



Legacy Amateur Radio Club

# RCA AMATEUR RADIO CLUB



AFFILIATED CLUB

INDIANAPOLIS, INDIANA

APRIL 2019

MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE  
TUESDAY, APRIL 9th, 6:30 PM AT  
**BRAVO, 8651 CASTLE CREEK PKWY E DR, INDIANAPOLIS, IN 46250**

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## RCA ARC NEWS

### APRIL MEETING:

This month we'll be meeting at **Bravo** which is directly across 86<sup>th</sup> St. from the old Squealers location in Castleton. **Be sure to sign up in advance for the Bravo rewards**, you get a discount on the food and after four meals the 5th is free. Also sign up for the e-mail deals, they have free stuff and discounts <https://www.mybravoreward.com/index.html>

**Summary of the March meeting** – Thanks to all who attended the March meeting at the Oriental Inn. Nice place but the location is a longer drive for many of us. Again, Jim, K9RU, reminded us we need to be on the lookout for junk to sell at the Indy Hamfest this year. The stuff we brought back from last year's event isn't enough. The repeater needs a work party. There are several things that need to be done. We can't seem to make this happen. There have Field Day planning meetings. The location, Victor Conservation Club, has been reserved. The RCA ARC may have to be the sponsoring Club if our insurance is needed to cover the event.

### AMATEUR RADIO LICENSE TEST SESSION

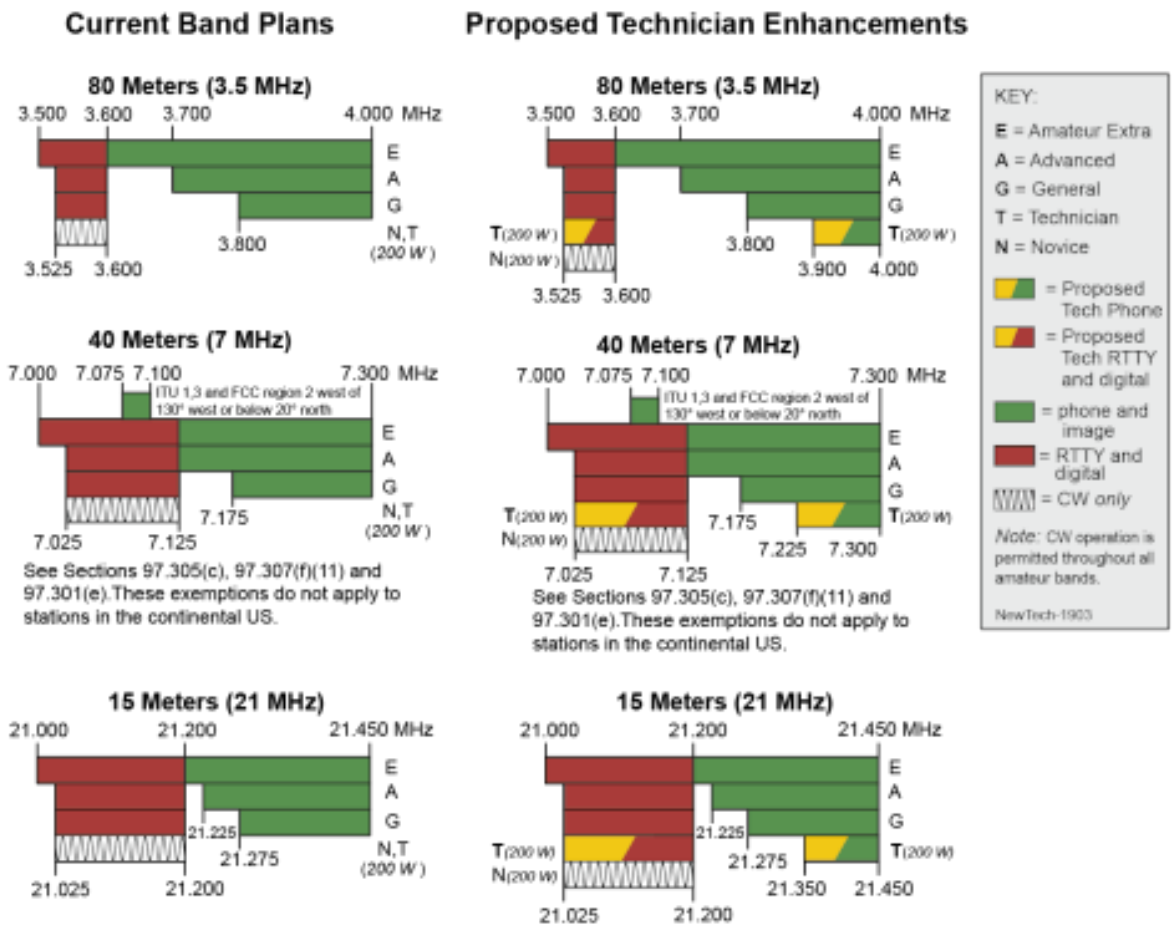
**Time:** Saturday, April 13, 2019, 12:00 pm (Walk-ins allowed)  
**Location:** Salvation Army EDS Training Facility, 4020 Georgetown Rd  
Indianapolis, IN 46254-2407  
**Contact:** Jim Rinehart, [k9ru@arrl.net](mailto:k9ru@arrl.net), 317 721-1458

## HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

Apr 6 Columbus Indiana Hamfest, <http://carcnet.net/>  
Apr 11 ARRL Frequency Measuring Test, 10pm EDT (4/12/2018, 0200 UTC)  
Apr 14 ARRL Rookie Roundup  
May 05 Indy Mini Marathon - [N9FEB@comcast.net](mailto:N9FEB@comcast.net)  
May 05 Indiana QSO Party <http://www.hdxcc.org/inqp/>  
May 17-19 Hamvention, Green County Fairgrounds, Xenia, OH <http://www.hamvention.org/>  
May 25 500 Festival Parade  
June 22-23 Field Day

THE TWO "ENTRY-LEVEL" PETITIONS NOW ACCEPTING COMMENTS ARE VERY DIFFERENT

The FCC recently invited public comment on ARRL's 2018 Technician Enhancement *Petition for Rule Making* ([RM-11828](#)). It asks the FCC to expand HF privileges for Technician licensees to include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, 15, and 10 meters. It does *not* seek to create a new Amateur Radio license class.



Specifically, ARRL proposes to provide present and future Technicians with phone privileges at 3.900 to 4.000 MHz, 7.225 to 7.300 MHz, and 21.350 to 21.450 MHz, and with RTTY and digital privileges in current Technician allocations on 80, 40, 15, and 10 meters. The FCC has also invited public comment RM-11829...

***Petition for Rule Making (RM-11829)***, filed in 2017 by ARRL member Gary A. Hampton, AD0WU, of Longmont, Colorado. Hampton has asked the FCC to create a new "Tyro" entry-level license class, which would require a minimal online examination as well as mentoring by an Amateur Radio licensee of Technician class or higher. Tyro licensees would have to be at least 11 years old and would earn operating privileges on 99 channels in a 70-centimeter segment that Hampton calls a "TyroSubBand." It would offer no HF privileges.

If you read through this petition it is not a entry level amateur radio license but he is trying to establish a new personal radio service modeled around the GMRS service that has use of the amateur radio bands.

The Tryo license class has:

1. Its own repeater coordination and license committee that coordinates and dictates who can have a repeater, where is it located and how it can be used. This is outside of the present repeater coordination.
2. Only FM can be used.
3. A 99 channel Tryo sub-band, with 2.25 MHz reallocated from the 440 MHz band, 1MHz off fo the bottom of of the band and 1.25 MHz off of the top of the band. No study was done on the impact to the current repeater or link that use the 70 Centimeter band.
4. Online license application with a few simple question very similar to applying for a GMRS license.
5. A commitment or promise by an amateur to mentor the Tryo licensee with no requirement for either the amateur or the Tryo licensee to complete the mentoring. There are no requirement, workbook or checklist for the mentor or Tyro applicant to complete in the process.
6. Cross-banding under the supervision or management of a higher class licensee as a feature of the Tyro class license. Part 97 already allows for third party operation of an amateur station but under the control of a licensed ham.

The way it is used in the petition it is a feature of the Tryo License and used to circumvent the rules by allowing them to use the privilege to be one band that exceeds their control operators privileges.

7. The age limit is 11 years old to apply for a license. We have had two hams nine years old got their Technician license this year.
8. Tryo radio must meet the specs and be type accepted for the Tyro class licensee. This is beyond what is normally required for for Part 97.

These are *not* competing petitions. Members of the Amateur Radio community should evaluate both proposals on their own merits and comment if they desire. ARRL has provided [a summary of the Technician Enhancement proposals](#) and explained their advantages.

Interested parties have 30 days to comment on both proposals. For information on how to file comments, visit "[How to Comment on FCC Proceedings](#)." --ARRL

## PETITION FOR RULE MAKING CALLS FOR "AMATEUR DIGITAL MODE TRANSPARENCY"

**The FCC is accepting comments on a *Petition for Rule Making (RM-11831)* seeking to amend FCC Part 97 rules that require all ham radio digital transmissions to use**

**techniques “whose technical characteristics have been documented publicly.”**

The *Petition*, filed by Ron Kolarik, K0IDT, of Lincoln, Nebraska, expresses concerns that some currently used digital modes are not readily and freely able to be decoded, and it asks the FCC to require all digital codes to use protocols that “can be monitored in [their] entirety by third parties with freely available, open-source software,” per §97.113(a)(4).

Kolarik said his petition also aims to reduce levels of amateur-to-amateur interference from Automated Controlled Digital Stations (ACDS) on HF operating under §97.221(d)(2). Kolarik wants the FCC to delete §97.221(c), which permits automatic control of digital emissions provided the station “is responding to interrogation by a station under local or remote control, and [n]o transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.”

In his *Petition*, Kolarik maintains that interference from ACDS continues to be “a major problem on the amateur bands.” He suggested that an absence of formal complaints may be due to the fact that such stations are “difficult to identify.”

The *Petition* also proposes to amend §97.309(a)(4) to ease monitoring of certain digital transmissions. “Without open, over-the-air interception capability for all transmissions in the Amateur Radio spectrum, there is no way to determine if there is commercial or other prohibited, inappropriate content in ongoing communications...” Kolarik’s *Petition* asserts. He said problems arise when “protocols and devices used in commercial, government, and marine services are used in the Amateur Service with no adequate means to fully decode transmissions,” thwarting any efforts at self-policing of such transmissions. He said simplifying the language “would remove ambiguity about what constitutes ‘publicly documented technical characteristics’ by requiring any protocol to be freely decodable,” and lead to “amateur digital mode transparency, present and future.”

Kolarik contended in his petition that FCC action stemming from ARRL’s 2013 “symbol rate” *Petition for Rule Making* could increase congestion (i.e., interference) problems. In July 2016, the FCC in WT Docket 16-239 proposed to revise the Part 97 rules to eliminate current baud rate limitations for data emissions, consistent with ARRL’s *Petition*, but declined to propose a bandwidth limitation for MF and HF digital to replace current baud rate limitations. ARRL had asked the FCC to delete the symbol rate limits in §97.307(f) and replace them with a maximum bandwidth for data emissions of 2.8 kHz on amateur frequencies below 29.7 MHz.

## ADDITIONAL AMATEUR RADIO-RELATED PETITIONS NOW OPEN FOR COMMENT

The FCC has placed three Amateur Radio-related *Petitions for Rule Making (PRMs)* on public notice and has invited comments.

**Jerry Oxendine, K4KWH, of Gastonia, North Carolina, wants the FCC to clarify that state and localities should have no authority to regulate Amateur Radio with respect to enacting “distracted driving” statutes.** In his *Petition for Rule Making*, now designated as RM-11833, Oxendine contends that such statutes violate FCC rules on scope and operation of equipment by licensees; violate the intent of the FCC and Congress with respect to Amateur Radio’s role in disasters, and hinders emergency operations using mobile equipment.

There is *no* evidence that the operation of two-way radio has but an insignificant impact on ‘distracted driving,’” Oxendine stated.

Such distracted driving statutes usurp the authority of the FCC to regulate Amateur Radio, as well as Citizens Band and Part 90 Land Mobile Service users, Oxendine said in his *Petition*.

**Edward C. Borghi, KB2E, of Farmington, New York, has submitted a *Petition*, now designated as RM-11834, that would prohibit applicants from requesting a vanity call sign outside their call sign district.** Exceptions would be made for call signs applied for under rules governing call signs previously held by family members.

"In some more populous areas, there are few of the most desirable vanity calls signs available the 2 and 6 regions for example," Borghi said. "I see no reason for a licensee to have to compete with out-of-area people for the few 1 × 2 or 2 × 1 or catchy 2 × 3 call signs available in their area of residence," Borghi told the FCC.

**Jeffrey Bail, NT1K, of West Springfield, Massachusetts, has submitted a very similar *Petition*, now designated as RM-11835, asking that the FCC give residential preference in competing applications to applicants whose listed FCC address is within the same district/region as the applied call sign.** He cites limited availability and increased demand for 1 × 2 and 2 × 1 call signs.

"There are many times a call sign has been awarded to an individual/club who resides outside of the call sign district when there are other people who applied for the same call sign that reside within the district," he said in his brief petition.

## 3Y0I BOUVET ISLAND DXPEDITION "POSTPONED, NOT CANCELED"

The [3Y0I](#) DXpedition to Bouvet Island (Bouvetøya) is off, at least for now. The skipper of the MV *Atlantic Tuna* determined it was not safe to continue its voyage to the remote Antarctic island after the vessel suffered some damage from severe storm conditions. The DXpedition had expected to arrive on the island on March 26 and be on the air by month's end.

"The captain of the MV *Atlantic Tuna* had to [m]ake a difficult but responsible decision to take a course back to Cape Town, South Africa," a March 27 news release [said](#). "But the 3Y0I Expedition is *not* cancelled -- we don't give up that easily." The DXpedition's press officer, Stan Strzyzewski, SP8S, said he'd had a "long conversation" with DXpedition leader Dom Grzyb, 3Z9DX, who reported that the seas had calmed enough to permit crew members to inspect damage caused by a "severe cyclonic storm" on March 26 when the vessel was some 70 nautical miles off Bouvet Island. The ship was hit by waves of more than 36 feet and winds exceeding 100 MPH.

"The fierce oceanic forces swept past the upper deck, taking one of the radars, including VSAT, VHF, and HF marine antennas, off the mast and throwing them all overboard," Strzyzewski recounted. He stressed that all members of the DXpedition team are "fine, feeling OK, and safe."

"With lack of the most important navigational tools, the captain declared it's not safe to navigate and they need to go back to Cape Town to secure all participants on board, their equipment, and the vessel's gear," Strzyzewski continued. "In addition, all forecasts for coming hours are not positive."

Once back in Cape Town, the team will reassess its plans and decide whether to attempt a return voyage to Bouvet in April or to postpone the DXpedition for next season.

In February 2018, unfavorable weather and a mechanical failure on the transport vessel caused the cancellation of the 3Y0Z Bouvet Island DXpedition, after the team had arrived just offshore.  
--ARRL Letter

## FCC ADOPTS NEW RULES FOR SPECTRUM ABOVE 95 GHZ

The FCC has [adopted new rules](#) to encourage development of new communication technologies and expedite the deployment of new services above 95 GHz. The action was the latest move in the Commission's "Spectrum Horizons" branded initiative.

"This spectrum has long been considered the outermost horizon of the usable spectrum range, but rapid advancements in radio technology have made these bands especially ripe for new development," the FCC said in announcing the March 15 move.

Prior to its "historic" decision last week, the FCC had no rules for authorizing communication above 95 GHz other than by radio amateurs or through experimental operations. Under current rules, specific Amateur Radio allocations exist at 122.25 - 123.00 GHz; 134 - 141 GHz; 241 - 250 GHz, and at frequencies above 300 GHz, and limited experimentation has taken place in this region of the radio spectrum.

Among radio amateurs active in that region of the spectrum is Brian Justin, WA1ZMS, in Virginia -- who has made at least one contact on every available Amateur Radio band. He earned the first-ever ARRL VUCC awards for 122 GHz, 134 GHz, and 241 GHz, and even went so far as to make the first contact on a less-than-1-millimeter band, 322 GHz.

In announcing adoption of the new rules for spectrum above 95 GHz, the FCC cited "substantial opportunities for innovation on these frequencies, especially for data-intensive high-bandwidth applications as well as imaging and sensing operations."

The new rules create a new "Spectrum Horizons" experimental license for using frequencies between 95 GHz and 3 THz. "These licenses will give innovators the flexibility to conduct experiments lasting up to 10 years, and to more easily market equipment during the experimental period," the FCC said. The FCC action also makes a total of 21.2 GHz of spectrum available for use by unlicensed devices.

At the invitation of FCC Chairman Ajit Pai, well-known academic researcher, entrepreneur, contester, and DXer Theodore "Ted" Rappaport, N9NB, delivered remarks prior to the Spectrum Horizons vote. Read [more](#). --ARRL Letter

## FCC TAKES A NEW TACK IN COMBATING UNLICENSED RADIO BROADCASTING

In what may be a first in the effort to crack down on unlicensed broadcasters, the United States has filed a civil action to stop a church-related pirate radio station from operating in Worcester, Massachusetts. The Massachusetts US Attorney's Office is seeking an injunction to shut down the station, operating on 97.1 MHz.

"This groundbreaking step, for an injunction to stop a pirate radio operator's illegal activities, is part of our continued efforts to combat illegal broadcasting," FCC Enforcement Bureau Chief Rosemary Harold said this week. "As we work with our law enforcement colleagues to use every tool in our toolbox to combat pirate radio, I welcome the Justice Department's renewed use of its Section 401(a) injunction authority. Along with fines, equipment seizures, and warnings, this action underlines our continued interest in combating this serious problem."

The FCC already has fined operator Vasco Oburoni and Christian Praise International Church \$15,000 for repeated violations of its rules against unlicensed operation. The complaint recounts that Oburoni and the church first began operating an unlicensed station in Worcester on 102.3 MHz. After issuing multiple warnings, the FCC levied the \$15,000 penalty, and Oburoni agreed to a payment plan. But later, he began broadcasting again, this time on 97.1

MHz. At least one licensed broadcaster has complained to the FCC, citing interference concerns. --ARRL Letter

## FCC CITES AMATEUR SERVICE RULE VIOLATIONS IN UNLICENSED BROADCASTING CASE

An FCC Enforcement Bureau *Notice of Unlicensed Operation (NoUO)* issued last fall to a California Technician-class licensee for alleged unlicensed FM broadcasting on 95.7 MHz has now been upgraded to a *Notice of Violation (NoV)* that cites violations of the Part 97 Amateur Service rules. The March 15 *NoV* sent to Daryl Thomas, KE6MWS, of Carmichael, also specifically acknowledges Thomas as an Amateur Radio licensee -- something not done in last November's *NoUO*. The FCC Enforcement Bureau warned that it could progress to a *Notice of Apparent Liability for Forfeiture (NAL)*, "if warranted."

An FCC Enforcement Bureau agent who monitored transmissions on 95.7 MHz from "Amateur Radio station KE6MWS" in the FM broadcast band on January 31, 2019, observed violations of §97.103 -- not operating in accordance with FCC rules; §97.113(b) -- prohibited transmissions, i.e., broadcasting, and §97.301 -- operation outside frequency bands authorized for Amateur Radio. The FCC ordered Thomas to respond in writing within 20 days, explaining each violation and actions taken to correct them and prevent their recurrence.

Last October 10, an Enforcement Bureau agent responded to a complaint of an unlicensed FM station operating on 95.7 MHz in Carmichael. The agent confirmed by direction-finding techniques that a signal on 95.7 MHz was emanating from a residence, and Thomas subsequently admitted that he was the operator of this station, the FCC said in the *NoUO*. The agent measured the field strength of the signal and found that it exceeded the maximum permitted level of 250 µV per meter at 3 meters, established for unlicensed operation in accordance with FCC Part 15 rules. Despite FCC warnings last fall, the transmissions apparently continued into this year. --ARRL Letter

## SMITHSONIAN INSTITUTION'S NN3SI RETURNING TO THE AIR

The historic NN3SI call sign is being reactivated under the aegis of the Smithsonian Institution Amateur Radio Group. "We do not have a physical station location, and we are not open for guest operation as in the past, but this is the start to Amateur Radio slowly coming back at the Smithsonian," the group's president, John Weise, N4NPG, told ARRL. "We expect to begin operating holiday style starting in April."

NN3SI will operate mobile and portable from several District of Columbia, Virginia, and Maryland locations on most bands and modes. NN3SI hopes to be on the air for most contests this year including Rookie Roundup, the ARRL June VHF Contest, and ARRL Field Day, Weise added. As he recounts, NN3SI was initially a temporary "special" call sign granted to the Smithsonian during the US bicentennial in 1976, and the station remained active until 2008 when building renovations left NN3SI without a permanent location. "The call sign lapsed, but was renewed this year," Weise said, "and the new Smithsonian Institution Amateur Radio Group has been organized as a club for Smithsonian staff members, and to provide important emergency management and STEM educational resources to the Smithsonian Institution." — *Thanks to John Weise, N4NPG*

## WHITHER DIGITAL RADIO MONDIALE?

In a recent issue of *QST*, Steve Ford, WB8IMY, took a look at the forgotten Digital Radio Mondiale (DRM) system. Digital broadcasting was supposed to be the life preserver for international shortwave broadcasters facing the reality of rising costs and shrinking audiences. In 1998, broadcasters, equipment manufacturers, regulators, and others formed the DRM consortium to create a specification for digital shortwave broadcasting that might stem the growing shift to internet broadcasting and revive listener interest.

DRM promised an FM-quality signal that also could convey text information such as program titles and news headlines.

DRM signals heard on a conventional AM receiver sound like wide-band noise. The DRM signal carries three separate channels -- a primary audio channel, and two subsidiary channels, one for essential decoding data and a third service description channel.

Unfortunately, DRM failed to halt the decline of shortwave broadcasting; it was too little, too late. In addition, consumer electronics manufacturers lacked enthusiasm for the new format, so an audience for DRM never coalesced.

Some international HF broadcasters still use DRM on a regular basis. The list includes the BBC, Radio France International, and All India Radio. Decoding a DRM signal is far easier today than it was a decade or so ago, and the rise of software-defined radio (SDR) has provided new avenues for DRM listening.

Many SDRs specifically include DRM as a reception mode. Radio amateurs early on experimented on HF using DRM-derived software called *WinDRM*. Much has changed over the intervening years, and today the HF digital voice application of choice is [FreeDV](#). If you hear buzzing signals at 14.236 MHz, chances are it's a *FreeDV* QSO.



For more information on this topic, see "Eclectic Technology" in the April 2019 issue of *QST* (p. 65).

## MODIFIED DIGITAL QST APP NOW AVAILABLE FOR APPLE IOS USERS

Apple has released a [new app for digital QST](#) (version 5.1) for digital readers that use iOS devices. A long-standing problem involved the inability of some Apple iOS app users to download digital *QST* issues to their devices. When they attempted to do so, the app crashed. The new app is now available on the Apple iTunes store. Apple also required ARRL to create a new version of the app that allows non-members to purchase individual issues of the *QST* digital edition.

"Members must update their digital *QST* apps for the changes to take effect," *QST* Editor Steve Ford, WB8IMY, explained. "This entails tapping the App Store icon, and then tapping Updates from the store menu. They may have to log in after the update, but should not have to log in after that."

The updated app will be a so-called "in-app purchase" version, which Apple requires ARRL and other publishers to use. "You might think of it as an electronic newsstand. It will allow non-members to purchase single issues of *QST* for \$6.99," Ford said.



Android and Kindle users and those who view digital QST on desktop or laptop computers will not be affected by this change. Android and Kindle users *do not* need to update their apps.  
--ARRL Letter

## SCAMMERS EXPLOITING GMAIL "DOT" ACCOUNTS

Business technology news website ZDNet [reported recently](#) that scammer groups are exploiting so-called Gmail "dot accounts" for online fraud. A lesser-known characteristic of Gmail is that it ignores the dot character within Gmail addresses. "Dots don't matter in Gmail addresses," a Gmail Support response explains. "If someone accidentally adds dots to your address when emailing you, you'll still get that email." Google pointed out, though, that if you use Gmail through work, school, or other organization (such as [yourdomain.com](#) or [yourschool.edu](#)), dots *do* change your address. ZDNet says crooks use "dotted" Gmail addresses to file fraudulent claims for unemployment benefits and fake tax returns, and to circumvent trial periods for online services. [More recently](#), someone exploited dotted Gmail accounts to trick Netflix account holders into adding credit card details to scammers' accounts, registered with the user's dotted Gmail address. A legitimate "update your card details" Netflix email would arrive in a real user's inbox, who would then unknowingly update a scammer's account instead of their own.

The ZDNet article cited a [report](#) from the security firm Agari, which said criminal groups took advantage of dotted Gmail addresses to, among other things, file multiple credit card applications with financial institutions. Crane Hassold, Agari's Senior Director of Threat Research, told ZDNet, "In essence, this allows cybercriminals to centralize their fraudulent activity within a single Gmail account, rather than having to monitor a bunch of different accounts, increasing the efficiency of their operations."

Two other Gmail characteristics that scammers could abuse: A Gmail address such as <username>+<randomword>[@gmail.com](#) will always redirect emails back to <username>[@gmail.com](#). Also, all emails addressed to <username>[@googlemail.com](#) will arrive at <username>[@gmail.com](#).

## SHORTS

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**The European FT8 Club is sponsoring an [FT8 DX Contest](#) on April 13, 2019 1200z through April 14, 2019 1200z.** Everyone works everyone in this contest, and the maximum power category for the contest is 100 W. The exchange format is the same as the ARRL RTTY Roundup, with state/province for US/Canada stations, and serial number for DX.

**General Class Element 3 Question Pool errata have been released.** The NCVET Question Pool Committee has released the latest errata for the [2019 - 2023 General Element 3 question pool](#), which goes into effect on July 1, 2019. These changes are reflected in the new General Pool download file, dated March 15, 2019.

**Here is a great video of YV1KK logging screen operating SO2R.** Put on some headphones, [play this video](#), and try to do anything else at the same time. Julio, YV1KK's [2 Band Synchronized Interleaved QSO \(2BSIQ\) video](#) shows you what he's logging, while you can hear his audio from each rig in the appropriate ear. (Bob, K8IA, via Facebook)

**Stanford University research scientist Leif Svalgaard has graciously [made his slides available online](#),** from his presentation "Solar Observations and the Importance to Radio"and

you can enjoy it for the comprehensive historical background material on how sun spot numbers are calculated. Redwood Empire DX Association.

**2019 ARRL RTTY Roundup was the first year that FT8 and WSJT-X was compatible with the contest exchange. Spoiler: Contest participants reported faster rates using 45 Baud RTTY.**

[George, K5TR](#), opened up his station for a tour and operation by Johnny, W5KV. His visit also coincided with the ARRL International DX Contest. In [Johnny's video of the visit](#), you get to see the shack, antennas, and listen in on some contest operation

**A known bug with the Apple version of the digital QST app may prevent some users from downloading issues of the magazine.**ARRL has confirmed with the developer that version 5.0 of the app, introduced in early February, may produce instances where the app crashes on some devices when the user tries to download an issue of QST for offline reading. We apologize for this inconvenience, and we are working with the developer to resolve this issue as quickly as possible

**Purchases via AmazonSmile pay dividends to ARRL.** Those who use Amazon for online purchases can automatically donate to ARRL by opting to use [AmazonSmile](#) and designating American Radio Relay League (ARRL) as their charity of choice. The AmazonSmile Foundation donates 0.5% of the purchase price of eligible AmazonSmile items to whichever charity you choose. Product and Marketing Specialist Jackie Ferreira, KB1PWB, reports that the benefit of AmazonSmile to ARRL for 2018 was \$8,676, up from \$8,022 in 2017. Family and friends can select ARRL as their charity of choice too. There is no difference between Amazon and AmazonSmile in terms of making purchases. [More information](#) is available on the ARRL website. "We encourage member participation in AmazonSmile," Ferreira said.

This [very comprehensive explanation of the rules for the assignment of JA call signs](#) was provided from Zoli, HA1AG, to Ward, N0AX, and now to you. According to Ward: "This is really exhaustive!" Amateur populations for each of the districts as of March 31, 2018, are also provided. The website is maintained by Ryota "Roy" Motobayashi, JJ1WTL, based on earlier work by Rimmei "Rin" Fukuda, JG1VGX. (Ward, N0AX)

[Analog Devices' Student Zone website](#) provides "articles, tutorials, and a wealth of other helpful resources" around analog electronics. Many featuring lab experiments based on inexpensive USB based multi-tool providing the functionality of an oscilloscope and function generator. Recent articles include tutorials on bandpass and bandstop filters, and impedance measurements. (Ward, N0AX)

**THANKS FOR READING !**

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