THE SIGN Bimonthly Publication of the Society of Broadcast Engineers



December 2014 Volume 27, Issue 6

www.sbe.org

Society defines, expands new identity

As announced earlier this fall in SBE-news, the national SBE Board of Directors made the decision to expand the scope of the society

following recommendations from a task group put in place to study the society's membership. To help communicate the wider range of membership and responsibilities within its ranks, the SBE has begun using a new tag line in conjunction with its name. "The Association for Broadcast and Multimedia Technology Professionals," used when practical in conjunction with an enhanced SBE logo and the words, Society of Broadcast Engineers "will help to better describe who and what the Society of Broadcast Engineers is," according to society president, Joe Snelson, CPBE, 8-VSB.

Snelson remarked, "The field of broadcast engineering has changed dramatically over the past 20 years. There is hardly anything our members do today that isn't dependent on computers and computer networks. SBE members have had to add to their skills and

Society of Broadcast Engineers



knowledge base to handle these demands. At the same time, broadcast stations have brought

on IT and other specialists and we will now seek to encourage them to take part in activities and programs of the SBE."

> During the SBE National Meeting held in Verona, N.Y., Snelson announced the SBE will be producing information about technical careers in broadcasting for use in high schools and colleges and seek to attract more young people to the field. The SBE will also be providing mentoring support for members and more support for its chapters, including chapter programming support and administrative and training help for local chapter leadership. The archived video of the full membership meeting, including Snelson's remarks, is available at the SBE website, www.sbe.org. The enhanced logo and tag line is already appearing on some SBE materials and will be used

widely beginning in January 2015.

National Meeting Highlights

The 50th SBE National Meeting, held in conjunction with the SBE Chapter 22 Broadcast and Technology Expo, took place in Verona, N.Y. at the Turning Stone Resort and Casino on October 7-8.

The annual SBE Fellows Breakfast, was sponsored by Kathrein, Scala Division, was well attended.

A highlight of the event was the SBE Annual Membership Meeting, which was streamed live, and is available via archive. The video can be accessed by visiting the sbe website, www. sbe.org, then clicking on the appropriate box on the homepage. During the meeting, a special look back at the history of the past 50 years of the SBE, was provided by SBE president, Joe Snelson, CPBE, 8-VSB, along with a look



Attendees at the SBE National Awards Dinner.

to where the SBE is heading in the future. The membership meeting webcast was sponsored by AC Video Solutions, BlackMagic Design, datavideo, DVEO, and Orban.

The program portion of the SBE National

IN THIS ISSUE

- 2 New edition of Radio Op Handbook
- **3** SBE Fellows Nominations
- 4 Letter from the President
- 8 SBE National Meeting Photos
- 14 Looking Back Over 50 Years
- 15 A Snapshot in Time

Radio Operators Handbook, new edition

The SBE has just released the second edition of the SBE Certification Handbook for Radio Operators, written by Ron Bartlebaugh, CBNT of Kent, Ohio. Originally published in 2003, the second edition includes a wide variety of digitally-based audio broadcast equipment and technologies that include Audio over IP (AoIP), console work surfaces, program delivery automation systems, codecs, routers, studio-to-transmitter link systems, transmitter monitoring, and HD Radio broadcasting.

The cost of the book (\$49) includes an optional exam for the purchaser or someone he or she designates. Those successfully completing the exam earn the Certified Radio Operator designation from the Society of Broadcast Engineers. The book includes a series of practice questions to prepare for the exam as well as a glossary of terms. The broad scope of topics covered throughout the book provides radio stations with the ability to hire or train SBE Certified Radio Operators with the greatest level of confidence. The book is available to order on-line or by calling the SBE national office. Discounts are available for purchases of five or more.



By Ron Bartlebaugh, CBNT





DTV power is licensed on the

Certification Question Answer on page 16



LÎVESHOT

*Structural analysis per ANSI/TIA-222-G, TIA/EIA-222-F or as required by jurisdictions



Stream live, low-latency SD/HD video and AAC audio from nearly anywhere on planet Earth with LiveShot IP Video Codec utilizing 3G, 4G, WiFi, Ethernet or satellite data services. LiveShot puts you in the middle of the action with fullduplex audio and video plus a built-in independent audio cue channel.

Ground-breaking CrossLock[™] VPN Technology provides you with reliable connectivity even on challenging IP networks. LiveShot is tough, light, fast, feature-rich and cost-effective. Please contact us today to learn more.

> www.comrex.com info@comrex.com 1 800 237 1776 1 978 784 1776



Society of Broadcast Engineers Board of Directors

PRESIDENT Joe Snelson, CPBE, 8-VSB

Meredith Corporation I Henderson, Nev. joe.snelson@meredith.com

VICE PRESIDENT Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT Entercom Greenville, LLC I Greenville, S.C. imassev@entercom.com

SECRETARY James E. Leifer, CPBE iHeart Media - Miami I Boynton Beach, Fla. jimleifer@hotmail.com

TREASURER Andrea Cummis, CBT, CTO AC Video Solutions I Roseland, N.J. acummis@gmail.com

DIRECTORS Tim Anderson, CPBE, DRB, CBNE GatesAir I Mason, Ohio tim.anderson@gatesair.com

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

Ted Hand, CPBE, 8-VSB, AMD, DRB COX Media Group I Charlotte, NC ted,hand@coxinc.com

Kirk Harnack, CBRE Telos Systems I Nashville, Tenn. kirk@harnack.com

John Heimerl, CPBE Fine Tuning Associates/H&A Inc. I Suffolk, Va. johnh@finetuning.com

> Ched Keiler, CPBE, 8-VSB, CBNT E Three I Ft Lauderdale, Fla. ckeiler@ethree.us

Gary Kline, CBT, CBNT Cumulus Media I Atlanta, Ga. gary.kline@cumulus.com

Wayne M. Pecena, CPBE, 8-VSB, AMD, DRB, CBNE Texas A & M University I College Station, Texas w-pecena@tamu.edu

RJ Russell, CPBE Journal Broadcast Group - Tucson I Tucson, AZ rrussell@jrn.com

Kimberly Sacks, CBT CBS Radio - Washington D.C. I Lanham, Md ksacks@cbs.com

Eric Schecter, CBRE CBS Radio - Phoenix I Phoenix, AZ eric schecter@cbsradio.com

Dennis Wallace, CBTE Meintel, Sgrignoli & Wallace I Waldorf, Md. dennis.wallace@mswdtv.com

IMMEDIATE PAST PRESIDENT Ralph Hogan, CPBE, DRB, CBNE KJZZ-FM/KBAQ-FM I Tempe, Ariz. rhogan@sbe.org

SBE NATIONAL STAFF John L. Poray, CAE I Executive Director jporay@sbe.org Megan E. Clappe I Certification Director mclappe@sbe.org Debbie Hennessey I Sustaining Membership Manager

dhennessey@sbe.org Scott Jones I Database Manager kjones@sbe.org

Dan Kissel I Communications & Membership Coordinator dkissel@sbe.org Kristin Owens I Education Director

kowens@sbe.org Carol S. Waite I Certification Assistant cwaite@sbe.org

The Signal is published bimonthly by the Society of Broadcast Engineers, Inc., 9102 North Meridian Street, Suite 150, Indianapolis, IN 46260. Questions or comments regarding editorial content or design should be referred to Dan Kissel at (317) 846-9000 or dkisse/@sbe.org. For advertising, contact Debbie Hennessey at dhennessey@sbe.org. SBE is a registered trademark of the Society of Broadcast Engineers.

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

Registration open for Leadership Course

Preparations for the 2015 Leadership Development Course has begun. The course will be held on Tuesday, August 4th through Thursday, August 6th. in Atlanta, Ga. This professional development course, which is designed specifically for Broadcast Engineers, is a three-day intensive study of successful leadership and management. Whether you are a manager, or striving to take on a leadership role, the SBE Leadership Development Course can help. Participants will be challenged to sharpen their leadership skills as they better understand and improve how to interact with others. The course features a leadership style assessment to help identify your leadership behaviors and learn how to utilize that style when leading others.

Instructing the course for the sixth year will be Rodney Vandeveer, Professor in Technology Leadership and Innovation. Rodney brings more than 30 years of experience in human resources management, training, development and manufacturing. He has been a professor at Purdue University since 1994, teaching classes in Human Behavior in Organizations, Leadership Philosophy and Leadership Strategies for Quality and



2014 SBE Leadership Development Class

Productivity. He also owns a leadership training business, VanTech Training.

To learn more about this professional development opportunity, visit the Leadership Development Course page on the SBE website, www.sbe.org, under Education.

SBE Fellows Nominations

by 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 2015.

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 more than 50 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 2015 must be received no later than March 13, 2015 for consideration. The fellowship committee will bring the names of nominees to the board of directors for consideration and election at their April 2015 meeting. The SBE secretary will notify those elected. Awards will be presented at the SBE



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 jsnelson@sbe.org

Wrapping up the 50th and the Year

It is hard for me to believe that this year is almost over. It has been a busy one but one that has been productive. At our national meeting held in Verona, New York, and concurrently with the SBE Chapter 22 Broadcast & Technology Expo, we officially wrapped up SBE's 50th anniversary. We are now moving forward and looking ahead to the next fifty.

We held our annual membership meeting on Wednesday, October 8. During the meeting we shared reports from some of our committees. We also conducted the inauguration for the officers and directors that will be serving for the year 2014 – 15. While there were attendees in the room we had 70 that watched via our live webcast. We found, however, that there were a number that watched the archived audio, bringing the total

views over the internet to 383! Many thanks are extended to Chapter 22 and the team under the direction of SBE Past President Vinny Lopez and chapter chairman, Christopher Baycura for providing the necessary equipment and personnel to make the webcast possible. If you were unable to attend in person and you haven't yet seen it, I would encourage you to view the annual membership meeting by going to the SBE website and clicking the link on our home page.

Another well attended and watched event that same evening was that of our annual SBE National Awards Dinner. Our special guest speaker was Sam Matheny, National Association of Broadcasters, CTO & Executive Vice President. After Sam challenged us with his message, SBE Awards Committee chair, John Heimerl presented a number of awards to chapters and individuals acknowledging their accomplishments. What was especially exciting about this year's awards dinner is that it was the first time we broadcast it live via a webcast. Again, thanks to Vinny, Christopher and their Chapter 22 team for making that possible. To date we have already had over 330 views of this event. If you haven't already viewed it and would like to get the opportunity to do so, you will find the link on the SBE home page next to the one for the National Meeting that I mentioned earlier.

While at the SBE Chapter 22 Broadcast & Technology Expo, I was asked to sit on a panel of five other industry professionals for their Student Career Seminar. While there were a number of students in the audience from various colleges, this seminar was also sent

4

out via webcast. The panel's expertise ranged from on-air talent to news truck operations with yours truly representing engineering. All of the panelists offered suggestions to students on how they could go about getting their first job in the industry. I mentioned specifically the goal of the SBE launching a mentoring program for both newcomers and seasoned engineers that need somebody to help them on a technology subject that they may not be familiar with. This idea was well received by the other panelists.

While traveling back home I struck up a conversation with the gentleman in the seat next to me on the plane. We exchanged pleasantries and began to talk about our careers. I told him what I did and then learned that he was connected with a New York community college. I didn't think

for both radio and television engineers, and there were over sixty exhibitors representing various radio and television equipment vendors and service providers. After the dinner, I gave a presentation on the SBE 50th anniversary where lincluded some history of the four Wisconsin SBE Chapters. After my presentation, the attendees were given the opportunity to sign the member number time line that we presented during our member reception in Las Vegas.

Coincident with the WBA Broadcasters Clinic there was a demonstration of the FUTURECAST™ Universal Terrestrial Broadcasting System. Conducted between midnight and 3 a.m., I couldn't resist riding the bus to the three locations where the demonstrations took place. I am sure you have read about these

demonstrations in several trade publications by now and, therefore, won't go into great detail here.

We were given the opportunity to view ATSC 3.0 in three different modes that were all broadcast concurrently over UHF TV RF channel 26, virtual 27, courtesy of WKOW. The three modes were fixed (4kUHD), mobile 720P HD) and handheld (480P SD). The prototype equipment consisted of a small enclosure of rack mounted gear with an external antenna. The two remote locations we traveled to by bus were inside fairly shielded building structures. For both mobile and handheld modes, picture lock

remained solid while the antenna was oriented in every direction possible. The Fixed mode demonstrated at the hotel where the bus ride began displayed a pristine 4K picture.

The main take away for me is, I have heard a lot about ATSC 3.0 and its possibilities, but it's great to see these ideas become reality. And while this demonstration was impressive, I realize development will only improve and the end product will be even better.

As I wrap up this month, I will say that this has been a busy year for all of us at SBE and a lot has transpired. But a new year is just around the corner and promises to be full of various regulatory and technical challenges that will keep us all on our toes. As you read this edition of The Signal, we will already be in the holiday season. I trust all of you will have an enjoyable and safe one. I look forward to seeing you again in 2015.



SBE President, Joe Snelson, CPBE, 8-VSB, speaking at the annual membership meeting.

much about it at first until after talking a while he mentioned his school had a communications program. As we talked further, I found he was with Cayuga Community College, which is one of the SBE Certified Schools! This gentleman had not been at the Chapter 22 Expo but had a connecting flight through Syracuse that morning. Anyhow, it gave me an opportunity to express my appreciation to him for Cayuga being one of our Certified Schools and explain what that means to students that make a passing grade on the SBE approved curriculum in gaining certification. Needless to say, we had a great time talking and it made the trip go by fast. It is a small world indeed. He invited me to speak to the students if there was ever a time I would be in the area.

A few weeks after our national meeting I was privileged to speak at a dinner during the Wisconsin Broadcasters Association's Broadcasters Clinic, held in Madison. The Clinic consisted of some excellent technical sessions

THE SIGNAL



EDUCATION UPDATE

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

The Next Generation of Broadcast Engineers

It is no secret that many of the current broadcast engineers are getting on in years and retirement may be a reality in a few years. Numerous trade publications point to the shortage of gualified broadcast technical staff in the industry and the challenges of attracting a new generation to the industry. As the industry moves towards an IP centric technical plant, the knowledge and skills needed in the future are often different than the broadcast engineer of the past possessed. SBE education and professional development offerings have worked to school the traditional broadcast engineer who is likely well versed in audio, video, and RF in Information Technology topics, especially IP Networking.

I would suggest to you that the next generation of broadcast engineers will come from and are already coming to the broadcast industry from the Information Technology industry. They come with an understanding of IP Networking, software application development and high performance server hardware. Some have data center experiences which can be a perfect fit in a broadcast technical plant where redundant HVAC, redundant power, and redundant infrastructure is the norm. What the newcomers may lack though is a practical knowledge of the audio, video and RF technology that the traditional broadcast engineer often takes for granted.

Information Technology will remain a key part of the SBE education effort, but there are likely new opportunities in the future for a return to the basics in our education efforts with a focus upon audio, video and RF technology aimed at those new to the broadcast engineering field.

Radio magazine recently released their annual broadcast engineering salary survey in the October 2014 issue. The median salary of a staff broadcast engineer was \$60,368 with an average of 11.1 years in that position. A similar salary poll of IT professionals holding a Cisco Certified Network Associate (CCNA) certification which is considered an entry level certification found salaries ranging from \$66,063 to \$89,016. Whereas the next generation broadcast engineer may come from the IT world, station management may be in for a surprise as the entry level salary demands of the IT professional transitioning to the broadcast industry may exceed that of a broadcast engineer with tenplus years in the industry.

I expect there is more to come here, so stay tuned. And your comments and thoughts are always welcome on the SBE blog. If you have not already, join the conversation at http://blog. sbe.org/.

More details of these polls can be found at www.radiomagonline.com and www.payscale. com.

Are You SBE Certified?

If you are not, consider taking advantage of SBE education programs to help you get certified. The same Radio magazine poll found that SBE Certification results in a 6% salary increase. With average salary increases in the less than 3% range, SBE Certification may be a way for a quick salary increase as well as the professional recognition that comes with SBE Certification.

Bring an Ennes Workshop to Your Chapter in 2015

Now is the time to book your Regional Ennes Workshop for your SBE Chapter or regional conference before 2015 slots fill up. Don't let this opportunity slip away. Contact Kristin Owens at the national SBE office for further information and to schedule a regional Ennes Workshop at your next SBE event in 2015.

Remember, learning is a continuous process for the technology professional and certainly

the broadcast engineer. Continuous learning is a key trait of the successful technology professional and the SBE education team is at work to bring you quality professional development programs covering timely industry topics and delivered in several mediums!

And finally, if you recall, fellow SBE member Mark Durenberger penned an excellent history of AT&T in the Radio broadcast industry. Well, Mark has created an even better version. You can find his updated e-book "CONNECTING A CONTINENT" at http://www.durenberger.com.

Upcoming Webinars:

Chief Operator Responsibilities - What should I be doing? (updated) January 15th @ 2 p.m. ET Dennis Baldridge

HD Radio Advancement and Trends February 4th @ 2 p.m. ET Alan Jurison – FREE for members

Update on ATSC 3.0 February 19th @ 2 p.m. ET Rich Chernock •





For more information on any SBE Education program, contact Kristin Owens, kowens@sbe.org, Education Director at the national SBE office. You may also reach Kristin by phone at (317) 846-9000



CERTIFICATION UPDATE

Hal Kneller, Jr., CPBE, AMD, DRB, CBNT SBE Certification Committee Member Hkneller@earthlink.net

Total Question Review

The National Certification Committee is currently engaged in a total question review of the certification exam database, which includes the sample test software and essay questions. This massive effort will cover all of the exams and sample tests SBE administers as part of the certification program. The goal is to update by tweaking old questions to be more relevant, eliminating some questions which may no longer be applicable, and add additional questions for newer technologies and other technologies looking forward, ie: 4k, cyber security, etc. By doing the comprehensive review, everything will be updated at one time.

ETA: April is the first deadline for the exam database review.

The database is a revolving door of always needing to be reviewed and updated but the committee has never taken on this type of project all at once where we will ensure that everything that is question-oriented will dovetail together. In the past, the questions were written for the exam database then separately for the sample test software. As some questions were added, updated or eliminated, the possibility existed that changes in one area may not have directly linked to the other databases being changed in the same way.

With the creation of the Certified Broadcast Networking Engineer, the committee changed procedures such that when a database question was created, they also developed the sample test questions as well as the essays.

"April is the first deadline for the exam database review."

By using this process, there is an improved representation of the certification exam in the sample questions. It also makes it easier when updating or eliminating one of the questions to find the corresponding sample question.

Keep in mind, the question database from which the actual exams come from is much larger than the pool of sample questions. Therefore, there will be questions encountered when taking a sample test that might not materialize on the actual exam. The purpose of the sample test is to provide an idea of the types of questions that may appear. Not every subject or question on a sample test will be included in the actual exam. A word of caution; a person preparing for the exam should not plan to memorize the content of the sample questions, as the actual test will be different.

The SBE certification program is unique in that a group of actual broadcast engineers who have been doing the work writes the questions, and from time to time, we have included questions from our members and other subject matter experts. The questions are not necessarily from books but from real-life situations. Those who take exams are also accorded the opportunity on the answer sheets to make comments that are presented to the Certification Committee for review. SBE certification exams focus more on the practical everyday items broadcast engineers encounter and less on the theoretical technology which may be relevant to engineers in manufacturing who are in a design role.

More information on certification exams, obtaining a sample test, study material suggestions, etc. can be found at the SBE website www.sbe.org. Click on the Certification tab.

Member in the Spotlight

Our member "In the Spotlight" this issue is Rodney Simon, CRO, CBNT of Chapter 26 in Chicago. Rodney has been a network studio engineer at Moody Radio Network/WMBI in Chicago for the past six years. He says the position has provided him with a variety of opportunities, including the installation of

new HD transmitters for the flagship station, WMBI and planning and designing the update of analog using new digital technology for both on-air studios and production suites. Rodney says, "It amazes me how God continues to use my background and experiences, including carpentry skills, in order to renovate the studios."

Rodney's interest in radio and electronics had its beginnings when he was a young teenager. He still remembers the demo tape of the Craig 2106 reel-to-reel recorder he received when he was 13, remembering its slogan, "Where

6



Rodney Simon, CRO, CBNT of Chapter 26 in Chicago.

even a whisper could be heard loud and clear." "I started using

the recorder and some toy walkietalkies transmitting to friends in the neighborhood and the bug bit," he said.

Later, as a mechanical design student at Linn Technical College in Linn Missouri, he became involved with the Ham radio club on campus.

He passed his novice license (WN9OHM), and got his Third Class Radio Telephone License as well. Rodney says, "With guidance from instructors, I oversaw the installation of a 100' guyed tower for the Ham club." His design of a studio/transmitter building was used in a proposal to the school board to construct a college radio station. It would be more than 30 years later when he would realize his childhood dream of becoming an engineer for a radio station.

Rodney's first job after graduation was with Harris Broadcast as a draftsman. He



spent 18 years there, designing printed circuit boards. Rodney said, "I had the opportunity to work with many talented engineers. The engineer that influenced me the most was Hilmer Swanson, who was a true mentor and friend." (Ed.s' note: Swanson was awarded an Honorary Membership in the SBE in 1993.) Rodney said, "In addition, others like Geoff Mendenhall and Dave Hershberger, made a lasting impact to me and this industry."

Outside his radio engineering work, Rodney has spent considerable time volunteering to help others. For over 15 years he responded to disasters as a Red Cross Volunteer, including five years as an instructor and coordinator for one of nine emergency communications response vehicles. Rodney also worked for several years as a volunteer with the Christian radio station, WGCA, for special events and concerts. His work there led to forming a partnership, B.Again Productions, which promoted and produced over 50 major concerts in the tri-state area of Illinois,

SPOTLIGHT, page 7

тнеsigñâl

New SBE Certification Achievements CONGRATULATIONS

Certified Professional Broadcast Engineers® and certifie	d applies broadcast applicate who have maintained CPE appl	ification continuously for 20 years, are at least 50 14 years old	1 1 1005
may be granted Life Certification if so requested. All cert approved, the person will continue in his/her current leve Certified Professional Broadcast Engineer® (CI Michael Scott, Puyallup, Wash. – Chapter 16 January Cartalay, Curring Aria, Chapter 0.	ified who have retired from regular full-time employment and al of certification for life. PBE®) Certified Professional Broadcast Engineer 8-VSB Specialist TM (8-VSB TM) AM Directio (AMD) Digital Radio Broadcast Specialist ^{TI}	are at least 59 ½ years old may be granted Life Certification if (CPBE®) Certified Broadcast Networking Te nal Specialist Jerry Massey, Greenville, S.C. – C (DBB TM) Leave Stanlar Surgice Automatics	and are current members of SBE they so request. If the request is echnologist® (CBNT®) thapter 86 thapter 0
James Stanley, Surprise, Anz. – Chapter 9	Jerry Massey, Greenville, S.C. – Chapter 8	6 James Stanley, Surprise, Anz. – C	napter 9
Applicant must have had 20 years of professional broad Certified Professional Broadcast Engineer™ (CF Jason Knapp, Columbus, Ohio – Chapter 52	dcast engineering or related technologies experience in radio PBE®) Michael Patton, Baton Rouge, La. – Chap	and/or television. The candidate must be currently certified or oter 72	the Certified Senior Broadcast Engineer® level.
Certified Broadcast Networking Technologist® (CBNT®) Philip Rohrman, Golden, Colo. – Chapter 48			
Certified Broadcast Radio Engineer™ (CBRE®) Benjamin Guice, West Monore, La. – Chapter 44	Alabama Broadcasters Association Certified Broadcast Technologist® (CBT®) Sidney Banks, II, Mobile, Ala. – Chapter 68 Richard Krumreig, Charleston, S.C. – Chapter 107		
Certified Broadcast Radio Engineer™ (CBRE0 William Traue, Idaho Falls, Idaho – Chapter 14	 Certified Television Operator® (CTO® 5 Eric Dimaggio, Hawthorne, Calif.)	
Certified Broadcast Technologist® (CBT®) DINFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 93	Joshua Hager, San Diego, Calif. – Chapter 36 Robert Kerr, New Castle, Pa. – Chapter 122		
Certified Broadcast Technologist@ (CBT®) Jacob Bechtold, Fargo, N.D. – Chapter 17 Joe Bennett, Olathe, Kan. – Chapter 59	Ray Licon, Pflugerville, Texas – Chapte Joseph March, Carmel, Ind. – Chapte	er 79 r 25	
Matthew Allan, Broomfield, Colo. Anica Colbert, Fort Myers, Fla. Jason Layton, Rapid City, S.D. Jason Skinner, Landover Hills, Md. Philip Spina, West Palm Beach, Fla. Brian Zittlau, Lehigh Acres, Fla.	Encompass Digital Media Guadalupe Castaneda, Pomona, Calif. Daniel Delgado, Los Angeles, Calif. Douglas Eisenberg, Newbury Park, Calif. Tanja Briechle Karas, Claremont, Calif. Tony McQueen, Los Angeles, Calif. Michael Mendoza, Los Angeles, Calif. Chaise Trebil, Los Angeles, Calif.		
Certified Professional Broadcast Engineer® (CPBE®) Robert Mardock, Jr., Spring, Texas – Chapter 105	Certified Broadcast Television Engineer™ (CBTE®) Kirk Davis, Pembroke Pines, Fla. – Chapter 53 Todd Leninger, Portland, Ore. – Chapter 124) Certified Television Operator® (CTO®) Terry Manus, Concord, N.C.	
The following applicants completed the recertification p Certified Professional Broadcast Engineer® (CPBE®) Paul Easter, Rosenbuerg, Texas – Chapter 105 Winston Hawkins, Blacksburg, Va. – Chapter 105 Certified Senior Television Engineer™ (CSTE®) Robert Chambers, Orlando, Fla. – Chapter 42 Certified Broadcast Television Engineer™ (CBTE®) Jeffrey Koscho, Clinton, Md. – Chapter 37 Anthony Searcy, Byram, Miss. – Chapter 125	rocess either by re-examination, point verification through the Certified Broadcast Networking Technologist® (CBNT®) Carl Catherine, Springfield, Va. – Chapter 37 Eva Hern, Kemah, Texas – Chapter 105 Tim Parish, Sacramento, Calif. – Chapter 43 Anthony Searcy, Byram, Miss. – Chapter 125 Blake Thompson, Akron, Ohio – Chapter 52 Certified Broadcast Technologist® (CBT®) Justin Bernard, Napa, Calif. – Chapter 40 Bradley Goehl, Sacramento, Calif. – Chapter 43	 Iocal chapters and national Certification Committee approval William Hudson, San Carlos, Calif. – Chapter 43 David Kalahar, Bakersfield, Calif. – Chapter 66 Geoffrey King, Decatur, Ga. – Chapter 5 Ryan Krupa, Rocky Hill, Conn. – Chapter 14 Kevin Potter, Walland, Tenn. – Chapter 113 Certified Television Operator® (CTO®) Mike McGuire, Cape Girardeau, Mo. Thomas Riggins, Jacksonville, Fla. – Chapter 7 	and/or met the service requirement.
	Certified Broadcast Technologist® (CBT®) DiNFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 44 Certified Professional Broadcast Engineer™ (CBRE®) Benjamin Guice, West Monore, La. – Chapter 44 Certified Broadcast Technologist® (CBT®) DiNFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 93 Certified Professional Broadcast Engineer™ (CBRE®) Benjamin Guice, West Monore, La. – Chapter 44 Certified Broadcast Technologist® (CBT®) DiNFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 93 Certified Professional Broadcast Engineer™ (CBRE®) Benjamin Guice, Technologist® (CBT®) DiNFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 93 Certified Broadcast Technologist® (CBT®) DiNFOS Joshua Ambrose-Howell, Fort Bragg, N.C. – Chapter 93 Certified Professional Broadcast Engineer® (CBT®) Pace Bennett, Olathe, Kan. – Chapter 17 Joe Bennett, Olathe, Kan. – Chapter 19 Matthew Allan, Broomfield, Colo. Anica Colbert, Fort Myers, Fla. Brian Zittlau, Lehigh Acres, Fla. Brian Zittlau, Lehigh Acres, Fla. Brian Zittlau, Lehigh Acres, Fla. Certified Professional Broadcast Engineer® (CPBE®) Paul Easter, Rosenbuerg, Texas – Chapter 105 Winston Hawkins, Blacksburg, Va. – Chapter 125 Winston Hawkins, Blacksburg, Va. – Chapter 125 Winston Hawkins, Blacksburg, Va. – Chapter 125 Winston Hawkins, Blacksburg, Va. – Chapter 37 Anthony Searcy, Byram, Miss. – Chapter 125	Ordinator Proteosized and Controls and in Under and inductation in glands with on the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the effect of the employment and and out-set of glands with the employment and	Certified Products of Section 2 and the control control and the instruction of control and the control of the c

SPOTLIGHT from page 6

Missouri and Iowa.

Something that not many people know about Rodney is that he was an auxiliary police

officer in Quincy, III. for a time and he says, "And yes, I carried a side arm." He also was a volunteer with the Kane County, III. emergency management agency for five years and served for two years as that county's communications officer.

NATIONAL MEETING from page 1

Awards Dinner was also streamed live and can be accessed by visiting the SBE website or viewing the SBE YouTube channel. The dinner included presentations of the society's most important awards; the James W. Flanders SBE Engineer of the Year Award to James A. Dalke, CPBE, 8-VSB, AMD, CBNT; the James C. Wulliman SBE Educator of the Year Award to Norman Portillo, CBT; and the SBE Technology Award to DVEO. The evening concluded with



Staff Sergeant Norman Portillo, the recipient of the 2014 James C. Wulliman, SBE Educator of the year Award.



Charter Member Gino Ricciardelli of Chapter 1, Binghamton, N.Y. reminices about the beginning days of the SBE and Chapter 1 during the Annual Membership Meeting.

the presentation of the SBE Fellow honor to Gino Ricciardelli, CPBE of Chapter 1 in Binghamton, N.Y.

Keynote speaker for the evening was Sam Matheny, EVP and CTO of the NAB, who offered his vision of where technology is taking the broadcast industry in the future. The SBE also recognized a number of chapters for achievements this past year related to member growth, certification levels and communication with members. Our sponsor for this year's dinner was The Telos Alliance.

The SBE Chapter 22 Broadcast and Technology Expo is the largest regional broadcast tradeshow in the northeast and featured more than 60 exhibit booths displaying products and services for the broadcast and media industry. The Expo lineup included presentations on engineering, technology integration, workflow and production.



Christopher Baycura (r), chairman of SBE Chapter 22, accepts a certificate in appreciation for the chapter's work to host the 50th SBE National Meeting.



Nolan Stephany (r), chairman of Chapter 57, Rochester, N.Y., accepts the SBE Golden Recruiter Award on behalf of his chapter from SBE Membership Chairman, Tim Anderson.



SBE General Counsel, Chris Imlay (at podium) conducts the installation of newly elected board directors during the SBE Annual Membership Meeting.



Joe Snelson (I) takes the president's oath of office in the ceremony presided over by Chris Imlay, SBE General, Counsel.



Two national past president stand and receive applause during the annual membership meeting. (L)Ed Miller, Cleveland, Ohio (R)Richard Rudman, Los Angeles, Calif.

8



Members and representatives of award-winning chapters display their awards.



Sergio Ammirata (I), representing DVEO, accepts the SBE Technology Award from Joe Snelson, SBE President.

THE SIGNA



The Telos Alliance sponsored the SBE National Awards Dinner. Welcoming the crowd was Kirk Harnack (I), VP and Executive Director of Telos Systems. SBE president, Joe Snelson, looks on.



Sam Matheny, EVP and CTO of the NAB, provided the keynote address at the SBE National Awards Dinner.



Gino Ricciardelli (at podium) addresses the crowd after being elevated to the membership grade of SBE Fellow. Joining in on the celebration are SBE Fellows, (I-r) Chris Imlay, Ed Miller and Gary Hartman.



Attendees at the SBE National Awards Dinner.



James A. Dalke (I) receives the 2014 Robert W. Flanders SBE Engineer of the Year Award from SBE president, Joe Snelson.

WELCOME TO THE SBE

NEW MEMBERS

Sidney A. Banks, II - Mobile, AL Jason R. Burson - Pinsen, AL Mike C. Harrison - Hoover, AL Todd E. Nunes - Los Angeles, CA Jeffrey E. Wittman, Jr. - Hoover, AL James A. Yeary - Duluth, GA Gustavo F. Contreras - Key Biscayne, FL Roberta Griego - San Diego, CA David Kirk - Mooresville, NC Frederick Scotti - Minneapolis, MN Nazim Uddin - Long Island City, NY Thomas Wahab - East Northport, NY Mark E. Chesterton - Vineland, NJ Michael A. Graves - Hampton, VA Brendon McGrath - Waltham, MA Maria Oliver - Tampa, FL T.J. Ryan - Tarzana, CA Jailen T. Smith - Fort Bragg, NC Robert J. Lvdick - St. Louis, MO Steven A. West - Columbus, IN Dennis E. Baltimore - El Segundo, CA Sheryl L. Bowin - Galion, OH Julie A. Connors - Lancaster, PA Tom Matthews - Davie, FL Leonard B. Rivers - Lancaster, CA

Jerry Lilly - Canton, GA Mohammed Al Abadi - Beaverton, OR Kevin J. Buente - Zanesville, OH Jose Hernandez - St. Louis, MO Britt A. Morin - Lubbock, TX Max E. Anduze - Oldsmar, FL Louis Bramante - Millburn, NJ Todd Cima - Chico, CA Andrew J. Griffin - Peoria, IL Michael G. Rackoff - Charlotte, NC Theo Blount - Bergenfield, NJ **Richard R. Coutee - Shreveport, LA** Eduardo Vallejo - Weslaco, TX Joshua A. Ambrose-Howell - Fort Bragg. NC David Jones - Angola, IN Ann Mengelson-Clark - Baton Rouge, LA John W. Sichler - Nampa, ID Jacob M. Bechtold - Fargo, ND Steve Hardy - Kettering, OH Kayla Bliesener - Hoboken, NJ Joshua D. Hager - San Diego, CA Joseph H. March - Carmel, IN Brian W. Wise - Kirksville, MO

NEW STUDENT MEMBERS

Christopher A. Mondry - Norfolk, VA Daniel Sipe - Cosmopolis, WA Kendra J. Smith - Montgomery, AL Adrian L. Rogers - Jacksonville, FL Jeremy Nez - Albuquerque, NM Angelina Rice - Winchester, VA Matthew von Kroeker - Bell, CA Rameshwar S. Hiraman - Mississauga, Ontario, Canada Nick Riebesehl - Cambridge, MA

NEW ASSOCIATE MEMBERS

Richard G. Olson - Milwaukee, WI

RETURNING MEMBERS

Anthony Beswick - Valencia, CA Glen Rewal - Castaic, CA Russell B. Hines - Cincinnati, OH Joe E. Bennett - Olathe, KS Nicholas J. Markowitz - Verona, PA Anthony R. Sanderson - St. Helena Bay, Western Cape, Republic of South Africa Ryan J. Haraschak - APO, AE Edward J. Adams - Vernon, CT Juan Chavez - Pembroke Pines, FL Keith M. Kinney - Chesapeake, VA Gerald W. Urban - Alden, NY Michael G. Young - Charlotte, NC Joseph J. Zeppuhar - Cocoa Beach, FL Eric Johnson - Playa Del Rey, CA Andrew M. Salive - Ferndale, MI



December 2014



LEGAL PERSPECTIVE

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

Wireless Microphones: Where do we go now?

It is time to see where we stand with respect to wireless microphones now that the TV Band Repacking and the Spectrum Auctions are pretty much a fait accompli. First, a quick review: Going back to 2010, FCC granted a blanket waiver allowing unlicensed use of wireless microphones up to 50 milliwatts for what I refer to as the "great unwashed" (churches, theaters, hotel A/V systems, and other non-broadcast users of WMs). The same year, FCC identified two vacant TV channels in each market for wireless microphone use on either side of Channel 37 (which is used for Wireless Medical Telemetry and Radioastronomy) which were unavailable to TV White Space devices. FCC also created procedures for the means by which both licensed and unlicensed microphones users could temporarily preclude White Space devices from other channels so as to protect ENG operations and event and sports production, for example. All this became urgently necessary because, of course, the entire 698-806 MHz band was made unavailable for wireless mics (and television broadcasting).

Fast forward to May of this year. FCC's decision to hold an incentive auction of, in effect, the 600 MHz band, caused FCC to effectively scrap the 2010 provisions for wireless mic operation in the band 470-698 MHz. First, it cancelled the plan to reserve two channels for wireless microphones. There will be only one such channel per market, and even that is not guaranteed. Even if there is, it will be shared among all types of wireless microphone users and as well, TV White Space devices. However, all was not lost for broadcast ENG. The 600 MHz wireless broadband spectrum would, FCC said, include a "duplex gap" of 11 megahertz between base and mobile broadband segments. FCC said that 6 megahertz would be used for TV White Space devices and 4 megahertz would be for licensed wireless microphones. Lower in frequency, unlicensed wireless microphones could use a guard band of 11 megahertz between TV and broadband operations. FCC considered making channel 37 available in some areas. It also changed the rules to permit wireless microphones to operate closer to a TV station using the same channel, but not within 4 km of the TV station's predicted service contour unless

10

the TV station agreed. Also in May, eligibility for licensing wireless microphones was expanded to include entities that routinely use 50 or more wireless microphones.

This has been the trifecta of spectrum grabs for broadcasters: First, we get saddled with unlicensed TV White Space devices with a very tenuous interference protection mechanism based on event registration. Then, during the transition to digital TV, we lose 18 TV channels that could have been used for both White Space Devices and wireless microphones. Now, the incentive auction will relegate some of the 600 MHz TV channels to broadband. There is no doubt that what will be left at UHF for wireless microphones will be grossly insufficient.

That brings us to the September 30, 2014 Notice of Proposed Rulemaking in Docket 14-166. This represents something of a shift in FCC's thinking about wireless mics. In earlier dockets on the subject, FCC took the position that wireless mics were an "inefficient" use of spectrum because they were not used all the time in all geographic areas and that broadcasters and other wireless mic users would have to make do with access to far fewer vacant TV channels than in the past. This assessment is typical of FCC when they want to repurpose spectrum: they portray the incumbent technology not in terms of its value to the public (and we do view ENG as a valuable service to the public) but in terms of dutv cvcle.

But this new NPRM takes a different tone. It acknowledges that wireless microphones are important in many contexts, including breaking news, sporting event production, entertainment and civic affairs. It also asks for information about wireless microphone technology and how it works now. Most importantly, the NPRM has an extensive list of possible replacement frequency bands as an alternative to UHF TV. FCC asks for comment on the utility of each for wireless microphones and compatibility with other users. Of course, use of any of these alternative bands would require buy-in from wireless microphone equipment manufacturers. Some of the bands suggested are not realistic at all due to incumbent uses. For example, FCC asks about 902-928 MHz (the ultimate junk band) and the 944-952 MHz band, which is heavily used for STLs. Others are simply too narrow in

available bandwidth to permit the necessary high audio quality and low latency necessary for ENG use. A cynical person would wonder whether these alternative bands are really seriously advocated by FCC or just an illusion. FCC also makes some flat statements that indicate a mistaken assumption that there are numerous alternatives to UHF TV wireless mic systems in widespread use right now. FCC said: "In addition to operations in the TV bands, many wireless microphones users (sic) address their needs by operating in other spectrum bands. This includes, for instance, operations on a licensed basis by broadcasters and broadcast networks in the 944-952 MHz band or by a variety of entities in the 169-172 MHz band. This also includes operations of many different groups of users on an unlicensed basis in different bands, such as the 902-928 MHz band, the 1920-1930 MHz band, and the 2.4 GHz band." For broadcasters, the alternatives to UHF TV band wireless mics today are not as many as FCC seems to assume.

Some alternative wireless mic technologies discussed in the NPRM are unworkable due to the cost or expense or because of regulatory limitations. Ultra-wideband technology for communications purposes, for example, is severely regulated in the United States due to concerns about the use of government frequency bands. Technology for wireless mics that would allow periodic polling of the White Spaces database would be prohibitively expensive. Suggestions that would require broadcasters to purchase all new wireless mic equipment seem particularly unfair in view of the fact that broadcasters have just recently bought a lot of new equipment for 600 MHz to replace that which they had to scrap in 2010 when the 700 MHz band became unavailable.

But there are some replacement bands proposed that do have promise. Use of a single video channel in the 7 GHz band for short-range wireless mics is one of them. This NPRM is worth a thorough read and your comments. SBE will be filing its comments in due course. But heads up: licensed wireless microphone operation will cease in the repurposed 600 MHz band no later than the end of the post-auction transition period, which will be 39 months after the issuance of a Channel Reassignment public notice.



FOCUS ON SBE

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

National Committee Chairs, Executive Committee appointed

In your Society of Broadcast Engineers, the national Board of Directors has the responsibility of developing and approving policies and programs that will benefit members. They also have a fiduciary responsibility to oversee the finances and records of the society in a responsible and prudent manner. The SBE has always benefitted from a consistent flow of dedicated elected members serving on the Board who have taken these responsibilities seriously.

In addition to the national Board of Directors, the society maintains 18 committees, which is where much of the work of the society is accomplished. Many of the chairs of these committees are current members of the Board. Others have served on the board previously (board service is not a prerequisite for serving as a committee chair). The Board of Directors of the SBE has appointed members to serve as national committee chairs for the 2014-15 program year and they are listed in the accompanying chart. Members are welcome to contact the appropriate committee chair if they have questions or comments regarding that committee's area of responsibility.

New this year, a Social Networking

Committee	Chair	Phone	E-mail Address
Awards	John Heimerl, CPBE	(757) 621-6361	johnh@finetuning.com
By-laws	Jim Leifer, CPBE	(561) 301-3466	jimleifer@hotmail.com
Certification	Ralph Hogan, CPBE, DRB, CBNE	(480) 774-8227	rhogan@sbe.org
Chapter Liaison	Kirk Harnack, CBRE	(615) 423-0053	kirk@harnack.com
EAS Education	Benjamin Brinitzer, CPBE, AMD	(704) 714-9489	benb@iheartmedia.com
Education	Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE	(979) 845-5662	w-pecena@tamu.edu
Fellowship	Troy Pennington, CSRE, CBNT	(615) 321-1067	troy.pennington@cumulus.com
Finance	Gary Kline, CBT, CBNT	(404) 949-0700	gary.kline@cumulus.com
Frequency Coordination	Dennis Wallace, CBTE	(202) 251-7589	dennis.wallace@mswdtv.com
Government Relations	Ched Keiler, CPBE, 8-VSB, CBNT	(954)804-4860	ckeiler@ethree.us
International	Chuck Kelly	(902) 823-3900	chuck.kelly@nautel.com
Membership	Tim Anderson, CPBE, DRB, CBNT	(859) 445-7135	tander08@harris.com
Mentoring	Eric Schecter, CBRE	(602) 452-1080	eric.schecter@cbsradio.com
Nominations	Ted Hand, CPBE, 8-VSB, AMD, DRB	(704) 335-4732	ted.hand@coxinc.com
Publications	Andrea Cummis, CBT, CTO	(201) 303-1303	acummis@gmail.com
Social Networking	Kim Sacks, CBT	(301) 902-1338	ksacks@cbs.com
Sustaining Membership	Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT	(864) 241-4223	jmassey@entercom.com

committee has been created and the Mentoring Committee is now a full-fledged committee, having previously been a sub-committee of the Education Committee.

President Joe Snelson, CPBE, 8-VSB has appointed two members of the national board to serve on the Society's Executive Committee for this program year. They are Ted Hand, CPBE, 8-VSB, AMD, DRB and Wayne Pecena, CPBE, 8-VSB, AMD, DRB,

CBNE. Per the society's By-laws, they join the four elected officers and the immediate past president as voting members of the Executive Committee. I and General Counsel, Chris Imlay also serve on the Executive Committee in an ex officio capacity. The Executive Committee acts on behalf of the Board in between Board of Director meetings. Our thanks go to all of these members for their dedicated service.

Chapter Engineers of the Year

Eight of the eleven members selected to receive their chapter's Engineer of the Year Award were featured in the October Issue of The Signal. Pictured below are two more recipients of the award.



George Werl, CPBE, of Chapter 17 in Minneapolis, Minn.



Scott Mason, CPBE, CBNT, of Chapter 47 in Los Angeles, Calif., receiving his award for Engineer fo the Year.

Accredited SBE Frequency Coordinators

The SBE provides accredidation to broadcast auxiliary spectrum (BAS) frequency coordinators who agree to conduct their coordination using a voluntary national standard of procedures. Accredidation has been recently granted to:

Eric Kuglin Chandler, AZ Chapter 9 Charles Keiler Ft. Lauderdale, FL Chapter 53



Programs offered:

- Broadcast Engineering
- Electronics Tech with FCC
- Electronics Communications
- Industrial Electronics PLC
- Wireless
- Robotics and more!

1776 E. 17th, Cleveland, OH 44114

www.cie-wc.edu

Course descriptions & tuition prices. Request a **FREE** Course Catalog!

www.ciebookstore.com Learn iPhone Repair,Video Production, PC Repair & more! DVDs, labs & tools.

Or call 1-800-243-6446

Registration Certificate 70-11-0002H



Engineering Perspective

by Tom Smith tsmith@bms-inc.com Member – Chapter 24, Madison, Wis.

A look at TV repack scenarios – part 2

In the October 2014 issue of The Signal, I began this two-part series about the effects of repacking of the UHF band. With the release of the first set of rules on the proposed incentive auction of part of the UHF-TV spectrum, TV broadcasters still have many unanswered questions.

On June 2, the FCC released a series of spreadsheets http://data.fcc.gov/download/ incentive-auctions/Simulation_Results/) that give a possible look at various scenarios for the repacking of the UHF band after the auction. In this issue, we'll continue our look on the effects of repacking on major markets, specifically those located in the Boston to Washington, D.C. corridor and on the West Coast.

To get some idea of the possible effect on stations and the loss of viewing choices for the public, I looked at some of the data to see what the FCC is considering. The next group of stations I looked at is the congested East Coast, which included New York, Boston, Philadelphia, Baltimore and Washington, DC. Below are the results from that search.

					Data Runs 76-8	8	0	Data Runs 89-10	00
Market DMA	Market #	Full Power	Class A	High	Low	AVG.	High	Low	AVG.
Los Angeles	2	23	5	20	17	18.6	13	9	11.7
San Diego	28	4	4	7	5	6.15	7	3	5.4
San Francisco	6	20	3	14	9	10	8	4	10
Sacramento	20	9	6	7	2	6.15	7	2	5.15
Seattle	12	14	0	5	5	5	3	1	1.5

Angeles. San Francisco and Sacramento are also close to each other and have an impact on each other as well.

The final search of the FCC databases I did was to sort the database by market size and make a general note of the impact on the results of the computer runs in each of the markets that were listed, which was over 200. I found that at least a dozen markets would have few if any UHF stations left, if the FCC hit one or both of its target spectrum recovery. I found a few small one-station markets that would not have any UHF station if any of the FCC scenarios were fulfilled. I also found that over 70 markets would have no impact

					Data Runs 76-88			Data Runs 89-10	00
Market DMA	Market #	Full Power	Class A	High	Low	AVG.	High	Low	AVG.
New York	1	18	5	12	10	10.5	4	4	4
Boston	7	17	2	10	6	7.9	5	1	2.2
Philadelphia	4	17	6	15	13	14	12	9	11.2
Baltimore	27	6	1	6	5	6	7	4	5.1
Vashington D	8	16	3	7	4	4.7	0	0	0

Washington, D.C. could be the least affected market, with Philadelphia and Baltimore having very few stations left if the FCC would recover the amount of spectrum they desire. New York and Boston markets would be impacted if the FCC recovered channels 31 to 36, but would be less impacted if the FCC recovered spectrum above channel 37 only. Note, the Boston market includes stations in New Hampshire and the Philadelphia market includes stations in New Jersey and Delaware.

The final group of markets I looked at were large markets on the West Coast, including Los Angeles, San Francisco, San Diego, Sacramento and Seattle. Los Angeles, San Francisco, Sacramento and Seattle have a large number of stations and San Diego is impacted because it is so close to Los other than having to change channels. They include markets as large as Atlanta, St Louis, Phoenix, Indianapolis and Nashville, along with a number of others located in the Western States and the South, where markets are more spread out. Most small markets west of the Mississippi would not be impacted. The rest of the markets would have from one station to up to half of the stations impacted if the FCC met all of its goals.

Because I used data from database three only, there may be some markets and stations impacted more and some less. But, if the FCC is to meet its targets for spectrum recovery, they will need a large number of stations to participate and the over-the-air viewer will be greatly impacted. One conclusion that can be drawn from the data is that moving away from limiting stations from using channel 30 and below, to instead, limiting them to using channel 36 and below, did lessen the amount of stations that would be needed to participate in the auction.

The FCC may need to further reduce the amount of spectrum they can recover to lessen the need for stations to participate as the numbers of stations in some markets needed to meet the existing targets could be considered unrealistic. Another issue is local programming could be greatly impacted, particularly a loss of local news outlets if stations are eliminated. All stations eligible for cable coverage are supposed to retain that right, but that remains to be seen if stations, which gave up their RF channel, can survive in a cable-only environment.

The other wildcard, is will the opening price the FCC wishes to pay be sufficient to get stations to participate? Many of these stations have both high revenues and high value if sold and would the FCC make an offer that would be of interest to many of these stations? Considering the large amount of stations needed in some of the largest markets, will the auction to the wireless industry net enough to offset the cost of obtaining the spectrum from the broadcasters? It will be an interesting next year or two as the auction planning continues.

Thomas Smith retired in 2011 after 35 years with WHA-TV, Wisconsin Public TV, in Madison. He continues to do contract work for radio and video production facilities. He's been a member of the SBE since 1970 and holds life certification as a Certified Professional Broadcast Engineer. He's an active member of SBE Chapter 24 in Madison and has served as its chairman and in other leadership roles.



SUSTAINING MEMBERS Support the companies who support the SBE and the industry

AC Video Solutions • 2014

Andrea Cummis (201) 303-1303 Consulting, Systems Design/ Integration

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

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

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 Spectrum Analyzers AVDB Group • 2014

Maria Cody (720) 940-7131 Audio/Video/Lighting & Control

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

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

Bell Tower • 2014 Bruce Burris (918) 789-9020 Tower Manuf., Design & Installation

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

Bracke Manufacturing LLC • 2012 Patra Largent (949) 756-1600 **RE & 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**

Comark · 2013 Jack McAnulty (860) 763-1100 Manufacturer Broadcasting Transmission Equipment

Comrex Corporation • 1997 Chris Crump (978) 784-1776 Audio CODECS & Telephone Interface Products Comsearch • 2004

Tim Hardy (703) 726-5651 Frequency Coordination Services **Continental Electronics Corporation** • 1976

Michael Troje (800) 733-5011 AM & FM IBOC Transmitters

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

Dialight Corporation • 2006 US Headquarters (732) 919-3119 FAA Obstruct. Lighting, L.E.D. Based Dielectric Communications • 1995 Cory Edwards (207) 655-8131 TV & FM Transmission & Cellular Prod Digital Alert Systems, LLC • 2005 Bill Robertson (585) 765-1155 **Emergency Alert Systems** DoubleRadius, Inc. • 2012 Jeffrey Holdenrid (704) 927-6085 IP Microwave STL du Treil, Lundin & Rackley, Inc. • 1985 Jeff Reynolds (941) 329-6000 **Consulting Engineers DVEO - Division of Computer Modules** Inc. • 2011 Laszlo Zoltan (858) 613-1818 Everything About Transport Streams e2v • 1997 Mark Strohecker (914) 593-6831 Electronic Components, SATCom Amplifiers Econco • 1980 Debbie Storz (800) 532-6626 or (530) 662-7553 New & Rebuilt Transmitting Tubes Emerson Network Power/Avocent • 2014 George Morgan (917) 592-0956 Avocent High Performance KVM ENCO Systems Inc. • 2003 Kenneth Frommert (800) 362-6797 Audio Automation and Playout ERI - Electronics Research • 1990 David White (812) 925-6000 Broadcast Antennas, Transmission Line, Filters/Combiners.Towers and Services Florical Systems • 2008 Shawn Maynard (877) 774-1058 Television Broadcast Automation FOR-A Corporation of America • 2013 Adam Daniul (305) 773-7608 Innovation in Video and Audio Tech. Fujinon, Inc. • 1986 Thom Calabro (973) 633-5600 **Broadcast & Communications** Prod GatesAir • 1977 Dave Hopson (TV) (513) 445-5243 Mark Goins (Radio) (513) 899-9124 Broadcast Equipment Manufacturer Gepco/General Cable • 1995 Dennis Thompson (407) 405-0756 Innovative Cabling & Custom Solutions Graham Brock, Inc. • 2012 Marilyn Matheny (912) 638-8028 Technical Consultation - Radio/TV HD Radio/iBiquity Digital • 2014 Rick Greenhut (443) 539-4335 HD Radio Technology Heartland Video Systems, Inc. • 2011 Dennis Klas (920) 893-4204 Systems Integrator **IEWC • 2014** Matt Granard (425) 286-1900 Global Connectivity Solution Provider

Guy Fournier (418) 682-3380

Site Remote Controls

Image Video • 1997 Zach Wilkie (416) 750-8872 ext. 228 Under Monitor Tally Display

Systems, Monitor Design and Manufacture Broadcast Equipment

Davicom, Division of Comlab, Inc. • 2014 Inovonics Inc. • 2012

Lukas Hurwitz (831) 458-0552 Radio Broadcast Equipment **Integrated Microwave Technologies**

• 2009 Elena Waldhuber (908) 852-3700 Microwave Video Transmission and Receive Systems

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

JVC Professional Video Products • 2014 Lon Mass (973) 317-5117 Professional Video Products 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 & Comm.

LBA Technology Inc. • 2002 Katie Sneed (252) 757-0279 AM/MW Antenna Equipt. & Systems

LYNX Technik • 2007 Steve Russell (661) 251-8600 Broadcast Terminal Equipt. Manuf.

Markertek Video Supply • 2002 Andrew Barth (845) 246-3036 Audio, Video, A/V Broadcast VlaguZ

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 Moselev Associates Inc. • 1977

Dave Chancey (805) 968-9621 Digital STLs AM/FM/TV MusicMaster • 2014

Shane Finch (352) 351-3625 Advanced Music Scheduling Sol. National Association of Broadcasters

• 1981 (202) 429-5340 Industry Trade Association

Nascar Productions • 2014 Abbey Kielcheski (704) 348-7131 Live/Post Production Services

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 Kathy Hall (704) 972-3050

Ruggedized Optical Fiber Systems NewBay Media • 2013 Thomas Leader (212) 378-0438 Publisher of Broadcast Magazine

Orban • 2011 David Rusch (480) 403-8300 Audio Processing AMFMTV

Pacific Radio • 2013 Josh Phillips (818) 556-4177 Cables, Connectors, Tools, Racks Sourcerer. • 2014

5007

ext 128

Superior Electric • 1995

Sutro Tower Inc. • 1989

TC Electronic • 2008

Tektronix Inc. • 1977

Telestream • 2013

automation

Systems

Teradek • 2011

2003

Services

997-5508

The Switch • 2011

Processing

Eddy Vanderkerken (214) 912-

Broadcast Equipment, T & M

Paul Heiligenberg (937) 253-1191

Manuf. Voltage Regulators, UPS

Michael J. Miga (860) 507-2025

Power Protection Equipment

Eric Dausman (415) 681-8850

Laura Davidson (818) 665-4902

DTV Audio Level Processing

Michael Brett (503) 627-5888

Mark Wronski (530) 470-1337

Telos Systems/Omnia/Axia • 2003

Telos Systems - Talk-Show

Transcoding, captioning, workflow

Denny Sanders (216) 241-7225

Jon Landman (949) 743-5783

Jennifer Smith (888) 373-4832

The Durst Org. - 4 Times Square • 2004

John M. Lyons, CPBE (212)

TV/FM/Microwave Tower Site

Peter Hartz (323) 645-8011

Fiber Transmission Provider

Matt Tietze (301) 537-6288

Tieline The Codec Company • 2003

Thomson Video Networks • 2014

Video Compression and

FCC Broadcast Auxiliary Licensing

Camera-top ENG Solutions

Terrestrial RF Licensing Company •

Video Test & Measurement,

Equipment Manufacturer

Broadcast Tower Leasing

Staco Energy Products Co. • 2010

Pasternack Enterprises • 2001 Christine Hammond (949) 261-1920

Coax & Fiber Products Potomac Instruments • 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

Distri 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

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

RCS • 2003 Diana Stokey (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 Rohde & Schwarz • 2003

Walt Gumbert (724) 693-8171 Broadcast Transmitters, Test & Measurement Ross Video Ltd. • 2000

Darren Budrow (613) 228-0688 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

Seacomm Erectors, Inc. • 1997 John Breckenridge (360) 793-6564

Tower/Antenna Erections SEG • 2014

Chris Childs (913) 324-6004 Supply Chain Products and Services

Shively Labs • 1996 Dale Ladner 888-SHIVELY FM Antennas & Combiners Shure Incorporated • 2012 Bill Ostry (847) 600-6282 Microphones, Wireless Systems,

Headsets Sierra Automated Systems and Engineering Inc. • 2011 Al Salci (818) 840-6749

Routers, Mixers, Consoles, Intercoms Signiant • 2012

Steve Gillen (781) 221-4000 Signiant Content Delivery Software Snell Inc. • 1995

John Shike (818) 556-2616 Video Equipment Manufacturer Solid State Logic • 2014 Steve Zaretsky (212) 315-1111

Digital Audio Consoles/Routers

13

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 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 & **FNG**

WnewTech Corporation • 2014 Luiz Santiago (310) 220-5664 Systems Integration

Members With 25 or

More Years of Membership

New Members

Install., Integration Maint. Services

Looking Back Over 50 Years In 1992, this icon of network TV engineering looked ahead to the year 2010



Photo courtesy of TVNewsCheck.

The article below was actually a speech written by Julius Barnathan, who at the time was president of broadcast operations and engineering for Capital Cities/ABC in New York. Barnathan was to be the keynote speaker at the 1992 SBE National Awards Dinner in San Jose, Calif., but due to poor health, was not able to attend. He called upon retired ABC engineering colleague, Sandy Sandberg, a member of the SBE national Board of Directors, to deliver the speech on his behalf.

Throughout his 40 years at ABC, Barnathan was responsible for many technical developments in the television industry, including the use of hand-held and miniature cameras at sports events and closed captioned programs for the deaf. He was also credited for helping to adapt slow-motion technology to color cameras, develop the use of long-lens cameras to capture sports events that take place over great distances, and introduce the use of small, square inset pictures behind news anchors. In his speech, which was reprinted in the Nov/Dec 1992 issue of The Signal, he discussed "Advanced Television" and projected where he thought the new technology would be by the year 2010. Barnathan, who died in 1997. was named an Honorary Member of the SBE during the 1992 SBE convention.

I'm sorry I can't be here in person. I hope to be with you sometime in the future. I just had a pacemaker installed in my body in the belief that it will slow me down. However, I'm sure I will be myself in a little while.

Many things are happening in Television, some good, some bad. Unfortunately, the broadcast engineer, the so-called operator is becoming extinct. There aren't many jobs for those who do go into our field. Yet the future can be bright if the new leaders of television engineering have the vision and foresight to see the future. Let us look at the future and see what's in store...the name of my talk is 2010: A PEEK AT THE FUTURE.

Many of you know why I chose that year. It is

14

about the time the FCC expects NTSC to go off the air and the new ATV system would continue on.

The FCC, under Chairman Sikes, is goal oriented and I think that is the right thing to be. If we don't have goals, there is a tendency to "drag your feet." The FCC, has said that once a system is chosen, the Broadcasters will have three years to file for a construction permit, and three years to build, thus, every broadcaster

"Broadcasting is a national service that is local"

is expected to "use it" or "lose it." Many broadcasters, particularly small market owners say they cannot afford to equip their stations for ATV since it will cost 2-3 million dollars. This cost is just to be able to pass a high definition network or national program or to play a tape. This does not include live local organizations.

Machiavelli in "The Prince" in 1513 stated, "It must be remembered that there is nothing more difficult to plan, more doubtful of success, more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institutions and merely lukewarm defenders in those who would gain by the new ones."

Therefore, I would like to state right at the beginning, I am a firm believer that the broadcasters must develop a transmission system for the twenty first century.

It must provide:

1) Coverage to its viewers equal to or better than NTSC.

2) ATV must be allowed to evolve as programs are produced for the new system.

3) There must be viewers who will buy the new display devices, thus allowing NTSC to become obsolete (it could still be used to watch your old tapes).

Let us review the criteria.

1) COVERAGE

I would now like to plagiarize a Lincoln statement. "You can reach some of the people some of the time" THAT IS PAY PER VIEW. "You can reach some of the people all of the time" THAT IS CABLE. "You reach all of the people all of the time THAT IS BROADCASTING.

Broadcasting is a national service that is local. Every program goes through a local affiliate (at least on the three older networks.)

Thus all of the viewers within a station's area of dominant influence want locally originated programs not just the viewers within 55 miles, but failing this, white areas will be created. Currently the FCC allocation plan, when looking at co-channel spacing problems only, would provide for about a 55 mile radius for 92 percent of the stations. However, the 8 percent of the stations that will be short changed are in top markets, and adding the short spacing problems created by adjacent channel allotments, more stations will be short-changed increasing the size affected to about 12 percent.

2) ATV MUST BE ALLOWED TO EVOLVE AS PROGRAMS ARE PRODUCED FOR THE NEW SYSTEM.

In France recently, a survey was conducted in which viewers were asked if they wanted more resolution and better looking television pictures. The answer was that they wanted more programs, not resolution, with better writing, instead of better looking pictures. Quoting from Norm Brooks, when asked "Does better technology make for better television?" Replied, "Technology may enhance something but it is not going to make a better story. If it is not in the script, it's just not there." We hear today of cable systems with 150 channels. That will NOT make people view more. There are three things that attract viewers once you have reached them and that is; GOOD PROGRAMS, GOOD PROGRAMS AND GOOD PROGRAMS.

People do not go to the movies to see wide screens, they go to see the movie because of the story or the subject. Many of Walt Disney's Wildlife Movies were shot in 16mm. People didn't know and cared less. They were interested in the content.

Thus, the most important aspect of production is not the aspect ratio, but the script and the stars. I Love Lucy and the Honeymooners could never have won an award for technical quality.

Today, the cost of producing shows to attract large audiences is very high. If we add an additional burden on non-film shows, how will the cost be underwritten? Would it not be better to have great scripts from better writers and brighter stars then to have to spend your funds on ATV equipment?

As current TV equipment wears out and becomes obsolete, it will make sense to replace the current equipment with HDTV equipment with the new aspect ratio. This is assuming the price of such equipment will not be prohibitive as it is at the current time. It is also prudent to wait till the standards for cameras, tape machines, etc. are agreed to, hopefully, in an expeditious manner no doubt new production equipment will be digital. Techniques for video compression, for tape, graphics, visual effects, distribution to stations and to the home, must also be agreed to.

We must continue to stay in step with the computer and telecommunications industries, that there will be economies from scalability, interoperability and all the other buzz words

LOOKING BACK, backpage



A snapshot in time



Martin "Sandy" Sandberg (r), accepts the SBE Honorary Member certificate on behalf of recipient, Julius Barnathan, from SBE Awards Chairman, Tom Weems during the SBE National Awards Dinner in San Jose, Calif. on Oct. 17, 1992. SBE founder, John Battison can be seen in the background.

MEMBERS ON THE MOVE



Ralph Hogan, CPBE, DRB, CBNE, Tempe, Ariz., has been elected Vice President of the IEEE Broadcast Technology Society.

Tim Koza is now Chief Engineer at KJLH Radio, Saugus, Calif.



Rich Rarey, CEA, CBNT, Kensington, Md., has been named technical editor of Radio World Engineering Extra, a NewBay publication.

Will Shifflett, CBT, is now Chief Engineer at KCCU-FM Cameron University, Cyril, Okla.

Steve Tuzeneu, CBT, is now Market Director of Engineering at Townsquare Media, Grand Junction, Colo.

Have you recently made an employment change or received a promotion? Let your fellow SBE members know about it. Send your news to Dan Kissel at dkissel@sbe.org.



Answer from page 2

2015 Tower Site Calendar

The Tower Site Calendar - 2015, published by fybush.com/NorthEast Radio Watch is now available. This year's edition features the same gorgeous full-color photos you've come to expect, with a great variety of tower arrays. We go coast to coast, from Boston to Portland, from San Diego to Washington D.C., with stops in New Mexico, Wisconsin, Indiana, Illinois, New York, Pennsylvania, Minnesota, New Hampshire and Missouri.

Be sure to visit the SBE Bookstore on the SBE website, www.sbe.org, to order a calendar for 2015, today! \$16 Members, \$19 Non-Members



MARK YOUR GALENDAR

Chief Operator Responsibilities - What should I be doing? - Webinar January 15, 2015

Presenter: Dennis Baldridge, CPBE, 8-VSB, AMD, DRB, CBNT

HD Radio Advancement and Trends - Webinar February 4, 2015 Presenter: Alan Jurison, CSRE, AMD, DRB, CBNE

SBE Certification Exams - Local Chapters February 6-16, 2015 Deadline for applications is December 31, 2014

ATSC 3.0 - Webinar February 19, 2015 Presenter: Richard Chernock

A. True

LOOKING BACK from page 14

of the digital world. Thus, evolution rather than revolution seems more practical and affordable.

3) THERE MUST BE VIEWERS WHO WILL BUY NEW DISPLAY DEVICES i.e. TV SETS, FLAT PANEL DISPLAYS, LIQUID CRYSTAL DISPLAYS, PROJECTION EQUIPMENT.

I'm not talking about truck-chasers who run to the video store the moment a truck pulls up with a new device and says "I've gotta have one." I'm talking about the people who now own 25 inch sets and would want to replace it with a large screen 16:9 ratio and higher resolution. When asked what I believe will create the demand for HDTV Technically, and I reply, "When a viewer can buy a flat panel fifty inch diagonal display for \$500." People laugh at me. But WOULD they have believed today we would have consumer video tape machines for \$300 or cameras with recorders for under \$1000?

I am a marketing man and a firm believer in the marketing triangle,

namely, you must produce the best products, and get them distributed so that everybody can consume the products. If the viewer cannot consume the product because it isn't available to him or because he lives in an area where he cannot receive it, or if he doesn't own a display device to be able to see the picture, then the product will fail. HDTV will not succeed without all three; production, distribution, consumption.

In summary, we must continue to move forward into the future with determination, but with REALISM. Remember the turtle cannot go forward without sticking its neck out, and neither can the broadcast industry. It will take leadership, as well as vision to succeed to the year 2010 and beyond.

It is only a group such as the Society of Broadcast Engineers with its emphasis on education, certification, and technical excellence that can provide the personnel to fill the jobs that our industry needs now and in the future. And fulfill the promise of the past.

Julius Barnathan Capital Cities/ABC



Searching for military grade reliability? You've found it.

Introducing the most dependable and compact Nitrogen Generators designed specifically for Transmission Line Pressurization.

