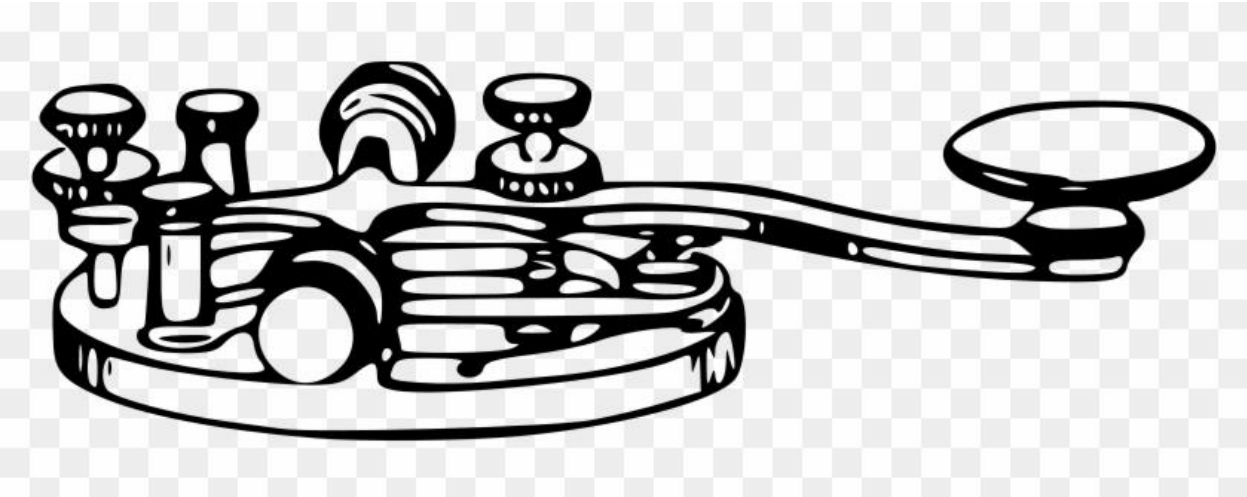
QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933 **February 2024**



When all else fails, you can count on Amateur Radio

From Our President:

Happy new year! We get a bonus this year, a whole extra day! Use it wisely. I want to thank you all for voting me back onto the board and thank my fellow board members for choosing to grant me the most powerful of positions, Radio Club President. But seriously folks…

I really want to thank Ken Brownfield AB6JR for setting a shining example for our members. Ken stepped up to serve on the board, and then to become our president. He also took over our VE program in the depths of COVID when Grant Pritchard KK6JJ became a silent key. As club president Ken was also a member of the NBAM steering committee a task he took on with his usual gusto and assembled many mesh net portable nodes. He also steered us through our first Field Day in years that we were not partnering with the Redwood Empire DX association. We all owe him a debt of gratitude.

I also want to recognize Jim Saltzgaber KM6WWY who as well as taking on the unenviable role of Club Secretary has now stepped up to be the Head of our Volunteer Examiner team. Although Ken will be a tough act to follow in that role Jim has already successfully conducted our first exam session of 2024 with great success.

I expect that 2024 will be a busy and productive year for the Marin Amateur Radio Society as we have many projects on the agenda and relatively new people taking over established areas of responsibility for those areas. We have a new grant for NBAM infrastructure and education. We are already in the planning stages for Field Day, our Public Service season will be starting soon with its kickoff meeting in the planning stage. The club house is sporting a new coat of paint, and we are planning upgrades for the club station. Those are just the big items.

I have now removed my Day glow RADIO hat and put on my green eyeshade. That is the visual cue that I am now addressing you as the Membership Chair. All memberships expired as of January First, 2024.

About 60% of you have already renewed your memberships. According to our bylaws memberships become past due on April First. In that last week of March, I will send out reminder notices for those who have not yet renewed. After the first of April I will remove delinquent members from the QSA-5 mailing list and change

the website password. If you want to verify your membership status, go W6SG.NET and choose Roster Entry under the Member menu. If your entry shows up in black text, you are current. If your entry shows up in cyan, you are not yet current. I am sure that is enough of my blather for now.

73 de wa6uds

From the Editor:

It's February, the second month pf 2024! We've done our first VE testing session with Jim Saltzgaber KM6WWY, the club's new Lead VE Examiner. Things went textbook perfectly. The Marin Amateur Radio Society has had several events to kick off the new year. The future is looking bright indeed!

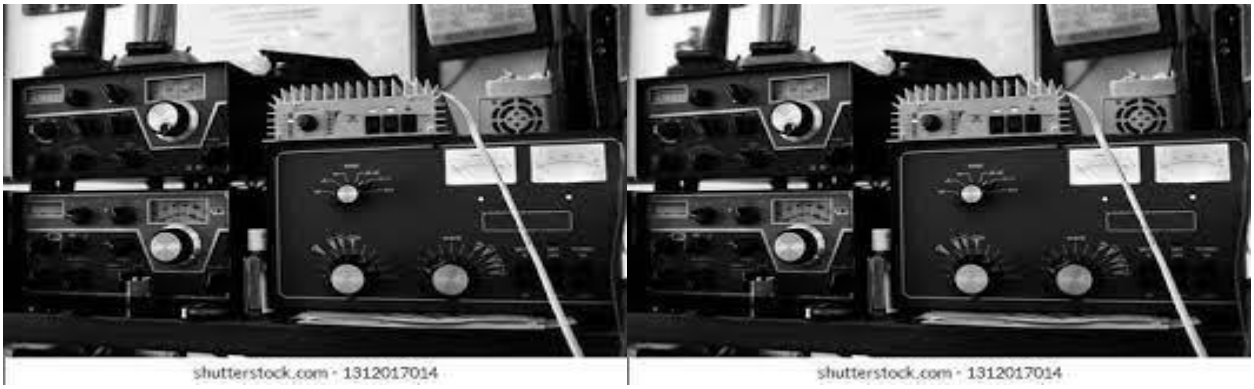
The article regarding the Quansheng UV K5 and K6 proved to be a popular topic, so we're continuing our discussion of this versatile radio this month. We'll also be reviewing other Chinese radios that are becoming popular (in upcoming issues), since club members have requested this. As always, thank you for your contributions to the QSA-5. A special thanks to Curtiss, Rob, Skip, and Michael for their contributions. I was glad to receive your emails with questions about the Quansheng radios. I have been designing and modifying firmware for these handhelds, so I know them quite well.

Technology is certainly making amateur radio interesting and dropping the cost of equipment down significantly. This is especially important for younger, newer club members who enjoy tech, and us older folks on a budget. The QSA-5 will keep members, both young and old, apprised of the ever-changing radio technologies that are available. With that said, keep sending in your ideas, suggestions, and write ups.

On a side note, if this month's edition seems a bit out of sorts, it's because our home suffered from a structural failure that forced us to leave. It was one of those things

you see on television and think “glad that’s not me.” Everything is working out now, but it’s been a hell of a ride and a test of one’s patience. At least I can justify installing a new antenna system, and there’s nothing better than setting up a new ham shack. Have a great February everyone!

QSA-5Editor@w6sg.net



New Members:

Scott Pasternak KN6ZDM – Sausalito

Carrie Marshall KN6ZYQ – Sausalito

Stuart Green KN6AQG – Ross

Paul Perez KM6VBM - San Francisco

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

Marin Amateur Radio Society – Board of Directors Meeting

11 January 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 KB6EZX

Adopt agenda: Steve Toquinto - Add item regarding Equipment previously owned by Doug Slusher KF6AKU; MSC that amended agenda be adopted.

Approve Minutes: of 14 December board meeting MSC.
Approve minutes: of 5 January Special board meeting MSC.

Secretary's Report/Communications: Following Election of Officers, CA Secretary of State records will be updated as required.
Treasurer's Report: Published in QSA-5. Bruce Bartel presented in depth report on current finances, monies spent and pending projects. Today's balance = $68,139.80. Painting completed and in progress $13,000 paid, $14,131 due, total =$27,131. Smoke/CO detectors and fire extinguishers for Apartment and Ground floor (current ground floor smoke detectors do not include CO) $218.05. MSC to reimburse Bruce Bartel for that amount. Jeff Young has inquired, and a non-profit option for Zoom account would bd $98 per year.

Club members present: Charles Benet AI6TT, Larry Bradley KK6QPE, Rob Rowlands NZ6J, Skip Fedanzo KJ6AR, Ken Brownfield AB6JR.

Committee and other Reports:

1.Membership: Curtis 47% of last year currently renewed.

2. Facilities: Skip discussion on painting fund collection and funds for building in general. Painting is going slowly due to rain. The painting contractor is doing a good job of making sure that the job is being done correctly. Rob will verify that smoke/CO detectors are installed correctly by the tenant in the upstairs apartment. Soiled ceiling tiles in the meeting hall will be replaced with ones we have stored above the NBAM locker.

3. Public Service: No volunteers have stepped up to take over the Public Service Program. Rob will be willing to stay on until reliefs are found and up to speed.

4. Technical Milt: Mt. Barnabe repeater – Marin County has agreed to assist with new antenna installation, and to provide and install new Heliax coax cable-

subject to their schedule. Plans have been submitted to the county for approval of the UHF repeater installation on the water tank at Muir Beach.

5. VOAD/RCV Skip: No new action. Planning team meeting tomorrow. RACES and RCV training on Jan 20th via Zoom ACS General Meeting Rob will be sending out login information.

6. VE Testing Jim Saltzgaber: VE session Saturday 1/13/24 There are 7 registered applicants at this point. More than 7 VE's will also be there. This will be a good opportunity for all of MARS VE's to meet in person and give input for the 2024 VE testing.

7. NBAM- Bruce Bartel: Nothing new to report currently.

8. Comm Truck: Discussion of Comm Truck, including Comm Truck committee, now technically chaired by Jim Saltzgaber, and what that will look like going forward, and whether it will be a subcommittee of the Public Service or a separate committee. There is some mention of this in the Attachment- Mars Public Service Team, Roles, Responsibilities and Duties, to be discussed in Old Business Item 4. Skip Fedanzo – is there an MOU for mandated emergency use of the comm truck by Marin County? Milt Hyams – No, the truck is not covered by an MOU nor subject to appropriation for emergency use. Comm Truck committee was originally an insurance requirement. Michael Fischer set up several people who were identified as needing to drive the van. They were authorized as drivers by the insurance company and became the de facto Comm Truck committee. We need to administratively keep a list of authorized drivers, and the maintenance handled separately. Jeff Young – recommended that we table this item. He restated that we should have a Comm Van committee separate from Public Service. Curtis Ardourel – agreed to table this discussion and he will work with Jim S. on a plan to reorganize the Comm Truck committee to a working operation.

Old Business:

1. Elect Vice President: Curtis called for any director wishing to volunteer for vice president, no board members volunteered. Bruce Bartel questioned whether the bylaws required a vice president. After discussion, it was determined that having a vice president was functionally necessary, and that there could be more than

one Vice President. Jeff Young suggested that the Secretary be 1st Vice president and the Treasurer be 2nd Vice President. Curtis asked each, and both agreed, if they were willing to assume the additional Vice President positions. It was moved by Jeff Young that Jim Saltzgaber be 1st Vice President and Bruce Bartel be 2nd Vice president. MSC by vote of hands.

2. Holiday Celebration

a. Approve payment for Catering $1671 plus any gratuity. (20% is $334) Attachment 3. Curtis noted that past practice was to include a 20% gratuity and questioned if we wished to continue. Bruce Bartel – We discussed this previously and decided that we would include that in the assumptions. Bruce moved that we have a 20% added (#334.00) and approve that he be authorized to pay the catering bill. Seconded and carried by show of hands.

b. Approve reimbursement for door prizes. $650 was approved, $927.03 spent. Ham Radio Outlet (HRO) invoice Attachment 4. Curtis discussed that authorization was received one day before the event. HRO is now located in Sacramento, and Pam Whitherspoon volunteered to pick up the merchandise there, provided that an order be placed for pick up. Selection of items “took forever”, complicated by low stock status at the Sacramento HRO, and the humbly requests that the club reimburse him for the full $927.03. Bruce Bartel corrected that the actual authorized amount was $600. He also stated that he was “flabbergasted” at the amount spent and that we absolutely must come up with a better system in the future. Curtis agreed future events need more advanced planning. Bruce moved that we reimburse Curtis Ardourel $927.03. The motion was seconded and carried by a show of hands vote.

3. Review text of motion to create separate checking account for NBAM – Curtis presented version of the motion passed in December to create a separate NBAM checking account that is appropriately worded and includes a secretary’s authenticity statement, Attachment 1. It was moved: “Be it resolved that on 11 January 2024 the board of directors of the Marin Amateur Radio Society authorizes the opening of a new business checking account at the Bank of

America branch at 663 Tamalpais Dr, Corte Madera Ca 94925. The signatories on the account shall be Bruce Bartel, Treasurer and Curtis Ardourel President." MSC Curtis will prepare a copy of the statement of resolution for Jim Saltzgaber to sign and return to him.

4. New members for Public Service Committee – Curtis – Public service is a big part of the club's work. Michael Fischer prepared a detailed document defining the operation of the Public Service program and necessary board/Public Service relationship. See attachment. Curtis has updated the ARRL contact for reporting of events. He has also made the changes noted in green in section XIV, The role of the Board. Following some discussion of the presented document, Jeff Young – recommended that we table this item and not try to rush it at 9pm at night. Jeff restated that we should have a Comm Van committee separate from Public Service, as well as the public service committee have the full backing and consensus of the board. Rob Rolands – the 2024 Public Service schedule has been agreed to with our clients, it needs board approval before being released to the membership, and he will be coming to the board with that schedule as well as a budget at the February 2024 board meeting. Curtis requested that anyone having any additional suggested changes to the document send them to him so he can distribute them to the board. Approval tabled until February meeting.

New Business:

1. Deployment of Doug's Spectrum Analyzer – Rob suggested that it be made available for use in the clubhouse with instructions on how to measure HT harmonics. Some equipment on the test rack will be rearranged. The consensus was that no motion necessary and that this was a good idea.

2. Including board member's contact info on the Board Member page of the website. Currently there is no contact information for board members listed on the club website. Curtis requested guidance from the board on this. The discussion was that it would be a good idea to list contact information, that the club roster was not easy to use for this purpose and that email pointer addresses could be set up for board members to isolate personal email identity. Larry Bradley – most organizations, including Mt Diablo Amateur Radio Club, do give board members contact information. No consensus was reached.

Adjourn: Curtis suggested that we adjourn the meeting due to the late hour and move New Business Items 3 – 7 to the February board meeting. Jim Saltzgaber moved to adjourn the meeting. Bruce Bartel requested a motion to reimburse him $218.0 for the CO/Smoke detectors. It was MSC to do so. Steve Toquinto asked about discussing Randy Jenkins. Curtis advised that that suggestion had been made to honor him at the Public Service kickoff luncheon and that would be better taken up at the February board meeting. Motion to adjourn was seconded and carried @ 21:30.

3. Bylaws update committee
4. MARS Credit Card (Zoom, Election Buddy, Mailchimp, HostGator, &c.)
5. Remembrance for Randy Jenkins KA6BQF
6. Regular, Quarterly or Monthly cleaning of the meeting room

Good of the Order
Executive Session

Next Regular Meeting 2 February 2024
Next Board Meeting 8 February 2024

Attachment 1. Statement of Resolution Establishing Separate NBAM checking Account. Be it resolved that On 11 January 2024 the board of directors of the Marin Amateur Radio Society authorizes the opening of a new business checking account at the Bank of America branch at 663 Tamalpais Dr, Corte Madera Ca 94925. The signatories on the account shall be Bruce Bartel, Treasurer and Curtis Ardourel President. I James Saltzgaber, certify that I am Secretary of the Marin Amateur Radio Club DBA Marin Amateur Radio Society PO Box 6423, San Rafael, CA 94903 organized under the laws of the state of California, Federal Tax ID 68-0010718, and that the resolution on this document is a correct copy of the resolutions adopted at a meeting of the Board of Directors of the corporation duly and properly called and held on 1/11/2024. This resolution appears in the minutes of this meeting and have not been rescinded or modified. Agents. Any Agent listed below, subject to any written limitations, is authorized to exercise the powers granted as indicated below:

Name and Title or Position Signature Date

A. James Saltzgaber – Secretary_____
_____
B. Bruce Bartel – Treasurer _____
_____

C. Curtis Ardourel – President _____
_____
Powers Granted: Agents B and C above may open or share accounts in the name of the corporation,
Endorse checks and orders for payment of money or otherwise withdraw or transfer funds on deposit with this financial institution.

Attachment2. Mars Public Service Team, Roles, Responsibilities and Duties:
The MARS Public Service team:

The MARS Public Service team:
Roles, Responsibilities and Duties
December 2023

I. Overview

Fielding a public service program that supports a dozen events each year and which involves the participation of 50+ radio operators is the principal element of the Marin Amateur Radio Society's activities. MARS' excellent reputation for high-quality communications and emergency support to events is well-known. That reputation is demonstrated by the active participation of operators from around the Bay Area. Maintaining that reputation is high on the Board of Director's list of responsibilities. The MARS Board achieves that duty by appointing skilled volunteers to manage the program, by assuring them of the support required and by providing only that limited oversight to assure themselves that the program is being managed well. The purpose of this paper is to set out the duties of the Public Service team so that the Board— and the team—understand the scope and nature of the volunteer activities necessary to continue to maintain the standards

established over the past several decades. The Board should expect a confidence-inspiring report on the program at every monthly meeting.

II. The Schedule

● Begin working on the schedule in November of the preceding year
● Meet with legacy event organizers early in their own schedule-making to minimize calendar-conflicts with Marin as well as Sonoma and San Francisco events.
● Be open to—and reach out to—other organizations that might benefit by our support.
● Take the schedule to the Board for approval in February or March.
● At this meeting, the Board should review, modify if necessary and approve The Documents (see below).
● Keep Marin County Fire Dept informed of the overall schedule early and as the season progresses; Battalion Chief Brett McTigue is the contact, though he is due for retirement in the near future.

III. The Budget

● Brought to the Board in February or March as a separate item from the schedule of proposed events. There are three separate components to the public service budget:
● The kickoff event: awards, food, door prizes, giveaways related to operating in an event.
● Expenses for equipment to be purchased by the committee: caps, vests, gold stars, banners, radios, antennas, portable repeaters, etc.
● Comm truck: This separate budget item should be presented in coordination with the separate Comm Truck committee. While the principal use of the comm truck is for supporting public service events, the Board may well have other projects and programs for the truck with equipment and maintenance expenses beyond those needed for the public service program.

IV. The Kickoff event

● This annual event, held at least several weeks prior to the first event, serves four purposes: **1)** to recognize, motivate and reward those who volunteered the previous season; **2)** to make explicit MARS' expectations (the position description and code of conduct); **3)** to recruit volunteers for all the events in the season and **4)** to provide training for the upcoming season.

● Where will it be held? Clubhouse? Stafford Lake? Marin Rod & Gun Club? Responsible for making arrangements wherever; date and location are items that might require approval by the Board.
● Speakers from two or three of the organizations to be supported (this helps to strengthen the recognition that we are part of their event team).
● Awards (gold stars).
● Door prizes.
● Handouts to all of items that will be useful in the field, e.g. clipboards as well as the caps and vests.
● Training—especially the position description and code of conduct but also prowords, emergency protocol; this part should not be pro-forma. Add in the kind of role-playing that Cooley has given the past two years.

V. The people
● Actively recruit and train new operators; use the Critical Mass mailing list and other tactics in this element of the program.
● Actively recruit experienced volunteers for each event, starting (but not ending) at the kickoff.
● Learn which operators are best with which roles.
● Learn which operators can be counted on—and not.
● Be cognizant of potential (or actual) personality conflicts as teams are assembled.
● Constant attention to recognition, praise, thanks, motivation in a variety of ways before, during and after every event.
● Be especially careful in assembling the net control teams—their comportment and competence will be the principal way that the event organizers weigh our performance. Weave less-experienced operators into NC teams as much as possible, but always carefully and mindfully. Assure that every member of the team knows "The Documents" (see below) by heart.
● A member of the Public Service team should be on every Marin net before and during the season—the Sunday morning net and the several Tuesday evening nets.

VI. The client organizations
● Meet with them in their offices if appropriate at the beginning of the season and again in the weeks before the event. Know the names of staff or volunteers on their side and ensure that they know you.

● Know their organization's mission in detail. Be familiar with their website; in conversation with them, make them aware of your firm grasp of what they are all about—build a close rapport with them.
● Invite several of their spokespersons to the kickoff.
● Be at the start-finish several hours before the start time to help them set up. Help provide parking assistance, pop-up tent erection, unload the trucks...whatever's helpful and appropriate. Again, this is about instilling confidence, and team building with the organizers—separate from the team building with our own operators.

VII. The events

● Get course maps to post on our website.
● Prepare in advance for the Thursday-before Zoom pre-briefing so that it is succinct, well-organized, gives the volunteers all the information they need and leaves them with confidence that all is well in hand.
● Fashion your draft frequency plan and duty roster well in advance and be prepared to modify it several times up to the night before the event.
● Check with the volunteer list—in the weeks and months since they signed up, their lives may well have changed.
● Request that MARS be named on their event insurance; get a copy of the insurance coverage form and give to the MARS secretary for filing. If we will be using another club's repeaters, get the same named coverage for them.
● Provide the MARS logo to the event organizer with a request that we be recognized on their website, banners, tee-shirts, etc.
● If they give recognition for in-kind contributions, ask that our name be on that list.
● Make sure the first shift at net control is there a full hour or more before start time to set up and be on the air.
● In addition to whatever reporting the event organizers wish, all operators should keep a record of the time they arrived on station; the time they were set up and ready to transmit; the time the rest stop volunteers arrived and were set up, the time the first participant arrived, the time the last participant arrived (and left) the time the rest stop volunteers departed and the time the operators closed down their station. They should also be encouraged to take photographs of their setup. Any unusual incidents should also be reported.

VIII. The Comm Truck

● The Comm truck committee will be responsible for routine maintenance, tires, tower lube, etc. But the public service team must do a final check for each event.
● In the week before an event, wash the truck.
● Fill up the fuel tank.
● Check that the radios are programmed and working.
● Make sure that the items you will need at net control are aboard: white board, popup tent, large-screen monitor, tables, chairs, paper, pencils, forms, water...
● Who will be driving the comm truck to the event? Who will return it? Who will put it away with the trash emptied, gear stowed? (Drivers must be listed on the Club's insurance!).

IX. The Radios

● Test, test, test the coverage of various repeaters as you drive or hike the course prior to making your frequency plan.
● Use as few repeaters as possible.
● If Sonoma County repeaters are required, get permission well in advance, get their named-insurance certificates.
● Assume that the comm truck's radios will fail or that it will get a flat tire on the way to the event. Make sure the first shift at net control has tables and chairs and a full radio and antenna setup to get on the air without delay.
● Do you plan to use APRS tracking for sweeps and/or SAGs? If so, make sure the equipment is available and the repeaters' coverage is sufficient.
● Similarly, if you propose to use DMR radio for any part of the comms plan, check equipment and repeater coverage.

X. The Website

● Be facile with Google docs to use for the volunteer list, the duty roster and maps to the rest stops.
● Working with the Board-designated webmaster, make sure the public service section is easy to use and inviting (it needs a major overhaul).
● Be a regular (weekly) visitor to the website to make sure information is up to date and accurate.
● Post photos and maps to assist operators to get to their locations.
● Make sure The Documents (see below) are prominently posted on the website and request that every operator check them prior to each event.

XI. The Documents

● The Board should review the following documents at the beginning of each season and make any appropriate changes. The Board should request the public service team to create a special program to assure that all operators are familiar with their provisions and agree to follow them.
● Position description.
● Code of conduct.
● Accident and emergency protocols (Public service team should ask the Marin County Fire Dept to review this each year).
● List of prowords.

XII. After-event duties

● Send an email to all operators with repeated thanks and atta-boys/gals. Describe what went well and what we will work on to make better in future. It's impossible to be too corny in expressing thanks and appreciation—that's an essential ingredient in motivating volunteers. Call out several operators who did an especially good job.
● Repeat that "thanks and appreciation" on all Sunday and Tuesday nets following an event.
● Collate/assemble the reports from the operators (see "The Event" above)
● Post photos on MARS website.
● Meet with the organizers for an after-action conversation. Give them the results of the operators' reports on the timing of each rest stop. Discuss any changes they might have in mind for next year. Give them attaboys for a job well done.
● Fill out the ARRL report for each event and send it in to Bill Hillendahl.

XIII. Staffing

Clearly, these duties (yes, 65 bullet-points) are beyond the abilities or time one volunteer leader can devote to MARS principal activity. A team of two and at the most three can do so—and has done so for the past 15+ years. The team needs to have a demonstrated combination of technical skills, management/organizational skills and people/motivational skills. It's the Board's duty to recruit, appoint and support (but not second-guess) a team with a combination of all three.

XIV. The role of the Board

Once the committee is appointed, the Board should avoid the error of second-guessing decisions of the Committee. Members of the Board are not on the committee and should not act as though they are. When the Board approves the schedule and budget, it should specifically identify items on which they wish to be consulted—for example, whether to add a new event, say, or the location of the kickoff meeting. The board should expect a progress report at each meeting but should not take that as an opportunity to counter or modify decisions made by the Committee. (Even if the Board does not agree with those decisions!) The Board, of course, may make suggestions along the way; but its role is strictly limited to selecting the members of the committee, approving their roles and responsibilities, approving the schedule and budget. Period.

Prepared by Rob Rowlands NZ6J and Michael Fischer K6MLF
December 4, 2023
Reformatted to Google Docs by Rob Rowlands
December 7, 2023

Attachment 3. Holiday Party Caterer Esther Lee Invoice

simpLee delicious
Esther Lee caterer & personal chef

December 29, 2023 - Invoice

Curtis Ardourel
MARS
27 Shell Road
Mill Valley CA 94941

Dear Curtis,

It was a pleasure to return to your Clubhouse and to provide the Christmas Luncheon again! Wishing the MARS membership a peaceful and Happy New Year!

Thank you very kindly,
Esther

MARS Christmas Luncheon
Saturday, December 16, 2023
~
Caesar Salad
Rolls & Butter
Cider Glazed Baked Ham
Herbed Roast Turkey
Stuffing and Gravy
Yukon Gold Mashed Potatoes
Candied Sweet Potatoes
Sauteed Asparagus
Pumpkin Pie, Mini Cheesecakes, and Macarons

$ 551 Food Cost / 40 Guests
720 Shopping & Food Prep / 18 hours
225 On-site Chef / 5 hours
175 Chef's Assistant / 5 hours
$ 1,671 Total Catered Luncheon
Gratuity for Deborah is at your discretion.

415 491-4707 | greatpies@comcast.net | 1020 Las Gallinas Avenue, San Rafael CA 94903
SPECIAL EVENTS | CELEBRATIONS

Attachment 4. Holiday Party HRO Invoice for Door Prizes

Will Call
Ham Radio Outlet
4813 Auburn BLVD
Sacramento, CA 95841-3603
UNITED STATES
Comments: Pickup by Pam Witherspoon N6PDW

Line	Item	Price	Quantity	Subtotal
1	**ICOM** IC-V86 2023 Holiday Last Chance Event	$129.95 -$10.00	1	$119.95
2	**EZ HANG** EZHANG 2	$79.95	1	$79.95
3	**LP** COAX CRIMP KIT	$89.95	2	$179.90
4	**DIAMOND** MR77	$37.95	2	$75.90
5	**MFJ** MFJ-1106	$69.95	2	$139.90
6	**DIAMOND** D130J	$124.95	1	$124.95
7	**MFJ** MFJ-108B	$29.95	2	$59.90
8	**MFJ** MFJ-261	$39.95	2	$79.90
				Sub Total: $860.35
				Shipping: $0.00
				Ship Method: Standard
				Tax (7.75%): $66.68
				Paid By Amer Express | **Total: $927.03**

Marin Amateur Radio Club

Balance Sheet Comparison

As of January 30, 2024

	TOTAL	
	AS OF JAN 30, 2024	AS OF JAN 30, 2023 (PY)
ASSETS		
Current Assets		
Bank Accounts		
B of A Facilities Account - 8795	5,385.61	5,899.44
B of A General account - 4328	68,566.79	12,779.24
Cash on hand		
MESH Grant (deleted)	0.00	500.00
Total Cash on hand	**0.00**	**500.00**
CD	0.00	25,000.00
Money Market	0.00	5,000.00
VE Session Cash	0.00	-87.00
VE Session Cash Received	0.00	
Total Bank Accounts	**$73,952.40**	**$49,091.68**
Other Current Assets		
Uncategorized Asset	385.00	-95.00
Total Other Current Assets	**$385.00**	**$ -95.00**
Total Current Assets	**$74,337.40**	**$48,996.68**
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	**$133,320.40**	**$107,979.68**
LIABILITIES AND EQUITY		
Liabilities		
Total Liabilities		
Equity		

Opening Balance Net Assets	124,400.00	124,900.00
Retained Earnings	9,748.91	-20,412.57
Net Income	-828.51	3,492.25
Total Equity	**$133,320.40**	**$107,979.68**
TOTAL LIABILITIES AND EQUITY	**$133,320.40**	**$107,979.68**

Marin Amateur Radio Club

Profit and Loss

January 1-30, 2024

		TOTAL
	JAN 1-30, 2024	JAN 1-30, 2023 (PY YTD)
Income		
Christmas Party Income	640.00	
Donations	200.00	1,500.00
Dues	110.00	65.00
Rent	2,600.00	2,600.00
Unapplied Cash Payment Income	385.00	
Total Income	**$3,935.00**	**$4,165.00**
GROSS PROFIT	**$3,935.00**	**$4,165.00**
Expenses		
Accounting	60.00	55.00
Awards		33.33
Christmas Party	2,968.23	
Field day		122.97
Garbage	49.50	47.84
Insurance		
Comm Van Insurance	69.25	
Total Insurance	**69.25**	
Other Business Expenses		104.93

Repeater	1,246.67	
Utilities	369.86	308.68
Total Expenses	**$4,763.51**	**$672.75**
NET OPERATING INCOME	**$ -828.51**	**$3,492.25**
NET INCOME	**$ -828.51**	**$3,492.25**

MARS Club News

Silent Key Obituaries

Gordy Fuller WB6OVH was my friend. He died on November 18, 2023- ostensibly from natural causes. He was 87 years old. He lived in Fair Oaks, down the road from Governor Gavin Newsom on the American River. Gordy and his dog Scout were favorites of the California Highway Patrol protection unit for the Governor on their long walks. His wife Cheri Fuller passed away 10 months earlier. Both Gordy and Cheri are SKs. They lived in Fair Oaks for 35 years. Gordy said that his first wife left him because his RTTY machine was noisy like a freight train in the spare bedroom.

Gordy grew up in Buffalo New York. He was adopted by extended family members. He hated snow. He served in the United States Air Force in Korea. He came back to Marin County and Mill Valley to serve on Mt. Tam watching for Russian bombers during the cold war. When he was not looking for bombers, he was playing Bluegrass music on his guitar. He liked racing his car down Mt. Tam as fast as possible much to the chagrin of local police.

Gordy spent his career working for IBM. He was a programmer and then went into sales. When he retired, he came back to his office the next day as an annuitant. He was often tasked with traveling to customers to fix their computing systems. H chatted on the IBM net on 20 Meters at 14347 kc every Saturday morning.

The QRZ webpage for Gordy WB6OVH tells his ham radio history. As a VE early on, he was General. Somehow, he had access to the Morse code tapes for the Extra 20 WPM exam. He listened to 20 WPM tapes driving to work from Mill Valley to San Francisco and got his Extra license. Gordy had a DXCC, thousands of QSL cards, had worked satellite and the ISS. He was proud having worked the ISS, in traffic, at a red light on his HT. He hated FT8 saying that ham radio is about talking to people. He used an ICOM 7300 for HF and an ICOM 7100 for D-STAR. He

enjoyed PSK-31.He got me to spend $650 for an ICOM 52-A and $350 for a Shark RF hot spot just so that we could chat on D-STAR. Gordy was the leading VE in the United States for many years. He thought that the online testing for ham radio licenses during the pandemic was corrupt and shameful.

We met originally on a HF net hosted by Alan Best SK at 3915 kc. We moved to 3692 kc due to QRM and then to the video chat on open source video chat JITSI. His lifelong friend Rich Carbine W6UDS would chat with us. Rich and Gordy had been friends for over 50 years. The attached pictures are from Rich's wife and photographer Marilyn Bagshaw. They loved traveling together to the Bluegrass festival, Half Moon Bay and north up the coast to Pt Reyes.

A favorite story between Rich and Gordon was when Gordy had a VW Bus and his VHF radio wouldn't work. That's when they discovered that the radio was 12 volts and the VW had a 6 volt battery. Gordon got ridiculed at MARC and received a Mu Alpha Ro Ki (MARK) award. If anybody knows what that means, please send an email to me.

Both Gordy and Rich tell tall tales about the nasty FCC examiner on Battery Street in San Francicso in the 60s and 70s. They feared him when they went to test for their licenses and upgrades and described him as an evil troll.

Gordy was encouraging to my son Glen who is 12 and our foster kids on JITSI. They all liked seeing the smart man on the video chat. Gordy told Glen repeatedly to become an electrical engineer. I was going to send him some historic IBM machine punch cards from Ebay and he said not to worry and immediately showed Rich and I a handful of his old cards. He told Glen many fun stories about machine punch cards.

We found out from the Sacramento Sheriff's Department that Gordy had died after he no longer showed up for our QSOs. We had hoped he was on a trip. We can only guess that his beloved dog Scout was with him when he died.

Gordon was President of MARC (before MARS) in 1984.

He is sorely missed. David Chaney AA6AE, Rich Carbine W6UDS, Marilyn Bagshaw N6VAW

Gordy in his shack on video chat.

Gordy and Cheri Fuller

https://marilynbagshaw.smugmug.com/REMEMBERING-GORDY-FULLER

Gordy Fuller and Rich Carbine

https://marilynbagshaw.smugmug.com/REMEMBERING-GORDY-FULLER

Randy Jenkins KA6BQF became a silent key on December 30, 2023. He was a Ham's Ham. Although I joined the Amateur Communications Society in the early 70s I did not meet Randy until the early 2000s when I returned from the east coast and rejoined the Marin Amateur Radio Society. I really got to know Randy when I joined the board in 2010, and as it turned out replaced him as club president. In 2011 Randy returned to the board as club secretary. Although that was his title he was my mentor (elmer) and rock on the board. He was a man possessed of many assets. Not the least of which was kindness and a way of quietly helping others be better than who they were before knowing him. He was our parliamentarian and the repository of club history and lore. Two jobs that I now have in pale imitation of him. Randy and Dave Hodgson KG6TCJ ran our license training program and I know that there are many of you reading this who were helped in getting licensed by these two. Randy was named Ham of the Year in 2015 was given the Hi Roberts Award in 2016, and awarded Life Membership by his fellow members in 2017. At the time our Public Service team was managed

by Randy and he mentored Michale Fischer K6MLF into that position and making MARS an example to other clubs of how to do public service events. In evidence of this I quote Michael from an email he sent to Rita Brenden KG6WPN, Randy's life partner.
How many times over the years did we meet in the pre-dawn darkness, reflective vests helping to spot each other? How many hours did we sit in your and Randy's motor home, running a serious net control or just chatting while eating pizza or doughnuts?

How often did we puzzle together over how to solve a problem out on the course?

I'll never forget the hours Randy spent with me, each Sunday morning a new chapter, as I was preparing for my Extra exam. Well, maybe not a new chapter every week if Randy felt that I needed to spend another week on the previous chapter...

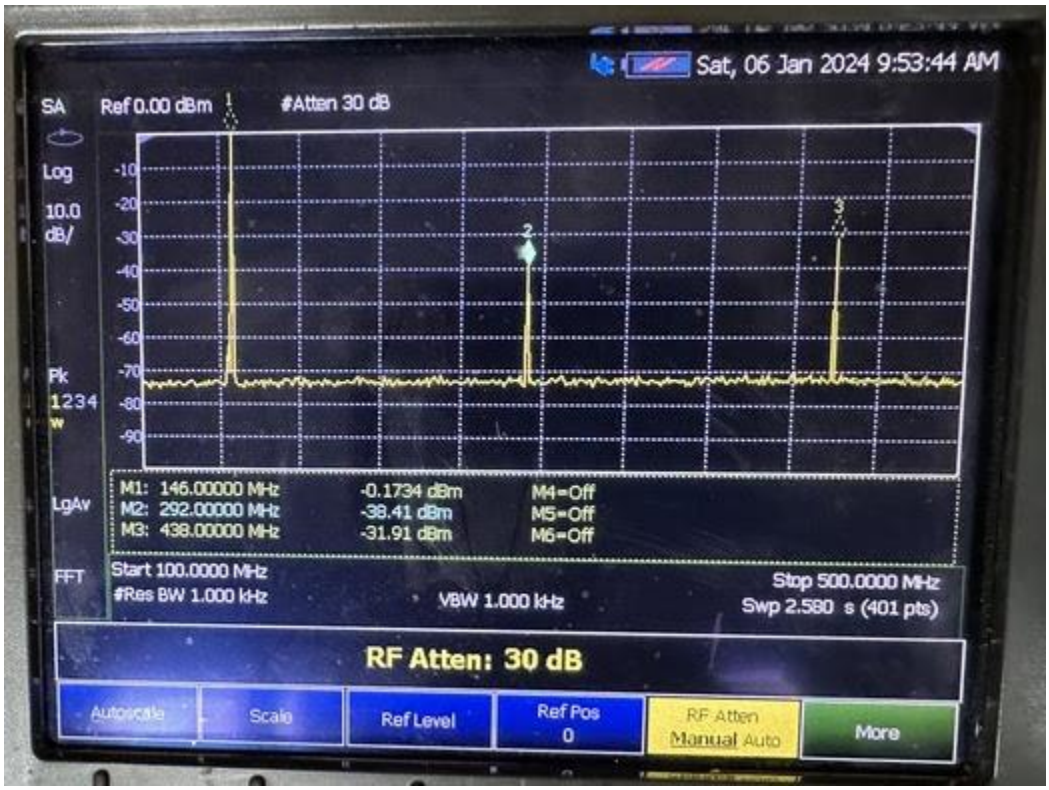
I treasure those memories and still look up to him.

You, Rita, are also to be treasured and honored for your support and partnership in the happy times and the incredibly tough times. I look up to you, as well.

In my role as president I have had to deal with our club's legal issues, and learned that he was instrumental in writing our bylaws. In setting up our Non Profit Status, in the merger between the Marin Amateur Radio Club and the Amateur Communication Society that created our Marin Amateur Radio Society. Every time I dig into something about the club's history I find evidence of his wisdom and forethought. I am brought to bludgeon the Issac Newton quotation, If I have done any good for our club it is by standing upon the shoulders of giants. Randy was certainly one of those giants. I had to pause for a moment because my screen became blurry through my tears. He was my friend, and I miss him deeply.
I know that many of you have not had the chance to meet Randy, this is because he suffered for the last few years from a neurological disorder that deprived him of speech. This forced him to withdraw from our club activities as well as from the East Bay Amateur Radio Club of which we both were members. You missed out on a really wonderful person.

Our public service team is planning a remembrance of Randy at the April 6th Public Service Kickoff so please attend if you would like to make remarks about Randy.
73 and Fine Business Old Man de wa6uds

How Noisy is Your Radio?



There has been a lot of chatter about harmonics produced by low priced handhelds are. Rob Rowlands NZ6J and Tom Jordan KG6TCM are setting up a database of various models performance.

MARS has recently acquired a spectrum analyzer that we can use to test your radio, and add its information to our database.

On Sunday 28 January, 2024, there was a meeting at the clubhouse at 10 am to test radio belonging to club members. Next month, we'll report on the event.

Here's link to the document used at this event:

https://docs.google.com/document/d/1-hMyg5w6s1XuJ7OlOOz-K62L8NMG_S9lnTaUsAwvJpM/edit

RCV News

In time of disaster, amateur radio operators are often the only form of real communication when cellphones and the internet are down. Across the Country and the globe, small groups of dedicated ham operators prepare for the moment disaster strikes. Here in Marin County, we have the RCV, led by Skip Fedanzo KJ6ARL. The QSA-5 will continue to cover this crucial part of amateur radio. We highly suggest that our newer members become involved with the RCV. It's a great way to gain radio skills.

Monthly RCV Meeting

The monthly RCV Operators meeting was held on Monday January 29th at 1730. Here is the agenda for that meeting, which was held on Zoom:

Primary Agenda items were:

1. Welcome to 2024.
2. Scenario exercise: Why, when and how to use ACS-201
a. Please read the scenario BEFORE the meeting.
3. Field tests and exercises:

a. Test communications on 2/10 between Canal Alliance's new facility and its operational building(s) in San Rafael;
b. March 8 th Workshop with CBOs. Details to follow.
c. West Marin's new UHF repeater at Muir Beach will be tested in March as part of larger coastal simplex & repeater exercise;
d. Deployment shuffle – use your copy of the CBO Profiles document.
4. Other topics?

Next meeting is February 26th on Zoom. Agenda, relevant documents and Zoom login
to follow.

The RCV is in place to provide much needed communication during disasters and other emergency events. The following is a training scenario introduced this month:

ACS – 201 Scenario

This is a short scenario about a fictitious earthquake in the San Francisco Bay Area. It is for practice in the ACS-201 form training session. Use it to provide information to fill out each section of the form-either while the training is occurring or beforehand. We will get four or five volunteers to read out a section or two to simulate sending a report via radio to the EOC net control station. Keep it short, simple and use your imagination if something is not provided!

Scenario: You: are 24 hours – post 8.2 magnitude earthquake in the SF Bay Area. Aftershocks continue- some significant. While some daily routine is possible, there is severe damage to roads, highways, overpasses/bridges, utility (gas, electricity, water, sewer) infrastructure, communications (public safety, cellular, amateur radio, private, AM/FM/television, internet), and rail. There is widespread structural damage to residential and commercial buildings including those providing critical support to the public (fire stations, police stations, shelters, NGOs, hospitals, etc). Weather is what you currently see outside along with what is forecasted.

Yes, it is a bad day here in the SF Bay Area…

You: are assigned to an RCV station at Homeward Bound in Novato tomorrow morning at 0800 hrs. Location is 1399 North Hamilton Parkway across from the Marriott Courtyard (both still operational). Coming in, you note a slight smell of natural gas back on Nave Drive near the Safeway store.

You are able to access and set up on site. A "Homeward" staff member reports significant damage to its housing and shelter facility that is no longer safe to inhabit, no water other than what is in storage, and they are on generator power. There are no injuries/fatalities to the 30 clients and 8 staff present. LaSaunda Tate, Homeward Operations, is on site but not seen yet. Clients are sheltered in the Key Room (dining area) currently but are considering re-location options (Marriott?). There is enough food and water to last until tomorrow morning and diesel for the generator will be exhausted by evening. Refuse/waste is beginning to accumulate. The entry driveway is cracked but passable. Needs: diesel fuel, cots, blankets, food/MREs or items that can be prepared in commercial kitchen facility, water, heating, dumpster/portable toilets/handwashing facilities……etc!

You: It is 0800 and you are on scene….prepare and transmit an ACS-201 to Marin EOC via the only operating repeater, 447.175 MHz, Big Rock input.

RCV Initial Status Report
Form ACS-201

This form provides situational awareness of the organization's operations to the EOC. This form must be completed and reported to RCV's Net Control Station by the first RCV Operator to arrive at an assigned location *each day*.

Complete before contacting staff or other on-site persons!

Item	Questions	Answers (print)
1	**Date & Time**	
2	**Location/Address**	
3	**Tactical Callsign**	

4	**Conditions:** What is seen including safety concerns (e.g. crowds, hazards, resources, roadways, weather); indicate if there are no changes since last report	
5	**Operations/Actions:** What has and is taking place (what services is the CBO providing today: feeding, loading supplies, sheltering, other)	
6	**Needs:** what resources are requested (includes EMS, fire, law, public works, transportation)?	
7	**Your FCC Callsign**	

Reported to ACS NCS by callsign: _____ Date: _____ Time: _____hrs.

Keep a copy of this document for your records

ACS-201 Initial Status Report Form
(15 Minutes)

1

Purpose:
To orient, explain the background, significance, and completion of all sections the ACS-201
Initial Status Report form to ACS/RCV amateur radio communication operators for use during
training and actual emergency events.
Preparation:
1. Who I am

2. Obtain 5 volunteers for end of class simulated report to EOC-from scenario
a. Did everyone get the form and scenario (read it) ahead of time?
3. Read scenario-so you can think about it while we are talking about the form
4. Questions as we go
Presentation:
Show the ACS-2-1 in Screen Share and review instructions & sections

1. ACS-201 Form is designed to enable an initial “report on conditions” to the EOC or can
be used to brief the next shift
a. 7 sections: review
b. Notice it states to complete BEFORE contact with on scene staff!

Show PowerPoint on Screen Share

i. May contain initial impressions, approximations
ii. A tool to organize your thoughts (and can do the same when you
interview staff later for a ICS-213 order)

c. It is designed for the operator and the EOC to provide that initial snap shot of the scene
d. It builds Situational Awareness…what is that? Use your senses!
i. SA begins before arrival-know your own capabilities, limitations,
equipment, training…then the incident.

e. Contains a powerful tool: Phoenix FD “CAN” report: Conditions-Actions-Needs
i. What you have/see, what you/CBO is doing, what you/CBO needs to do
what they are doing now or in the expected future
ii. Actions follow from identified conditions. Needs fill the gap between
current/future actions and what is needed to carry them out.
iii. Can be used with LESS specificity upon arrival-especially “first in”
iv. More specificity when dialoging with staff later to create a
resource request on an ICS-213

ACS-201 Initial Status Report Form
(15 Minutes)

2
v. Complete Example for ACS-201: “C: Shelter building collapsed; possible gas odor in area; facility on generator power and potable water tank; appx. 30 clients and 5 staff; expect out of food/water in 24 hours A: Moving clients to dining area for shelter and feeding N: Request PG&E gas for gas odor on Hamilton Parkway at Nave Dr; expect food/water/diesel fuel/cots & blankets requests in 2 hours.

f. Overall Advice: remember to be concise, use short/small words, and speak in a calm slow cadence to allow other station to copy information.
i. Avoid long explanations, phonetics, pro-words, “I spell,” superfluous phrases (“at this time”), unless asked for clarification

2. Date/Time; Location/Address; Tactical Callsign
a. Date/Time
i. Correct date/time-important for expected need/arrival of personnel, logistical supplies, etc.
ii. Military format for time: 1200 is lunchtime, 0000 is midnight, etc….Questions on this?

b. Location/Address
i. Numerical address, intersection. Avoid GPS coordinates unless requested (ex: used for locating helispots/LZ, remote locations)
ii. If operating from a different location than CBO address, report remote location/reason to EOC as important for incoming operators at next shift

c. Tactical Callsign

Show approved callsign on screen share

i. Display Tactical Callsign list as Screen Share
ii. If new location, agree on one identifier with EOC-short, one/two words

3. Conditions
a. Short, concise-remember, someone is copying this information at the EOC!
b. What you have, what you’re doing, what you need to complete your objectives
c. List actual/potential life threats to the CBO and threats to the general public

safety first, then major issues that disrupt the primary CBO mission-hit the notable high points only…pick and choose
d. Considerations: Is the CBO open and operating; significant hazards, access problems, notable damage, status of utilities, unfilled life-critical requests, number of personnel and clients at site; new hazards versus no changes from last report.
i. Can pertain to the CBO or you/your operating position
ii. Example:

ACS-201 Initial Status Report Form
(15 Minutes)

3
1. “Site appears evacuated and closed but odor of possible gas in area.”
2. “30 clients/staff at sheltering/feeding at facility; on generator power, no water”

4. Actions/Operations
a. Again, keep short, specific, time-based operations
b. Think about the acronym for creating objectives: “SMART-S” rule- Specific-Measurable-Achievable-Relevant-Time Oriented-Short and Concise”.
i. Useful for describing actions and needs.
ii. We are not creating objectives BUT: specific as possible; relevant to the CBO operations; concise-bullet points; time oriented when indicated
iii. Use action words, verbs
c. CBO actions/operation words (What this section is really about): sheltering, feeding, sending logistical supplies to other CBOs, evacuating, etc.
d. ALSO: Operator’s relevant actions/operation can be noted: moving operating location, meeting with staff in 30 minutes, coordinating, etc.
i. Example:
1. “Evacuating unstable housing shelter and moving clients to dining area”

5. Needs
a. SMART-S again!
b. Needs are typically relevant to the gap between Conditions and Operations

c. Life safety items listed in first priority
d. The full CBO logistical needs list can be communicated later on in an ICS-213 Message Form.
e. Be specific as to number, type/kind, requested date/time, response/reporting location if different from address of CBO, person to report to. Be careful about "need tomorrow." When is tomorrow-it depends on when someone reads the request…be specific; use a date whenever possible.
i. Ex:
1. "Need 20 yard dumpster to control waste and refuse this afternoon"
2. "Need immediate response from water department to control broken water main collapsing Hamilton Parkway access road"
3. "Need immediate security presence to control ongoing looting of shelter supplies"

f. Do not wait to Section "7" on this form to request emergency response. List at the beginning of radio traffic by stating "Emergency Traffic," nature of emergency, and requested resources.

ACS-201 Initial Status Report Form
(15 Minutes)

4

6. FCC Callsign
a. At the end of a communication session between entities
b. Every 10 minutes (such as during net control operations using tactical callsigns)
c. Footer also has a location to callsign/time/date when transmitted (sent)

7. Do not forget to log that this form and report were completed on the ICS 214 (Activity
Log) and transmitted/received on the ICS 309 (Communications Log).
a. Legal documentation: if its not documented, you did not do it!
b. Tool for post-incident analysis, AARs, etc
c. Reimbursement/Finance Section tool

Practical Exercise:

a. Extra time for students who will share to fill out their section of the ACS-201
b. EOC NCS to record on ACS 201 as “transmitted by each section
c. Other students in class to record and follow along
d. General discussion on exercise (AAR)

ACS/RACES Meeting Agenda

A presentation was given on January 20, 2024. This presentation was given to help ensure all RACES and RCV members have the same basic skills. RCV members were encouraged to join this meeting. Here is the meeting’s agenda:

Agenda – ACS-RACES Leadership Meeting

11:00 AM, 20 January 2024

11:00 Review Agenda
11:03 CRO report K6RGI
11:06 RCV report KJ6ARL
11:09 EOC radio room status –KM6ASI/KJ6ARL
11:10 Meeting with OEM for 1/31 K6RGI/KJ6ARL
11:20 Proposed Marin ACS Organization Structure K6RGI/KJ6ARL
-11:35 Repeater updates – K6NQZ/KM6ASI
> Muir Beach Water Tank status
11:40 Non-profit financial report
11:50 Once around the table
11:55 Action Items
12:00 Adjourn

Next meeting 17 February 2024

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.

North Bay Critical Mass Report

The monthly North Bay Critical Mass was held at the Jury Parking Lot, Marin Civic Center (January 21st, 2024, 10 – 12:00pm). The event started with practicing the phonetic alphabet. Then, the group checked in with Steve KB6HOH for the Sunday morning net on the simul-cast repeater system using our HTs. The primary topic: talking about digital modes of radio, DMR, D-Star, System Fusion, etc. The group also discussed the use of hotspots as used with digital radios like openSPOT, MMDVMs such as pi-star devices and DVMEGA. Here's a report from Michael Fischer K6MLF:

Thanks to all 18 of you who braved the winter weather today to participate in our two-part session! Here are some photos--John Woodworth KM6AHT was also taking photos and promised to send some of them along to us.

James Renney KI6RGP went in depth about the use of DMR radio via a variety of hotspots--and, yes, he reminded us that there are two different hotspots that might be involved: The telephone hotspot to use whenever one is not near a Wi-Fi connection and the DMR hotspot that is the bridge between radio and the internet whenever a DMR repeater is not accessible. Or, as Doug K6DRK pointed out, use 'em both in tandem in your car.

Then Rob Rowlands NZ6J rolled out the new MARS spectrum analyzer to help us all measure the spurious emissions of our HTs. As long as the second and third harmonics are at or above -45db, your radio is within the FCC requirements. Whattaya know: my Baofeng GT3-TP had -65 db on both the second and third harmonics, so great score. Several other inexpensive Baofengs scored dismally--one with the second harmonic as strong as the primary transmitting frequency!

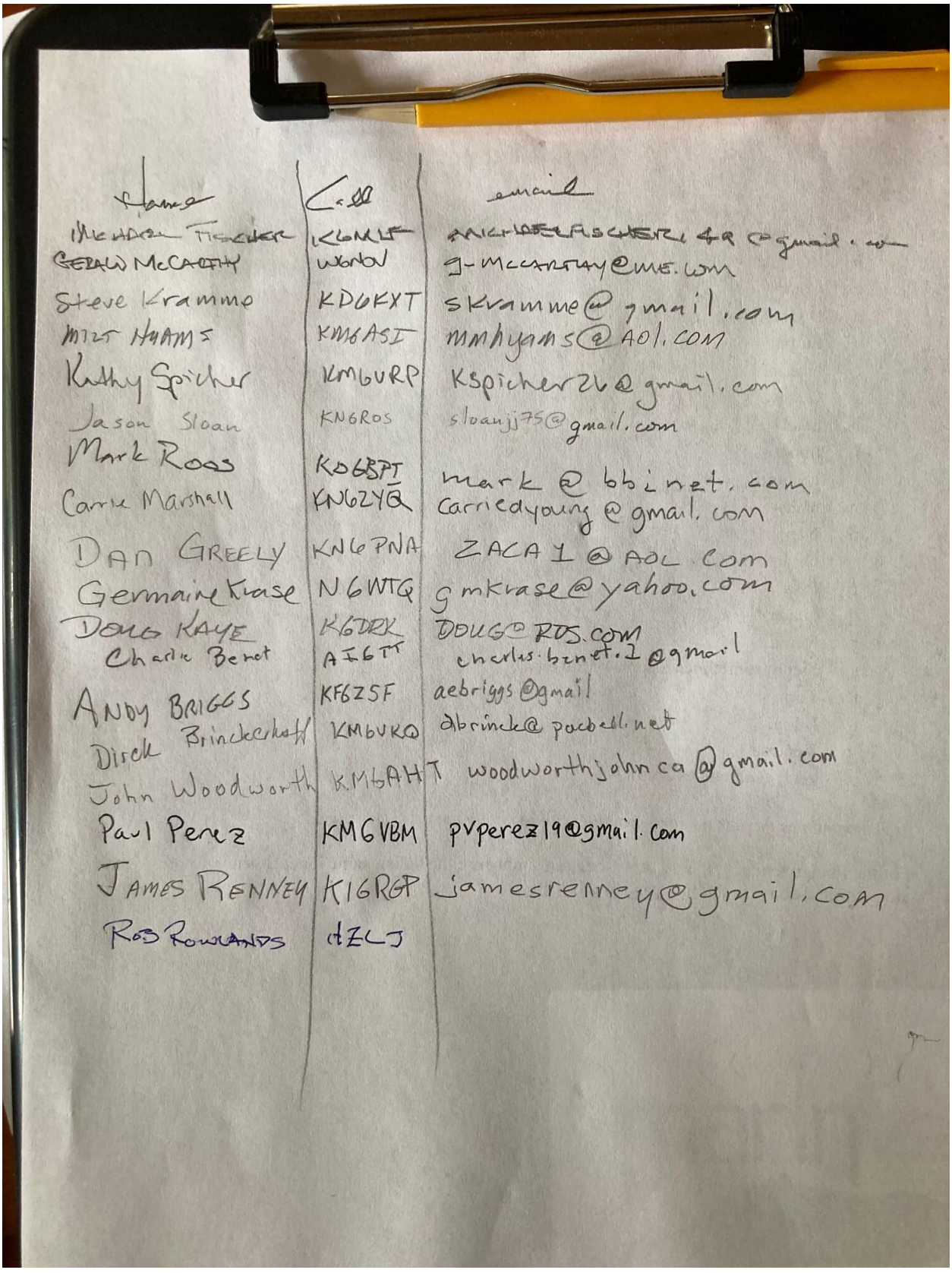
Here's the GT3-TP on Amazon:

https://www.amazon.com/Baofeng-GT-3TP-Mark-III-Handheld-Transceiver/dp/B07MT1S7KQ/ref=sr_1_1?crid=29BT5LLIVOIIC&dib=eyJ2IjoiMSJ9.UJMst3EJgkpcQcRWCJPNVxXjVFLl8A4wHHhFdla6Br-RShyCvlsP0VINqvk5jjYhPHz3OlHmHNwhDOqUg7wyRR5AagcBqUTaJ8kVQUnRg0N8DD8JBNBZ-EtPQWmHYL-1GSphzC8w_x7MPrcAIywW6kv6jjN_vjB0ycpsMb69Ds2VLgBBiKxF4MfhQ266wnWEJsEmeVK46uw6kRxy3Vyfx_irWLQXjoD8ziN_OJYXrI.h9jKvvWFqqIKwNqkOnk0vTI07MlEoyEhOnliWEGcNjY&dib_tag=se&keywords=gt-3tp%2Bmark%2Biii&qid=1705874221&sprefix=GT-3TP%2B%2Caps%2C199&sr=8-1&th=1

It's my everyday radio and for $26??!!

See you all next month--hopefully better weather! Next month's meeting will be on the FOURTH Sunday to avoid the President's Day weekend. Milt has the hosting duty.

And so long for a while to Gerald McCarthy W6NOV who is taking off on a three-month voyage on the Great Circle motorhome tour, counterclockwise around the country. As the Navajo say, Gerald, may you walk in beauty.



Name	Call	email
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GERALD McCARTHY	W6RDV	G-MCCARTHY@ME.COM
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ROS ROWLANDS	dZLJ	


marin

VE Examination News

The Marin Amateur Radio Society's VE Program is an extremely important component of amateur radio. The national program MARS is a part of allows member radio clubs to administer licensing tests on behalf of the FCC. What this means to people getting into ham radio is that there are more test locations and a more flexible schedule for taking the license exam. Ken Brown will be stepping

down as Lead VE. Thank you, Ken, for your service and especially for teaching me how to be a Volunteer Examiner. Jim Saltzgaber, KM6WWY, has replaced Ken as Lead VE, effective at the end of the Board meeting. Here's a letter of thanks from Jim for all of those who came out for our January 2024 testing session:

Hi all,

I want to give each of you a big thank you for participating in Saturday's VE session. I greatly appreciate all your support as I embark on a new role as Lead VE examiner. I know we had an overload of VE's, but I think that it was a good way to start the new year with nearly the full complement of MARS's of VE's face to face. I know that at least a couple of you had never before met in person. For future sessions I will only need 5 or 6 of you, but I hope I receive the same enthusiasm for each session. Those of you who were unable to attend, thank you for your response, and you were missed.

I am pleased to report that the two who upgraded from Tech to General already have their upgrade in the FCC database.

Sincerely,

Jim Saltzgaber, KM6WWY

The first scheduled testing session took place on January 13th, 2024. We had a full complement of Volunteer Examiners to assist Jim Saltzgaber, KM6WWY on his first session as Lead VE. Here's a report from Curtiss Kim who is one of the volunteer examiners:

Jan 2024 VE Testing

The need for licensed amateur radio operators is greater than ever. Amid the chaos and lack of phone service both landline and cellular during a major disaster or emergency it falls to the amateur radio operator to help keep those lines of communication open. Storm damaged southwest and central US, Lahaina, Maui and western Japan are recent examples. To that end, the Marin Amateur Radio

Society held its first license testing and certification for 2024 on January 13. Seven hopefuls turned out in the rainy weather to either obtain their first license or upgrade their present one. Five hopefuls took the Technician test with two others going for an upgrade to General. All but one going for Technician was successful. According to Jim Saltzgaber, KM6WWY, who is now in charge of conducting the testing, he was encouraged by the response from the club's Volunteer Examiners. Nine VE's turned out to help conduct the exams and keep track of the

necessary paperwork involved. Applicants came from as far away as Cobb Mountain in Lake County, Mt. View and Daly City in the rain to take the tests. Testing was done at the MARS clubhouse in Mill Valley. Saltzgaber says they will offer testing on a regular basis throughout the year as part of the club's commitment to ensure licensed operators are available.



40th Kaiser Half Marathon - Feb 4th, 2024 - Call for volunteers!

From Michael Fischer K6MLF: Here's an excellent opportunity to practice your radio skills and put them to good use. The radio team for this annual event is being organized by Dr. Antonis Papatsaras AA6PP (our new ARRL Northern Section Representative): http://www.arrl.org/groups/view/san-francisco Just scroll down and click the blue button! Yes, radio comms will be on DMR—but if you don't have a DMR radio, one will be set up and loaned to you for the event.

The Marin Amateur Radio Society's public service season will start with its kickoff lunch on April 6th, with the first event (Ridge to Bridge hike) the following weekend: April 14.

Please put the dates on your calendars!

Call for ham radio support of the Oakland Marathon Sunday, March 17

From Mike Pompa KB6MP: This year's courses are simplified with a new route that puts full marathon runners on the Bay Bridge to Yerba Buena and back. Some streets will open up earlier, especially around the east side of Lake Merritt.

I've been organizing this for the past 12 years and the documentation keeps improving. The event runs from 7 AM to 2 PM. I split some longer assignments into two 4-hour shifts, for those who can arrive later or need to leave early. The signup form has a list of possible assignments you can ask for. I don't yet know if the Saturday Kid's Run needs our support, but included that option on the form:

https://www.ww6or.com/oakland-marathon-signup

HT Testing

There's been a lot of discussion about the signal quality of HT radios over the last few years, especially the cheap ones. Rob Rowlands has done some great testing. Here are the results of his testing (from Rob directly):

We are all aware that cheap radios often transmit where they shouldn't! The Baofeng range is ubiquitous, so I thought I'd try to nail down some metrics. See my results so far at:

https://docs.google.com/spreadsheets/d/1VoB2klv9XVDHndEcV6oIU1NbG3T55xt79NRgCy4kn8M/edit

Here's how the worst performer looked on the SA:

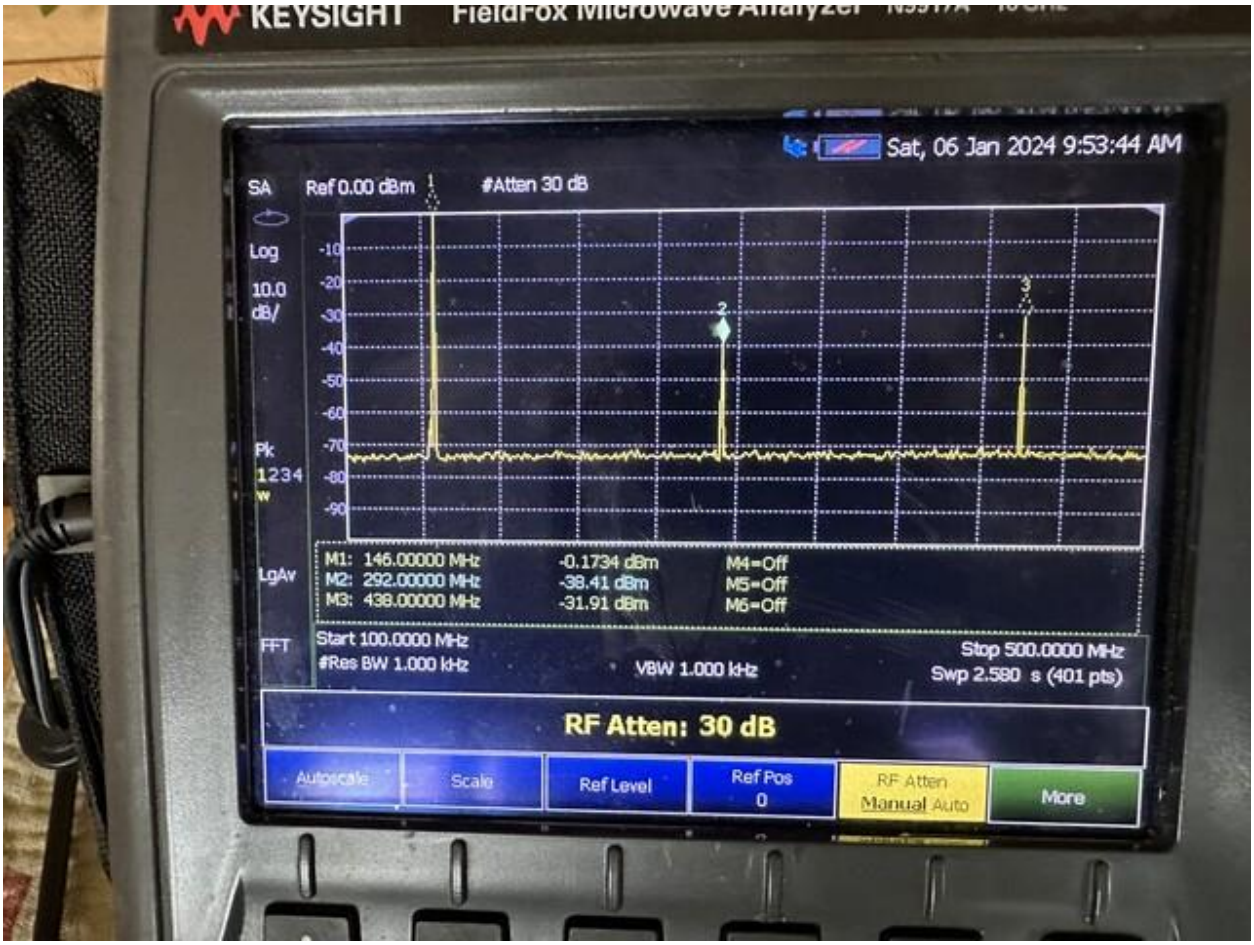
2 metre HT Harmonic Testing		**22 Jan 2024**			
These measurements were made by directly connecting the radios to the Siglent Spectrum Analyzer through a 40dB attenuator					

All radios set for nominal full power at c.146MHz, ie about +37dBm for 5W. Most don't do exactly 5W so after cabling the power at the SA is about 0dBm.					
The SA was set with 30dB attenuation to avoid overloading					
all measurements are in dBm into 50ohms					
See https://docs.google.com/document/d/1-hMyg5w6s1XuJ7OlOOz-K62L8NMG_S9lnTaUsAwvJpM/edit?usp=sharing for methodology					
Apart from 2 UV-5R I only tested one of each type. Hopefully we can develop a database of multiple units					
Radio	**Fundamental**	**2ndHarmonic 292MHz**	**3rd Harmonic 438 MHz**		**Tested by**
Quansheng UVK5	-0.01	-44.40	-45.87		
Quansheng UVK6	-0.10	-49.61	-66.65		
Radiooddity GS5B	-0.31	-36.49	**-30.67**	**failed**	
Baofeng UV-5RX3	-7.06	-14.30	-53.44	Failed 2f!	KN6ROS
Baofeng GT-5R	-0.46	-53.21	-70.39		
Baofeng UV-5R Black	-0.17	-38.41	**-31.91**	**failed**	
Baofeng UV-5R Red	0.70	-43.68	-45.22		
Baofeng UV-5R KN6PNA	-1.00	-49.61	***-66.65***	***spectacular!***	**KN6PNA**
Yaesu VX-8G	-0.34	-52.68	-69.55		
Yaesu FT2D	-0.05	-50.94	-72.39		
TYT MD2017 in FM mode	-8.20	-73.81	-76.75		
XPK75503 Moto					Owner
Yea FT5D	3	-62	-63		KI6RPG
Yea Vx7R	2.9	-62	-64		KI6RGP
CO06D	-23	-29	6		KI6RGP
QS UVK5	-14	-62	N/A		AB6JR
Yea FT65	-2	-64	-64		KC1DYF
Yea FT6R	5	-69	-45		KI6UOC

Yea FT6R (2)	6.09	-64	-55		Ki6UOC
TYY MD UV390	8.63	-54	-47		K6SHO
BAO UV5A	6.56	-42.8	-41.8		KI6UOC
Yaesu VX8	6.3	-62	-59		AI6SX
Baofeng MD1701	5.6	-42	-22		AI6SX
Baofeng MD1701 low	1.6	-40	-31		
BuaBf8HP	7	-54	-52		Connie
Anytone 878	3	-70	66		N6HLZ
Icom 7100	1	-65	-68		
Yea FT60					Owner
Ken	3.6	-47	-61		K06BPI
Alinco MD5	6.1	-62	-59		Ai6SX
Hes DM1701					AI6SX
Yea FT60	6.5	-61	-68		N6WTQ
Woux KG-Ud3D	7	-51	-51		K6SHO
ICOM T70A	6.6	-62	-56		KJ6ARL
ANYTONE 878	8.5	-59	-45		N6VLB
QUN K6	5	-45	-48		N6VLB
QUN K5	5.6	-44	-44		N6VLB
BFHPB	-7.95	-39	-37		N6VLB
BAO UV5R8W	6.57+	-50	-60		K06CXM
BAO UV5R8W	-6.8	-61	-59		KO6CXM
Discussion					
Clearly the Baofeng UV-5R is pretty good at transmitting on 440 as well as 2m!					Connie
Note the big variation between the same model. A recently purchased unit has very low thrird harmonic					
The Baofeng GT-5R was their response to FCC complaints - impressive					

Both Yaesu radios were excellent					
Direct connection doesn't account for antenna effects. But given most HT antennas are dual band they should radiate the thrird harmonic					
The FCC part 97.307 requirement for 30-225MHz transmitters below 25W is that all harmonics and spurs be 40dB or more below the fundamental.					
440/70cm Harmonic Testing					
Radio	**Fundamental**	**2ndHarmonic 880MHz**	**3rd Harmonic 1320 MHz**		**Tested by**
Quansheng UVK5					
Quansheng UVK6					
Radiooddity GS5B					
Baofeng UV-5RX3					
Baofeng GT-5R					
Baofeng UV-5R Black					
Baofeng UV-5R Red					
Baofeng UV-5R KN6PNA					
Yaesu VX-8G					
Yaesu FT2D					
TYT MD2017 in FM mode					
Discussion					
The FCC 97.307 requirements for UHF are nor clear					

Here’s photograph of a test done on a Baofeng HTL



How to Test your HT Signal

This comes to us from Rob Rowlands, who did an excellent job with the above report and this how tom guide for testing harmonics.

How to test harmonics and spurs from HTs

This process uses direct connections between the HT and the spectrum analyzer. This isolates the test from RF interference but removes any filtering an antenna might provide.

Cautions;

- The output of the HT must be attenuated to avoid damaging the SA

- Further care must be taken to avoid overload which can itself create apparent harmonics

Signal levels

- A typical HT output of 5 watts translates to +37dBm into 50 ohms
- The signal level at the SA needs to be reduced to below 0 dBm, using an attenuator. Any less and harmonics and spurs will be lost in the SA noise level. Any more and distortion in the SA may create harmonics that aren't coming from the HT.
- A 10W 40dB attenuator is heat shrink wrapped to the input of the Siglent analyzer to protect its input.

SA setup

- Chose a sweep range of 100-500MHz for 2m, 300-1500MHz for 440
- Set bandwidth to 1kHz - more increases the noise floor, less slows the measurement
- Set input attenuation to 30dB. This minimizes overload.
- Set markers to 146, 292 and 438MHz for 2m, 440, 880 and 1320MHz for 440
- Turn on marker table on the SA

HT setup

- Choose a fundamental frequency in VFO mode 146 or 440MHz
- Turn offset off
- If you're using a DMR radio change to FM as the discontinuous signal isn't suitable for measurement
- Double check attenuators are in line to avoid a costly mistake!
- Push PTT and observe. Save screen to a thumb drive or take a photo
- If harmonics are in the noise, reduce the SA attenuation carefully.
- Spurs will typically be much lower than harmonics and may not be visible

What to do if your radio is not compliant

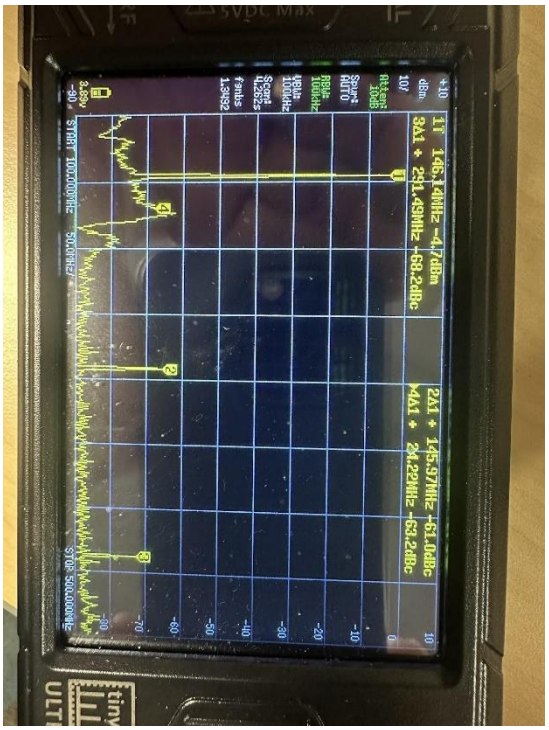
- Don't transmit with it!
- Put a bandpass filter inline with the antenna see 3 Bandpass filters
- Make sure the filter can handle the power of your radio

Share results

The attached google sheet is open for anyone to edit in their results:
https://docs.google.com/spreadsheets/d/1VoB2klv9XVDHndEcV6oIU1NbG3T55xt79NRgCy4kn8M/edit?usp=sharing

This screen shot on a Tiny SA Ultra is of a recent Beofeng UV-5R. The third harmonic at 438MHz is 68.2dB below the carrier, hence the unit is dBc. This is surprisingly good. Note also

the spurious emissions, or spurs around the carrier. While also quite low, these spurs can end up anywhere as they are not harmonically related to the carrier.

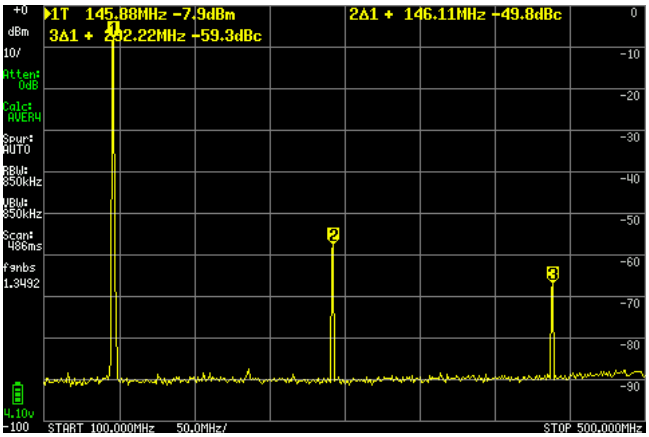


Here's the Siglent SSA 3031X testing the harmonic output of a TTY MD2017 in FM node. Input attenuator or SA set to 10dB, and 40dB inline attenuator. Output power of radio is therefore 32dBm, or 1.6W,

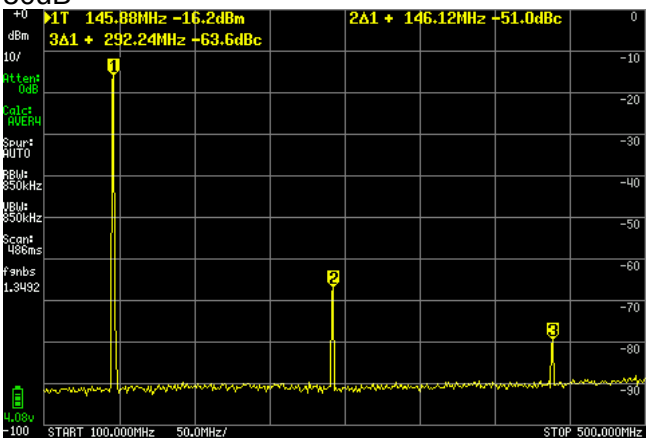
Confirmation of Linearity

If these measurements are to be meaningful we need to be sure the harmonics we measure are from the DUT and not the SA. Therefore to prove we have a linear system, check that extra attenuation doesn't change the **relative** measured levels of fundamental and harmonic. The measurement in dBc is referenced to the carrier, so shouldn't change if everything is linear.

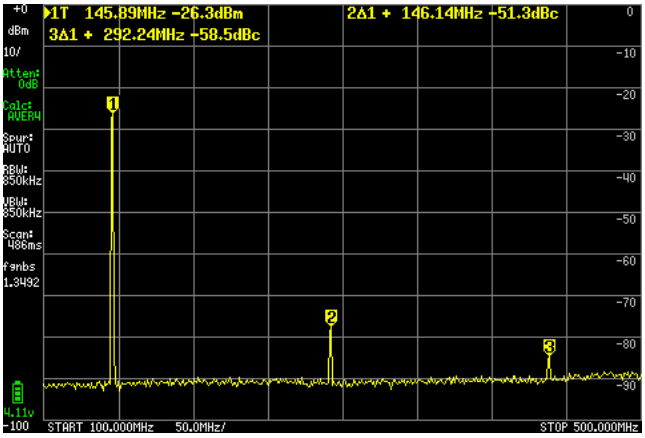
Here's the Tiny SA and Quangsheng UV-K5 with 40dB of inline attenuation:



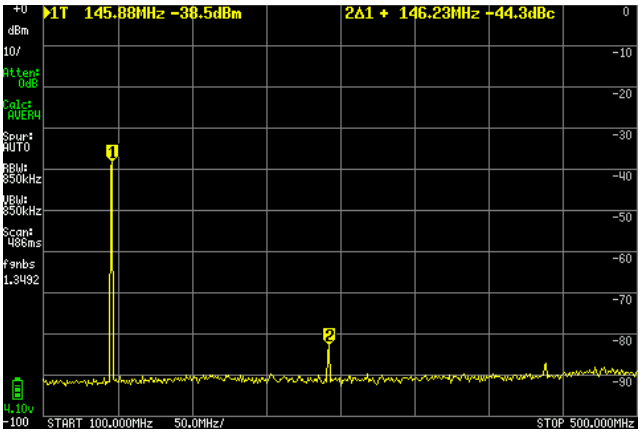
50dB



60dB



70dB



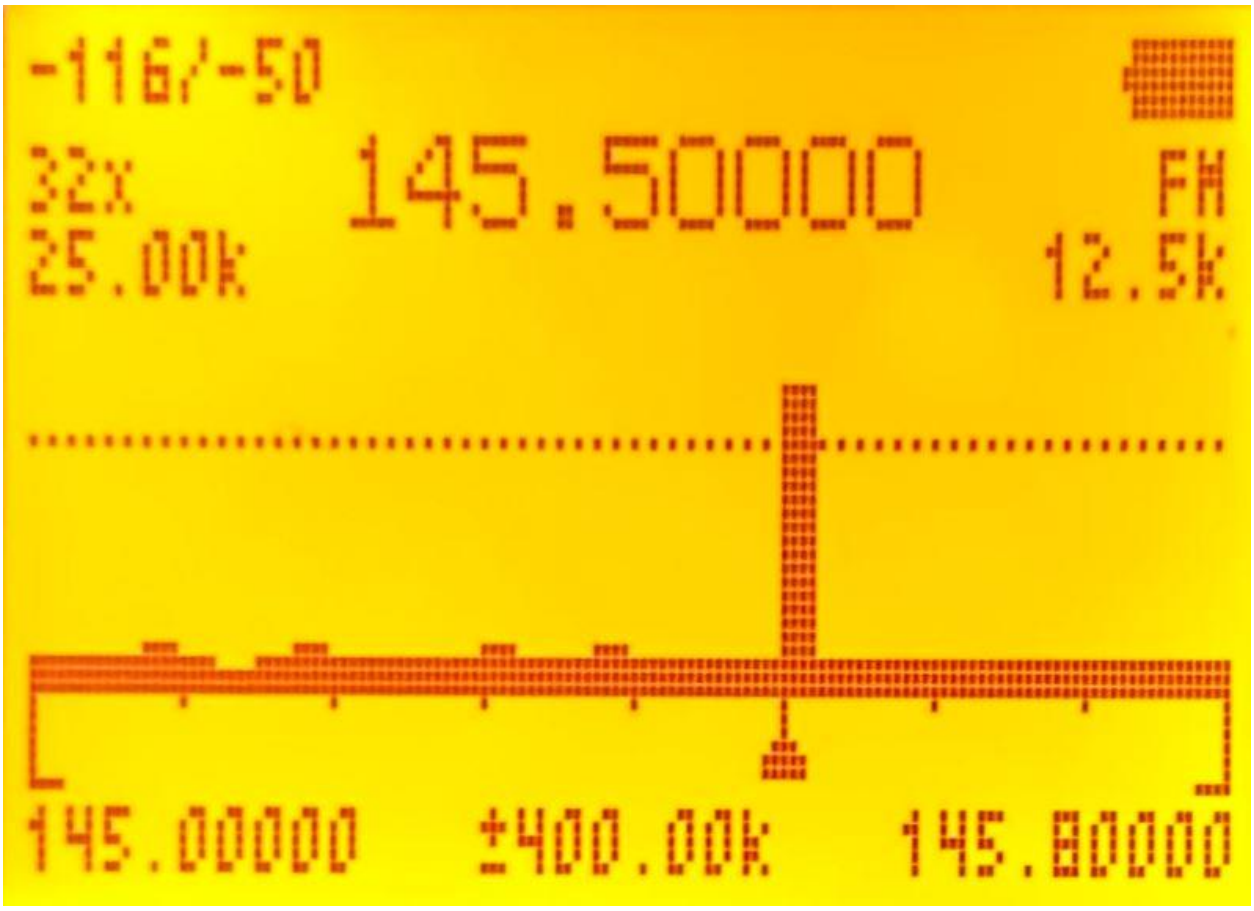
Inline Attenuation (dB)	Power at SA (+32dBm - attenuation)	Fundamental (dBm)	2nd Harmonic (dBc)	3rd Harmonic (dBc)
40		-7.9	49.8	-59.3
50		-16.2	-51.9	-63.6
60		-26.3	-51.3	-58.5
70		-38.5	-44	In the noise

This is not laboratory equipment, so variations can be expected! Nevertheless I surmise the important third harmonic is about -60dBc, in excess of the FCC requirement of -40dBc

Rob NZ6J
415 849 5667
27 Jan 2024

Quansheng Firmware

The Quansheng UV K5/K6 have several great features. The greatest feature is the ability to upload custom firmware onto the radio, allowing you to access the full potential of the radio's BK4819 IC Chip. The chip covers 18 to 1350MHz (when unlocked), which you can access through the firmware. You can also add a spectrum analyzer through the firmware, as well as text messaging. The firmware is open source, so it's free to download. Below is a screenshot of the spectrum analyzer.



If that wasn't enough, you can flash the chip directly from a website other than Chirp. You'll need a Baofeng programming cable to upload the firmware. I have tested out the firmware I'm providing links to. Note that the firmware works the same for the K5 and K6. Start by watching the YouTube video (the firmware versions in the video are older than what's available now, but the method is the same:

https://www.youtube.com/watch?v=jsQpeMV33Mo

Below is a link to a webpage that explains the firmware and its installation. The video on the site below is like the YouTube video above:

https://simonthewizard.com/2023/12/14/new-firmware-egzumer-20-quansheng-uv-k5/

Here's a direct link to the latest version of the Egzumer firmware, which is the version I use:

https://github.com/egzumer/uv-k5-firmware-custom/releases

Lastly, here is the user manual for the above firmware. It explains the spectrum analyzer and other features in detail:

https://github.com/egzumer/uv-k5-firmware-custom/wiki

There is a large community of Quansheng UV K5/K6 users out there. I recommend joining one of the many Facebook groups because they're great at troubleshooting (although I have had no problems with this radio). If you have any questions about this radio, especially the flashing of firmware, email me directly at hthomaspatterson@gmail.com and I'll be happy to help!

Quansheng UV K5/K6: Not Just Another Cheap Radio

My first radio, upon getting my Technician's license, was a Baofeng UV5R. I was amazed at the quality of the radio, considering the price (around $30.00). Of course, I had to add a decent antenna (a Nagoya), but that only brought the price up to about $45.00. It suited my purposes perfectly and I still bring it out and use it. Advances in technology have allowed the cost of a handheld ham radio to drop greatly, while improving the performance and added features. Baofeng cornered the entry level VHF/UHF market and seemed positioned to own that market for the foreseeable future. Then came along the Quansheng UV K5 and UV K6.

The Quansheng UV K5/K6 is a dual band handheld transceiver that has a 5W RF output. It has a frequency range of 50.0000-76.0000MHz, 108.0000-135.9750MHz, 136.0000-173.9750MHz, 174.0000-349.9750MHz, 350.0000-399.9750MHz, 400.0000-469.9750MHz, and 470.0000-600.0000MHz. It also has an FM radio with a frequency range of 76.000-108.000MHz. It has 200 channels and is voice activated. It also has weather scanning. This radio has a dedicated AM Airband that works surprisingly well. I was able to test this feature in multiple locations across the State of California during the holidays and was amazed at the

volume of radio traffic I picked up. Below is an image of the UV K5:

The radio can be charged via a USB type c charging port that's built in. Yes, this sounds like a typical Chinese-made handheld. So, what's the big deal? You can mod this radio very easily with firmware that adds a spectrum analyzer and increases the RX (and TX but remember to only work your assigned bands) to 18.0000MHz to 1350.0000 MHz. The firmware is flashed onto the radio's IC Chip and can be additionally flashed online without using any downloaded software. You just plug a standard Kenwood/Baofeng programming cable into the radio and your computer; select your firmware update choices and you're done in under a minute. Below is an image of the UV K6:

It turns out that there is a large and growing community of computer programmers who write code for this radio and present it in the open-source community. I bought one of these radios because the programming that was the foundation of this radio could be tinkered with. I realized that at $30.00 or less, if I blew the radio up, replacing it wouldn't put me in the poor house. The firmware updates have worked wonderfully thus far. Here are the technical specifications of

the UV K5 radio. Next month, we'll explore firmware modifications. We'll also compare the UV K5 and K6. I have both Quansheng models, so if you have any questions about this radio, feel free to email me at hthomaspatterson@gmail.com.

SPECIFICATIONS

GENERAL

Type:	Amateur VHF/UHF transceiver
Frequency range:	**General market** TX: 136-174 / 350-470 MHz RX: 50-600 MHz **Europe (CE)** TX: 144-146 / 430-440 MHz RX: 50-600 MHz **USA (FCC)** TX: 144-148 / 420-450 MHz RX: 50-600 MHz
Tuning steps:	? KHz
Frequency stability:	±1 ppm @ -20 to +60°C (-4 to +140°F)
Mode:	TX: FM / NFM RX: AM / FM / NFM / WFM
Channels / memory management:	200 20 WFM broadcast channels 10 NOAA weather channels
Repeater shift / offset:	Programmable
Power supply:	7.2 VDC (Li-Ion battery)
Current drain / power consumption:	RX: ? mA TX: Max 1.5 A
Antenna impedance / connector:	50 ohm / SMA (Male)
Dimensions (W*H*D):	60*115*38 mm (2.36*4.53*1.5")
Weight:	234 g (8.25 oz)
Other features:	CTCSS/PL and DCS. LED flashlight. Backlit dot-matrix display. Scrambler. VOX. DTMF. 1750 Hz tone call. Desktop

	charging cradle or USB-C charging port. Voice prompt. Two roger beeps.

RECEIVER SECTION

Receiver system:	**SoC?**
Sensitivity:	**AM (10 dB S/N)** 108-136 MHz: 0.5 uV **FM (12 dB SINAD)** 50-76 MHz: 0.2 uV 136-470 MHz: 0.16 uV 470-600 MHz: 0.2 uV **WFM (20 dB SINAD)** 76-108 MHz: 0.71 uV
Selectivity:	
Image rejection:	
AF output power / speaker:	500 mW at 10% distortion / ? ohm
External speaker connector:	

TRANSMITTER SECTION

RF output power:		**High**	**Mid**	**Low 1**
	2 m:	5 W	3 W	1.5 W
	70 cm:	5 W	3 W	1.5 W
Modulation system:				
Max FM deviation (Factory set):	FM: ±5 KHz NFM: ±2.5 KHz			
Spurious emissions:	Better than -? dB			
Microphone impedance / connector:	? ohm / ?-pin			
Microphone input level:	? mV			

MISCELLANEOUS

Manufactured:	China, 2023-202x
Additional info:	
Related documents:	
Modifications and fixes:	

Reviews:		
Options / Accessories:	BPK-5	Li-Ion battery pack. 7.2 V, 1600 mAh

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 Radioworld regarding the FCC bolstering amateur radio:

FCC Wants to Bolster Amateur Radio: The FCC will vote in November on a plan to remove outdated technical restrictions.
https://www.radioworld.com/news-and-business/business-and-law/fcc-wants-to-bolster-amateur-radio

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

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

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

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

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

https://www.southernminn.com/faribault_daily_news/news/ham-radio-operators-practice-for-emergency-build-community/article_c305405c-1446-11ee-9e1c-17bef3ed0921.html

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

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

FCC Regulatory News

Here are the current regulatory changes and FCC news as it applies to Amateur Radio. This section of the QSA-5 newsletter was introduced last year. We will add new regulations and rules monthly, removing the older regulations and rules as new regulations/rules are introduced. As of the August 2021 issue of the QSA-5 newsletter, this list of FCC regulations and changes will be reduced, only covering this year's new regulations and rules. The newest regulations and changes will appear at the top of the list. Note that we are not able to cover every change the FCC has made this year within our publication.

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

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

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

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

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

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

Propagation News

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

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

https://www.arrl.org/news/the-k7ra-solar-update-814

DX.QSI Propagation: A simple, straightforward website for propagation conditions that is regularly updated:

https://dx.qsl.net/propagation/

Radio Society of Great Britain: What's New and Propagation Now:

A great resource from the UK version of the ARRL regarding solar activity and propagation:

https://rsgb.org/main/technical/propagation/whats-new-propagation-now/

SunSpotWatch.com:

A good general interest site for amateur radio operators who follow solar activity:

http://sunspotwatch.com/

DIY Radio References

We have added a few additional links to our list and will continue to do so as we discover more websites related to the Do-It-Yourself movement! QSA-5 is going to keep adding to the original list of online resources, bringing you more resources as

we find them. If there is anything you think would be useful to other club members, contact me and I will be happy to include it in this reference section.

Microcontrollers and Single Board Computers: With the advent of the Arduino micro-controller board, the Raspberry Pi (a single board minicomputer) and Texas Instrument's Launchpad (also a single board microcontroller), Amateur Radio enthusiasts can build both accessories, such as antenna tuners, and fully functioning transceivers. I have spent the last year at the University of California studying these devices, learning how to use them and incorporate them into electronic projects. I was able to build two HF receivers based on the Arduino and Raspberry Pi devices. The best news of all is that these devices are inexpensive! I encourage you to check these websites out!

Arduino: The Arduino microcontroller board was the first to popularize these devices. They are inexpensive and can be used for a variety of radio related projects. I will include some links to radio related Arduino projects in the next issue of the QSA-5. Here's a link to the Arduino homepage:

https://www.arduino.cc/

Raspberry Pi: Did you every wish you could have a PC small enough to fit into your shirt pocket? Your dream has come true. The Raspberry Pi 4 is a fully functional Quadcore 1.6 GHz computer, about the size of a package of playing cards. It has an Ethernet jack, two USB 2 ports, two USB 3 ports and two HDMI ports. Next month, I'll post some links to radio related Raspberry Pi projects. Here's a link to their homepage.

https://www.raspberrypi.org/

Texas Instruments TI Launchpad: The Launchpad is Texas Instruments answer to the Arduino. The Launchpad is geared more towards advanced projects and is slightly more expensive. However, the Arduino still holds it own against this device. The Arduino also has more in the way of opensource software. Here is a link to the

TI Launchpad homepage.

https://www.ti.com/design-resources/embedded-development/hardware-kits-boards.html

Tools for electronics: It is a lot easier to build or repair your electronics if you have the right tool. Paperclips and duct tape are not the solution to everything (unless you are McGyver – hopefully, you got the reference). Therefore, we added some links to suppliers of electronics tools.

All Electronics: A one stop electronics shop that has a variety of tools for your repair and building needs:

https://www.allelectronics.com/category/780/tools-and-supplies/1.html

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

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

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

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

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

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

https://www.electronicplus.com/

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

https://www.digikey.com/

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

https://www.jameco.com/

Homemade Antennas: Many new amateur radio enthusiasts put a great deal of time and effort into researching their first radio. However, they often neglect the most important component to a successful radio experience, the antenna. Even if you have some ham radio experience, antennas can be a daunting subject. Commercially manufactured antennas can be expensive and beyond your budget during these hard financial times. Even if you have the funds available to purchase an antenna, reading through the antenna's specs can be akin to reading some long lost ancient language. A good solution for increasing your knowledge of antennas and radio wave propagation, not to mention cutting the costs down, is to build them yourself. Here are some links to DIY (do it yourself) sites to give you a start:

Antenna building basics:

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

Good Reference for several antenna types:

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

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

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

Instructions for a VHF/UHF dual band antenna:

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

Build an HF dipole antenna:

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

Introduction to antennas:

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

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

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

https://www.hfsignals.com/

An easy to build, single band CW kit:

https://qrp-labs.com/

Offering several kits and finished transceivers:

https://youkits.com/

Propagation Websites: Propagation is a key factor in successful radio

communications. Here are some links to websites that will help you with all your basic propagation needs:

Real time band conditions:

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

VOACAP band conditions:

https://www.voacap.com/hf/
ARRL Propagation Page:

http://www.arrl.org/propagation

Real Time HF Propagation Prediction:

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

Ham Radio Websites of general interest:

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

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

http://www.arrl.org/news

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

https://qrznow.com/

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

https://www.arnewsline.org/