



Meeting News:

The February 11th general membership meeting was held on Zoom as our internet at the Dudley House hasn't been the most reliable in past meetings. Additionally, with the current Omicron virus status here in Ventura County, our board decided to not hold a face-to-face (or mask-to-mask) meeting in the small meeting area in the basement. Our presenter was Paul Strauss WD6EBY who spoke about "Ventura County Repeaters Overview". We hope to have better ventilation in place for March's meeting and Mark Vodon KI6PTE, our Health and Safety Chairperson, is working on that now.

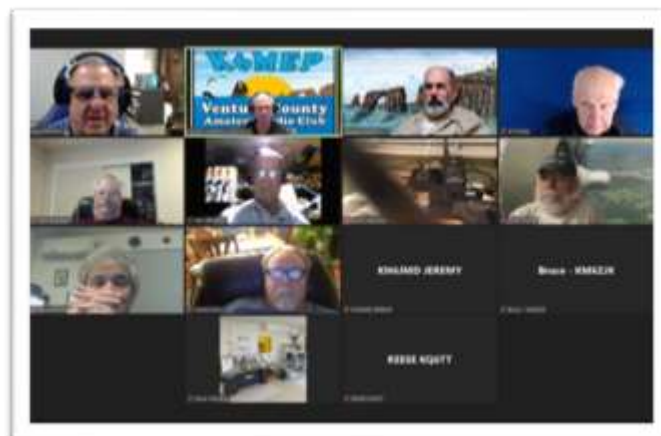


Our next club meeting is scheduled for March 11th and with the County dropping the indoor masking requirement for all of those who are "fully vaccinated", we will meet once again at the Dudley House. Burt Auerbach KA6BJA will present "Using Winlink for Creating and Mapping Situation Reports". Visitors are always welcome to attend our meetings. We will continue to update our members on any new Ventura County Health Department requirements. Please volunteer to help on one of our committees!

The Inside Story

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February's General Membership Meeting



Message from the President

The Prez Sez,

I just attended the first Earthquake Country Alliance meeting for 2022, which was Zoom-based (ECA SoCal Winter 2022 Workshop). I've participated in the group for several years; they provide education and training as well as kits and other materials to help community organizations and members secure items in the home from becoming a hazard.

As they state on their website, "The Earthquake Country Alliance Southern California (ECA SoCal) is one of three regional alliances that comprise the statewide Earthquake Country Alliance, a public-private-grassroots partnership of leading earthquake professionals, emergency managers, government officials, business and community leaders, and others.

ECA is best known for coordinating the annual Great California ShakeOut earthquake drill and developing multi-sector educational resources."

Our Ventura County ACS/ARES® organization participates in the Great California ShakeOut by having a special net that simulates an earthquake and uses simplex communications as well as repeaters to test our ability to communicate in a disaster. Many members use off-grid (battery, solar and generator power) to send situational reports to service partners. We also use packet and Winlink to send health and safety emails to our family members who aren't in the affected area.

(Continued on Next Page)

Club Offices	And Keyer	Contributors
President	Robert Shank	KM6RSS
Vice-President	Clem Alberts	KM6OKZ
Secretary	Phil Cohen	WA6BUZ
Treasurer	John Gartman	W6JPG
Board Member	Steve Noll	WA6EJO
Board Member	Dave Schmidt	A16VX
Board Member	Mark Swaney	KD6ASL
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	A16VX
Monday Night Net	Open	Please volunteer
QSL Manager	Ben Holmes	K6QV
Safety Officer	Mark Vodon	KI6PTE
PIO/Trivia	Dana Wentling	KG6WXE
Columnist	Reese West	KQ6TT
Columnist	Denney Pistole	N6HV

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

The stories printed in this journal remain the property of the writers, without whom we would not have a publication.

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Submit material by email to KM6RSS@gmail.com. Our club mailing address is:

K6MEP
PO Box 2103
Oxnard, CA 93034-2103

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

Message from the President (Continued)

My eldest son lives in San Jose, is an Amateur Extra (N6VC) and is a member of the local RACES (Radio Amateur Civil Emergency Service) group. Jim monitors our Ventura family's well-being. He enjoys getting status reports from us as we continue to improve our communications abilities using ham radio. We also have a bi-weekly Google Meet (he works for Google) where we see (video) and hear each other and share our status and goings-on with our extended family members.

The ECA SoCal Workshop that I attended had the following presentations and speakers: Tsunamis (How to Know Your Zone and about the recent volcanic tsunami); activities of the Coachella Valley Disaster Preparedness Network, Recent SoCal Earthquakes; and Hazard Mitigation Opportunities. The workshop concluded with group discussions and networking.



The graphic is a promotional poster for the ECA SoCal Winter 2022 Workshop. At the top left is the Earthquake Country Alliance logo. The main title is "ECA SoCal Winter 2022 Workshop" with a subtitle: "Recent earthquakes and tsunamis, outreach strategies, group discussions, and preparedness and mitigation info". Below this, a "Presenters:" section lists four individuals with their names and affiliations, each accompanied by a small portrait photo. To the right, the "When:" section specifies "Wednesday, Feb. 23, 10:00 AM - 12:00 PM PT". The "Where:" section indicates "Online (Zoom)" with a blue arrow icon. A blue "register:" button is positioned below the location information. At the bottom, a red banner contains the website "EarthquakeCountry.org/socal". A blue silhouette of a person holding a tablet is on the right side of the graphic.

Earthquake Country Alliance

ECA SoCal Winter 2022 Workshop

Recent earthquakes and tsunamis, outreach strategies, group discussions, and preparedness and mitigation info

Presenters:

- **Carla Sullivan-Dilley**
Coachella Valley Disaster Preparedness Network
- **Margaret Vinci**
Caltech Seismological Laboratory
- **Yvette LaDuke**
California Governor's Office of Emergency Services
- **Anthony Roggio**
California Governor's Office of Emergency Services

When:
Wednesday, Feb. 23
10:00 AM - 12:00 PM PT

Where:
Online (Zoom)

register:

EarthquakeCountry.org/socal

I recommend that you consider attending one of the meetings and participating in both the Great California ShakeOut (<https://www.shakeout.org/california/> International ShakeOut Day is always the third Thursday of October and this year is October 20) as well as the Tsunami Zone (<https://www.tsunamizone.org/>). March 21 – 25, 2022 is California's Tsunami Preparedness Week.

We still have several important club offices open and need members to step up and volunteer.
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Message from the President (Continued)

You can volunteer for one or more of the following enjoyable club activities:

Program Chairperson. There are many knowledgeable people (especially over the internet for a Zoom meeting) that can be contacted and scheduled to present at a club meeting. We have speakers tentatively scheduled for March, April, May, June July and August.

Membership Chairperson. This person works with our Secretary to contact area hams (sometimes using emails sent to our K6MEP website, our Monday Night Net, Facebook, MeWe or other methods) and invite them to our club meetings and other activities.

Monday Night Net Control Operator Scheduler. We had good success with last year's Monday Night Net being run by members of the club as net control operators. By volunteering as our net control operators, you have the opportunity to improve your "microphone skills" and learn more about our members and guests. I've created a schedule calendar on our groups.io website. The link is <https://groups.io/g/K6MEP/files/2022%20Monday%20Night%20Net%20Contest>. It would be very helpful to have a member volunteer to become our scheduler and individually contact our "regular" check-ins to sign up to be a net control operator for a few Mondays in 2022. We are also looking for someone to be a back-up operator in case the operator has problems with his/her rig. I've been acting as the alternative and have been preparing the updated script for every Monday night net that includes the next meeting date and topic/presenter.

Picnics and Outings Chairperson. We've held very successful picnics at the Dudley House and also had limited outings (due to health department regulations) at parks where we tested our rigs. It would be very helpful for a member to volunteer to help organize these activities.

DecemberFest Chairperson. The process of making a list of restaurants that meet our selection criteria, polling our members to select the best restaurant and making the reservation, as well as acting as a go between with the restaurant and the membership is a very important club activity, even though it is done once a year. It is never too early to contact restaurants and

73,

Robert Shank KM6RSS President, VCARC



Minutes of the February 6th, 2022, VCARC Board Meeting

MEETING LOCATION: Virtual on Zoom

BOARD ATTENDEES:

OFFICE	LAST	FIRST	CALL SIGN	PRESENT
PRESIDENT	SHANK	ROBERT	KM6RSS	x
VP	ALBERTS	CLEMENT	KM6OKZ	
SECRETARY	COHEN	PHIL	WA6BUZ	
TREASURER	GARTMAN	JOHN	W6JPG	x
BOARD	NOLL	STEVE	WA6EJO	x
BOARD	SCHMIDT	DAVE	A16VX	x
BOARD	SWANEY	MARK	KD6ASL	x

GENERAL MEMBER ATTENDEES: (Tim KN6JGB, Burt KA6BJA, Jeremy KN6JMD and Mark Vodon K16PTE)

CALL TO ORDER 19:01

Opened the meeting at 19:01 and there were 5 out of a possible 7 board members present.

Robert acknowledged and welcomed all present.

Minutes: (Robert)

- We now have 47 paid-up members. Eight have been sent requests to pay and haven't responded.
- Read minutes of the January 9th board meeting and asked for motion to approve and vote to accept (as posted in the February Keyer). Minutes approved.
- Read minutes of the January 14th meeting and asked for motion to approve and vote to accept (as posted in the February Keyer). Minutes approved.
- Officers Report:
- Treasurer: Treasurer John W6JPG provided the status of the club's accounts.

(Continued on next page)



Minutes of the February 6th, 2022, VCARC Board Meeting (continued)

- Discussed collection of 2022 dues status. We have 8 on our roster that haven't paid. I sent out an email to each delinquent member asking for dues, copy to the board. Todd responded that he moved. Mark KD6ASL previously suggested that the membership roster is kept with delinquent members separated and that to re-join, they should pay their previous balance due as well as the current year's dues. The roster now contains previous members. There was no vote on whether previous year's unpaid dues should be accrued but there were comments that this action would make it more difficult to keep our members. During Denney's presidency, we created a fund from all of the winners of the Monday Night Net Contest to cover these kinds of payments and left it up to the president to determine who should receive aid). John mentioned that there is about \$300 in the fund that can be used to make dues payments, if so needed. Another issue that wasn't discussed but was on the agenda: What benefits does a member have (meetings, groups.io, Keyer, etc.) that a non-member has (currently the same)? Should we restrict some of the above benefits to members-only to encourage membership?

Committee Reports:

- Members Health and Safety (KI6PTE)
 - The board decided to make February's General Membership Meeting a Zoom-only meeting and Robert will send the Zoom credentials out. Paul Strauss WD6EBY, our topic presenter, will travel to Robert's house and use his Zoom facilities.
- First Aid kits
 - First aid kits recommendations and costs update. Board voted to spend up to \$250 for a replacement first aid kit (Mark Vodon to purchase and submit the invoice to John Gartman). If additional items (e.g. O2 and AED) are needed, the board will address at a later date.
- Youth Committee (KN6JGB) Nothing new.
- By Laws (KD6ASL)
 - Board voted to postpone the vote until more members can participate.

Special Orders:

- Inventory (Denney N6HV did not attend; no updates other than Robert posted all donations he knew about on the club website and Bored Net spreadsheet on the internet)

Unfinished Business:

- Accounting Process Discussion (John)
 - Status report on review of VCCU categories and assignment of transactions to those categories
 - Income sources and fixed and variable expenses

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Minutes of the February 6th, 2022, VCARC Board Meeting (continued)

- Reports to determine amount of budgeted categories. Robert to put together the budget and send to John for review.
 - Need to make payments to 2021 Monday Night Net winners (Robert and Jeremy have donated their winnings back to the club for needy members). John to send checks to the winners.

1st place name/amount/total	2nd place name/amount/total	3rd place name/amount/total
Denney	Clem	Jeremy*
Dave	Rod	
Robert*		
\$ 33.33	\$ 25.00	\$ 25.00
\$ 100.00	\$ 50.00	\$ 25.00
* Donated to club for needy members		

- Status Report on Dudley House Internet (Dave AI6VX and Jeremy KN6JMD). We need better internet so that we can provide members with a Zoom virtual meeting. Dave to call Richard this week.

New Business:

- Consider establishing a Santa Barbara section chairperson to interface with John Kitchens N6SX, Section Manager and an ACS/ARES chairperson to interface with Rob Hanson W6RH. (Carried forward from November 28th board meeting). Postponed until next meeting.
- Program
 - Need for chairperson still open.
- Membership
 - Need for chairperson still open.
- Monday Night Net
 - Poor response to initial sign-up for net control operator/alternate other than AI6VX and Tim KN6JGB. Need for chairperson still open.

21-Feb	Open	Open
28-Feb	Open	Open

- Picnic
 - Need for chairperson still open.
 - May or June Picnic and where? If Dudley House, get reservations and approve costs

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Minutes of the February 6th, 2022, VCARC Board Meeting (continued)

- Field Day
 - Vice President Clement KM6OKZ (not present at tonight's board meeting) has volunteered to head the committee and has proposed the following tasks:
 - Oxnard College Duck pond usage application/approval.
 - Insurance
 - Food (Mark Ortega KI6YLH?)
 - Security
 - Porta Potty & Wash Station
 - Expenses/disbursements requiring Board approval
 - Mark's KI6PTE RV availability? - Overnight volunteers
 - Public - City Official. e.g. Fire Department Notifications (Extra Points)
 - Band Captain - Who works what frequencies, what antennas will be deployed, etc.
- DecemberFest
 - Need for chairperson still open.
- Winter Field Day
 - Need to start a committee for next winter, if needed.

Announcements:

Calendar:

The February 11th K6MEP club meeting is scheduled to be held on Zoom and Paul Strauss WD6EBY will present "Ventura County Repeaters Projects".

Tentatively scheduled for our March 11th meeting, Burt Auerbach KA6BJA will present "Using Winlink for Creating and Mapping Situation Reports".

Tentatively scheduled for our April 8th meeting, Pedro Morillas K6MIL will present "Testing and Results using the 2M/440+ with the 'CompacCounterpoise' antenna by Dr. Jack Nilsson, Inventor - Antennas, EM & Energy COMPACtenna.com"

Tentatively scheduled for our May 13th meeting, Clement Alberts KM6OKZ will moderate our initial "K6MEP Field Day Preparation Activities".

Tentatively scheduled for our June 10th meeting, Clement Alberts KM6OKZ will moderate our "Final" K6MEP Field Day Preparation Activities".

July 8th meeting presentation is open but we expect a report on our Field Day successes.

Tentatively scheduled for our August 12th meeting, Mark Swaney KD6ASL will present "My Experiences with DMR".

Adjournment:

Meeting adjourned at 20:45 hours as per vote of the board.

Minutes of the February 11th, 2022 General Membership Meeting

GENERAL MEMBERSHIP MEETING (19:00)

MEETING ADDRESS: Join Zoom Meeting

<https://us02web.zoom.us/j/87114798697?pwd=WFg3c2s5NTBNeVcxMlZDL2xlbzhHUT09>

Meeting ID: 871 1479 8697

Passcode: 117746

ATTENDANCE: 13. See names below:



CALL TO ORDER (AT 19:00)

President Robert KM6RSS welcomed and thanked all who attended

- Robert asked if there were any new members present to be recognized since our last meeting or if anyone has progressed with their FCC license. He mentioned that the CVARC FCC testing might be scheduled for April if the Sheriff's department allows for the East Valley facility to be used. He also mentioned that the masking requirements are being changed on February 16th to allow vaccinated people to meet indoors without wearing masks.

Officer's Reports:

Secretary

Minutes:

- Secretary Phil WA6BUZ wasn't in attendance so President Robert read the minutes of the board meeting held on Sunday February 6th, 2022.
- President Robert read the minutes of the general membership meeting held on January 14th.
- President Robert reviewed the business calendar and added the payment of rent (\$280) to the Dudley House for March's calendar item and payment of \$220 to groups.io.

Treasurer

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

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Minutes of the February 11th, 2022 General Membership Meeting

(Continued)

Committee Reports

- Robert provided the status of the new K6MEP Monday Night Contest—6 weeks, 102 check-ins with 13 visitors and a 17 average.
- Denney N6HV presented the status of the club's inventory; no updates for the items in his house(need photos and inventory list)
- Mark Vodon KI6PTE provided the information about the new first aid kit and recommended that we consider purchasing 2 fans to provide positive ventilation for the Dudley House basement where we meet. He will gather the details and present them to the board on March 6th.
- Tim KN6JGB was not present and was unable to update the club on our youth outreach.
- Robert acknowledged that the recommended amendments of the Bylaws have been sent to all members for review and a vote to accept the changes will be taken at the next in-person general membership meeting (hopefully on March 11th).
- The club needs the following committees to assist with club business and would like volunteers:
 - Program
 - Membership
 - Monday Night Net
 - Picnic
 - DecemberFest
 - Winter Field Day
- New Business:
 - No new business was raised.

Presentation (Started at 19:45)

- Robert introduced tonight's speaker: Paul Strauss WD6EBY who presented the topic "Ventura County Repeaters Overview". Paul provided PowerPoint slides, photos and two videos of the repeater information.
- Several members asked Paul questions (e.g. power outages and island coverage). We greatly appreciated his presentation and everyone applauded him at the completion.

Announcements:

- Calendar: See groups.io or K6MEP for an updated Calendar. The Ventura Marathon is on February 27th.

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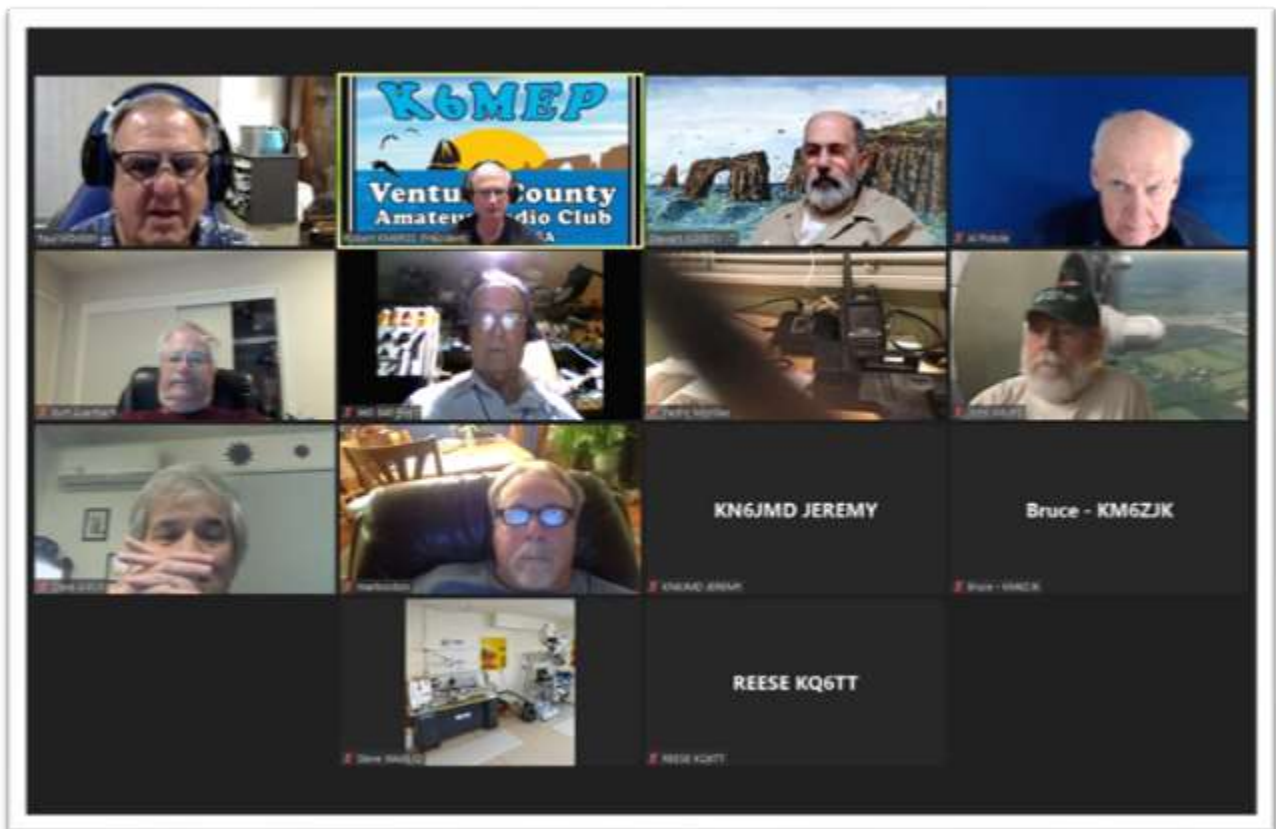
Minutes of the February 11th, 2022 General Membership Meeting

(Continued)

The attendees were reminded about the club's next meeting date, March 11, where Burt Auerbach KA6BJA is scheduled to present "Using Winlink for Creating and Mapping Situation Reports". The location is TBD based on whatever health regulations are in force near the date of the meeting which will be reviewed at the March 6th board meeting (all members are invited to attend).

Adjournment:

- Pedro made the motion to adjourn and Stewart seconded the motion. Everyone approved the motion to adjourn.
- The meeting was adjourned at 21:02 hours.



Club members enjoying Paul WD6EBY discussing Ventura County Repeaters on 2/11/22

K6MEP Monday Night Net Update Robert KM6RSS

Our new Monday Night Net Contest started Monday, January 3rd and will end on December 5th. To give those who are interested in the experience of being part of our Monday Night Net Contest as Control Operators, I've placed a sign-up spreadsheet on our groups.io website under files, 2022 Monday Night Net. We need back-up net controllers to sign up as well. Dave AI6VX signed up as primary net control for every first Monday of the month for the entire contest. Tim KN6JGB also signed up for several nets. If you would like to volunteer, please contact me with the date(s) you would like and whether you want to be the primary or the back-up net controller and I'll update the list, which is saved to our K6MEP.groups.io website

<https://groups.io/g/K6MEP/files/2022%20Monday%20Night%20Net%20Contest> .

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.

Many thanks to all of our members who volunteered in 2021 and provided our net control operations as well as led our after-net Zoom meeting.

Below are the Monday Night Net Contest Totals. Our groups.io has all of the Monday Night Net Contest documents in the files folder.

Monday Night Net Contest Totals to Date			
Week #	Date	Total	Visitors
1	1/3/2022	15	2
2	1/10/2022	17	2
3	1/17/2022	14	1
4	1/24/2022	20	3
5	1/31/2022	19	1
6	2/7/2022	17	4
7	2/14/2022	14	2
8	2/21/2022	16	2
9	2/28/2022	11	1
	Total	143	18

Heard on the net (the K6MEP Monday night net) by Denney Pistole N6HV

Several members are getting ready to support the up-coming Ventura Marathon.

Tim KN6JGB will be using his trailer hitch mounted mast to get his antenna up high for better reception during the marathon.

Robert KM6RSS, Burt and several others have been checking out reception at locations they will be manning for the marathon.

Denney N6HV gave a quick radio propagation report. Conditions have been poor on several days last week. The outlook for the coming week is for lots of solar activity, but that could mean Coronal Mass Ejections (CME) and the radio blackouts they cause.

Mark KD6ASL is deep into digital radio. He's been checking into the Santa Barbara Digital net on 220 MHz and into the DMR nets. Mark mentioned that Stu AG6AG has put out a video on using the Nano VNA.

Mark KI6PTE is helping a friend in Wyoming in setting up an antenna. He is also putting an engine back into a Land Cruiser, along with sound proofing and new electrical wiring.

Tack KN6RSX has put up a 360 foot long wire. I wish I had that much room. He also has been working stations on 10 meters.

Joe W6JWP has been re-cabling his shack. He has built a patch panel for the antenna lead-ins. Come join in the conversations. You're always welcome to ask for help and to tell us what you have been doing on the air.

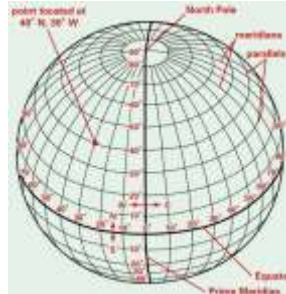
Denney N6HV



Thoughts from the West - Reese West KQ6TT

USEFUL AND ACCURATE BUT NOT CORRECT

Engineering is an art form that combines hard facts with approximations and sometimes even guesses. The practice of engineering can require solutions to inadequately defined problems with inadequate data and money. There may also be a required time constraint. The following discussion concerns antenna performance equations that work in the practical world. Some concepts that are accepted because they work may not exactly match what is happening in the real world. Performance may fit over a short distance, and fail to fit over large distances. So, give the following a try.



Visualize a globe of the earth with everything removed except the latitude and longitude lines. Now place a small half wave dipole antenna inside at the center with it aligned to point at the poles. We will use this to visualize the shape of a radiated field from the antenna. Assume that the surface of the globe can be marked to show the amplitudes of electric and magnetic fields that were radiated short time ago. Let us just freeze the representation when a maximum peak magnetic field line runs around the globe at the equator, latitude zero. Each latitude line is where other such lines were radiated at different angles. As you move toward the poles, the magnitude of the magnetic lines has lower amplitudes. When you get to the north or south poles, the magnitude is zero. The magnetic lines would oscillate from latitude directions east to west and back as a full cycle is completed. The electric field lines are the longitude lines. They will oscillate between north and south as a single power cycle proceeds. As I understand it, present theory says that both electric field and magnetic lines are continuous except where they terminate in an electric charge or magnetic pole. So start at latitude and longitude both zero. The globe surface is several wavelengths from the antenna at a time point of field maximums. The electromagnetic field goes all around the equator. The electric fields go toward the poles. Let's us go north up the electric field line from longitude zero. It is continuous all the way around the sphere, but when we get a few degrees north at a different latitude, we find that the electric field associated with that magnetic field also goes all around the globe. In fact all the electric fields on longitude zero and one eighty lay on top of each other. Assume that we have been going north in a field positive direction. All the electric fields on longitude zero have the same path. The question is: Do they add their field strengths? Get off the horse. There is a problem. With the positive electric fields going north, the same applies to the fields at longitude one eighty. These fields also are positive in a northerly direction from their origin. (Continued on Next Page)

Thoughts from the West - Reese West KQ6TT (Continued)

In addition they go all the way around the globe. They go in a southerly direction after they pass the North Pole. Do they cancel our fields on longitude zero?

Do all electric fields cancel or not? We know that propagating fields add and subtract in available power. This is when the magnetic fields are present. The electric fields don't seem to have much to do with it. Remember that when the antenna software calculates the radiating fields, it only used the antenna current to do it. The electric field sat quietly in the corner. So, on the transmitting side, only the current caused radiation. The process reverses on the receiving side.

The magnetic field causes a current in the receiving antenna. It is the magnetic field that does the work. Only the magnetic field affects the antenna. The propagating E/M fields appear to be needed only to satisfy our math. If that is so, all the published information and writings using the electric field effects on antennas is nonsense. I am now out on the limb. Here is the saw. Leave the limb alone. Saw down the tree.

Why should it be true that the receiving antenna should only be examined from a magnetic field point of view? Currents in a circuit can easily cause other currents in adjacent wires. These fields couple very well. Electric fields can have charges that displace other charges of the opposite polarity. This is basically a capacitive effect. But to cause a useful current flow, it looks like there must be a electrical connection between the two charges. I will have to think that through a little better. It is just a beginning thought problem. However, that is the level for all this writing. (Almost a stream of consciousness. Thinking it out as I write.) So if I get it wrong, don't hesitate to call me on it. For all the thousands of papers and articles analyzing receiving antennas from the viewpoint of the electric field interaction, I am saying that they should redo them from the magnetic field interaction point of view. The basic question is this: If the transmitting antenna software only uses current data to calculate the radiation, why should the receiving antenna analysis look to the electric field to explain its performance?

February 15, 2022



Post Script

It occurred to me that it is accepted that manmade interference in our signals is stronger when it is vertically polarized. The math says that vertically polarized signals are propagating in a horizontal direction. If not mostly horizontal, then the propagation must be mostly vertical. Which is it more likely, that manmade signals are received coming parallel to the earth, horizontal, or down from the sky and/or up from the ground, vertical? I don't think you need more than a guess to get that one.

Laurice West KQ6TT

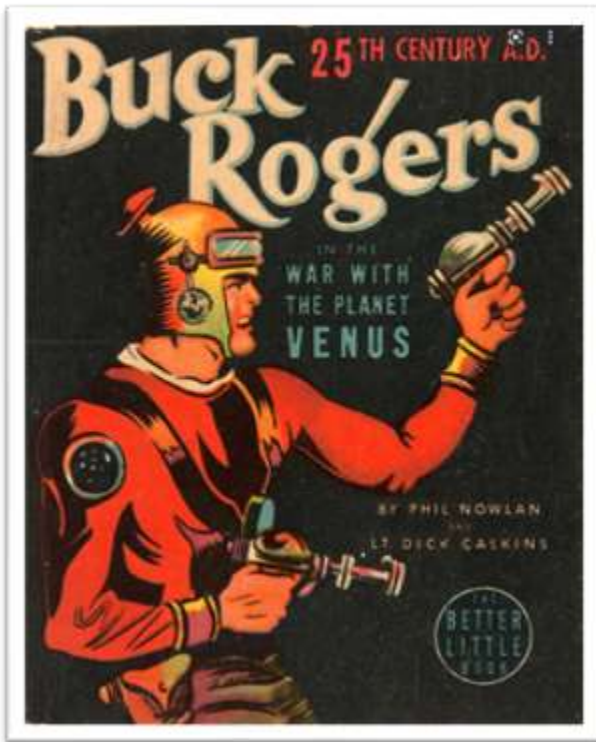
Trivia by Dana KG6WXE

DID YOU KNOW?

1. We have more detail mapping of the moon than we do of the world ocean.



2. The Daisy BB Gun Company also made toy guns for the Buck Roger's market.



3. As of 2021, the most expensive watch ever made was worth 55 million dollars.

De
Dana
kg6wxexxxx

Beware of the Ides of March,
And Leprechauns☺

K6MEP Monday Night Net Script (revised 01/16/22)

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 the 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. Please check the K6MEP.org and/or our K6MEP.groups.io calendar for credential details.

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 (date) (location) (presenter) (topic). 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.

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

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.

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

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.

Selected Contests & Special Events

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

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

Special Event Stations

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

Feb. 1 – Feb. 28, 0000Z – 2359Z, N9SES, Lake Station, IN. Arab QRZ International. **JY1 Memorial Special Event**. 14.025 14.076 14.250 21.025. QSL. Ayman Azar, 2861 Decatur St., Lake Station, IN 46405. <https://www.n9ses.com/jy1-memorial-special-event-station>

Mar. 1 – Mar. 15, 0000Z – 0000Z, W5T, Cleburne, TX. Club KC5NX. **Battleship Texas 108th Birthday**. 7.235 7.240 14.045 14.255. QSL. Club KC5NX, 9200 Summit Ct. W., Cleburne, TX 76033-8212. www.qrz.com/db/kc5nx

Mar. 1 – Mar. 28, 0001Z – 2359Z, GB80LAN, Luton, United Kingdom. Royal Air Force Amateur Radio Society. **80th Anniversary Avro Lancaster, 1st Operational Sortie**. 3.710 14.055 14.074 14.270. QSL. See website, for QSL information, RAF Waddington, RAF Halton, RAF Cosford, RAF East Kirkby, England. *The call will be active from four different locations at three Royal Air Force Amateur Radio Club Stations: Waddington, Halton, Cosford, and ex-RAF East Kirkby (home of Lancaster "Just Jane"). We plan to be active on all bands and modes 160 m – 70 cm. VK80LAN and VE80LAN may also be on the air.* www.qrz.com/db/gb80lan and rafars.org

Mar. 1 – Mar. 31, 0000Z – 2359Z, W5WWL, New Orleans, LA. WWL Amateur Radio Club. **100th Anniversary of WWL 870 AM**. 3.900 7.235 14.285 7.025. QSL. WWL ARC, 127 Highway Dr., New Orleans, LA 70121. www.qrz.com/db/w5wwl

Mar. 3 – Mar. 7, 1200Z – 2000Z, K9C, Calumet, MI. Keweenaw County Repeater Association. **CopperDog 150 Dog Sled Race**. 3.825 7.225. QSL. KCRA, 51950 Boston Rd., Hancock, MI 49930. www.qrz.com/db/k9c or <https://kcra-mi.net>

Mar. 14, 0000Z – 2359Z, N3P, Burlington, NJ. David Sarnoff Radio Club. **PI Day**. 7.031 7.227 14.031 14.314. QSL. Don Corrington, 7 Pinewald Ln., Burlington, NJ 08016-3421. www.n2re.org

Mar. 18, 1800Z – 2200Z, N3TAL, Lanham, MD. American Legion Post 275 ART. **National Vietnam War Veterans Day**. 7.275. QSL. American Legion Post 275 ART, 8201 Martin Luther King Jr. Hwy., Lanham, MD 20706. wa3dvo@verizon.net

Mar. 18 – Mar. 20, 1400Z – 0400Z, NN4SA, Huntsville, AL. HamSCI and NASA Marshall Space Flight Center ARC. **HamSCI 2022 Conference**. 7.074 14.074; 7.245 14.245. QSL. NASA MSFC ARC, c/o Matt McDougal, P.O. Box 12804, Huntsville, AL 35815. *HamSCI and NASA MSFC ARC will operate from HamSCI Conference venue near Space and Rocket Center. Will be operating various bands and modes. Check spotting networks for frequencies and modes.* www.qrz.com/db/nn4sa, hamsci.org and nn4sa.org

Mar. 19, 1400Z – 2000Z, W4BKM, Macon, GA. Macon Amateur Radio Club. **Cherry Blossom Special Event Station**. 7.225 14.240. Certificate. Macon Amateur Radio Club, P.O. Box 4862, Macon, GA 31208-4862. www.w4bkm.org

Mar. 19, 1400Z – 2000Z, W1M, Russell, MA. Western Massachusetts Council, Scouts BSA. **Scouts BSA WHOA Weekend**. 7.190 10.115 14.060 14.290. QSL. Tom Barker, WA1HRH, 329 Faraway Rd., Whitefield, NH 03598. *Monthly seasonal outdoor activities for Scouts and the general public including "ham radio in the woods." Paper logging. QSL via SASE and eQSL.*

Mar. 19 – Mar. 20, 1400Z – 0200Z, N0Q, Parker, CO. Cynthia Smith. **National Quilting Day**. 7.200 14.250; SSB and FT8. QSL. Cynthia Smith, 23612 Glenmoor Dr., Parker, CO 80138-3112. *Please QSL by May 31, 2022.* Msgt_smith_cap@hotmail.com

Mar. 22 – Mar. 24, 1400Z – 2100Z, W4LX, Fort Myers, FL. Fort Myers Amateur Radio Club. **Honoring World War II Gunners at Buckingham Airfield**. 14.270 21.360 28.360 146.685. Certificate & QSL. Fort Myers Amateur Radio Club, P.O. Box 61183, Fort Myers, FL 33906. <https://fmarc.net>

Mar. 26, 1400Z – 2200Z, K4YWE/N4H, Alexander City, AL. Lake Martin Amateur Radio Club. **Commemoration of the Battle of Horseshoe Bend**. 7.240 14.240. QSL. Michael Courtney, KK4AUP, 80 Herren Hill Rd., Ste. F, Tallassee, AL 36078. mikecourtney@charter.net

Mar. 29, 1600Z – 2130Z, W5KID, Baton Rouge, LA. Baton Rouge Amateur Radio Club. **National Vietnam War Veterans Day**. 7.040 7.250 14.040 14.250. QSL. USS Kidd Amateur Radio Club, 305 S. River Rd., Baton Rouge, LA 70802. *Operation aboard the USS Kidd (DD-661).* www.qrz.com/db/w5kid

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.

Special Events Announcements: For items to be listed in this column, use the ARRL Special Events Listing Form at www.arrl.org/special-events-application. A plain-text version of the form is available at that site. You may also request a copy by mail or email. Forms completed offline can be mailed, faxed (Attn: Special Events), or emailed.

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

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

Contest Corral

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

Contest Corral

March 2022

Check for updates and a downloadable PDF version online at www.arrl.org/contest-calendar.

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

Start - Finish	Date-Time	Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	1900	1 2100	3.5	AGCW YL-CW Party	CW	RST, serial, "YL" (if a YL), name	agcw.de/contest/yl-cw-party
2	1300	2 1400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
2	1700	2 2000	144	VHF-UHF FT8 Activity Contest	Dig	4-char grid square	ft8activity.eu/index.php/en
2	1900	2 2000	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
2	2000	2 2100	3.5	UKEICC 80-Meter Contest	Ph	6-char grid square	ukeicc.com/80m-rules.php
2	2300	6 2300	3.5-14	AWA Rollins Memorial DX Contest	CW	RST, equipment type and year	antiquewireless.org
3	0000	4 0300	7	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power	qrptest.com/pigwalk40
3	0300	3 0400	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
3	0700	3 0800	1.8-28	CWops Mini-CWT Test	CW	Name, mbr or SPC	cwops.org/cwops-tests
3	1800	3 2200	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrrfcontest.no
3	2000	3 2200	1.8-50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
4	0145	4 0215	1.8-21	NCCC RTTY Sprint	Dig	Serial, name, QTH	www.ncccsprint.com
4	0230	4 0300	1.8-21	NCCC Sprint	CW	Serial, name, QTH	www.ncccsprint.com
4	2000	4 2100	1.8-28	K1USN Slow Speed Test	CW	Name, SPC (max 20 WPM)	www.k1usn.com/sst.html
5	0000	0 2359	1.8-28	ARRL International DX Contest, SSB	Ph	WVE, PLS, SP, DX, RS, power	www.arrl.org/arrl-dx
5	0000	13 2359	Novice bands	Novice Rig Roundup	CW	Name, QTH, Optional: Rig	www.novicerigroundup.org
5	0600	5 0800	7, 14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	qrp.ru/contest/wakeup
5	1800	6 1359	1.8-28	Open Ukraine RTTY Championship	Dig	State/province/canton/etc., serial	krs.hu.ua/openrtty
6	0700	6 1100	3.5	UBA Spring Contest, CW	CW	RST, serial, UBA section (if ON)	www.uba.be
6	1200	6 1400	7	SARL 40-Meter Simulated Emergency Test	Ph	RS, serial	www.sarl.org.za
6	1200	6 2200	3.5	NSARA Contest	CW Ph Dig	RS(T), Nova Scotia county or serial	nsara.ve1cfy.net/?page_id=82
6	1800	6 2200	3.5	WAB 3.5 Mhz Phone	Ph	RS, serial, WAB square or country	wab.interimp.net/Contests.php
7	0000	7 0100	1.8-28	K1USN Slow Speed Test	CW	Name, SPC (max 20 WPM)	www.k1usn.com/sst.html
7	1630	7 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
7	2000	7 2130	3.5	RSGB 80-Meter Club Championship, Digital	Dig	RST, serial	www.rsgbcc.org/hf
8	0200	8 0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
12	0000	12 2359	3.5-28	YB DX RTTY Contest	Dig	RST, serial	rtty.ybdxcontest.com
12	1000	13 1000	3.5-28	RSGB Commonwealth Contest	CW	RST, serial	www.rsgbcc.org/hf
12	1200	13 1200	28	South America 10 Meter Contest	CW Ph	RS(T), CQ zone	sa10m.com.ar/wp/rules
12	1200	13 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
12	1400	12 2000	3.5-28	AGCW QRP Contest	CW	RST, serial, pwr class, mbr or "NM"	www.agcw.de/contest/qrp
12	1500	13 1500	1.8	Stew Perry Topband Challenge	CW	4-char grid square	www.kkn.net/stew
12	1500	13 2100	3.5-50	Oklahoma QSO Party	CW Ph	RS(T), OK county or SPC	k5cm.com/okqp.htm
12	1600	13 1600	3.5-28	EA PSK63 Contest	Dig	RSQ, EA province or serial	concursos.ure.es/en/epsk63
12	1800	13 0559	3.5, 7	TESLA Memorial HF CW Contest	CW	RST, serial, 4-char grid square	www.radiosport.org.rs
12	1900	13 1900	1.8-28	Idaho QSO Party	CW Ph	RS(T), ID county or SPC	pocatelloarc.org/idahogsoparty
13	0000	13 0300	1.8-28	North America Sprint, RTTY	Dig	Others: 4-4, 4-4, 4-4, 4-4, name, SPC	ncjweb.com
13	0700	13 1100	144	UBA Spring Contest, 2 Meters	CW Ph	RST, serial, UBA section (if ON)	www.uba.be
13	0700	13 1700	3.5-28	FIRAC HF Contest	CW	RST, serial, "F" (if a member)	www.firac.de
13	1800	14 0100	All	Wisconsin QSO Party	Ph	WI county or SPC	www.warac.org/wqp
14	0000	14 0200	1.8-28	4 States QRP Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or power	www.4sqrp.com
14	1630	14 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
15	1700	20 1700	3.5-28	CLARA Chatter Party	CW Ph	RS(T), name, SPC	clarayl.ca/chatter-party
16	2000	16 2130	3.5	RSGB 80-Meter Club Championship, CW	CW	RST, serial	www.rsgbcc.org/hf
17	0000	18 0300	14	Walk for the Bacon QRP Contest	CW	RST, SPC, name, mbr or power	qrptest.com/pigwalk20
17	0030	17 0230	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
17	1900	17 2059	3.5	BCC QSO Party	CW Ph Dig	RS(T), T-shirt size	bavarian-contest-club.de/contest
19	0200	21 0159	3.5-28	BARTG HF RTTY Contest	Dig	RST, serial, 4-digit UTC time	www.bartg.org.uk
19	1200	20 1200	1.8-28	Russian DX Contest	CW Ph	RS(T), Oblast or serial	www.rdx.org
19	1200	20 1200	3.5-144	F9AA Cup, SSB	Ph	RST, serial	www.site.urc.asso.fr
19	1400	19 1800	144, 432	AGCW VHF/UHF Contest	CW	RST, serial, power class, 6-char grid	agcw.de/contest/vhf-uhf
19	1400	20 2359	All	Virginia QSO Party	CW Ph Dig	Serial, VA county or SPC	qsl.net/sterling/VA_QSO_Party
19	2000	19 2159	1.8-28	Feld Hell Sprint	Dig	Mbr, SPC, grid	sites.google.com/site/feldhellclub
20	0700	20 1100	3.5	UBA Spring Contest, SSB	Ph	RS, serial, UBA section (if ON)	www.uba.be
20	2300	21 0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	qrptest.com/pigrun
21	1630	21 1729	3.5, 7	OK1WC Memorial (MWC)	CW	RST, serial	memorial-ok1wc.cz
21	1800	21 2059	3.5, 7	Bucharest Digital Contest	Dig	RST, serial	yo3test201x.blogspot.com
23	0000	23 0200	1.8-50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	skccgroup.com
24	2000	24 2130	3.5	RSGB 80-Meter Club Championship, SSB	Ph	RS, serial	www.rsgbcc.org/hf
26	0000	26 2359	1.8-VHF	FOC QSO Party	CW	RST, name, mbr (if any)	g4foc.org/qsoparty
26	0000	27 2359	1.8-28	CQ WW WPX Contest, SSB	Ph	RS, serial	cqwp.com/rules.htm
27	0600	27 1000	50	UBA Spring Contest, 6 Meter	CW Ph	RST, serial, UBA section (if ON)	www.uba.be
28	2000	28 2130	3.5-14	RSGB FT4 Contest	Dig	4-char grid square	www.rsgbcc.org/hf
30	2000	30 2100	3.5	UKEICC 80 Meter Contest	CW	6-char grid square	ukeicc.com/80m-rules.php

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

Upcoming FCC Exam Session Preparation Sites

(Virtual and In Person)

Concord CA 94518

LICENSING CLASS

03/29/2022

Start/End Dates: 03/29/2022 - 06/07/2022

Times:*7:00 to 9:00 pm

of Sessions: 9

Class level: General

Morse code offered: No

Pre register required: Yes

Fee: \$15

Pre Study required: Yes

Class Type: Traditional

Exam offered: Yes

Sponsoring Club/Organization: MDARC

Instructor: AF6RJ

Contact: John Primus AF6RJ

Phone: (925) 825-7670

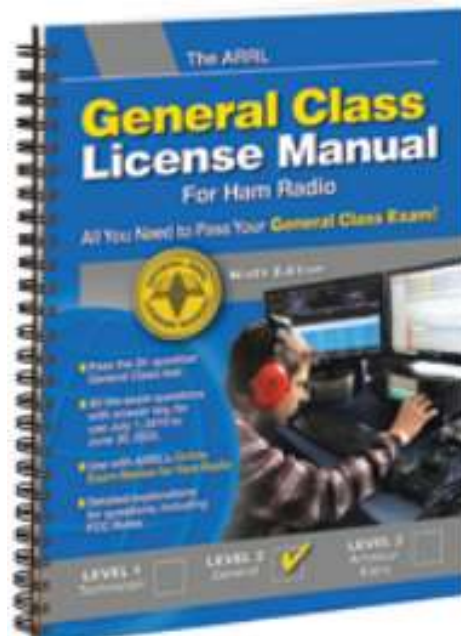
Email: primus@astound.net

Location: Virtual AND IOOF Lodge Hall

4349 Cowell Road

Concord, CA 94518

***Additional Information:** The first class session will be from 6:30 to 9:00 pm. All other class sessions will be from 7:00 to 9:00 pm.



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

Goleta CA 93117-3271

03/12/2022

Sponsor: Santa Barbara ARC

Date: Mar 12 2022

Time: 9:00 AM (Walk-ins allowed)

Contact: Tom Saunders

(805) 452-0840

Email: tsaund@cox.net

VEC: [ARRL/VEC](#)

Location: Impulse Communications

6144 Calle Real

Pre-registration preferred

Register on the team's website

Goleta CA 93117-3271

Website: <https://www.sbarc.org/ve-exam-registration/>

Santa Monica CA 90403-5610

03/12/2022

Sponsor: The PAPA system

Date: Mar 12 2022

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

Contact: Norm Goodkin

(818) 613-2257

Email: hamclass@goodkin.net

VEC: [Greater LA VEC](#)

Location: Fromin's Deli and Rest

1832 Wilshire Blvd

[Http //Papasys Org](http://Papasys.org)

Pre-registration required

Santa Monica CA 90403-5610

Valencia CA 91355-2008

03/19/2022

Sponsor: Santa Clarita ARC

Date: Mar 19 2022

Time: 8:00 AM (No Walk-ins / Register or Call ahead)

Contact: Ronald B. Klein

(661) 259-0948

Email: testing@w6jw.org

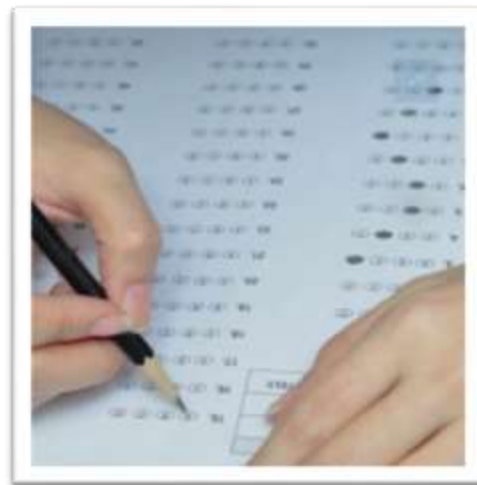
VEC: [Greater LA VEC](#)

Location: United Methodist Church of Valencia

25718 McBean Pkwy

Rm B

Valencia CA 91355-2008



On Exam Day Bring the Following Items:

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

Convention and Hamfest Calendar

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

Convention and Hamfest Calendar

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

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

Missouri (Boonville) — Mar. 26 **DFHRS**
8 AM – 1 PM. Spr: Boonville ARC. Cooper County Youth
Fairgrounds, 16899 Dunkles Dr. Ti: 147.360. Adm: \$5.
w0brc.org

OZARKCON

April 8 – 9, Branson, Missouri

FHRS
8 AM – 5 PM. Spr: Four States QRP Group. Stone Castle
Hotel & Conference Center, 3050 Green Mountain Dr. Ti:
DMR TG 31654, 147.195. ocon.rleepotter.com/index.html

Missouri (Mt. Vernon) — Mar. 26 **DFHRSV**
8 AM – 1 PM. Spr: Ozarks ARS. MARC Building, 822 West
Mt. Vernon Blvd. Ti: 146.97 (162.2 Hz). Adm: \$8 Advance,
\$10 door. Email: bhmyer@suddenlink.net

Nebraska (Bellevue) — Apr. 9 **FR**
8 AM – 1 PM. Spr: Bellevue ARC. Reed Community
Center, 1200 Lord Blvd. Ti: 147.39 (131.8 Hz). Adm: \$5.
bellevuearc.org

New Jersey (Belmar) — Feb. 26 **F**
8 AM – 2 PM. Spr: CDL Radio Group. InfoAge Science
Learning Center, 2201 Marconi Rd. Ti: none. Adm: Free.
vcfed.org/wp/vcf-swap-meet

New Jersey (Clinton/Annandale) — Mar. 12 **DFHRS**
8 AM. Spr: Cherryville Repeater Association. North Hunterdon
Regional High School, 1445 Route 31. Ti: 147.375 (151.4
Hz). Adm: \$5. w2cra.org

New Hampshire (Henniker) — Mar. 20 **FHRSV**
8 AM – 2 PM. Spr: Contoocook Valley Radio Club. The
Henniker Community School, 51 Western Ave. Ti: 146.895
(100 Hz). Adm: \$4. k1bke.org

North Carolina (Concord) — Mar. 11 – 12 **DFHRSV**
Fri. 3 PM – 7 PM, Sat. 8:30 AM – 4:30 PM. Spr: Mecklenburg
ARS. Cabarrus Arena and Event Center – Gold Hall, 4751
Highway 49. Ti: 146.655. Adm: \$9 Advance, \$10 door (cash),
\$11 door (credit). charlottehamfest.org

North Dakota (Bismarck) — Feb. 26 **FHRSV**
7:30 AM – 12:30 PM. Spr: Central Dakota ARC. Bismarck
State College Career Academy, 1221 College Dr. Ti: 146.85
no tone. Adm: Free will donation. www.cdarcnd.com

Ohio (Cuyahoga Falls) — Apr. 9 **DFHFV**
8 AM – 1 PM. Spr: Cuyahoga Falls ARC. Emidio & Sons Party
Center, 48 E. Bath Rd. Ti: 147.270, 444.850 (both 110.9 Hz).
Adm: \$6 Advance, \$7 door. cfarc.org/hamfest.php

Ohio (Elyria) — Mar. 13 **DHF**
9 AM – 1 PM. Spr: Northern Ohio ARS, Lorain County Com-
munity College, 1005 N. Abbe Rd. Ti: 146.70 (110.9 Hz).
Adm: \$7. Email: winterhamfest@noars.net

Ohio (Irving) — Mar. 12 **DFHRT**
8 AM – 2 PM. Spr: Mid-Ohio Valley ARC. Fellowship of Faith
Church Rio Grande, 20344 OH-554. Ti: 147.060 (74.4 Hz).
Adm: \$5. Email: docdiesel@hotmail.com

Ohio (Perrysburg) — Mar. 20 **DHRSV**
8 AM – 2 PM. Spr: Toledo Mobile Radio Association. Owens
Community College, 30335 Oregon Rd. Ti: 147.27 (103.5 Hz).
Adm: \$10. tmrahamradio.org

California (Loomis) — Mar. 19 **DFHRS**
7 AM – noon. Spr: Sierra Foothills ARC. Historic Loomis Train
Depot, 5775 Horseshoe Bar Rd. Ti: 145.430 (162.2 Hz).
Adm: Free. w6ek.org

Florida (Brooksville) — Feb. 26 **DHRTV**
8 AM – 4 PM. Spr: Hernando Co ARA. Sand Hill Scout Reser-
vation, 11210 Cortez Blvd. Ti: 146.715. Adm: \$5 Advance, \$6
door. www.hcara.org

Florida (Fort Walton Beach) — Mar. 18 – 19 **DFHQRTV**
Fri. 4 PM – 8 PM, Sat. 8 AM – 2 PM. Spr: Playground ARC.
Northwest Florida Fairgrounds. 1958 Lewis Turner Blvd.
Ti: 146.790 (100 Hz). Adm: \$7. w4zbb.org/w4zbborg/index.
php?page=Hamfest

ARRL SOUTHERN FLORIDA SECTION CONVENTION

March 19, Stuart, Florida

DFHRS
7 AM – 1 PM. Spr: Martin County ARA. Martin County Fair-
grounds, 2616 SE Dixie Hwy. Ti: 147.060 no tone. Adm: Free.
stuarthamfest.com

Florida (Tampa) — Apr. 9 **FHQRTV**
8 AM – 1 PM. Spr: Tampa ARC. 7801 N. 22nd St. Ti: 147.105
(146.2 Hz). Adm: \$5. www.hamclub.org

Georgia (Dalton) — Feb. 26 **DFHRS**
8 AM – 2 PM. Spr: Dalton ARC. North Georgia Ag Fair,
500 Legion Dr. Ti: 145.230 (141.3 Hz). Adm: \$5.
www.facebook.com/events/620912765410079

Indiana (LaPorte) — Feb. 26 **FHRV**
7 AM – 1 PM. Spr: LaPorte County ARC. LaPorte Civic
Auditorium, 1001 Ridge St. Ti: 146.610 (131.8 Hz). Adm: \$7.
Email: cabinfeverhamfest@gmail.com

Iowa (McClelland) — Mar. 5 **DFHR**
8 AM – noon. Spr: Southwest Iowa ARC. McClelland Town
Hall, 117 Main St. Ti: 146.82, 442.225 (136.5 Hz). Adm: \$4.
swiradio.org

Iowa (Perry) — Feb. 26 **DQRRV**
8 AM. Spr: Hiawatha ARC. National Guard Armory, 2390 Willis
Ave. Ti: 145.190 (114.8 Hz). Adm: \$10. harcioia.org

Minnesota (Buffalo) — Mar. 19 **DFQV**
8 AM – 1 PM. Spr: Maple Grove Radio Club. Buffalo Civic
Center, 1306 County Road 134. Ti: 147.00 (114.8 Hz).
Adm: \$10. k0ltc.org

Mississippi (Corinth) — Apr. 2 – 3 **DFHRSV**
Sat. 9 AM – 5 PM, Sun. 8 AM – noon. Spr: Alcorn County
ARES. Crossroads Arena, 2800 South Harper Rd. Ti: 146.925
no tone. Adm: \$8, kids free. acares.reiselt.com

Convention and Hamfest Calendar (continued)

ARRL OKLAHOMA STATE CONVENTION

April 8 – 9, Claremore, Oklahoma

D F H Q S V

Fri. 4 PM – 9 PM, Sat. 8 AM – 3 PM. *Spr:* Green Country Hamfest, Inc. Claremore Expo Center, 400 Veterans Parkway. *Ti:* 147.09 (88.5 Hz), C4FM. *Adm:* \$8 Advance; \$10 door, kids under 12 free. greencountryhamfest.org

Pennsylvania (McKeesport) — Apr. 3 **D F H Q R V**

8 AM – 2 PM. *Spr:* Two Rivers ARC. The McKeesport Palisades, 100 Fifth Ave. *Ti:* 146.73 no tone. *Adm:* \$5. trarc.net

Tennessee (Tullahoma) — Mar. 12 **D F H R S T V**

8 AM – 2 PM. *Spr:* Middle Tennessee ARS. First United Methodist Church, 208 West Lauderdale St. *Ti:* 146.700 (114.8 Hz). *Adm:* \$5, children 15 and under free. qsl.net/mtars

Texas (Irving) — Mar. 5 **F H R V**

8 AM – 2 PM. *Spr:* Irving ARC. Betcha Bingo 1, 2420 W. Irving Blvd. *Ti:* 146.720 (110.9 Hz). *Adm:* \$5. irvingarc.org

ARRL WEST TEXAS SECTION CONVENTION

March 19, Midland, Texas

D F H Q R S V

8 AM – 4 PM. *Spr:* Midland ARC. MLK Community Center, 2300 Butternut Ln. *Ti:* 147.30 (88.5 Hz). *Adm:* Free. hamfest.w5qgg.org

UTAH DIGITAL COMMUNICATIONS CONFERENCE

March 26, Sandy, Utah

H S

9 AM – 5 PM. *Spr:* Utah Digital Communications Committee. Salt Lake Community College Conference Center, 9750 South 300 West. *Ti:* 146.62 no tone. *Adm:* Adult \$15 advance, Youth free; Adult \$20 door, Youth free. utah-dcc.org

ARRL VERMONT STATE CONVENTION

February 26, Colchester, Vermont

D F H R S V

8 AM – 2 PM. *Spr:* Radio Amateurs of Northern Vermont. Hampton Inn Conference Center, 42 Lower Mountain Rd. *Ti:* 145.15 (100.0 Hz). *Adm:* \$6 Advance, \$9 door. ham-con.org

ARRL VIRGINIA SECTION CONVENTION

March 27, Annandale, Virginia

H Q R S T V

8 AM – 3 PM. *Spr:* Vienna Wireless Society. Northern Virginia Community College, Annandale Campus, 8333 Little River Turnpike. *Ti:* 146.685 (110.9 Hz) *Adm:* \$10. viennawireless.net/wp/events/winterfest

Washington (Puyallup) — Mar. 12 **D F H R V**

8 AM – 2 PM. *Spr:* Mike & Key ARC. Washington State Fairgrounds, 110 9th Avenue SW. *Ti:* 146.82 (103.5 Hz). *Adm:* \$10. mikeandkey.org/SwapMeet.php

Wisconsin (Jefferson) — Mar. 20 **D H R V**

8 AM – noon. *Spr:* Tri-County ARC. Jefferson County Fairgrounds – Activity Center, 503 North Jackson Ave. *Ti:* 145.49 (123 Hz). *Adm:* \$7. w9mqb.org

To All Event Sponsors

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

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

The deadline for receipt of items for this column is the **1st of the second month preceding publication date**. For example, your information must arrive at HQ by **April 1** to be listed in the **June** 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.

Write for QST

The membership journal of ARRL is always open to manuscript submissions from ham radio operators.

QST looks for material that appeals to a broad cross-section of readers within the diverse amateur radio community. Feature articles published in *QST* fall into one of two broad categories: *technical* and *general interest*.

Technical articles outline a construction project or a technical concept. General interest articles are "everything else" that's not technical: recaps of DXpeditions, grid expeditions, or public service activities; personal accounts of trying a new mode or style of operating — anything relating to operating or the ham radio avocation.

Whether your manuscript has a technical or general focus, a strong "how-to" component will make it stand out. Readers should come away from the article with specific ideas for recreating your experience.

Please note that *QST* only considers complete manuscripts — we do not evaluate concepts or ideas for manuscripts. The best way to find out whether the editors of *QST* are interested in your idea is to write the article and send it in for consideration via postal mail or email (no phone calls, please).

For more information on what *QST* is looking for, and how to submit manuscripts, see our Author Guide at www.arrl.org/qst-author-guide.

A Great Introduction to Must-Have Equipment



(from [CSI Connect Systems Inc.](#) advertisement email but not a recommendation by the club)

“When I am speaking to new hams, the first question that I am asked is which radio they should get for HF. The answer will be different for UHF and VHF, but that is for another day.

I tell them my dream radio is the following:

Flex 6700 \$7,499

Tuner Genius XL \$500

Power Genius XL \$7,699

Tower \$1,000 to over \$100,000

Yagi Beam Antenna \$1,000

I have other favorites such as:

Kenwood TS 990S \$8,595

Icom 7851 \$18,690

Yaesu FTDX101 \$5,249

Then I mention that if they cannot afford that much, they can get working radios as low as \$259.

It should be noted we don't sell any of the radios mentioned above.

Next I ask how they want to approach the hobby. Do they want to just speak to people all over the world or do they want to understand how the hardware interacts with the firmware and maybe even modify it?

If they just want to speak, then a great radio is the Xiegu G90 and the Xiegu X6100. These radios are 1/3 to 1/2 the price of the Japanese equivalents and work about the same and sometimes better. We do sell both of those Xiegu radios.

If you want a radio that can be modified so you can understand how things work, there is only one radio I would recommend and that is the Recent RS-918. The RS-918 is a clone of the mcHF which is a radio designed by the amateur community.

With the RS-918 you can modify the radio to improve its performance, add new features or leave it alone and it works just fine. The firmware is constantly being improved as there are frequent updates. For some of its features, the radio works better than the radios you are paying over \$10,000.

ARRL News

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

From: ARRL Web site [mailto:memberlist@arrl.org]

Sent: Thursday, February 24, 2022 2:12 PM

To: All Those Who Use Amateur and Personal Radio Services

Subject: ARLB007 FCC: Amateur Service Licensees May Not Use Radio Equipment to Commit Criminal Acts

SB QST @ ARL \$ARLB007

ARLB007 FCC: Amateur Service Licensees May Not Use Radio Equipment to Commit Criminal Acts

ZCZC AG07

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ARRL Bulletin 7 ARLB007

From ARRL Headquarters

Newington CT February 24, 2022

To all radio amateurs

SB QST ARL ARLB007

ARLB007 FCC: Amateur Service Licensees May Not Use Radio Equipment to Commit Criminal Acts

The FCC Enforcement Bureau has re-issued an earlier reminder that licensees in the Amateur Radio Service, as well as licensees and operators in the Personal Radio Services are prohibited from using radios in those services to commit or facilitate criminal acts. The FCC did not indicate what, if anything, prompted the renewed Enforcement Advisory or if it was just a routine announcement.

The Enforcement Advisory can be found in PDF format online at,
<https://docs.fcc.gov/public/attachments/DA-22-181A1.pdf> .

"The Bureau recognizes that these services can be used for a wide range of permitted and socially beneficial purposes, including emergency communications and speech that is protected under the First Amendment of the US Constitution,"

(Continued on next page)

ARRL News (Continued) **Amateur Service Licensees May Not Use Radio Equipment to Commit Criminal Acts** (Continued)

the FCC said. "Amateur and Personal Radio Services, however, may not be used to commit or facilitate crimes."

As it did in advisories in 2021, the Enforcement Bureau is reminding amateur licensees that they may not transmit, "communications intended to facilitate a criminal act" or "messages encoded for the purpose of obscuring their meaning."

"Likewise, individuals operating radios in the Personal Radio Services, a category that includes Citizens Band radios, Family Radio Service walkie-talkies, and General Mobile Radio Service, are prohibited from using those radios "in connection with **any activity** which is against Federal, State or local law.

"Individuals using radios in the Amateur or Personal Radio Services in this manner may be subject to severe penalties, including significant fines, seizure of the offending equipment, and, in some cases, criminal prosecution.

"To report a **crime**, contact your local law enforcement office or the FBI," the FCC advised.

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/EX



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ARRL News (Continued)

Some New Rules Going into Effect this Year for ARRL Field Day

After taking a few detours over the past couple of years due to the COVID-19 pandemic, [ARRL Field Day](#) rules are being updated on a permanent basis starting this summer. ARRL conducted a Field Day community survey with invitations propagated far and wide, and direct emails sent to more than 15,000 individuals and ARRL-affiliated clubs. After sorting through, reviewing, and discussing the survey results, the ARRL Programs and Services Committee recommended a number of rule changes for ARRL Field Day, which will take place this year over the June 25 - 26 weekend.



Starting this year, the maximum PEP output for a transmitter used by anyone submitting a Field Day log will be 100 W. The power multiplier of 2 will remain in place, and the high-power category will be removed from the rules. Until this year, the maximum low-power limit had been 150 W for most ARRL-sponsored

operating events. The power multiplier will remain at 5 for QRP participants running a maximum of 5 W or less. As previously announced, 100 W is now the low-power category limit for all ARRL and IARU HF Contests, effective January 1, 2022.

A couple of changes instituted initially as accommodations for the COVID-19 pandemic will remain. Class D (Home) stations will continue to be able to earn points for contacts with other Class D stations. The club aggregate scoring change initiated in 2020 as a temporary measure will become part of the permanent rules. In the aggregate scoring plan, the scores of individual stations are combined under the score of a single club.

Another change, involving Rule 7.3.2 Media Publicity, has been modified. Rules to date have offered 100 bonus points for attempting to obtain publicity and demonstrating same. With the ease of posting via Facebook, Twitter, Instagram, and various other media websites, Field Day participants will now be required to obtain publicity, not just try to do so. Any combination of bona fide media hits would qualify for the bonus points. For example, posting the details of your upcoming or ongoing Field Day activity, or your Field Day results, on a club or news media site, on Facebook, or via Twitter and Instagram would meet the bonus criteria. Photos and videos are encouraged as part of media posts.

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ARRL News (Continued)

Field Day is Coming-Start Planning Now

It is February and Field Day is just four months away. Has your club starting to planning? Many clubs are still operating in pandemic mode and will not have a gathering site but many will be in the field. Now is the time to get the club together, however you are meeting, and plan for what I think is the best weekend of the ham year. Field



Day can be a great opportunity to operate and have fun. It can also be a great chance to work with local authorities and demonstrate the capabilities Earn extra Points - Set up an information table and a Get On The Air station - and get the new hams out for what is often their first real chance to work HF in a friendly contest-type environment. There are some updated rules and you can find them at at <http://www.arrl.org/field-day-rules>. This site is updated often so check back for the latest. The most important thing is to have fun and enjoy Field Day. Invite the public, local dignitaries, and media. Field Day is a great photo op for police, firefighters, and EMS. Remember, outreach to the community is one of those things that we all need to be doing.

Field Day - a chance to show the world amateur radio.

Amateur Radio in Ukraine Ordered Off the Air in State of Emergency

A state of emergency was declared in Ukraine just prior to the Russian military invasion. Among other things, the February 24 decree from President Volodymyr Zelensky will remain in effect at least for 30 days and may be extended. As published on the website of the Verkhovna Rada, Ukraine's unicameral legislative body, the state of emergency



includes regulation of TV and radio activities and "a ban on the operation amateur radio transmitters for personal and collective use."

The decree also imposes a ban on mass events and on strikes and authorizes checking the documents of citizens, and if

necessary, conducting searches on persons, vehicles, cargo, office space, and housing. A curfew could be imposed. "The situation changes rapidly," IARU Region 1 Secretary Mats Espling, SM6EAN, said. "IARU Region 1 continues to monitor the development and expect all radio amateurs to follow their national laws and regulations."

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ARRL News (Continued)

Upcoming Section, State, and Division Conventions

- February 26 – [ARRL Vermont State Convention](#) (HAM-CON), Colchester, Vermont
- March 12 - 13 – [QSO Today Virtual Ham Expo](#) (ARRL is a QSO Today partner)
- March 19 – [ARRL Southern Florida Section Convention](#) (47th Annual Martin County Hamfest), Stuart, Florida
- March 19 – [ARRL West Texas Section Convention](#) (66th Annual St. Patrick's Day Hamfest), Midland, Texas
- March 19 – [ARRL West Virginia Section Convention](#) (Charleston Area Hamfest), Charleston, West Virginia
- March 27 – [ARRL Virginia Section Convention](#) (Winterfest), Annandale, Virginia
- April 1 - 2 – [ARRL Maine State Convention](#), Lewiston, Maine
- April 8 - 9 – [ARRL Oklahoma State Convention](#) (Green Country Hamfest 2022), Claremore, Oklahoma
- April 16 – [ARRL Roanoke Division Convention](#) (Raleigh Hamfest), Raleigh, North Carolina
- April 23 – [ARRL Delaware State Convention](#) (Delmarva Amateur Radio and Electronics Expo), Georgetown, Delaware

Search the [ARRL Hamfest and Convention Database](#) to find events in your area.

From the Minutes of the ARRL 2022 ANNUAL BOARD of DIRECTORS MEETING JANUARY 21 – 22, 2022 and Excerpts from the ARRL Standing Orders:

6. Mr. Abernethy reported that the ARRL Foundation had \$7.2 million in assets including \$1.1 million in the Goldfarb endowment. It is anticipated that the Goldfarb 4-year scholarship will be awarded this year. A total of 122 scholarships valued at \$564,250 were awarded this past year. There were 7 new annual scholarships created by donors ranging from \$1,000 to \$5,000 each. ARDC scholarship funding has steadily increased each year and is expected to be \$900,000 in 2022. ARDC grant to create a club grant program—\$500,000 for grants and \$100,000 for set up and administration was requested and awarded to the Foundation. The program will make grants up to \$25,000 available to clubs. Requests for anything above \$25,000 will be referred to the ARDC.

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ARRL News (Continued) From the Minutes of the ARRL 2022 ANNUAL BOARD of DIRECTORS
MEETING JANUARY 21 – 22, 2022 and Excerpts from the ARRL Standing Orders (Continued)
Director's Motions

42. Mr. Stratton moved, seconded by Mr. Abernethy that:

WHEREAS, by Minute 40 of the January 2020 Annual Meeting a reduced-rate, revenue neutral Life Membership program for individuals aged 70 or older, with cumulative membership of 25 years or more, at an initial rate of \$750 was established;

WHEREAS, many would-be 70+ Members who have expressed interest in purchasing a Life Membership have objected to the 25 cumulative membership pre-condition as onerous;

WHEREAS, as the League has declared the 70+ Life Membership price to be revenue neutral for a purchasing Member;

Now, THEREFORE, it is resolved that:

- (1) The membership qualification period required for an ARRL Member who is 70 years of age or older is eliminated.
- (2) The 70+ Life Membership purchase price may be paid in installments as determined by staff.

After a discussion, the motion was **APPROVED** unanimously by a roll call vote.
(Continued on next page)



55. Mr. Zygielbaum moved, seconded by Mr. Ritz that:

There is no defined connection between Division Directors/Vice Directors and Section Managers within their Divisions. Because there is no guideline and no statement of expectations, this relationship varies from strong and mutually supportive to virtually non-existent across the League. The Division Directors/Vice Directors and Section Managers represent the face of the ARRL to members. The lack of guidance on the interaction has created a lack of communications and interaction that would be of benefit in assuring the health and growth of our organization.

The Board established the Emergency Communications and Field Services Committee (ECFSC) as a standing committee to provide policy guidance with respect to the field organization. It would rightly be within the purview of this committee to take on the task of recommending a solution to this problem.

It is moved that:

1. The Emergency Communications and Field Services is tasked to create a guideline document describing the expected relationship between Division Directors/Vice Directors and the Section Managers and their appointees within the Division. The guidelines must be sensitive to the existing reporting responsibilities of the Section Managers to the Field Organization managers. The development of the document shall be done in a manner that engages review and contributions by members of the Board as well as the appropriate Field Organization managers at ARRL headquarters. The intent is to facilitate effective communications and coordination in both directions between Division Directors/Vice Directors and Section Managers without interfering with the normal chain-of-command in the Field Organization.

2. The ECFSC will recommend a process to distribute the guidelines and engage Division Directors/Vice Directors and Section Managers to accomplish its goals.

3. The ECFSC is asked to provide a progress report in the July 2022 meeting and a draft plan in the January 2023 meeting.

After a discussion, the motion was **APPROVED**.

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ARRL News (Continued)

1.0 EDUCATION MISSION AND VISION STATEMENT

1.1.1 [Prior SO #06-1.40] The following ARRL Education Mission and Vision Statement is adopted: ARRL will advance the art and science of radio through education,

1. by providing instruction and instructional materials to prepare new Amateur Radio operators for licensing as well as to prepare licensed amateurs to upgrade to higher levels of licenses;
2. by advancing the knowledge of radio science and operating skills among licensed operators through instruction, publications and activities;
3. by training radio amateurs in the skills needed to provide service to their communities in times of emergency;
4. by engaging youth in the magic of radio, inspiring them to further personal investigation in the sciences and engineering as well as expanding their horizons to promote global goodwill through contact with cultures around the world; and
5. by expanding interest and understanding of the science of radio and the application of wireless technology in daily life.

Through its educational efforts ARRL will enrich lives through lifelong learning and achievement and provide service to local communities. ARRL educational outreach's objective is to inspire exploration in radio science and serve as a catalyst for new scientific discoveries and new technologies.

3.6 NEWLY ELECTED SECTION MANAGERS

3.6.1 [Prior SO #105] The Chief Executive Officer shall offer any newly elected or re-elected Section Manager a complimentary copy of the ARRL Handbook for Radio Communications and a set of training/operating manuals to aid in his Field Organization efforts.

5.8 REVISIONS TO THE AMATEUR'S CODE

5.8.1 [Prior SO #89-2.21]

The following revised version of The Amateur's Code is adopted:

The Radio Amateur is:

- CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.
- LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.
- PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

(Continued on next page)

ARRL News (Continued)

- **FRIENDLY**...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for interests of others. These are the hallmarks of the amateur spirit.
- **BALANCED**...radio is an avocation, never interfering with duties owed to family, job, school, or community.
- **PATRIOTIC**...station and skill always ready for service to country and community.

6.6 AMATEUR RADIO EMERGENCY SERVICE

6.6.1 [Prior SO #04-2.20] WHEREAS, for security reasons and for purposes of establishing formal relationships with served agencies, ARES® groups within an ARRL section are increasingly in need of affirmative recognition; and

WHEREAS, ARES® (Amateur Radio Emergency Service®) is a program of, and both logos are registered trademarks of the American Radio Relay League, Incorporated;

NOW THEREFORE, it is ARRL policy that ARES® groups, and any group using the ARES® logo, shall acknowledge the nature of the ARES® program as an ARRL program, and abide by the guidelines of the program established by ARRL as amended from time to time, according to the following principles:

1. Each ARES® group will, when using the term ARES® or Amateur Radio Emergency Service®, utilize the ® symbol in any printed matter or in any electronic media and will acknowledge that both logos are registered marks of the American Radio Relay League, Incorporated and are used by permission.
2. In bylaws or other organizational documents, or by amendment of any existing bylaws or organizational documents, ARES® groups will acknowledge that ARES® is a program of the American Radio Relay League, and that entity will abide by the Rules and Regulations of the ARRL's Field Organization, as they may be amended from time to time, and by ARRL policies, rules, and guidelines contained in ARRL publications.
3. All ARES® records, membership rosters, and other data pertaining to the ARES® program wherever located are the property of the American Radio Relay League, Incorporated.

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ARRL News (Continued)

Comments of N6VI on USFS proposed action RIN 0596-AD44

USFS permittees utilize public lands for a variety of purposes. For some, it's about generating revenue; for others, it's about providing public service. Among the former, some generate thousands of dollars per day, while others may generate only a few thousand dollars a year. Some can pass on costs and fees to users or ratepayers; others cannot. Among the public-service users, some are taxpayer-funded governmental entities, while others are funded with citizen donations and generate no revenue.

Dividing an estimated annual cost evenly among all users, as USFS proposes to do, impose burdens that range from inconsequential for the large revenue generators to crushing for the self-funded nonprofits. This inequity is made even worse by the fact that small commercial permittees and nonprofits do not require nearly the USFS resources to inspect and oversee their sites as do the large, high-profit commercial users. If the goal is for each permittee to pay its fair share of USFS permit administration costs, this mindlessly simplistic divide-by-N approach fails miserably.

It should be well within the capability of those administering public lands to track the time and resources utilized in connection with each permittee or, at the very least, each class of permittee. Failure to do so produces a severely inequitable outcome and, frankly, will drive some no-revenue public service providers away by breaking their bank, to the detriment of the general public for whose benefit the USFS exists.

I urge you to take this one-size-for-all plan back to the drawing board and develop one that more fairly distributes the obligations for the costs USFS seeks to recover.

Martin A. Woll
Assistant District Emergency Coordinator
Los Angeles Amateur Radio Emergency Service



(Continued on next page)

ARRL News (Continued)

ARRL Seeks Exemption from Proposed US Forest Service
Communication Facility Fees; Comment Period to be Re-Opened Through
March 31

ARRL has filed comments with the US Forest Service (USFS) seeking an exemption for amateur radio facilities to a proposed new 1400 dollar annual administrative fee. The USFS proposal resulted from requirements in the Agriculture Improvement Act of 2018 (aka "the Farm Bill"), which directs the Forest Service to collect fees for issuing communications use authorizations based on the cost to the agency for processing the applications, maintenance, and other related activities. These fees would be in addition to annual rental and cost-recovery fees already being collected.

ARRL's comments can be found online at
<https://www.regulations.gov/comment/FS-2022-0001-0749> .

On February 24, the Forest Service filed a Notice in the Federal Register that the comment filing window will be re-opened on March 1 and additional comments will be accepted through March 31. Any radio amateurs missing the first comment period or wishing to add to their earlier comments are encouraged to do so during this additional period.

"Although the discussion put forward by the Forest Service in its proposal focuses on commercial uses, the proposal would sweep within its requirements amateur radio uses that are solely noncommercial," ARRL said in comments filed on February 22. "Radio amateurs establish and maintain facilities at certain locations for public service purposes with no remuneration or reimbursement. Unlike broadcasters and commercial wireless and fiber providers, radio amateurs are uniquely barred by the terms of their federal licenses from receiving compensation of any sort."

"Non-commercial and uncompensated communication uses by radio amateurs within Forest Service areas long have served the public interest in many ways, among them by providing the means for otherwise unobtainable emergency communication capabilities in times of need," ARRL noted. "Amateurs perform this valuable public service without cost to taxpayers. The importance of these capabilities [has] been demonstrated repeatedly. The skills of amateur operators (Continued on next page)

ARRL News (Continued)

have served our country well with their carefully located equipment when enabling exchanges of possibly life-saving messages in difficult terrain during forest fires, extending communications assistance help during hurricanes, and providing communications capabilities during search-and-rescue missions in remote areas."

ARRL stressed that equipment, maintenance, and other costs associated with amateur radio facilities on USFS lands "are borne solely by the volunteer radio amateurs themselves."

ARRL continued, "Commercial applicants usually request more extensive use of the lands administered by the Forest Service, and these requests necessarily result in more complex issues having to be considered and resolved."

"It is foreseeable that many radio amateurs providing these services would have to opt to withdraw and cease their work," if not exempted from the proposed fees, ARRL said. "In many cases the most useful locations for needed coverage from their stations is uniquely on Forest Service lands. In short, the proposal to include volunteer uncompensated amateur service applicants with the commercial wireless service and broadcast applicants is grossly inequitable. There is a disparity in the amount of resources necessary to consider applications from radio amateurs as compared to that required by commercial applicants."

"[O]ur best estimate is that there are fewer than 100 covered amateur locations, but those likely are unique and essential to covering forested areas in times of need, such as forest fires or lost hikers," ARRL said. "These dissimilarities in complexity and scope should be recognized in this fees proposal and amateur radio applications exempted."



Dayton Hamvention Looks to Be a Go for 2022

Hams and vendors hoping to attend Dayton Hamvention® 2022 have been asking what, if any, COVID-19 regulations will be in place at the event. Hamvention management says it's monitoring the situation closely. Hamvention General Chairman Rick Allnutt, WS8G, issued a statement:

"We strongly anticipate that Hamvention 2022 is a go. We cannot guarantee what government may decide about unknown changes in the pandemic. It has become obvious that the State of Ohio is very unlikely to call a halt to large gatherings anytime soon. Despite a recent large spike in [Omicron-variant] COVID cases and hospitalizations, there is no move to restrict large indoor or outdoor events such as sports events," Allnutt said.



Allnutt added that he anticipates that the official state guidance may be to recommend – not require – face masks and social distancing, but does not expect to be checking attendees' vaccination status on site. Hamvention will support state guidance.

Some have asked whether COVID-19 testing will be available at Hamvention. At this time, there are no plans to have testing on site. Updates on Hamvention and COVID-19 regulations related to the event will be posted on the [Hamvention website](#).

Hamvention, an ARRL-sanctioned event, will be held May 20 - 22, at the Greene County Fairgrounds and Expo Center in Xenia, Ohio.

Research on Ancient Massive Solar Storms Suggests a Need to Prepare for the Next Ones

Numerous powerful X-class solar flares occurred last fall as Solar Cycle 25 activity picked up. Jon Jones, N0JK, covered the event in his QST column, "The World Above 50 MHz," in the February issue, and he pointed out, "More powerful flares than these have taken place, such as the Carrington Event of 1859, during which aurora was seen in the South Pacific and in Cuba, and it sparked electrical fires."

Similar events took place in the 20th century, but, as Jones notes, scientists are researching spectacular solar storms that took place as early as 7176 BC and in 5259 BC. The huge solar flare some 9,200 years ago has convinced researchers that we are not ready for the next one, and our modern technology would take a major hit.

(Continued on next page)

ARRL News (Continued) **Solar Storms** (Continued)



"Also worrisome is that Earth may have narrowly dodged a 'Carrington-level event' in 2012," Jones said. Daniel Baker of the University of Colorado -- speaking at a NOAA Space Weather Workshop -- said, "If it had hit, we would still be picking up the pieces."

Jones said his reading has led him to conclude that these solar superstorms occur more frequently than people think. "As more ice cores and tree rings are sampled, scientists are finding

there have been more of these [major solar storms]," he said.

In his February column, Jones cited a 2013 Royal Academy of Engineering report that discussed the risks of a Carrington-level event.

"An extreme space weather event, or solar superstorm, is one of a number of potentially high-impact, but low-probability natural hazards," said Paul Cannon, a Royal Academy of Engineering fellow and chair of the study working group that developed the report.

"Extreme space weather [can have] impacts on engineered systems and infrastructure."

Cannon said the hazard and risks of extreme space weather on the electricity grid, satellites, and air passenger safety had not previously been critically assessed. His group's report attempts to address that omission.

The *Live Science* article, "Ancient solar storm smashed Earth at the wrong part of the sun's cycle -- and scientists are concerned," cites a study, "Cosmogenic radionuclides reveal an extreme solar particle storm near a solar minimum 9125 years BP." Study co-author Raimund Muscheler, a geology researcher at Lund University in Sweden, said, "These enormous storms are currently not sufficiently included in risk assessments. It is of the utmost importance to analyze what these events could mean for today's technology and how we can protect ourselves."

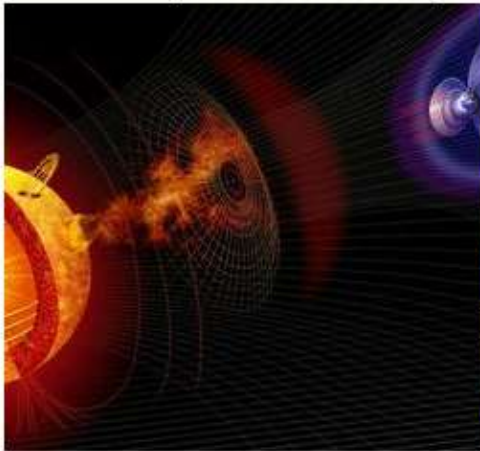
"A Carrington Event taking place today could destroy orbiting satellites, disrupt GPS, and damage undersea cables and internet infrastructure on the ground," Jones said in his *QST* column. "An event in 775 AD was believed to have been 100 times stronger than the Carrington Event."

(Continued on next page)

ARRL News (Continued)

Geomagnetic Storm Leads to Loss of Up to 40 Starlink Satellites

A geomagnetic storm on February 4 "significantly impacted" the launch of some 49 Starlink satellites. The company said the satellites were intended to achieve low-Earth orbits after being sent aloft on a Falcon 9 launcher. Starlink is a satellite internet constellation operated by SpaceX to provide satellite internet access. SpaceX said it initially deploys its satellites into low-Earth orbit so that "in the very rare case any satellite does not pass initial system checkouts, it will



quickly be deorbited by atmospheric drag." All did not go as planned, however.

"Unfortunately, the satellites deployed on February 3 were significantly impacted by a geomagnetic storm on Friday [February 4]," SpaceX announced this week. "These storms cause the atmosphere to warm and atmospheric density at our low-deployment altitudes to increase. In fact, onboard GPS suggests the

escalation speed and severity of the storm caused atmospheric drag to increase up to 50% higher than during previous launches."

The satellites were commanded into a safe mode, where, as SpaceX explained, "they would fly edge-on (like a sheet of paper) to minimize drag – to effectively 'take cover from the storm' – and continued to work closely with the Space Force's 18th Space Control Squadron and LeoLabs to provide updates on the satellites based on ground radars."

A preliminary analysis showed that the increased drag at the low altitudes prevented the satellites from being moved into higher orbit, and up to 40 of the satellites will reenter, or already have reentered, Earth's atmosphere.

"The deorbiting satellites pose zero collision risk with other satellites, and, by design, [burn up] upon atmospheric reentry – meaning no orbital debris is created and no satellite parts hit the ground," SpaceX said.

Space weather forecaster Tamitha Skov, WX6SWW, analyzed the incident in considerable detail in a recent [update](#) on YouTube.

(Continued on next page)

ARRL News (Continued)

Youth on the Air Camp 2022 Application Period Now Open

The application period for the second camp for young amateur radio operators in North, Central, and South America is now open at YouthOnTheAir.org for radio amateurs aged 15 - 25 interested in attending. The Youth on the Air Camp is set for June 12 - 17 at the National Voice of America Museum of Broadcasting in West Chester Township (North Cincinnati), Ohio. The submission deadline is March 1. Applications received before the deadline will be given selection priority.

It costs nothing to apply, but a \$100 deposit is required upon acceptance. Scholarships and waivers are available. Campers are also responsible for transportation when arriving to or departing from the camp hotel. Travel during camp events is

provided. Travel assistance may also be available, especially for those traveling from outside the US. Campers will be selected and notified by March 15. To encourage attendance from across IARU Region 2, slots will be held open for campers throughout the Americas. If positions become available, these will be filled from the waiting list.

Changes in the COVID-19 pandemic status and CDC guidelines and restrictions between now and June may impact plans to host the camp. For additional information, [contact](#) Camp Director Neil Rapp, WB9VPG.

"At this time, we have a high level of confidence that hosting the camp June 12 - 17, 2022, will be possible," Rapp said. "Should we not be able to host the camp or need to reschedule, we will let everyone know with as much notice as possible. Appropriate requirements on masking and vaccination status will be announced as needed."

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Youth on the Air

Activities for the Next Generation of
Amateur Radio Operators in the Americas

YouthOnTheAir.org

ARRL News (Continued)

ARRL Announces New World Wide Digital Contest

The [ARRL World Wide Digital Contest](#) will debut at 1800 UTC on June 4, ending at 2359 on June 5, 2022. All non-RTTY modes are permitted. Going forward, RTTY will be the sole mode for the ARRL RTTY Roundup, which will continue to take place in January.

In broad strokes, this will be an HF to 6-meter event, on 160, 80, 40, 20, 15, 10, and 6 meters, with single-operator and multi-single entry categories. These are Single Operator, One Radio (SO1R), Single Operator, Two Radio (SO2R), and Multi-Single (MS). Overlays in the single-operator categories will include "all enclosed antennas" and "maximum of 8 operating hours." Single-operator entries may operate for 24 hours (with off times taken in one or two breaks that are at least 60 minutes long), while MS entries may operate for the full 30 hours.

Operating assistance is permitted for all operating categories.

Power categories will be:

- **QRP** (5 W transmitter output or less)
- **Low Power** (maximum 100 W PEP transmitter output)



The exchange for the World Wide Digital Contest will be a station's four-character grid square designation.

Stations may work each other once per band, regardless of digital mode. Participants will earn 1 point for each contact, plus 1 point for each 500 kilometers (310 miles) between stations. So, a contact between stations 1,000 kilometers apart would be worth 3 points. The total score is total contact points.

ARRL makes available a grid-center [distance calculation tool](#). Options include kilometers (always rounded up), distance between pairs, and points.

For instructions on how to [submit logs](#), visit the ARRL Contest page. Logs will be due 7 days after the event has concluded.

In succeeding years, the World Wide Digital Contest will take place on the first full weekend of June.

[Full details](#) on the new operating event are on the ARRL website.

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ARRL News (Continued)

The Heartbeat of the Shortwaves

Shortwave station WWV has operated for over a century, and has broadcast precise time and frequency information for more than 50 years.

Jen Glifort, KC1KNL

Every night, over 50 million devices in the US receive a signal containing time codes through their internal antennas and receivers, which then interpret the codes to ensure near-perfect synchronization. That signal has been coming from WWV in Fort Collins, Colorado, for over half a century.

Among many other things, the National Institute of Standards and Technology (NIST; www.nist.gov) is responsible for the maintenance and operation of shortwave stations WWV, WWVB, and WWVH (in Hawaii) through its Time and Frequency Division. Shortwave enthusiast Thomas Witherspoon, K4SWL, called WWV “the heartbeat of the shortwaves.” He explained, “The NIST reference signals are ever-present and easily accessible here in North America and other parts of the world.”

Vintage Technology

Since 1965, WWV and its companion station, WWVB (often collectively referred to as “WWV”), have broadcast Coordinated Universal Time (UTC) to the exact second to the continental US. WWV is the oldest con-

tinuously active radio station in the country (see the sidebar, “The History of WWV”). WWVH, its Hawaiian counterpart, broadcasts the same information for the island state. Using long electromagnetic waves at 60 kHz — a frequency so low it can be received through buildings — WWVB’s signal allows millions of timekeeping devices across the country to sync, usually in the middle of the night, when the signal is strongest. These devices contain small, internal antennas and receivers, which interpret the time codes sent by WWVB to maintain accurate readings of the time and the day of the year, as well as adjust for daylight saving time and leap years.

WWVB signals reach all these devices via the 60 kHz longwave band, but WWV and WWVH signals leverage the shortwave bands. There’s no official definition of the “shortwave band,” but it generally extends from the high end of the medium-frequency (MF) band to the end of the high-frequency (HF) band. Radio waves in the shortwave band are reflected off the ionosphere, which means they can be directed at certain angles that allow them to travel long distances, unlike some radio waves that use line-of-sight propagation and travel in straight



An aerial view of WWV. The station broadcasts six frequencies with their own antennas, which are all surrounded by a white fence. The lowest frequency has the tallest antenna, and it requires a flashing strobe to be visible to passing aircraft.

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ARRL News (Continued) The Heartbeat of the Short Waves (Continued)

The History of WWV

1919: NIST (then called the National Bureau of Standards) was assigned the call letters "WWV."

1920: The Bureau started testing the station, broadcasting musical concerts on Friday nights, and later broadcasting market news for the Department of Agriculture.

1922: It was decided that the station would transmit standard frequency signals.

1927: WWV started using quartz oscillators to improve the station's output frequency.

1932: The station moved to a Department of Agriculture site near Beltsville, Maryland, where it began broadcasting on 5, 10, and 15 MHz, which it continues to use today.

1936: Musical organizations suggested WWV add the 440 Hz tone (A above middle C), for the sake of tuning instruments.

1940: WWV was destroyed by a fire, but returned to the air in a nearby building 5 days later, using equipment salvaged from the burned station.

1943: A newly built station went on the air.

1944: WWV added the 2.5 MHz frequency as a way of reaching the nearby population. Over the years, the 20, 25, 30, and 35 MHz frequencies were also added to the station's broadcasts, but only 20 MHz is still used.

1945: Standard time announcements were broadcast using telegraphic code.

1948: WWVH opened on the island of Maui in Hawaii. It wasn't until 1968 that WWVH moved to Kauai, due to damage from the ocean. WWV and WWVH broadcast on the same frequencies, so they use different voices for their announcements to help listeners distinguish between the two stations. WWV uses a man's voice, and WWVH broadcasts a woman's voice.

1950: Voice announcements of time were added to WWV.

1963: WWVB opened in Fort Collins, Colorado.

1966: WWV moved from Beltsville, Maryland, to Fort Collins, where it shares land with WWVB. The new site was closer to NIST's labs in Boulder, Colorado, and improved the transmitted frequency with the use of atomic oscillators at the site.

1967: The station switched from transmitting local time to Greenwich Mean Time (GMT), and began transmitting its current format of Coordinated Universal Time (UTC), 1 year later.

1971: WWV started making time announcements every minute, rather than every 5 minutes.

lines. From the HF bands, WWV puts out 2,500 – 10,000 W on several frequencies (each on separate transmitters) to ensure the best possibility of being heard by its millions of listeners through hindrances like atmospheric conditions — conditions altered by the time of day — and interference caused by the seasons. NIST stations use incredibly precise atomic clocks to keep their time signals accurate.

In addition to broadcasting precise time signals, WWVB broadcasts standard frequencies, UT1 time

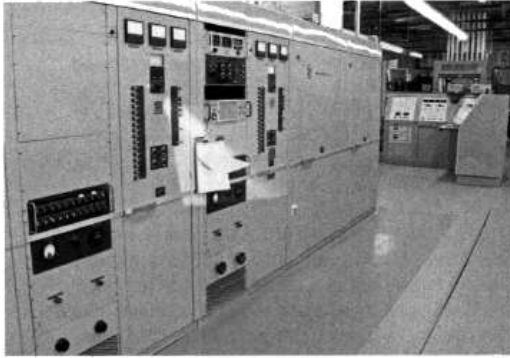
corrections, geophysical alerts, and more. The time-of-day broadcasts can even be heard by calling a dedicated phone number, which receives around 2,000 calls every day. Musicians can actually listen to WWV to tune their instruments, as the station also broadcasts the 440 Hz tone, which is the musical note A above middle C. WWV's signal is so reliable that NIST maintains a web page (www.nist.gov/time-distribution/radio-station-WWV/WWV-and-WWVh-broadcast-outages) dedicated to recording the few incidents that



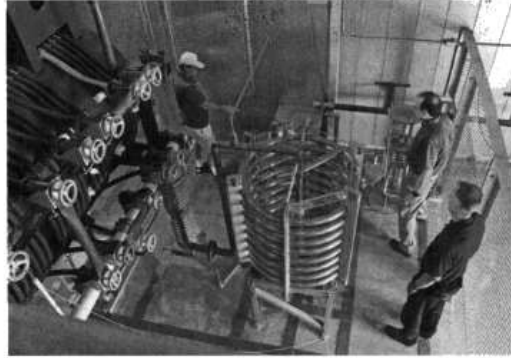
Timing, signal-generation, and transmitting equipment can be found in the radio station's main building.

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ARRL News (Continued) The Heartbeat of the Short Waves (Continued)



Inside of WWV.



The helix house that powers WWV's antenna array.

broadcasting has been interrupted for more than 5 minutes, since the year 2000 (on average, it occurs less than twice per year).

WWV and Ham Radio

Thomas Witherspoon, K4SWL, first heard WWV as a child, when his father tuned to the shortwave station to listen to the time broadcasts and manually set his watch every Sunday. "I found the metronomic ticks hypnotic then," Witherspoon said. "And I still do." He founded the charity Ears to Our World (which closed in 2019), that sent shortwave radios to students and teachers in third-world countries, and is currently a blogger for *The SWling Post* (<https://swling.com/blog>), a website for fans of shortwave radio. As a kid, Witherspoon was amazed that the signal from WWV could be heard on his father's vintage RCA 6K3 console radio from over 2,000 miles away.

When Witherspoon was a child, many hams discovered the hobby through shortwave. Whether they were building a kit, tuning around the bands, or fixing up an old radio, they could rely on WWV's steady signal to confirm that they were receiving signals, and everything was working correctly. Witherspoon was given a Zenith Trans-Oceanic radio by his great aunt when he was 8 years old, leading him to a lifelong love of shortwave listening and an interest in amateur radio. He said, "WWV has been a constant companion in my radio world."

The era of radios like the Zenith has ended, but as technology has evolved, so has amateur radio. Fewer operators are getting their start through shortwave, or even through kit-building or homebrewing, as their predecessors once did. Many operators today are drawn to modern technology, enjoying the convenience of



WWV Chief Engineer Matt Deutch, NØRGT, checks the equipment.

digital modes like FT8 and JT65. As times change, some fear stations like WWV could get left behind.

Averted Closure

In its 2019 fiscal budget to Congress, the Trump administration proposed cutting NIST's budget, which would have resulted in the closure of WWV, among other branches of NIST. Witherspoon explained at the time, "If WWV and WWVH were to close, those of us who rely on these stations as a point of reference for time, as well as propagation, navigation, astronomy, and receiver calibration, would have to find alternatives."

As technology has advanced, innumerable devices now rely on the internet and Global Positioning System (GPS) signals for timekeeping, making some see WWV as a relic of the past. However, the use of GPS and the internet for timekeeping has downsides. Unlike GPS, WWVB's low-frequency signal can reach clocks and watches inside buildings without issue. The

(Continued on next page)

ARRL News (Continued) The Heartbeat of the Short Waves (Continued)

internet already syncs with millions of devices automatically, but it's dependent on the availability of a signal. Both could fail in times of emergency, whereas WWV would still be functional.

The devices reliant on WWVB are inexpensive, don't require much power, and work without an internet connection. Witherspoon compared these options by explaining that his bedside alarm clock automatically adjusts to WWVB and only requires two AA batteries for around 2 years of functionality, while his GPS-enabled Apple Watch needs to be charged every 2 days and must have an unobstructed signal to satellites in order to work.

The Fate of WWV

Time hasn't run out for WWV just yet. WWV and its companion stations remained open throughout the 2019 fiscal year. Gail Porter, retired Director of Public Affairs for NIST, explained, "The Consolidated Appropriations Act of 2019 provided \$724.5 million for NIST's Scientific and Technical Research and Services, the budget category that funds the radio stations." More information about the legislation that funded WWV and

related stations for the 2019 fiscal year can be found at www.congress.gov/congressional-report/116th-congress/house-report/9/1?overview=closed.

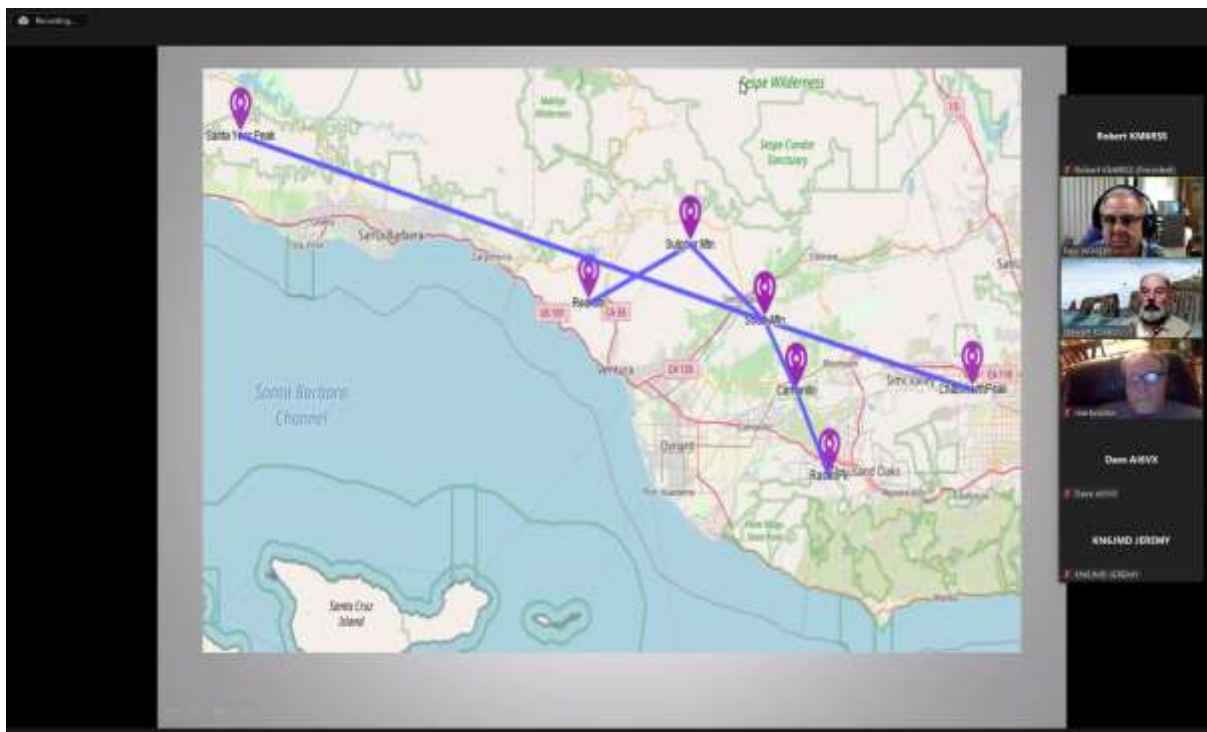
Commenting on the decision to fully fund WWV, Witherspoon said it was "possibly an indication that the radio community's voices were heard by those making budget decisions."

The Northern Colorado Amateur Radio Club (NCARC) worked with NIST to organize WWV's centennial celebration. NIST hosted a small event on October 1, 2019, while NCARC operated special event station WW0WWV on station property. After 100 years, it's clear that whatever WWV's place is in annual budgets, it will always have a place in radio history.

All photos courtesy of NIST.

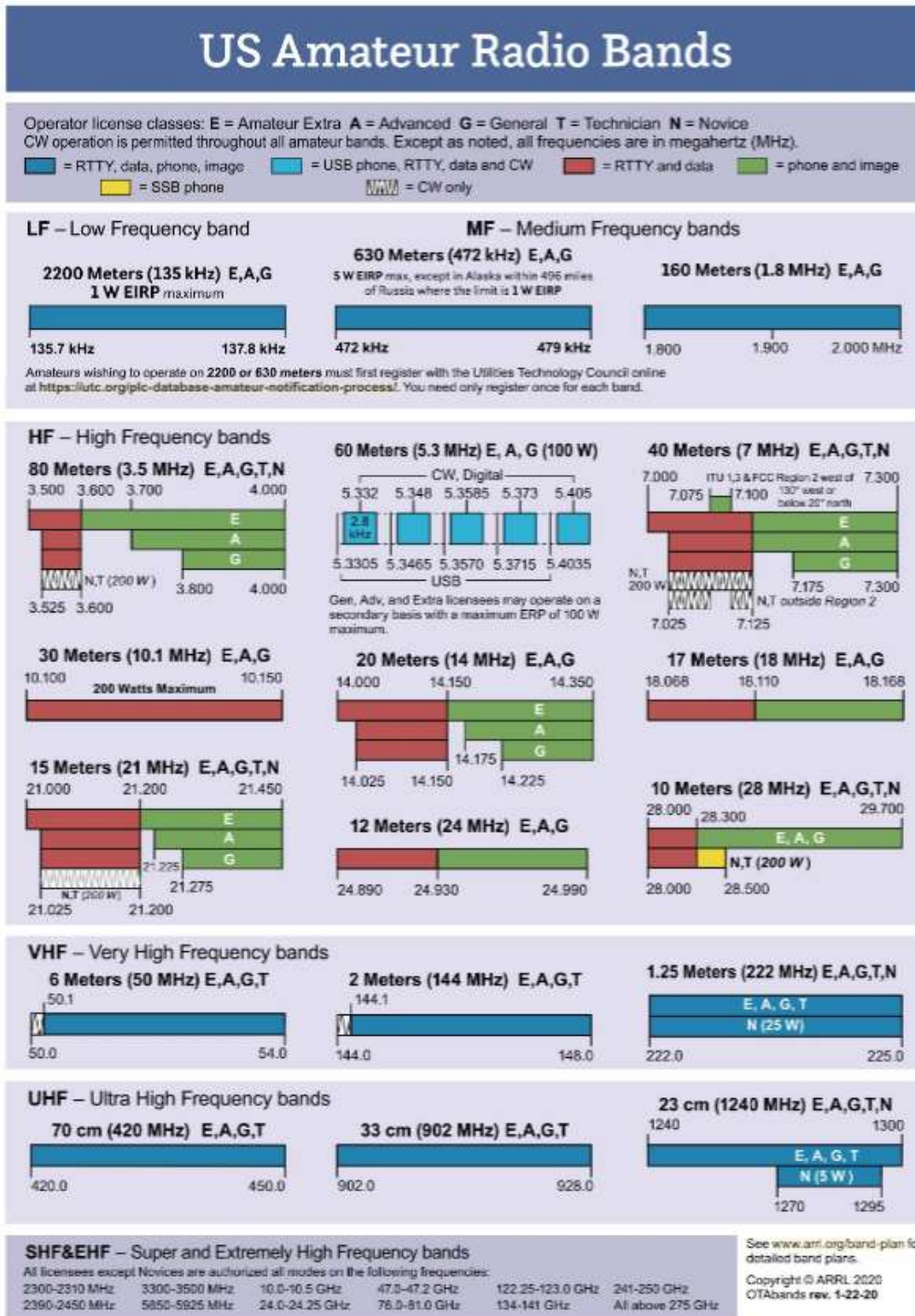
Jen Glifort, KC1KNL, is a writer and editor. She can be reached at jenglif@gmail.com.

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



Map of WD6EBY Repeater Locations and Links Presented at 02/11/22 Meeting

US Amateur Radio Bands



W1AW Schedule

W1AW Schedule

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

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

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

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

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

Code bulletins are sent at 18 WPM.

For more information, visit us at

www.arri.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).

