



AFFILIATED CLUB

RCA AMATEUR RADIO CLUB



INDIANAPOLIS, INDIANA

NOVEMBER, 2015

MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, NOVEMBER 10th, 6:30 PM AT [G.T. SOUTH'S](#),
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE OCTOBER MEETING – At the October meeting, Jims AF9A and K9RU reported on the progress of the new Fusion repeater. We should install and start checkout this month. Everything is about ready except for those things we've overlooked. An inquiry from Brent, N9BA, about a receive site for the 443.25 repeater at our west side location was forwarded to John, KF9UH. Jim, K9RU, will order a 50.069 MHz crystal for GE MVP 6 meter beacon transmitter to be located on our west side receive site. Custom cut crystals are getting hard to come by and expensive. Members present considered the qualifications for those who have been nominated for the IRCC Amateur of the Year and voted. The AOY will be announced at the Ft. Wayne hamfest. Those interested in carpooling to the hamfest should attend the next meeting. For the Jamboree on the Air, WW2IND will operate 40 and 20 meters. Also, there will be a special event station for Veterans Day in November. Indianapolis Radio Club (IRC) members now have access to a remote station. Talk to Tom Chance, K9XV, or Hank Wolfa, K9LZJ, to obtain permission and for information on operating the remote station. The November IRC meeting will be a tour of WFYI. See the [IRC website](#) for information.

NEXT TEST AMATEUR RADIO LICENSE TEST SESSION

Time: Saturday, Dec. 12, 2015 Exams start at noon.
Location: Salvation Army EDS Training Facility,
4020 Georgetown Rd., Indianapolis, IN
Contact: James K. Rinehart, (317) 495-1933, Email: k9ru@arrl.net

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Nov 7-9 ARRL CW Sweepstakes Contest
Nov 13 Indianapolis Radio Club tour of WFYI
Nov 14-15 [Ft. Wayne Hamfest](#)
Nov 14-15 WAE DX Contest, RTTY
Nov 21-23 ARRL SSB Sweepstakes Contest
Dec 4-6 ARRL 160-Meter Contest, CW

IT'S ARRL NOVEMBER SWEEPSTAKES SEASON!

[ARRL November Sweepstakes](#) -- two weekends of fun on CW and SSB, respectively -- are just ahead. The CW event is November 7-9; the phone weekend is November 21-23. The contest period runs from 2100 UTC on Saturday through 0259 UTC Monday. Those planning to participate should check out the [2015 Operating Guide](#) (PDF).

Sweepstakes is the ARRL's oldest "domestic" contest and is one in which stations may only contact each

other once on any band. The multipliers are official ARRL and RAC sections. Some are especially rare, so keep your ears open! For stations in the United States and Canada (including territories and possessions), the object is to exchange the required contact information with as many other US and Canadian stations as possible on 160, 80, 40, 20, 15, and 10 meters. There are several entry classes.

Affiliated Club competition continues to be a very popular aspect of Sweepstakes each year. Even members who cannot put in a full-time effort can contribute.

The Clean Sweep mug -- for working all 83 ARRL/RAC sections -- is available again this year, as are Participation Pins for anyone who completes more than 100 contacts on CW or phone during Sweepstakes.

Bands: 160, 80, 40, 20, 15, 10m; Report is: Serial No. + Precedence: (Q) – QRP, (A) – low power 150 Watts or less, (B) – Hi power, (U) assisted using spotting, (M) – multi op, or (S) - School) + [your call sign] + Check (1st year licensed) + ARRL/RAC Section --ARRL Letter

ARES/RACES TEAMS EXPECTED TO JOIN MARS IN CORONAL MASS EJECTION DISASTER EXERCISE

Preparations are nearly in place for the previously announced Military Auxiliary Radio System (MARS) coronal mass ejection (CME) disaster [communication exercise](#), which will take place Saturday through Tuesday, November 7-10. Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES) groups are expected to participate in the quarterly contingency HF exercise in support of the US Department of Defense.

"We are looking forward to this exercise and the opportunity to partner and train with the larger Amateur Radio community," Army MARS Program Manager Paul English, WD8DBY, told ARRL. The exercise scenario will simulate a CME event and focus on actions that radio operators should take prior to and following such an event, which could impact HF propagation. English said leaders from Army and Air Force MARS will hold a final exercise coordination teleconference on October 28 "to answer any final questions about the exercise and make sure everyone is ready to train."

English said he's responded to some 90 [inquiries](#) from ARES and RACES groups as well as from individuals who would like to involve their ARES teams, and he expects about 50 ARES/RACES-affiliated organizations to participate. He said a few additional active duty military units also hope to take part in the exercise.

English said the November exercise would simulate a radio blackout as well as infrastructure damage. "During the exercise, we will simulate the blackout with a 3 hour pause, and then we will bring stations back on air and begin handling requests for information," he told ARRL.

Training objectives for this exercise will include understanding what a CME is and how much forecast lead time can be expected; the effects associated with a CME, and what precautions radio operators take to protect their equipment, prior to a severe CME. Following the simulated CME, operators will assess its effects and report that information. This will involve "inter-operation with Amateur Radio operators and groups to assist in assessment," English said.

ARES and RACES teams, as well as individual radio amateurs, wishing to participate in this exercise may [contact](#) MARS and provide contact information. --ARRL Letter

AMSAT'S FOX-1A CUBESAT IS NOW AO-85!

In what may have been record speed, AMSAT's new Fox-1A satellite received its OSCAR designation on the day of its launch. Although its FM transponder is not yet routinely active while the CubeSat undergoes commissioning, it has been operational on many passes. Right on schedule at 1249 UTC on October 8, the Atlas rocket carrying Fox-1A and 12 others lifted off from Vandenberg Air Force Base in California. AMSAT OSCAR Number Administrator Bill Tynan, W3XO, announced later that day that going forward Fox-1A would be known as AO-85. Fox-1A has been dedicated to the individual who had been at the helm of AMSAT's CubeSat projects until his death last year.

"I have been informed of the successful launch today, October 8, 2015, of the AMSAT-NA-built Fox-1A CubeSat. I am also informed that the satellite has been heard by several amateurs in various countries," Tynan said in a news release. "This successful launch comes after years of diligent and dedicated work on the part of AMSAT-NA volunteers including Tony Monteiro, AA2TX, who became a Silent Key in March 2014. It was Tony who spearheaded and guided the work on all AMSAT-NA CubeSats until his untimely passing. Thus, it is only fitting that this spacecraft be dedicated to his memory." As Tynan noted, Jerry Buxton, N0JY, took over Monteiro's post of AMSAT-NA Vice President for Engineering, and successfully completed the project through its preparation for launch.

"All of those who had a part in designing, constructing, and testing Fox-1A and its various subsystems are to be congratulated for jobs well done," Tynan said.

The Fox-1A Mode B (U/V) FM transponder has an uplink frequency of 435.180 MHz (67 Hz tone), and a downlink frequency of 145.980 MHz. AMSAT's [Online Satellite Pass Predictions](#) utility can determine AO-85 passes over a given location.

"This was a great day for AMSAT, and for satellite operators around the world," Patrick Stoddard, WD9EWK/VA7EWK, posted to the AMSAT-BB shortly after launch. "Almost 6 years to the day the AMSAT Fox project was unveiled at the 2009 AMSAT Space Symposium in Baltimore, we now have the first of a series of Fox-1 satellites in orbit. Congratulations to all who have had a hand in building and launching Fox-1A today, and thanks to everyone who has supported the Fox project over the past 6 years!"

A free *FoxTelem* [telemetry decoder software](#) is available to decode both DUV and high-speed telemetry. AMSAT has also posted a [Fox Operating Guide](#) and has produced a free [commemorative issue](#) of the *AMSAT Journal* that highlights the Fox-1A launch success.

WORLD RADIOCOMMUNICATION CONFERENCE 2015 STARTS ON NOVEMBER 2

Amateur Radio's interests will be well represented as the 2015 [ITU](#) World Radiocommunication Conference ([WRC-15](#)) convenes on November 2 in Geneva, Switzerland. Preparations have been under way since the last WRC wrapped up in 2012. Held every 3 or 4 years, WRCs review, and, if necessary, revise the [Radio Regulations](#) -- the international treaty governing the use of the radio frequency spectrum. Delegates will consider several items of interest to the Amateur Radio community during the nearly month-long international gathering.

The primary WRC-15 [agenda](#) item of interest to most radio amateurs is Agenda Item 1.4, which calls on delegates to consider the possibility of allocating an appropriate amount of spectrum -- not necessarily contiguous -- to the Amateur Service on a secondary basis within the band 5250-5450 kHz. Many amateurs have been hoping for a band, rather than the discrete channels now available in the US and in several other countries.

"While efforts of the IARU and its member societies have led four regional organizations to make affirmative proposals -- two of them quite generous -- the outcome of this item remains uncertain," said ARRL CEO David Sumner, K1ZZ, who will be attending WRC-15 briefly to support the IARU team. He explained that several major countries, including Canada, Russia, the UK, and the US, view an allocation in the triple digits of kilohertz as too generous and, except for Russia, have not signed on to regional proposals. Russia leads a regional proposal for no change. Canada has proposed allocating 50 kHz in two 25 kHz blocks, but several countries, including the US, are on record as opposing an allocation.

"We are disappointed that the United States was unable to join the Inter-American Proposal (IAP), which is admittedly more generous than we expected the US to be able to support," Sumner said. "With the neighboring countries of Mexico supporting the IAP, Canada proposing two 25 kHz segments, and Cuba proposing a contiguous 27 kHz band, and with affirmative proposals for an amateur allocation having been submitted on behalf of dozens of other countries, we remain hopeful that a positive consensus will emerge that the US, in the end, will be able to accept."

Countries opposed to any change have argued that propagation characteristics near 5 MHz are ideal to support reliable operation of the incumbent HF services. Current primary non-government occupants of the band are fixed and mobile services, except aeronautical mobile, and radiolocation in the 5250-5275 kHz segment.

Other items that could affect Amateur Radio include:

Agenda Item 1.1, to consider additional spectrum for mobile services on a primary basis and identification of additional bands for commercial mobile telephony and data service -- in essence, smartphones. In 2007, nearly 90 countries identified 3400-3500 MHz in the amateur 9 centimeter band for this purpose. Efforts to maintain amateur access to this band since then has been a country-by-country effort. The US has said that it will not implement mobile telephony and data services at 3400-3550 MHz, due to its use by incumbent services, including radiolocation and Amateur Radio.

Agenda Item 1.12 would consider extending the current worldwide allocation to the Earth exploration-satellite (active) service (EESS) in the band 9300-9900 MHz by up to 600 MHz, which would intrude into the amateur 10 GHz allocation. Although EESS is likely to obtain a primary allocation that overlaps the 10 GHz band in full or in part, its impact on Amateur Radio would likely be nominal.

Agenda Item 1.18 will address automotive radar applications at 77.5-78.0 GHz. Studies have indicated general compatibility with these applications and Amateur Radio, and, in any case, the primary status of Amateur Radio is not proposed to be downgraded. Read [more](#). --ARRL Letter

ARRL FIELD DAY 2015 RESULTS NOW AVAILABLE

Results of ARRL [Field Day 2015](#) are now available. These include the [searchable scores database](#), the [soapbox](#), and the [QST results article](#) (PDF). A total of 2720 stations submitted entries for the ever-popular June 27-28 event.

While propagation was on the sorry side for Field Day 2015, the number of contacts for this year's event rose slightly over 2014 -- a modest 1.1 percent -- and CW contacts account for all of that increase; phone and digital contact numbers dipped slightly in 2015. Nearly 1.3 million contacts were logged during FD 2015.

The number of logs received appears to be an all-time ARRL Field Day record. This year saw 35,369 participants, down slightly from 2014.

A total of 1247 entries claimed the broad classification of "A" (which includes generator, commercial, and alternate/battery-powered entries). Joining that core group operating in temporary setups were an additional 315 Class B entries (one- or two-person entries). This indicates that 58 percent of all Field Day 2015 participants in some way took to the field. -- ARRL Letter

ARRL MEDIUM-WAVE EXPERIMENTERS SPONSORING NOVEMBER SPECIAL EVENT

The 107th anniversary of the Berlin Treaty, which created the international distress frequency at 500 kHz, will be the occasion for a special event operation in that vicinity of the spectrum. The event, announced by ARRL Medium-Wave Experiment (WD2XSH) Coordinator Fritz Raab, W1FR, set for the November 13-14 weekend, will involve experimental operators in the US, Canadian Amateur Radio stations, and US heritage maritime stations.

"For US experimental ops, this will be a CW event," Raab said. "Some stations will run beacons with special messages, and some will offer special QSLs. Other stations will simulate maritime communication. They will call CQ on a designated calling frequency and then QSY to complete the QSO. Silent periods will be observed. Some stations will pass message traffic."

Activity for the special event will focus on 465 to 480 kHz and 495 to 510 kHz, since different licensees have different frequency authorizations, Raab explained. Designated calling frequencies are 475 kHz for the lower segment, and 500 kHz for the upper.

Raab said the Maritime Radio Historical Society (MRHS) will conduct a mini "Night of Nights" on Saturday night, with special attention to MF operation. "This will give listeners the best chance of copying their MF signals by operating during the winter and extending our operating hours well into the evening Pacific time," Raab said. MRHS Coast Station operators KPH will keep 426 and 500 kHz active with messages and will verify listener reports.

Five Canadian amateurs are expected to operate in the 472-479 kHz band. "In addition to activities

similar to those of the US experimental stations, the Canadian amateurs will conduct cross-band communication tests with amateurs operating on 80 and 40 meters," Raab said.

"All stations will either call CQ or send VVV marker beacons while listening on their respective QSX frequencies," Raab said. Stations will announce their listening frequencies. Read [more](#). --ARRL Letter

ARRL ASKS FCC TO CLARIFY THAT HAMS MAY MODIFY NON-AMATEUR GEAR FOR AMATEUR USE

The ARRL has asked the FCC to make clear that Amateur Radio licensees may modify non-amateur equipment for use on Amateur Radio frequencies. Some hams have expressed concerns that recently proposed rules would inhibit post-sale modification of Wi-Fi equipment, now sometimes altered for use on Amateur Radio frequencies. The ARRL made its point in [comments](#) filed on October 8 on a *Notice of Proposed Rule Making (NPRM)* in ET Docket 15-170 and RM-11673. The proceeding mostly addresses proposed amendments to FCC rules regarding authorization of RF equipment.

"The Commission should clarify... that the ability of licensed radio amateurs to modify and adapt non-amateur equipment for use in the Amateur Service is beneficial, is permitted, and is not restricted by any rule of general applicability adopted in this proceeding," the League said in its comments. The ARRL said proposed rules requiring manufacturers to include security features to prevent network devices from being modified were "problematic," to the extent that they would preclude hams from adapting network equipment for ham radio applications.

"The Amateur Radio Service has a very long tradition of modification and adaptation of commercial communications equipment," the ARRL pointed out in its comments, asserting that amateur licensees should be permitted to modify any previously authorized equipment for use under Amateur Service rules. The proceeding attracted many comments regarding this aspect of the proceeding, although the proposed rules differ only slightly from the current rules.

The ARRL also urged the FCC not to apply any limitations proposed for software defined radios to SDRs intended for use exclusively in the Amateur Radio Service, "as has been the policy for the past 10 years."

Equipment Authorization

The League has also called on the Commission not to combine the Declaration of Conformity (DoC) and Verification equipment authorization procedures into a single, self-approval program. The League said the proposal could lead to abuse by unscrupulous importers and manufacturers of unintentional emitters. Under the proposed rules, the FCC would do away with its DoC authorization program by combining it with equipment Verification to form a so-called "Suppliers Declaration of Conformity" category of equipment authorization. Testing in an accredited laboratory would not be required, nor would database registration or third-party review. The ARRL expressed concerns that the new regime would encourage and facilitate the introduction into the US of "non-compliant unintentional emitters" and offer no oversight.

In its comments, the League said hams and AM broadcasters have been victims of interference from such unintentional emitters as RF lighting ballasts "that routinely exceed the Commission's conducted emission limits." The ARRL said the solution is "not to loosen but to tighten the procedural controls over the testing and affirmative confirmations of compliance" to ensure greater compliance in conducted limits and other technical parameters that determine how much such devices contribute to ambient noise levels.

The League said some RF devices, such as RF "grow lights," now subject to the more informal Verification process, should be subject to Certification, owing to their substantial interference potential.

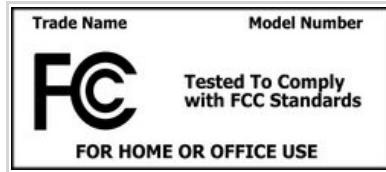
Improved Labeling for Part 15 and Part 18 Devices

The ARRL also said there is "an urgent need" for improved labeling requirements for certain Part 15 and Part 18 devices. "Necessitating change, notably, is the fact that there are many industrial Part 18 devices sold that are neither intended nor designed for use in residential environments, but because there is no external labeling...the end user consumer is left without guidance," the ARRL said, noting that, in most cases, equipment retailers are not providing any either.

In July, the ARRL complained to the FCC about the marketing practices of various "big box" retailers, where non-consumer-rated lighting ballasts have been mixed in with consumer ballasts and other

consumer products on display with no explanatory signage. Ballasts intended for industrial applications have higher permitted conducted emission limits in the Amateur Radio HF spectrum. The League called on the FCC to include a definition in Part 18 for the term "consumer RF lighting device," to provide a way to differentiate consumer devices from those intended for industrial or commercial environments.

The League also said the FCC should consider reducing its Part 15 limits for lighting devices to correspond with the Part 18 lighting device limits between 3 and 30 MHz to reduce the RFI potential of LED bulbs now being widely marketed, "before they become an aggregate problem." LED lamps operate under Part 15 rules.



The ARRL said the FCC should adopt the League's new equipment-labeling proposals with respect to certain Part 15 and Part 18 equipment "in order to stop the flood of such devices intended for commercial or industrial areas only into residential areas." Read [more](#).

--ARRL Letter

AMATEUR RADIO ON GEOSYNCHRONOUS SATELLITE ONE STEP CLOSER!

[BACKGROUND] There is big news on the Amateur Radio satellite front. [AMSAT-NA](#) has announced that, if all goes according to plan, an Amateur Radio payload will go into space on a geosynchronous satellite that's planned for launch in 2017. As opposed to the more typical low-Earth-orbit, a geosynchronous orbit would permit an earthbound ham at a given point within its footprint to access the satellite at approximately the same time each day. According to AMSAT Vice President-Operations Drew Glasbrenner, KO4MA, the satellite's potential footprint would extend over the US from the Mid-Pacific to Africa. AMSAT said it's accepted the opportunity to be a "hosted payload" on a spacecraft that Millennium Space Systems ([MSS](#)) of El Segundo, California, is under contract to design, launch, and operate for the US government. Past AMSAT Director and former Vice President-Engineering Bob McGwier, N4HY, said the Amateur Radio payload must be delivered for testing and integration by the spring of 2016.

During the AMSAT-DL Annual Meeting on 4 JUL 15, the AMSAT-DL membership approved the concept, agreeing to allow the Phase 3-E space frame that is currently stored in Germany to be shipped to Virginia Tech in the USA for further construction, testing and preparation for eventual launch to HEO should the US Government formally agree to fund such a mission.

[Oct. 30, 2015] The CEO of Millennium Space Systems informed Virginia Tech and AMSAT, they have accepted our request for a proposal to study carrying our rideshare payload on their GEO effort called USAF WFOV. [Translation... "to study" means can they accommodate us? That is the study intent.]

They delayed until the defense appropriation and budget deal passed which assured that WFOV will be built. Now we are racing to the finish line. But this means that USAF WFOV will fly and if we pass the tests we will be selected for flight. Yippee! --Bob McGwier on Facebook

HISTORY



The 807, a Vacuum Tube for the Ages – Eight decades on, this device still has a niche among ham radio enthusiasts and audiophiles

In the 1930s, as the United States recovered from the Great Depression, most people couldn't afford a new radio. Even so, the Radio Corporation of America earned a tidy profit on [vacuum tubes like the 807](#), [pdf] introduced in 1937. The 807 proved especially popular with amateur radio operators, as evidenced by this ad from the March 1940 issue of *QST*, a ham-radio magazine. And in 1947, English engineer D.T.N. Williamson described the circuit for his [eponymous high-fidelity audio amplifier](#) [pdf], variations of which used the 807. Although RCA closed its electron tube operation in 1976, 807s are still made in Russia and [China](#), and audiophiles continue to debate the technical and aesthetic qualities of 807s from different companies, eras, and countries. --IEEE Spectrum

SHORTS

FCC Seeking User Comments on New Beta Website – As part of an ongoing research and design project "to dramatically improve the usability and functionality" of its website, the FCC has debuted a new [prototype website](#) and wants to know what users think about it. The FCC's 2011 website re-design was not well received, and the Commission has continued to maintain its previous, much older website design in tandem with the newer one.

All content on the current FCC website has been migrated to the new Drupal-based site. The FCC IT staff is now integrating that content into what Bray called "new information architecture," which, he said, would offer additional and improved ways of accessing and interacting with the website's content.

Additional feedback the FCC receives during the beta website's "extended" testing period, will be used to complete the switch to the new site fully later this fall.

Users can submit their comments and suggested bug fixes by using a [web form](#) or [e-mail](#).

Use of 146.52 MHz FM Simplex Frequency Cleared for ARRL Contests – The ARRL Programs and Services Committee earlier this year unanimously adopted a recommendation from its VHF and Above Revitalization Committee to remove the rule prohibiting the use of 146.52 MHz simplex for making contest contacts. The change becomes effective in 2016, starting with the ARRL January VHF Contest.

The VHF and Above Revitalization Committee concluded that the restriction was no longer necessary. The committee felt that permitting the use of 146.52 MHz would allow new/curious contesters possessing only FM-mode radios to stumble upon more contacts, increasing their chances of being drawn further into VHF+ contesting -- the primary aim of the Revitalization Committee.

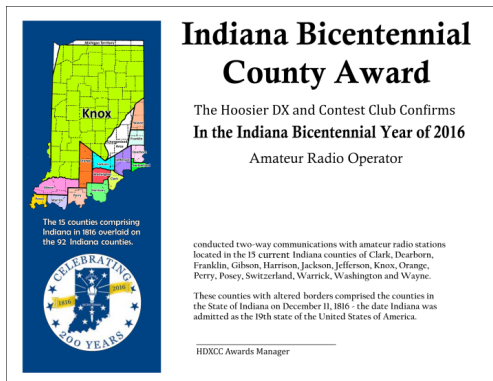
The change will also be incorporated into the [ARRL Field Day](#) rules. This change eliminates Rule 1.8 in the "[General Rules for ARRL Contests Above 50 MHz](#)," with subsequent Rule 1 sections renumbered accordingly. -- *ARRL Letter*

Palmyra DXpedition to Sign On as K5P – When the [Palmyra DXpedition](#) gets under way in January 2016, operators will be using the call sign K5P. The Pacific Islands DXpedition Group has been granted permission to activate Cooper Island in the Palmyra Atoll. Palmyra and Jarvis Islands (KH5) ranks number 9 on [ClubLog's DXCC Most Wanted List](#). "After many months of planning, securing permits, and negotiating contracts with US Fish and Wildlife and the Nature Conservancy, we are quickly approaching the much anticipated DXpedition to Palmyra," co-leaders Craig Thompson, K9CT, and Lou Dietrich, N2TU, said in a recent news release. A team of 12 operators will operate five stations from January 11 through January 26. Visit the Palmyra 2016 website to [learn more](#).

Vibroplex acquires International Radio – Vibroplex LLC of Knoxville, TN announced the acquisition of International Radio Corporation of Aptos, CA. The sale was finalized on September 23. International Radio, commonly referred to as "Inrad", is the leading manufacturer of aftermarket and OEM crystal filters for Amateur Radio transceivers and receivers with some 250 different models currently available for present day equipment and obsolete gear dating as far back as the 1950's. Inrad is presently the OEM roofing filter supplier for the popular Elecraft K3/K3S series of HF transceivers. The last day of operations in California was September 22. Inrad is now up and running at the Vibroplex offices in Tennessee but the backlog of present orders on hand will take several more days to fill. The former and new owners say thank you to the Amateur Radio community for more than 40 years of Inrad business. Inquiries about Inrad can be directed to the main Vibroplex email address at vibroplex@vibroplex.com or sales@inrad.net

TRANSMITTING FM, AM, SSB, SSTV AND FSQ WITH JUST A RASPBERRY PI - F5OEO has recently developed a Raspberry Pi is capable of modulating and transmitting FM, AM, SSB, SSTV and FSQ signals anywhere between 130 kHz to 750 MHz. To transmit with the Raspberry Pi all you need to do is plug in a wire antenna to Pin 12 (GPIO 18) on the GPIO port and run the PiTx software by piping in an

audio file or image for SSTV. <http://qrznow.com/transmitting-fm-am-ssb-sstv-and-fsq-with-just-a-raspberry-pi>



Indiana Bicentennial County Award - The Hoosier DX and Contest Club will offer a Bicentennial County Award for working the 15 current counties of Clark, Dearborn, Franklin, Gibson, Harrison, Jackson, Jefferson, Knox, Orange, Perry, Posey, Switzerland, Warrick, Washington and Wayne that made up Indiana, when it was admitted to the United States.

There are two ways to earn it:

1. Work the 15 Bicentennial Counties during 2016, any band, any mode and submit the required conformations of the QSOs, same as required for the Work All Indiana Award.

2. Work the 15 Bicentennial Counties during the INQP in May and credit for the QSOs can be received from the INQP log

submissions. This does require both stations to submit logs and the contact confirmed by the HDXCC.

During the INQP, it will be limited to the HF bands 80 - 10 meters on Phone and CW only (No WARC bands, INQP Rules).

You can check out the INQP rules on the HDXCC web site for details. <http://www.hdxcc.org/>

Webinar by Carl Luetzelschwab, K9LA on Design Issues for a VHF-UHF Solid State Power Amplifier
The World Wide Radio Operators Foundation (www.wwrof.org) is pleased to sponsor the Webinar. Carl is from Ft Wayne, Indiana.

Carl, K9LA, will deviate from his usual presentations on propagation and solar topics to discuss design issues for a 50 Watt VHF-UHF solid state RF power amplifier. This is not a construction project, but rather a presentation of notes gathered from his 41-year career as an RF design engineer for Motorola and Raytheon.
Date: Thursday, November 19 Time: 9 PM EST (when you register for the event, you have the option of showing the confirmation in your local time) To Register: <http://wwrof.org/webinars/>

NASA releases video of Sun in 4K - The maximum video resolution 4K (3840×2160 pixels), but it's worth a checking out even if your monitor – as the vast majority of monitors in the market today – does not support 4K resolution. The detailed images and the soundtrack for Lars Leonhard create a very immersive experience. <http://qrznow.com/nasa-releases-video-of-sun-in-4k/>

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