The Ham Arundel News

Providing Fellowship and Community Service through Amateur Radio Since 1951

February 2019 ***40th Year of Publication***

Prez Sez...

Keith Miller, AE3D

Greetings… January has flown by. Back on January 3rd I had the chance to present the membership with information on the directions the club might be going. I thank everyone for turning out. As soon at that was over, I realized I still had a number of individuals to appoint, and a lot of work to do. As you may know, getting Committee Chairpersons to show up just to make reports is all but impossible.

Knowing that's the case I decided to try something old and something new. The old idea was to return to the days when the first meeting of each month was the Business Meeting where all reports are heard, and then follow with a short presentation. The second meeting, the Presentation Meeting, would only have announcements at the outset, and a much longer presentation. The new idea was to assign each Board Member a short list of Chairpersons and other appointed personnel to contact in the days before each Business Meeting. That way if the reporting individual isn't going to make the meeting, the Board Member can give the report for them. After all it's the information we need, not mandatory attendance. We will see how our first try at this works out on February 7th.

The Ham Shack Renovation continued this month as the operating table was mounted along the left side wall of the room. Worked stopped long enough for a record turnout for Winter Field Day on the 26th & 27th. The high point for me was when new Technician Michele Tucker made her first HF contact, with Milford Craig assisting. According to our Field Day Chairman and Station Manager Rick Steer, AB3XJ we scored 3680 points on 3 bands with 32 CW QSOs, 21 PSK31 QSOs and 78 phone QSOs for a total of 131 Qs.

Back at the Board Meeting we approved the complete 2019 Official Club Calendar of events, started work on an official list of Standing Committees, and began work on a new Sale and Auction Policy. The Presentation Meeting the next month went as expected with over an hour and fifteen minutes devoted to two presentations.

Also this month the Rules Committee had it's first meeting, and I can already tell this Committee is going to exceed expectations. This is a smart bunch of people who are willing to work over the long haul to produce the best possible results for the Members.

Finally we have modified the Calendar for February, and moved the Board meeting to Wednesday, February 13th. We kinda figured all us old married guys would not live to see the 15th if we held a meeting on Valentine's Day. Hopefully some of you will be able to join us on the 13th.

73s…… Keith Miller, AE3D

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The Anne Arundel Radio Club

We are pleased to receive any donations over your yearly dues.

ARRL Launching New Podcast Geared Toward New Radio Amateurs

For those just getting started on their Amateur Radio journey, ARRL is launching a new podcast aimed at answering your questions, providing support and encouragement for newcomers to get the most out of the hobby. The podcast, "So Now What?," will launch on Thursday, March 7, and new episodes will be posted every other Thursday, alternating new-episode weeks with the "ARRL The Doctor is In" podcast.

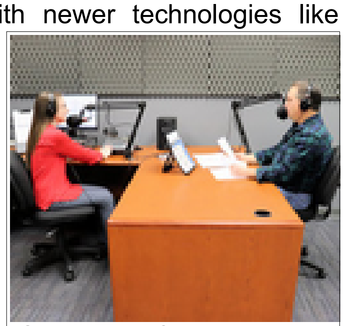
Co-hosting "So Now What?" will be ARRL Communications Content Producer Michelle Patnode, W3MVP, and ARRL Station Manager Joe Carcia, NJ1Q. Presented as a lively conversation, with Patnode representing newer hams and Carcia the veteran operators, the podcast will explore questions that newer hams may have and the issues that keep participants from staying active in the hobby. Some episodes will feature guests to answer questions on specific topic areas.

"No other podcast is really aimed at this segment of the Amateur Radio community...that is being underserved, that is not getting the answers to the many questions they have," said ARRL Communications Manager David Isgur, N1RSN, who will serve as the podcast's executive producer.

Topics to be discussed in the first several episodes include getting started, operating modes available to Technician licensees, VEC and licensing issues, sunspots and propagation, mobile operating, contesting, Amateur Radio in pop culture, and perceptions of Technician license holders.

Given the growing popularity of podcasts, Isgur believes that providing this information in a podcast format will be a very effective method of reaching out and engaging this particular part of the Amateur Radio community, which is important for building and maintaining Amateur Radio interest and activity.

Patnode said she is excited to ask questions she has about different aspects of Amateur Radio, such as how to incorporate ham radio with newer technologies like Raspberry Pi computers and Arduino microcontrollers, and to learn more about the hobby right along with the audience.


"So What Now?" podcast hosts Michelle Patnode, W3MVP (left), and Joe Carcia, NJ1Q.

Carcia believes the "So Now What?" podcast will be a perfect complement to the podcasts that the ARRL already offers -- "ARRL The Doctor Is In" and "ARRL Audio News."

In addition to serving as co-host, Patnode is also the audio editor/producer of the podcast. ARRL Graphics Department Supervisor Sue Fagan, KB1OKW, designed the podcast logo, and ARRL Radiosport Administrative Manager Sabrina Jackson, KC1JMW, will voice the introduction and closing.

Listeners can find the "So Now What?" podcast at Blubrry.com, Apple Podcasts, Stitcher, or wherever you get your podcasts. Episodes will also be archived on the ARRL website.

"So Now What?" will be sponsored by LDG Electronics, a family owned and operated business with laboratories in southern Maryland that offers a wide array of antenna tuners and other Amateur Radio products.

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AARC Job Information

Keith Miller, AE3D AARC President

In the **AARC STAFF – 2019** page you may notice I list some people as Officers, some as Committee Chairmen and so on. Let me be clear about how I use such terms....

1) A **'Committee Chairman'** is, for the most part, responsible for finding members to join in creating their committees. The By-Laws clearly state that any member in good standing can join any committee. So the Committee Chairman essentially can't dismiss people from committees. Actions of Committees are by majority vote, not by decree from the Chairman. However like the President of the Board the Chairman does get to chair the meetings, set agendas, and generally try to get things done his or her way.

2) A **'Team Leader'** (or 'Director') is responsible for putting together their team. Since it is not a committee, the team leader is free to put anyone on the team they wish, as long as that person is a member in good standing, and wishes to join. Team members therefore serve at the pleasure of the 'Team Leader'. The 'Team Leader' is also responsible for the actions of the team. So if John Williams is the 'Repeater Team Leader' he gets to make the final decisions with respect to what will and won't be done, with and to the repeaters. Similarly the 'VE Team Leader' can decide who can and can't be a VE at any exam session, and is responsible if the testing gets messed up. Further, the Webmaster is essentially a 'Team Leader' responsible for web site updates and security. The 'Ham Arundel News Editor' is essentially a Ham Arundel News Team Leader, in the sense that he may edit the newsletter alone, or enlist the aid of a team of assistants. But the final decisions are always his.

3) An **'Officer'** is a person who has agreed to perform a specific function. You may note that some Officers also serve as Committee Chairmen. Let me explain. As an officer you are responsible for certain things and must have the final decision. On other issues, a vote might be a better choice. So for example, if you are the Safety Officer you are responsible for fire safety apparatus, does it work, has it been tested, etc. But you may also chair a committee that can study safety procedures and determine the club policies with respect to climbing towers, making camp fires, etc.

4) A **'Liaison'**, **'Representative' or 'Rep'** represents the Anne Arundel Radio Club at the meetings of another organization. As such its a one person job, and that person should always act in the best interest of the AARC. (i.e. its a lot like being an 'Officer' except you work outside of the club rather than within it).

4) Some jobs are one of a kind, like **Listserv Operator**. Doug, NA1DX has agreed to use his Listserv for the good of the club, and coordinate it's membership with the current club roster. So, though, we list this as a club position, it isn't in reality. Its something Doug does out of the goodness of his heart. Thank you, Doug.

5) The **'Registered Agent'**, **and 'Station Manager'** are more examples of a one of a kind job. Such jobs are performed by a single individual who is responsible to the Board.

6) The **Membership Secretary** is a one of a kind job working with the roster, applications, renewals, and member access to the web site, except the Membership Secretary works at the direction of the 'Secretary' due to By-Law requirement.

Contact for any of these folk is available by going to the web site, pull down "Join/Contact Us" menu, and select "Contact Us" you will be able to send a comment or question to any one of our club's Appointees, or elected Officers, or the Board as a whole, by just filling in the form, and selecting the recipient from the pull down menu at the bottom.

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New ARRL CEO Wants to "Start a Conversation"

In his first appearance at a ham radio event, ARRL CEO Howard Michel, WB2ITX, told Ham Radio University 2019 attendees on January 5 that he was there to initiate a dialogue on what will make ARRL more successful in its missions amid a changing Amateur Radio environment. Michel became ARRL CEO about 3 months ago.

"What I'm here for is to start a conversation," Michel told his audience at New York's Long Island University. "I'm starting conversations everywhere I go to find out, by talking to people, what's really important."

In his view, Michel said, ARRL is a membership organization, a business, and a 501(c)(3) public charity that exists for the public good. "All three of those must exist in balance," he said, adding that the balance has been lost. He said changes need to be made in how ARRL is organized and how it operates, and he made clear during the post-presentation Q&A that he sees himself as an agent of change.

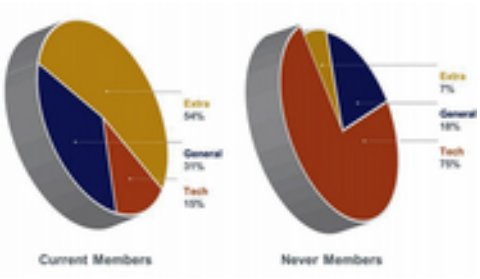
In terms of a membership organization, Michel said ARRL's some 157,000 members, local clubs, and Headquarters staffers should form a three-way partnership, but, he conceded, that the links among those components "are shaky at times," due to a lack of understanding and differing expectations.

Citing ARRL publications as an example, Michel pointed out that the way people get information today is far different than what it was 50 years ago. ARRL's business of the future will be based upon the creation of value. "If we don't create the value and deliver the value, then we're not really an advocate," he said. "ARRL is uniquely positioned to create, curate, and deliver information about Amateur Radio. The way that information is created and delivered is changing, and if we don't change with that, we're not going to be the dominant provider."

ARRL membership is falling behind in terms of a percentage of licensees. "We need to turn that around," Michel said.

In terms of numbers, out of some 30,000 new licensees each year, some 17 - 18% join ARRL, and after 1 year, 61% remain. "Why are we not getting 100% of those new hams?" Michel said. Because 80% of the new licensees took their exams through ARRL VEC, Michel said their lack of interest in joining ARRL suggests "something is wrong in the value proposition." More telling, he continued, is the fact that ARRL membership is falling behind in terms of a percentage of licensees. "We need to turn that around," he said, if ARRL is to continue representing itself as speaking on behalf of Amateur Radio.

Part of the problem lies in current demographic trends in membership. Most ARRL members are Amateur Extra-class licensees, while a larger majority of those who have never been members are Technician licensees. Active radio amateurs are 33% more likely to join ARRL, Michel pointed out. He said a significant majority of non-member Technician licensees have indicated they would like training and support for newcomers, courses for licensing and practical radio operating, training for public service and disaster communication volunteers, and continuing education on technical topics and "online live help" to learn more about ARRL and ham radio.



"We've got them through the test to get their license, and then we've dropped them," Michel said. "We've got to fix that."

The planned approach is recognizing that ARRL members do not represent a monolith, but that each has their own Amateur Radio persona. The spectrum of hams, Michel said, spans communications, service, technology, and hobby.

"Let's think about an average person with some kinds of traits and how you market material to them," Michel proposed. "I'm trying to start a conversation with everybody about how to start something new."

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Make Ham Radio A Habit

By Dan Romanchik, KB6NU

Every week, I get an email newsletter from Penguin Random House called *Signature. Signature* includes links to articles about books and writing. Being a writer, I clicked on the link to "5 Good Writing Habits You Need to Learn Now." As I was reading the article, it occurred to me that the advice could also apply to amateur radio.

So, with apologies to the author, Lorraine Berry, here are five things you can do to make ham radio a habit:

To get on the air more, or to do more building, set up a time to do it. If you enjoy getting on the air or homebrewing, but never seem to be able to find the time to do it, you need to put it on your schedule. Set aside the time a couple of days, or a week, or even a month in advance, and you'll be more likely to do it. If you set up a regular time every week, pretty soon it will be a habit.

If ham radio is important to you, create an environment that encourages you to do ham radio. To make ham radio a habit, you really need a place that's set up to do ham radio. If you have to dig out and set up your equipment every time that you want to get on the air, you're just not going to do it. You need a "shack" that makes it easier for you to engage in the hobby. Richards, K8JHR, gave me some great advice back in 2012 on where and how to set up a shack (https://www.kb6nu.com/building-a-new-shack/).

Create temptations that reward you for your new habit of ham radio. For me, being able to make interesting contacts, or building some new gizmo, is reward enough, but you may want to reward yourself with a beer or some ice cream after an operating session.

Make it easy to do what you like to do. This is related to #4. Your shack should have everything you need to easily do whatever ham radio activities you enjoy doing. If you enjoy operating, then it should have a nice operating desk. If you enjoy building, then set it up so that all of your tools are readily accessible. The easier it is to do, the more likely it is that you'll do it. If you enjoy operating portable, then build up a kit that has all the stuff you need, and have it ready to go when you're ready to go.

Start with the Two-Minute Rule for new habits and continue from there. The "two minute rule" (https://www.lifehack.org/articles/productivity/how-stop-procrastinating-and-stick-good-habits-using-the-2-minute-rule.html) is a tool to help you overcome procrastination. The idea is to allot just two minutes to a task that you'd like to complete or a skill that you'd like to develop. It's a small commitment, but enough to get you started, and the idea is that once you're started on a particular task or project, continuing work on that task or project becomes a lot easier. Those two minutes could easily become a half hour or an hour once you've gotten the ball rolling.

Armed with this advice, I'm expecting you to be a more active ham in 2019. I'll be listening for you on 40 m.

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Dan Romanchik, KB6NU, is the author of the KB6NU amateur radio blog (KB6NU.Com), the "No Nonsense" amateur radio license study guides (KB6NU.Com/study-guides/), and one of the hosts of the No Nonsense Amateur Radio Podcast (NoNonsenseAmateurRadio.Com). His wife sometimes thinks that amateur radio has become too much of a habit for him.

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How Antenna Gain Is Measured

This confusion seems to derive from basic misunderstandings about antenna gain measurement.

Lets review some principles.

A dipole in free space achieves 2.15 dB gain over a theoretical isotropic antenna in free space. It achieves this by radiating approximately 80 degree wide 3 dB beamwidth around the entire space around the dipole. Usually written as 2.15 dBi.

A theoretical isotropic antenna over ideal earth achieves 6 dB gain over an isotropic antenna in free space, usually written as 6 dBi.

A horizontally polarized dipole over ideal earth achieves about 8.15 dB gain over a theoretical isotropic antenna in free space, usually written as 8.15 dBi.

Years ago it was popular to reference antenna gain figures to a dipole at the same height over earth, usually written as dBd. Antenna modeling programs were not available so gain figures were driven by marketing departments of antenna manufacturers. It was common to see advertised gain figures of 5 dB or more for a 2 element Yagi and 8 dB or more for a three element Yagi. A manufacturer risked the success of their business if they published lower gain values.

Easy to use antenna modeling programs such as EZNEC popularized the use of gain figures relative to a theoretical isotropic antenna in free space and they also forced some antenna manufacturers to be somewhat more honest. Some manufacturers publish their antenna modeling data.

A two element Yagi suppresses at least 90% of its rearward radiation and radiates almost all of its energy in the forward direction. It also slightly narrows the width of the forward beam (about 70 degrees 3 dB beamwidth vs. 80 degrees for a dipole).

An ideal 2 element Yagi produces about 3.5 dB gain relative to a dipole over earth at the same height or about 12 dBi. A three element Yagi suppresses about 99% of its rearward radiation and narrows the 3 dB beamwidth of its forward beam to about 60 degrees. An ideal 3 element Yagi produces about 5.5 dB gain relative to a dipole over earth at the same height or about 14 dBi.

An understanding these principles and the historic inflation of gain figures by manufacturers will help you understand the various gain figures we've been discussing.

73
Frank Donovan
W3LPL

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Working DX?

I've had a lot of fun distractions from operating the last couple of years. I've been doing a lot of sailing and racing the last two years, coaching HS cross country in the fall (announced retirement Nov 18 after 12 seasons), and working on the boat in the spring. I've also been re-engineering the antennas and ham station for NA3DX/NA3MD multi-2 contesting. As a result, I've not been doing much HF lately. I missed a few needed DXCC the last year or so while racing my sailboat on the Chesapeake with N3PMF.

Since the holidays, I've spent some time on FT-8 (using WSJT-X 2.0 and JT-AlertX) and CW hunting for some of the last of the DXCC needed, as well as, band slots for DXCC Challenge Award. I've had a lot of success on 80, 40, 20, 17, and 30m with the 17 ft vertical, including Antarctica last night on 30m. These bands have been productive < 100 w. Including field day at 5 w.

I wanted to share my basic setup right now because I think it would be easy for those new to HF or those who have not operated for a while, to get on the air. The 17 ft vertical has a SGC-237 tuner at the feedpoint and two 102" whips as radials. It is up 20 ft next to my garage. This is the same tuner I use in my pickup at the feedpoint of my 102" stainless whip. The SGC-237 tuner covers the 160m to 6m band upto 100w. On the 17 ft vertical, I can tune everything from 160m to 6m. On the 102" whip, I can tune 80m to 6m. I wanted to share this with the club members because I frequently am asked how to get started on HF. It is very easy to construct a wire vertical with radials and pull it up a tree. The next great option is the 40m rectangular loop (1/3 wl top and bottom, 1/6 wl on the sides). Both do wonders depending on your space.

With the help of N3HU, N3PMF, K3FK, and K3MDM, the new HG-52SS tower is up with a tribander. A little more work and I'll have my 40m loop back up, a 6m yagi up on a 30' Rohn 25 tower, and a Hy-Gain AV-1HT multiband vertical for 40-160m.

If you need ideas, please don't hesitate to reach out. I often have access to email evenings and weekends.

Also, as a reminder I am a ARRL Card Checker for VUCC, DXCC, and WAS. If you need help, let me know.

73 and Good DX,
Doug Ellmore
NA1DX

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THE HOLLY NET

Re-activation of the weekday "Holly Net' in memory of Miss Holly Bevan, N3MB, (sk).
The Anne Arundel Radio Club and W3VPR repeater have re-started the net on October 8, 2018
NCS Radio Operators are needed during the work-week - The Holly Net, 147.105+ / 147.075+, / 444.400 with PL 107.2 Weekdays at 0700-0900 am.

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Bulgaria to Host the 2019 Youngsters On The Air Summer Camp

The ninth Youngsters On The Air (YOTA) summer camp will be held in Bulgaria, with the Bulgarian Federation of Radioamateurs (BFRA) hosting the event.

"In this YOTA Camp, we will be continuing with our train-the-trainer program, which will be the main theme of the week," IARU Region 1 Youth Working Group Chair Lisa Leenders, PA2LS, said in announcing the annual event. "Participants will be working on the future of Amateur Radio and will be involved in workshops where they gain skills to start similar Amateur Radio youth events back home. With this, we are aiming to create a snowball effect [to inspire] more and more YOTA events all over the world. This also allows other youngsters and newcomers to enjoy Amateur Radio."

Leenders said time will be set aside for the campers to enjoy Amateur Radio and to become acquainted with Bulgaria. "Previous events have shown that all participants [have] an unforgettable week, where many new friendships are started," she said.

While primarily an IARU Region 1 event, young radio amateurs from the US in Region 2 and Region 3 also have attended. "We are open for teams outside Region 1," Leenders told ARRL. "Depending on the number of applications we receive, we will decide how many participants outside the region we can support."

Individual IARU member-societies select candidates aged 15 to 25 for the summer camp, which will take place August 11 - 17 near the Bulgarian capital city of Sofia. Interested member-societies should complete the registration form by February 1. There is a limit of 80 participants. -- *Thanks to IARU Region 1 Youth Working Group Chair Lisa Leenders, PA2LS, via IARU Region 1 news*

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Two new Chinese Satellites

Two new Chinese satellites with Amateur Radio payloads are planned for an April 5 launch, CAMSAT has reported. CAS-7A will carry HF/HF (21/29 MHz) and HF/UHF (21/435 MHz) mode linear transponders, VHF/UHF linear and VHF/UHF FM transponders, a UHF CW telemetry beacon, UHF AX.25 4.8k/9.6k baud GMSK telemetry, and 3-centimeter AX.25 1 Mbps GMSK image data transmission for an onboard camera. CAS-7B is described as a 500-millimeter sphere spacecraft weighing 3 kilograms. It will carry a VHF/UHF transponder and a UHF CW telemetry beacon. -- *Thanks to* AMSAT News Service

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Anne Arundel Radio Club NEWS

The *Ham Arundel News* is the monthly official publication of

The Anne Arundel Radio Club, Inc.
(ARRL Club No. 0484).

Editor: Milford Craig / N3WYG
Send newsletter articles, questions and information to **Milford** at **newsletter@w3vpr.org**
Deadline for submissions – The Saturday after the 3rd Thursday of the month

Mailing Address:
Anne Arundel Radio Club
Post Office Box 308
Davidsonville, MD 21035

Meetings:
General Business 1st Thursday at 7:30 PM
Board Meeting 2nd Thursday at 7:30 PM
Program/Activity 3rd Thursday at 7:30 PM

Dues:
$30 per year, payable December 1st
Discounts available for family members and students

World Wide Web: **www.w3vpr.org**

AARC Supports The Maryland Slow Net:
3.563 MHz CW 7:30 P. M. Daily

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Free Money for AARC!

ARRL Membership Reminder

ARRL affiliated clubs receive a commission for every new ARRL membership and renewal they submit to ARRL Headquarters. Clubs retain a portion of the dues for each regular or senior membership submitted to ARRL Headquarters:

Clubs retain $15 for each new membership OR lapsed membership (of two years or more).
Clubs retain $2 for each renewal,
A RENEWING MEMBER can renew at any time, even before their current membership expires.

Send your application and payment (made out to AARC) to the club treasurer.

Mark Your Calendars

REGULAR ACTIVITIES

Club Meetings are held on the first and third Thursdays of the month from 7:30 to 9PM at the clubhouse located at the Davidsonville Family Recreation Center in Davidsonville, MD

Free License Exams every 2nd Saturday of the Month - Check in at Noon, Exams at 1PM - At the clubhouse - Contact David Rawley / AE5Z, testing@w3vpr.org

Weekly AARC 2-Meter Net on 147.105 (Typically linked to 147.075 and 444.400 with CTCSS tone of 107.2 Hz) every Wednesday at 8 PM - All Welcome

2 meter "HOLLY NET" on 147.105 (Typically linked to 147.075 and 444.400 with CTCSS tone of 107.2 Hz) every morning 7:00 am to 9:00 am. All hams are welcome.

EVENT SCHEDULE

Saturday, February 2
FrostFest

Thursday, February 7 7:30pm
AARC - Club meeting, newcomers always welcome.

Saturday, February 9 12:00pm
AARC - Free License Exams

Wednesday, February 13 7:30pm
AARC - Board meeting

Sunday, February 17 1:00pm
AARC - Mesh Networking group, Every 3rd Sunday, 1 to 4 PM at the clubhouse

Thursday, February 21 7:30pm
AARC - Club meeting, newcomers always welcome.

Sunday, February 24 1:00pm
AARC Kit-building, troubleshooting and repair, at 1 to 4 PM at the clubhouse
1:00pm
Open Shack Hours

Notes:
January Board of Directors Meeting

1. The picnic is on the same date as VE Testing. September is not a big month for taking tests, so we figured the VE Team could just come down the hill once testing was over, and bring any of those who took tests along too.

2. With respect to December Holiday Party several members suggested we consider switching to a Sunday evening, December 15, 2019, as a lot fewer folks are on the road. We decided to move the time up to 4pm so we could eat around 5pm and have everyone (especially the folks who's kids go to school the next day) on the way home by 8pm. Watch for more details.

3. And Field Day remember setup is on June 21st so maybe they need to know that too.

4.Each Board member is to contact 3 or 4 committee chairs or appointees to see if they have anything to report. Thus the new policy.

5. I would like to come up with a list of 'goals' for the AARC, the kind you use to evaluate events. So the idea is to collect 'goals' and then let the Board rank them, for its own personal use. But we are already started in soliciting ideas.... so if you have a list of goals for us... we'd love your input.

6.We set the entire year's calendar to broadly know what is happening It will all be on the Google Calendar shortly.

7. The new Rules Committee (open to any member who wants to join) will be meeting on the 4th Thursday of each month, starting this month. Response so far has been good.

8. Other assorted stuff .

Mark Bova is working on making a new Silent Key Plaque for the club house.

The next Tech Class starts March 9, 2019

General Class April 27, 2019.

The Holly Net still needs more volunteer Net Controllers

9. Ham Shack Renovation. This Saturday there will be a work party to put in the table tips for the Ham Shack. This is pretty much the final step in what was requested originally of the Ham Shack Renovation Committee. So at this point we need to put some rigs in there and operate a bit. Winter Field Day is coming up and will make a great first use. Then we can have a Committee Meeting, figure out what shelving, cabinets, wall brackets and other non-electronic stuff we need for each operating position. Then we create a plan, and move into Phase II.

10. Finally, like the old days, we are going to do all our Committee Reports at the first-Thursday Meeting... accompanied typically by a short presentation. Meanwhile the third-Thursday Meeting will be way short on business.... and long on presentation time.

11 Speaking of which, we still have no Field Day Chairman. If nobody comes forth by this coming Thursday we will need to pump this 'big time' in the Ham Arundel News. The new version of FT8 has enough space to put in things like contest exchanges. Last weekend was RTTY Roundup yet there was way more FT8 than RTTY on the bands. This tells me Field Day 2019 is going to be huge for FT8. In the past few years we have had 2 digital stations, 40m and 20m. There was no 80m because nobody for whatever reason was doing PSK31 on 80m. But there is lots of FT8 on 80m. So this year we may have to bump up to 6A and put in a full time 80m FT8 station. During the day we can put it on 15m if we have to. With those low signal capabilities 15m may be great for FT8 this spring. Just stuff to think about when planning Field Day.

73
Keith Miller, AE3D
President

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N1MM Logger+ Update Better Supports RTTY Roundup Participants Using FT8

An *N1MM Logger*+ software update provides some good news for those who are planning to use both RTTY and FT8 in the ARRL RTTY Roundup on January 5 - 6. *N1MM Logger*+ version 1.0.7422, released on January 1, includes changes to better support working in conjunction with *WSJT-X* in contests, including color coding of multipliers and duplicate call signs.

The *N1MM Logger*+/*WSJT-X* interface. Participants in the ARRL RTTY Roundup should be using *WSJT-X* version 2.0 or higher. [Image courtesy of Larry Gauthier, K8UT]

When configured correctly, *WSJT-X* decodes a general call and shows it in the program's left-hand band activity window. It will also be sent to *N1MM Logger*+, which will display that call sign in a new *WSJT-X*-specific window -- new in the January 1 release. The call sign color will be set to red if it's an unworked multiplier, blue if the call sign is a new station but not a new multi, or gray if the call sign is already in the log. Clicking on that call sign in the *N1MM Logger*+ window will enter it in *WSJT-X*, poised to be worked using *WSJT-X*.

For stations using RTTY and FT8 in the ARRL RTTY Roundup, the status of any particular call sign or multiplier now will show in either program. Previously, it was not possible to initiate a contact in *WSJT-X* from *N1MM Logger*+.

Switching between RTTY and FT8 (from the *WSJT-X* suite) will require different configurations for *N1MM Logger*+ for each mode. Either *N1MM Logger*+ or *WSJT-X* can directly control a transceiver at any time, but not both. Using separate .ini (configuration) files for *N1MM Logger*+ could ease the process. One configuration would be the "normal" RTTY configuration for *N1MM Logger*+, and the other would be a configuration that doesn't control the rig but does allow contacts to be logged from *WSJT-X*. See the *N1MM Logger*+ help file for more information. -- *Thanks to Larry Gauthier, K8UT, and Brian Moran, N9ADG*

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W1AW 2018 Winter Operating Schedule

Morning Schedule:

Time	Mode	Days
1400 UTC (9 AM EST)	CWs	Wed, Fri
1400 UTC (9 AM EST)	CWf	Tue, Thu

Daily Visitor Operating Hours:

1500 UTC to 1700 UTC - (10 AM to 12 PM EST)
1800 UTC to 2045 UTC - (1 PM to 3:45 PM EST)

(Station closed 1700 to 1800 UTC (12 PM to 1 PM EST))

Afternoon/Evening Schedule:

2100 UTC (4 PM EST)	CWf	Mon, Wed, Fri
2100 " "	CWs	Tue, Thu
2200 " (5 PM EST)	CWb	Daily
2300 " (6 PM EST)	DIGITAL	Daily
0000 " (7 PM EST)	CWs	Mon, Wed, Fri
0000 " "	CWf	Tue, Thu
0100 " (8 PM EST)	CWb	Daily
0200 " (9 PM EST)	DIGITAL	Daily
0245 " (9:45 PM EST)	VOICE	Daily
0300 " (10 PM EST)	CWf	Mon, Wed, Fri
0300 " "	CWs	Tue, Thu
0400 " (11 PM EST)	CWb	Daily

Frequencies (MHz)

CW: 1.8025 3.5815 7.0475 14.0475 18.0975 21.0675 28.0675 50.350 147.555
DIGITAL: - 3.5975 7.095 14.095 18.1025 21.095 28.095 50.350 147.555
VOICE: 1.855 3.990 7.290 14.290 18.160 21.390 28.590 50.350 147.555

Notes:

CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 and 15 WPM
CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and 10 WPM
CWb = Morse Code Bulletins = 18 WPM

CW frequencies include code practices, Qualifying Runs and CW bulletins.
DIGITAL = BAUDOT (45.45 baud), BPSK31 and MFSK16 in a revolving schedule.

Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and at the beginning of alternate speeds.

On Tuesdays and Fridays at 2330 UTC (6:30 PM EST), Keplerian Elements for active amateur satellites are sent on the regular digital frequencies.

A DX bulletin replaces or is added to the regular bulletins between 0100 UTC (8 PM EST) Thursdays and 0100 UTC (8 PM EST) Fridays.

Audio from W1AW's CW code practices, CW/digital bulletins and phone bulletin is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here as well. The audio is sent in real-time and runs concurrently with W1AW's regular transmission schedule.

All users who connect to the conference server are muted. Please, note that any questions or comments about this server should not be sent via the "Text" window in EchoLink. Please direct any questions or comments to w1aw@arrl.org .

In a communications emergency, monitor W1AW for special bulletins as follows: Voice on the hour, Digital at 15 minutes past the hour, and CW on the half hour.

All licensed amateurs may operate the station from 1500 UTC to 1700 UTC (10 AM to 12 PM EST), and then from 1800 UTC to 2045 UTC (1 PM to 3:45 PM EST) Monday through Friday. Be sure to bring your current FCC amateur radio license or a photocopy.

The W1AW Operating Schedule may also be found on page 91 in the December 2018 issue of QST or on the web at, http://www.arrl.org/w1aw-operating-schedule .

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Hams In Indonesia Have Three New Bands

Hams in Indonesia have three new bands. Indonesia's IARU member-society ORARI reports that the Ministry of Communications and Information Technology has allocated bands of 135.7 - 137.8 kHz (2200 meters), 472 - 479 kHz (630 meters), and 5.315.5 - 5.366.5 MHz (60 meters), effective on December 31, 2018. The 60-meter band is at a maximum of 15 W EIRP for Advanced and General licensees only. All allocations are on a secondary basis.

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AARC STAFF – 2019
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Director B	Larry Booth / AA3AU larry.board19@w3vpr.org	
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Resident Agent	Justin Leishman / KC3BJT ra@w3vpr.org	
Trustee	Dick Mayo / WW3R trustee@w3vpr.org	

Committees

Club Sale & Auction	Ike Lawton / W3IKE club.sale@w3vpr.org	
Digital Networking	Scott Rasmus / KC3BFW networking@w3vpr.org	240 758 0463
Facilities	Eric Berman / KC3GDV facilities@w3vpr.org	
Field Day	(TBD) field.day@w3vpr.org	
Station Manager	Rick Steer / AB3XJ ham.shack.coordinator@w3vpr.org	
Ham Shack Renovation	Jamison Phipps / W3KNH ham.shack.renovation@w3vpr.org	
Holly Net	Jim Wallace / N3ADF holly.net@w3vpr.org	
HSMM-MESH	(TBD) hsmm.mesh@w3vpr.org	
Kit building & Repair	'Raven' Weiland / KB3MUV kit@w3vpr.org	203 948 5369
MDC QSO Party	Jim Wallace / N3ADF mdcqsop@w3vpr.org	301 538 6233
Newsletter	Milford Craig / N3WYG newsletter@w3vpr.org	301 218 8867
Packet Radio	Jonathon Grafe / AE2JG packet@w3vpr.org	240 426 2664
Program	Tim Nagel / KB3YQK vice.president@w3vpr.org	
Public Service	Erick Graves / WA3G public.service@w3vpr.org	410 987 7670
Repeater Ops	John Williams / K8JW repeaters@w3vpr.org	410 647 7406
Rules	Chuch Tanner / K3ACT rules@w3vpr.org	301 464 2667
Service Hours	Jim Wallace / N3ADF service.hours@w3vpr.org	301 538 6233
Tower	(TBD) tower@w3vpr.org	
Training	Keith Miller / AE3D training@w3vpr.org	240 758 0423
VE Team	David Rawley / AE5Z testing@w3vpr.org	
Webmaster	Mark Bova / W2PAW webmaster@w3vpr.org	240 274 6294
Wed. Nite Net	Jamison Phipps / W3KNH wednesday.night.net@w3vpr.org	
Winter Field Day	Rick Steer / AB3XJ winter.field.day@w3vpr.org	

Groups

Board of Directors	board19@w3vpr.org
Kit Building Committee	kitbuilding@w3vpr.org
Rules Committee	**rules.com@w3vpr.org**

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VE Testing Schedule

Second Saturday of each month – Noon – AARC – Rick Steer / AB3XJ **testing@w3vpr.org**

Third Saturday of each month – 9AM – Laurel ARC – John Creel, 301-572-5124

Fourth Tuesday of each month – 6PM – MMARC – Mike Montrose / KA2JAI 443-310-4907 web site is tinyurl.com/marylandmobileers

To all exams bring:

- Picture ID
- Social Security Number or FCC Registration Number (FRN)
- **ORIGINAL** and a **COPY** of current FCC amateur radio license

  ORIGINAL and a COPY of all element credits (eg., FCC letters, old licenses or unexpired Certificates of Successful Completion of Examination-CSCE)

Countdown to Third Annual AM Rally Has Begun

The third annual AM Rally is on the near horizon -- just about 6 weeks away -- beginning at 0000 UTC on February 2 and continuing until 0700 UTC on February 4. The event aims to encourage the use of AM on 160, 80, 40, 20, 15, 10, and 6 meters while highlighting the various types of AM equipment in use today. The event is open to all radio amateurs running AM using any type of radio equipment -- modern, vintage, tube, solid-state, software-defined, military, boatanchor, broadcast, homebrew, or commercial. It's an incentive to dig out that old AM-capable tube gear that's collecting dust and spiderwebs in the attic or basement.

"We're very excited about the upcoming AM Rally in February, given its growth over the past 2 years and the positive comments we've received," said Clark Burgard, N1BCG, who is spearheading the event with Steve Cloutier, WA1QIX, and Brian Kress, KB3WFV. "In particular, it's great to hear how so many ops are giving this classic mode a try, many for the first time, and of the help offered to them by those who have mastered the technology."

For many, if not most, radio amateurs getting on AM is as simple as pressing the AM mode button on the front panel. Numerous transceivers in use today offer AM capability. A lot of hams enjoy restoring and using vintage Amateur Radio equipment, which typically means a separate transmitter and receiver. Until SSB subsumed it on the ham bands, AM was the primary HF voice mode.

Today, a group of dedicated radio amateurs keeps the flame alive, getting on AM frequently, and for many of them, AM is their primary operating mode. The AM Rally gives the uninitiated a chance to dip a toe into the pool, so to speak.

The event website has complete AM Rally details, contact information, award categories, logging, and tips on how to get the most out of your station equipment in AM mode. Contact Clark Burgard, N1BCG, for more information.

AM superstar Tim Smith, WA1HLR, with the Gates BC-1T AM broadcast transmitter he helped to restore for occasional use under W1AW or under the ARRL Headquarters Operators Club call sign, W1INF.

The event is sponsored by Radio Engineering Associates (REA), in cooperation with ARRL, which supports all modes of Amateur Radio operation. W1AW will play a leading role in the event, as it has for the past 2 years.

Certificates will be awarded to stations scoring the highest number of points in each of the five power classes, regardless of rig category, both for most contacts and most states/provinces.

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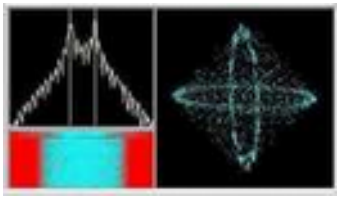
RTTY and FT8 Successfully Coexist in 2019 ARRL RTTY Roundup

Based on informal exit polling and log-submission trends, it appears that RTTY and FT8 successfully shared spectrum during the ARRL RTTY Roundup over the January 5 - 6 weekend. The event is seeing a dramatic uptick from last year in the number of logs submitted, with more than 2,400 and counting received by midweek, as opposed to 1,622 in the 2018 running. ARRL Contest Branch Manager Bart Jahnke, W9JJ, is urging everyone who participated in the 2019 RTTY Roundup to turn in a log -- no matter the number of contacts made. Logs for the 2019 RTTY Roundup are due by Sunday, January 13, at 2359 UTC, and may be uploaded via the ARRL website (or see mailing instructions for paper logs).



"The 30th running of the ARRL RTTY Roundup is now in the books," Jahnke said. "All indications are that the event -- in both RTTY and other digital categories -- gained significant additional attention and increased popularity with the inclusion of FT8 in the digital lineup." Jahnke said digital operating experience gained through the RTTY Roundup should benefit participants in the upcoming ARRL January VHF Contest and in future VHF contests, where *WSJT-X* protocols such as JT*x*, MSK144, and FT8 continue to gain popularity as a means to work hard-to-reach grids beyond the usual 400-mile tropo-scatter range, and for slower activity periods.

Jahnke reminds those submitting RTTY Roundup logs to make sure they're entering in the correct category. All entries that made contacts in FT8 or PSK*xx* (with their multi-channel decoder technology) must enter in one of the Unlimited categories, unless they're Multioperator entries. Contact the ARRL Contest Branch with any questions.

The inclusion of FT8 for the first time in the RTTY Roundup had generated considerable pre-contest debate, but when all was said and done, many stations tended to operate one mode or the other, although some took advantage of both (and perhaps of other digital modes), judging from logs posted on the 3830scores website. The RTTY Roundup came close on the heels of the inaugural FT8 Roundup over the first weekend in December, which was deemed a success (it was the first-ever contest for the winner -- only licensed for 2 years -- and for one other Top 10 finisher).

Alex Panoiu, YO9HP, in Romania, said he was initially hesitant about the idea of mixing RTTY and FT8, but he set up for both modes anyway. "Definitely in the first hours, the rates were three times higher in RTTY compared to FT8," he said in his 3830scores comments. "But later, when less 'fresh meat' was available in RTTY and propagation became marginal, FT8 became interesting. I noticed that most of the calls worked in FT8 never appeared in my RTTY log." He logged 369 digital

contacts and 639 RTTY contacts.

The WW4LL Multi-Single, High Power team made about one-third of its contacts using digital modes. J42L, operating Multi-Single, Low Power from SV2DCD, avoided RTTY altogether, logging 535 digital contacts.

FT8 co-developer Joe Taylor, K1JT, operating Single Operator Unlimited, Low Power used only FT8, logging 585 contacts. He noted "close to zero" inter-mode interference between RTTY and FT8 signals.

NCJ Digital Contesting Editor Ed Muns, W0YK, said he was very impressed with how the first RTTY Roundup to permit FT8 worked out.

"FT8 has significant advantages for a much larger group of contest participants who are constrained by geography, housing limitations, solar conditions, power, and noise," Muns said. "The amazing explosive growth of FT8 activity since its introduction in mid-2017 also means that there are many more participants for all of us to work in contests."

Muns said he initially didn't believe that RTTY and FT8 could coexist in the same contest. "Of course, like many things we can debate *ad infinitum*, a little bit of actual experience goes a long way to inform our [preconceived notions]," he added. "I'm very impressed with how it all worked out."

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On-Orbit Frequency Change

On-Orbit Frequency Change Announced for UWE-4 CubeSat The Satellite Technology group at the University of Würzburg has announced a change of frequency for the UWE-4 CubeSat, launched on a December 27 *Soyuz* flight. The 1U CubeSat carries an electric propulsion experiment and a 70-centimeter 9.6 k AX.25 digipeater.

"After 2 weeks in orbit, UWE-4 is in very good shape," the group reported. "After the early-orbit phase, we are looking forward to some interesting experiments with the attitude determination sensors and the propulsion system. Unfortunately, our uplink success rate is very poor, which currently prevents these experiments." The university team said that the problem appears to be a "substantial noise floor" at the original frequency. "For this reason, we filed a request for the change of our radio frequency to 435.600 MHz with IARU, which has already been approved," the group said. The procedure to change the UWE-4 frequency began on January 10. The Satellite Technology Group requested that radio amateurs forward any UWE-4 telemetry files via email. -- *Thanks to the UWE-4 Team via Trevor, M5AKA, and AMSAT News Service*

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Historic Schooner that Carried Ham Radio on Arctic Expeditions Undergoing Additional Restoration

The nearly century-old schooner *Bowdoin*, built in 1921 and relaunched nearly 3 years ago, after some extensive renovation and refitting, is once again in dry dock to restore its hull. During explorer Donald B. MacMillan's Arctic Expedition of 1923 and on the MacMillan-McDonald-Byrd Expedition of 1925, the sailing vessel relied on Amateur Radio operators for communication. Built in East Boothbay, Maine, the *Bowdoin* has made more than two dozen visits to the Arctic under MacMillan's command. It was named after MacMillan's alma mater, Bowdoin College, and has become the official vessel of the state of Maine, a national historic landmark, and the flagship of the Maine Maritime Academy (MMA) Vessel Operations and Technology Program. Work on the vessel is currently under way at Boothbay Harbor.

"Our goal is to maintain the boat to the highest standard, to go above and beyond in order to preserve this living piece of history," MMA Marine Operations Manager Dana Willis said in a December media release. One such preservation update has been supplementing *Bowdoin*'s sails with a diesel engine.

At Wiscasset, Maine, with the schooner Bowdoin, ARRL sponsors check out the receiver furnished by Zenith for the 1923 Arctic Expedition. From left to right: F.H. Schnell, 1MO, Traffic Manager; K.B. Warner, 9JT, Secretary-Manager, and Hiram Percy Maxim, 1AW, ARRL President.

In 1923, MacMillan had turned to ARRL for help in outfitting his expedition with better wireless gear, and, as Michael Marinaro, WN1M, explained in his June 2014 *QST* article, "Polar Exploration," that help "was enthusiastically provided." ARRL Co-Founder Hiram Percy Maxim and the ARRL Board agreed to furnish support and recruited Donald H. Mix, 1TS, of Bristol, Connecticut, to serve as the shipboard operator. Board member M.B. West custom-designed the equipment, which was built by radio amateurs at his firm, Zenith Electronics. The transmitter operated on medium-wave frequencies with a power of 100 W and used the call sign WNP -- for "Wireless North Pole."

The Bowdoin is launched from Wiscasset, Maine, for the 1923 MacMillan Arctic Expedition.

As Marinaro explained in his article, "WNP transmitted weekly 500-word press releases and listings of stations worked and heard. Once received by amateur stations, these reports were delivered to local affiliated newspapers of the North American Newspaper Alliance; from there, they were distributed syndicate-wide by

telegraph."

In 1925, the *Bowdoin* headed to Greenland. "The outstanding accomplishment of the expedition was in the sphere of radio," Marinaro wrote. "Utilizing shortwaves, the expedition was in consistent contact with the outside world throughout the journey, to the delight of the amateurs who were able to work them. The phenomenal success proved to the Navy that shortwaves were definitely superior to the long and ultra-long waves on which the fleets had been relying."

The *Bowdoin* is expected to be seaworthy again for the summer sailing season, when it will serve once again in MMA sail training courses. -- *Thanks to Maine Maritime Academy*

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Court Rules Excessive Antenna Application Fees Violated Reasonable Accommodation

Long-pending Amateur Radio antenna litigation that ARRL helped to fund has finally borne fruit. The Supreme Court of the State of New York, Appellate Division: Second Judicial Department has ruled in the case of Myles Landstein, N2EHG, that the Town of LaGrange, New York, not only overstepped its state-granted authority by assessing excessive fees, but violated the limited federal preemption PRB-1 in the process. PRB-1 requires municipalities and states to "reasonably" accommodate Amateur Radio antennas and to apply the "minimum practicable regulation" in handling Amateur Radio antenna applications. The ruling is slated to be published as a case decision. Landstein, who lives in the Bronx, had wanted to erect a 70-foot antenna support structure for a multioperator station in the Hamlet of Lagrangeville; the Town of LaGrange has a 35-foot height limit.

"This case, which goes back to 2013, was about applying PRB-1 to a situation in which a municipality attempted to thwart the installation and maintenance of ham radio antennas by imposing excessive permit application costs on the ham applicant," said communications attorney Chris Imlay, W3KD, who is familiar with the case. Imlay said the FCC has refused to clarify the cost-prohibition issue as it relates to PRB-1's "minimum practicable regulation" and reasonable accommodation provisions of PRB-1.

"The Town incurred more than $17,000 in legal consulting fees in connection with [Landstein's] applications, and informed the petitioner that he was required to reimburse the Town for these fees before any determination would be made with respect to the applications," the court decision recounted. "The Town subsequently, as 'an accommodation to the petitioner,' reduced the amount...to...$5,874, but also required the petitioner to maintain a minimum advance continuing escrow balance of at least $1,000 to cover the Town's future consulting costs..."

"We hold that, because the Town did not limit the consulting fees charged to the petitioner to those necessary to the decision-making function of the town's Planning Board and Zoning Board of Appeals, the town exceeded its state-granted authority by requiring payment of the consulting fees and, moreover, violated a rule promulgated by the [FCC]," the court concluded.

Given the significant delay, Imlay said both he and Landstein had lost hope that the case would ever be resolved in Landstein's favor -- and in the favor of radio amateurs in New York, generally -- much less be a case that would "create favorable precedent for Amateur Radio."

"ARRL originally was drawn to this case, because New York is the only state that, due to a very old case decision, has held that Amateur Radio antennas are not necessarily a 'normal accessory use' to residential real property," Imlay explained. "Because the issue in the case dealt with both that issue and the issue of cost prohibitions in the permitting process relative to the cost of the antenna installation, we decided to fund the case." Landstein lost at trial, and an appeal was filed in about 2015, for which ARRL provided memoranda of law about the cost-prohibition issue. "The antenna at issue and the support structure was to cost no more than $1,000," Imlay said.

The court concluded that the town "may not use its land-use regulatory authority to construct 'hoop after hoop' for the petitioner to jump through in order to erect his radio antenna tower [and] cannot impose unreasonable expenses so as to create an insurmountable financial barrier to the pursuit of the project. In this context, not only must the consultant fees be reasonable..., but the underlying services must be necessarily related to those municipal regulatory functions which are not preempted by federal law."

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AARC Workshop

"In order to better serve the membership of the Anne Arundel Radio Club, the development of a maker space was approved by the Board. We are calling it the "Workshop".

The new space is really coming together. This summer we made great progress in cleaning out Shed #1. The repeater antennas were able to be hung off the wall. This made it much easier to work in the shed.

The next major hurdle was the removal of the 6 and 10-meter cans.

We have received approval from the membership to purchase A Drillpress, Metal Bandsaw, Metal Break/bender, and some soldering equipment. All but the Break/Bender had been purchased and we are just waiting for the tax-free status to be re-approved so we can buy it.

Last month we talked about working on the uBitX radio kit. Please contact us if you are interested in building it with the group kit@w3vpr.org "

73

Eric Berman, KC3GDV

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Building With Stripboard

Gary McBrien - K3EEZ

How I Began to Use Stripboard

I began a new project trying to duplicate (with a few changes) a design of an Amateur couple I'd found on-line.

They had used a piece of plastic to mount their parts and Molex-style connectors to tie them together.

I was looking for a more sturdy solution and my mind went back 25 years or more ago to when I worked with wire wrap at my job. Unfortunately, I found that, even though this was a good technique in it's day for rapid-prototyping, and even production, that it's time had past and I could not even find a source of wire wrap posts. The decline of wire wrap was attributed to the ability to rapidly design and deliver Printed Circuit Boards (PCBs) cheaply using on-line resources.

So I began to look to other ways to mount and interconnect components.

I thought of using the type of perfboard where each hole was surrounded by a conductive pad and you make multiple connections by bridging adjacent pads with solder. I also, looked at using breadboard-like boards that are laid-out like the modular plastic breadboards that you use for prototyping by pressing components and jumper wires into holes that are connected by conductors within the board. That is, they have buses laid out on the edges and perpendicular "columns" laid out in the center that are connected vertically with spaces horizontally for components that have dual-rows of pins such as microprocessors. Since most of my components had screw terminals except for an Arduino, I decided to use plain-vanilla perfboard that is, a non-conductive board with a grid of holes for component mounting and connecting wires.

That worked okay and I even got a finished product.

Changes to the design however, allowed for the consolidation of several components that, for me, was advantageous from a heat/power perspective.

I went back to looking at my options for mounting the components again, and this time came across stripboard.

The term stripboard seems to be generically applied to boards that may have layouts like the "breadboard" design with buses and vertically conductive "columns". What I am referring to in this article however when I say stripboard, is a board that has holes drilled in a grid pattern spaced 0.1 inch apart, like a plain-perfboard, and one side appears just like a plain-vanilla perfboard. However, on the other side the holes are connected in vertical columns (or rows depending upon your view) by continuous conductive traces. In this article, I'm going to use the convention that the conductive strips run vertically. I'm also using the term "strips" since this is stripboard. These are synonymous with "traces" in PCB terminology. Stripboard was originated by a company in the UK, Veroboard, and this type of construction is said to be more popular there.

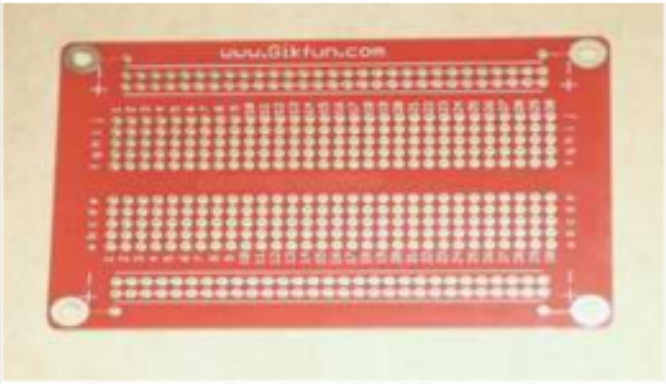

Illustration 1: Breadboard "Like" Prototype Board

Illustration 2: BPS StripBoard-3U

Design and Layout

The design of stripboard gives you a continuous conductive path in one direction for a strip. You make connections between strips using horizontal jumper wires or components. And if you don't want a continuous conductive path on a strip, you cut it. This is of course, a very necessary thing when you mount something like a microprocessor on the board since if you mount it horizontally across the strips (mounting it vertically would make little sense) the parallel pins would be shorted.

To make the best use of this design, you hopefully choose to assign a full strip to those signals and resources that need to connect to the most components. In my case, there are two DC voltages, 12V and 5V and ground. The 12V power and ground, due to the way they are supplied, (through separate conductors of a multi-conductor bundle) arrive as two 12V conductors and two grounds. I chose to assign these to individual strips and then tie the two 12V strips together and then to tie the two ground strips together. The project is not supposed to draw more than 1 Amp and the manufacturer says an individual strip can handle over 2A (depending on temperature rise and other factors).

I laid out the design using the drawing program that comes with with Libre Office, Libre Draw.

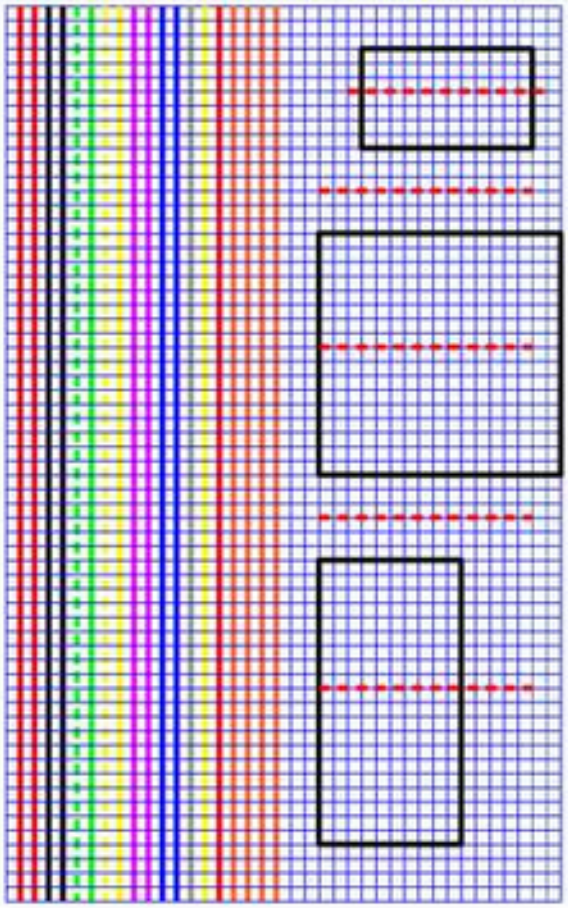

Illustration 3: StripBoard Layout

I made the dimensions the actual dimensions of the board and drew a 0.1" grid to represent the holes in the board. The black rectangles represent the components actual size and the thick dashed horizontal lines represented the cuts across the strips. I found later that I had gotten a little too aggressive in my laying out of the cuts.

I ended up actually drawing the color-coded "bus" lines on the non-conductive side of the board using colored fine-tip "permanent" markers that corresponded to the strip below them.

Next came the need to find the best way for me to cut the discontinuities in the strips.

Tools

I first thought of using a Dremel tool with a mill-end but that seemed like it would be hard to control. Suggestions found on-line included using an Xacto knife or an Xacto knife with the blade tip ground to an obtuse angle to make kind of a chisel as thin as the blade's thickness. I tried using an etching tool that I have and it worked but it took many passes to get what I considered a wide enough separation and the cuts were not very straight. I looked for purpose built tools and found two. They both worked on the same principle. They have a center "nub" that goes into a hole in the board and a cutter that lies a little better than ½ the width of a strip when the tool is inserted. You insert the nib into the hole and rotate the tool to cut a circular area of the board including the conductive strip.

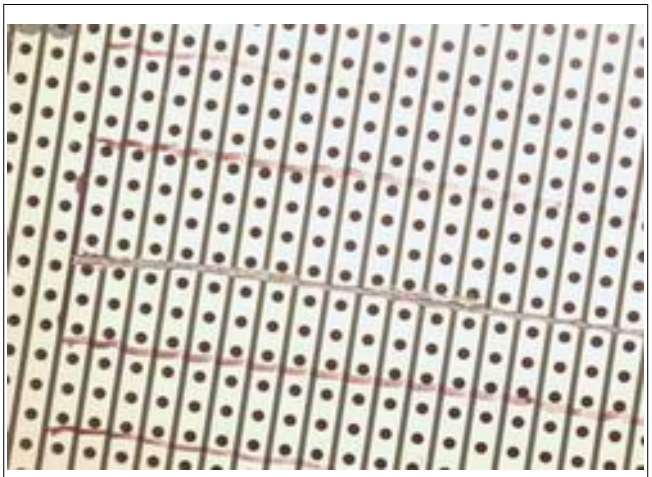

Illustration 4: Stripboard Cut Using an Etching Tool

The only trouble was that the purpose built tools had poor reviews. Mostly due to lifting the strip versus cutting it. The description of the those purpose-built tools however reminded me of something. I had purchased a set of Pilot Point drill bits for the purpose of drilling holes in some fiberglass tubes. Pilot Point bits have a tip in the center and the rest of the business end has little bevel compared to normal twist drills. They are akin to brad-point drill bits.

I went and found one of the Pilot Point bits that was just a bit larger than a strip is wide, the 1/8 inch diameter bit. I mounted it in a pin vice and tried it out. It worked great. It required only a few ¼ or ½ turns and very little force to quickly clear a circular area in the strip. This also makes the board a bit thinner where it is done and makes the cut visible from the non-conductive side which can aid as a check to ensure that you are positioning components and jumpers correctly.

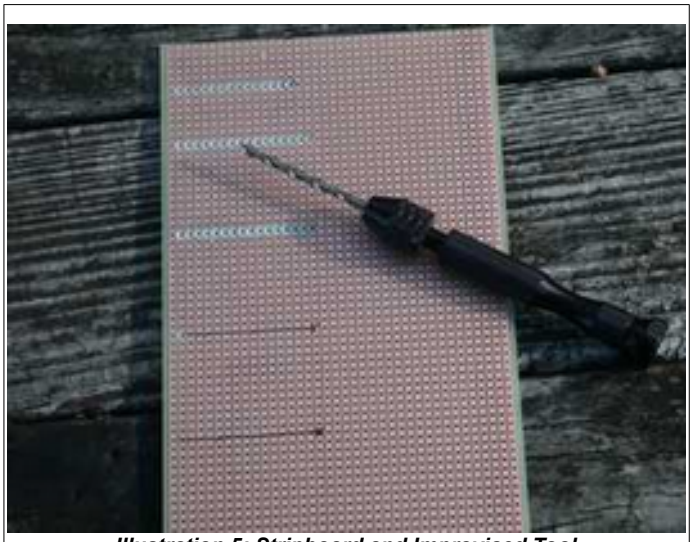

Illustration 5: Stripboard and Improvised Tool

Soldering

I began the component placement and soldering. A couple of the components I found could be mounted on headers such as the Arduino. The headers pins generally have the same offset, 0.1 inch as the holes in the board. I find that the best way to mount headers is to first solder one pin, usually one of the end pins, and then reheat that to make adjustments of the header to insure it is flush to the board and perpendicular. That way you don't have to try to un-solder multiple pins before it is in the final configuration.

The strips are fairly close together and my eyes aren't what they used to be. Where there are multiple adjacent solder joints to be made, it can be tricky. I was surprised though that I made only one or two, unintended bridges. I began using 0.8 mm diameter solder and completed the project using 0.4mm. It helped keep me from adding too much in one place and melted faster.

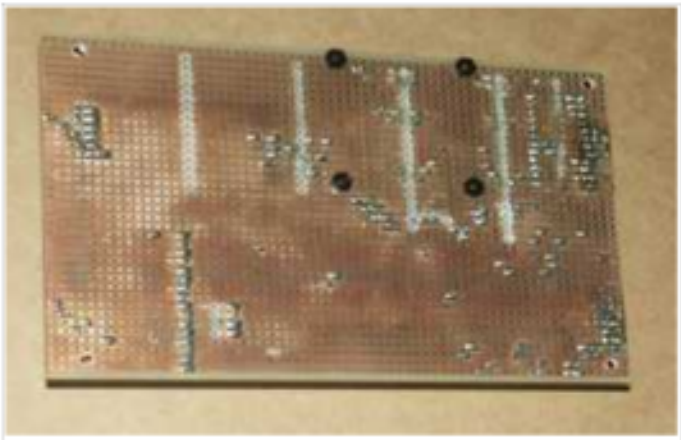

Illustration 6: Back of the Completed Project - Copper is Tarnished From Handling

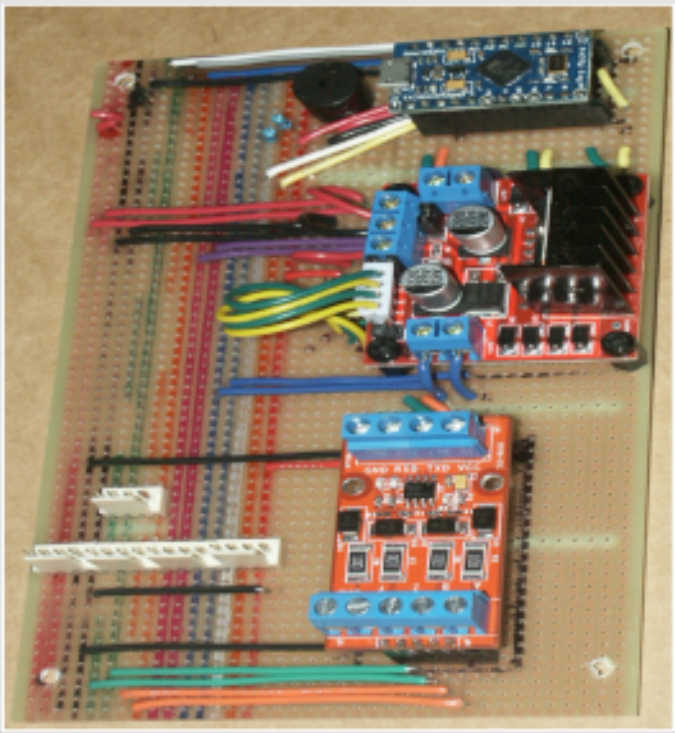

Illustration 7: The completed project

The Good, the Bad, and the Ugly

So in the end was this a good choice? I think so. It's savings are that you eliminate perhaps as much as 50% of the jumpered connections you need to make. It's a subtractive versus additive process to use the parlance of the 3D printer world. In other words, the connection is there unless you break it. It would probably pay more dividends if their were more "bus" type connections on the project. That is, more junctions requiring more than just two connections. Using stripboard did have the added advantage of allowing me to position the on/off board connections in one place. That way, I can bundle the wires for all of the on/off connections together and keep them out of the way.

The tool was quite rapid to use. Could a standard twist drill work just as well? Maybe, uisng a standard twist drill was one of the suggestions I had found on-line. The 1/8 pilot point drill bit didn't really have a protrusion on the tip like it's larger cousins. It had a change in the angle where the cutting edges meet at the point that can be felt but not seen without magnification. I could definitely tell when it was centered in a hole. Would a brad point drill bit work? I would worry about enlarging the hole with the "brad" and weakening the board (although the board I bought is epoxy).

I made longer cuts than I needed to in the beginning requiring more jumpers than needed. I probably could have avoided this by drawing the jumpers on the layout.

I drew the color-coded lines for the "buses" I had drawn on the layout of the board, on the board itself, using "permanent" marker. I put permanent in quotes because it began to wear off in places, due to handling, while I worked. I used a straight edge to draw the first several lines but I found that the color would bleed under it especially when I used a ruled straight edge that had the rulings inset into it. I finished the last few masking the board with painters tape which was time consuming.

Having the color-coded lines however was really an advantage when making connections.

I found that doing QA (Quality Assurance) on the stripboard was simplified by it's layout. I clipped a test lead to the end of each strip and checked the continuity of that strip to adjacent ones. In that way, I quickly identified a couple of places where I had unexpected continuity due to bridging some solder points.

All and all, it made for a very clean layout with little need for wires to overlap each other making it easy to follow their path by sight alone.

73

Gary McBrien
K3EEZ

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UPCOMING HAMFESTS

This is a list of Hamfests in the Maryland-DC Section and nearby Pennsylvania, northern Virginia, West Virginia and Delaware [... and nearby] as a courtesy to our neighboring Section Managers.

We hope to see you there and bring a fellow Ham and friends.

- - - - - - - - - - - - - -

Roanoke Division Convention (Frostfest)

Date: Saturday, February 2, 2019
Location: Richmond Raceway Complex, 600 East Laburnum Avenue, Richmond, VA 23218
Sponsor: Richmond Amateur Telecommunications Society RATS)
Website: http://frostfest.com | VE exams, DXCC card checking
Talk-In: 146.880(+) PL 74.4, W4RAT Richmond, VA
Public Contact: Robert Marshall, KI4MCW
Phone: 804-620-7287 | Email: ki4mcw@frostfest.com

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WASHfest 2019

Date: Sunday, February 24, 2019 from 8AM to 3PM
Location: Home Economics Building-South Park, 3735 Buffalo Drive in South Park Township, PA
Sponsor: Wireless Association of South Hills Amateur Radio Club
Website: www.n3sh.org
Talk-in 146.955 or 443.650(+) PL 131.8
Contact: Carol Danko, KB3GMN, 412-884-1466 | Email: n3sbf@comcast.net or washarc@yahoo.com
[Approx. 2hrs from Frostburg, MD near Pittsburgh, PA]

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US Islands Awards Program Announces 25th Anniversary Award, Recent Rule Changes

The US Islands (USI) Awards Program celebrates its 25th anniversary this year and is offering a commemorative award for both chasers and activators for contacts made between January 1 and December 31.

To qualify, chasers must confirm 25 islands during 2019, as a club or individual, and activators must qualify or activate 25 islands in any combination, making at least 15 contacts for both new island qualification and island activation. This award can be issued to multiple club members using a single call sign, or to an individual. Send a list of confirmed or activated islands to Award Chairman Jay Chamberlain, NS4J. The list should include name, call sign, address, email, USI number, island name, date worked or activated, and call sign used or worked.

The following permanent rule changes went into effect on January 1: The minimum contact count for island qualifications has been lowered from 25 to 15; the contact requirement of two DXCCs during an island qualification has been dropped, and the bands eligible for island qualifications have been expanded to include 6 meters and satellite contacts.

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AARC Mesh Networking Group

1:00 to 4:00 PM monthly,
on the 3rd Sunday of the month
AARC Clubhouse, Davidsonville, MD
(Next Meeting will be February 17, 2019.)

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SECTION TRAFFIC MANAGER'S REPORT

FOR THE MDC WEB SITE 1812

MDC NTS NETS:
MEPN 1812 W3YVQ QND/31 QNI/395 QTC/49 MINS/763
BTN 1812 AB3WG QND/31 QNI/374 QTC/27 MINS/477
MDD 1812 AA3SB QND/54 QNI/279 QTC/92 MINS 566
MSN 1812 W8CPG QND/31 QNI/111 QTC/19 MINS/502
PSHR:W3CB 142, WB3FTQ 140, KK3F 140, W3YVQ 135, K3IN 110, NI2W 103, AA3SB 100, N3JET 74, AB3WG 52;
TFC: KK3F 2908, K3IN 168, W3YVQ 113, WB3FTQ 89, AA3SB 70, W3CB 30, NI2W 28, N3JET 24, AB3WG 14

HF PROPAGATION

MEPN: The winter schedule propagation was functional throughout DEC 2018, with good signals until well after 1700L. Outbound traffic to MDD may be routed via the Digital Traffic Net if it is anticipated that MDD may not be able to conduct a net, a tricky prediction at best, but may be carried by the MDD liaison to an MDD EchoLink session as warranted.

MDD: NVIS propagation for local MDC stations on MDD early and late, and on 3RN/C4 nets, was nearly or totally non-existent for many evenings in DEC. On some of those nights the propagation recovered enough by 2130L 3RN and/or 2200L late MDD for net sessions to be run. On several nights, the propagation was functional for all four nets, on others it failed for all.

As we watch the days get longer since the solstice, we are beginning to see a slow change due to the time of sunset at altitude but the solar activity is not supporting 80m NVIS propagation well after dark on many nights.

It was interesting to note that on some nights when the NVIS MUF was below MDD frequency we were still

able to run the nets due to a residual active E layer which persisted for several hours after dark.

Check 1857 ± on 160m as an alternative as notified by the NM or NCS. EchoLink on WB3GXW-L may also be used to coordinate the movement of traffic, particularly to Digital Traffic Net liaisons for posting that night or the following morning for daytime distribution nation-wide. Moving traffic by DTN PacTor is still an on-air activity for SAR reporting. Moving traffic via Winlink between stations or to DTN hubs in Batch File format is permitted and may be done via radio on HF or Packet, or via internet on one or both ends if necessary. Email may be used when no other paths are available. Only the radio paths qualify for SAR points.

These are solar minimum issues being experienced by nets all over the country. Work-arounds like ours are in force for many nets.

Sunspot activity continued to decline with many spotless days. This is expected to continue in 2019.

BTN LOCAL NTS TRAFFIC AND TRAINING NET

The BTN continues to meet on 145.33/R (no tone) daily at 6:30PM local time and continues to welcome new amateurs. The availability of an active directed traffic net of the NTS on VHF is exactly why the BTN was established, providing a welcoming place for newcomers to the Amateur Service. Thanks to all the BTN stations checking into the MEPN via EchoLink.

MEPN/MDD/3RN ECHOLINK

MEPN representatives check for EchoLink check-ins starting at net call daily via the WB3GXW-L link node (or ***WASH_DC*** conference node backup if the -L node is not available). Several BTN and MEPN members, as well as stations outside the area, have used EchoLink to check in when HF is not available to them. MDD operators are also welcome. Thanks to all.

WB3GXW has kindly given permission for the MDD and 3RN operators to coordinate message handling on the WB3GXW-L conference bridge as needed during this solar minimum period.

MSN CW TRAINING

Remember that the MSN provides CW training daily for newcomers to the mode, or those wishing to refresh their skills, daily at 7:30 PM on 3563 kHz.

Each trainee works with an assigned instructor off the net frequency to receive radiograms containing training information. Instructors work with each student at their own desired speed and check-in schedule. All are encouraged to master the art of CW via this net or personal training in order to support and join the ranks of our MDD Section CW net. Robin, AA3SB, MDD NM, and the veteran staff, will be glad to help you advance to the evening CW full Cycle 4 of the NTS.

Thanks to all the Section traffic net NCS stations, DTN/RRI and WL2K stations, liaisons, and traffic handlers for the continuing effort to keep the nets running and traffic moving.

Thank you for your continued support of MDC integrated ARES(r) and NTS operations.

73, W3YVQ, MDC ASM, STM
w3yvq atsign arrl dot net
w3yvq atsign winlink dot org from WL2K

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QRP-ARCI

Registration is Open for QRP-ARCI "Four Days in May" 2019 Registration is open for the QRP Amateur Radio Club International (QRPARCI) "Four Days in May" (FDIM), Thursday - Sunday, May 16 - 19, at the Holiday Inn, Fairborn, Ohio. The annual FDIM event for QRP enthusiasts and builders takes place in conjunction with Hamvention®. Sign-in begins the evening of Wednesday, May 15. Most of Thursday will be taken up with seminars, "meet the speakers" opportunities, and an open room for casual show and tell. Most of Friday and Saturday are open to attend Hamvention and visit the QRP-ARCI Toy Store. Friday evening activities typically include "show and tell," vendor displays, and a homebrew contest. Saturday evening features social activities and a banquet, while Sunday is open for Hamvention. Attendees are invited to display their QRP-related projects at FDIM. Reservations and group room rates for FDIM are available via the QRP-ARCI website. For more information, contact FDIM 2019 Chair Norm Schklar, WA4ZXV.

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ISS Fan Club Website Closed

ISS Fan Club Website Closed, New ISS Fan Club Site Opened The ISS Fan Club website closed on January 1, 2019, after nearly 17 years. The site offered information on tracking the International Space Station and on crew activity. It provided frequencies and ISS digipeating assistance, as well as a place to showcase ISS slow-scan TV (SSTV) images and to meet fellow ISS fans. Brian Clark, KF6FES, has told ARRL that one of the founding members of the ISS Fan Club site, Claudio Ariotti, IK1SLD, and several members of the ARISS team, including Clark, have launched a new ISS Fan Club site. "This new site is growing by the day, and very soon we will also offer much of the historical voice QSOs from the original site, as well as SSTV photos," Clark said. An unrelated International Space Station Fan Group Facebook page offers similar information.

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Repeaters and Nets

2 Meter Repeaters

Location	Frequency	Tone	Notes
Davidsonville	147.105+	107.2	AARC Repeater with morning traffic net.
Glen Burnie	147.075+	107.2	AARC repeater Located in Northern AA County.
BrandyWine	147.150+	114.8	SMARC Repeater.
Prince Frederick	145.350-	156.7	SPARC/CARC Repeater.
Laurel	147.225+	156.7	Laurel ARC Repeater.
Millersville	146.805-	107.2	Repeater.

1.25 Meter Repeaters

Location	Frequency	Tone	Notes
Davidsonville	223.880-	107.2	AARC 1.25M repeater *check to see if tied into 7.105...
Millersville	224.560-	107.2	AARC repeater Located in Northern AA County.

70cm Repeaters

Location	Frequency	Tone	Notes
Davidsonville	444.400+	107.2	AARC 70 cm Repeater.
Annapolis	442.300+	107.2	AARC 70 cm repeater
Laurel	442.500+	156.7	Laurel ARC 70 cm Repeater.
Millersville	449.125-	107.2	Maryland Mobileers Repeater.
Upper Marlboro	443.600+	103.5	SMARC 70 cm Repeater.

Packet Stations

Location	Frequency	Call	Notes
Davidsonville	145.050	W3VPR	AARC Club packet node running JNOS
Davidsonville	145.010	W3VPR-5	Digipeter Relay to EOC Winlink
Millersville	145.010	W3AAC-5	Digipeter Relay to EOC Winlink
Glen Burnie	145.010	W3AAC-10	EOC Winlink system and digipeter

Amateur Radio NETS

Name	Frequency (in Mhz)	Day	Time
The “Holly Net”	147.105+ PL 107.2	Weekdays	0700
AARC Talk Net	147.105+ PL 107.2	Wednesday	2000
AA County ARES Net	146.805- PL 107.2	Sunday	2000
Baltimore Traffic Net	146.670-	Daily	1830
Boating Net	146.805- PL 107.2	Wednesday	1930
Maryland Emergency Phone Net	3.920	Daily	1800
Maryland-DC-Delaware Traffic Net	3.643	Daily	1900 and 2200
Maryland Slow Net	3.563	Daily	1930
React Net	442.300+ PL 107.2	1st Sunday	1930

*We use **simplex 146.430 Mhz** frequently enough that you should probably program that into your HT or mobile. This is the go-to frequency for many 5K race/walk volunteering efforts, local communication, Field Day setup, and the like when we're not using a repeater.*

REPEATER FREQUENCIES

Davidsonville	Millersville	Glen Burnie	Annapolis
147.105+		147.075+	
223.880-	224.560-		
444.400+			442.300+

PL: 107.2 for all repeaters
The 147.105 and 147.075 repeaters are frequently linked. Please leave an extra second after the courtesy beep to allow the link to reset as well.

Visitors are welcome *to all meetings and nets.*
Meetings are held in the Clubhouse at the
Davidsonville Family Recreation Center*,*
Queen Anne Bridge and Wayson Roads off
MD Route 214 near Davidsonville, MD.
For en-route directions,make initial contact on the 147.105 repeater.

Wednesday Night Talk Net -- All are welcome

8PM, On the AARC Repeater 147.105

Other Amateur Radio nets

Name	Frequency	Day	Time
The "Holly Net"	147.105+Mhz PL 107.2	Weekdays	0700
AA County ARES Net	146.805- Mhz PL 107.2	Sunday	2000
Baltimore Traffic Net	146.670- Mhz	Daily	1830
Maryland Emergency Phone Net	3.820Mhz	Daily	1800
MD-DC-DE Traffic Net	3.557Mhz	Daily	1900 and 2200
Maryland Mobileers Net	146.805 PL107.2	Monday	1930
Maryland Slow Net	3.563 MHz	Daily	1930
REACT Net	442.300+Mhz PL107.2	1st Sunday	1930

The Radio Amateur Operator is...

CONSIDERATE

...He/[She] never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL

...He/[She] offers loyalty, encouragement and support to other amateurs, local clubs, the IARU Radio Society in his/[her] country, through which Amateur Radio in his/[her] country is represented nationally and internationally.

PROGRESSIVE

...He/[She] keeps his/[her] station up to date. It is well-built and efficient. His/[Her] operating practice is above reproach.

FRIENDLY

...He/[She] operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

BALANCED

...Radio is a hobby, never interfering with duties owed to family, job, school or community.

PATRIOTIC

...His/[Her] station and skills are always ready for service to country and community.

- adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928The Radio Amateur's Code