Meeting News:

The June 10th general membership meeting was held at the Dudley House and on Zoom. Dave AI6VX, one of our at-large board members, led the meeting and presented Denney's N6HV "K6MEP Field Day Final Plan". Sixteen attended the in-person meeting including Kurt McCullum KN6TKN, our newest member. Five attended the Zoom simulcast; President Robert KM6RSS, Pedro K6MIL, Stewart KG6BOV, Ben and Yoshio KE6ACH.

Our next club meeting is scheduled for July 8th at the Dudley House. Tentatively scheduled is either Clem Alberts KM6OKZ and/or Denney Pistole N6HV, K6MEP Field Day co-chairpersons, who will discuss the status of our "K6MEP Field Day Results". Field Day was June 24 (setup) 25, and 26 (takedown after 11am).Visitors are always welcome to attend our meetings. We will continue to update our members on any new Ventura County Health Department requirements. See the two FD reports included.

Our meetings start promptly at 19:00. After the call to order, welcoming members and guests, the announcements are made. Then our committee members are asked to present their status. Following the status report is a request for any new business. A break is taken to get the presentation set up, serve refreshments and have some social time. After the presentation is complete and everyone has asked and received answers to their questions, the meeting is adjourned. Visitors are always welcome to attend our club meeting; afterwards, many of us go to Toppers for a slice of pizza and a great deal of ham radio discussions.

The Inside Story

Message from the President

The Prez Sez,

So What Exactly is a VE and What Do They Do is my theme for the July Keyer

Background

In June of 2016, Woot had some UV-5R BaoFengs for sale and they were so cheap I bought two on a whim. Back in the 90s my eldest son studied for his license and passed so we bought him a HT with the number pad on it and he would use it to patch through the repeater in Denver to make phone calls and amaze his friends (before cell phones). I figured that he might be interested in the BaoFengs but found that he had let his license lapse.

To legally use them, I signed up for the 7/17/16 Norm Goodkin's "one day technician class" and passed the exam. Since I thought that it was easy (I have a mining engineering/IT background), I went on to study by myself and completed the two other license exams, coming in early to sit for each examination before the two remaining Sundays of Norm's class started.

(Continued on Next Page)

Club Offices	And Keyer	Contributors
President	Robert Shank	KM6RSS
Vice-President	Clem Alberts	KM6OKZ
Secretary	Phil Cohen	WA6BUZ
Treasurer	John Gartman	W6JPG
Board Member	Dave Schmidt	AI6VX
Board Member	Mark Swaney	KD6ASL
Board Member	Burt Auerbach	KA6BJA
Program Manager	Clem Alberts	KM6OKZ
Equipment Mgr.	Denney Pistole	N6HV
Refreshments	Linda Shank	
Facilities	Richard Abbey	WB6AEW
Keyer Editor	Robert Shank	KM6RSS
Webmaster	Robert Shank	KM6RSS
Domain	Phil Cohen	WA6BUZ
Membership	Open	Please volunteer
License Trustee	Dave Schmidt	AI6VX
ARRL Club Rep.	Dave Schmidt	AI6VX
ACS/ARES Rep.	Burt Auerbach	KA6BJA
Monday Night Net	Open	Please volunteer
QSL Manager	Ben Holmes	K6QV
Safety Officer	Mark Vodon	KI6PTE
PIO/Trivia	Dana Wentling	KG6WXE
Columnist	Reese West	KQ6TT
Columnist	Denney Pistole	N6HV

The KEYER is published monthly by K6MEP, the Ventura County Amateur Radio Club, Inc. as a means of providing club members the minutes from K6MEP's monthly general membership meetings, the monthly board of directors' meetings, a calendar of events and articles of interest about amateur radio. Layout and logos are the property of The Ventura County Amateur Radio Club, K6MEP.

Submit material by email to KM6RSS@gmail.com.
Our club mailing address is:
K6MEP
PO Box 2103
Oxnard, CA 93034-2103

K6MEP holds general membership meetings at 7:00 PM on the 2nd Friday of each month (except December). Dues are $20 per year.

Message from the President (Continued)

I also boasted to my son that if I could pass the Extra at age 66 he should be able to do it, too. And he did! Norm stressed during the last class that anyone who has the Extra License should apply to become a GLAARG (Greater Los Angeles Amateur Radio Group) VE (Volunteer Examiner). It was part of "paying it forward" for those volunteers who conducted my three exams. GLAARG is one of the 14 FCC-recognized Volunteer-Exam Coordinators conducting amateur radio exams. GLAARG is a VEC testing organization, not a radio club. At the Lost Hills Station, where the final two exams were given, I met Steve King KE6WEZ (who was the ACS/ARES Simi Valley Emergency Coordinator at the time), and who provided contacts for the Ventura County ACS/ARES. I emailed Rob Hanson W6RH (Ventura County Radio Officer) and Grant Mohr KG6SFW (who was the Ventura, Santa Paula, Fillmore and Piru Emergency Coordinator at the time) and who welcomed me and suggested I join ARRL and take the VE examination. I completed both requirements in June of 2017 and was invited by Jeff Reinhardt AA6JR to observe the testing process (CVARC-sponsored) at the Ventura East County Sheriff's Station on June 11th. I've attended almost all of the examinations as a VE (either as an observer or assistant) since that time, although COVID did stop the in-person testing from December 13th 2020 until December 12th 2021.

What is a VE?

A VE (volunteer examiner) is a licensed ham radio operator with a general class or higher license, who has qualified to administer the amateur radio licensing examination through a VEC (volunteer examiner coordinator).

Prior to today's volunteer-based examination system, the FCC conducted the testing at its field offices around the country on specified schedules. FCC examiners also traveled to remote locations to provide exams periodically.

In the early 1980s, budget cuts took its toll on the FCC's examination services. FCC exam opportunities shrank, and finally were eliminated. The amateur community would conduct the testing itself, under a new Volunteer Examiner Program drafted by the ARRL with the FCC staff. In late 1982, the Goldwater-Wirth Bill was passed by Congress and signed into law by President Ronald Reagan. This bill, known as Public Law 97-259, amended the Communications Act of 1934, permitting the FCC to accept the voluntary and uncompensated services of licensed radio amateurs to serve in preparing and administering examinations. It also gave birth to the VEC program. VECs were formed in early 1984 to oversee the work of their certified VEs and serve as a liaison between the VEs and the FCC. A relatively small number of VECs would be chosen, and each of these would interface between the FCC and individual examiners, who became known as VEs. Because of this two-tiered structure, the FCC only needed to deal with a few separate organizations, rather than hundreds (or thousands) of individual examiners. Initially, there were 28 VECs registered with and certified by the FCC. That number has declined slowly, and recently, there are only 14 active VEC programs in operation (four in California).

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Message from the President (Continued)

The ARRL/VEC began coordinating exams in September 1984. With their first exam session held on September 2 at the ARRL Pacific Division Convention in California, the ARRL/VEC was born. Since then, the ARRL/VEC has accredited more than 50,000 VEs, who have administered more than 1,250,000 exam elements at more than 90,000 test sessions!

So where do the examination questions come from?

The pool of questions mandated by the FCC was originally managed by 3 VECs, namely the ARRL-VEC, the W5YI-VEC, and the Western Carolina VEC. This situation continued as an informal arrangement for approximately 10 years, until the formation of the **The National Conference of Volunteer Examiner Coordinators** (**NCVEC)**. The NCVEC was formed primarily as an "industry" association, not unlike the NAB (National Association of Broadcasters), in this case attempting to coordinate the actions of the various independent VECs, and to formalize the management of the question pools. Another purpose of the NCVEC was to facilitate discussion between government, in the form of the FCC, and its members. Each FCC appointed VEC is invited to join the NCVEC, and most of them participate actively. The NCVEC holds an annual conference, most often in Gettysburg, PA, near the end of July. This Conference is funded by donations and contributions from several VECs that charge a nominal service fee for processing license renewals and change of address applications. The location was chosen to facilitate interaction with the various FCC personnel involved in Amateur Radio licensing, since Gettysburg is where FCC licensing offices are located. Various FCC officials and staffers are invited to this meeting, and their participation is both welcomed and appreciated.

The NCVEC is a not for profit organization. Its governing body consists of a Chairman, Vice Chairman, Secretary, and Treasurer.

NCVEC also has standing committees that deal with various issues. Policy decisions and other NCVEC actions are decided by vote between the various members, usually at the July meeting, but if necessary at other times, electronically.

Mission Statement

In accordance with the laws and agreements that set up the VEC system, the VECs have been tasked with certain requirements. They are:

1. To recruit, train and accredit a corps of VEs and issue appropriate accreditation documents
2. To coordinate examination sessions as needed with accredited VEs.
3. To inform VEs of additions, changes, and deletions to the VE program rules.
4. To provide a source of license testing materials (exams) for all VEs accredited by their own group.
5. To provide a source of requisite forms required to correctly document the entire examination process.
6. To collect and archive successful applications, including all related documentation

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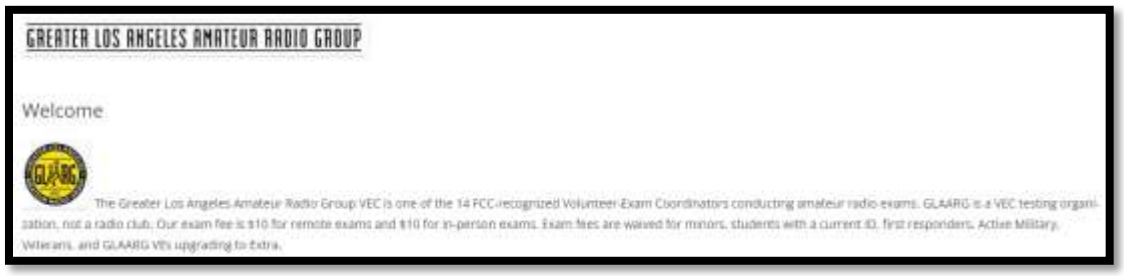
Message from the President (Continued)

7. To prepare and maintain records of each testing session, including passes, failures, etc.
8. To screen, approve, and forward successful applications to the FCC for further processing and issuance of licenses.
9. To resolve errors or defects in applications or documentation before the information is forwarded to the FCC.
10. To monitor the activities in all testing sessions, including having the authority to invalidate a testing session and decertify VEs should the need arise.
11. To assist in the development and/or revision of a common pool of test questions.
12. To evaluate test questions for clarity, accuracy, and completeness, and forward the results of their evaluations and their recommendations for any changes to the VEC question pool committee.

GLAARG website https://glaarg.org/



ARRL VEC Program

The ARRL's VEC program has a long standing tradition of serving the Amateur Radio community and the FCC with integrity and expertise. As the largest VEC in the nation, they operate as a knowledgeable information source for a wide-range of licensing issues. ARRL accredited VEs support amateur radio operators around the country by offering exam opportunities in their local communities and helping exam candidates fulfill their Amateur Radio aspirations. Service and volunteerism are vital parts of ARRL's Amateur Radio culture. VEs give so generously of their time, energy and skill to our community. The ARRL hopes that everyone considers embarking on this rewarding journey and becomes an ARRL Volunteer Examiner.

I have my VE certification; what's next?

After you have submitted the documents, taken the VE test and obtained your certification, it is time to contact the nearby clubs and/or groups that provide the VEs for the Amateur Radio Examinations. In our Ventura County, one club, CVARC (An ARRL Special Service Club since 1970) holds the exams every two months. Andy Ludlum K6AGL is the VE liaison and if you are interested in observing and/or volunteering, please contact Andy (http://www.cvarc.org/).

Typical test day in the life of a VE

On the next page are photos from typical VE activities on test day and the results from one of my tests.

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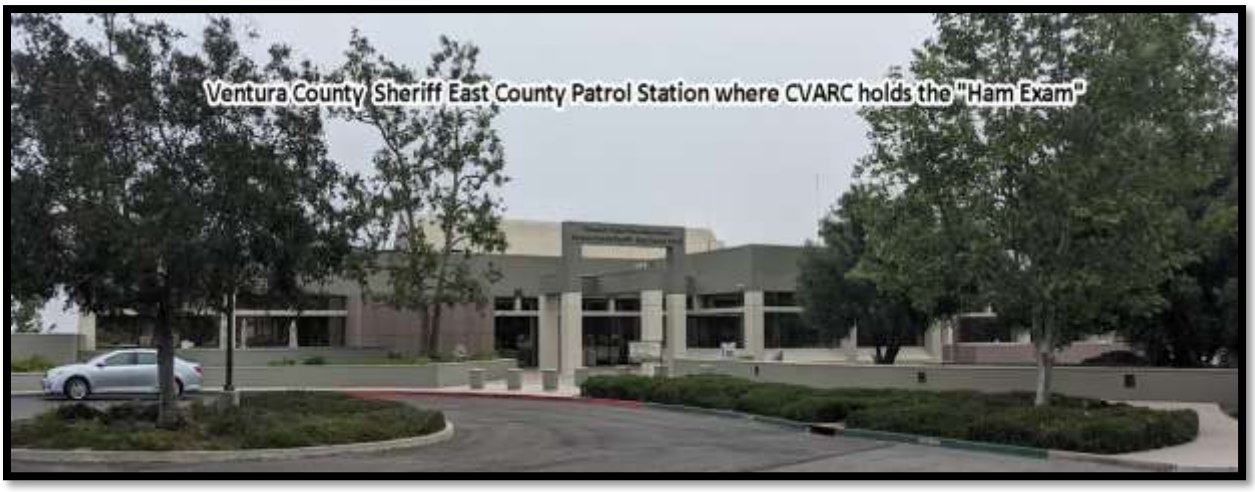
Message from the President (Continued)



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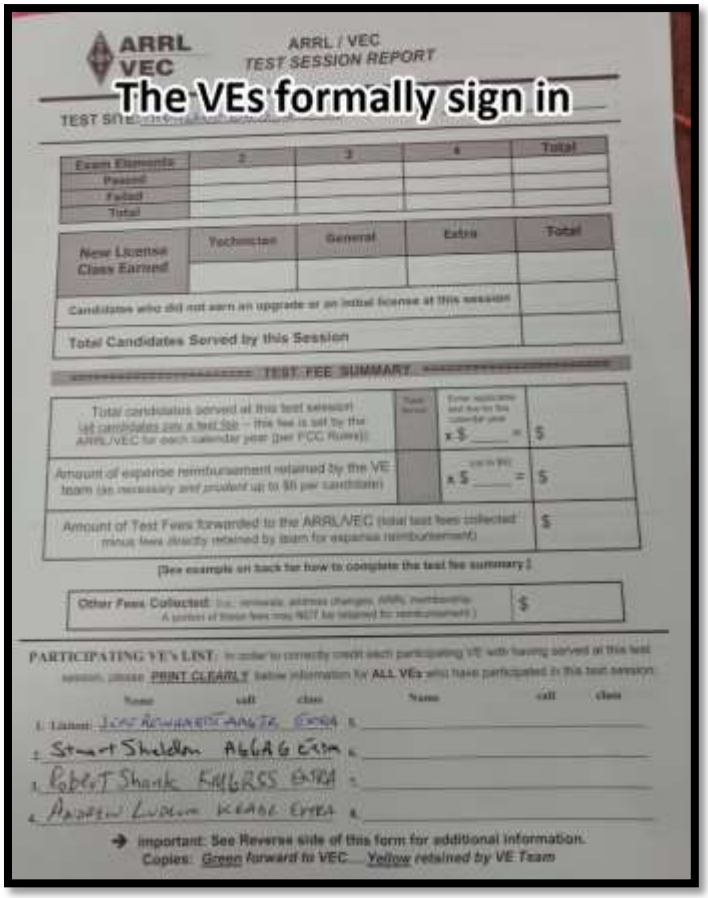

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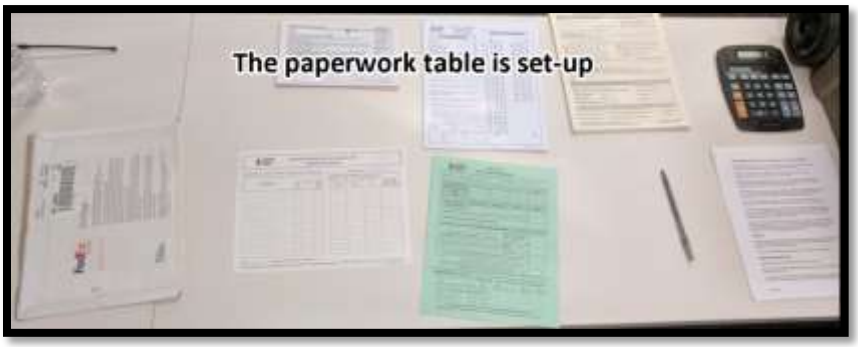

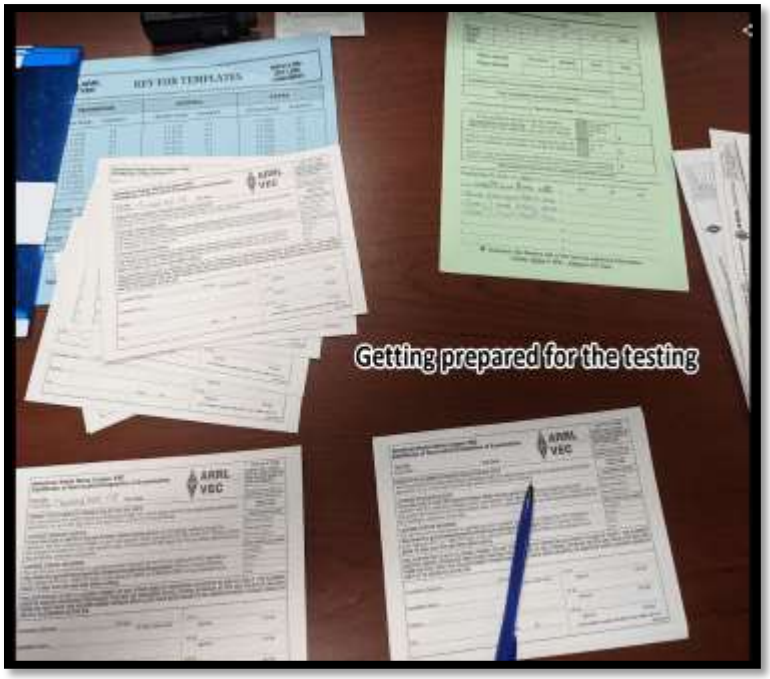

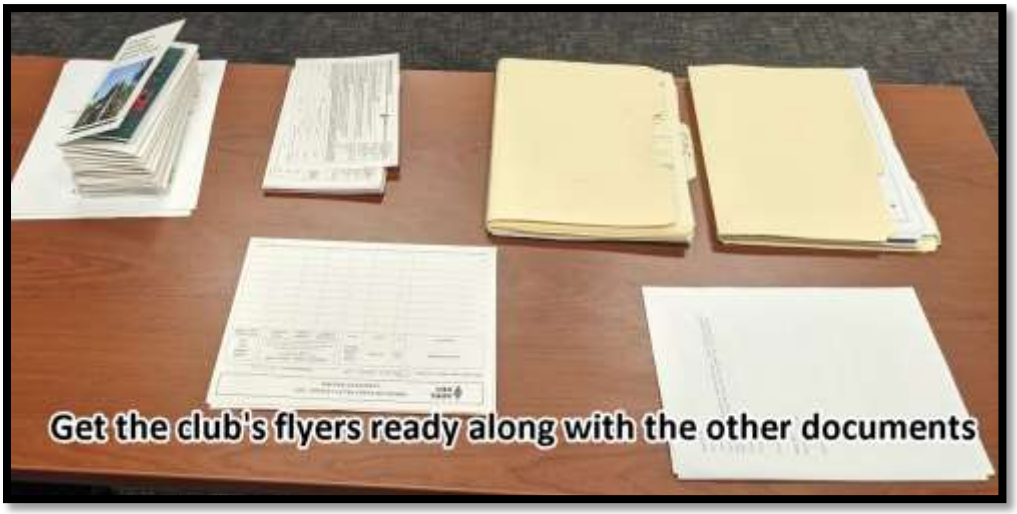

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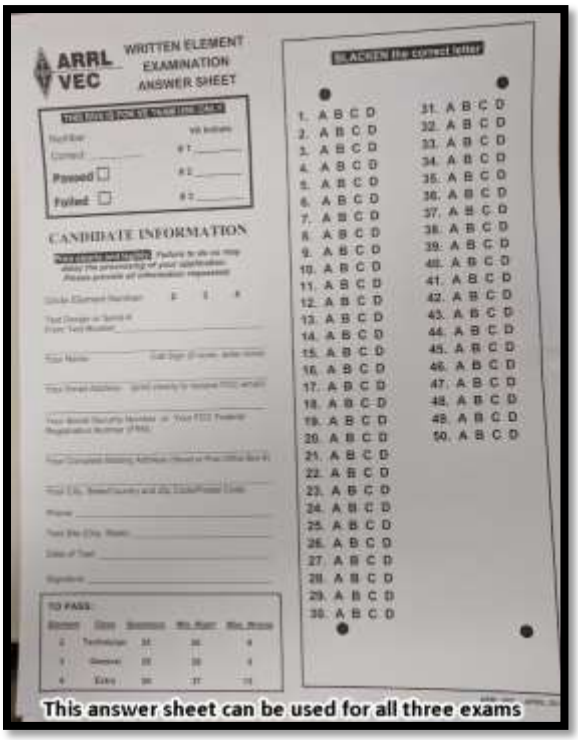

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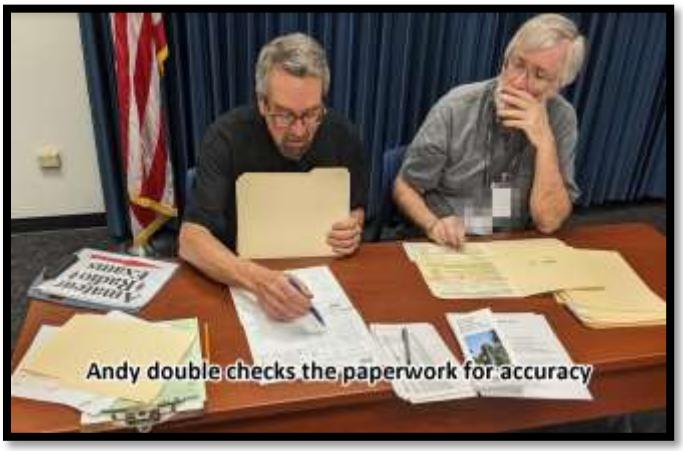
Message from the President (continued)



Call Signs & Upgrades

Norm Goodkin <norm.goodkin@gmail.com>

Great News! I passed my General

The results of the July 24th exam are in the FCC ULS Database.

Congratulations on your new call signs and upgrades!

I haven't had time to reformat the notice - this is how it comes from the FCC'S electronic batch filing system.

Norm K6YXH

-------- Forwarded message --------

From: <fcc.gov>

Date: Jul 28, 2016 8:34 AM

> RSF|07/24/2016|Agoura Hills|CA|0

>

> RA|0007155403|Raul|Alvarado|91789|KM6EIG|T|0025462680|G|

>

> RA|0007155404|Gapsik|Choe|91326|KM6EIH|T|0025744152|G|

>

> RA|0007155405|Michael|Felix|930551209|KM6EII|T|0025747478|G|

>

> RA|0007155406|Karen|Gracey|91602|KM6ECY|G|0025631730|G|

>

> RA|0007155407|Jerome|Hernandez|91350|KM6EIJ|T|0025772617|G|

>

> RA|0007155408|Manuel|Lazalde|93063|KM6EIK|T|0025781461|G|

>

> RA|0007155409|Robert S|Shank|930013817|KM6EDM|G|0025707472|G|

>

Norm K6YXH

I hope that this message encourages you to get your Extra and become a VE!
http://www.arrl.org/become-an-arrl-ve
73,
Robert Shank KM6RSS
President, VCARC

Minutes of the June 5th, 2022, VCARC Board Meeting

MEETING LOCATION: Zoom
TIME: 19:15 to 19:50
Timekeeper: Burt KA6BJA
MEETING CALLED TO ORDER at 19:15

Attending the meeting with various joining times was: Robert KM6RSS, Burt KA6BJA, John W6JPG, and Phil WA6BUZ. Present as chairpersons were Mark KI6PTE and Tim KN6JPG. The meeting started when a quorum (4) was present. All people that have groups.io and/or K6MEP.org access were invited to the meeting.

Minutes: (Phil WA6BUZ)

- Motion to approve minutes of the May 8th board meeting as published in the June Keyer by Burt and John seconding. The vote was unanimous.
- Motion to approve minutes of the May 13th regular meeting as published in the June Keyer by Burt and John seconding. The vote was unanimous.

Officers Report: (John W6JPG)

- Treasurer: John sent the details to the board members and a motion to approve was made by Burt with Phil seconding. The vote was unanimous.

Committee Reports:

- Accounting Committee Budget Status (John W6JPG, Mark KD6ASL and Dave AI6VX)
    - John will contact Robert to schedule a Zoom to finalize the proposed budget so that it can be reviewed by the board and moved to the membership for a vote.
- Program Manager (Clem KM6OKZ) Not Present
    - Scheduled Speaker to end of year(short topic for November is: TBA)
- Members Health and Safety (Mark KI6PTE)
    - No special needs other than have a member pick the first aid kit it up from Robert's house and bring it to the meeting.
- Youth Committee (Tim KN6JGB)
- Wings STEM Update; nothing received from the other clubs. Tim will create a calendar with sign-up sheet including a flyer for the various club members to review and select times.
- Picnic Committee (Mark KD6ASL) Not Present
    - Robert sent a message with groups.io asking for members to suggest a fall date (on a Saturday in September; the 3rd was suggested).

Field Day Committee Status (Clem KM6OKZ chair or Denney N6HV) Not Present

- Denney sent a Field Day status update email which was forwarded to the board for review.

- ARRL Chair (Dave AI6VX) Not Present

(Continued on next page)

Minutes of the June 5th of the June 5th, 2022, VCARC Board Meeting (Continued)
Committee Reports (Continued):

- ACS/ARES Chair (Burt KA6BJA)
    - Mountains to Beach Marathon results; 45+ Ventura County Hams volunteered
- Meeting Venue (Mark KD6ASL) Not Present

Special Orders:

- Inventory (Denney N6HV) Not Present
    - Denney sent an email about the 5/28 TRW swap meet which was forwarded to the board for review.

Unfinished Business:

- Need the Following Committees:
    - Membership
    - Monday Night Net
    - Decemberfest (December 9th).
        - Phil will look into El Tecolote in Camarillo
        - Robert has sent an email to Jan KN6HPJ asking about the Ventura Yacht Club. Jan later responded that December 9th date isn't available.

New Business:

- Motion to approve to pay $136.03 of receipted expenses to Pedro K6MIL for the TRW swap meet was made by Burt with Phil seconding. The vote was unanimous.

Announcements:
Our next club meeting is scheduled for June 10th at the Dudley House. Denney N6HV will discuss "Final K6MEP Field Day Preparation Activities".
Adjournment:

- Burt made the motion to adjourn with both John and Phil seconding and the vote was unanimous.
  The meeting adjourned at 19:50.

Minutes of the June 10th, 2022 General Membership Meeting of VCARC

GENERAL MEMBERSHIP MEETING (19:00)
MEETING ADDRESS: Dudley Historical House, 197 N. Ashwood Dr. Ventura CA 93003 and simulcast on Zoom
ATTENDANCE: Sixteen attended the in-person meeting and five attended the Zoom simulcast. Officers attending were Treasurer John W6JPG and board member Dave AI6VX, who led the meeting. Not attending were Vice President Clem KM6OKZ, Secretary Phil WA6BUZ and board members Mark Swaney KD6ASL and Burt KA6BJA. On Zoom were President Robert KM6RSS, Pedro K6MIL, Stewart KG6BOV, Ben and Yoshio KE6ACH.

CALL TO ORDER (AT 19:10)

Dave AI6VX, representing President Robert KM6RSS (joined via Zoom), welcomed everyone and held the Flag salute.

Announcements:

- The next Board Meeting (on Zoom) is July 3rd;everyone is invited to attend with credentials on our calendars
- Everyone is reminded about the club's next meeting date July 8th **.**Tentatively scheduled is Denney N6HV, our Field Day Committee member, who will discuss our "K6MEP Field Day Results". **Field Day is June 24 (setup) 25, and 26 (takedown after 11am)**.
- Thanks to all those who brought refreshments for tonight's meeting. Linda sent a box of snacks but was unable to attend due to Robert's health issue.

Calendar: See groups.io or K6MEP.org for an updated Calendar.

Committee Reports (From the June 5th board meeting)

- K6MEP Monday Night Contest: Robert announced the K6MEP Monday Night Contest status as of week 23; 376 check-ins with 56 visitors and a 16.35 average. Please volunteer as net control operator June 20th. Keith W6KME volunteered to take the 27th.
- Budget Committee: (John W6JPG, Mark KD6ASL and Dave AI6VX). Dave mentioned that a basic budget has been developed and will be ready to discuss at the next board meeting in July.
- Club's Inventory: Robert presented the status of the club's inventory as per Denney's email to the board last Sunday.
- Health and Safety: Mark Vodon KI6PTE brought the first aid kit.
- Youth Outreach: Tim KN6JGB discussed in detail the August 20 and 21 Wings over Camarillo STEM booth and distributed a trifold brochure for the member's review. He will continue to stay in communication with CVARC, PVARC, VCARS, and Simi Valley Settlers (simisettlers.org/) as well as make name and spelling changes to the brochure.
- Picnic: September 3rd is the date of our fall picnic at the Dudley House. Please look for more details on our groups.io page.
- ACS/ARES Liaison (Burt KA6BJA) wasn't in attendance but had a very successful Mountain to Beach Marathon as lead emergency communications coordinator with over 45 ham radio volunteers participating. Dave spoke about his aid station Charlie and Chris W6AH who partnered with him. Robert spoke briefly about Burt's role as emergency communications coordinator to the race management team.
- The club continues to need the following committees to assist with club business and would like volunteers: Membership, Monday Night Net, DecemberFest selection (December 9th). Thanks to Jan KN6HPJ and Phil looking into availability at Ventura Yacht Club (date unavailable) and El Tecolote in Camarillo, respectively. (Continued on next page)

Minutes of the June 10th, 2022 General Membership Meeting of VCARC

New Business: Does anyone have any new business to bring before the members?

- Bob Byl KD6UDA spoke about Steve Herleikson's WA6ESX passing and circulated a sympathy card for his wife Rebecca and family.

Break for socialization and set-up (at 19:55)

Presentation (Started at approximately 20:10)

- Dave discussed "Final K6MEP Field Day Preparation Activities" and reviewed Denney's email to the board last Sunday.
- Dave asked for any member who brought a guest to introduce them. Kurt KN6TKN was recognized as our newest member and John gave him his club badge.

Adjournment:

- The meeting is adjourned at 20:49. Everyone was invited to Toppers for continued ham radio discussions.

Minutes of the June 19, 2022 Special Field Day Board Meeting

MEETING LOCATION: Zoom

BOARD ATTENDEES:

OFFICE	LAST	FIRST	CALL SIGN	PRESENT
PRESIDENT	SHANK	ROBERT	KM6RSS	Y
VP	ALBERTS	CLEMENT	KM6OKZ	Y
SECRETARY	COHEN	PHIL	WA6BUZ	Y
TREASURER	GARTMAN	JOHN	W6JPG	Y
BOARD	AUERBACH	BURT	KA6BJA	Y
BOARD	SCHMIDT	DAVE	AI6VX	Y
BOARD	SWANEY	MARK	KD6ASL	N

CALLED TO ORDER 19:10

Robert opened the meeting at 19:10 and there were 6 out of a possible 7 board members present. Also attending were Denney, Mark KI6PTE, Mark KI6YLH, Jeremy, and Tim.

Old Business postponed from June 10th General Meeting:

1. Discussed final Field Day Plans (see Denney and Clem for details) and,
2. Estimated and Dave made a motion with Clem seconding and voted on funding needed for Field Day. The board unanimously approved a maximum expenditure of $600.

Announcements:

Our regular board meeting is scheduled for July 3rd 2022 at 19:00 hours on Zoom,
As always, all members are welcome to attend!

Adjournment:

Meeting adjourned at 20:45 hours

K6MEP Monday Night Net Update Robert KM6RSS

Our new Monday Night Net Contest started Monday, January 3rd and will end on December 5th. To give those who are interested in the experience of being part of our Monday Night Net Contest as Control Operators, I've placed a sign-up spreadsheet on our groups.io website under files, 2022 Monday Night Net. We need back-up net controllers to sign up as well. If you would like to volunteer, please contact me with the date(s) you would like and whether you want to be the primary or the back-up net controller and I'll update the list, which is saved to our K6MEP.groups.io website:https://groups.io/g/K6MEP/files/2022%20Monday%20Night%20Net%20Contest .

Below are the current Monday Night Net Contest Totals. Our groups.io has all of the Monday Night Net Contest documents in the files folder. Our contest-to-date total over 26 weeks is 426 check-ins with 64 visitors and an average of 16.38.

Monday Night Net Contest Totals to Date

Week #	Date	Total	Visitors
1	1/3/2022	15	2
2	1/10/2022	17	2
3	1/17/2022	14	1
4	1/24/2022	20	3
5	1/31/2022	19	1
6	2/7/2022	17	4
7	2/14/2022	14	2
8	2/21/2022	16	2
9	2/28/2022	11	1
10	3/7/2022	14	1
11	3/14/2022	17	2
12	3/21/2022	15	1
13	3/28/2022	13	0
14	4/4/2022	17	2
15	4/11/2022	18	4
16	4/18/2022	15	1
17	4/25/2022	19	3
18	5/2/2022	16	3
19	5/9/2022	12	1
20	5/16/2022	21	7
21	5/23/2022	20	3
22	5/30/2022	20	6
23	6/6/2022	16	4
24	6/13/2022	14	3
25	6/20/2022	18	3
26	6/27/2022	18	2
	Total	426	64

Field Day 2022 Report by Robert KM6RSS

Field Day 2022 is now history although the FD committee will be collecting logs, documents, photos and other information to compile and massage the information so that it can be

submitted to the ARRL.

The link above (https://photos.app.goo.gl/Mxz2fZJVQrLxdRzL9) will now take you to all of the FD photos I took. Clem, Denney and others were seen with cameras clicking away and I hope to be able to include some of the photos in the July Keyer (please email me with your photos attached). Please send your FD information to Denney copy Clem so that they can begin

assembling the data.

(Continued on next page)

Field Day 2022 (Continued)

Thanks to everyone who made a donation for the enjoyable food that was provided. Mark Ortega, Dana and others prepared meals for our club; many members helped set up the antennas, tents, and other equipment as well as disassembled it Sunday afternoon.

Kudos to Ben (and Phil) for powering the entire event off of Phil's 3.5kW invertor generator. Additionally, thanks to Jeremy for providing internet and the N3FJP logging server; I, for one, was able to have it interface with my tablet and update my contact log. Special thanks to Mark Vodon for the use of his RV and for establishing the safety protocols Friday afternoon that we all followed. Mark and many others provided safety officer services throughout the weekend. Jan guarded the equipment overnight Friday from Mark's RV (fortress) and Ben, in his tent at the far end of the "compound", took the watch both Friday and Saturday night. Reese West provided movement sensors and a base unit for Saturday night which alerted Ben early Sunday morning when the first joggers ran near our encampment. (Continued on next page)

Field Day 2022 (Continued)

Tim occupied his pup tent and seemed to be able to sleep through the Sunday morning breakfast (thanks to Mark for saving him some of the pancakes, eggs, sausage and potatoes). The weather was great; cool in the morning, sunny mid-day and a late afternoon marine layer cooled things off (and yes, we reached dew point each night). Due to a CME, the bands were bad.

Statistics (Everyone knows I love to keep lists):

Activity	Number of people who signed the log
Friday afternoon set-up	14
Friday afternoon visitors	1
Saturday operators	17
Saturday Visitors	26
Sunday Operators	10
Sunday Visitors	3
Safety Officers for the entire event	5

We had a total of 30 visitors including John Kitchens, Santa Barbara Section Manager and Kim Winch, Oxnard Fire Department, one of our served agencies. Thanks again for making K6MEP Field Day 2022 one to remember with lots of participation and great meal-side socialization. Additionally, thanks to all for assisting me with carrying my equipment, reminding me to keep my foot up (and out of my mouth) and ensuring that I didn't make things worse. Special thanks are due from me to Pedro, who loaded my heavy equipment on Friday from my house, unloaded it at Oxnard College and did the reverse on Sunday afternoon. See https://photos.app.goo.gl/Mxz2fZJVQrLxdRzL9 for more photos.

73, Robert KM6RSS

Heard on the net by Denney N6HV.

The Monday night K6MEP net that is.
The main topic of last Monday's net was Field Day. Several people mentioned that they had fun even with band conditions being poor, so our Field Day was a success.
Robert KM6RSS said that there were 30 visitors listed in the site log. With gasoline prices so high that a lot of visitors. We did not have several visitors like the fire department that we had last year.
Jeremy KN6JMD mentioned that we had some problems with the Wi-Fi set up that we used for logging. We were using improved equipment. Other groups seem to be having problems also. It may have been problems with Wi-Fi over load. During the zoom part of the net we discussed going to wired connections or just using laptops and consolidating the logs later.
Several people, like W6JPG, John worked Field Day from their QTH (home). Although he swung by the site and said hello. There is a process to have your contacts added to the clubs contacts.
This was KN6TKN Kurt's first time participate in a Field Day event. I know he helped put up antennas, rebuild two antennas and operate from several rigs on several different modes.
KN6JGB is working on the Wings Over Camarillo STEM event. He can use more operators.
All hams are invited to the Monday night net. You do not need to be a club member. You are free to ask questions about operating, radios and how to use them or other ham radio items. You don't need a license to join us on the after net Zoom meeting.

Field Day Wrap Up by Denney N6HV, Field Day co-chairman.

What is Field Day? It is an American Radio Relay League on-the-air event that they define as; Field Day is officially an 'operating event,' not a contest. The purpose remains today as it did in the beginning: to demonstrate the communications ability of the amateur radio community in simulated emergency situations.
The first Field Day was held on the second Saturday of June 1933. I suspect that there were spark gap transmitters used on the first Field Day. We have come a long ways.
People who were there and those who participated said they had fun. So our Field Day was a success.
We had lots of antennas. Many of those that brought their equipment and set up at the site brought their own antennas. The club can supply you with an antenna if you need one. There were plenty of helpers to assist setting up the various antennas. We used the light standards to support one end of the antennas for several stations. It worked out very well and we will have to try that again next year.
I was expecting good band conditions this year, but the sun had other ideas. In addition there was a fire near Stanford University and the school was without power and had to be evacuated. Stanford houses the JSDO (Solar Dynamics Observatory, the web site does not say what the J stands for) and is where the information from the SDO satellite is processed and placed on the web. So we were unable to get solar conditions information. At the opening of field day there was a lot of noise on the band and it was hard to hear stations. Later the bands seem to close down. On Sunday morning there were some openings to the East coast. The stations I could hear on 15 meters were 1D stations operating off commercial power most likely at their normal operating positions. I could hear the power amplifier kick in with a couple of the stations so I believe they were running more than 100 watts. Also the stations I could hear were working Midwest stations which would be louder than my station.
Still I made a few contacts by waiting until the station I was listening to peaked and jumping on it.
KI6YLH Mark, did a great job cooking, and he had lots of help from KI6PTE and a host of others. If you were unable to swing by, you missed a very good pancake breakfast on Saturday and Sunday.
We owe the Oxnard College a large thank you for letting us use the area next to parking lot B for Field Day. Thank you to everyone that helped and participated in the K6MEP Field Day.

Thoughts from the West - Reese West KQ6TT

REWRITE HOW MANY ARTICLES?

Just a reminder. These articles are more stream of thought than polished, double checked, fully thought out works. Also, the equations under examination are valid for use in design. That does not mean that all aspects of them are correct for all usages. Engineering means getting answers regardless of all the unknowns in a problem. My basic knowledge of antenna operation is based upon what I was taught fifty years ago and what I have seen of computer design methods in more recent times.

The method of calculating the radiating fields for an antenna uses the current flowing in the antenna. The current flow is broken into many small sections, the resultant magnetic fields from each section are calculated, and the results are summed up. Note that the voltages in the antenna are not used. The possible electric fields are not used. This is a critical point in this analysis. All the math uses the magnetic fields from the currents to generate the near field and far field electric and magnetic fields. The electric and magnetic fields then propagate in free space which has a resistive, 377 ohm, impedance. Here is where we get to the topic this month.

When we get to the receiving antenna, many articles discuss the effect of the electric field on this antenna. This makes no sense to me. The interaction between the fields and the receiving antenna is due to the magnetic fields. It is easier to visualize the electric field than the magnetic field. This means a lot of rewriting to get sensible analyses.

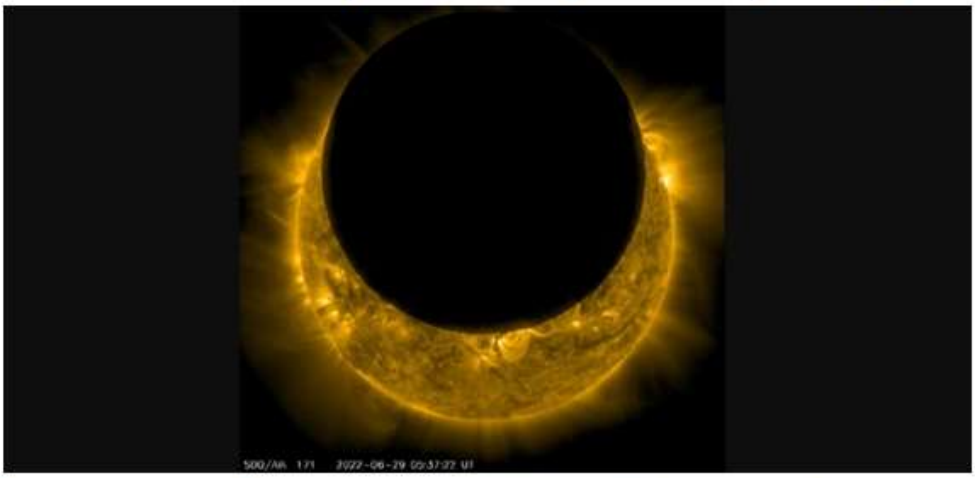
For an additional thought, the field strength at a receiving antenna is calculated in volts per meter. We have already seen that volts per meter for a continuous field are incorrect. My question is: Is that 'volts per meter' in a 377 ohm region or effectively as measured in a 50 ohm measurement system? I welcome a response.

Reese West KQ6TT

Space News (from space.com)

SCIENCE & ASTRONOMY

NASA sun mission spots stunning solar eclipse in space



A sungazing spacecraft captured the moon passing in front of the face of the sun Wednesday (June 29). NASA's Solar Dynamics Observatory caught the solar eclipse in action from its unique vantage point in space, the only spot where this eclipse was visible.

Strange cloud in satellite data catches interest of scientists

A "peculiar" cloud, as NASA terms it, was found over the Caspian Sea on May 28. The cloud offers an interesting case study of how satellites can detect such phenomena in Earth's atmosphere.

Trivia by Dana KG6WXE

DID YOU KNOW?

1 As of 2019 the Las Vegas strip had over 160,000 slot machines?

2 The first electric washing machine was invented in 1901? Alva Fisher, a Chicago native, received the US Patent 966,677 that year and all washer folks never looked back.

3 In colonial times and earlier, men wore powdered wigs to cover head lice and other skin problems but later became a fashion statement by the upper class.

De Dana Kg6wxe Happy 4th of July!

K6MEP Monday Night Net Script

QST- QST- QST. This is (Name) _____(Call sign)_____, with the Ventura County Amateur Radio Club Net. If there is any station with EMERGENCY or PRIORITY Traffic that needs the immediate use of this frequency, please come now.

Hearing none, the following is a QST. This is (Name) _____(Call sign)_____, tonight's net control station for the Ventura County Amateur Radio Club Net. If, at any time, during tonight's net, anyone needs this frequency for emergency or priority traffic, please call net control, and we will respond appropriately.

This is a directed net, open to all amateur radio operators and is sponsored by K6MEP, the call sign for the Ventura County Amateur Radio Club. This net begins each Monday evening at 20:00 local time on the WD6EBY linked repeater system.

The primary frequency of this net is 145.200 MHz with a minus offset and a PL of 127.3 Hz. If the repeater should fail for any reason, we can use South Mtn. repeater on 146.385 MHz with a positive offset and a PL of 127.3 Hz as backup.

All amateurs are welcome to check in **after** the following announcements.

A roundtable will follow the check-ins. A rag chew session may follow the formal net. We will have a Zoom meeting following the net.

At this time I will call on tonight's alternate net control station (Name) _____(Call sign)_____, (Pause for alternate NC check in with "how's my signal "and respond appropriately). If for any reason my station should become inoperable the alternate net control station will proceed with the net.

K6MEP, the Ventura County Amateur Radio Club, meets at 19:00 hours on the second Friday of each month at The Dudley House, 197 N Ashwood Ave, Ventura, CA. The club meeting will also be on Zoom. Our next meeting will be on Friday ____ at the Dudley House and Zoom, where the presentation topic is_____ We urge any non-members interested in the Ventura County Amateur Radio Club to contact us at K6MEP@qsl.net. Non-members interested in amateur radio are welcome to attend our meetings.

Our 2022 Contest started on January 3rd and ends on December 5th. Make sure to set your calendar alarms to remind you to check-in and join the Zoom get-together that follows.
(Continued on Next Page)

K6MEP Monday Night Net Script (Continued)

The contest rules are: The person who checks-in to the K6MEP Monday Night Net Contest must hold a valid Amateur Radio License. If a non-member wins, they will be given a two-year membership in the club. The member's awards consist of $100.00 for first place, $50.00 for second place and $25.00 for third place. In case of ties, the awards will be split equally among the members who qualify for the monetary award.

When you check-in, please give your call sign (phonetically), name and if you are a Ventura County Amateur Radio Club member. If you are not a member of the club, please include your QTH or location.

Please check in now. (you can use the quick check in list spreadsheet if it helps in logging check-ins).

If the check-ins are completed or there is a lull in the check-ins say: Hearing no other check-ins at this time, we will now begin with our Roundtable (Start with the first check-in and ask him/her about ham radio activities during last week, then move on to the next person). At every ten minute mark, identify with your name, call sign and Ventura County Amateur Radio Club net.

During the Roundtable, pause every 10 minutes and identify yourself with "This is (Name) _____(Call sign)_____, tonight's net control station for the Ventura County Amateur Radio Club Net". Also ask if anyone wants to check-in. If none, ask "Any last comments? ******** Any late, missed, or visitor check-ins?"

Please check-in now.

Say "Hearing no new check-ins, does anyone have anything else they would like to add to tonight's net?"

If nothing is heard;

(Closing): This concludes the Ventura County Amateur Radio Club weekly net at _____hours. Thank you for your interest and participation. Also thanks to Paul Strauss, WD6EBY, for the use of the repeater for our K6MEP net.

73, this is (Name) _____(Call sign)_____, tonight's Ventura County Amateur Radio Club net control, signing off and returning the repeater to its normal use.

Selected Contests & Special Events

Please see QST or the ARRL website (www.arrl.org) for any details and QSL information.

Maty Weinberg, KB1EIB, events@arrl.org; www.arrl.org/special-event-stations

Special Event Stations

Working special event stations is an enjoyable way to help commemorate history. Many provide a special QSL card or certificate!

June 11 – June 17, 0000Z – 2359Z, W4F/K4F/N4F, Goose Creek, SC. Carolina SideWinders of the Lowcountry. **245th Flag Day**. 7.216 10.137 14.0757 14.316. QSL. Carolina SideWinders, 318 Jennie St., Goose Creek, SC 29445. **km4sw_614@yahoo.com**

June 25 – June 26, 1500Z – 2359Z, W9Y, Williams Bay, WI. Walworth County ARES/RACES. **Reopening of Yerkes Observatory**. 20, 40 and 80 meters. Certificate. Elijah Larson, K9ILJ, 113 S. 3rd St. W., Fort Atkinson, WI 53538. **www.walworthcountyaresraces.org**

June 25 – June 26, 1800Z – 1800Z, W6CX, Concord, CA. Mt. Diablo Amateur Radio Club. **MDARC Field Day Event**. 147.060 MHz, + offset, PL100.0 Hz. QSLs will not be sent. **info@mdarc.org** or **www.mdarc.org**

June 25 – July 7, 1200Z – 2300Z, KØH, Athol, KS. Smith County Amateur Radio Club. **150th Anniversary of Home on the Range**. 3.930 7.265 14.336. Certificate & QSL. Michael G. Saft, KBØQGT, 220 E. Kansas Ave., Smith Center, KS 66967.

July 2, 1400Z – 2000Z, K4RC, Williamsburg, VA. Williamsburg Area Amateur Radio Club. **Colonial Williamsburg Special Event**. 7.265 14.265. Certificate & QSL. QSL Manager, K4RC, P.O. Box 1470, Williamsburg, VA 23187. **info@k4rc.net** or **www.k4rc.net**

July 4, 1600Z – 2130Z, W5KID, Baton Rouge, LA. Baton Rouge Amateur Radio Club. **Independence Day Observance**. 7.040 7.250 14.040 14.250. QSL. USS *Kidd* Amateur Radio Club, 305 S. River Rd., Baton Rouge, LA 70802. **www.qrz.com/db/w5kid**

July 5 – July 9, 0000Z – 2300Z, NY9H/WA3COM, Prosperity, PA. Washington Amateur Communications. **Whiskey Rebellion**. 7.280 14.280 18.160. Certificate & QSL. Bill Steffey, NY9H, 401 Bells Lake Rd., Radio Hill, Prosperity, PA 15329. **www.whiskeyrebellionfestival.com** and **www.wa3com.com**

July 6 – Dec. 31, 1000Z – 2359Z, PA100THALES, various cities, Netherlands. PA100THALES Team. **100 Years of Thales Nederland B.V.** All bands, all modes. QSL. Email **pa100thales@qsl.net** for information. **www.qsl.net/pa100thales**

July 7 – July 17, 0000Z – 2359Z, W4G, Birmingham, AL. Birmingham Amateur Radio Club. **World Games 2022 Birmingham**. 7.2 MHz; all bands, all modes, including satellites. QSL. Birmingham Amateur Radio Club. W4G, P.O. Box 603, Birmingham, AL 35201. *Look for W4G on various spotting sites*. **www.w4cue.com/w4g**

July 9, 1700Z – 2100Z, W9BCC, Wausau, WI. Rib Mountain Repeater Association. **RMRA 50th Anniversary Celebration**. 7.282 14.315 146.730 146.820. QSL. e-QSL or Rib Mountain Repeater Association, 1810 Perry Dr., Schofield, WI 54476. **https://rmra.club**

July 12, 1800Z – 2200Z, N3TAL, Lanham, MD. American Legion Post 275 ART. **Bladensburg World War I Peace Cross**. 7.275 MHz ± 5 kHz. QSL. American Legion Post 275 ART, 8201 Martin Luther King, Jr. Hwy., Lanham, MD 20706. **wa3dvo@verizon.net**

July 13 – July 18, 0600Z – 2200Z, KØE, Erie, KS. **Celebrating 149th Annual Old Soldiers and Sailors Reunion**. 7.250 14.250. QSL. Shannon Kofoid, WØSDK, 226 N. Grant, Erie, KS 66733.

July 20, 1330Z – 2000Z, K2CAM, Garden City, NY. Long Island Mobile Amateur Radio Club. **Apollo 11 Moon Landing Commemoration**. 7.240 14.240; SSB, PSK31, and FT8. QSL. LIMARC, P.O. Box 392, Levittown, NY 11756. **www.qrz.com/db/k2cam** or **www.limarc.org**

July 21 – July 22, 1400Z – 0200Z, K6E, Bakersfield, CA. N6AJ. **70th Anniversary of 7.3 Earthquake**. 14.275 18.100; all bands, all modes. QSL. Sharon Godley, 2701 Fordham St., Bakersfield, CA 93305. **n6aj@arrl.net** or **www.qrz.com/db/n6aj**

July 23, 1400Z – 1700Z, N1EPJ, East Greenwich, RI. Massie Wireless Club at New England Wireless & Steam Museum. **100th Anniversary of Three Rhode Island Broadcast Stations: WJAR, WEAN, and WKAD**. 7.058 7.250 14.058 14.310. QSL. Massie Wireless Club, N1EPJ, P.O. Box 883, East Greenwich, RI 02818. **www.newsm.org**

July 23, 1200Z – 2100Z, N9E, Lorain, OH. USCG AUX 09E-06/BSA Sea Scouts. **USCG Auxiliary Sea Scouts Safety at Sea Day**. 14.270 14.290 7.180 7.290. QSL. CGAUX Radio Officer, CGSTA Lorain, 110 Alabama Ave., Lorain, OH 44052. **w8twl@arrl.net**

July 25 – July 31, 1200Z – 0200Z, W4H, Albion, NY. Orleans County Amateur Radio Club. **Orleans County 4H Fair**. 7.030 7.175 14.074 14.275. QSL. Orleans County Amateur Radio Club, 14064 W. County House Rd., Albion, NY 14411. *Please QSL by September 30, 2022*. **www.ocarc.us**

July 25 – July 31, 1330Z – 2030Z, W9ZL, Appleton, WI. Fox Cities Amateur Radio Club. **EAA AirVenture 2022**. 7.250 14.270 50.150. Certificate. W9ZL Special Event Station, P.O. Box 2346, Appleton, WI 54912. **www.fcarc.club**

Certificates and QSL cards: To obtain a certificate from any of the special-event stations offering them, send your QSO information along with a 9 × 12-inch self-addressed, stamped envelope (3 units of postage) to the address listed in the announcement. To receive a special event QSL card (when offered), be sure to include a self-addressed, stamped business envelope along with your QSL card and QSO information.

Special Events Announcements: For items to be listed in this column, use the ARRL Special Events Listing Form at **www.arrl.org/special-events-application**, or email information to **events@arrl.org**.

Submissions must be received by ARRL HQ no later than the 1st of the second month preceding the publication date; a special event listing for **October** *QST* would have to be received by **August 1.** In addition to being listed in *QST*, your event will be listed on the ARRL Web Special Event page. **Note**: All received events are acknowledged. If you do not receive an acknowledgement within a few days, please contact us. ARRL reserves the right to exclude events of a commercial or political nature.

You can view all received Special Events at **www.arrl.org/special-event-stations**.

(Continued on next page)

Selected Contests & Special Events (Continued)

Pennsylvania (Chambersburg) — July 30 D F H Q R S T V
8 AM – noon. *Spr:* Cumberland Valley ARC. CVAEMA Show Grounds, 1501 Criders Church Rd. *Tl:* 147.120 (100 Hz). *Adm:* $5. **www.w3ach.org**

Pennsylvania (Sinking Creek) — Aug. 6 D F H Q R S T V
8 AM – noon. *Spr:* Reading Radio Club, Inc. Heritage Park, 992 Clematis St. *Tl:* 146.91 (131.8 Hz). *Adm:* $8 Sellers, $5 buyers; test takers, unlicensed family free. **www.qsl.net/w3bn**

Tennessee (Athens) — July 16 D H R T V
9 AM – 1 PM. *Spr:* McMinn Co. ARC. McMinn Co. Expo Center, Athens Regional Park, Decatur Pike. *Tl:* 147.060 (141.3 Hz). *Adm:* Free. **www.mcminnarc.com**

Tennessee (Lebanon) — July 30 D H Q R S T V
8 AM – 3 PM. *Spr:* Wilson County ARC. James E. Ward Agricultural Center "Wilson Co./ Tenn. State Fairgrounds," 935 E. Baddour Pkwy. *Tl:* 147.105 (156.7 Hz). *Adm:* $5. **www.midtnhamquest.com**

Virginia (Berryville) — Aug. 7 D H Q R T V
6 AM. *Spr:* Shenandoah Valley ARC. Clark County Ruritan Fairgrounds, 890 W. Main St. *Tl:* 146.820 (146.2 Hz). *Adm:* $10, children under 12 free. **www.berryvillehamfest.com**

Virginia (Roanoke) — Aug. 6 D H R T V
9 AM – 1 PM. *Spr:* Roanoke Valley ARC. Colonial Avenue Baptist Church, 4165 Colonial Ave. *Tl:* 146.985 (107.2 Hz). *Adm:* Free. **www.roanokehamfest.info**

PACIFIC NORTHWEST DX CONVENTION
August 5 – 7, Spokane, Washington
D Q S
Fri. 2 PM – midnight, Sat. 7:30 AM – midnight, Sun. 7:30 – 10:30 AM. *Spr:* Spokane DX Association. Centennial Hotel Spokane, 303 W. North River Dr. *Tl:* none. *Adm:* $50 Advance (prior to July 1), $55 door (after July 1). **www.pacificnwdxconvention.com**

Washington (Union Gap) — July 30 F Q R T
9 AM – 2 PM. *Spr:* N7YRC Group. Yakima Office of Emergency Management, 2403 South 18th St. *Tl:* 147.06 (85.4 Hz). *Adm:* Free. **www.n7cfo.com**

ARRL WEST VIRGINIA STATE CONVENTION
July 29 – 31, Sutton, West Virginia
D F H S T V
8 AM – 7 PM. *Spr:* West Virginia State Amateur Radio Council. Flatwoods Days Inn and Suites and the Flatwoods Conference Center, 350 Days Dr. *Tl:* 145.290 (91.5 Hz). *Adm:* $10. **www.qsl.net/wvsarc**

Wisconsin (Jefferson) — Aug. 6 D F R
8 AM – noon. *Spr:* Tri-County ARC. Spangler Campgrounds, 910 Jackson Ave. *Tl:* 145.49 (123.0 Hz). *Adm:* $5. **www.w9mqb.org**

CENTRAL STATES VHF SOCIETY CONFERENCE
July 22 – 23, La Crosse, Wisconsin
D F Q R S
Fri. and Sat. 8 AM – 5 PM. *Spr:* Central States VHF Society. Radisson Hotel La Crosse, 200 Second St. *Tl:* 147.09 (131.8 Hz). *Adm:* Approx. $45. **www.2022.csvhfs.org**

To All Event Sponsors

Before making a final decision on a date for your event, you are encouraged to check the Hamfest and Convention Database (**www.arrl.org/hamfests-and-conventions-calendar**) for events that may already be scheduled in your area on that date. You are also encouraged to register your event with HQ as far in advance as your planning permits. See **www.arrl.org/hamfest-convention-application** for an online registration form. Dates may be recorded up to 2 years in advance.

Events that are sanctioned by ARRL receive special benefits, including an announcement in these listings and online. Sanctioned conventions are also listed in *The ARRL Letter*. In addition, events receive donated ARRL prize certificates and handouts. Once the form has been submitted, your ARRL Director will decide whether to approve the date and provide ARRL sanction.

The deadline for receipt of items for this column is the **1st of the second month preceding publication date**. For example, your information must arrive at HQ by **August 1** to be listed in the **October** issue. Information in this column is accurate as of our deadline; contact the sponsor or check the sponsor's website for possible late changes, driving directions, and other event details. Please note that postal regulations prohibit mention in *QST* of games of chance, such as raffles or bingo.

Promoting your event is guaranteed to increase attendance. As an approved event sponsor, you are entitled to special discounted rates on *QST* display advertising and ARRL web banner advertising. Call ARRL's toll-free number at 1-800-243-7768, or email **ads@arrl.org**.

Contest Corral

Bruce Draper, AA5B, aa5b.corral@gmail.com

Contest Corral — July 2022

Check for updates and a downloadable PDF version online at **www.arrl.org/contest-calendar**.
Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish Date-Time		Date-Time		Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	0000	1	2359	1.8-144	RAC Canada Day Contest	CW Ph	RS(T), VE province/territory or serial	www.rac.ca
2	0000	2	2359	1.8-28	Venezuelan Independence Day Contest	CW Ph Dig	RS(T), serial	radioclubvenezolano.org
2	0800	3	1100	3.5	NZART Memorial Contest	CW Ph	RS(T), serial	www.nzart.org.nz/activities
2	1100	3	1059	3.5-28	DL-DX RTTY Contest	Dig	RST, serial	www.drcg.de/dldxrtty
2	1400	3	1400	1.8-28	Marconi Memorial HF Contest	CW	RST, serial	www.arifano.it
2	1500	3	1500	3.5-14	Original QRP Contest	CW Ph	RST, serial, power category	www.qrpcc.de
2	1500	3	1500	50, 144, 432	TA VHF/UHF Contest	CW Ph	RS(T), serial, 6-char grid square	trac.org.tr
2	2000	3	2000	7	PODXS 070 Club 40-Meter Firecracker Sprint	Dig	RST, SPC	www.podxs070.com
4	1630	4	1729	3.5,7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
4	1900	4	2030	3.5	RSGB 80-Meter Club Championship, CW	CW	RST, serial	www.rsgbcc.org/hf
5	0100	5	0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
6	1200	6	1300	1.8-28	A1Club AWT	CW	RST, name	a1club.org/contest/awt
6	1700	6	2000	144	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
7	0000	8	0300	7	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power; 13 WPM max	qrpcontest.com/pigwalk40
7	1700	7	2100	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrricontest.no/index.php/nrri-contests
7	1900	7	2100	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
9	1200	10	2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
10	2000	10	2300	1.8-28	QRP ARCI Summer Homebrew Sprint	CW	RST, SPC, mbr or power	qrparci.org/contest
11	0000	11	0200	1.8-28	4 States QRP Group Second Sunday	CW Ph	RS(T), SPC, mbr or power	www.4sqrp.com
11	1630	11	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
13	1200	13	1300	1.8-28	A1Club AWT	CW	RST, name	a1club.org/contest/awt
13	1700	13	2000	432	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
13	1900	13	2030	3.5	RSGB 80-Meter Club Championship, SSB	Ph	RS, serial	www.rsgbcc.org/hf
16	0700	16	1459	7-28	Russian Radio Team Championship	CW Ph	RS(T), mbr code or ITU zone	srr.ru
16	0800	16	1400	1.8-7	Trans-Tasman Low-Bands Challenge	CW Ph Dig	RS(T), serial	www.wia.org.au
16	1400	17	1400	70	IARU Region 1 70 MHz Contest	CW Ph	RS(T), serial, 6-char grid	www.iaru-r1.org
16	1800	17	2100	50, 144	CQ Worldwide VHF Contest	CW Ph Dig	4-char grid square	www.cqww-vhf.com
17	0900	17	1600	3.5-14	RSGB International Low Power Contest	CW	RST, serial, power	www.rsgbcc.org/hf
17	2000	17	2159	14	CQC Great Colorado Gold Rush	CW	RST, SPC	www.coloradoqrpclub.org
17	2300	18	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	qrpcontest.com/pigrun
18	1630	18	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
18	1900	18	2030	3.5-14	RSGB FT4 Contest	FT4	4-char grid square	www.rsgbcc.org/hf
20	1200	20	1300	1.8-28	A1Club AWT	CW	RST, name	a1club.org/contest/awt
20	1700	20	2000	1.2G	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
21	0000	22	0300	14	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power; 13 WPM max	qrpcontest.com/pigwalk20
21	0030	21	0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
21	1900	21	2000	3.5-14	NTC QSO Party	CW	RST, mbr or "NM"; 25 WPM max	qsl.net/ntc/party.html
23	1000	23	2159	3.5-28	YOTA Contest	CW Ph	RS(T), age	www.ham-yota.com/contest
25	1630	25	1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
27	0000	27	0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
27	1200	27	1300	1.8-28	A1Club AWT	CW	RST, name	a1club.org/contest/awt
28	1900	28	2030	3.5	RSGB 80-Meter Club Championship, Data	Dig	RST, serial	www.rsgbcc.org/hf
30	0000	30	2359	1.8-50	Feld Hell Sprint	Dig	Mbr, SPC, grid	sites.google.com/site/feldhellclub
30	1200	31	1200	3.5-28	RSGB IOTA Contest	CW Ph	RS(T), serial, IOTA # (if applicable)	www.rsgbcc.org/hf
30	1400	30	1800	144	WAB 144 MHz Low Power Phone	Ph	RS, serial, WAB square or country	wab.intermip.net
30	1400	31	2200	3.5-50, Satellite	Tennessee State Parks on the Air	All	TN park abbreviation or SPC	www.tnpota.org
31	1700	31	2100	7-28	ARS Flight of the Bumblebees	CW	RST, SPC, power or Bumblebee number	www.arsqrp.blogspot.com

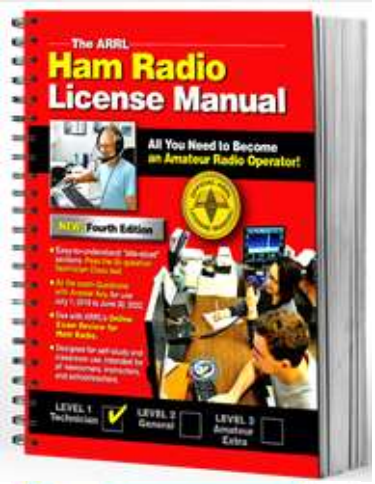
There are a number of weekly contests not included in the table above. For more info, visit: **www.qrpfoxhunt.org**, **www.ncccsprint.com**, and **www.cwops.org**. All dates and times refer to UTC and may be different from calendar dates in North America. Contests are not conducted on the 60-, 30-, 17-, or 12-meter bands. Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state. Listings in blue indicate contests sponsored by ARRL or *NCJ*. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. *Data for Contest Corral is maintained on the WA7BNM Contest Calendar at* **www.contestcalendar.com** *and is extracted for publication in* QST *2 months prior to the month of the contest. ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service.*

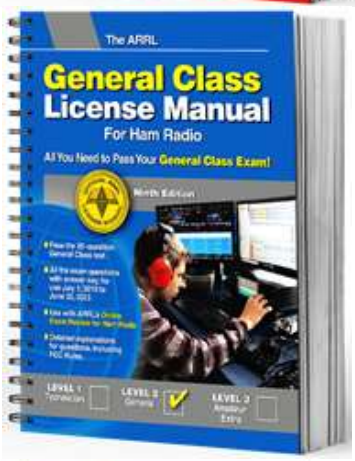
Upcoming FCC Exam Session Preparation Sites

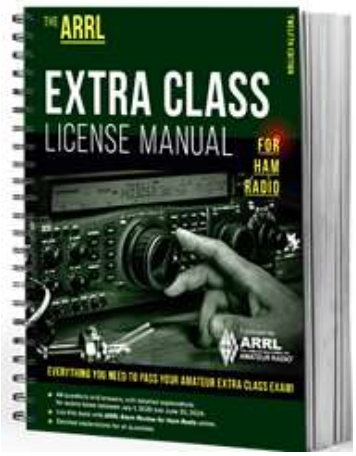
(Virtual and In Person)

Online CA 90703

07/06/2022
Start/End Dates: 07/06/2022 - 07/27/2022
Times: Wednesdays, 7pm to 9PM via ZOOM
# of Sessions: 4
Class level: Technician
Morse code offered: No
Pre register required: No
Fee: $60
Pre Study required: Yes
Class Type: Online or Hybrid
Exam offered: No
Sponsoring Club/Organization: American Red Cross
Instructor: KK6SMD
Contact: Mark Chung KK6SMD
Phone: (562) 708-3893
Email: mchung@prodigy.net
Location: From Your Home
Your Street Adress
Your Street Adress
Cerritos, CA 90703
Additional Information: July 1st, 2022 is the start of a new set of questions for the upcoming Technician FCC License Exam. We are offering the first class of its kind via ZOOM so that you can be well prepared for the new exam! Please register by sending the course fee by PayPal or Zelle (mchung@prodigy.net) and send an email message to the course director so that additional study aids and the ZOOM link can be sent to you. We also have a testing program which allows you to take the test online as well, from the comfort of your home, however it will be proctored by licensed hams. The FCC license exam is given every week whenever you are ready and thus there is less pressure with "cramming" for the test. Demonstrations are given via ZOOM and the focus is also on Emergency Communications as well as the radio hobby.







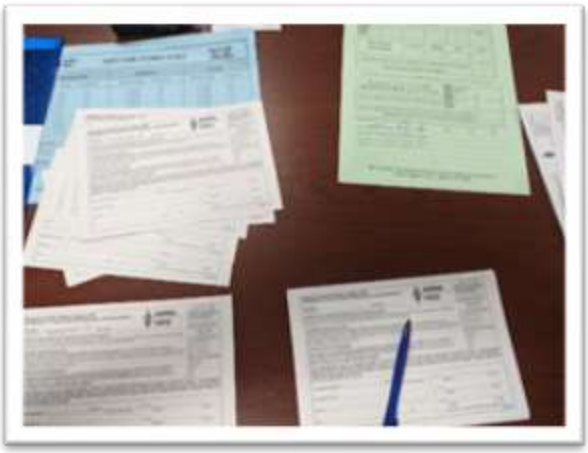
Upcoming FCC Exam Test

Van Nuys CA 91405-4542
07/02/2022
Sponsor: ARES LAX
Date: Jul 02 2022
Time: 10:30 AM (Walk-ins allowed)
Contact: James W. Laage
(818) 368-8710
Email: cllaage@verizon.net
VEC: ARRL/VEC
Location: Valley Presbyterian Hospital
(Health Education Center)
15107 Vanowen Street
Van Nuys CA 91405-4542

Goleta CA 93117-3271
07/09/2022
Sponsor: Santa Barbara ARC
Date: Jul 09 2022
Time: 9:00 AM (Walk-ins allowed)
Contact: Tom Saunders
(805) 452-0840
Email: tsaund@cox.net
VEC: ARRL/VEC
Location: Impulse Communications
6144 Calle Real
Pre-registration preferred
Register on the team's website
Goleta CA 93117-3271
Website: https://www.sbarc.org/ve-exam-registration/

Santa Monica CA 90403-5610
07/09/2022
Sponsor: The PAPA system
Date: Jul 09 2022
Time: 7:00 AM (No Walk-ins / Register or Call ahead)
Contact: Norm Goodkin
(818) 613-2257
Email: hamclass@goodkin.net
VEC: Greater LA VEC
Location: Fromin's Deli and Rest
1832 Wilshire Blvd
Http //Papasys Org
Pre-registration required
Santa Monica CA 90403-5610

Valencia CA 91355-2008
07/16/2022
Sponsor: Santa Clarita ARC
Date: Jul 16 2022
Time: 8:00 AM (No Walk-ins / Register or Call ahead)
Contact: Ronald B. Klein
(661) 259-0948
Email: testing@w6jw.org
VEC: Greater LA VEC
Location: United Methodist Church of Valencia
25718 McBean Pkwy
Rm B
Valencia CA 91355-2008



On Exam Day Bring the Following Items:

1. One legal photo ID (identification):
    a. State Driver's License, b. Government issued Passport, c. Military or Law Enforcement Officer Photo ID card, d. Student School Photo ID card, e. State Photo ID card.
2. If no photo ID is available, two forms of identification:
    a. Non-photo State ID card (some states still have them), b. Birth certificate (must have the appropriate seal), c. Social security card, d. Employer's wage statement or Minor's work permit, e. School ID card, f. School or Public Library card, g. Utility bill, bank statement or other business correspondence that specifically names the person; or a postmarked envelope addressed to the person at his or her current mailing address as it appears on the Form 605.
3. Students/minors without a photo ID need to bring only one of the above items if a legal guardian presents their photo ID; otherwise two non-photo IDs are required. Minor children (under the age of 18) may be accompanied in the room by an adult during the test.
4. FCC Registration Number (FRN): VECs are required by the FCC to submit your FRN with your license application form. New license applicants must create an FCC user account and register their Social Security Number (SSN) in the FCC Commission Registration System (CORES) before attending exam sessions. Registrants will be assigned an FRN which will be used in all license transactions with the FCC. For instructions on how to register your SSN and receive an FRN from the FCC, visit the FCC's Registration page and the FCC's Registration instructions page. Per FCC rules, a valid email address is also mandatory on the application form.
5. If applicable, bring a printed copy of your Amateur Radio license. Acceptable copies or printouts of licenses are available from the following sources: the official license or reference license printed from the FCC website or license data printed from the ARRL website or QRZ website. The original(s) and photocopy(s) of any Certificates of Successful Completion of Examination (CSCE) you may hold from previous exam sessions. If your license has already been issued by the FCC, the CSCE showing license credit is not needed. The candidate is required to show proof of the current license to the team but the team is no longer required to submit the proof to the VEC. Expired license proof must be submitted to the team and to the VEC for processing to FCC. These photocopies will not be returned. Instructions on how to obtain an official FCC license copy are on our Obtain License Copy web page.
6. Two number two pencils with erasers and a pen for in-person sessions.
7. A calculator with the memory erased and formulas cleared is allowed. You may not bring any written notes or calculations into the exam session. Slide rules and logarithmic tables are acceptable, as long as they're free of notes and formulas. Cell phone must be silenced or turned off during the exam session and the phones' calculator function may not be used. In addition, iPhones, iPads, Androids, smartphones, Blackberry devices and all similar electronic devices with a calculator capability, may NOT be used.
8. Bring a check, a money order or cash to cover the exam session fee(s). Check the ARRL VEC's current exam fees. The FCC started to accept the $35 fee on April 19, 2022, which will be paid directly to the FCC.
9. Be aware that some information about you will be made publicly available on the FCC's website.

Convention and Hamfest Calendar

Steve Ewald, WV1X, sewald@arrl.org; www.arrl.org/hamfests-and-conventions-calendar

Convention and Hamfest Calendar

A = AUCTION
D = DEALERS / VENDORS
F = FLEA MARKET
H = HANDICAP ACCESS
Q = FIELD CHECKING OF QSL CARDS
R = REFRESHMENTS
S = SEMINARS / PRESENTATIONS
T = TAILGATING
V = VE SESSIONS

Abbreviations
Spr = Sponsor
Tl = Talk-in frequency
Adm = Admission

Alaska (Kenai) — July 16 F H Q
10 AM. *Spr:* Moosehorn ARC. Kenai American Legion Hall, 902 Cook Ave. *Tl:* 146.88. *Adm:* $5. **www.kl7uw.com/Hamfest2022.htm**

Colorado (Monument) — July 16 D F H R T V
8 AM – 1 PM. *Spr:* Pikes Peak Radio Amateur Association. Lewis Palmer High School, 1300 Higby Rd. *Tl:* 146.235 or 146.46 simplex. *Adm:* $5. **www.ppraa.org**

Idaho (Post Falls) — July 30 D F H R T
9 AM – 2 PM. *Spr:* Kootenai ARS. Farm Field, 2130 N. Meyer Rd. *Tl:* 146.98 (127.3 Hz). *Adm:* $5. **www.k7id.org**

Illinois (Peotone) — July 17 D F H R S T V
6 AM – 1 PM. *Spr:* Kankakee Area Radio Society. Will Co. Fairgrounds, 710 South West St. *Tl:* 146.940 (107.2 Hz). *Adm:* $8 Advance, $10 door. **www.w9az.com/karsfest.html**

Illinois (Peotone) — Aug. 7 D F H R T
6 AM – 2 PM. *Spr:* Hamfesters Radio Club. Will Co. Fairgrounds. 710 S. West St. *Tl:* 146.52 Simplex. *Adm:* $8 Advance, $10 door. **www.ham-ham.org**

Indiana (Elkhart) — Aug. 6 D F H R T
9 AM – 3 PM. *Spr:* Northern Indiana K9DEW Repeater Network. Northern Indiana Event Center, 21565 Executive Pkwy. *Tl:* 145.430 (141.3 Hz). *Adm:* $8. **www.elkharteast hamfest.com**

Indiana (Winchester) — July 30 D F H R T V
8 AM – 3 PM. *Spr:* Randolph Co. ARC. Randolph Co. Fairgrounds, 1885 US 27. *Tl:* 147.300 (110.9 Hz). *Adm:* Free. **www.sites.google.com/view/ecindianahamfest/home**

ARRL IOWA STATE CONVENTION
August 6 – 7, Central City, Iowa
D F H Q R S T V
8 AM – 3 PM. *Sprs:* Cedar Valley ARC, Collins ARC. Linn Co. Fairgrounds, 201 Central City Rd. *Tl:* 146.745 (192.8 Hz). *Adm:* $10. **www.w0gq.org/hamfest**

Michigan (Shelby Township) — July 16 D F
8 AM – 1 PM. *Spr:* GM ARC. Packard Proving Grounds, 49965 Van Dyke Ave. *Tl:* 443.075 (123 Hz). *Adm:* $5 per carload. **www.gmarc.org**

Missouri (Warrensburg) — July 16 D F H R S T V
8 AM – noon. *Spr:* Warrensburg Area ARC. Johnson County Fairgrounds, 144 NW 361st Rd. *Tl:* 146.88 (107.2 Hz). *Adm:* Free. **www.waarci.org/events/hamfest**

Missouri (Washington) — July 17 D F H R T V
7 AM – noon. *Spr:* Zerobeaters ARC. Knights of Columbus Hall, 1121 Columbus Dr. *Tl:* 147.240 (141.3 Hz). *Adm:* $7. **www.zerobeaters.org**

Montana (Essex) — July 15 – 17 D F H R S T V
All day. *Spr:* Great Falls Area ARC. Glacier Meadow RV Park, 15735 US HWY 2 E. *Tl:* 146.52 simplex. *Adm:* $25 Advance, $30 door. **www.gwhamfest.org**

Nebraska (North Bend) — July 16 D F H R S V
8 AM – 12:30 PM. *Spr:* Pioneer ARC. North Bend City Auditorium, 741 North Main St. *Tl:* 146.67 (100 Hz) or 433.900. *Adm:* $3. **www.k0sw.org**

New Jersey (Augusta) — July 17 D F H Q R T V
8 AM – 2 PM. *Spr:* Sussex Co. ARC. Sussex Co. Fair Grounds, 37 Plains Rd. *Tl:* 147.30 (151.4 Hz). *Adm:* $8. **www.scarcnj.org**

New Jersey (Piscataway) — July 9 D F H Q R T V
8 AM – 1 PM. *Spr:* Raritan Valley Radio Club. Piscataway High School parking lot, 110 Behmer Rd. *Tl:* 146.625 (141.3 Hz). *Adm:* $7. **www.w2qw.org/hamfest.htm**

New Jersey (Wall Township) — July 23 D F H R T
7:15 AM – noon. *Spr:* New Jersey Antique Radio Club. InFo Age, 2201 Marconi Rd. *Tl:* none. *Adm:* $5. Email: **radioricardo61@gmail.com**

New York (Alexander) — July 16 D F H R T V
6 AM. *Spr:* Lancaster ARC. Alexander Firemen Grounds, 10708 Alexander Rd. Route 98. *Tl:* 147.285 (141.3 Hz). *Adm:* $8. **www.w2so.org**

New York (Smithtown) — July 9 F H V
8 AM. *Spr:* Suffolk Co. VHF/UHF Assn. Elks Lodge Smithtown, 120 Edgewood Ave. *Tl:* none. *Adm:* $5. **www.hamradioexamsny.yolasite.com**

New York (Trumansburg) — Aug. 6 D F H R T V
7 AM – 2 PM. *Spr:* Tompkins Co. ARA. Trumansburg Fairgrounds, 2150 Trumansburg Rd., NYS Route 96. *Tl:* 146.970, 146.370 (103.5 Hz). *Adm:* $5. **www.tcara-ny.org**

North Carolina (Waynesville) — July 23 D F H R S T V
8 AM – 2 PM. *Spr:* Western Carolina ARS. Smoky Mountain Event Center (Heywood Co. Fairgrounds), 758 Crabtree Rd. *Tl:* 147.390 (94.8 Hz). *Adm:* $6 Advance, $7 door. **www.wcars-club.org**

Ohio (Elyria) — July 16 D F H R T V
9 AM – 1 PM. *Spr:* Northern Ohio ARS. Lorain Co. Community College, 1005 Abbe Rd. N. *Tl:* 146.70 (110.9 Hz). *Adm:* $7. Email: **noarsfest@noars.net**

Ohio (Grove City) — Aug. 6 D F H R
8 AM – 1 PM. *Spr:* Aladdin Shrine Audio Unit. Aladdin Shrine, 1801 Gateway Circle. *Tl:* 146.760 (123.0 Hz). *Adm:* $5. **www.columbushamfest.com**

Ohio (Van Wert) — July 17 F H R T
8 AM – 1 PM. *Spr:* Van Wert ARC. Van Wert Co. Fairgrounds, 1055 S. Washington St. *Tl:* 146.850. *Adm:* Free. **www.w8fy.org**

ARRL OKLAHOMA SECTION CONVENTION
July 22 – 23, Oklahoma City, Oklahoma
D F H Q R S V
Fri. 3 PM – 9 PM, Sat. 8 AM – 3 PM. *Spr:* Central Oklahoma Radio Amateurs. Oklahoma City Community College, 7777 S. May Ave. *Tl:* 146.82 (151.4 Hz) or DMR 31401 OK Central. *Adm:* $10 Advance, $12 door. **www.hamholiday.com**

(Continued on next page)

Convention and Hamfest Calendar (continued)

Pennsylvania (Chambersburg) — July 30 D F H Q R S T V
8 AM – noon. *Spr:* Cumberland Valley ARC. CVAEMA Show Grounds, 1501 Criders Church Rd. *Tl:* 147.120 (100 Hz). *Adm:* $5. **www.w3ach.org**

Pennsylvania (Sinking Creek) — Aug. 6 D F H Q R S T V
8 AM – noon. *Spr:* Reading Radio Club, Inc. Heritage Park, 992 Clematis St. *Tl:* 146.91 (131.8 Hz). *Adm:* $8 Sellers, $5 buyers; test takers, unlicensed family free. **www.qsl.net/w3bn**

Tennessee (Athens) — July 16 D H R T V
9 AM – 1 PM. *Spr:* McMinn Co. ARC. McMinn Co. Expo Center, Athens Regional Park, Decatur Pike. *Tl:* 147.060 (141.3 Hz). *Adm:* Free. **www.mcminnarc.com**

Tennessee (Lebanon) — July 30 D H Q R S T V
8 AM – 3 PM. *Spr:* Wilson County ARC. James E. Ward Agricultural Center "Wilson Co./ Tenn. State Fairgrounds," 935 E. Baddour Pkwy. *Tl:* 147.105 (156.7 Hz). *Adm:* $5. **www.midtnhamquest.com**

Virginia (Berryville) — Aug. 7 D H Q R T V
6 AM. *Spr:* Shenandoah Valley ARC. Clark County Ruritan Fairgrounds, 890 W. Main St. *Tl:* 146.820 (146.2 Hz). *Adm:* $10, children under 12 free. **www.berryvillehamfest.com**

Virginia (Roanoke) — Aug. 6 D H R T V
9 AM – 1 PM. *Spr:* Roanoke Valley ARC. Colonial Avenue Baptist Church, 4165 Colonial Ave. *Tl:* 146.985 (107.2 Hz). *Adm:* Free. **www.roanokehamfest.info**

PACIFIC NORTHWEST DX CONVENTION
August 5 – 7, Spokane, Washington
D Q S
Fri. 2 PM – midnight, Sat. 7:30 AM – midnight, Sun. 7:30 – 10:30 AM. *Spr:* Spokane DX Association. Centennial Hotel Spokane, 303 W. North River Dr. *Tl:* none. *Adm:* $50 Advance (prior to July 1), $55 door (after July 1). **www.pacificnwdxconvention.com**

Washington (Union Gap) — July 30 F Q R T
9 AM – 2 PM. *Spr:* N7YRC Group. Yakima Office of Emergency Management, 2403 South 18th St. *Tl:* 147.06 (85.4 Hz). *Adm:* Free. **www.n7cfo.com**

ARRL WEST VIRGINIA STATE CONVENTION
July 29 – 31, Sutton, West Virginia
D F H S T V
8 AM – 7 PM. *Spr:* West Virginia State Amateur Radio Council. Flatwoods Days Inn and Suites and the Flatwoods Conference Center, 350 Days Dr. *Tl:* 145.290 (91.5 Hz). *Adm:* $10. **www.qsl.net/wvsarc**

Wisconsin (Jefferson) — Aug. 6 D F R
8 AM – noon. *Spr:* Tri-County ARC. Spangler Campgrounds, 910 Jackson Ave. *Tl:* 145.49 (123.0 Hz). *Adm:* $5. **www.w9mqb.org**

CENTRAL STATES VHF SOCIETY CONFERENCE
July 22 – 23, La Crosse, Wisconsin
D F Q R S
Fri. and Sat. 8 AM – 5 PM. *Spr:* Central States VHF Society. Radisson Hotel La Crosse, 200 Second St. *Tl:* 147.09 (131.8 Hz). *Adm:* Approx. $45. **www.2022.csvhfs.org**

To All Event Sponsors

Before making a final decision on a date for your event, you are encouraged to check the Hamfest and Convention Database (**www.arrl.org/hamfests-and-conventions-calendar**) for events that may already be scheduled in your area on that date. You are also encouraged to register your event with HQ as far in advance as your planning permits. See **www.arrl.org/hamfest-convention-application** for an online registration form. Dates may be recorded up to 2 years in advance.

Events that are sanctioned by ARRL receive special benefits, including an announcement in these listings and online. Sanctioned conventions are also listed in *The ARRL Letter*. In addition, events receive donated ARRL prize certificates and handouts. Once the form has been submitted, your ARRL Director will decide whether to approve the date and provide ARRL sanction.

The deadline for receipt of items for this column is the **1st of the second month preceding publication date**. For example, your information must arrive at HQ by **August 1** to be listed in the **October** issue. Information in this column is accurate as of our deadline; contact the sponsor or check the sponsor's website for possible late changes, driving directions, and other event details. Please note that postal regulations prohibit mention in *QST* of games of chance, such as raffles or bingo.

Promoting your event is guaranteed to increase attendance. As an approved event sponsor, you are entitled to special discounted rates on *QST* display advertising and ARRL web banner advertising. Call ARRL's toll-free number at 1-800-243-7768, or email **ads@arrl.org**.

ARRL News

(All photos and icons from ARRL.org or other specified sources).

Field Day 2022: 500,000 Contacts Already Reported

2022 ARRL Field Day wrapped up nearly a week ago, and ARRL Headquarters has already received over 2,400 entries submitted via the online Field Day Entry web application. Early analysis reveals that most of the entrants participated as Class D -- home stations, and Class E -- home stations using emergency power.

As of June 29, the breakdown of Field Day entries by Class showed 2,723 total entries, with 272 in Class A, 361 in Class B, 32 in Class C (mobile), 1,524 in Class D, 484 in Class E, and 50 in Class F.

So far, a total of over 517,000 contacts were reported for the event and those numbers are changing daily. In 2021, there were 1.5 million contacts made during Field Day activities.

Many participants were keeping their hopes up for better propagation, as early forecasts were looking promising. ARRL Contest Program Manager Paul Bourque, N1SFE, said that propagation aside, there was substantial activity. "While band conditions might not have been the greatest, there was a good amount of activity on the bands this past weekend. Many participants seemed to agree that the recent rule changes, capping transmitter power output to 100 W, were a good idea," he said.

Dustin Lomax, KF7FK, reported in his Soapbox comments that it was his first Field Day in which he used CW, adding that "CW was a fun change of pace that really helped make the most of marginal band conditions in WWA [Western Washington]." There is still plenty of time to submit your 2022 Field Day entry. Participants who submit their entries using ARRL's Online Submission Form can earn 50 bonus points and will receive an email confirmation of their completed entry. Be sure to check the Entries Received web page to verify your entry's status. If it indicates "Pending documents," the required dupe sheet (or in lieu of that, a Cabrillo log file) other supporting documentation of claimed bonus points is missing.

Kristi Milluzzi has made a commemorative Field Day cake for each of the last three years, featuring the event's logo. She recently married Andy Milluzzi, KK4LWR, of Clermont, Florida. Andy is a member of the ARRL Public Relations Committee, and co-advisor to the ARRL Collegiate Amateur Radio Program.

(Continued on Next Page)

ARRL News (Continued)

Participants can edit or add documentation to their online submissions by using the link provided in the confirmation email. Field Day entries must be submitted online or postmarked no later than 2059 UTC on July 26, 2022.

2022 Field Day was highly promoted thanks to the efforts of many ARRL Division and Section volunteers, amateur radio clubs, and their members. Many states and counties obtained special proclamations from local governments designating the weekend (in some cases the whole week) as Field Day and Amateur Radio Week, recognizing the many contributions of amateur radio operators during emergencies and with serving their communities.

ARRL treated participants with a live video stream from W1AW, its Headquarters' station, throughout Field Day. Life Member Karl Schwab, KO8S, of Warren, Michigan, was delighted with making contact with W1AW during Field Day. "I heard W1AW calling CQ Field Day on 20 m SSB," wrote Schwab. "I responded and then heard, 'Kilo Oscar Eight Sierra, you're 5 Foxtrot Connecticut.' I responded with my report, and got in their log. ... After Field Day, and uploading my log, I went to the ARRL website and there I found a 4-hour video was available on YouTube, showing W1AW during their Field Day activities. While watching this video, at hour 2, minute 55, I heard and saw my live contact with them! [This] was a special moment for me. One I will never forget." A recording of the W1AW live stream is on ARRL's YouTube channel.

ARRL News (Continued)

Southern California Exercise Tests Winlink Global Radio Email

For 2 days in mid-June, over 100 amateur radio operators were joined by the United States Geological Survey (USGS), local and county law enforcement agencies, and the EmComm Training Organization (ETO) for participation in a functional earthquake exercise in southern California, known as SoCal Shifting 2022.

The goal of the exercise, which took place June 18 - 19, was to test the operational capability and readiness of the Winlink Global Radio Email® system using amateur radio frequencies.

Oliver Dully, K6OLI, District Emergency Coordinator of the Amateur Radio Emergency Service® (ARES®) Los Angeles Northeast District, said the exercise came together quickly over 5 days, with the help of the Los Angeles County Sheriff's Department Disaster Communications Service (DCS), the San Diego ARES, and the Ventura County (ACS/)ARES.

Dully said, "Amateur operators routinely hold weekly tests but need to be network-aware and used to the battle rhythm during emergencies to move traffic in a more timely manner."

The exercise scenario included a cluster of earthquakes occurring on June 18 at 10:18 AM Pacific Standard Time, and amateur radio operators were asked to send a series of messages ranging from a Did You Feel It (DYFI) report to a Field Station Report (FSR).

Dully said the exercise was a great success, stating: "Participants were only given a short 3 days' notice, so the great success of the SoCal Shifting 2022 functional exercise again demonstrates the value of regular, mission-focused training and collaboration."

Dully said the numbers from the final after-action report were outstanding:

- The ARES Los Angeles Northeast District tactical call sign received 372 messages from 101 participating stations during this exercise. Seventy-six of those stations sent all four messages, 16 sent three, and the remainder sent two or fewer. The Winlink check-out was most often overlooked.
- Over 95% of stations correctly located themselves in North and Central America. Three stations missed a (-) sign in their longitudes in some (but not all) of their form submissions. Two stations elected not to send latitude and longitude.
- Over 95% entered the correct exercise name in the DYFI form. That was of special importance, as it helps USGS aggregate and analyze exercise data.

The exercise scenario and a brief after-action review are available.

ARRL News (Continued)

David A. Minster, NA2AA, ARRL Chief Executive Officer, na2aa@arrl.org

Second Century

ARES vs. AUXCOMM: The Conspiracy that Never Was

EmComm is a hallmark of our hobby, having played important roles many times in the aftermath of disasters, from small to large. You may not be aware of this, but nearly half of new hams indicate that they are interested in becoming amateur radio operators to pursue activity in emergency communications.

ARRL has built an infrastructure for EmComm within our public service organization that we call the Amateur Radio Emergency Service®, or ARES®. This is both an organization and a framework for people to volunteer, take needed training, join a local group, and then practice or drill to ensure readiness when required. It is the responsibility of your Section Manager to ensure that the position of Section Emergency Coordinator (SEC) is staffed and managing emergency communications.

Auxiliary Communications (AUXCOMM) has created, in conjunction with the states, a national certification for individuals called Auxiliary Communicators (AUXC) who support the public safety community. They have been given a path where they can study, test for, and earn certification under the US government's Cybersecurity & Infrastructure Security Agency (CISA). This certification is an important first step in potentially being deployed into a Communications Unit. As a part of the National Incident Management System, communications is defined as a required capability, with the kinds of responsibilities you'd expect — from deployment and setup, to staffing and operation, to tear down.

The communications section of Homeland Security in each state may be managed differently. For example: in Connecticut, there is no defined opportunity for amateur radio to play a role, whereas in Colorado, amateur radio by definition and decree is recognized as a supplemental element of its plan. How it is managed plays a fundamental role in how AUXCOMM certification eligibility is defined. It also defines how and when amateur radio plays a role in state-level response to an emergency situation. Regardless of how amateur radio broadly is defined within each state, credentialing is universally a rigorous process, and taken very seriously.

So, where is the controversy? It seems clear that ARES is the public service organization that trains and organizes amateurs for emergencies. AUXCOMM is embedded on a state-by-state basis into its requirements for establishing professional public safety emergency responders. It seems that in some states, individuals have taken it upon themselves to diminish the importance and role of ARES, focusing instead on a very narrow definition of state-only response to incidents. This logic is flawed.

ARRL enjoys a close working relationship with governmental agencies at the state and federal levels. The officials that we speak with are huge fans of ARES. Why? As radio amateurs, this is a passion and pursuit of ours — not just a job. ARES groups can, and do, enthusiastically practice and drill. They constantly seek to upgrade their capabilities from operator and infrastructure perspectives. If and when a state needs to supplement their EmComm capabilities, they know there is a pool of trained and equipped operators that could be called upon to supplement their ranks.

Another thing that is clear is that over the past decade or so, ARRL has not always been the leader it should have been in this space. Although we were keeping relationships alive, too much reliance was placed on the field organization to just get it done. ARRL HQ needed to strengthen its support for EmComm. We have staffed Field Services with Mike Walters, W8ZY — who was the Connecticut SEC at the time — who is working with the Section Managers, and Josh Johnston, KE5MHV — who has nearly 30 years of experience in EmComm — to work with the SECs and the served agencies. On top of that, the ARRL Board has created the Emergency Communications and Field Services Committee that meets every 2 to 3 weeks with a group of subcommittees focused on various initiatives. The point is: we get it and have responded in a huge way to close the leadership gap we created.

If you are one of those people who came into amateur radio seeking involvement in emergency communications, where are you today? Have you joined your local ARES group? Are you willing to commit to the training to prepare yourself for the next incident that may be unique to your area?

Get yourself involved in EmComm. Reach out to your Section Manager and make sure there is a healthy ARES program in your area. If you are an experienced and capable ARES member who wants to take it to the next level, reach out to your Section Emergency Coordinator and explore AUXCOMM opportunities. Be a connector and pull those new hams who want to pursue EmComm into your local group. And as always, stay radio active!

NA2AA

David A. Minster, NA2AA
Chief Executive Officer

(Continued on next page)

ARRL News (Continued)

Maria Somma, AB1FM, ab1fm@arrl.org

Exam Info

New Technician Question Pool Takes Effect July 1

On July 1, 2022, a new Element 2 Technician-class question pool will take effect for examinations. VECs and VEs will have new test designs available for use at exam sessions effective that date.

There are three graphics required for this pool and 412 questions in this pool, down slightly from 423 in the previous pool. To view all three question pools, visit the National Conference of Volunteer Examiner Coordinators (NCVEC) website at **www.ncvec.org**.

With the Technician-class exam questions changing July 1, new test designs must be used effective that day. Previous ARRL VEC-supplied Technician-class exam booklet versions (2018 series) and computer-generated Technician-class exams created from the 2018 question pool are valid only until midnight on June 30, 2022. At that time, VE team leaders should destroy or throw away the older versions of the Technician exams (do not return them to the VEC).

ARRL VEC has supplied its officially appointed field-stocked VE teams with new exam booklet designs. Field-stocked teams that no longer meet the field-stock requirements or who have not conducted a session in the past year, and non-field stocked teams that have been keeping supplies without qualifying through the VEC, will not receive an updated package. Non-stocked VE teams should return their exam packages and supplies to ARRL VEC after the session is completed. Officially stocked VE teams receive their exam supplies as a 6-month to 1-year supply, depending on the team's activity levels. To see if your team qualifies to be field stocked with our test materials, visit **www.arrl.org/field-stocked-ve-teams**.

FCC Application Fees

Amateur radio application fees, including those associated with Form 605 application filings, became effective April 19, 2022.

The $35 FCC application fee applies to new, renewal, and rule waiver applications, as well as modification applications that request a new vanity call sign. The fee will be per application.

Administrative updates, such as a change of name or mailing/email address, are exempt from fees, as are modification applications to upgrade an amateur radio licensee's operator class or to request a sequentially issued call sign.

VECs and VE teams should not collect the $35 fee at exam sessions. The FCC fee must be paid online directly to the FCC, not to the VE team or organization processing the application form. VEC and VE team licensing procedures are unchanged. New applicants will pay the $15 exam session fee to the ARRL VE team as usual, and then pay the $35 application fee online directly to the FCC.

When the FCC receives the examination information from the VEC, it will email a link with payment instructions to each qualifying candidate. The candidate will have 10 calendar days to pay, starting from the date of the application file number being issued. After the fee is paid and the FCC has processed an application, examinees will receive a second email from the FCC with a link to their official license or, in very rare instances, an explanation for why the application was dismissed or denied. The license link will be valid for 30 days.

If an applicant fails to pay within the 10-day window, the FCC will dismiss the application. It will have to be refiled

FCC Application Fee Filing Guide Effective April 19, 2022

Individuals

$35 Fee: New, renewal, and rule waiver applications, as well as modification applications that request a new vanity call sign. The fee will be per application.

No Fee: Administrative updates, such as a change of name or mailing/email address, are exempt from fees, as are modification applications to upgrade an amateur radio licensee's operator class or to request a sequentially issued call sign.

Amateur Radio Clubs

$35 Fee: New, renewal, and rule waiver applications, as well as modification applications that request a new vanity call sign. The fee will be per application.

No Fee: Administrative updates, such as a change of name, trustee, or mailing/email address, as well as modification applications to request a sequentially issued call sign, and license cancellation.

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ARRL News (Continued)

Steve Ford, WB8IMY, wb8imy@arrl.net

Eclectic Technology

Digital Conversations on HF with *VarAC*

You may be familiar with the *VARA* software modem developed by Jose Alberto Nieto Ros, EA5HVK (**www.rosmodem.wordpress.com**). It has become popular as an inexpensive alternative to PACTOR for accessing the Winlink network on HF, as well as an alternative to AX.25 packet for reaching Winlink stations on VHF. *VARA* is free in its evaluation version; the upgrade version costs $69.

Irad Deutsch, 4Z1AC, has developed a new software application called *VarAC* that allows amateurs to enjoy live, keyboard-to-keyboard conversations on HF using the *VARA* modem and protocol. The software is free at **www.varac-hamradio.com/download**. Of course, you'll also need to download and install the EA5HVK *VARA* modem (at least the evaluation version).

If you want to allow *VarAC* to control your transceiver with CAT commands, you may also need to install and configure *OmniRig*. However, Irad was working on eliminating this requirement, and the software revision may be implemented by the time you read this.

The *VarAC* application downloads as a compressed ZIP file that you simply extract to a folder on your hard drive.

After extraction, look for the *VarAC* application file. Right-click on the icon and send a shortcut to the Windows desktop.

I use Windows 10 at my station, and I noticed that its application security function blocked *VarAC* from running when I initially attempted to start it. If this happens to you, select **MORE INFORMATION** in the blue box, and then click **RUN ANYWAY**.

If all goes well, the *VARA* modem should start, followed by *VarAC*.

Chatting By Keyboard

VarAC is a well-designed application with a number of features, including the ability to send small files. There is also a logging function and a signal strength display that shows your partner's signal strength as well as the strength of your signal at his station.

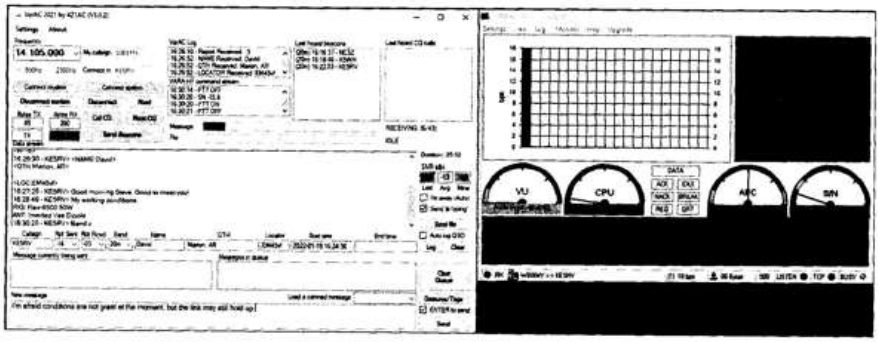
VarAC operators tend to congregate at several calling frequencies: 7.105, 14.105, 21.105, and 28.105 MHz. If you are chatting at a calling frequency, after about 10 minutes, you'll see a reminder to change frequencies. Here is where having CAT control with your transceiver becomes very handy. You just use so-called "gesture" text to ask the other station to shift frequency, perhaps 750 Hz in either direction. If you type **QSYU** in the text buffer and hit **ENTER**, *VarAC* sends a request to move up; sending **QSYD** invites the other station to move down. If the other operator accepts the invitation, the frequency shift occurs immediately — you don't have to lift a finger. If there is activity at the new frequency, you can change frequencies again.

Impressions

I've enjoyed a number of *VarAC* conversations, and they remind me of the days when I had live chats using AMTOR or PACTOR. Once you connect with the other station, it's like joining a choreographed dance. You transmit a blast of data, and the other station responds with an *ACK* signal if the data was received error free, or a *NACK* if errors were detected. *VARA* resends the data if it decodes a NACK; an ACK means it will send the next string of text. As far as you're concerned, everything happens automatically, so you can just relax and type.

The performance of the *VARA* modem is a thing to behold. I took a laptop along for a Parks on the Air outing and made *VarAC* contacts with just 5 W and an HF mobile antenna.

Should you have any questions, there is an active Facebook group. Just search for "VARA operators — Digital mode for HF radio" in Facebook.



The *VarAC* screen captured during my conversation with Dave Judkins, KE5RV, on 20 meters. *VarAC* occupies the left-hand window, and the *VARA* modem appears at right.

(Continued on next page)

ARRL News (Continued)

Jon Jones, NØJK, n0jk@arrl.org

The World Above 50 MHz

Solar Cycle 25 Strikes with F2 DX

On April 14, 2022, a coronal mass ejection (CME) from the dead sunspot AR2987 hit the Earth's magnetic field. It sparked a moderate G2 geomagnetic storm. It was strong enough that the planetary K index went to 6 at 1800 UTC. The solar flux was only 99, but 6 meters popped wide open at 1900 UTC when Larry, NØLL (EM09), first decoded HC2FG working KD4ADC, followed by HK3W working N5JEH at 1905 UTC.

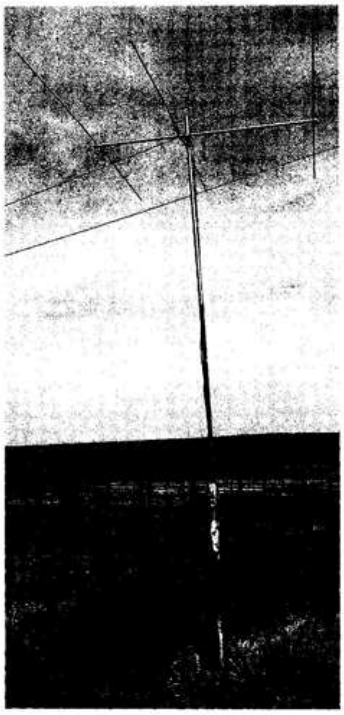


Figure 1 — NØJK's temporary portable setup at his farm on April 14, 2022. [Jon Jones, NØJK, photo]

News of the opening spread quickly. Over the next hour, Larry decoded 14 different South American stations on 50.313 MHz FT8, including 3G22V, LU3VA, LU5FF, PJ4DX, PJ4MM, and PJ4EVA. AAØMZ (EM29) worked HC2FG at 1914 UTC. I, NØJK (EM28), was set up at our farm north of Lawrence, Kansas, at 1950 UTC (see Figure 1) and received many strong decodes on HC2DR and HC2FG, including AAØMZ's contact with HC2FG. I decoded WP3R, XE2CQ, and XE2OR, along with many stateside stations. WQØP worked LU3VA at 1933 UTC.

F2 Opening from Coast to Coast

Nelson, KD2CYU (FN20), in New Jersey, logged HC2FG, HC1BI, and OA1F. Mike, K7ULS (DN41), in Utah, worked two stations in Costa Rica. Fred, KH7Y/W6 (CM98), in northern California, decoded HC2FG and TI2CC. The F2 opening faded out in Kansas by 2015 UTC, but it continued for stations further west. Trey, N5KO (CM97), worked stations in CE, HC, HK, LU, PJ4, and TI. His opening peaked about an hour later than it did in the Midwest states.

The strong cross-country signals and their association with the geomagnetic storm are hallmarks of F2 propagation. Larry noted many stateside stations were received, and he thought it may be via sporadic E. I suspect it was F2 backscatter, which occurs when a single-hop F2 signal strikes the Earth, and reflects back via the F layer. When the F2 opening to South America faded for me, the stateside stations faded with it, and the band was very quiet. While many stations were busy working foreign DX stations, backscatter can pick up new states and grid squares.

Oceania via 6 Meters

Dan, K1TO (EL87), and W4TAA (EL87) worked 3D2AG.

Rick Dorsch, HC1MD/2, had been operating in the Galapagos Islands as HD8MD. He went off the air that morning around 1430 UTC, unfortunately prior to the F2 opening. Rick made around 50 contacts on 6 meters earlier that week.

222 MHz EME Activity Weekend

From April 16 – 17, several stations were active on 222 MHz JT65 EME (Earth-moon-Earth). The idea was to help Dave, K1WHS, test his station on EME, but activity grew, with many people making contacts. Dave worked N7GP in Arizona for his last contact on 222 MHz for the Worked All States (WAS) award. With a 200 W single Yagi, Dave worked NDØB in North Dakota and WQØP in Kansas, which he noted had audible tones on EME.

A 222 MHz EME weekend is a good way for newcomers with a horizontal Yagi to listen during their moonrise for EME and possibly make a contact. EME is alive and well on 222 MHz.

(Continued on next page)

ARRL News (Continued)

On the Bands

50 MHz. Transequitorial propagation (TEP) continued in April. On April 1, Dan, K1TO, noted that N4TB (about 75 kilometers east of him) worked 13 stations in Brazil on FT8. Dan had no contacts this time. Long-path openings occurred as well, with 3D2AG decoding TT8SN at 18,111 kilometers.

On April 2, NØLL decoded CE2SV, LU1WFU, and PV8DX. Dan decoded VP8 and FO5QB, as well as making contacts with South American stations. He also copied EA8 stations on F2 scatter.

On April 4, K5JRN (EM10) worked HK3X (FJ24) and HC1MD/2 (EI97) on FT8, running just 30 W with an indoor dipole. DX Maps showed that stations in Ecuador made contacts from Texas, Oklahoma, and Arkansas to the southeastern states. It was unclear if the propagation was sporadic E or F2.

Tommy, KN4JX, and his wife, Leslie, KC4PDN, operated portable from several grids in New Mexico and west Texas during the first week of April (see Figure 2). On April 6, they were operating from DM74 and worked WQØP on MSK144.

Figure 2 — Leslie Teague, KC4PDN, and husband Tom, KN4JX, set up a 6-meter portable operation during the first week of April. [Leslie Teague, KC4PDN, photo]

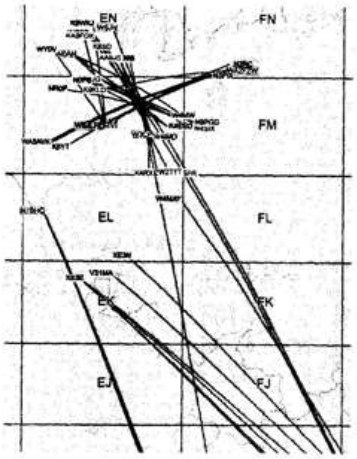


Figure 3 — The DX Maps graphic shows the E_s – TEP opening on April 18. The sporadic-E cloud providing "the link" is shown at the intersection of the paths. [**www.dxmaps.com**]

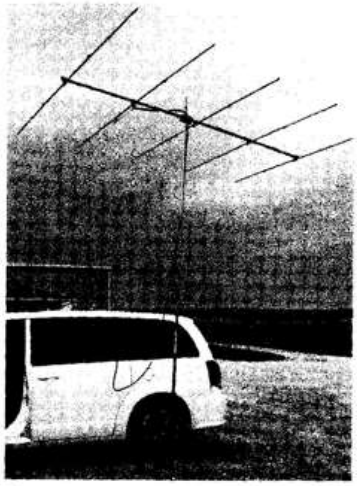


Figure 4 — Larry Lambert, NØLL, set up a portable station in grid EN20 for the Eta Aquarid meteor shower. [Larry Lambert, NØLL, photo]

April 9, I (EM28) decoded CE2SV, CEØYHF/CE3, and CE3SOC on FT8 TEP around 1941 UTC. WQØP (EM19) worked CE4WJK. KD2CYU (FN20) worked CE2SV, CE4WJK, PP5BK, and LU5FF. N5KO logged 3D2AG on April 10. K1TO said April 11 "was amazing" with 6,850 FT8 South American station decodes in 61 grids, mostly LU and PY stations. EA8AQV (IL28) worked HD8MD (EI49) in the Galapagos Islands. EA8AQV worked YB1BA (OI33) via a long-path opening on April 15 at 1537 UTC on FT8. 9Y4D also logged YB1AR.

Some sporadic E appeared on Sunday, April 16. I worked WY4D (FM07). NØLL worked WY4D, N9DGG (FM05), AF4Y (EM87), and N4YDU (FM06). Michael, NØALJ (EM26), worked W2, W3, W8, and VE3 with 40 W and a Comet GP15 antenna. Sporadic E appeared again on April 18 (see Figure 3) and set up a sporadic E-to-TEP link, which allowed stations in Minnesota and Wisconsin to work stations in South America. The TEP to North America dropped out the last week of April.

Larry, NØLL, operated portable from EN20 during the Eta Aquarid meteor shower (see Figure 4). On April 22, he made 27 MSK144 contacts, and on April 23, he made eight contacts, including three stations that needed EN20 for the Fred Fish Memorial Award (FFMA).

10 GHz. Ron, W9ZIH (EN51), worked Pete, NØOY (EM19), on April 12, with SSB on rain scatter.

Here and There

On April 21, the first contact on the 40 MHz band between Ireland (EI9KP) and South Africa (ZS6OB) took place at 1213 UTC. Note that PSK Reporter flags on the 40 MHz band may serve as an early warning for potential 50 MHz openings. More information on the 40 MHz band can be found at **https://ei7gl.blogspot.com/p/40-mhz.html**.

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ARRL News (Continued)

Lightning Protection and Grounding Project at W2MMD

This ground system implements a single-point ground panel, followed by an external perimeter ground system.

An aerial view of the Gloucester County Amateur Radio Club, W2MMD, clubhouse. [Jon Pearce, WB2MNF, photo]

Ron Block, NR2B

The Gloucester County Amateur Radio Club, W2MMD (**www.w2mmd.org**), founded in 1959, is fortunate to have a clubhouse on the 4-H grounds in Mullica Hill, New Jersey. It accommodates several different radio operating positions, as well as five towers and antenna supports. The HF station is located at the right-hand side of the clubhouse, with the VHF and satellite stations located at the left-hand side. The club recently faced an interesting challenge after club member John Hill, W2HUV, offered to provide the club with a new Elecraft KPA1500 amplifier. This offer came at the behest of John's friend and mentor, Donald W. Stribling, KH6DX (SK), with only one requirement — the equipment must be grounded for RF performance and to prevent damage from lightning. While such a capability should be part of any amateur radio installation, at our clubhouse, there are six independent, non-interconnected grounds — one at the base of each tower, plus the utility ground (see Figure 1). In the radio rooms, there are no external ground connections — only the ac outlet ground.

Tornado Causes Significant Antenna Damage

On September 1, 2021, an EF-3 tornado passed just behind the Gloucester County Amateur Radio Club, W2MMD, station and took down both of our towers. We have started acquiring replacement towers and antennas.

The Plan

John's persistence caused the resurrection of an old *Lightning Protection and Grounding Plan* that had been proposed to the club several years ago but had never been implemented. That plan called for the creation of a zone of protection within each of the two

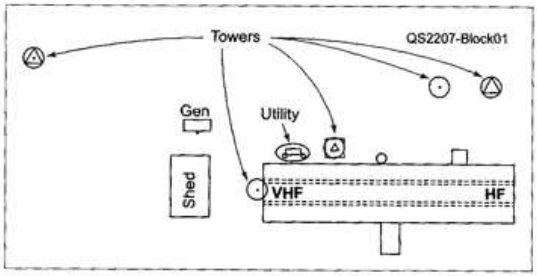

Figure 1 — This drawing provides an aerial view of the clubhouse, showing non-interconnected earth grounds.

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ARRL News (Continued)

radio rooms (HF and VHF), and a substantial external ground system in accordance with the guidelines found in my 2002 *QST* article series, "Lightning Protection for the Amateur Radio Station."

The ground system implementation plan covers the creation of the single-point ground panel (SPGP) in the HF radio room, where the Elecraft amplifier will be installed. The plan is divided into two distinct phases. Phase I is the creation of an SPGP within each of the HF and VHF radio rooms, to which all equipment is connected. In Phase II, the plan lays out the creation of a unified external ground system, consisting of a perimeter ground that comprises a shorting and bonding bus that surrounds the building itself. The addition of radials on each tower is also a vital aspect of the plan, because that will distribute lightning energy and lower the ground system impedance.

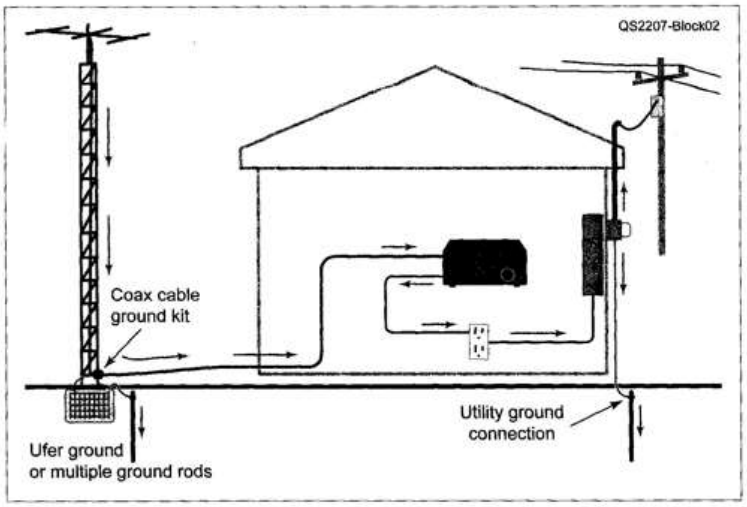

Figure 2 — A simple installation where the radio is bridged across two non-interconnected grounds. The antenna ground is on the left and the ac utility ground is on the right. The surge energy is represented by the yellow arrows.

The Problem

Figure 2 shows the simplest possible radio installation — a single radio with an integrated power supply and an outside antenna connection. Many of us employ this type of installation because it is easy and straightforward. The problem is the radio is bridged between two independent and non-interconnected ground systems — the antenna ground and the ac utility ground.

During a lightning strike, the surge energy would follow the coax into the building and to the radio. Because the radio is connected to the ac electrical system, which has both a neutral and a safety ground connection to the earth, the energy would flow through the radio and follow the ac wiring to the utility ground and the electrical distribution system. The radio, of course, is not designed to handle that kind of energy, which would subsequently cause damage to its front end through to the power supply. This same situation exists in reverse if the surge energy were to arrive at the radio via the electrical distribution network.

Finding a Solution

Non-radio equipment that is outside of the protection zones is, at least for now, vulnerable. The first step in saving the radios from surge destruction is to establish a local SPGP. In this simplified case, the SPGP consists of a conductive surface upon which a coaxial protector and an ac power protector are mounted. Just this step alone is sufficient to offer a minimal level of protection to the radio. I highly recommend enhancing this arrangement by connecting the SPGP to an external earth ground system. Although that is not absolutely necessary for equipment protection, it should be connected to an external earth ground system for station safety and overall station performance.

The protectors (coax, rotator, ac power, etc.) have a relatively simple job to do, which is to short all the wires in the connection to the protector housing in the face of an overvoltage. By mounting all of the protectors on a common conductive surface, the cables connecting the radio to the outside are shorted together, thus preventing any current flow through the internal components of the radio. In addition, the chassis of the radio should also be bonded to the SPGP to keep it at the same potential.

With the creation of a temporarily ungrounded SPGP with protectors (see Figure 3), the current flow changes as a result of the surge energy. The energy does not flow through the radio, but it does continue onto the ac power ground. Please keep in mind that the chassis of the radio, as well as the SPGP, will be significantly elevated by thousands of volts, and it will take several seconds to return to a voltage that approaches a normal ground reference level. Physically touching the radio will allow current to flow through the radio and through you, as the new ground path.

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ARRL News (Continued)

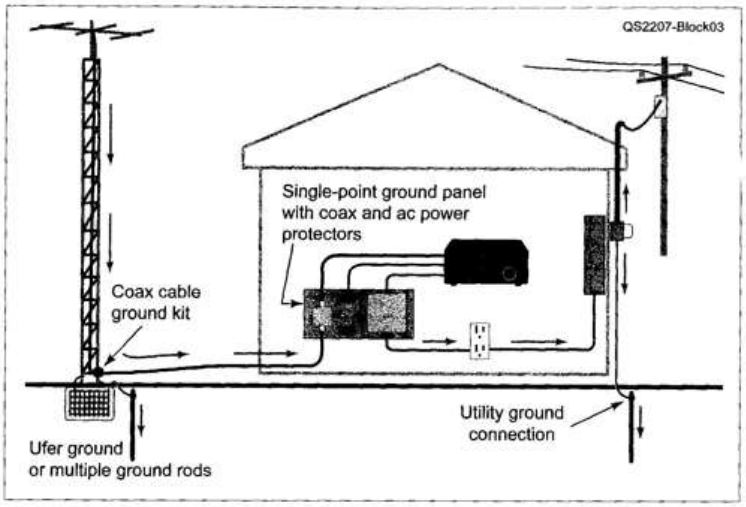

Figure 3 — A simple radio station installation with single-point ground panel and protectors. The yellow arrows show a revised current flow as a result of the shorted protectors.

Bonding the Grounds

The proposed solution solved one problem, which was the lack of a good ground at the operating position. The lack of a consistent outdoor ground remains. The clubhouse currently has six independent, non-interconnected ground systems — one at the utility entrance (required by US code) and the others at the base of each tower (required by the National Electrical Code in the US).

Without the existence of a perimeter ground to bond these independent grounds together, most of the lightning strike current will follow the coax cables into the clubhouse, across the SPGP, and into the earth ground. While this does work, it exposes the coax cabling to excessive current and allows that current to enter the clubhouse on its way to an earth ground. This is not a safe or a desirable situation. If a perimeter ground were in place, a significant amount of the energy would remain outside the clubhouse.

To solve the problem, it is necessary to bond the multiple independent grounds together using the perimeter ground (see Figure 4). Ideally, the perimeter ground is a bare, buried wire or copper strap that goes completely around the building. Its function is to act as a shorting bar in the soil, minimizing the ground potential differences underneath the building (inside the loop). Without a perimeter ground, it is possible for the earth at one corner of the building to be significantly elevated while the adjacent portions of the earth beneath the building are at a much lower potential. This situation is frequently equalized by using the building itself as an electrical conductor, which is not beneficial for the building, its contents, nor its inhabitants. The perimeter ground also serves as a bonding conductor to link together the independent grounds, such as the ac utility, the towers, and the antennas. Because this

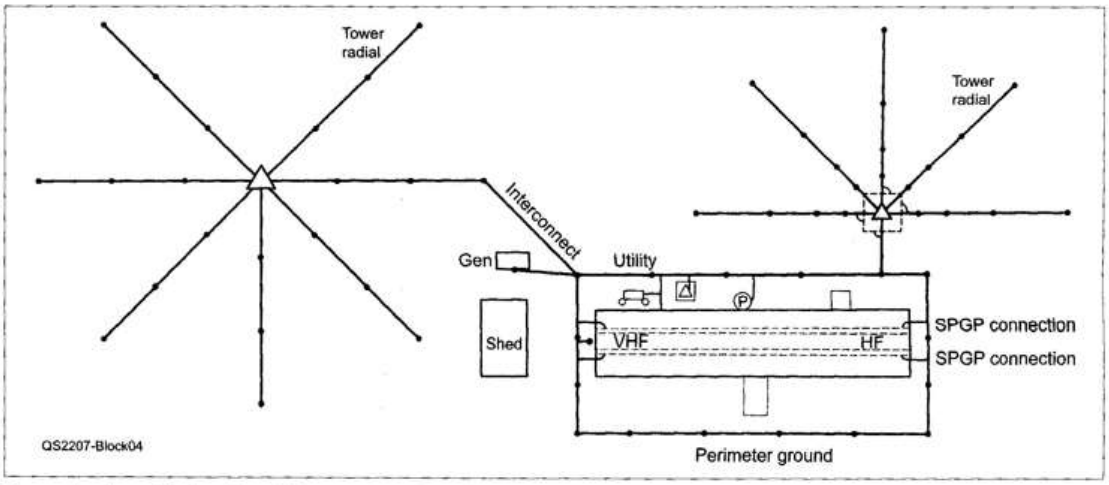

Figure 4 — An aerial view of the clubhouse shows the perimeter ground bonding together the non-interconnected earth grounds. The tower radials distribute the strike energy and contribute to a low-impedance ground system.

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ARRL News (Continued)

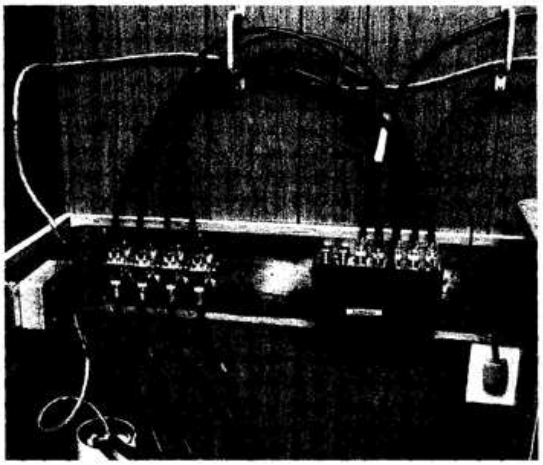

Figure 5 — Shown are a rotator protector, the four coaxial protectors, an electronically controlled coaxial switch, and a 120 V ac power protector. [Ron Block, NR2B, photo]

bonding occurs outside of the structure, the majority of the strike energy does not flow through the structure looking for an earth ground.

For many hams, it may be difficult or impossible to have a perimeter ground around their house, but there are some minimum requirements for it to be effective. All non-interconnected grounds must be bonded by the perimeter ground, and the path must be on the outside of the building, using a bare, buried conductor going as far around the building as possible. Ground-mounted antennas should be on the outside of the perimeter ground loop. For more information, consult Ward Silver's, NØAX, book, *Grounding and Bonding for the Radio Amateur.*

Implementation

In our HF radio room, we created an SPGP, which is a 6-inch-wide copper strip running a little less than three-quarters of the way around the room. It is mounted on a plywood backing panel affixed to the wall studs. Because all ac power must only be sourced from an SPGP-mounted protector, the existing ac power outlets were relocated from desktop height to below the SPGP and restricted to a single connection. The ac power is then distributed at the desktop level by a power strip connected to the ac power protector. A smaller vertical copper strap from the SPGP connects to the wall-mounted air conditioner chassis to prevent surge energy flash-over.

Mounted on the SPGP (see Figure 5) are the rotator protector, the four coaxial protectors, the electronically controlled coaxial switch, and a 120 V ac power protector. A 240 V ac power protector for the Elecraft amplifier is located further to the right, beyond the figure in the center of the room. All unprotected cabling is kept between the floor and the bottom of the SPGP, while protected cabling is kept above the SPGP and is aided by the cable brackets on the wall. There is no excess length or coils of excess cabling. All cables are cut to length and re-terminated.

Connecting the SPGP to the external ground system is another 6-inch-wide copper strap going straight down through the floor between the unprotected wall receptacle and the ac power protector. On its way to connect with the perimeter ground, it is bonded to the steel frame of the building. Because the perimeter ground has not yet been installed, the ground connection terminates with a temporary ground rod. There is a second 6-inch-wide copper strap connection from the SPGP to the ground system a few feet to the right, making a total width of 12 inches for a low-inductance ground connection.

The HF station is frequently operated remotely via the internet. The CAT-5 copper connection is delicate (low-voltage, easily damaged), and even with the appropriate SPGP-mounted protector, it could represent a ground path (time difference) to the distant end of the clubhouse. To eliminate this problem, we ran flexible conduit through the ceiling, into which a fiber-optic cable was inserted and interfaced with the rest of the clubhouse network.

For more details on the implementation of the SPGP, visit the *QST* in Depth web page at **arrl.org/qst-in-depth**.

Thanks

Many very dedicated club members made this happen. I'd like to offer special thanks to Technical Committee Chairperson Jon Pearce, WB2MNF, as well as our work team leaders Frank Romeo, Jr., N3PUU, and Lenny Rust, W2LJR. I'd also like to thank Mike Pecorini, K2MRP; John O'Connell, K2QA; Sheldon Parker, K2MEN, and Al Arrison, KB2AYU.

ARRL member Ron Block, NR2B, holds an Amateur Extra-class license. He worked for 20 years in the computer industry as a project manager for complex one-time computer-based projects. In parallel, he became a PolyPhaser distributor and consulted in lightning protection and grounding. You can reach Ron at **ron@wrblock.com**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

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ARRL News (Continued)

Make a 2-Meter J-Pole from a Lamp Cord

This portable antenna for your handheld can be made from common household wire.

John H. Unrath, K6JHU

While preparing to support a local amateur radio event, I went to my assigned location to check communications and discovered that conditions were marginal. It appeared that I did not need to use a full antenna installation. A little more gain in my handheld transceiver would suffice.

Researching J-Pole Versions

I needed something compact and portable that would go with the transceiver in my go-bag. I opted for a J-pole antenna. In my research, I found several versions of a twinlead and ladder-line J-pole. With twinlead being virtually impossible to obtain and not having any ladder line around, I assessed replacement options. I decided to use lamp cord and a good antenna analyzer.

My research found different ending dimensions for various configurations of J-pole antennas, all depending on *velocity factor* (*VF*), which is the ratio of the velocity of propagation in the wiring compared to the velocity of a radio wave in free space. Tables exist for VF for most RF cables, but not lamp cord. The VF for lamp cord may be as low as 0.62, but it will vary on the type and brand, meaning a good antenna analyzer is necessary for this project. You will have to start with a long cord and cut it to length for the best standing wave ratio (SWR).

Construction

J-pole construction followed standard techniques for this type of antenna. It should be open at one end, tied together at the other, have a coax connection near the connected end, and have a small notch for separating the stub section.

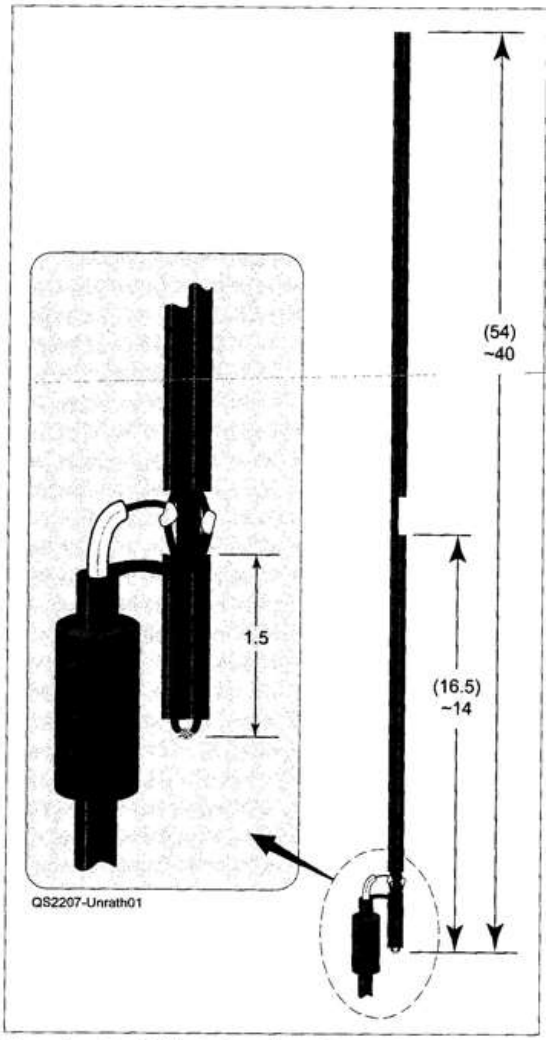


Figure 1 — The initial starting values of the J-pole are displayed in parentheses, with the final cut values beneath. All dimensions are in inches.

(Continued on next page)

ARRL News (Continued)

I used #16 AWG lamp cord, often sold as 16/2. It had a good cross section and not a lot of weight increase over thinner cord. Any gauge smaller than #20 AWG (smaller gauge means heavier wire) will work.

To start, I used the dimensions for a twinlead J-pole. Figure 1 shows the initial starting values of the J-pole and the final cut values. Do not start the build with the final cut values, or you may come up short and have to start over.

Tuning

I laid out the opening configuration on a wooden table. The analyzer showed initial resonance at 113 MHz. I then cut 3 inches off the overall length, and 1 inch off the stub end. My research indicated that a 3:1 ratio is recommended for cutting. This raised the resonant frequency by about 6 MHz. I continued to cut using a 3:1 ratio until the SWR went to 1 at 146 MHz. The impedance was 48 +*j*0 Ω. The SWR at each end of the 2-meter band was about 1.2:1.

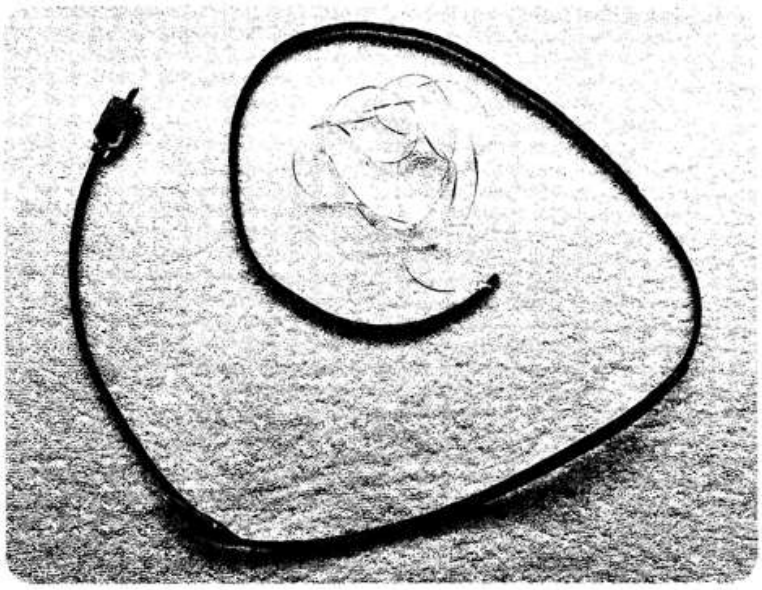


Figure 2 — The antenna is shown built and tuned. The PL-259 is shown on the left at the end of the antenna, and it is attached to the 50 Ω coax. The coax joint connects the coax to the lamp cord, which has the string (shown coiled in the center) attached at the end of the antenna for hanging purposes. The ferrite bead balun is not shown; it was added later. [John Unrath, K6JHU, photo]

Complete the final trim with the antenna hanging in a vertical position. Specifications for the notch at the stub end of the J-pole are usually ¼ inch. The final cutting resulted in the notch being about 4 inches. This did not seem to impact performance.

For easy field connection, I passed a foot-long pigtail with a PL-259 connector through some ferrite beads to act as a choke balun, then soldered at the feed point. I wrapped the lower section in electrical tape for stiffness and insulation. I then made a small hole at the top of the antenna to ensure I could hang it with a strong cord (see Figure 2).

Performance

What was originally a marginal condition with 5 W on the handheld transceiver became full quieting on low power. As with any antenna, the presence of nearby metal and movement or handling of the antenna tended to result in detuning, but it was not enough to seriously affect the signals. The balun helped to limit these effects.

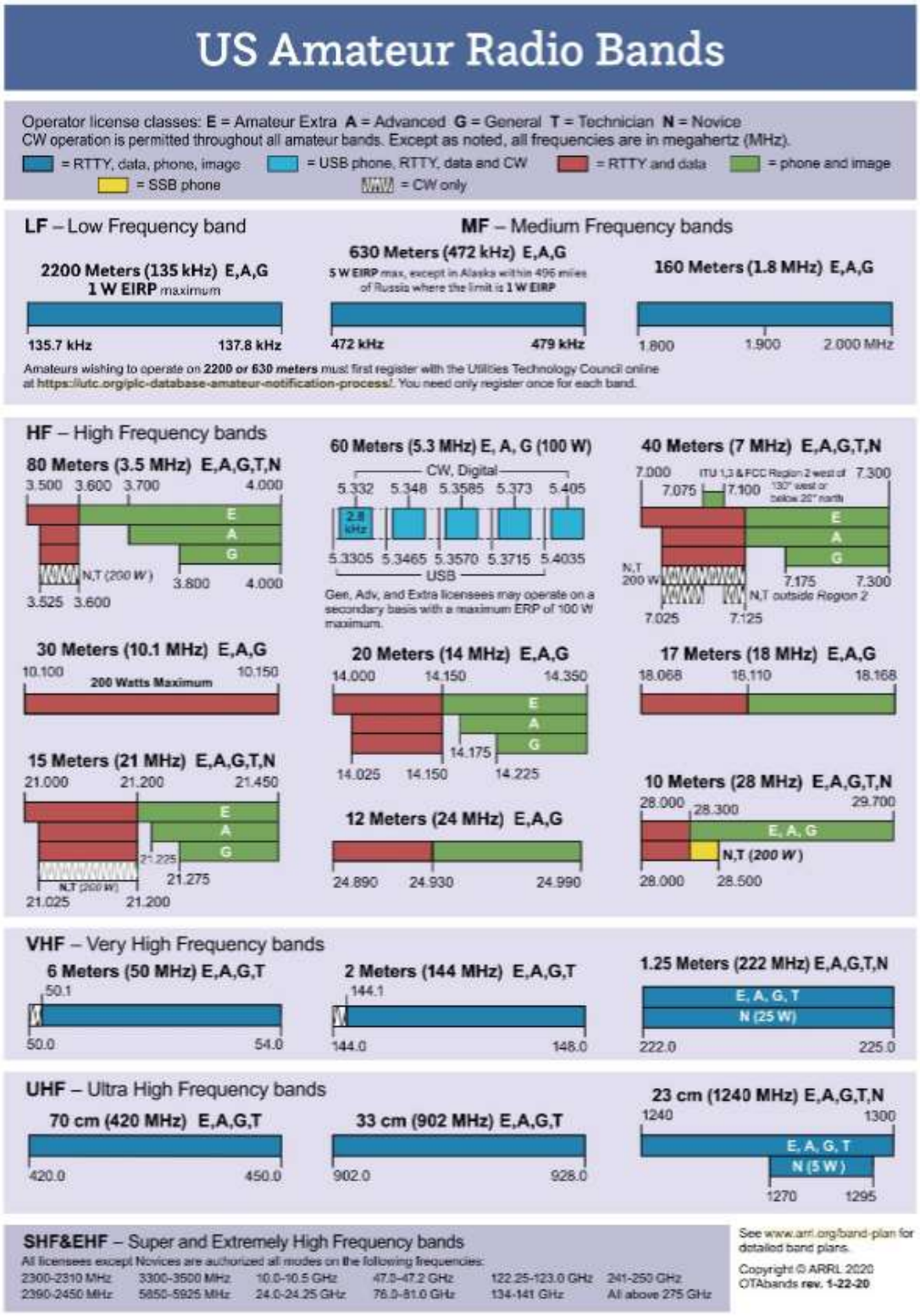
Conclusion

With a small investment in parts (most of which are in the typical shack), plus a good antenna analyzer, you can produce an antenna that is sturdy, lightweight, easy to build, and will fit nicely into a go-bag.

Amateur Extra-class licensee John Unrath, K6JHU, has been operating since 1998. In addition to experimenting with antennas and digital radio, he supports amateur radio operating events. He can be reached at **unrath@prodigy.net**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

US Amateur Radio Bands



W1AW Schedule

W1AW Schedule

PAC	MTN	CENT	EAST	UTC	MON	TUE	WED	THU	FRI
6 AM	7 AM	8 AM	9 AM	1400		FAST CODE	SLOW CODE	FAST CODE	SLOW CODE
7 AM-1 PM	8 AM-2 PM	9 AM-3 PM	10 AM-4 PM	1500-1700 1800-2045	VISITING OPERATOR TIME (12 PM-1 PM CLOSED FOR LUNCH)				
1 PM	2 PM	3 PM	4 PM	2100	FAST CODE	SLOW CODE	FAST CODE	SLOW CODE	FAST CODE
2 PM	3 PM	4 PM	5 PM	2200	CODE BULLETIN				
3 PM	4 PM	5 PM	6 PM	2300	DIGITAL BULLETIN				
4 PM	5 PM	6 PM	7 PM	0000	SLOW CODE	FAST CODE	SLOW CODE	FAST CODE	SLOW CODE
5 PM	6 PM	7 PM	8 PM	0100	CODE BULLETIN				
6 PM	7 PM	8 PM	9 PM	0200	DIGITAL BULLETIN				
6:45 PM	7:45 PM	8:45 PM	9:45 PM	0245	VOICE BULLETIN				
7 PM	8 PM	9 PM	10 PM	0300	FAST CODE	SLOW CODE	FAST CODE	SLOW CODE	FAST CODE
8 PM	9 PM	10 PM	11 PM	0400	CODE BULLETIN				

W1AW's schedule is at the same local time throughout the year. From the second Sunday in March to the first Sunday in November, UTC = Eastern US time + 4 hours. For the rest of the year, UTC = Eastern US time + 5 hours.

♦ Morse code transmissions: Frequencies are 1.8025, 3.5815, 7.0475, 14.0475, 18.0975, 21.0675, 28.0675, 50.350, and 147.555 MHz.

Slow Code = practice sent at 5, 7½, 10, 13, and 15 WPM.

Fast Code = practice sent at 35, 30, 25, 20, 15, 13, and 10 WPM.

Code bulletins are sent at 18 WPM.

For more information, visit us at
www.arrl.org/w1aw

♦ W1AW Qualifying Runs are sent on the same frequencies as the Morse code transmissions. West Coast qualifying runs are transmitted by various West Coast stations on CW frequencies that are normally used by W1AW, in addition to 3590 kHz, at various times. Underline 1 minute of the highest speed you copied, certify that your copy was made without aid, and send it to ARRL for grading. Please include your name, call sign (if any), and complete mailing address. Fees: $10 for a certificate, $7.50 for endorsements.

♦ Digital transmissions: Frequencies are 3.5975, 7.095, 14.095, 18.1025, 21.095, 28.095, 50.350, and 147.555 MHz.

Bulletins are sent using 45.45-baud Baudot, PSK31 in BPSK mode, and MFSK16 on a daily revolving schedule.

Keplerian elements for many amateur satellites will be sent on the regular digital frequencies on Tuesdays and Fridays at 6:30 PM Eastern time using Baudot and PSK31.

♦ Voice transmissions: Frequencies are 1.855, 3.99, 7.29, 14.29, 18.16, 21.39, 28.59, 50.350, and 147.555 MHz. Voice transmissions on 7.290 MHz are in AM double sideband, full carrier.

♦ Notes: On Fridays, UTC, a DX bulletin replaces the regular bulletins. W1AW is open to visitors 10 AM to noon and 1 PM to 3:45 PM Monday through Friday. FCC-licensed amateurs may operate the station during that time. Be sure to bring a reference copy of your current FCC amateur license. In a communication emergency, monitor W1AW for special bulletins as follows: voice on the hour, teleprinter at 15 minutes past the hour, and CW on the half hour.

W1AW code practice and CW/digital/phone bulletin transmission audio is also available real-time via the *EchoLink Conference Server* W1AWBDCT. The conference server runs concurrently with the regularly scheduled station transmissions. The W1AW Qualifying Run texts can also be copied via the EchoLink Conference Server.

During 2022, Headquarters and W1AW are closed on New Year's Day (observed December 31, 2021), Presidents Day (February 21), Memorial Day (May 30), Independence Day (July 4), Labor Day (September 5), Veterans Day (November 11), Thanksgiving and the following day (November 24 and 25), and Christmas Day (observed December 26).