

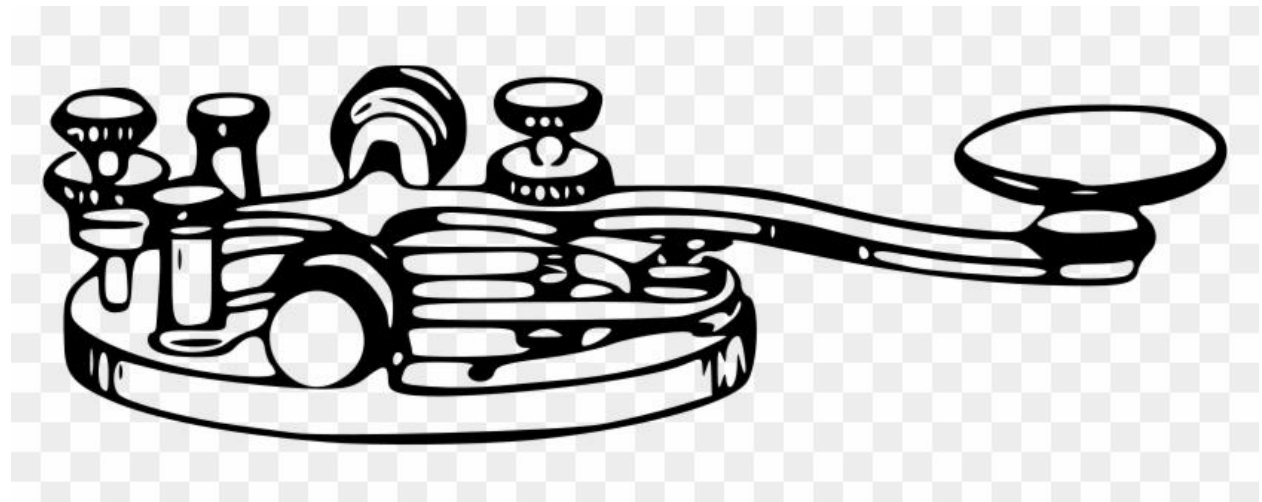


QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933

January, 2022



When all else fails, you can count on Amateur Radio

From Our President:

It is the first day of 2022, and I feel compelled to wish you all a Happy New Year! Of course, you will read this well after the fact. The last couple of years have been a challenge for all of us although often in very different ways. I wanted to offer my hope that 2022 will be better for all of us.

Fortunately for all of us 2021 was a pretty good year for the Marin Amateur Radio Society. Our membership increased from 139 at the end of 2020 to 155 at the end of 2021. We actually had public service events and are expecting more in 2022. Although most of our membership meetings were on zoom some of us met in person in the clubhouse. We had VE Exam sessions in person. We added a new receive site to our simulcast system. We partnered with other organizations like VOAD and the newly formed RCV to provide a communications network for non-governmental service organization in the county in the event of a disaster. We have also partnered with the newly created NBAM North Bay Area Mesh to extend the bay area mesh network up the 101 Corridor. While the other organizations are separate from MARS we share many members in common.

I am certain we will not rest on our laurels in 2022. A phrase that has always puzzled me since laurels were awarded as wreaths:



I don't think I would want to rest on that headgear. He does look like is trying to remember how to set the PL tone on his new radio. We need to carry on with our club activities that we did in 2021 and move forward with more. Of course, we don't know what COVID will do to change our plans, but we are hams and we adapt. We intend to reopen the Sunday morning babble classes rig repair sessions, with safety constraints as defined by Marin Public Health, on 7 February. That is of course assuming some new issue does not get in the way. I would love to see our education team get back to license training. What that looks like I don't quite know yet, but

our club and my day job have taught me that we can cast a larger net if we think of a hybrid environment. I am skeptical about our Christmas party, but an outdoor picnic/public service luncheon seems probable. I am also looking forward to working with our new board. It seems I am the only “Old Boy” left on the board, so I expect great things.

I understand that reading my musings is less interesting than the manual that came with the cool new gizmo you got for Christmas I do conjure to take a moment to think about the cool things we can do in 2022.

73 de WA6UDS

From the Editor:

Happy New Year everyone! Well, 2021 certainly had its twists and turns. Let's hope that 2022 will bring the world some much needed relief. Of course, as amateur radio operators, we are always prepared. Throughout the pandemic, the Marin Amateur Radio Society kept moving forward. We persevered, proving that nothing can stop us. You have probably noticed that there have been a few changes to the QSA-5. In this issue, you'll see new articles and links, and those articles/links were based on your suggestions. I would like to give a huge thanks to all of you who wrote me and sent both ideas and photographs of events you felt were worthy of being published. By doing so, you have improved the quality of our publication. Again, thank you very much.

Please keep those ideas coming because doing so will only improve the QSA-5. As always, you can reach me through the email listed below. Remember, any idea you have, no matter how small the audience,

should be brought to my attention. You might have an interest in a small subset of the radio community and think, “there’s probably no one else here that would want to read about this.” You would be surprised at how many people either share your specialized interest or might become interested in it. However, you’ll never know until you reach out to the club through the QSA-5. Keep those ideas and suggestions coming, and we’ll include them within our pages. Let’s hope the new year brings you all that you wish for.

QSA-5Editor@w6sg.net



General Membership Meeting: November 5th, 2021

Call to Order: 7:34 PM

Approve minutes: Of November meeting.

Adopt Agenda: N/A

New Members:

Ross Bogert KW6EZ – Larkspur

Frank Klebanoff KG6JHT - Novato

Board Actions:

Board meetings will move back to online only after one test meeting in hybrid form.

General meetings will remain hybrid.

Discussed opening Sunday mornings; No earlier than February if there is interest.

Straw poll in this meeting indicated significant interest so the board will take up the matter to develop a way to resume Sunday meetings during its next meeting in January 2022.

Presentation: N/A

Fun with Ham Radio:

Steve KB6HOH sang the praises of a lot of ICOM gear he's running.

Milt KM6ASI told the club about a QSO while on vacation in HI that led to a lot of good local info for his trip.

Larry KK6QPE gave a shout out to Stan AI6NF for Elmering him on some recent soldering and assembly help with a VNA kit.

Chris KC1DYF told the club about a new 2M repeater the NBARA hams are making live tomorrow.

Dale KK6ZOE talked about his experience getting started with SDR using an inexpensive dongle.

Jan WB6SPX told that he is going to be at the clubhouse this weekend working in the shop, to repair a radio for K6MLF (as well as making a step toward normalcy). He also told a story of his experience on the maiden voyage of a ship in 1970 called the [LASH Espana](#).

Secretary – Communications: N/A

Treasurer's Report:

Received after most recent QSA-5 went out, but all numbers look good, and it will be updated in the next issue of the newsletter.

Committee and other Reports:

1. **Membership:** 152 | 109% according to Curtis' latest look at the numbers.
2. **Facilities:** Skip KJ6ARL said we recently cleared debris around the club building, and a work crew installed a new enclosure (garage) to protect the comms van.
3. **Education:** N/A
4. **Repeaters:** Doug KF6AKU will be heading up to Tam West next Weds with Skip KJK6ARL to repair the simulcast machine up there which has been acting up, emitting inconsistent output power levels.
Milt KM6ASI replied to a question about countywide coverage by reiterating airing that there are new machines on SR. Hill and Big Rock, with a likely new one coming to Strawberry Fire location in Mill Valley as well as on Barnabe.
5. **VE:** Ken AB6JR said the next session schedule will be published in late December for exam session resumption in mid-January.
6. **VOAD/RCV:** Skip KJ6ARL reported on a Simplex test the RCV operators will be conducting tomorrow and about a presentation to the Marin County commission that is coming up soon to seek its formal blessing as part of the county's preparedness planning. Separately, Skip reported that he recently paid the MARS repeater coordination fee to NARCC.

Old Business: N/A

New Business:

Board Election: Closes tomorrow 12/4/21 at 9 pm, results will be verified by Doug KF6AKU, and Curtis will email out the results afterward. At the January board meeting new members will be formally integrated and determine the executive officer assignments (Pres, VP, Secty, Treasurer). (President Curtis Ardourel is terming out, Secty. Cooley is stepping down from that position.)

Awards

Ham of the Year – Steve Toquinto KB6HOH

Hi Roberts Award – Skip Fedanzo KJ6ARL

President's Award of Achievement - Michael Fischer K6MLF. This is a new award created for and inspired by Michael's work.

Good of the Order:

Bruce N6VLB reminded the attendees that we still have quite a bit of gear still available via the silent auction, which we hope to clear by the end of the year. Curtis regaled us with tales of [Hanukkah cocktails](#).

Steve KB6HOH asked about the 2022 Public Service calendar; Curtis replied that it is still substantially a work in progress due to vagaries related to the ongoing pandemic. A proposed schedule isn't due to the board until its March 2022 meeting.

Adjourn: 21:02

Post-agenda Presentation: N/A

Next General Meeting: January 7th, 2022



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

Marin Amateur Radio Society Board of Directors Meeting

Call to Order: 19:33 Hours (7:33 PM)

President: Curtis Ardourel WA6UDS

Secretary: Brian Cooley K6EZX

Vice President: Milt Hyams KM6ASI

Trustee W6SG: Mitch Martin WU1Q

Director/Trustee K6GWE: Doug Slusher KF6AKU

Director: Skip Fedanzo KJ6ARL

Treasurer: Bruce Bartel N6VLB

Director: Mark Klein KM6AOW

Adopt agenda: M/S/A

Approve minutes: 11 November, M/S/A

Secretary's Report/Communications:

Brian noted that this is his last meeting as Secretary, and he is prepared to hand off his duties and Secretary's assets to the new Secretary when named.

Treasurer's Report:

Bruce N6VLB reported that we have not yet seen the December rent from our tenant, making the payment technically late. That may open a conversation about a rent increase as well, following below in New Business.

Committee and other Reports:

1. **Membership:** 152 | 109%
2. **Education:** N/A
3. **Facilities:** Skip **KJ6ARL** reported that the club yard waste was cleaned up during comm van enclosure installation recently. The Mt. Tam 147.300 standalone repeater transmit side has a power problem and keeps jumping to

50W output which is causing interference with another machine on the peninsula. We are out of spare parts and are going to consult with Barcom Communications (Bruce Rettick) in Petaluma to see about repair, short of us having to buy a new repeater. The last spare repeater we had became the new Tam West receive side. **Milt KM6ASI** suggested we consider assembling hot swap gear for the simulcast systems and another hot swap set for the standalone repeaters. **Doug KF6AKU** will start to build an inventory sheet of the gear we have and what we'd need to build such swap setups for future consideration by the board.

Skip KJ6ARL motioned that we **pre-authorize \$1,500** to be spent by **Doug KF6AKU**, without further permission needed, to get the Tam machine repaired asap. M/S/A unanimously by voice and visual vote.

4. **Public Service: Pam N6PDW** reported we are starting to line up next season's PS dates, mostly from MCBC at this early point. Milt reported that he attended the DC3 meeting where County Public Health Officer Matt Willis reported that Marin's COVID hospitalization rate is extremely low.
5. **Technical:** (See repeater report above in Facilities.)
6. **VOAD/RCV: Skip KJ6ARL** reported that Andrew LeBlanc recently presented RCV to the county DC3 to continue pushing for official recognition of the group. Milt also attended that meeting.

RCV recently did an expanded simplex UHF/VHF "shootout" the results of which will be distributed soon.

7. **VE Testing** Curtis reported that the first few VE testing dates of 2022 will be on the site soon.

Old Business:

1. **Tower:** Milt tentatively reported that there may be progress on the tower permit logjam thanks to an expected meeting with Supervisor Rodoni soon. He will bend Rodoni's ear for assistance.
2. **Life membership:** N/A
3. **Frequency coordination:** Skip KJ6ARL reported that the NARCC coordination process is still underway, just moving slowly.
4. **Sale of catalogued equipment:** Curtis asked if we are effectively done with the auction at this point and Skip reported that **Rob NZ6J** is assuming the auction is *practically* closed and that the club can now move to dispose of the unsold gear via donation or e-waste recycling. Bruce reported that total proceeds of both 2021 auctions came to about \$750.
5. **Drainage:** Skip KJ6ARL is awaiting a reply to a call to S. Marin Fire about this matter, partly in response to [this letter we received](#). One way to attack this might be to work with an NRG in our neighborhood as suggested in the letter. **Bruce N6VLB** sent an invoice to a neighbor who verbally agreed to split the cost of clearing debris on the property, but no reply so far. Our experience with that neighbor has been good and he often does maintenance around the outside of our club property on his own initiative. No need to force the issue of split payment.
6. **Election**
 - a. Ken Brownfield AB6JR 33 votes
 - b. Anthony Fedanzo KJ6ARL 37 votes
 - c. Tom Jordan KG6TCM 36 votes

New Business:

1. **Rent Increase**
 - a. Last increase for our tenant was activated on 11/1/20 to \$2500 from \$2450 a 2% increase from 1/1/19. We have often gone many years without an increase prior to the most recent one. We are capped at a

5% increase in Marin, so not raising the rent can put us behind on rent in a way that we cannot catch up. But **Doug KF6AKU** advised that keeping our tenant can easily be worth more than the money we'd gain by raising rent but having to incur the costs of locating a new tenant. **Bruce N6VLB** offered to report back with a breakdown of the utility's costs at 27 Shell as one basis by which the board could decide on an increase at the January meeting.

b. 30 days advance notice required by the lease and CA law.

2. Sunday morning meetings: Marin policy at present does not require masks indoors, and we voted several meetings ago to follow county rules re: COVID. We asked **Skip KJ6ARL** to write up a Sunday Meeting Responsibilities list for "door monitors" who would volunteer to open and close the building each Sunday for Bible Study. We'd hope to have 2-3 volunteers who can rotate the duty, and each will receive a key fob.

Good of the Order N/A

Executive Session: N/A

Adjourn M/S/A 20:28

Next Regular Meeting 7 January 2022

Next Board Meeting 13 January 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 do!

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: Brian K6EZX had an antenna question and asked members for advice and received advice from the group at the October meeting regarding the best place to mount a new antenna on his pickup truck. We did some research and found several sources for antenna mounting issues:

Here's a link to the Radio Reference website's forum page that discusses this question:

<https://forums.radioreference.com/threads/best-place-to-mount-dual-band-antenna-on-pickup-truck.324814/>

Here is a page dedicated to mobile antenna mounting from Comet Antenna:

<https://cometantenna.com/land-mobile/no-holes-mobile-mount/mobile-mount-faqs/>

This final link comes from KV5R and is nicely detailed and explains the subject clearly.

<https://kv5r.com/ham-radio/mobile-antenna-placement/>

The next question, which was previously published, comes from Warren, regarding an antenna mount for his Tesla: I 've been using a mag mount antenna with my Kenwood TM-V71A in my car (can't hit Mt Tam from home), but I'll be taking delivery of a Tesla Model Y soon, and it has a glass roof. What's the recommended antenna and mount for a Tesla?

Hi Warren, here are some links I found regarding radio installation on Tesla vehicles. While they cover the entire installation, they do give some thoughts on mounting an antenna.

Phil's Osophies: Phil describes his installation of a ham radio rig on his Tesla:

<https://blog.rosenberg-watt.com/2019/09/24/model-3-ham-radio-install/>

Tesla Owners Forum: You may find this a good starting point for trying to solve your problem.

https://forums.tesla.com/discussion/84568/ham-radio-and-m3?_cf_chl_jschl_tk__=pmd_GBBJrn3eYw0WYbQUxJQjCdDXCxYnc6lu0d6adiUvdYc-1632775692-0-gqNtZGzNAjujcnBszQjR

LIFE IS SIMPLE



Marin Amateur Radio Society News

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](https://www.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

MARS Board Member Election Results

The Marin Amateur Radio Society is held elections for new board members. The deadline for casting votes was December 4th, 2021. The results were verified by **Doug KF6AKU**. **Curtis WA6UDS**, emailed out the results. At the January board meeting, new members will be formally integrated. The board will determine the executive officer assignments (Pres, VP, Secty, Treasurer). (Club President, Curtis Ardourel is terming out, and Secty. Cooley is stepping down from that position).

Ken Brownfield AB6JR 33 votes
Anthony Fedanzo KJ6ARL 37 votes
Tom Jordan KG6TCM 36 votes

December Critical Mass 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!

Second Silent Auction Closed

1. The Marin Amateur Radio Society held a silent auction to reduce the amount of donated equipment currently occupying our clubhouse. While the auction's original deadline had passed, it was been extended through the end of November. There was some great gear available. All bids, within reason, were considered. This was the second of two silent auctions, **Bruce N6VLB** reported that total proceeds of both 2021 auctions came to about \$750.

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

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)

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. 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!

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-4G7PI8LAOssMMsnfIQ8QcQ. 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 **Ken AB6JR** regarding electric fields in the upper atmosphere:

Strong Winds Power 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: Tad Cook, K7RA, reports on some new solar activity in this piece from the ARRL

<http://www.arrl.org/news/the-k7ra-solar-update-712>

The ARRL Newsletter for December 30th, 2021: Here's a link to the ARRL newsletter. There's an interesting piece on a new low power limit for HF contests that takes effect on January 2nd 2022.

<http://www.arrl.org/arrlletter?issue=2021-12-30#toc03>

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 month at the FCC, so there isn't any new news:

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:

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

Starting this month, we'll be including a regular column on DMR or Digital Mobile Radio. DMR has become an extremely popular form of long-distance radio communication for Amateur Radio Operators. Why is it so popular? Normally, if you wanted to talk to other radio operators across the globe, you would have to have a relatively expensive transceiver and complicated antenna rig. You would also have to have the right atmospheric conditions, which means only being able to communicate during certain times of the year. For someone new to amateur radio who only has a technician's license and a modest equipment budget, long distance radio communication is often not possible. Enter DMR! How does DMR work?

There are several key points to make here, and we'll only do a very brief overview in this first article. In subsequent articles, we will go into greater detail regarding these key points. DMR is unique in that it uses a TDMA mode. Time Division Multiple Access). TDMA allows multiple users to share the same frequency channel. It does this by dividing a signal into different time slots. The benefit to this system of signal division is that it allows multiple stations to use the same frequency channel while only using part of the channel's capacity. This means you won't be stuck in a radio traffic jam as much. We will get into depth about this in later articles.

One of the biggest advantages to DMR radio is that you can use either a DMR repeater for longer distance communication or a WiFi Hotspot. What's a WiFi Hotspot? A DMR hotspot is a gateway that allows your radio to connect to a digital network (via WiFi). A digital network is just that, a network used by digital radio for communication. Some of the most popular digital networks are Brandmeister and DMR-MARC. You can also use your hotspot to connect to other popular digital network's like Yaesu System Fusion and D-Star. Most hotspots operate as a simplex gateway. The DMR hotspot is commonly called a PiSpot because most DMR WiFi Hotspots are Raspberry Pi based.

It should be noted that setting up a WiFi Hotspot for the first time can be an adventure in aggravation. However, once you have it set up, you'll be thankful when you make that first contact with another radio operator in Australia (this happened to me literally twenty minutes after setting up my Hotspot). Of course, before you can do any rag chewing, you need to create a codeplug for your radio, which can be an exercise in abstract frustration. This part of the process can be a bit daunting and will be covered in a future article, in greater detail.

While we will describe the necessary steps needed to set up a DMR radio over the new few months, I want to include a few links to get you started.

I became interested in DMR radio roughly one year ago. I was attracted to the idea of being able to use a modestly priced radio to talk to people all over the world. I purchased a DMR radio for \$89.00 and a WiFi Hotspot for around \$100.00. Now, I build my own WiFi Hotspots for about \$30.00. As I mentioned earlier, the DMR Hotspots are Raspberry Pi based. The biggest problem with setting up my hotspot was trying to find complete instructions. The instructions that come with the WiFi hotspot make Ikea furniture kit instructions look like a well written novel. I did internet searches and found plenty of tutorials. Unfortunately, many of them were missing key steps or were simply confusing. A YouTube video I found helpful was this one:

JumboSpot MMDVM D-Star/DMR/C4FM/P25/NXDN Hotspot Pi-Star

<https://www.youtube.com/watch?v=UBDqPFzDH5g>

Here's a link for Dave Casler covering some of the basics of DMR hotspots. Dave always does a great job! Stick with it, because setting up a DMR radio can be daunting but well worth the effort.

Digital Hotspots for DMR, D-Star, and C4FM

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

Lastly, here are some videos on setting up a codeplug. A codeplug is essentially a preprogrammed collection of channels that allow you to talk to other DMR radios. It's similar to the process of using a software program to program your standard HT or mobile radio. However, there are a few further programming steps involved.

How to program a DMR radio codeplug

<https://www.youtube.com/watch?v=VExx628R0DM>

DMR Basics: How to Make an Amateur Radio Codeplug

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

In next month's issue, we'll look at setting up a WiFi Hotspot and start an introduction into creating a code plug. Fortunately, you can find free preconfigured codeplugs available for download. However, you end up with a lot of talk groups (DMR-speak for channels) you don't need or want. It's better to know how to create a codeplug yourself!

