

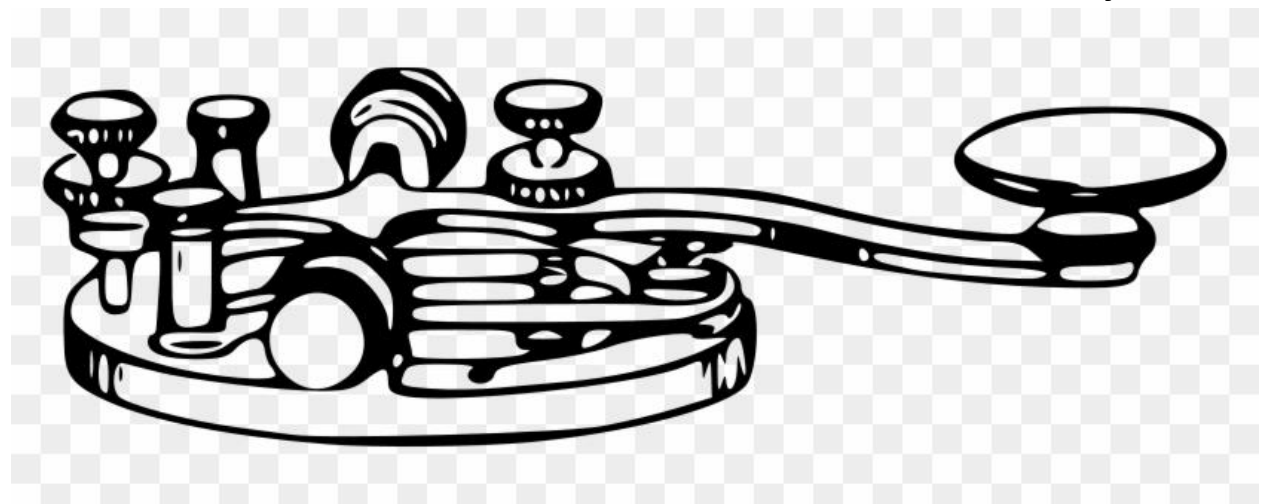


QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933

February, 2022



When all else fails, you can count on Amateur Radio

From Our President:

I am sure that in the next month I will date something with 2021 but in the main I seemed to have figured out that it is now 2022, I think. Currently in our area Covid cases are once again falling and people are venturing out. I had occasion to have lunch at Larkspur Landing last Saturday and never in the existence of that mall have I seen it so crowded. I will qualify that by saying that the last time I was there was in 2018. If we have learned anything about Covid is that it defies prediction so we will reclaim our lives and keep a watchful eye out.

Our general meetings will continue as hybrids. Although I will note that I met from home because I had potentially been exposed at work, which turned out not to be the case. No one else met at the club house. I intend to be back there on February 4. On February 6 we intend to open on Sunday morning for "Babble Studies" as we used to do. In both cases we will follow Marin County Health Orders which at this writing require everyone to wear masks in all indoor public spaces regardless of vaccination status.

Our Public Service season is getting off to an early start this year. On February 19th we will have the MARS Annual Service Awards and pre-season briefing at the Marin Rod and Gun club. All are invited to attend whether you volunteered for an event in 2021 or not. Lunch and soft drinks will be provided but you need to let us know you will be attending by emailing to rsvp@w6sg.net before end of day on February 3. We need to know so we can make sure there is enough food. The Marin Rod and Gun club requires you to show vaccination status as they did last year. This will be followed quickly on 12 March by the Fault Line Fondo.

I think that is enough blather from me at this point and I am looking forward to seeing you either on zoom or in person at either the general meeting or the Public Service meeting.

73 de wa6uds

From the Editor:

Going into the second month of the new year, we are still facing some uncertainty regarding the Covid-19 Pandemic, However, humans are good at adaptation. No matter what life throws at us, humans will meet the challenge head-on. Thanks to you, members of our club, the content of the QSA-5 is expanding in size and scope. I asked for input, and I got it, so thanks once more for all your contributions. Your contributions prove that collaboration can lead to a better product!

With that said, January was a slow month as far as club news is concerned. While there are some new items within this month's issue of the QSA-5, I've left a few articles in from last month that are worthy of being repeated. We'll have more club coverage in next month's issue.

I want to build up a technical section within this publication because many of you have interests that lean towards the computer and electrical engineering side of amateur radio. I started a section on DMR radio in last month's issue of the QSA-5 and plan on making it a recurring item within our pages. I'm considering also adding a monthly column on antennas and DIY radios in the future. If you have any area of interest you would like to see within the pages of the QSA-5, email me and I'll include it.

QSA-5Editor@w6sg.net



General Membership Meeting: January 7th, 2021

Call to Order: 19:30 Hours (7:30 PM) Zoom started at 7:00 P.M. Meeting called to order at 7:33 by Curtis WA6UDS. The meeting was on zoom only with no one at the club house.

Approve minutes: November and December meetings Minutes of November 2021, and December 2021 were M/S/A without objection.

Adopt Agenda: No changes were proposed to the agenda and M/S/A without objection.

New Members:

Ross Bogert KW6EZ – Larkspur
Frank Klebanoff KG6JHT – Novato
Charles Von Schaischa KN6SHX - San Rafael
Emily Yu KN6SKB - Mill Valley
Jaime del Palacio KN6SCB - Mill Valley
Marc Kohli KN6PNF - San Francisco
Steve Scheppelmann KN6RAZ - Santa Rosa

Board Actions: Sunday morning sessions are still on track with first meeting 2/6/22 unless the situation changes. Covid rules will be based on the then current Marin County guidelines. Please don't attend if you have potential covid symptoms.

We have established an advisory committee for NBAM, a collaboration with MARS, RCV, and RACES to develop a Mesh backbone along the 101 corridor.

Presentation: N/A

Fun with Ham Radio: Due to some technical issues, we were not able to provide a detailed account of this portion of the meeting. However, a number of interesting topics were discussed, and anecdotes shared.

Secretary – Communications: No secretary's report was presented.

Treasurer's Report: The treasurer's report was contained in QSA-5 and Bruce N6VLB is currently working on closing 2021 in the accounting system.

Committee and other Reports:

Membership:

Membership at the end of 2021 was 155 which is 112% of our 2020 membership. As of today's meeting, 31 members are current which is 20% of 2020. The first renewal reminder emails will go out this weekend.

Facilities:

No major issues have come up. We are trying to navigate through the county's decision to make shared drainage systems the landowners responsibility. Boat anchors that did not sell at auction have been removed to provide more room for the VE session this weekend.

Education: N/A

Repeaters:

A trip to Mt Tam to resolve the transmitter power issues on the 147.33 machine is being planned.

VE

The first VE Session of 2022 is scheduled for 1/8/22 at 1:00 pm at the clubhouse.

VOAD/RCV

Will be going before the Board of Supervisors for formal recognition. New events planned for 2022

NBAM

Will be forwarding a proposal for about 80K to Amateur Radio Digital Communications to purchase hardware. There was a discussion of digital modes to be used by for NBAM and RCV.

Old Business: N/A

New Business: N/A

Good of the Order: M/S/A

Adjourn: Motion to Adjourn M/S/A. Meeting adjourned 9:13 zoom meeting left open.

Post-agenda Presentation: N/A

Next General Meeting: February 4th, 2022

Respectfully Submitted 1/20/21
Curtis Ardourel WA6UDS



“Your parents hath given you a name. And the FCC hath given you another...”

Marin Amateur Radio Society Board of Directors Meeting

Director: Curtis Ardourel WA6UDS

Director: Brian Cooley K6EZX (

Director: Tom Jordan KG6TCM

Director: Ken Brownfield AB6JR

Trustee K6GWE: Doug Slusher KF6AKU

Trustee W6SG: Mitch Martin WU1Q

Trustee K6GWE: Doug Slusher KF6AKU

Trustee W6SG: Mitch Martin WU1Q

Elect Officers (Officers roles for calendar 2022; Chosen by board via discussion)

President - Curtis Ardourel WA6UDS

Vice President - Tom KG6TCM

Secretary - TBD (Brian Cooley pending proposed bylaws change at Feb board meeting)

Treasurer - Bruce N6VLB

Director: Skip Fedanzo KJ6ARL

Director: Bruce Bartel N6VLB

Director: Mark Klein KM6AOW

Adopt agenda M/S/A

Approve minutes of 9 December M/S/A

Secretary's Report/Communications Brian updated the board on his interest in remaining as Secretary per a bylaws change that would clarify that Secretary is not required to record General Meetings.

Treasurer's Report Bruce N6VLB asked if we should have financials to publish for the general membership approved in advance by the board and to what level of detail that should be written. Curtis added a conversation about that to a future board meeting, suggesting a streamlined version of the financials will suffice. Bruce is in touch with our external [CPA, Mark Mumm](#), to do our next round of taxes and corporation status documents.

Committee and other Reports:

Membership: 77 | 49% Curtis portrays this is a very healthy start to the year.

Education: TBD at a future meeting discussion.

Facilities: Skip KJ6ARL reminded us that we still need to deal with the west side property drainage situation at 27 Shell Rd. Brian K6EZX said he will intro Skip to Armando Chan at Chan Drainage for a consultation. Brian has used him for several projects of about the scale that we need at the clubhouse property and Skip has found that other drainage contractors only take on larger jobs.

Public Service Handled below in these minutes.

Technical Doug KF6AKU reported that we have the new standalone machine for Tam West but we're burning it for a while before we take it up the mountain for installation. This should cure the habit of the current repeater there sometimes putting out fluctuating output levels that can potentially cause interference issues with other machines on the peninsula.

VOAD/RCV Skip reported that some new exercise and activity notices are going out soon and a planning meeting is coming up tomorrow afternoon. Will proceed to go in front of the Marin BoS in the next couple of months to get accredited as a formal program and not just as a pilot program.

VE Testing Ken AB6JR reported that we had 11 people in the last VE session, all but 3 from outside Marin, which he would like to see more balanced with local applicants. Tom suggested we promote special CE sessions for LEOs through the MCSO which he and Ken will work on developing.

NBAM (North Bay Area Mesh) Curtis updated the board about the new Bay Area Mesh technology project. Its master proposal is to expand the data mesh up and down the north bay Hwy 101 corridor at a cost of around \$80k has been drawn up and NBAM will be proceeding to seek funding for it. We

might be called upon to lend our name and expertise to that funding effort, but not funding per se.

Old Business:

1. **Tower** N/A
2. **Life membership** N/A
3. **Frequency coordination** Skip asked the board how we would like him to proceed with regards to our applications for official freq. coordination with NARCC, which have been in that orgs hands for some time: Does the board want him to turn up the heat on our request re: coordination of 146.700 system (and our application re: 147.330)? He suggests a formal but firm letter asking for a status report and urging action to be completed. NARCC has meetings which Skip has attended one of but isn't convinced that such broad meetings are the best avenue to press this issue vs. communicating with the coordinating committee of NARCC. The 1-year mark for our application will be coming up in a few months.
4. **Drainage** Covered under Facilities above
5. **Rent Increase:** Continuing convo from the last board meeting:
 - a. Last increase to our tenant was 11/1/20 to \$2500 from \$2450, a 2% increase from the previous rate set on 1/1/19, and not at all for several years prior to that. The board recognizes the value of having our long-term stable tenant but also that we are clearly below market value. The max. we can raise the rent in any one annual cycle is 5% unless we want to risk triggering a review subject to CA state rental laws. A few years ago we compiled an estimate that the unit would need perhaps \$20,000 of work to get it ready for a change of tenant, plus rent lost during the time that work would be done and the unit lie vacant. That number is almost certainly much higher today as is the difficulty of locating some contractors. It was M/S/A to raise the rent by \$100 starting on March 1, 2022, and that will be communicated to the tenant by Curtis WA6UDS giving 30-day notice before such increase would be in effect.

6. **Sunday morning meetings** We planned to restart these on the first Sunday in Feb 2022, but the board discussed delaying that date to the first Sunday in March while monitoring the pandemic and county rules around it. Ken AB6JR commented that we could end up in an almost endless “punting” cycle if we are waiting for COVID to be “handled”. Also, the repair bench has recently been updated and improved, creating a further draw for Sunday morning open meetings. Brian suggested that we take a month to at least assemble and perhaps install smart home tech to make the clubhouse access process work better and with greater peace of mind around lighting, HVAC, security, etc. Skip KJ6ARL moved that we open on the first Sunday in February, with county virus guidelines posted prominently at the entrance and at least 2 other locations inside the clubhouse, an idea that was endorsed by Tom KG6TCM. Such signage and policy would further limit occupancy to 6 persons at any one time, each required to RSVP, plus a monitor overseeing the session. Ken also noted that we already have a comfort level and best practices in place for clubhouse use, as evidenced by the VE sessions. M/S/A

New Business:

1. Amendment to NBAM resolution to add the text *“to and through Sonoma County to the Mendocino border”*. M/S/A
2. **Comm Truck window repair** Per receipt and work detail appended at the end of these minutes, the club is asked reimburse Michael K6MLF for repair to one of the van’s window motors. Bruce asked about the necessity of this repair being done without board prior approval, and we confirmed that it was urgent to keep the van from getting soaked with a window down during recent rains. Bruce also noted that the comm can has been a substantial and recurring source of expense over the last year so he would like to see some circumspection around future van expenditures and a forecast of what they will amount to annually. M/S/A to reimburse Michael K6MLF
3. **Budget for Public Service Luncheon** M/S/A by visual show of hands to approve the expenditure for the PS Luncheon, as detailed at bottom of

this agenda, not to exceed a total of \$2,600, including a tip for the caterer and any small unforeseen items.

- a. Registration will be handled as before, with pre-registration via email to RSVP@w6sg.net. Vaccination status will be verified as per last year (in advance and at the gate) by Ann K6SHO. Esther (caterer) needs a total headcount 3 weeks from today, though that can allow for up to 10 more lunches up until Feb 12.

Good of the Order N/A

Executive Session N/A

Adjourn

B. Cooley

Next General Meeting February 4th, 2022

Next Board Meeting February 10th, 2022

**Marin Amateur Radio Club
Balance Sheet Comparison
As of November 30, 2021**

	TOTAL	
	AS OF NOV 30, 2021	AS OF NOV 30, 2020 (PY)
ASSETS		
Current Assets		
Bank Accounts		
B of A Building account - 8795	2,346.63	1,329.05
B of A General account - 4328	8,992.94	9,624.98
CD	25,000.00	25,000.00
Money Market	5,000.00	5,000.00
Public Service	355.76	
Skip Fedanzo	81.84	
Total Bank Accounts	\$41,777.17	\$40,954.03
Total Current Assets	\$41,777.17	\$40,954.03
Fixed Assets club house- 27 Shell Rd. MV	58,983.00	58,983.00
Total Fixed Assets	\$58,983.00	\$58,983.00
TOTAL ASSETS	\$100,760.17	\$99,937.03
LIABILITIES AND EQUITY		
Liabilities		
Total Liabilities		
Equity		
Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	-22,636.76	-10,052.02
Net Income	-1,003.07	-14,410.95
Total Equity	\$100,760.17	\$99,937.03
TOTAL LIABILITIES AND EQUITY	\$100,760.17	\$99,937.03

Cash Basis Tuesday, November 30, 2021 11:27 PM GMT-08:00

**Marin Amateur Radio Club
Profit and Loss
January - November 2021**

	TOTAL	
	JAN - NOV, 2021	JAN - NOV, 2020 (PY YTD)
Income Donations	262.03	1,874.38
Dues	6,676.47	8,221.41
Income from club activities	828.00	
Rent	27,525.00	26,950.00
Sales of Product Income	20.32	43.77
Total Income	\$35,311.82	\$37,089.56
GROSS PROFIT	\$35,311.82	\$37,089.56
Expenses Awards	400.00	100.00
Car & Truck	2,699.26	1,433.98
Contractors		270.83
Equipment < \$2,500	322.79	500.00
Food	1,536.00	1,277.00
Garbage	379.92	489.74
Insurance	6,450.00	5,756.75
Job Supplies	87.37	11.00
Legal & Professional Services	25.00	525.00
Other Business Expenses		254.71
Reimbursable Expenses	4,436.21	3,516.07
Rent & Lease	150.00	150.00
Repair & Maintenance	2,281.66	23,584.57
Repairs & Maintenance	813.34	
Repeater	0.00	3,587.41
Taxes & Licenses	8,476.20	7,795.61
Telephone	93.24	852.79
Uncategorized Expense	1,127.50	
Utilities	6,218.55	487.02

VE Session	188.00	
Water	629.85	908.03
Total Expenses	\$36,314.89	\$51,500.51
NET OPERATING INCOME	\$ -1,003.07	\$ -14,410.95
NET INCOME	\$ -1,003.07	\$ -14,410.95

Cash Basis Tuesday, November 30, 2021 11:29 PM GMT-08:00 1/1

Questions and Answers

This section of our publication is dedicated to any questions you have. If there is something you need or a problem you cannot solve, this is the place to seek assistance. Who provides the answers? Readers of the QSA-5 publication!

While the next question was not directly sent into the QSA-5 Question and Answer section of the newsletter, I believe that the subject matter warrants our attention: It comes from the Principal of the Davidson Middle School, here in San Rafael, and was sent to the QSA-5 by our club's President:

Hello, Marin Amateur Radio Society, I'm the principal at a school in San Rafael (Davidson Middle) and we have some new radios for our staff that we need to program to our existing radios. I'm hoping they work together, and hoping you know who can do this for us? Any advice is appreciated. The models we would like to pair are Kenwood TK-2400 and Motorola RMU2040. Best, Michael

If any of our club members can help the school out or know someone who can, contact the QSA-5 or our Club's President, Curtis. One of the things amateur radio operators are known for is the willingness to help our communities out. This would be an excellent way to help a school and perhaps open the door for our club to go in and give a radio demonstration to the next generation of amateur radio operators.

LIFE IS SIMPLE

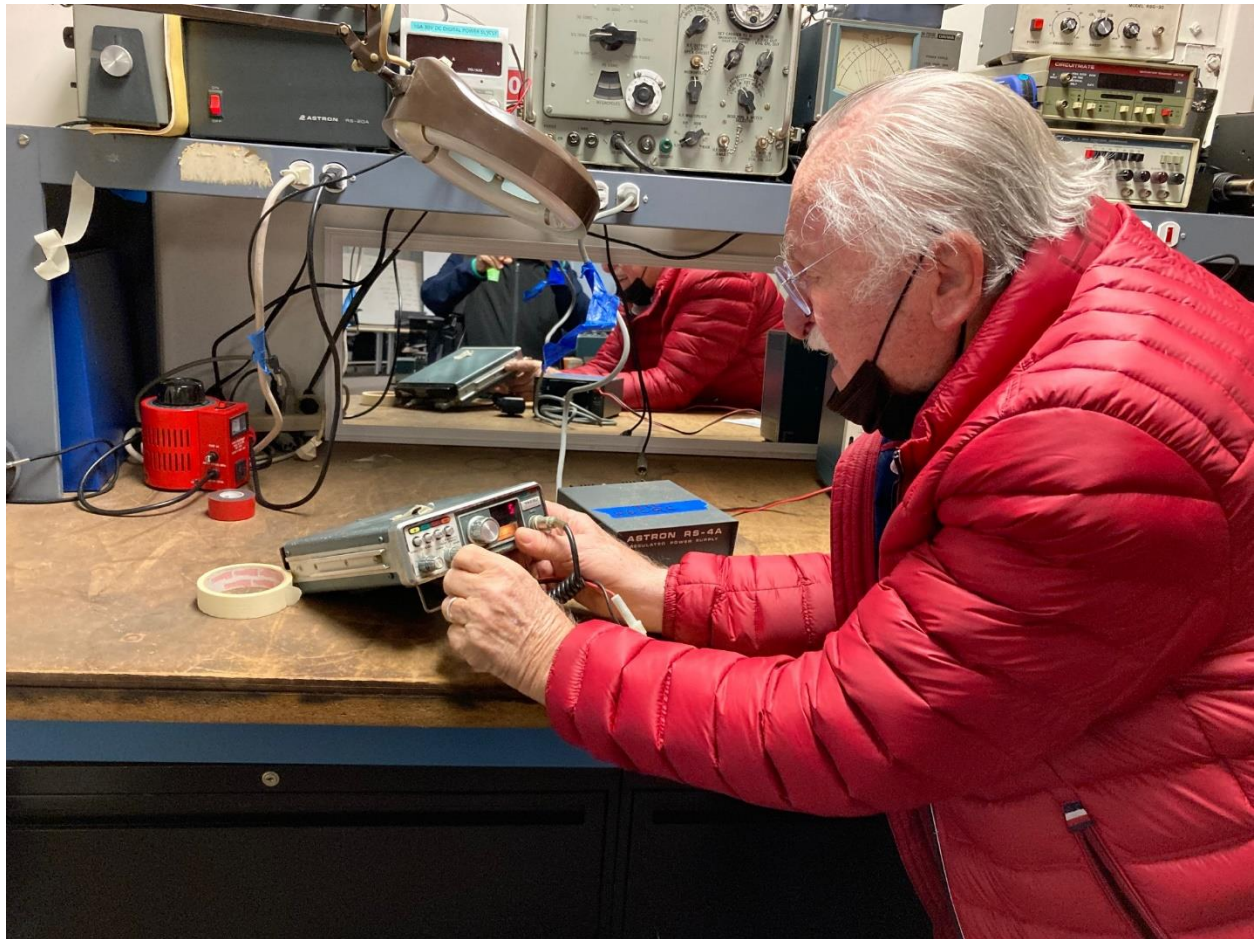


Marin Amateur Radio Society News

New Mirror Installed at the Clubhouse

This might seem like the QSA-5 is having a slow news month, but this is not a mirror in the traditional sense. This mirror is mounted on the back side of the primary work bench in our laboratory section of the clubhouse. Have you ever had to work on a large electronical device and find yourself constantly having to turn

the device around to see its backside? If you had a mirror placed behind the device, you would be able to examine the opposite side without have to move the device around. This is a good idea for any electronics bench. Here are some photographs of the new mirror.









This last one is of Jan when he was a radio officer on a ship. We had to include this one since he is the King of the club's electronics lab!

ARRL Announcement

Curtis and Board Colleagues

At the request of our President, on Saturday December 4th, I participated in the ARRL Pacific Division meeting via Zoom. The meeting was chaired by Pacific Division Director, **Kristen McIntyre (K6WX)**. She introduced the new Assistant Director, **Anthony, W7XM**. The meeting opened with a recognition of members who became silent keys during the year. There was a total of 104 participants from all over the West Coast. The only attended that I personally knew was **Bill Smith (AB6MT)**. If Bill Hillendahl was there, I missed him.

The substance of the meeting opened with Kristen's report on the State of Ham Radio.

She reported that the major issue is recruiting new members to the hobby. As I recall this was the lead issue at the last meeting I attended as well. The recruiting dilemma is how to appeal to younger people while still actively preserving the past. Recruiting young people will be essential to the hobby maintaining relevance. She thinks our stock with government agencies is in decline, particularly emergency services. The consequence will be increasing threats to spectrum preservation by the business sector. She noted that the ARRL's new magazine "On the Air" is proving more appealing to the masses as coffee table book as opposed to "QST" which is seen as most attractive to nerds. Popular outreach is going to be necessary to shore up the hobby.

Kristen is quite impressed with ARRL's new CEO, David Minster, NA2AA. She is convinced that he will be good for the organization and the hobby. The major problem at ARRL is staffing at the national headquarters in Connecticut. It is expensive to live there, and it is relatively remote. For example, ARRL computer development has slowed to a crawl due to thin staffing. There is only ½ full-time equivalent employee working on ARRL software and that person is devoted to Logbook of the World. Otherwise, the organization is relying on volunteers for development and maintenance. To expand the outreach of the organization, ARRL has changed its operating hours to be open later to serve the West Coast. This marks an apparent effort by ARRL to reach out and listen to the field more before acting and issuing policies. Bottom line is that she thinks the new CEO is taking the organization the right direction and she is optimistic.

The good news is that public gatherings will resume next year. Conventions up post COVID including the National Convention at Orlando and the Hamfest at Dayton. ARRL has also conducted an in-person Board meeting recently.

Politically there may be trouble on the horizon. The spectrum loss in the 3 GHz region may be an indicator of things to come. ARRL recognizes this and they are prepared to spend money to defend the spectrum. Compounding the problem is that the FCC has been hard to get too due to COVID. They are only now returning to their offices. As a result, the license fee is set in concrete now due to the FCC's interpretation of the law. Therefore, ARRL will pay the license application fees for certain new young applicants. The ARRL has had to hire a lobbying firm to push through its latest revised version of the Parity Act (to minimize the restrictions in

CC&RS limiting amateur radio antennas in condominium complexes) through Congress.

ARRL is involved in a new significant project called the Public Clean Signal Initiative. They are building upon an earlier initiative in which the quality of receivers has been improved. They are now focused on working on transmitters that are non-linear. The goal is to get transmitters off the air that generate noise and garbage (such as harmonics) along with their signals. This will set new certification standards for manufacturers for clean transmitters. Noted ham gear tester Rob Sherwood is involved in this project. Their studies are discussed at Contest University.com. This project has enough traction that it is likely that their recommendations may be adopted by IEEE.

A new standing committee called the Emergency Communication Field Services Committee has been established in the ARRL organization. The role of this committee will be oversight of ARRL management of its emergency communications service support to hams and liaison to governmental agencies utilizing those services. This is in apparent response to the perception of decreasing relevance of amateur radio in this area.

The next portion of the meeting was entitled Q & A but was more an opportunity for the attendees to speak to matters they thought was important.

One question that was asked was about the adjustments made to the 220 MHZ frequency band allocation. While the band has been expanded to 219 to 225 MHZ, a couple of practitioners in that range noted that a portion was being carved out for digital only. They were seeking more guidance on that. It was the first that Kristen had heard about it and agreed to follow up. The take-away on this was that if you use that band, you should find out more about spectrum reservations.

Next was a discussion of emergency communications particularly to and within hospitals. A couple of ARES leads met with their hospital clients to talk about needs especially repeaters in hospitals to support HT use in hospitals when the power goes out. (I have some question about the legality of this). However, this discussion quickly morphed into the fact that hospitals generally state that their real need is for data communication for exchange of documents, not voice. It

became clear to all that the solution to this problem is a MESH network. This gave rise to a discussion of problems with use of amateur radio MESH in this environment. The first was the limited spectrum availability for amateurs in the 5 GHZ MESH bands. The second was passing HIPAA protected data unencrypted over amateur systems and encryption to protect it. This issue has apparently raised its head before when an FCC Commissioner raised the encryption issue on use of WINLINK and PACTOR for this purpose. Apparently, the FCC sees amateur radio encryption as a national security issue.

This discussion led to several discussions about MESH which is generally viewed as the wave of the future. For emergency services the capability of MESH to support voice communications with VOIP on desk phones has attracted much attention. Gateways utilizing TCP-IP and raspberry-pi computers were touted as being able to provide desk voice communication in emergencies easily and at relative low cost. Also, ARDN MESH in California is getting a number of new key partners such as CALFIRE and the DOD for emergency services. Again, encryption was identified as being a problem in this area as well.

The last substantive discussion was from the Inyo/Kern Section manager. They have a local Emergency Services Committee that includes all interested organizations from police and fire first responders to Red Cross and Salvation Army down to CERT leadership. Its mission is to identify needs and arrange for provision of services. The mission sounds much like the role of our EOC. The stated emphasis is to meet each served organization's needs rather than to try deciding for those agencies what their needs should be. Interesting concept.

It is always interesting to see what other folks are doing and what is viewed as important in the amateur radio hobby. I appreciated the opportunity to represent MARS at this meeting.

Milt Hyams

December Critical Mass Event

This is a reprint of the December Critical Mass Event because the QSA-5 has not yet received any reports of a January event. What's a critical mass event? It's an opportunity for amateur radio operators to practice their communication skills in preparation for emergency situations. Who can participate? Any licensed Amateur Radio Operators with any level of experience. All you need to do is bring your radio, paper, and pencil. It's important, as an amateur radio operator, to participate in these events because when all other forms of communication breakdown, amateur radio is the last line of defense. This is one of the few hobbies that can serve as something fun to do as well as a communication tool during disasters. Get involved!

Here are some photographs of the Critical Mass event that took place in December. A big thanks to everyone who participated!









If you're wondering what kind of individual events take place at these critical mass events, here's a breakdown of the club's agenda from the November Critical Mass Event:

- * Our usual phonetic alphabet practice as we self-introduce

- * A primer/refresher on the basics of NIMS (the National Incident Management System) and ICS (the Incident Command Structure.)

https://www.fema.gov/sites/default/files/2020-07/fema_nims_doctrine-2017.pdf

- * How to read and report your current latitude and longitude--and we will practice that

<https://medium.com/@thegeospatialnews/how-to-get-gps-coordinates-of-your-loc>

[ation-using-your-smartphone-1de312900e1d](#)

* Hopefully, a briefing by a fire department official on the communication challenges during a major fire

* We will close with hands-on practice in a controlled net and a Fox Hunt! If you have one, bring a directional yagi or Elk antenna with your HT.

<https://www.youtube.com/watch?v=eQSiTqH9Dzw>

We were privileged to have Chief Gerald McCarthy, Deputy Chief in Novato, give us a great briefing on NIMS and the ICS system. See his handout copied above. We urged all hams interested in emergency communications to take FEMA's on-line courses ICS 100 and 200:

<https://training.fema.gov/is/courseoverview.aspx?code=is-100.c>

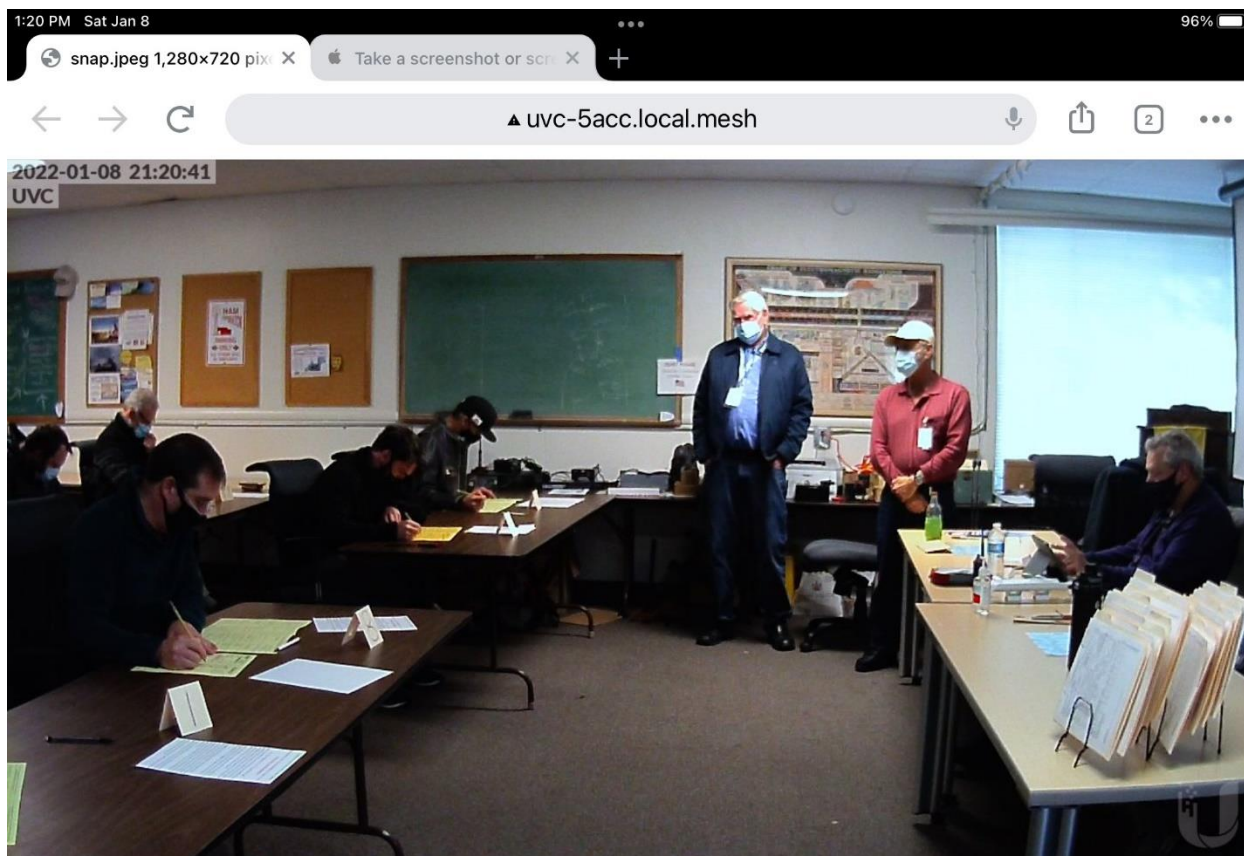
We practiced using our smartphone to get your location's latitude and longitude. Oftentimes, when we are calling 911 to report an emergency, we are not near a street address or a roadside mileage marker. The dispatchers CAN make use of GPS coordinates, which you can access through some of the compass apps. Since the meeting, I have also learned of the app called Context Camera. With that app, you can take a photo of the event and the date, time, GPS coordinates and the direction your camera is pointing is embedded. That photo can then be texted to the responding emergency crews. In one of the photos, you can see Rich AG6QR demonstrating the HAMGPS app. Try them out!

With Rob NZ6J's good-humored leadership, we closed the meeting with a Fox Hunt, using directional antennas to locate a stealth radio that was hidden in a bush, silently transmitting away--until its battery died!

January VE Test Session Report

The Marin Amateur Radio Society held it's first Volunteer Examination session of the new year on January 8th, 2022. One of the reasons the number of amateur radio operators grow each year is because of the dedicated work of Volunteer Examiners. **Ken AB6JR** and his team of Volunteer Examiners did a great job of testing new licensees and individuals upgrading their current licenses. Those who sat for their license exams on the 8th, had a seamless experience. It is extremely important to run a problem free, smooth testing session because the VE program has a great responsibility to both the examinees and the FCC. As always, Ken and his team did a brilliant job. Here is part of Ken's report:

Five applicants passed the Technician exam with one of those also passing the General exam. Three others passed the General exam for a total of four new General Class license holders. We had two applicants upgrade to Extra class, one from San Francisco and one from Novato. We only had one applicant fail an exam and it was for General.



Here's a photograph of January's Volunteer Examination test session

2022 VE Test Sessions

Ken AB6JR and his team of volunteer examiners has sent three dates to the ARRL for examination sessions. Those dates are Jan 8, April 9, July 9, and Oct 8, 2022. The testing sessions will start at 1:00 PM and will take place at the Marin Amateur Radio Society's clubhouse. Ken noted that the club is not restricted in the number of exam sessions taking place, meaning more could be added if need be.

There's been some discussion about possible evening examination sessions as well. Ken has also requested some information regarding do online exams, which would extend the scope of the VE team's abilities. Jim Saltzgaber KM6WWY, has volunteered to take the position of Assistant Lead Examiner, should anything happen to the lead examiner, Ken.

2022 is going to be a great year for the club's VE program! Again, a big thank you to Ken and his VE team for bringing new amateur radio operators in the fold. You can only grow interest in an endeavor by increasing the number of people involved. Anyone who has VE credentials and wants to help out should contact Ken.

New Garage Installed at the Clubhouse

Reprint from the December issue: The gang's hard work at the clubhouse deserves an extension of this piece from last month's issue of the QSA-5. Considering the rain we've had over the last month, it's a good thing this even took place! There's been a great deal of activity at the MARS Clubhouse as we head towards getting back to business as usual in 2022. One important activity was the replacement of the garage used to house our mobile radio station. As always, our crack team of volunteers made quick work of the project. Thank you to everyone who participated. Here are some photographs from this event. Again, a big thank you to all who participated in the project!







Help Extend the SF Emergency Wireless Emergency MESH (Update)

Reprint from the December issue: The MESH network is not simply an idea being employed by our club for emergency communications. The MESH system was recently on the news in New York City where it's being used to provide affordable WiFi for city residents (note, this is a different MESH system than our club is using). MESH networks are becoming commonplace and easily available. The router needed for a MESH network connection can be found on Amazon. While the MESH system in New York City is being used for internet connectivity, it still serves an emergency service in that people can receive important information via the MESH system in times of disaster. Here's a link to a news story about the installation of a MESH internet system in New York:

Sick of Traditional Internet Providers, BK Neighbors Are Setting Up Their Own WiFi with NYC Mesh

<https://bkreader.com/2021/05/10/nyc-mesh-brooklyn-new-york-community-mutual-aid-pandemic/>

Because the San Francisco Emergency Wireless Emergency MESH is such an important project, we are once again reposting this writeup about it.

From Rob Rowlands: We have about 6 nodes working in Marin so far and need people with property in high places to host more nodes. The mesh depends on line-of-site (LOS) paths between nodes interworking and while we have a great site on Wolfback ridge above Sausalito, there are multiple places we can't reach, for example the Club house! If you have access to homes or buildings with great views, we may be able to mount a node, regardless of whether you want to connect (see the following page for a picture of the node).

http://meshmap.sfwem.net/map_display.php#11/37.8586/-122.3836



This is an example of a MESH Node

All it takes is space to mount a \$50 radio on a wall and connect it via ethernet cable to a power feed adapter. The radio node is about the size of a small loaf of bread and can be painted to appease your family! Call Michael Fisher (415) 519-2201 or Rob Rowlands (415) 849 5667 if you can help.

New Slack Chat Channel for MARS Members

Join our new Slack channel to chat about ham radio!

We still need to build up the club's Slack Chat Channel, so sign up: From Rob Rowlands: "Slack" is used extensively in industry and academia to network people, especially since Covid-19. MARS now has a Slack channel, "Marin Amateur Radio Society". Go to https://join.slack.com/t/marinamateurr-sq15924/shared_invite/zt-r9ocah4l-4G7PI8LAOssMMsnflQ8QcQ. There is also a slack channel for the San Francisco Amateur Radio club that is highly active.

Ham Radio News

Each month, QSA-5 searches the internet for stories about amateur radio in the news. As editor of our publication, I merely present these articles and do not take a position regarding their message or content. Our first story was passed on to the QSA-5 from our own Rob Rowlands:

4 Companies Partner on High-Altitude Connectivity. This first piece is regarding collaborating on future high-altitude platform stations (HAPS)-based connectivity services as part of a future space-based wireless connectivity ecosystem. It's a very interesting idea. Thanks Rob!

<https://www.rrmediagroup.com/News/NewsDetails/NewsID/21279>

Pirates Spammed an Infamous Soviet Short-wave Radio Station with Memes: This is a fun article for all you fans of classic cold war Numbers Stations:

<https://twiar.net/?p=7365>

Strong Winds Power Electric Fields in the Upper Atmosphere: From Ken AB6JR regarding electric fields in the upper atmosphere. Some interesting news from the NASA/Goddard Space Flight Center

<https://www.sciencedaily.com/releases/2021/11/211129172751.htm>

Is the Game Up for Baofeng in Europe? Yes, an article, thanks to Rob Rowland, about the radio many Hams love to hate. However, there's a review of the Baofeng GT-5R in the ARRL's QST January issue (page 39 Product Reviews).

<https://hackaday.com/2021/12/05/is-the-game-up-for-baofeng-in-europe/>

The K7RA Solar Update (01-21-2022): Tad Cook, K7RA, reports on some new solar activity in this piece from the ARRL

<https://www.arrl.org/news/the-k7ra-solar-update-716>

Senator Blumenthal Supports Amateur Radio at Senate Confirmation Hearing: This next piece just goes to show that amateur Radio has friends everywhere. Brought to you by the ARRL.

<https://www.arrl.org/news/senator-blumenthal-supports-amateur-radio-at-senate-confirmation-hearing>

Ham radio users reach across world: Our next story comes to us from The Vindicator newspaper in Pennsylvania. An interesting article about the power of amateur radio:

<https://www.vindy.com/news/local-news/2021/06/ham-radio-users-reach-across-world/>

ARDC Grants Will Expand Emergency Capabilities in Haiti and the US Virgin Islands: This article from the ARRL discusses how ARDC Grants will help build up emergency capabilities for radio communication on these Caribbean Islands.

<http://www.arrl.org/news/ardc-grants-will-expand-emergency-capabilities-in-haiti-and-the-us-virgin-islands>

Indian Radio Amateurs Help to Coordinate Disaster Relief in the Wake of Flooding:

This article comes from the ARRL regarding Amateur radio operators in India assisting in the relief efforts going on after massive flooding has left many parts of the country devastated:

<http://www.arrl.org/arrlletter?issue=2021-10-28#toc10>

Upcoming Conventions: Here are a few of the upcoming ARRL Section, State, and Division Conventions It's further down the page so you'll have to do some scrolling on the webpage:

<http://www.arrl.org/arrlletter?issue=2021-10-28#toc16>

Ham Radio Operators Helping Family Members Locate Caldor Fire Evacuees: This piece promotes the use of amateur radio during emergencies and/or disasters:

<https://sacramento.cbslocal.com/video/5908770-ham-radio-operators-helping-family-members-locate-caldor-fire-evacuees/>

ARRL, RSGB Announce Joint Events to Celebrate Centenary of Ham Radio Transatlantic Success: The ARRL and the Radio Society of Great Britain are planning to celebrate the one-hundred-year anniversary of the transatlantic cable:

<https://www.arrl.org/news/arrl-rsgb-announce-joint-events-to-celebrate-centenary-of-ham-radio-transatlantic-success>

FCC Regulatory News

Here are the current regulatory changes and FCC news as it applies to Amateur Radio. This section of the QSA-5 newsletter was introduced earlier this year. We will add new regulations and rules monthly, removing the older regulations and rules as new regulations/rules are introduced. As of the August issue of the QSA-5 newsletter, this list of FCC regulations and changes will be reduced, only covering this year's new regulations and rules. The newest regulations and changes will appear at the top of the list. Note that we are not able to cover every change the FCC has made this year within our publication. Also note, it's been a slow start to the new year, so only a few new stories have been published:

Two Radio Amateurs Appointed to the FCC Technological Advisory Council (TAC)

FCC Chairwoman Jessica Rosenworcel named two prominent radio amateurs among her appointments to the FCC Technological Advisory Council:

<https://www.arrl.org/news/two-radio-amateurs-appointed-to-the-fcc-technological-advisory-council-tac>

FCC Seeks Attorney-Advisor for its Mobility Division. The Federal Communications Commission (FCC) has [posted](#) an opening for an attorney-advisor in the Mobility Division of its Wireless Telecommunications Bureau in Washington, DC:

<https://www.arrl.org/news/fcc-seeks-attorney-advisor-for-its-mobility-division>

FCC Orders Amateur Access to 3.5 GHz Band to “Sunset” It doesn't look for amateur access to the 3.5 GHz band. While many amateur radio operators, especially those who hold new licenses, may not be familiar with this band, some older license holders (especially those with specialty interests) use it. Here is the article from the ARRL:

<http://www.arrl.org/news/fcc-orders-amateur-access-to-3-5-ghz-band-to-sunset>

The FCC Headquarters Relocates: The government organization that regulates amateur radio is moving their headquarters. Here's a piece on the move from the ARRL:

<http://www.arrl.org/news/fcc-headquarters-relocates>

ARRL Urges Members to Join in Strongly Opposing FCC's Application Fees Proposal: The ARRL is asking their members to oppose the FCC application fee proposal. Here's the article:

<http://www.arrl.org/news/arrl-urges-members-to-join-in-strongly-opposing-fcc-s-application-fees-proposal>

FCC Extends Filing Deadlines for Affected Louisiana Parishes and Mississippi Counties: Because of the devastation of Hurricane Ida, the FCC is extending filing deadlines for ham radio operator:

<https://www.arrl.org/news/fcc-extends-filing-deadlines-for-affected-louisiana-parishes-and-mississippi-counties>

FCC Grants 60-Day Waiver of Part 97 Data Rate Rules for Hurricane Relief Traffic: The FCC has granted a sixty-day waiver permitting radio amateurs handling hurricane relief communications on HF to use any protocol that would comply with the FCC's rules but for the symbol rate limits.

<https://www.arrl.org/news/fcc-grants-60-day-waiver-of-part-97-data-rate-rules-for-hurricane-relief-traffic>

FCC Grants Temporary Waiver to Permit Higher Symbol Rate Data Transmissions for Hurricane Ida Traffic: The FCC has granted an ARRL emergency request for a temporary waiver intended to facilitate relief communications in the wake of Hurricane Ida.

<https://www.arrl.org/news/fcc-grants-temporary-waiver-to-permit-higher-symbol-rate-data-transmissions-for-hurricane-ida-traffic>

FCC Application Fees Unlikely to Go into Effect Until 2022:

Last year, the FCC announced that they would be increasing the cost of Amateur Radio licenses. It has drawn both criticism and support from radio operators across the United States. Here's a link to the ARRL reporting on the increase.

<http://www.arrl.org/news/fcc-application-fees-unlikely-to-go-into-effect-until-2022>

FCC to Re-Establish Technological Advisory Council, Solicits Membership Nominations:

The FCC is seeking nominations for a chairperson and members of the Technological Advisory Council (TAC). Here is a link to the ARRL article.

<http://www.arrl.org/news/fcc-to-re-establish-technological-advisory-council-solicits-membership-nominations>

FCC Investigating Alleged "Jamming" on 40 Meters:

Amateur radio operators have reported that there is some sort of signal jamming on the 40-meter band. Here is an article from the ARRL that covers the story in greater detail.

<https://www.arrl.org/news/fcc-investigating-alleged-jamming-on-40-meters>

FCC Reaffirms Nearly \$3 Million Fine for Marketing Unauthorized Drone Transmitters: While not directly related to amateur radio, this article from the ARRL reminds us that manufacturers of any device that uses a radio frequency based control or communication system is regulated.

<https://www.arrl.org/news/fcc-reaffirms-nearly-3-million-fine-for-marketing->

[unauthorized-drone-transmitters](#)

FCC Seeks Comment on Potential Impact of Global Semiconductor Shortage:

This is an important read for anyone that is involved in electronics, or anyone who owns or is considering the purchase of “smart” electronic devices. There is a global semiconductor shortage, and the FCC is asking for commentary regarding this potentially serious problem:

<http://www.arrl.org/news/fcc-seeks-comment-on-potential-impact-of-global-semiconductor-shortage>

FCC Seeks Comments in Proceeding Involving 70 and 5 Centimeters:

This article from the ARRL was published on June 24th, 2021. The gist of the article is this: The FCC is soliciting a second round of comments regarding the use of portions of the 70cm and 5cm bands for commercial space entities. Here’s a link to the full article:’

<http://www.arrl.org/news/fcc-seeks-comments-in-proceeding-involving-70-and-5-centimeters>

First-Time Exam Applicants Must Obtain FCC Registration Number before Taking Examination:

As of May 20th, 2021, the FCC now requires that all examination applicants must provide an FCC Registration Number or FRN to the Volunteer Examiners at the testing site before taking the actual examination. Here's link to an ARRL article regarding this rule change:

<http://www.arrl.org/news/first-time-exam-applicants-must-obtain-fcc-registration-number-before-taking-exam>

Propagation News

Here are some links dedicated to propagation conditions, space weather, sunspot cycle information and all things related to solar conditions:

Solarham.com: This is a great resource for all things related to solar cycles and ham radio:

<http://www.solarham.com/index.htm>

DX.QSI Propagation:

A simple, straightforward website for propagation conditions that is regularly updated:

<https://dx.qsl.net/propagation/>

Radio Society of Great Britain: What's New and Propagation Now:

A great resource from the UK version of the ARRL regarding solar activity and propagation:

<https://rsgb.org/main/technical/propagation/whats-new-propagation-now/>

SunSpotWatch.com:

A good general interest site for amateur radio operators who follow solar activity:

<http://sunspotwatch.com/>

ARRL:

Here is an update from the ARRL regarding solar flare activity. The article appeared on May 25th, 2021: Weekend Solar Flare Frenzy Could Spark Geomagnetic Storms:

<http://www.arrl.org/news/weekend-solar-flare-frenzy-could-spark-geomagnetic-storms>



DIY Radio References

We have added a few additional links to our list and will continue to do so as we discover more websites related to the Do-It-Yourself movement! QSA-5 is going to keep adding to the original list of online resources, bringing you more resources as we find them. If there is anything you think would be useful to other club members, contact me and I will be happy to include it in this reference section.

Microcontrollers and Single Board Computers: With the advent of the Arduino micro-controller board, the Raspberry Pi (a single board minicomputer) and Texas Instrument's Launchpad (also a single board microcontroller), Amateur Radio enthusiasts can build both accessories, such as antenna tuners, and fully functioning transceivers. I have spent the last year at the University of California studying these devices, learning how to use them and incorporate them into electronic projects. I was able to build two HF receivers based on the Arduino and Raspberry Pi devices. The best news of all is that these devices are inexpensive! I

encourage you to check these websites out!

Arduino: The Arduino microcontroller board was the first to popularize these devices. They are inexpensive and can be used for a variety of radio related projects. I will include some links to radio related Arduino projects in the next issue of the QSA-5. Here's a link to the Arduino homepage:

<https://www.arduino.cc/>

Raspberry Pi: Did you every wish you could have a PC small enough to fit into your shirt pocket? Your dream has come true. The Raspberry Pi 4 is a fully functional Quadcore 1.6 GHz computer, about the size of a package of playing cards. It has an Ethernet jack, two USB 2 ports, two USB 3 ports and two HDMI ports. Next month, I'll post some links to radio related Raspberry Pi projects. Here's a link to their homepage.

<https://www.raspberrypi.org/>

Texas Instruments TI Launchpad: The Launchpad is Texas Instruments answer to the Arduino. The Launchpad is geared more towards advanced projects and is slightly more expensive. However, the Arduino still holds it own against this device. The Arduino also has more in the way of opensource software. Here is a link to the TI Launchpad homepage.

<https://www.ti.com/design-resources/embedded-development/hardware-kits-boards.html>

Tools for electronics: It is a lot easier to build or repair your electronics if you have the right tool. Paperclips and duct tape are not the solution to everything (unless you are McGyver – hopefully, you got the reference). Therefore, we added some links to suppliers of electronics tools.

All Electronics: A one stop electronics shop that has a variety of tools for your repair

and building needs:

<https://www.allelectronics.com/category/780/tools-and-supplies/1.html>

Jameco Electronics: A supplier of decent tools at a reasonable price:

<https://www.jameco.com/Jameco/content/tools.html>

Electronic Printed Circuit Boards (PCB): If you design and build projects that require specific circuit boards, you know how difficult it is to find a board that will work for your purposes. Designing a board and then having it made can be expensive. Here is a company that has a large number of radio PCBs you can purchase and then add components to. They also can take your design and fabricate a PCB at a very reasonable cost. The company's name is **PCBway**:

<https://www.pcbway.com/project/>

Electronic Components and Parts: Many of us involved in amateur radio are constantly tinkering with electronics. It seems to be part of our genetic makeup! Here are some links to companies that sell electronic components and parts, starting with San Rafael's own Electronics Plus (Support local business).

Electronics Plus: It's great to have an electronics store close by for those times when you need a part immediately:

<https://www.electronicplus.com/>

Digikey: A good source for DIY and Maker projects as well as parts. They claim to have the world's largest selection of electronic components.

<https://www.digikey.com/>

Jameco: This company is a good source for almost everything, especially mainstay items such as resistors, capacitors, etc.

<https://www.jameco.com/>

Homemade Antennas: Many new amateur radio enthusiasts put a great deal of time and effort into researching their first radio. However, they often neglect the most important component to a successful radio experience, the antenna. Even if you have some ham radio experience, antennas can be a daunting subject. Commercially manufactured antennas can be expensive and beyond your budget during these hard financial times. Even if you have the funds available to purchase an antenna, reading through the antenna's specs can be akin to reading some long lost ancient language. A good solution for increasing your knowledge of antennas and radio wave propagation, not to mention cutting the costs down, is to build them yourself. Here are some links to DIY (do it yourself) sites to give you a start:

Antenna building basics:

<https://www.wikihow.com/Build-Several-Easy-Antennas-for-Amateur-Radio>

Good Reference for several antenna types:

<https://www.hamradiosecrets.com/homemade-ham-radio-antennas.html>

A step-by-step guide for building a simple antenna:

<https://geardiary.com/2012/07/21/building-a-simple-ham-radio-antenna-without-soldering/>

Instructions for a VHF/UHF dual band antenna:

<https://www.instructables.com/Quarter-Wave-Dual-Band-VHFUHF-Ham-Radio-Antenna/>

Build an HF dipole antenna:

<https://www.electronics-notes.com/articles/antennas-propagation/dipole-antenna/hf-ham-band-dipole-construction-80-40-20-15-10-meters.php>

Introduction to antennas:

<https://www.onallbands.com/ham-radio-antenna-options-for-home-and-portable-operations/>

Ham Radio QRP Transceiver Kits: With the advent of SDR (Software Defined Radio), building fully functioning ham radios has become a lot easier and extremely inexpensive. While, having fewer bells and whistles, as well as being low power units, many have fully functional touchscreens and cover many of the HF bands:

An easy to build QRP transceiver. No soldering needed to build:

<https://www.hfsignals.com/>

An easy to build, single band CW kit:

<https://qrp-labs.com/>

Offering several kits and finished transceivers:

<https://youkits.com/>

Propagation Websites: Propagation is a key factor in successful radio communications. Here are some links to websites that will help you with all your basic propagation needs:

Real time band conditions:

<https://qrznow.com/real-time-band-conditions/>

VOACAP band conditions:

<https://www.voacap.com/hf/>

ARRL Propagation Page:

<http://www.arrl.org/propagation>

Real Time HF Propagation Prediction:

<https://hamwaves.com/propagation/en/index.html>

Ham Radio Websites of general interest:

Ham Radio News: Here are some sites and articles you may find of interest regarding ham radio.

ARRL News Page, which is a good place to find national news regarding ham radio:

<http://www.arrl.org/news>

QRZ Now. Another good site for ham radio news from around the globe:

<https://qrznow.com/>

The Amateur Radio Newsline. An AP styled news feel page for amateur radio:

<https://www.arnewsline.org/>

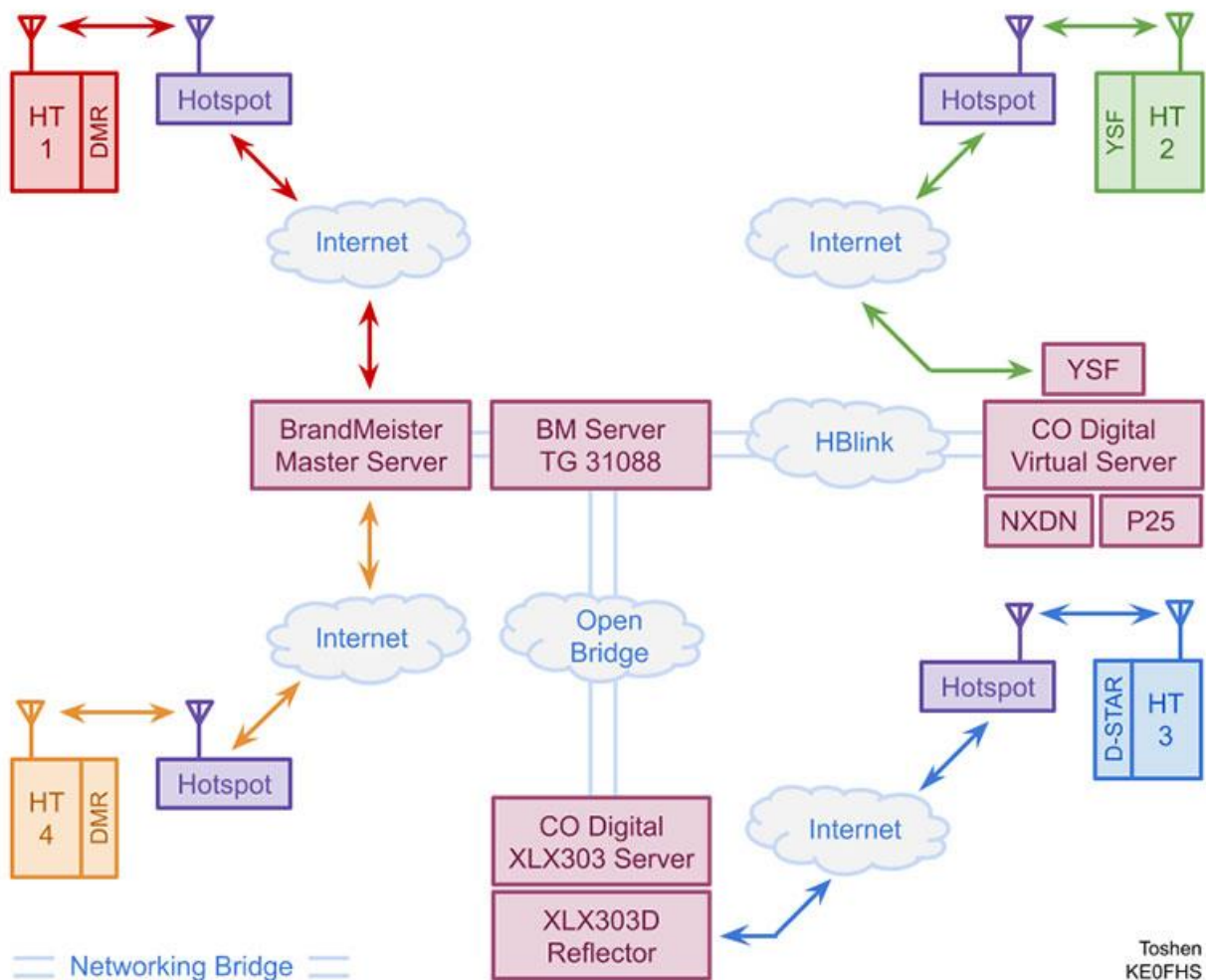
DMR Radio

One of the great mysteries of DMR radio is the WiFi Hotspot. With a handheld analog radio, you make sure the battery is charged, turn the radio on, and start scanning the airwaves for another radio operator's signal. If you followed the same procedure with a DMR radio (set on DMR mode), nothing would happen. This occurs because you need to be connected to a DMR repeater or WiFi network (and have a codeplug programmed into your radio). Unlike an analog radio that captures any passing radio waves strong enough to be received, the DMR radio requires the use of a secondary system to connect it to other radios. While we will look at DMR repeaters later in this series of articles, we're going to start with an examination of the WiFi Hotspot. So, what is a WiFi Hotspot?

A DMR WiFi hotspot is a gateway, much like the gateways used for internet access, that allows your radio to connect to a digital network like Brandmeister or DMR-MARC. You can think of a WiFi Hotspot as an internet gateway to a DMR network. It's a similar process to connecting your home computer or television to an internet connection. A DMR network consists of one or more node controllers and a number of secondary sites. Each site is made up of several base stations connected by an IP backbone that can be either a switched local area network (LAN), or a routed wide area network (WAN) via a series of routers and bearers. Don't get caught up trying to figure out the logistics of a network. It's big, complicated and works behind the scenes so you don't have to concern yourself with it (until things go wrong).

A WiFi Hotspot is a combination of hardware, firmware, and software that lets an amateur radio operator with an internet connection to directly link to digital voice (DV) systems around the world. Hotspots can link to DMR, P25, and NXDN talkgroups, as well as D-STAR reflectors and YSF rooms. A WiFi Hotspot is the DMR radio operator's window to the world, allowing that operator to chat anywhere on the planet, if the person on the other end has a DMR radio and WiFi Hotspot. The great news is that WiFi Hotspots are relatively inexpensive and are

tiny, eliminating the need to build a large antenna array. Having a WiFi Hotspot is like having your own personal digital voice repeater and gateway. What's the bad news? Setting up a WiFi Hotspot for the first time can be a bit daunting!



This image will give you a rough idea of how a DMR network system looks

The MMDVM WiFi Hotspot, the most common type of hotspot used, is based on a Raspberry Pi. It comes with an OLED screen and antenna. It is powered either via a USB port on your PC or Laptop, or by using a battery pack. You can purchase this type of WiFi Hotspot online at places like Amazon for between \$75.00 and \$150.00. Make sure to purchase a MMDVM WiFi Hotspot that has a pre-loaded Pi-Star microSD card included. You can also build your own, which we'll cover in a

later article. The MMDVM use Pi-Star, which is Linux based. You can find more information about Pi-Star at http://www.pistar.uk/info_what.php .

To set up your WiFi Hotspot for the first time, you need to have it connected to your PC or Laptop. It takes about two minutes to boot up, so be patient. Rather than give you step by step instructions, I'm going to give you a link to a video tutorial I used to set up my MMDVM WiFi Hotspot for the first time. I tried a number of videos as well as written instructions I found online, but they were nowhere near as complete as the video linked below.

Setting up a WiFi Hotspot: <https://www.youtube.com/watch?v=UBDqPFzDH5g>

The process used in the video is straight forward. However, you should go through the video once and take notes. Reads those notes and only then, replay the video and set up your WiFi Hotspot. One place I ran into trouble was when it came time to reboot. I thought the video presenter was asking me to reboot my computer. Wrong! I was supposed to reboot the MMDVM WiFi Hotspot. It turned out that the reboot button is found within one of the menus on the Pi-Star control panel which is online. You'll see that when you watch the video.

One item you will need is a DMR Radio ID before you can do anything. It's like a call sign. You can get your ID number at: <https://www.radioid.net/>. You will need to register with Radioid.com and it takes about 24 hours to get your DMR radio ID.

One of the nice features of Pi-Star is that it logs in your contacts on your computer's screen and, when you click on your contact's call sign, are taken to the QRZ.com webpage with that contact's information. The control panel for Pi-Star also gives you detailed signal information which is extremely useful.

Because the procedure of setting up codeplug is quite a process, I'll wait until next month to provide step by step instructions for setting up your DMR radio. The process of setting up a WiFi Hotspot is well worth it. Within twenty minutes of setting up my hotspot, I was talking with first, a gentleman from Australia and shortly thereafter, a gentleman in the UK. It's a great opportunity for a new Technician license holder to talk globally and a good alternative for those who don't want to invest in an expensive HF rig. There are those who claim that DMR doesn't count because of its use of WiFi. However, that should not deter you because in the end, you're still communicating globally, which is part of what we do as amateur radio operators!

If you cannot wait until the March issue to create a codeplug for your DMR radio or are having trouble with a codeplug you created, email me here and I'll help you either set one up or troubleshoot your existing codeplug.