



# The Society of Broadcast Engineers

**Fox Valley Wisconsin SBE Chapter 80 PO Box 1519  
Appleton, WI 54912-1519**

**May 2017**

Like us on FaceBook -[facebook.com/sbe80](https://facebook.com/sbe80)

Our website [sbe80.org](http://sbe80.org)

Twitter: @sbechapter80

Our next SBE Chapter 80 meeting will be at the Camera Corner 2017 Tech Expo at the KI convention center on Tuesday May 23rd **one week later than usual** around noon. Parking is available at the Main street and Madison street parking ramps.

## Fellow Chapter 80 Members,

Many of us have had our work pace pick up with the arrival of warmer weather and outside projects. The 2017 NAB Show is now history; I was privileged to attend this year and in addition to learning many new things, we pleased to network with vendors and fellow engineers, even bumping in to a few Chapter 80 members! The opportunity to meet people whom I've had contact with via email or telephone was especially nice.

Please note that our May meeting will comprise attending the Camera Corner Connecting Point 2017 Tech Expo on Tuesday, May 23<sup>rd</sup>. Registration is required, which you may do in advance at: <https://www.ccp.com/registration/> A schedule of events, exhibitors and parking information is also found at the link. Please plan to attend if you're able to.



Here are a few items from SBE National Headquarters –

- The SBE National Awards nominations deadline is June 15. You may use the on-line nomination form at: <http://sbe.org/awards>
- Our SBE member recruitment drive ends May 31<sup>st</sup>. More information can be found on the SBE website.
- Reminder to renew your SBE membership if you haven't yet done so. A number of member benefits are not maintained past June for lapsed memberships.

Please also make plans for the WBA Summer Engineering Day, Wednesday, June 14. Information and registration can be found here: <http://www.wi-broadcasters.org/events/summer-conference/> There isn't much fanfare on the site about the engineering sessions, but they are there! Our own Ed Rousseau is one of the presenters. The event will take place at the Blue Harbor Resort in Sheboygan.

Best Regards,

Mark Hoenecke

## CHAPTER 80 ELECTED AND APPOINTED OFFICERS

Chairman	Mark Hoenecke	WPT	715-845-1319	Mark.Hoenecke@ecb.org
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Board of Dirs/SBE Liaison	Mike Hendrickson			<a href="mailto:mhendrickson@sbe.org">mhendrickson@sbe.org</a>

### Still Time to Recruit New Members During the SBE Membership Drive

The Society of Broadcast Engineers, the Association for Broadcast and Multimedia Technology Professionals, provides the path to success in your career. Help a colleague develop his or her career path by recruiting a new member during the SBE 2017 Membership Drive. For each member you recruit by May 31, your name will be entered into the prize drawing, and you'll receive \$5 (up to \$25) off your 2018 dues renewal for each new member.



One lucky recruiter will win the Grand Prize, a trip to the 2017 SBE National Meeting and Rocky Mountain Audio Video Expo (AVX) in Denver, CO, Oct. 25-26. The prize includes airfare for one from within the Continental US and two nights stay at the Crowne Plaza Denver International Airport Hotel. Other prizes include technical equipment, logo wear and gift certificates. For more details, a list of prizes and official rules, check out the [Membership Drive page](#).

[More >](#)

Look ahead at upcoming opportunities to take a [certification exam](#) in your area with the local chapter.

If you would like to take an exam but are not able to make it during these sessions, please contact Megan Clappe to ask about special proctoring.

**Certification Exams** The deadline to apply to take the SBE certification exam at your local chapter in June is April 21. Register today at [sbe.org/certification](http://sbe.org/certification).

Below is the upcoming certification exam schedule

**Exam Dates Location Application Deadline**

<b>June 2-12, 2017</b>	<b>Local Chapters</b>	<b>April 21, 2017</b>
<b>August 4-14, 2017</b>	<b>Local Chapters</b>	<b>June 5, 2017</b>
<b>November 3-13, 2017</b>	<b>Local Chapters</b>	<b>September 25, 2017</b>

If you have any questions regarding SBE certifications, please contact the Certification Director, [Megan Clappe](#).

## **Part 2 of IP Networking Fundamentals Webinar Series is May 9 *Ethernet Switching Fundamentals and Implementation***

Join us for [Part 2](#) of The Fundamentals of IP Networking Series on May 9 at 2 p.m. ET. Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE presents the second part of this five-part series that serves as an introduction to intermediate level exposure to IP networking. The series focuses on understanding underlying technology, standards and protocols utilized in a modern Ethernet based IP network in the broadcast technical facility.

Part 2 is on Ethernet switching in a LAN environment as a fundamental building block to network implementation. Understanding the Data-Link Layer of the OSI model provides the foundation to implement the functionality of a switched Ethernet network that includes Ethernet switch internals, physical network addressing, VLAN implementation to create a segmented network, link redundancy, and the value of a managed Ethernet switch environment in the broadcast technical facility.



Pecena is assistant director for educational broadcast services in the Office of Information Technology at Texas A&M University. In this position, he serves as the director of engineering of TTVN: The Enterprise Videoconference and Data Network serving the Texas A&M University System and Public Broadcast stations KAMU-TV and KAMU-FM serving the Brazos Valley area. He has more than 35 years of broadcast telecommunications experience and holds BS and MS degrees from Texas A&M University.

Completion of this webinar qualifies for one credit, identified under Category I of the Recertification Schedule for SBE Certifications.

Register for each module separately. The [registration fee for SBE members](#) is \$57 for each part. The fee for non-members is \$87. [Purchase all five parts](#) of this series and receive a 20% discount. Purchasers of the package will have access to the live webinars coming up and the archived versions as well. [Register online at the SBE website](#).

[More >](#)

## SBE Conducts Second Compensation Survey

Now through May 16 the Society of Broadcast Engineers is conducting a survey to determine salary levels and benefits among broadcast and media technology engineers. The SBE conducted its first survey last year and had an excellent response. These first two surveys together will create a baseline for subsequent surveys to establish compensation trends.

The complete results of the survey will be available at no charge to SBE members as a benefit of membership. [Take the survey now](#). It is also available at the [SBE website](#).

Individual responses remain anonymous. The published report will include demographic data on market size, job category/title, age, years working in broadcasting, salary, benefits received and any certification held. Data will be divided into radio and TV results, with details on job category and market size.



[More >](#)

## RF 101: Broadcast Terrestrial Transmission Systems - Module 4 Antenna Gain - Feed-line Loss Webinar is May 18

The information learned in Modules 2 and 3 focus into this important discussion highlighting the relationship between gain and loss. Calculations and examples are discussed in these topics: coverage requirements; ERP versus TPO; review of directivity and gain; system losses; single radiator, multiple radiators, and other gain/loss calculations.

Taught by Dennis Baldrige, CPBE, 8-VSB, AMD, DRB, CBNT, this webinar is the fourth module of the SBE RF101 eight-part series.

### RF101: Broadcast Terrestrial Transmission Systems Course Modules

- \* Introduction to Radio Frequency (RF) , Now Available On Demand
- \* Transmission Lines, Now Available On Demand
- \* Towers, Antennas, and Transmission Systems, Now Available On Demand
- \* **Antenna Gain - Feed-line Loss, to be presented May 18, 2017 2 .p.m EDT**
- \* Modulation Fundamentals, to be presented June 15, 2017
- \* AM, FM, TV RF Propagation, to be presented July 20, 2017
- \* RF Transmitter Measurements, to be presented August 24, 2017
- \* FCC Regulations, to be presented September 21, 2017

After completing the entire course, attendees will be able to 1) Understand the basic characteristics of RF and electromagnetic radiation; 2) Describe different types of transmission lines, antennas and their characteristics; 3)



**Baldrige**

Understand the fundamentals of RF propagation; 4) Understand modulation and different modern modulation methods; 5) Describe various components used in RF communications systems; 6) Explain the basic characteristics of RF transceiver systems; 7) Define common terms used to characterize RF systems; 8) Understand how to perform a range of basic RF measurements; 9) FCC regulations pertinent to maintaining a broadcast facility.

Dennis Baldrige is a 30-year veteran of the broadcast engineering field and a Senior member of the SBE. As owner of Baldrige Communications, LLC, he works as a contract engineer and serves as an inspector for the FCC Alternate Inspection Program of the Wisconsin Broadcasters Association.

**The registration fee for SBE members is \$57; the fee for non-members is \$87. Register at the [SBE website](#).** Participants register for each module separately.

[More >](#)

## SBE RF Safety Course is May 31

The 2017 [SBE RF Safety Course](#) provides an updated overview of RF radiation issues and practices for broadcasters, including:

- \* Proving compliance at a broadcast site
- \* Biological effects of RF radiation and the distinct differences between RF radiation and ionizing radiation
- \* FCC and OSHA regulations - what they are and what you need to do to comply
- \* Workplace hazards
- \* Transmitter sites
- \* SNG and ENG trucks
- \* Remote operations (where news personnel can find problems such as on rooftops)
- \* The unique issues at AM stations
- \* RF hazard protection equipment - you may not need it but your contractors probably will
- \* Signs - what they mean and what you need

The course is designed for broadcast station personnel, including chief and assistant chief engineers, transmitter site engineers, ENG and SNG maintenance personnel and management who need to have an understanding of RF safety issues and regulations. Instructing the course is noted RF safety expert, Richard Strickland of RF Safety Solutions.

It is recommended that persons taking the SBE RF Safety Course have at least a basic knowledge of electronics and understand the concept of frequency.

Noted RF Safety expert Richard Strickland serves as the instructor for this course. Strickland founded [RF Safety Solutions](#) in 2001 after ten years as director of business development for Narda Safety Test Solutions, the world's leading supplier of RF safety measurement and monitoring products. He initiated the development of RF radiation training courses at Narda and has conducted courses ranging from basic employee awareness seminars to in-depth, application-specific courses.

The completion of a webinar from Webinars by SBE qualifies for one credit, identified under Category I of the Recertification Schedule for SBE Certifications.

This webinar will begin at 1 pm EDT and is approximately three and half-hours long. Registration fee for SBE members is \$95. The fee for non-members: \$150. [Register online at the SBE website.](#)



More >

**Roast honoring Art Williams**  
*March 31 2017*



(Pictures by Mark H)

## Effects of Repacking on Southern Wisconsin

>>> by Tom Smith (courtesy sbe24)

With the FCC releasing of the new table of allocations for the repacked stations, the big question is what the effect interference will have on stations. With the FCC using interference contours much like AM radio allocations, stations will be packed more closely together. This may cause more interference, particularly for viewers on the fringe of a station's coverage areas. The FCC used to allocate stations based on fixed mileage separations. With analog TV stations, the separations were far enough apart to provide a buffer zone to prevent interference. This method is also used for FM radio allocations.

With DTV allocations, the FCC reduced the buffer zone to a point that the predicted service contours between stations would nearly touch, relying on the front-to-back ratio of the viewers antenna to make up for the buffer zone. The front-to-back ratio is the difference between a signal received from the front of the antenna to that received from the back of the antenna. The higher the front to-back ratio means more of the desired signal is received in the direction the antenna pointed.

**The following chart shows the new allocations for the markets surrounding the Madison market:**

Channel	Madison	Milwaukee	Chicago	Rockford	Green Bay	Wausau	LaCrosse/Eau Claire	Dubuque
4			WOCK-CD					
5		WIWN						
7						WSAW		
8		WMVT					WBKT	
9						WAOW		
11	WISC (50)							
12			WBBM		WLUC (11)			
13				WREX		WMOW (12)		
14					WGBA (41)			KFXB (43)
15					WCWF (21)		WHLA (30)	
16				WTVO			WJFW	
17							WEAU (38)	
18	WMSN (49)		WMEU-CD (32)					
19	WMTV	WMKE-CD (22)	WGN		WLWK-CD (22)	WTPX (46)		
20	WHA-TV		WWME-CD (39)					
21	WIFS (32)		WJYS (36)					
22			WLS (44)		WFRV (39)			
23	W23BW-CD		WCIU (27)		WBAY			
24			WFLD (31)			WHRM		
25			WTTW (47)		WPNE (42)		WQOW (15)	
26	WKOW		WPVN-CD (20)					
27		WVTV (18)					WHWC	
28		WISN (34)	WEDE-CD (34)				WXOW (48)	
29		WDJT (46)						
30		WPXI (40)						
31		WITI (33)						
32		WTMJ (28)						
33			WMAQ (29)					
34		WWRS (43)	WCPX (43)					
35			WGBO (38)					
36				WQRF (42)	WACY(27)	WLEF		

There are two takeaways from the chart. First is that Madison and Chicago share many of the same channels, as well as Green Bay stations that are assigned channels not used in Madison. The second

takeaway is that many channels were swapped between the Milwaukee and Chicago markets. In the analog TV days, Green Bay and Chicago shared the same channels as they were located far enough apart to meet the required mileage separations. Madison meets the mileage separations with Chicago that were issued in the original DTV rulemaking. These mileage separations are no longer published in the official FCC rules. Because the contours between the Chicago and Madison are so close, it can be expected that from time to time there will be interference to viewers in the southeast edges of the Madison coverage areas. As the repacking proceeds, we will find out how much interference will occur between stations. Also, what effect will the current separations (and possible interference) have with stations operating in ATSC 3.0. The allocation and transition databases can be found at ([http:// data.fcc.gov/download/incentive-auctions/ Transition\\_Files/](http://data.fcc.gov/download/incentive-auctions/Transition_Files/)) There are a number of databases at this site, in a number of different formats. [Rabbitears.com](http://Rabbitears.com) also has copies of the FCC databases, as well as maps showing the coverage areas of stations in the repacked TV band.

In the case of many public TV stations, sharing with another public TV station in the market. The highest payment going to a station went to WWTO-TV LaSalle/Chicago, a channel 10 VHF station owned by Trinity Christian Center of Santa Ana, for going off the air: \$304,256,040. The lowest payment was \$0 to KSPR in Springfield, MO, which is owned by Schurz Broadcasting which recently was purchased by Gray Broadcasting. The lowest actual payment was to WBSN, TriCities, TN-VA, for \$597,793, which is owned by Blue Ridge Public Television. They also sold another station in the market in the auction, WMSY-TV for \$5,243,122. Both WMSY and WBSN will share a channel with another station.

The highest amount to go to VHF went to WGBH in Boston for \$161,728,921 to move to low band VHF. They also are receiving \$57,043,939 to move their sister station WGBY in Springfield, MA, to high band VHF. The lowest amount for making a move to VHF went to WNYI in Syracuse, NY, which was \$2,319,390, to move to high band VHF. A surprise in the auction was NBC Universal sold NBC flagship station WNBC in New York for \$214,023,017. They will share with their co-owned Telemundo station. They also sold their Telemundo stations in Chicago and Philadelphia, which both will share with their co-owned NBC stations. Speculators OTO Broadcasting, owned by Michael Dell of Dell Computers, sold two full-power and eight Class A stations for a total of \$440,679,586. Eight of the Class A stations sold were in Pittsburg, PA. NJR sold three full-power stations and three Class A stations for a total of \$640,493,229. LotusPoint sold two Class A stations for a total of \$15,190,819. These companies were formed, after the FCC announced the Incentive Auction, for the purpose of buying stations to be sold in the auction. The total these three companies will receive is \$1,096,363,634. LotusPoint is in the process of selling two Class A stations that were unsold in the Incentive Auction. One of the stations is WMKE-CD in Milwaukee, which is being sold to owners of WWIN Channel 5 Fond Du Lac/Milwaukee. The WWIN transmitter is in the Milwaukee antenna farm.

Here is a link to the list of reverse auction results

([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db0413/DA-17-314A2.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0413/DA-17-314A2.pdf))

Some markets took a big hit in stations lost to the auction. The Los Angeles market, with 23 full power stations, had 10 stations winning in the auction and is losing seven stations, with two more going to low-band VHF and one going to high-band VHF. The Philadelphia market, with 17 full-power stations, is losing nine stations that were auction winners with none going to VHF. The New York Market, with 18 full power stations, is losing seven stations with none going to VHF. Washington, DC, with 16 full power stations, is losing five stations with none going to VHF. San Francisco, with 20 full power stations, had nine auction winners and is losing seven stations, with one other station going to high-band VHF and another going to low-band VHF.



What are the effects of the auction on southern Wisconsin?. There were ten stations that were winners in the reverse auction, with nine going off the air and one moving to a high-band VHF channel.

The following chart shows the stations that won in the auction:

**Market Station Channel Ownership Winning Bid Option**

Madison WISC-TV 50 Television Wisconsin 48,929,182 Move To High VHF  
Milwaukee WGCV 24 WGCV License (Sinclair) 84,317,535 Share  
Milwaukee WVCY-TV 30 VCY America 76,343,409 Share  
Milwaukee WMVT 35 Milwaukee Technical College 84,931,714 Share  
Milwaukee WMLW 48 TV 49 (Weigel Broadcasting) 69,662,432 Share  
Chicago WPWR 51 Fox Television 160,748,251 Share  
Chicago WSNS 45 NBC Telemundo 141,658, 837 Share  
Chicago WWTO 10 Trinity Christian Center 304, 250,040 Share  
Chicago WXFT 50 Unimas Chicago 126,107,725 Share  
Chicago WYCC 21 Cook County Community College 15,959,957 Share  
Chicago WOCH-CD 49 NJR-TV 9,219,110 Share  
Rockford WIFR 41 Gray Television 50,060,965 Off-the air

WGCV, WMVT and WMLW in Milwaukee are part of duopolies and will share with their co-owned stations. WVCY will share with another station. In Chicago, WPWR will share with Fox-owned WFLD, and WSNS will share with co-owned WMAQ. The rest of the Chicago stations will have to share with other Chicago area stations. In Rockford, CBS affiliate WIFR will not share with another full-power station, but has applied for a construction permit to move a recently-purchased, low-power station that would operate off their existing tower using the broadband antenna on top of the tower.

The big question will be how well the sharing agreements will work, particularly those without a co-owned station to share with.

If these agreements do not work out, there will be a loss of choices to viewers. And a possible loss of jobs for those working at the stations that chose to go off the air and decided to share.

## **WBA Media Technology Institute Lite/Engineering Day**

Date: June 13, 2017

Time: 10:00 AM - 5:30 PM

Location: Blue Harbor Resort, Sheboygan, WI

The WBA Summer Conference in Sheboygan will feature a special one-day version of the Media Technology Institute designed to assist engineers in maintaining transmission systems, station compliance with the FCC, and reviewing critical skills and relationships.

## Instructors



Terry Baun



Bill Hubbard

## Agenda

### **TUESDAY, JUNE 13 Technology Institute Lite**

10:00 AM: Welcome with Michelle Vetterkind, WBA President & CEO

Welcome and Discussion of Schedule with Terry Baun

10:15 AM: What can you expect to do as a Broadcast/Media Technologist?

11:00 AM: RF Fundamentals for Radio/TV

Noon: Lunch

1 PM: Basic FCC Compliance

2 PM: People and Relationships – Why does this matter?

3 PM Break

3:15 PM Scenario exercise/group activity – Putting it all together

5 PM Reception

### **WEDNESDAY, JUNE 14 – JOIN WBA SUMMER CONFERENCE ENGINEERING DAY**

9 AM: The TV Repack: What Will Wisconsin Look Like?

9:45 AM: A LPFM Case Study

10:30 AM: Break

10:45 AM: AES67 and Livewire+ Tech Refresher and Compliance Update

11:30 AM: HVAC, Clear the Air

12:15 PM: Engineer's Lunch

1:30 PM: A Refresher on Cellular Technology

2:15 PM: Ask a Manager (Panel Discussion)

3:15 PM: Break

3:30 PM: Roundtable discussions on repack, Raspberry Pi and other fillings, social media audience, and engineering liability

5 PM: WBA Exhibits, Reception and Dinner


*Underwriting for the Media Technology Institute is provided by the Wisconsin Broadcasters Association and Midwest Communications.*

**\*PLEASE NOTE THAT SPACE IS LIMITED AND IS FIRST COME – FIRST SERVED\***

[Please click here for more information on the WBA Summer Conference.](#)

# Support the Companies That Support Chapter 80!

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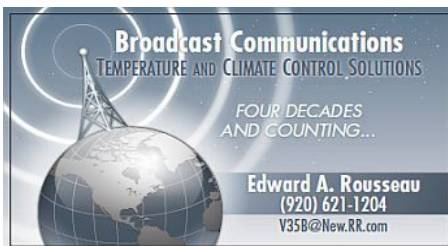




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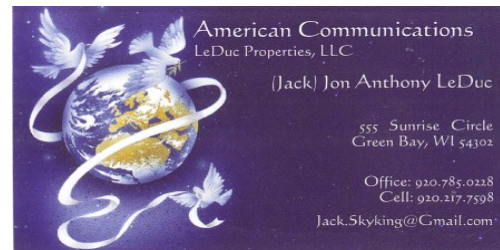
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