



### **This Month's News: DecemberFest**

The December 10<sup>th</sup> dinner is scheduled to be held at Oxnard's Heritage Square La Dolce Vita restaurant from 6:30 PM until 10 PM. We will thank our reelected officers for their service, install Steve WA6EJO into his new office and thank Richard Abbey WB6AEW for his service to the club as one of our At-Large Board Members. We will also announce the winners of the Monday Night Net Contest. A quiz and prizes are expected to be part of the entertainment.

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## Message from the President

### The Prez Sez,

In December our club traditionally celebrates its member's holiday spirit with a DecemberFest dinner meeting. At that celebration, we thank those members who served our club and welcome new officers as well as those who were elected to continue to serve in their current positions.

Additionally, there is a "New Year" component to our DecemberFest meeting; this meeting is the last formal activity of the club before the New Year and everyone looks forward to the fresh ideas and anticipated changes that new officers bring.

I think of the many members that I have worked with while I served as President, At-large Board Member, and President before that; our club has gained new members and lost others. I searched for a poem that would best describe some of my feelings about being a member of the club. It is called "Teamwork" by Edgar Albert Guest (<https://www.slideshare.net/leadyourteam/20-poems-to-inspire-your-team>).

It's all very well to have courage and skill  
And it's fine to be counted a star,  
But the single deed with its touch of thrill  
Doesn't tell the man you are;  
For there's no lone hand in the game we play,  
We must work to a bigger scheme,  
And the thing that counts in the world to-day  
Is, How do you pull with the team?  
They may sound your praise and call you great,  
They may single you out for fame,  
But you must work with your running mate  
Or you'll never win the game;  
Oh, never the work of life is done  
By the man with a selfish dream,  
For the battle is lost or the battle is won  
By the spirit of the team.  
You may think it fine to be praised for skill,  
But a greater thing to do  
Is to set your mind and set your will  
On the goal that's just in view;  
It's helping your fellowman to score  
When his chances hopeless seem;  
Its forgetting self till the game is o're  
And fighting for the team. (Continued on Next Page)

Club Officers	And Keyer	Contributors
President	Robert Shank	KM6RSS
Vice-President	Clem Alberts	KM6OKZ
Secretary	Pedro Morillas	K6MIL
Treasurer	John Gartman	W6JPG
Board Member	Richard Abbey	WB6AEW
Board Member	Dave Schmidt	AI6VX
Board Member	Mark Swaney	KD6ASL
Board Member-Elect	Steve Noll	WA6EJO
Program Manager	Open	Please volunteer
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
QSL Manager	Ben Holmes	K6QV
Safety Officer	Mark Vodon	KI6PTE
PIO/Trivia	Dana Wentling	KG6WXXE
Columnist	Reese West	KQ6TT

**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.

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Submit material by email to [KM6RSS@gmail.com](mailto:KM6RSS@gmail.com). Our club mailing address is:

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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)

### Looking backward:

The November 12th 2021 meeting was held at The Dudley House at 19:00 and we had 21 persons physically present with 18 members and 3 guests (Yoshio KE6ACH, Michael KF6UV, and Curtis AJ6QC). Jeremy KN6JMD reported that we had 2 members present via Zoom (Pedro K6MIL and Tim KN6JGB). We held our nominations and voted for all of the offices. All of the current officers were reelected including two of the three at-large board members; Richard WB6AEW did not stand for reelection and Steve WA6EJO was elected. Denney N6HV spoke about the sun and ham radio propagation. Everyone enjoyed Denney's presentation and several questions were asked. Both donated and "freebie" items were available and several items were purchased. Thanks again to Linda Shank, our refreshment coordinator, who brought the refreshments.

### Looking Forward:

Our next activity is on Friday, December 10th. Called the DecemberFest dinner, 25 members and their guests have RSVP'd. We will meet at La Dolce Vita Ristorante Heritage Square 740 S. B Street Oxnard 93030 (<https://ladolcevita1901.com/>) Oxnard at 18:30 (6:30 PM). We will have a buffet and the menu is located on our groups.io website at

<https://groups.io/g/K6MEP/files/2021%20DecemberFest%20Selection%20Criteria%20%28121021%29/La%20Dolce%20Vita%20Restaurant%20K6MEP%20DecemberFest%20Dinner%20Menu%20for%20December%2010.pdf>.

Our proposed agenda is introducing our new at-large board member, Steve Noll WA6EJO, presenting a Certificate of Appreciation and thanking Richard Abbey WB6AEW for his service as the outgoing at-large board member, acknowledging the continued service from our president, vice-president Clem KM6OKZ, secretary Pedro K6MIL, treasurer John W6JPG, Mark Swaney KA6ASL and Dave AI6VX as continuing at-large board members.

Now that the new board is elected, there will be many opportunities to serve the club in the areas listed below **(the following are the current members who serve in an important club role with two open positions):**

Program Manager	Open	Please volunteer
Membership	Open	Please volunteer
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
License Trustee	Dave Schmidt	AI6VX
QSL Manager	Ben Holmes	K6QV
Safety Officer	Mark Vodon	KI6PTE
PIO/Trivia	Dana Wentling	KG6WXE

## Message from the President (Continued)

My safety share (excerpt from <https://health.usnews.com/health-news/health-wellness/articles/2015/12/03/dont-fall-for-christmas-lights-illuminating-safety-in-holiday-decorating> by Michael O. Schroeder) for the month of December is “Don't Fall for Christmas Lights: Illuminating Safety in Holiday Decorating”.

**Take simple steps to keep the season festive and prevent life-altering injuries from falls.**

**How can you safely light up your home without landing in the hospital?**

- **Hire out if you can afford it.** Particularly if you're planning an over-the-top, extravagant array of holiday illuminations, think about hiring a pro to do it, so you're not exposed to the fall risk.
- **Assess your physical abilities and limitations.** Dr. Michael Hocker, chief of emergency medicine at Duke University Hospital in Durham, North Carolina advises anyone with balance issues or taking blood thinners – medications that increase the [risk of bleeding](#) should an injury arise – to avoid climbing ladders. Individuals with such risk factors should similarly avoid working from heights, including on roofs.
- **Survey the weather.** If DIYing, consider: Do you really need to install lights when it's extremely windy? “Treat the weather with respect,” Dr. Chad Ball, a trauma and cancer surgeon at the University of Calgary-affiliated Foothills Medical Centre in Alberta says. That means rescheduling your decorating efforts if a winter storm or other nasty outdoor condition could make the experience dangerous.
- **Make sure you have firm footing.** Falls can occur from roofs and railings, and experts say they commonly involve a tumble from a ladder. So, ladder safety is a must:
  - First, choose a ladder that's long enough for the job, Patty Davis, a spokeswoman for the Consumer Product Safety Commission says: “That is, one that extends at least 3 feet over the roofline or working surface.”
  - Put the ladder only on level, firm ground, and make sure it can support your weight.
  - Set up the ladder at a 75 degree angle, and away from doors that could be opened or power lines.
  - Have a helper hold the ladder.

Have a safe and happy holiday and peaceful and prosperous New Year 2022  
73, Robert KM6RSS



## Minutes of the November 7<sup>th</sup>, 2021, VCARC Board Meeting

MEETING LOCATION: Zoom

### BOARD ATTENDEES

OFFICE	LAST	FIRST	CALL SIGN	PRESENT
PRESIDENT	SHANK	ROBERT	KM6RSS	x
VP	ALBERTS	CLEMENT	KM6OKZ	
SECRETARY	MORILLAS	PEDRO	K6MIL	x
TREASURER	GARTMAN	JOHN	W6JPG	x
BOARD	ABBEY	RICHARD	WB6AEW	
BOARD	SCHMIDT	DAVE	A16VX	x
BOARD	SWANEY	MARK	KD6ASL	

### GENERAL MEMBER ATTENDEES:

Stewart KG6BOV, Wayne N6WIX, Burt KA6BJA, Mark Vodon KI6PTE, Denney N6HV, Steve WA6EJO, Bob KD6UDA and call-in user-1 (unknown)

### CALL TO ORDER 19:03

Open the meeting at 19:03 and there were 4 out of a possible 7 board members present. Missing were Vice President Clem KM6OKZ, At-large board members Mark Swaney KD6ASL and Richard Abbey WB6AEW.

### Minutes:

- We now have 41 paid-up members.
- Minutes of the October board meeting were approved as published in the Keyer.
- Minutes of the October general meeting were approved as published in the Keyer.
- Discussed status of ARRL membership status for the membership roster; the Secretary will update the ARRL website K6MEP membership report in January, 2022.
- Discussed collection of 2022 dues status, there are 15 unpaid members, expect more payment at our November 12<sup>th</sup> meeting.
- Treasurer: The club's savings account, checking account and petty cash balance were presented.
- Dudley House cashed the rent check.

### Committee Reports:

- Members Health and Safety
  - The board decided that no changes are to be made for November's General Membership Meeting at Dudley House; indoor masking is still required, as it was last month. Refreshments are still planned to be served. (Continued on next page)



## **Minutes of the November 7, 2021 Board Meeting** (Continued)

- Robert reviewed the November 12th proposed agenda for the general membership meeting.
- ARC quote for training
  - The cost for 15 people to be trained in Adult CPR/AED is \$1450\*; each additional person would cost \$80. \*Billing minimum of 8 participants per class session. The board decided not to pursue the training.
  - First aid kits recommendations and costs will be submitted by Mark Vodon in a tabular format at a later date.
- By Laws
  - The update on member-recommended edits has been completed and emails were transmitted to all members.
- Election Committee Report
  - Burt reported he is ready to execute his duties at the November 12th meeting. A current ballot with nominees was emailed to all members
- Special Orders:
  - Inventory
    - Denney reported that he didn't have the specific details for last month's TRW items that were sold, but approximately \$150.00 was collected
- **Unfinished Business:**
  - Accounting Process Discussion
    - Robert reported on his review of VCCU categories and assignment of transactions to those categories; a report on the existing categories and budget amounts will follow via email.
  - Social Functions
    - The Annual December Dinner will be held on December 10 at La Dolce Vita restaurant in Oxnard. Price per person is estimated to be approximately \$30.00 plus tax and gratuities.
- **New Business:**
  - ARRL Club Commission Program
    - Robert mentioned that the club earns \$15 per new ARRL member and \$2 for existing ARRL member if we handle the paperwork. (continued on next page)

## Minutes of the November 7, 2021 Board Meeting (Continued)

- Creation of a Santa Barbara Section chairperson to interface with John Kitchens Santa Barbara Section manager
  - Mark Swaney KD6ASL previously suggested the board consider creating a Santa Barbara Section chairperson to interface with John Kitchens NS6X. This topic was tabled.

### Announcements:

The November 12th K6MEP club meeting is scheduled to be held at the Dudley House and our agenda is to hold nominations for our board as well as vote for the nominees. Additionally, we will vote for our recently presented amended bylaws. Denney N6HV will discuss "Sun and Ham Radio Propagation". We plan on discussing the location for our DecemberFest dinner. As always, visitors are welcome to attend!

### Adjournment:

Meeting adjourned at 8:08 PM





## Minutes of the November 12<sup>th</sup>, 2021 VCARC General Meeting

GENERAL MEMBERSHIP MEETING 19:00

MEETING ADDRESS: Dudley Historical House, 197 N. Ashwood Dr. Ventura CA 93003

ATTENDANCE: Listed on Roll Check-In Sheet

Social half-hour started at 19:00 and was used for set-up, social time, refreshments and checking out the donations and freebie tables. Thanks to all who followed the Ventura County's health rules and wore their mask except when eating and/or drinking or presenting to the club.

### **CALLED TO ORDER (AT 19:30)**

President Robert KM6RSS opened the meeting at 7:30 PM. There were 5 out of a possible 7 board members present, 21 persons were physically present with 18 members and 3 guests (Yoshio KE6ACH, Michael KF6UV and Curtis AJ6QC). 2 members were present via Zoom (Tim KN6JGB and Pedro K6MIL). Many thanks to Jeremy Climer KN6JMD, who expertly operated the equipment and produced our Zoom meeting. He created and sent out the Zoom credentials to everyone on the K6MEP.groups.io list. We had two guests join the club (Curtis Edwards AJ6QC [a former member] and Michael KF6UV) and one member renewed.

### **OFFICER ATTENDEES**

OFFICE	LAST	FIRST	CALL SIGN	PRESENT
PRESIDENT	SHANK	ROBERT	KM6RSS	X
VP	ALBERTS	CLEMENT	KM6OKZ	
SECRETARY	MORILLAS	PEDRO	K6MIL	
TREASURER	JOHN	GARTMAN	W6JPG	X
BOARD	ABBEY	RICHARD	WB6AEW	X
BOARD	SCHMIDT	DAVE	AI6VX	X
BOARD	SWANEY	MARK	KD6ASL	X

### **Minutes:**

- President Robert referred to the minutes of the board meeting held on Sunday October 5<sup>th</sup>, 2021, that had been published in the November Keyer (which were presented to the board on November 7<sup>th</sup> and voted to be accepted as written).
- Robert referred to the minutes of the general membership meeting held on October 8<sup>th</sup> that had been published in the November Keyer (which were presented to the board on November 7<sup>th</sup> and voted to be accepted as written).
- Robert announced that nominations and elections will be held at tonight's meeting and Denney N6HV would be presenting after the election.

### **Officer's Reports:**

- Treasurer John W6JPG provided the status of the club's accounts.

(Continued on next page)

## Minutes of the VCARC November 12th, 2021 (continued)

### Committee Reports

- Robert provided the status of the K6MEP Monday Night Contest—44 weeks, 762 check-ins with 128 visitors, 17.32 average and the following have perfect (44 weeks in a row) attendance: Dave AI6VX, Denney N6HV and Robert KM6RSS. Rod KA6GSU and Clem KM6OKZ are in second place with 43 and Jeremy KN6JMD is in third with 42. Denney volunteered to be the net controller for the November 15<sup>th</sup> net.
- Denney N6HV presented the status of the club's inventory by stating that he sold about \$150 at last month's TRW. Since he had his car for transport, only small items were taken and some sold.
- Mark Vodon KI6PTE provided an update about the club's safety equipment needs and will present a table of kits, their contents, and costs at the December 6<sup>th</sup> Board Meeting.
- Mark Swaney KD6ASL commented about updates to the recommended amendments of the Bylaws committee. There will be some changes and the updated proposed amendments will hopefully be sent out in time for the January 14<sup>th</sup> 2022 meeting.

### New Business:

- a. Nominations for Club Officers. Burt, the club's election commissioner, announced the current nominations for the officers and board (that the secretary sent via email to all members on November 8<sup>th</sup>) and asked for additional nominations from the voting members. Bob Brodie, KJ6AAE self-nominated to be placed on the ballot for the at-large board member and Robert instructed the voting members to include his name in the appropriate area of the ballot.
- b. Burt had the ballots distributed and collected them after the voting was complete. He tallied them while the presentation was being set up and Mark Swaney KD6ASL read the results.

President - Robert was re-elected.

Vice President – Clem was re-elected.

Secretary – Pedro was re-elected.

Treasurer – John was re-elected.

At-large Board Members (3):

Mark Swaney KD6ASL and Dave AI6VX were re-elected and Steve Noll WA6EJO was elected. (Continued on next page)

## **Minutes of the VCARC November 12th, 2021 (continued)**

### **Presentation**

#### **15 minute break**

Introduction of tonight's speaker: Denney N6HV presented "**The Sun and Ham Radio Propagation**"

He gave his presentation and answered several questions about the Sun's effect on ham radio propagation.

After the question period was over, Denney received grateful applause.

### **Announcements:**

13: Ride for the Red; CVARC Radio School, Oxnard High School Band Competition  
14: Newbie Net 15: K6MEP Monday Night Net and Zoom Meeting, please volunteer for NC  
16: ACS/ARES Tuesday Night Net  
20:CVARC Radio School  
21:Newbie Net  
22: K6MEP Monday Night Net and Zoom Meeting, please volunteer for NC  
23: ACS/ARES Tuesday Night Net  
25: Thanksgiving  
27: CVARC Radio School  
28:Newbie Net  
29:K6MEP Monday Night Net and Zoom Meeting, please volunteer for NC  
30:ACS/ARES Tuesday Night Net

Robert reminded everyone about our club's next meeting date, December 10, where we will celebrate our DecemberFest dinner at La Dolce Vita in Oxnard's Heritage Square (the same location we enjoyed in 2019). A poll has been sent to all K6MEP groups.io members asking them to respond with the number of persons in their party. Robert asked that everyone who hasn't completed the poll to send an email to [K6MEP@qsl.net](mailto:K6MEP@qsl.net) letting us know your plans. Robert also included a dinner sign-up sheet that was distributed to all attendees. He also followed-up with an email to all of the people who attended the 2019 DecemberFest dinner who were still living in the Ventura County and who hadn't responded to date.

Robert thanked everyone for their attendance and acknowledged those who brought donations. Additionally, Linda Shank, our club refreshment coordinator, was thanked for providing the refreshments for tonight's meeting.

Robert announces that everyone was invited to join us at Toppers to socialize.

### **Adjournment:**

Robert asked for a motion to adjourn and a second. The members voted to adjourn at 21:19.

## K6MEP Monday Night Net Update

Our 2021 Contest started on January 11 and will end on December 6th. Make sure to set your calendar alarms to remind you to check-in and join the Zoom get-together that follows.

Our Net is held each Monday night at 20:00 hrs. local time (we won't hold the net on Christmas Eve/Day or New Year's Eve/Day if they fall on a Monday). We welcome all Ham operators so please check-in and join the roundtable discussion. The net is on Two Meters on the WD6EBY Repeater of Oxnard on 145.200 MHz with a negative offset and a PL of 127.3. Many thanks to PVARC and Paul WD6EBY for hosting our meeting on the repeater. We also have a Zoom meeting during the net at 20:00; see the K6MEP.groups.io calendar for details.

The rules are as follows: 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 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.

To give those who are interested in the experience of being part of our Monday Night Net Contest as Control Operators, we've created a sign-up sheet so that all those who would like to get in front of their microphones and lead our nets have a chance. Many thanks to all of our members who have volunteered and provided our net control operations. There are still openings for the 2021 net control operators, as shown in the table below:

Please volunteer to be our net control operator!		
Date	Net Control Operator	Back-up Net Control Operator
29-Nov	Jeremy KN6JMD	
	David AI6VX and the 2021 net contest	
6-Dec	will be complete after this net is over.	
13-Dec	Open	
20-Dec	Open	
27-Dec	Open	

If you would like to volunteer, please contact me with the date you would like and I'll update the list, which is saved to our K6MEP.groups.io website.

As of November 29<sup>th</sup>, we've held 47 nets and had a total of 803 check-ins including 133 visitor check-ins and an average of 17.09 per Monday night. 3-members have checked in every Monday night for 47 Monday nights in a row. They are Dave AI6VX, Robert KM6RSS and Denney N6HV. Rod KA6GSU and Clem KM6OKZ have 46 check-ins. Jeremy KN6JMD has 45. On the next page is the Monday Night Net Contest Totals to Date. Our groups.io has all of the documents in the files folder.

(Continued on next page)

## K6MEP Monday Night Net Update (Continued)

### Monday Night Net Contest Totals to Date

Week #	Date	Total	Visitors
1	1/11/2021	22	4
2	1/18/2021	22	3
3	1/25/2021	22	6
4	2/1/2021	18	3
5	2/8/2021	17	2
6	2/15/2021	18	3
7	2/22/2021	20	4
8	3/1/2021	17	3
9	3/8/2021	26	8
10	3/15/2021	20	5
11	3/22/2021	22	7
12	3/29/2021	17	3
13	4/5/2021	20	7
14	4/12/2021	19	4
15	4/19/2021	18	3
16	4/26/2021	17	4
17	5/3/2021	20	4
18	5/10/2021	13	2
19	5/17/2021	15	1
20	5/24/2021	19	5
21	5/31/2021	16	2
22	6/7/2021	20	3
23	6/14/2021	14	2
24	6/21/2021	23	5

25	6/28/2021	14	1
26	7/5/2021	21	5
27	7/12/2021	19	2
28	7/19/2021	17	2
29	7/26/2021	16	1
30	8/2/2021	17	1
31	8/9/2021	16	1
32	8/16/2021	13	2
33	8/23/2021	16	1
34	8/30/2021	16	1
35	9/7/2021	16	1
36	9/13/2021	14	2
37	9/20/2021	15	2
38	9/27/2021	15	2
39	10/4/2021	16	1
40	10/11/2021	12	3
41	10/18/2021	11	1
42	10/25/2021	16	2
43	11/1/2021	14	2
44	11/8/2021	13	2
45	11/15/2021	14	2
46	11/22/2021	11	1
47	11/29/2021	16	2
Total		803	133



## Thoughts from the West - Reese West KQ6TT

### THE FIELDS OF SOME NARROW BEAM ANTENNAS

This topic is the result of a puzzling aspect of electromagnetic wave propagation. For a long time I thought that some of the descriptions of how the waves propagate was just plain wrong. The applications of the standard equations worked. However, I thought the accompanying explanations were incorrect. I especially felt this after finding that the units of volts per meter for the electric field was definitely incorrect. I then took a look at other parts of the propagating fields to see if other factors were incorrect. None of this changes the normally written and accepted equations in any way. Equations work as they are taught and written. Therefore, the following has value only in enlarging understanding.

Item one is the incorrect units for the electric field in propagating as a continuous line of the field. The description of the field is that it is a continuous line that has no breaks, and as such that it can be visualized in a unbroken loop of some shape. If the units are volts per meter with positive volts in one direction and negative volts in the other, there is a problem. If you choose a point as a reference, and then visualize going in the positive direction, you will be at a positive voltage when you finish traversing the loop. But, you cannot be at a positive voltage because you have returned to the starting point which is the reference. So, if the line is continuous, the voltage units cannot be correct. I did write this some months ago. I began to wonder if that the electric field line was always continuous.

Item two is the main problem I have been considering is about that electric field. How do you draw it in some kind of electric field loop for a narrow beam antenna? For a simple vertical antenna the electric field would just be a circle. But try to draw a loop of some kind around a narrow beam propagation drawing. Anything you draw will have some major propagation in the opposite direction, which makes no sense. We know that the narrow beam signal would diffract around an obstruction. Why doesn't the narrow beam just diffract as it travels normally? There has to be a stable structure which can hold together. I tried several explanations which did not hold up under examination. The answer of what the structure is comes from another phenomenon.

Take a look at a signal propagating over earth ground. Part of the signal can be reflected up by the ground. When that ground reflection passes through the same space as the direct signal, there are places where the two signals add together and places where they cancel. Notice that they both propagate through each other with no disturbance. They totally ignore each other. Now take a look at a dipole antenna in free space with one reflecting element. The reflecting element causes the energy to reverse direction, combining with the main signal and giving a higher energy field. These two signals add together in the direction we want. The signal, which would have gone the other direction except for the presence of a reflector, would have an electric field in the opposite direction to the desired signal. We have delayed the reflected wave by 180 degrees, which now has it in phase with the main signal. Roughly, what we did was take the circular field that would have originated from the antenna, fold the circle in half, flip it over to lay on top of the other half, and make the phases match. This gives us two independent signals propagating together that appear to be a single signal. The main electric fields add up to a half circle or semicircle. If you travel around one electric field, you will come to a point where you reverse direction and travel around the other electric field, back toward where you started. The two fields are totally independent of each other. They just appear to be a single signal because they add together. These combined signals are stable and appear to propagate as one signal. This combined combination will diffract when disturbed, otherwise, it is stable. And it appears that the electric field is folded and is still continuous!

Reese West KQ6TT November 11, 2021 (Continued on next page)



## Thoughts from the West - Reese West KQ6TT (continued)

Post Script

The following is so pretentious; I have a hard time writing it.

### A STEP TOWARD UNDERSTANDING THE PARTICLE-WAVE DUALITY OF PHOTONS

What we have, from the main topic above, is that an electric wave can propagate in a stable manner if the associated fields have a structure with full loops for the fields. If these fields are obstructed so they cannot continue propagating as a unit, the fields will diffract and bend in other directions. This is also what probably happens in the two slot experiments with photons. With a single slot, the photon just goes through the slot undisturbed. With two slots, the photon's wave structure is broken and then it possibly diffracts. All of the ideas associated with these kinds of experiments will have to be reviewed from a new concept point of view.

These experiments already have some problems which have been ignored. If a single atom is sent through two slots, it behaves the same as a photon. Why haven't experiments been done to determine the sizes of single photons and atoms? Why hasn't the super large apparent size of the single atom been recognized as another state of matter beyond solid, liquid, gas, and plasma?

What other wave forms of energy propagation exists like that from a Yagi? A torus structure in gases and liquids can propagate in a stable manner. I know of no other wave structure that can propagate like that from the narrow beam Yagi and probably the photon. Therefore, all the comparisons of the two slot results with the usual wave phenomena do not apply at all.

Right now, it appears that what we see that appears to be a 'wave'; a phenomenon of light through two slits is just the normal behavior of photons propagating independently of each other. The historic interpretations of all the results of the two slot experiments could be invalid because no one determined the size of the photon and how the slots affected them. The comparison with a water wave going through a breakwater with two openings is invalid because there is no equivalent water wave propagation method of no diffraction through a single slit. There is no water wave propagation like the simple Yagi antenna. Remember that the Yagi type wave will diffract if disturbed. There is not a one to one comparison, so any attempt to do that comparison is invalid.

The statement to disprove is: All photons propagate independently with no interaction between them unless possibly when their fields are disturbed. The 'wave' type action seen in the two slit experiments is just the action of individual photons all behaving with no mysterious dual behavior.

Well. I crawled way out on the limb. I would welcome anyone sawing it off, so I can stop working on this. I have already written a lot about what new experiments should have been done on the two slit experiments. If any interest is shown about this topic, I will post it. Otherwise, I am done with this topic.



Laurice J. West KQ6TT  
November 20, 2021

## Selected November Contests & Special Events

Please see QST or the ARRL website ([www.arrl.org](http://www.arrl.org)) for any details and QSL information.

Maty Weinberg, KB1EIB, [events@arrl.org](mailto:events@arrl.org); [www.arrl.org/special-event-stations](http://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!

**Dec. 4, 1500Z – 1900Z, KG4ARC**, Atlanta, GA. Atlanta Radio Club and Atlanta Chapter, American Red Cross. **Commemorating the Birth of Clara Barton, Founder of American Red Cross.** 14.250 7.250 3.925. QSL. Atlanta Radio Club, 227 Sandy Springs Pl., Ste D-306, Atlanta, GA 30328. Check spotting networks for frequencies. [secretary@atlantaradioclub.org](mailto:secretary@atlantaradioclub.org) or [www.atlantaradioclub.org/redcross](http://www.atlantaradioclub.org/redcross)

**Nov. 1 – Nov. 15, 0000Z – 2359Z, W8F**, Livonia, MI. The Livonia Amateur Radio Club. **46th Anniversary, Sinking of the SS Edmund Fitzgerald.** 14.040 14.240 7.040 7.240. Certificate. Mike Rudzki, N8MR, 14071 Fairway St., Livonia, MI 48154. Saturday Nov. 13, W8F will operate live from the Dossin Great Lakes Museum, Detroit, MI, 1600 – 2030 UTC. See website for QSL information. [www.qrz.com/db/w8f](http://www.qrz.com/db/w8f) or [www.livoniaarc.com](http://www.livoniaarc.com)

**Nov. 10 – Nov. 20, 1200Z – 2330Z, WO4L/W1G**, East Berlin, PA. Robert Hess. **158th Anniversary of Lincoln's Gettysburg Address.** 7.185 14.288 3.830 18.155. Certificate & QSL. Robert Hess, 74 Curtis Dr., East Berlin, PA 17316. Watch spotting nets to see where we are. See [www.qrz.com/db/wo4l](http://www.qrz.com/db/wo4l) or [www.qrz.com/db/w1g](http://www.qrz.com/db/w1g) for QSL instructions. [bigbob7388@gmail.com](mailto:bigbob7388@gmail.com)

**Nov. 13, 0800Z – 1800Z, WW1USA**, Kansas City, MO. National World War I Museum and Memorial. **102nd Anniversary of Armistice.** 14.250 14.030 7.250 7.030. QSL. c/o Charles Van Way, N0CVW, National World War I Museum and Memorial, 2 Memorial Dr., Kansas City, MO 64108. [ww1usa@theworldwar.org](mailto:ww1usa@theworldwar.org) or [www.theworldwar.org/amateurradio](http://www.theworldwar.org/amateurradio)

**Nov. 13, 0900Z – 1400Z, NB4RC**, Deerfield Beach, FL. North Broward Radio Club. **Hillsboro Lighthouse Special Event Station.** 14.280 14.270 14.260 14.250. QSL. NB4RC, 4116 NW 1 St., Deerfield Beach, FL 33442. [www.joeyjet.com/index.php/amateur-radio/nb-radio-club](http://www.joeyjet.com/index.php/amateur-radio/nb-radio-club)

**Nov. 30 – Dec. 5, 1600Z – 2300Z, W5C**, Carol Stream, IL. Cajun Navy Relief Amateur Radio Club. **Last Day of Hurricane Season 2021 and Volunteer Recognition.** 14.250 7.250 D-STAR DSC/XLX 256i JS8Call. QSL. Cajun Navy Relief Amateur Radio Club, 681 Paxton Pl., c/o Thomas Sarlito, Carol Stream, IL 60188. [www.cajunnavyrelief.com/W5CNR](http://www.cajunnavyrelief.com/W5CNR)

**Dec. 1 – Dec. 15, 0000Z – 2359Z, N7C/N7D/N7N**, Parker, CO. Friends of Nevada Wing. **80th Anniversary of the Founding the Nevada Wing and the Civil Air Patrol.** 14.250 7.200 147.1; operating SSB in the General portion of the 40- and 20-meter bands, and 147.1 MHz for VHF, as well as FT8. QSL. N7C/N6YEL, 23612 Glenmoor Dr., Parker, CO 80138. For card, please QSL by February 28, 2022. Other stations may be added. [weaceves2@gmail.com](mailto:weaceves2@gmail.com)

**Dec. 3 – Dec. 13, 1300Z – 2200Z, W2W**, Baltimore, MD. Amateur Radio Club of the National Electronics Museum. **W2W Pearl Harbor Day Commemoration.** 14.241 14.041 7.241 7.041; operation on 80 meters (3.541, 3.841) and digital modes possible during event. Certificate & QSL. W2W Pearl Harbor, P.O. Box 1693, MS 4015, Baltimore, MD 21203. Primary operation Dec. 3 – Dec. 7. Additional operation possible in the Dec. 8 – Dec. 13 period, as operator availability permits. [www.ww-2.us](http://www.ww-2.us)

**Dec. 4, 1000Z – 1600Z, NE1PL**, Fall River, MA. USNR. **Remember Pearl Harbor.** 14.258; 20- and 40-meter phone. Other bands and modes possible. QSL. Rick Emord, 135 Wareham St., Middleboro, MA 02346. [www.ne1pl.org](http://www.ne1pl.org)

**Dec. 4 – Dec. 5, 1500Z – 2300Z, W9CAP**, Saint Charles, IL. Illinois Wing Civil Air Patrol Amateur Radio Club. **80th Anniversary of the Civil Air Patrol.** 28.450 18.125 14.250 7.225. QSL. Lt. Col. Robert Becker, P.O. Box 4027, Saint Charles, IL 60174. [www.qrz.com/db/w9cap](http://www.qrz.com/db/w9cap)

**Dec. 4 – Dec. 11, 0001Z – 2359Z, W2MM**, Apopka, FL. Quarter Century Wireless Association. **74th Anniversary.** SSB: 28.325 21.365 14.262 7.244 3.810; CW 28.050 21.050 14.040 7.035 3.540. Certificate. QCWA, John R. Kludt, 1972 Martina St., Apopka, FL 32703.

**Dec. 11, 1700Z – 2359Z, N6IW**, San Diego, CA. USS Midway (CV-41) Museum Ship. **Pearl Harbor Remembrance Day.** 14.320 7.250; PSK and CW on various HF bands, D-STAR on various reflectors. QSL. USS Midway Museum Ship COME-DTRA, 901 N. Harbor Dr., San Diego, CA 92101. Check spotting networks to find us on HF; [www.dstarusers.org](http://www.dstarusers.org) to find our call sign N6IW, and Reporting Note to see what reflector we're using. [www.qrz.com/db/n6iw](http://www.qrz.com/db/n6iw)

**Dec. 11 – Dec. 18, 1200Z – 2300Z, W9VT**, Hazel Crest, IL. Tri-Town Radio Amateur Club. **90th Anniversary.** 14.240 7.240, CW, FT8, and PSK31. QSL. Tri-Town Radio Amateur Club, P.O. Box 1296, Homewood, IL 60430. Operating during the week as time permits. [www.w9vt.org](http://www.w9vt.org)

**Dec. 17 – Dec. 19, 0000Z – 2359Z, W4A**, Bluff City, TN. N9EN. **Edwin Howard Armstrong Commemoration Special Event.** 3.540 7.040 14.040 21.040. QSL. Brad Ambro, 1118 Walnut Grove Rd., Bluff City, TN 37618.

**Dec. 18, 1700Z – 2200Z, WA4USN**, Mount Pleasant, SC. Charleston Amateur Radio Society. **50th Anniversary from the USS Yorktown CV10.** 21.290 14.296 7.250. Certificate & QSL. William Dean, 30 Lombardi Ln., Hanahan, SC 29410. [www.wa4usn.org](http://www.wa4usn.org)

**Dec. 18 – Dec. 24, 1300Z – 2359Z, KC5OUR**, Belen, NM. Valencia County Amateur Radio Association. **Bethlehem on the Air.** 21.283 14.283 7.183 3.883. QSL. VCARA, P.O. Box 268, Peralta, NM 87042. [kc5our@arrl.net](mailto:kc5our@arrl.net)

**Dec. 23 – Dec. 26, 1500Z – 2359Z, N0T/N0R/N0A/N0I/N0N**, Bates City, MO. **Christmas Train — Celebrate Christmas Time and Holiday Cheer through Ham Radio.** 10, 20, 40, and 80 meters; operating as time permits. QSL. Randy Booth, 7562 Copenhaver Rd., Bates City, MO 64011. [rwb22311@outlook.com](mailto:rwb22311@outlook.com)

**Dec. 26 – Dec. 31, 0000Z – 2359Z, W2T**, Trenton, NJ. Delaware Valley Radio Association. **American Revolution Battle of Trenton.** 14.250. Certificate\* & QSL. DVRA, P.O. Box 7024, Trenton, NJ 08628. [www.w2zq.com](http://www.w2zq.com)

**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 (three 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. \*Note: Some clubs may ask for a nominal fee to cover the cost of the certificate or QSL. Request will be made on air during the event or on the club's website.



## Contest Corral

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

## Contest Corral

## December 2021

Check for updates and a downloadable PDF version online at [www.arrl.org/contest-calendar](http://www.arrl.org/contest-calendar).

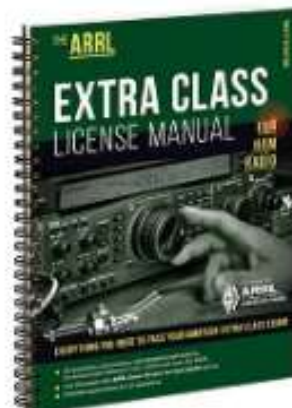
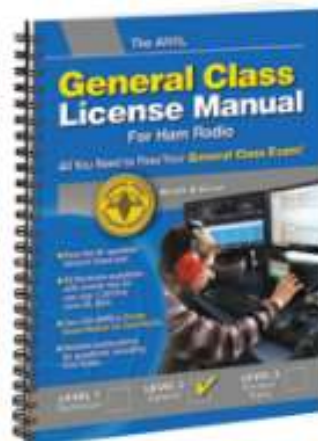
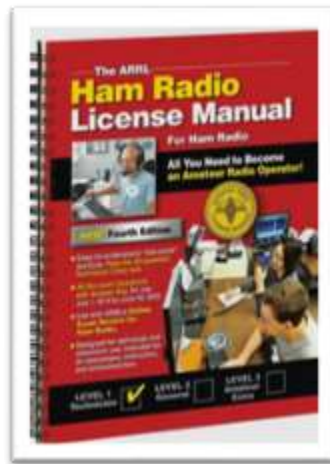
Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish Date-Time	Finish Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1 0230	1 0300	1.8-21	Phone Weekly Test – Fray	Ph	Name, SPC	<a href="http://www.perluma.com/Phone_Fray_Contest_Rules.pdf">www.perluma.com/Phone_Fray_Contest_Rules.pdf</a>
1 1300	1 1400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC or "CWA"	<a href="http://cwops.org">cwops.org</a>
1 1700	1 2000	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	<a href="http://ft8activity.eu/index.php/en">ft8activity.eu/index.php/en</a>
1 1900	1 2000	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC or "CWA"	<a href="http://cwops.org">cwops.org</a>
2 0000	2 0300	1.8	QRP ARCI Top Band Sprint	CW	RST, SPC, mbr or power	<a href="http://qrparci.org/contest">qrparci.org/contest</a>
2 0000	3 0300	7	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or power	<a href="http://qrptest.com/pigwalk40">qrptest.com/pigwalk40</a>
2 0300	2 0400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC or "CWA"	<a href="http://cwops.org">cwops.org</a>
2 0700	2 0800	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC or "CWA"	<a href="http://cwops.org">cwops.org</a>
2 1700	2 1900	3.5-14	RTTYops Weekspint	Dig	Other station's call, your call, serial, name	<a href="http://rttyops.com">rttyops.com</a>
2 1800	2 2200	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	<a href="http://nrricontest.no">nrricontest.no</a>
2 2000	2 2200	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
3 0145	3 0215	1.8-21	NCCC RTTY Sprint	Dig	Serial, name, QTH	<a href="http://www.ncccsprint.com">www.ncccsprint.com</a>
3 0230	3 0300	1.8-21	NCCC Sprint	CW	Serial, name, QTH	<a href="http://www.ncccsprint.com">www.ncccsprint.com</a>
3 2000	3 2100	1.8-28	K1USN Slow Speed Test	CW	Max 13 WPM; RST, SPC, name, mbr or power	<a href="http://www.k1usn.com/sst.html">www.k1usn.com/sst.html</a>
3 2200	5 1559	1.8	ARRL 160-Meter Contest	CW	WVE: RST, ARRL/RAC Section; DX: RST	<a href="http://www.arrl.org/160-meter">www.arrl.org/160-meter</a>
4 0500	5 1000	3.5-28	UFT Meeting	CW	RST, mbr or "NM"	<a href="http://uft.net/les-rencontres-uff">uft.net/les-rencontres-uff</a>
4 0600	4 0800	7, 14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	<a href="http://qrparci.org/contest/wakeup">qrparci.org/contest/wakeup</a>
4 1200	5 1159	3.5-28	PRO CW Contest	CW	RST, serial, "M" if member	<a href="http://www.procontestclub.ro">www.procontestclub.ro</a>
4 1300	4 1330	144	Two-Meter Classic Sprint	CW Ph	Serial, 4-char grid square	<a href="http://fwrc.info">fwrc.info</a>
4 1800	5 2359	3.5-28	FT Roundup	Dig	WVE: RST, state/province; DX: RST, serial	<a href="http://www.rttycontesting.com">www.rttycontesting.com</a>
6 0000	6 0100	1.8-28	K1USN Slow Speed Test	CW	Max 20 WPM; name, SPC	<a href="http://www.k1usn.com/sst.html">www.k1usn.com/sst.html</a>
7 0100	7 0159	1.8-50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, Youth)	<a href="http://www.sac.com/rules.html">www.sac.com/rules.html</a>
7 0200	7 0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	<a href="http://arsqr.blogspot.com">arsqr.blogspot.com</a>
7 1700	7 1900	3.5-14	RTTYops Weekspint	Dig	Other station's call, your call, serial, name	<a href="http://rttyops.com">rttyops.com</a>
8 0130	8 0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	<a href="http://naqcc.info">naqcc.info</a>
8 1700	8 2000	432	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	<a href="http://ft8activity.eu/index.php/en">ft8activity.eu/index.php/en</a>
11 0000	12 2359	28	ARRL 10-Meter Contest	CW Ph	WVE/XE: RST, state/province; DX: RST, serial	<a href="http://www.arrl.org/10-meter">www.arrl.org/10-meter</a>
11 0000	13 2359	1.8-7	PODXS 070 Club Low Band Sprint	Dig	RST, SPC	<a href="http://www.podxs070.com">www.podxs070.com</a>
11 0600	12 1800	3.5-28	TRC Digi Contest	Dig	RST, serial, "TRC" if member	<a href="http://trcdx.org/rules-trc-digi">trcdx.org/rules-trc-digi</a>
11 1200	12 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
11 1300	12 1300	3.5, 7	ARI 40/80 Contest	CW Ph Dig	RS(T), 2-letter province code	<a href="http://www.ari.li/en/contest-hf">www.ari.li/en/contest-hf</a>
11 1600	12 1559	3.5-28	International Naval Contest	CW Ph	RS(T), mbr (and club) or serial	<a href="http://www.marinefunk.at">www.marinefunk.at</a>
12 2000	12 2300	1.8-28	QRP ARCI Holiday Spirits Homebrew	CW	RST, SPC, mbr or power	<a href="http://qrparci.org/contest">qrparci.org/contest</a>
12 2100	12 2259	14	CQC Great Colorado Snowshoe Run	CW	RST, SPC	<a href="http://www.coloradoqrpclub.org/contests">www.coloradoqrpclub.org/contests</a>
13 0100	13 0300	1.8-28	4 States QRP Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or power	<a href="http://www.4sqrp.com">www.4sqrp.com</a>
16 0000	17 0300	14	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or power	<a href="http://qrptest.com/pigwalk20">qrptest.com/pigwalk20</a>
17 1600	17 1700	3.5, 7	AGB-Party Contest	CW Ph Dig	RST, serial, mbr (if member)	<a href="http://ev5agb.com/contest/agb_party.htm">ev5agb.com/contest/agb_party.htm</a>
17 1800	17 2200	1.8	Russian 160-Meter Contest	CW Ph	RS(T), oblast code or serial	<a href="http://www.topband.ru/rules.htm">www.topband.ru/rules.htm</a>
18 0000	18 2359	1.8-50	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	<a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>
18 0000	18 2359	3.5-28	OK DX RTTY Contest	Dig	RST, CQ Zone	<a href="http://okrtty.crk.cz">okrtty.crk.cz</a>
18 0000	18 2359	1.8-144	RAC Winter Contest	CW Ph	VE: RS(T), province/territory; Non-VE: RS(T) + serial	<a href="http://www.rac.ca/contesting">www.rac.ca/contesting</a>
18 0000	19 2359	50-1296	ARRL EME Contest	CW Ph Dig	Signal report	<a href="http://www.arrl.org/eme-contest">www.arrl.org/eme-contest</a>
18 1200	19 1159	3.5-28	Padang DX Contest	Ph	RS, serial	<a href="http://padangdx.com/rules">padangdx.com/rules</a>
18 1400	19 1400	1.8-28	Croatian CW Contest	CW	RST, serial	<a href="http://9acw.org/index.php/rules">9acw.org/index.php/rules</a>
18 1500	19 1500	1.8	Stew Perry Topband Challenge	CW	4-char grid square	<a href="http://www.kkn.net/stew">www.kkn.net/stew</a>
19 1800	19 2359	3.5-28	ARRL Rookie Roundup, CW	CW	Name, 2-digit year first licensed, SPC	<a href="http://www.arrl.org/rookie-roundup">www.arrl.org/rookie-roundup</a>
19 2300	20 0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	<a href="http://qrptest.com/pigrun">qrptest.com/pigrun</a>
22 0000	22 0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
22 0130	22 0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	<a href="http://naqcc.info">naqcc.info</a>
25 1200	26 1159	3.5-28	Gedebage CW Contest	CW	RST, serial	<a href="http://olikb.or.id">olikb.or.id</a>
26 0000	26 1159	3.5-28	RAEM Contest	CW	Serial, latitude and longitude (e.g. 57N 95W)	<a href="http://raem.srr.ru/rules">raem.srr.ru/rules</a>
26 0830	26 1059	3.5, 7	DARC Christmas Contest	CW Ph	RS(T), DOK (or "NM" if not DARC member) or serial	<a href="http://darc.de/der-club/referate/conteste">darc.de/der-club/referate/conteste</a>
30 1200	30 2359	3.5-28	YOTA Contest	CW Ph	Age (or average age for multi-ops)	<a href="http://www.ham-yota.com/contest">www.ham-yota.com/contest</a>
31 0900	31 2359	3.5, 7	Bogor Old and New Contest	Ph	RS, operator age	<a href="http://contest.orari-bogor.org">contest.orari-bogor.org</a>

There are a number of weekly contests not included in the table above. For more info, visit: [www.qrpfoxhunt.org](http://www.qrpfoxhunt.org), [www.ncccsprint.com](http://www.ncccsprint.com), and [www.cwops.org](http://www.cwops.org). All dates 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](http://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 only; physical classes are unavailable this month within 100 miles of Ventura)





## Upcoming FCC Exam Test

(Within 50 miles) Due to the Coronavirus outbreak, please verify with your VE team that the exam session is being held.

GLAARG is offering remote testing; see  
<https://glaarg.org/remote-sessions/> for  
details

### **Santa Monica CA 90403-5610**

**12/11/2021**

**Sponsor:** The PAPA system

**Time:** 7:00 AM (No Walk-ins / Register or  
Call ahead)

**Contact:** Norm Goodkin

(818) 222-7893

**Email:** [hamclass@goodkin.net](mailto:hamclass@goodkin.net)

**VEC:** Greater LA VEC

**Location:** Fromin's Deli and Rest  
1832 Wilshire Blvd

**Santa Monica CA 90403-5610**

**Pre-registration required**

### **Thousand Oaks CA 91360-6861**

**12/12/21**

**Sponsor:** CVARC

**Time:** 8:30 AM (No Walk-ins / Register or  
Call ahead)

**Contact:** Andy Ludlum

818-370-3402

**Email:** [agludlum@gmail.com](mailto:agludlum@gmail.com)

**VEC:** ARRL/VEC

**Location:** County Sheriff's E County Station,  
Community Room

2101 E Olsen Rd between Hwy 23 & Reagan  
Library

Thousand Oaks, CA 91360-6861

**Website:** [CVARC.org](http://CVARC.org)

### **Calabasas CA 91302 Online only**

**12/19/2021**

**Sponsor:** Goodkin Family

**Date:** Dec 19 2021

**Time:** 9:30 AM (No Walk-ins / Register or  
Call ahead)

**Contact:** Norm Goodkin

(818) 613-2257

**Email:** [hamclass@goodkin.net](mailto:hamclass@goodkin.net)

**VEC:** **Greater LA VEC**

**Location:** Online

**ONLINE ONLY** - visit website to register  
Calabasas CA 91302

**Website:** <https://hamstudy.org/sessions/glaarg/wb6ohw>

### **Santa Monica CA 90403-5610**

**01/08/2022**

**Sponsor:** The PAPA system

**Date:** Jan 08 2022

**Time:** 7:00 AM (No Walk-ins / Register or  
Call ahead)

**Contact:** Norm Goodkin

(818) 613-2257

**Email:** [hamclass@goodkin.net](mailto:hamclass@goodkin.net)

**VEC:** Greater LA VEC

**Location:** Fromin's Deli and Rest  
1832 Wilshire Blvd

**Pre-registration required**



## 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 hasn't started to accept the \$35 fee, 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.



## Trivia for November 2021

### Someone once said:

Mark Twain once said:

What do politicians and diapers have in common?

Both need to be changed often.

Both for the same reason.

W. C. Fields once said:

I was in love with a beautiful blonde once.

She drove me to drink, I am so happy to have met her.

Will Rodgers once said:

When congress tells a joke, they turn it into a law,

And some of their laws are a joke.

Merry Christmas

Dana. KG6WXE 🎄🎄🎄🎄



From the December 1938 Gil Book (ARRL download of A Collection of Classic Cartoons from QST)

## K6MEP Monday Night Net Script (starting December 6<sup>th</sup>)

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 VCARC. 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) (Pause for alternate NC check in). 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 \_\_\_\_\_ (insert date). We urge any non-members interested in the VCARC to contact us at K6MEP@qsl.net. Non-members interested in amateur radio are welcome to attend our meetings.

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

**Please check in now.**

(Check-ins completed): Hearing no other check-ins, we will now begin with our Roundtable \*\*\*\*\*

Any last comments? \*\*\*\*\* Any late, missed, or visitor check-ins?

**Please check-in now.**

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

Hearing none;

(Closing): This concludes the VCARC 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 VCARC net control, signing off and returning the repeater to its normal use.

## Convention and Hamfest Calendar

Steve Ewald, WV1X, sewald@arrl.org; [www.arrl.org/hamfests-and-conventions-calendar](http://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  
TI = Talk-in frequency  
Adm = Admission

#### Alabama (Locust Fork) — Jan. 8 D F H R T V

8 AM – noon. Spr: Blount County ARC. Locust Fork High School, 77 School Rd. TI: 146.70 (91.5 Hz). Adm: Free. [w4bft.org](http://w4bft.org)

#### Florida (Orlando) — Jan. 8 D F H R T

6 AM – noon. Spr: South Conway Baptist Church, 6099 S. Conway Rd. Orlando, FL 32812. Adm: Free. [k4kdi.org](http://k4kdi.org)

#### VIRTUAL ARRL NEW YORK CITY LONG ISLAND SECTION CONVENTION

January 8, Online

S

7:30 AM, forums start at 9 AM. Spr: Ham Radio University ARC. Adm: Free. [www.hamradiouniversity.org](http://www.hamradiouniversity.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](http://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](http://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 **January 2** to be listed in the **March** 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](mailto:ads@arrl.org).

## January 2022 Kids Day

1800 UTC – 2359 UTC Saturday, January 1, 2022



The first Saturday in January is the time to encourage young people to get on the air and experience what amateur radio is all about!

Sponsored by the Boring (Oregon) Amateur Radio Club, this event has a simple exchange suitable for younger operators: first name, age, location, and favorite color. After that, the contact can be as long or short as each participant likes.

Kids Day is the perfect opportunity for you or your club to open your shack doors and invite kids over to discover the excitement of amateur radio.

Shea Moroney participated in the ARRL 2021 Kids Day along with her father, Michael Moroney, KD7RF. After making a few contacts, Shea felt comfortable calling CQ and handing out signal reports, and she's looking forward to receiving QSL cards from the stations they worked. [Michael Moroney, KD7RF, photo]

Complete rules can be found at [www.arrl.org/kids-day](http://www.arrl.org/kids-day)

## **What Exactly Does An Antenna Tuner Tune?**

By Dave Ingold, WB9SXG (<https://www.westmountainradio.com/pdf/Quarter-4-2021.pdf>)

Reprinted with permission (with minor edits)

What do antenna tuners tune? Someone could say “Well, obviously, the antenna” This obvious answer is not so clear. Remember, an antenna tuner is connected between the transmitter output and the feed line - antenna combo. So, maybe it tunes the feed line and all that follows it, including the antenna. The more exact answer is, it matches the antenna - feed line combo to something the transmitter likes to see.

Let’s explain: The process of tuning is simply making something resonate with what we are tuning it against. Let’s tune a guitar: We can take the top E string and pluck an A then we adjust the A string until it vibrates and plays the A in a sympathetic vibration with the top string A note that we just plucked. Alternatively, we can pluck both the top string; we placed our paw on the A fret and pluck the open A string and adjust until we hear no beating sound (they sound the same). So, what we are doing is to make each guitar string resonate with the stings plucked on the same note plucked above that string played on the same note.

Now that we tuned our guitar, let’s tune our antenna! We want to make our antenna resonate with the frequency the transmitter throws out. The first thing we need to do is to match the impedance of our antenna assembly with what the transmitter wants to see. My transmitter wants to see 50 ohms (a value that includes both resistance and reactance, more later), so we need our feed line and antenna to show the transmitter a 50 ohm load. Impedance is measured in ohms. The maximum power transfer theorem is a fancy way of saying that to get maximum power (from the transceiver) transferred to a load (the feedline and antenna), the transmitter output impedance and the load impedance has to be equal. Most ham transmitters want to see 50 ohm load impedance connected to the output.

Ohms implies that we need to look at Ohm’s law, right? Power (measured in watts) is the voltage times the current. Voltage is the current times the impedance (measured in ohms). Current is the voltage divided by the impedance. Impedance comes in 2 flavors: resistance and reactance. Resistance is the same amount of ohms in both DC and AC. 50 ohms resistance is 50 ohms, no matter what frequency the current through it is. In fact, we can connect a 50 ohm resistor with enough wattage rating to our transmitter and our transmitter is perfectly happy throwing out all its power into that poor resistor. It won’t put out anything on the air except a lot of heat. This is actually what we call a dummy load. Dummy loads are not supposed to put out anything on the air.

(Continued on next page)

### What Exactly Does An Antenna Tuner Do? (Continued)

So, impedance is both resistance and reactance. Resistance is constant no matter what type of current or voltage, or frequency. Now we also have reactance: there are two kinds; capacitive and inductive. Reactance is also measured in ohms, but the ohms vary with frequency. The higher the frequency, the higher the ohms in inductive reactance. The lower the frequency, the higher the ohms in capacitive reactance. What can we use to tune our antenna? Let's see, hmm, a variable inductor and variable capacitor? That's right!

Antenna tuners are basically a variable capacitor and inductor network. With a manual antenna tuner, we just fiddle around with the capacitance and inductance to get a good match the transmitter likes to see. As an example, an automatic antenna tuner, like the TARGETuner Mobile Antenna Management System, takes away all that fiddling. It senses the RF signal the transmitter is throwing out. It even "looks" at it, then automatically sets the inductive and capacitive reactance to the transmitter frequency and remembers these settings in its memory bank. It displays the transmission frequency and SWR with a digital display and can even sound an alarm when the SWR gets too high. This is useful when an antenna accidentally gets knocked off or broken or whatever happens. Believe me; anything can happen with a mobile rig!

The TARGETuner can even read the frequency directly from the radio using a serial input port to take input from CI-V, CAT or serial rig control. Antenna tuners only go so far as to matching impedance from your feed line and antenna to the transmitter. The antenna itself may not be radiating that entire signal but as far as your transmitter is concerned, it's happy. It's happy with what ohms the antenna tuner made it look like. The real question is where are all those watts going? Hopefully, it goes out the antenna. In my novice days, I didn't have a lot of money as a teenager and struggling college student to afford low loss coax. I thought tube equipment was fairly tolerant with whatever I connected to them. I just dangled out a wire close to half wave or quarter wave at 40 or 20 or 10 meters out my dorm window. I was more worried about getting caught than SWR and resonance and radiation patterns. I was mostly concerned with just not banging my weight on the windows underneath me! As a result, I had high losses and bad SWR with no signal getting out.

Just bear in mind, antenna tuners only go so far. It is one thing to make a feed line and antenna resonant, but also keep in mind a good feed line and good antenna will finish what an antenna tuner started.





## ARRL News

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

# 2021 ARRL Field Day Results

Almost 27,000 participants joined in the fun during Field Day this year, making over 1.4 million contacts.

### Paul Bourque, N1SFE

ARRL Contest Program Manager

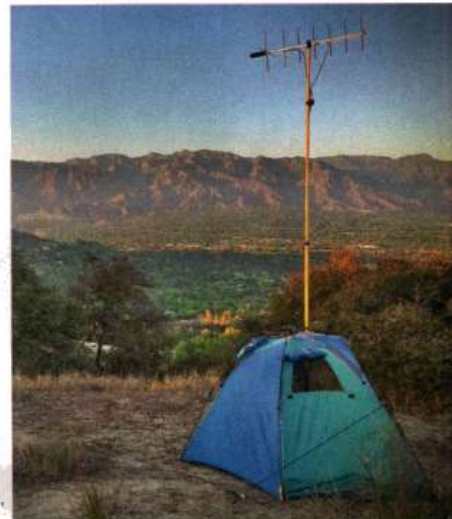
Similar to last year, the 2021 ARRL Field Day was unique because of the COVID-19 pandemic restrictions on gathering. Groups and individuals around the US, Canada, and 13 DX entities successfully demonstrated how they were able to adapt their pre-pandemic Field Day strategies to participate in this year's event.

The two temporary rule waivers that were issued last year due to the pandemic were extended into 2021, allowing Class D (home) stations to count their contacts with other Class D stations for points (standard Field Day rules don't count Class D-to-Class D contacts toward the total score). Additionally, Class D and E stations were limited to 150 W output power for this year. As with last year, all entrants, regardless of their entry class, were able to apply their individual scores to their club's aggregate score.

Because many areas of the US loosened their restrictions on gatherings in public spaces, there was an increase in the number of Class A (groups of three or more) participants compared to last year, comprising almost 18% of the total number of entries for this year's event. The Class D (home stations, commercial power) category had the largest number of entrants, followed by Class E (home stations, emergency power). Class D and E stations comprised roughly 67% of the total entries for the 2021 Field Day event.

This year, there was a total of 5,979 entries submitted and 26,698 reported participants. While the total number of entries

Ryan Kinnett, NG6F (who took the photo on the right), and Matthew Bennett, AC6X (who took the photo below), operated backpack-style QRP portable from the hills above Rose Bowl Stadium in Pasadena, California, for the 2021 ARRL Field Day.



(Continued on next page)



## ARRL News (Continued)

Transmitter Count by Class	
Class	Class Definition
A	Three-person or more club/non-club portable using emergency power
AB	Per above, with battery or alternate non-generator power source
AC	Per above, but with commercial power
B1	One-person club/non-club portable using emergency power
B1B	One person per above, with battery or alternate non-generator power source
B1C	One person per above, but with commercial power
B2	Two-person club/non-club portable using emergency power
B2B	Two persons per above, with battery or alternate non-generator power source
B2C	Two persons per above, but with commercial power
C	Mobile stations
D	Home stations using commercial power
E	Home stations using emergency power
F	EOC stations

Count by Class Summary					
Class	Entries	Class	Entries	Class	Entries
A	909	B1B	256	B2C	12
AB	43	B1C	36	C	69
AC	104	B2	80	D	2,913
B1	284	B2B	28	E	1,003
				F	140
				Checklog	102

Transmitter Count by Class					
1A	153	4AC	13	2D	89
2A	277	5AC	3	3D	28
3A	253	8AC	1	4D	8
4A	111	1B1	276	5D	1
5A	66	2B1	7	6D	2
6A	30	3B1	1	8D	1
7A	9	1B1B	249	1E	905
8A	5	2B1B	7	2E	68
9A	2	1B1C	35	3E	22
11A	1	2B1C	1	4E	6
14A	1	1B2	54	5E	1
15A	1	2B2	26	8E	1
1AB	20	1B2B	15	1F	28
2AB	7	2B2B	13	2F	60
3AB	10	1B2C	9	3F	26
4AB	4	2B2C	3	4F	14
5AB	1	1C	62	5F	7
6AB	1	2C	6	6F	2
1AC	15	4C	1	7F	2
2AC	42	1D	2,784	9F	1
3AC	30				

Entries by ARRL RAC Section/Prefix			
Section	Entries	Section	Entries
AB	25	MB	5
AK	10	MDC	123
AL	102	ME	33
AR	56	MI	160
AZ	135	MN	117
BC	83	MO	129
CO	101	MS	39
CT	66	MT	28
DE	21	NC	215
EB	53	ND	12
EMA	82	NE	28
ENY	90	NFL	102
EPA	174	NH	40
EWA	38	NL	3
GA	144	NLI	40
GTA	84	NM	44
IA	41	NNJ	94
ID	45	NNY	14
IL	197	NT	2
IN	100	NTX	189
KS	47	NV	34
KY	66	OH	246
LA	47	OK	47
LAX	145	ONE	82
MAR	34		

Section	Entries	Section	Entries
ONN	9	VI	4
ONS	101	VT	15
OR	84	WCF	61
ORG	104	WI	111
PAC	15	WMA	31
PE	2	WNY	101
PR	23	WPA	87
QC	74	WTX	26
RI	23	WV	46
SB	31	WWA	155
SC	70	WY	13
SCV	121	DX: VK – Australia	1
SD	12	DX: PY – Brazil	1
SDG	38	DX: TI – Costa Rica	1
SF	40	DX: HI – Dominican Republic	1
SFL	56	DX: UA3 – European Russia	3
SJV	31	DX: DL – Germany	1
SK	8	DX: YB – Indonesia	1
SNJ	83	DX: JA – Japan	11
STX	149	DX: XE – Mexico	2
SV	71	DX: HP – Panama	1
TN	138	DX: SP – Poland	2
UT	32	DX: S5 – Slovenia	1
VA	195	DX: YV – Venezuela	1

2021 Field Day Overall Statistics	
Number of Participants:	26,698
Total Entries:	5,979
Checklogs:	102
CW QSOs:	604,811
Digital QSOs:	297,418
Phone QSOs:	529,830
Total QSOs:	1,432,059

Entries by BASE Class Summary	
Class	Entries
A	1,070
B	704
C	70
D	2,979
E	1,015
F	141
Total	5,979

decreased by 41% from last year, the total number of participants increased by about the same margin, with the number of participants closer to pre-pandemic Field Day numbers. Additionally, this year's event had about 10,000 fewer participants than 2019.

Compared to 2020, this year showed a 23% decrease in the number of contacts reported. However, in comparison to 2019, this year showed a 31% increase.

### Activity by Class

**Class A** — Club or Non-Club groups of three or more people who set up temporary/portable Field Day sites away from their usual station locations: 1,070 entries (17.9%).



During the 2021 ARRL Field Day, the ARRL Board of Directors presented a plaque to the Dade Radio Club of Miami to commemorate 75 years of being an ARRL Affiliated Club. From left to right, Jeff Beals, WA4AW, Southern Florida Assistant Section Manager; Julio Herrera, KK4KMO, President of the Dade Radio Club of Miami, and Barry Porter, KB1PA, Southern Florida Section Manager. [Dade Radio Club of Miami, W4NVU, photo]



## ARRL News (Continued)

**Class B** — Temporary or portable Club or Non-Club groups, or one or two people who set up temporary/portable Field Day sites away from their usual station locations: 704 entries (11.8%).

**Class C** — Mobile or rover operators from vehicles, bicycles, and even boats: 70 entries (1.2%).

**Class D/Class E** — Stations operating from home, using either commercial power (Class D) or emergency power (Class E): 3,994 entries (66.8%).

**Class F** — Stations operating from or as Emergency Operations Centers (EOCs): 141 entries (2.34%).

**Checklogs** — 102 entries were listed as checklogs because they were DX stations or were missing the required list of calls sorted by band and mode. Checklogs are acknowledged at the bottom of the page at [www.arrl.org/logs-received](http://www.arrl.org/logs-received).

This year, almost 99% of the total entries received were submitted via the web applet, which is about the same as in 2020. A few minor changes were made to the applet for clarity, making it easier than ever for you or your group to submit your Field Day results to ARRL.

### Soapbox Comments

Some of this year's entrants have posted their stories to the Field Day Soapbox (<http://field-day.arrl.org/fdsoapbox.php>), sharing how they adapted their strategies to meet the changing pandemic guidelines. The MIT Radio Society, W1MX, couldn't use their club station as they had in prior years. Instead, they hung a few dipole antennas at a local park and operated Field Day from there with battery power.



Barry Strickland, AB4QL, intently operated the CW station during the DeKalb County Amateur Radio Club, W4DGH, Field Day event in Fort Payne, Alabama. [Robert Hamilton, W4YPX, photo]

Laguna Mountain WFD, WW6CC, ensured all their participants were fully vaccinated prior to gathering at a location near the Palomar Observatory atop Palomar Mountain in San Diego County, California. They used homebrew antennas, including two that the group constructed specifically for this year's Field Day.

### Looking Ahead

Many groups and individuals are already looking forward to Field Day 2022, and are actively planning for the event. Share what your strategies will be for next year with the amateur radio community via the ARRL Field Day Facebook page, at [www.facebook.com/groups/arrlfd](https://www.facebook.com/groups/arrlfd). The 2022 ARRL Field Day will take place on June 25 – 26.



Eleven-year-old Delaney Bailey, KF0FUP, made 50 contacts operating phone during the 2021 ARRL Field Day, while her dad, Morgan Bailey, II, NS0R, handled the logging. They participated as part of the Jackson Amateur Radio Club's event at the Banner Creek Science Center & Observatory in Jackson County, Kansas. [Morgan Bailey, NJ8M, photo]

(Continued on next page)



## ARRL News (Continued)

### Scores

Club Aggregate Scores are listed below. Aggregate scores are listed alphabetically by club name, along with the total score of individual entries attributing their score to the club, and the number of individual entries. Due to the high volume of entries this year, full line scores will be posted in the digital edition of *QST* and on the ARRL Field Day Page at <http://field-day.arrl.org>. Please visit that page or the digital edition for full Class A, B, C, D, E, and F line scores.



### Club Aggregate Scores

Club Name	Aggregate Score	Entries
220 MHz Guys	398	1
3 Guys with Radios ARC	900	1
3 Rivers ARC	952	1
3730 Group	3,634	1
45QRP	3,536	5
510 RG	8,330	1
603 ARC	862	1
618 Comms	410	1
694 Group	194	1
721st Mechanized Contest Battalion	2,276	1
985 Users Field Day Event	2,908	1
ACARES	596	1
Ad Hoc ARS	2,052	1
Adams Co. ARS	3,400	7
Addison Co. ARA	2,404	3
Aero ARC	2,490	1
Aeronautical Center ARC	449	2
Aerospace Employees Assn. ARC	2,690	4
Ak-Sar-Ben ARC	4,218	6
Alabama Contest Group	2,292	2
Alachua EOC RC	3,290	1
Alamance ARC	9,170	6
Alameda Co. RACES	1,042	1
Alamogordo ARC	1,344	1
Alaska Airlines ARC	365	1
Albany ARA	7,514	5
Albemarle ARC	13,330	13
Albemarle ARS	1,626	5
Alberta Clippers	1,350	1
Albuquerque DX Assn.	8,364	4
Alexandria RC	6,838	5
Alford Memorial RC	4,620	2
Algoma ARC	4,826	5
Algonquin ARC & Waltham ARA	2,626	1
All Things ARC	1,400	1
Allegheny Valley RA	1,250	1
Alliance ARC	3,088	1
Almaden RC	324	1
Alpha RC	1,444	1
Amargosa ARC	2,470	1
Amateur Radio of Churchill Co.	1,256	1
America West ARC	854	1
American Legion Post 1 ARC	920	1
American Legion Post 33 ARC	880	1
American Legion Post 91 ARC	876	1
Anaconda ARC	2,856	1
Ancient Modulators	334	1
Anderson Island ARC	956	1
Anderson RC	7,102	6
Andrew Johnson Radio ARC	2,802	1
Androscooggin ARC	1,298	1
Anne Arundel RC	5,740	1
Anoka Co. RC	2,818	1
Anonymous Contest Group	1,678	1
Antelope Valley ARC	970	1
Anthracite Repeater Assn.	3,304	2
Antietam RA	5,662	4
Apple City ARC	1,410	1
AR Assn. of the Tonawandas	730	1

AR Caravan Club	556	2
AR Tower Trailer Team	808	1
ARA of Nebraska	2,802	1
ARA of the Southern Tier	2,102	2
ARC at Univ. of Arkansas	1,640	1
ARC EmComm Service	3,932	3
ARC of Augusta	1,518	2
ARC of Butts Co.	1,072	4
ARC of Columbia Co.	672	2
ARC of Parker Co.	1,270	1
ARC Panama City	264	1
Arctic ARC	246	1
Area 51 Radio Group	1,102	1
ARES of Douglas and Elbert Co.	8,352	1
ARES of Lawrence Co.	4,106	2
Arizona ARC	1,126	1
Arizona Outlaws Contest Club	16,110	9
Arkansas Diamond ARC	122	1
Arkansas Radio Emergency Services	810	1
Arkansas River Valley ARF	5,864	8
ARL of Lawrence Co.	1,110	1
Arlington ARC	2,736	1
Aroostook ARA	1,986	1
Arrow Comm. Assn.	4,801	6
ARTS of Louisville	3,244	2
Ascension RC	1,198	2
Ashe Co. ARC	1,220	1
Assoc. Radio Amateurs of Long Beach	2,746	5
Assoc. Radio Amateurs of S. New England	3,878	1
Atchison Co. ARS	1,078	2
Athens Co. ARA	3,378	2
Atlanta RC	1,102	3
Atlantic Region Repeater Legion	1,394	1
Augusta Univ. ARC	4,542	1
Austin ARC	7,388	9
Austin Area ARC	956	1
AZ DARC	3,464	4
Azalea Coast ARC	2,468	5
Bainbridge Island ARC	964	2
Baldwin Co. ARC	8,986	6
Bailhoo ARC	80	1
Baltimore Polytechnic Alumni RC	1,054	1
Bama Ham's	2,568	1
Bankhead ARC	2,306	1
Barnstable ARC	11,468	6
Barrie ARC	4,191	11
Barron Co. ARA	1,388	1
Barrow ARC	1,288	1
Barry ARA	2,170	4
Barstow ARC	2,032	2
Basin ARC	3,408	1
Base Hill Repeater Group	3,330	1
Bastrop Co. ARC	2,118	1
Batesville Area RC	3,040	5
Baton Rouge ARC	2,712	2
Bay Area DXers	5,392	4
BayNet ARC	1,514	3
Bayouland Emergency ARES	1,996	1
Baytown Area ARC	1,544	1

bcars.org	3,496	2
BCI Communications ARC	64	1
BEANOS	6,480	2
Bear Bait RC	2,456	2
BEARS of Manchester ARC	2,672	2
Beaufort Radio Amateur Group	696	1
Beaumont ARC	3,638	1
Beaver Valley ARA	1,698	1
Bedford ARC	960	3
Bedlington Terrier ARC of Tucson	6,008	1
Bellevue Cove Minions	3,774	1
Bella Vista RC	4,608	1
Belbrook ARC	5,310	5
Bencia ARC	2,459	3
Benton ARS	7,868	5
Bergen ARA	2,154	5
Bergen Co. Emergency Management RC	926	1
Berger's Bandits RC	6,682	1
Berks Amateur Radio Contest Club	798	1
Bernalillo Co. ARES	1,870	1
Berwick Contest Team	7,480	1
Big Bend ARC	7,090	2
Big Island ARC	2,590	7
Big Sandy ARC	872	3
Big Signal ARC	452	1
Big Sky Contesters	288	1
Big Stela Memorial FD Group	5,716	1
Bill, Ken, and Marty	1,460	1
Billerica ARS	1,768	2
Binghamton ARA	2,716	2
Birmingham ARC	3,350	2
Bishop ARC	2,949	3
Bitterroot ARC	836	2
Black Diamond ARC	594	4
Black River ARC	2,734	2
Black River Radio Ops	11,864	1
Blackstone Valley ARC	3,258	1
Blazing Paddles FD Team	8,004	1
Bledsoe Co. ARC	1,490	1
Bloomington ARA	1,454	1
Bloomington ARC	1,586	1
Blossomland ARA	5,674	2
Blount Co. ARC	1,162	1
Blue Ridge ARC	4,836	3
Blue Springs ARC	878	1
Bluegrass ARS	54	1
Boaz-Albertville ARC	776	1
Boca Raton ARA	3,904	7
Boeing Employees AR Operators North Soc.	420	1
Boeing Employees ARS	1,684	3
Boeing Employees ARS — St. Louis	8,606	6
Boerne ARC	1,288	1
Bolingbrook Area Radio Contesters	74	1
Bolingbrook ARS	3,894	8
Bonac ARC	4,068	2
Bonner Co. ARES	2,752	4
Boomer Bill ARC	464	1
Boone and Hamilton Co. ARES	1,726	3
Boonville ARC	2,370	1
Boothel ARC	1,972	2
Border City RC	1,696	2
Boschveldt QRP Club	2,075	1
Boston ARC	4,486	4
Boston Valley Simplex Club	572	2
Boulder ARC	12,366	7
Bourbon Fuelled Nerds	664	1
Brainard Area ARC	4,562	3
Brandon ARC	272	2
Brandon ARS	3,536	1
Brazoria Co. AR Service	318	1
Brazos Valley ARC	7,722	5
Bridgerland ARC	2,394	1
Brightleaf ARC	3,860	3
Bring Back the Band	1,872	1
Bristol ARC	5,277	6
Broken Arrow ARC	910	1
Broken Arrow Emergency Management ARC	2,140	2
Brookings Radio Research Club	160	1
Broughton Memorial FD Grp	15,990	16
Brownwood ARC	832	1
Brunswick Shores ARC	4,750	9
Bryan ARC	3,030	3
Buckhead Contest Club	3,016	1
Bullitt ARS	8,778	4
Burlington ARC	3,495	4
Burlington Co. RC	5,268	4
Butler Co. (OH) ARA	2,494	1
Butler Co. (PA) ARA	4,560	1
Butler Co. AR Public Service Group	5,962	5
Cabarrus ARS	3,946	3
Caigary ARA	5,536	1
Calhoun Co. ARA	2,684	2
Calhoun Co. EOC	3,558	1
California City ARC	1,702	1
California Dept. of Justice ARC	974	1
California DX Assn.	4,014	1
Calvert ARA	1,462	1
Cambridge ARA	1,982	2
Cambridge ARC	388	1
Camden Co. ARS	92	1
Camp Trouten	1,268	1
CANAMARA	526	1
Candlewood ARA	4,352	1
Canton ARC	3,514	2
Cape Ann ARA	1,208	2
Cape Fear ARS	7,194	4
Cape May Co. ARC	1,944	1
Capital Area ARES Unit	758	1
CARA/OBARC	4,376	5
Carbon ARC	114	1
Carbon Co. DXCC	11,864	5
Caribbean Amateur Radio Group	758	1
Carolina Airstream Club	1,082	1
Carolina ARES	656	1
Carolina DX Assn.	5,444	5
Carroll Co. ARC	2,616	2
Carson City Ares	370	1
Carter Co. ARA	560	1
Carteret Co. ARS	518	1
Carteret Emergency Management Vol. ARC	1,904	1
Cascade RC	2,104	2
Cascades ARS	262	1
Case ARC of Case Western Reserve Univ.	1,880	1
Cass Co. Area AR Operators	1,252	1
Castle Shannon VFD ARC	664	1
Cedar Creek ARC	1,266	1
Cedar Grove ARC	1,968	1
CanTor ARC	2,990	6
Central Alberta ARC	1,084	1
Central Dakota ARC	852	1
Central Idaho ARC	4,300	1
Central Illinois RC	1,834	5
Central Indiana ARA	80	1
Central Kansas ARC	624	1
Central Kentucky ARC	11,798	1
Central Louisiana ARS	5,920	3
Central Massachusetts ARA	4,292	3
Central Michigan ARC	4,042	3
Central Mississippi ARA	2,738	1
Central Missouri RA	2,784	3
Central Montana ARC	1,550	2
Central New York ARC	1,088	1
Central New York Contesters	882	1
Central Ohio Operators Klub	1,082	2
Central Oregon Coast ARC	4,538	6
Central Oregon DX Club	5,054	1
Central Texas DX and Contest Club	10,944	1
Central Valley AR Enthusiasts	950	1
Central Vermont ARC	2,130	1
Central Virginia Contest Club	2,550	2
Central Washington ARC	1,400	2
Central West Virginia Wireless Assn.	17,504	8
Centralia ARES	872	1
Champaign ARA	120	1
Chandler Ham RC	1,586	3
Charleston ARS	2,266	3
Charlevoix/Cheboygan/Emmet Co. Pub Svc Comm. Org.	1,476	1
Charlotte ARC	1,180	1



## ARRL News (Continued)

Charlotte ARS	3,328	1	Crooked River Contest Club	1,542	2
Charlotte Co. ARC	586	1	Crookston Pirates	378	1
Chataqua AR Service	1,494	1	Cross Co. ARC	656	1
Chattanooga ARC	1,648	1	Cross Roads Ham RC	1,614	2
Chautauqua and Erie ARC	326	1	CTRI Contest Group	8,526	1
Chehalis Valley ARS	1,088	1	Culpeper ARA	2,928	1
Cherokee ARS	4,366	4	Culver City ARES	3,139	6
Cherokee Capital ARS	1,478	1	Cumberland ARC	3,976	8
Cherryland ARC	4,174	3	Cumberland Plateau ARC	5,154	2
Cherryville Repeater Assn. II	2,968	4	Cumberland Valley ARC	2,436	1
Chesapeake AR Service	4,360	5	Cupertino ARES	4,671	12
Chesapeake Bay Radio Assn.	2,998	2	Cuyahoga ARS	17,278	14
Cheshire Co. DX ARC	2,126	1	Cuyahoga Falls ARC	11,217	5
Chester ARS	458	1	CVARC	4,050	1
Chester Co. Amateur Radio	396	1	CWOPs	3,254	1
Chew's Ridge Gang	9,190	1	Dade RC of Miami	678	1
Chicago Suburban Radio Assn.			Dallas ARC	8,426	11
			Dalton ARC	134	1
Citrus Co. ARC and ARES	3,086	8	Dartmouth ARC	486	1
City of Cypress RACES	2,644	1	David M. Fiedler Memorial ARC		
Citallam Co. ARC	3,352	4		2,196	1
Clark Co. (IN) ARC	3,316	4	David Samoff ARC	2,770	6
Clark Co. (WA) ARC	6,104	6	Davie/Cooper City ARC	4,590	3
Clark Co. (WA) ARES/RACES	826	2	Davis Co. ARC	2,824	2
Clark Fork Valley ARC	1,126	1	Dayton ARA	794	2
Clarksville Amateur Radio and			Daytona Beach CERT AR Team		
Pilots Assn.	474	1		2,054	1
Clarksville ARS	978	1	DCT ARC	338	1
Clay Co. (IN) Auxcomm	2,126	1	Decatur ARC	1,872	1
Clay Co. (NC) Auxcomm	3,866	3	Deep Dixie Contest Club	6,820	2
Clayton Radio Dawgs	4,842	1	Deep South ARC	4,898	4
Cleanwater ARS/St. Petersburg			DeForest ARC	1,948	1
ARC/Upper Pinellas ARC	6,086	2	DeKalb Co. ARC Ed Ringer		
Cleveland ARC	1,698	3	Memorial FD Team	5,006	2
Cleveland Co. AR Service	7,682	7	Del Mar CERT	4,226	1
Clinton Co. ARA	2,604	1	Delaware ARA	13,564	4
Clinton Co. Contesters	3,230	1	Delaware Lehigh ARC	1,848	2
Club de Radio Amateur			Delaware Repeater Assn.	2,062	3
Outoais	7,865	9	Delaware Valley RA	1,348	1
Club Groupe Radio Amateur			Delmarva DX Assn.	2,176	2
Amical	1,392	1	Delta ARC Memphis	2,464	1
Club KC5NX	3,845	3	Delta ARS	600	2
Club Radio Amateur de Quebec			Denton Co. ARA	3,532	1
	17,404	15	Denver Radio League	828	1
Club Radio Amateur Sorel-Tracy			Denver RC	2,654	4
	1,102	2	Des Moines Radio Amateur's		
Club Radioamateur De La Vallée			Assn.	2,846	1
Du Richelieu	714	1	Desert Creek DX Dogs	736	1
Club Radioamateur Drummondville			Desert Radio Amateur		
	920	2	Transmitting Soc.	7,272	18
Club Sation Répétitrice de Laval			Deseriores FD Squad	2,816	1
	1,364	6	Desoto ARC	766	2
Coast Side ARC	920	1	Detroit Lakes ARC	608	1
Coastal ARS	2,365	1	DFW Contest Group	8,160	5
Coastal Plains ARC	2,096	4	Dial RC of Middletown	12,112	6
Coastline ARA	418	1	Dickson Co. ARC	3,028	2
Cochise ARA	6,250	7	Disney EARS	2,395	2
Cocoon ARC	220	3	District 3 AR Group	436	1
Collins Aerospace Radio Grp	5,914	1	Dixie ARC	2,754	1
Collins ARC	6,272	3	Doghouse East	314	2
Collins Melbourne Comm/Nav	584	1	Douglas Co. ARC	692	2
Colorado ORP Club	7,005	5	Douglas Co. Radio Responders	490	1
Columbia (MD) ARA	4,308	12	Downey ARC	4,108	6
Columbia (OR) ARA	1,676	2	Dr. Loomis Memorial Junior		
Columbia ARC (SC)	626	2	Mechanics League	4,398	1
Columbia ARS	2,104	1	Drake ARC	3,702	1
Columbia River DX Club	802	1	Draper Ham RA	1,968	1
Columbia-Montour ARC	5,864	12	Dupage ARC	11,900	9
Columbus ARC	8,158	3	Dutchess Demons	518	1
Communications Support Team	322	1	East Bay ARC	608	1
Community ARC	262	1	East Greenbush ARA	1,692	6
Comox Valley ARC	7,042	12	East Pasco ARS	1,584	1
Comstock ARA	86	1	East Penn ARC	1,490	1
Condo Valley ARC	275	1	Eastern Arizona ARS	638	1
Conejo Valley ARC	6,188	6	Eastern Connecticut ARA	4,140	1
Contest Club Ontario	12,151	8	Eastern Fulmont ARC	2,156	3
Coontocook Valley RC	10,228	1	Eastern Michigan ARC	1,982	1
Copper Country Radio			Eastern New Mexico RC	202	1
Amateur Assn.	1,060	2	Eastern Ohio Contesters	188	1
Coquillam ARC	2,893	4	Eastern Ontario ARC	952	1
Corona Police Dept. CSV Grp	2,216	3	Eastern Ozarks ARC	310	2
CorTex RIA	1,670	1	Eastern Pennsylvania ARA	2,104	1
Coshocton Co. ARA	4,924	2	Eastern Panhandle ARC	1,730	1
Cottonwood Heights ARC	3,210	1	Eastern Shore ARC	3,974	10
Cove Repeater Assn.	1,538	1	Easton ARS	2,930	2
Covey EMA	4,180	1	Eastside AR Service	1,942	1
Coweta RC	1,778	2	Eaton Co. ARC	1,174	1
Cowichan Valley ARS	322	1	Eau Claire ARC	622	1
Cowtown ARC	2,824	1	Ed and Joe Tech Club	1,185	1
Coyote ARC	198	1	Edgefield Co. ARC	1,656	1
CQ805	2,172	1	Edison Amateur Radio Network	286	1
Crawford ARS	4,936	1	Edmond ARS	12,704	7
Crawford Mountain Boys			Edmonds Woodway ARC	1,838	2
and One Girl	2,248	1	Education Alliance for AR	616	1
CRCRST	3,727	3	Egyptian RC	252	2
CRES ARC	3,158	3	El Dorado Co. ARC	9,440	8
Crescenta Valley RC	1,554	7	El Paso ARC	996	2



Being without a tower didn't stop the Sun Country Amateur Radio Society, KB4KP, in Marion County, Florida, from operating in the 2021 ARRL Field Day. Instead, they suspended one of their antennas from a crane brought in specifically for the event. The crane was secured in a fenced-in area that was adjacent to their three operating positions. [Bruce Richardson, WA4IPU, photo]

El Segundo AR Group	436	1	Fayette Amateur Radio		
Elgin ARS	3,708	5	Transmitting Soc.	690	1
Elk Co. ARA	1,628	1	Fayette Co. ARC	5,040	1
Elk River Ham Group	1,276	1	FBOM International	1,004	1
Elkhorn Valley ARC	1,194	1	FD Philips NEO	850	3
Ellis Co. ARC	2,494	2	Federación de Radio		
Ellsworth Amateur Wireless			Aficionados de PR	8,130	9
Assn.	5,785	7	Fidelity ARC	3,114	1
Elmira ARC	2,332	7	Findlay RC	2,508	2
Elmore Co. ARC	832	1	First Baptist Church		
Elmore Co. ARES	1,268	1	Huntsville RC	1,410	2
Emergency ARC of Hawaii	584	1	First Class CW Operators		
Emergency Communications			Club USA	3,030	1
Assn.	2,046	5	First State ARC	5,052	1
Emergency Repeater System	2,092	1	Five Flags ARA	5,086	2
Emporia ARS	446	1	Florence ARC	530	1
Endless Mountains ARC	2,134	3	Florida Contest Group	12,627	12
Englewood ARS	422	1	Floyd ARS	472	1
Escondido ARS	2,032	1	Fluvanna ARES Group	2,438	1
Estes Valley ARC	2,346	5	FM38 Repeater Group	4,544	1
EWPA Club	86	1	FMARC	130	1
Everglades ARC	372	2	Fond du Lac ARC	1,280	2
EVQRP	1,892	4	Foothill Flyers RC	400	1
EWEPHORIA RC	376	2	Foothills ARC	614	1
F.A.R.G.	2,358	2	Foothills ARS (CA)	1,482	5
Fair Lawn ARC	1,790	1	Forsyth ARC	13,074	5
Fairbrook ARC	2,466	5	Fort Collins CW	7,634	1
Falmouth ARA	4,480	6	Fort Herkimer ARA	2,836	1
FARCE	4,132	8	Fort Madison ARC	3,276	4
Farrell-Gray	1,700	2	Fort Myers ARC	416	3
Faulkner Co. ARC	872	1	Fort Smith Area ARC	2,422	3
Fauquier ARA	2,392	2	Fort Venango Mike and Key		
	6,210	2	Club	2,212	1
			Fort Wayne DX Assn.	7,698	1

(Continued on next page)



## ARRL News (Continued)

Fort Wayne RC	6,488	6	Hampstead Hams	1,790	4	Jefferson Co. ARC	540	1	Lambton Co. RC	1,940	4
Fox ARC	4,818	1	HAMsters	852	1	Jersey Shore ARS	1,588	2	Lamorinda Area Radio		
Four County ARES	1,716	1	Hancock ARC	3,610	1	Jim Bell Wireless Assn.	1,786	1	Interest Group	1,284	1
Four Lakes ARC	2,591	3	Hancock-Hawkins AR Team	978	3	Jims Farm Group	250	1	Lancaster Co. ARES	3,684	1
Fox Cities ARC	1,814	2	Hannibal (MO) ARC	3,812	5	Johnson Co. Radio Amateurs		1	Lancaster RC	5,410	4
Fox Mike Hotel Portable Ops Team	718	1	Harford Co. ARES/RACES	3,018	1	Club	10,658	1	L'Anse Creuse ARC	7,100	3
Fox River Radio League	7,064	2	Harris Family	640	1	Johnson Space Center ARC/Clear		1	Larkfield ARC	928	1
Fox River Relay League	3,798	2	Hassayampa AR Klub	1,036	1	Lake ARC	5,266	1	Las Moras ARC	1,858	1
Framingham ARA	4,492	8	Hattiesburg ARC	5,820	2	Jonathan Sennetti	550	1	LaSalle Co. IL RACES	540	1
Frankford RC	31,386	11	Hays/Caldwell ARC	432	2	Juneau ARC	2,877	2	Laughery Valley ARC	724	1
Franklin (NC) ARC	3,472	3	Haywood Co. ARC	2,510	1	Juniata Valley ARC	1,296	1	Laurel ARC	1,340	2
Franklin Co. (MA) ARC	3,916	3	Hazel Park ARC	7,138	3	Jupiter Tequesta Repeater		1	Lebanon Valley Soc. of		
Franklin Co. (NC) ARC	7,590	5	HDXCC	136	1	Group	2,914	1	Radio Amateurs	2,944	2
Franklin Co. (OH) Auxiliary Comm. Club	912	1	Healing Springs Mtn. VHF Soc.	1,248	5	K1USN RC	4,036	4	LEFROG	7,434	2
Franklin Co. (VA) ARC	8,806	2	Heart of America RC	3,184	2	KA3PVM and family,		1	Lahigh Valley ARC	1,502	1
Franklin Co. ARES	1,062	1	Heartland DX Assn.	3,472	1	plus N3DR1	1,758	1	Laisure World of Maryland ARC	116	2
Franklin Springs Hams	626	1	Heartland Hams ARC	1,380	1	Kachina ARC	116	1	Lamhi ARC	862	1
Frederickton ARC	840	1	Helena ARC	1,316	1	Kalamazoo ARC	996	2	Lancaster	2,888	3
Fresno ARC	1,268	2	Heligate ARC	10,008	3	Kanawha ARC	7,452	2	Lewis and Clark RC	240	1
Front	692	1	Heligate Contest Club	394	1	Kansas Antenna Club in		2	Lewisville ARA	150	1
Fullerton RC	1,034	1	Henry Co. ARC	2,512	2	Johnson Co.	2,644	2	Lewisville ARC	94	1
Fulton Co. ARC	14,186	2	Henry Co. EOC	480	1	Kansas City Assn. for the		1	Lighthouse ARA	2,710	1
FVFD21	5,324	7	Heritage Hunt Hams	5,564	5	Blind ARC	780	1	Lighthouse Point BBQ Club	426	1
G.R.E.A.T. Club	800	1	Heritage Village Radio and Electronics Club	298	1	Kansas City Contest Club	2,558	2	Limestone ARES	2,226	1
Gainesville ARC	1,346	3	Hernando Co. ARA	3,710	1	Kanso/Nebraska ARC	1,110	1	Lincoln ARC	5,160	1
Garden City ARC	1,246	3	Hiawatha ARA	546	1	KARO-ECHO	1,548	1	Lincoln Co. (ME) ARC	3,370	1
Garden School ARC	896	1	Hiawatha Valley ARC	2,426	3	Katy ARS	1,310	3	Lincoln Co. (OR) ARC	884	1
Garden State ARA	5,680	5	Hickman ARC	574	1	Kaw Valley ARC	3,368	2	Lincoln Co. Volunteer Comm.	1,028	1
Garland ARC	1,682	1	Hickman Springs Field Day Site	916	1	Kay Co. ARC	1,882	2	Lincoln Hills ARGroup	1,490	1
Garrett Co. ARES	3,070	1	Hidden Valleys ARC	1,440	1	KCARC	220	1	Lisbon Area ARA	1,374	1
Gaston Co. ARS	2,592	1	High Desert AR Group	62	1	Keeping Amateur Radio Fun	630	1	Lithopolis FD Group	2,168	1
Gaston RC	692	1	High Point ARC	3,830	2	Kentville AR Group	2,059	4	Littletown Area RC	2,964	2
Gateway ARC	7,300	2	High Sierra Field Day Group	6,682	3	Kendall ARS	2,158	5	Livermore AR Klub	1,374	3
GEARS	2,060	2	Highlands Co. ARC	1,098	3	Kendallville Contesters/		1	Liverpool Amateur Repeater		
Geauga ARA	1,076	1	Highlands Hams	520	2	21 Repeater Group	668	1	Club	4,358	2
Genesee Co. RC	462	1	Highline ARC	2,002	2	Kenneshochee ARC	2,216	1	Livonia ARC	10,534	2
Genesee Radio Amateurs	4,264	2	Hi-Line ARC	376	2	Kent ARS	1,082	1	Lockport ARA	2,150	1
Georgia Auxcomm	485	1	Hilltop Transmitting Assn.	5,964	6	Kent Co. ARC	2,178	2	Lodi ARC	1,436	3
Georgia Tech ARC	1,790	1	Hinesville ARR Emergency Soc.	200	1	Kentucky Colonels ARC	2,388	1	LOHSEP ARC	248	1
Georgian Bay ARC	3,376	4	Hiram Percy Maxim Memorial Station	2,983	1	Kentucky Contest Group	10,352	4	London ARC	8,114	14
GLARB	668	1	Hocking Valley ARC	644	1	Kentwater ARC	448	1	Long Island CW Club	766	3
Gloucester Co. ARC	18,824	5	Holiday City ARC	154	1	Keowee Toxaway ARC	1,774	1	Long Island Mobile ARC	5,168	3
Glynn ARC	5,714	2	Holland ARC	1,050	2	Kern Co. Central Valley ARC	1,364	2	Long Tail RC	1,288	1
GMARC	390	1	Holmesburg ARC	2,698	3	Kershaw Co. ARC	44	1	Longmont ARC	1,966	4
Goddard ARC	466	1	Honeywell-Glendale ARC	428	1	Keuka Lake ARA	2,522	6	Loren D Hayes Memorial ARC	910	1
Gold Coast ARC	6,440	5	Hood Co. ARC	2,974	1	Key City ARC	964	1	Los Alamos ARC	826	1
Golden Spike ARC	1,156	1	Hoodview ARC	676	3	Kicked Back Contesters Club	1,220	2	Los Angeles ARC	2,812	1
Gordon PA Field Day Group	466	1	Hooder Hills Ham Club	1,620	1	Kicycle Club of Fort Worth, TX		2	Loudoun AR Group	2,670	5
Goshen ARC	168	1	Hop River RC	74	1	King George AR Operators	3,002	2	Low Country Contest Club	2,502	1
GOTAHAMS	4,484	4	Hop River RC	74	1	King Harbor Yacht Club Radio	3,612	2	Lower Arkansas Ham		
Grand Rapids ARA	196	1	Houston ECHO Soc.	590	1	Fleet	2,324	1	Operators Group	634	1
Grand Strand ARC	1,692	3	HP Alumni RC	4,928	4	Kingman Amateur Radio CW		1	Lubbock ARC	850	1
Grande Ronde Radio Amateurs Assn.	3,688	1	HP Boise ARC	2,254	1	Operators Club	808	2	Lucas ARC	3,506	3
Granite State ARA	5,590	8	HRO Milwaukee Employees ARC	424	1	Kings Co. and Annapolis		1	Luke-Jack Searchers	212	1
Grassroots ARC	636	1	Huber Heights ARC	2,144	1	Valley ARCs	6,176	4	Lynchburg ARC	11,946	9
Gratiot Co. Old Timers	1,472	1	Hudson Valley Contesters	5,428	4	Kings Co. RC	172	1	M.A.R.C.	390	1
Grayson Co. ARC	4,368	2	and DXers	1,866	5	Kings Point ARC	4,068	5	Malbom	102	1
Great Bay RA	2,838	1	Hughes ARC	588	2	Kingsport/Bays Mountain ARC		1	Mackenzie Regional RC	360	1
Great Lakes CWops Club	8,912	3	Humboldt ARC	4,420	1	Kingston Amateurs	2,178	1	Macon Co. ARC	3,970	5
Great River ARC	996	1	Hunt Co. Packet Club	24,497	8	Kitchener-Waterloo ARC	8,566	10	Macoupin Co. ARC	2,144	1
Great Salt Lake Contest Club	3,862	1	Huntsville ARC	2,498	2	Kitsap Co. ARC	2,336	3	Mad River RC	16,222	6
Great South Bay ARC	3,288	2	Huron ARA	1,138	1	Kitsap Co. DX Club	1,930	1	Madison Co. Ohio ARC	3,578	1
Great Southern DX Assn.	6,890	9	Hurst ARC	2,326	1	Klamath Basin ARA	2,472	1	Magic Valley ARC	1,644	1
Greater Beloit ARC	5,248	1	Independent Radio Crew	1,406	1	Knob Hill Krew	350	1	Magnolia DX Assn.	528	1
Greater Nebraska ARL	1,620	1	Indian Peaks RC	616	1	Knox Co. ARC	1,232	1	Mahoning Valley ARA	3,862	5
Greater Norwalk ARC	6,046	1	Indian River ARC	1,928	2	KO4HRD-NS2X Team	670	2	Maine Ham Radio Soc.	562	1
Green Bay Mike & Key Club	1,850	2	Indiana Co. ARC	570	1	Kokomo ARC	1,650	1	Manatee ARC	450	1
Green Mountain Wireless Soc.	1,468	2	Indy Midtown ARC	21,236	1	Koolau ARC	476	1	Manhattan Area ARS	1,188	2
Green River Valley ARS	1,766	1	Insurance City Repeater Club	1,570	1	Kootenai ARS	1,526	1	Manila Creek Stake ERC	164	1
Greensboro Digital RA	446	5	Intercity ARC	2,368	2	Korean ARA	1,886	1	Manitoulin ARC	282	1
Greenwood ARC	1,728	4	Inverhuron Ham RC	3,110	3	KSC ARC	752	1	Manotick AR Group	560	1
Greer ARC	12,684	4	Iowa City ARC	2,134	1	KX4PR FD Group	422	1	Mansfield-Johnson ARS	8,048	6
Grundy Co. ARC	1,100	2	Iowa Wireless AR Network	158	1	La Mirada RC	2,248	1	Maple Grove RC	2,300	1
Grupong Magellan Org. Search & Rescue Team	1,052	1	Iredell Co. ARS	272	1	Lafayette DX Assn.	6,368	2	Maple Ridge ARC	510	2
GSBARC	526	1	Iroquois Co. ARC	4,393	14	LaGrange ARC	1,674	1	MARCD/ECT	7,520	6
Guadalupe Valley ARC	1,822	1	Irvine Disaster EmComms	1,068	3	Laguna Mountain WFD	2,316	1	MARICA	2,841	5
Guelph ARC	474	1	Issaquah ARC	1,694	3	Lake Agassiz RC	1,574	1	Marietta ARC	2,135	1
GVARC/SBCARA	4,298	6	Island Co. ARC	1,482	2	Lake Area AR Klub	12,286	9	Marble Newtown ARC & Mobile	1,278	1
Gwinnett ARS	14,143	9	Issaquah ARC	1,694	3	Lake Area Radio Klub	4,360	9	Sixers RC	3,878	4
Haldimand Norfolk ARC	3,790	9	IWARIN	526	1	Lake Co. (OH) ARA	6,542	1	Marshall (TX) ARC	734	1
Half Moon Bay ARC	3,152	5	Jackson Co. (MS) ARA	716	3	Lake Co. RACES/ARES	10,112	6	Marshall Co. ARC	520	1
Half Wave Soc.	88	1	Jackson Co. AR Service	504	1	Lake Conroe ARC	4,702	2	Martin Co. ARA	2,894	1
Halifax ARC	8,906	13	Jackson Co. AR Service	7,624	2	Lake Country AR Service	1,900	1	Martinez ARC	990	1
Hall of Science ARC	776	1	Jacksonville ARS	1,462	2	Lake Cumberland ARA	634	1	Maryland Mobiles ARC	3,784	1
Ham Assn. of Mesquite	3,890	4	Jamestown ARC	1,346	1	Lake Monroe ARS	558	2	Masonic Village ARC	2,804	2
Ham Radio Adventures	572	1	JANET Club	1,705	1	Lake Oswego ARS	6,182	2	Massillon ARC	4,368	1
HAMARS	1,806	1	Jasper RC	1,494	1	Lake Whitney ARS	1,854	1	Masters of Reception	760	1
Hambuds	3,736	1	Jay Co. ARC	1,434	1	Lake Whitworth ARC	1,014	1	Matagorda Co. Arc	2,204	3
Hamleters RC	2,320	4	Jayhawk ARS	978	1	Lakeland ARC	440	1	Maul ARC	3,873	2
Hamilton (OH) ARC	2,442	3	Jefferson (LA) ARC	4,520	4	Lakes Area ARC	5,856	9	Maury ARC	3,696	4
Hamilton (ON) ARC	3,730	7	Jefferson Co. (TX) ARC	3,448	2	Lakes Region Repeater Assn.	110	1	Maury River Rain Dogs	638	1
Hampden Co. RA	8,310	6	Jefferson Co. (WA) ARC	2,396	6	Lakeshore RC	1,126	1	Maxim Integrated Beaverton		
						Lakewood ARC	940	1	& Friends	958	1
						Lambert Family	428	1	Mayerthorpe Flying Tigers	764	1
							904	1	McDowell ARA	3,770	1



## ARRL News (Continued)

McGregor Memorial EMS ARC	462	1	Motorola ARC	1,850	1
McHenry Co. RACES/ARES	2,136	1	Mound ARA	5,848	4
McHenry Co. Wireless Assn.	16,172	3	Mountain AR Contest Org.	7,544	1
McKean Co. ARC	4,604	1	Mountain ARC	1,178	1
McKinney ARC	4,594	2	Mountain Group	1,710	1
McMinn Co. ARC	1,630	1	Mountain State Transmitters	956	1
McMinnville ARC	2,534	8	Mountain Top ARA	850	1
Mecklenburg ARS	3,694	2	Mountaineer ARA	7,080	3
Medina Co. AR Corporation	3,109	2	MQBARC	1,558	1
Medina Co. ARC	6,608	1	Mt. Airy VHF Club	1,348	1
Meigs Co. ARC	1,776	1	Mt. Diablo ARC	1,528	1
Mercer Co. ARC	4,648	1	Mt. Magazine ARC	1,586	1
Meriden ARC	4,306	9	Mt. Shasta ARC	184	1
Merrymeeting ARA	1,194	1	Mt. Vernon (OH) ARC	5,390	1
Mesa Valley RC	3,608	3	Mt. Vernon (VA) ARC	1,300	4
Metro ARC	274	1	Mul's Marauders	7,218	1
Metro Atlanta Telephone			Muncie Area ARC	1,632	1
Pioneer ARC	1,920	1	Murgas ARC	5,530	4
Metro Detroit SATERN	620	1	Murray State Univ. ARC	3,910	1
Metro DX Club	7,418	2	Muscle Shoals ARC	3,618	1
Metrocrest ARS	4,154	8	Muskogean Area AR Council	290	1
Metropolitan ARC	680	1	Muskogee ARC	13,110	1
Metuchen RC	1,156	1	Musshell ARC	642	1
MGRA/CGAR	3,766	2	N. New England Field AR		
Miamiburg Wireless Assn.	440	1	Operators	1,936	1
Mich-A-Con ARC	2,340	1	NOKH Field Day	1,694	1
Michigan Amateur Radio			NZLBR Contest Team	5,342	1
Alliance	1,802	1	N3PRDS	496	1
Michigan QRP Club	300	1	N4N Field Day Group	9,552	3
Microhams ARC	4,512	4	NSCST	980	1
Mics & Beers	1,098	1	Nacogdoches ARC	1,068	1
Mid Island RA	288	1	Nanaimo ARA	2,562	6
Mid-Atlantic ARC	802	1	Narwhal ARS	1,634	1
Middle Peninsula ARC	2,084	1	NASA Ames Research Center		
Middle Tennessee ARC	1,194	1	ARC	870	1
Middlesex ARS	2,744	4	Nashoba Valley ARC	6,650	2
Midland (MI) ARC	476	2	Nashua Area Radio Soc.	9,935	5
Midland (TX) ARC	9,530	6	Nashville ARC	2,104	1
Mid-MO ARC	7,788	16	Nassau ARC	4,016	1
Mid-State ARC	978	1	Natchaug ARC	538	1
Midwest ARC	1,214	1	National Electronics		
Mike & Key ARC	18,552	11	Museum RC	2,210	1
Mila's Field Day Group	2,064	1	National Trail ARC	1,226	1
Mile Highlanders Group	582	2	Naturist ARC	506	1
Mile Lake Radio Assn.	2,406	1	NC TRI-CLUB	4,398	1
Milford (OH) ARC	330	1	NCAARS-Brook Mtn CG	7,218	1
Milky Way Wireless Club	1,192	1	NE TX QRP Contest Fed.	1,680	1
Milton ARC	162	1	Neighbor Kids	3,690	1
Milwaukee Radio Amateurs Club	2,883	6	Nelson Co. Post 42 American		
			Legion ARC	1,320	2
Milwaukee School of			NEMO ARC	5,584	5
Engineering ARC	726	1	NEPA Emergency Services		
Mine Canyon Contest Club	794	1	ARC	600	1
Mining ARC/St. Paul RC	3,860	3	New England QRP Group	5,160	1
Minnesota Wireless Assn.	16,394	10	New England Radio		
Minnetonka Minnesota RC	144	1	Discussion Soc.	2,542	1
Misfits ARC	4,006	1	New Jersey Antique RC	2,096	1
Missisauqua ARC	1,552	3	New Jersey Institute of		
Mississippi Coast ARA	208	2	Technology ARC	236	1
MSU ARC, Magnolia ARC, Lowndes			New Mexico BCARES Team	2,908	4
Co. ARC, MFJ ARC	9,418	1	New Mexico Big River		
Mississippi Valley ARA	25,406	3	Contesters	1,598	1
Mississippi Valley DX/Contest			New Providence ARC	13,930	13
Club	906	1	New River Valley ARC	2,020	1
Missouri Illinois ARC	1,902	1	Newark Ohio ARA	1,292	1
Missouri Outdoor Club	2,582	1	Newport Co. RC	13,222	2
MIT Radio Soc.	528	1	Newton ARA	1,476	2
Mitzpah Shrine Radio Unit	1,852	3	Newton/McPherson ARC	2,234	1
MM Expeditionary Force	2,158	1	NFLAC	270	1
Mobile ARC	3,022	1	NFLARC	491	2
Mohegan ARC	6,889	7	NHRC A.R.S.	1,450	1
Mohegan Area ARC	1,392	1	Niagara Frontier Radiosport	11,532	11
Moncton Area ARC	1,390	1	Niagara Peninsula ARC	9,364	16
Monessen ARC	1,602	1	Niagara RC	2,068	2
Monkey Lover's Radio			Nittany ARC	4,550	6
Consortium	8,288	7	Nittany Contest Club	5,152	2
Monroe Co. ARS	1,364	1	Nixa ARC	1,198	1
Monroe Co. Radio Comm. Assn.			NOARS-LCARA	5,780	4
	6,488	5	Nodaway Co. Contesters	778	1
Montachusett ARA	2,514	4	Noise Blankers Radio Group	3,934	1
Montezuma Valley AR			North Augusta Belvedere RC	4,552	7
Operators	3,630	1	North Bay ARA	2,214	1
Montgomery ARC	13,166	14	North Coast ARC	2,115	1
Montrose Co. ARC	5,734	2	North Country ARA	354	1
Montvale OEM	3,200	4	North East Iowa Radio		
Moose Jaw ARC	1,386	1	Amateur Assn.	1,496	1
Moose Pirates	1,522	1	North East Tarrant ARC	180	1
Morehead ARS	2,562	1	North Franklin ARS	1,000	1
Morocco Valley ARA	932	1	North Fulton ARL	17,748	18
Morongo Mobile Contest Club	1,406	1	North Georgia QRP Club	1,174	1
Morongo Basin ARC	206	1	North Georgia ARC	2,568	2
Morris RC/Hanover TWP			North Georgia QRP Club	1,807	5
OEM	9,460	8	North Georgia VHF Soc.	522	1
Morrow Co. AR Service	1,294	1	North Hills ARC	1,734	1
Mother Lode DX/Contest Club	2,030	1	North Hills RC	1,270	3
Motor City RC	1,508	4	North Mason ARES	656	1



Nathaniel Frissell, W2NAF, shared a fun moment with his son Anthony, while participating in the 2021 ARRL Field Day. [Nathaniel Frissell, W2NAF, photo]

North Okaloosa ARC	3,514	4	OH-KY-IN ARS	15,788	7
North Okanagan RAC	3,559	10	Okaw Valley ARC	4,656	1
North Ottawa ARC	864	2	Old Barney ARC	14,160	19
North Penn ARC	2,202	1	Old Post ARS	1,639	3
North Port ARC	6,966	2	Ole Virginia Hams	2,526	1
North Richland Hills ARC	6,244	10	Onslow ARC	366	1
North Shore (BC) ARC	2,596	3	Orange ARC	928	1
North Shore (IL) RC	21,620	24	Orange Co. (CA) ARC	16,707	6
North Shore (ON) ARC	6,154	14	Orange Co. (NY) ARC	9,372	13
North Shore RA	218	1	Orange Co. Radio Amateurs		
North Texas Homeschoolers ARC			& Durham FM Assn.	35,560	26
	198	1	Orange Park ARC	4,384	6
North Texas Radiosport Assn.	1,804	1	Ora DX and Contest Club	3,368	3
North Yellowstone ARC	628	1	Oregon State Police ARA	1,472	1
Northeast ARC	3,804	1	Oregon Tualatin Valley ARC	4,334	4
Northeast Arkansas RC	348	1	Orlando ARC	1,590	1
Northeast Iowa Radio			Orleans Co. ARC	2,962	2
Amateur Assn.	2,504	2	Oro Valley ARC	5,848	6
Northeast Maryland AR			Oroville ARS	486	1
Contest Soc.	13,812	15	Oroville ARS	784	1
Northeast Mississippi Radio			Oroville ARS	2,916	1
Amateurs	2,514	1	Oroville ARS	3,440	3
Northeast Tarrant ARC	3,890	4	Oroville ARS	17,307	27
Northeast Wireless RC	2,612	1	Oroville ARS	1,948	2
Northeast Wisconsin ARC	4,248	1	Outagamie ARES/RACES	634	1
Northeastern Indiana ARA	4,096	7	Overlook Mountain ARC	2,620	3
Northern Arizona DX Assn.	2,606	1	Owatonna Steele Co. AR	4,000	1
Northern Berkshire ARC	1,352	1	Owensboro ARC	2,872	1
Northern California Contest			Oxford Co. ARES	2,085	1
Club	1,792	3	Ozaukee RC	12,170	5
Northern Colorado ARC	1,074	1	Ozone ARC	1,428	2
Northern Illinois Quad Co.			Pacific Co. EOC	98	1
AR Group	2,000	2	Pacific Northwest VHF Soc.	1,738	1
Northern Lakes ARC	494	3	Paducah ARA	12,962	8
Norville ARA	494	2	Page Valley ARC	3,506	1
Northwest ARS	626	1	Pahrump Amateur Radio		
Northwest Arizona Travelers			Repeater Assn.	1,354	3
FD	1,526	1	Palatine ARES/RACES/		
Northwest ARS	3,818	2	AuxComm	254	1
Northwest Florida ARC	6,476	5	Palestine Anderson Co. ARC	708	1
Northwest Illinois ARC	2,280	2	Palm Bay ARC	1,654	1
Northwest Indiana DX Club	642	1	Palm West ARC	1,200	2
Northwest Ohio ARC	824	1	Palo Alto ARA	11,783	9
Not Case ARC	8,134	1	Palos Verdes ARC	19,786	22
Not Quite Workable Contest			Palouse Hills ARC	1,160	1
Club	4,366	3	Pamlico ARC	1,816	1
Novi ARC	662	1	Pamlico ARS	3,298	8
NS1T Field Day	504	1	Panama City ARC	4,695	7
NV4H FD Group	3,256	1	Panhandle ARC	6,592	2
Oak Forest ARC	872	2	Panoramaland ARC	3,878	3
Oak Hill ARC	8,958	3	PAPA System	576	2
Oak Ridge ARC	1,986	1	Parker RA	8,000	7
Oakland Co. ARS	6,466	1	Parkersburg Amateur Radio		
Oakland Radio Comm. Assn.	2,768	7	Klub	2,258	1
OCAPA	5,425	9	Parma RC	632	1
Ocean Co. ARES	1,868	1	Parsippany-Troy Hills RACES	1,286	1
Ocean Monmouth ARC	4,336	1	PART of Westford	7,916	7
Ocean State ARG	600	1	Pasadena RC/UPLARC/		
Ogden ARC	2,888	2	CITARC	22,543	27
Ohio Army National Guard			Paso Robles ARC	4,372	3
Veterans RC	520	1	Pasasic Co. ARES Team	4,022	1
Ohio Valley ARC	2,300	1	Pathfinders ARC	1,632	1
Ohio Valley Experimenters Club	610	2	Patoka Valley ARC	1,330	3

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## ARRL News (Continued)

Paul Bunyan ARC	512	1	Rappahannock Valley ARC	14,656	2	Schoharie Co. ARA	1,076	1	Southington ARA	598	1
Pauding ARC	2,596	2	Raritan Bay Radio Amateurs	1,506	3	Scioto Valley ARC	2,360	1	Southwest Dallas Co. ARC	6,006	4
Peace Country ARC	166	1	Raytown ARC	628	4	Sci-Tech ARS	3,432	2	Southwest Iowa ARC	262	1
Peace River Radio Assn.	1,128	1	Raytown CERT	1,660	1	Seattle ACS	2,586	5	Southwest Mississippi ARC	1,848	3
Peak RA	220	1	Reading RC	7,158	7	Seaway Valley ARC	512	1	Southwick RACES	3,798	1
Peconic ARC	1,510	5	Red Mountain Radio Amateurs	418	1	Sedalia Pettis AR Klub	1,100	1	Spa ARA	968	1
Peekskill/Cortlandt ARA	3,662	1	Red Mule DX	1,250	1	Seneca Area Radio Amateurs	360	1	SPARGE	525	1
Pella ARC	11,055	14	Red River Radio Amateurs	3,912	2	Seneca RC	5,052	1	SPARK/HPT/PARC	3,576	1
Penninsula Radio Operators	920	1	Red River Valley ARC	1,000	1	Seward ARC	686	1	Spartanburg ARC	4,046	1
Penn Wireless Assn	126	1	Red Rose Repeater Assn.	2,036	1	Shannon ARC	154	1	Spirit Valley Amateurs	430	2
Pennsylvania Ridge Runners	3,808	2	Reading Veterans ARC	140	1	Shelby Co. ARC	1,874	3	Spirit Group ARC	4,380	6
United	580	1	Redneck Radio Rangers	918	1	Shelby ARC/ARES of Clev. Co.			Spittrock ARA	10,079	4
Pentagon ARC	604	1	Redondo Beach DCS	1,656	3		3,430	1	Spokane DX Assn.	5,550	4
Peterborough ARC	3,184	7	Redstone Rockets	2,738	2	Shelby Co. ARC	2,154	2	Spout Springs Repeater		
Phillips Co. ARC	2,080	1	REDXA/MARS	11,600	10	Shelby Co. ARES	2,140	1	Assn.	2,042	1
Philmont Mobile RC	1,622	3	Reelfoot ARC	5,696	3	Shenandoah Valley ARC	3,734	2	Spring Hill ARC	478	1
Pictou Co. ARC	786	1	Regina ARC	375	1	Sherlock ARA	214	1	Springfield RACES Club	470	1
Piedmont ARC	9,948	5	Renfrew Co. ARC	672	1	Shiawassee ARA	62	1	Springhill Repeater Assn.	4,164	1
Pilot Knob ARC	2,676	1	Reno Co. ARA	3,914	5	Shore Points ARC	754	1	Squaw Island ARC	190	1
Pin Pals	1,210	1	Renton EmComm Services	574	1	Shreveport ARA	8,746	9	St. Charles ARC	9,024	6
Pine State ARC	2,836	1	Reynolds Brothers Expeditions	454	1	Sky-Way ARC	3,060	2	St. Clair ARC	2,196	2
Pine Bluff ARC	972	2	RF Hill ARC	1,436	3	Sierra ARC of the High			St. Cloud ARC	1,146	1
Pioneer ARC	1,660	1	Rhode Island ARES	780	1	Mojave	2,326	2	St. Croix ARA	164	1
Piscataquis ARC	1,068	1	Rich and Ron's Field Day	870	1	Sierra Blanca ARC	2,028	2	St. Croix Valley ARC	100	1
Piano AR Klub	3,792	4	Richard Olson, K9BWI,			Sierra Foothills ARC	9,884	10	St. Louis & Suburban RC	1,892	3
Platinum Coast ARS	7,932	2	Memorial FD Club	4,970	1	Sierra Nevada ARS	5,458	5	St. Louis ARC	8,390	7
Platte Co. ARG	3,338	2	Richardson Wireless Klub	5,310	10	Signal Hill ARC	13,234	5	St. Louis QRP Soc.	6,765	1
Plattsmouth ARC	986	1	Richfield RC	570	2	Silver Comet ARS	3,252	4	St. Mary's Co. ARA	2,220	1
Plymouth Historical Museum/			Richmond Amateur			Silver Springs RC	3,360	2	Stamford ARA	2,660	2
Univ. Michigan	306	1	Telecommunications Soc.	902	2	Silvercreek ARA	2,992	2	Stanford ARC	19,766	1
Pocatello ARC	452	1	Richmond ARC	718	2	Six Meter Club of Chicago	3,468	2	Stanislaus ARA	250	2
POOKS 070	7,376	17	RICOMU/RIEMA	3,556	1	SK Contest Club	1,773	6	Stanly Co. ARC	1,098	1
Point Loma Radio Ops Group	5,216	1	Ridge Runners RC	7,160	1	Ski Country ARC	1,042	1	Stanwood-Camano ARC	6,421	4
Port City ARC	338	1	Rip Van Winkle ARS	2,598	1	Sky Valley ARC	5,170	3	Statesboro ARS/Southeast		
Port Luvaca ARC	12,348	4	River Bend Wireless Operators			Skyline ARC	2,678	5	ARA	950	1
Portage Co. AR Service	14,920	4	Club	2,782	1	Skyline Tower ARC	1,236	1	Ste. Genevieve Co. ARC	800	1
Porterville ARA	34	1	River City AR Comm. Soc.	626	1	Skyview Radio Soc.	764	1	Steel City ARC	4,250	1
Portland ARC	3,318	3	Riverland ARC	2,642	1	Sleeping Bag Portables	6,726	4	Stirling Park ARC	1,667	4
Portland Valley ARC	1,210	1	Riverside Co. ARA	1,820	2	SLSRC	1,136	1	Stauberville-Weirton ARC	508	1
Portsmouth RC	1,020	1	Roanoke Valley ARC	836	4	SMARTS RC	218	1	Stillwater ARA	3,754	8
Potomac Valley RC	22,640	15	Rochester (MN) DX Assn.	4,855	3	SMARTS RC	1,484	1	Stillwater ARC (OK)	1,484	3
Potomac Valley ARC	3,988	4	Rochester (NY) DX Assn.	5,844	2	Smithchart ARS	9,881	5	Stockton-Delta ARC	3,998	1
Poway ARS	1,518	1	Rockwall ARC	17,666	11	Smoky Mountain ARC	10,602	10	Stones River ARC	2,912	1
Powhatan Area RC	2,336	1	Rockingham Co. ARC	1,418	1	Snake River ARC	1,310	1	Story Co. ARC	3,318	1
Prairie Dog ARC	12,150	1	Rogue Valley ARC	294	1	Snohomish Co. Hams Club	3,652	8	Straight Key Century Club	200	1
Preble ARA	2,458	1	Rome RC	4,164	1	Snohomish Co. Hams Club	3,652	8	Stratford ARC	382	1
Prescott-Russell ARC	520	2	Royal Gorge ARC	646	2	Soc. of Midwest Contesters	1,174	1	Stubblefield Repeater Club	122	1
Presque Isle Co. ARC	434	1	Ruckerville Amateur	1,216	1	Soc. of Newfoundland Radio	8,252	10	Sturdy Memorial Hospital		
Preston Co. ARC	644	1	Transmitting Soc.	2,866	3	Amateurs	1,304	1	ARC	2,768	4
Pretty Good Ham Club	164	1	Rueda Del Bengay	1,434	1	Socorro ARA	3,864	4	Suburban Technical ARS	222	1
Pride Radio Group	148	1	Runestone ARC	1,752	3	Solivia RC	1,424	1	Sullivan ARC	2,642	1
Prince William Co. ARES	1,412	1	Rusk Co. ARC	1,152	1	Somerset Co. ARC	1,524	5	Sullivan Co. NY ARES	2,588	1
Princeton Ham RC	1,328	1	SAARS	5,740	3	Sonoma Co. Radio Amateurs	6,452	12	Sumner Co. ARA	1,636	2
Prose's Posse	3,516	1	Sabin Field Day 2021	1,448	1	Sootland ARA	862	1	Sumter ARA	2,064	1
Providence EMA RACES Club			Sachse ARA	1,246	1	SOTA LEOs	1,412	1	Sun City ARC	2,796	3
	1,208	1	Sacksafone Acres RA	264	1	Souris Valley ARC	4,806	1	Sun City Hilton Head ARC	2,144	3
Providence Radio Assn.	7,052	2	Saginaw Valley ARA	2,658	4	South Bay ARA	9,153	20	Sun City Peachtree AR Group	1,120	2
Pueblo West ARC	2,382	3	Saguaro Nights ARC	1,550	1	South Bay ARC	1,338	7	Sun City Summerlin ARC	1,370	1
Puerto Rico AR League	2,934	1	Salem ARC	1,052	1	South Canadian ARS	5,858	6	Sun Coast ARC Soc.	628	3
Pulnam Emergency Amateur	492	1	Saline Co. ARES	616	1	South Carroll AR Group	2,924	2	Sun Country ARS	3,592	2
Repeater League	2,116	6	Salishchattie ARS	6,546	4	South Central RC	1,814	1	Sun Parlor ARC	3,358	4
QRP ARC International	3,695	2	San Andreas Faultline FD			South East Contest Club	386	1	SundayNightNet.org	308	1
QSY Soc.	1,422	2	Survivors	3,786	2	South East Metro ARC	3,012	3	Sunnyvale ARES	2,940	4
Queen Anne's ARC	916	3	San Angelo ARC	1,682	1	South East Texas ARC	1,630	1	Superstition ARC	2,564	5
Queen City Emergency Net	1,252	1	San Antonio RC	1,488	1	South Georgia ARC	3,566	1	Survivors of Broadcast	328	1
Quinte & Prince Edward RCs	3,974	6	San Diego ARES	9,328	10	South Hallett ARES Group	916	1	Susquehanna Co. ARC	3,542	1
Radio Activity of Savannah	620	1	San Fernando Valley ARC	3,450	5	South Jersey Radio Assn.	14,384	10	Susquehanna Valley ARC	3,798	1
Radio Amateur Club of			San Francisco RC	1,492	2	South Lyon Area ARC	8,374	11	Sussex ARA	1,074	1
Knoxville	1,392	1	San Geronio Pass Amateur			South Mountain Radio			Swamp Fox Contest Group	2,100	1
Radio Amateur Soc. of			Club	2,048	6	Amateurs	4,628	8	Sweet Ham RC	400	2
Norwich	3,182	1	San Jose ARES/RACES	1,958	6	South Orange ARA	2,864	1	Switzerland ARC	1,172	1
Radio Amateurs of Greater			San Juan Co. ARS	1,366	4	South Pasadena ARC	1,805	5	Tallahassee ARS	4,298	4
Syracuse	4,296	2	San Luis Valley ARA	1,166	1	South Plainfield ARC	4,670	1	Tamaqua Wireless Assn.	1,460	1
Radio Amateurs of Northern			San Mateo RC	5,158	1	South San Francisco Comms.	394	3	Tamiami ARC	4,392	3
Vermont	15,900	1	Sand Springs Wireless Assn.	1,322	1	South Texas Remote			Tampa ARC	7,358	1
Radio Amateurs of Skagit Co.			Sandhill ARC	3,316	1	DX Club	4,730	2	TCARES	1,684	1
	4,286	3	Sandia Vista ARC	560	1	South Towns ARS	6,724	2	Team Cramp/MXG Designs	2,430	1
Radio Artisans	1,626	1	Sandy ARC	350	1	South Wake ARC	3,662	4	Radio Geeks	326	1
Radio Assn. of Erie	3,382	1	Sangamon Valley RC	2,516	5	South West Louisiana			Team RU	514	1
Radio Assn. of Western			Santa Clara Co. ARA	2,092	6	Amateur Repeater Club	1,652	3	Technology in ARC	5,474	5
New York	1,187	3	Santa Clarita ARC	820	2	South West Ohio DX Club	1,478	1	Tellico Lake ARC	1,308	1
Radio Central ARC and Order			Santa Cruz Co. ARC	60	1	Southborough Rod & Gun			Telluride ARC	4,710	1
of Boiled Owls of NY	10,280	4	Santa Fe ARC	1,574	1	ARC	1,796	1	Tennessee Contest Group	8,020	6
Radio Club of Redmond	1,738	3	Santa Rosa Co. ARES	2,952	2	Southeast KS ARC	1,060	1	Tennessee Valley DX Assn.	7,044	1
Radio Club of Tacoma	4,634	11	Sarasota Emergency RC	686	1	Southeast Louisiana ARC	434	1	Terrace ARC	296	1
Radio Farm	8,460	2	Saratoga Co. ARA	4,884	5	Southern Arizona DX Assn.	174	1	Terre Haute RC	4,092	1
Radio Operadores Del Este	4,056	4	SARC-SEPAR	7,404	7	Southern Berkshire ARC	1,890	2	Texas DX Soc.	5,714	5
Radio Soc. of Ohio	2,776	1	Sask. Alta RC	2,550	1	Southern California Contest			Texas Emergency Amateur		
Rains ARA	1,966	2	Saskatoon ARC	64	1	Club	17,906	4	Communicators	1,536	2
Raleigh ARS	9,244	2	Sawnee ARA	6,388	6	Southern Counties ARA	4,538	5	The 415 ARC	6,916	2
Ramapo Mountain ARC	672	2	SC4ARC	8,971	10	Southern Indiana Tri-County			The FPL Group	4,438	1
Ramona Outback ARS	1,056	1	SCANRed Ant Annihilators	1,760	1	ARC	478	1	The Great White North II	624	1
Randallstown ARC	11,870	1	Scarborough ARC	418	2	Southern Michigan ARS	1,464	1	The Megamachine Repeater	1,894	1
Randolph Co. Emergency RC	3,676	2	Seaside City ARS	168	1	Southern Pennsylvania ARC	1,032	2	The Ohio 337 Ragchew Crew	1,290	1
			Schaumburg ARC	3,296	2	Southern Pennsylvania			The Road Show ARC	1,672	1
						Comm. Group	2,430	1	The Villages ARC	4,169	4



## ARRL News (Continued)

The World RC	3,458	1	VE3GTM Field Day	850	1
Theodore Roosevelt ARC	1,314	1	VE6FAR Cycle 25	5,230	10
Thibodaux ARC	1,642	1	VECTOR	1,338	1
Thousand Islands Radio Club	2,540	1	Ventura Co. ARC	2,282	1
Three Amigos	1,354	1	Ventura Co. ARS	228	1
Three Ammonites	1,150	1	Verde Valley ARA	844	2
Thunder ARC	2,060	1	Vermilion Range ARC	2,502	1
Thunderbird ARC	2,280	3	Vero Beach ARC	3,452	1
TicBite ARA	765	1	Victor Valley ARC	552	2
Tilson Contest Club	8,174	1	Victoria ARC	632	1
Tippacanoe ARA	6,376	3	Victoria-Haliburton ARA	1,132	3
Tipton ARS	6,410	1	Vienna Wireless Soc.	9,140	11
TLSC Amateur Radio Group	1,996	2	Vieques Island ARC	2,150	1
Tococa ARS	664	1	Villas Co. RC	1,797	1
Toledo Mobile RA	2,678	5	Village 7 ARC	1,582	1
Toledo Radio Amateur Club	3,004	1	Village Hams	1,396	1
Tompkins Co. ARA	1,402	2	Villanova Univ. ARC	520	1
Torn's Garage ARC	8,774	1	Vintage Radio & Comm. Museum		
Top of Michigan ARC	852	1	of CT ARC	312	1
Toronto ARC	3,220	6	Virginia Mountain ARC	2,646	1
Tortolina RC	530	1	Vnn Okla Nan Okla ARC	6,115	1
Tortolita RC	13,166	13	Volusia ARES and West		
Transit On The Rubicon Family			Volusia ARS	1,026	1
FD Excursion	1,112	1	W/K ARC of Greater		
Traveling Amateur Radio Team	1,696	1	Milwaukee	6,600	1
Tri-City Radio Amateur Club	1,750	1	WORCZ Memorial Station	1,458	1
Tri-County ARC (NC)	162	1	W3AO PVRC	115,649	37
Tri-County ARC (PA)	1,310	4	W6TRW ARC	1,836	1
Tri-County ARC (TX)	2,012	1	Wabash Valley ARA	5,690	1
Tri-County ARC (WI)	5,536	4	WACOM	690	1
Tri-County Radio Assn.	6,234	3	Wahkiakum Co. ARC	5,089	5
Tri-State ARS (IN)	950	5	Waldo Co. ARA	3,936	1
Tri-County ARA (CA)	1,272	4	Walla Walla Valley ARC	1,048	1
Tri-County ARC (TX)	52	1	Walton Co. Repeater Group		
Trident ARC	4,482	5	and Walton Co. ARES	1,820	1
Tri-Lakes ARC	5,514	4	WARA/GBARC	1,372	1
Trilogy ARC	578	1	Warminster ARC	5,060	9
Trine Amateur Radio Club	276	1	Warren ARA	6,646	1
Tri-State Amateur Radio Group	462	1	Warren ARS	1,070	1
Tri-State ARA	2,964	3	Warren Co. EmComm Group	1,318	1
Tri-States ARC	708	1	Warren Co. NY RC	6,502	4
Tri-Town Radio Amateur Club	6,579	4	Warrensburg Area ARC	1,548	1
Trojan ARC	5,800	1	Wasco ARS	668	1
Troy ARA	1,740	1	Washington Amateur Comm.	2,332	1
Truckee Radio Amateur Soc.			Washington Area ARC	1,672	2
Hams			Washington Co. ARC	790	1
Truro ARC	4,910	1	Watauga ARC	5,026	5
Tucker Family RC	1,589	5	Watertown ARS	5,192	2
Tulsa Digital RC	4,116	1	Watertown Contest Club	372	1
Turkey Heaven Mtn. Repeater			Watertown ARC	500	2
Assn.	3,612	3	Wayne ARC	4,786	4
Tusco ARC	4,272	1	Wayne Co. ARC	4,752	2
Twin Cities Repeater Club	2,628	2	WCARC-OH	480	1
Twin City ARC	3,524	3	WCARC-TX	17,406	17
Twin City FM Club	1,264	2	WCARES-TN	18,544	23
Twin Ops Warriors	1,614	1	WCARS-Murphy/Cherokee		
Twin Rivers ARC	422	1	Co. ARES	736	1
Twin State RC	2,612	2	WD Contest Group	4,172	2
Two Rivers AR Group	1,134	1	Weld ARS	418	1
Two Rivers ARC	2,670	1	Wellesley ARS	1,635	5
TX Emergency Amateur			Wellington RC	114	1
Communicators	324	1	West Alabama ARC	1,856	1
Tyler ARC	2,964	2	West Allis Radio Amateur		
Union City Wireless Assn.	882	1	Club	2,676	4
Union Co. ARC	4,272	2	West Baldwin City ARC	558	1
Union Co. Indiana Bicentennial	234	1	West Chester ARA	5,242	3
Union Metropolitan des			West Essex ARC	2,258	2
Sans-Illetes de Montréal	5,990	7	West Fork ARC	3,380	1
Uniontown ARC	5,914	2	West Georgia ARS	3,278	2
United Radio Amateur Club	1,294	4	West Island ARC	572	2
Univ. of Alabama RC	1,506	2	West Jersey DX Group	8,150	1
Univ. of Arizona ARC	4,060	1	West Kootenay ARC	632	1
Univ. of Southern California			West Point Fire CERT	872	1
ARC	650	1	West Seattle ARC	350	1
Univ. of Texas ARC	382	1	West Texas ARC	1,542	1
Usher Area ARC	626	1	West Valley ARA	16,647	13
US West Wireless Club	202	1	West Virginia ARC	158	2
USECA	368	1	West Virginia Amateur Radio	3,420	1
USS Kitty Hawk ARC	1,702	1	Westchester Emergency		
USS Wisconsin RC	212	1	Comm. Assn.	12,856	3
Utah ARC	7,409	2	Westcoast ARA	952	2
Utah DX Assn.	1,224	1	Western Carolina ARS	1,040	1
Utah Valley ARC	6,764	1	Western CO ARC	1,470	1
Utica ARC	1,914	1	Western IL ARC	5,214	4
Utica Shelby Emergency			Western KS ARC	1,940	1
Comm. Assn.	1,360	3	Western PA Wounded Hams	1,866	1
VAZLPQ et al.	706	1	Western Piedmont ARC	380	1
Vaca Valley RC	3,060	1	Western Placer ARC	1,798	4
Valdosta ARC	1,242	1	Western Tidewater RA	1,040	1
Valencia Co. ARA	1,302	1	Western WA DX Club	550	1
Valley and Massanutten ARA			Westport Astro ARC &		
	11,106	9	Houston ARC	1,687	1
Valley of the Moon ARC	2,222	2	Westside ARC	1,892	1
Valley RC of Oregon	3,320	6	Wexauke ARC	1,062	2
Van Wert ARC	5,386	1	Whatcom Emergency Comm.		
VBARC-VADXC	4,592	1	Group/MT. Baker ARC	1,950	1
VCARS-SSARC	4,608	1			



The Gloucester County Amateur Radio Club, W2MMD, in New Jersey, operated at night during the 2021 ARRL Field Day, with antennas for the 15-, 20-, and 80-meter CW stations. The antennas were supported by a portable aluminum military mast, which takes about an hour to deploy. [Vincenzo Sallustio, N4NYY, photo]

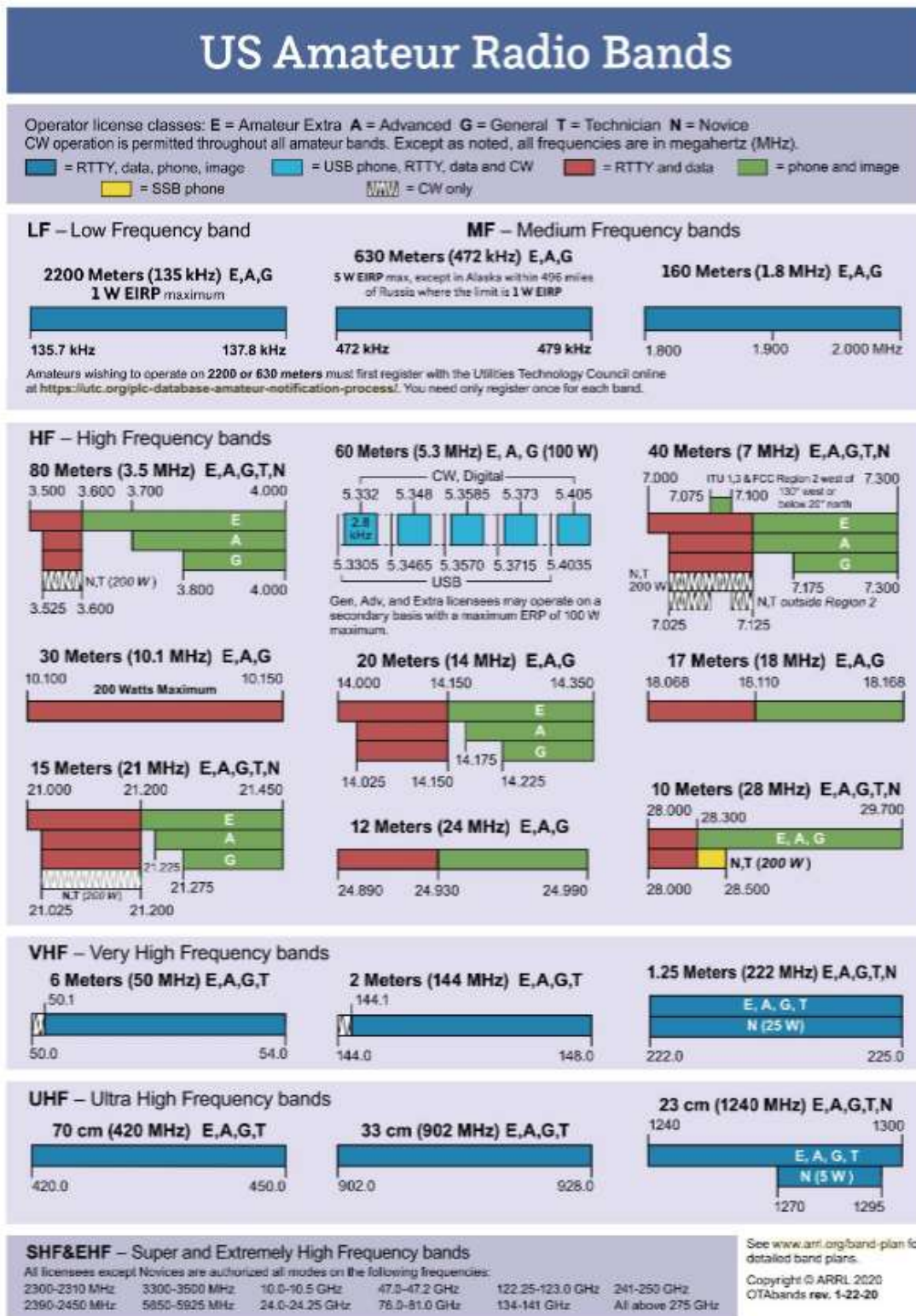
Wheaton Community Radio			Wood Co. Emergency Comm.	3,108	1
Amateurs	2,210	4	Woodbridge Wireless	24,092	4
Whidbey Island Trailblazers	2,390	1	Woodchuck ARC	1,214	1
White Rock ARC	168	1	Woodford Co. ARC	768	2
White Rock Lake ARC	1,848	3	Workshop88	2,895	1
Whitewater Valley ARC	1,466	1	WPA FIELD DAY Assn.	3,256	2
Whitley Co. ARC	4,594	1	WRAET	626	2
Whitman ARC	2,834	1	WV/H FD Group	2,058	1
Whitman Co. ARES/RACES	90	1	WVARC-AZ	804	6
Wichita ARS	1,046	1	XXRX & Monroe Co. ARES RC	4,114	1
Wilderness Road ARC	1,488	2	XW/ARN/DARA	3,868	2
Willamette Valley DX Club	2,358	3	Yadkin Valley ARC	1,152	1
Williamsburg Area ARC	9,146	3	Yankae Clipper Contest Club	7,416	3
Williamson Co. ARC	142	1	Yavapai ARC	1,236	1
Williamson Co. ARES	826	1	Yellow Thunder ARC	1,510	1
Wilson ARC	3,498	2	Yellowknife ARS	1,422	1
Wilson Wonders	5,210	1	Yellowstone RC	1,272	3
Windmill Amateur Radio Grp	2,400	1	Yolo ARS/MTVACA/SACARC/		
Winnipeg ARC	734	1	Yolo CO ARES/UCDARC	1,754	1
Winona ARC	4,904	2	Yonkers ARC	2,288	1
Wireless Assn. of South Hills			Yoooper Dupers	3,574	1
ARC	4,464	2	York ARC	1,360	1
Wireless Operators of			York Co. Radio Soc.	630	1
Winsted/CQ RC	408	1	York Co. (SC) ARS	8,320	2
Wireless Soc. of Lorain Co.	1,335	1	York RC	7,763	5
Wireless Soc. of S. Maine	7,710	2	York Region ARC	9,588	15
Wisconsin ARC	3,554	7	Young Co. ARC	802	1
Wisconsin River Gang	6,520	1	Yuba-Sutter ARC	2,816	6
Wisconsin Valley RA	1,324	1	Yukon ARA	790	1
Wistaria Wireless Soc.	1,608	1	Zachryhills Area ARC	1,348	1
Wood Co. ARC	2,568	3	Zuni Loop MEF	6,470	7
Wood Co. ARES/RACES	2,848	1			

We made the last page!

Brian D. N88

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## 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 <sup>45</sup> PM	7 <sup>45</sup> PM	8 <sup>45</sup> PM	9 <sup>45</sup> 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.arrrl.org/w1aw](http://www.arrrl.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).

