

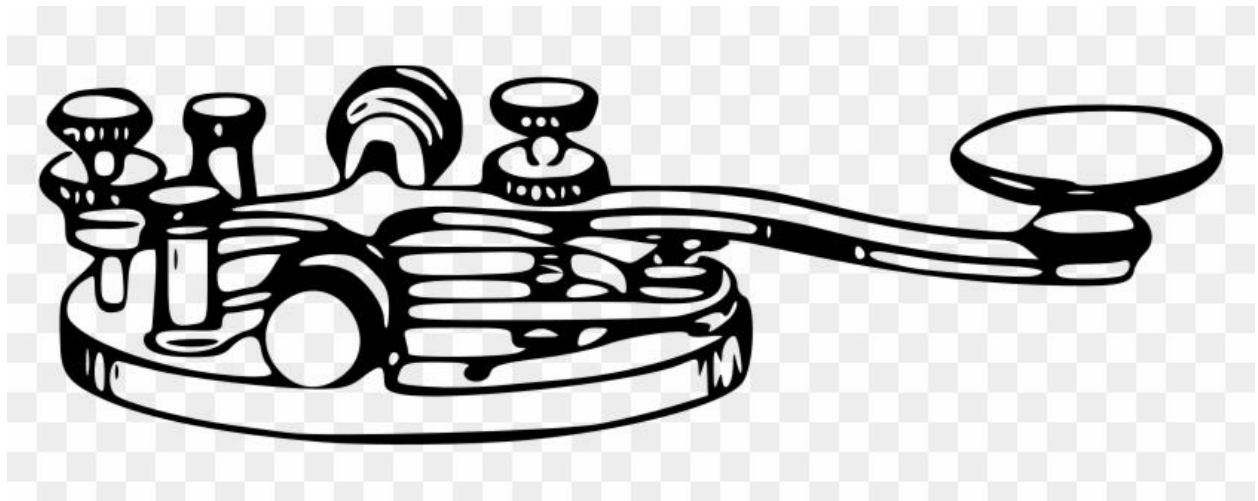


# QSA-5

## Marin Amateur Radio Society Monthly Newsletter

Established 1933

November 2023



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

## **From Our President:**

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Greetings everyone,

The Message this month is from our Vice President, Tom Jordan KG6TCM.

Ken AB6JR

Message from Tom KG6TCM on the Picnic:

October 7th was a great day for the club at Stafford Lake. Our club demonstrated our ability to share our hobby with others, over many modes and with some outstanding field rigs. We also shared some amazing food, opportunities to meet new friends, and fellowship among our members. County Parks staff dropped in and reported being impressed by the various capabilities of the many modes on display.

The day could not have happened without the leadership of our board, who spent careful consideration on planning, logistics, and finance coordination. Operations for the day were really well spread out by our membership, not least of which: Milt KM6ASI and Mary for food layout, table settings, cookies, pro tem ombudsmanship, and much other work, Germaine N6WTQ for the extremely well received role of greeter and coordinator, Bruce N6VLB for the ribs, Jim KM6WWY and JoAnn KN6FXH for the cookies, our cadre of radiomen who set-up, operated, and - at the end of the day - respected our parks by meeting the old adage of, "Leave nothing but footprints, take nothing but pictures, kill nothing but time." I apologize to those whose names I've missed in this thank you message - everyone was appreciated, and all the more for contributions to the day.

If you showed up with a cooler and ice to share for cooling our refreshments, or just to share your camaraderie and our interest in the magic of radio, on behalf of the club board of directors, I thank you. See you next year!

Postscript: I will be stepping away from board service for awhile, not seeking re election this round. I have a volunteer side project (radio related!) that will require a much of my focus, it is an effort to provide no cost planning and logistic support for coastal communities to install NOAA Weather Radios inside all short term rentals - a significant gap in the tsunami alert and warning space (working title is Tsinson Beach dot com). I'm glad to see we have some new members possibly entering the board and encourage those of you that are able to; please support our board who do so much for our club, our hobby, and through that public service and public safety.

-Tom KG6TCM

## **From the Editor:**

Fall has officially arrived! The temperatures have dropped and there's a chill in the air. With Thanksgiving approaching, everyone is gearing up for the holidays. With the days growing shorter and the nights longer, it's a perfect time to sit inside of our ham shacks with a hot cup of coffee or tea. The bands are jumping, and this is a great time to talk to other radio operators. Of course, for any amateur radio enthusiast, any time is a good time to be on the air!

Things are running smoothly here at the QSA-5. Thanks to everyone who has contributed to this issue. We couldn't have done it without you! We're still looking for ideas for monthly columns, such as vintage radios, the 10-meter band, or whatever you'd like to see on a regular basis. Let me know and I'll make it happen. Happy Thanksgiving everyone!

[QSA-5Editor@w6sg.net](mailto:QSA-5Editor@w6sg.net)



### **New Members:**

Luis Membrila WA6LM - Petaluma

Mark Roos KO6BPI - Nicasio

Dereck Hatcher KN6VSC - Novato

Tom Childers KO6BQU - Fairfax. Tom has requested his old call sign W6ARL

Joe Jacobson KO6BSV – Petaluma

Gregory King KO6BHM - San Francisco



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



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

**October 12 ,2023**

**Call to Order:** 19:30 Hours 1732

### **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

**Members Present:** Skip Fedanzo KJ6ARL, Milt Hyams KM6ASI, Dan Healy K6NQZ, Larry Bradley KK6QPE, Curtis Ardourel WA6UDS, Gerald McCarthy W6NOV, David Sneed WD6L, Greg KO6BHM, Pam N6PDW and Stan AI6NF Witherspoon, Larry Loomer KI6LNB

**Adopt Agenda:** President Ken Brownfield amended agenda to move New Business Item 4 Test Equipment before Committee and other reports to conform to Dan Healy K6NQZ time requirements. MSC to adopt agenda as amended.

**Approve minutes:** of Sept 14, 2023, Sept. Minutes were published in QSA-5 MSC to adopt Minutes.

**Secretary's Report:** Nothing new to report.

**Treasurer's Report:** BUDGET IN QSA-5 MSC to adopt Budget.

**New Business Item 4:** Test Equipment - Dan Healy- Rich Slusher has offered to sell special repeater test equipment, specifically a spectrum analyzer and a service monitor, from his late brother Doug's equipment to the club. Dan noted that the club should own that equipment as he has been borrowing a spectrum analyzer to do the necessary repeater maintenance. Rich would like to sell these two items, with an asking price of \$1500.00 or best offer. Last time Dan worked with this equipment it was in good working condition. The spectrum analyzer was calibrated when we were putting in the Bahia repeater system. The board approved purchase of the test equipment for an initial offer of \$1,000 to a max of \$1,500 for both the items. We will also request any test certificates and operating manuals that may be available.

### **Committee and Other Reports**

**Membership: Curtis** – 157 Members current at 100.6% of end of Last Year. Bruce questioned if we were offering the last 3 months of the year free for lapsed members if they re-up before the new year. In the past only offered to new members. Milt – Should only be applied to members who have lapsed. Tabled until next month.

**Facilities:** Skip: Painting bids have been submitted to board, in old business agenda.

**Public Service:** Rob/Pam – One last event Dolphin Club escape from Alcatraz 10/22, will have Zoom briefing on Thursday before the event. They are organizing and planning the kickoff event for 2024. Jim S. advised that the Spartan event organizers will be using a rented radio system for this year's event and will not be needing any assistance from MARS.

**Technical:** Milt -Muir Beach Water Tank Repeater: Eric from County has been trying to contact Layton at Muir Beach for further progress.

**VOAD/RCV:** Skip- RCV will participate in the Great Shakeout drill, October 19th. Later in October RCV will be testing simplex paths from Marin City to other CBO locations or one relay sites. Prefer Canal or Home Depot area.

**VE Testing:** Ken- 4 signups 5th not yet processed This session we have 3 from Marin County. Jeff Young moved that 1-year free club membership to anyone who passes VE exam given by MARS and joins our club.

**MSC:** to start immediately. Curtis will make a handout sheet to facilitate this. Steve Toquinto volunteered as a mentor to set anyone who needs help with the hobby with a club member to help them.

**NBAM:** Jeff- Nothing New, NBAM is still planning to get Petaluma set up and running. There will be a training class at the end of the month for people interested in learning more about NBAM.

## **Old Business:**

**1.** After Action Club Picnic discussion- Milt- Tom Jordan and Mary Hyams were the organizers. Tom doing logistics and Mary do food and setup. 51 responded 40 showed up and ate, as well as 7 who did not reserve. Very good attendance. Forrest Fire BBQ, the food vender, had smoker problems and food was 1 1/2 hour late. Bruce's ribs and snacks that were provided carried everyone over. Park staff ate and were impressed with the operating stations including Jerry's comm van. A discussion comparing prices to Esther's lunches for last year determined that it



was comparable and that the BBQ buffet was very good, and the amount provided was quite ample. Bruce requested that all reimbursement requests be submitted ASAP so he could cost out the picnic. Milt noted that no reimbursement for deserts and misc. would be requested from him. It was noted that we need to bring BBQ brickettes, and start planning early for next year, early in the new year.

**2. Bids for Clubhouse painting-** 5 painting bids have been obtained and sent to board members for review prior to this meeting. Skip – Contractors are Armstrong Painting, TriColor Painting, Larsen Painting and NGD painting (2 bids – 1 for front and east side as originally requested, and another for the complete exterior) Realistic bids are \$25 - \$35K for the entire building exterior. All bids are similar to each other, key differences are warranties and contractor experience, job description. For planning purposes over \$35k and under \$40K. 2 contractors mentioned that the building looks like it has not been painted for at least 20 years. Many windows have been painted shut for a long time and we need to tell the contractor if we want them freed up. Some exterior surface wood has weather damage and will need additional work or replacement, but we won't know until they get into the project. The outside sliding door has rot and will need repairs. Armstrong Painting – long time in business (advertisement with good rep, Tricolor painting – long time in Marin, commercial property experience. NGD is the least experienced bidder and may be a little hungrier than the others and will paint the west side without needing staging using long ladders. At 15 years, Armstrong is the only one that has warranty longer than 5 years. Armstrong, Tricolor & NGD all said that because we don't often repaint, when we do the work should be top notch. Armstrong painted HOA Building for Curtis recently and they did an excellent job. Ken – 2 of the contractors were quoting thousands of \$ for scaffolds as NGD would use ladders. McCarthy painting was not contacted, and Bruce requested that they be included. Discussion followed on whether to solicit additional bids before funds required are identified and determined that we don't need them at this time. Bruce noted we have approx. \$50K+ and \$8K for property taxes due. \$35k to \$40K for painting would leave us less comfortable than we have been, and that we just need to prioritize painting. Jeff suggested that we use the funds that we presently have and paint the building now. After a discussion of possible ways to additionally fund the painting, one-time dues increase vs. a request for individual donations, Ken suggested that we should put it off for at least 1 month and further consider painting and funding

options. It was agreed to table making a painting decision until next month. Jeff suggested that we get the McCarthy bid during that month and Skip agreed to do this.

**3. Field Day 2024 update-** Steve: Picnic was good tryout of Area 1 at Stafford Lake. The Field Day Committee meeting decided to look at Stafford Lake Area 2 and determine which area we would like to reserve. The Field Day committee needs to come to the board with their specific request. Milt, Steve, Ken, Rich, Bruce, and Jim will meet at Stafford Lake Wed. at 1 pm. A special board meeting/conference will be scheduled to finalize the Field Day 2024 location request. Jim S.

### **Marin Amateur Radio Society – Board of Director Meeting**

Requested \$775.00 to purchase a set of 5 (80, 40, 20, 15, and 10 meters) band pass filters from Array Solutions company. Ken suggested that it be for \$800.00. Following discussion regarding the need for filters (two filters were loaned to us at 2023 Field Day by Antonis AA6PP, and they eliminated the interference between operating stations, and what bands were needed, it was Moved that the amount NTE \$800.00 be approved for the purchase of the band pass filters for use at Field Day and other club field operating events. Motion was seconded and carried. We will also need to purchase a set of coax jumpers to connect them to transmitters. Jim will check on these jumpers. Steve reported that the Field Day 2024 Committee will next meet February 7, 2024. Jim reported that Ron Castro, Redwood Empire DX Association, REDXA (the club that we have in the past collaborated with for Field Day), was present at the MARS Field Day Committee meeting and said that he would be willing to join in operating with us and assist with obtaining the loan of REDXA equipment and inviting REDXA members to participate in MARS Field Day.

### **New Business:**

- 1. Election Committee – Ken-** Postponed, only one election committee member was present.
- 2. Christmas Party-** Curtis- Survey has brought up having a Christmas Luncheon vs. a dinner. After discussion, it was decided that Curtis will circulate a second survey regarding interest in lunch or brunch, as well as cost. Curtis will prepare a synopsis of the interest. Ken questioned whether we have time left to have a Christmas event, and Curtis affirmed that we do. Jeff suggested, and it was

agreed that at the special board meeting regarding Field Day location, we would also discuss and finalize Christmas (Holiday) party plans.

**3. Key FOB assignment-** Discussion on issuing a clubhouse key fob to Dan Sobel. It was pointed out that Dan has been active in many facets of clubhouse care and maintenance. After discussion, MSC for membership to issue one to him.

**4. Test Equipment –** Moved to top of agenda as amended.

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

**Executive Session:** Not Required.

**Adjourn:** MSC to adjourn the meeting.

**Next Membership Meeting Nov 3, 2023**

**Next Board Meeting Nov 9, 2023**

## **Marin Amateur Radio Society – Board of Director Meeting**

**Oct 25, 2023**

**Call to Order:** 19:30 Hours Special Board Meeting 1932

**Attendance Quorum Present:**

**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

**Adopt agenda:** As amended with a 3rd Item, Elections. MSC

**Members Present:** Larry Bradley KK6QPE, David Sneed WD6L, Curtis Ardourel WA6UDS

**Continued Discussion and Decision On:**

**1.** Decision on Christmas party, also known as Holiday gathering, to eat and mingle. Curtis – this is the first year we have had interest in Christmas/Holiday gathering. Curtis has conducted 2 email surveys and has compiled the results for the board. After discussion of the mixed results of the surveys, schedules, and short lead time, it was moved by Jim S. “We have a Christmas/Holiday party, planned for December 16th, at the clubhouse between 1 and 4 pm.” Motion was seconded and carried. Further discussion filled in the following details:

**A.** Curtis indicated that time is short, but we do have time if we move on this quickly.

**B.** A total of 40 attendees max. due to COVID concerns. RSVP will be required and enforced, limited to Member and 1 guest.

**C.** Luncheon will be buffet of traditional holiday fare (Turkey, Ham, with sides and trimmings). Our previous caterer Esther will be asked to provide the food. The cost to be charged per person will be set to cover the club’s cost. Alcoholic beverages will not be provided, however, attendees may BYOB if desired.

**D.** Door prizes were favored by enough of the survey responders that there may be door prizes.

The membership may be solicited for door prize donations.

**E.** Curtis will move forward with the Holiday planning. A preliminary notice will be in the November QSA-5 and a formal announcement will be made at the November general club meeting.

**F.** Final plans and budget will be made at the November Board meeting.

**2.** Final Field Day Location presented to the Board for action – Steve Toquinto: We do have Stafford Lake Park in Novato picnic area 1, including the Grass Extension area reserved for 6/22-23/2024 reserved. The park is extending the club a Measure A 100% discount (\$773.00 /day). We will be required to apply for and purchase an overnight permit to remain in the park on Saturday night. Further Field Day 2024 planning will continue in February.

**3. Elections** – Added to agenda by President Ken Brownfield. Ken selected 4 volunteers to be on the nominating committee for the upcoming board of directors' election. We have 2 two seats on the Board that has their term ending. We currently only have 2 individuals nominated. The deadline for nominations is midnight Oct 26, 2023. No board members had additional names that they wished to nominate. The nominations will be presented at the Membership meeting on Nov 3 with instructions on how to vote online.

**Adjourn:** MSC 20:31

**Next Membership Meeting Nov 3, 2023**

**Next Board Meeting Nov 9, 2023**

## **Marin Amateur Radio Club**

### **Balance Sheet Comparison As of October 30, 2023**

	TOTAL	
	AS OF OCT 30, 2023	AS OF OCT 30, 2022 (PY)
ASSETS		
Current Assets		
Bank Accounts		
B of A Building account - 8795	5,900.61	6,587.46
B of A General account - 4328	75,598.16	9,590.89
CD	0.00	25,000.00
Money Market	0.00	5,000.00
VE Session Cash	-129.00	
VE Session Cash Received	-45.00	
<b>Total Bank Accounts</b>	<b>\$81,324.77</b>	<b>\$46,178.35</b>
Other Current Assets		

Uncategorized Asset	-95.00	-35.00
<b>Total Other Current Assets</b>	<b>\$ -95.00</b>	<b>\$ -35.00</b>
<b>Total Current Assets</b>	<b>\$81,229.77</b>	<b>\$46,143.35</b>
Fixed Assets		
club house- 27 Shell Rd. MV	58,983.00	58,983.00
<b>Total Fixed Assets</b>	<b>\$58,983.00</b>	<b>\$58,983.00</b>
<b>TOTAL ASSETS</b>	<b>\$140,212.77</b>	<b>\$105,126.35</b>
LIABILITIES AND EQUITY		
Liabilities		
<b>Total Liabilities</b>		
Equity		
Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	-20,412.57	-16,461.90
Net Income	36,225.34	-2,811.75
<b>Total Equity</b>	<b>\$140,212.77</b>	<b>\$105,126.35</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>\$140,212.77</b>	<b>\$105,126.35</b>

## Marin Amateur Radio Club

### Profit and Loss January 1 - October 30, 2023

#### TOTAL

JAN 1 - OCT 30, 2023      JAN 1 - OCT 30, 2022 (PY YTD)

Income		
Auction Income		60.00
Donations	1,699.17	130.01
Dues	7,074.75	6,305.00
Field day refund		1,375.00
Income from club activities		90.00
Interest Income	792.77	
Public Service Refund	450.00	450.00
Rent	23,400.00	26,400.00

Sales of Product Income		24.69
Unapplied Cash Payment Income		250.00
<b>Total Income</b>	<b>\$33,416.69</b>	<b>\$35,084.70</b>
<b>GROSS PROFIT</b>	<b>\$33,416.69</b>	<b>\$35,084.70</b>
Expenses		
Accounting	1,215.00	55.00
Awards	299.99	
Car & Truck	2,327.80	637.04
Car & Truck Gas	258.02	177.39
<b>Total Car &amp; Truck</b>	<b>2,585.82</b>	<b>814.43</b>
Field day	1,370.26	2,184.67
Garbage	485.04	430.56
Insurance	5,537.00	7,125.00
Comm Van Insurance	2,721.00	
<b>Total Insurance</b>	<b>8,258.00</b>	<b>7,125.00</b>
Legal & Professional Services		575.00
Meals		2,208.00
Other Business Expenses	104.93	
Picnic	1,757.51	2,290.60
Public Service Expense	1,379.96	3,168.19
Reimbursable Expenses	2,496.73	2,272.86
Repair & Maintenance		1,577.72
Repairs & Maintenance		2,880.00
Repeater	1,567.50	
Taxes & Licenses	4,074.67	7,930.84
Telephone		94.47
Uncategorized Expense		275.00
Utilities	3,849.95	3,066.52
VE Session	174.00	275.00

## Marin Amateur Radio Club

### Profit and Loss January 1 - October 30, 2023

#### TOTAL

	JAN 1 - OCT 30, 2023	JAN 1 - OCT 30, 2022 (PY YTD)
Water	949.03	672.59
<b>Total Expenses</b>	<b>\$30,568.39</b>	<b>\$37,896.45</b>
NET OPERATING INCOME	\$2,848.30	\$ -2,811.75
Other Income		
MESH Grant Income	33,500.00	
<b>Total Other Income</b>	<b>\$33,500.00</b>	<b>\$0.00</b>
Other Expenses		
MESH Grant Disbursement	122.96	
<b>Total Other Expenses</b>	<b>\$122.96</b>	<b>\$0.00</b>
NET OTHER INCOME	\$33,377.04	\$0.00
NET INCOME	\$36,225.34	\$ -2,811.75



# LIFE IS SIMPLE



# MARS Club News

## Free General Class License Course starts Nov 2

Hello, fellow radio ops--

If you (or someone you know) is interested in stepping up to a General-class FCC license, check out this free Zoom class--Thursday evenings through November and December, 3:30 pm on the Left Coast.

Cordially,

Michael K6MLF

As you see below, Ms. Burleson is with the Los Angeles Fire Department's ACS and with OMIK, the first Black-founded amateur radio club.

<https://www.omikradio.org/> I've been a member for, hmmm, more than 15 years...

If you or anyone you know is interested, here is the information for our upcoming, free, live General Class Licensing course on Zoom. Please feel free to share the following announcement on line or at your club meetings.

A free, weekly, live, Amateur Radio General Class Licensing course on Zoom will begin on Thursday, Nov 2, and will run through Thursday, January 11. The three-hour sessions will start at 6:30 PM Eastern Time. These are the classes that we have been holding for years sponsored by the National Electronics Museum. Prerequisite is to have or be studying for the Technician Class License. Please publicize this with anyone you know that you think would be interested. Those wishing to sign up should email Roland Anders, K3RA, at [roland.anders@comcast.net](mailto:roland.anders@comcast.net).

\*-- 73\*

\*Carolyn O. Burleson\* (K6COB)

LAFD ACS - 11-268  
LAARC EmComm  
OMIK  
WRMK269  
[k6cob.usa@gmail.com](mailto:k6cob.usa@gmail.com)

## Holiday Party Survey

By now you should have received and responded to an email from Curtis and the club regarding the annual Christmas holiday event. Make sure to fill it out if you haven't. If you didn't receive the survey, double-check your email (spam, etc).

## Annual Picnic



From Curtiss Kim: Why are these radio operators smiling? Let's just say they made a contact at the annual MARS picnic on October 7<sup>th</sup>. Crowd estimates range from 40 or more who enjoyed fun, friendship, and free food. The catered bar-b-que was held at Stafford Lake in Novato under perfect weather conditions and not just for conversation, but radio communications as well.



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Special thanks goes out to all who made the event a success including Petaluma's Emergency Program Manager, Tom Jordan (KG6TCM) and Mr. and Mrs. Milt (KM6ASI) Hymnes. Plans are already in the works for an upcoming holiday party in December.

## **Checking in on the DMR nets without a radio**

From last month, for those who missed it: This comes from Curtiss Kim and is a very interesting piece. Curtiss has been contributing a great deal to the QSA-5:

Recently Sandy and I returned from a two-week trip to Europe visiting such places as Lake Como in Italy and traveling down the Rhine River from Basel, Switzerland to Amsterdam, The Netherlands. Whether on the shores of Lake Como near Milan or on the Rhine River moving toward the North Sea I was able to check in on the MARS Tuesday night DMR net and the NorCal-DMR net on Thursday evenings without the use of a radio. How times have changed.

Four years ago, on a trip to Australia and New Zealand I carried my Ailunce HD-1 handheld, a MMDVM modem and a laptop computer to talk on the DMR channels. The setup was cumbersome having to program the MMDVM with internet information from every location I transmitted from. Whether a hotel or coffee shop I need the name of the Wi-Fi and the password to program into the modem before transmitting. I was able to talk to a fellow DMR enthusiast in San Rafael from both Australia and New Zealand. Often it was time consuming and frustrating if I couldn't get the Wi-Fi to cooperate. The story was completely different this time around with the BlueDV software and accompanying dongle.

Once logged into the internet I was ready to go. BlueDV was written by David Nieuwegien, PA7LIM, who lives in Utrecht, The Netherlands. In fact, Nieuwegien says he wrote the software for fun and is not affiliated with any major radio company or business. The software is downloaded for free off the internet but the dongle you need costs about \$100. Beam up the software program on the

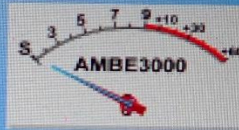
laptop, plug in the dongle and you're off and running. The software allows you to program any DMR channel and has a column for "last heard" to keep track of the call sign from the radio operator you are QSO-ing with. To talk, you simply tap the space bar and once again, to listen.

The Viking vessel we were on was using the VSAT Satellite system for the internet. You are forewarned about problems caused by data bandwidth and latency. In fact, travelers on the Viking boat rate the ship's WI-FI as lousy to crappy to oh-please. But it worked perfectly with BlueDV. Conversations were digital audio clear, and no interference was detected since the ship was cruising on the water at the check in times. I also made a few DMR contacts while on the Rhine just to logged them as made from a moving boat. One added feature is that you avoid TSA officials asking questions about the handheld radio in your luggage.



Lastheard AMBE BM lookup APRS chat

[help](#)



DMR

31068

G

Error 9123

Fusion

DG-ID 00

☐ VOX

Fusion Gain

hang 3

spk 5

vox 7

mic -5

DMR Gain

DSTAR Gain

spk 3

spk 5

mic 4

mic 5

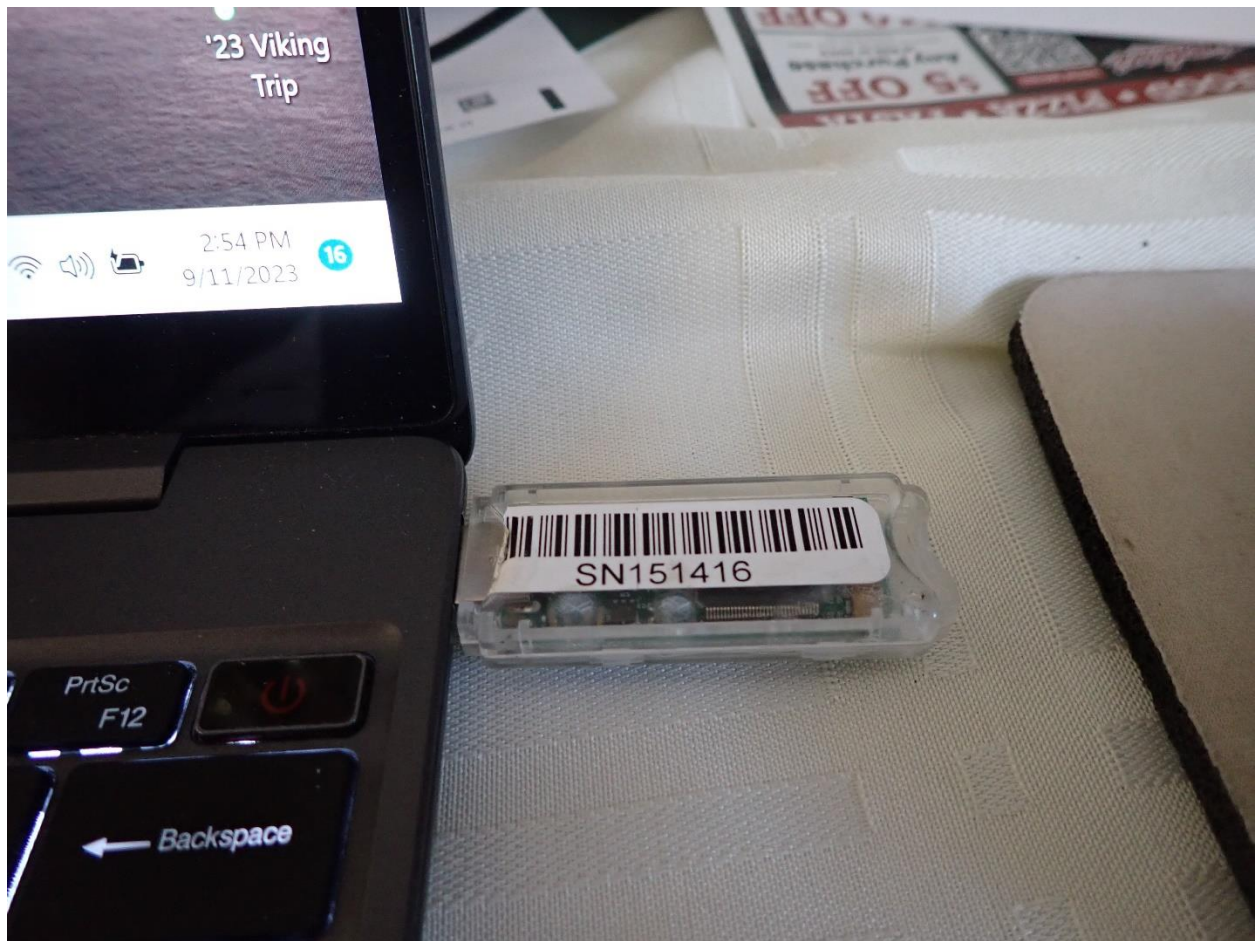
DMR

DSTAR

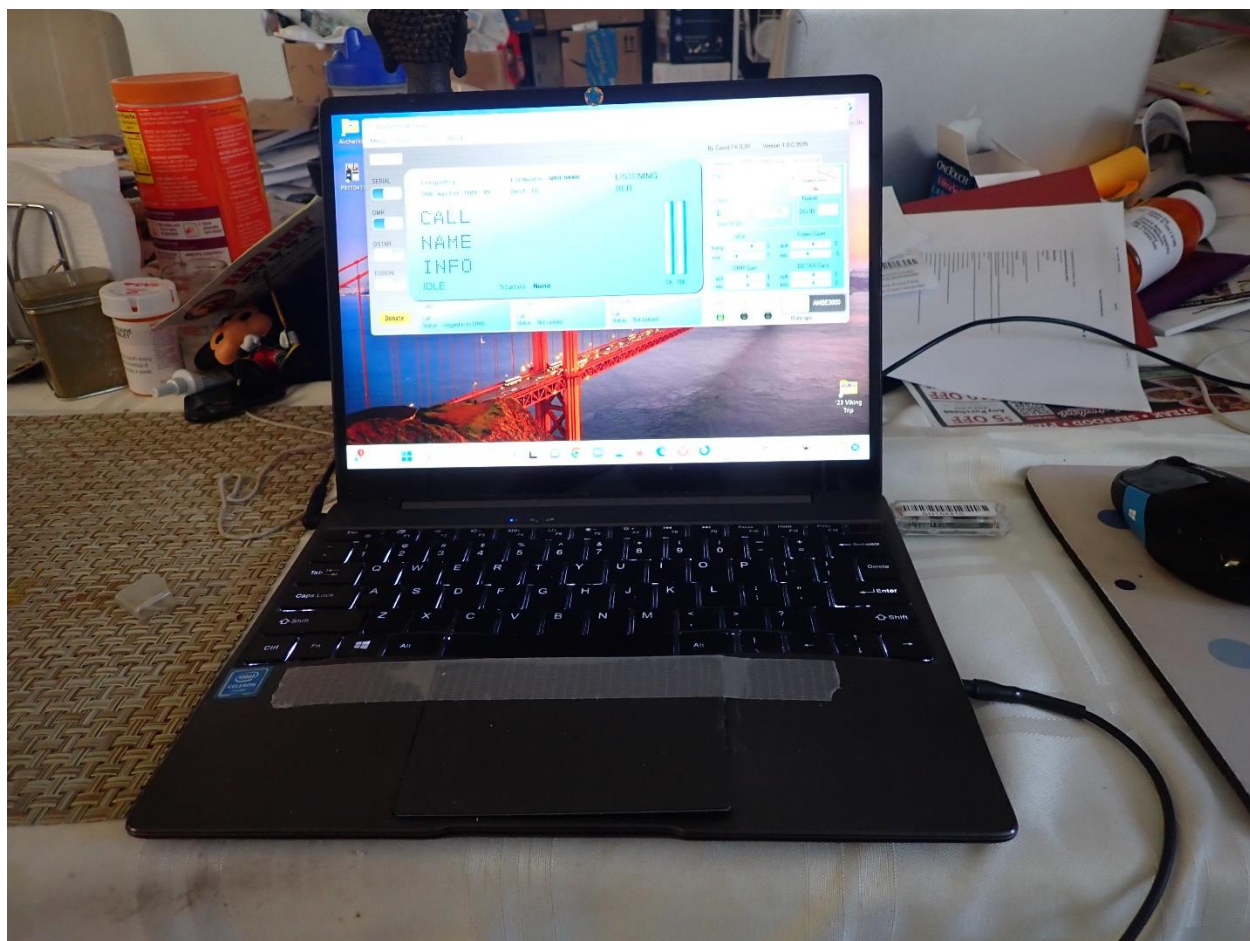
FUSION

AMBE3000

☐ Mute spk









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## **RCV News**

### **The Great Shakeout**

“This is a drill. Had this been an actual emergency you would have instructed to tune to 640 or 1240 on the AM dial.” Remember that test from the Emergency Broadcast System? It has since been revised over the years, but the urgency is still there. To that end the Radio Communication Volunteers again took part in the Great Shakeout event on October 19th. RCV members deployed to eight community-based organizations throughout the county and set up a communications network designed to keep the agencies functioning in the aftermath of a major incident. The scenario had a magnitude 7.6 earthquake on the San Andreas Fault with an epicenter located about 1.6 miles southwest of the Marin Headlands. Radio traffic during the drill requested ready-to-eat food for 1200 people from North Marin Community Services. San Geronimo Valley Community Center needed supplies so residents could shelter in place and Canal Alliance was in desperate need of baby formula that could be mixed with water. Messages flowed to and from the Emergency Operations Center at the Marin Sheriff’s Office. The exercise was designed to have representatives from each organization work side-by-side with the RCV member. To streamline the process the groups used an ICS-213 form to pass information which gave each request an identifying number, time stamp and whether a reply was requested. In addition, each location was asked to provide a situational report on what conditions existed at the site including crowds, road conditions and weather. It was noted there could be a language barrier at the Canal site in San Rafael. The scenario used the



Big Rock repeater for communication. That site serves all areas from Southern Marin, to the San Geronimo Valley and Novato. RCV is still working on a reliable simplex network should the local repeaters suffer damage that makes them unworkable. As in the past, RCV members and the Community Based Organizations will get together after the first of the year to review and debrief the exercise. However initial feedback was quite positive on the exchange of information and on the benefits of such exercises.

Anyone wishing to become a member of the Radio Communication Volunteers should contact Skip Ferdanzo at [KJ6ARL@ARRL.net](mailto:KJ6ARL@ARRL.net)



## RCV Exercise Plan for the GREAT SHAKEOUT 2023

### Overview

The 2023 Great Shakeout on October 19<sup>th</sup> is part one of a two part exercise. Part One is a two-hour on-site deployment of an RCV Operator receiving written messages from a CBO Contact person via a runner, text or GMRS radio. The Operator then transmits the messages to their intended recipients. CBO Contacts will be asked to approve the actual language of the message being sent to minimize the chance of a misunderstanding. CBOs will create their own messages for this exercise. Each message should represent a plausible request or report the CBO would send using normal communications if they were available. **Note: all messages must include the phrase “This is a drill.”**

Part Two is a joint workshop and table-top exercise in early 2024 where CBO Contacts and RCV Operators can talk through what they learned during the October exercise. The spring workshop also provides a follow-up table-top message passing period in which any process or procedural changes found necessary can be tested.

**Coordination** during the exercise will be:

*Primary = Big Rock 447.175; Secondary = Mt. Tam 146.700*

### **Scenario**

For purposes of this exercise imagine it is the day after a magnitude 7.6 earthquake on the San Andreas Fault. The epicenter was located about 1.6 miles southwest of Marin Headlands. Shaking lasted about 127 seconds. Regional impacts include widespread power outages, landslides and some severe structural damage. Most Bay Area cities suffered moderate to severe damage. Cities south as far as San Jose, east to Livermore and north as far as Santa Rosa have minor to moderate damage. Moderate to severe damage in West Marin and low-lying coastal residential areas of San Rafael, Sausalito, Marin City and Hamilton/Ignacio area is reported. Numerous fires were reported in Marin due to ruptured gas lines. Status of roads & highways is unknown. During the first 24-96+ hours all normal means of communication are unavailable.

### **Exercises Rules**

1. CBO resources requested should include water, food, shelter locations, medical aid, etc. and specify realistic number of persons or items needed.

For example, “one pallet of 12ounce bottled water” or “need cots and bedding for 97 evacuees,” and so forth.

2. CBO messages should include a “date or time needed by” when appropriate.
3. Formal messages must have a unique ID (see *Notes* for **Table 1**). This enables an accurate record of messages which facilitates incident documentation.
4. ***Note: all messages must include the phrase “This is a drill.”***
5. RCV Operator assignments are in **Table 2**.
6. Mobile radios should use at least 10 watts for transmissions at CBO sites.

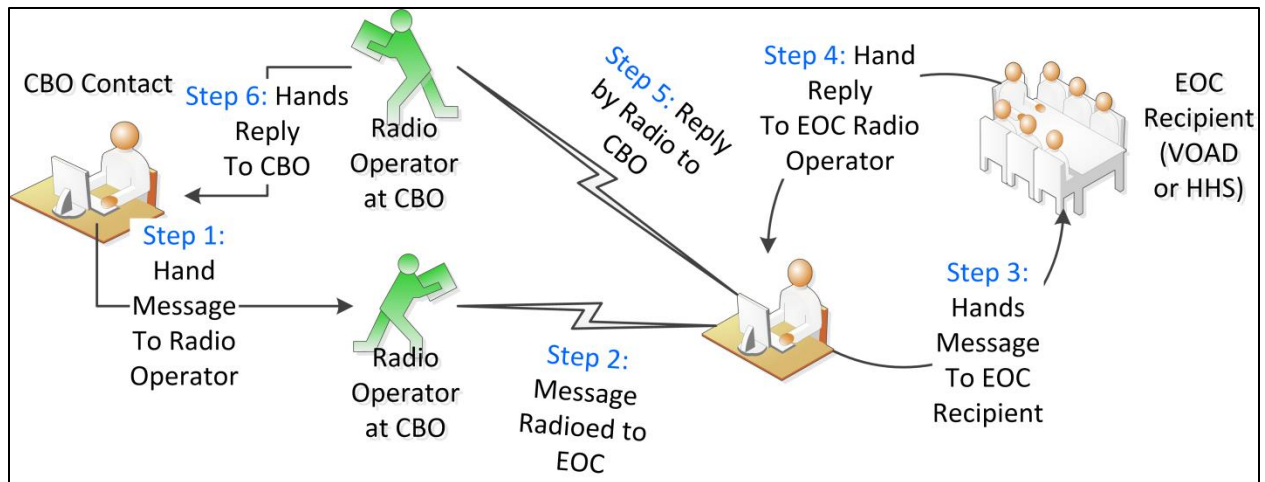
## Schedule

See **Figure 1** below for overview of message flow process.

Start	End	Activity
1330	1400	Operators deploy to their assigned stations and standby for rollcall
<b>1400</b>	<b>1405</b>	<b>Exercise starts.</b> Net Control calls roll and initiate the exercise.
1405	1430	RCV Operators draft and send <b>situation report</b> to NCS.
1430	1515	CBO Contacts draft and hand off their current status and <b>first resource request</b> message. RCV Operators receive any replies to prior messages.
1515	1555	CBO Contacts draft and hand off their <b>second resource request</b> message. RCV Operators receive any replies to prior messages and passes them to CBO Contact.
1555	1600	RCV Operators send/receive any unsent messages
1600	1610	RCV Debrief and close down

After closing down all station Operators must email a copy or scan of their completed forms to [drferret@comcast.net](mailto:drferret@comcast.net) .

**Figure 1:** Message flow to/from CBO and VOAD/EOC



**TABLE 1: Tactical Call Signs & Message ID Prefixes for CBOs\***

Organization	Tactical Call Sign	Msg. Prefix
SF-Marin Food Bank (in San Francisco)	SF FOOD	SF
Canal Alliance	CANAL	CA
SF-Marin Food Bank (San Rafael)	MARIN FOOD	MF
Community Action Marin	CAM	CM
North Marin Community Services - Novato Blvd	NOVATO	NB
North Marin Community Services - Wilson Ave	WILSON	NW
Homeward Bound	HOMEWARD	HB
West Marin Community Services	WEST MARIN	WM
San Geronimo Valley Community Center	SAN GERONIMO	SG
Marin City (exact location TBD)	MARIN CITY	MC
Marin Community Cooperation Team	MARIN COOP	MT
Marin VOAD	VOAD	VO
Marin Health & Human Services	COUNTY HEALTH	HS
Marin County Emergency Operations Center	EOC	EO

*\*These call signs or message ID prefixes may change as directed by Net Control.*

#### Notes:

(1) Message IDs are a combination of a prefix plus a sequential message number. Message numbers are maintained at or by the originating station.

For example at a CBO station:

- a. **Shift 1** starts at message number **01** and ends at number **05**;

- b. **Shift 2** starts at message number **06** and so on so that each station's message numbering is continuous across all shifts.
  - c. A new incident or event restarts the numbering sequence at 01.
- (2) All trackable messages (formal, e.g., IC-213) must have a unique message identifier. Message IDs are formatted as follows:
- a. **<Prefix><Message Number>...**
  - b. For example: San Geronimo's originated message #07, then that message's ID is **SG07**. Likewise if Novato composes message #11, the message ID is **NB11**.
  - c. Message numbers will restart at 01 when a new incident begins.

For call sign MARIN COOP, "COOP" is pronounced "CO-OP."

**TABLE 2: Operator Assignments**

Site	CBO	Location	Operator(s)
1	Canal Alliance	91 Larkspur Street	Curtiss Kim; Dirck Brinckerhoff
2	SF-Marin Food Bank (San Rafael)	2550 Kerner Blvd	Ann Shores, Roger Dickerson
3	Community Action Marin	555 Northgate Dr.	Bruce Bartel; Sean Peisert
4	North Marin Community Services	1907 Novato Blvd	Jerry Foster, Ed Essick
5	North Marin Community Services	680 Wilson Ave	Ken Brownfield
6	Homeward Bound	1385 N Hamilton Pkwy	Kevin Johnston, Dan Greely
7	San Geronimo Valley Community Center	6350 Sir Francis Drake	Jim Saltzgaber, Ken Adams
8	Marin Community Cooperation Team	2330 Marinship Way	Warren Leiden, Charlie Benet
9	West Marin Community Services	11431 CA Hwy-1 #10	Andrew Musselman
10	EOC / NCS	1600 Los Gatos	Skip Fedanzo



## ACS/RCV Mission Statement

**Mission:** During national, regional, or local emergencies provide effective backup radiocommunications in support of the EOC/VOAD and Community Based Organizations (CBOs) or other non-public safety agencies within the Marin County OA when requested by competent authority.

**Capabilities:** Proven ability to establish and maintain radio communications between OA EOC/VOAD and CBOs during exercises including the three annual Golden Eagle and two Great Shakeout exercises. Ability to deploy and operate portable stations as needed to establish reliable communications in areas that are otherwise out of touch with the EOC/VOAD.

**Resources:** Develop and maintain the resources that may be needed to support the overall mission:

1. Operators – A corps of trusted radio operators with: (1) basic skills and a commitment to establishing radio communications when needed; (2) ongoing participation, training, and practice in accurately passing message traffic using a variety of basic analog and specialized digital means.
2. Mobile stations – Individual operators routinely test and maintain their own radio transceivers and related equipment including power supplies, which can be deployed to locations otherwise lacking reliable communications with the EOC/VOAD or between two or more CBOs.
3. Relationships – Establish on-going relationships of familiarity and trust between RCV operators and with key staff of served agencies, including EOC and VOAD.

# **RCV Operators VIRTUAL Meeting**

## **Agenda RCV Operators Meeting**

## **RCV Operators VIRTUAL Meeting**

### **Primary Agenda items are:**

1. Great Shakeout 2023 exercise feedback.
2. Work continues on bringing RCV and RACES under a common ACS umbrella.
3. On what topics would you like trainings or classes?
4. Finding simplex path(s) out of the Marin City/Sausalito area on 11/6: we could use another volunteer.
5. Other topics?

Next meeting is November 30<sup>th</sup> **2023** on Zoom. Agenda, relevant documents and Zoom login to follow.

## **Marin RCV UHF simplex frequency update**

This was sent out from Skip Fedanzo, KJ6ARL, RCV Lead Operator. We are changing today's test UHF simplex from 446.675 (RACES Tac 3) to 446.9000 (Tac 4). Both should be NO PL and preprogrammed. Monitoring this morning indicates repeater traffic on 446.675 is constant. Sorry for the late update...Skip

# RCV Sunday Net Script

## Marin Radio Communications Volunteers (RCV)

**09:45 am Sunday Weekly Roll Call Net UHF 447.175 MHz, - PL=156.7 Hz**

### SCRIPT:

QST QST QST This is the Marin Radio Communication Volunteers (RCV) 9:45 am Sunday roll call on the UHF Big Rock repeater at 447.175 MHz with *negative* offset and PL of 156.7. For information on this program please contact *Skip Fedanzo* at [kj6arl@arrl.net](mailto:kj6arl@arrl.net)

This is a directed net so please go through net control to contact another station. Your net control operator today is (*Your Name & Call*)

This net meets every Sunday morning from 9:45 to 10:00 AM local time.

Stations checking in, please give your callsign, name and location. Let Net Control know if you have any traffic or comments for the net.

Does anyone have any emergency or priority traffic for the net?

*[Handle any emergency or priority traffic]*

Stations with emergency traffic can break in at any time by saying "BREAK BREAK" followed by your call sign.

Net Control Operators rotate each week. If you wish to volunteer for Net Control on any Sunday in [NEXT MONTH], please let net control know the week: 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, or 5<sup>th</sup> whenever you check in to the roll call, **AFTER THIS NET HAS COMPLETED AND SIGNED OFF. DO NOT OPEN OR ATTEMPT TO EDIT THE NET LOG SPREADSHEET DURING THIS NET.**

I will now start the roll call. [Use roll call spreadsheet, log all stations checking in]

**After completing the roll call:**

This concludes the roll call as I have it. Are there any late or missed members?  
[Log all missed and late check-ins.] Are there any Guest check-ins?

[TIME PERMITTING] Does anyone have any RCV news or items for the good of the net?

*[Handle any RCV news or other items]*

With no further traffic, this concludes the Sunday RCV Roll Call Net. The next RCV Sunday net will be at 9:45 am (*date of next net*)

Thanks to everyone who participated in this morning's net, and to the Marin Amateur Emergency Communications Unit (W6ECU) for use of this repeater. This is *your name, your call sign*. This repeater is now returned to normal operations.

## **North Bay Critical Mass Report**

The QSA-5 didn't receive a monthly report for the North Bay Critical Mass event. However, we do have the agenda, which the group follows. As usual, it took place in the Jury Parking Lot at the Marin Civic Center, San Rafael. Here's the agenda:

Hello, all ham radio enthusiasts,

Well, the third Sunday of the month comes early this month, on October 15th, one week from today! We will be meeting in our usual spot, in the jury parking lot, at the Marin Civic Center. We will start at 10:00 am and go to 12:00 noon.

In addition to our usual 'phun with phonetics', at this month's North Bay 2 Meter Critical Mass we will be accessorizing! Who doesn't love to accessorize?

We will be discussing all manner of radio add-ons and peripheral radio equipment. We'll take a look at the various optional gear available for most radios. We'll even get into hotspots, modems, and software programs and apps that enhance the way we use our radios. Everything is on the table!

If you have some piece of support gear that you would like to share with us, bring it along for "Show & Tell".

**Hope to see you there!**

**73,**

**James KI6RGP**

## 2023 MCBC Volunteer Appreciation Party.

Date: Sunday November 5, 2023

Time: 12:00 pm - 3:30 pm

Location: Fairfax Pavilion 142 Bolinas Rd Fairfax CA 94930

This event is our way of saying "thank you" and acknowledging your outstanding contributions. We'll have:

- Delicious pizza and refreshing beer + non alcoholic options
- Recognition for outstanding volunteers
- Exciting raffle prizes and giveaways
- A chance to connect and socialize with fellow volunteers and MCBC staff

Please RSVP on our [Volunteer Party RSVP form](#) by October 27th to let us know if you can make it.

—.'—.'—

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Groups.io Links:

You receive all messages sent to this group.

[View/Reply Online \(#591\)](#) | [Reply To Group](#) | [Reply To Sender](#) | [Mute This Topic](#) | [New Topic](#)  
[Your Subscription](#) | [Contact Group Owner](#) | [Unsubscribe \[hthomaspatterson@gmail.com\]](#)

—.'—.'—

## **VE Examination Report**

The Marin Amateur Radio Society's VE Program is an extremely important component of amateur radio. The national program MARS is a part of allows member radio clubs to administer licensing tests on behalf of the FCC. What this means to people getting into ham radio is that there are more test locations and a more flexible schedule for taking the license exam. We have finished this year's scheduled exams on October 14<sup>th</sup>. Here are the results of our final examination session from Ken Brown:

Hello All,

Once again, we had a successful exam session. Thank you all for giving of your time. Pam Witherspoon N6PDW is now an Extra Class license holder. Thomas Childers KO6BQU, Fairfax, passed both Tech and General exams. He is also one of our newest members at MARS. Jared Tamamachi KO6BRM, Fairfax, is now a Tech. Zoe Jacobson, Petaluma, passed her tech exam. She has not been issued a license yet. Our next exam session will be in January 2024, unless we need one before.

**Ken Brownfield AB6JR**

## **License Renewal Can Be a Hassle**

This was brought to our attention by Ken Cochrane: "License renewal is not for the faint of heart. Kim and I just renewed, and we spent over an hour with the FCC help line. I asked her if everyone had such a hard time and she said yes. Just start early!" We're sorry you and Kim had such trouble with the FCC Ken. Thanks for the heads-up.

## 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 article comes from Hackaday, who covers the tech end of amateur radio:

**Ham Radio May Speed Up Soon:** An interesting piece from a online journal dedicated to advances in technology.

<https://hackaday.com/2023/10/29/ham-radio-may-speed-up-soon/>

**Hurricane Lee: Radio Amateurs and Nets Activated:** Another case of amateur radio coming to the rescue when communications are needed.

<https://www.arrl.org/news/hurricane-lee-radio-amateurs-and-nets-activated>

**Solar Eclipse QSO Party Seeks Amateurs and Radio Enthusiasts for Global Experiment:** This sounds very interesting.

<https://www.arrl.org/news/solar-eclipse-qso-party-seeks-amateurs-and-radio-enthusiasts-for-global-experiment>

**Tropical Storm Hilary: Amateur Radio Activates:** This is why it is important to have amateur radio operators.

<https://www.arrl.org/news/tropical-storm-hilary-amateur-radio-activates>

**Devastating Hawaii Wildfires Prompt Response from Amateur Radio Emergency Service:** The ARRL was monitoring the terrible wildfires in Maui.



<https://www.arrl.org/news/devastating-hawaii-wildfires-prompt-response-from-amateur-radio-emergency-service>

**No cellphone? No problem! The vintage radio enthusiasts prepping for disaster:**  
Another reason amateur radio is so important!

<https://www.theguardian.com/us-news/2023/may/27/ham-radio-emergency-natural-disaster-climate-crisis>

**Ham radio operators participate in Field Day:** Here's an article regarding what another radio club did for Field Day 2023.

<https://www.thesnaponline.com/2023/06/27/ham-radio-operators-participate-in-field-day/>

**Ham radio operators take to the air at annual field day across Oklahoma:**  
Another Field Day 2023 report. This is from Oklahoma.

<https://okcfox.com/news/local/oklahoma-ham-radio-operators-amateur-communication-drill-world-household-electricity-focus-battery-solar-generator-power-nation-country-field-day>

**Ham radio operators practice for emergency, build community:** A nice article regarding the importance of amateur radio.

[https://www.southernminn.com/faribault\\_daily\\_news/news/ham-radio-operators-practice-for-emergency-build-community/article\\_c305405c-1446-11ee-9e1c-17bef3ed0921.html](https://www.southernminn.com/faribault_daily_news/news/ham-radio-operators-practice-for-emergency-build-community/article_c305405c-1446-11ee-9e1c-17bef3ed0921.html)

**How Far Will A Radio Transmit?** This is very useful information to have, and it's well explained.

<https://www.radioddity.com/blogs/all/how-far-will-a-radio-transmit>

## 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. Apparently, there is no FCC news as of late.

**FCC To Vote on Removing Symbol Rate Restrictions:** From the ARRL regarding the digital modes.

<https://www.arrl.org/news/fcc-to-vote-on-removing-symbol-rate-restrictions>

**Job Posting: FCC Recruiting Field Agents:** In case any of you have wanted to become a field agent. Does it come with a badge?

<https://www.arrl.org/news/job-posting-fcc-recruiting-field-agents>

**FCC Grants an ARRL Emergency Request to Permit Higher Data Rate Transmissions for Hurricane Relief Communications:** The FCC has granted an [ARRL](#) 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>

## 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-801>

**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/>