

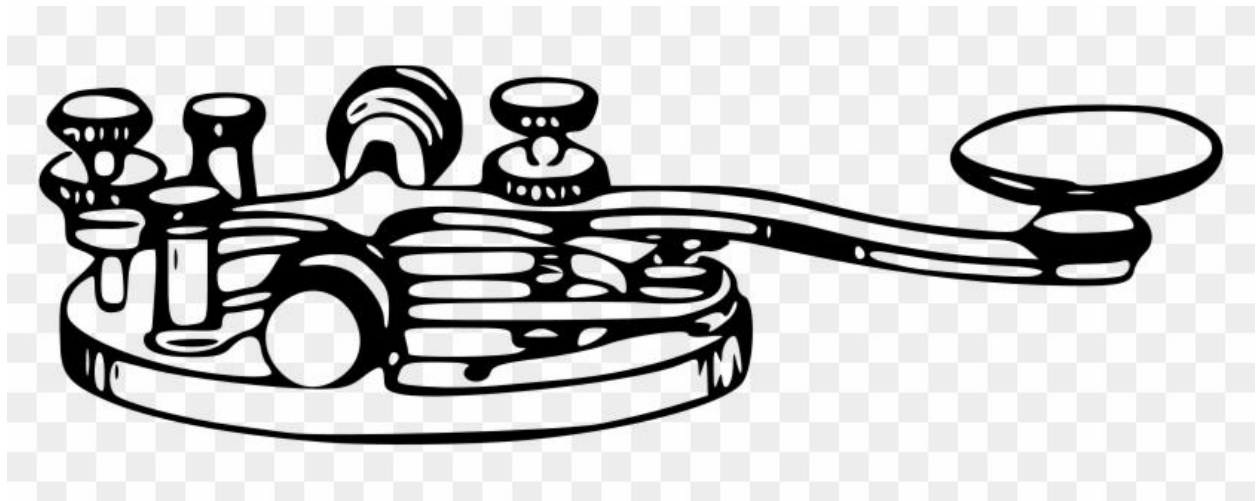


# QSA-5

## Marin Amateur Radio Society Monthly Newsletter

Established 1933

January, 2025



When all else fails, you can count on Amateur Radio

## **From Our President:**

We have not yet sung Auld Lang Syne or regaled our young friends with tales of Guy Lombardo and his Royal Canadians, but the end of 2024 is near, and we will rush headlong into 2025 willing or not. I need to take care of a little business for 2024. Each year, I have the opportunity to recognize club members who have made significant contributions to the club. I am going to use the rest of the space to announce the awards for 2025.

**Ham-of-The-Year** – This award has been around for years. The oldest history I have is from 1961. As the name implies this award is to recognize someone who has gone beyond the call of duty in the last year. I ask you for recommendations for all awards and a couple of you did nominate this individual although I have to say I already had him in mind. This year, the award which comes with a certificate and \$100 goes to James Saltzgaber KM6WWY. It seems like every club activity in 2024 relied in his involvement. Jim runs our Comm Truck committee, our Volunteer Examiners, and serves on the board as Club Secretary. On events like Picnic and Field Day he is often the first to show up and the last to leave the clubhouse when everything has be returned and stowed away. Jim is also active in our public service events. I cannot count the number of times I have seen him elmering someone about some technological issue. When I have asked him to take care of something, I don't have to check on his work, whatever it was that needed doing was completed in a way that was better than I had hoped. I am not sure how I could have gotten through this last year without him and his always cheerful attitude. Although I did not give the award to JoAnne Saltzgaber KN6FXH I need to mention her as someone who also shows up and makes our events better. Thank you both.

**Hi Roberts Award** – This is given to recognize an individual who has contributed to the club for several years. The award comes with a certificate and at check for \$100. This year's recipient is Ken Brownfield AB6JR. Ken has worn a number of hats in the last couple of years including taking over the Volunteer Examiners on short notice when the prior lead examiner became a silent key. Ken also served as club president with a thoughtful and moderating manor as well as gracefully listened to all my unsolicited advice. Ken also took over leadership of the NBAM committee at a time when most of the steering committee did not have the bandwidth to care on. I am

pleased to see him back on our board and I look forward to working with him in the next year. Thank you, Ken.

**John Butler 'Elmer' Award** – is as the name implies intended to recognize someone who helps others in the club to learn the art and science of ham radio. The award includes a certificate and a check for \$100. This year, I want to thank Hugh Patterson who for the last several years has been the publisher of QSA-5, our newsletter. I have always been proud of our newsletter, but Hugh has done an exemplary job getting people to contribute articles. His contribution that gave me the idea to recognize him is this way has been his string of articles about technical topics. He breaks them into bite sized morsels that bring a wealth of information. I am a member of several other radio clubs in the area and his articles really stand out from the other newsletters I read.

**President's Award of Achievement** – What do you give someone who has everything? This was a question I pondered a few years back when Michael Fischer K6MLF stepped down as leader of the Public Service Committee. I need a way to thank him, but he had pretty much earned all the club awards at one time or another. With no award to give him I thought we needed an award to recognize really exceptional service. The award is only a certificate. This year I was faced with a similar issue Rob Rowlands was stepping down as leader of the Public Service Committee and like Micheal, Rob has earned pretty much all of the club awards. The award then goes to Rob Rowlands NZ6J for doing so much for our club.

Thank you for your indulgence in putting up with a extra long essay from me. Also please take an opportunity to embarrass these folks and congratulate them on their awards.

73 de wa6uds

## **From the Editor:**

Happy New Year Everyone! Well, 2024 flew by and 2025 is here! With the new year starting, the possibilities seem endless. Thankfully, the election is over, and we can all get back to the business of amateur radio. Thank you, Curtiss Kim, Rob Rowlands, Michael Fischer, and the usual suspects for your contributions.

I was stunned when I read Curtis's Presidents Letter and discovered I had been awarded the John Butler 'Elmer' Award. I had to reread the paragraph, thinking maybe Curtis is talking about someone else. After checking the club website award page, I concluded that it was me. It's the most meaningful award I've ever gotten. Going through the licensing process and getting my Technician, General, and Extra-Class license was hard. I suffered from dyslexia in my youth, which made learning difficult. Then getting into the real world, where textbook answers to problems don't always neatly work, I found myself having to spend countless hours trying to figure things out on my own. For several years, I made a fulltime job out of reading amateur radio books and watching YouTube videos, taking copious notes as I went along. Those notes turned into my monthly writings.

I will always be a student of the radio arts because I will never know everything there is to know about amateur radio. This makes me happy because I enjoy learning. One of the greatest learning tools for me has been being on a fixed income. My wife and I live very modestly, and I don't have the funds to get better quality equipment. This forced me to build my own stuff and doing so taught me more about radio than a stack of books. I've learned to get every ounce of power and clarity out of export radios and participate in the hobby I love so much, again, learning a lot more than if I was running more sophisticated and powerful rigs. I build my own Baluns, Ununs, and Loading Coils, as well as antennas.

I wrote the stuff I put in this publication because I don't want to see any new amateur radio operators having to chase answers down rabbit holes only to end up more confused than when they started. While I find it fun to problem solve, it was bewildering when I first got into amateur radio. New folks should be able to spend more time on the bands and less time trying to get their equipment to work. I'd like to thank Curtis and the club for the acknowledgement and the \$100.00. It's going

to allow me to make a big improvement in my antennas! Thank you again everyone. This means the world to me (and I'm not a sentimental guy – my dad was a Marine Corps Drill Instructor, need I say more)...

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



### **New Members:**

Katherine Jewett KO6GIN – Sausalito

Jonathan Brown AK6VB - Rohnert Park



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



## **Marin Amateur Radio Society**

### **Board of Directors Meeting**

**12/12/2024**

**Call to Order:** 19:30 Hours (7:30 PM)

#### **Attendance:**

**President:** Curtis Ardourel WA6UDS

**Director:** Richard Cochran AG6QR

**Director:** Ed Essick K6ELE

**Director:** Steve Toquinto KB6HOH

**Secretary:** James Saltzgaber KM6WWY

**Director:** Jeffrey Young KM6Y

**Treasurer:** Bruce Bartel N6VLB

**Trustee W6SG:** Marc Bruvry KF6VNT

**Trustee K6GWE:** Brian Cooley K6EZX

#### **Adopt agenda**

**Approve Minutes:** of 14 November board meeting MSC

**Secretary's Report/Communications Jim S:** Nothing New to Report

**Treasurer's Report Bruce:** Holiday celebration was about \$103 in the red, well within our budget. We had 37 attendees.

**Members present:** Milt KM6ASI, Skip KJ6ARL, Scott Pasternak KN6ZDM, Charlie Benet AI6TT, Ken Brownfield AB6JR, Dan Sobel N6HLZ, Mark Klein KM6ASI, Kathy Spicher KM6URP, Rob Rolands NZ6J

### **Committee and other Reports:**

**1: Membership:** Curtis We are now at 165, equal to 100% of the membership at the end of last year. The bylaw changes that Family Memberships only includes 1 vote will be included in the membership renewal notices.

**2: Facilities Skip:** Branches touching the comm Van cover have been removed. Some branches left to cut up and put in green can. Tenant plumbing issues were fixed by Dan's Plumbing and should be going to Bruce for payment. Shout out to Steve KB6HOH for announcing and pushing club events on all the MARS and RACES nets.

**3: VOAD/RCV Skip:** Attended VOAD's last meeting of the year in person at SR City Council Chambers – in depth discussion of flood issues for the county's Community Based Organizations. Next RCV drill will be with CBOs for flood/king tide/tsunami event. The first End of Year RCV Event Report has been issued.

**4: Technical Milt:** Technical group will be testing the StepIR vertical antenna and controller that came from Alan Bowker and preparing it for installation at the clubhouse Monday 12/16. Rob Rolands will be there to test the antenna for satisfactory SWR. If it passes, the next step will be the installation of it. Skip requested if we could ID and remove unnecessary antenna cables, and Milt announced that it was already in progress. Scott asked if the MESH cable that is going through the window could be run with the antenna cables. Skip replied that it would be helpful for safety and security reasons.

**5: Public Service Scott:** 2025 Event list has been compiled, and dates confirmed. Final event list to be made to the board. The 2025 Public Service season kickoff date to be determined.

**6: VE Testing Jim:** Test dates have been announced, posted on our website, and on the ARRL VE schedule website. They are on the 2nd Saturday of January, April, July, and October. There are currently no applicants for the January test session.



**7: Comm Truck Jim:** Cal Anber and Charlie Benet have volunteered to help do the monthly maintenance check list. I will go over the procedure with them in January.

**8. NBAM Kathy Spicher KM6URP:** The Bodega Bay group is ready to proceed with the demo site, with a few things to work out with them. Their CERT team is requesting budget numbers. She also must pick up a couple of radios from the clubhouse NBAM inventory for them to test. Kathy attended the Sonoma County North Bay Communication Cooperative meeting on Sunday. There is some new leadership at Sonoma EOC in Santa Rosa, Manny Albano is now in charge of ACS and is favorable to AREDN. There is a new courthouse going up next door to the EOC. Sonoma Mountain RF study is possibly moving forward. This site is necessary for MESH backbone. Cloverdale/Schellinger node is down again, will be addressed after the first of the year. Mark has set up several tunnels into the AREDN Mesh. Some coordination still needs to be done on this.

**9. Bylaws Curtis:** Bylaws have been approved by general membership vote. Thanks to all who worked on getting them modified and approved. They will be filed with the CA Secretary of State.

### **Old Business:**

**1. Paint the Clubhouse fund:** is presently \$9370 \$4.5 on the website. We had budgeted \$6750, representing 25% of the total cost. We are 139% of our budget, 36% of the total cost. Curtis and Milt had a discussion and decided that the Donation Page will be kept on the website until the end of the tax season. Membership renewals will include Paint the Clubhouse donation requests and.

**2. Revitalizing Babble Class Curtis:** Tabled for future

**3. Donations Committee Charter Curtis:** Tabled for future

**4. Holiday Celebration Curtis:** As treasurer noted, was well within budget, all except \$103.00 was covered by member payments. We had 37 attendees. The feedback received was positive. Thanks to Rob Rolands for setting, it up with "The Cantina". Curtis questioned if we may have lost some potential participants with

the venue change from the clubhouse to the restaurant, but noted attendance was very similar from 2023 to 2024. Jim – Recommended that if we wish to return to a clubhouse holiday party for 2025 that the board start planning well in advance to maximize the volunteer pool to assist with making it happen. Scott offered his assistance with organizing clubhouse events. Rob noted that the Public Service kickoff will be coming up soon.

**5. Jane Rogers and Michael Fischer Fund:** \$500 for the building – Curtis – Would like to get a specific item to report to them that we have allocated their donation to.

**6. New Google environment:** Online storage of club records – Curtis, Bruce and Brian Cooley will be setting up Google environments after the first of the year.

#### **New Business:**

**1. Website issues:** Curtis- Received notice from WordPress that a plugin was down, and our website was down. The website photo gallery portion of the website was down. We are on a past version of the gallery plugin that is no longer available. The current version of the Gallery has not been tested yet on the version of WordPress that we are using. The website is up and running without gallery. Curtis will work this detail out.

**2. Randy Jenkins KA6BQF Rookie of the Year Award:** Curtis -some suggestion has been received that, as a means of properly recognizing Randy Jenkins contributions to the club and honor Randy Jenkins' longtime work in the club's public service program by creating a "Randy Jenkins' Public Service Rookie of the Year Award." The recipient would be chosen by the Public Service Committee via a grant of \$200 funded from Randy's donation through the Public Service Budget. The Public Service Committee would determine how it would be awarded. Further discussion will be had by the public service committee leads and reported back to the board.

**Good of the Order:** Rob Rowlands suggested that there be a program instituted to increase the use of the repeater system and to encourage members to be active on our repeater systems. This is a way to increase the emergency

preparedness of the club members. Suggestions for how to make this happen to be explored at the January 9th board meeting. Send any ideas to Curtis.

**Executive Session:** Not Needed

**Adjourn MSC:** @ 20:32

**Next Regular Meeting 3 January 2025**  
**Next Board Meeting 9 January 2025**

## **Marin Amateur Radio Club**

### **Balance Sheet Comparison**

As of December 30, 2024

	AS OF DEC 30, 2024	TOTAL AS OF DEC 30, 2023 (PY)
<b>ASSETS</b>		
Current Assets		
Bank Accounts		
B of A Facilities Account - 8795	3,000.90	5,385.61
B of A General account - 4328	75,147.38	70,341.55
CD	0.00	0.00
Money Market	0.00	0.00
VE Session Cash	0.00	-129.00
VE Session Cash Received	0.00	-45.00
<b>Total Bank Accounts</b>	<b>\$78,148.28</b>	<b>\$75,553.16</b>
Other Current Assets		
Uncategorized Asset	0.00	-95.00
<b>Total Other Current Assets</b>	<b>\$0.00</b>	<b>\$ -95.00</b>
<b>Total Current Assets</b>	<b>\$78,148.28</b>	<b>\$75,458.16</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>\$137,131.28</b>	<b>\$134,441.16</b>
LIABILITIES AND EQUITY		
Liabilities		
<b>Total Liabilities</b>		
Equity		
Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	13,748.91	-20,412.57
Net Income	-1,017.63	30,453.73
<b>Total Equity</b>	<b>\$137,131.28</b>	<b>\$134,441.16</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>\$137,131.28</b>	<b>\$134,441.16</b>

## Marin Amateur Radio Club

### Profit and Loss

January 1 - December 30, 2024

TOTAL

JAN 1 - DEC 30, 2024      JAN 1 - DEC 30, 2023 (PY YTD)

Income		
Christmas Party Income	2,289.08	
Donations	26,846.00	3,949.17
Dues	8,920.51	7,074.75
Interest Income	792.77	
Public Service Refund	168.15	450.00
Rent	34,500.00	28,600.00
Unapplied Cash Payment Income	0.00	
<b>Total Income</b>	<b>\$72,723.74</b>	<b>\$40,866.69</b>
<b>GROSS PROFIT</b>	<b>\$72,723.74</b>	<b>\$40,866.69</b>
Expenses		

Accounting	1,730.00	1,335.00
Awards	-100.00	299.99
Car & Truck	2,224.89	2,327.80
Car & Truck Gas	224.66	258.02
<b>Total Car &amp; Truck</b>	<b>2,449.55</b>	<b>2,585.82</b>
Christmas Party	4,774.47	40.00
Contractors	22,549.00	9,000.00
Equipment	< \$2,500	1,878.56
Field day	854.66	1,370.26
Food	797.74	
Garbage	613.44	584.04
Housekeeping	1,123.80	
Insurance	6,207.00	5,537.00
Comm Van Insurance	2,528.84	2,859.50
<b>Total Insurance</b>	<b>8,735.84</b>	<b>8,396.50</b>
Meals	235.24	
Office Supplies & Software	1,068.05	
Other Business Expenses	13.00	334.93
Picnic	1,705.10	1,757.51
Public Service Expense	4,188.44	1,379.96
Reimbursable Expenses	587.06	2,696.73
Repair & Maintenance	2,851.06	515.00
Repairs & Maintenance	1,770.00	
Repeater	2,158.67	1,567.50
Taxes & Licenses	8,222.03	4,074.67
Uncategorized Expense	104.51	
Utilities	4,437.80	4,589.67
VE Session		174.00
Water	1,583.40	1,046.63
<b>Total Expenses</b>	<b>\$72,452.86</b>	<b>\$43,626.77</b>
<b>NET OPERATING INCOME</b>	<b>\$270.88</b>	<b>\$ -2,760.08</b>
Other Income		
MESH Grant Income		33,500.00
<b>Total Other Income</b>	<b>\$0.00</b>	<b>\$33,500.00</b>
<b>Other Expenses</b>		
MESH Grant Disbursement	1,288.51	286.19

Total Other Expenses  
NET OTHER INCOME  
NET INCOME

\$1,288.51  
\$ -1,288.51  
\$ -1,017.63

\$286.19  
\$33,213.81  
\$30,453.73

# LIFE IS SIMPLE



# **MARS Club News**

## **Annual MARS Christmas Gathering**

From Rob Rowlands: We had 37 people at yesterday's Xmas lunch at the Cantina in Mill Valley. Everyone got a goodie! A tradition the Marin Amateur Radio Club maintains is having yearly events that bring club members and their families together. Be it a summer picnic or, in this case, a Christmas gathering, everyone attending had a great time. Here are some photographs of the event from Rob Rowlands:









## **Some Observations About Connectivity in the Mekong Delta**

Some observations about connectivity in the Mekong Delta: Here's a great piece of writing from Curtiss Kim , KM6GUY:

Having just returned from a two-and-half week Viking tour in the Mekong Delta, I visited a region once known as the scene of the Vietnam War. A long draw out conflict that raged from 1955 to 1975. The places I visited were only talking points in my college days. Saigon, now call Ho Chi Mihn City, Phnom Pehn, Hanoi and the port city of Hai Phong all were central to news reports during the war years. Gone are the numerous firebases, Special Forces compounds and military river patrols. Now it's an area trying to regain itself since the covid years that plunged the countries of Thailand, Cambodia, Vietnam and Laos into a tourist withdrawal. It's

still third world with open marketplaces displaying meats, fish and vegetables out in the open but it's also making changes mainly due to the tourist trade. Old French colonial buildings dating back to the 1800's are now adorned with rooftop cellular antennas. Open fields once laden with landmines now sprout 60-to-80-foot towers heavily weighed down with cellular antennas and microwave relays. Roads, bridges and waterways are all being modernized. A trip from Hanoi to the coastal resort of Halong Bay until last year took 3-4 hours driving time. Now with a new highway it's just two hours. In cities like Phnom Pehn and Siem Reap getting around is mainly by tut-tut to the delight of visitors. The three-wheeled, motorized vehicles are everywhere and inexpensive. But there is a slight change. Some drivers now carry handheld radios to keep in touch with hotels who summon them when needed. We avoided buying sim cards for the cellphones preferring to use What's App to keep in touch back home but were surprised to receive incoming and making outgoing calls instantly on my home carrier. No wonder cellular antennas are everywhere in the Delta. There is a move in the region to begin to consider reducing the visibility of the towers as they have become a glaring eyesore. Every hotel we stayed in offered free internet, which is becoming a common place. Since the late 1980's satellite communications started to take over Southeast Asia. Originally telecommunications were limited to government use but with the rise of mobile phones and advances in communications helped break down the country's isolation, both internally and internationally. Smartphone use is up 69 percent in recent years and it's not uncommon to see a rider on a motor scooter with a cellphone wedged underneath the helmet. Some hotel television systems feature 100 channels or more with a mix of Asian, English and British programming. It's not longer, "can you hear me...can you hear me now?" In the Mekong Delta it's more like circuit merit five.





## Volunteer Examiner News: End of the Year Wrap Up

2024 has come to a close, and the MARS VE Team brought many new amateur radio operators into the fold during 2024. The MARS VE 2025 exam schedule will be Jan 11<sup>th</sup>, Apr 12<sup>th</sup>, Jul 12<sup>th</sup>, and Oct 11<sup>th</sup>. Our Volunteer Examiners look forward to bringing more new amateur radio operators into the fold and helping existing license holders upgrade their licenses! It is crucial that clubs take the time to develop VE programs so we can keep our hobby alive and well. Here's to another successful year.

**From Curtiss Kim:** MARS has finished off the year with one of the biggest VE sessions in recent memory. Nine candidates turned out on October 12<sup>th</sup> to either earn their first amateur radio license or upgrade to the next level. In addition, Jim Saltzgaber, KM6WWY, Lead Volunteer Examiner, was pleased to see four new VE's turnout to familiarize themselves with the testing procedures in the exam process. Sitting shoulder to shoulder with the veteran examiners, the new VE's graded test results, oversaw application registration and signed off on the paperwork. Michael Ham, WA6LCN, Luis Membrila, WA6LM, Gerald McCarthy, W6NOV, and Nancy Coombs, KN6GTR were anxious to experience the requirements of the job. Each of the new VE's echoed a similar theme, that they wanted to help the next generation of amateur radio operators. Membrila, WA6LM, said he had a burning desire to be a VE ever since he got in the hobby but had to wait until he turned 18 to take the VE exam. McCarthy, W6NOV, said it was all about giving back and it had nothing to do with being a rock star, earning money or making himself more charming. "Without VE's, there would be no future in amateur radio." Ham, WA6LCU, said being a VE was part of the process to re-immersing himself back into amateur radio after an extended layoff. Coombs, KN6GTR, lives in Richmond and made the trek across the bridge to learn from the best. She said she emailed six different radio clubs in her area to make herself available as a VE. MARS responded, inviting her to participate. To become a VE, you must be licensed, have familiarized yourself with the rules and regulations of each test and pass an open book exam. Those holding a General license can only test applicants applying to become Technician amateurs. Extra Class license holders can grade any level. Another first, three of the nine candidates taking the recent tests were women. Saltzgaber mused it might have had to do

something with the weather-related problems in the nation's southeast. All three women testing, passed. The VE's approved 7 new Technicians, two were upgraded to Generals due to past licenses that had lapsed. One amateur upgraded to General. Saltzgaber was pleased by not only the testing turnout but the support of licensed operators to become VE's. Also in support roles, JoAnne Saltzgarber, KN6FXH and Curtiss Kim, KM6GUY. The need for amateur radio operators was never more important after the recent storms Helene and Milton in the southeast. Many enthusiasts not only kept lines of communication open but fielded questions about food, fuel and medications. Emergency communication was heroically upheld by amateur radio.

First picture, Ken Brownfield, AB6JR and Nancy Coombs, KN6GTR Second picture, Hugh Patterson, KN6KNB with Luis Membrila, WA6LM Third picture, Jerry Foster, WA6BXV, and Michael Ham, WA6LCU. Fourth picture, Gerald McCarthy, W6NOV with Jim Saltzgaber, KM6WWY, Lead Volunteer Examiner. The following is from Jim Saltzgaber KM6WWY, Lead Volunteer Examiner:

MARS VE Team,

I would like to congratulate you all on a very successful 2024 ARRL/MARS VE Examination program. I would also like to thank each of you for your support and selfless volunteer hours. As you all know, it takes a knowledgeable and dedicated team to successfully conduct VE sessions, and I am very thankful to have all of you on our team.

I also want to thank the 4 new VE's that joined us for their first time at the October 12<sup>th</sup> session: Luis Membrila WA6LM, Nancy Coombs KN6GTR, Gerald McCarthy W6NOV; and Michael Ham WA6LCN (previously a VE but returning from an extended absence)! Welcome to the MARS VE team!

We had a total of 27 applicants, 25 were successful in obtaining a new or upgraded license. There were 13 new Technician Class hams, 7 General Class upgrades (1 passed tech and general), and 5 Extra Class upgrades. Only 1 Tech and 1 General

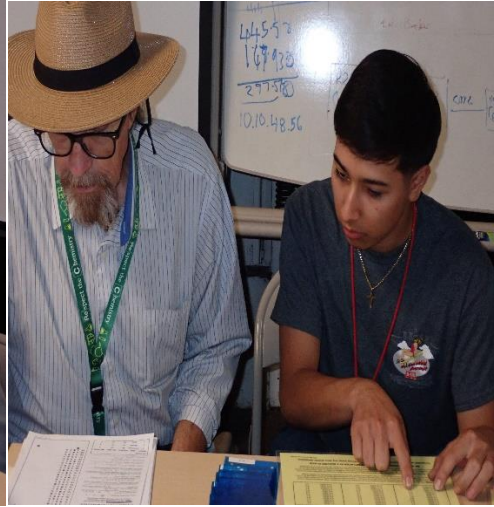
applicant did not receive a license/upgrade. On the VE side, 15 of our 17 VE's volunteered for at least 1 session, with a total of 31 "VE Sessions". That does not include our "Full Time" Non-VE Assistant, JoAnne Saltzgaber KN6FXH with 4 sessions this year.

I received a great many thanks and appreciative remarks and emails from our applicants. We do provide a very special and necessary service to the Ham Radio hobby, and to the Marin Amateur Radio Society, at no cost to the MARS club. Thank you all again!

**Our 2025 schedule will be Jan 11<sup>th</sup>, Apr 12<sup>th</sup>, Jul 12<sup>th</sup>, and Oct 11<sup>th</sup>.** Please mark your calendars. I look forward to working with all of you again next year.

Jim Saltzgaber KM6WWY  
Lead Volunteer Examiner  
Marin Amateur Radio Society  
27 Shell Rd.  
Mill Valley, CA 94941





**2025**  
**North Bay 2-Meter Critical Mass**  
**Calendar**

**2024**

December 15<sup>th</sup> (third Sunday) Michael

**2025**

January 19<sup>th</sup>, (third Sunday) James

February 23<sup>rd</sup> (fourth Sunday; third is President's Day) Milt

March 16<sup>th</sup> (third Sunday) Rob

April 27<sup>th</sup> (fourth Sunday; third is Easter) Michael

May 18<sup>th</sup> (third Sunday) James

June 22<sup>nd</sup> (fourth Sunday; third is Fathers' Day) Milt

July 20<sup>th</sup> (third Sunday) Rob

August 17<sup>th</sup> (third Sunday) Michael

September 21<sup>st</sup> (third Sunday) James

October 26<sup>th</sup> (fourth Sunday; third is Pacificon) Milt

November 16<sup>th</sup> (third Sunday) Rob

December 14<sup>th</sup> (second Sunday; third is too close to Christmas) Michael

## **North Bay Critical Mass Report**

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The third Sunday of December came two weeks into the month, which worked well for the gathering since it was further from Christmas day. As always, it took place at the Jury Parking lot, Marin County Civic Center. Across the street from the southern end of the Civic Center lagoon.

The North Bay Critical Mass group is a great place to learn more about and improve your radio communication skills. If you're new to amateur radio, this is a great opportunity to build up your skillset. This group also offers crucial radio

support in times of need. From Michael K6MLF: Here's what happened at the last gathering: After self-introductions, phonetic pun and checking into the Sunday am net, the group talked about:

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- **Coax connectors** and their uses. Which ones you absolutely need to include in your go-bag. SMA. PL259. SO239. N-connectors. BNC. Barrel. Pigtail. And more-some of them you've never heard of, even.
  - **Traveling** with your radio. What do you take along? How best to use Repeater Book. <https://www.repeaterbook.com/index.php/en-us/> How and when to use the National Calling Frequencies. "52" What's that? Since DMR is also 2-meters, we'll learn the difference between Static and Dynamic talk groups and practice linking with both. (Thanks to Jay KO6FIR for this suggestion.)
  - **Practice and protocol.** We'll spend at least a half-hour simulating a net, with net control being assigned to operator(s) who have not yet stood an NC shift.
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As always, they started right at 10am and did a hard-stop at noon (or before.)

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## San Francisco's FW: 2 Meter Critical Mass

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From:

Michael Fischer **K6MLF**

Some of you might not be aware of this additional opportunity for radio practice. It's our older brother, established by our friend Peter McElmury AA6SF (SK).

It's held on the second Saturday of each month at the NW end of Spreckels Lake in Golden Gate Park (36<sup>th</sup> Ave just south of Fulton.)

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Join us for a hands-on, engaging amateur radio practice session where you'll sharpen your communication skills, test your equipment, and connect with fellow radio enthusiasts in a friendly, supportive environment. Whether you're a seasoned operator or just starting, these sessions are designed to help you stay prepared, share knowledge, and build confidence in your radio abilities.

Don't miss this chance to tune in, troubleshoot, and work together as a community of dedicated operators. Let's keep the airwaves alive—hope to see you there!

Here's what you need to know:

During the morning meetup, we'll be practicing 2-meter radio communications.

Please stay home if you're feeling unwell, have flu-like symptoms, or have

had a positive Covid test result in the last five days.

**If the weather turns inclement, we will let you know if our plans change on Saturday morning.**

Please bring your freshly charged 2M radio, user manual, clipboard (plus pens or pencils), and a filled water bottle.

**What:** 2-Meter Critical Mass Radio Practice

**Where:** Spreckels Lake, 122 Spreckels Lake Drive

**When:** Saturday, December 14th, 10:00 AM to 12:00 PM

Please program your radios in advance, and here are the frequencies we'll use:

Channel Alpha: 146.475 PL 100

Channel Bravo: 147.585 PL 100

Channel Charlie: 146.445 PL 100

You're all set if you have the NERT Band Plan on your radio!

We're excited to see you there! If you have any questions or concerns, please don't hesitate to let us know. We're always here to help.

Warmly,

The Organizers

[2MCMv2.0@gmail.com](mailto:2MCMv2.0@gmail.com)

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## 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 2024 Year End Activities Report



### **Radio Communication Volunteers (RCV) 2024 Year End Activities Report**

#### **Summary**

Marin RCV conducted six (6) field exercises and/or trainings during 2024. Most of the exercises were tests of signal propagation quality between multiple Community Based Organization (CBO) sites via both repeaters and simplex relays. All were completed satisfactorily and without accidents. The following activities were between 2- and 6-hours total duration.

#### **Field exercises and trainings**

1. 2024-01-30 MCCT GMRS training
  - a. The Marin County Cooperation Team (Marin City) requested a class on basic radio operations skills. Six (6) MCCT staff members were trained using their Midland GXT1000 handheld radios.
  - b. They were encouraged to test communications between their main office and to likely client service locations in the Marin City/Sausalito area.
  
2. 2024-02-10 Canal Alliance
  - a. We conducted signal propagation tests between Canal's current 91 Larkspur St. and their new headquarters building at 755 Grand Ave. Both are in San Rafael. We also tested signals between Canal's two sites and the SF-Marín Food Bank in San Rafael.
  - b. A final portion of the test confirmed we had good signals between

both Canal sites, the Food Bank and EOC via three (3) different UHF repeaters: Mt. Tam, Big Rock and San Rafael Hill.

3. 2024-03-08 Workshop

- a. This RCV-CBO Exercise is a tabletop simulation of how RCV Operators, CBOs and VOAD work together during a disaster.
- b. Provide RCV Operators and CBOs an opportunity to work with elements of a simulated real RCV activation in a low-stress environment.

4. 2024-05-18 West Marin

- a. We identified which locations along Hwy.1 can reach other locations in West Marin via simplex, the Muir Beach UHF and/or another VHF or UHF portable repeater.
- b. Use of the portable repeater enabled five (5) of the six (6) stations tested could communicate sufficiently. Muir Beach was the lone exception.
- c. All stations except Stinson Beach had acceptable two-way communications with Mt. Tam Simulcast.

5. 2024-06-26 Golden Eagle

- a. The theme of this year's Golden Eagle exercise was restoring logistics and supply in the East Bay starting about 96 hours after a major earthquake.
- b. RCV participated by setting up a radio net and passing messages that are likely during emergency situations such as an earthquake, wildfire(s) or flooding.

6. 2024-10-17 Great Shakeout

- a. RCV and RACES collaborated in simulated "No-Notice" activation exercise which taxed our ability to create and manage a Resource Net and its documentation.
- b. The net collected callsigns and names of any radio operator who checked into the Resource Net. This was needed for creating an initial staffing plan in case of activation.
- c. RCV deployed operators to four (4) CBOs who filled out and filed an "Initial Status Report" when they arrived.



## **Other RCV activities**

1. 2024-05-18 DPW Fair: As an officially sponsored Program of Marin County Department of Public Works, RCV was invited to the May 18<sup>th</sup> DPW Fair. We setup radios and antennas under a canopy and chatted with many visitors about the RCV Program between 1000 and 1400 hours that Saturday.
2. RCV continued its Sunday morning 0945 “Roll Call Net” on the Big Rock UHF repeater. This net enables as many RCV members as possible to experience being a Net Control Station (NCS) operator or to simply maintain their radio skills.
3. RCV members advised Canal Alliance on costs and use of GMRS mobile radios as fixed stations for “intercom type” and emergency use between their 91 Larkspur St. and 755 Grand Ave. buildings.
4. RCV members also performed an informal communications site-survey of San Geronimo Valley’s Community Center (SGVCC) buildings and area. This was a preliminary step requested by the SGVCC for their planning for next year.
5. Novato members of RCV advised and assisted North Marin Community Services (NMCS) in installing a GMRS radio system similar to that of Canal Alliance. Also at NMCS’s request, RCVs also are working with NMCS on evaluating whether 5 GB Mesh technology is appropriate for their operations.

# The Latest Export HF Transceiver Anytone AT6666 Pro



*AnyTone*  
AT-6666PRO



## Testing the Anytone AT6666 Pro

Alright, I had the opportunity to test this radio out. Rather than give you a bunch of numbers, charts and graphs – which would give you the performance of the radio under specific conditions at my location (which will be different than the performance at your location), I decided to just give you a breakdown of using it during the recent ARRL 10-meter contest, and some general impressions.

I did the contest through the World Radio League which I'm a member of and a beta tester for. For an antenna, I was using a 58-foot end fed wire approximately 25-30 feet above the ground (5-degree slant from East to West) with a 9:1 Unun. Unlike the Xiegu G90, this radio doesn't have a built-in tuner, so I used a Malachite

ATU 100 automatic tuner (\$88.00 for fully assembled or 36.00 for kit on Amazon – I have both, using the kit as a full set of extra parts). The AT6666 Pro tuned up easily. However, I got a real appreciation for my G90's internal tuner, which literally will tune any antenna on the first pass. The AT6666 Pro has a number of built-in noise reduction features but using them can damper faint or weak signals. After an hour, I found a happy medium regarding these settings and had a clean audio experience.

The AT6666 Pro is rated at 80-watts PEP. However, it's closer to 104-watts when tested. I should note that you will get closer to 80-watts in actual use with an antenna because of a combination of variables related to the antenna. Still, having 60-watts more power than the Xiegu G90's 20-watts was a game changer. I was able to navigate pileups with more ease. As for signal reports, I averaged 57-59 globally. I was able to make contacts in Columbia, Spain, Canada, and various other countries and States here in the US. Within the group from the World Radio League, I ranked 14<sup>th</sup> overall and 2<sup>nd</sup> for California. The radio performed well and stayed cool thanks to its massive heat sink!

While the radio only covers three amateur radio bands plus the CB band, it is a great alternative for budget minded folks and would make a good mobile rig as well. I should note that while it does operate in VFO mode, the tuning knob clicks as you turn it, so if you're used to a traditional tuning knob, you may be bothered by this feature. The good news is that you won't accidentally go off frequency while trying to use the other controls. I kept last months information regarding this radio (see below) in case anyone is interested in more details.

### **The Anytone AT6666 Pro and Radioddity QT80**

Export radios are becoming a dominant part of the amateur radio transceiver market. Their price point and abilities make them an attractive alternative for the new amateur radio operator wanting to explore the HF bands without having to pay a substantial amount for the privilege of doing so! This month, we're going to look at a new mobile transceiver that has become extremely popular with HF amateur radio operators, the Anytone AT6666 Pro also branded as the Radioddity QT80. It retails for about \$300.00. Let me start by saying, I was first introduced to the radio by Walt K4OGO whose YouTube channel, Coastal Waves and Wires - <https://www.youtube.com/@COASTALWAVESWIRES> - is extremely popular. The

bulk of my successful DXing contacts are because of his antenna designs. Walt does videos on many export radios, including this one. He shows himself using this radio in the field, demonstrating its abilities. I own this radio and have been using it for DXing.

What is an export radio? They are radios designed to be sold in a variety of markets, each with their own band restrictions. They often can be easily modified to cover more bands than advertised and sometimes produce more power than they are rated for. They are made in China but generally are very well made, pass spurious emissions testing, and are FCC approved. Anytone and Radioddity are reliable brands. The Anytone AT6666 Pro and Radioddity QT80 are such radios.

Both are rated at 80 watts PEP, but produce 100+ watts on SSB. They are both sold as 10-meter radios, but will do 10, 11, 12, and 15-meters by moving an internal jumper up one notch. I purchased the Anytone AT6666 Pro and cannot believe how fantastic a radio it is! What really impressed me is the lack of noise, their noise reduction technology is amazing:

The Anytone AT6666 Pro incorporates a noise reduction circuit that significantly improves audio quality during both transmission and reception. This technology helps to reduce background noise, interference, and static, resulting in clearer and more intelligible communication.

The noise reduction circuit utilizes digital signal processing techniques to analyze the incoming audio signal and identify and remove unwanted noise components. This allows for a cleaner and more focused audio experience, especially in noisy environments.

By minimizing background noise, the noise reduction circuit also helps to improve the overall signal-to-noise ratio (SNR) of the transceiver. This can lead to improved sensitivity and the ability to receive weaker signals, which is particularly beneficial for long-distance communications.

Then there's the clarifier built into the radio. The clarifier function in the Anytone AT6666 Pro is a valuable tool for fine-tuning the received frequency to ensure

accurate reception and transmission. It works by slightly shifting the frequency of the received signal, allowing you to compensate for slight frequency offsets between your transceiver and the station you are communicating with.

The clarifier can be adjusted in small increments, typically in steps of 500 Hz or 5 kHz. By carefully adjusting the clarifier, you can eliminate any frequency drift or error, ensuring clear and intelligible communication.

The clarifier function is particularly useful in situations where the other station may not be transmitting exactly on the desired frequency. By using the clarifier, you can fine-tune the reception to compensate for any frequency offset, resulting in a clearer and more enjoyable listening experience.

The radio has a both channel and VFO mode. The VFO mode allows the radio to function as a traditional HF transceiver. You have a choice of six background colors for the screen. While it doesn't have a waterfall, it does have a solid SWR display. The radio is the standard 13.8 volts and should have at least a 15 A power supply. There's no built-in tuner. I use one of the mini antenna tuners, the ATU-100 EXT by N7DDC. It covers from 1.8 to 50 MHz. They were listed on Amazon during the Black Friday/Cyber Monday sales for \$70.00. That little tuner is first rate!

As with most of these radios, there's a learning curve because the radio's buttons and knobs often do more than one thing. You also have to press multiple buttons to access certain menu features and functions. Having tested this out on the 10, 12, and 10-meter bands, it's a winner. The 100-watt power on SSB makes hard to hear contacts loud and clear. You do have to play around with the noise controls and clarifier to get the incoming acoustics to sound more natural. But that's a small price to pay for all the radio's features. Talking to a contact in Northern Italy this morning, he gave me a signal report of 59+. Not bad for a \$300.00 transceiver. We'll have a more detailed analysis of this radio in the January issue of the QSA-5.

### **Key Features:**

- **High Power Output:** The AT6666 Pro delivers impressive power output, with 80 watts on AM/SSB and 50 watts on FM. This allows for strong, clear transmissions over long distances.

- **Noise Reduction Technology:** The built-in noise reduction technology helps to minimize background noise and interference, improving the overall audio quality of both transmissions and receptions.
- **Dual Watch Function:** This feature allows you to monitor two frequencies simultaneously, increasing your chances of catching important traffic or calls.
- **Programmable Memory Channels:** The AT6666 Pro offers programmable memory channels, allowing you to store your favorite frequencies and quickly access them.

## HF Radio 101

### Noise Levels or Interference: A Common Challenge in HF Radio

One problem I, as well as many HF band beginners, had early on was noise. When working with VHF/UHF transceivers and antennas, I never had this problem. As soon as I got into HF, I faced a plethora of noise and interference issues. Of course, I watched YouTube videos and made the rounds to various websites. However, it always seemed as if my problem was not quite the same! Why is HF more problematic regarding noise and interference compared with VHF and UHF?

HF (High Frequency) radio propagation relies on the ionosphere, a layer of the Earth's atmosphere that is ionized by solar radiation. This layer reflects (it's a bit more complicated) radio waves back to Earth, allowing for long-distance communication. However, this reliance on the ionosphere also introduces several challenges, particularly with regards to noise and interference.

One of the primary sources of noise in HF radio is atmospheric noise, also known as static. This noise is generated by natural phenomena such as lightning storms

and solar activity. The ionosphere can amplify these atmospheric disturbances, leading to increased noise levels in HF radio signals. There's nothing you can do about this issue!

Furthermore, HF signals are more susceptible to interference from various sources, including man-made noise. This you can fix! This can include interference from power lines, industrial equipment, and other electronic devices. Additionally, interference from other radio stations operating on nearby frequencies is more common in the HF bands due to the increased congestion and limited bandwidth.

In contrast, VHF (Very High Frequency) and UHF (Ultra High Frequency) radio signals propagate primarily through line-of-sight. This means that they travel directly from the transmitting antenna to the receiving antenna. As a result, VHF and UHF signals are less affected by atmospheric noise and interference, resulting in cleaner and more reliable communication. HF (High Frequency) radio faces unique challenges in terms of noise and interference compared to VHF (Very High Frequency) and UHF (Ultra High Frequency) bands. One significant factor is **propagation**. HF signals travel long distances by reflecting off the ionosphere, again, a layer of charged particles in the Earth's upper atmosphere. This long-distance propagation also increases the likelihood of encountering interference from other sources, including other stations, atmospheric noise, and man-made sources like power lines and industrial equipment. You can think about the differences between VHF/UHF and HF like this: the further your radio signal has to travel, the greater the probability it's going to run into something that degrades it!

VHF and UHF signals, on the other hand, primarily propagate through line-of-sight. This means they travel in a straight line and are not significantly affected by the ionosphere. This line-of-sight propagation limits the distance over which VHF and UHF signals can travel, reducing the likelihood of interference from distant sources.

Another factor contributing to increased noise and interference in HF is the **presence of numerous users**. The HF bands are heavily utilized by various services, including military, aviation, and maritime communications. This high level of activity can lead to congestion and interference from other users. VHF and UHF bands, while also used by various services, generally have less congestion than the HF bands.

Furthermore, **atmospheric noise** is a significant factor in HF radio. Sources like lightning storms and solar activity can generate strong electromagnetic fields that interfere with HF signals. While VHF and UHF signals are less susceptible to atmospheric noise, HF signals are more prone to these disturbances, particularly during periods of high solar activity. Alright, these are the problems you're not going to be able to fix. Are there problems you can fix?

Electrical noise is a pervasive issue that can significantly degrade the performance of HF (High Frequency) amateur radio transceivers and equipment. This unwanted interference can manifest in various forms, including hissing, crackling, or other audible distortions. There is nothing worse than finally hearing that rare contact you've been searching for, but you can't understand the person's callsign calling CQ. Understanding the sources of electrical noise and implementing effective mitigation techniques is crucial for maintaining clear and reliable communication.

One common source of electrical noise is interference from other electronic devices. When looking for the source of the problem, this is a great place to start! You'd be surprised at how many times something you take for granted is actually the source of your noise problems. Household appliances such as computers, televisions, microwave ovens, and power supplies can generate electromagnetic fields that can interfere with radio signals. These fields can be conducted through power lines or radiated into the air, causing noise in your transceiver.

Ground loops can also be a significant source of electrical noise. When there are multiple ground paths for electrical currents to flow, circulating currents can be generated, creating interference. These ground loops can be caused by improper grounding or by connecting equipment to different electrical outlets.

Another potential source of noise is power supply fluctuations. Voltage variations in the power grid can affect the stability of your transceiver's power supply, leading to noise and distortion in the audio signal. Using a voltage regulator or uninterruptible power supply (UPS) can help to mitigate the effects of power supply fluctuations.

To reduce electrical noise in your HF radio setup, several strategies can be employed. Shielding your transceiver and cables can help to protect them from external electromagnetic fields. Proper grounding is also essential to prevent



ground loops and reduce noise. Additionally, using high-quality cables and connectors can minimize signal losses and improve noise immunity.

By understanding the sources of electrical noise and implementing appropriate mitigation techniques, amateur radio operators can significantly improve the performance of their equipment and enjoy a cleaner listening experience.

### **List of Common Noise Problems and Solutions:**

- **Appliance interference:** Relocate your transceiver or use shielded cables. Ideally, your transceiver should be as far away from home offices or kitchens as possible.
- **Ground loops:** Ensure proper grounding and avoid multiple ground connections.
- **Power supply fluctuations:** Use a voltage regulator or UPS.
- **External interference:** Shielding, antenna placement, and frequency selection can help.
- **Cable quality:** Use high-quality coaxial cable with good shielding. I should note that I use cheap coaxial cable from Amazon for HF and do just fine.

These five common noise problems deserve more attention because they are likely to be encountered if you're setting up your amateur radio station within your home. Here is a breakdown of the five:

### **Appliance Interference: A Common Enemy in HF Radio**

Household appliances can be a significant source of interference for HF (High Frequency) amateur radio stations. The electromagnetic fields generated by these devices can disrupt radio signals, leading to noise, distortion, and reduced communication quality.

One of the primary culprits of appliance interference is the computer. The power supplies and internal components of computers can emit electromagnetic radiation that can interfere with radio frequencies. This interference can manifest

as a hissing or buzzing sound in your transceiver, making it difficult to understand conversations.

Television is another common source of interference. The high-voltage circuits and picture tubes in older television models can generate electromagnetic fields that can affect radio reception. Modern flat-screen TVs are generally less prone to interference, but it's still advisable to keep them a reasonable distance from your ham radio setup.

Microwave ovens are notorious for generating strong electromagnetic fields. When operating, microwave ovens can emit radiation that can interfere with radio signals, particularly on VHF and UHF frequencies. If possible, avoid using your microwave oven while operating your HF transceiver.

Other appliances, such as fluorescent lights, power tools, and even air conditioners, can also contribute to electrical interference. The best approach is to minimize the proximity of your ham radio equipment to these devices. If possible, relocate your transceiver and antenna to a quieter location away from potential sources of interference.

By understanding the sources of appliance interference and taking steps to mitigate its effects, you can improve the performance of your HF amateur radio station and enjoy a cleaner listening experience.

### **Ground Loops: A Silent Threat to HF Radio**

Ground loops are a common source of interference in HF (High Frequency) amateur radio setups. They occur when there are multiple ground paths for electrical currents to flow, creating circulating currents that can generate noise and degrade signal quality.

One of the primary causes of ground loops is improper grounding. If different components in your setup are grounded to separate points, a loop can be formed. This loop allows currents to circulate, creating electromagnetic fields that can interfere with radio signals.

Another potential source of ground loops is the use of multiple antennas or ground systems. If these systems are not properly interconnected or grounded, circulating currents can be generated.

Ground loops can manifest in various ways, including noise, distortion, and reduced signal strength. The severity of the interference can vary depending on the specific configuration of your setup and the strength of the ground loop currents.

To mitigate ground loops, it's essential to ensure that all components in your HF radio setup are grounded to a common point. This can be achieved by using a grounding block or connecting all components to a single ground rod. Additionally, avoiding multiple ground connections and ensuring that all ground wires are properly connected can help to prevent ground loops.

By understanding the causes of ground loops and implementing appropriate mitigation techniques, you can improve the performance of your HF amateur radio setup and reduce interference. A well-grounded system will provide a stable reference point for electrical currents, minimizing noise and ensuring efficient operation.

### **Power Supply Fluctuations: A Challenge for HF Amateur Radio**

Power supply fluctuations can significantly impact the performance of HF (High Frequency) amateur radio stations. These fluctuations can cause noise, distortion, and even damage to equipment if not addressed properly. Understanding the causes of power supply fluctuations and implementing effective mitigation strategies is essential for maintaining reliable and efficient radio operation.

One common cause of power supply fluctuations is instability in the electrical grid. Voltage variations, brownouts, and blackouts can affect the power quality delivered to your home or operating location. These fluctuations can disrupt the operation of your transceiver and other equipment, leading to noise and distortion in the audio signal.

Another source of power supply fluctuations can be overloading the electrical circuit. If your transceiver and other equipment draw too much current, it can

cause the voltage to drop, leading to instability. Ensure that your electrical circuit is rated for the total power consumption of your setup. The same holds true for your transceiver's power supply. Make sure the power supply you use for your transceiver is rated for a higher amperage than the transceiver's amperage. If your transceiver is rated 15 amps, use a 30-amp power supply. If you use a power supply whose maximum amperage is less than that of the transceiver, you run the risk of damaging the transceiver.

Additionally, electromagnetic interference (EMI) from other electronic devices can induce noise into your power supply. This can cause fluctuations in the voltage and affect the performance of your transceiver. Shielding your power cables and keeping your equipment away from potential sources of EMI can help to mitigate this issue.

To address power supply fluctuations, several strategies can be employed. Using a voltage regulator or uninterruptible power supply (UPS) can help to stabilize the voltage and protect your equipment from power outages. Additionally, ensuring proper grounding of your equipment can help to reduce noise and improve power quality.

By understanding the causes of power supply fluctuations and implementing appropriate mitigation techniques, you can minimize their impact on your HF amateur radio station and ensure reliable and efficient operation.

#### **List of Potential Power Supply Problems and Solutions:**

- **Voltage fluctuations:** Use a voltage regulator or UPS.
- **Overloading:** Ensure your electrical circuit is rated for the total power consumption of your setup.
- **EMI:** Shield power cables and keep equipment away from potential sources of interference.
- **Grounding issues:** Ensure proper grounding of your equipment.
- **Power outages:** Use a UPS for backup power.

## **The Importance of a Well-Grounded Power Supply for Your Amateur Radio Station**

A well-grounded power supply is a critical component of any amateur radio station. Proper grounding provides a reference point for electrical currents, reduces noise, and helps to protect your equipment from damage.

Grounding helps to prevent common-mode currents, which can circulate through your equipment and cause interference. These currents can be generated by various sources, including power line fluctuations and external electromagnetic fields. A proper ground path provides a low resistance return for these currents, diverting them away from sensitive components and reducing their impact.

Additionally, grounding can help to reduce electromagnetic interference (EMI) from external sources. By providing a stable reference point for electrical currents, a good ground system can minimize the susceptibility of your equipment to EMI.

A well-grounded power supply also helps to protect your equipment from electrical surges and lightning strikes. By providing a low-resistance path to the ground, a good ground system can divert these harmful currents away from your equipment, preventing damage.

By ensuring proper grounding of your power supply and other components in your amateur radio station, you can improve the performance of your equipment, reduce noise, and protect it from damage. A well-grounded system is essential for reliable and efficient radio operation.

## **External Interference: A Persistent Challenge in HF Radio**

External interference is a common issue faced by HF (High Frequency) amateur radio operators. It can disrupt communication, reduce signal quality, and make it difficult to hear or understand other stations. Understanding the sources of external interference and implementing effective mitigation techniques is crucial for maintaining clear and reliable radio operation.

One of the most common sources of external interference is other electronic devices. Household appliances, such as computers, televisions, microwave ovens, and power supplies, can generate electromagnetic fields that can interfere with radio signals. These fields can be conducted through power lines or radiated into the air, causing noise and distortion in your transceiver.

Another potential source of interference is nearby radio stations or other ham radio operators operating on the same frequency. This type of interference can cause overlapping signals, making it difficult to understand the desired transmission. Selecting a less congested frequency or using a directional antenna can help to mitigate this issue.

Atmospheric noise, such as lightning, thunderstorms, and solar activity, can also interfere with HF radio signals. This type of noise is often more pronounced on lower HF bands and can be difficult to avoid.

To reduce external interference, several strategies can be employed. Shielding your transceiver and cables can help to protect them from electromagnetic fields. Proper grounding is also essential to prevent ground loops and reduce noise. Additionally, using a directional antenna and selecting less crowded frequencies can help to minimize interference.

By understanding the sources of external interference and implementing appropriate mitigation techniques, ham radio operators can improve the performance of their stations and enjoy a cleaner listening experience.

#### **List of Potential External Interference Problems and Solutions:**

- **Appliance interference:** Relocate your transceiver or use shielded cables.
- **Other radio stations:** Select a less congested frequency or use a directional antenna.
- **Atmospheric noise:** Minimize the impact by operating on higher frequencies or using noise-reduction techniques.
- **Ground loops:** Ensure proper grounding of your equipment.
- **External signals:** Shield your transceiver and cables and use a directional antenna if necessary.

## **The Importance of High-Quality Coaxial Cable in HF Radio**

While I mentioned earlier that you could use cheaper cable for HF radio, there are times when you must use quality coaxial cable. Electrical interference problems are one of those times.

The quality of the coaxial cable used in your HF (High Frequency) radio setup is a critical factor that can significantly impact performance. A well-chosen cable can minimize signal loss, reduce interference, and improve overall communication quality.

One of the primary concerns with coaxial cable is attenuation, which refers to the loss of signal strength over distance. Higher-quality cables have lower attenuation, meaning they can transmit signals over longer distances with minimal degradation. Factors such as the cable's diameter, shielding, and construction materials influence its attenuation characteristics.

Another important aspect of coaxial cable is its impedance. The cable's impedance should match the characteristic impedance of the transmitter, receiver, and antenna to ensure efficient power transfer and minimize standing waves. A mismatch can lead to signal reflection, power loss, and reduced performance.

The shielding of the coaxial cable is also crucial for preventing external interference. The shield protects the center conductor from electromagnetic fields, reducing noise and improving signal quality. Shielding can be made of various materials, such as braided copper or aluminum.

In addition to these factors, the physical characteristics of the cable, such as its flexibility and durability, should be considered. A flexible cable can be easier to route and install, while a durable cable can withstand harsh environmental conditions.

By selecting high-quality coaxial cable that meets your specific requirements, you can optimize the performance of your HF radio setup. A well-chosen cable will help to minimize signal loss, reduce interference, and ensure reliable communication. Now let's look at grounding issues. I saved grounding for last because most beginners don't have a lot of equipment and tend to have noise issues that dominate any potential grounding issues:

### **An Introduction to Grounding**

This is just a basic glimpse into grounding and how it affects working the HF bands. It's geared towards those of you who are new to HF and setting up an HF station or operators using a minimum amount of gear.

Proper grounding is a fundamental aspect of HF (High Frequency) amateur radio setups. It provides a reference point for electrical currents, reduces noise, and helps to protect equipment from damage. A well-grounded system is essential for ensuring efficient operation and minimizing interference.

Grounding helps to prevent common-mode currents, which can circulate through the equipment and cause noise. These currents can be generated by various sources, such as power line interference or ground loops. A proper ground path provides a low-resistance return for these currents, diverting them away from sensitive components and reducing their impact.

Additionally, grounding can help to reduce electromagnetic interference (EMI) from external sources. By providing a stable reference point for electrical currents, a good ground system can minimize the susceptibility of the equipment to EMI.

Grounding is also important for safety. It provides a path for fault currents to flow safely to the ground in case of a short circuit or other electrical fault. This helps to protect equipment and reduce the risk of electrical shock.

To ensure proper grounding, it is essential to use a ground rod that is driven into the ground to a sufficient depth. The ground rod should be connected to the ground terminal on your transceiver and other equipment using a heavy-duty ground wire. For larger antennas or installations in areas with high ground resistance, a radial ground system may be necessary. This involves burying multiple wires radiating outwards from the base of the antenna.



By following these guidelines and ensuring proper grounding, ham radio operators can improve the performance of their HF setups, reduce noise, and protect their equipment from damage. A well-grounded system is a crucial component of a reliable and efficient HF radio station.

## **Grounding Your HF Ham Radio Station**

### **Importance of Grounding:**

Proper grounding is essential for the safety and performance of your HF ham radio equipment. It provides a reference point for electrical currents, reduces noise, and helps to prevent equipment damage.

### **Grounding Methods:**

1. **Three-pronged power outlet:** If your transceiver and other equipment have three-pronged power cords, ensure they are plugged into grounded outlets. These outlets provide a connection to the building's electrical ground.
2. **Ground rod:** Drive a copper or steel ground rod into the ground near your antenna. Connect a ground wire from the ground rod to the ground terminal on your equipment. The length of the ground rod should be at least 8 feet for most applications.
3. **Radial ground system:** For larger antennas, a radial ground system can be used. This involves burying multiple wires radiating outwards from the base of the antenna. The length of the wires should be approximately a quarter-wavelength of the lowest frequency you intend to use.
4. **Existing grounding system:** If your home or building has a grounding system in place, you can connect your ham radio equipment to this system. However, ensure that the grounding system is adequate and well-maintained.

### **Additional Tips:**

- **Check ground resistance:** Use a ground resistance meter to measure the resistance of your ground system. A low resistance indicates a good ground.

- **Inspect ground connections:** Regularly check the connections between your equipment and the ground for corrosion or looseness.
- **Consider a grounding block:** A grounding block can provide a centralized location for grounding multiple components in your ham radio setup.

By following these guidelines and ensuring proper grounding, you can improve the safety and performance of your HF ham radio equipment. I can't say enough about safety. It is too easy to create a dangerous situation within your station if you don't properly ground your equipment. The result of not addressing this issue can be the destruction of expensive equipment and/or worse fire and injuries. Stay safe, stay grounded!

## 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 Radio World:

**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/>

**Ham radio operators prepare for active hurricane season:** A good piece regarding the preparation amateur radio operators did for the recent devastating hurricanes.

<https://www.fox8live.com/2024/06/24/ham-radio-operators-prepare-active-hurricane-season/>

**2024 Pacificon Inspires Next Generation of Radio Amateurs:** A nice article from the ARRL about the convention and bringing amateur radio to new generations of operators.

<https://www.arrl.org/news/2024-pacificon-inspires-next-generation-of-radio-amateurs>

**Masonic Amateur Radio Club demonstrates ham radio hobby in Great Falls:** A nice piece on what all amateur radio clubs should be doing to keep amateur radio alive.

<https://www.krtv.com/news/great-falls-news/masonic-amateur-radio-club-demonstrates-ham-radio-hobby-in-great-falls>

**Amateur Radio is Put in A New Light Thanks to Brandon Radio Club:** The Brandon Radio Club is getting people interested in amateur radio by getting them on the air at their events.

<https://www.ospreyobserver.com/2024/07/amateur-radio-is-put-in-a-new-light->

[thanks-to-brandon-radio-club/](#)

**Estate Planning for Hams (What happens to all your stuff?):** This is an important topic. Brought to you by the ARRL.

<https://www.arrl.org/news/estate-planning-for-hams-what-happens-to-all-your-stuff>

**Ham radio may be more important than you think:** Addressing the importance of amateur radio.

<https://www.mystateline.com/news/ham-radio-may-be-more-important-than-you-think/>

## 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. We found one new article of interest.

**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>

**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>

## 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:

<http://www.arrl.org/news/the-k7ra-solar-update-859>

**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/>