



Society of Broadcast Engineers Chapter 24 Newsletter Madison, Wisconsin

January 2018

Next Meeting

Wednesday, January 17

TV White Spaces and Wireless Mics

**SBE Webinar by
Joe Snelson**

The FCC is now allowing unlicensed wireless devices to operate in vacant or TV White Space channels, as well as accommodating unlicensed microphone use. This webinar provides an overview of what the FCC has authorized for unlicensed devices and how this will impact



Snelson

the daily operations of a broadcaster, news organization or production company. After viewing the webinar, a discussion will follow. Snelson has served as the vice president and

president of the Society of Broadcast Engineers and chairs the National Frequency Coordination Committee.

Optional dinner beginning at 5:30 pm
Culver's Restaurant
2102 W Beltline Hwy
Madison, WI

Meeting and program at 7:00 pm
ECB
Public Broadcasting Center
3319 W Beltline Hwy
Madison, WI

Visitors and guests are welcome!

FCC Updates

>>> by Tom Smith

The FCC has undertaken a number of new major rulemakings and proposed rulemakings at its November and December meetings of the Commission.

At the November 20 meeting, the Commission approved rulemakings concerning broadcast ownership rules and the implantation of ASTC 3.0 DTV broadcasts.

The changes in the broadcast ownership rules (https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-156A1_Rcd.pdf) include:

- Allowing common broadcast and newspaper ownership in the same market
- Allowing common television and radio ownership in the small market
- Allowing the ownership of two television stations in any market, with a waiver needed to combine any of the four top stations in a market (normally ABC, CBS, Fox or NBC stations),
- Allowing Joint Sales Agreements between TV stations without counting the agreement between the stations against the ownership limits of either station
- Requires stations that operate with joint operating agreements (joint master control and other operations) to still file with the FCC their joint operating agreements

The FCC did not change the radio ownership limits within a market and they opened a proposed rulemaking on diversifying ownership. There are no national ownership limits for radio, only market limits. This notice did not address the overall television ownership limits in this remaking, but would at a later date (which occurred in the December Commission meeting).

Another action the FCC took at the

November meeting was the adoption of rules (https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-158A1_Rcd.pdf) that would allow TV stations to broadcast using the ATSC 3.0 DTV standard. The FCC adopted a number of technical standards. The FCC will require stations to simulcast both ATSC 1.0 and ATSC 3.0 transmissions. Stations will share a channel for their ATSC 1.0 and will have to have the hosting stations apply for an updated license for both stations to use the same channel. The transition to Next Gen TV (ATSC 3.0) will be voluntary by TV stations. Stations that elect to transition to Next Gen TV will be required to simulcast their ATSC 1.0 channel on another station in the market. The ATSC 3.0 signal be the same as the ATSC 1.0 channel except for special-features programming that requires the capability of ATSC 3.0. Low-power TV stations are exempt from simulcast. Full-power stations can seek a waiver if there is no viable simulcast station. Next Gen TV transmissions are exempt from mandatory cable carriage, but ATSC 1.0 signals still must be carried by cable systems. Stations that convert to ATSC 3.0 must meet current public interest requirements and provide the public advanced on-the-air notification of the transition. Stations must incorporate specific parts of ATSC 3.0 standards A/321 and A/322, but there will be no mandatory Next Gen TV tuner requirement for TV receivers.

The second part of this FCC action is a notice of proposed rulemaking asked for

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the program committee!*

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Meeting Minutes

from the December 2017 Business Meeting

Chapter 24 of the Society of Broadcast Engineers held their monthly meeting on Tuesday, December 5, 2017. The group got together in McFarland at the Maple Tree Supper Club to celebrate the annual SBE Holiday party. There were 8 members present, 5 who were certified, along with 4 guests.

There was no formal business meeting or program this month. Instead, the group enjoyed beverages and good cheer at the bar, then followed with pleasant conversation over dinner.

Submitted by Mike Norton, Secretary

>>> **FCC** continued from page 1

comment on what issues would be of concern in granting waivers and exceptions to requiring stations to simulcast their ATSC 1.0 signal and if stations could use vacant channels in the TV band to further the adoption of Next Gen TV. The FCC is also tentatively concluding the use of the simulcasting ATSC 1.0 signal should not change the significantly viewed status for cable and satellite carriage of a Next Gen TV station. Comments are due on February 20th.

At the December 14 meeting of the Commission, the FCC adopted two proposed rulemakings affecting broadcasters. The first is proposed rulemaking (http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1218/FCC-17-169A1.pdf) affects the amount of TV stations that one entity can own nationally. The Commission is asking for comment on whether they should increase the limits on the population reach of that one entity can own. Currently an entity can only own a number of stations that will reach a total of 39 percent of the population. The FCC is asking if they should increase the limit or eliminate it completely. The 39-percent limit was set by Congress and one of the questions asked was it is within the FCC's power to increase the limit without Congress's approval. Linked to the raising of the ownership limits is whether the UHF discount should be eliminated. Currently a UHF station counts as reaching one half the population as a VHF station. This allows an entity to double the number of UHF stations owned without going over the 39-percent limit. The FCC will be taking comments for 30 days after date of

publication in the Federal Register.

In another action taken at the December 14 meeting, the Commission adopted a rulemaking (http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1214/FCC-17-170A1.pdf) that created a new EAS code. The new code is a Blue Code (BLU) in which an EAS alert would be sent when a police officer is killed, injured or missing and the public is in danger. This warning would only apply to police officers and not other first responders. These warnings would be voluntary for broadcasters to relay and would be handled like Amber alerts.

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Amateur Radio News

compiled by Tom Weeden, WJ9H

• The FCC has imposed a \$180,000 civil penalty on a Sarasota, Florida, company that had been marketing noncompliant audio-visual transmitters intended for use on drones in violation of the Commission's Amateur Service and marketing rules. In an Order released on December 19, the FCC explained that Lumenier Holdco LLC (formerly known as FPV Manuals LLC) was advertising and marketing uncertified AV transmitters capable of operating on both amateur and non-amateur frequencies, including bands reserved for federal government use. Some of the transmitters also exceeded the 1 W power limit for Amateur Radio transmitters used on model craft, the FCC said.

"Moreover, entities that rely on amateur frequencies in operating compliant AV transmitters must have an amateur license and otherwise comply with all applicable laws for such operation," the FCC said in the Order. The FCC said that while it generally has not required amateur equipment to be certified if it operates solely on Amateur Radio frequencies, certification is required if a device can operate outside of the ham bands.

Last January, in what it called an "extremely urgent complaint" to the FCC, ARRL targeted the interference potential of a series of audio/video transmitters used on unmanned aircraft and marketed as Amateur Radio equipment. ARRL General Counsel Chris Imlay, W3KD, said those transmitters used frequencies intended for navigational aids, air traffic control radar, air route surveillance radars, and global positioning systems.

In addition to paying a civil penalty, Lumenier, which has admitted to marketing the noncompliant AV transmitters, will enter into a Consent Decree with the FCC to settle the enforcement proceeding and terminate the investigation.

The FCC said that Lumenier ceased marketing the noncompliant transmitters

after receiving a Letter of Inquiry from the FCC last April.

• Researchers at the National Institute of Standards and Technology (NIST) have demonstrated that quantum physics might enable communication and mapping in locations where GPS, cell phones, and radio is not reliable or don't work at all, such as indoors, in urban canyons, underwater, and underground. NIST announced the technology advance on January 2. The technology may have marine, military, and surveying applications. The NIST team is experimenting with very low frequency (VLF) digitally modulated magnetic signals, which propagate farther through buildings, water, and soil than conventional electromagnetic signals at higher frequencies.

"The big issues with very low-frequency communications, including magnetic radio, are poor receiver sensitivity and extremely limited bandwidth of existing transmitters and receivers. This means the data rate is zilch," said NIST project leader Dave Howe, AD0MR.

"The best magnetic field sensitivity is obtained using quantum sensors. The increased sensitivity leads in principle to better range. The quantum approach also offers the possibility to get high-bandwidth communications like a cellphone has. We need bandwidth to communicate with audio underwater and in other forbidding environments," he said.

NIST researchers have demonstrated detection of digitally modulated magnetic signals by a magnetic-field sensor that relies on the quantum properties of rubidium atoms. The NIST technique varies magnetic fields to modulate or control the frequency — specifically, the horizontal and vertical positions of the signal's waveform — produced by the atoms.

NIST developed a direct current magnetometer that uses polarized light

as a detector to measure the "spin" of rubidium atoms in a tiny glass cell induced by magnetic fields. Changes in the atoms' spin rate correspond to an oscillation in the dc magnetic fields, creating alternating current voltages at the light detector that are more useful for communications.

"Atoms offer very fast response plus very high sensitivity," Howe said. "Classical communications involves a tradeoff between bandwidth and sensitivity. We can now get both with quantum sensors." Howe speculated on an Amateur Radio application.

The quantum radio is great fun, far better sensitivity than any other receiver, at room temperature, anyway," Howe told The American Radio Relay League. "The atoms in the gas cell replace the 'antenna' and detection in the classical sense. It would be nice to try modulation in the 2200-meter band using the quantum receiver for detection." In the future, the NIST team plans to develop improved transmitters.

In the NIST tests, the sensor detected digitally modulated magnetic field signals with strengths of 1 picotesla — one millionth of Earth's magnetic field strength — and at frequencies below 1 kHz.

To further improve performance, the NIST team is building and testing a custom quantum magnetometer. Like an atomic clock, the device will detect signals by switching between atoms' internal energy levels as well as other properties, Howe said. The researchers hope to extend the range of low-frequency magnetic field signals by boosting the sensor sensitivity, suppressing noise more effectively, and increasing and efficiently using the sensor's bandwidth.

The NIST strategy requires inventing an entirely new field, which combines quantum physics and low-frequency magnetic radio, Howe said.

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



2018...



외부입력 녹화

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타임쉬프트 ready (외장하드 연결시) *ATSC 3.0은 제외



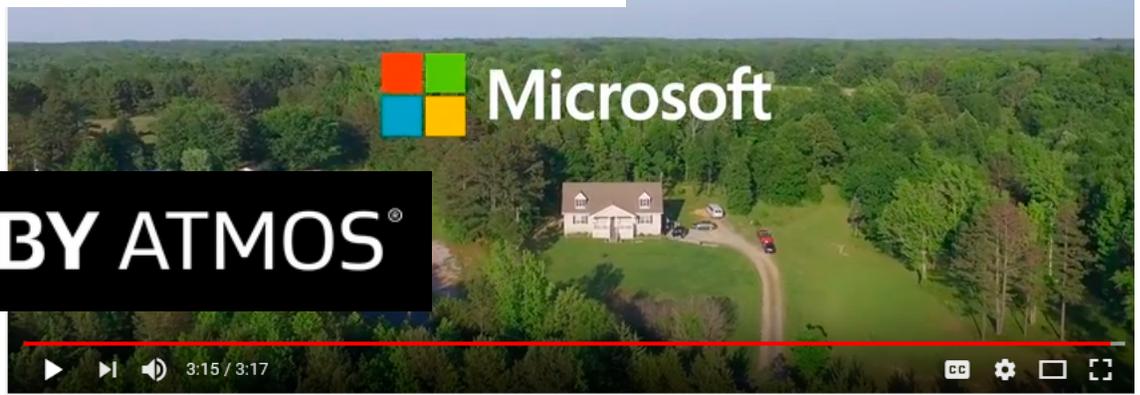
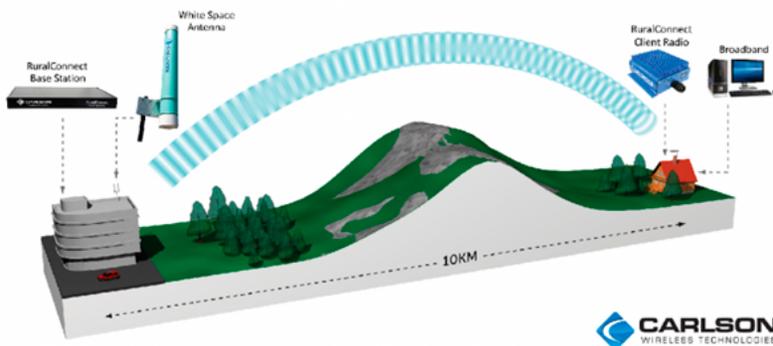
Home > TV/Audio/Video



Guide to Wireless Microphone Operation

Post FCC 600 MHz Incentive Auction

What is TV White Space & Super WiFi



Connecting rural communities with affordable broadband

SBE Chapter 24 Certification and Education News

The Open 2018 Exam Schedule

Exam Dates	Location	Application Deadline (to SBE National Office)
April 10, 2018	Exams during the NAB show	March 2, 2018
June 1-11, 2018	Local Chapters (Madison Area)	April 20, 2018
August 3-13, 2018	Local Chapters (Madison Area)	June 5, 2018
November 2-12, 2018	Local Chapters (Madison Area)	September 24, 2018

For exam study and reference, courtesy of the SBE.org website: The Society of Broadcast Engineers, in conjunction with CRC Press, Focal Press, Elsevier Science, McGraw-Hill, Pearson Education and other publishers, make it possible for SBE members to purchase the best industry resources at up to 20 percent off the retail price. This collection of books is authored by an outstanding group of experts in the industry.

You can place your order online or download the (.xlsx file – takes a little time to download) Bookstore Order Form. For international orders, please contact the SBE office.

Browse the wealth of books on the SBE Bookstore web page.

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



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



Newsletter Editor Needed
 Will Train.
 Current editing software is
 Adobe InDesign CC 2018.
 Contact Rich Wood
 or Paul Stoffel.



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 SUSTAINING
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Recent Renewals:

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**Thanks to all our
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Belden, Inc.

Clark Wire and Cable

Full Compass Systems

Heartland Video Systems

Joseph Electronics

The Mink Company

Resonant Results, Ltd.

Ross Video

Sound Devices, LLC

Token Creek Productions

WISC-TV 3

WMTV-TV 15

WMSN-TV 47

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