

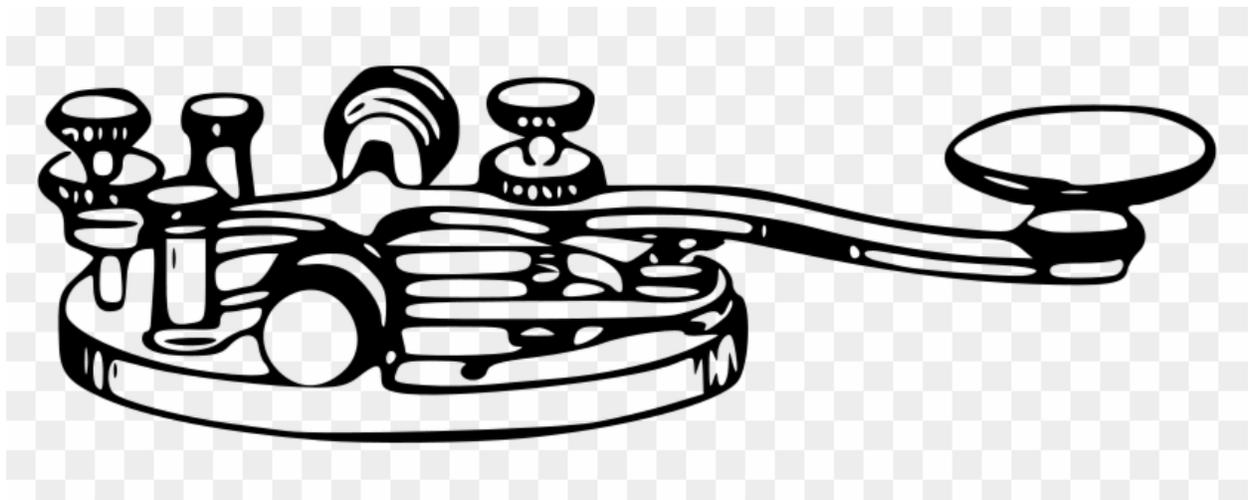


QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933

July 2025



When all else fails, you can count on Amateur Radio

From Our President:

Have a safe and sane 4th of July!

From the Editor:

Sorry that this month's issue is a little late but, with the holiday falling on a Friday, we got a little behind in our production schedule. If you find any typos or mistakes, I apologize in advance. I've had to take care of a lot of non-radio related businesses in the last month.

It's July, and we celebrate another birthday for the United States! While the world's future seems uncertain at times, one thing is certain, amateur radio operators are always prepared! It seems like we just celebrated the beginning of a new year and we're now in the middle of the summer! I guess the adage "time flies when you're having fun" applies here. As always, the Marin Amateur Radio Society has been busy.

The biggest event thus far is Field Day 2025. The Marin Amateur Radio Society was out in the field, participating in this year's event. You'll find a full report in this month's issue. We also have another VE session scheduled for July 12th. This month's antenna is a portable vertical wire antenna that works quite well. Thank you to Curtiss Kim and the usual suspects for their contributions. As always, feel free to make suggestions and submit your own articles for publication within the QSA-5's pages. See you next month!

QSA-5Editor@w6sg.net



New Members:

Vojin Oklobdzija WF1A – Berkeley

Steve Lochner N6UP - San Francisco



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



Marin Amateur Radio Society Board of Directors Meeting 6/12/2025

Call to Order 19:30 Hours (7:30 PM) 1938 Attendance:

President: Curtis Ardourel WA6UDS

Vice President: Ken Brownfield AB6JR

Secretary: James Saltzgaber KM6WWY

Treasurer: Bruce Bartel N6VLB

Director: Richard Cochran AG6QR

Director: Steve Toquinto KB6HOH

Director: Ed Essick K6ELE

Trustee W6SG: Marc Bruvry KF6VNT

Trustee K6GWE: Brian Cooley K6EZX

Adopt agenda MSC to adopt agenda as presented. MSC to adopt the agenda without change.

Approve minutes of 8 May board meeting – MSC to approve minutes as published in June 2025 issue of QSA-5

Secretary's Report/Communications – Nothing to report.

Treasurer's Report – Bruce N6VLB – May 2025 Balance Sheet published in June 20205 issue of QSA-5.

Members present: Skip Fedanzo KJ6ARL, Milt Hyams KM6ASI, Scott Pasternak KN6ZDM, Dan Sobel N6HLZ, Mark Klein KM6AOW, Rob Rolands NZ6J, Kathy Spicher KM6URP, Charlie Benet AI6TT, Lary Loomer KI6LNB, Larry Bradley KK6QPE

Committee and other Reports:

- 1. Membership** Curtis WA6UDS- Current membership is 153. This is 93% (88% last June) of this time last year.
- 2. Facilities** Skip KJ6ARL- We need to replace the electrical service to the Comm Van shore power receptacle. Milt KM6ASI volunteered to do it.
- 3. VOAD/RCV** Skip KJ6ARL- He attended the VOAD planning meeting. Adriana has acquired a MURS radio. Skip tested it today. He will install a MURS radio and an antenna at his QTH for emergency use.
- 4. Technical** Milt KM6ASI- Radio room: completion of new antenna coax to surge suppressors and radio jumpers is scheduled for June 22nd. Grounding of the ground bar will also be installed. The simulcast issues have been solved. The Bahia repeater was found to have a bad PolyPhaser that requires replacement. Tam UHF still has problems to be resolved. County assistance will be required to test the antenna.
- 5. Public Service** Scott KN6ZDM- Last weekend was 114th Dipsea, that went well. There was some radio interference with Marine Channel 16. Rob NZ6J will test to resolve the issue.
- 6. VE Testing** Jim KM6WWY – Next VE Session is July 12, 2025, 1:00 pm at the clubhouse. Only one current applicant. Please pass the word about our VE sessions. Please post online neighborhood information applications, such as NextDoor would be helpful. These apps have narrow focus areas. Posts from multiple people in different areas would increase exposure. My

limited feedback seems to be licensing applicants are testing on-line rather than waiting for a local VE session.

- 7. Comm Truck** Charlie AI6TT- Seat covers are very frayed, front seat particularly front driver's seat. Charlie will get cost estimates for seat covers. The first 2 sections were lubricated and cleaned. We cannot access the top two sections due to height. He is proposing we work with the HERTZ RENTAL yard to do it on their site for a minimal charge to preclude having to rent a man- lift (\$500/day).
- 8. NBAM** Bruce N6VLB- Kathy KM6URP - North Sonoma County CERT disaster simulation was held May 31st. at Sonoma County Fair Grounds Mark, Karen, and Annies set up two AREDN stations. Simulation was based on CERT and CART (community animal response team) 8 counties were represented. AREDN cannot hit Mt. St. Helena from the Fair Grounds. NBAM also represented at Earthquake and Wildfire Expo on June 1st at the Sonoma County Fairgrounds. NBAM hosted an info table. She did a presentation at the MARS June 6th general meeting with Rob NZ6J. Nodes were set up and a camera from the east bay was accessed. Mark KM6AOW set up a PBX demonstration. The presentation included slides and video. The Bodega Bay CERT demo project is ongoing, and they presented their findings with the Fire Captain, this is ongoing. The Salvation Army in Petaluma presentation was made in May, no feedback received yet. NBAM is still looking for access to Mt. Burdell, there is no Sonoma County presence there. Marin County may have a presence that can be used. This has been more challenging that originally perceived.
- 9. Field Day** Steve KB6HOH- Field Day committee meeting was last night, 6/11. One more meeting on the 22nd before field day. He is contacting the younger operators to see who will be participating. Sunday club net will be done from field day, as well as NB2mCM will be held there Sunday.
- 10. Picnic** Steve KB6HOH- Stafford Lake reservation is in. The Picnic Committee will begin meeting after Field Day is completed.

Old Business:

1. Donations Committee Charter – Curtis WA6UDS Has not yet completed the proposal. A V71A radio was donated recently. Bruce requests it be approved for installation at Novato Community Hospital. MSC to approve the transfer of the donated radio.
2. New Google environment – Curtis WA6UDS Online storage of club records – Bruce N6VLB NBAM is currently using it for their records.
3. Rent increase for MARS clubhouse apartment tenant:
 - a. Last increase 6/1/24 of \$100 to \$2700
 - b. 2025 budget assumes increase to \$2800

- c. 5% county limit is \$135 = \$2835
- d. County limit + CPI 8.8% 237.60 \$2937.60

Following discussion, it was **MSC by show of hands** to raise apartment rent by 5%, to \$2,835.00/month.

New Business:

1. KWMR – Curtiss Kim KM6GUY (Not present) Continued to July Meeting
2. Dues- Curtis WA6UDS – Local Ham clubs dues schedule is:
 - a. MARS \$30 Individual, \$35 Family
 - b. SCRA \$20 Individual, \$30 Family
 - c. VOMARC \$15
 - d. SFRC \$25
 - e. ORCA \$30
 - f. EBARC \$35 Individual, \$45 Family
 - g. Hamilton Wireless Association \$25
 - h. MDARC \$45 (renew)

We haven't increased dues in a long time, should we increase them? Continued to July meeting.

11. Mt Tam Trail Run 11/8/25 – (See Attachment A) Scott KN6ZDM – Inside Trail Racing is requesting MARS Public Service support for the Mt. Tam Trail Run, November 8, 2025. They are a for profit organization. We worked with them on our first event of this season, and they were very good to work with. They are also requesting four additional events next year. Rich inquired about the availability of radio operators for this event. Scott replied that we did. After discussion, Curtis WA6UDS entertained a motion to add this event to our 2025 Public Service calendar. **It was MSC without objection** MSC to add the additional PS event to this year’s schedule.

3. .

4. **NBAM Budget** – Kathy KM6URP presented the NBAM Budget Overview (See Attachment B) & proposed 2025 NBAM Budget. The current NBAM grant was received in August 2023. No NBAM grant money may be spent for any other purpose. Budget has evolved to reflect changes in AREDN technology and the added training and equipment costs. The NBAM funds that are subject to this budget currently equals \$33,290.00. This includes support, maintenance and expansion of backbone sites, main ingress to Sonoma County, and HAP and router equipment. There are 4 existing sites and 7 potential new sites, of which 5 are provided for this budget. This is a somewhat generic budget due to ever changing equipment that is supported by the AREDN system software, challenges with personnel, agencies served, and site access. Discussion of the budget included frequent reporting of budget status. How the NBAM project will proceed beyond the life of the grant funding was also explored. This budget will be revisited annually, and progress will be periodically reported to the MARS board. Budget is for calendar year 2025 and will be reviewed at the same time as the MARS 2026 annual budget. No MARS funds will be spent in support of any NBAM project. Question was raised how NBAM site MOU utilities will be funded in the future. Most of the sites are not yet active. Not all proposed sites may be implemented. MARS President and Treasurer are both on NBAM committee and will monitor status of these funds and the potential for future grants. Kathy KM6URP is confident that there will be future grant opportunities. Skip KJ6ARL inquired if there were operational/maintenance costs and if so, are they included in the contingency budgeted amount. Curtis WA6UDS replied that there were minimal power requirements and about \$500 per year is sufficient and is included in this budget. NBAM has a detailed inventory of equipment, deployed locations of equipment, and disposition of phased out equipment. How we phase out or close out this project when necessary was also discussed. A decommissioning contingency needs to be in the budget, so MARS is not left with responsibility of removal and disposal of equipment. It was **MS & Carried by show of hands** to accept the NBAM 2025 budget as presented. MARS Treasurer will report on funds from NBAM budget monthly.

5. **NBCC GMRS Outreach**- Kathy KM6URP has recently received a request from friends in Contempo Marin for GMRS radio training. There is currently no formal GMRS emergency

radio training in Marin, except for possibly Pt. Reyes station. She is requesting referrals of people interested in GMRS community radio to North Bay Communications Co-operative, who wish to share their training expertise and materials with anyone interested. NBCC can be reached through their website at wiconduit.org/radio

Good of the Order- Nothing noted

Executive Session – Non required.

Adjourn - MSC TO ADJOURN @ 21:20

Next Regular Meeting 1 August 2025

Next Board Meeting 9 July 2025

ATTACHMENT – A Additional 2025 Public Service Event

Hi Curtis,

Tonight I would like to ask the board for approval to add another public service event this year, the Mt. Tam Trail Run, November 8, 2025.

<https://insidetrail.com/calendar/mt-tam-trail-run/>

This public service event will be organized by Oliver Lu.

Like our first event the Marin Ultra Challenge, this event is run by a for-profit Inside Trail Racing.

The reasons for the request are:

- our first experience with ITR was amazing. They really were so organized they didn't actually need us, but with Oliver's guidance and our team doing their usual job, we were able to be of significant assistance anyway. They were especially impressed that we had radio operators running on the trail, able to interact with the runners, help, and communicate well.
- I was struck by the fact that their race director, Craig and most of his team, knew most of the runners by face and name and really was encouraging them the entire time. When issues arose, they knew the runner, their friends who they were running with (what they looked like) and were ready to do what was needed to help - showing genuine concern.
- They asked Oliver for our help on this event. At the MUC there was a large deployment of an electronic timing system that tracked runners at nearly every rest stop, at this event there will be much less of this - necessitating our usual bib-number reporting, hiker and sweep use - which we excel at.
- They hold many local events each year and have already asked for us to participate in 4 next year.
- The late-season event will give us an opportunity to participate in different conditions and those weather conditions could accentuate the need and benefit for our service (race things can go wrong in bad weather).

Respectfully.

Scott KN6ZDM 415-670-0283

ATTACHMENT – B NBAM Budget Overview

NBAM Budget Overview: June 12, 2025

History: A version of this budget was first created for the NBAM ARDC Grant Proposal #2, in 2023. Since the grant was awarded, the budget has undergone numerous revisions. Those revisions were due, in large part, to the constant and rapidly changing technological advances of the AREDN network, both hardware and firmware. Also, the shifting membership and leadership within the NBAM steering committee has caused the budget to evolve, as we learn about the best ways to construct the network. Further revisions to this budget are anticipated because of these factors.

Network Topology: Since the inception of the AREDN project, limitations of the mesh structure have become evident. Because the mesh structure is subject to being overcrowded and overwhelmed by too many users, a different network structure is being utilized. Rather than a mesh network, we are constructing a backbone network of nodes, off of which smaller mesh networks will operate. This change has also necessitated changes in the budget.

The budget includes training and promotional materials, in addition to the equipment needed to construct backbone node sites.

Substitutions: The hardware listed in the budget is representative of what will be purchased, in terms of its function, though different models may be substituted. Hardware is subject to obsolescence and eventually will be sunsetted and deprecated by the AREDN development team. This means it will no longer be supported by software upgrades, in future releases.

Whatever hardware is currently available and relevant at the time of purchase will be substituted for the listed models.

Locations of Nodes: The map shows what a proposed backbone expansion into the north bay counties could look like but is subject to access to repeater sites and other elevated

locations for node placement. We are working with various municipal and private parties to secure access to the desired sites, and sites are subject to change.

This budget and overview are being provided at the request of the MARS Board of Directors, because the North Bay Area Mesh is a subcommittee of MARS, and the board should have transparency into the budget.

Respectfully,

Kathy Spicher KM6URP,

NBAM committee representative to MARS

Marin Amateur Radio Club

Balance Sheet Comparison

As of June 30, 2025

TOTAL

AS OF JUN 30, 2025

AS OF JUN 30, 2024 (PY)

ASSETS

Current Assets

Bank Accounts

B of A Facilities Account - 8795	1,516.40	5,170.90
B of A General account - 4328	72,764.78	58,383.26
CD	0.00	0.00
Money Market	0.00	0.00
VE Session Cash	0.00	0.00
VE Session Cash Received	0.00	0.00
Total Bank Accounts	\$74,281.18	\$63,554.16

Other Current Assets

Uncategorized Asset	0.00	385.00
Total Other Current Assets	\$0.00	\$385.00
Total Current Assets	\$74,281.18	\$63,939.16

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 **\$133,264.18** **\$122,922.16**

LIABILITIES AND EQUITY

Liabilities

Total Liabilities

Equity

Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	15,577.46	13,748.91
Net Income	-6,713.28	-15,226.75
Total Equity	\$133,264.18	\$122,922.16
TOTAL LIABILITIES AND EQUITY	\$133,264.18	\$122,922.16

Marin Amateur Radio Club

Profit and Loss

January - June, 2025

TOTAL

JAN - JUN, 2025 JAN - JUN, 2024 (PY)

Income		
Christmas Party Income		640.00
Donations	1,397.00	12,000.51
Dues	180.00	270.00
Public Service Refund		168.15
Rent	16,200.00	18,300.00
Unapplied Cash Payment Income		385.00
Total Income	\$17,777.00	\$31,763.66
GROSS PROFIT	\$17,777.00	\$31,763.66
Expenses		
Accounting	1,770.00	1,360.00
Awards	400.00	
Car & Truck	354.94	2,224.89
Car & Truck Gas	34.89	88.02
Total Car & Truck	389.83	2,312.91
Christmas Party		2,970.23
Contractors		21,109.00
Equipment < \$2,500	431.48	
Field day	244.91	802.24
Food	934.76	68.20
Garbage	316.44	297.00
Housekeeping		448.65
Insurance	2,288.66	1,698.50
Comm Van Insurance	2,159.66	2,097.84
Total Insurance	4,448.32	3,796.34
Meals	70.77	76.86
Office Supplies & Software	78.00	18.00
Other Business Expenses	575.32	
Public Service Expense	3,295.57	3,960.47

Reimbursable Expenses		20.00
Repair & Maintenance	1,521.63	34.06
Repeater		2,138.67
Station Upgrades & Maintenance	1,894.69	
Taxes & Licenses	4,164.36	4,099.67
Utilities	2,364.62	2,218.54
Water	456.58	757.84
Web Services Expenses	0.00	
Total Expenses	\$23,357.28	\$46,488.68
NET OPERATING INCOME	\$ -5,580.28	\$ -14,725.02
Other Expenses		
MESH Grant Disbursement	1,133.00	501.73
Total Other Expenses	\$1,133.00	\$501.73
NET OTHER INCOME	\$ -1,133.00	\$ -501.73
NET INCOME	\$ -6,713.28	\$ -15,226.75

LIFE IS SIMPLE



MARS Club News

Many Thanks

An email from Gerald McCarthy

Hello all,

I would like to express my sincere gratitude for sharing your knowledge, expertise, and invaluable time this past Sunday working on the clubhouse.

Marc performed an exceptional job clearing out a significant portion of the radio room, prompting several, including myself, to take a second look and remark on its improved appearance.

Jerry and Andy efficiently and professionally shorted the newly installed antenna leads, installed numerous new "N" and PL259 connectors to interface with the new bus bar and PolyPhasers. Additionally, two new antenna leads were routed in the radio room, enabling the placement of a second 2M/70CM radio and facilitating the installation of a future GMRS radio. Jerry, as always, demonstrated exceptional teaching skills and shared his extensive knowledge in the radio arts.

Jim connected the bus bar to the station ground and provided valuable suggestions for grounding the remaining equipment.

Lastly, Milt and Annie expertly installed the new exterior water-resistant GFI duplex plug for the comm van.

We still have additional tasks to complete in the radio room, including installing more PL259 and "N" connectors, removing all unused antenna leads, antenna selectors, and miscellaneous wires from the HF side of the room. This will provide an excellent opportunity to clean up, organize, and streamline the coaxial cable running across the console.

I would like to reconvene the team at the clubhouse on Sunday, July 27th for the next phase of the project. Please mark your calendars accordingly and I hope you can join us.

Thank you once again for your dedication and time.

Best,

Gerald

Field Day 2025

By Curtiss Kim

For the third year in a row, members of the Marin Amateur Radio Society spent the weekend calling CQ on the ARRL sponsored Field Day. Said to be the largest single emergency preparedness exercise in the nation, it has over 30-thousand hams around the country trying to log as many contacts as possible. MARS set up three complete operating stations in the picnic area of Stafford Lake Park in western Novato. Each station featured computerized logging software to keep



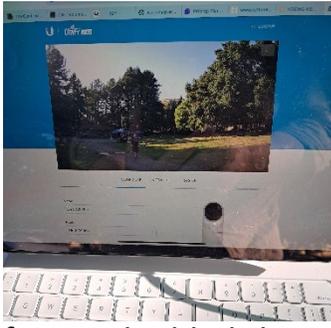
went into the beginning Friday



a running tab of each entry. The contest is a 24-hour marathon that runs from 11am on Saturday to 11am the following Sunday.

Careful preparation weekend morning





with a work party at the clubhouse. Food, radio gear, tables and chairs were loaded onto a trailer for delivery to the site. Also on Friday, members led by Bob Salter, AI6EE, used an air powered launcher to string lines into the trees that surround the picnic area. On Saturday the lines were used to pull dipole antennas above each logging station. One new featured added this year was a trio of “greeters” who showed visitors, guests and dignitaries around the busy park site during the competition. Michael Ham, WA6LCN, Jay Hamilton-Ross, KO6FIR and Curtiss Kim, KM6GUY shuttled attendees around to each station including Marin Supervisor Dennis Rodoni who chatted with members even took a seat at the GoTo station where non licensed operators are invited to take part in a QSO. Rondoni represents District 4 which includes West Marin as well as parts of San Rafael and east Marin. Also in attendance, Veda Florez from the local chapter of the American Red Cross who stopped by and gathered information for an article she would be writing on the rapid deployment of radio communications equipment exhibited by MARS. The main attraction turned out to be the AREDN mesh station manned by Mark Klien, KM6AOW, and Kathy Spicher, KM6URP. Attendees wanted to know about an internet that doesn’t use the internet. The demonstration included various apparatus and handouts on the workings of the AREDN system.



Also putting in an appearance, Petaluma’s Emergency Program Manager, Tom Jorgan. KG6TCM. (holding cup) Jordan’s main job is to coordinate Petaluma’s response to disasters such as the flooding, fires and power outages. “We’re gonna do it again”, according to Steve Toquinto, KB6HOH, who spearheaded the planning, layout and execution of the club’s Field Day. This is the third year in a row Toquinto has put together the contest for the club.



Aside from overseeing the activities for the event including the food component, the Amateur conducted his regular Sunday



morning net from the Stafford Lake site. Though the participants dealt with some minor technical issues operators could be heard calling out contacts in a rapid fashion. And let's not forget CW. Our resident code expert, Jerry Foster, WA6BXV, delighted the gathering with his ability to rapidly decipher and send the dits and dahs. Hats off to Jim Saltzgaber, KM6WWY, who acted as the Operation Chief of the event. Saltzgaber handled much of the logistics for the event from transporting equipment to ensuring policies and protocols were strictly adhered to. "It was a job well done", according to MARS President, Curtis Ardourel, WA6UDS. The official sent out a special thanks to all who pulled together to make the event such a success.

The club is putting out a special call to anyone who has pictures of the Field Day event to submit them for the our Google Drive. Pictures to curtskim@gmail.com.







RCV Participates in Beacon 2025

The Radio Communication Volunteers (RCV) of MARS showed their readiness skills taking part in a large-scale earthquake simulation designated “Beacon 2025”. The exercise at the beginning of the month originating out of Humboldt County was designed to bring together emergency management offices, local agencies and various community partners to practice real life communications and disaster response strategies. RCV members participated in the morning session on both UHF and VHF frequencies while ACS-RACES worked HF out-of-county communications. RCV, which works in close partnership with many Marin County community agencies was asked to deploy and establish communications using local repeaters. Some of those who participated included Skip Ferdanzo, KJ6ARL as net control, Dirck Brinckerhoff, KM6VKQ, Sheila Adams-Sapper, KO6HYX and Curtiss Kim, KM6GUY. The radio operators checked in from various locations reporting simulated damage and assessment reports. In addition those in the field were asked to switch to a separate net control and report on simulated damage such as road conditions, structural collapse and crowd sightings. In an actual emergency, RCV members would respond under similar conditions once activated. An added component included reports from several simulated Red Cross field locations. In the After-Action Report, RCV’s Lead Operator, Skip Ferdanzo noted...”RCV and ACS-RACES have multiple years of experience and established protocols for self-activation and organization. Our continuing exercises with and without advanced notice definitely showed their worth during this Exercise.” The goal of RCV is to establish needed radio communication between various community-based organizations and a central emergency operations center during an actual disaster or incident.

If you would like to find out more about RCV the website is MarinRCV.org



2025 Public Service Season Signup List

From: Michael Fischer K6MLF

We had a great turnout of 55 amateur radio operators in the clubhouse last Saturday, most of whom are pictured here. Sorry we missed some of you North Bay 2-Meter Critical Mass and Southern Marin Fire radio team folks, but we hope to see you on one or more of the events coming up soon!



Volunteer Examiner News

Dates remaining on our 2025 schedule will be Jul 12th, and Oct 11th. Please mark your calendars. The next session is coming up in a week.

The ARRL Volunteer Examiner's (VE) program has played a pivotal role in the licensing of amateur radio operators in the United States since its inception in 1984. Prior to the establishment of the VE program, amateur radio licensing exams were

administered exclusively by the Federal Communications Commission (FCC). This process was often cumbersome, requiring candidates to travel to FCC offices, which were not always conveniently located. The introduction of the VE program decentralized the examination process, making it more accessible to aspiring operators. Under this program, qualified volunteers, themselves licensed amateur radio operators, were authorized to administer exams, significantly streamlining the licensing process and encouraging greater participation in the hobby.

The VE program is a cornerstone of the amateur radio community, reflecting its ethos of self-regulation and mutual support. By empowering experienced operators to oversee the licensing process, the program fosters a sense of responsibility and mentorship within the community. Volunteer Examiners are required to meet stringent qualifications, ensuring that they possess the knowledge and integrity necessary to uphold the standards of the amateur radio service. This peer-driven approach not only maintains the credibility of the licensing process but also strengthens the bonds within the amateur radio community, as new operators are welcomed and guided by those who share their passion for the hobby.

The importance of the VE program extends beyond its practical function of administering exams. It has been instrumental in promoting the growth and diversity of amateur radio. By making the licensing process more accessible, the program has lowered barriers to entry, enabling individuals from all walks of life to become licensed operators. This inclusivity has helped amateur radio remain relevant in an era of rapid technological change, attracting new generations of operators who bring fresh perspectives and innovations to the field. The VE program has thus played a crucial role in ensuring the continued vitality of amateur radio as a dynamic and evolving pursuit.

Moreover, the VE program has had a profound impact on emergency communications and public service. Amateur radio operators are often called upon to provide critical communication support during disasters and emergencies, when traditional communication infrastructure may be compromised. By facilitating the licensing of new operators, the VE program helps to expand the pool of skilled individuals who can contribute to these efforts. The program's emphasis on rigorous testing ensures that licensed operators are well-prepared to handle the

technical and operational challenges of emergency communication, thereby enhancing the overall resilience of the amateur radio service.

In summary, the ARRL Volunteer Examiner's program has been a transformative force in the world of amateur radio. By decentralizing the licensing process, fostering community engagement, and promoting inclusivity, the program has made amateur radio more accessible and vibrant. Its role in supporting emergency communications further underscores its significance, as it equips new operators with the skills needed to serve their communities in times of crisis. The VE program stands as a testament to the enduring spirit of amateur radio, embodying its values of innovation, collaboration, and public service.





2025 North Bay 2-Meter Critical Mass Calendar

2025

- July 20th (third Sunday) Rob
- August 17th (third Sunday) Michael
- September 21st (third Sunday) James
- October 26th (fourth Sunday; third is Pacificon) Milt
- November 16th (third Sunday) Rob
- December 14th (second Sunday; third is too close to Christmas) Michael

North Bay Critical Mass Report

We didn't receive any information regarding last month's event. However, we've included a list of Marin County and other Important Repeaters:

Note: Printed 2/22/2025 on Waterproof Paper!				
https://docs.google.com/spreadsheets/d/1siMIQr4cHAUCq6ybSt6XVpAQWRdJHEwQ_M6ZBMQpAnw/edit?				
Marin County and other repeaters				
Install <i>Repeaterbook</i> on your phone: https://www.repeaterbook.com/index.php/en/ . Not the ARRL book!				
Repeater	Your receive Frequency (MHz)	PL tone (Hz)	Location	Offset
Simulcast Bahia	146.700	203.5	Novato	-600kHz
Simulcast Mt Tam	146.700	179.9	Middle peak	-600kHz

Simulcast Barnabe	146.700	167.9	Mt Barnabe	-600kHz
Simulcast West Peak	146.700	192.8	West peak	-600kHz
Tam West	147.330	192.8	West peak	+600kHz
Mt Tam UHF (damaged feed lin	443.250	179.9	Middle peak	+5MHz
Big Rock UHF	447.175	156.7	Big Rock Ridge	-5MHz non standard
Dollar Hill UHF	440.925	162.2	San Rafael	+5MHz
Barnabe UHF	444.125	151.4	Mt Barnabe	+5MHz
Muir beach	442.225	141.3	Muir Beach	+5MHz
Tiburon fire station 9	442.125	146.2	Overlook	+5MHz
North Marin Simplex	147.585	n/a	Strawberry	+5MHz
Central Marin Simplex	147.510	n/a		
South Marin Simplex "Nickels"	147.555	n/a		
West Marin Simplex	147.465	n/a		
Wolfback Ridge DMR	442.525	CC2, TS1	Norca, Sausalito	+5MHz
Bolinas DMR	440.138	CC3, TS1	Commonweal	+5MHz
Novato KG6MZV	440.500	CC1, TZ1	Novato	+5MHz
San Francisco repeaters				
Sutro tower W6PW	145.150	DCS664	Sutro Tower, SF	
SFACS WA6GG	442.050	127.3		+5MHz
Sutro DMR	444.225	CC1, TS1	Sutro Tower	+5MHz
East Bay Repeaters				
Mt Diablo	147.060	100	Mt Diablo	+600kHz
San Leandro	147.240	107.2	San Leandro	+600kHz
W6CX DMR	145.000	CC1, TS1	Mt Diablo	+2.5MHz
Carla Orinda DMR	443.500	CC1, TS1	Orinda	+5MHz
Grizzly	145.290	131.8		
Sonoma County Repeaters				
Sonoma Mountain	146.910	88.5	Petaluma	-600kHz
English Hill	147.315	88.5	Sebastapol	+600kHz
English Hill DMR	443.100	CC1, TS1	Sebastapol	+5MHz

San Francisco's 2 Meter Critical Mass June 2025

San Francisco has an ongoing Critical Mass Group that meets monthly. Here is a breakdown of what they do by **Michael Fisher K6MLF**:



Join Us for our June Practice

More Emergency Communications Practice!



We had a lot of success with last month's practice.

A great group of radio operators participated in our practice, where everyone took turns properly formatting messages and passing over the radio.

We'll keep practicing with emcomm messages for this month.

Please consider joining us for a fun Saturday Morning!

→ **Get on the air. Make the contact. Build the skill.**



Featured Again: The 2MCM Travel Net

Date: Saturday, June 14th

Time: 0900–1000 hours

Repeater: W6PW

Frequency: 145.150 MHz

Offset: –600 kHz

DCS: 664

The **2MCM Travel Net** is back for another focused hour of practice designed for mobile and transit-based operators. Whether you're calling in from your car or checking in from a bus bench, this is your moment to practice situational awareness, effective brevity, and real-world radio handling.

Quick tips for Travel Net ops:

- Use a handheld mic if operating from a vehicle.
 - Be courteous if you're in a shared public space.
 - Only transmit when it's absolutely safe.
 - Share observations or relevant info with Net Control — your voice matters!
-



The 2MCM Radio Practice Meetup

What: Two Meter Critical Mass Radio Practice

When: Saturday, June 14th, 10:00 AM – 12:00 PM

Where: Spreckels Lake, 122 Spreckels Lake Drive, San Francisco

Come out and get some fresh air while we practice 2-meter simplex comms. This is a relaxed, supportive environment where new operators are encouraged and experienced hams can brush up and mentor.

What to bring:

- A fully charged 2-meter radio
- Your user manual (physical or digital)
- **Clipboard + pen/pencil**
- A filled water bottle
- Layers — it's San Francisco, after all

Please stay home if you:

- Are feeling unwell
- Have flu-like symptoms
- Have tested positive for COVID in the past five days

Frequencies we'll use (simplex):

- **Channel Alpha:** 146.475 PL 100
- **Channel Bravo:** 147.585 PL 100
- **Channel Charlie:** 146.445 PL 100

- **Channel Delta:** 147.525 PL 100

Got the NERT Band Plan programmed into your radio? Then you're already good to go!

Questions? Need programming help? Just want to say hi?

Drop us a line anytime: 2MCMv2.0@gmail.com

See you on the air and at the lake!

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.

HF Radio 101

From Hugh KN6KNB

Building a Portable Vertical Antenna

Vertical wire antennas are a great way to go if you are operating in the field or don't have a lot of free space for a traditional horizontal antenna. This article is an introduction to the basic design and construction of the vertical antenna, Next month, we'll look at specific vertical antenna designs. All the components can be purchased on Amazon.com. This is an overview of this type of antenna design. As we look at specific vertical antennas in upcoming articles, we'll go into more detail.

Creating a do-it-yourself vertical wire antenna for HF amateur radio offers a rewarding project for enthusiasts looking to explore different propagation characteristics compared to horizontal antennas. While dipoles excel for NVIS (Near Vertical Incidence Skywave) and lower angle DX (long distance) from horizontal configurations, a vertical antenna, especially when properly configured, can provide an excellent low-angle radiation pattern, making it highly effective for working distant stations. The fundamental principle involves orienting a quarter-wavelength radiator vertically, often supported by a non-conductive mast or nearby structure, and pairing it with a radial system that acts as the other half of the antenna.

The core component of a vertical wire antenna is the radiating element itself. This is typically a single length of wire, cut to approximately a quarter-wavelength for the desired operating frequency. For instance, on the 40-meter band (around 7 MHz), a quarter-wavelength would be roughly 33 feet (10 meters). Just like with a dipole, it's prudent to cut the wire a bit longer than the calculated length to allow for trimming during the tuning process. The wire should be of sufficient gauge, typically 14 or 16 AWG stranded copper, to withstand environmental conditions and carry RF current efficiently. This vertical element will be connected to the center conductor of your coaxial cable.

Crucially, a vertical antenna requires a ground plane or, more practically for DIY builds, a system of radials. These radials effectively serve as the "other half" of the antenna, reflecting the signals. For optimal performance, four or more radials, each cut to a quarter-wavelength for the same operating frequency as the vertical element, are recommended. These radials should ideally extend horizontally outwards from the base of the vertical element, either laid on the ground, buried just beneath the surface, or slightly elevated. The more radials you deploy, and the longer they are (up to a quarter-wavelength), generally the more efficient your vertical antenna will be. All radials are connected together to the shield (braid) of your coaxial cable.

The feed point of a vertical antenna is critical for its performance and impedance matching. At the base of the vertical element, where it connects to the center

conductor of the coax, and where the radials connect to the coax shield, this junction forms the feed point. For a quarter-wave vertical over an adequate ground system, the impedance at the feed point is ideally around 35-50 ohms, making it a good match for standard 50-ohm coaxial cable. It should be noted that most operators use Baluns and/or Ununs because even a small mismatch between the impedances of the radio and antenna can cause a loss of transmission power and could damage the radio. Minor adjustments, like slightly detuning the vertical or the radials, or using an RF choke (balun) at the feed point, might be necessary to achieve the lowest SWR (Standing Wave Ratio). A simple choke can be made by coiling several turns of coax near the feed point. However, for more accurate results, you'll need a Balun or Unun (depending on the type of vertical antenna). I'll include a guide to Balun and Ununs later in this article.

Support for the vertical wire is also a key consideration. A non-conductive mast, such as PVC pipe or fiberglass poles, is an ideal choice to support the vertical element without interfering with its radiation pattern. You can find fiberglass Kite Poles on Amazon.com for around \$100.00 or less (for a 28-foot mast). These poles are lightweight and easy to set up. You can use a beach umbrella mount to support them (the mount has a sharp end that you insert into the ground). The wire can be run alongside the mast and secured with zip ties or tape. Alternatively, if a tall tree or other structure is available, the wire can be suspended using a strong, UV-resistant rope. It's imperative to ensure adequate clearance from power lines and other metallic objects to prevent hazards and maintain antenna efficiency. The radials, if elevated, also need non-conductive support, often simpler and closer to the ground.

Finally, tuning is paramount for optimal performance. Once the vertical element and radial system are in place, connect an antenna analyzer or SWR meter to your coaxial cable. Sweep the desired frequency range and observe where the SWR dips to its lowest point. If the lowest SWR is below your target frequency, the vertical element is too long, and you will need to trim small amounts from the top. If the lowest SWR is above your target frequency, the element is too short, and you'll need to add wire or start with a longer piece. Achieving a low SWR

(ideally 1.5:1 or less) ensures maximum power transfer from your radio to the antenna, leading to effective communication.

Building a Vertical Antenna

Building a do-it-yourself (DIY) vertical wire antenna for HF amateur radio is a straightforward project that can provide excellent performance, particularly for long-distance (DX) contacts. This guide will walk you through the steps to construct a basic quarter-wave vertical antenna with a ground radial system. Note, if you're using a balun or Unun, you will not need to purchase an SO-239 connector since the Balun/Unun has this connection point built-in.

1. Materials Needed:

- **Antenna Wire:** Approximately 14-16 gauge stranded copper wire.
 - For the vertical element: Cut one piece slightly longer than a quarter-wavelength for your desired band (e.g., for 20 meters (14 MHz), a quarter-wave is about 16.5 feet; cut 17-18 feet to allow for trimming).
 - For the radials: Cut at least four pieces, each slightly longer than a quarter-wavelength for your desired band (e.g., for 20 meters, cut 17-18 feet per radial). More radials will improve performance.
- **Non-Conductive Support:** A fiberglass fishing pole (e.g., a "crappie pole"), PVC pipe, or similar non-conductive mast to support the vertical element. The height should be at least the length of your vertical element.
- **Coaxial Cable:** RG-58, RG-8X, or RG-213 (50 Ohm impedance) of sufficient length to reach your radio.
- **Center Insulator/Feed Point Plate:** A sturdy piece of non-conductive material (e.g., PVC sheet, cutting board plastic, or a robust electrical junction box lid) approximately 6x6 inches (15x15 cm). This will serve as the mounting point for the vertical element and radials, and where the coax connects.

- **Hardware for Feed Point:**
 - One SO-239 connector (for coax connection) if you're not using a Balun/Unun.
 - Several stainless steel or brass bolts, nuts, and washers (e.g., 10-32 or 1/4-20) to create terminal points for the wires (If not using a Balun/Unun).
 - Alternatively, crimp-on spade or ring terminals for wire connections (If not using a Balun/Unun).
- **End Insulators (Optional for elevated radials):** Small plastic or ceramic insulators if you plan to elevate your radials.
- **Support Rope/Cord:** Strong, UV-resistant nylon or Dacron cord for guying the mast and supporting the antenna if not self-supporting.
- **Ground Stakes/Tent Pegs (for ground radials):** To secure radials laid on the ground.
- **Tools:** Wire cutters, wire strippers, tape measure, drill and bits, soldering iron and solder (for connections), crimping tool (for terminals/connectors), screwdriver, wrench, and an antenna analyzer or SWR meter.

2. Calculating Wire Lengths:

First, choose the HF band you want to operate on. The formulas for a quarter-wave antenna are (you can double the length for ½-wave antenna lengths or use the chart at the end of this article):

- **Length (feet) = 234 / Frequency (MHz)**
- **Length (meters) = 71.25 / Frequency (MHz)**

Example: For the 40-meter band (center frequency ~7.150 MHz):

- Quarter-wave length (feet) = 234 / 7.150 = 32.7 feet (approx.).
- So, cut your vertical wire and each radial to about 33-34 feet initially.

Always cut the wires slightly longer than calculated – you will trim them during tuning.

3. Constructing the Feed Point Plate (if not using a Balun/Unun:

- Drill a hole in the center of your chosen non-conductive plate to mount the SO-239 connector.
- Drill several smaller holes around the SO-239 mounting hole for your terminal bolts. You'll need one for the vertical element and at least four (or more, depending on your radial count) for the radial wires.
- Mount the SO-239 connector.
- Install the bolts, nuts, and washers to create sturdy terminal points for connecting the wires.

4. Wiring the Antenna Elements to the Feed Point:

- **Vertical Element:** Strip about 1 inch (2.5 cm) of insulation from one end of your vertical wire. Connect this end securely to the center pin of the SO-239 connector (or a bolt electrically connected to it). Soldering this connection is highly recommended for durability and good electrical contact.

If using a Balun/Unun, you can strip the wire and solder it to an “O” ring connector used for connecting wire to a terminal. Make sure you do a good job with the soldering since this is a point of stress due to the weight of the Balun/Unun.

- **Radials:** Strip about 1 inch (2.5 cm) of insulation from one end of each radial wire. Connect all the radial wires to the shield connection of the SO-239 (or a bolt electrically connected to it, which is then connected to the SO-239 shield). Again, soldering all these connections together is best. Ensure good electrical contact between all radials and the coax shield.

- **Coaxial Cable:** Install a PL-259 connector on one end of your coaxial cable. This will plug into the SO-239 on your feed point plate.

5. Mounting and Deploying the Vertical Element:

- Attach the vertical wire along the side of your non-conductive mast. You can use zip ties, electrical tape, or even string to secure it at regular intervals. Ensure the wire runs as straight as possible up the mast.
- Elevate the mast. You can stand it upright and secure it with guy ropes (especially for taller masts), or lash it to a fence post, deck railing, or side of a building. The bottom of the feed point should be just above ground level, ideally 6-12 inches (15-30 cm) for ground-laid radials.

6. Deploying the Radial System:

- **Ground-Laid Radials (Most Common DIY):**
 - Lay the radials out on the ground, radiating outwards from the feed point in different directions (like spokes on a wheel). Try to spread them evenly.
 - Secure the ends of the radials to the ground using tent pegs or small stakes. You can also lightly bury them just under the soil surface for protection from foot traffic and lawnmowers.
 - It's okay if they are not perfectly straight or if some bend around obstacles, but try to keep them as extended as possible.
- **Elevated Radials (More Complex):**
 - If you choose to elevate your radials, each radial should be supported horizontally or sloping slightly downwards, at least a few feet above ground. This often requires additional support points for each radial. Elevated radials generally require fewer radials (e.g., 2-4) for good performance compared to ground-laid radials.

7. Tuning the Antenna:

This is the most crucial step for optimal performance.

- Connect your coaxial cable from the antenna to an antenna analyzer or an SWR meter connected to your radio.
- **Scan the desired frequency range.** You are looking for the lowest Standing Wave Ratio (SWR) reading. The goal is typically 1.5:1 or lower at your desired operating frequency within the band.
- **Adjusting Length:**
 - **If the SWR dip is below your target frequency (antenna is too long):**
Trim a small amount (e.g., 1-2 inches or 2-5 cm) from the *top* end of the vertical radiating element. Re-check SWR. Repeat until the SWR minimum is at your desired frequency.
 - **If the SWR dip is above your target frequency (antenna is too short):**
This is why you cut it long! If it's too short, you will need to add wire back to the top of the vertical element (solder a piece on), which is much less convenient than trimming. Always start long.
- **Radial Lengths:** While the vertical element is the primary tuning component, the radial lengths also have an effect. For ground-laid radials, their exact length is less critical as the ground itself becomes part of the system. For elevated radials, they should also be close to a quarter-wave and can be trimmed if fine-tuning is needed after the vertical element is set.

8. Optional: Adding an RF Choke/Balun:

While not always strictly necessary, a 1:1 RF choke (sometimes called a current balun) at the feed point can help prevent common mode currents from flowing down the outside of your coaxial cable. Common mode currents can cause RFI (Radio Frequency Interference) in your shack and distort the antenna's radiation pattern. A simple choke can be made by coiling about 6-10 turns of your coaxial cable (about 6-8 inch / 15-20 cm diameter) near the feed point and securing it with zip ties.

With careful construction and tuning, your DIY vertical wire antenna will provide an effective means of communication on the HF bands, offering a different

performance characteristic compared to a horizontal dipole. Always prioritize safety when erecting and working with antennas, especially regarding power lines.

More on Baluns and Ununs

Baluns, Ununs, and Chokes are confusing to new amateur radio operators. Knowing which one to use with a specific antenna can be difficult at best unless you have a basic understanding of what they do, their differences, and how they work with your antenna.

Baluns, ununs, and chokes are specialized devices used in HF (High Frequency) radio systems to improve impedance matching, reduce common-mode currents, and enhance overall performance. These components play a crucial role in optimizing the transfer of power between the transmitter or receiver and the antenna.

A balun (balanced-to-unbalanced transformer) is used when one end of the transmission line is balanced (e.g., a dipole antenna) and the other end is unbalanced (e.g., a coaxial cable). It transforms the balanced impedance of the antenna to the unbalanced impedance of the feedline, preventing common-mode currents from flowing on the shield of the coaxial cable. This reduces interference and improves signal quality.

An unun (unbalanced-to-unbalanced transformer) is used when both the antenna and the feedline are unbalanced. It provides impedance matching between these two components, ensuring efficient power transfer. Ununs are often used with vertical antennas that have a ground radial system.

A choke is a type of inductor designed to block high-frequency signals while allowing lower frequencies to pass through. Chokes are often used to isolate the transmitter or receiver from the antenna system, reducing interference and improving stability.

The choice between a balun, unun, or choke depends on the specific antenna configuration and the desired impedance match. In some cases, a combination of these devices may be necessary to achieve optimal performance.

Proper impedance matching is essential for efficient HF radio communication. By using baluns, ununs, and chokes, operators can improve power transfer, reduce standing waves, and enhance the overall performance of their antenna systems.

Baluns and Ununs: Balancing the Antenna

Baluns and ununs are devices used in radio frequency (RF) systems to match the impedance of an antenna to the transmission line. This matching is crucial for efficient power transfer and to prevent common-mode currents from flowing on the shield of the coaxial cable.

- **Balun (Balanced-to-Unbalanced Transformer):**
 - A balun is used when one end of the transmission line is balanced (e.g., a dipole antenna) and the other end is unbalanced (e.g., a coaxial cable).
 - It transforms the balanced impedance of the antenna to the unbalanced impedance of the feedline.
 - This prevents common-mode currents from flowing on the coaxial cable's shield, reducing interference and improving signal quality.
- **Unun (Unbalanced-to-Unbalanced Transformer):**
 - An unun is used when both the antenna and the feedline are unbalanced.
 - It provides impedance matching between these two components, ensuring efficient power transfer.

- Ununs are often used with vertical antennas that have a ground radial system.

How they work: Both baluns and ununs use magnetic coupling to achieve impedance transformation. They consist of two or more windings of wire that are magnetically coupled. The turns ratio of these windings determines the impedance transformation. For example, a 1:1 balun has equal numbers of turns on the primary and secondary windings, while a 4:1 balun has four times as many turns on the primary winding.

By carefully selecting the turns ratio and design of the balun or unun, it is possible to achieve the desired impedance match between the antenna and the transmission line. This ensures efficient power transfer and reduces standing waves, leading to improved signal quality and reduced interference.

What does 4:1 or 9:1 Mean for Baluns and Ununs?

The job of a Balun or Unun is to match an antenna to the transceiver it's attached to. Most transceivers have an impedance of 50 Ohms. However, antennas can have an impedance range between 200 and 2450 Ohms. The transceiver and the antenna must have matching impedance to operate correctly. The Unun or Balun does that. This is why they are necessary.

These devices are available in various designs and impedance ratios. The appropriate choice depends on the specific requirements of the antenna and the transmission line. It's important to select a balun, unun, or choke that is rated for the desired frequency and power level.

By understanding the role of baluns, ununs, and chokes and selecting the appropriate devices for their antenna system, ham radio operators can optimize their communication and achieve successful results.

Wire Length Chart

Band Frequency (MHz) Half-Wave Length (Feet) Quarter-Wave Length (Feet)

160	1.8 MHz	260	130
80	3.5 MHz	134	67
60	5.4 MHz	88	44
40	7 MHz	67	33
30	10 MHz	46	23
20	14 MHz	33	17
17	18 MHz	26	13
15	21 MHz	22	11
12	25 MHz	19	9.4
10	28 MHz	17	8.5

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 the ARRL on the importance of amateur radio:

Local, County, and State Governments Proclaim Value of Amateur Radio: A great article on the importance of amateur radio.

<https://www.arrl.org/news/local-county-and-state-governments-proclaim-value-of-amateur-radio>

Ham radio operators provided critical communications help: A nice article reminding us of the important role amateur radio plays when all else fails.

<https://www.tribtoday.com/news/local-news/2025/05/ham-radio-operators-provided-critical-communications-help/>

Ham Radio Operators Assemble Ahead of Hurricane Milton: A nice piece regarding disaster preparedness.

<https://www.radioworld.com/news-and-business/headlines/ham-radio-operators-assemble-ahead-of-hurricane-milton>

Ham radio and the world of amateur radio operators: A nice piece on amateur radio operators in Canada.

<https://canadiangeographic.ca/articles/ham-radio-and-the-world-of-amateur-radio-operators/>

Get Ready for "Ham Radio Open House" on World Amateur Radio Day 2025: For all you DXers, this is a great opportunity to make those hard to get contacts!

<https://www.arrl.org/news/get-ready-for-ham-radio-open-house-on-world-amateur-radio-day-2025>

Ham Radio Call Signs Discovered During Clayton UC Renovation Revive Memories of Lehigh's Amateur Radio Society: This is an interesting read regarding amateur radio's rich history.

<https://news.lehigh.edu/ham-radio-call-signs-discovered-during-clayton-uc-renovation-revive-memories-of-lehighs-amateur>

WKHS Makes International Contact with Amateur Radio: A nice look at introducing amateur radio to youth.

<https://www.radioworld.com/tech-and-gear/wkhs-makes-international-contact-with-amateur-radio>

Local Club Connecting Amateur Radio Enthusiasts: From the Weirton Daily Times.

<https://www.weirtondailytimes.com/news/local-news/2024/12/local-club-connecting-amateur-radio-enthusiasts/>

The Rich History of Ham Radio Culture: A really nice piece looking at the history of our beloved hobby (really a passion).

<https://thereader.mitpress.mit.edu/the-rich-history-of-ham-radio-culture/>

Ham Radio In the Internet Age: An interesting article that looks at how amateur radio has changed with the times.

<https://hackaday.com/2024/10/25/ham-radio-in-the-internet-age/>

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. Still, nothing new from the FCC this month:

FCC Initiates Broad Inquiry on Rules to Delete or Amend: This is of importance to everyone who has an FCC license.

<https://www.arrl.org/news/fcc-initiates-broad-inquiry-on-rules-to-delete-or-amend>

FCC Upholds Record \$34,000 Forfeiture Against Amateur Licensee: The story started a few years back but finally came to a sticky financial end for the offender.

<https://www.arrl.org/news/fcc-upholds-record-34-000-forfeiture-against-amateur-licensee>

FCC Seeks Comments on Tribal FM Allotment in Wyoming: This is an interesting read about an area of radio outside the norm.

<https://www.radioworld.com/news-and-business/business-and-law/fcc-seeks-comments-on-tribal-fm-allotment-in-wyoming>

Solar Activity Significantly Affecting Ionosphere, FCC Opens Docket for Comments on Impact: The impact of solar activity has been driven the FCC to solicit comments regarding it's impact:

<https://www.arrl.org/news/solar-activity-significantly-affecting-ionosphere-fcc-opens-docket-for-comments-on-impact>

FCC to Require Two Factor Authentication for CORES Users: It seems that the powers that run the big show have found yet another fee to tack on to the amateur radio operators ability to operate:

<https://www.arrl.org/news/fcc-to-require-two-factor-authentication-for-cores-users>

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>

Propagation News

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

The ARRL Solar Report: This is the ARRL solar update, which is updated regularly:

<https://www.arrl.org/news/the-arrl-solar-report-20>

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.

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

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

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

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

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

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

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

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

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

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

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

Homemade Antennas: Many new amateur radio enthusiasts put a great deal of time and effort into researching their first radio. However, they often neglect the most important component to a successful radio experience, the antenna. Even if you have some ham radio experience, antennas can be a daunting subject. Commercially manufactured antennas can be expensive and beyond your budget during these hard financial times. Even if you have the funds available to purchase

an antenna, reading through the antenna's specs can be akin to reading some long lost ancient language. A good solution for increasing your knowledge of antennas and radio wave propagation, not to mention cutting the costs down, is to build them yourself. Here are some links to DIY (do it yourself) sites to give you a start:

Antenna building basics:

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

Good Reference for several antenna types:

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

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

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

Instructions for a VHF/UHF dual band antenna:

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

Build an HF dipole antenna:

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

Introduction to antennas:

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

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

units, many have fully functional touchscreens and cover many of the HF bands:

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

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

An easy to build, single band CW kit:

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

Offering several kits and finished transceivers:

<https://youkits.com/>

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

Real time band conditions:

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

VOACAP band conditions:

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

ARRL Propagation Page:

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

Real Time HF Propagation Prediction:

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

Ham Radio Websites of general interest:

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

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

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

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

<https://qrznow.com/>

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

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