



May 2017

# Society of Broadcast Engineers Chapter 24 Newsletter Madison, Wisconsin

## Next Meeting

Wednesday, May 24

### NAB WRAP-UP

SBE members in attendance at the annual 6-day Las Vegas National Association of Broadcasters



Convention will condense the event in a series of short presentations.

There will be plenty of slides and photos of the interesting high points and general review of the mood and future direction of broadcasting.

You can bring a laptop with a VGA output (bring any adapters needed to get a VGA output). Tom can also accommodate HDMI or a USB stick if you would like to share your NAB experience with the chapter.

Due to the ongoing construction of the new WMTV broadcast facility, parking will be limited to the Forward Drive Street. Tom reminds us we are not to park in the reserved spaces normally occupied by the news vehicles.

Dutch Treat Dinner at 5:30 PM  
Babe's Bar & Grill  
5614 Schroeder Road  
Madison, WI

Meeting and Program at 7:00PM  
WMTV Studios  
615 Forward Drive  
Madison, WI

## Auction Results Announced

>>> by Tom Smith

On April 13, the FCC released the results of the Incentive Auction ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db0413/DOC-344397A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0413/DOC-344397A1.pdf)) and the new table of allotments for all TV stations after the repack. With the release of the new table of allotments, the 39-month repack transition started. Stations must file an application for minor change in facilities and an estimate in the costs of their changes to operate on the newly-assigned channel before July 12. Then there will be a 36-month period for build-out with stations having to complete construction in different periods over that time.

In the forward auction, the big winners were T-Mobile with a winning bid of \$7,993,361,993 and ParkerB.com Wireless LLC with a bid of \$6,211,154,496. The lowest winning bid went to Polar Communications Mutual Aid Corporation with a winning bid of \$73,000 and after an adjustment for being a rural wireless provider, their payment will be \$62,050. Here is a link to the list of winners in the forward auction ([http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db0413/DA-17-314A3.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0413/DA-17-314A3.pdf)).

In the reverse auction, there were 175 full- and Class A power stations that accepted offers from the government, with 30 stations moving to VHF, of those stations moving to VHF, 13 are moving to high band VHF (channels 7 to 13) and 17 are moving to low band VHF (channels 2-6). Sixteen stations are going off the air completely. The remaining stations are doing a sharing agreement with another station, which in many cases are a co-owned duopoly station or in the

>>> **Auction Results**  
continued on page 5

## Election Results

>>> submitted by Steve Paugh,  
Elections Chair

The Chapter 24 election ballots were totaled and certified at the close of elections on April 26, 2017. There are currently 54 voting members in Chapter 24. A total of 12 ballots were cast electronically. This compares to last year when a total of 10 ballots were cast when we had 56 voting members. We thank everyone who took part in the election process.

Congratulations to all of our newly elected officers.

Chairperson- Richard Wood  
Vice Chair- Clifford Groth  
Secretary- Mike Norton  
Treasurer- Roy Henn

The nomination committee members were Steve Paugh, Mike Kulis and Leonard Charles.

## Coming Up

- Thurs., June 22 The Purpose of Audio & Why Audiophiles Got it Wrong!
- Tues., July 25 EIA/TIA RS-222 Tower Code G update
- Wed., Aug. 24 TBD

## In this Issue

- Meeting Minutes.....2
- Amateur Radio News.....3
- Effects of Repacking.....4
- Commentary.....6
- Two New FCC Actions.....7
- Certification News.....8
- SBE RF101 Webinar.....9



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# Meeting Minutes

from the April 2017 Business Meeting

Chapter 24 of the Society of Broadcast Engineers held its monthly meeting on Tuesday, April 18, 2017 at WISC-TV in Madison. There were 13 members present, including 9 who were certified.

Chapter Chair Kevin Ruppert called the meeting to order at 7:02pm. The secretary's report of the March meeting minutes in the April *Newsletter* was approved as published without additions or corrections.

Treasurer Leonard Charles reported there were no expenses since last month. Deposits totaling \$400 were made from sustaining membership renewals by AVI Systems, Ross Video, Joseph Electronics, WMTV, and Alpha Video. The Chapter account retains a positive balance.

For the Sustaining Membership report, Fred Sperry sent in an update. Belden, Sound Devices, WMTV, Ross Video, AVI Systems, and Alpha Video are the most recent organizations to renew their support of Chapter 24.

With the Certification and Education update, Jim Hermanson offered congratulations to Jeff Hartmann for successfully earning CTO certification. He then reminded everyone that the next local exam period is June 2 – 12 with an application deadline of April 21; the following August 4 – 14 window has a deadline of June 5. Frequency Coordinator Tom Smith indicated there was no recent activity to report.

For the SBE National report, Leonard Charles announced the SBE Spring Membership meeting will be held at 5:15pm on April 25 at NAB, with a reception and prizes to follow. Also, with the April 1 membership renewal deadline now passed, there remains time to renew during a grace period to prevent being dropped from the membership. Finally, the annual SBE Compensation Survey is underway, and the full report will be available to all members in June at the SBE website. If you have not yet participated, you are urged to complete the survey by visiting [www.sbe.org](http://www.sbe.org).

Program Committee chair Steve Paugh noted the May 24 meeting will be an NAB Wrap-up at WMTV. If you attend the NAB Show, please bring back some photos to discuss items of interest that you saw. The June 22 meeting is planned to be a "Family Fun Night," so pass along your ideas and interest to Steve. The July 25 meeting will possibly be a presentation on lightning and lightning prevention.

In old business, Steve Paugh reminded everyone that electronic voting for officers will remain open until April 26; review the ballot in the March *Newsletter*, then go to [sbe24.org](http://sbe24.org) to vote. The bylaw wording changes to officer terms proposed at the March meeting were reviewed, and a quorum of members was present. Chair Kevin Ruppert called for a vote, and the motion passed with all present voting in favor.

For new business, outgoing Treasurer Leonard Charles has stored all financial information for the Chapter in an electronic form. No objections were made to passing the past bank statements/cancelled checks/receipts to the incoming treasurer as data files.

In general announcements, Tom Weeden mentioned the CBS affiliate WIFR in Rockford is anticipating going off air as part of the FCC spectrum auction. A brief discussion of the television repack and the expected local changes followed.

The meeting was adjourned at 7:20pm. Steve Paugh began the informal presentation by showing some useful apps for smart phones and tablets. A number of other member also demonstrated various software tools ranging from RF calculators and audio analyzers to communication tools.

*Submitted by Mike Norton, Secretary*



# Amateur Radio News

compiled by Tom Weeden, WJ9H

- The American Radio Relay League Board of Directors' Entry Level License Committee is preparing for a deep dive into what turned out to be an overwhelming response to its online survey about creating a new entry-level amateur license. Committee Chair and New England Division Director Tom Frenaye, K1KI, said the survey's 8,000 responses, when perhaps 1,500 were anticipated, reflects the high degree of interest in the overall topic. Established by the Board in 2016, the Committee has been gathering input from the Amateur Radio community with an eye toward recommending either a makeover of the Technician license or an altogether new entry-level Amateur Radio license class.

Frenaye started out thinking that a new entry-level license would be the answer, but now he's leaning more toward changing up the Technician license, in part because he thinks the FCC may be reluctant to create a fourth license class after whittling the number to three in 1999.

Amateur Radio growth, at approximately 1% a year, is "pretty good," Frenaye conceded, and in tune with US population growth, but he thinks it could be better, and a big step in that direction is to take a hard look at ham radio's entry gate. He suggested a new pool of prospective radio amateurs might be more drawn to the hobby from the Maker movement, for example, or from among those who tinker with computer technology or experiment with electronics -- areas with high appeal to some young people.

The current Technician license is mainly a VHF/UHF license, Frenaye pointed out, with limited privileges on HF, where he believes a lot of newcomers would prefer to operate. "Either the test covers material that's not needed for a newcomer, or the privileges don't match well enough with what a newcomer needs to see in ham radio in order to decide whether to continue," he said. Technician licensees have only CW (Morse Code)

privileges on HF below 10 meters, "and CW isn't even a requirement anymore," Frenaye pointed out. He suggested some HF digital privileges may provide one incentive.

Whether it's retooling the Technician license to offer newcomers a larger, more attractive slice of Amateur Radio privileges or developing the framework for an entirely new entry-level license, the panel wants to see a more relevant examination with privileges more appropriate to newcomers and better outreach "on both sides of the license" -- from exam preparation to operator training and mentoring.

The committee has only looked at the first "several thousand" survey responses, Frenaye said. The hard work lies ahead. "It's going to take a little time to sort through it all," Frenaye allowed, adding that the committee hopes to have a report to the Board of Directors in July.

- Soon it will be legal for CBers to work DX (long distance) on 11 meters. In a lengthy Report and Order (R&O) in a proceeding (WT Docket No. 10-119) dating back 7 years, the FCC has announced rule changes affecting the General Mobile Radio Service (GMRS), the Family Radio Service (FRS), the Citizens Band Radio Service (CBRS or "CB"), and other applications that fall under the FCC's Part 95 Personal Radio Services (PRS) rules and regulations. Part 95 devices typically are low-power units that communicate over shared spectrum and, with some exceptions, do not require a license.

The FCC said changes to the decades-old Citizens Band (CB) rules will remove outdated requirements, including certain labeling requirements. DXing on Citizens Band will become legal too. Once the new rules are effective, CBers will be allowed to contact stations outside of the FCC-imposed — but widely disregarded — 155.3-mile distance limit. The revised CB rules further clarify how hands-free devices can be used with CB radios and

will allow the use of wireless microphones with CB radios. The FCC left in place the current power limits for the CB Radio Service.

Most of the new Part 95 rules will become effective 30 days after their publication in The Federal Register.

(Excerpts from the American Radio Relay League's <arrl.org> web site)



## FCC Takes Three Actions

>>> by Tom Smith

On April 20, the FCC took three actions that affect broadcasters. The FCC reinstated the UHF discount rule ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344155A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344155A1.pdf)) which counts UHF TV stations as serving one-half the population of the markets they serve. By counting as one-half of the population served, group owners can own up to twice as many UHF stations compared to VHF stations that would go against the national ownership cap of serving 39% of the TV homes. On the next day, Sinclair, the largest owner of TV stations, announced they were purchasing Bouton Media's 14 stations for \$240 million. The FCC plans to open a review of the TV ownership rules in the fall.

The other two actions affect non-commercial stations. One new rule ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344158A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344158A1.pdf)) relaxes the ownership reporting requirements for board members of non-commercial stations. Board members will not have to file some private information, such as Social Security numbers or business tax identifications. Commercial stations owners and board members have to file that information, so the FCC can check records to seek out ownership limits violations. The other action ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344157A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344157A1.pdf)) affecting non-commercial stations is the FCC will now allow non-commercial stations, that do not receive federal funds (CPB funding to PBS or NPR stations), to third-party fundraise, as long as it does not exceed one percent of their air time. Copies of the rulemakings were released several weeks before the scheduled meeting of the Commission.

## Effects of Repacking on Southern Wisconsin

>>> by Tom Smith

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      |           | WPXE (40)    |              |           |              |           |                     |           |
| 31      |           | WITI (33)    |              |           |              |           |                     |           |
| 32      |           | WTMJ (28)    |              |           |              |           |                     |           |
| 33      |           |              | WMAQ (29)    |           |              |           |                     |           |
| 34      |           | WWRS (43)    | WCPX (43)    |           |              |           |                     |           |
| 35      |           |              | WGBO (38)    |           |              |           |                     |           |
| 36      |           |              |              | WQRF (42) |              | 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

>>> **Effects of Repacking** continued on page 6

>>> **Auction Results** continued from page 1

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.

## COMMENTARY

### Some Takeaways From Incentive Auction

>>> by Tom Smith

With the Incentive Auction over, there are takeaways from the auction process. As one who has followed FCC actions for a long time, particularly the DTV transition and past allocation actions, I have to wonder if there could have been a better way of doing this.

The first question I have is could the TV bands have been repacked using less TV channels during the first transition from analog to digital broadcasting. Maybe there would have been fewer channels available for wireless than the auction gave them, but there would not been the need to go through another transition and confuse viewers one more time.

The FCC always makes a big deal about stations going silent for long periods of time and the loss of service to the public, so could they have provided a greater incentive for stations to move from UHF to VHF. Instead of the two-thirds payout for low-band VHF and the one-third payout for high-band VHF, compared to the full payout for going off the air, could there have been a higher payout for moving to VHF, like maybe 85-90% for low-band VHF and 70-80% for going to high-band VHF. Going to low-band did require a greater incentive than high-band VHF because of the greater noise issues with low-band VHF. Many stations that did go to low-band VHF went because of high cable penetration in their markets which limited the number of viewers that were using off the air reception and the impact on them. It may have also helped, if there was some testing of ATSC 3.0 on low-band VHF. The longer symbol length and ruggedness of ATSC 3.0 may help with the low-band noise issues.

The FCC has issued many rulemakings and inquiries trying to promote diversity in ownership and programming and one has to wonder how reducing the number of TV stations accomplished those goals.

With so many stations doing a sharing agreement, one wonders if some of

these agreements will sour. What will the stations that gave up their spectrum do. Stations that were part of a duopoly should not have an issue, but stations that are using the facilities of competitors may have issues. One also wonders if video compression and encoders had not gotten better, would it have been as attractive for stations to even consider sharing.

With a good number of channels available in the low-band VHF band and a few in the high-band VHF band, will the FCC open the TV band to new stations. There could even be available UHF channels in some parts of the country. There has been a freeze for over 25 years on expansion of the number of TV stations despite the growth of many TV markets particularly in the South and Southwest and the growth in Spanish language stations. There was one last call in 1997 for applications for unused analog channels, which added over 100 stations. Most of these stations did not get a second digital channel and had to cut over to from analog to digital on the digital transition date in 2009.

ATSC 3.0 may help TV broadcasters make their way through the repack and loss of TV choices because of the greater bitrates and video encoding efficiencies may help make up the loss of services as each remaining station will be able to provide more video streams. People are now starting to watch the secondary channels in greater numbers. While they are not huge numbers, some stations are getting sizable amounts of income from these sub channels in relation to viewership.

The repack and the roll-out of ATSC 3.0 will have an uncertain and large-scale impact on determining the future of broadcast TV. How it plays out is anyone's guess.

>>> **Effects of Repacking**  
continued from page 4

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 also has copies of the FCC databases, as well as maps showing the coverage areas of stations in the repacked TV band.

June 2017 Chapter 24  
Newsletter Deadline:  
Saturday, June 3, midnight  
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*edited using Adobe InDesign CC*

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# The FCC Proposes Two New Broadcast Actions

>>> by Tom Smith

On April 27, the FCC released two notices of proposed rulemakings that will be taken up at their May 18 meeting. The first proposed rulemaking ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344620A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344620A1.pdf)) is a repeal of the main studio rule. That rule requires stations to have full-time management and staff in the studio during normal business hours so that someone coming to the studio can talk to someone about the station or look at the public file. The main studio also must be located with a certain area within a station's coverage area. The FCC is proposing that a station no longer be required to maintain a local studio. With the FCC requiring stations to put their public file online, the FCC in response to a number of petitions, feels the studio rule is no longer needed. The FCC will still require either a local or toll-free phone number. If enacted, this rule can lead to a further erosion of local information on radio and TV stations, as a station group could run any number of stations from a central location.

The second broadcast action is the opening of an inquiry ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344618A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344618A1.pdf)) into updating the rules pertaining to broadcasting. Sections of the FCC broadcasting rules to be reviewed include Part 1 which covers the administrative issues pertaining to broadcasting, Part 15 rules pertaining to broadcast and cable receivers, Part 17 which covers marking and lighting of towers, and Part 25 which covers broadcast satellite services (DirecTV and Dish). Parts 73, broadcast radio and TV rules; Part 74, broadcast auxiliary rules; Part 76, cable TV rules; and Part 78 cable TV relay rules, finish the inquiry into the rules review.

There will be a 30-day comment period and a 60-day reply period. This is unusual. Normally, the comment period is twice as long as the reply period.

There is another action the FCC will consider at the May meeting that may be

of interest to anyone that uses two-way radios. The FCC is considering changes to Part 95 rules ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344617A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344617A1.pdf)) that cover the Family Radio Service (FRS) and the General Mobile Radio Service (GMRS). The proposed rules will relax the licensing requirements for GMRS handhelds with two watts or less output and increase the power output of FRS radios to match GMRS radios. Since there are combination FRS/GMRS radios being sold now, the FCC is proposing to extend the FRS service band to cover those GMRS channels. Now, one can use the FRS channels unlicensed and the GRMS channels with a license, but since the radios are sold in pairs (in blister packs) in many retail outlets, most users are using both bands without a license. The new rules accept that reality. Some of the GMRS band will be reserved for GRMS license use only, with the GMRS channels assigned to FRS to be shared. And GRMS licensed service will still be allowed to operate with higher power levels and use repeaters.

The FCC is also reviewing CB radio and 72 MHz remote control rules.

## Ethernet Switching Fundamentals and Implementation Webinar

>>> from SBE News

Part 2 of The Fundamentals of IP Networking Series is May 9 at 1 p.m. CT. 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.

Pecena is assistant director for educational broadcast services in the Office of Information Technology at Texas A&M University.

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.



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# SBE Chapter 24 Certification and Education News

## The Open 2017 Exam Schedule

| Exam Dates          | Location                      | Application Deadline (to SBE National Office) |
|---------------------|-------------------------------|---|
| August 4-14, 2017   | Local Chapters (Madison Area) | June 5, 2017                                  |
| November 3-13, 2017 | Local Chapters (Madison Area) | September 25, 2017                            |

From the sbe.org Website: “The Society of Broadcast Engineers is raising the bar by providing more and more relevant, affordable education to its members using various instructional methods. These programs are designed to help broadcast engineers keep up with the ever-changing demands of the job and the industry, help prepare for SBE Certification and qualify for SBE recertification.” For a high-level overview of all of the courses on SBE University, check the following link...

[http://www.sbe.org/sections/documents/EducationPrograms\\_0613.pdf](http://www.sbe.org/sections/documents/EducationPrograms_0613.pdf)

For questions about applying for an exam, please contact Jim Hermanson at [services@jimhermanson.com](mailto:services@jimhermanson.com) or Megan Clappe at [mclappe@sbe.org](mailto:mclappe@sbe.org). Also, see the SBE National Web site at [www.sbe.org](http://www.sbe.org). When you are ready to take an SBE exam, please fill out the appropriate application and send it into the SBE National office (see address below). You will be notified once your application has been approved. Approximately 3 weeks before the exam time, your local certification chairman will receive a list of applicants in his/her area. He/she will then contact those applicants to schedule a date, time and place for the exams. The exams will be mailed back to the National office for grading. The pass/fail grades will then be mailed directly to the applicants.

You may mail, email or fax your applications to:

Megan E. Clappe  
 Certification Director  
 9102 N. Meridian St. Suite 150  
 Indianapolis, IN 46260  
 317-846-9120 Fax  
[mclappe@sbe.org](mailto:mclappe@sbe.org)



Thanks to Leonard Charles for maintaining the Chapter 24 web site and to Steve Paugh for mailing the meeting reminder postcards.



## SBE RF101 Module 4: May 18, 1:00 CT

This **Feed-line Loss** module continues the RF101 Series and covers these topics: 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.

This eight-part series serves as a refresher for more seasoned engineers. The remaining four modules will be presented over the coming months. The previous modules are available for purchase at: < <http://www.sbe.org/sections/WebinarsbySBE.php#OnDemand> >.



### RF101: Broadcast Terrestrial Transmission Systems

#### Course Modules:

1. Introduction to Radio Frequency (RF) (January 26, 2017)
2. Transmission Lines (March 2, 2017)
3. Towers, Antennas, and Transmission Systems (April 13)
4. **Antenna Gain - Feed-line Loss (May 18)**
5. Modulation Fundamentals (June 15)
6. AM, FM, TV RF Propagation (July 20)
7. RF Transmitter Measurements (August 24)
8. FCC Regulations (September 21)

Upon completion of 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) 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.

The completion of this webinar from Webinars by SBE qualifies for 1 credit, identified under Category I of the Recertification Schedule for SBE Certifications.

Dennis Baldrige, CPBE, 8-VSB, AMD, DRB, CBNT, a veteran of the broadcast engineering field for more than 30 years. Baldrige is a Senior member of the SBE, holds an FCC Lifetime General License (formerly a First Class FCC License) and Amateur Radio Extra Class License (K0DB). He also holds a M.A.E. and teaches science courses for Upper Iowa University. As owner of Baldrige Communications, LLC, he works as a contract engineer and has also authored articles for Radio Guide. Baldrige serves as an inspector for the FCC Alternate Inspection Program of the Wisconsin Broadcasters Association.

Registration for each module will be done separately. Register here for Module 4.

**SBE Members: \$57**

**Non-Members: \$87**



## CHAPTER 24 SUSTAINING MEMBERS

### Recent Renewal:

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### Thanks to all our Sustaining Members:

Alpha Video

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# WBA MEDIA TECHNOLOGY INSTITUTE LITE

June 13, 2017 | 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.



Course Director  
Terry  
Baun



Instructor  
Bill  
Hubbard

This one-day program will explore the most common RF maintenance issues seen in broadcast plants as well as the most frequent issues with FCC compliance. Suggested maintenance and logging forms will be provided to guide engineers in establishing positive relationships with both their co-workers and the FCC inspector. You will also apply your skills to a facility design scenario to learn how the pieces work together on a large-scale project. Plenty of time will be available for constructive discussion on these issues.

## TUESDAY, JUNE 13

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

1:00 PM **Basic FCC Compliance**

2:00 PM **People and Relationships - Why does this matter?**

3:00 PM Break

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

5:00 PM Reception

## WEDNESDAY, JUNE 14

*JOIN WBA SUMMER CONFERENCE ENGINEERING DAY*

*Thank you  
to our  
sponsor:*



## THANK YOU WBA CONFERENCE COMMITTEE!

**Keith Bratel**, iHeartMedia

**Tim Etes**, iHeartMedia

**Kyle Geissler**, WISC-TV

**Don Grassman**, Results Broadcasting

**Brad Heinkel**, WAOW-TV

**Justin Hull**, Woodward Radio Group

**Steve Lavin**, WBAY-TV

**Rick McCoy**, Chair, Mid-West Family  
Broadcasting

**Jill Sommers**

**Barb Van De Hei**,  
Radio Plus - Bay Cities

**Jan Wade**, WISN-TV

Please visit [www.wi-broadcasters.org](http://www.wi-broadcasters.org)

for more information on the WBA Summer Conference or to register.

**MARK YOUR CALENDAR**  
**2017**  
**Broadcasters Clinic**

October 10 -12, 2017  
AT THE MADISON MARRIOTT WEST!



# WBA Engineering Day

June 14, 2017 | Blue Harbor Resort, Sheboygan, WI

WEDNESDAY, JUNE 14

9:00 AM **Engineering Sessions**

12:15 PM **Engineers' Lunch**

1:30 PM **Engineering Sessions**

5:30 PM **WBA Exhibits, Reception and Dinner**

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



**Leonard Charles**  
Director of Engineering Television Wisconsin Inc.



**Rich Wood**  
Resonant Results

## 9:45 AM: A LPFM Case Study



**John Bauer**  
Director of Engineering, Mid-West Family



**Paul Meyer**  
Media Telecom Technician State of Wisconsin ECB



**Mike Norton**  
Staff Engineer Wisconsin Public Broadcasting ECB



**Kevin Ruppert,**  
Facilitator WISCTV

## 10:30 AM: Break

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



**Kirk Harnack**  
Director of Multimedia Marketing The Telos Alliance

Several professional Audio over IP standards are in use at broadcast stations around the world. While each system, such as Livewire,

Ravenna, and Dante, work well in their own ecosystems, the AES67 AoIP standard was developed to allow interconnection of these systems. We'll look at AES67 implementation and adoption. We'll also introduce the new AES70 Control over IP standard.

## 11:30 AM: HVAC, Clear the Air



**Edward Rousseau,**  
Consultant Edward A. Rousseau LLC HVAC, Clear the Air

## 12:15 PM: LUNCH

## 1:30 PM: A Refresher on Cellular Technology



**Andrew Harmon**  
Sr. Mgr. System Engineer Central Region, US Cellular A Refresher on Cellular Technology

## 2:15 PM: Ask a Manager, Panel Discussion



**Jim Vriezen**  
General Manager NRG Media Ft. Atkinson



**Joe Poss**  
Vice President/ General Manager TODAY'S TMJ4



**Juli Buehler**  
News Director WLUK - TV



**Marcus Riley**  
Director of Digital Media WTMJ

## 3:15 PM: Break

## 3:30 PM: Roundtable Discussions

### Table 1: Repack Tips N Tricks



Moderators  
**Kent Aschenbrenner**



**Mark Burg**

### Table 2: Raspberry Pi and Other Fillings



Moderators  
**Clif Groth**



**Greg Dahl**

### Table 3: The Social Media Audience



Moderator  
**Kyle Geissler**

### Table 4: Engineering Liability



Moderator  
**Dennis Baldrige**

Please join us for these evening events:

**5 - 7:30 PM: Exhibit Reception**

**6:30 - 7:30 PM: Young Professionals/ Mentor Gathering**

**7:30 - 10 PM: Dinner and Ice Cream Social and S'mores**