Legacy Amateur Radio Club

RCA AMATEUR RADIO CLUB

AFFILIATED CLUB

INDIANAPOLIS, INDIANA

JULY 2019 MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, JULY 9th 6:30 PM AT
KNIGHTS OF COLUMBUS, 2100 EAST 71st STREET, INDIANAPOLIS,IN

RCA ARC NEWS

JULY MEETING: This month we'll be meeting again at the north side **Knights of Columbus, 2100 East 71st St.** This is just west of Keystone Ave. on the north side of 71st. Meetings for the upcoming months are scheduled for the Game Room. That is, all EXCEPT for the August meeting when there are **no rooms** available. Suggestions for a location?

Check at the bar, near the front door, when you come in for the location of the game room. Also you can order your food at the bar and it will be delivered to the meeting room.

SUMMARY OF THE JUNE MEETING – Thanks to those who attended the June meeting. Problems with the '88 repeater were discussed. Again just a matter of getting out there and working on things. This should happen soon! The Field Day plans were discussed again. Everything is coming together for the new Field Day club, Indy United ARC. The club is made up of hams from around Indiana, the RCA ARC and HDXCC. Brian Smith has organized the effort with the goal of winning the 3A class. We will operate from the Victor Conservation Club. Operation will be 3A (two CW one SSB station). Plus VHF, GOTA, and satellite. K9RU and W9ZB related their experiences in the recent VHF contest. At the Indy Hamfest, the Club will rent seven tables; three for the club plus four others for members. The meeting concluded with a discussion of the local ARES operations.

AMATEUR RADIO LICENSE TEST SESSION

There will be no test session In July
Time: **Saturday, August 10, 2019, 12:00 pm** (Walk-ins allowed)
Location: Salvation Army EDS Training Facility, 4020 Georgetown Rd
Indianapolis, IN 46254
Contact: **Jim Rinehart, k9ru@arrl.net, 317 721-1458**

New General Class Element 3 Exams took effect Monday July 1, 2019 for all exam sessions. The newly revised pool, released by the Question Pool Committee (QPC) of

the National Conference of Volunteer Examiner Coordinators (NCVEC), must be in use starting July 1.

RCA ARC tables at the INDY Hamfest... Help Needed – The RCA ARC will have tables in the commercial building again this year. We will need help manning the tables, if you can help for an hour or more that would be great.

Also we will be loading and moving stuff from K9RU's house Friday morning and move it to the Marion County Fairgrounds. We do need some trucks or SUV to help move the stuff and help loading and unloading the stuff.

The plan is to meet at K9RU home at 11 AM to start loading. You can contact K9RU at k9ru@arrl.net for more information.

FIELD DAY WAS A SUCCESS – This year we teamed up with the newly formed Indy United ARC made up of hams from around the state, the RCA ARC and HDXCC and operated from the Victor Conservation Club.

Brian Smith, W9IND, was responsible for organizing United ARC FD operation had done the coordinating of the Indianapolis Radio Club FD effort last year.

The Victor Conservation Club proved to be an ideal location and we realized we came close to the 3A class record last year and we wanted to try for it this year.

The Indianapolis Radio Club wanted to operate from Marion County and was not interested in a contest effort, so Brian formed a new club for the Field Day contest. The IRC operated with the Salvation Army and American Legion ARC at the Speedway coke lot.

Brian came through again, with a great job of organizing and logistics. The focus was on CW with 2 station on CW and one on phone. Also a lot of attention was paid to the GOTA .

All this paid off with about 2800 contacts. We did have the normal computer and RF glitches, but worked through them.

We had several former RCA employees that stop by and operated. One was up here on vacation from Florida and happened to be camping near the FD site.

We did Field Day coverage from the Martinsville Times-Reporter. Mike Wetzel, W9RE operating CW is on the front page, Dan and Cyndy Meier operating SSB appear together on the back, and a third photo shows Jim Rinehart , K9RU and others gathered around the 6-meter station.

We've received excellent coverage from the hometown newspaper and radio station (they did an announcement inviting the public to join us) since we began holding Field Day in Morgan County last year. Ironic that when we were in Marion County, the media capital of the state, we got no coverage in recent years. Guess it's better when we're the breaking news! --Jim K9RU

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

July 12-13	Indianapolis Hamfest, Marion County Fairgrounds,	http://Indyhamfest.com/
July 13-14	IRAU HF Championships	http://www.arrl.org/iaru-hf-championship

July 20-21	CQ VHF Contest, 1800 – 2100 UTC https://www.cqww-vhf.com/
Aug 17	Multiple Sclerosis Bike Ride: BikeMS Indiana
Oct 05	Indianapolis Half Marathon in Lawrence
Nov 09	Indianapolis Monumental Marathon
Nov 16 -17	Fort Wayne Hamfest, http://acarts.com/hfmain.htm

PETITION FOR RULEMAKING ASKS FCC TO CREATE A NEW 8-METER AMATEUR BAND

The FCC has put on public notice for comment a *Petition for Rulemaking* (RM-11843) that seeks the creation of a new 8-meter Amateur Radio allocation on a secondary basis. The *Petition* suggests the new band could be centered on an industrial-scientific-medical (ISM) segment somewhere between 40.51 and 40.70 MHz. The spectrum between 40 and 41 MHz is currently allocated to the Federal Government and, as such, within the purview of the National Telecommunications and Information Administration (NTIA). ARRL member Michelle Bradley, KU3N, of Maryland, filed the *Petition* in May on behalf of REC Networks, which she founded and described in the *Petition* as "a leading advocate for a citizen's access to spectrum," including Amateur Radio spectrum.

"REC feels that the time is right for the Commission to open a *Notice of Inquiry* and eventually a *Notice of Proposed Rulemaking*, and in cooperation with the NTIA, this new band opportunity can be realized to spark the next generation of 'makers' in the fields of science, technology, education, and math (STEM), especially women and girls," Bradley told the FCC in the *Petition*. "The more opportunities we give to make things, the more opportunities we have to build a pool of experts in STEM, right here at home."

The *Petition* said the objective of a new band would be "an effort to foster experimentation into the propagation characteristics of this band midway between the 10- and 6-meter bands." An allocation in the 8-meter band is available to radio amateurs in Ireland, where the Irish Radio Transmitters Society has developed a band plan for 40 - 41 MHz.

"REC perceives this spectrum can be used for weak signal experimentation and eventually general amateur use, especially along transatlantic paths using CW, SSB, digital modes such as FT8 and digital voice," the *Petition* said. "As no radios are mass-produced for this band at this time, this opens up new opportunities for 'makers' to construct transmitters, receivers, and antenna systems that can be used in this spectrum."

REC anticipates "very low" usage of the new band, "with peak usage around sporadic-E episodes, operating events such as ARRL Field Day, and VHF contests, as well as during the peak of sunspot cycles," Bradley told the Commission. "[W]e feel that the sharing of 40 MHz can be accomplished in a manner that serves the needs of the Amateur Radio Service while meeting the organizational missions of Federal Government agencies that utilize this spectrum."

Interested parties may file short comments on RM-11843 via the FCC's Electronic Comment Filing Service (Express).

PROPOSED WRC-23 AGENDA ITEMS CAUSING CONCERN

Two proposals under discussion in Europe as possible World Radiocommunication Conference 2023 (WRC-23) agenda items "could impact important Amateur Radio

frequencies," IARU reported this week. Included is a proposal from France to consider the 144 - 146 MHz band as a primary allocation to the Aeronautical Mobile service, as part of a broader consideration of spectrum allocated to that service. IARU also cautioned the amateur community against overreacting to the news.

France will submit a paper containing a proposal for an agenda item for "new non-safety Aeronautical Mobile applications" at the June 17 - 21 Conference Preparatory Group meeting of the European Conference of Postal and Telecommunications Administrations (CEPT) in Prague. The 144 - 146 MHz segment is a primary global Amateur and Amateur Satellite allocation. IARU said it "views with grave concern any proposal to include this band in the proposed study" and pledged to "energetically" promote this viewpoint in the appropriate forums "to seek to obtain assurances that the spectrum will remain a primary allocation for the amateur services."

Another proposal has been raised to study the 23-centimeter amateur allocation, 1240 - 1300 MHz, following reports of interference to the Galileo navigation system -- Europe's GPS system. IARU said it's aware of "a handful of cases" of reported interference to the Galileo E6 signal on 1278.750 MHz. According to IARU, joint studies have been carried out to assess the vulnerability of the system and, based on these, it considers the proposal to initiate an Agenda item for WRC-23 premature.

IARU asked its member-societies to "refrain at this time from making speculative public comments about the situation until further progress has been made in regulatory discussions," and said it's ready to discuss the issue with other non-IARU societies.

One European Amateur Radio organization already has called for radio amateurs to "occupy" 2 meters on June 15 for 1 hour in protest of the French proposal.

RESTRAINT URGED IN RESPONSE TO 2-METER REALLOCATION PROPOSAL

Representatives of International Amateur Radio Union (IARU) member-societies in Europe are advising restraint in the wake of a proposal to consider the allocation of 146 – 148 MHz to the Aeronautical Mobile Service (AMS) at World Radiocommunication Conference 2023 (WRC-23). France recently raised the prospect during a European Conference of Postal and Telecommunications Administrations (CEPT) meeting in Prague, held in advance of WRC-19. A WRC-19 agenda item would call for studying a range of frequencies for AMS applications, including 144 – 146 MHz, and a decision could be made at WRC-23.

The French draft resolution seeks studies of possible new AMS primary allocations in several bands in the range from 144 MHz to 22.2 GHz on a primary basis, “while ensuring the protection of existing services in those bands and, as appropriate, adjacent bands, and not constraining future development of these services.”

The Radio Society of Great Britain (RSGB) released a **statement** this week, in part pointing that as proposed, the French resolution “is not an eviction or re-allocation of amateurs, but nonetheless is unwelcome and presents significant challenges. Unlike some other bands where amateurs do share, aeronautical applications are amongst the most difficult due to the altitudes and long free-space distances involved.”

Any consideration to allocate additional services in a band that’s already allocated on a primary basis to an incumbent service — Amateur Radio, in this case — must begin with a sharing/compatibility study. The IARU has expressed “grave concern” to any proposal

that would include 144 – 146 MHz in a WRC agenda item and has pledged to make every effort to fully protect Amateur Radio interests and seek the support of regulators.

At the Prague meeting, only Germany opposed the proposal, which has been carried forward to the higher-level CEPT Conference Preparatory Group (CPG) meeting in August. Support from at least 10 CEPT administrations and fewer than six in opposition would move the issue forward as a CEPT resolution, making it highly likely that it would appear on the agendas of WRC-19 and WRC-23.

In a post to the Moon-Net news group, Deutscher (German) Amateur Radio Club (DARC) Frequency Manager Bernd Mischlewski, DF2ZC, stressed the importance that Amateur Radio speak with a single voice and asked the Amateur Radio community to refrain from contacting individual administrations or the EU.

“This would weaken our position and take away power and vigor from the systematic approach by IARU and country Amateur Radio societies,” Mischlewski said. “This particularly applies [to] online petitions.” One frantic petition that’s collecting both signatures and donations calls on hams to “Stop the 2 Meter Band (144 – 146 MHz) being taken away from Radio Amateurs,” which is not what the draft French resolution would do. Mischlewski speculated that the primary reason for the scant opposition at Prague was the revised French proposal’s last-minute arrival. “Consequently, most other European countries had no time for internal discussions, let alone formulating their position,” Mischlewski said.

With the support of regulatory experts among its member-societies, IARU “is intensively working on executing their influence within the current process and trying to keep the 2-meter band as it is now,” Mischlewski said. He pointed out that funding for these activities comes from IARU member-societies. “So, those who left their country’s Amateur Radio society should perhaps reconsider their decision,” he added. “Without the commitment and the funds, the Amateur Radio community would have little influence in that process, let alone could be present at the relevant meetings.”

RSGB VHF Manager John Regnault, G4SWX, in a related Moon-Net post, said the flood of “fake news” on the issue propagated via social media and online petitions does not help Amateur Radio’s position.

“All IARU member societies have been briefed on a common position and messages for Amateur Radio,” Regnault said. “This message is not helped by the many wrong messages abounding on social media. IARU represents Amateur Radio in the various CEPT forums and ITU, and [it] will fight to maintain the best position it can for Amateur Radio. Progress will be slow, but I am hopeful that, in the end we will get a good result.”

LIGHTSAIL 2 LAUNCHES, WILL TRANSMIT CW BEACON

The Planetary Society's LightSail 2 CubeSat, launched on June 25, will transmit Morse code from space on 437.025 MHz, within the Amateur Radio 70-centimeter band. LightSail is a citizen-funded project to send a small spacecraft, propelled solely by sunlight, into Earth's orbit. The innovative satellite is due to be deployed on July 2 from Prox-1, a Georgia Tech student-built spacecraft. Once deployed, LightSail 2 will automatically transmit a beacon packet every few seconds, which can be decoded into 238 lines of text telemetry describing the spacecraft's health and status, including everything from battery status to solar sail deployment motor state.

LightSail 2 lifted off from Kennedy Space Center, Florida, carried by the SpaceX triple-booster Falcon Heavy rocket. The launcher also carried aloft two dozen US Air Force spacecraft.

"During its ride to orbit, LightSail 2 was tucked safely inside its Prox-1 carrier spacecraft," The Planetary Society said post-launch. "The Falcon Heavy upper stage's payload stack released Prox-1 about an hour and 20 minutes after liftoff, at an altitude of roughly 720 kilometers (446 miles). Prox-1 will house LightSail 2 for one week, allowing time for other vehicles released into the same orbit to drift apart so each can be identified individually."

LightSail 2 team members will soon converge at Cal Poly San Luis Obispo in California, where the spacecraft's mission control is located. Once LightSail 2 is released from Prox-1, the team will spend several days checking out its systems before commanding its dual-sided solar panels to deploy. Following that, the spacecraft's solar sails will be deployed in approximately 2 weeks.

Two US Naval Academy student-built satellites carrying Amateur Radio payloads were on the launch. BRICSat-2 (call sign USNAP1) will function as a 1.2/9.6 kB APRS digipeater on 145.825 MHz. Telemetry will be transmitted on 437.975 MHz. PSAT-2 also will operate on 145.825 MHz with APRS to voice and DTMF to voice/APRS, and it will carry a 28.120 MHz up/435.350 MHz down PSK31 transponder. An SSTV camera will transmit on the same downlink. -- *Thanks to The Planetary Society, Bob Bruninga, WB4APR, and* AMSAT News Service

OVER-THE-HORIZON RADARS CONTINUE TO PLAGUE AMATEUR BANDS

The International Amateur Radio Union Region 1 Monitoring System (IARUMS) reports a "new kind" of over-the-horizon (OTH) radar on 20 meters. The intruding signal, appearing to emanate from the Far East, was monitored during May on 14.140 - 14.150 MHz. Another Chinese wideband OTH radar has been showing up on 15 meters, with a signal 160 kHz wide. An Iranian radar has appeared on 10 meters, centered on 28.860 MHz, and is audible in Europe during sporadic-E

conditions. The signal is about 46 kHz wide. The Russian OTH radar "Konteyner," centered on 14.127 MHz, continues to be observed, with a 12 kHz wide signal.

The so-called "Foghorn" OTH radar from China, first heard in 2017, and other OTH radars were spotted on several 20-meter frequencies. The Foghorn is a burst radar that has been heard on other bands, with the signal often jumping. The signal is frequency modulation on pulse (FMOP) with 66.66 sweeps-per-second bursts.

From the Commonwealth of Independent States (CIS) that emerged following the breakup of the Soviet Union, taxi traffic continues to appear on 10 meters, using FM. IARUMS said pirates in the Far East have been "abusing" 20 meters, transmitting on 14.000 MHz, using USB. IARUMS monitors also logged several fish net (driftnet) buoys between 28.000 and 28.500 MHz, transmitting a carrier followed by a CW identification. Codan selective callings (selcalls) believed to be in Oceania have been heard between 7.108 and 7.150 MHz.

13 COLONIES SPECIAL EVENT TO MARK 11TH ANNIVERSARY THIS YEAR

The annual Original 13 Colonies Special Event will mark its 11th anniversary this year. The event gets under way on July 1 at 1300 UTC and runs through July 7 at 0400 UTC.

Special event stations with 1 × 1 call signs will represent the original 13 US colonies, plus bonus stations K2Z, WM3PEN in Philadelphia and GB13COL in Durham, England.

Each special event station will have its own QRZ.com profile page. Participating stations try to contact all 13 Colony Stations plus the two bonus stations. Call signs and their respective states are K2A, New York; K2B, Virginia; K2C, Rhode Island; K2D, Connecticut; K2E, Delaware; K2F, Maryland; K2G, Georgia; K2H, Massachusetts; K2I, New Jersey; K2J, North Carolina; K2K, New Hampshire; K2L, South Carolina, and K2M, Pennsylvania.

Additional information is on the 13 Colonies website.

HAM RADIO 2019 REPORTS 14,300 ATTENDED FROM 50 COUNTRIES

14,300 visitors from more than 50 countries arrived on the shores of Lake Constance in Friedrichshafen, Germany, for HAM RADIO 2019. Show officials said this 44th event attracted about 400 more visitors this year. The previously reported 2018 attendance of 15,460 included radio amateurs, invited Scouts, and attendees at the concurrent and co-located Maker Faire, which did not take place at this year's show. This year's show boasted 184 exhibitors and associations from 32 countries.

ARRL fielded a contingent of representatives to HAM RADIO 2019, headed by President Rick Roderick, K5UR "The ARRL booth was busy," reported ARRL Product Development Manager Bob Inderbitzen, NQ1R. "Many international attendees joined ARRL or renewed their memberships. It was nice to meet so many radio amateurs from around the globe." Inderbitzen said he was struck by the large number of younger attendees.

"Many of these young radio amateurs and prospective hams attended Ham Camp," Inderbitzen said. "A large contingent representing Youngsters on the Air (YOTA), an initiative of IARU Region 1, helped promote the 2019 YOTA summer camp, August 11 - 17 in Bulgaria. During HAM RADIO, young hams carried the YOTA flag to each of the stands organized by International Amateur Radio Union (IARU) member-societies, gathering crowds to cheer on the young hams."

RSGB President **Dave Wilson M0OBW** demonstrated the UK's new online exam system at **Ham Radio 2019**

A report published by Sweden's national society the SSA says: In the UK, test arrangements are now being applied according to online exam systems. The experience is very good, as it provides several benefits for everyone involved in the process. No papers needed for questions and answers. This also eliminates the risk of typing errors and gives more time to concentration on the data. Questions can even be set in graphical form for handling the right answer. The correction is done automatically and the test result is reported directly with a message for each question.

PAUL BOURQUE, N1SFE, JOINS ARRL HEADQUARTERS STAFF AS CONTEST PROGRAM MANAGER

Paul Bourque, N1SFE, of Middletown, Connecticut, has joined the ARRL Headquarters staff as Contest Program Manager. He succeeds Bart Jahnke, W9JJ, who recently was promoted to the post of ARRL Radiosport and Field Services Manager. Licensed since

1994, Bourque's interest in radio began when, as a youngster, he listened for distant AM stations, and he later developed a career involving various aspects of broadcasting.

"Originally, I wanted to be a DJ, but I ended up being drawn to the technical/engineering side of the radio business," Bourque said. His journey into Amateur Radio started during his time as the host of an overnight free-form rock music show at WWUH Radio at the University of Hartford, and the station's general manager, John Ramsey, W1JNR, pushed him to get his license.

Because being an Amateur Radio operator had opened several professional doors for him, Bourque said, "The opportunity to give back to this hobby as Contest Program Manager really appealed to me."

Bourque, who grew up in Newington, remarked that working at ARRL Headquarters "is like coming home." In his early years as a radio amateur, he was more of a casual contester, and it "was about making contacts," he conceded. Today, though, he has become passionate about getting people active and on the air. As Contest Program Manager, Bourque wants to find ways to get newer hams into contesting, and to dispel the idea that you need tons of equipment to participate.

Bourque's other interests include cooking, astronomy, photography, and meteorology.

RICK MURPHY, K1MU, TO RECEIVE ARRL PRESIDENT'S AWARD

At its May 20 meeting in Dayton, Ohio, the ARRL Executive Committee, acting on behalf of the Board of Directors, conferred the prestigious ARRL President's Award on Rick Murphy, K1MU, one of the unsung heroes of Logbook of The World (LoTW). The President's Award recognizes individuals showing long-term dedication in support of ARRL programs. Murphy was credited for his work to upgrade and improve the LoTW *TQSL* software to help users more easily and successfully use LoTW. Murphy was cited for single-handedly rewriting *TQSL* to make it accessible to those with limited vision, to display information in languages other than English (more than 10 so far), and for providing consistent online support to users.

"Rick is richly deserving of this honor for his efforts to make the *TQSL* application and Logbook of The World more accessible to all users," said ARRL President Rick Roderick, K5UR. "Rick Murphy embodies the spirit of unselfish volunteerism that represents the best of Amateur Radio."

An information security professional, Murphy, who lives in Annandale, Virginia, is coauthor (with Rickland D. Hollar) of the book *Enterprise Web Services Security*. He's a volunteer Incoming QSL Bureau card sorter for the 3rd call district and a past president of the National Capital DX Association.

The President's Award plaque bears the likeness of ARRL's cofounder and first president Hiram Percy Maxim, W1AW

QRZ INSTITUTES PASSWORD SECURITY, SELLER VERIFICATION PROGRAMS

In an effort to combat fraudsters and password phishers, the popular QRZ Amateur Radio website is offering the option of establishing two-factor authentication (2FA) for its registered users. The site's founder and president, Fred Lloyd, AA7BQ, explains that 2FA secures a user's password on the site.

"With 2FA, your actual password becomes nearly moot, and revealing it to a crook has no detrimental effect," Lloyd told ARRL. "With 2FA, you need the one-time code, and that's the only thing that will work. It's a solid technology that is rapidly gaining in popularity."

Lloyd said that when a user logs into the site with 2FA, the validation for the session is stored in the user's browser as an encrypted cookie that can live for up to 30 days. He said QRZ.com staffers have been using 2FA successfully for a couple of years now. A video has been posted that demonstrates how to get started with 2FA without using a cell phone to receive codes.

Although 2FA will not become a requirement in order to log onto QRZ.com, a separate seller verification system has been instituted for anyone marketing ham gear via the Swapmeet forum. As of July 1, only those enrolled in the Verified User program will be able to list in that forum. Users may opt out of the Verified User program for the rest of the site.

"While verification is available to anyone on QRZ, it is required only in the Swapmeet section," Lloyd told ARRL. "Lately, there has been as many as a scam per day in the Swapmeet, and sometimes a popular radio model will be sold several times before it comes to our attention. One false listing can net any number of victims before it's discovered."

Lloyd explained that these fake listings are being placed using the accounts of users who have been tricked into giving out their log-in passwords though elaborate phishing schemes. "There is virtually nothing that QRZ can do to prevent phishing attacks, as a great many users never even know that they've been hacked," Lloyd allowed. "Scammers find it relatively easy to trick the users into supplying their actual passwords."

Setting up two-factor authentication is the first step to becoming a QRZ.com Verified User. Information on becoming a Verified User is available to those registered on the site via their Account page, accessible from the QRZ main page. Once they've secured their accounts with 2FA, members will have to submit photographic identification to QRZ in order to complete the Verified User process. Read more.

WIRELESS POWER TRANSMISSION PROMPTS DISCUSSION IN ITU-R STUDY GROUP

The emerging wireless power transmission (WPT) technology and associated applications came under closer scrutiny during the May/June meeting of International Telecommunication Union Radiocommunication Sector (ITU-R) Study Group 1 and its Working Parties. Participants wrapped up 7 days of sessions in Geneva on June 7, with International Amateur Radio Union Region 1 (IARU-R1) President Don Beattie, G3BJ, representing the IARU. The primary concern over WPT centers on its interference potential.

"Work was advanced on reports on WPT at 100 - 148.5 kHz for low-power charging of portable devices, for WPT for electric vehicles (WPT-EV) at around 20, 60, and 85 kHz, and for 'beam' WPT for remote charging," IARU Region 1 reported. "All of these technologies have the potential for harmful interference to radiocommunication services if not carefully managed, particularly the harmonics of the WPT systems."

The IARU has submitted formal studies on the impact of WPT on the Amateur Service, and these have been incorporated into a single completed report and will inform a new recommendation being developed on WPT emissions.

IARU says it's advocating "proper emission limits" to protect radio services and is working with other spectrum users and administrations that share its concerns.

The ITU meetings discussed emerging proposals for WPT-EV emission limits from the International Special Committee on Radio Interference (CISPR), where there is a level of concern that these limits fall short of providing the necessary protection to radiocommunication services. Founded in 1934, CISPR sets standards for controlling electromagnetic interference in electrical and electronic devices and equipment.

The issue of WPT-EV is World Radiocommunication Conference 2019 (WRC-19) Agenda Item 9.1.6. In a WPT status report at the IARU Region 1 Interim Meeting in Vienna in late April, Beattie said the Amateur Service is "highly susceptible to any increase in the background noise level," such as that WPT might generate.

He said frequencies being planned for WPT are 19 - 21 kHz for high power; 55 - 65 kHz and 79 - 90 kHz for medium power, and 100 - 148.5 kHz for lower power -- but still up to 2.4 kW.

"WPT is generally high duty cycle, located in residential areas, and its harmonics are likely to be spread across a band of frequencies, in some cases the whole of the HF spectrum," Beattie said in his presentation to the Vienna interim meeting. Read more.

HISTORIC AMATEUR RADIO CONTACT REPORTED VIA MOON-ORBITING SATELLITE

A contact between a radio amateur in Germany and China took place on July 1 via the moon-orbiting LO-4 satellite, DSLWP-B, launched in May 2018. The two-way exchange between Reinhard Kuehn, DK5LA, in Soerup, Germany, and Harbin Institute of Technology club station BY2HIT (operated by Wei Mingchuan, BG2BHC), in Harbin, China, occurred between 0551 and 0728 UTC, according to reports. The GMSK-to-JT4G repeater onboard DSLWP-B was used to make the contact, the first ever made via a lunar-orbiting repeater.

“Using the GMSK-to-JT4G repeater is not easy, in terms of the signal power needed for the uplink,” commented radio amateur and engineer Daniel Estévez, EA4GPZ, whose blog includes images of the lunar surface downloaded via DSLWP-B. “There were plans to make a QSO between BY2HIT and Reinhard since many months ago, but previous attempts didn’t work out. My congratulations to the people at both sides of the QSO, who have achieved it a month before DSLWP-B crashes against the lunar surface.”

As Estévez explained it, the GMSK-to-JT4G repeater works by sending commands to the satellite that embed a 13-character message, using the same frequency and a similar protocol to the one that commands the camera and other satellite functions. He said sending a message in this fashion takes a little longer than 1 minute.

An open telecommand protocol allows radio amateurs to take and download images, and DSLWP-B transmitted images of the moon and Earth during this week’s solar eclipse. DSLWP-B was launched as a secondary payload with the *Quequiao* relay satellite as part of the Chang’e 4 mission to the far side of the moon. Last September, some earthbound radio amateurs and sky watchers received images from the tiny satellite as it

orbited the moon. DSLWP stands for “Discovering the Sky at Longest Wavelengths Pathfinder,” and was designed to test low-frequency radio astronomy and space-based interferometry. The repeater uplink is on 2 meters and the downlink is on 70 centimeters.

TUNING ELECTRICALLY SHORT ANTENNAS FOR FIELD OPERATION -

An article,"Tuning Electrically Short Antennas for Field Operation," by two well-known amateurs, appeared in *Microwave Journal*. Authored by *QEX* Editor Kai Siwiak, KE4PT, and award-winning researcher Ulrich Rohde, N1UL, the article points out that both Amateur Radio and military applications exist for 20 W battery-powered radios equipped with whip antennas. "In general, the whip antenna [that] makes the radio portable is not optimized for signal propagation: A whip antenna has no ground return or proper counterpoise," the article notes. "While some users drag a wire of up to 8 meters behind, this is not an ideal solution."

As the article explains, electrically short antennas -- typically 0.1 λ or shorter -- look like a capacitor, with a typical capacitance of 25 pF per meter of length. "At 2 MHz, where the wavelength is 150 meters, an inductor of 84 µH is required for resonance," the article says. But just getting a good VSWR is not all there is to it.

Rohde told ARRL that loading coil placement in a short vertical antenna is critical, and "the greater the elevation of the coil, the better the radiation. He said that "center loading" -- he considers the "best compromise" to be more on the order of two-thirds' loading -- can dramatically affect both the antenna's transmitting and receiving performance, as opposed to base loading, as found with popular so-called screwdriver antennas. Radials of some sort also are essential.

As the article points out, "With center loading, both the radiation resistance and integrated surface are larger, which are better for radiation." Inductors are the lossy components of an antenna tuner, while capacitors "are infinitely better." The authors conclude that, for optimal operation, antenna radials should be 0.25 λ, with one sufficient for tuning, and up to four producing a symmetrical azimuth. "Connecting the HF radio ground to a large metallic object is a good choice," the article said.

Ulrich told ARRL that optimizing an antenna in the manner the article describes will produce "significantly better" signal reception, although a short antenna will also have a narrower bandwidth. The objective should not be to get a good VSWR but to keep in mind that there's a difference between resonance and radiation.

"These requirements for optimum antenna performance make HF manpack radios somewhat complicated and unattractive," the authors concede. "Nonetheless, the well matched and radiating antenna provides the most success, and some of these highly portable radios provide vital communications in disaster areas -- recently in Puerto Rico and South Florida."

ARRL ANNOUNCES “HAPPY 150!” HIRAM PERCY MAXIM BIRTHDAY CELEBRATION

This year marks the 150th anniversary of the birth of ARRL’s first president and cofounder Hiram Percy Maxim (HPM), W1AW, born on September 2, 1869. ARRL will

hold an operating event this summer to celebrate HPM's legacy from 0000 UTC on August 31 and continue until 2359 UTC on September 8. It is open to all radio amateurs.

The event goal is straightforward: Contact as many participating stations as possible. W1AW and *all* ARRL members will append "/150" to their call signs during this event (DX operators who are ARRL members may operate as <*call sign*>/150, if permitted by their country of license.) Participating stations will exchange a signal report and their ARRL/RAC Section. DX stations will send a signal report and "DX." Those taking part may use all Amateur Radio bands, excluding 60, 30, 17, and 12 meters.

The event will recognize three mode groups: CW, phone (any voice modes), and digital. Submit Cabrillo log files. ARRL will calculate all final scores based on participant uploads to the ARRL event web app (link not yet active).

There are 84 multipliers, which only count once. These include the 83 ARRL/RAC Sections (RAC sections include the Canadian Northern Territories, encompassing VE8, VY1, and VY0), and DX. The W1AW operating schedule during this period may be adjusted as necessary to accommodate on-air celebration operating activities. Contacts with W1AW/150 will earn 3 points apiece. Contacts with any ARRL member will earn 2 points each. These stations will also identify as <*call sign*>/150. Contacts with nonmembers will earn 1 point each.

Participants can earn 150 bonus points by:

- Contacting W1AW/150 on each band and mode.
- Uploading entries (ARRL members only).
- Using social media to publicize this event and/or participation before, during, and/or after the event.
- Operating with 5 W PEP output or less throughout the event.
- Making at least 20 contacts while operating portable.
- Completing at least 150 contacts.

Online certificates will be awarded, and available via download only. Updates and results will be publicized.

This event has no power or operator categories. Participating ARRL members who use Logbook of The World (LoTW) are encouraged to create a separate LoTW certificate for uploading <*call sign*>/150 contacts. Members should upload their logs for this event using their /150 certificate. This event requires online web app submissions. No email or paper submissions will be accepted.

SHORTS

AMSAT President and ARRL Life Member Joe Spier, K6WAO, has been awarded Russia's E.T. Krenkel Medal. The prestigious honor is bestowed on individuals and organizations for outstanding global contributions to Amateur Radio. Spier has also served AMSAT as Executive Vice President, and Vice President, Educational Relations. The award's namesake, Ernst Teodorovich Krenkel, was a radio amateur who, over the years, used the call signs RAEM, U3AA, and UA3AA. Spier became AMSAT President in 2017. He's a supporter of Amateur Radio on the International Space Station (ARISS) and of scientific, technical, engineering, and mathematics (STEM) education. Spier also is a Life Member of the Society of Amateur Radio Astronomers (SARA). ARRL

Headquarters staff alumna and Life Member Ellen White, W1YL, was awarded the Krenkel medal in May. -- *Thanks to AMSAT*

The results article for the January 2019 VHF Contest is on the ARRL website. Duffey, KK6MC, author of the contest article, writes: "The digital modes, in particular FT8, played a major role in the January contest, increasing the logs submitted significantly. But the overall number of contacts made in the contest remained the same. So, those additional digital QSOs came from the higher bands. I think this is not good. Please read my comments on this in the write-up and think about what it means for the future of VHF contesting, if you like that future, and what can be done to address the continued erosion of the bands above 144 MHz in contesting."

***WSJT-X* DEVELOPER POSTS OBSERVATIONS ON USING FT8 IN JUNE VHF CONTEST -** *WSJT-X* developer Joe Taylor, K1JT, has tentatively concluded that there are good reasons to use both FT4 and FT8 in ARRL VHF contests. The latest beta version of FT4 was not available for the event, but Taylor noted that FT4 will be available for future contests

"Most of the time there was enough sporadic E and tropo-scatter to keep things busy using FT8," Taylor observed. "In this event, meteor scatter using MSK144 was not, score-wise, time efficient."

Taylor said he operated from home only on 6 meters and only on digital, "mainly to see how FT8 plays in a June VHF Contest." He operated for 21 of the contest's 33 hours and left his receiver running on 50.313 MHz when not in the shack.

"During the contest period, I decoded 45,375 transmissions from others in the 4 kHz window starting at 50.313 MHz," Taylor recounted. "That's an average of about 11 decodes per 15-second receive cycle."

Taylor said he seldom, if ever, found that a single 3 or 4 kHz window was "too crowded" with activity. "There were nearly always some open spots, even with nearly everyone in the first 2.7 kHz of the window," he said.

Taylor also speculated as to how the twice-as-fast FT4 might have fared, being 4 dB less sensitive than FT8 and having an 80 Hz bandwidth instead of FT8's 50 Hz bandwidth.

"My guess is that something like 80 - 85% of my QSOs could have been completed using FT4, most of them in half the time than it took in FT8," Taylor said.

QRP-Labs principal Hans, G0UPL, designer of the forthcoming QSX (Qrp Ssb Xceiver) QRP SSB Transceiver, talked about the design decisions and overall difficulty of bring this transceiver into existence in a number of presentations related to the Hamvention and the Four Days in May (FDIM) event. Materials include a slide presentation, a 26-page paper, and a podcast recording of the event. See the linked page for details. QRP-Labs is known for their Ultimate3 beacon kits, used in many high-altitude balloon flights, as well as their QCX QRP CW Transceiver originally developed for the 2017 YOTA Camp. Over 7,200 QCX CW Transceiver kits have been shipped to date.

"This article in *Nature* forecasts that we're approaching a grand solar minimum -- similar to Maunder Minimum -- starting in 2020 and lasting for three solar cycles. I hope these scientists are wrong."A "Grand Solar Minimum" may be

approaching. A juried research paper in *Nature*, "Oscillations of the baseline of solar magnetic field and solar irradiance on a millennial timescale," suggests that a "grand solar minimum" -- similar to the legendary "Maunder Minimum" -- is approaching, starting as early as next year and lasting for three solar cycles. That would be bad news for HF enthusiasts already struggling with marginal conditions. As the paper's abstract explains, "Recently discovered long-term oscillations of the solar background magnetic field associated with double dynamo waves generated in inner and outer layers of the Sun indicate that the solar activity is heading in the next three decades (2019 - 2055) to a modern grand minimum similar to Maunder one." As propagation buff and contester Frank Donovan, W3LPL, observed, "It's very uncertain if this forecast is correct, but, as usual, the forecasts of the next solar cycle are all over the map. Let's hope these scientists are wrong."

The Yasme Foundation Board of Directors has made a supporting grant to Amateur Radio Emergency Data Network (AREDN). AREDN extended the early work of the Broadband Ham Net mesh developers by developing firmware and related user software for more modern and efficient consumer routers. Based in San Diego, California, the AREDN development team has produced code for the Ubiquiti 2, 3, and 5 GHz routers and has recently added firmware to convert lower-priced consumer equipment from other manufacturers for amateur mesh network use. Yasme's grant will go toward the purchase of test equipment to aid AREDN's development efforts.

THANKS FOR READING !

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