



The RELAY)))

FEBRUARY
2023

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> Dues: Member \$20/Family \$25

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AMATEUR RADIO EMERGENCY COMMUNICATION: Ham Radio's Highest Calling

In the wee hours of April 15th, 1912, a 25 year-old Welshman named **Artie Moore** sat in the tower of his family's watermill listening to radio waves on his home-made ham radio set. Through the crisp night air, the young engineer heard a faint signal in Morse Code:

"CQD CQD SOS de MGY Position 41.44N 50.24W. Require immediate assistance. Come at once. We have struck an iceberg. Sinking. We are putting the women off in the boats."

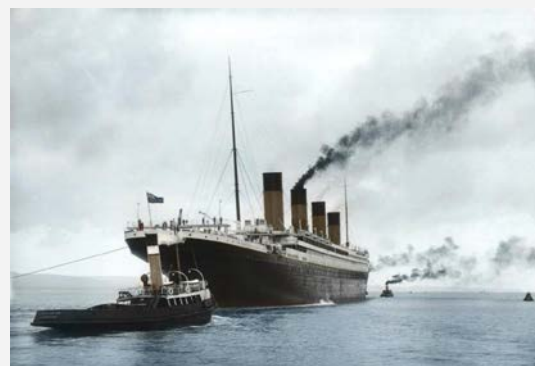
Carefully writing out the detailed message, Moore then heard, *"We are putting the passengers off in small boats. Women and children in boats, cannot last much longer."* Then after another pause, *"Come as quickly as possible old man; our engine-room is filling up to the boilers."*

Moore rushed into the night to alert constables in his small South Wales town of Blackwood that a ship was in sinking in the North Atlantic, but they didn't believe him. Surely they would have been alerted by proper authorities if such a disaster was occurring nearby.

Two days later, newspapers confirmed those exact distress signals had indeed been transmitted from a state-of-the-art luxury liner called **Titanic**. The **White Star Line** manifest recorded 2,240 passengers and crew onboard departing April 10th from Southampton, England. Tragically, only 706 people survived.

In the midst of the world's shock at the heartbreaking news of **Titanic**, another astounding fact became clear: When launched on her maiden voyage, it was thought that the range of **Titanic's** wireless was 400 miles in daylight and up to 2000 miles in darkness, due to refraction of long-wave radiation in the ionosphere. However, Moore's hand-built ham station was able to receive the distress signal from 3000 miles away.

Moore's story then began to reach 'round the world, and was noted by a particular ticket holder who was scheduled to sail **Titanic's** return leg of her maiden voyage, from New York to Plymouth, England. That ticket holder was none other than **Guglielmo Marconi**, inventor and engineer of the most popular and useful radio-wave based telegraph system in the world. **Marconi Company** had furnished **White Star Line** with **Marconi Telegraphs and Operators** on their ships, including **Titanic**. Marconi wasted no time in traveling to meet with Moore in Blackwood and was impressed by Moore's significant mechanical and electrical inventions beginning when he was only about 7 years of age. Marconi offered him a draftsman job at **Marconi Company's Ship Equipment Department**, and Moore



Colorized photo of **Titanic** leaving Southampton, England bound for New York - April 10, 1912. Photo Courtesy HistoryDaily.org

Continued on Page 14

The Relay Co-Editors:
Kim & Steve Waller

Kim - KEØNQS Steve - KEØNQT
KEØNQS.mn@gmail.com KEØNQT@gmail.com



2023



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Facebook!

ARAC Board Meeting - January 3, 2023

PRESIDENT



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

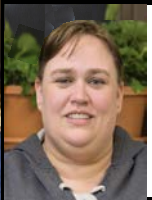
VICE PRESIDENT



KØDJP
David Pyriik

david.pyriik@gmail.com

SECRETARY



KFØGJW
Melinda Nelson

TREASURER



KEØYTM
Sam Frey

ke0ytm@gmail.com

3RD YEAR BOARD



AAØAC
Dave Davis

218-348-6649
aaøac@outlook.com

2ND YEAR BOARD



AAØAW
Doug Nelson

aaøaw@arrl.net

1ST YEAR BOARD



WØDIO
Denny Anderson

Board Members

Gene Ellefsen – NØVRM, Dave Pyriik – KØDJP, Sam Frey – KCØYTM, Melinda Nelson – KFØGJW, Dave Davis – AAØAC, Doug Nelson - AAØAW

Board Advisors (Non-Board Members)

Randy Wabik –KRØB

Guest: Bruce Carlson – KNØNUL, Jon Nelson – NØUOZ

Meeting called to order by President Gene – NØVRM at 18:38 (6:38 pm)

Minutes:

Minutes were sent via email. Motion to approve Gene Ellefsen - NØVRM Seconded by Doug Nelson – AAØAW, motion passed.

Treasurer's Report:

Checking:	\$1,115.52
Savings:	\$1,775.19
Repeater:	\$3,867.78
Subtotal Cash	\$6,758.49

Winter CD:	\$1,736.49
Summer CD:	\$0.00
Subtotal CD:	\$1,730.42

Assets Subtotal: \$9,217.30

Minus Checks Outstanding:

1580	\$64.93
1581	\$150.00
1582	\$100.00
Checks Subtotal	-\$314.93

Grand Total \$8,180.05

Motion to approve by Melinda Nelson – KFØGJW, seconded by Doug Nelson – AAØAW, motion passed.

Insurance:

We have been talking about our insurance. For years we have been going through a company called Merser. They have a standardized insurance policy for they issue for HAM radio clubs which

Continued on Page 3

ARAC Board Meeting continued

is liability, This cost \$323.00. Gene – N0VRM called ARRL and got a hold of the lady that handles insurance for them and we can get the same insurance through them for \$200.00. Then we were talking about getting insurance to cover our equipment, there is a company that charges \$1.40 per \$100.00. The company that we currently have charges \$1.50 per \$100.00. We can get \$10,000 of equipment insurance plus our liability insurance for \$20.00 more than what we are currently paying for, for insurance. Gene – N0VRM motioned to change our insurance. Melinda Nelson – KF0GJW seconded, motion passed.

Testing:

We have a testing session this Saturday. Plus, the January 10th session for the Tech class at the House of Refuge. No big changes. The new General Testing Pool is out and will go into effect on July 1st. As always if you are looking to test or upgrade, or know of anyone that is interested in testing please contact Doug Nelson at AA0AW@arrl.net

Repeater:

Randy Wabik – KR0B, Got the UPS around the 20th. Took about 2 weeks to get it. Waiting for a warmer day to get up to MahtowaK to get everything up and running.

New Business:

Winter Field Day – January 28, 2023, at 13:00 (1:00 pm) to 13:00 (1:00 pm) Sunday)

ARRL second round of Grant money. Gene – N0VRM received an email stating that we did not qualify again.

Very special thank you to Bruce Carlson – KN0NUL for the 5 years as treasurer for the club.

A very special thank you to Joe – W0LWU and Cheryl Meese for the \$500.00 donation, which was put into the repeater fund.

Motion to adjourn by Doug Nelson – AA0AW, seconded by Bruce Carlson – KN0NUL, motion passed at 19:11 (7:11 pm)



IN MEMORIAM

Ronald Lee Caspersen – KBØUQC

February 18, 1967 - January 31, 2023

We are sad to announce that on January 31, 2023, at the age of 55, Ronald Lee Caspersen of Duluth, Minnesota, became a silent key.

Ron is survived by his parents, Ronald Caspersen and Patricia Caspersen; his sisters, Vicky Behrman and Michele LaVine (Nathan); his niece Alyssa Holmes (Joe); and his nephews, Ryan, Trenton, Christian and Jordan. He is also survived by aunts and uncles; and many friends.

In lieu of flowers, the family would like for donations to be made to American Heart Association, American Diabetes Association or National Alliance of Mental Illness in Ron's memory. Rest in peace, dear Friend.



ARAC Club Meeting Minutes

January 12, 2023

Present:

President: Gene Ellefsen – N0VRM
Vice President: Dave Pyrlík – K0DJP
Treasurer/Membership: Sam Frey – KE0YTM
Secretary: Melinda Nelson – KF0GJW
First Year Board: Dennis Anderson – W0DIO
Second Year Board: Doug Nelson – AA0AW
Third Year Board: Dave Davis – AA0AC
Special Events: Open/Gene Ellefsen – N0VRM (acting)
Parliamentarian: Grant Forsyth – KC0WUP
Repeater: Dave Pyrlík – K0DJP
Testing: Doug Nelson – AA0AW
Repeater: Randy Wabik – KR0B
Property/Picnic: Scott Ahlgren – N0VYU
HamFest/Education: Bob Schulz – KC0NFB

Absent:

Chaplin:
Web Site: Thomas Dorr – KE0RHA
Newsletter/Historian: Kim Waller – KE0NQS
Newsletter/Historian: Scott Waller – KE0NQY

Meeting called to order at 19:03 (7:03 PM) by President Gene Ellefsen – N0VRM. Forty-five (45) members in attendance. Took a moment of silence for Paul Dallavia – KC0WDQ, who lost his mom last week.

Minutes:

Minutes are posted on the website and in the newsletter. Motion to approve by Grant Forsyth – KC0WUP, seconded by Dave Davis – AA0AC

Treasurer's Report:

Checking:	\$1,115.52
Savings:	\$1,775.19
Repeater:	\$3,867.78
Subtotal Cash	\$6,758.49

Winter CD:	\$1,736.49
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1581	\$150.00
1582	\$100.00
Checks Subtotal:	-\$314.93

Grand Total \$8,180.05

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ARAC Club Meeting Minutes, continued

Motion to accept as presented by Bob Schulz – KC0NFB, seconded by Doug Nelson – AA0AW, motion passed.

We received a \$500.00 donation from Joe and Cheryl Meese and the board elected to put this into the repeater fund. Motion made to send a thank you letter by Bill Fleischman – KC0ZZL, seconded by Dave Davis – AA0AC, motion passed

Repeater:

Randy Wabik – KR0B, was not present at the meeting. Gene – N0VRM gave an update on who we have all equipment for the Mahtowa repeater, just waiting for a warm day to get up there and remove the old equipment and replace it with the new equipment.

Testing:

Doug Nelson – AA0AW had a couple of small but successful testing sessions. With the help of the FROG group, we had a session on January 7th with 2 brand new hams. We also had a session on Tuesday night January 10th. Nothing scheduled as of now, if anyone needs testing contact Doug Nelson at AA0AW@ARRL.net and they will test individually.

Do not forget to get your FRN number prior to testing. You can go to FCC.gov/uls and register. You will also need an email address going forward.

Education:

Nothing until after HamFest.

New HAMS/Upgrades:

KF0LFE – Josh Mersha
KF0LFZ – Brian Beckman
KF0GEX – Paul Gilsdorf
KD9VUK – Aidan Maki

Door Prize was won by Scott Ahlgren – N0VYU, who donated it back to the club.

Motion to adjourn by Mike Lovold – N0PDG, seconded by Justin Cheever – KD9VKI, motion passed at 19:20 (7:200 PM). Program DX Engineering.



Prez Sez...

Hello Everyone,

Winter Field Day 2023 was held on Saturday January 28th to Sunday January 29th. Dave Davis AAØAC hosted the event in his garage this year. It was a great time for all those who came out. Good food and lots of good conversations!! We even had a new Ham, John Snyder KFØLJC (who passed his Tech Test last week) come out and get on the air making contacts!

We're glad to report that a Video Producer from PBS North come out and did some filming, so watch Almanac North on Friday February 3rd at 5:30 pm on Channel 8.2 and again at 8:00 pm on Channel 8.1. Dennis Anderson WØDIO is one of the show's hosts, so we're very grateful the Club is being mentioned. Thanks Denny!

Also, a big Thank You to Al Nordin WBØDBQ for bringing Joe Meese WØLWU out to Winter Field Day this year. Joe hosted Winter Field Day for many years but was unable to this year as he and Cheryl are moving. Joe got on the radio and made some contacts too!

Hope to see you all at the Club Meeting on Thursday February 9th at 7 p.m. at the Coppertop Church!

Stay Warm!!

Gene Ellefsen NØVRM



**LOOKING for an Amateur Radio License
TESTING SESSION?**

Schedule your own Testing Session TODAY!

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

All Exam Candidates are REQUIRED to have an FCC Registration Number (FRN) before exam day, which will require your email address.

Not Currently Licensed? For New License Candidate FRN registration: go to www.fcc.gov/new-users-guide-getting-started-universal-licensing-system-uls

Upgrading to General or Expert Class & not sure you have an FRN number? go to <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>

Upgrade Candidates: Please bring a copy of your current license to the exam session.

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	■■■■●●●●●●
L	■■■■●●●●	X	■■■■●●●●	0	■■■■■■■■



US Amateur Radio Bands

US AMATEUR POWER LIMITS

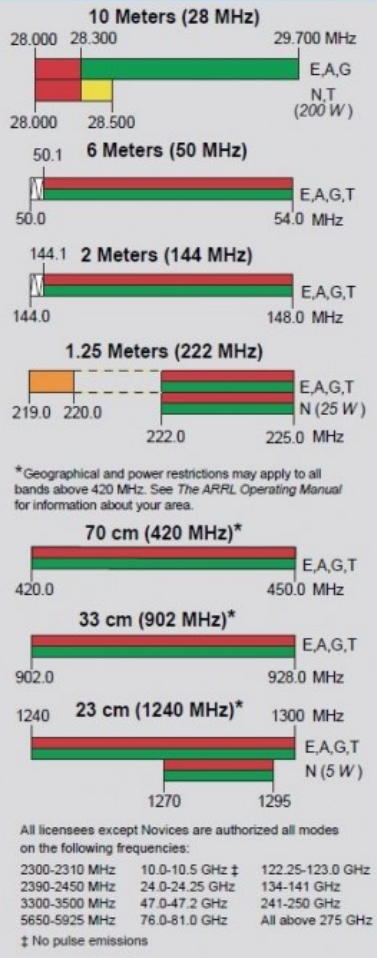
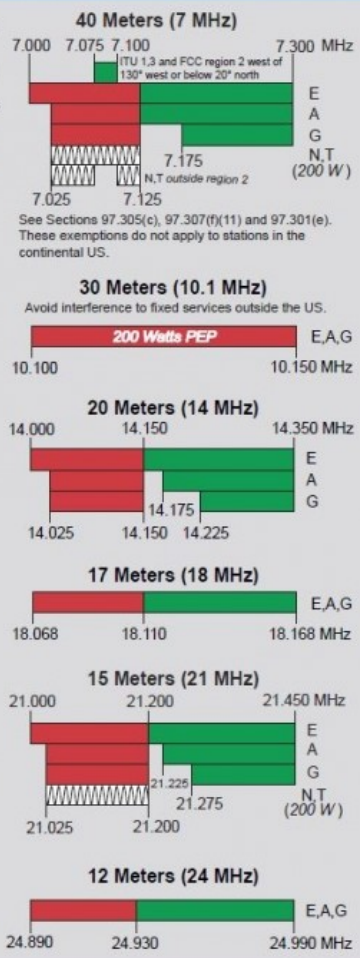
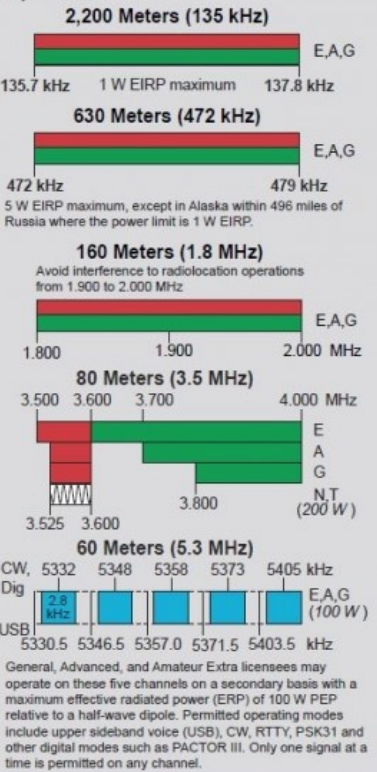
FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

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.



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.

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

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

NETS

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
- 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



DULUTH AREA REPEATERS

ARAC System WØGKP

Frequency	Offset	Tone	Location
146.940	minus	103.5	Duluth
146.940	minus	107.2	Lakeside (recv)
146.940	minus	151.4	Two Harbors (recv)
146.940	minus	100.0	Gary-New Duluth (recv)
146.940	minus	110.9	Cloquet (recv)
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)
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LSAC System # 1

147.330	plus 151.4		Proctor
147.330	plus 103.5		Duluth (recv for Proctor)
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



DULUTH AREA REPEATERS, continued

NARC System NAØRC

147.135 plus 103.5 Knife River
 145.450 minus 114.8 Park Point (rcv)
 147.135 plus 114.8 Knife River - Park Point (rcv)

Stand Alone Repeaters

145.210 minus 110.9 Clam Lake, WI
 146.880 minus 123.0 Grand Rapids, MN
 146.910 minus 146.2 Duxbury, MN
 146.955 minus 146.2 Askov, MN
 147.105 plus 110.9 Chaffey, WI
 444.850 +5.00 141.3 Cloquet, MN

Fusion

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

147.150 plus 151.4 NTØB Gilbert, MN Fusion Repeater
 145.170 minus 110.9 WA9KLM Superior, WI – Douglas County RACES/ARES Fusion Repeater (Digital only) Fusion Room 28373

145.250 minus 103.5 KBØYHX Cloquet, MN – Carlton County RACES/ARES Fusion Repeater

444.300 +5.00 103.5 NØEO Duluth, MN – Spirit Valley Amateurs Fusion Repeater WIRES-X NØEO (Analog only) Fusion Room 40494

444.400 +5.00 103.5 NAØRC Knife River, MN – Wires X Connected to NØEO Room 40494
 444.500 +5.00 103.5 NØLCR Two Harbors, MN – Wires X Connected to NØEO Room 40494
 444.600 +5.00 103.5 NØLCR Silver Bay, MN – Wires X Connected to NØEO Room 40494
 444.800 +5.00 103.5 NØLCR Grand Marais, MN – Wires X Connected to NØEO Room 40494

D-Star

147.375 plus NØEO D Star
 442.200 plus NØEO D Star

Rev. KCØWDQ as of 10/1/22 For ARAC Newsletter

Elmers

El-mer / el-mər/ [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.

Name	Call Sign	Expertise
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...

Membership E-mail Directory

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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



FEBRUARY

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

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

CLUB EVENTS

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5 CW 1930 AA0AW USB 2000 K9KDK ES 2100 W0NWO	6 WX 2000 KC0MKS	7 ARAC BOARD MEETING Sammy's Pizza 6:30 pm DC Net 2000 CC Net 2030	8 Lake County ARES/RACES Meeting 1800 Lake County Net 1900 2100 - BWAR	 9 ARAC Club Meeting Coppertop Church 7:00 PM	10	11
12 CW 1930 N0PDG USB 2000 N0VRM ES 2100 N0VRM	13 DC ARES/RACES Mtg 1900 DC EOC WX 2000 KC0MKS	14 HAPPY VALENTINE'S DAY! DC Net 2000 CC Net 2030	15 St Louis County ARES/RACES Meeting 1800 2100 - BWAR	16	17	18
19 CW 1930 AA0AW USB 2000 N0PDG ES 2100 N9DMG	20 WX 2000 KC0MKS	21 DC Net 2000 CC Net 2030	22 Lake County Net 1900 2100 - BWAR	23 Carlton County ARES/RACES Meeting 1900 CC EOC	24	25 ARAC Club Breakfast The Chalet 4833 Miller Trunk Hwy Hermantown, MN 8 AM
26 CW 1930 N0PDO USB 2000 AA0AW ES 2100 AA0AW	27 WX 2000 KC0MKS	28 DC Net 2000 CC Net 2030				

Get this newsletter *faster*
via email!

Email Doug AAØAW at
aa0aw@arrl.net

Next Club Meeting:
Thursday,
February 9th, 2023 - 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

Chaplain:

Rollie Bockbader KBØCK

Visiting Chaplain:

Parliamentarian:

Grant Forsyth KCØWUP

Website:

Thomas Dorr KEØRHA

Membership:

Sam Frey KEØYTM

Property Chair:

Scott Ahlgren NØVYU

Testing:

Doug Nelson AAØAW

Field Day:

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.

Amateur Radio EmComm , continued from page 1

later transferred from Marconi Company to **Marconi International Marine Communication Company**. While there, Moore patented an early form of sonar in 1922. After leading many **MIMCC** projects during World War II, Arthur "Artie" Moore retired in 1947. Just 2 years later, his health failed and he passed away in Bristol, England.

Today, Artie Moore, callsign MNX, is recognized as the first ham radio operator to deliver emergency messages to civil authorities during a major disaster. Denver, Colorado ARES **EmComm 101** page comments on the importance this event in Amateur Radio history:

"One direct result [of the Titanic disaster] and the participation by 'hams' was the **United States Radio Act of 1912**, which, among other things, formalized the **Amateur Radio Service**. Part of the mission: to provide a pool of experts that can be drawn upon to provide backup communications during emergencies.

"This led in turn, to the founding of the **American Radio Relay League (ARRL)** a ham radio member-society in 1914. As the **ARRL** grew, and the role of hams in providing communications grew with it, the ARRL established the **Amateur Radio Emergency Service (ARES)** in 1935. This standby radio service consists of licensed amateur radio operators who have voluntarily registered their qualifications and equipment with their local **ARES** leadership for communications duty in the public service when disaster strikes."

That brings us to **RACES**. Created in 1952, the **Radio Amateur Civil Emergency Service (RACES)** is an emergency radio service authorized in Part 97.407 of the **Federal Communications Commission (FCC)** rules and regulations governing amateur radio in the United States.

FCC licensed amateur radio operators may choose to enroll in **RACES** in order to provide emergency communications supporting the state, county and local emergency management agencies. The operator registers their amateur radio license and their station with the appropriate emergency management official and may receive credentials according to the emergency management agency's policies.

RACES stations are only activated by the state, county or local emergency management authority to operate on their behalf. Only amateur radio stations who have previously registered with state and local governments to provide emergency radio communications for them in times of emergency can be activated.

*During emergencies, other amateur radio operations might be suspended and operations under the **RACES** rules might be restricted to certain frequencies within the amateur radio bands.*

The difference between **ARES** and **RACES** roles today can be confusing to those new to amateur radio. Let's talk a little more about those roles and how they can be implemented in an emergency.



ARES is the emergency communications and disaster preparedness arm of the **ARRL**.

RACES is the emergency communications and disaster preparedness arm of the **U.S. government**.

ARRL says it this way: "**ARES** is activated **before, during and after an emergency**. Generally, **ARES** handles all emergency messages, including those between government emergency management officials. **RACES**, on the other hand, almost never starts **before** an emergency and is active only **during the emergency and during the immediate aftermath** if government emergency management offices need communications support. **RACES** is normally shut down **shortly after the emergency has cleared**."

Elizabeth Kline **KE8FMJ**, Emergency Coordinator in Greene County, Ohio authors an article called **EMCOMM: ARES and RACES—What's the Difference?** on **DX Engineering's** blog called **On All Bands**. She quotes the **ARRL's** descriptions as we have, but also adds some more detail:

ARES consists of licensed amateurs who have voluntarily registered their qualifications and equipment with their local **ARES** leadership for communications duty in the public service when disaster strikes. There's nothing in FCC Part 97 rules about **ARES** specifically. **ARES** operators are bound by all applicable Part 97 rules, but aren't bound by the specific emergency rules as specified in §97.407 for stations operating under **RACES**. If you are operating under **ARES**, you can use your own license and call sign or any other call sign authorized by a given control operator. A station operating

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Amateur Radio EmComm, continued from page 14

in **ARES** may communicate with any amateur station. Further, there are no specific limits on **ARES** drills and tests.”

Turning to **RACES**, she says,

“A station operating under **RACES** may only communicate with:

- A **RACES** station licensed to the local civil defense organization
 - Other **RACES** licensees
 - Certain amateur stations registered with civil defense organizations
 - Certain U.S. government stations authorized by the responsible agency to communicate with **RACES** stations
- Stations in a service regulated by the FCC when authorized by the FCC [97.407(d)].

RACES members may transmit only messages related to:

- Impending danger to the public or affecting national defense during emergencies
- The immediate safety of individuals, the immediate protection of property, maintenance of law and order, alleviation of human suffering and need, and combating armed attack and sabotage
- The dissemination of information to the public from a local civil defense organization or other government or relief organization

Communications during RACES drills [97.407(e)]:

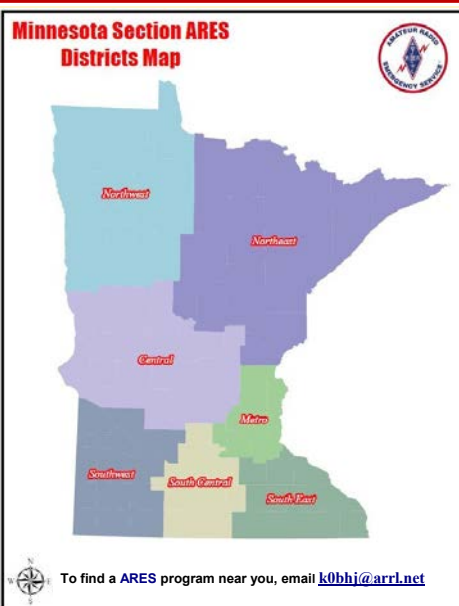
Panel **RACES** drills and tests can't exceed a total time of one hour per week. With proper authorization, such drills and tests may be conducted for a period not to exceed 72 hours and such drills can occur no more than twice in a calendar year [97.407(e)].”

Kline's Additional Comments “These rules aren't there to restrict amateurs unduly, but to protect the Amateur Radio Service from non-amateur abusers. The drill time limits were implemented in 1976 because, among other things, local government land mobile communications operators were using the amateur service improperly. **RACES** operation is conducted by amateurs using their own primary license call sign and by existing **RACES** licensees who hold **RACES** licenses. Club and military recreation stations are also eligible if authorized by a civil defense organization locally with the appropriate control operator [97.407(a)].”

Our thanks to **Elizabeth Kline KE8FMJ** for her comments on **ARES** and **RACES**. Remember, **any licensed amateur can volunteer for either ARES or RACES**, so if you're not already involved, go online (see below) to the general sites first to view info and training to see what sparks your interest. Then contact your local **ARES** and **RACES** to join!

For **ARES**, an amateur operator must register with their local **ARRL** Emergency Coordinator. Visit **ARRL's** website at <https://www.arrl.org/emergency-communications-training> for a lot of great info on Emergency Communications Training.

For **RACES**, an amateur operator must enroll with a local civil defense organization. Start by visiting the **US RACES** website at <https://www.usraces.org/> and view some of the library documents and training descriptions.



St. Louis County Emergency Management

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South RACES Emergency Coordinator

Grant Forsyth - KC0WUP
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North RACES Emergency Coordinator

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Well, ladies and gentlemen, we've just scratched the surface on the topic of Amateur Radio Emergency Communication, as this month's installment is Part 1.

Next month we'll talk about various EmComm tools available to hams, including discussion of software options, mesh networks and low-cost, reliable equipment. As always, we welcome your comments and any content you'd like to submit on this topic from your experience.

Finally, as we all know, **Doug Nelson AA0AW** is an Elmer on the subject of **EmComm**, (and actually all things ham radio). As such, I suggest contacting him with any questions you may have on **ARES/RACES** or EmComm in general at aa0aw@arrl.net

You're welcome, Doug. ★



Contest Calendar - February 2023

<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 1
<u>+ Phone Weekly Test</u>	0230Z-0300Z, Feb 1
<u>+ A1Club AWT</u>	1200Z-1300Z, Feb 1
<u>+ CWops Test</u>	1300Z-1400Z, Feb 1
<u>+ VHF-UHF FT8 Activity Contest</u>	1700Z-2100Z, Feb 1
<u>+ Mini-Test 40</u>	1700Z-1759Z, Feb 1
<u>+ Mini-Test 80</u>	1800Z-1859Z, Feb 1
<u>+ CWops Test</u>	1900Z-2000Z, Feb 1
<u>+ UKEICC 80m Contest</u>	2000Z-2100Z, Feb 1
<u>+ Walk for the Bacon QRP Contest</u>	0000Z-0100Z, Feb 2 and 0200Z-0300Z, Feb 3
<u>+ CWops Test</u>	0300Z-0400Z, Feb 2
<u>+ CWops Test</u>	0700Z-0800Z, Feb 2
<u>+ NRAU 10m Activity Contest</u>	1800Z-1900Z, Feb 2 (CW) and 1900Z-2000Z, Feb 2 (SSB) and 2000Z-2100Z, Feb 2 (FM) and 2100Z-2200Z, Feb 2 (Dig)
<u>+ SKCC Sprint Europe</u>	2000Z-2200Z, Feb 2
<u>+ NCCC RTTY Sprint</u>	0145Z-0215Z, Feb 3
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 3
<u>+ NCCC Sprint Ladder</u>	0230Z-0300Z, Feb 3
<u>+ K1USN Slow Speed Test</u>	2000Z-2100Z, Feb 3
<u>+ Vermont QSO Party</u>	0000Z, Feb 4 to 2400Z, Feb 5
<u>+ 10-10 Int. Winter Contest, SSB</u>	0001Z, Feb 4 to 2359Z, Feb 5
<u>+ European Union DX Contest</u>	1200Z, Feb 4 to 1200Z, Feb 5
<u>+ F9AA Cup, CW</u>	1200Z, Feb 4 to 1200Z, Feb 5
<u>+ Mexico RTTY International Contest</u>	1200Z, Feb 4 to 2359Z, Feb 5
<u>+ FYBO Winter QRP Sprint</u>	1400Z-2400Z, Feb 4
<u>+ Minnesota QSO Party</u>	1400Z-2400Z, Feb 4

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Contest Calendar - February 2023

[+ British Columbia QSO Party](#)

[+ AGCW Straight Key Party](#)

[+ North American Sprint, CW](#)

[+ K1USN Slow Speed Test](#)

[+ ICWC Medium Speed Test](#)

[+ OK1WC Memorial](#)

[+ ICWC Medium Speed Test](#)

[+ RSGB 80m Club Championship, SSB](#)

[+ Worldwide Sideband Activity Contest](#)

[+ ARS Spartan Sprint](#)

[+ ICWC Medium Speed Test](#)

[+ NAQCC CW Sprint](#)

[+ QRP Fox Hunt](#)

[+ Phone Weekly Test](#)

[+ A1Club AWT](#)

[+ CWops Test](#)

[+ Mini-Test 40](#)

[+ VHF-UHF FT8 Activity Contest](#)

[+ Mini-Test 80](#)

[+ CWops Test](#)

[+ CWops Test](#)

[+ CWops Test](#)

[+ EACW Meeting](#)

[+ NCCC RTTY Sprint](#)

[+ QRP Fox Hunt](#)

[+ NCCC Sprint Ladder](#)

[+ K1USN Slow Speed Test](#)

[+ CQ WW RTTY WPX Contest](#)

[+ SARL Field Day Contest](#)

1600Z, Feb 4 to 0359Z, Feb 5 and

1600Z-2359Z, Feb 5

1600Z-1900Z, Feb 4

0000Z-0359Z, Feb 5

0000Z-0100Z, Feb 6

1300Z-1400Z, Feb 6

1630Z-1729Z, Feb 6

1900Z-2000Z, Feb 6

2000Z-2130Z, Feb 6

0100Z-0159Z, Feb 7

0200Z-0400Z, Feb 7

0300Z-0400Z, Feb 7

0130Z-0330Z, Feb 8

0200Z-0330Z, Feb 8

0230Z-0300Z, Feb 8

1200Z-1300Z, Feb 8

1300Z-1400Z, Feb 8

1700Z-1759Z, Feb 8

1700Z-2100Z, Feb 8

1800Z-1859Z, Feb 8

1900Z-2000Z, Feb 8

0300Z-0400Z, Feb 9

0700Z-0800Z, Feb 9

1900Z-2000Z, Feb 9

0145Z-0215Z, Feb 10

0200Z-0330Z, Feb 10

0230Z-0300Z, Feb 10

2000Z-2100Z, Feb 10

0000Z, Feb 11 to 2359Z, Feb 12

1000Z, Feb 11 to 1000Z, Feb 12

Continued on Page 18



Contest Calendar - February 2023

- [+ Asia-Pacific Spring Sprint, CW](#)
 - [+ Dutch PACC Contest](#)
 - [+ SKCC Weekend Sprintathon](#)
 - [+ KCJ Topband Contest](#)
 - [+ YLRL YL-OM Contest](#)
 - [+ OMISS QSO Party](#)
 - [+ FISTS Saturday Sprint](#)
 - [+ RSGB 1.8 MHz Contest](#)
 - [+ Balkan HF Contest](#)
 - [+ K1USN Slow Speed Test](#)
 - [+ CQC Winter QSO Party](#)
 - [+ 4 States QRP Group Second Sunday Sprint](#)
 - [+ ARRL School Club Roundup](#)
 - [+ ICWC Medium Speed Test](#)
 - [+ OK1WC Memorial](#)
 - [+ ICWC Medium Speed Test](#)
 - [+ PODXS 070 Club Valentine Sprint](#)
 - [+ Worldwide Sideband Activity Contest](#)
 - [+ ICWC Medium Speed Test](#)
 - [+ QRP Fox Hunt](#)
 - [+ Phone Weekly Test](#)
 - [+ A1Club AWT](#)
 - [+ CWops Test](#)
 - [+ Mini-Test 40](#)
 - [+ VHF-UHF FT8 Activity Contest](#)
 - [+ Mini-Test 80](#)
 - [+ AGCW Semi-Automatic Key Evening](#)
 - [+ CWops Test](#)
 - [+ RSGB 80m Club Championship, Data](#)
 - [+ Walk for the Bacon QRP Contest](#)
- 1100Z-1300Z, Feb 11
1200Z, Feb 11 to 1200Z, Feb 12
1200Z, Feb 11 to 2400Z, Feb 12
1200Z, Feb 11 to 1200Z, Feb 12
1400Z, Feb 11 to 0200Z, Feb 13
1500Z, Feb 11 to 1500Z, Feb 12
1600Z-1800Z, Feb 11
1900Z-2300Z, Feb 11
1300Z-1700Z, Feb 12
0000Z-0100Z, Feb 13
0100Z-0259Z, Feb 13
0100Z-0300Z, Feb 13
1300Z, Feb 13 to 2359Z, Feb 17
1300Z-1400Z, Feb 13
1630Z-1729Z, Feb 13
1900Z-2000Z, Feb 13
0000Z-2359Z, Feb 14
0100Z-0159Z, Feb 14
0300Z-0400Z, Feb 14
0200Z-0330Z, Feb 15
0230Z-0300Z, Feb 15
1200Z-1300Z, Feb 15
1300Z-1400Z, Feb 15
1700Z-1759Z, Feb 15
1700Z-2100Z, Feb 15
1800Z-1859Z, Feb 15
1900Z-2030Z, Feb 15
1900Z-2000Z, Feb 15
2000Z-2130Z, Feb 15
0000Z-0100Z, Feb 16 and
0200Z-0300Z, Feb 17

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Contest Calendar - February 2023

<u>+ CWops Test</u>	0300Z-0400Z, Feb 16
<u>+ CWops Test</u>	0700Z-0800Z, Feb 16
<u>+ NTC QSO Party</u>	1900Z-2000Z, Feb 16
<u>+ NCCC RTTY Sprint</u>	0145Z-0215Z, Feb 17
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 17
<u>+ NCCC Sprint Ladder</u>	0230Z-0300Z, Feb 17
<u>+ K1USN Slow Speed Test</u>	2000Z-2100Z, Feb 17
<u>+ ARRL Inter. DX Contest, CW</u>	0000Z, Feb 18 to 2400Z, Feb 19
<u>+ Russian PSK WW Contest</u>	1200Z, Feb 18 to 1159Z, Feb 19
<u>+ Feld Hell Sprint</u>	1900Z-2059Z, Feb 18
<u>+ FISTS Sunday Sprint</u>	2100Z-2300Z, Feb 19
<u>+ Run for the Bacon QRP Contest</u>	2300Z, Feb 19 to 0100Z, Feb 20
<u>+ K1USN Slow Speed Test</u>	0000Z-0100Z, Feb 20
<u>+ ICWC Medium Speed Test</u>	1300Z-1400Z, Feb 20
<u>+ OK1WC Memorial</u>	1630Z-1729Z, Feb 20
<u>+ ICWC Medium Speed Test</u>	1900Z-2000Z, Feb 20
<u>+ Worldwide Sideband Activity Contest</u>	0100Z-0159Z, Feb 21
<u>+ ICWC Medium Speed Test</u>	0300Z-0400Z, Feb 21
<u>+ SKCC Sprint</u>	0000Z-0200Z, Feb 22
<u>+ QRP Fox Hunt</u>	0200Z-0330Z, Feb 22
<u>+ Phone Weekly Test</u>	0230Z-0300Z, Feb 22
<u>+ A1Club AWT</u>	1200Z-1300Z, Feb 22
<u>+ CWops Test</u>	1300Z-1400Z, Feb 22
<u>+ Mini-Test 40</u>	1700Z-1759Z, Feb 22
<u>+ Mini-Test 80</u>	1800Z-1859Z, Feb 22
<u>+ CWops Test</u>	1900Z-2000Z, Feb 22
<u>+ UKEICC 80m Contest</u>	2000Z-2100Z, Feb 22
<u>+ CWops Test</u>	0300Z-0400Z, Feb 23
<u>+ CWops Test</u>	0700Z-0800Z, Feb 23

Continued on Page 20



Contest Calendar - February 2023

+ RSGB 80m Club Championship, CW	2000Z-2130Z, Feb 23
+ NCCC RTTY Sprint	0145Z-0215Z, Feb 24
+ QRP Fox Hunt	0200Z-0330Z, Feb 24
+ NCCC Sprint Ladder	0230Z-0300Z, Feb 24
+ K1USN Slow Speed Test	2000Z-2100Z, Feb 24
+ CQ 160-Meter Contest, SSB	2200Z, Feb 24 to 2200Z, Feb 26
+ REF Contest, SSB	0600Z, Feb 25 to 1800Z, Feb 26
+ FTn DX Contest	1200Z, Feb 25 to 1200Z, Feb 26
+ UBA DX Contest, CW	1300Z, Feb 25 to 1300Z, Feb 26
+ South Carolina QSO Party	1500Z, Feb 25 to 0159Z, Feb 26
+ NA Collegiate Championship, RTTY	1800Z, Feb 25 to 0559Z, Feb 26
+ North American QSO Party, RTTY	1800Z, Feb 25 to 0559Z, Feb 26
+ High Speed Club CW Contest	1400Z-1700Z, Feb 26
+ North Carolina QSO Party	1500Z, Feb 26 to 0100Z, Feb 27
+ K1USN Slow Speed Test	0000Z-0100Z, Feb 27
+ ICWC Medium Speed Test	1300Z-1400Z, Feb 27
+ QCX Challenge	1300Z-1400Z, Feb 27
+ OK1WC Memorial	1630Z-1729Z, Feb 27
+ QCX Challenge	1900Z-2000Z, Feb 27
+ ICWC Medium Speed Test	1900Z-2000Z, Feb 27
+ RSGB FT4 Contest	2000Z-2130Z, Feb 27
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Feb 28
+ QCX Challenge	0300Z-0400Z, Feb 28
+ ICWC Medium Speed Test	0300Z-0400Z, Feb 28

Our thanks to **Bruce Horn, WA7BNM** for use of this calendar!
 Visit Bruce at www.contestcalendar.com/contestcal.html

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.

