ARROWHEAD RADIO AMATEUR CLUB, INC. • DULUTH, MINNESOTA • WØGKP 1929

The RELAY

OCTOBER 2021

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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Join us on facebook!

AUTUMN 2021

Scanner for the Ham Shack?

A Quick Look at What to Consider

Amateur Radio Today host Brad Darnell - WA9BD of Avon, Indiana recently discussed scanners for those who may be interested in adding one (or more) to their ham shack, so we're sharing some of his insights. Brad has been a licensed ham radio operator for over 30 years, getting into the hobby after first listening to short wave radio for a while.

Why consider adding a scanner to your ham shack?

Maybe you're simply interested in listening to amateur radio repeaters. Perhaps you'd like to monitor unencrypted emergency service traffic such as paramedics, fire, and police in some areas. You may want to hear maritime transmissions, railroads, aircraft, local utilities, and businesses. If you'd like to monitor cell phone calls though, you're out of luck. Scanners do not have the ability to monitor cell phone transmissions, which is prohibited by the Electronic Privacy Communications Act.

Early Scanners

Early scanners were crystal-controlled and called "rock boxes", because of the use of crystal rocks,of course. These scanners had a removable cover or door which enabled you to install crystals inside and change them as needed. You'd buy the crystals separately and install them in the scanner. After turning it on and setting the squelch, you were ready to listen with no programming required. The scanners received UHF, VHF High and VHF Low.

Vintage Regency ACT-R-106 10 CH Scanner
At press time, available for $28.90 or Best Offer on Ebay

WA9BD fondly recalls his first crystal "rock box" scanner, a Regency 10-channel 3-band. He found it to be very reliable and a lot fun.

Continued on Page 15

ARAC Board Meeting - September 7, 2021

PRESIDENT

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Gene Ellefsen
371Ø Chambersburg Ave
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3RD YEAR BOARD

AAØME
Randy Johnson

randy@nsw4x4.com

2ND YEAR BOARD

KD9ABS
Gary Minter
1621 N 26th St
Superior WI 5488Ø

1ST YEAR BOARD

AAØAC
Dave Davis

218-348-6649
aaØac@outlook.com

Present:

Board Members

Gene Ellingsen-N0VRM, Mike Lovold-N0PDG, Robin Davis (via phone), Dave Davis-AA0AC (via phone), Bruce Carlson-KN0NUL, Gary Minter-KD9ABS

Board Advisors (Non-Board Members)

Doug Nelson-AA0AW, Randy Wabik-KR0B

Guest Del Minter-KE0CLI

Meeting called to order by President Gene-N0VRM

Minutes:

Posted on web site and in the newsletter. Any questions? Move to approve by Gary-KD9ABS, seconded by Mike-N0PDG, motion passed

Treasurer's Report:

Checking	3,138.31
Savings	2,174.01
Subtotal Cash	$5,312.32
Winter CD	1,724.37
Summer CD	0.00
Subtotal CD	$1,724.37
Assets Subtotal:	$7,036.69
Outstanding Checks:	
Mahtowa Repeater	-1,100.00
Bob Boyd-KD0LYN Memorial	-1,190.00
Reserved Funds	-$2,290.00
Grand Total	$4,746.69

Received refund for Picnic Damage Deposit of $100.00. Motion to approve by Mike-N0PDG, Gary-KD9ABS seconded, motion passed

Continued on Page 3

Raffle money is used to offset the costs of the picnic. Previously, used to offset the cost of the radios raffled off. Suggest to make it part of next year's raffle - extra funds will go to the Bob Boyd Memorial

New Business:
Thank you letter from WDSE for our donation. Donation made in lieu of us paying rent for our antennas on their tower and our repeaters

Grants:
Enbridge Energy, parent company of Husky Oil (Novis), Super One – Gene-N0VRM has filled out several grants seeking funds for our Club. Hard to find grant applications without the Club being a 501C3. We are a 501C7. Hard to qualify for donations, paperwork nightmare, to donate outside of the 501C3. MN Power is an example of donors requiring the 501C3. Consider becoming a 501C3 as a Club with discussion down the road

Gene-N0VRM will keep looking for places to apply. Most take four (4) to eight (8) weeks processing before the Club would receive a response

New Organization:
Western Lake Superior Amateur Responders - resource to draw from for Ham Radio, individual or Club. It is a 501C3. New organization formed in the area. There are Federal and State requirements (paperwork) that they have completed. There is a Board of Directors. This organization accepts donations and as such, donors get to take the donation off their taxes

Carlton County Fall Fest:
Fall Fest, September 25, 2021, 9:00 am start. Preregistration required for tables

Repeater:
Randy-KR0B has been working some numbers to almost double our signal from what we have now, 100 watts, calculated the costs. Repeater DR1s are no longer available on sale and DR2 have increased their prices. Upgrade to Repeater at WDSE, 7/8 Hard line, new antenna, 100 watt out. Pretty good improvement – may need to talk to the Engineer, previously raised concerns about the wind load on the tower

Mike-N0PDG and Doug-AA0AW received an email from Rex K0KP. He can no longer key up on the 94 Repeater, from his home, claiming something has changed. The antenna is six (6) to seven (7) years old, replaced by Randy Hagen-N0BZZ, just the antenna. How long has it been since the Receivers have been changed or updated? They do de-tune over time, with usage. The current Repeater has degraded and it is rated whatever the FTM400 will allow

Testing:
Testing session for Tech License, at end of current class, second week in January 2022. If someone doesn't want to wait, contact Doug-AA0AW via email to schedule private testing session

Motion to adjourn by Dave-AA0AC, seconded by Gary-KD9ABS, motion passed at 7:22 pm

ARAC Club Meeting

September 9, 2021

There were no official Minutes taken for this meeting, however the Club voted on acceptance of the August Treasurer's Report, submitted by Bruce Carlson - KN0NUL as follows:

August 2021 Treasurer's Report
for presentation at September 2021 club meeting

Checking	$	3,138.31
Savings	$	2,174.01
Subtotal Cash		**$5,312.32**
Winter CD	$	1,724.37
Summer CD		0.00
Subtotal CDs		**$1,724.37**

Assets Subtotal: $7,036.69

Minus Reserved Funds

Mat. Rptr.	($1,100.00)
Bob Boyd Memorial	($1,190.00)

Reserved Subtotal: $2,290.00

Grand Total $ 4,746.69

The Program was presented via Zoom and featured Astro Bob.

Prez Sez ...

Hi everyone,

Well, it is that time of the year. We start doing those last minute antenna projects before the snow flies. While wanting to quickly finish the project, don't forget to do it safely:

- **Don't try to do it without help**
- **Be sure to have a meeting with everyone involved so you all know what the plan is**
- **Remember, extra sets of eyes prevent an accident**
- **Have all the proper tools and make sure they are in good condition**
- **Inspect all ropes to be used so you don't have a failure**

Taking a few extra minutes will help ensure a safe and successful project!

Also:
We are now taking nominations for Board positions, so if you would like to support the Club, let any of the current Board members know.

73,

Gene Ellefsen NØVRM

ARAC New or Upgraded Hams

General: Aaron Johnson-KE0OPK
Technician: Mara Ohrt-KF0FLG
Technician: Jordan Chopskie-KF0EDQ
Technician: Tom Maida-KF0ALP

Congratulations on passing your test and welcome to the ARAC Club!

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.

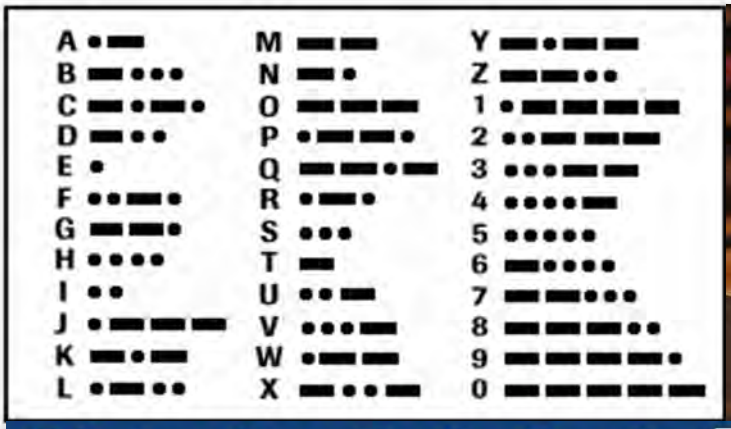
Air Force MARS operation's and procedures are based upon "MARS Operating Instruction", (MOI). The MOI manual uses as its basis for instruction a series of Allied Communications Publications (ACP's), Department of Defense Directives, Department of Defense Instructions, and Department of Defense Manual.

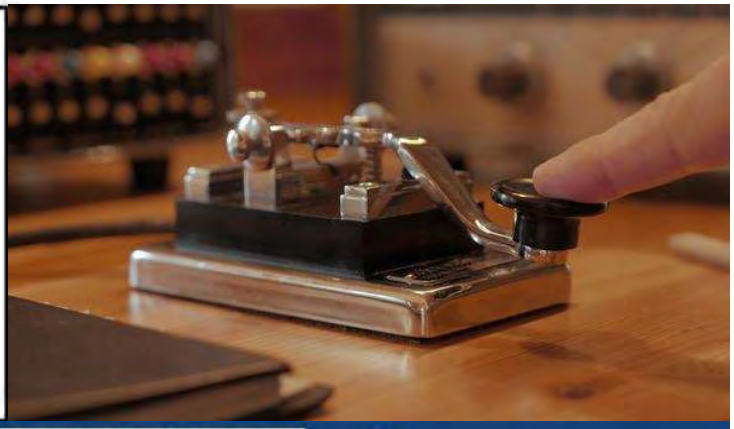
If you already belong to a MARS program and would like to consider Air Force MARS, please contact one of the recruiting team members.

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 Buzy?	QRU Have anything for me	
QRV Are You Ready?	QRX Standby	QRS Transit Slower	





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 Telecoms 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.

2,200 Meters (135 kHz)
E,A,G
135.7 kHz 1 W EIRP maximum 137.8 kHz

630 Meters (472 kHz)
E,A,G
472 kHz 479 kHz
5 W EIRP maximum, except in Alaska within 496 miles of Russia where the power limit is 1 W EIRP.

160 Meters (1.8 MHz)
Avoid interference to radiolocation operations from 1.900 to 2.000 MHz
E,A,G
1.800 1.900 2.000 MHz

80 Meters (3.5 MHz)
3.500 3.600 3.700 4.000 MHz
E
A
G
N,T (200 W)
3.525 3.600 3.800

60 Meters (5.3 MHz)
CW, Dig 5332 5348 5358 5373 5405 kHz
USB 5330.5 5346.5 5357.0 5371.5 5403.5 kHz
2.8 kHz
E,A,G (100 W)
General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.

40 Meters (7 MHz)
7.000 7.075 7.100 7.300 MHz
ITU 1,3 and FCC region 2 west of 130° west or below 20° north
E
A
G
N,T (200 W)
7.175
N,T outside region 2
7.025 7.125
See Sections 97.305(c), 97.307(f)(11) and 97.301(e). These exemptions do not apply to stations in the continental US.

30 Meters (10.1 MHz)
Avoid interference to fixed services outside the US.
200 Watts PEP
E,A,G
10.100 10.150 MHz

20 Meters (14 MHz)
14.000 14.150 14.350 MHz
E
A
G
14.175
14.025 14.150 14.225

17 Meters (18 MHz)
E,A,G
18.068 18.110 18.168 MHz

15 Meters (21 MHz)
21.000 21.200 21.450 MHz
E
A
G
21.225
N,T (200 W)
21.025 21.275 21.200

12 Meters (24 MHz)
E,A,G
24.890 24.930 24.990 MHz

10 Meters (28 MHz)
28.000 28.300 29.700 MHz
E,A,G
N,T (200 W)
28.000 28.500

6 Meters (50 MHz)
50.1
E,A,G,T
50.0 54.0 MHz

2 Meters (144 MHz)
144.1
E,A,G,T
144.0 148.0 MHz

1.25 Meters (222 MHz)
E,A,G,T
N (25 W)
219.0 220.0 222.0 225.0 MHz

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

70 cm (420 MHz)*
E,A,G,T
420.0 450.0 MHz

33 cm (902 MHz)*
E,A,G,T
902.0 928.0 MHz

23 cm (1240 MHz)*
1240 1300 MHz
E,A,G,T
N (5 W)
1270 1295

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
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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

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NETS

Have a favorite HF/6m/2m/1.25m/7Øcm 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 2ØØØ on the ARAC repeater (146.940 MHz with a tone of 103.5 and standard offset).
- **Minnesota D-Star Net:** Sundays at 19:3Ø on Reflector 53A
- **Minnesota Section Net** 12ØØ and 173Ø on 3.86Ø [Net Manager: NØYR] http://www.mn-section.org/dept_stm.html
- The non-non-net: Evenings 2ØØØ 144.2ØØ USB except for Sunday evenings.
- Badger WX Net: Ø5ØØ-Ø715 on 3.985. Give 24 hour high/low/current temperature, precipitation and snowfall.
- **PICONET**: 3.925 from Ø9ØØ-11ØØ CT Mon-Sat and 16ØØ-17ØØ CT Mon-Fri. Info at: http://www.piconet3925.com
- Michigan Upper Peninsula Net: 16ØØ (CST) on 3.921 MHz Sun-Sat and 12ØØ Sun. Info: http://www.michupnet.com
- Great Lakes Marine/Maritime Mobile Net: Morning Ø7:3Ø - 3.932; Ø8:15 - 7.261 MHz and evening 18:3Ø - 3.173Ø927; 19:15 - 7.268 MHz. Weekend extra net: 1Ø:ØØ - 7.261/7.268 MHz. All CST, LSB and +/- QRM. See: http://www.sailblogs.com/member/glmmnet/
- MIDCARS: Ø7:3Ø-13:ØØ - 7.258 MHz. See: http://www.midcars.net
- Iowa snowbird net on 14.257MHz, M-W-F at 1Ø:ØØ am Local Time. This is an open net.
- Spider Web Net (Marco Island FL) on 14.347 every morning at Ø73Ø CST/CDT: http://www.spiderwebnet.net
- Maritime Mobile Service Network: Daily at 11ØØ—21ØØ Central on 14.3ØØ. http://mmsn.org and http://www.143ØØ.net
- RV Radio Network: Every day at 19ØØ Central on 7.265 MHz. Web site: http://www.rvradionetwork.com
- Upper Midwest Ten Meter Net: Every Thursday Evening @ 8 PM – 28.48Ø 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 – 28.48Ø MHz USB
- Hobby Helpers Net - Tuesday @ 8 PM – 28.33Ø MHz USB (Isanti MN) LSB [Net Manager: WOØA].
- Northstar Trader Net: 3.9Ø8 +/- at Ø83Ø CST Sundays
- WARFA: 3.9Ø8 +/- Sun/Tue/Thu nights at 22ØØ CST, http://warfa.org/
- Youth Net: 14.32Ø-1433Ø Sundays 18ØØ-19ØØ UTC, Net Control: AC8PI
- YACHT: Saturdays 19ØØ CST on EchoLink #481872, http://yachthams.webstarts.com
- Northwestern Ontario ARES Net: Evenings at 2Ø:15 (Central) on +/- 3.75ØMhz
- The Iron Range Net: Saturdays at Ø8ØØ Central time on or near 3.919 Mhz. Look them up on Facebook!
- FORX Net: Mondays at 19ØØ Central at 3.941 Mhz +/- QRM. WAØJXT — Grand Forks, North Dakota
- HF CW: Fridays Ø8:ØØ CST, 7.112 MHz. Informal slow speed CW Net. W8IRT NCS. Email: w8irt@aol.com
- Minnesota ARES Digital Net: Thursdays at 2ØØØ CST, 3.5835 MHz USB +/- QRM, Mode: Olivia 8/5ØØ.
- SARA Digital Net: Sundays at 19ØØ Local, 3.582.15Ø MHz USB +/- QRM, Mode: BPSK31/BPSK63
- Spider Web Net (Marco Island FL): 14.347 every morning at Ø73Ø CST/CDT: http://www.spiderwebnet.net
- Broadcaster Net: 7.231 or 3.855 M/W/F @ 15ØØ UTC. 14.255 M-F @ 213Ø UTC. http://www.cbsretirees.com/ham.htm
- Old Military Radio Net: 7.268 +/- nightly at Ø2ØØz. Other times/Frequencies too. See: http://www.mrca.ar88.net/
- Rag Chew Crew/Tailgaters/Freewheelers Nets: 3.916 +/- nightly at 19ØØ CST, http://www.tailgatersnet.com
- North South Net: 7.214.6 +/- at Ø7ØØ CST, Monday-Saturday

Next ARAC Board Meeting

Tuesday, October 5, 2Ø21
@ 6:30 p.m.
Sammy's Pizza

Next ARAC Club Meeting

Thursday,
October 14, 2021
7 p.m.
Coppertop Church!

PLEASE WEAR A MASK,
as requested by our hosts at the Coppertop Church!

October 14th

What:
SWR Mobile Radio Check
Where:
Parking Lot after the Club Meeting!

- *Do you know the Standing Wave Ratio on your mobile radio?*
- *This important test will tell you how much power your radio is transferring to your antenna*
- *The lower the SWR reading, the better*
- *See if you're losing output power!*

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

Contact Mike NØPDG at lovoldm@gmail.com

HAPPY HARVEST

Duluth Area Repeaters

ARAC System WØGKP

Freq.	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	123.0	Solway (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)

LSAC System #1

147.330	plus	151.4	Proctor
147.330	plus	103.5	Duluth (recv 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 / ɛl-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	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…

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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,

SUNDAY NIGHT NETS
193Ø - **CW - 28.125 MHz USB-CW**
2ØØØ -**USB 28.45Ø MHz**
21ØØ - **Southern St. Louis County Emergency Services Net**

MONDAY NIGHT NETS
2ØØØ- **Northland WX Net -** ARAC Repeater

OCTOBER
CLUB EVENTS

TUESDAY NIGHT NETS
2ØØØ -**Douglas Cty 145.49Ø MHz**
2Ø3Ø -**Central Carlton County**

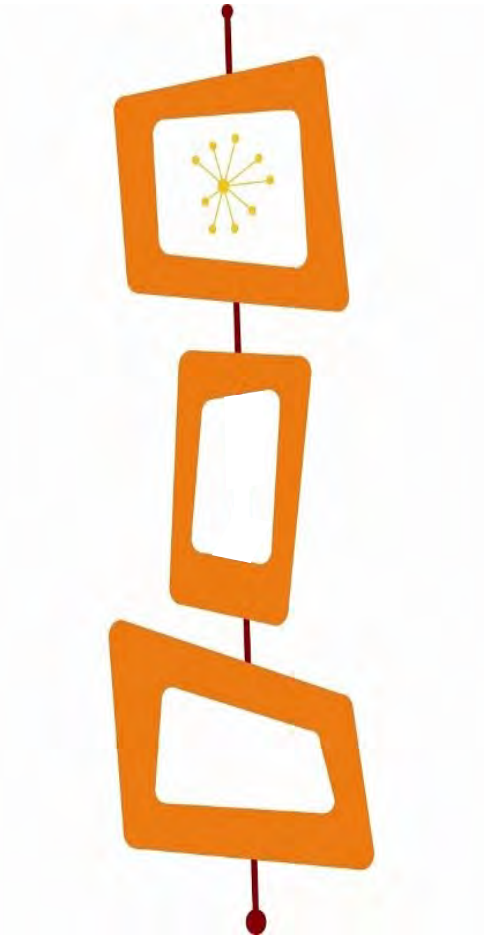
WEDNESDAY NIGHT NETS
19ØØ -**Lake County - LSAC1**
2nd & 4th Wednesdays
21ØØ -**BWAR**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3 CW 1930 AAØAW USB 2000 K9KDK ES 2100 WØNWO	4 WX 2000 KCØMKS	5 **ARAC BOARD MEETING** **Sammy's Pizza** **6:30 pm** DC Net 2000 CC Net 2030	6	7	8	9
10 CW 1930 NØPDG USB 2000 ES 2100 NØVRM	11 **DC ARES/ RACES Mtg** **1900 DC EOC** WX 2000 KCØMKS	12 DC Net 2000 CC Net 2030	13 **Lake County ARES/RACES Meeting 1800** Lake County Net 1900 21ØØ -**BWAR**	14 **ARAC Club Meeting** **Coppertop!** **7 pm**	15	16
17 CW 1930 AAØAW USB 2000 NØVRM ES 2100	18 WX 2000 KCØMKS	19 DC Net 2000 CC Net 2030	20 **St. Louis County ARES/ RACES Mtg** **1630 Pike Lake EOC** 21ØØ -**BWAR**	21	22	23
24 CW 1930 NØPDG USB 2000 NØPDG ES 2100 AAØME	25 WX 2000 KCØMKS	26 DC Net 2000 CC Net 2030	27 Lake County Net 1900 21ØØ -**BWAR**	28 **Carlton County ARES/RACES Meeting** **1900 CC EOC**	29	30 **ARAC Club Breakfast** **The Chalet** **4833 Miller Trunk Hwy** **Hermantown, MN** **8 am**
31 *HAPPY HALLOWEEN* CW 1930 AAØAW USB 2000 AAØAW ES 2100 N9DMG						

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

Next Meeting: Thursday,
October 14, 2021 - 7 pm
at the Coppertop Church!

ARAC Committee Chairs



Club License Trustee:
Ray Barnes KEØZN

Control Operators:
AAØAW - NØKXT - KCØNFB

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Kim KEØNQS & Steve KEØNQT Waller

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Bob Schulz KCØNFB

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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 delivered 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

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

Scanners, Continued from Page 1

Evolving Technology

As scanner technology evolved, more channels and bands were added and soon programmable models were introduced. Scanners grew as a hobby and more people, both law abiding citizens and criminals, were monitoring police & emergency traffic. Police communications started to move from the VHF bands to UHF, going to 400 MHz and then to 800 MHz analog. Then digital communications dawned on UHF, primarily 800 MHz or 900 MHz, as is still in use today.

WA9BD notes that there still is some VHF analog out there being used by smaller police departments in little towns here and there. They are usually on 154 MHz with a single Motorola base station and mobile units out in the field. When you find these, it's an interesting and novel occurrence, a little glimpse of traveling back in time...

With 800 MHz digital systems, microwave transmissions and the internet of course, law enforcement can easily establish connectivity state-wide. A small town police department or city can talk amongst its group of officers and also connect to an adjacent jurisdiction as the need arises, as well as the state police. They can use a variety of channels to talk to other agencies while using the same radios to talk to each other in their local departments.

Vintage Motorola Base Station

Trunking

Around 25 years ago or so, trunking technology entered the scene. Most current public safety systems and many utility companies are using trunking systems. In trunking, an entity is assigned a group of frequencies and one or two of the frequencies is called a control frequency.

WA9BD describes the fundamentals: "When a unit in the field, such as a police officer, paramedic, fire fighter, or utility lineman, keys his radio, the control channel recognizes that signal and it shifts an unused frequency to that radio so that he can communicate with headquarters or car to car, whatever or however the department or talk groups are set up. These days many of them are digital. Just like in amateur radio there is DMR, there's P25, Phase 1 and Phase 2. There's ProVoice, a Motorola proprietary standard. And [the various technologies] don't talk to each other. So if an agency is on DMR, everything in that agency needs to be on DMR. It's the same way as in amateur radio. We've got D Star, DMR, Straight FM. All the technologies that we have, it's the same way. Trunking systems are more sophisticated as they can be encrypted. If an agency does have an encrypted system, there's not a [scanner] out there that would enable you to hear it. "

Side note alternative to buying a scanner: There is a website called Broadcastify.com where you can select a city and a service, if it is listed, then listen to it on the internet. This is accomplished by people feeding the scanner audio from their local jurisdictions to Broadcastify, who in turn, broadcasts it to the internet.

Choosing a Scanner

WA9BD says that before you buy a scanner, you might want to consider what it is you actually want to listen to first. There are a lot of different scanners on the market, but the biggest brand with the most variety of offerings is Uniden, a name that has been around for decades in the communications industry. There are basic scanners without as many memory settings and scanners with a multitude of memory settings and features.

Continued on Page 16

Simulcast Systems

Find out what your city, county and state are using and if they are simulcast systems. What is a simulcast system? WA9BD describes how it works: "One 911 call center may be set up for a sizable geographic area to dispatch police, fire and paramedics. They will use multiple towers and multiple receive sites in order to cover the entire area. This is critical so that there is no loss of communications in an emergency. At 800 MHz, the range is somewhat limited, the higher you go in frequency.

"So in creating a simulcast system, when the dispatcher makes a call, it goes to the transmitter in all of the towers in the geographic network and they all transmit that call. if you were to try to hear it on a ***typical*** scanner, what happens is this: Since those towers are various miles away from your position, for example there might be one that is 6 miles away from your ham shack and yet another that's 8 miles away from you, and perhaps one that is only 2 miles away. What happens is all those signals arrive to your scanner from different distances and the scanner does not know what to do with them because they are all out of sync. Some are closer so they arrive sooner. Others arrive at different intervals. You could not hear the whole conversation because the audio is choppy. Fortunately, Uniden does make a scanner that deals with this issue, the SDS series. The general opinion is that ***SDS*** stands for ***software defined scanner***, but this is not confirmed. These scanners have 'I/Q' technology and are great scanners for simulcast systems."

So, if all you really are interested in listening to is amateur radio repeaters, any scanner will work, and you could start with a used one. A basic scanner will also enable you to listen to weather and even railroads. If you want to listen to emergency traffic, Brad - WA9BD says that if you find out your local system is 800 MHz trunked, but not simulcast, Uniden makes some good scanners for that purpose that aren't as expensive as their simulcast-capable models. And, if you find out your local city county is encrypted, don't your waste your money on buying a scanner if your primary goal was listening to them. Again, a scanner will not be able to listen to encrypted transmissions.

What Scanners are in WA9BD's ham shack?

1.**The RadioShack Pro-2066**
Brad has owned this for 20+years. Made by Uniden, this scanner receives all the way up to 800 MHz. With 150 channels in 10 banks, it receives all modes: aircraft, FM, High & Low, UHF. It is a "TrunkTracker", so it does do trunking. If you have a conventional system, such as Motorola phase 1 and 2 that are trunked, it handles that. It has a standard BNC antenna connector on the back and it is 12 Volt, so you can run it in your mobile. You can still buy this scanner used at hamfests and various places on the internet.

Radio Shack Pro-2066

Made by Uniden,

Circa 2001

Continued on Page 17

Scanners, Continued from Page 16

2. The Uniden Bearcat TrunkTracker III BC15X

This is an analog scanner and has been on the market for six years or so. It sells for about $170 and it has got:

- 9000 dynamically allocated channels
- Close Call RF Capture Technology, a Uniden feature that instantly tunes to signals from nearby transmitters. Close Call can operate by itself or in the background while scanning and.or searching.
- TrunkTracker III technology lets you can keep up with the action on Motorola, EDACS and LTR systems. Individual channel volume offset. Alpha Tagging
- Location-based scanning if you connect an optional GPS to it.
- State-by-state pre-programmed channels for local police, DOT, and Highway Patrol frequencies when you travel, without having to program
- 100 system Quick Keys with 10-channel group Quick Keys per system; system/channel number tagging for rapid access.
- Continuous Band Coverage* - 25MHz to 1.3GHz Excluding UHF TV and Cellular

Uniden Bearcat TrunkTracker III BCT15X

3. The Uniden SDS200 True I/Q TrunkTracker X

Brad says this digital scanner does everything you could want, including taking care of simulcast systems. He notes that the scanner has a steep learning curve to program these, so program it with software. Uniden includes its own free Sentinel software, for programming channels and for customizing your color display settings. Sentinel keeps the scanner up to date for as long as you own it. TrunkTracker X technology provides the best digital decode performance in the scanner industry. Direct Ethernet connectivity for streaming and control. Complete USA/Canada radio database. Location control for simple operation and a large 3.5" customizable color display.

Other features:

Location-Based Scanning
ZIP Code Selection for Easy Setup
GPS Connectivity for simple mobile operation
Close Call™ RF Capture with Do Not Disturb
8 GB micro SD
Soft Keys for Intelligent UI
Recording, Playback, and Replay
Temporary Avoid
Fire Tone-Out Alert

Frequency Coverage:

25-512 MHz
758-824 MHz
849-869 MHz
895-960 MHz
1240-1300 MHz

Bottom line: If you want a very versatile, top-of-the-line scanner, the **Uniden SDS200** is it. At $700 it's a little pricey, but many in the hobby say it is well worth it and they expect it to be relevant for many years to come.

Our thanks to Brad Darnell – WA9BD for sharing his expert opinion. You can find Brad on Amateur Radio Today TV as an Roku app on a device near you. ★

Uniden SDS200 True I/Q TrunkTracker X

Tell us about your experiences with scanners at KEØNQS.mn@gmail.com & we'll share it in an upcoming Relay!

Contest Calendar - October 2021

+ NCCC RTTY Sprint	0145Z-0215Z, Oct 1
+ NCCC Sprint	0230Z-0300Z, Oct 1
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 1
+ TRC DX Contest	0600Z, Oct 2 to 1800Z, Oct 3
+ Oceania DX Contest, Phone	0600Z, Oct 2 to 0600Z, Oct 3
+ Russian WW Digital Contest	1200Z, Oct 2 to 1159Z, Oct 3
+ Two-Meter Classic Sprint	1300Z-1330Z, Oct 2
+ IARU Region 1 UHF/Microwaves Contest	1400Z, Oct 2 to 1400Z, Oct 3
+ International HELL-Contest	1600Z-1800Z, Oct 2 (80m) and
+ International HELL-Contest	0900Z-1100Z, Oct 3 (40m)
+ California QSO Party	1600Z, Oct 2 to 2200Z, Oct 3
+ SKCC QSO Party	1800Z, Oct 2 to 1800Z, Oct 3
+ RSGB DX Contest	0500Z-2300Z, Oct 3 0600Z-0900Z, Oct 3 0700Z-1000Z, Oct 3 2200Z-2359Z, Oct 3
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 4
+ RSGB 80m Autumn Series, CW	1900Z-2030Z, Oct 4
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 5
+ ARS Spartan Sprint	0100Z-0300Z, Oct 5
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 5
+ Phone Weekly Test - Fray	0230Z-0300Z, Oct 6
+ CWops Mini-CWT Test	1300Z-1400Z, Oct 6
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Oct 6
+ 432 MHz Fall Sprint	1900 local - 2300 local, Oct 6
+ CWops Mini-CWT Test	1900Z-2000Z, Oct 6
+ UKEICC 80m Contest	2000Z-2100Z, Oct 6
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Oct 7 and
+ Walk for the Bacon QRP Contest	0200Z-0300Z, Oct 8
+ CWops Mini-CWT Test	0300Z-0400Z, Oct 7
+ CWops Mini-CWT Test	0700Z-0800Z, Oct 7
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 7

Continued on Page 19

Contest Calendar - October 2021, Continued

+ NRAU 10m Activity Contest	1700Z-1800Z, Oct 7 (CW) and 1800Z-1900Z, Oct 7 (SSB) and 1900Z-2000Z, Oct 7 (FM) and 2000Z-2100Z, Oct 7 (Dig)
+ SARL 80m QSO Party	1700Z-2000Z, Oct 7
+ EACW Meeting	1900Z-2000Z, Oct 7
+ SKCC Sprint Europe	1900Z-2100Z, Oct 7
+ NCCC RTTY Sprint	0145Z-0215Z, Oct 8
+ NCCC Sprint	0230Z-0300Z, Oct 8
+ YLRL DX/NA YL Anniversary Contest	1400Z, Oct 8 to 0200Z, Oct 10
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 8
+ QRP ARCI Fall QSO Party	0000Z-2359Z, Oct 9
+ Makrothen RTTY Contest	0000Z-0800Z, Oct 9 and 1600Z-2400Z, Oct 9 and 0800Z-1600Z, Oct 10
+ Nevada QSO Party	0300Z, Oct 9 to 2100Z, Oct 10
+ Oceania DX Contest, CW	0600Z, Oct 9 to 0600Z, Oct 10
+ Microwave Fall Sprint	0800 local - 1400 local, Oct 9
+ Scandinavian Activity Contest, SSB	1200Z, Oct 9 to 1200Z, Oct 10
+ SKCC Weekend Sprintathon	1200Z, Oct 9 to 2400Z, Oct 10
+ Arizona QSO Party	1500Z, Oct 9 to 0500Z, Oct 10
+ Cosack's Honor VHF/UHF Contest	1600Z, Oct 9 to 0400Z, Oct 10
+ Pennsylvania QSO Party	1600Z, Oct 9 to 0400Z, Oct 10 and 1300Z-2200Z, Oct 10
+ South Dakota QSO Party	1800Z, Oct 9 to 1800Z, Oct 10
+ PODXS 070 Club 160m Great Pumpkin Sprint	2000Z, Oct 9 to 2000Z, Oct 10
+ 10-10 Int. 10-10 Day Sprint	0001Z-2359Z, Oct 10
+ UBA ON Contest, CW	0600Z-0900Z, Oct 10
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 11
+ 4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Oct 11
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 12
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 12

Continued on Page 20

Contest Calendar - October 2021, Continued

+ NAQCC CW Sprint	0030Z-0230Z, Oct 13
+ Phone Weekly Test - Fray	0230Z-0300Z, Oct 13
+ CWops Mini-CWT Test	1300Z-1400Z, Oct 13
+ VHF-UHF FT8 Activity Contest	1700Z-2000Z, Oct 13
+ CWops Mini-CWT Test	1900Z-2000Z, Oct 13
+ RSGB 80m Autumn Series, Data	1900Z-2030Z, Oct 13
+ CWops Mini-CWT Test	0300Z-0400Z, Oct 14
+ CWops Mini-CWT Test	0700Z-0800Z, Oct 14
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 14
+ EACW Meeting	1900Z-2000Z, Oct 14
+ NCCC RTTY Sprint	0145Z-0215Z, Oct 15
+ NCCC Sprint	0230Z-0300Z, Oct 15
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 15
+ JARTS WW RTTY Contest	0000Z, Oct 16 to 2400Z, Oct 17
+ 10-10 Int. Fall Contest, CW	0001Z, Oct 16 to 2359Z, Oct 17
+ New York QSO Party	1400Z, Oct 16 to 0200Z, Oct 17
+ Worked All Germany Contest	1500Z, Oct 16 to 1459Z, Oct 17
+ Feld Hell Sprint	2000Z-2359Z, Oct 16
+ Argentina National 7 MHz Contest	2130Z-2230Z, Oct 16
+ Asia-Pacific Fall Sprint, CW	0000Z-0200Z, Oct 17
+ UBA ON Contest, 2m	0700Z-1000Z, Oct 17
+ Illinois QSO Party	1700Z, Oct 17 to 0100Z, Oct 18
+ RSGB RoLo CW	1900Z-2030Z, Oct 17
+ Run for the Bacon QRP Contest	2300Z, Oct 17 to 0100Z, Oct 18
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 18
+ ARRL School Club Roundup	1300Z, Oct 18 to 2359Z, Oct 22
+ RSGB FT4 Contest Series	1900Z-2030Z, Oct 18
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 19
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 19
+ Phone Weekly Test - Fray	0230Z-0300Z, Oct 20
+ CWops Mini-CWT Test	1300Z-1400Z, Oct 20

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Contest Calendar - October 2021, Continued

+ AGCW Semi-Automatic Key Evening	1900Z-2030Z, Oct 20
+ CWops Mini-CWT Test	1900Z-2000Z, Oct 20
+ Walk for the Bacon QRP Contest	0000Z-0100Z, Oct 21 and 0200Z-0300Z, Oct 22
+ CWops Mini-CWT Test	0300Z-0400Z, Oct 21
+ CWops Mini-CWT Test	0700Z-0800Z, Oct 21
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 21
+ EACW Meeting	1900Z-2000Z, Oct 21
+ NCCC RTTY Sprint	0145Z-0215Z, Oct 22
+ NCCC Sprint	0230Z-0300Z, Oct 22
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 22
+ YBDXPI FT8 Contest	0000Z, Oct 23 to 2359Z, Oct 24
+ Araucaria World Wide VHF Contest	0000Z, Oct 23 to 1600Z, Oct 24
+ ARRL EME Contest	0000Z, Oct 23 to 2359Z, Oct 24
+ UK/EI DX Contest, SSB	1200Z, Oct 23 to 1200Z, Oct 24
+ Stew Perry Topband Challenge	1500Z, Oct 23 to 1500Z, Oct 24
+ North American SSB Sprint Contest	0000Z-0400Z, Oct 24
+ Classic Exchange, CW	1400Z, Oct 24 to 0800Z, Oct 25 and 1400Z, Oct 26 to 0800Z, Oct 27
+ Telephone Pioneers QSO Party	1800Z, Oct 24 to 0300Z, Oct 25 and 1800Z, Oct 25 to 0300Z, Oct 26
+ K1USN Slow Speed Test	0000Z-0100Z, Oct 25
+ QCX Challenge	1300Z-1400Z, Oct 25
+ QCX Challenge	1900Z-2000Z, Oct 25
+ Worldwide Sideband Activity Contest	0100Z-0159Z, Oct 26
+ QCX Challenge	0300Z-0400Z, Oct 26
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 26
+ SKCC Sprint	0000Z-0200Z, Oct 27
+ Phone Weekly Test - Fray	0230Z-0300Z, Oct 27
+ CWops Mini-CWT Test	1300Z-1400Z, Oct 27
+ CWops Mini-CWT Test	1900Z-2000Z, Oct 27
+ UKEICC 80m Contest	2000Z-2100Z, Oct 27
+ CWops Mini-CWT Test	0300Z-0400Z, Oct 28

Continued on Page 22

Contest Calendar - October 2021, Continued

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.

+ CWops Mini-CWT Test	0700Z-0800Z, Oct 28
+ RTTYOPS Weeksprint	1700Z-1900Z, Oct 28
+ EACW Meeting	1900Z-2000Z, Oct 28
+ RSGB 80m Autumn Series, SSB	2000Z-2130Z, Oct 28
+ NCCC RTTY Sprint	0145Z-0215Z, Oct 29
+ NCCC Sprint	0230Z-0300Z, Oct 29
+ Zombie Shuffle	1600-2400 local, Oct 29
+ K1USN Slow Speed Test	2000Z-2100Z, Oct 29
+ CQ Worldwide DX Contest, SSB	0000Z, Oct 30 to 2359Z, Oct 31

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.