



The RELAY)))

FEBRUARY
2022

The Official Publication of the Arrowhead Radio Amateur Club

A.R.A.C. Inc.

P.O. Box 7164 Duluth MN 55807-7164

<http://www.thearac.org>

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The Relay Co-Editors:

Kim & Steve Waller

Kim - KEØNQS Steve - KEØNQT
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The Radiosport Explosion

Contesting Gains 21st Century Momentum

Contesting has been a great part of amateur radio since the early days of the American Radio Relay League over a hundred years ago. Leading ARRL at the time, Hiram Percy Maxim instinctively knew that formal, organized contests were exciting ways to engage enthusiastic hams across the country and grow the hobby. He was right. From the first official ARRL Field Day in 1933, amateur radio operators enthusiastically embraced “going out in the field” to set up camp and find out how many other hams they could contact. The hobby was a bold new adventure for all in those days. The thrill of building your own equipment and being able to hear other operators from any distance away lured many a young person to participate.

Contests were designed, and rules reworked, throughout the years to reflect new equipment capabilities, available frequency bands and modes. Hams eagerly adapted and engaged in the contesting flurry, with hopes that their name and top score would be published in ARRL’s *QST Magazine* or other publications.

These days, ARRL is beginning to refer to contesting more and more in the broader description, “radiosport”. The term radiosport has been around for quite awhile and technically refers to formal competition among hams in 3 activities: a. ARDF (Amateur Radio Direction Finding or “Fox Hunting”); b. DXing (making long distance, hence “DX”, exchanges with ham stations in other countries, though not necessarily confined to contest events); and c. Contesting Events (exchanging required info, as outlined in the rules of the particular contest event, with as many other amateur radio stations as possible during a specific event time period and documenting it).

In a somewhat full-circle way, remote “field operation” among young adventure-sport enthusiasts who love trekking & camping is playing a role in fueling an explosion in radiosport outdoors. One silver lining of the COVID-19 era was that people who were tired of lock-downs and being confined to digital interface, longed to get out into the fresh air and roam free. Camping, fishing, hiking, and kayaking equipment flew out of distribution warehouses into eagerly awaiting hands. So did ham radio instructional books, portable ham radios and antennas.

Some elated people shared their newly-discovered love of outdoor freedom and nature on social media. Seasoned hams shared videos too, a number of them posting helpful instructions on setting up portable amateur radio equipment for day treks and overnights. “What?”, commented one young person on a YouTube video, “You mean you can actually communicate with people without a cellphone tower?” Yep, grasshopper. Listen and learn.

Continued on Page 16



Rover Contesting at a Grand Canyon Scenic Overlook
Photo: James Duffy KK6MC



2022



Join us on
Facebook!

ARAC Board Meeting - January 4, 2022

PRESIDENT



NØVRM
Gene Ellefsen
3710 Chambersburg Ave
Duluth, MN 55811
218-390-3272
lspitech@mail.com

VICE PRESIDENT



KØDJP
David Pyrlik

david.pyrlik@gmail.com

SECRETARY



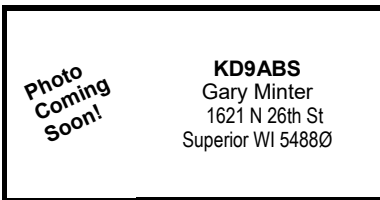
KFØGJW
Melinda Nelson

TREASURER



KNØNUL
Bruce Carlson
906 Anderson Rd
Duluth, MN 55811
763-315-2967
carlsbr@gmail.com

3RD YEAR BOARD



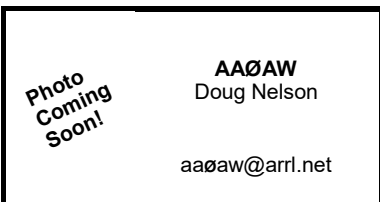
KD9ABS
Gary Minter
1621 N 26th St
Superior WI 54880

2ND YEAR BOARD



AAØAC
Dave Davis
218-348-6649
aaøac@outlook.com

1ST YEAR BOARD



AAØAW
Doug Nelson

aaøaw@arrl.net

Present:

Board Members

Gene Ellefsen-NØVRM, David Pyrlik-KØDJP, Melinda Nelson-KFØGJW, Bruce Carlson-KNØNUL, Gary Minter-KD9ABS, Dave Davis-AAØAC, Doug Nelson-AAØAW

Board Advisors (Non-Board Members)

Doug Nelson-AAØAW, David Pyrlik-KØDJP, Randy Wabik-KRØB, Kim Waller-KEØNQS, Steve Waller-KEØNQT

Guests Del Minter-KEØCLI, Robin Davis, Jon Nelson-, Rochelle Nelson

Meeting called to order by President Gene-NØVRM at 18:30 (6:30 pm)

Minutes:

Posted on the web page and in the newsletter. Moved to approve by Bruce Carlson-KNØNUL, seconded by Dave Davis-AAØAC, motion passed.

Treasurer's Report:

Checking	\$3,344.36
Savings	\$2,174.17
Repeater	\$1,700.07
Subtotal Cash	\$7,218.76

Winter CD	\$1,724.37
Summer CD	\$0.00
Subtotal CD	\$1,724.37

Assets Subtotal: \$8,949.18

Outstanding Checks:

Mahtowa Repeater	-\$1,100.00
Bob Boyd-KDØLYN Memorial	-\$1,440.00
Repeater Fund	-\$1,700.07
Reserved Funds	-\$4,240.07

Grand Total \$4,709.11

Grants received for the Repeater Upgrade:

Halvor Lines	\$250.00
Cenovis	\$1000.00
Enbridge	\$800.00 - coming soon
Lake County	\$200.00

Moved to approve by Doug Nelson-AAØAW, seconded by Gary Minter-KEØNQS, motion passed.

Continued on Page 3

ARAC Board Meeting - January 4, 2022 continued

Repeater:

Randy Wabik- KR0B gave an update on the Repeater Project:

- ◆ The repeater was ordered. They said it would come in 14 weeks, it came in 7 weeks. It is sitting on the workbench already programmed and running fine. Already ID's.
- ◆ Emailed Escome Sales and have not heard a response back on a quote.
- ◆ Amplifiers: Randy Wabik-KR0B was looking at having a separate power supply, but the only thing Randy was able to find is a 100 watt or less amplifier, anything more than that has the power supply built-in. Randy Wabik-KR0B goal is to have a 100 watt duplexer. No price yet but Randy-KR0B was researching it.
- ◆ Randy Wabik-KR0B has contacted a tower crew. They are going to give Randy Wabik-KR0B a bid about putting up a feed line at the 94 repeater. Tower crew has worked on the Channel 8's tower before so he knows where it is. Best option is for the Tower Crew to purchase the feed line because they have a truck they can bring it up on. This will be included in his bid. The earliest for this is this spring, possibly this fall.
- ◆ Randy Wabik-KR0B has not looked at antennas yet, but did talk with Randy Haglin-N0BZZ. The antenna is 525 db gain, and is 20 feet. David Pyrlik-K0DJP is going to look into prices for 2-way antennas due to him having a better source than Randy Wabik-KR0B. Going to get all numbers before purchasing. Gene Ellingsen-N0VRM thinks the antenna was last replaced in 2010.
- ◆ Mahtowa Repeater: Randy Wabik-KR0B spoke with Radny Haglin-N0BZZ about the current repeater (\$700) plug and play. Don't need a system like the 94. Randy Hanglin-N0BZZ has no problem with a new repeater plug and play system, He would use the current equipment with his system or sell it. The club is leaning more towards a plug and play system as there are less members who know how to work on them. If the current system goes down it would cost around \$250 plus parts if something were to go wrong with the repeater. Keeping the money to Mahtowa repeater fund and it would not go to Randy Hanglin-N0BZZ. Randy Hanglin-N0BZZ will still work on the repeater with the new plug and play due to him living so close to the repeater.
- ◆ Question from Gene-N0VRM: How many repeaters do we need there? Keep VHF at Mahtowa. Randy Wabik-KR0B will bring the repeater to the club meeting with it operating on a dummy load. Randy Wabik-KR0B wants to get the controller next.
- ◆ Motion to go to membership to put a Fusion up in Mahtowa - (Fusion \$700 deal through March) to get it back up as a basic repeater. Then we would have a new repeater in Mahtowa, to get this as a basic repeater until the 94 project is finished then go back down and work on Mahtowa.
- ◆ Generator needs to be looked at as well. When the power goes out then the repeater will be down. Randy Wabik-KR0B recommends getting a UPS on the power supply for power spikes that happen. Motion to buy a DR2 for Mahtowa made by Doug Nelson-AA0AW, seconded Dave Davis-AA0AC, motion passed.
- ◆ Randy Wabik-KR0B needs the basics information for the Mahtowa site.

Question - HamFest is coming quickly, what do we want to do for door/grand prizes? Last year we did \$500, and a radio that was donated by John Cook-KD0NAC. Doug Nelson-AA0AW stated that we should do the \$500 again. We do not have to buy our beverages from them.

David Pyrlik-K0DJP said we should reach out to companies with a thank you for their donations. Still waiting on 501c3 can take up to 90 days. When we receive this then we should move forward with getting more donations for Phase 3 of the 94 upgrade.

Mike Llood-N0PDG's father passed away last week. Gene Elliesgen-N0VRM will call Rolly to get a card out to Mike. Doug Nelson-AA0AW thinks there is a stipend for a father. Will need to check by-laws to see what a member will get for remembrance.

Motion to adjourn by Doug Nelson-AA0AW, seconded by Gary Minter-KE0NQS motion passed at 19:29 (7:29 pm)



ARAC Club Meeting Minutes

January 13, 2022

Present:

President - Gene Ellefson - N0VRM
Treasurer/Membership - Bruce Carlson - KN0NUL
Secretary - Melinda Nelson - KF0GJW
First Year Board - Doug Nelson - AA0AW
Second Year Board - Dave Davis - AA0AC
Third Year Board - Gary Minter - KD9ABS
Ham Fest/Education - Bob Schultz - KF0NFB
Property/Picnic - Scott Ahlgren - N0VYU
Repeater - Randy Wabik -KR0B
Testing - Doug Nelson - AA0AW
Parliamentarian - Grant Forsyth - DC0WUP

Absent:

Vice President - David Pyrlik - K0DJP
Chaplain -
Special -
Events -
Repeater - David Pyrlik - K0DJP
Newsletter/Historian - Kim Waller - KE0NQS
Newsletter - Steve Waller - KE0NQT
Web Site - Thomas Dorr - KE0RHA

Meeting called to order at 19:05 (7:05 pm) by President Gene - N0VRM.

New board of officers:

Vice President - David Pyrlik - K0DJP
Secretary - Melinda Nelson - KF0GJW
First Year Board - Doug Nelson - AA0AW
Treasurer/Membership - Bruce Carlson - KN0NUL
Second Year Board - Dave Davis - AA0AC
Third Year Board - Gary Minter - KD9ABS

Minutes:

Posted on the web page and in the newsletter. Moved to approve by Doug Nelson - AA0AW, seconded by Dave Davis - AA0AC, motion passed.

Treasurer's Report:

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Repeater - \$1,700.07

Subtotal Cash - \$7,218.76

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Assets Subtotal - \$8,949.18

Outstanding Checks:

Mahtowa Repeater - **\$1,100.00**
Bob Boyd-KD0LYN Memorial - **\$1,440.00**
Repeater Fund - **\$1,700.07**
Reserved Funds - **\$4,240.07**

Grand Total - \$4,709.11

Motion to accept as presented by Bob - KC0NFB, seconded by Grant - KC0WUP, motion passed.

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ARAC Club Meeting Minutes, continued

Repeater Fund:

The repeater fund and the memorial fund will be combined.

Grants (donations) received for the repeater upgrade:

Grandma's Marathon - \$1,500.00

Lake County - \$200.00

Senovis - \$1,000.00

Halvor Lines - \$250.00

Enbridge - \$800.00

Ham Fest - May 7, 2022 - Looking for donations for the table to sell extra tickets. Get a couple people together to split the cost to get gift cards or tools for the table. Looking for volunteers to set up tables.

Repeaters:

Randy Wabik - KR0B purchased the new Yazue repeater for the 94. After speaking with more people we have found that this repeater may not work out at the 94 site. Mathowa repeater went down and with the guidance of the board members will be putting this new Yazue repeater in Mathowa to get it up and running for now. Will go back and set it up for linking after the 94 project is complete. Randy Wabik - KR0B is looking into different repeaters for the 94.

Motioned to use the new repeater at Mahtowa and look for an amp made by Grant Forsyth - KC0WOP, seconded by Jon Nelson - N0UOZ, motion passed.

Testing:

Doug Nelson - AA0AW held a testing session 1/8/2022. Had 3 candidates. All passed. We had a technician, general, and an extra pass their tests. Nothing scheduled now. If you are ready to test please get a hold of Doug Nelson - AA0AW as AA0AW@ARRL.net. No need for a massive session.

New Ham's:

John Pouchack - KB9KDS

Dave Olson - K0WT

Wendy - New Student, national traveling nurse wants to get into the hobby.

Welcome all to the hobby!

ARAC Picnic:

Scott Ahlgren - N0VYU Mark your calendars August 7, 2022 at Chambers Grove. The club will provide hot dogs, brats, corn on the cob, chips, pop and water. Bring a dish to share as we do potluck every year. Looking forward to seeing everyone.

Door Prize was won by Thomas Thatcher - KF0RDZ

Motion to adjourn made by Jon Nelson-N0UOZ, seconded by Bruce Carlson - KN0NUL, motion passed at 19:47 (7:47 pm)



Prez Sez...

Hi all,

Coming up soon will be the ARAC Hamfest May 7th!

Last year the donations for door prizes were way down and as a result sales of door prize tickets were down. I am asking everyone to step up this year to improve the door prize offerings. A suggestion would be to buy a \$25 gift certificate from a Ham Radio Dealer like HRO or DX Engineering.

Now you don't even have to buy it yourself. How about getting one or two friends to go in on it? That way the cost is very reasonable.

Another option is a gift card from Menards, Home Depot or Fleet Farm, or if you want to purchase something for a door prize that would be great!!

Repeater Update: The Mahtowa Repeater failed last month, so we replaced it with the Yaesu DR2 Repeater that we had purchased for the 94 Repeater. We are now looking at a different option for the 94 Repeater that will be an even better performer. The Mahtowa Repeater is now up and running, however the UHF link is not operating. We are looking at ways to fix that.

73,

Gene NØVRM
President



In Memoriam

Bruce Pringle Lovold

Bruce Lovold, 83, passed away peacefully on December 29, 2021. He was residing at the Diamond Willow Lester Park facility in Duluth, MN. His sons Bruce Jr and Michael were by his side.

A lifelong resident of the North Shore, born to Reynold and Mary (Pringle) Lovold, June 5, 1938, Bruce was well known as a kind-hearted man who was always willing to lend a hand to anyone in need. Bruce was an electrician by trade and his talents and hobbies were many. He enjoyed Lake Superior boating and fishing very much. In 1969 Bruce

and his brother Renny started a part-time marine business, B & R Lovold Marine. They established a very successful dealership for Slickcraft Boats and marine accessories.

Bruce also served for years on the Silver Bay Rescue Squad, on rescue and diving operations. He enjoyed hunting with his family, wood working, snowmobiling, and spending time in the woods.

Through his life and character he was always able to share the truth of the Gospel of Christ and his reason for hope. Bruce is survived by his wife Judith E. Lovold, sons Bruce Jr. (Cynthia) Lovold, Michael (Karin) Lovold, brother Renny (Linda) Lovold, sister Mary Lovold, five grandchildren and one great-grandchild on the way, 5 nieces and nephews, great nieces and nephews, and a multitude of friends. He will be truly missed.

The Lovold Family would like to say a special "thank you" to the staff at Care Free Living in Silver Bay, for the exceptional love and care they bestowed on Bruce. And for the wonderful care he received at Diamond Willow in Lester Park. We are very grateful for you!

There will be a celebration of Bruce's life, hosted by his family, to be announced at a future date.



U.S. AIR FORCE MILITARY AUXILIARY RADIO SYSTEM

Minnesota State MARS Director
Reginald B. Cass / AFS5MN

Gene Ellefsen
NØVRM

Thank you for your time and interest.

Air Force MARS membership could be for you. We do hope that it is.

If you have the following interests, and capabilities, we are interested in recruiting you to become an Air Force MARS member. Completion of the following on line training is mandatory:

Personally, Identifiable Information (PII) <https://iatraining.disa.mil/eta/piiv2/launchPage.htm>
Cyber Awareness https://iatraining.disa.mil/eta/disa_cac2018/launchPage.htm

If you have completed: [Incident Command System](#) (ICS) -100, 200, 700, and 800 training, and have obtained certification for Air Force MARS or are willing to obtain this training, again, Air Force MARS could be for you.

You must be interested in joining a group of individuals that are dedicated to amateur radio, emergency communications, and willingness to learn and used military communications procedures for voice and digital communications.

You must have equipment that will meet the minimum requirements for voice and digital operation. The equipment will be: transmitter, receiver, (transceiver) modified to operate out of amateur radio bands, computer, modem, and antenna's that are designed to operate on military assigned frequencies. (The best antennas will be a dipole cut to the operational frequency. NVIS antennas work best. You will not need a linear amplifier, however if you have one that will operate on out of amateur radio bands that will be a plus)

You must go through and complete training. You are allowed up to 180 days to do so.

Air Force MARS operation's and procedures are based upon "MARS Operating Instruction", (MOI). The MOI manual uses as its basis for instruction a series of Allied Communications Publications (ACP's), Department of Defense Directives, Department of Defense Instructions, and Department of Defense Manual.

If you already belong to a MARS program and would like to consider Air Force MARS, please contact one of the recruiting team members.

Our recruitment team is as follows:

AFA5XK Dave, WB7DRU wb7dru@gmail.com

AFA5ZV Randy, KRØB afa5zv@gmail.com

AFA5JY Reg, KAØRJY reg_cass@msn.com

CW Abbreviations

AR End of Message	AS Pse QRX	BK Back to You	SK End of Contact
TU Thank You	PSE Please	K Invite to Transmit	
QST Calling all Amateurs	QRL Are You Busy?	QRU Have anything for me	
QRV Are You Ready?	QRX Standby	QRS Transit Slower	

A	●■■■	M	■■■■■	Y	■■■■●■■■
B	■■■■●	N	■■■●	Z	■■■■●●
C	■■■■●●	O	■■■■■	1	●■■■■■
D	■■■■●	P	■■■■●●	2	●●■■■■■
E	●	Q	■■■■■●	3	●●●■■■■■
F	●●■■■	R	■■■■●	4	●●●●■■■
G	■■■■●	S	●●●	5	●●●●●
H	●●●●	T	■■■	6	■■■■●●●
I	●●	U	●●■■■	7	●●●●●●
J	■■■■■●	V	●●●■■■	8	■■■■●●●●
K	■■■■●	W	■■■■●●	9	■■■■●●●●
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US Amateur Radio Bands

US AMATEUR POWER LIMITS

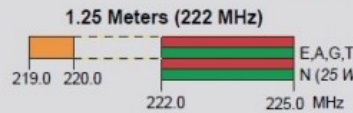
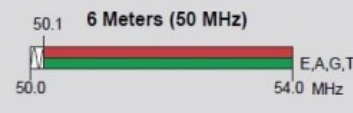
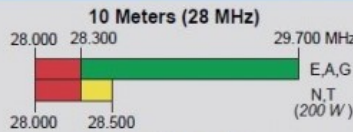
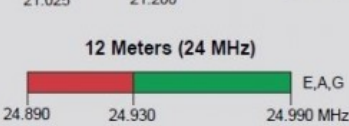
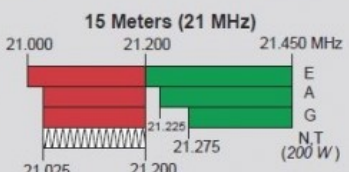
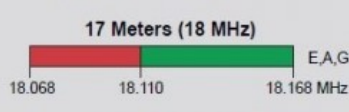
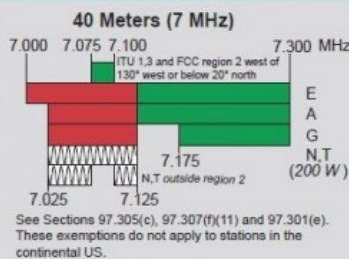
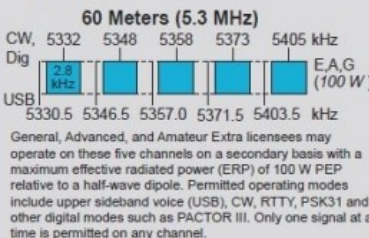
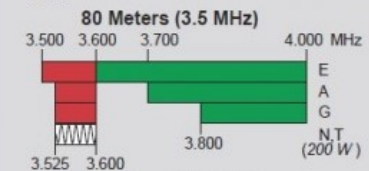
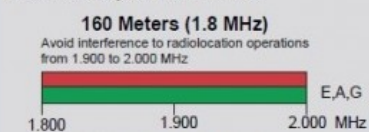
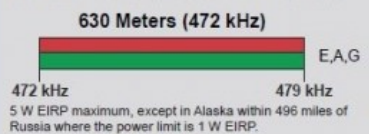
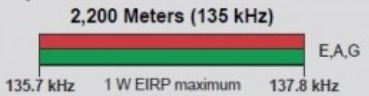
FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

Effective Date for
2,200 and 630 Meters
to be announced

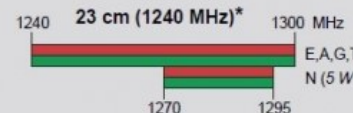
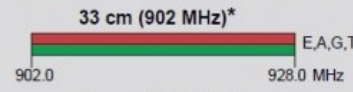
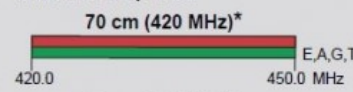


ARRL The national association for AMATEUR RADIO®

On March 28, 2017, the Federal Communications Commission adopted rules that will allow Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters). However, amateurs cannot use these frequencies until 30 days after the Report and Order is published in the Federal Register and the final procedures for registering stations with the Utilities Telecom Council (UTC) have been approved and announced. At the time this chart was created, the Report and Order had not been published and the UTC online registration site is not yet available. Follow ARRL news for further information. New charts will be published at www.arrl.org/graphical-frequency-allocations when the bands are fully available for use.



*Geographical and power restrictions may apply to all bands above 420 MHz. See *The ARRL Operating Manual* for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz ‡	122.25-123.0 GHz
2390-2450 MHz	24.0-24.25 GHz	134-141 GHz
3300-3500 MHz	47.0-47.2 GHz	241-250 GHz
5650-5925 MHz	76.0-81.0 GHz	All above 275 GHz

‡ No pulse emissions

KEY

Note:
CW operation is permitted throughout all amateur bands.
MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.
Test transmissions are authorized above 51 MHz, except for 219-220 MHz

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = USB phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

See ARRLWeb at www.arrl.org for detailed band plans.

ARRL
We're At Your Service

ARRL Headquarters:
860-594-0200 (Fax 860-594-0259)
email: hq@arrl.org

Publication Orders:
www.arrl.org/shop
Toll-Free 1-888-277-5289 (860-594-0355)
email: orders@arrl.org

Membership/Circulation Desk:
www.arrl.org/membership
Toll-Free 1-888-277-5289 (860-594-0338)
email: membership@arrl.org

Getting Started in Amateur Radio:
Toll-Free 1-800-326-3942 (860-594-0355)
email: news@arrl.org

Exams: 860-594-0300 email: vec@arrl.org



Have a favorite HF/6m/2m/1.25m/70cm net that you check into or listen in on? Also, please send corrections and we will add it to the list below - Kim KEØNQS at my email KEØNQS.mn@gmail.com.

- **Northland Weather Group Net:** Mondays 2000 on the ARAC repeater (146.940 MHz with a tone of 103.5 and standard offset).
- **Minnesota D-Star Net:** Sundays at 19:30 on Reflector 53A
- **Minnesota Section Net** 1200 and 1730 on 3.860 [Net Manager: NØYR] http://www.mn-section.org/dept_stm.html
- The non-non-net: Evenings 2000 144.200 USB except for Sunday evenings.
- Badger WX Net: 0500-0715 on 3.985. Give 24 hour high/low/current temperature, precipitation and snowfall.
- **PICONET:** 3.925 from 0900-1100 CT Mon-Sat and 1600-1700 CT Mon-Fri. Info at: <http://www.piconet3925.com>
- Michigan Upper Peninsula Net: 1600 (CST) on 3.921 MHz Sun-Sat and 1200 Sun. Info: <http://www.michupnet.com>
- Great Lakes Marine/Maritime Mobile Net: Morning 07:30 - 3.932; 08:15 - 7.261 MHz and evening 18:30 - 3.1730927; 19:15 - 7.268 MHz. Weekend extra net: 10:00 - 7.261/7.268 MHz. All CST, LSB and +/- QRM. See: <http://www.sailblogs.com/member/glimmnet/>
- MIDCARS: 07:30-13:00 - 7.258 MHz. See: <http://www.midcars.net>
- Iowa snowbird net on 14.257MHz, M-W-F at 10:00 am Local Time. This is an open net.
- Spider Web Net (Marco Island FL) on 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Maritime Mobile Service Network: Daily at 1100—2100 Central on 14.300. <http://mmsn.org> and <http://www.14300.net>
- RV Radio Network: Every day at 1900 Central on 7.265 MHz. Web site: <http://www.rvradionetwork.com>
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.480 MHz USB
- Wisconsin Sideband Net: Daily @ 5:15 PM – 3985 [or 3982.5] KHz LSB
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.480 MHz USB
- Hobby Helpers Net - Tuesday @ 8 PM – 28.330 MHz USB (Isanti MN) LSB [Net Manager: WOØA].
- Northstar Trader Net: 3.908 +/- at 0830 CST Sundays
- WARFA: 3.908 +/- Sun/Tue/Thu nights at 2200 CST, <http://warfa.org/>
- Youth Net: 14.320-14330 Sundays 1800-1900 UTC, Net Control: AC8PI
- YACHT: Saturdays 1900 CST on EchoLink #481872, <http://yachthams.webstarts.com>
- Northwestern Ontario ARES Net: Evenings at 20:15 (Central) on +/- 3.750Mhz
- The Iron Range Net: Saturdays at 0800 Central time on or near 3.919 Mhz. Look them up on Facebook!
- FORX Net: Mondays at 1900 Central at 3.941 Mhz +/- QRM. WAØJXT — Grand Forks, North Dakota
- HF CW: Fridays 08:00 CST, 7.112 MHz. Informal slow speed CW Net. W8IRT NCS. Email: w8irt@aol.com
- Minnesota ARES Digital Net: Thursdays at 2000 CST, 3.5835 MHz USB +/- QRM, Mode: Olivia 8/500.
- SARA Digital Net: Sundays at 1900 Local, 3.582.150 MHz USB +/- QRM, Mode: BPSK31/BPSK63
- Spider Web Net (Marco Island FL): 14.347 every morning at 0730 CST/CDT: <http://www.spiderwebnet.net>
- Broadcaster Net: 7.231 or 3.855 M/W/F @ 1500 UTC. 14.255 M-F @ 2130 UTC. <http://www.cbsretirees.com/ham.htm>
- Old Military Radio Net: 7.268 +/- nightly at 0200z. Other times/Frequencies too. See: <http://www.mrca.ar88.net/>
- Rag Chew Crew/Tailgaters/Freewheelers Nets: 3.916 +/- nightly at 1900 CST, <http://www.tailgatersnet.com>
- North South Net: 7.214.6 +/- at 0700 CST, Monday-Saturday



Next ARAC Board Meeting

Tuesday, February 1, 2022

@ 6:30 p.m.

Sammy's Pizza

Next ARAC Club Meeting

Thursday, February 10th
7 p.m.

Coppertop Church!

February 10th Presentation:

To Be Determined

Interested in providing a program,
or have an idea for one?

Contact us at
ke0nqs.mn@gmail.com



Looking
for an
Amateur Radio License
Testing Session?

No need to wait for a class or Hamfest!

**Schedule your own
Testing Session TODAY!**

Contact Doug Nelson-AA0AW at
aa0aw@arrl.net or 218-391-5874



A Look Back in History

What we now informally call "Presidents Day", originated in the 1879 as a Federal holiday honoring our nation's first president, George Washington. The holiday was officially signed into law observing George Washington's birthday, on February 22nd as a national holiday in the District of Columbia by President Rutherford B. Hayes. In 1885, the Federal holiday was expanded to the entire country. The United States then consisted of only 38 states. Minnesota was one of the 38, having entered statehood on May 11, 1858, but some U.S. territories had land that would be formed into future states. Yet to come into statehood were:

- North Dakota, Nov. 2, 1889
- South Dakota, Nov. 2, 1889
- Montana, Nov. 8, 1889
- Washington, Nov. 11, 1889
- Idaho, July 3, 1890
- Wyoming, July 10, 1890
- Utah, Jan. 4, 1896
- Oklahoma, Nov. 16, 1907
- New Mexico, Jan. 6, 1912
- Arizona, Feb. 14, 1912
- Alaska, Jan. 3, 1959
- Hawaii, Aug. 21, 1959

In 1968 Congress voted into law the Uniform Monday Holiday Act, which aimed to place most Federally observed holidays on Mondays to give federal workers a consistent long weekend whenever possible. The law took effect in 1971 and George Washington's birthday was switched as a Federally observed holiday to the third Monday every February. An additional measure suggested that Abraham Lincoln's birthday on February 12th be recognized as a national holiday and then combined into the third Monday of February that already celebrated Washington's birthday, renaming it Presidents Day.

Actually, the last proposed measure, adding Lincoln & officially calling it "Presidents Day" was never voted into law! Nevertheless, people unofficially call it Presidents Day anyway, and honor Lincoln alongside Washington on February's third Monday.

Duluth Area Repeaters



ARAC System WØGKP

Freq. Offset Tone Location

146.940	minus	103.5	Duluth
146.940	minus	107.2	Lakeside (rcv)
146.940	minus	151.4	Two Harbors (rcv)
146.940	minus	100.0	Gary-New Duluth (rcv)
146.940	minus	123.0	Solway (rcv)
146.940	minus	110.9	Cloquet (rcv)
147.000	minus	103.5	Mahtowa
444.100	plus	103.5	Duluth UHF Link

N9MMU/N9QWH System (WI)

145.310	minus	110.9	Duluth
145.490	minus	110.9	Solon Springs
147.255	plus	110.9	Hayward
145.110	minus	110.9	Rice Lake
147.345	minus	136.5	Holcombe
145.230	minus	110.9	Eau Claire

WECOMM – WI Statewide Linked System WE9COM

147.075 plus 110.9 Meteor Hill (closest repeater to Duluth)

LSAC System #1

147.330	plus	151.4	Proctor
147.330	plus	103.5	Duluth (rcv for Proctor)
147.330	plus	156.7	Duluth (North) (Fish Lake)
147.270	plus	114.8	Two Harbors
147.270	plus	103.5	Wales
147.090	plus	114.8	Silver Bay
145.410	minus	114.8	Finland
147.300	plus	114.8	Isabella
145.150	minus	103.5	Washburn, WI
146.700	minus	103.5	Bayfield, WI
443.850	+5.00	none	Bayfield, WI
147.165	plus	110.9	Hurley, WI
146.640	minus	151.4	Ely
443.500	+5.00	141.3	Gilbert
147.060	plus	103.5	Virginia
147.360	plus	162.2	Cook
147.165	plus	114.8	Coleraine
443.925	+5.00	110.9	Brainerd
443.200	+5.00	114.8	Tamarack
147.360	plus	203.5	Aitkin
146.865	minus	146.2	Giese
147.570	simplex	146.2	Hinckley
444.575	+5.00	146.2	Hinckley
443.325	+5.00	146.2	Isanti

NARC System NAØRC

145.45Ø	minus	1Ø3.5	Solway Twp
145.45Ø	minus	114.8	Park Point (rcv)
147.135	plus	114.8	Park Point (rcv)
147.135	plus	1Ø3.5	Knife River

Stand Alone Repeaters

145.21Ø	minus	11Ø.9	Clam Lake, WI
146.88Ø	minus	123.Ø	Grand Rapids
146.91Ø	minus	146.2	Duxbury, MN

Fusion and D Star

Fusion (Analog has tone and C4FM digital with no tone)

147.15Ø	plus	151.4	NTØB Gilbert Fusion Rptr
145.17Ø	minus	11Ø.9	WA9KLM Superior –
Douglas County RACES/ARES Fusion Repeater			
443.1ØØ	+5.ØØ	1Ø3.5	KBØYHX Cloquet –
Carlton County RACES/ARES Fusion Repeater			
444.3ØØ	+5.ØØ	1Ø3.5	NØEO Spirit Valley Amateurs Fusion
Repeater WIRES-X NØEO (Analog only) Fusion Room 40494			
147.375	plus		NØEO D Star
442.2ØØ	plus		NØEO D Star

Repeater list compiled by Dr. Frequency—KCØWDQ

ST. Louis County Department of Emergency Services Net Control Roster

N9DMG	Scott Swanson	NØVRM	Gene Ellefsen
AAØAW	Doug Nelson	KCØWDQ	Paul Dallavia
WØNWO	Dave Miller	WØDIO	Dennis Anderson
KØDSL	Diane Saunders	AAØME	Randy Johnson

*Sunday Nights at 21ØØ on the ARAC System
(See Calendar for net control schedule)*

Ten Meter SSB Net Control Roster

AAØAW	Doug Nelson	WØLWU	Joe Meese
NUØW	Gary Hanson	K9KDK	Al Babcock
WØDIO	Dennis Anderson	NØVRM	Gene Ellefsen
AAØME	Randy Johnson	KØDSL	Diane Saunders

Sunday Nights at 2ØØØ on 28.45Ø MHz USB

Ten Meter CW Net Control Roster

AAØAW	Doug Nelson	NØPDG	Mike Lovold
--------------	--------------------	--------------	--------------------

Sunday Nights at 193Ø on 28.125 MHz

Northland Weather Group Net Control Roster

KCØMKS **Jeff Nast**

Monday Nights at 2ØØØ on the ARAC System

Douglas County Net

Tuesday Nights at 2ØØØ on 145.49Ø (N9QWH System)

Central Carlton County Net

Tuesday Nights at 2Ø3Ø on the ARAC System

Lake County RACES/ARES Net

2nd & 4th Wednesday Nights at 19ØØ on the LSAC 1 System

Elmers

El-mer / el-mær/ [el-mer]

1. a male given name: from Old English words meaning "noble" and "famous."
2. an adhesive used to bond like or unlike materials
3. An experienced ham radio operator who mentors new and prospective hams.

<u>Name</u>	<u>Call</u>	<u>Expertise</u>
Jeff Nast	KCØMKS	APRS, EchoLink, WinLink, Fusion, Contesting
Bob Schulz	KCØNFB	Contesting
Jim Anderson	NØJWA	QsoNet
Doug Nelson	AAØAW	HF, VHF/UHF, Contesting, Packet, APRS, Morse Code, VE testing, Echolink, Allstar, EmCom...

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Members, please check your name and email address for accuracy. If you are not on this list and want to be on the list, contact us with your info. If you need to make a change, please let us know at KEØNQS.mn@gmail.com Or KEØNQT@gmail.com

Co-Editors,



Contact Kim or Steve Waller to include your name in this listing!

SUNDAY NIGHT NETS
 1930 - CW - 28.125 MHz USB-CW
 2000 - USB 28.450 MHz
 2100 - Southern St. Louis County
 Emergency Services Net
MONDAY NIGHT NETS
 2000 - Northland WX Net - ARAC Repeater

FEBRUARY

CLUB EVENTS

TUESDAY NIGHT NETS
 2000 - Douglas Cty 145.490 MHz
 2030 - Central Carlton County
WEDNESDAY NIGHT NETS
 1900 - Lake County - LSAC1
 2nd & 4th Wednesdays
 2100 - BWAR

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 ARAC BOARD MEETING Sammy's Pizza 6:30 pm DC Net 2000 CC Net 2030	2 Ground Hog Day	3	4	5
6 CW 1930 AA0AW USB 2000 K9KDK ES 2100 N9DMG	7 WX 2000 KC0MKS	8 DC Net 2000 CC Net 2030	9 Lake County ARES/RACES Meeting 1800 Lake County Net 1900 2100 - BWAR	 10 ARAC Club Meeting Coppertop Church 7:00 PM	11	12 16th U.S. President Abraham Lincoln's Birthday
13 CW 1930 N0PDG USB 2000 -TBD ES 2100 AA0AW	 14 Valentine's Day DC ARES/ RACES Mtg 1900 DC EOC WX 2000 KC0MKS	15 DC Net 2000 CC Net 2030	16 St. Louis County ARES/ RACES Mtg 1630 Pike Lake EOC 2100 - BWAR	17	18	19
20 CW 1930 AA0AW USB 2000 N0VRM ES 2100 KC0WDQ	21 "Presidents Day" George Washington Federal Holiday WX 2000 KC0MKS	22 1st U.S. President George Washington's Birthday DC Net 2000 CC Net 2030	23 Lake County Net 1900 2100 - BWAR	24 Carlton County ARES/RACES Meeting 1900 CC EOC	25	26 ARAC Club Breakfast The Chalet 4833 Miller Trunk Hwy Hermantown, MN 8 am
27 CW 1930 N0PDG USB 2000 N0PDG ES 2100 W0NWO	28 WX 2000 KC0MKS					

Get this newsletter *faster*
via email!
Email Doug AAØAW at
aa0aw@arrl.net

Next Meeting: Thursday,
January 13th, 2022 - 7 pm
at the Coppertop Church!

ARAC Committee Chairs



Club License Trustee:

Ray Barnes KEØZN

Control Operators:

AAØAW - NØKXT - KCØNFB

Newsletter/Historian:

Kim KEØNQS & Steve KEØNQT
Waller

Education Chair:

Bob Schulz KCØNFB

Hamfest Chair:

Bob Schulz KCØNFB

Chaplains:

Visiting Chaplain:

Denny Anderson WØDIO

Parliamentarian:

Grant Forsyth KCØWUP

Website:

Thomas Dorr KEØRHA

Membership:

Bruce Carlson KEØNIT

Property Chair:

Wulf Gar WU1FGR

Testing:

Doug Nelson AAØAW

Field Day:

Dennis Anderson WØDIO

Picnic Chair:

Scott Ahlgren, NØVYU

Repeater Chairs:

Randy Haglin NØBZZ
Randy Wabik KAØJZV

Contest Calendar at www.contestcalendar.com

National Contest Journal at www.ncjweb.com

QSO Party Note: State/Province/National QSO Parties are abbreviated with the 2 or 3 letter abbreviation for the state/province/national designation followed by QP for QSO Party:

Examples: Minnesota QSO Party is MNQP
British Columbia QSO Party = BCQP

QRZ web site at www.qrz.com

VHF Propagation site at www.aprs.mountainlake.k12.mn.us

Reminder: The Contest Corral monthly listing of contests can be found in each issue of QST. ARRL sponsored contests can be found in Contest Corral, highlighted, or on the ARRL's web site at arrl.org.

FOR SALE



**For Sale:
Four sections Rohn 25G tower,
plus one top section.**

**Included are mast and home-
brew gin pole. \$500.**

**Located in Warba, can be deliv-
ered to Duluth area for \$50.**

**Contact Jeff Bodin, WA0VOM
at jdbodin@gmail.com**

Denny Burt KB0SPA has a close friend—Lynn Johnson KB9PFF of Siren, WI—who became a Silent Key. KB9PFF's radio equipment is now located in Barnum at the house of KB0SPA. Denny has difficulty hearing phone calls, so those interested in the following items, please send texts to KB0SPA at [218-341-4033](tel:218-341-4033)

1. Lafayette swr signal strength meter. 30.00
2. Radio shack htx 242, 2 meter mobile 50.00
3. Icom 2000 2 meter mobile.65.00
4. Icom 2100 2 meter mobile 65.00
5. Kenwood ts-480 hf 200 watt radio 550.00
6. Palomar dx-100 hf mobile amp 3-30 MHz 50.00
7. mirage 35 watt 2 meter mobile amp FM only 30.00
8. Mfj 259 antenna analyzer 150.00
9. Uniden bc60lt handheld scanner 20.00
10. Kenwood HT-22at 60.00
11. Mfj RF line insulator 25.00
12. 2 tv antenna rotors 40.00 each
13. 2 vintage regency crystal scanners 10.00 each
14. Homemade 80 meter antenna 30.00
15. 1/4 inch guy wire 80 feet. 20.00
16. Stud finder 3.00
17. Straight line Lazer tape 5.00
18. 2 realistic speakers 5.00
19. Homemade 2 meter beam 5.00
20. Yaesu hf 757 gx Radio 200.00

List Your **FOR SALE** items in the next ARAC Relay! Submit photos and descriptions to ke0nqs.mn@gmail.com

Radiosport, continued from page 1

Though ARRL struggled to adapt to new license testing protocols during a pandemic, they figured out how to get it done in various ways and got through it. Those young adventure-sport enthusiasts who were bitten by the “field” ham radio bug returned home and explored even more aspects of their new hobby right from their very home, with an uptick in radiosport participation in UHF, VHF and digital contest events.



Photo: OutdoorEmpire.com, Ham Radio 101

Outdoor lifestyle magazine *Outdoor Empire* picked up on the trend and recently published an article online for young outdoor adventurers called *Ham Radio 101: 3 Types of Ham Radios and Licenses Explained!* (<https://outdoorempire.com/ham-radio-101>) In it, writer Andrew Jackson gives a great primer for ham radio newbies with clear, concise explanations of equipment types, band types and licenses. Outdoor Empire reports on interesting outdoor topics and thoroughly reviews adventure lifestyle equipment for consumers. Their stated mission is “to guide outdoorsmen to confidently select the best gear, improve their skills, and enjoy nature responsibly”.

But young, newly-licensed hams aren’t the only reason for the radiosport increase. Clubs around the country are reporting in-

creased engagement in contesting events in the past couple of years among amateur radio stations that have been licensed for many years.

Whether you do one contest event a year or a contest every week, they all boil down to the goal of getting on the air, getting as many contacts as you can with the other people in the contest and logging it. Try a variety of contests to see which ones you enjoy the most. Of course, there are several different contesting types (and within them, a bunch of different contests) to choose from. This is not an exhaustive list, but here are just a few examples:

ARRL Field Day

The mission of Field Day is to operate under “field” conditions, and this is done when a group hams registers as one call sign and get together to work the competition as a team. ARRL maintains this event is not actually a contest, and rather a “field exercise”, but you know...

CWops Test

CWops Tests or CWT, are 60-minutes in duration and held on Wednesday and Thursday every week. There are now four events each week, at times that favor different geographic areas. Everyone is welcome – you don’t have to be a CWops member to join the fun. CWTs are a good opportunity to meet other CW fans who may be interested in CWops membership. Six bands are used – 10, 15, 20, 40, 80 and 160m. Purpose: To meet and greet and show activity on the bands. It’s a good public relations opportunity for CWops for those who haven’t heard of them yet. It’s also an opportunity for interested non-members to garner the required nominations for membership. Visit the [CW Operators Club](https://cwops.org/cwops-tests/) website at <https://cwops.org/cwops-tests/> for more information.

CW OPEN (CWO)

This annual event is sponsored by [The CW Operators Club](#), and held on the first Saturday in September. The Object of this contest is to work as many CW stations worldwide as possible within each session. There are three separate competitions at three separate times — each is called a “session.” Each station may be worked once per band in each session. Entry can be made to any or all of the sessions. Each session is scored separately. Entry into multiple sessions will be added together for a combined score in a separate, additional aspect to this event.

SST (Slow Speed Test)

Now here’s a toe-in-the-water of contesting! This slow speed CW one hour “contest”, is run by K1USN Radio Club in Massachusetts (get info at www.k1usn.com). SST is for those who prefer a more leisurely CW pace or are new CW operators or contesters. Max speed is 20 wpm!!! This is a great way to get into CW contesting for the first time or “shake off the cobwebs” for operators that haven’t done CW in awhile.

Continued on Page 17

Radiosport, continued from page 16

ARRL's Straight Key Night

A close cousin to the SST, The objective of this 24-hour event is not a contest; rather it is a day dedicated to celebrating our CW heritage. Participants are encouraged to get on the air and simply make enjoyable, conversational CW QSOs. The use of straight keys or bugs to send CW is preferred. There are no points scored and all who participate are winners.

HF & VHF Contests in General

There are a variety of these to be found on contest calendars. HF contests use one or more of the following: 160 meter, 80 meter, 40 meter, 20 meter, 15 meter and 10 meter bands. VHF contests use all the amateur radio bands above 50 MHz. Some contests permit activity on all HF or all VHF bands, and may offer points for contacts and multipliers on each band, so read contest rules carefully. Other contests might permit activity on all bands, but only allow stations to make one contact with each station, no regardless of the band. Alternatively the contest may limit the multipliers to once per contest, instead of once per band.

Roving Contests

This genre of VHF contests focuses on rigging your vehicle with more than your average mobile radio and antenna and roving around a region or the country across states. Kyle DeHaas KA5D has an absolutely excellent video called *Introduction to Amateur Radio VHF Contest Roving* at this address: <https://youtu.be/cSxtqxHaD8g> At just under 10 minutes long, his video is packed with insightful tips for the new or seasoned contest Rover.

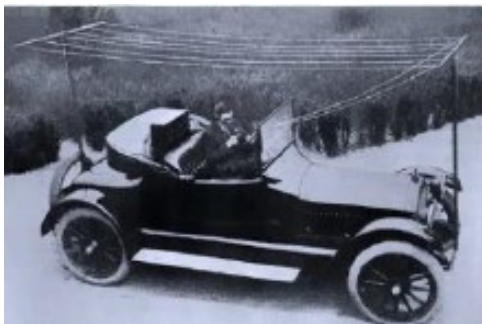


Photo of an early Rover vehicle from KA5D's video

KA5D describe his rover equipment set-up



KA5D roving with a friend

RTTY Roundup

Amateurs worldwide contact and exchange QSO information with other amateurs using digital modes (Baudot RTTY, PSK, FT8/FT4, ASCII, AMTOR, and Packet—attended operation only) on 80, 40, 20, 15, and 10 meter bands. Any station may work any other station. Stations may be worked once per band, regardless of mode. Automated operation is not permitted, each claimed contact must include contemporaneous direct initiation by the operator on both sides of the contact.

DXing Contests

DX means “distance” in ham shorthand and the object of a DXing contest is to make contact with stations in as many countries outside your country as possible. There are around 300 official country or land mass “entities” that DXing contesters can log. Some are not countries, but simply separate large land masses such as Alaska, and they count on your “country” score. ARRL also has a DX Century Club certificate that you can earn by confirming contact with 100 countries. After that, you can earn additional stickers of merit to add to your certificate when you reach higher numbers of out-of-country contacts.

North American QSO Party

As the National Contest Journal says, “North American QSO Parties are favorites of beginners and seasoned operators alike. [These contests] are low-power only (no amplifiers allowed), which makes for a lot more breathing room on the bands. Small stations can generate very effective “runs” in these contests. Multipliers count once per band, which makes for an exciting formate, as multipliers can be “moved” from band to band. The NAQP allows stations from all parts of North America to be in the running for the top spots. The 12 hour format allows participants to do some great contesting, yet still have time for other activities during the weekend. Participants can enter in the single or multi-op categories and also have the opportunity to combine up to five separate single op scores into a team score”. Get all the rules, dates and forms for the North American QSO Parties at <https://ncjweb.com/>

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RadioSport, continued from page 17

State QSO Parties

This is a contest event during which you contact a many stations as possible in a state or group of states. Credit is given as “multipliers” to work as many counties in the state as you can. This lends itself to many stations operating mobile so that they can drive around the state and involve as many counties as possible. For a good listing of State & Province QSO Parties, go to <https://qsoparty.eqth.net/index.html> to see an alphabetical listing.

AWARD Certificates

The most popular ARRL award is the **Worked All States Award**. Thousands upon thousands of awards have been issued to hams around the world. In ARRL’s 101st year, they have redesigned the certificates and the program in hopes of streamlining and improving the award program. The WAS program has many options which are listed at www.arrl.org under the WAS

ARRL has a variety of Award Certificates for many types of amateur radio contests. Here are just a few certificate images posted online by various hams:



Contests exist for amateur radio operators of all modes, so there’s something for everyone’s comfort and interest level. If you haven’t contested in awhile, or ever, think about trying one new contest in the near future to get your feet wet. We’ve barely talked about all the contest types and specific contests, so look at our contest calendar on page 19 to see what’s happening this month. Plus, check with other hams here and on the internet to see what contests they like. As always, we’ve love to hear your thoughts on your favorite contests or other aspects of our hobby. Send us a write-up of your experience at ke0nqs.mn@gmail.com and we’ll publish it in an upcoming issue of The Relay! ★



Contest Calendar - February 2022

+ Worldwide Sideband Activity Contest	0100Z-0159Z, Feb 1
+ QCX Challenge	0300Z-0400Z, Feb 1
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 1
+ QRP Fox Hunt	0200Z-0330Z, Feb 2
+ Phone Weekly Test	0230Z-0300Z, Feb 2
+ A1Club AWT	1200Z-1300Z, Feb 2
+ CWops Test	1300Z-1400Z, Feb 2
+ Mini-Test 40	1700Z-1759Z, Feb 2
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Feb 2
+ Mini-Test 80	1800Z-1859Z, Feb 2
+ CWops Test	1900Z-2000Z, Feb 2
+ UKEICC 80m Contest	2000Z-2100Z, Feb 2
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Feb 3 and 0200Z-0300Z, Feb 4
+ CWops Test	0300Z-0400Z, Feb 3
+ CWops Test	0700Z-0800Z, Feb 3
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 3
	1800Z-1900Z, Feb 3 (CW) and 1900Z-2000Z, Feb 3 (SSB) and 2000Z-2100Z, Feb 3 (FM) and 2100Z-2200Z, Feb 3 (Dig)
+ NRAU 10m Activity Contest	1900Z-2000Z, Feb 3
	2000Z-2200Z, Feb 3
+ EACW Meeting	0145Z-0215Z, Feb 4
+ SKCC Sprint Europe	0200Z-0330Z, Feb 4
+ NCCC RTTY Sprint	0230Z-0300Z, Feb 4
+ QRP Fox Hunt	2000Z-2100Z, Feb 4
+ NCCC Sprint Ladder	0000Z, Feb 5 to 2400Z, Feb 6
+ K1USN Slow Speed Test	0001Z, Feb 5 to 2359Z, Feb 6
+ Vermont QSO Party	0600Z-1800Z, Feb 5
+ 10-10 Int. Winter Contest, SSB	1200Z, Feb 5 to 1200Z, Feb 6
+ EurAsia HF Championship	1200Z, Feb 5 to 2359Z, Feb 6
+ F9AA Cup, CW	
+ Mexico RTTY International Contest	

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Contest Calendar - February 2022, Continued

+ FYBO Winter QRP Sprint	1400Z-2400Z, Feb 5
+ Minnesota QSO Party	1400Z-2400Z, Feb 5
+ FISTS Saturday Sprint	1600Z-1800Z, Feb 5
+ British Columbia QSO Party	1600Z, Feb 5 to 0359Z, Feb 6 and 1600Z-2359Z, Feb 6
+ AGCW Straight Key Party	1600Z-1900Z, Feb 5
+ European Union DX Contest	1800Z, Feb 5 to 1800Z, Feb 6
+ North American Sprint, CW	2300Z, Feb 5 to 0300Z, Feb 6
+ Classic Exchange, CW	1400Z, Feb 6 to 0800Z, Feb 7 and 1400Z, Feb 8 to 0800Z, Feb 9
+ K1USN Slow Speed Test	0000Z-0100Z, Feb 7
+ OK1WC Memorial	1630Z-1729Z, Feb 7
+ RSGB 80m Club Championship, SSB	2000Z-2130Z, Feb 7
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Feb 8
+ ARS Spartan Sprint	0200Z-0400Z, Feb 8
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 8
+ NAQCC CW Sprint	0130Z-0330Z, Feb 9
+ QRP Fox Hunt	0200Z-0330Z, Feb 9
+ Phone Weekly Test	0230Z-0300Z, Feb 9
+ A1Club AWT	1200Z-1300Z, Feb 9
+ CWops Test	1300Z-1400Z, Feb 9
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Feb 9
+ Mini-Test 40	1700Z-1759Z, Feb 9
+ Mini-Test 80	1800Z-1859Z, Feb 9
+ CWops Test	1900Z-2000Z, Feb 9
+ CWops Test	0300Z-0400Z, Feb 10
+ CWops Test	0700Z-0800Z, Feb 10
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 10
+ EACW Meeting	1900Z-2000Z, Feb 10
+ NCCC RTTY Sprint	0145Z-0215Z, Feb 11
+ QRP Fox Hunt	0200Z-0330Z, Feb 11
+ NCCC Sprint Ladder	0230Z-0300Z, Feb 11
+ K1USN Slow Speed Test	2000Z-2100Z, Feb 11

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Contest Calendar - February 2022, Continued

+ CQ WW RTTY WPX Contest	0000Z, Feb 12 to 2359Z, Feb 13
+ SARL Field Day Contest	1000Z, Feb 12 to 1000Z, Feb 13
+ Asia-Pacific Spring Sprint, CW	1100Z-1300Z, Feb 12
+ KCJ Topband Contest	1200Z, Feb 12 to 2359Z, Feb 13
+ Dutch PACC Contest	1200Z, Feb 12 to 1200Z, Feb 13
+ SKCC Weekend Sprintathon	1200Z, Feb 12 to 2400Z, Feb 13
+ YLRL YL-OM Contest	1400Z, Feb 12 to 0200Z, Feb 14
+ OMISS QSO Party	1500Z, Feb 12 to 1500Z, Feb 13
+ RSGB 1.8 MHz Contest	1900Z-2300Z, Feb 12
+ Balkan HF Contest	1300Z-1700Z, Feb 13
+ PODXS 070 Club Valentine Sprint	0000Z-2359Z, Feb 14
+ K1USN Slow Speed Test	0000Z-0100Z, Feb 14
+ CQC Winter QSO Party	0100Z-0259Z, Feb 14
+ 4 States QRP Group Second Sunday Sprint	0100Z-0300Z, Feb 14
+ ARRL School Club Roundup	1300Z, Feb 14 to 2359Z, Feb 18
+ OK1WC Memorial	1630Z-1729Z, Feb 14
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Feb 15
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 15
+ QRP Fox Hunt	0200Z-0330Z, Feb 16
+ Phone Weekly Test	0230Z-0300Z, Feb 16
+ A1Club AWT	1200Z-1300Z, Feb 16
+ CWops Test	1300Z-1400Z, Feb 16
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Feb 16
+ Mini-Test 40	1700Z-1759Z, Feb 16
+ Mini-Test 80	1800Z-1859Z, Feb 16
+ AGCW Semi-Automatic Key Evening	1900Z-2030Z, Feb 16
+ CWops Test	1900Z-2000Z, Feb 16
+ RSGB 80m Club Championship, Data	2000Z-2130Z, Feb 16
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Feb 17 and 0200Z-0300Z, Feb 18
+ CWops Test	0300Z-0400Z, Feb 17
+ CWops Test	0700Z-0800Z, Feb 17
+ RTTYOPS Weeksprint	1700Z-1900Z, Feb 17

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Contest Calendar - February 2022, Continued

+ NTC QSO Party	1900Z-2000Z, Feb 17
+ EACW Meeting	1900Z-2000Z, Feb 17
+ NCCC RTTY Sprint	0145Z-0215Z, Feb 18
+ QRP Fox Hunt	0200Z-0330Z, Feb 18
+ NCCC Sprint Ladder	0230Z-0300Z, Feb 18
+ K1USN Slow Speed Test	2000Z-2100Z, Feb 18
+ ARRL Inter. DX Contest, CW	0000Z, Feb 19 to 2400Z, Feb 20
+ Russian PSK WW Contest	1200Z, Feb 19 to 1159Z, Feb 20
+ Feld Hell Sprint	1900Z-2059Z, Feb 20
+ FISTS Sunday Sprint	2100Z-2300Z, Feb 20
+ Run for the Bacon QRP Contest	2300Z, Feb 20 to 0100Z, Feb 21
+ K1USN Slow Speed Test	0000Z-0100Z, Feb 21
+ OK1WC Memorial	1630Z-1729Z, Feb 21
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Feb 22
+ RTTYOPS Weekspint	1700Z-1900Z, Feb 22
+ SKCC Sprint	0000Z-0200Z, Feb 23
+ QRP Fox Hunt	0200Z-0330Z, Feb 23
+ Phone Weekly Test	0230Z-0300Z, Feb 23
+ A1Club AWT	1200Z-1300Z, Feb 23
+ CWops Test	1300Z-1400Z, Feb 23
+ Mini-Test 40	1700Z-1759Z, Feb 23
+ Mini-Test 80	1800Z-1859Z, Feb 23
+ CWops Test	1900Z-2000Z, Feb 23
+ UKEICC 80m Contest	2000Z-2100Z, Feb 23
+ CWops Test	0300Z-0400Z, Feb 24
+ CWops Test	0700Z-0800Z, Feb 24
+ RTTYOPS Weekspint	1700Z-1900Z, Feb 24
+ EACW Meeting	1900Z-2000Z, Feb 24
+ RSGB 80m Club Championship, CW	2000Z-2130Z, Feb 24
+ NCCC RTTY Sprint	0145Z-0215Z, Feb 25
+ QRP Fox Hunt	0200Z-0330Z, Feb 25
+ NCCC Sprint Ladder	0230Z-0300Z, Feb 25
+ K1USN Slow Speed Test	2000Z-2100Z, Feb 25

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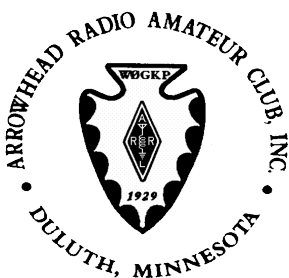


Contest Calendar - February 2022, Continued

+ CQ 160-Meter Contest, SSB	2200Z, Feb 25 to 2200Z, Feb 27
+ REF Contest, SSB	0600Z, Feb 26 to 1800Z, Feb 27
+ FTn DX Contest	1200Z, Feb 26 to 1200Z, Feb 27
+ UBA DX Contest, CW	1300Z, Feb 26 to 1300Z, Feb 27
+ South Carolina QSO Party	1500Z, Feb 26 to 0159Z, Feb 27
+ NA Collegiate Championship, RTTY	1800Z, Feb 26 to 0559Z, Feb 27
+ North American QSO Party, RTTY	1800Z, Feb 26 to 0559Z, Feb 27
+ High Speed Club CW Contest	1400Z-1700Z, Feb 27
+ North Carolina QSO Party	1500Z, Feb 27 to 0100Z, Feb 28
+ K1USN Slow Speed Test	0000Z-0100Z, Feb 28
+ QCX Challenge	1300Z-1400Z, Feb 28
+ OK1WC Memorial	1630Z-1729Z, Feb 28
+ QCX Challenge	1900Z-2000Z, Feb 28
+ RSGB FT4 Contest	2000Z-2130Z, Feb 28

Our thanks to **Bruce Horn, WA7BNM** for use of this calendar!
 Please visit Bruce's site at
www.contestcalendar.com/contestcal.html
 for many other helpful contest calendar formats.

The ARAC RELAY



Published monthly and distributed free to members, "The RELAY" is the official publication of the Arrowhead Radio Amateur Club, Inc. Members are encouraged to submit articles, opinions, and classifieds. Your submission will be placed as soon as possible providing it does not conflict with the bylaws of the Arrowhead Radio Amateur Club, Inc. The editors reserve the right to omit any submission that is not a required item. If a submission is questionable, it will be presented to the Board of Directors at the next scheduled board meeting for authorization.

