

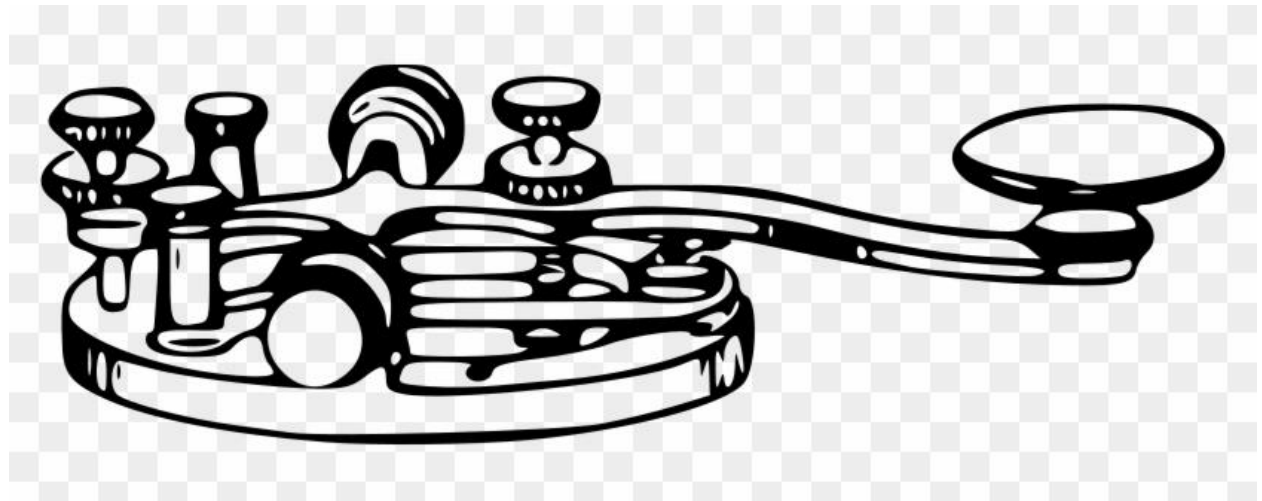


# QSA-5

## Marin Amateur Radio Society Monthly Newsletter

Established 1933

March 2023



**When all else fails, you can count on Amateur Radio**

## **From Our President:**

The month of March is upon us. Can we dare think about Spring yet. I am yearning for drier, warmer, and sunny days again. I was not able to attend the Public Service kick-off. I was told by several people that it was very successful, and everyone enjoyed being back in the clubhouse. Several people came away with DMR radios.

I want to remind you that Curtis WA6UDS has started the Education Committee. If anyone would like to assist Curtis, please contact him.

MARS is continuing the North Bay Area Mesh after April 1. If you would like to be part of the effort, please contact Jeff KM6Y or Rob NZ6J or Ken AB6JR or you can pass on your request to any Board.

73,

Ken Brownfield, AB6JR

## **From the Editor:**

I'd like to thank everyone who sent article ideas and content into the QSA-5 for this month's issue. It was wonderful to see such great input. At least I know that our publication contains items of interest to club members rather than what I think is interesting, which would probably put you to sleep! In the few years that I've been a club member, I've watched the Marin Amateur Radio Society weather a Pandemic which buried a huge number of other clubs across the country and globe. I witnessed the dedication of club members to restart all that the club did prior to the Pandemic. This is the kind of club you want to be a member of!

I'm going to introduce more QRP radio articles, that will cover the Chinese made mini transceivers and higher end rigs, as well as the portable computer controlled automatic antenna tuners. However, to write about them, I have to get ahold of

any rig I write about and do full testing on each item. Testing will include a tear down and inspection of the circuitry, bench testing and field testing. If you are a QRP operator and have a rig you recommend, let me know and I'll include it within the pages of the QSA-5.

As they say, onward and upward. The future looks bright! Keep those ideas and suggestions coming and I'll make sure they appear in our monthly publication. Have a great March everyone!

QSA-5Editor@w6sg.net



### **New Members:**

Gerald McCarthy W6NOV - Rohnert Park

Dennis Colthurst KI6REO - Sebastopol



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



**Marin Amateur Radio  
Society  
Board of Directors Meeting**

**February 9, 2023**

**Call to Order 19:35 Hours (0335 UTC)**

**Attendance:**

**President: Ken Brownfield AB6JR**

**Director: Rich Cochran AG6QR**

**Vice President: Tom Jordan KG6TCM**

**Director: Jeff Young KM6Y**

**Secretary: Jim Saltzgaber KM6WWY**

**Trustee K6GWE: Brian Cooley K6EZX**

**Treasurer: Bruce Bartel N6VLB**

**Trustee W6SG: Marc Bruvry KF6VNT**

**Steve Toquinto KB6HOH**

**Adopt agenda- AS SUBMITTED, MSC**

**Approve minutes of January 12, 2023, MSC**

**Secretary's Report** - Insurance increases will become effective March 1st. - Jim to continue working with our agent to see if we can get quotes based on past information given to them. We will need to pay the increased premiums if unable to get lower priced insurance by March 1st. We will continue working on new quotes and change to lower priced policy(s) if available. Bruce will send Jim last year's budget and expense spreadsheet.

**Treasurer's Report** - Tennant has not paid full rent for the last 2 months. He will contact her to determine why.

---

## **Committee and other reports:**

**Membership:** Curtis - 104 people current 67% of last year.

**Facilities:** Skip - Building still standing, we still have a tenant. No flooding. Life is good!

**Public Service:** Rob/Pam PS Luncheon is 2/25 @ RRG, followed next by NCBC Jane Fondo March 11. Ann Shores has been instrumental in arranging the picnic. Curtis inquired if we were doing Box Lunches as in the past, Pam replied yes, and that we were using the same caterer. Curtis also inquired if he should bring a PA as in the past, Pam replied yes. Pam to update the PS section of W6SG.net website soon. Pam/Rob: We may have to retreat the picnic to the club house if we have inclement weather. Discussion regarding RRG cancellation/refund policy details to be gathered from them. Rob will arrange cleaning of the clubhouse if needed. Stan asked if there is DMR coverage at the clubhouse, Rob indicated no. Bruce has sent RRG a check for \$850 rental. No action required.

**Technical:** Milt - Dan and Milt were recently on Barnabe Mt. to check repeater issues (tone is heard on signal when receiving from Mt. Tam or Bahia transmitters) but the lock was frozen. Eric, Marin DPW, subsequently changed the lock. They will go back next week. The new Mt. Tam antenna is in, however Eric is on vacation, and will arrange installation, possibly next week. Bruce will pay an invoice for coax connectors upon receipt. Tom - Eric from Marin DPW has been EPIC on getting county assistance with installing and maintaining ham repeaters. Novato Fire Department Deputy Chief Gerald McCarthy (Ret.) was monumental in facilitating the MARS relationship with the Marin DPW and

suggests it would be appropriate for the MARS board to send Novato Fire Department a letter of appreciation for Dep Chief McCarthy's assistance.

**VOAD/RCV:** Skip - Joint CBO/RCV meeting scheduled for 2/10/23, 0900 at 1600 Los Gatos. 3 hrs. of tabletop walkthroughs for CBO disaster planning. After lunch, RCV operators only meet to plan what RCV's actions will be when an operator first arrives at a CBO. Planning also to include arrival scripts and follow on steps.

**VE Testing:** Ken - April 9th Sat: 2 currently signed up.

**NBAM:** Jeff - NBAM Continuing to do installations, Timber Cove, Ft. Ross, Dillon Beach, Castle Rock, Big Rock installed or nearing completion. Sonoma county next week along with Napa Sugarloaf Ridge.) NBAM grant request for next year has been submitted. MARS board must decide if we wish to withdraw this request within the month and a half. Ken reported that we currently have two individuals interested in serving on the NBAM committee going forward. There was discussion to determine if the Education Chairman could assist setting up a clubhouse Mesh demo. Jeff reported that Bob, AI6EE, has a syllabus and applications. Possibly followed by some field installation hands on experience. He said that Mesh demo and training are not conducive to Zoom. Curtis indicated that this may be premature for the Education program, but he may be willing to assist. Rob added that "The Ridge to Bridge" PS event requests mesh again this year at the same locations as last year. No action required.

**Education:** Curtis - Not started yet, putting together a draft program to present to previous education dept. members who may want to be involved.

---

## Old Business

1. REDXA Paid - Field Day 2022 Field Day expense split with Redwood Empire DX Association has been paid.

2. MARS ZOOM ACCOUNT - A MARS Zoom account (we have previously used Curtis' account) is now active. It is available for MARS committees use, contact Ken for credentials. Tom commented - Thanks to Ken for handling this.

---

## **New Business:**

- 1. Michael K6MLF addressed the Board-** presenting the attached DMR Talking Points and Proposal to add a donation funded MARS owned DMR Repeater on Wolfback Ridge that would replace the temporary test repeater recently installed there. (See ATTACHMENTS A & B below.) Discussion of the DMR proposal followed. Rob noted the PS Committee's desire to utilize DMR radio for the 2024 season, and that we are following SF Radio Club, as their Sutro tower DMR repeater performed well for their recent PS event. He also stated that there are still practical reasons to stay with analog for 2023. Tom inquired if equipment would be provided for public service members who need it. Michael replied Yes! Both Michael and Rob said that there are now quite a number of very inexpensive DMR handheld radios available. Jim thanked Michael and Rob for starting this DMR effort, and asked if this proposed repeater system would be adequate to cover public service requirements in Marin. Rob replied yes and noted that a DMR repeater in Novato has recently been re-established, and the San Francisco Radio Club DMR Sutro tower repeater is reachable from Marin along with Contra Costa County located repeaters. He has been testing repeaters for public service. We possibly would add DMR repeaters for 101 corridor, but this is for future. More DMR repeaters may be included in public service events, English Hill in Sonoma for example. The use of DMR is expected to increase. Rob also noted that a fusion Fusion repeater had been purchased and was never used. This repeater could also be sold to add another DMR repeater in the future. Jeff asked, based on the fact that public service may be a future use, will the club see a proposal showing uses and issues. Jeff said that he fully supports the DMR repeater proposal, but should we be looking at DMR PS events before hatching we have DMR capability? Stan - in addition to new inexpensive radios, programming and operation education is needed. Steve commented that when DMR first came out, he was turned off by programming complexity. He has been watching and sees progress in the technology and programming, but it is still complicated. He said that he would like to see it go forward. Milt suggested that if and when MARS decides to do DMR, we meld this into the club K6GWE system under our trustee, we need to be responsible for any club owned repeater. Eric K6ER would function as the repeater operator, and the club as owner and licensee with club trustee. A site owner agreement would also be needed.



Following the discussion, it was Moved, Seconded, and Carried that: The MARS Board to approve acceptance of donated funds earmarked for the purchase of a Motorola DMR repeater; with the understandings:

- a. MARS members will raise the funds necessary to acquire the Motorola repeater, should the proof-of-concept (currently on Wolfback Ridge) pan out.
- b. Each funder will make a tax-deductible gift to MARS, designated specifically for the purchase of a DMR repeater and ancillary equipment.
- c. MARS will use those funds to acquire the repeater system; ownership of the repeater equipment will rest with MARS.
- d. No request for an additional MARS financial contribution to this new DMR repeater will be made; the cost will be borne by interested members' special contributions. If it proves useful, MARS may well wish to invest in other DMR repeaters in the future.
- e. The operator of this DMR repeater will be Erick Steinberg K6ER, a MARS member and manager of the commercial transmitter site on Wolfback Ridge.
- f. Erick Steinberg will be the sole decision maker to modify or terminate the DMR operation at that location, should any conflict with the commercial operations materialize. In that case, the equipment will be returned to MARS for possible deployment at another site.
- g. MARS and K6ER already have an MOU and insurance certificate in place for the installation of the existing NBAM mesh nodes located there, literally on the same pole.
- h. Upon MARS establishing a DMR repeater system, this repeater will be incorporated within the K6GWE club repeater license and trustee. Erick Steinberg will remain the repeater operator.

**2. Public Service Budget** - Rob began presenting the PS budget for 2023, however it was determined that the final spreadsheet was not available for the board to review. The President requested that the PS committee review and resubmit the

2023 Public Service Budget spreadsheet to the board, and that the board discuss and vote on it via a special meeting. This item is on hold until a final budget spreadsheet is received, and a special board meeting is convened.

---

**Good of the Order-** Nothing noted.

**Executive Session** - Not required.

**Adjourn** Moved, by Tom Jordan, with special thanks to our new president Ken Brownfield, Second, Carried. Adjourned 2115 hours.

**Next Regular Meeting   March 3, 2023**  
**Next Board Meeting   March 9, 2023**

## **ATTACHMENT A MARS Board of Directors Meeting February 9, 2023**

DMR talking points for the Feb 9th MARS board meeting:

- Because of its better audio, somewhat better range, and the ability to link all operators in single talk-group cohort, we are exploring the possible use of DMR in the 2024 MARS Public Service season.
- To that end, we have installed a temporary proof-of-concept DMR Motorola repeater on Wolfback Ridge, with the active participation of Erick Steinberg K6ER, the manager of the commercial site.
- There is a “Google Group” of 15+ members who are actively interested, have purchased DMR radios and hotspots, and are beginning to create a cohort of MARS DMR users.
- There is a history of DMR activity in North Marin (several years ago) which stalled for a variety of reasons—but equipment and experience is there which, with a clear mission for DMR, could be re-awakened.
- The February 5<sup>th</sup> SFRC comms support of the Kaiser Half-Marathon (7,000 runners) will be entirely held on DMR; seven MARS operators will be participating. (Or will have participated by the time of the MARS BOD meeting.)
- The February Critical Mass session will be devoted to DMR, led by James Renney KI6RGP and Alan Bowker WA6DNR; it will be in-person at the Clubhouse on February 26<sup>th</sup>.
- We plan to let the temporary Wolfback Ridge repeater run for at least a month to evaluate its performance and its coverage area. We have already heard of users from the far North Bay, San Francisco, and the Central Valley who have accessed the repeater in its first days.
- With Tim Barret’s K6BIV assistance, we have a coordinated frequency pair in hand. (Tim is the person who has loaned the temporary repeater and is known as the “Godfather” of DMR in California.)
- Tim has acquired a new Motorola SLR 5700 repeater for \$3,000 and is willing, when we have a green light, to make it available to MARS at that price.
- MARS has in hand, installed at Wolfback, the antenna, cable and duplexer/input cavity needed to test the proof of concept. That equipment will be used for the permanent installation, should all go well.

- There is only one county in the Bay Area without at least one DMR repeater: Marin. If for no other reason, MARS should be interested in filling that gap.
- As an initial test of funding feasibility, 5 MARS members have tentatively pledged a total of \$2,300 toward the purchase of a DMR repeater on Wolfback Ridge. The San Francisco Radio Club used this same “special donation” approach to establish its DMR repeater on Sutro Tower.

## **ATTACHMENT B MARS Board of Directors Meeting February 9, 2023**

The proposal to bring to the MARS Board:

- MARS members will raise the funds necessary to acquire the Motorola repeater, should the proof-of-concept pan out.
- Each funder will make a tax-deductible gift to MARS, designated specifically for the purchase of a DMR repeater and ancillary equipment.
- These are called “donor-designated” or “donor-restricted” funds. They are entirely legal and quite common in the nonprofit community.
- MARS will use those funds to acquire the repeater system; ownership of the repeater equipment will rest with MARS.
- No request for an additional MARS financial contribution to this new DMR repeater will be made; the cost will be borne by interested members’ special contributions. If it proves useful, MARS may well wish to invest in other DMR repeaters in the future.
- The trustee of this DMR repeater will be Erick Steinberg K6ER, a MARS member and manager of the commercial transmitter site on Wolfback Ridge.
- Erick will be the sole decisionmaker to modify or terminate the DMR operation at that location, should any conflict with the commercial operations materialize. In that case, the equipment will be returned to MARS for possible deployment at another site.

- MARS and K6ER already have an MOU and insurance certificate in place for the installation of the existing NBAM mesh nodes located there; literally on the same pole.
- **We seek a motion from the MARS Board** to approve acceptance of donated funds earmarked for the purchase of a Motorola DMR repeater; with the understandings listed above.

The “sparkplug group” to establish MARS as a DMR presence in the Bay Area is: Alan Bowker WA6DNR, James Renney KI6RGP, Doug Kaye K6DRK, Erick Steinberg K6ER, Rob Rowlands NZ6J, Stan Witherspoon AI6NF, Charlie Benet AI6TT, Callum Hutchins KN6KQR, Chris Preovolos KC1DYF, Peter Bland KG6MZV and Michael Fischer K6MLF.

V.3 Feb 2, 2023

## **Special Board Meeting**

**February 13, 2023**

Zoom Link:

Meeting ID: 941 5616 8263 Passcode: 791850

**Call to Order 19:30 Hours (0330 UTC)**

### **Attendance**

**President: Ken Brownfield AB6JR**

**Director: Rich Cochran AG6QR**

**Vice President: Tom Jordan KG6TCM**

**Director: Jeff Young KM6Y**

**Secretary: Jim Saltzgaber KM6WWY**

**Trustee K6GWE: Brian Cooley K6EZX**

**Treasurer: Bruce Bartel N6VLB**

**Trustee W6SG: Marc Bruvry KF6VNT**

**Director: Steve Toquinto KB6HOH**

## **Past Pres.: Curtis Ardourel WA6UDS**

---

### **New Business:**

1. Public Service Budget 2023- Updated budget received for 2023 Public Service.

Annual Public Service meeting and Awards Lunch. Spreadsheet discussed and costs updated as required. Insurance certificate for caterer was noted in contract, but past experience has been that since food is delivered, not prepared, that requirement has been waived, Pam W. to follow up on. Total \$3,600.00 estimated budget for the event. Moved by Bruce Bartel that the estimated budget amount for the annual PS lunch be approved. Seconded by Tom Jordan. Carried by vote of hands.

Comm Truck - Last year's expenses were not readily available for review. Discussion about accounting methods for the Comm Truck. Treasurer noted that the budget does not exist as such in QuickBooks, only paid expenses are. Tom noted that the Comm Truck is very important to the club, but its expenses need better tracking. Ken suggested that we need to hold off Comm Truck budget until real costs are available. Any costs before then board to approve for emergent expenses and review past costs to determine future budget. Comm Truck GL categories need to be established to track expenses. Discussion followed as to how to go forward and how we historically have handled van vs. non van PS expenses. President established the Comm Truck Committee with a board member (currently Jim Saltzgaber) on the committee to develop maintenance schedule with costs, a budget going forward, to work with the Treasurer to establish tracking GL categories and provide oversight of comm truck expenses.

---

**Adjourn** MSC to adjourn. 2100 hours.

**Next Regular Meeting March 3, 2023**  
**Next Board Meeting March 9, 2023**

**Marin Amateur Radio Club**  
**Profit and Loss**

**January - February 2023**

**Cash Basis Wednesday, March 1, 2023, 09:07 PM GMT-08:00 1/1**

**TOTAL**

	<b>JAN - FEB 2023</b>	<b>JAN - FEB 2022 (PY YTD)</b>
<b>Income</b>		
Auction Income	50.00	
Donations	1,517.69	100.00
Dues	225.00	6,210.00
Interest Income	792.77	
Rent	5,200.00	5,000.00
Total Income	\$7,735.46	\$11,360.00
GROSS PROFIT	\$7,735.46	\$11,360.00
<b>Expenses</b>		
Accounting	110.00	
Awards	266.66	
Car & Truck	602.87	588.49
Field day	122.97	
Garbage	95.68	95.68
Other Business Expenses	104.93	
Public Service Expense	1,328.83	841.09
Reimbursable Expenses	87.33	1,019.17
Repair & Maintenance	215.22	
Repeater	1,465.08	
Taxes & Licenses	3,925.64	
Utilities	653.16	543.13
VE Session	87.00	0.00
Water	105.11	150.04
<b>Total Expenses</b>	<b>\$5,029.62</b>	<b>\$7,378.46</b>
<b>NET OPERATING INCOME</b>	<b>\$2,705.84</b>	<b>\$3,981.54</b>
<b>NET INCOME</b>	<b>\$2,705.84</b>	<b>\$3,981.54</b>

**Marin Amateur Radio Club  
Balance Sheet Comparison  
As of February 28, 2023**

**Cash Basis Wednesday, March 1, 2023, 09:00 PM GMT-08:00 1/1**

**TOTAL**

**AS OF FEB 28, 2023**

**AS OF FEB 28, 2022 (PY)**

**ASSETS**

Current Assets

Bank Accounts

B of A Building account - 8795	5,917.13	7,947.21
B of A General account - 4328	41,975.14	14,989.43
CD	0.00	25,000.00
Money Market	0.00	5,000.00
VE Session Cash Received	-87.00	
Total Bank Accounts	\$47,805.27	\$52,936.64
Other Current Assets		
Uncategorized Asset	-95.00	
Total Other Current Assets \$	-95.00	\$0.00
Total Current Assets	\$47,710.27	\$52,936.64
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	\$106,693.27	\$111,919.64

**LIABILITIES AND EQUITY**

Liabilities

Total Liabilities

Equity

Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	-20,412.57	-16,461.90
Net Income	2,705.84	3,981.54
Total Equity	\$106,693.27	\$111,919.64
TOTAL LIABILITIES AND EQUITY	\$106,693.27	\$111,919.64



# LIFE IS SIMPLE



**Marin Amateur Radio Society News**

**Proposed RACES/ACS Field Event Saturday May 5, 2023**

Further to discussion at the RACES leadership meeting 1/14/2023, we could combine the MARS Public Service Event for the Miwok 100 with a parallel RACES exercise to ascertain baseline Marin repeater's performance.

As there is little Miwok 100 activity in the morning, I suggest from 10am to noon we run an overlapping repeater check. Operators additional to those assigned to the rest stops would need to deploy to non-Miwok 100 sites, as shown in table 2. Operators at Miwok 100 sites would of course defer to any Miwok 100 traffic!

Heres are the 2022 Assignments:

[https://docs.google.com/document/d/1B3EbbmBZ3L0HZGHGqco\\_7vG1yMngiyST0G8OWITQj2w/edit?usp=sharing](https://docs.google.com/document/d/1B3EbbmBZ3L0HZGHGqco_7vG1yMngiyST0G8OWITQj2w/edit?usp=sharing)

Table 1: These are the Miwok 100 sites:

Site	Primary repeater	Other repeaters
Stinson Beach Net control at Fire Station	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
<b>BOFAX</b> aka Bolinas Ridge (Trail & Bolinas Fairfax Road)	147.330 MHz PL <b>192.8</b> Tam West VHF	English Hill, Sonoma Mtn, Diablo, Simulcast, all UHF
<b>Randall</b> Trail (Hwy 1 and Randall Trailhead)	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast, Barnabe UHF, English Hill
<b>Muir</b> Beach (Muir Beach Parking Lot)	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
<b>Tennessee</b> Valley (End of Tennessee Valley Road)	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast, Station 9 UHF, Tam UHF, K6ER UHF,
<b>Gerbode Stables</b> (Bunker Road)	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast (all 4 inputs), Tam UHF, K6ER UHF
Cardiac Hill	147.330 MHz PL <b>192.8</b> Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF. K6ER UHF, Station 9 UHF

Table 2: Other sites to check. Require deployment of mast antenna and 50W mobile radio if none already exist. RCV has already tested many of these paths

EOC at Los Gamos, preferably from radio room	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, English Hill, Sonoma Mtn
Coast guard station at Fort Baker	Simulcast (all 4 inputs), Tam UHF, Big Rock UHF, Station 9 UHF, K6ER UHF, W6PW Sutro
Nicasio School	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, English Hill, Sonoma Mtn
Stinson Beach School	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, W6ER, W6PW Sutro
San Geronimo Old Golf Course	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
<a href="#">Walker Creek</a>	
<a href="#">Valley Forde</a>	
<a href="#">Tomaes</a>	
<a href="#">Fallon-Two Rock</a>	

Please add comments or populate table 2!

#### Plan of Action

During the RACES activity each of the Table 2 stations should endeavor to get signal reports from each of the Table 1 Miwok stations as Event traffic allows. As well as testing Tam West, where possible as many of the external repeaters should also be tested. A spreadsheet

Rob Rowlands NZ6J  
415 849 5667

## VE News

As mentioned in last month's QSA-5, Ken Brownfield AB6JR, has announced the 2023 examination schedule: The dates are Jan-14, April-8, July-8, and October-14 (2023). The examines start at 1:00 but attendees should arrive early and follow the guidelines regarding what you need to have with you when you sit for a license exam. The next exam is scheduled for April 8<sup>th</sup> and has two individuals signed up as of the MARS Board meeting.

The first of the club's sessions was held on January 14<sup>th</sup> and here are the results from Ken:

Hello All,

Another great exam session is behind us. Thank you all.

We had 8 people signed up. We had one person cancel but gave a great donation on the Website. We had 6 people sit for exams. 2 people passed their Tech exams, 2 people upgraded to General class and 2 people upgraded to Extra class. Participants were from Seaside, Castro Valley, San Francisco, Novato, San Rafael, and Sunnyvale.

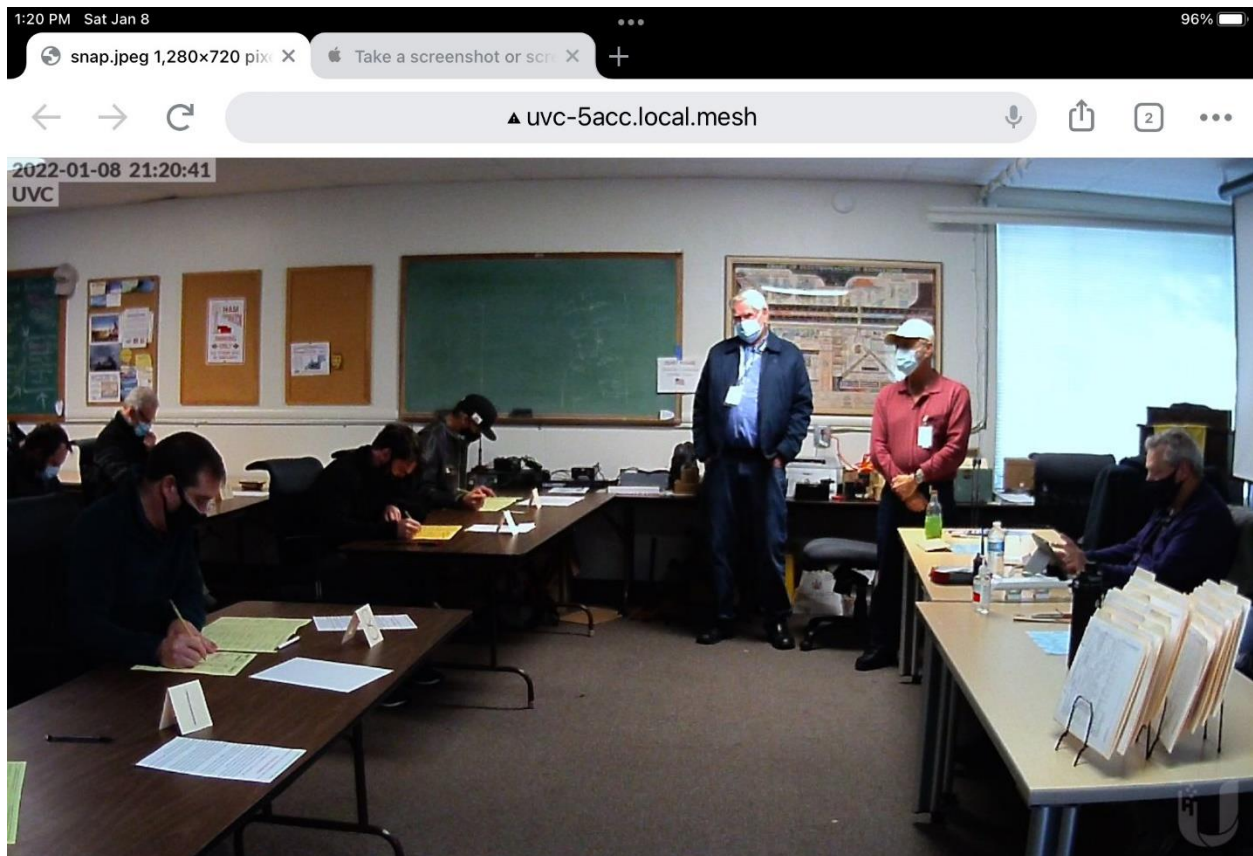
Our next scheduled exam session is April 8, 2023.

### **Why is the VE program so important?**

To keep our passion alive, we need younger generations of people to join the ranks of amateur radio operators. Any interest can only be kept alive by bringing in new blood, younger members willing to keep that interest going into the future. Amateur radio clubs around the country partake in the Volunteer Examiner's program, providing examinations for those new to ham radio or those upgrading their existing license. The VE program keeps amateur radio alive by giving license examinations and then sending the paperwork of successful examinees to the FCC where a Callsign is issued.

To become a Volunteer Examiner, you must read the VE manual and take a test. That's exactly what I did. My reasons for doing so were simple: I took all three license tests during the Covid-19 Pandemic. There were no physical testing sites available, so I had to sit for my exams online. The Lake Washington Radio Club did online testing, so I signed up. Online testing, due to the stringent testing requirements of the FCC was daunting at best for the Washington based radio club. However, they did it. I had several issues with my computer while testing and the club patiently worked with me to ensure I made it through the exam. This inspired me to say "thank you" by becoming a VE. Of course, radio clubs are now opened to in-person testing and the Marin Amateur Radio Society is one of those clubs that offers testing opportunities to both new hams and hams upgrading their licenses. With that said, please consider joining the VE program. You can find further information at the ARRL website:

<https://www.arrl.org/volunteer-examiners>



The Marin Amateur Radio Society did four testing sessions during 2022 (one was a last-minute testing opportunity brought about due to the change in the question pool). Once again, Ken and his team did a great job.

## **RCV News and Updates**

The QSA-5 is now including monthly information from the RCV program. First up is an announcement of a new Director of Emergency Management in Marin.

### **New Marin Director of Emergency Management**

#### **From Skip:**

I am pleased to announce Steven Torrence has been selected as the County of Marin Director of Emergency Management within the Marin County Fire Department.

Last Fall we began a Nationwide recruitment that culminated in 67 applicants many of which were highly qualified. Through a very competitive process Steven was selected and joins us from his current post as the Emergency Services Administrator for the City of Santa Monica.

Within his former role, Steven oversaw the Office of Emergency Management - Emergency Services and Preparedness division which includes the City of Santa Monica's Emergency Operations Center along with the City's alert and warning system, community preparedness, and emergency planning. In addition to Steven's role with the City of Santa Monica, he served as regional coordinator for Area-A of Los Angeles County where he helped coordinate regional training, response, and communications for the Cities of Culver City, Beverly Hills, West Hollywood, and Santa Monica, in addition to the private sector partners and hospitals.

Steven brings more than ten years of emergency services experience to the County of Marin where he has formerly been a part of a wide-range of responses which include: wildfires, tsunamis, the COVID-19 pandemic, heat events, civil unrest incidents, infrastructure failures, aircraft incidents, and large-

scale planned events such as presidential visits and the Superbowl. Steven has also led region emergency management committees such as the Orange County CERT Mutual Aid Committee where he served as Committee Chair for 2 years.

Steven started his career with the Rancho Cucamonga Fire District with a focus on hazard mitigation, training, and wildland urban interface management. Following his time with the Fire District, Steven served as the Emergency Services Coordinator for the City of Placentia – Police Department. During his time with the City of Placentia, Steven helped establish the City’s new Emergency Management program and the Placentia Fire and Life Safety Department where he served as a subject matter expert on the development of the community risk reduction program, authoring and adoption of the City’s Fire Code and General Plan – Safety Element, and the development of Emergency Medical Services program.

Steven holds a Master of Professional Studies Degree in Emergency and Disaster Management from Georgetown University where he currently serves as a guest lecturer for the graduate program. Steven additionally holds a Bachelor of Science degree in Public Administration, and an Associate of Sciences Degree in Fire Science.

Professionally, Steven routinely speaks at conferences and seminars throughout the state of California regarding emergency preparedness and mitigation in relation to the diversity of the state’s population. Most notably, Steven has spoken at the California Emergency Services Association conference on the topic of diversity, equity, and inclusion in emergency management.

Steven starts February 22, 2023 and looks forward to building critical relationships that ensure success during an emergency.

## **What Radio Communication Volunteers (RCV) Operators**

### **Can, Must and Cannot Do for CBOs**

**Can Do:**

1. Send and receive verbal messages using amateur radios on behalf of a CBO.
2. Send and receive digital messages using amateur radios on behalf of a CBO.
3. Assist CBO personnel in drafting concise (non-wordy) requests and reports suitable for radio transmission.
4. Facilitate limited “third-party” communications between CBO staff and other organizations or agencies public or private using amateur radio.

**Must Do:**

1. Maintain a professional, calm, courteous and friendly demeanor at all times.
2. Safely setup and operate an amateur radio station on or near the premises of a client CBO and announce their presence to an appropriate CBO manager/supervisor.
3. Keep a written log of all incoming and outgoing CBO messages.
4. Keep a copy of each formal (ICS-213 type) message to or from a CBO.

**Cannot Do:**

1. Disclose the contents CBO messages to unauthorized persons.
2. Accept any fees or compensation for service(s) performed while serving as an RCV Operator.
3. Impersonate a CBO representative or employee.
4. Talk with any media representative on behalf of the CBO or Marin County.

## **Reply to questions about RCV Outreach**

A number of RCVs asked some good questions about the outreach question posed in my last email below. Let me try to answer them or at least clarify what was



meant.

Q1: “Does this mean that we are not longer, as the RCV organization, offering to provide the CBOs with assistance in obtaining Ham radio licenses?”

A1: No. RCV encourages anyone who is interested to earn a ham license and get on the air. Keep in mind that when you assist them with getting their Ham license it is as an individual and not as an RCV operator, because this is not something the RCV program will assist with.

Q2: “[Does this mean we can] advise the CBOs on their internal operations?”

A2: No. RCV is a communications organization only. We must try not to tell our clients how to draft their internal disaster-emergency response or recovery plan. If asked, we can comment on the communications portion of such CBO plans.

Q3: “[Should I] assume that this... [forbids us] from providing any communications... advice to a CBO?”

A3: No. What it means is as an individual you may answer questions or suggest options. The RCV program as such will not offer advice or recommendations. What we cannot do for them is purchase, install or guarantee the performance of any particular communication solution.

Q3: “[Should I] assume that this new edict ... does not countermand the directive to meet with our CBOs?”

A3: Yes, you are still able to meet with CBOs. The intent of the email was to learn which RCV members are willing and able to provide communications information and/or advice to CBOs when requested by a CBO.

Q4: “[W]hat is the nature of the “orientation meeting” that would permit us, as individuals, to provide advice to the CBOs?”

A4: Orientation here means either a Zoom or in-person meeting to make sure we’re all on the same page about how to interact with CBOs in a professional

manner. This is not meant as an insult to your intelligence, experience or maturity. I know we all have different backgrounds and some already have considerable depth of experience & knowledge in sales or professional services. This is merely to ensure we are all on the same page and establish any guidelines needed. Primarily the orientation is to confirm what is expected of RCV members as stated in the RCV SOP document and answer any questions. For reference I've attached a document written to clarify what CBOs should and should not expect from an amateur radio service like RCV. Although the document is not exhaustive it should offer some basic guidelines for them and for us. RCV expects all members to use good and reasonable judgement when interacting in any way with CBOs.

02/24/2023

## **MARS RCV Members in Workshop with CBOs**

From Curtiss Kim: On February 10th members of the Radio Communication Volunteers (RCV) held a tabletop simulation recently with leaders of various Marin County community-based organizations (CBOs). It was a working session designed to better prepare both the CBOs and RCVs for a major incident or natural disaster when it strikes the region. Led by Tom Jordan, RCV Planning Team Facilitator, the meeting covered procedures, logistics and activation practices involving both the CBOs and ham radio volunteers. The workshop scenario consisted of a major wildland fire that started in Napa spread to Sonoma County and by the following morning caused the activation of Marins Emergency Operations Center. The make-believe wildfires burned down part of the electrical power grid leaving large portions of the county without energy. The outage and fires led to telecommunication failures and evacuations. Each CBO outlined how they would deploy leadership and facilities to handle the crisis; in turn the radio volunteers assigned to that CBO explained their role in maintaining communications with the EOC.

We have not seen the big one. "We do not know what it will look like," according to Jordan. Also taking an active role in the workshop was Adriana Rabkin, the Director of Voluntary Organizations Active in Disaster (VOAD). Rabkin said each

CBO needs to establish a contingency plan, outline the key participants and formulate action directives. The organizations taking part included the North Marin Community Services, West Marin Community Services, The San Geronimo Valley Community Center, Canal Alliance, Community Action Marin and San Francisco Food Bank, Homeward Bound and the Marin County Cooperation Team. Skip Fedanzo, Lead Operator for RCV says, “there is a whole lot more that we might find ourselves needing to do to assist the CBOs”. Additional workshops are planned in the near future. In the words of Jordan, “We’re looking at the real needs ... of these organizations”.

Licensed ham radio operators who would like to join RCV can contact Skip Fedanzo at the email: [KJ6ARL@ARRL.NET](mailto:KJ6ARL@ARRL.NET)

Picture 1 is a Group photo. Picture 2 is RCV member Ann Shores K6SHO relaying a simulated message. Picture 3: Facilitators: Tom Jordan, RCV Planning Team and Adriana Rabkin, Director of Marins Voluntary Organizations Active in Disaster









## North Bay Critical Mass

The monthly North Bay Critical Mass meeting was changed to Sunday February 26, at 12:00 am due to President's Day. The topic this month was DMR (Digital Mobile Radio)! (Note this is the day after our 2023 Public Service Events kickoff on February 25th). DMR is becoming a valuable tool for radio communications and public service by amateur radio operators. Here's a short breakdown of what was presented at the meeting:

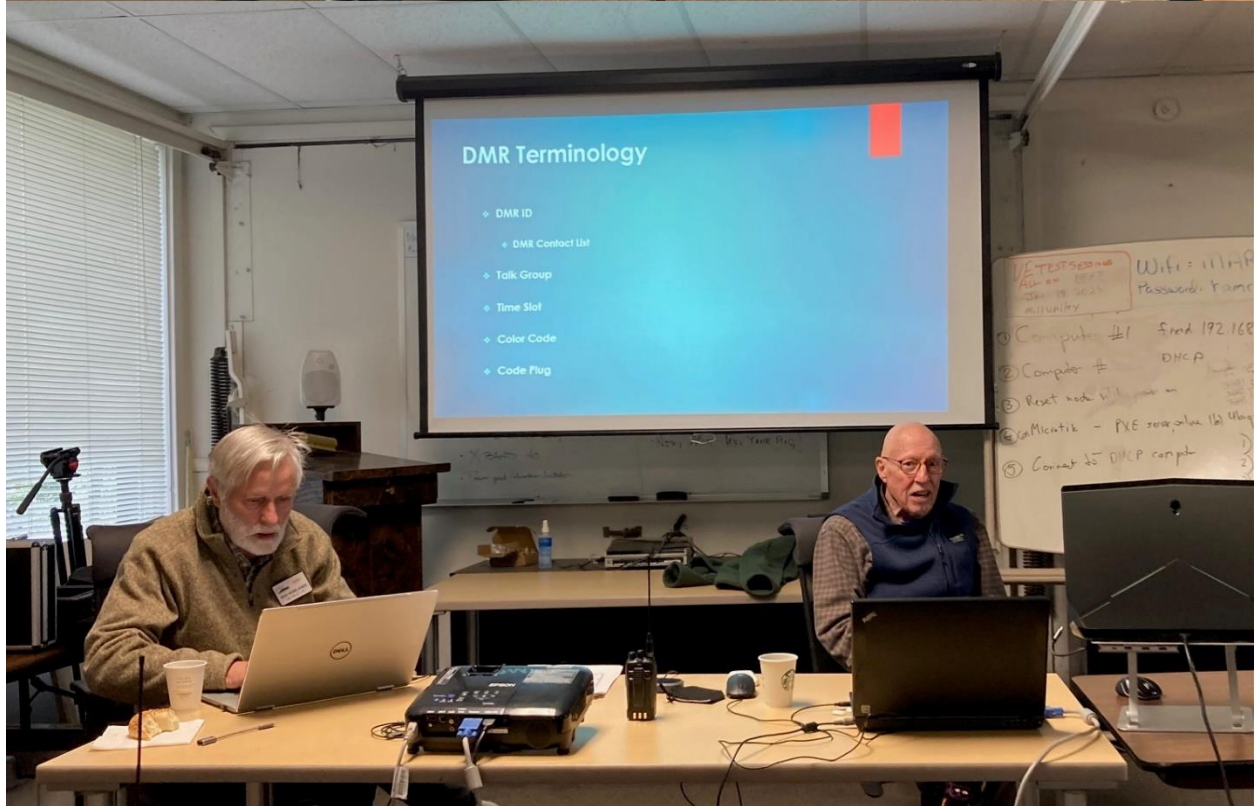
Alan Bowker WA6DNR will be our presenter discussing DMR radios and hotspots. Alan has been active in DMR for over eleven years and is certainly one of the most experienced DMR operators among us. We hope to implement DMR during our

2024 public service season. We have a brand new DMR repeater, K6ER, on Wolfback Ridge above Sausalito and several others accessible from the north bay. Many of us are just getting started using DMR radios. Whether you're brand new to it or have been using DMR for a while, I'm sure we'll all learn much from Alan. Even if you are just curious and want to learn more, come join us.

The meeting was also live on Zoom, so if you couldn't make it in person to the clubhouse, you were able to join virtually. Here are some photographs from the February 26<sup>th</sup> event:







## DMR Terminology

- ♦ DMR ID
  - + DMR Contact List
- ♦ Talk Group
- ♦ Time Slot
- ♦ Color Code
- ♦ Code Plug

WIFI: 1111P  
Password: 1111P

① Computer #1 - 192.168.1.1  
② Computer #2 - DHCP  
③ Reset node v. 1.0  
④ Mikrotik - PVE 5.10.0.16.1  
⑤ Connect to DHCP server



## **Marin RACES/ACS and MARS visit to Ham Station at Commonweal, Mesa Road, Bolinas Saturday 4 March 2023, 10am-noon**

From Rob Rowlands NZ6J: We have permission to meet next Saturday (March 4<sup>th</sup> 2023) at the Commonweal Ham Station in the old RCA building in Bolinas.

### **There are two goals:**

1. Introduce our local ham radio cohort to the Commonweal ham station we set up two years ago during Covid
2. Engage in a hands-on Winlink Tutorial. Bring a computer running Winlink Express. Radio optional, but you need to be a registered Winlink user.

Please *email me* if you wish to attend.

**Rob Rowlands NZ6J**

**[rowlands47@gmail.com](mailto:rowlands47@gmail.com)**

**415 849 5667**

## **Gerald McCarthy Tribute Lunch**

From Curtiss Kim: Amid a standing room only crowd, the bimonthly luncheon of Ham operators in Marin paid tribute to newly retired Novato Fire Department Deputy Chief Gerald McCarthy, W6NOV. Dan Greely, KN6PNA led the praises detailing McCarthy's 38- year career dating back to 1985 as a volunteer firefighter for the Marinwood Department. McCarthy joined the Novato Department in 1992

capping a 31-year tenure that began as a Firefighter/Paramedic.

McCarthy was presented with a plaque from Congressman Jared Huffman who represents the region. The honor detailed the Firefighter's passionate support of Marin County Ham radio operators. It went on to point out how the Chief has served with distinction in providing a commitment to public service.

Besides heading up the Novato Fire Department's Emergency Response Section, the Chief oversaw daily response times and staffing for the entire district. It was quickly noted that McCarthy was instrumental in orchestrating the placement of Ham radio equipment throughout North Marin supporting both UHF and VHF operations. The official facilitated the expansion of the MESH program in Marin, the emergency data network that utilizes point to point contacts.

Greely also pointed out how McCarthy's efforts engaged and supported countermeasures battling cyber criminals to help keep the fire department's computer network safe.

McCarthy was often heard on the Sunday morning MARS net dispensing fire safety tips, wild land fire updates and weather conditions. McCarthy took the time to say his association with ham radio has proven to be a rewarding and a valuable asset in his job. Here are some photographs from the event:



## Certificate of Special Congressional Recognition

Presented to

# Gerald McCarthy

In recognition of 31 years of dedicated service with the Novato Fire District, Chief Gerald McCarthy joined the Novato Fire District in 1992 as a firefighter/paramedic, bringing with him valuable prior experience as a fire dispatcher and paramedic in San Rafael and Oakland. He served with distinction, rising through the ranks to become Fire Captain, and the Battalion Chief, Training and Education Division. Gerald McCarthy has been the Battalion Chief, Operations Division since 2011, and was promoted to Deputy Chief in July of 2021. Particularly remarkable is Chief McCarthy's support of the community both on and off the job. A passionate supporter of the local Marin County ham radio community, he participated in weekly radio nets concerning fire conditions and safety precautions, assisting with the repair and placement of radio equipment, and facilitating the training of new operators. I join with the Novato Fire District and his many friends throughout Marin County in thanking Chief McCarthy for his hard work and commitment to public service and wishing him a well-deserved retirement.

Novato Fire District  
February 2, 2023

  
ED. RON JARLD HUFMAN  
CALIFORNIA'S SECOND DISTRICT  
UNITED STATES CONGRESS







## **New Monthly Columns for the QSA-5**

We're going to start covering DMR in more detail, and on a regular basis. We'll also start covering QRP radio which is becoming extremely popular. We'll start with a very brief introduction to DMR radio. Added this month is an article on the mysterious world of code plugs. Please note that this is a very basic introduction to DMR, meant for radio operators new to this type of communication tool. With each passing article, the material will become more advanced. However, we wanted to make sure everyone was on a level playing field, so we started at the beginning.

### **DMR Radio**

#### **What is DMR or Digital Mobile Radio**

Digital Mobile Radio (DMR) is a type of digital radio communication technology that is used for voice and data communication. It is used primarily in professional mobile radio (PMR) systems, such as those used by public safety organizations, businesses, and transportation companies.

DMR is a two-slot TDMA (Time Division Multiple Access) technology, which means that it can transmit two independent channels on a single frequency band. This allows for greater capacity and efficiency in communication systems, as more users can be accommodated on a single frequency. DMR also uses error-correction techniques to improve the reliability and quality of the transmitted signals.

One of the key advantages of DMR is that it is interoperable with other digital radio systems, such as TETRA (Terrestrial Trunked Radio) and P25 (Project 25). This means that users of different digital radio systems can communicate with each other using DMR equipment.

In addition to voice communication, DMR also supports data transmission, including the transmission of text messages, GPS location information, and other data. This makes it a versatile technology that is suitable for a wide range of applications, including public safety, transportation, utilities, and other industries.

## **How does Digital Mobile Radio work**

DMR uses Time Division Multiple Access (TDMA) technology to divide a frequency channel into two time slots, allowing two users to communicate over the same frequency channel simultaneously. This allows DMR systems to increase the capacity of a single frequency channel, as well as to improve the efficiency and clarity of voice communication.

In a DMR system, each user is assigned a unique identifier called a "radio ID," which is used to identify the user on the network. When a user wants to initiate a call, they send a request to the network, which then assigns them one of the available time slots on the frequency channel. The user's radio then transmits their voice data during their assigned time slot, and the receiving radio listens for and receives the transmission during its assigned time slot.

DMR systems use error correction and encryption to improve the reliability and security of voice communication. They also support a range of features, such as group calling, individual calling, and text messaging, as well as GPS tracking and location services.

Overall, DMR is a highly efficient and reliable technology that is widely used in professional mobile radio systems for voice communication.

## **How can Digital Mobile Radio Be Used in an Emergency**

Digital Mobile Radio (DMR) can be used in emergency situations to provide reliable and efficient communication between first responders and other emergency personnel. In an emergency, the ability to quickly and accurately communicate is critical, and DMR can help to facilitate this communication by providing a secure and reliable means of communication.

One of the key advantages of DMR in emergency situations is its ability to transmit voice and data simultaneously. This allows emergency responders to not only communicate with each other, but also to transmit important information such as location data, incident details, and other relevant information.

DMR also offers a number of features that are specifically designed for use in emergency situations. For example, DMR supports group calling, which allows multiple users to be part of a single call, making it easier for emergency responders to coordinate their efforts. DMR also supports emergency calling, which allows users to send an emergency alert to all other users on the system, alerting them to the need for assistance.

Overall, DMR is a reliable and effective technology for emergency communication, and is widely used by public safety organizations, as well as other emergency responders, around the world.

## **Code Plug Terminology**

The most difficult part of the transition from analog to DMR radios is the code plug. A Code Plug is nothing more than a fancy name for the software file that gets loaded into your radio to tell it what to do. Thanks to Miklor for the following information.

There are two stages to programming a DMR radio. The first stage is very similar to an analog radio. It determines the transmit and receive frequency of your repeater. The second part directs you through the network. Here are some terms you need to be familiar with:

### **TDMA / Time Slots**

TDMA stands for Time Division Multiple Access.

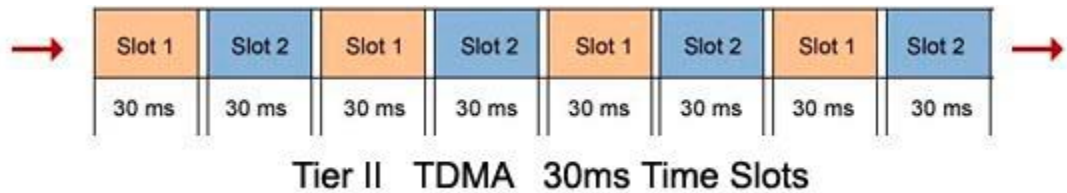
A standard FM handheld transmits a single carrier from the time you press the PTT to the time you release it. With the digital magic of TDMA, your signal is divided into alternating 30ms segments. This allows two signals to interweave, so two different conversations can take place on the same frequency at the same time.

The graphic below illustrates the splitting of a transmitted digital signal into these

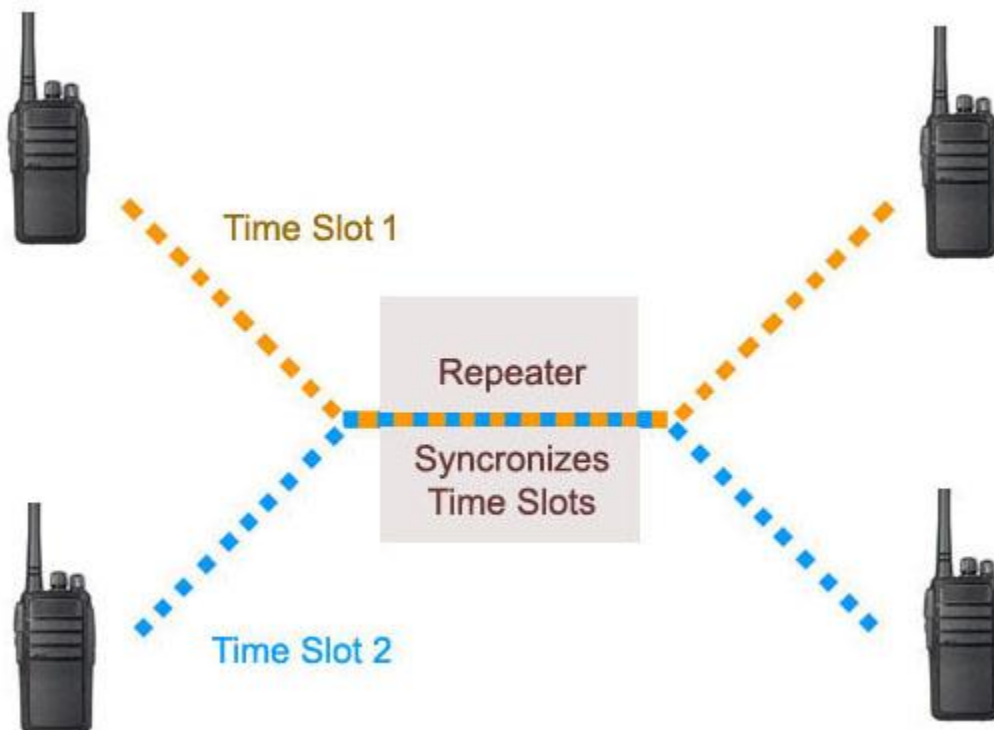


30ms time slices. These are called Time Slots.

The code plug's Time Slot (TS) parameter determines which path you will be using, TS1 or TS2.



The code plug's Time Slot (TS) parameter determines which path you will be using, TS1 or TS2.



### Color Code

The digital Color Code (CC) has nothing to do with a color. Compare it to a CTCSS

or DCS code. Its function is to prevent interference between two repeaters with overlapping coverage. The proper CC is required for access and is assigned by the repeater's owner. (normally, but not always CC1)

### **Talk Groups (TG) / Digital Contacts**

There are well over a thousand different Talk Groups worldwide, each with its own assigned network ID. These TGs fall into various categories, such as States, Regions, Countries, Languages, etc. as well as general chat channels.

When you determine which TG's you want to use, you would then add them to your Digital Contact list.

### **Channels**

This is what ties everything for a specific channel together. Channel information contains information such as frequency, power, time out, TG, CC, etc. A further example is found below.

### **Zones**

A Zone is the area in your radio where you group together related Channels. You can set up the zones in groups such as:

- *Your local repeater's channels*
- *Simplex channels*
- *Most commonly used channels, etc.*

### **Admit Criteria**

This determines when you are allowed to transmit. The options are:

Color Code (preferred) - Allows you to transmit only when the time slot is available.

Channel Free - Allows you to transmit when the channel is clear, however there may be someone using the same time slot.

Always - This allows you to transmit even if there is another QSO on a different time slot. This would interrupt the current QSO. The only time 'Always' should be used is if on a simplex channel or in the analog mode.

## **Setting up a Code Plug**

Although code plugs are not interchangeable between models, the basics are the same.

### **Step 1 – Transmit Talk Groups**

The first step is to identify the Talk Groups desired by Name and Group ID.

The TG fields may be labeled differently, depending on your radio's software, but they all serve the same purpose.

For example: Tx Contacts / Digital Contacts / Talk Groups are all the same.

\* When entering the TG ID, you are required to enter either 'Group Call' or 'Private'. Always enter 'Group Call' for all Talk Groups.

\*\* You will also notice below that some software will sort the name column alphabetically. If it does, preceding the contact name with a period or comma will help categorize items by group names.

Contacts / Talkgroups				
No.	Name	Attr	Call Type	Call ID
1	...Local 2	Digital	Group Call	2
2	...Local 9	Digital	Group Call	9
3	...TAC 310	Digital	Group Call	310
4	...TAC 311	Digital	Group Call	311
5	...TAC 312	Digital	Group Call	312
6	..DC	Digital	Group Call	3111
7	..DE	Digital	Group Call	3110
8	..MD	Digital	Group Call	3124
9	..NJ	Digital	Group Call	3134
10	..NY	Digital	Group Call	3136
11	..PA	Digital	Group Call	3142
12	..TX	Digital	Group Call	3148
13	..VA	Digital	Group Call	3151
14	.MidAtlantic	Digital	Group Call	3173
15	.Mountain	Digital	Group Call	3177
16	.Nationwide	Digital	Group Call	3100

ADD Delete Delete All Import Export

To start, I would suggest the following TGs:

### **TG 9 (repeater)**

Connects to your local repeater only.

Does not apply to a hotspot

### **TG 2 (repeater)**

Connects to your local repeater and those repeaters connected to the local network cluster. This could be upwards to a dozen or more repeaters across your state or region.

Again, does not apply to a hotspot.

### **Statewide Groups**

Your state, and surrounding states. You do not need to be located in the state to use a state group, but it must be available in your repeater's active TG list. It

serves as a meeting place for those in your general area.

### **Nationwide 3100**

This is a National Talk Group, sometimes referred to as a calling channel. Please use with courtesy. This TG links all repeaters nationwide. Although it is not a requirement for use, consider moving to a TAC channel for long conversations.

### **TAC channels**

Secondary channels for long conversations or group chats. Common TAC channels are TG **311, 312...**

A sample of these and other TG's as can be found at:

[BrandMeister](#) and [DMR-MARC](#).

### **Parrot / Echo test - TG 9998, TS 2**

This is a network echo test that allows you transmit up to 90 seconds, and after a 5 second pause, will repeat back to you exactly what the network users hear on their end. Excellent for audio level and distortion testing.

Note: On the Brandmeister network, the echo test is TG **9990, TS 2**

### **Step 2 - Channel Information**

This is where the control information is entered. The data required here is the Frequency, Power, Color Code, TG, and Time Slot where the desired TG can be found. The main items required are shown below.

\* Pay special attention to the Time Slot. If the wrong time slot is selected, you are going nowhere. This can easily be overlooked.

**Channels Information**

**Digital/Analog Data**

Channel Mode: **Digital** ←

Channel Name: **Bridge** ←

Band Width: **12.5kHz** ←

Scan List: **None** ←

Squelch: **Normal** ←

RX Ref Frequency: **Low** ←

TX Ref Frequency: **Low** ←

TOT[s]: **120** ←

TOT Rekey Delay[s]: **0** ←

Power: **High** ←

RX Frequency(MHz): **146.44500** ←

TX Frequency(MHz): **147.44500** ←

Admit Criteria: **Always** ←

Auto Scan: ☐

Rx Only: ☐

Lone Worker: ☐

VOX: ☐

Allow Talkaround: ☐

**Digital Data**

Private Call Confirmed: ☐

Emergency Alarm Ack: ☐

Data Call Confirmed: ☐

Compressed UDP Data Header: ☐

Emergency System: **None** ←

Contact Name: **Bridge 3100** ←

Group List: **None** ←

Color Code: **1** ←

Repeater Slot: **2** ←

Privacy: **None** ←

Privacy No.: **1** ←

**Analog Data**

CTCSS/DCS Dec: **None** ←

CTCSS/DCS Enc: **None** ←

QT Reverse: **180** ←

Rx Signaling System: **Off** ←

Tx Signaling System: **Off** ←

☒ Reverse Burst/Turn-off Code

☐ Display PTT ID

Decode 1: ☐

Decode 2: ☐

Decode 3: ☐

Decode 4: ☐

Decode 5: ☐

Decode 6: ☐

Decode 7: ☐

Decode 8: ☐

41 of 108

- Channel Mode = Digital
- Band Width = 12.5 kHz
- Scan List = (save this option for later)
- Time Out Timer = 120 is a good starting point
- Power = Least amount needed to get into repeater
- Channel Name = Name that appears in your channel list
- Tx and Rx Frequency = Operating Frequency
- Admit Criteria = Color Code (repeater) or Always (simplex)
- Contact Name = This is the TG name
- Color Code = Determined by the repeater owner
- Repeater Slot = Determined by the repeater owner

### **Step 3 - Zone**

After your Channels have been set up, you will need to place them into areas called Zones. The channels in a Zone can be arranged in any order. The same channel can appear in multiple zones.

So there you have it. Hopefully this has made you feel a little bit more comfortable about creating a code plug. A good recommendation would be to acquire a sample CP for your radio, examine it, and build upon it.

Next month, we'll look at Wi-Fi hotspots and how to set them up. I'd like to thank the folks of Miklor for the bulk of the information presented in this article.

## **QRP Radio**

While many ham radio operators dream of having a huge ham shack, full of equipment, there's a growing group of hams that like take their radios with them as they travel around the country and the world. This is where QRP radio comes into the picture. This is a brief introduction to QRP radios meant for those hams new to the subject. As with the above article DMR radio, the subject matter will become more advanced with each passing issue of the QSA-5.

QRP is a term used in amateur radio to refer to low-power communication, typically using transmitters with output power of 5 watts or less. QRP operations are popular among amateur radio operators because they can be accomplished with relatively simple and inexpensive equipment, and because low power consumption allows for portable and handheld operation.

There are many different ways that amateur radio operators can participate in QRP operations. Some operators build and operate their own QRP transmitters and receivers, using kits or plans available from various manufacturers. Others use commercially available QRP transceivers, which combine both transmit and receive capabilities in a single unit.

Amateur radio operators who participate in QRP operations often enjoy the challenge of making contacts using a minimal amount of power, and often use portable or mobile setups to operate from a variety of locations. QRP operations are also popular among amateur radio operators who are interested in emergency communication, as low-power setups can be used to communicate when other forms of communication are not available.

### **What are the advantages of QRP radio?**

QRP radios are radios that are designed to operate with a low power output, typically 5 watts or less. QRP stands for "low power" or "reduced power" in amateur radio terminology.

There are several advantages to using QRP radios:

1. **Cost:** QRP radios are typically less expensive than high-power radios, making them an affordable option for hams on a budget.
2. **Portability:** QRP radios are often smaller and lighter than high-power radios, making them easier to carry and use in a variety of locations.
3. **Battery Life:** QRP radios generally require less power to operate, which means they can run longer on a single charge or set of batteries. This can be especially useful in emergency situations or when operating portable.
4. **Efficient use of the radio spectrum:** By using less power, QRP radios generate smaller signals that are less likely to interfere with other users of the radio spectrum. This can be important in crowded frequency bands where high-power signals can cause interference.
5. **Challenge and skill-building:** Some hams enjoy the challenge of using low-power radios to make long-distance contacts or to operate in difficult conditions. Using a QRP radio requires the operator to have a good understanding of propagation, antenna design, and operating techniques, which can be a rewarding and educational experience.

### **What is the best antenna for QRP radios**

The best antenna for a QRP radio will depend on a variety of factors, including the



type of radio, the frequency or band being used, the location where the antenna will be used, and the goals of the operator. In upcoming articles we'll look at some specific antennas that are easy to build and will cover more generalized needs. Some general considerations for selecting an antenna for a QRP radio include:

1. Frequency and band: Different antennas are designed for specific frequency ranges and bands. Make sure to select an antenna that is suitable for the frequency and band you plan to operate on.
2. Antenna type: There are many different types of antennas, including dipoles, verticals, yagis, and more. Each type of antenna has its own characteristics and advantages, and the best choice will depend on your specific needs and goals.
3. Antenna length: The length of an antenna can affect its performance. In general, shorter antennas are better suited for QRP operation because they are easier to transport and require less space. However, longer antennas can often provide better performance in certain situations.
4. Antenna location: The location of the antenna can have a significant impact on its performance. In general, an antenna that is higher off the ground and away from objects will perform better than one that is closer to the ground or surrounded by objects.
5. Antenna gain: Antennas with higher gain can focus their signal in a specific direction, which can be useful for making long-distance contacts. However, high-gain antennas may also be more directional, which can make it more difficult to hear signals coming from other directions.
6. It may be helpful to consult with other hams or research online to find out which antennas are popular and perform well for QRP operation. It may also be a good idea to experiment with different antennas to see which one works best for your specific situation.

## **Modern QRP Radios are based on SDR or Software Defined Radio**

Software defined radio (SDR) is a type of radio communication system in which the functions of a traditional radio receiver or transmitter are implemented using software running on a computer or embedded processor. SDR systems are characterized by their ability to be reconfigured or "defined" by software, allowing

them to support a wide range of communication standards and protocols. In a traditional radio system, the various functions of the radio, such as demodulation, frequency synthesis, and filtering, are implemented using dedicated hardware components. In an SDR system, these functions are implemented using software running on a general-purpose processor or computer. This allows SDR systems to be more flexible and adaptable than traditional radio systems, as the software can be easily modified or updated to support new standards and protocols.

SDR systems have a wide range of applications, including wireless communication, radio astronomy, and radio frequency identification (RFID). They are also used in a variety of settings, including military, commercial, and amateur radio. SDR technology has the potential to revolutionize the field of radio communication by enabling the development of more flexible, adaptable, and cost-effective radio systems.

## 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. The news was a bit slow during this last month. Our first article regards the history of amateur radio at Ohio State University:

**W8LT - A History of Amateur Radio at Ohio State University:** A nice article on ham radio at the University.

<https://www.arrl.org/news/w8lt-a-history-of-amateur-radio-at-ohio-state-university>

**Marines To Gain Radio Op Experience Via Amateur Radio:** A good article from the ARRL.

<https://www.arrl.org/news/marines-to-gain-radio-op-experience-via-amateur-radio>

**Ham radio operators: A long-lasting technology:** An interesting piece about the longevity of radio.

<https://www.winknews.com/2022/06/24/ham-radio-operators-a-long-lasting-technology/>

**Amateur Radio Club Members Assist Law Enforcement:** A local radio club provided surveillance for a large state fair.

<http://www.arrl.org/news/amateur-radio-club-members-assist-law-enforcement>

**If China declares war, these ham radio enthusiasts could be crucial:** An interesting piece from the Los Angeles Times:

<https://www.latimes.com/world-nation/story/2022-10-27/taiwan-ham-radio-amateurs-civil-defense>

**Amateur Radio Operators Continue Response to Hurricane Ian:** One of the most important aspects of amateur radio is assisting when disaster strikes. Here's a piece from the ARRL about the role amateur radio has played during this devastating event.

<http://www.arrl.org/news/amateur-radio-operators-continue-response-to-ian>

**Local ham radio operators providing help as Hurricane Ian sweeps across Florida:** This comes from TV Station WTVA (TUPELO, Mississippi). This piece covers how amateur radio operators connect family members with loved ones in the path of the hurricane.

[https://www.wtva.com/news/local-ham-radio-operators-providing-help-as-hurricane-ian-sweeps-across-florida/article\\_f2fda4e8-3f6c-11ed-bd5f-97a1bad70dad.html](https://www.wtva.com/news/local-ham-radio-operators-providing-help-as-hurricane-ian-sweeps-across-florida/article_f2fda4e8-3f6c-11ed-bd5f-97a1bad70dad.html)

## 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 last 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 2021 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. There has been little FCC news over the last few months:

**FCC Grants an ARRL Emergency Request to Permit Higher Data Rate Transmissions for Hurricane Relief Communications:** The FCC has granted a 60-day ARRL emergency request intended to facilitate amateur radio emergency communications for hurricane relief.

<http://www.arrl.org/news/fcc-grants-an-arrrl-emergency-request-to-permit-higher-data-rate-transmissions-for-hurricane-relief-c>

**FCC Grants an ARRL Emergency Request to Permit Higher Data Rate Transmissions for Hurricane Relief Communications:** The FCC has granted an [ARRL](http://www.arrl.org) emergency request for a 60-day temporary waiver intended to facilitate amateur radio emergency communications for hurricane relief.

<https://www.arrl.org/news/fcc-grants-an-arrrl-emergency-request-to-permit-higher-data-rate-transmissions-for-hurricane-relief-c>

**FCC Hiring for High Frequency Direction Finding Center:** Just in case you're looking for a career change:

<http://www.arrl.org/news/fcc-hiring-for-high-frequency-direction-finding-center>

**FCC Legacy CORES System to be Retired:** It seems that the FCC is retiring their CORES system:

<https://www.arrl.org/news/fcc-legacy-cores-system-to-be-retired>

**FCC Proposes Record \$34,000 Fine for Alleged Interference and Unauthorized Transmissions During Idaho Wildfire:** The FCC takes using unauthorized frequencies very seriously.

<http://www.arrl.org/news/fcc-proposes-record-34-000-fine-for-alleged-interference-and-unauthorized-transmissions-during-idaho>

## Propagation News

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

**The K7RA Solar Update:** This is the K7RA solar update, which is updated regularly:

<https://www.arrl.org/news/the-k7ra-solar-update-766>

### **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/>



## 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 Newslane. An AP styled news feel page for amateur radio:

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

