



The Repeater

Next Club Meeting

Thursday May 6, 2021,
7:00 PM

Via Zoom.
Login sent via email or upon request.

Program: TBA

Volume 2021, Issue 5

May 2021

Pat Cunningham	KD7MPA	
Don Bennett	KG7BP	(541) 973-3625
Mike Bach	WB6FFC	(541) 830-3346
John Armstrong	KF7UMK	(541) 899-1917
Tom McDermott	N5EG	(541) 734-4675
Club Web Page:		

pat@c2.com
kq7bp@arrl.net
eaglepoint.or@juno.com
john@kf7umk.com
n5eg@tapr.org
<http://k7mfr.org>

President
 Vice President
 Treasurer
 Secretary
 Newsletter & Membership

Club Notes

7QP is this weekend—the first Saturday in May. That's May 1st this year. The contest runs from 6:00 AM Pacific Daylight Time to Midnight (PDT).

The objective is for 7's to work everyone, and non-7's to work 7's. There are three other QSO parties going the same weekend, and the contest sponsors and N1MM+ have coordinated things so you can log all four contests in the same one log! Just copy the correct exchange for each contact. Then submit that one log to all four contest sponsors. They'll sort it all out on their end and score your effort according to their event.

If you need extra wallpaper to cover over that bad stain, this may be your chance to

(Continued on page 2)

The Repeater is the official newsletter of the Rogue Valley Amateur Radio Club, Inc. It is published 10 times a year—once per month excluding July and August.

Secretary's Report

2021-04-01 RVARC Meeting Minutes

Meeting was on Zoom at 7pm, with about 14 attendees.

7:06 pm Mike, WB6FFC and Allan, K7GT discussed towers.

7:10 pm 7QP will be held on May 1 from 6am to Midnight, with distributed operations allowed due to COVID-19.

Allan said he has a 5-element high-gain tri-band antenna to give away for free to anyone who will use it, rather than store it, and who has a tower on which to mount it.

Treasurer's report was that no changes to accounts occurred since last meeting.

7:16 pm Pat, KD7MPA, gave this month's presentation on FT8, and demonstrated its operation in WSJT-X:

Some excerpts from the slides are given below, along with links to several useful FT8/WSJT documents:

(Continued on page 2)

Club Notes

(Continued from page 1)

score several pieces.

Amy is planning a multi-county expedition.

In 7QP when you work someone who is on a county line, you enter a compound exchange as one contact. The N1MM+ logging program will figure out how many separate contacts and multipliers it is and automatically generate the right number.

For example, if you worked someone on the county line (or within 500 feet of) Jackson and Josephine counties, you would enter:

ORJAC/JOS as the section. N1MM knows this means two contacts, one with the station as Jackson County and one with that same station as Josephine county.

You can even do a triple-county (there's a few such locations in 7-land). Utah has one 5-county location but you would need a boat. However a vertical antenna would have a highly salty ground reference and probably work really well.

The rules are available at:

<http://www.ws7n.net/7QP/new/Page.asp?content=rules>

The program for May has not been firmed up at the time of newsletter publication.

Secretary's Report

(Continued from page 1)

What is FT8?

- Soundcard digital mode
- Capable of working weak signals
- Standardized exchange
- Time-synchronized transmission

Released June 29, 2017 by
Steven Franke (K9AN University of Illinois - UC)
Joe Taylor (K1JT Princeton)
8-frequency shift keying format
Protocol changed a little in December 2018

Fundamental tenets of communication Theory imply trade-offs involving:

- message length
- signaling rate
- bandwidth
- error-control coding
- modulation type
- decoding complexity
- minimum required signal-to-noise ratio (SNR)

FT8 Technical

- T/R sequence length: 15 s
- Message length: 77 bits + 14-bit CRC + 83 bits FEC = 174 bits
- Each symbol carries three bits ($8 = 2^3$), total number of symbols is $174/3 + 21 = 79$
- FEC code: (174,87) LDPC
- Modulation: 8-FSK, keying rate = tone spacing = 6.25 Hz ($6.25 \times 8 = 50$ Hz bandwidth)
- Synchronization: three 7x7 Costas arrays (start, middle, end of transmission) = 21 symbols
- Transmission duration: $79 \times 1920 / 12000 = 12.64$ s
- Decoding threshold: -20 dB (perhaps -24 dB with a priori decoding, TBD)
- Multi-decoder: finds and decodes all FT8 signals in passband
- Auto-sequencing after manual start of QSO

Exchange typically consists of

- Call signs
- Four-character Maidenhead locators
- Signal reports
- Acknowledgments

Because of multi-decoding we need callsigns (or hash) in all messages

Setup Equipment

- Radio w/ SSB
- CAT Control is a plus

(Continued on page 3)

Secretary's Report

(Continued from page 2)

- Sound Interface (Ex: Signal Link)
- Computer

Setup Software

- Install WSJTX
- Enter your callsign, grid square, sound card, radio interface *
- Select frequency / band
- Adjust levels
- Ensure Clock Accuracy (NTP/time.is)

Can use <https://time.is> to check your computer clock setting.

Setup Tips

- Adjust AF output level - transmit (barely move ALC)
- Enable logging & reporting to pskreporter.info
- Turn on auto-sequence

Can use PSKReporter at pskreporter.info to see locations of other stations, as well as predicted skip-zone.

References:

The FT4 and FT8 Communication Protocols
Motivation and design of the digital modes FT4 and FT8, and some details of how they are implemented in WSJT-X.

https://physics.princeton.edu/pulsar/k1jt/FT4_FT8_QEX.pdf

WSJT Home Page

<https://physics.princeton.edu/pulsar/k1jt/index.html>

WSJT-X 2.3 User Guide by Joseph H Taylor, Jr, K1JT

<https://physics.princeton.edu/pulsar/k1jt/wsjsx-doc/wsjsx-main-2.3.1.html>

Synchronization in FT8: What the heck is a Costas Array? by Mike Hasselbeck, WB2FKO

http://www.sportsclique.com/wb2fko/TechFest_2019_WB2FKO_revised.pdf

Synchronization in FT8 by M.P. Hasselbeck, WB2FKO

<http://laarc.weebly.com/uploads/7/3/2/9/73292865/ft8syncv8.pdf>

FT8 Operating Guide: Weak signal HF DXing for

Secretary's Report

technophiles by Gary Hinson ZL2iFB

https://www.g4ifb.com/FT8_Hinson_tips_for_HF_DXers.pdf

Amateur Radio Digital Communication Mode

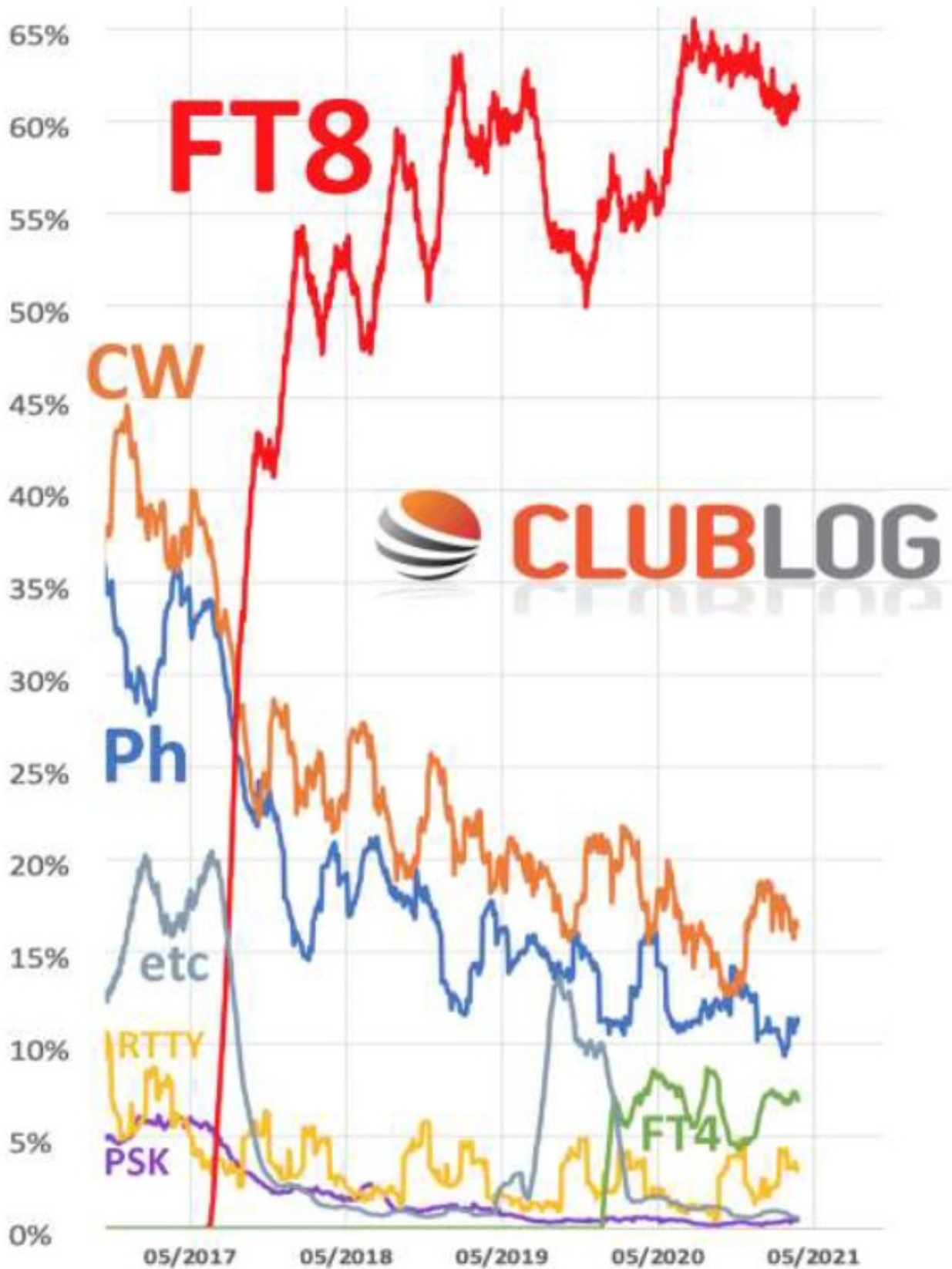
FT8 by Dale Burmester, KA9SWE
<http://site.ieee.org/msn/files/2019/04/FT8-KA9SWE.pdf>

8:50 pm General discussion among attendees including Scott, AJ7S about the Hunter Communications fiber rollout, and Lyle, WB7VUF about Sat Comms.

9:30 pm Meeting Adjourned

John KF7UMK, Secretary

Secretary's Report



This Month's Program

1. TBA

Program:

- To Be Announced.

Biography:

May 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 • 7QP
2 • CP ERC Net	3 • CARE Net	4 • 2M SSB Net	5 • 2M SSB Net	6 • RVARC Meeting Zoom • ARES Net	7	8
9 • CP ERC Net	10 • CARE Net	11 • 2M SSB Net	12 • 2M SSB Net	13 • Rogue Hack Lab Zoom	14	15
16 • CP ERC Net	17 • CARE Net	18 • 2M SSB Net	19 • 2M SSB Net	20 • ARES Net	21	22
23 • CP ERC Net	24 • CARE Net	25 • 2M SSB Net	26 • 2M SSB Net	27 • ARES Net	28	29
30 • CP ERC Net	31 • CARE Net					

Events

Meetings

- **RVARC** via Zoom.
- **Rogue Hack Lab** via Zoom.
- **CARE** UNKNOWN status.
- **JC-ARES** UNKNOWN status.

Nets

- **JC-ARES** Thursdays 7:30 PM - K7JAX Mt. Baldy Repeater 146.840 (-) [PL 123.0]
- **CARE** Mondays 7:00 PM— KB7SKB Jacksonville Repeater 147.100 (-) [PL 136.5], open, directed net, visitors welcome
- **2 Meter SSB** Tuesdays 7:00PM and Wednesdays 10:00 AM—144.200 USB
- **Central Point Emergency Radio Communications** Sundays 8:30 PM— KB7QMV Medford Repeater 145.410 (-) [PL none]. Move to simplex net on 147.585 MHz when finished. Directed net.
- **Siskiyou County ARC** Thursdays 7:00 PM—Net K6SIS Repeater 146.79 (-) [PL 100.0]

RVARC Membership

RVARC membership dues run from January 1 through December 31. Please bring cash or a check payable to RVARC to a club meeting, or mail (checks only) to:

RVARC Membership
c/o 1940 Stevens Rd.
Eagle Point OR 97524-6523

Regular Member:	\$20.00
Senior Member (62 and over):	\$15.00
Family Member:	\$20.00
Student Member:	\$10.00

2020 Amateur Radio Examinations

In the Rogue Valley, amateur radio exams are provided by the RVARC and the SOARC. New exam participants need to provide identification, while upgrading amateurs need to **provide a copy of their current license** as well as show identification. The exam fee for 2019 remains \$15.00. All license candidates must provide a picture ID. Upgrading amateurs must also provide a photocopy of their current license to send in with their application. To search for other exam locations, see:

<http://www.arrl.org/arrlvec/examsearch.phtml> or our club webpage: <http://w7dta.org>

Medford—Phoenix, OR

Time: Saturdays, Registration 8:30 AM. Exam session at 9:00 AM. Walk-ins welcome.

Location: Fire District 5 HQ. 5811 South Pacific Highway, Phoenix, Oregon 97535

Dates 2021: **Suspended due to COVID-19**

Contact: Don Bennett, Email: kq7bp@arrl.net Phone: (541) 973-3625

Grants Pass

Time: Fridays Registration 6:00 PM. Exam session at 6:30 PM. **NO WALK-INS** due to COVID. Please email a reservation request to John.

Location: Fruitdale Grange. 1440 Parkdale Dr., Grants Pass OR 97527-5288

Dates 2021: **May 21 Aug 20 Nov 19**

Contact: John Stubbe, K7VSU, email: jstubbe7@gmail.com Phone: (541) 218-2244

Roseburg, Bend, Redding, Brookings, Crescent City — Please see our club webpage, <http://k7mfr.org> for updates as we receive schedules for these cities.

Next Club Meeting

**Thursday May 6, 2020,
7:00 PM**

Via Zoom. Login sent via email or upon request.

Program: TBA