RCA AMATEUR RADIO CLUB

Legacy Amateur Radio Club

AFFILIATED CLUB

INDIANAPOLIS, INDIANA

RCA ARC Indianapolis   60th Anniversary   1956 - 2016

OCTOBER, 2016   MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, OCTOBER 11th, 6:30 PM AT G.T. SOUTH'S,
5711 E. 71st STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE SEPTEMBER MEETING – Thanks to everyone who attended the 9-Sept. Meeting. We had a good turnout. And, thanks to Al Lutgring, N9RKT and Dave Appel, KC9BRZ for visiting. Some problems with the '88 repeater keying up on noise, probably originating near the repeater site were discussed. The noise causes a much more severe problem with the C4FM digital mode as that mode has only the one receiver at the repeater site. The analog mode uses three receivers only one of which, the one at the repeater site, is bothered by this noise. Further invsestigation needs to be done. K9RU mentioned the Indianapolis Radio Club may be looking for a new meeting location as Ivy Tech may want to charge the Club for the meeting room(s) they have been using for the past several years. Also discussed was the possibility of getting a work party together to help take down Dave Brown's towers. No date was set. Clarence, W2PGS, owner of OutOfOrder Networks, the host of the W9RCA.ORG web site, reported he had renewed the W9RCA.org domain name. Also, he'll be transititioning the web site to a new server in the near future.

NEXT RCA / IRC AMATEUR RADIO LICENSE TEST SESSION
Time: Saturday, Oct. 8, 2016. Exams start at 12:00 noon. Walk ins allowed.
Location: Salvation Army EDS Training Facility,
               4020 Georgetown Rd,
               Indianapolis, IN 46254
Contact: Jim Rinehart, (317) 496-1933, e-mail: k9ru@arrl.net

 Help Needed for Upcoming Events: Ham Radio volunteers are needed in all the public service events that we support. These are:
          Nov. 7   Indianapolis Monumental Marathon
             Contact Mike Palmer, N9FEB, N9FEB@comcast.net www.IndyHams.org

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

          Oct 22   Shelbyville Tailgate 2016, Shelbyville, IN http://www.brvars.com
          Nov. 7   Indianapolis Monumental Marathon www.IndyHams.org
          Nov 12   Fort Wayne Hamfest, Fort Wayne, IN http://www.fortwaynehamfest.com
                    Opportunities for public service: http://indyhams.org/events

AT&T'S NEW "AIRGIG" NOT YOUR FATHER'S BPL

Recalling the earlier efforts of the FCC and telecommunications and utility interests to roll out "Broadband over Powerline" (BPL), the Amateur Radio community has been buzzing with questions about AT&T's just-announced "AirGig" BPL plan to make broadband available via apparently similar technology. ARRL's earlier anti-BPL campaign, and market forces, eventually led to the demise of the prior BPL initiative. ARRL Laboratory Manager Ed Hare, W1RFI, who spearheaded the earlier effort to quantify BPL's threat to Amateur Radio's HF spectrum and remains the resident expert on the subject, said this newest BPL incarnation should *not* pose an interference issue for radio amateurs.

"This technology uses millimeter-wave RF signals (30 GHz to 300 GHz) coupled onto the surface of power lines to transmit the signal along the line with relatively low losses," Hare explained. "After looking at this technology, it looks nothing like the type of HF and VHF BPL that caused us so many problems years ago. The sky is not falling."

Hare added that it is not likely that the AT&T technology will even use Amateur Radio bands, so there is little reason for concern even among those amateurs who use spectrum above 24 GHz.

According to AT&T's September 20 announcement, the company is "deep in the experimentation phase" of the developing technology, which it says would be "easier to deploy than fiber, can run over license-free spectrum, and can deliver ultra-fast wireless connectivity to any home or handheld wireless device." AT&T said its initial — and continuing — testing at AT&T outdoor facilities "has been positive," and initial field trials are set to begin in 2017.

Hare said the technique of putting RF signals onto the surface of conductors is not new. An article by Glenn Elmore, N6GN, and John Watrous, K6PZB, appeared in the May/June issue of *QEX,* describing the technique. In January 1953, the *Proceedings of the IRE* featured an article by C. E. Sharp and G. Goubau, "A UHF Surface-Wave Transmission Line," and the *Radio Amateurs VHF Manual 11th edition* introduced the technique to amateurs in 1968.

Hare said the League will keep an eye and ear out for interference problems, but he believes that the frequencies involved and the fact that these signals should not propagate far from the lines will pose little risk the Amateur Radio Service.

"So far, industry has not found a way to reliably put broadband signals on wires intended to carry power frequencies," he said. "The technical difficulties of trying to use wiring not designed to carry RF signals [and] connected to all sorts of noisy loads, other conductors and even splices that are major discontinuities at these frequencies will probably prove to be quite the technical challenge. ARRL is interested in seeing all technology succeed, but its vested interest is in the interference potential of new technologies. Fortunately, in this case, there is little likelihood of interference." --ARRL

LOTW PASSWORD CHECKING CHANGE CAUSES PROBLEMS FOR SOME USERS

An upgrade to the password-checking mechanism that authenticates Logbook of The World (LoTW) users has caused log-in problems for some clients. Under the system in place prior to approximately 2300 UTC on September 19, the LoTW log-in system ignored the case of any characters in a password when checking for a match, storing them all as lower-case. The new system is case sensitive, however. While passwords once were randomly generated, the ARRL IT staff recently implemented a new LoTW password mechanism that lets users choose their own passwords. Under this new system, when users first log in, their passwords are encrypted.

Some users with mixed-case passwords attempting to log in were rejected, however, because the system had stored their passwords as all lower case. A subsequent modification allows the system to accept a user's mixed-case password and changes the stored password to the user's mixed-case specification. The issue also can present problems for applications, such as logging programs, that employ a user's credentials to access a LoTW account.

Users who encounter trouble logging in to LoTW are being asked to enter their passwords in all lower case. If that doesn't work, contact the LoTW Help Desk or explore other methods

available for LoTW.

Any LoTW users who logged in before this modification was made — at around 2300 UTC on September 19 — had their passwords stored in lower case, no matter which case they used in entering them. These passwords now must be entered as lower case. Users who changed to a password that includes mixed-case letters must continue to enter that password in mixed-case letters.

ARRL apologizes for underestimating the extent to which the lack of password case sensitivity in the previous LoTW authentication mechanism was going to cause problems for so many users. --ARRL

MORE THAN 200 US STATIONS SIGNED UP FOR SCOUTING'S JAMBOREE ON THE AIR

So far, 219 US stations have registered to take part in Scouting's 2016 Jamboree on the Air (JOTA), which will take place October 14-16. Registration remains open for the 59th annual event. Last year, 400 US stations registered. JOTA officials are asking JOTA 2016 participants not only to register for this year's event, but to follow up with a post-JOTA report.

"We expect to have several thousand stations around the world signed up by JOTA weekend," JOTA Coordinator Jim Wilson, K5ND, said in a JOTA-JOTI (Jamboree on the Internet) update. "Make sure you register your station." Designated Scouting frequencies are on the "Guidelines for Amateur Radio Operators" page. "Twenty meters is probably the go-to band during the daytime. Try moving off the calling frequency and spreading out while making those QSOs." Wilson said that in addition to the DX spotting websites, there's a Scout station spotting cluster.

He also suggested taking advantage of other communication modes, including the dedicated D-Star Scouting reflector 033A, as well as DMR, IRLP with topic channel 9091, and Echolink, with conference node JOTA-365. Doug Crompton, WA3DSP, and Elliott Liggett, W7QED, have set up Allstar node 41760 for JOTA/Scouting conversations, Wilson added. In addition to social media, ScoutLink is an excellent way to connect to Scouts around the world with only an Internet connection, he said.

"Dave Edwards, KD2E, and Andy O'Brien, K3UK, have developed a Scout scheduling page," Wilson said. "You can use this to post your frequency and to pick up on other stations as well."

More than 1 million Scouts in 150+ countries — at nearly 18,000 stations — are expected to take part in JOTA 2016, engaging with other Scouts to talk about Amateur Radio and their Scouting experiences. "JOTA is about conversations across town and around the world, rather than about contacts," Wilson said. --ARRL

RULES RELEASED FOR NEW ARRL 222 MHZ AND UP DISTANCE CONTEST

The official rules for the new ARRL 222 MHz and Up Contest have been released. The contest will debut in August 2017. Participants will attempt to work as many stations as possible on the 222 MHz through 241 GHz bands, "using any allowable mode." Competing stations will exchange six-character grid locators ("sub-grid"). Rovers report their grid locator at the time of each contact.

Contact point values will be computed on the basis of both the center-to-center distance in kilometers between the sub-grid square of each station and an arbitrary "band factor," a multiplier ranging from 1 to 20. For example, contacts made on 222 MHz will have a band factor of 2, contacts on 432 MHz will have a band factor of 1, and QSOs made on 24 GHz and higher will have a band factor of 20.

To encourage participation, the new contest encourages the formation of operator teams. These may be made up of Single-Operator, Fixed; Multi-Operator, Fixed and / or Rover category participants operating within a single Contest Region as defined in the contest rules.

Participants may only be on one team, and the scores of all team members are combined. This is similar to the approach used for years in the *NCJ*-sponsored North American QSO Party (NAQP) events. Teams must register in advance of the contest with the ARRL Contest Branch Manager.

The contribution of a Rover to a team score is limited to that portion of the Rover's score achieved from within the team's region. Team members' score also count toward a club total in the Club Competition.

The ARRL 222 MHz and Up Contest will kick off on the August 5-6, 2017, weekend. --ARRL

ARRL OUTGOING QSL SERVICE TO RAISE RATES

Although ARRL believes it's important to maintain the long-standing tradition of the ARRL Outgoing QSL Service as a membership benefit, increased administration costs will require an increase in rates, in order to keep the Service available and viable.

"The Service has been a member benefit for decades," an ARRL statement said. "Since its official formation in November 1976, tens of millions of QSL cards have been shipped from ARRL Headquarters to Amateur Radio QSL bureaus of other national societies worldwide. At one time, this benefit offered a safe, reliable, and inexpensive way to exchange QSL cards for a fraction of the cost of the postal service. What Amateurs saved in financial cost, however, was made up for in time; it could take months, or even years, to send and receive a QSL through the bureau."

Effective November 1, the rate for 1 ounce of outgoing QSLs via the Service will increase to match the 1 ounce USPS international postage rate. As of September 2016, this rate is $1.15 per ounce — about 10 cards. An additional service fee of $7 will be charged per individual transaction, to cover administrative costs.

ARRL said QSLing is very different now, and, while postal services are generally more reliable than in years past, international shipping costs have risen significantly. "With the advent of the Internet and online QSL confirmation services such as ARRL's Logbook of The World, fewer and fewer paper cards are being exchanged," the ARRL statement observed.

Calling the Outgoing QSL Service "a significant tradition in the world of Amateur Radio," the League said it's committed to keeping that tradition and service alive for members who enjoy using it. "We are committed to ensuring our members will be able to send their QSL cards through the Service for decades to come," the ARRL statement concluded. --ARRL

"RF SEISMOGRAPH" IMPROVED TO BETTER REFLECT BAND ACTIVITY

The Scanning RF Seismograph, a real-time HF propagation-monitoring tool developed by the MDSR Team and Alex Schwarz, VE7DXW, now can show both combined band noise and activity and just band activity. The RF Seismograph, which covers 80, 40, 30, 20, 15, and 10 meters, is a project of the North Shore Amateur Radio Club (NSARC).

"We were able to extract signals from the noise and display the results in gray scale vertical lines — white is best propagation," Schwarz said. "This separate display does not indicate changes in noise level."

The site is in Lynn Valley (CN89li), North Vancouver, British Columbia, at 500 feet ASL. A transceiver connected to an omnidirectional multiband antenna monitors JT-65 frequencies on six HF bands (for 8 seconds each, repeating the scan every 52 seconds). Recorders monitor signals and background noise on a given band and display the results in six color-differentiated (one color per band), long-duration graphs covering 6 hours of scans. Vertical movement of the primary graph traces is caused by changes in noise level and by the reflection of noise off the D Layer off the ionosphere, Schwarz explained.

When signals are present on a band, white vertical bars, color-coded by band below the main graph, indicate propagation based on the degree of activity. The web link is updated every 10 minutes.

Schwarz said the RF Seismograph also now can create a log file of events by matching propagation (white lines) with the recorded band and signal.

The MDSR Team is hoping to develop a notification system that sends an e-mail when a band appears to be open. "The idea is that, once you have set up the software, you could have maybe up to 100 e-mail addresses that will receive notification," he said. Schwarz believes this would get more people on the air, "because they are aware of the band conditions."

Schwarz said the RF Seismograph software confirms that solar flux is not the only indicator of HF propagation. "Even during times when the sun's flux flatlines, decent propagation is possible," he said. "Another finding is that propagation is very local, and it has to be measured at the amateur station's location best results."

For more information, contact Alex Schwarz, VE7DXW. --ARRL

TECHNICAL

Techies.... The following article discusses the possibility of a lunar orbiting Amateur Radio satellite. The earth station for this mission is the so-called "five and dime," 5 Ghz uplink, 10 Ghz downlink. This is the same system currently under development for the Phase 4 AMSAT geosynchronous satellite.

The RF portion of the ground station may be much simpler that you might expect given the stuff you can buy on Ebay these days. The ground station team is looking for volunteers for a variety of tasks. Certainly there are RCA ARC club members who could contribute to this effort. As additional background infomation, here is a link to an article in the latest AMSAT Journal:

https://github.com/phase4ground/documents/blob/master/Papers_Articles_Presentations/Articles_and_Announcements/AMSAT Journal Mar_Apr 2016 pp18-20.pdf –AF9A

LUNAR-ORBITING HAM RADIO SATELLITE COULD RESULT FROM NASA CUBE QUEST CHALLENGE – A NASA Cube Quest Challenge (CQC) team partnered with AMSAT-NA is among the five CQC teams to receive $20,000 each from the space agency as part of a competition that could lead to a lunar-orbiting Amateur Radio satellite. The Ragnarok Industries Nano-Satellite Company team, comprised of former NASA Goddard Space Flight Center PhD engineering interns, is designing the 6-unit (6U) *Heimdallr* CubeSat to test advanced propulsion and communication technologies for lunar and deep-space missions.

AMSAT would develop the 5 GHz uplink/10 GHz downlink -- the so-called "five and dime" paradigm -- Phase 5 Amateur Radio transponder for the spacecraft, and AMSAT's Ground Terminal initiative is supporting the effort. The *Heimdallr* team was among five teams to score highest in the first of four "ground tournaments" (GT-1) making up the initial phase of the $5 million CQC, although it missed out on another $30,000, because it was not among the top scorers in the second ground tournament. The three teams with the highest total cumulative scores will be offered rides as secondary payloads on the first Space Launch System mission/Exploration Mission 1 (EM-1) in 2018.

"Cube Quest is an opportunity for non-government CubeSat developers and builders to compete in lunar orbit and deep space for accomplishments in communications, navigation, and longevity," said CQC Competition Manager Jim Cockrell of NASA's Ames Research Center. Cockrell likened a ground tournament to a "mission concept review," where teams present initial spacecraft designs, and no hardware is involved.

AMSAT P5 Project Manager Howie DeFelice, AB2S, said that at the end of the SLS mission, AMSAT would take control of the satellite and operate it in lunar orbit.

"This will be AMSAT's first P5 satellite," DeFelice said. "It will also be the most advanced satellite since AO-40, even though it will be smaller than AO-10 and AO-13. At 6U it will be about the size of two reams of paper stacked together." DeFelice said Ragnarok is in the running for a launch, "but it is very competitive, and we are underdogs."

The ultimate goal of the competition is to send CubeSats into lunar orbit or deep space. NASA

is offering a total of $3 million in prizes in the "Lunar Derby" portion of the competition -- both for being able to enter lunar orbit and to meet communication and longevity goals.\

The *Heimdallr* satellite -- named for a Norse deity -- plans to test advanced propulsion and communication technology. According to information filed for International Amateur Radio Union (IARU) Satellite Frequency Coordination, *Heimdallr* would be a 3-axis stabilized 6U CubeSat weighing approximately 8 kg. It would have a cold-gas thruster and a star tracker for navigation. Deployable, gimbaled solar panels would produce up to 100 W of dc power. Electric propulsion will be used to achieve lunar orbit. The onboard communication gear would use a combination of omnidirectional and directional patch antennas on one side of the spacecraft.

The first part of the *Heimdallr* mission is to provide telemetry, tracking, and command to obtain lunar orbit, the second is the data downlink experiment, and the final component is to provide a two-way regenerative repeater and analog repeater in lunar orbit for the lifetime of the satellite. The omnidirectional, directional, and analog transponders would downlink in the 10 GHz band, while the uplinks would be in the vicinity of 5.6 GHz.

"*Heimdallr* will feature non-volatile and non-energetic electric propulsion to reach lunar orbit," Ragnarok Industries explains on its website. "By not having a pressurized vessel nor carrying dangerous chemicals, *Heimdallr* will be one of the safest 6U CubeSats" aboard NASA's EM-1 Mission in 2018. --ARRL Letter

SHORTS

Limor Fried, AC2SN, Named Among Most Influential Women in Internet of Things Industry – The Internet of Things (IoT) Institute has named ARRL member Limor Fried, AC2SN, of New York City as one of the 25 most influential women in the IoT industry. IoT embraces the concept of connecting devices from cell phones to appliances and machine components to the Internet and/or to each other. Individuals were named on the basis of attainment of leadership roles related to IoT, hands-on experience developing IoT technology, outstanding research related to IoT, and social reach, among other factors.

Fried founded the open-source hardware firm Adafruit from her MIT dorm room in 2005. The Manhattan-based company, which now employs more than 50 people, offers tools, equipment, and electronic components targeted at the "maker" audience, including IoT technology. She was the first female engineer to appear on the cover of *WIRED* and was *Entrepreneur* magazine's Entrepreneur of the Year for 2012.

In June, Fried was designated as a White House Champion of Change. As Adafruit's sole owner, Fried has become known for creating resources for and supporting the learning of electronics for makers of all ages and skill levels. --ARRL Letter

Bouvet Island DXpedition Team Secures Landing Permit – The Bouvet Island DXpedition team has announced that its permit to land on Bouvet Island for a DXpedition has been updated, revised, and approved by the Norsk Polar Institute. The 3Y0Z call sign will hit the airwaves in early 2018. Bouvet is the second most-wanted DXCC entity.

An international team of pilots has been selected to serve as an interface between the DXpedition team and the worldwide DX community.

The seasoned 20-member Bouvet Island 2018 DXpedition team will cover one-half of the venture's cost out of their own pockets and is encouraging support from the DX community for the rest.

A dependency of Norway, Bouvet is a subantarctic island in the South Atlantic. The last Bouvet activation was 3Y0E, during a scientific expedition over the winter of 2007-2008. --ARRL

ARRL to Host CHIRP Radio Programming Webinar – ARRL will host a [CHIRP](#) Radio Programming [webinar](#) on Wednesday, October 19, at 8 PM ET (0000 UTC on Thursday, October 20, in US time zones). This presentation will offer a brief overview of the free, open-source *CHIRP* software, which can be used to program most radios.

Attendees will learn: What *CHIRP* is, which radios are supported, how to get *CHIRP*, and how to troubleshoot *CHIRP*. Presenter James Lee, N1DDK, became active in *CHIRP* development for the initial TYT9800 driver. He is a hardware development engineer for Qualcomm.

[Register](#) now! After registering, you will receive a confirmation e-mail containing information about joining the webinar. --ARRL

ARRL November Sweepstakes Operating Period is 30 Hours: The 2016 [ARRL November Sweepstakes](#) announcement that appears on page 94 of the October 2016 issue of *QST* incorrectly indicates the period of the event. The ARRL November Sweepstakes runs for 30 hours, and participants may operate for 24 out of the 30 hours. The CW event is November 5-7; the phone event is November 19-21. --ARRL Letter

Scott, N3FJP, has been working with Dave, W1HKJ, author of Fldigi, and Jeff, N7YG, author of PSK Express and Digital Engine, to provide greater integration between those programs and Scott's software. Scott made some changes to his API, and has re-released versions of his Amateur Contact Log and CQWW DX RTTY programs.

THANKS FOR READING!