes in the wind, however. FCC released a *Notice of Proposed Rule Making* on November 1, 2013 in Docket 13-213 that would, if rules are adopted as proposed, make BAS operation at 2.5 GHz even more complicated than it already is.

The story begins in 1985. At the time, the 2.5 GHz band extended from 2450-2500 MHz and included three channels of approximately 17 MHz bandwidth. There are still three BAS channels, identified as A8 (2450-2467 MHz), A9 (2467-2483.5 MHz), and A10 (2483.5-2500 MHz). However, in July of 1985, FCC stopped accepting applications for new or modified BAS, Part 90, and Part 101 microwave stations which would operate in channel A10, so that the segment 2483.5-2500 MHz could be used (as reallocated) for the Mobile Satellite Service (MSS) in the space-to-Earth direction (the so-called "Big LEO" satellites), and the Radiodetermination Satellite Service (RDSS) also in the space-to-Earth direction. The small segment at the top of the band, 2495-2500 MHz, is allocated on a co primary basis to the Fixed and Mobile services and Part 27 Broadband Radio Service stations are licensed to operate in the 2496-2500 MHz segment. Although the FCC allowed BAS licensees who held licenses permitting A10 operation as of July 25, 1985 to continue using that channel on a 'grandfathered' basis, the bulk of BAS operation now is in A8 and A9, which overlaps the Part 15 and Part 18 facilities authorized to operate there.

Indeed, channel A8 and A9 BAS licensees operate in a complicated environment. The United States Allocation Table shows that 2450-2483.5 MHz is allocated on a co-primary basis to the Fixed and Mobile Services for use by BAS and fixed point-to-point and point to multipoint networks, and to the

Radiolocation Service on a secondary basis. FCC says that there are approximately 599 active BAS licensees operating on Channels A8 and A9. The operations include 58 TV Relay (fixed Intercity Relay and TV Translator Relay stations); 492 TV Pickup mobile stations, 17 TV STLs, and 32 Local Television Transmission Service (LTTS) stations. FCC claims that there are approximately 186 "active" (that term is undefined by FCC) grandfathered BAS licensees operating on Channel A10, most of which are TV Pickups with a point-radius service area.

In 1994, when FCC first allowed MSS operations in A10, FCC claimed that MSS licensees could coordinate their operations to avoid causing harmful interference to existing (BAS) operations in the 2483.5-2500 MHz bands. It did not, therefore, offer any relocation spectrum for BAS licensees; it allowed the grandfathered BAS licensees to remain; and it declined to relocate grandfathered operations in this band. In 2003, FCC allowed MSS licensees who provided interconnected service in A10 to add Ancillary Terrestrial Components (ATC) operations. MSS licensees operating ATC facilities were supposed to coordinate their operations prior to construction and operation to avoid causing interference to BAS, Part 90, and Part 101 facilities in Channel A10 or to BAS Channels A8 and A9 stations and Parts 90 and 101 mobile and fixed stations in the 2450-2483.5 MHz band. Specifically, ATC operators, prior to construction of ATC base stations, were to consult SBE coordinators for information on the frequencies used and the geographic locations of the BAS systems that may receive harmful interference, and were obligated to take steps necessary to avoid causing harmful interference to previously licensed BAS facilities.

SBE realized at the time that this was an unworkable proposal, and that Broadband Radio Service facilities and Educational broadband facilities as well as MSS ATC threatened BAS operation in A8, A9 and A10. In response, in 2004 SBE proposed to "refarm" Channels A8-A10 such that each of the three channels would: (a) convert to digital operation; (b) ultimately reduce channel bandwidth from 17 MHz to 12 MHz channel bandwidth; and (3) consolidate the three BAS channels downward into a new, refarmed band between 2450 and 2486 MHz. This would effectively reduce the spectrum available for BAS and LTTS operation in the refarmed band, but it would also separate licensed BAS and LTTS users from MSS users and allow licensing of three channels once again rather than two. Though SBE

has repeatedly asked FCC to adjudicate this proposal in a series of docket proceedings dealing with the 2.5 GHz band, nothing has been resolved by FCC with respect to this proposal since 2004.

Now, FCC has released the NPRM in Docket 13-213 with a long comment date. FCC proposes to allow Globalstar to extend its ATC component downward to include 2473-2483.5 MHz. *SBE opposes this in the most vigorous terms.* It would preclude the possibility of SBE's long-pending 2.5 GHz refarming proposal. Moreover, FCC is considering another Globalstar proposal to increase the power of ATC facilities to permit those terrestrial stations to use LTE technology. Acknowledging the need to protect incumbent BAS operations, FCC asks in the new Docket for comment on Globalstar's ability to effectively coordinate the deployment of its terrestrial low-power network with primary BAS Channel A10 operations (though it does not specifically ask for comment on the impact of the ATC expansion proposal on A8 and A9 operations). An alternative to protecting grandfathered BAS Channel A10 stations from interference is, says FCC, relocating those stations. It is not clear what spectrum would be available for relocated BAS stations from A10. But SBE believes in any case that its almost ten year old refarming proposal is, and has long been, a better idea. We will continue to advocate it. Stay tuned. ●

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## CERTIFICATION UPDATE

by Ralph Hogan, CPBE, DRB, CBNE  
Certification Committee Chairman  
rhogan@sbe.org

# SBE Certification Stands Alone

This is my first article as the new SBE national certification chair. I am following the second longest certification chair and it may be a challenge as Jim Bernier provided a calm and insightful leadership style for the committee.

The SBE certification program is the preeminent, professional recognition available to broadcast engineers that provides standards of professional competence. It is the primary method of verifying the attainment of educational standards in the industry. The committee is committed to keeping the certification program and test database current and relevant for the modern telecommunications engineer, whether they work in the studio, on facility systems or RF plants. There is a certification and level for just about everyone.

SBE certifications start at the operator level, no experience required, and continue to the Certified Professional Broadcast Engineer, which requires a minimum of 20 years experience. By working closely with the SBE education committee, a number of the SBE educational offerings are designed to help prepare the applicant in support of taking some of the certification exams. We are continually exploring expanding these offerings to our members.

So who is eligible to become certified? The SBE certification procedures, which appear on the SBE website states:

"To be eligible for certification, you must have a strong interest in the design, operation, maintenance or administration of the day-to-day problems and achievements associated with the operation of a broadcast facility or related technology. You must also meet the specific eligibility requirements of the desired certification level. The SBE broadcast engineer certificate is not a license; it is a document that recognizes professional competence by peers in a professional, independent organization. Certification is for individuals only and may not be used to imply that an organization or firm is certified.

### Certification and SBE Membership

While membership is not a requirement to become certified by the SBE, non-member certification fees are higher because SBE members share in the overhead cost of all SBE activities. Non-members who certify at a technologist or engineering level are eligible to receive membership in SBE through April 1 of the following year. We hope they take advantage of this opportunity. It is our hope that you will like

what SBE has to offer and will want to continue your membership and support of your Society.

If you desire to take and pass one of the certification exams, it will be valid for five years. At the end of that time you can retake the test or recertify by points for another five-year period. Otherwise, your certification expires and will no longer be valid. The recertification points earned are designed to ensure that one has continued to keep their knowledge current and participate in their chosen field. The number of points needed for recertification varies depending on the certification level obtained.

I encourage those who hold current certifications to record activities and training obtained as they happen so at the end of the five-year period you will not have to try to remember what was done. Also, for those who are not yet certified, your local SBE chapter is a good place to start the process. A great resource for certification is your local SBE chapter certification chair. Usually they hold an upper level certification and can discuss with you the process and benefits of SBE certification.

No matter whether you are currently certified or thinking of becoming certified, you can be assured the SBE Certification Program is current with the technology that you are working with.



Outgoing Certification Chairman, Jim Bernier, holding plaque, is joined by members of the Certification Committee and staff.



### Certification Question

answer on page 15

Not counting the preamble, what is the maximum size of an Ethernet frame?

- A. 128 bytes
- B. 256 bytes
- C. 1024 bytes
- D. 1518 bytes

# New SBE Certification Achievements

## CONGRATULATIONS

### LIFE CERTIFICATION

Certified Professional Broadcast Engineers® and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59 ½ years old and are current members of SBE may be granted Life Certification if so requested. All certified who have retired from regular full-time employment and are at least 59 ½ years old may be granted Life Certification if they so request. If the request is approved, the person will continue in his/her current level of certification for life.

**Certified Professional Broadcast Engineer® (CPBE®)**  
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Thomas Beck, Hernando, Miss.

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David Creel, Gadsden, Ala. – Chapter 68

Peter Douglas, Ruskin, Fla. – Chapter 39  
Edward Dulaney, Kamay, Texas – Chapter 67  
Andrew Funk, Atlanta, Ga. – Chapter 5

Timothy Neese, Swannanoa, N. C. – Chapter 86  
Zejnullah Osmani, Prishtina, Albania  
John-Erick Rempillo, Yellowknife, NT Canada

### NOVEMBER EXAMS

**Certified Broadcast Radio Engineer™ (CBRE®)**  
Bryan Gillenwaters, Colorado Springs, Colo. – Chapter 48

**Certified Broadcast Television Engineer™ (CBTE®)**  
Jeffery Whaley, Winston, Ga. – Chapter 5

**Certified Radio Operator® (CRO®)**  
Dan Arias, Spring Hill, Fla. – Chapter 39  
Sara Warner, Lakewood, Ohio – Chapter 70

**Certified Television Operator® (CTO®)**  
Harold Eder, II, Newtown Square, Pa. – Chapter 18

### SPECIAL PROCTORED EXAMS

**Certified Broadcast Technologist® (CBT®)**  
Robert Clarke, Dededo, Guam – Chapter 63  
Benjamin Guice, West Monroe, La. – Chapter 44

### CERTIFIED BY LICENSE

**Certified Broadcast Technologist® (CBT®)**  
Ronald Brownlow, Schertz, Texas – Chapter 69  
Geoffrey Phillips, Little Rock, Ark.

Ajith John Varghese, Miranda, New South Wales, Australia  
James Volk, Manahawkin, N.J. – Chapter 18

### CERTIFIED RADIO OPERATOR® (CRO®)

Ricardo Barboza, Palmdale, Calif.  
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Theodore Kallman, Aurora, Colo.

### JUBILEE PROJECT

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**Certified Broadcast Networking Technologist® (CBNT®)**  
Albert Flores, Houston, Texas – Chapter 105

**Certified Broadcast Technologist® (CBT®)**  
Karl Schenk, Yakima, Wash. – Chapter 51

**Certified Television Operator® (CTO®)**  
David Malone, Schenectady, N.Y.  
Daniel Ruiz, Chino, Calif. – Chapter 131

### RECERTIFICATION

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

**Certified Professional Broadcast Engineer® (CPBE®)**  
Tracy Gibson, Manhattan, Kan. – Chapter 3  
William Hubbard, Green Bay, Wis. – Chapter 80  
Steve Mankowski, Glendale, Calif. – Chapter 131  
Gary Stigall, San Diego, Calif. – Chapter 36  
**Certified Senior Radio Engineer™ (CSRE®)**  
Troy Langham, Tulsa, Okla. – Chapter 56  
**Certified Senior Television Engineer™ (CSTE®)**  
James Cutwright, Fredericksburg, Va. – Chapter 37  
Robert Hinkle, Louisville, Ky. – Chapter 35  
**Certified Broadcast Radio Engineer™ (CBRE®)**  
Raymond Bagby, Weatherford, Okla. – Chapter 85  
Mack Friday, Merrillville, Ind. – Chapter 26  
Russell Kendrick, West Monroe, La. – Chapter 44  
Sam Virgillo, Yardley, Pa. – Chapter 18

**Certified Broadcast Television Engineer™ (CBTE®)**  
Jason Barger, Castle Rock, Colo. – Chapter 48  
Theran Davis, Ellenwood, Ga. – Chapter 5  
Darryl Douglas, Vail, Ariz. – Chapter 32  
Dana Nahumck, Colchester, Vt. – Chapter 22  
Joseph Wargo, Lyndhurst, Ohio – Chapter 70  
**Certified Audio Engineer® (CEA®)**  
Jay Champagne, Chicago, Ill. – Chapter 26  
Vincent Piantanida, San Francisco, Calif. – Chapter 40  
Richard Rarey, Kensington, Md. – Chapter 37  
Sam Virgillo, Yardley, Pa. – Chapter 18  
**Certified Broadcast Networking Technologist® (CBNT®)**  
Raymond Bagby, Weatherford, Okla. – Chapter 85  
David Baker, Carol Stream, Ill. – Chapter 26  
Daniel Brown, Natick, Mass. – Chapter 11  
Theran Davis, Ellenwood, Ga. – Chapter 5

Jack Epperson, Wellington, Fla. – Chapter 88  
Mack Friday, Merrillville, Ind. – Chapter 26  
Tracy Gibson, Manhattan, Kan. – Chapter 3  
Kate Landow, Denver, Colo. – Chapter 48  
Steve Mankowski, Glendale, Calif. – Chapter 131  
Paul Michaels, Raleigh, N.C. – Chapter 93  
Richard Rarey, Kensington, Md. – Chapter 37  
Scott Storckel, Arlington, Va. – Chapter 37  
**Certified Broadcast Technologist® (CBT®)**  
Gregory Ehrman, Phoenix, Ariz. – Chapter 9  
Chad Hagedorn, Tacoma, Wash. – Chapter 16  
W. David Johnson, Columbus, Ohio – Chapter 52  
Kate Landow, Denver, Colo. – Chapter 48  
Mary Beth Leidman, Indiana, Pa. – Chapter 20  
Michael Matovich, Jr., Portsmouth, Va. – Chapter 54  
Paul Michaels, Raleigh, N.C. – Chapter 93  
Teresa Park, Eagle Point, Ore. – Chapter 141  
Brad Plant, New York, N.Y. – Chapter 15  
Jeremy Preece, Corona, Calif. – Chapter 131

Michael Seguin, Burlington, Vt. – Chapter 110  
Robert Spain, Thermopolis, Wyo. – Chapter 129  
Robert Whiting, Highlands Ranch, Colo. – Chapter 48  
**Certified Television Operator® (CTO®)**  
Benjamin Bates, Kalamazoo, Mich.  
David Gonzales, Phoenix, Ariz.  
Steven Hurlay, Chicago, Ill.  
Jeremy Lawrence, Fort Worth, Texas  
Allen Mou, Rowland Heights, Calif. – Chapter 47  
Kurt Race, Grand Rapids, Mich. – Chapter 102  
Valerie Rostkowski, Brooklyn, N.Y. – Chapter 15  
Richard Sharp, Jr., Greenville, Mich. – Chapter 102  
Michael Tonges, Canton, Ohio – Chapter 70  
**Certified Radio Operator® (CRO®)**  
Dean Phannenstiel, Edgewater, Colo. – Chapter 48  
Valerie Rostkowski, Brooklyn, N.Y. – Chapter 15

## Accredited SBE Frequency Coordinators

The Society of Broadcast Engineers began the Accreditation program to provide volunteer SBE coordinators the opportunity to be recognized as part of a standards-based, nationally recognized program of local voluntary broadcast-auxiliary frequency coordinators. The program also makes it possible for SBE to demonstrate to the broadcasting industry the widespread acceptance of a voluntary set of standards guiding local coordination.

Thomas R. BonDurant, CSRE Brandon, MS Chapter 125

## NATIONAL MEETING from page 1

The annual SBE Fellows Breakfast, sponsored for the 17th consecutive year by Kathrein, Scala Division, was attended by 19 Fellows and guests, including two of the newest Fellows, Jim Schoedler, CBNT and Larry Wilkins, CPBE, AMD, CBNT.

A highlight of the event was the SBE Annual Membership Meeting, which was streamed live. President Ralph Hogan, CPBE, DRB, CBNE passed the gavel to incoming president Joe Snelson, CPBE, 8-VSB. Other new officers and directors were also inducted. Reports and updates were provided on the society's certification, education, membership and government relations programs. Sponsors of the membership meeting included Blackmagic Design, DVEO, Orban and Teradek. Our thanks also go to Vinny Lopez, CEV, CBNT, Robinson, Weber and SBE staff for producing the program and to Emmis Communications and Indianapolis television stations, WISH, WTHR and WXIN for providing equipment and technical support.

Another highlight of the event was the SBE National Awards Dinner, sponsored by Nautel. Ed Miller, CPBE and Dennis Baldrige, CPBE, 8-VSB, AMD, DRB, CBNT, winners of the Robert W. Flanders SBE Engineer of the Year and James C. Wulliman Educator of the

Year awards respectively, were recognized as were three new SBE Fellows, Lawrence Behr, CSBE, Jim Schoedler and Larry Wilkins, CPBE, AMD, CBNT. Christopher Scherer, CPBE, CBNT received the award for Best Article, Paper or Program and Vislink Broadcast won the SBE Technology Award. Awards for chapter excellence went to eight chapters in five categories. See photos of winners and others at the national meeting on page 8-9 of this issue.

Emcee of the awards dinner was new SBE President, Joe Snelson, CPBE, 8-VSB, Vice President of Engineering at Meredith Corporation, who addressed the crowd about the society's work in the coming year. Guest speaker, Paul Brenner, SVP and CTO of Emmis Communications, provided insight into the developments in content delivery, including the availability of FM radio on cell phones. The dinner was preceded by a packed reception, sponsored by Vislink Broadcast.

A recording of the SBE Membership Meeting can be viewed on the SBE website.

The SBE Board met for its regular fall meeting the night before the IBA workshop and other SBE events. Among the actions the board took were the approval of recommendations presented by three of the SBE Strategic Planning task groups. In the coming months, plans will be developed to implement the recommendations that will seek to improve member growth and retention, market the society and attract young people to the broadcast engineering field. President Snelson will outline these in the February 2014 issue of the Signal. The recommendations of the 50th Anniversary task group were approved and are already being implemented (see *50th Anniversary* cover article in this issue of The Signal).

The Board approved an operating budget for the society for 2014 which keeps all membership dues levels the same as in 2013. 



President Snelson (r) presents Vislink Broadcast, represented by Eric McCulley, with the SBE Technology Award.



Kirk Harnack accepts the Golden Recruiter Award on behalf of Chapter 103, Nashville from Executive Director, John Poray.



Members of the 2013 SBE National Board of Directors.



Terry Baun accepts the Best Paper, Book or Program Award on behalf of Chriss Scherer from President Snelson.



Gary Liebisch of Nautel, which sponsored the awards dinner, addresses the crowd.



Recipients and representatives of the chapter awards display their certificates.





Jim Schoedler accepts the SBE Fellow honor with other SBE Fellows behind him.



Michael Hayden accepts the SBE Fellow membership rank on behalf of Lawrence Behr from President Snelson.



Larry Wilkins poses with his SBE Fellow membership certificate.



Dennis Baldrige received the James C. Wulliman SBE Educator of the Year Award.



Ed Miller accepts the Robert W. Flanders SBE Engineer of the Year Award from President Snelson.



Recognizing our meeting hosts Tom Weber and Jake Robinson of Chapter 25 and Gwen Piening of IBA.



Ray Benedict (I) is recognized by President Hogan for three decades of SBE national service.



President Hogan is recognized for his two years of service leading the SBE, by John Poray.



New national directors take office.



SBE General Counsel Chris Imlay gives the oath of office to (from l) Jerry Massey, Andrea Cummis, Jim Leifer.



## FOCUS ON SBE

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

# 1964 or 2014 — The reasons to be a member are the same

The SBE has officially begun its celebration of fifty years as an organization. A rundown of some of the ways we'll mark the year appears on page one of this issue of *The Signal*. It should be a fun and memorable time and we hope to involve as many of you as possible. Though we'll take time to look back and celebrate, we'll also use the anniversary as an opportunity to look forward to the Society's future.

President Joe Snelson has already announced, at both the recent national meeting and in this issue of *The Signal*, that the SBE will be working on how we communicate our message and brand, and will be developing new ways to increase the support we provide to our members and chapters and the value of membership itself.

I've had the opportunity recently to read a few of the historical articles and letters written fifty years or more ago by the founders of the SBE about why a professional society for broadcast engineers was necessary. The reasons they stated in the early 1960s are still valid today.

- **Professional Development**—SBE is dedicated to advancing the field of Broadcast Engineering and puts you on the forefront of cutting edge technology. Holding SBE certification indicates to others that you have attained a significant level of knowledge and experience in the field.
- **Your voice is needed** — Your experiences are key to advancing the field. The SBE brings together a unique mix of radio, television, mobile, satellite, production and other engineers and technicians, and interacts with the broadcast industry as a whole.
- **It's sound economics** — If you are a broadcast engineer, the benefits of SBE membership exceeds the cost.
- **It's good for your career** — SBE membership presents great opportunities to network and develop leadership skills.
- **Membership will keep you connected** — SBE has professional forums; a network of chapters and on-line discussions groups. You

can connect with other members using our website directory.

- **It keeps you up to date** — SBE membership includes *The Signal*, SBE-news, Career Advancement News, SBE social media, SBE Roundtable and EAS Exchange the SBE JobsOnline and Resume Service.
- **It gives you perspective** — Connecting with other SBE members gives you new insight and helps you maintain a balanced perspective about your profession.

I encourage you to take the opportunity of this 50th year of the SBE to invite others in this business to become members; especially those who are still in the earlier stages of their careers. They need to hear from you why it's important to connect to others in the field. The Society will also benefit from their involvement, ideas, knowledge and perspective they bring. ●

## Changes Made to Life Member Qualifications, Board of Tellers

The Board of Directors of the Society of Broadcast Engineers approved changes to two by-laws during its meeting in Indianapolis on October 29, 2013. Jim Leifer, CPBE, chairman of the By-laws Committee, brought the recommendations to the Board, which dealt with changes to the requirements for Life Membership and the appointment of the board of tellers to count and oversee the annual election of the national board.

The modifications to the requirements for Life Membership included changing the requirement of being "retired from full employment," to being, "retired from broadcast engineering..." It also adds a minimum age requirement of 65, and increases the number of consecutive years of membership in good standing a member has at the time of application for Life Membership, from 10 to 15.

Once approved for Life Membership, Life members pay no further dues for the rest of their life and retain access to full member benefits. The changes take effect on January 1, 2014. All current Life members are grandfathered under the previous requirements.

### Life Membership: Article II, Section 2(g).

- **Previous (effective through December 31, 2013) (g) Life Membership:** Any Member or Fellow in good standing who has retired from

full employment and who has been a member in good standing for 10 or more consecutive years immediately preceding application, may, at his request, be placed on the Life Membership list.

- **New (effective January 1, 2014 – italicized text indicates changes) (g) Life Membership:** Any Member or Fellow in good standing who has retired from *broadcast engineering, is at least 65 years of age*, and who has been a member in good standing for *15* or more consecutive years immediately preceding application, may, at his request, be placed on the Life Membership list.

The changes to the requirements for the Board of Tellers reduce the minimum number needed from five to three. The Board of tellers counts the ballots and confirms the election results. Since 90% of the ballots cast are now done via the Internet and those results are automatically tabulated, it takes fewer people to count the paper ballots that are cast, add them to the electronic totals and confirm the total results.

### Board of Tellers: Article VIII, Section 2, Elections

- **Previous (effective through December 31, 2013) Section 2. Elections.** Elections shall be by mail and/or electronic Ballot which shall be

mailed and/or electronically available to every voting Member in good standing at least thirty (30) days prior to election date. The votes shall be canvassed by a Board of Tellers, consisting of not less than five (5) Members in good standing appointed by the Board of Directors. The results of the Election shall be reported by the Chairman of the Board of Tellers to the President within ten (10) days of the date of the election. The President shall then report the results to the Secretary, who shall notify the membership.

- **New (effective January 1, 2014 – italicized text indicates changes) Section 2. Elections.** Elections shall be by mail and/or electronic Ballot which shall be mailed and/or electronically available to every voting Member in good standing at least thirty (30) days prior to election date. The votes shall be canvassed by a Board of Tellers, consisting of not less than *three (3)* Members in good standing appointed by the Board of Directors.

The results of the Election shall be reported by the Chairman of the Board of Tellers to the President within ten (10) days of the date of the election. The President shall then report the results to the Secretary, who shall notify the membership. ●



## EDUCATION UPDATE

by Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE  
SBE Education Committee Chairman  
w-pecena@tamu.edu

# New Year Brings New Opportunity to Learn

As 2013 comes to a close, it offers an opportunity to reflect on the past year. The SBE has provided numerous professional development events delivered in a variety of venues, whether on-line or by an on-site tutorial. I hope that you took advantage of some of these resources to help further your own knowledge. You can look forward to 2014 bringing a wide variety of SBE educational programs to you. As you might recall, Kristin Owens joined the SBE national office staff in mid-September as education director. Her experience and background has proven to be an asset to developing and bringing programs from inception to life. Please join me in welcoming Kristin as we look forward to a productive 2014!

If you are involved or have interest in the design or support of AM antenna systems, I hope you were able to take advantage of Cris Alexander's "AM Rule Change" webinar, presented by the SBE in October. The webinar focused upon recent FCC rules changes that are of actual benefit to the AM broadcaster. These rule changes made AM antenna protection universal across services, provide a mechanism for dealing with existing pattern interference, and provides for the use of moment-method modeling as the primary means of determining re-radiation potential. If you missed the free "live" presentation of this webinar, it is available free to members on demand from the SBE website. And as a reminder, all SBE webinars are available on demand so that you can take advantage of many excellent educational presentations on your time schedule.

The last Ennes Workshop for 2013 wrapped up in November in conjunction with the New England Broadcast and Cable Expo held in Worcester, Mass. This one-day event offered eight technical presentations ranging from "Ethernet AVB" to "Newsgathering Transmission Techniques" to "Understanding Filters" used in the building of RF combining systems.

Are you aware that you can bring an Ennes Workshop to your local chapter, regional meeting or state conference in 2014? Along with the Technical Presenters Group, the SBE offers cost-effective Professional Development resources to help make your event a success by providing quality technical presentations. Contact Kristin Owens at the SBE office for more information.

As the SBE begins its 50th year of service to the broadcast engineering community, it is difficult not

to look back at our own individual careers in this industry. The past 50 years has provided some of the most rapid changes in technology that the world has ever seen. Broadcast engineering has certainly been a major benefactor, and sometimes victim, of the changing times. Some of you grew up in a solid-state world where the microprocessor was a common building block to virtually every piece of broadcast gear. Others might have begun in the vacuum tube days, learned and became comfortable in the solid-state world, and now thrive in the "everything is networked" environment. Learning new technology over the course of your career was just another task to be fit into the already overloaded broadcast engineer's day. Where to find the time to learn the "new" technology was likely as great fifty years ago as it is today.

### How did you get started and learn Broadcast Engineering?


Maybe you began with a formal course of study in electronics through a college or university. Maybe your path was military training. Or maybe it was a correspondence course from the likes of the Cleveland Institute of Electronics (CIE) or National Radio Institute (NRI). Many broadcast engineers started out with an early-age interest in Amateur Radio and found their way to Broadcast Engineering. Who didn't want a 50 kW rig to nurture? As you rose through the ranks, you might have been fortunate to have a trusted mentor or "Elmer" to steer you in the right direction. Regardless of the path you took, you likely undertook personal study as broadcast engineering was and is a unique field where very few formal courses of study have existed. What occupies your personal "self-study" library bookshelf today?

Before deregulation in the mid-1980's, obtaining the FCC First Class Radiotelephone license was a major milestone in one's career. Preparation for the trip to the local FCC Field Office was likely filled with countless hours of self-study. Regardless of the path your career has taken you, it is likely filled with hands-on experience and making the time to learn and keep up the technology.

Please share your background with SBE colleagues by "joining the conversation" at the SBE Blog. Post your personal story at <http://blog.sbe.org/>.

And speaking of history, SBE member Mark Durenberger, CPBE has penned an excellent e-book

titled *CONNECTING A CONTINENT: AT&T and the Radio Networks*. If you have ever dealt with the phone company in your broadcast career, you will surely enjoy learning how the original radio networks were built out and operated. It is often overlooked as to the technologies AT&T developed for network broadcast transmission, from early voice to RF Carrier. Contact Mark at [Mark4@durenberger.com](mailto:Mark4@durenberger.com) for a free copy of his e-book. A warning: your iPad or similar reader will be difficult to put down after this download!

The SBE Education Committee is comprised of your peer colleagues that volunteer their time, knowledge, and expertise to identify education needs of the membership and industry, determine and review content of programs offered, develop new programs, and select those best qualified to deliver the desired content. Let us know your interests and needs. Volunteer your knowledge and expertise by providing education events to the membership. Remember, the SBE is your Society! 

For more information on any SBE Education program, contact Kristin Owens, Education Director at the National SBE office.



John Naylor of Ross Video spoke at the Ennes Workshop in Worcester, Mass. on Nov. 7.

# Looking Back Over 50 Years of History of the SBE...

In celebration of the SBE's first 50 years, we're featuring in the December 2013 through October 2014 issues of *The Signal*, articles from guest writers who contribute their remembrances and thoughts for the future about the society. In this first issue, we take a look back almost 50 years to the first, "Editorial Cue Line" that appeared in Volume 1, Number 1 of the *SBE Journal* in June of 1964; the forerunner of *The Signal*. Written by SBE founder, "SBE Steering Committee Chairman" and later first SBE President, John Battison, it provides some insight into the organization just two months after its formation on April 5 during that year's NAB convention.

## Shape of Things to Come

Welcome to Volume One Number One of the JOURNAL of the Society of Broadcast Engineers! In 1961 when editor of a magazine in this field we wrote an editorial bemoaning the demise of the IRE and need for a replacement association to cater to broadcast engineers. The response was tremendous, and we looked around expecting someone to do something about it. No one did. So early this year we got together with some other engineers and formed the Institute of Broadcast Engineers with a first meeting at the NAB convention. The meeting was a success, the name was changed to the Society of Broadcast Engineers, and we are on our way to national recognition, thanks to the activities of our members and their strong interest. So writing this editorial is a really rewarding experience.

## Guest Chairman

It is fitting, too, that in our first edition of the JOURNAL we should have a guest editorial from the Chairman of the Federal Communications Commission,

the Honorable E. William Henry. It was not without some trepidation that we approached him, for after all we are a brash young organization, but his prompt and gracious reply was as encouraging as 1000 new members! So it is with much pride and pleasure that we present our guest editorialist: the Honorable E. William Henry, Chairman, Federal Communications Commission.

## Committees

As members know, our Steering Committee is planning our future course, and before long we hope to be able to announce long-range plans. The Memberships Standard Committee, under the Chairmanship of Bill Kramer, is hard at work establishing standards for membership. At present all who join become charter members, but once we have established standards which will be presented to members for approval or change, entrance grade and senior grades will have to be justified. We feel sure that all members will want to hold to a reasonable standard to maintain and increase the prestige value of belonging to SBE and to make it a worthwhile goal.

In this connection we should point out that SBE is not going to become a long-hair ivory tower organization, but if it is to mean something it must have standards. One or two leading broadcast industry engineers whom we approached to sit on the Steering Committee expressed the thoughts that we are not sufficiently demanding in our standards. Nor probably was IRE when it started; as the SBE grows prestige-wise so will our members.

## Sustaining Members

Not long before this issue went to press we invited a number of the top radio and television equipment suppliers to become sustaining (sponsor) members. So

far six have replied, two of whom no longer manufacture equipment in our field, and two have joined in support of the SBE. The Society is proud to welcome Andrew Alford of Alford Manufacturing Company, Boston and Messrs. Burke and James, Chicago, as Sustaining Members Numbers One and Two.

## AM Freeze

As we write these words rumors are spreading that the AM Freeze is almost over. Perhaps by the time this reaches our members it will be!

Whatever the new Rules to say, it is certain that the effect of ending the freeze can only be beneficial to everyone connected with the standard broadcast field. Probably the first to feel the warmth will be the consulting engineers, many of whom have found the freeze to be literally a very cold affair! Our strong hope is that the new Rules will be based on sound engineering principles but will be interpreted and applied reasonably when circumstances justify it.

## The Journal

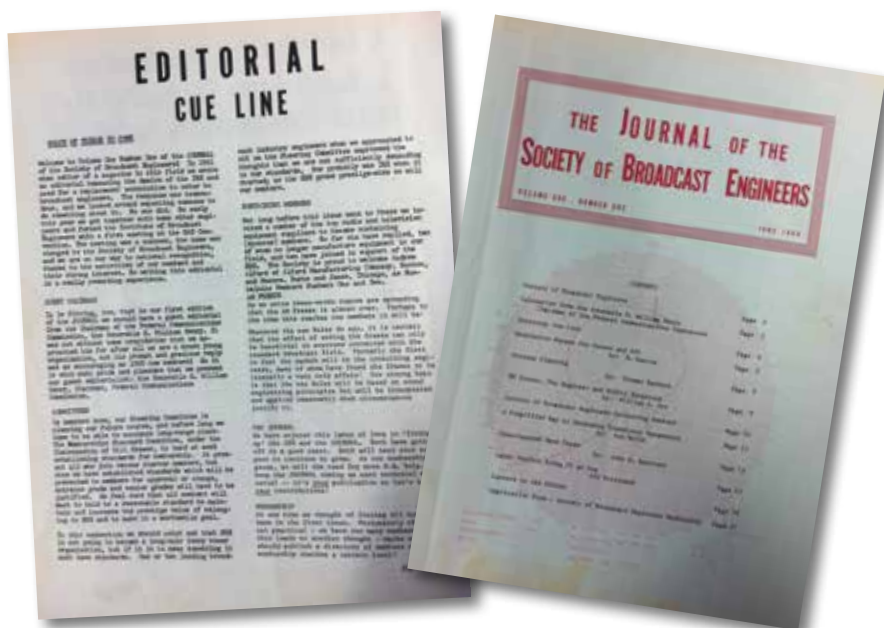
We have enjoyed this labor of love in "firing up" the SBE and the JOURNAL. Both have gotten off to a good start. Both will need your support to continue to grow. As our membership grows, so will the need for more H.Q. help. To keep the JOURNAL coming we need technical material – it's your publication so let's have your contributions!

## Membership

At one time we thought of listing all our members in the first issue. Fortunately this is not practical – we have too many members. So this leads to another thought – maybe soon we should publish a directory of members once our membership reaches a certain level? ●



SBE founder, John Battison



The first SBE Journal, published in June 1964, included an editorial called, Cue Line, by SBE founder John Battison.

**Advanced Broadcast Solutions • 2012**  
Arco Groenberg (206) 870-0244  
Systems Integrator

**Advanced Electronic Services (AES) • 2012**  
Eda Gray (336) 719-0755 Ext. 142  
Electronic, Hydraulic, Motor Repair

**American Tower Corporation • 2000**  
Peter A. Starke (781) 461-6780  
Development/Construction/Management

**Anton/Bauer Inc. • 2004**  
Kyle Dann (203) 929-1100  
Manufacturer Portable Power Systems

**ATCi • 2012**  
Anthony Graves (480) 844-8501  
Satellite Communications Solutions  
Provider

**Audemat-Worldcast Systems Inc. • 2000**  
Christophe Poulain (305) 249-3110  
Control Manufacturer

**AVCOM of Virginia, Inc. • 2010**  
Warren McElfresh (804) 794-2500  
ext. 312  
Spectrum Analyzers

**Avid Technology • 2011**  
Rich Griffin (303) 248-3259  
Broadcast Products and Services

**Belden Electronic Division • 1991**  
Steve Lampen (800) 235-3361  
Cable and Connectivity

**Bexel • 2009**  
John Root (818) 565-4314  
Calrec Broadcast and Audio Consoles

**Blackmagic Design • 2012**  
Terry Frechette (978) 337-0991  
Switchers, Digital Cameras, Routers

**Blonder Tongue Laboratories, Inc. • 2013**  
Jeff Smith (512) 238-6973  
Encoders, Digital CATV, EdgeQAM/IP

**Boxx Communications • 2012**  
Mark Walker (310) 287-1285  
HD Wireless Video Transmission

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

**Broadcast Electronics Inc. • 1978**  
Tom Beck (217) 224-9600  
Radio Equipment Manufacturer

**Broadcast Microwave Services Inc. • 1997**  
Jim Kubit (805) 581-4566  
Manufacturer, Transmitters, Receivers,  
Antenna Systems

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

**Broadcasters General Store • 2004**  
Buck Waters (352) 622-7700  
Broadcast Audio Video Distributor

**Canon USA Inc. • 1985**  
Larry Thorpe (201) 807-3300,  
(800) 321-4388  
Broadcast Lenses & Transmission  
Equipment

**Cavell, Mertz & Associates Inc. • 2011**  
Gary Cavell (703) 392-9090  
Consulting Services

**Chyron Corporation • 2013**  
Kieran Foster (905) 330-8902  
Broadcast Graphics Solutions

**Comark • 2013**  
Perry Priestley (410) 750-2165  
Broadcast Equipment & Manufacturer

**Comrex Corporation • 1997**  
Chris Crump (978) 784-1776  
Audio CODECS & Telephone Interface  
Products

**Comsearch • 2004**  
Tim Hardy (703) 726-5651  
Frequency Coordination Services

**Content & Communications World (CCW) • 2006**  
Michael Driscoll (203) 371-6322  
HD World, 3D World and SATCON

**Continental Electronics Corporation • 1976**  
Michael Troje (800) 733-5011  
AM & FM IBOC Transmitters

**Dialight Corporation • 2006**  
US Headquarters (732) 919-3119  
FAA Obstruction Lighting, L.E.D. Based

**Dielectric Communications • 1995**  
Cory Edwards (207) 655-8131  
TV & FM Transmission & Cellular  
Products

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

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

**DSI RF Systems, Inc. • 2010**  
Judy Mueller (732) 563-1144  
RF Service/Installation/Products

**du Treil, Lundin & Rackley, Inc. • 1985**  
Jeff Reynolds (941) 329-6000  
Consulting Engineers

**DVE0 - Division of Computer Modules Inc. • 2011**  
Laszlo Zoltan (858) 613-1818  
Everything About Transport Streams

**e2v • 1997**  
Mark Strohecker (914) 593-6831  
Electronic Components, SATCom  
Amplifiers

**Econco • 1980**  
Debbie Storz (800) 532-6626 or (530)  
662-7553  
New & Rebuilt Transmitting Tubes

**Elektronika America Inc. • 2010**  
Maria Quintero (305) 592-4506  
High Efficiency FM/TV Transmitter &  
Exciters

**ENCO Systems Inc. • 2003**  
Kenneth Frommert (800) 362-6797  
Digital Audio Automation & Delivery

**ERI - Electronics Research • 1990**  
David White (812) 925-6000  
Broadcast Antennas, Transmission Line,  
Filters/Combiners, Towers and Services

**Federal Communications Compliance LLC. • 2012**  
Jim Purther (202) 670-4322  
FCC Public File Compliance

**Floral Systems • 2008**  
Ashley Condon (352) 372-8326  
Television Broadcast Automation

**FOR-A Corporation of America • 2013**  
Adam Daniul (305) 773-7608  
Innovation in Video and Audio  
Technology

**Fujinon, Inc. • 1986**  
Thom Calabro (973) 633-5600  
Broadcast & Communications Products

**Gepco International/General Cable • 1995**  
Joe Zajac (847) 795-9555  
Audio, Video Cable Products

**Graham Brock, Inc. • 2012**  
Marilyn Matheny (912) 638-8028  
Technical Consultation - Radio/TV

**Harris Broadcast • 1977**  
Dave Hopson (TV) (513) 445-5243  
Mark Goins (Radio) (513) 899-9124  
Broadcast Equipment Manufacturer

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

**Henry Engineering • 2011**  
Hank Landsberg (562) 493-3589  
"We Build Solutions"

**High Resolution Systems • 2011**  
Drew Taylor (888) 742-7690 ext. 108  
Systems and Show Control

**Image Video • 1997**  
Zach Wilkie (416) 750-8872 ext. 228  
Under Monitor Tally Display Systems,  
Monitor Design and Manufacture  
Broadcast Equipment

**Inovonics Inc. • 2012**  
Lukas Hurwitz (831) 458-0552  
Radio Broadcast Equipment

**International Datacasting Corporation • 2012**  
Rudi Polednik (613) 596-4120 ext.  
2222  
Media-aware Content Delivery

**JAMPRO Antennas Inc. • 2011**  
Alex Perchevitch (916) 383-1177  
DTV/DVBT & HD Radio-IBOC Solutions

**Ka You Systems • 2011**  
George Gimourginas (301) 585-4302  
Audio, Video, IP - Satellite

**Kathrein Inc., Scala Division • 1985**  
Michael W. Bach (541) 779-6500  
Antennas for Broadcasting &  
Communications

**L-3 Communications Electron Devices • 2003**  
Steve Bliak (570) 326-3561, ext. 229  
Tubes, Power

**Latakoo Inc. • 2011**  
Paul Adrian (214) 683-0791  
Internet Video Distribution

**LBA Technology Inc. • 2002**  
Javier Castillo (252) 757-0279  
AM/MW Antenna Equipment & Systems

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

**Markertek Video Supply • 2002**  
Andrew Barth (845) 246-3036  
Audio, Video, AV Broadcast Supply

**Maxell Corporation of America • 1991**  
Patricia Byrne (973) 653-2423  
Data/Broadcast Video Media

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

**Microwave Video Systems • 2011**  
Warren J. Parece (781) 665-6600  
Microwave Equipment Rental, Sales  
& Service

**Middle Atlantic Products • 2005**  
David Amoscato (973) 839-1011  
Equipment, Mounting, Solutions

**MoreCom Inc. • 2009**  
Kyle Moorehead (763) 533-5535  
Networking & AV Construction

**Moseley Associates Inc. • 1977**  
Dave Chancey (805) 968-9621  
Digital STLs AM/FM/TV

**Myat, Inc. • 2013**  
Dennis Heymans (201) 684-0100  
Transmission Line, Filters, Combiners

**National Association of Broadcasters • 1981**  
(202) 429-5340  
Industry Trade Association

**National Football League • 1999**  
Ralph Feather (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  
Cabels, Connectors, Assemblies and  
Fiber Optic

**Neutrik USA, Inc. • 2012**  
Kathy Hall (704) 972-3050  
Ruggedized Optical Fiber Systems

**NewBay Media • 2013**  
Thomas Leader (212) 378-0438  
Publisher of Broadcast Magazine

**NuComm/RF Central • 2009**  
Don Hoeler (908) 852-3700 ext. 3110  
Digital and Analog Video Microwave  
Systems

**Orban • 2011**  
David Rusch (480) 403-8300  
Audio Processing AM/FM/TV

**Pasternack Enterprises • 2001**  
Christine Hammond (949) 261-1920  
Coax & Fiber Products

**Potomac Instruments Inc. • 2012**  
Guy Berry (301) 696-5550  
RF Measurement Equipment  
Manufacturer

**ProAudio.com- A Crouse-Kimzey Co. • 2008**  
Mark Bradford (800) 433-2105 ext. 560  
Proaudio Broadcast Equipment Distributor

**Progressive Concepts • 2013**  
Sara Enriquez (630) 736-9822  
FM & LPFM Radio Broadcast Equipment

**Propagation Systems Inc. - PSI • 2010**  
Doug Ross (814) 472-5540  
Quality Broadcast Antenna Systems

**Quintech Electronics and Communications Inc. • 2002**  
Paul Campagna (724) 349-1412  
State-of-the-art RF Hardware Solutions

**QVC • 2011**  
Kevin Wainwright (484) 701-3431  
Multimedia Retailer

**Radio Frequency Systems • 2013**  
Martin O'Donohue +61 3 9751 8464  
Broadcast Antenna Systems

**RCS • 2003**  
Diana Stokoe (308) 284-3007  
Audio and Video Content Management

**RDL • 2004**  
Chuck Smith (928) 778-9678, ext. 142  
Audio, Video, Control & Test Equipment  
Manufacturer

**RF Specialties Group • 2008**  
www.rfspecialties.com  
Everything from the Microphone to the  
Antenna

**Richland Towers • 2001**  
Ryan Willaman (813) 579-4239  
Tower Owner/Management

**Rohde & Schwarz • 2003**  
Dave Benco (724) 852-1332  
Broadcast Transmitters, Test &  
Measurement

**Rohn Products • 2013**  
Mark Allen (309) 566-3000  
Towers and Poles

**Ross Video Ltd. • 2000**  
Kyle Luther (613) 652-4886  
Manufacturer, Television Broadcast  
Equipment

**Sage Alerting Systems Inc. • 2010**  
Gerald LeBow (914) 872-4069 ext. 210  
Emergency Alert Systems Products

**SCMS Inc. • 2000**  
Bob Cauthen (800) 438-6040  
Broadcast Equipment - New/Used

**Screen Service America • 2010**  
Graziano Casale (212) 695-8341  
Broadcast Transmitter & ATSC Mobile

**Seacomm Erectors, Inc. • 1997**  
John Breckenridge (360) 793-6564  
Tower/Antenna Erections

**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 Engineering Inc. • 2011**  
Al Salci (818) 840-6749  
Routers, Mixers, Consoles, Intercoms

**Sigmat • 2008**  
Ed Portko (610) 783-6666  
Broadcast Equipment Support Sales

**Signiant • 2012**  
Doug Prouty (781) 221-4000  
Signiant Content Delivery Software

**Snell Inc. • 1995**  
John Shike (818) 556-2616  
Video Equipment Manufacturer

**Staco Energy Products Co. • 2010**  
Paul Heiligenberg (937) 253-1191  
ext 128  
Manufacturer Voltage Regulators, UPS

**Stay Online • 2013**  
Samantha Strazanac (919) 529-3133  
Custom Cord Manufacturing

**Superior Broadcast LLC • 2013**  
Jimmie Joynt (972) 473-2577  
TV & FM Transmitters, Microwave &  
Encoders

**Superior Electric • 1995**  
Michael J. Miga (860) 507-2025  
Power Protection Equipment

**Sutro Tower Inc. • 1989**  
Eric Dausman (415) 681-8850  
Broadcast Tower Leasing

**TC Electronic • 2008**  
Laura Davidson (818) 665-4902  
DTV Audio Level Processing

**Technostrobe • 2009**  
Francis Lacombe (877) 578-7623  
FAA Lights - High Intensity

**Tektronix Inc. • 1977**  
James Lang (800) 833-9200  
Video Test Equipment Manufacturer

**Teletream • 2013**  
Mark Wronski (530) 470-1337  
Ingest, Transcoding, Workflow  
Automation

**Telos Systems/Omnia/Axia • 2003**  
Denny Sanders (216) 241-7225  
Telos Systems - Talk-Show Systems

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

**Terrestrial RF Licensing Company • 2003**  
Steven Slocum (888) 373-4832  
FCC Broadcast Auxiliary Licensing  
Services

**The Durst Organization - 4 Times Square • 2004**  
John M. Lyons, CPBE (212) 997-5508  
TV/FM/Microwave Tower Site

**The Switch • 2011**  
Peter Hartz (323) 645-8011  
Fiber Transmission Provider

**Tieline The Codec Company • 2003**  
Mary Ann Seidler & John Lackness  
(317) 845-8000  
POTS, ISDN, Codecs & A/V Products

**Tower Engineering Company • 2013**  
Madison Batt (425) 640-2266  
Tower Engineering Analysis & Design

**Unimar Inc. • 2001**  
Thad Fink (315) 699-4400 ext. 307 or  
(813) 943-4322  
Tower Obstruction Lighting Designer,  
Manufacturer, Distributor

**Vislink Broadcast • 1991**  
Mark Tommey (978) 671-5700  
Video Microwave Systems

**Ward-Beck Systems Ltd. • 2004**  
Michael Jordan (416) 335-5999  
Metering, Monitoring, Distribution,  
Conversion

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

**WideOrbit • 2012**  
Brad Young (214) 923-6337  
Broadcast Management Software,  
Automation and Master Control

**Wireless Infrastructure Services • 2006**  
Travis Donahue (951) 371-4900  
Broadcast Microwave, Tower and ENG  
Installation, Integration Maintenance  
Services

Members With 25 or  
More Years of Membership  
New Members



Our member in the circle this issue is **Shane Toven, CBRE, CBNT** of Laramie, Wyoming. Toven is Director of Engineering at Wyoming Public Media/University of Wyoming and has been a member of the SBE since 2003. Given his position, Toven is known for spending a fair amount of time on the road, traveling the wide-open spaces of Wyoming, hanging out on the “PubTech” E-Mail listserv and the “I Take Pictures of Transmitter Sites” Facebook group.

His first exposure to radio was as a very young boy visiting the local commercial AM/FM radio station on a school field trip (now KMFY-FM/KOZY-AM). He marveled at the reel-to-reel and cart decks in the automation system and was disappointed to

learn that Paul Harvey and the other personalities he heard on the radio were not really there. At the age of 15 he stumbled across KAXE-FM, a local community radio station. That really got him started, first as a volunteer, installing new satellite downlink and automation hardware. He then became their part-time chief engineer and ultimately their first full-time chief engineer.

When asked who has been a mentor to him, he credits SBE member, Mark Persons, CPBE, AMD, CBNT, who he met while at KAXE-FM. Persons was the station’s contract engineer and taught him a number of things over the years as he learned the trade. Persons continues to be a good friend and mentor to Toven today.

Toven says his SBE involvement has provided the opportunity to add to his education through the certification program and he attends various events held by his local SBE chapter (48) in Denver, Colo. He also enjoys the opportunity to network with his broadcast engineering colleagues. He’s now giving back to others in the field, as he was recently elected chairman of his SBE chapter.

When asked what he likes most about his job, Toven says, “While the sheer volume of work is at times overwhelming, I enjoy the variety of things I may be doing on any given day. One day I may be recording a session in the studio or dealing with an IT issue,

the next day I may be driving a track vehicle up to a snow covered mountaintop on the other side of the state to troubleshoot a transmitter issue.”

When he’s not working, Toven enjoys spending time with his wife, Andrea, who is also a member of the SBE and holds CBT certification. They have two shelter rescue dogs, Callie and Leo. Occasionally they accompany him on visits to sites.

Toven spent a brief period of time working as a slot machine technician at a casino, before they went “coinless”. He says he had to frequently explain to people that he did not have any control over when they paid out; that it was a purely random numbers game.

His favorite gadget is an inexpensive USB DVB receiver for around \$10. He says that while DVB-T is not used in this country, these small receivers can be used with open source software as a multimode receiver (FM/AM/SSB) and an uncalibrated spectrum analyzer. Attach the receiver to a Raspberry Pi (or other Linux system) and the data can be transported directly across a network for remote monitoring. He’s even used this technique for pointing a satellite downlink. ●

**Photo caption:** Toven with “Leo” his 3-year-old Jack Russell Terrier/Siberian Husky mix at the KLOF-FM transmitter site, Gillette, Wyoming.

## Owens Joins SBE Staff



Kristin Owens has joined the national SBE staff as education director, announced SBE Executive Director, John Poray, CAE. Owens comes to the SBE from Franciscan St. Francis Health in Indianapolis where she managed more than 500 volunteers in three

hospital facilities. Owens holds a Bachelor of Arts degree from Franklin College in Franklin, Ind. with a major in Sociology and minors in Psychology and Non-profit Management.

As the SBE Education Director, Owens manages the day to day activities of the Society’s education programs, including webinars, the SBE University of

on-line/on-demand courses, Ennes Workshops, the SBE Leadership Development Seminar and the SBE Technical Presenters Group. She works closely with the volunteer SBE Education Committee, chaired by Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, which oversees the development of educational programs that benefit our membership. ●

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# WELCOME TO THE SBE

## NEW MEMBERS

Michael G. Duke - Kannapolis, N.C.  
 Steven Brusca - Clearwater, Fla.  
 John H. Conway - Owasso, Ok.  
 Roel J. Guerra - McAllen, Texas  
 Brian K. Kroth - Oakland, Tenn.  
 Michael Leal - Weslaco, Texas  
 Roy Lopez - Lubbock, Texas  
 Thomas A. McNulty - San Dimas, Calif.  
 Robert J. Sulecki - Indianapolis, Ind.  
 Gregory K. Symins - Albuquerque, N. Mex.  
 Dan Villasenor - Glendora, Calif.  
 Ceyhun Ergin - Santa Ana, Calif.  
 Robert Pace - Hendersonville, Tenn.  
 Britny R. True - Madison, Wis.  
 Donny L. Aldridge - Riverside, Calif.  
 Gregory B. Friedman - Park City, Utah  
 David W. Fulton - Portland, Ore.  
 John J. Gold - Tucson, Ariz.  
 Daniel J. Jaramillo - Boulder, Colo.  
 Scot L. Krayenhagen - Bartlett, Tenn.  
 Barbara M. Snyder - Vestal, N.Y.  
 Patrick J. Thornell, II - Aliso Viejo, Calif.  
 Keith A. Bosworth - Toledo, Ohio  
 Gary T. McDonald - Beaverton, Ore.  
 Brandon L. Monroe - Arbela, Mo.  
 Jon Painter - Clearwater, Fla.  
 Eric D. Parker - Terre Haute, Ind.  
 Steve Barrett - Baltimore, Md.

Rick Rapalee - Sacramento, Calif.  
 Blayne A. Risvold - Huntington Beach, Calif.  
 Matthew W. Roberts - Olathe, Kan.  
 Chris L. Iorio - Amsterdam, N.Y.  
 Jennifer W. Zeidan - San Francisco, Calif.  
 Edward E. Addy - Aurora, Minn.  
 Joshua R. Baker - Boulder, Colo.  
 Bryce A. LeGrand - Tulsa, Ok.  
 Jeffrey A. Long - Lynchburg, Va.  
 Shane Parkey - Knoxville, Tenn.  
 Ron Kumetz - Alburgh, Vt.  
 Jim Charzuk - Herkimer, N.Y.  
 Mark R. Harris - Herkimer, N.Y.  
 Andrew Heinegg - Saint James, N.Y.  
 Robert E. Schultz - Little Falls, N.Y.  
 Harry Mirjaniyan - Blauvelt, N.Y.  
 Orest Holyk - Burlington, Ont., Canada  
 Travis Martin - Philadelphia, Penn.  
 David W. Brantley - Irondale, Ala.  
 Ronald E. Brownlow - Schertz, Texas  
 Evan Ewing - New York, N.Y.  
 Odette Gonzalez - Miami, Fla.  
 Benjamin R. Koffman - Rochester, N.Y.  
 Geoffrey K. Phillips - Little Rock, Ark.  
 Michael P. Simmons - Jacksonville, Fla.  
 Ajith John Varghese - Miranda, NSW, Australia  
 James D. Rupert - Selah, Wash.

## NEW STUDENT MEMBERS

Carlo Covarrubias - San Francisco, Calif.  
 Vasin Limsukhawatt - Denver, Colo.  
 Jeffrey Williams - Scottsdale, Ariz.

Lara M. Jessen - Riverside, Calif.  
 Vincent McBean - Laurelton, N.Y.

## NEW YOUTH MEMBERS

Jaime M. Spath - Gering, Neb.

## RETURNING MEMBERS

William G. Moede - Appleton, Wis.  
 Jerzy T. Czkwianianc - Tampa, Fla.  
 Donald E. May - Seberov, Czech Republic  
 Allan S. Fenner - Akron, Ohio  
 Tanja E. Eitel - Menifee, Calif.  
 Kenneth Vedder - Somerville, Mass.  
 Troy G. Langham - Tulsa, Ok.  
 Mary Beth Leidman - Indiana, Penn.  
 Bradley Plant - New York, N.Y.  
 Robert E. Ballou - Hampstead, Md.

Charlie F. Farr, Jr. - Virginia Beach, Va.  
 Ben M. Endow - Phoenix, Ariz.  
 Mike Felt - El Mirage, Ariz.  
 Beau C. Stenkamp-Strahm - Boise, Idaho  
 Matt Butcher - Arlington, Va.  
 William W. Ford, III - Lynchburg, Va.  
 Lawrence C. O'Donnell - Beaumont, Texas  
 Jeffrey A. Tucker - Danville, Ind.  
 Dave Shelton - Albuquerque, N. Mex.  
 Chris D. Welsh - Ottawa, Ont., Canada

## 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.

## THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS:

### Harold E. Ennes Scholarship

Kate Carney Landow, CBT, CBNT Denver, Colo.



Happy Holidays from the SBE staff, (l-r) Kristin, Debbie, Scott, Carol, John and Megan!

## In Memoriam

Zaven N. "Doc" Masoomian  
 1921-2013

Member 1644  
 Life Member

Past member of the national  
 Board of Directors



Answer  
 question on page 6

D. 1518 bytes

## MARK YOUR CALENDAR

### Certification Exam Application Deadline

December 31

Exams held in local chapters, February 7-17,  
 2014

### Certification Exam Application Deadline

March 31, 2014

Exams held at NAB Show in Las Vegas, April  
 8, 2014

### NAB Show, Las Vegas, Nev.

April 5-11, 2014

NAB Broadcast Engineering Workshop co-  
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For more information, visit our website at [www.sbe.org](http://www.sbe.org).

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