RCA Amateur Radio Club
Indianapolis, IN

www.w9rca.org

JANUARY 2020 MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, JANUARY 14th, 6:30 PM AT
KNIGHTS OF COLUMBUS, GAME ROOM, 2100 EAST 71st, INDIANAPOLIS, IN

RCA ARC NEWS

December Meeting – Thanks to all who attended the Dec. meeting. Welcome "new member" John Shouse, N9JSA. The Indy United ARC will be operating Field Day 2020 as they did in 2019. Those in our Club are welcome to join in the activities. The first planning meeting will be in February. The Indianapolis Radio Club (IRC) will follow the same FD format as last year. The IRC will operate the ARRL 10 meter contest (12/14/2019) from their Club station. On the '88 repeater… Hopefully, the latest problem with the west side receive site will soon be fixed. There is a problem with the link time-out timer which K9RU will be working on. Jim, K9RU, and Dave, N9KZJ, reported on the Ft. Wayne hamfest. Remember the upcoming contests: ARRL 10 Meter, ARRL RTTY, and ARRL VHF all in the next two months. A discussion of local over-the-air TV closed out the meeting.

AMATEUR RADIO LICENSE TEST SESSION

Time:	**Saturday, January 11, 2020, 12:00 pm** (Walk-ins allowed)
Location:	Salvation Army EDS Training Facility, 4020 Georgetown Rd Indianapolis, IN 46254-2407
Contact:	**Jim Rinehart, k9ru@arrl.net, 317 721-1458**

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Jan 11	North American QSO Party, CW http://www.ncjweb.com/NAQP-Rules.pdf
Jan 18-20	ARRL VHF Contest http://www.arrl.org/january-vhf
Jan 25-26	Winter Field Day https://www.winterfieldday.com/rules/
Jan 24-26	CQWW 160M CW Contest https://cq160.co
Feb 08	Hendrick County Hamfest, 8AM-1PM, 1900 East Main Sat., Danville, IN For more information: www.hcars.org

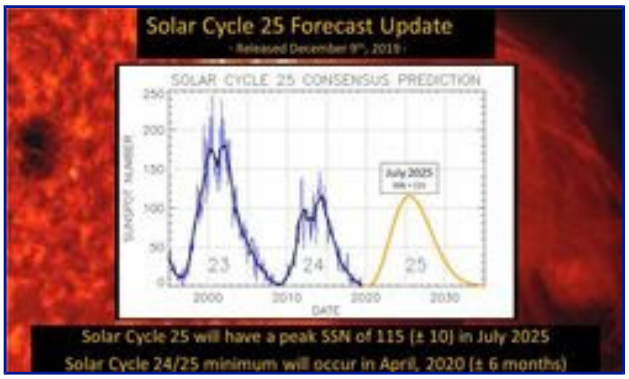
2020 HENDRICKS COUNTY TRAINING CLASSES SCHEDULED – The classes are sponsored by the HCARS club and will be held at the Hendricks Co. Senior Center, 1201 Sycamore Lane in Danville (behind the Danville Hospital). Classes start on Wednesday, January 29, and run every Wednesday evening through March 18. Classes will meet from 7pm till 9pm. There will be testing on March 18. These Technician and General classes will be for those who wish to obtain an amateur radio license or to upgrade from their existing license. For more information: www.hcars.org

WINTER FIELD DAY 2020 JANUARY 25 – 26 – The Indianapolis Radio Club will operate the Winter Field Day with the Marion County ARES at the Salvation Army EDS Training Facility, 4020 Georgetown Rd. 10 AM to 3 PM, Saturday January 25th. This will be a casual operating and social event. Bert has volunteered to make his chili for the event. Stop by and check out the FD operation, meet some of the area hams or look for us on the air.

The Winter Field Day Association (WFDA) sponsors the 2020 running of Winter Field Day, January 25 – 26. WFDA says that the ability to conduct emergency communication in a winter environment is just as important as the preparation and practice that take place each summer, but with some additional unique operational concerns. “We believe that maintaining your operational skills should not be limited to fair-weather scenarios,” WFDA said in announcing this year’s event. “The addition of Winter Field Day will enhance those already important skills of those that who generously volunteer their time and equipment to these organizations. Preparedness is the key to a professional and timely response during any event, and this is what local and state authorities are expecting when they reach out to emergency service groups that offer their services.” Members of the Warren County (NY) Radio Club (WCARC) will activate Maxim Memorial Station W1AW for 2019 Winter Field Day. Club members will work a rotating 24-hour operating schedule to ensure the most band/mode coverage. The event is open to all radio amateurs.

NOAA/NASA PANEL CONCURS THAT SOLAR CYCLE 25 WILL PEAK IN JULY 2025

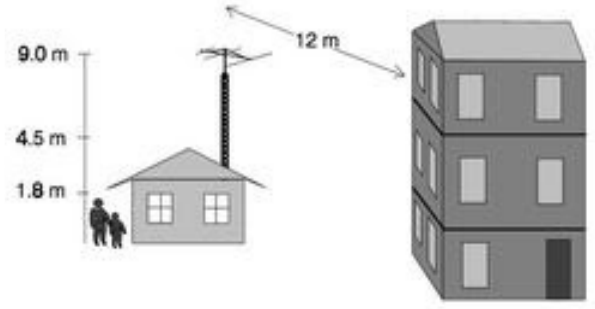
The NOAA/NASA-co-chaired international Solar Cycle Prediction Panel has released its latest forecast for the coming Solar Cycle 25. The panel's consensus calls for a peak in July 2025 (±8 months), with a smoothed sunspot number of 115. The panel agreed that Cycle 25 will be of average intensity and similar to Cycle 24. The panel additionally concurred that the solar minimum between Cycles 24 and 25 will occur in April 2020 (±6 months). If the solar minimum prediction is correct, this would make Solar Cycle 24 the seventh longest on record at 11.4 years. In its preliminary forecast released last April, the scientists on the panel forecast that Solar Cycle 25 would likely be weak, much like the current Cycle 24.



"Solar Cycle 25 may have a slow start, but is anticipated to peak with solar maximum occurring between 2023 and 2026, and a sunspot range of 95 to 130. This is well below the average number of sunspots," the panel said last spring, adding with "high confidence" that Cycle 25 "should break the trend of weakening solar activity seen over the past four cycles." The panel said the expectation that Cycle 25 would be comparable in size to Cycle 24 suggests that the steady decline in solar cycle amplitude seen from Cycle 21 through Cycle 24 has ended and that there is no indication of an approaching "Maunder-type" minimum. Cycle 24 peaked in April 2014 with an average sunspot number of 82.

The Solar Cycle Prediction Panel forecasts the number of sunspots expected for solar maximum, along with the timing of the peak and minimum solar activity levels for the cycle. It is comprised of scientists representing NOAA, NASA, the International Space Environment Services, and other US and international scientists.

FCC AMENDING AMATEUR RADIO RF EXPOSURE SAFETY RULES



An FCC OET Bulletin 65 illustration of how to determine exposure distances.

The FCC is amending its Part 97 Amateur Service rules relating to RF exposure safety. In a lengthy document in ET Docket 19-226 released on December 4 and addressing a broad range of RF safety issues, the FCC said current amateur radio RF exposure safety limits will remain unchanged, but that the amateur-specific exemption from having to conduct an RF exposure evaluation will be replaced by the FCC's general exemption criteria. Radio amateurs have always had to comply with RF exposure limits, but certain stations have been exempt from having to conduct evaluations based only upon power and frequency. The Commission indicated that, by and large, if an RF source was "categorically excluded" from routine evaluation under the old rules, it will most likely still be exempt under the new rules, which are expected to take effect in the next couple of months.

"For applicants and licensees in the Amateur Radio Service, we substitute our general exemption criteria for the specific exemption from routine evaluation based on power alone in Section 97.13(c)(1) and specify the use of occupational/controlled limits for amateurs where appropriate," the FCC said.

"The sky is not falling here," ARRL Lab Manager Ed Hare, W1RFI, commented. "The major aspects of the rules will not impose major new burdens on the Amateur Radio Service. As in all regulatory matters, though, the devil may be in the details, so the ARRL technical staff, legal staff, and the experts on the ARRL RF Safety Committee are carefully evaluating this FCC document."

Under the revised Section 97.13(c)(1), "In lieu of evaluation with the general population/uncontrolled exposure limits, amateur licensees may evaluate their operation with respect to members of his or her immediate household using the occupational/controlled exposure limits in Section 1.1310, provided appropriate training and information has been accessed by the amateur licensee and members of his/her household," the amended rule says.

"RF exposure of other nearby persons who are not members of the amateur licensee's household must be evaluated with respect to the general population/uncontrolled exposure limits. Appropriate methodologies and guidance for evaluating Amateur Radio Service operation is described in the Office of Engineering and Technology (OET) Bulletin 65, Supplement B," the revised rule concludes.

The FCC said it was not persuaded by ARRL's argument in its comments that the routine evaluation exemption for amateur radio stations operating below a certain power threshold should be maintained. "Amateur radio licensees operate a variety of installations of different size, power, and frequency, which can be located in close proximity to people, giving rise to various RF exposure concerns," the FCC noted.

In a meeting with FCC OET Chief Julius Knapp and senior staff in early November, ARRL asked the FCC to make available on the internet a calculator to facilitate making the correct calculations the rules require. ARRL said that would be preferable to unofficial third-party calculators, the results from which might not be accorded the same degree of deference in local disputes. Several software programs were suggested as models.

The FCC did not single out amateur radio in drafting its latest RF exposure rules. The rules affect multiple services, and exemptions for many other services were also deleted as part of a broader policy driven by a proliferation of RF devices, some resulting in situations where gain antennas are sited much closer to people than was expected in 1996 when the rules were last revised.

ARRL RESHAPES PODCAST OFFERINGS FOR 2020

In conjunction with the launch of its new *On the Air* magazine, which is aimed at those just beginning their journey in amateur radio, ARRL is reconfiguring its podcast lineup.

Heading up the new schedule will be a free companion podcast to the bimonthly *On the Air* magazine. The monthly *On the Air* podcast will take a deeper look into select features and projects from the magazine. Each month, host and *On the Air* Editorial Director Becky Schoenfeld, W1BXY, will offer additional resources, techniques, and hints to help less-experienced radio amateurs to get the most from the magazine's content.

In addition to the podcast, ARRL Product Development Manager Bob Inderbitzen, NQ1R, will curate a free *On the Air* blog featuring content from the communicators and makers who are the driving force of amateur radio today. The blog will highlight opportunities and activities available to new licensees. The *On the Air* blog is intended as an entry point into the world of amateur radio for those seeking original voices and perspectives. Readers will be invited to take part in the conversation by sharing their stories and experiences.

ARRL's current *So Now What?* podcast will cease production in January, as the full complement of *On the Air* content is rolled out. The catalog of *So Now What?* episodes is available for listening or downloading.

In addition, *The Doctor is In* podcast, which has served more-experienced amateurs since 2016, will concluded its 4-year run with its December 19 episode. *Eclectic Tech*, a new biweekly podcast designed to appeal to experienced amateurs, will launch in February.

Hosted by *QST* Editor Steve Ford, WB8IMY, *Eclectic Tech* will highlight technical topics involving amateur and non-amateur technology, offer brief interviews with individuals involved in projects of interest to amateurs, and include practical information of immediate benefit to today's hams.

The Doctor is In co-host Joel Hallas, W1ZR, is selecting some of his favorite podcast episodes for re-broadcast in the interim between the end of production for *The Doctor is In* and the debut of *Eclectic Tech*. The complete *The Doctor is In* archive is available on the ARRL website. Hallas will continue to answer questions about amateur radio in *QST*'s "The Doctor is In" column.

The *ARRL Audio News* podcast will continue to provide a weekly summary of news and activities within the amateur radio community. --ARRL Letter

FCC FORMALLY ADOPTS PROPOSALS TO REMOVE AMATEUR 3 GHZ BAND, INVITES COMMENTS

The FCC's plan to remove "existing non-federal secondary radiolocation and amateur allocations" in the 3.3 - 3.55 GHz band and relocate incumbent non-federal operations already has begun drawing fire. The Commission formally adopted the *Notice of Proposed Rulemaking* (*NPRM*) in WT Docket 19-348 on December 12 and invited comments on appropriate "transition mechanisms" to make the spectrum available for mobile and fixed wireless broadband use. ARRL plans to oppose the move. The amateur 9-centimeter allocation is 3.3 - 3.5 GHz.

"By proposing to delete the existing non-federal secondary allocations from the 3.3 - 3.55 GHz band, we are taking an important initial step towards satisfying Congress's directives and making as much as 250 megahertz of spectrum potentially available for advanced wireless services, including 5G," the FCC said in the Introduction to its *NPRM*.

Some comments arrived before formal adoption of the *NPRM*, which was circulated ahead of the December meeting. Kevin Milner, KD0MA, the secretary/treasurer of the Ski Country Amateur Radio Club in Colorado, argued that the club's equipment cannot be re-channeled below 3.4 GHz, and the club is seeking relocation costs. Devin Ulibarri, W7ND, told the FCC that amateur networks in the current band cannot move easily into other amateur allocations because there is no readily available commercial equipment to support the bandwidth, the FCC said in a footnote.

Currently, the entire 3.1 - 3.55 GHz band is allocated for both federal and non-federal radiolocation services, with non-federal users operating on a secondary basis to federal radiolocation services.

With respect to amateur operations, the FCC invited comments on whether sufficient amateur spectrum exists in other bands that can support the operations currently conducted at 3.3 - 3.5 GHz. The 3.40 - 3.41 GHz segment is earmarked for amateur satellite communication. The FCC said if non-federal licensees are relocated to the 3.1 - 3.3 GHz band, it proposes to have them continue to operate on a secondary basis to federal operations, consistent with current band allocations.

Also at its December 12 meeting, the FCC considered another *NPRM* in WT Docket 19-138 that would "take a fresh and comprehensive look" at the rules for the 5.9 GHz band and propose, among other things, to make the lower 45 MHz of the band available for unlicensed operations and to permit "cellular vehicle-to-everything" (C-V2X) operations in the upper 20 MHz of the band. The FCC is *not* proposing to delete or otherwise amend the 5-centimeter amateur 5.650 - 5.925 GHz allocation, which would continue as secondary. The *NPRM*, if approved, would address the top 75 MHz of that amateur secondary band. Although no changes are proposed to the amateur allocation, an anticipated increase in primary use could restrict secondary amateur use.

The Amateur Radio Emergency Data Network (AREDN) has offered its voice in challenging the FCC proposals on both 9 and 5 centimeters, saying their adoption would "eliminate our use of the most-effective resource hams have to build its networks."

"The AREDN Project is able to leverage low-cost commercial devices solely because they are designed to operate on adjacent allocations," AREDN said on its website. "Moving to other allocations would be difficult if not impossible without a complete redesign, manufacture, purchase, and installation of new custom amateur hardware and software...raising the price out of reach for the typical ham." --ARRL Letter

DIGITAL DATA SYMBOL RATE PROCEEDING

The ARRL delegation emphasized the overwhelming support for and need to remove symbol rate limits from the amateur rules, contending that the limits are outdated, no longer serve their original purpose of limiting signal bandwidth, and inhibit experimentation and development of digital communications techniques. Removing these limitations would also allow US radio amateurs to join those in other countries in using methods not permitted in the US.

In 2016, the FCC had responded to ARRL's petition for rulemaking (RM-11708) by proposing no bandwidth limit. The ARRL delegation reiterated that adopting a 2.8 kHz maximum bandwidth in place of the symbol rate limit would promote sharing and experimentation below 30 MHz.

The ARRL representatives also discussed issues that some have raised -- and on which the FCC did not request comment -- alleging that certain types of digital signals are "encrypted" because they are digitally compressed or otherwise can be difficult to receive over the air. The ARRL group pointed out that the FCC addressed the use of new digital techniques in 1995, amending its rules to authorize new digital techniques without prior FCC approval, as long as these were publicly documented consistent with three techniques specifically approved at the time. Since then, multiple digital methods have been developed and deployed without substantive complaints of insufficient documentation, the ARRL team noted.

The prohibition on encryption is a provision of the ITU *Radio Regulations* and applies worldwide. The FCC regulation prohibiting "messages encoded for the purpose of obscuring their meaning" comes directly from the ITU *Radio Regulations*, language adopted at World Radiocommunication Conference 2003 (WRC-03) to replace a provision that limited amateur communications to "plain language." Adoption of this change made clear that amateur communications encoded for digital transmission are authorized internationally as long as they're not encrypted. It was noted that techniques some commenters have targeted are widely used by amateurs around the world. --ARRL Letter

60-METER BAND ALLOCATION

ARRL petitioned the FCC in RM-11785 to implement provisions adopted at WRC-15 that provide for a secondary amateur allocation at 5351.5 - 5366.5 kHz. ARRL also proposed that 100 W ERP be permitted on the new band, consistent with that authorized for the current five 60-meter channels.

The National Telecommunications and Information Administration (NTIA) has proposed in a letter to delete the existing four channels and substitute a secondary band allocation at a maximum permitted power of 15 W EIRP (9.1 W ERP), as approved at WRC-15. The ARRL delegation expressed concern that NTIA's proposal would require relocation of existing channelized amateur activity to a 15 kHz band at a fraction of the power now authorized, despite an absence of any reported interference on the current channels. ARRL also expressed concern that 9.1 W ERP would hamper emergency communication on the band, especially during hurricane season, when noise levels are usually high.

The FCC is expected to issue a *Notice of Proposed Rulemaking* (*NPRM*) in December or early next year addressing 60 meters and inviting comments.

ARRL ASKS FCC TO DISMISS PETITION SEEKING DECLARATORY RULING ON ENCODED MESSAGE RULE

ARRL has asked the FCC to dismiss a *Petition for Declaratory Ruling* filed by New York University (NYU), that in ARRL's view proposes a new interpretation of the rule -- Section 97.113(a)(4) -- prohibiting "messages encoded for the purpose of obscuring their meaning." In its December 2 filing, ARRL said NYU's call to "clarify" the rule's meaning to prohibit "effectively encrypted or encoded messages, including messages that cannot be readily decoded over the air for true meaning," is not only vague but could weaken the prohibition against encryption.

ARRL pointed out that the FCC rule prohibiting "messages encoded for the purpose of obscuring their meaning," is essentially the same as what appears in the International Telecommunication Union (ITU) *Radio Regulations* applying to all countries. ARRL made clear that it continues to support rules prohibiting encrypted messages on the amateur bands, even for limited emergency communication purposes, and the ARRL Board reiterated that opposition last July.

In its comments, ARRL said that NYU's request that the FCC adopt its suggested language would introduce ambiguity and confusion in the application of a rule that's clearly understood to prohibit encrypted messages. ARRL noted that Morse code is encoded and would fall within the prohibition as proposed by NYU. "The very fact that messages sent in CW are 'encoded' by any definition of the term starkly demonstrates the problem with this proposal," ARRL said.

ARRL said that adding the word "effectively" would make the definition even more vague by including all encoded messages plus an additional set of undefined messages, the extent of which is unknown. Similarly, ARRL maintained, it is "unclear and undetermined what the petitioner may mean by 'effectively encrypted.'" Encryption is a binary proposition, ARRL pointed out, and the meaning either is hidden from all but the intended recipient(s) or it is not; a message cannot be considered "encrypted" if the means to enable non-recipients to understand the message are generally available.

"Adding the modifier 'effectively' to 'encrypted' converts clear meaning into vague uncertainty," ARRL asserted. FCC rules explicitly authorize radio amateurs to use new digital techniques on the condition that the techniques be described adequately and available publicly, ARRL said, pointing to multiple filings in the FCC record from individuals who have successfully used the public descriptions to decode the digital techniques with which NYU has expressed concern.

NYU has not presented any information to demonstrate that the FCC's current rule is not being complied with by digital innovators, ARRL said, and adoption of NYU's petition would create more questions for the FCC than it would be able to answer if called upon to apply the petition's vague language in specific cases.

"We are unaware of any enforcement case in which the Commission is experiencing difficulty in understanding and applying the prohibition against encrypted messages," ARRL maintained.

What the petitioner regards as violations "augurs against its proposal to interpret in some new fashion the international and domestic prohibition," ARRL said. "For example," ARRL continued, "the petitioner asserts, without any basis in fact, that dynamic compression techniques effectively encrypt or encode communications." Such techniques are widely recognized ways to increase the efficiency of digital transmissions," ARRL noted that comments in the record clearly state that signals using dynamic compression are being decoded by third-party listeners.

"The Commission has addressed amateur use of digital signals in multiple proceedings [and] there has been no showing that the current regulatory scheme is deficient in prohibiting encrypted messages," ARRL concluded. "To the contrary, adoption of the petitioner's proposals would add confusion -- rather than clarity -- and diverge from the international consensus on prohibiting encrypted messages while fostering vibrant experimentation with digital techniques."

FCC PROPOSES LARGEST- EVER FINE FOR UNLICENSED BROADCASTING

The FCC has proposed fining an alleged pirate broadcaster in the Boston, Massachusetts area more than $450,000. According to the FCC, Gerlens Cesar, who operated Radio TeleBoston, used three separate transmitters for his broadcasting enterprise, resulting in three separate violations of the law.

"The Commission proposed imposing the statutory maximum forfeiture amount for each of these three apparent violations," the FCC said in a *Notice of Apparent Liability* (*NAL*) released on December 12. Under the Communications Act, it is illegal to transmit above certain low-power levels, defined within FCC Part 15 rules, without an FCC license.

"Such pirate radio broadcasting can interfere with licensed communications including public safety transmissions," the FCC said. The FCC said Cesar apparently simulcasts Radio

TeleBoston on three unauthorized transmitters on two different frequencies. "His operation thus had the potential to cause interference in various locations in and around Boston and at different channels on the FM dial," the FCC said. "As a result of the scale of this operation, its potential impacts, and its continuous nature, the Commission proposed the maximum penalty for all three transmitters."

The FCC reported receiving complaints from Boston-area residents of an illegal station operating at both 90.1 and 92.1 MHz. One complaint identified Cesar as the operator of Radio TeleBoston. The FCC said it had issued multiple warnings. -- *FCC Media Release*

CAMSAT SAYS CAS-6 ACTIVATION FOR AMATEUR USE HAS BEEN DELAYED

Chinese Amateur Satellite Group (CAMSAT) CEO Alan Kung, BA1DU, tells ARRL that some problems with the precise attitude determination of the newly launched CAS-6 amateur radio satellite have delayed deployment of the antennas. The satellite was to have been put into service within 3 days.

“If the V/UHF antennas are deployed now, additional torque may affect determination of the satellite attitude,” Kung said. “Engineers need to modify and upload the software, which will take some time.” He said that taking into consideration the upcoming long Chinese New Year holiday, the test work is planned to be completed sometime in late February or early March. At that time, VHF/UHF antennas will be deployed, and the amateur radio payload will be available for use.

Kung points out that the satellite’s CW beacon has been turned on, although the antenna has not yet been deployed. “If you have a ‘big ear,’ you may be able to receive weak signal leaked from an undeployed antenna on 145.910 MHz,” he said. “A polyimide cover on the antenna chassis can help to leak some RF signal.”

CAS-6 launched successfully on December 20, piggybacked on a TIANQIN-1 technology test satellite. The microsatellite will be known as CAS-6/TIANQIN-1, and the call sign is BJ1SO. The primary launch payload was the China-Brazil Earth Resources Satellite, CBERS-4A.

CAS-6 is in a sun-synchronous orbit with an apogee of 390 miles. It carries a U/V linear transponder, with a downlink of 145.925, 20 kHz passband (inverted) and an uplink of 435.28 MHz. The CW telemetry beacon is on 145.910 MHz, while 4k9 baud GMSK telemetry will be transmitted on 145.890 MHz.

CAMSAT has provided ***CAS-6 Satellite Digital Telemetry Description*** and ***CW Telemetry Beacon Encoding Format*** documents. — *Thanks to Alan Kung, BA1DU*

AZTECHSAT-1 CUBESAT TO DEMONSTRATE INTRA-SATELLITE COMMUNICATION

The AztechSat-1 CubeSat, which traveled to the International Space Station (ISS) earlier this month on the 19th Space-X Commercial Resupply Services (CRS-19) mission for NASA, will listen for emergency messages in the 439 MHz range and retransmit them for amateur radio operators to copy on its 437.300 MHz downlink using the Winlink protocol, once the CubeSat has been placed into orbit. The satellite is a project of Mexico's Universidad Popular Autónoma del Estado de Puebla (UPAEP). Aztechsat-1 is set for deployment from the ISS in late January.

"The primary objective of the project is to establish communication with the commercial GlobalStar satellites in order to improve data transmission to Earth," a UPAEP news release said. AztechSat-1 will create a saturation map of 435 - 438 MHz by listening for the whole orbit and returning captured data to the ground station on the 437.300 MHz amateur radio downlink (9k6

GMSK or FSK) plus a 1600 MHz GlobalStar link. Emergency messages received via Globalstar to the AztechSat-1 ground station will be shared on the project's website.

A certificate will be available for amateur stations receiving the emergency message(s) and reporting these for confirmation by the AztechSat-1 team.

Details are on the AztechSat-1 website and on the IARU Amateur Radio Satellite Communication page.

The project is part of NASA's CubeSat Launch Initiative, which offers universities, high schools, and nonprofit organizations the opportunity to fly small satellites. "Innovative technology partnerships keep down the cost, providing students a way to obtain hands-on experience developing flight hardware," a NASA report said.

NASA explained, "The investigation demonstrates communication within a satellite network in low-Earth orbit. Such intra-satellite communication could reduce the need for ground stations, lowering the cost and increasing the number of data downloads possible for satellite applications."

ATSC 3.0 TO BE DEPLOYED IN 40 U.S. MARKETS BY END OF 2020

With ATSC 3.0-enabled consumer devices to reaching the market by 2020, a broad coalition of broadcast television station groups as well as public broadcasters announced at the NAB Show on Monday that ATSC 3.0 (aka Next Gen TV) will be rolled out in 40 U.S. markets by the end of 2020.

Subject to final engineering and required approvals, consents and FCC license modifications, the participating broadcasters have identified the first stations that will convert to ATSC 3.0 service in this rollout. Primary broadcast programming currently broadcast on the stations planning to upgrade will be hosted by other stations in their respective markets.

Station groups involved in the deployment include Fox Television Stations, NBCUniversal Owned Television Stations, Univision, Spectrum Co. (includes Sinclair) and members of the Pearl TV Group, a coalition of broadcasters and manufacturers testing ATSC 3.0 in the Phoenix Model Market.

Transitioning includes stations in: **Indianapolis, IN**; Dallas-Ft. Worth, TX; Houston, TX, San Francisco-Oakland-San Jose, CA; Phoenix, AZ, Seattle-Tacoma, WA; Detroit, MI; Orlando-Daytona Beach-Melbourne, FL; Portland, OR; , Pittsburgh, PA; Raleigh-Durham, NC; Baltimore, MD, Nashville, TN, Salt Lake City, UT; San Antonio, TX; Kansas City, KS-MO; Columbus, OH; West Palm Beach-Ft. Pierce, FL; Las Vegas, NV; Austin, TX; New York, NY; Los Angeles, CA; Chicago, IL; Philadelphia, PA; Washington, DC; Boston, MA; Atlanta, GA; Tampa-St.Petersburg-Sarasota, FL; Minneapolis - St. Paul, MN; Miami - Ft. Lauderdale, FL; Denver, CO; Cleveland-Akron, OH; Sacramento-Stockton-Modesto, CA; St. Louis, MO; Charlotte, NC;San Diego, CA; Hartford-New Haven, CT; Cincinnati, OH; Milwaukee, WI; Greenville-Spartanburg, SC - Asheville, NC; Norfolk-Portsmouth-Newport News, VA; Oklahoma City, OK; Albuquerque - Santa Fe, NM; Grand Rapids - Kalamazoo, MI; Memphis, TN; Buffalo, NY; Providence - New Bedford, RI; Little Rock - Pine Bluff, AR; Mobile, AL - Pensacola, FL; Albany-Schenectady - Troy, NY; Flint-Saginaw - Bay City, MI; Omaha, NE; Charleston - Huntington, WV; Springfield, MO; Rochester, NY; Syracuse, NY; Chattanooga, TN; Charleston, SC; Burlington, VT - Plattsburgh, NY; Davenport, IA - Moline, IL & Santa Barbara - Santa Maria - San Luis Obispo, CA

ITU ADOPTS ATSC 3.0 AS RECOMMENDED DIGITAL BROADCAST STANDARD

The International Telecommunication Union (ITU) has adopted ATSC 3.0 as a recommended digital broadcast standard, opening the door for countries around the world to evaluate and use the standard, the Advanced Television Systems Committee (ATSC) has announced.

“With initial U.S. deployments in place, we’re anticipating the first announcements of consumer receivers for the U.S. market in the coming days,” said ATSC Board Chairman and NAB Senior Vice President of Technology Lynn Claudy. “The decision by the ITU is yet another signal that digital terrestrial broadcasting has a bright future ahead.”

ATSC 3.0 is the world’s first IP-based digital television broadcast standard. More than 60 U.S. television stations are expected to be on-air with 3.0 by the end of 2020, and consumer receivers for U.S. TV households are expected to be unveiled at the 2020 Consumer Electronics Show, which opens next week in Las Vegas (Jan. 7-10)

SHORTS

Some RCA History (and other stuff):

There’s an on-going Youtube series about the RCA CED (Capacitance Electronic Disc). The latest episode is about the infighting about which technology to use. You may find it interesting.

https://www.youtube.com/watch?v=P1dDKvuFJ0c

In the most recent Indiana Chamber of Commerce Magazine, an article about RCA and the Bloomington plant. Also search Youtube for Gib Apple’s channel.

https://www.bizvoicemagazine.com/wp-content/uploads/2019/12/RCA.pdf

From IEEE Spectrum, an article on the WWII Code Breaking Colossus machine. Likely the first electronic digital computer.

https://spectrum.ieee.org/tech-history/dawn-of-electronics/the-hidden-figures-behind-bletchley-parks-codebreaking-colossus

Also from IEEE Spectrum, the crazy story of how the Soviet Russia bugged the American Embassy’s IBM Selectric typewriters.

https://spectrum.ieee.org/tech-history/silicon-revolution/the-crazy-story-of-how-soviet-russia-bugged-an-american-embassys-typewriters

And, a tour of the CS Responder, a submarine cable laying ship.
https://www.youtube.com/watch?v=t9M-gq8HHV0

Swains Island W8S DXpedition Set for March 10 – 25 – An international team of 10 operators will be active as W8S from Swains Island from March 10 to March 25. The DXpedtion team will be active on all HF bands on CW, SSB, FT8, and RTTY.
Operation will be from two separate camps on the island — a Red Camp and a Blue Camp — each with two stations. The four stations will be on the air 24/7. The station equipment complements are identical. Two stations will be dedicated for 160 and 80 meters. A WiFi network will link the Red and Blue camps to network all logging laptops. Hans Griessl, DL6JGN, and Ronald Stuy, PA3EWP, are co-leaders.
Swains Island (Olohega) is an atoll in the Tokelau chain. Swains is a US territory and considered

part of American Samoa. Swains Island is the 34th most-wanted DXCC entity, according to Club Log. --ARRL

New 60 MHz Beacon Now on the Air from Ireland – The first — and so far only — beacon on 60 MHz went on the air on December 16. The call sign is EI1KNH. In early 2018, the 60 MHz (5-meter) band was allocated to radio amateurs in Ireland on a secondary, non-interference basis. The beacon is on 60.013 MHz and runs 25 W into a vertical folded dipole. The new 5-meter beacon is sharing a site already occupied by EI0SIX on 6 meters, and EI4RF on 4 meters, about 12 miles south of Dublin in IO63VE. An 8-meter beacon is scheduled to be on the air in the next few months. It will operate on 40.013 MHz.

Amateur Radio Enforcement - ARRL Executive Committee members met with FCC Enforcement Bureau Chief Rosemary Harold and her senior staff to discuss amateur enforcement. The delegation updated progress in setting up the Volunteer Monitoring Program pursuant to the FCC/ARRL *Memorandum of Understanding* (*MOU*) signed last March. The program is in the final stages of training volunteers and is expected to be brought online in early 2020. Read more.

The theme for the 2020 Dayton Hamvention® will be "Amateur Radio, The Future." – Hamvention General Chair Jack Gerbs, WB8SCT, invited Hamvention attendees to celebrate amateur radio's past, present, and future. "As amateur radio operators, we enjoy many modes of operating," Gerbs said. "We also enjoy challenges such as satellite communications, moonbounce, meteor scatter, and more. What truly excites me about our hobby is the diversity of these modes and the fact that, as we move to the future, we still enjoy the technologies of the past." Gerbs noted that Hamvention has long been a place to find vintage parts and gear and to see the latest technology. "The theme acknowledges the role that amateur radio has always played and will continue to play in future communication developments," Hamvention said, acknowledging the contributions of the many hams who actively work on new ideas, equipment designs, and software to improve electronic communication. Hamvention 2020 takes place May 15 - 17 at the Greene County Fairgrounds and Expo Center in Xenia, Ohio.

South Orkney Islands DXpedition will Use VP8PJ – The Perseverance DX Group's DXpedition to South Orkney, set for February 20 until March 5, will use the call sign VP8PJ. The group initially announced that it would use VP8/VP8DXU.

"Alan Armstrong, VK6CQ, a recent addition to the team, holds the call sign VP8PJ that was issued to him for operation from the British Antarctic Territory," the DXpedition has announced. "After submission of a copy of Alan's license, ARRL has issued us a new LoTW certificate for the use of this call from South Orkney for the duration of our expedition."

Radio Amateurs of Canada (RAC) Announces a New Section with the addition of a new Prince Edward Island (PE) Section – The number of Sections needed for a clean sweep in the ARRL November Sweepstakes (SS) will rise to 84 in 2020, with the addition of a new Prince Edward Island (PE) Section. Radio Amateurs of Canada (RAC) announced this week that the new Section will become effective on April 1.

The change will mean that logging software developers will have to update their software to include the PE Section as a valid exchange element for any affected operating events.

RAC also announced an adjustment in two of its Ontario Sections. Effective April 1, radio amateurs in the City of Hamilton and in the Regional Municipality of Niagara will shift to the Greater Toronto Area (GTA) Section from the Ontario South (ONS) Section.

Razvan's, M0HZH 600 watt HF/6m amplifier (his entry into the 2019 NXP Homebrew RF Design Challenge) using a couple of NXP MRF300 transistors now has a companion output

filtering board. It seems like a mini-golden-age for amplifier building, with the availability of modules that make amplifier construction more a mechanical task than electrical.

If you like kits, here's an all digital transceiver for FTx modes. It's described as "single-board, 4-watt SSB radio specifically designed for using digital modes with computers running *WSJT-X* and *FLDIGI* applications." QRP aficionados will recognize the kit's designer: Dave, K1SWL.

KB6NU's recent blog entry describes LadderSnaps, a ladder line insulator that converts "home center" 14 AWG THHN wire into feedline for your antennas. KB6NU also talks about some Anderson Powerpole distribution blocks by K9JEB. Powerpole connectors are available in a wide variety of sizes and colors - K9ZW's blog entry in December described the variations

Inexpensive software defined radio hardware arguably started a few years ago with the availability of DVB-T USB "dongles." These were devices that were originally designed to receive over the air digital TV broadcasts using a PC as the decoder and display. But these devices had the ability to receive arbitrary swaths of spectrum. The RTL-SDR project was born to tune the devices and grab raw samples for other software to process. A Hackaday article by Tom Nardi describes how these devices and *RTL-SDR* have evolved, and how an ecosystem of tools and software have grown around them

THANKS FOR READING !

THE RCA ARC MONTHLY NEWSLETTER IS COMPILED AND EDITED BY JIM RINEHART, K9RU AND JIM KEETH, AF9A. ALL MATERIAL CONTAINED HEREIN IS OBTAINED FROM THE SOURCES CREDITED AND EDITED FOR THIS NEWSLETTER. EMAIL TO mail to:WebMaster@w9rca.org. Check our web site at http://www.w9rca.org