



# Capers

## April - 2018

Candlewood Amateur Radio Association  
P.O. Box 741 – Hawleyville, CT 06440-0741  
Visit us on the Web at <http://www.CaraRadioClub.org>

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**Next CARA Meeting:  
Friday, April 13, Stony Hill Fire Station**

### ***“WSJT-X FT8 mode communications”***

***Learn about this exciting new weak-signal digital mode.***

***What’s FT8 ?***

***What equipment and antenna(s) do I need to operate FT8 ?***

***How do I configure my rig and computer?***

***How do I operate FT8 ?***

***We’ll try to have an HF Go-Kit with an outdoor antenna to use during the PowerPoint presentation for some live contacts.***

***Don’t miss this opportunity to learn all about FT8 and ask questions too.***

***Doors open at 7:30 for socializing and conversation.  
Business meeting begins at 8:00 p.m.***

#### ***Agenda:***

- ***Pledge of Allegiance***
- ***Reading of Minutes – N1GSA***
- ***Treasurer's Report – WX1T***
- ***Old Business***
- ***New Business***
- ***Presentation: “WSJT-X FT8 mode communications” by John Morelli,  
W1JGM***

## *President's Message - de AB1WV*



All,

I hope this finds all of you in prime Spring mode.

I've been getting some projects done around the house, including some antenna maintenance. After the continuous storms of March, I am definitely ready to be done with Winter.

I've been able to participate in the CW Academy CWT mini contests a few times. I also participated in the LA QSO Party. I have all of the QSO Parties for the states I still need for WAS in my calendar now. I figured that it would be a good way to get those last few states.

We have a great meeting coming up with a talk and demonstration of FT8 by our very own John Morelli, W1JGM.

We have planning to do for Field Day and our annual Hamfest, as well as other items. Remember, CARA is **your** club. Let's all participate together and make these events great for us and for our hobby.

Next month, we'll have a presentation by FlyRC, a local RC Aircraft enthusiasts club. There will be some planes on display including a 1/4 scale (I think) Piper Cub. The presentation will be done by several FlyRC members including Chris Vargo, KB1QM.

This should be very interesting.

Hope to see you all at the meetings over the next few months.

--... ..--  
Marcus  
AB1WV

## Vice-President's Message de N1NRP



Hello CARA Members and Friends of CARA:

I hope everyone survived the Winter without any undue circumstances. Unfortunately, my antennas suffered some significant damage over the past several months.

Several antenna support ropes broke during the wind storms, and some VHF/UHF antennas needed to be replaced.

Thanks go to Harlan-W1QH, and Marlon-KC1EHW for helping me get them repaired in time for the Winter Field Day event, which was held at my QTH.

Speaking of that - our score was 1360 points, and we placed 68<sup>th</sup> out of 265 in the WFD 2018 Home category results.

On Saturday, March 23, I hosted the follow up Offset Attenuator building session, where six CARA members and friends of CARA gathered to put the finishing touches on their project – just in time for the CARA Spring fox hunt, which will be held on Sunday, April 29. More details about that event are in this month's issue of the Capers.

The New England QSO Party will be held on the weekend of May 5-6 and CARA's arranged to

operate at W1AW on May 6. Yep, that's the ARRL's flagship station in Newington.

This is a special arrangement that we've made with the W1AW station managers, and it's a CARA member-only event and reservations are also required.

The ARRL Field Day on June 23-24 at Tarrywile is approaching FAST!

The Repeater Committee made some significant progress on our Motorola MSF-5000 2M machine during a work parties that were held on March 22 at the New Fairfield site and at Hugh's (W1HBR) QTH on April 4. There's a detailed report in this issue of the Capers.

We're proceeding with plans for repairs/improvements to the W1QI repeaters and the Repeater Committee will be announcing upcoming work parties very soon to get things back in order.

We'll also begin the process of nominating officers for the coming year; with elections scheduled for our June meeting. Now's the time to think about who you'd like to nominate for a CARA leadership position for the coming year.

Thank you to all CARA members who renewed their annual dues, and welcome to several new members.

It's your financial support that enables our programs and activities, including support of our repeater system.

I'll distribute an updated membership list in the very near future.

I hope to see you all at the next meeting.

73 - Jay

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## March 9 CARA Meeting Minutes de N1GSA



Meeting called to order at 8:05 by Pres. Marcus Swearingen.

Pledge of Allegiance was recited.

Round Robin introductions followed.

22 people were present.

Minutes of the preceding meeting was read and accepted with one exception.

Treasurer reported a balance of \$6912.39. Discussion followed regarding deposits and withdrawals thru the bank.

Gregory made a motion that the Treasurer report to the Executive Committee in the next week, the resolution of this problem.

Gregory reported on the Repeaters. The Yaesu machines have been reliable for the last 2 years.

A major event is required to change out the gear at the top of Spruce Mtn. This will be hopefully assisted by the Danbury Fire Dept.

Field Day Chairman Charlie reported on the event. There is ongoing discussion as to venue.

A proposed budget will be forthcoming as information is gathered. There is a signup sheet

online to reserve your timeslot to operate. There are also slots for setup and cleanup which are very important positions. Many hands make light work. Start time for the event is 2pm on Sat until 2pm on Sun.

Inventory and inspection of ropes, coax, and other gear will be necessary prior to the event.

John spoke on the Hamfest. He passed around new flyers for the Hamfest. He requested that everyone print and pass out these at various events that we attend.

He is sending out reminders and emails to everyone who gave their info over the last years.

John is going to try to meet with Edmund Town Hall event coordinator to setup a quiet room to hold a VE session as well as a half day rate.

He asked for an operating budget of \$1400 for the event. Gregory made this a motion. Motion passed.

Harlan reported that Tom Cheslock - K1TJC, has become a Silent Key.

Show and Tell portion of the evening began at 9:00pm.

Respectfully Submitted.  
Gary S. Adams - N1GSA,  
Secretary

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## March 23 - CARA Planning Meeting Minutes

de N1NRP, edited by W1QH

Meeting called to order at 8 PM by President, Marcus Swearingen, AB1WV.

It was discussed about the upcoming meeting agenda and presentation.

John, W1JGM, will be doing a demonstration on the new FT8 Digital mode. John asked if anyone had a buddy pole and possibly a radio to bring. W1QH offered to bring his go Kit. John is working on making it happen.

Charlie, KC1IBR, and David, KB1ZAC, are working on field day. David said the signup sheet for operating is filling up, but they need more people for the overnight spots and more people for setup and tear down.

Charlie set up an E-Mail specifically for field day correspondence as well as a Google phone number for voice mail. David will post the article that I wrote, and Oscar revised as we get closer to Field Day.

Jay, N1NRP, inquired about a dedicated radio for digital operations use and whether we can use FT8 at field day. Harlan said that the three CARA computers all have the WSJT-X program installed. This station could also be shared as a GOTA station.

Charlie asked Harlan If he notified SHFD about cancelling the use of the building on field Day. Harlan will contact the FD.

President's and VP's messages for CAPERS dead line as well as meeting minutes are to be submitted as always.

The Foxhunt Attenuator build is set for March 24th all are welcome.

CARA T-shirts have been ordered and should be available at our next Business meeting.

Tom WX1T said all issues with our checking account have been accounted for and the ledger is now all set.

John, W1JGM, talked about a session of trouble shooting the Motorola repeater at NFFD test site with participation from Roger, NG1R, and Hugh, W1HBR, John and the rest of the repeater committee welcome them with open arms! Also, there was talk about finally getting the machine to its permanent home with linking capabilities to NARA. John did mention that NARA is working on this as well.

Marcus talked about the ISS School project. The whole event would have to be setup well in advance because there is only a 10-minute window of communication. Marcus is looking into what schools would be interested. Jay suggested working with GBARC and the University of Bridgeport engineering and computer science class with the Discovery Museum.

Meeting adjourned at 9:40.

Respectfully Submitted:  
Jay Albano- N1NRP & Harlan Ford- W1QH



*March CARA Meeting Flashback:  
CARA holds DIY night:*

*de W1QK*

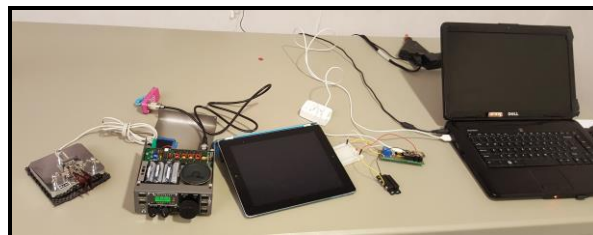
*Photo Credits: N1NRP & KC1EHW*



*CARA Director – Harlan- W1QH operating one of CARA’s newly-donated HP Probook Laptops during W1QK’s presentation.*



*(L-R) AC80, W1JGM, W1HBR, WA1JGA, WF1K and N2OHH*



*CARA President – Marcus-AB1WV brought his Elecraft K1 HF CW QRP kit with paddle and dummy load. He also described a micro-controller project that enables remote control of his garage door via cellphone.*



*ARES Brookfield EC – Dan-W1QK, explaining his combined HF/VHF Go-Kit, which includes an IC-7000 and IC-V6800 2M FM radio with a Voice/Packet interface switching box that he designed and built.*

*This addition allows headset/hand microphone selection, the use of a footswitch, and selection of either a headset or built-in speaker for the IC-V6800 2M rig.*

**CARA IS AN ARRL AFFILIATED CLUB**



*CARA Holds Final Offset Attenuator Project Building Session – March 24.*  
de N1NRP & W1QK

Photo credits: N1NRP & KC1IBR

On a beautiful March morning at 9 AM, the first ham was accompanied by two eggs over easy and Rye toast with a cup of robust coffee, while members of the GFARA and GBARC radio clubs were enjoying their ham 'n eggs at Chip's Diner in Trumbull, organized by Gary- WE1M.



Then, CARA's "Mighty 300" repeater came to life with hams calling in from all directions while making their way to N1NRP's mancave for the follow up offset attenuator building session.

The first to arrive was CARA's Secretary, Gary-N1GSA. I'm sure glad my XYL- Juliana, kept the coffee brewing, since Gary sure likes his cup of Joe.

Next to arrive were:

CARA member and Field Day assistant chairman, David-KB1ZAC.

CARA member/ GFARA President and instructor Jeff-KB1MZL

CARA Member, President Marcus- AB1WV attenuator build instructor with his daughter - Tori.

Marlon-KC1EHW - Mancave Technical Director and maintenance.

Scott- N1CWV.

GFARA Member and new CARA member, Sam W1SMF.

GFARA/GBARC member/ attenuator & instructor, David KB1LTW.

KC1IBR - Charlie, Field Day Chairman and FD Committee Member, Joe-KC1IBQ.



After signing in and filling out their raffle tickets, the group got to work on completing their attenuators under the direction of the instructors.

Lots of discussions and a few good jokes kept the event fun and interesting.



Soon - it was lunch time, and right on schedule- Sal's Pizza delivered their award-winning pizza and garden-fresh salad tray. For me, salad always tastes better from the restaurant.





After everyone enjoyed lunch, it was time to draw the raffle tickets.

Everyone was a winner: starting with Sam-W1SMF winning a CARA sticker. The next sticker was won by Jeff-KB1MZL. KC1IBR, KC1IBQ, AB1WV and David KB1LTW each won two CARA stickers.

This was a good sign that the raffle prizes were getting better.

Tori won the fourth prize, which was a nice bracelet. David- KB1ZAC, won the third prize; low voltage tester. Gary-N1GSA won the handy multi-meter second prize. Scott – N1CWV won first prize - a wide angle video dash cam. Scott had to leave early so Tori accepted his prize. Congratulations everyone.

After lunch and the raffle, the group made it back to the mancave to finish what was started.



All six unfinished offset attenuators were completed in preparation for the April 29th Spring Fox Hunt which will begin at 2PM at the Danbury Town Park, and is sponsored by CARA.

I'd like to thank all who participated, especially Dan-W1QK, who supplied the required Belden

8216 RG-174/68 patch cables - all tinned and ready to go; and to David- KB1LTW for ordering additional BNC Connectors.



Hope to see you all at the fox hunt

73, Jay

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## ANNOUNCING:

***CARA Spring Fox Hunt – Sunday, April 29.***

*Meet at the Danbury Candlewood Lake Town Park boat launch parking lot on Hayestown Rd. at 2:00 pm for registration.*

*Talk-in on the CARA W1QI 2M Repeater: 147.300, +100, PL100.*



## CARA Repeater Committee Update: de W1JGM & W1QK

Photo Credits: KC1IBR & W1JGM

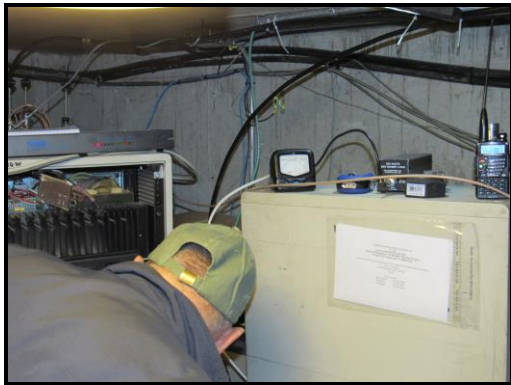
A work session was held at the CARA New Fairfield repeater site 17h00 to 20h30 on March 22.

The following CARA members were present:

W1JGM-John, W1QK-Dan, KB1EHW-Marlon,  
KC1IBR - Charlie, N1NRP-Jay, W1HBR-Hugh, &  
NG1R-Roger



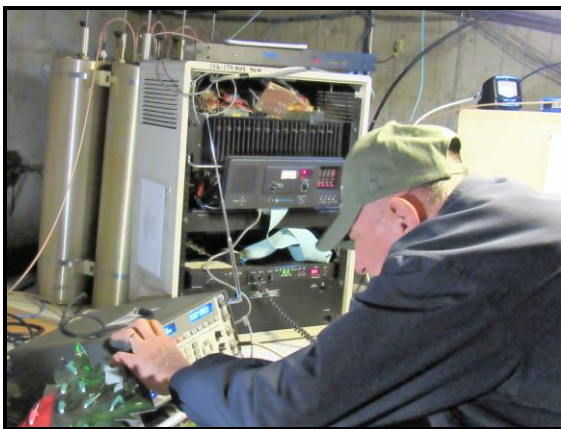
The first order of business was to check the current state of the repeater. The Arcom controller needed to be reset after 5 months of being de-energized. This was done by DTMF tone control, and the repeater responded. We also observed the Motorola returning an audible 4 beep code, and this diagnostic showed Battery Overvoltage. This alarm was intermittent during the session and reoccurred when the system was restarting.



The CARA Motorola MSF-5000 2M repeater was disconnected from the duplexer and the transmitter was connected to an SWR/Watt Meter, then to a Dummy load.



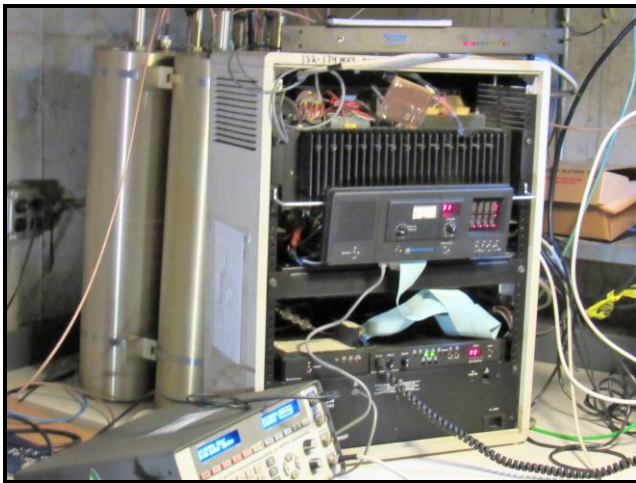
Hugh checked the receiver sensitivity next. We were anticipating .3uV for the receiver to accept a signal input and repeat it. However, the input signal required was 1.2uV for the system to acknowledge and retransmit. This specification wasn't acceptable to provide expected performance.



The receiver was connected to a station analyzer, provided by Hugh-W1HBR.



A 1000hz tone was injected in the audio input of the Arcom controller, and the system output was observed. The audio was distorted and clipped as determined using the test equipment that Hugh supplied. The audio was adjusted via for the "P1 TX" control until the output audio on the scope was clean, and un-clipped.



The transmitter output was measured at 70 Watts with an 1.2-1 SWR into the dummy load.

The repeater then seemed to perform satisfactorily.

The transmitter was connected to the station antenna, and the receiver connected to a small whip antenna. This arrangement would allow us to check the transmitter without interfering with the Spruce mountain repeater and check the over-the-air audio quality.



We then made several checks using an HT.

Checks were made with W1QH and WX1T. Tom was able to key the New Fairfield repeater and Harlan reported it clear. We also used the HT's to key the transmitter and audio reports were good.

We rechecked the receiver sensitivity, and still found it was at 1.2uV.

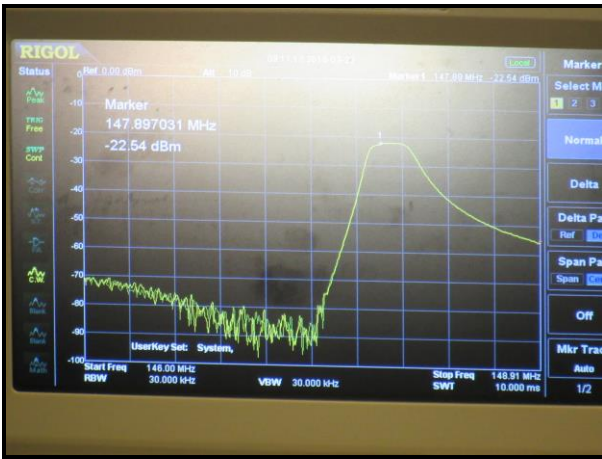
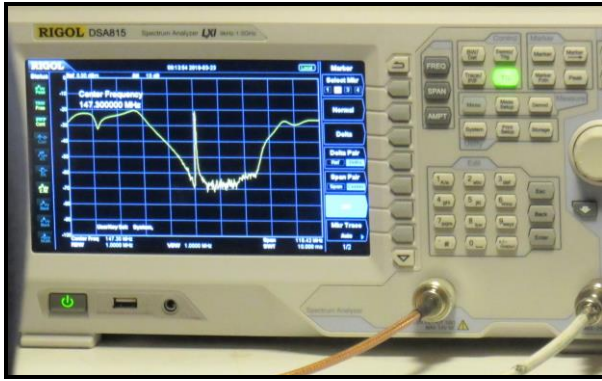
A technical discussion within the group followed.



It was decided to have Hugh take the repeater to his home to evaluate the receiver. The repeater, controller and PS were all removed for evaluation.

The duplexer was tested with a spectrum analyzer and found to be within specifications.





He checked and adjusted deviation levels on both the voice and CW identifications.

The time-out timer was confirmed as working properly.

DTMF tones were used to confirm proper linking and de-linking within the Arcom controller, which will enable linking via the UHF radio to the NARA repeater system.

A discussion followed about various minor “house-keeping” issues that still remain to be addressed, including installation of Anderson Power Pole connectors, and rodent-proofing the cabinet.

The repeater and controller were returned to the Company A New Fairfield repeater site. It will be activated when the present CARA 2M repeater will be shut off and the Motorola MSF-5000 will be returned to service. This will include the ability to link to the NARA repeater system for the weekly Sunday ARES State-wide net.

This session ended at 7:00 pm.

73  
W1JGM & W1QK  
For the CARA Repeater Committee

The session ended at ~20h30

Update 13h00

Hugh just sent me a note that he found a bad N-connector fitting in the receiver input, and the receiver is working properly. Hugh is looking into the over voltage error/fault.

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*Update: April 4 5:00pm*

W1JGM and W1QK gathered at W1HBR's QTH.

Hugh-W1HBR, ordered and swapped both input and output N-connectors on the repeater.

## New England QSO Party



To New England radio clubs:

**I'd appreciate your help in publicizing the upcoming New England QSO Party on May 5th and 6th. Please mention it at your next club meeting and in your newsletter.**

The NEQP is a great time to check out antenna systems and offers a moderately paced opportunity to work new states and countries. You'll find a wide variety of participants, from newcomers to experienced contesters, all interested in making contacts with New England stations.

We're working to make sure that all of the New England counties are active again this year and would appreciate your help. Get on for at least an hour or two and join in on the fun. Please let me know if you can put in any time at all so we can work on activity from the rarest counties. **Will you be QRV? Let us know which county you'll be on from with a message to [info@neqp.org](mailto:info@neqp.org)**

Oh yes, the NEQP is also **lots** of fun when mobile. Every time you cross a county line the action starts over again. It's amazing what a 100w radio and mobile whip can do.

The QSO Party is 20 hours long overall, in two sections with a civilized break for sleep Saturday night. It goes from 4pm Saturday until 1am Sunday, then 9am Sunday until 8pm Sunday. Operate on CW, SSB and digital modes on 80-40-20-15-10 meters. For each QSO you'll give your callsign, a signal report and your county/state. Top scorers can earn a plaque and everyone who makes 25 QSOs and sends in a log will get a certificate.

Last year we had logs from 177 New England stations and 460 more from around the country and world.

The full NEQP rules are here -

> <http://www.neqp.org/rules.html>

The 2017 results are posted and the results since 2002 are also available -

> <http://www.neqp.org/results.html>

**It's just about a month until the 2018 NEQP. Please make some QSOs even if you don't want to send in a log.**

Thanks!

73 Tom/K1KI

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*Editor:*

*To learn more about ARRL New England Division Director, Tom Frenaye – K1KI, and the origin of the New England QSO Party and some behind-the-scenes information, visit this link to the NCCC (Northern California Contest Club):*

<http://nccc.cc/jug/2016/04Apr2016.pdf>

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## ARRL Connecticut Section News:



ARRL CT Section Manager, Chuck Motes - K1DFS.  
No March SM message available.

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**CARA is an ARRL – Affiliated Club**

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## Connecticut Phone Net – CPN

Meets daily: M-F 6:00 p.m. 3.973 MHz.  
Sunday: 10:00 a.m. 3.965 MHz.  
CARA Contributions:  
Wednesday Net control: Harlan, W1QH  
Net Manager: Tom, WX1T

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### Weekly CARA NETS:

**CARA 10M “Rag Chew Net”:**  
28.490 MHz. 7:00 pm Sunday

**CARA 2M NET:**  
W1QI 2M Repeater – 7:30 pm Sunday

**CARA PSK31 Digital NET:**  
28.100 MHz. 7:00 pm Tuesday; 1500 Hz.

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## Worked All Connecticut Counties Award, WACC – Sponsored by CARA:

<http://www.cararadioclub.org/activities>

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### Upcoming Contests, Hamfests & Meetings:

- Apr. 9: 144 Mhz. Spring Sprint
- Apr. 9: ARES Region 5 South Meeting –  
Danbury EOC
- Apr. 14: GA QSO Party
- Apr. 14: YCCC Meeting – Sturbridge, MA
- Apr. 15: ND QSO Party
- Apr. 17: 222 MHz. Spring Sprint
- Apr. 21: MI QSO Party, YU DX Contest
- Apr. 20 – 22: Eastern VHF/UHF Conference,  
Manchester, CT
- Apr. 23: ARES Region 5 Meeting – Newtown  
EOC
- Apr. 25: 432 MHz. Spring Sprint
- Apr. 27: CARA Planning meeting – SHFD
- Apr. 28 - 29: Florida QSO Party
- Apr. 29: CARA Spring Fox Hunt
- Apr. 4, 11, 18, 25 CWOps CWT 1300Z, 1900Z,  
0300Z

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### New England and other local hamfests:

<http://web.mit.edu/w1gsl/Public/ne-fleas>

### Complete Contest calendar at:

<http://www.hornucopia.com/contestcal/contestcal.html>

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### Upcoming CARA Calendar:

- Apr. 13: CARA meeting – FT8 Presentation
- Apr. 27: Monthly CARA planning meeting –  
SHFD – Begins at 8:00 pm
- Apr. 29: CARA Spring Fox Hunt
- May 1: May Capers input deadline



## Update from the Programs & Activities Committee:

On Tue, Mar 20, 2018 at 8:14 PM Marcus Swearingen <[ramrog@yahoo.com](mailto:ramrog@yahoo.com)> wrote:

FYI:

I have scheduled a presentation with FLYRC, which is an RC Flight club, for May 11th.

Topics will be about their club and building planes including electronics and the radio side of it and how having an amateur radio license can be advantageous in the hobby. The main presenter is Chris Vargo, KB1QM.



Connecticut ARES Region 5 conducts a weekly net each Wednesday at 7:30 p.m.

New Milford: 146.730 MHz -600 kHz PL 192.8 Hz  
NARA analog repeaters for this net:

Washington: 441.850 MHz +5 MHz PL 77 Hz  
Woodbury: 444.800 +5 MHz PL 192.8 Hz  
Warren: 53.970 MHz -1 MHz PL 110.9 Hz  
Please check in – All are welcome.

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## 2018 CARA Ham Exam Schedule:



## 2018 Amateur radio exams sponsored by CARA at the Stony Hill FD:

June 9, September 8  
December 1. Starting at 11:30 a.m.  
Walk-ins are welcome, but it's helpful if candidates call or e-mail Frank Sileo, N1PE, at 203-438-0218, or send a message to [frsileo @ att.net](mailto:frsileo@att.net)

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## Upcoming VE exam sessions:

[Litchfield CT 06759-3404](tel:2034383404)

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04/10/2018

**Sponsor:** Northwest Amt

**Date:** Apr 10 2018

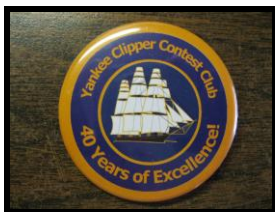
**Time:** 7:00 PM (Walk-ins allowed)

**Contact:** Lawrence S. Polowy  
(860) 283-4089

**Email:** [lspolowy@snet.net](mailto:lspolowy@snet.net)

**VEC:** [ARRL/VEC](http://ARRL/VEC)

**Location:** Litchfield Firehouse



## YCCC News

The next scheduled meeting of the Yankee Clipper Contest Club will be held on Sunday, April 14 at the Strurbridge Host Hotel in Strurbridge, MA.

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258 West St  
Park in Rear  
Litchfield CT 06759-3404

### Trumbull CT 06611-1944

04/12/2018

**Sponsor:** CT Regional Testing Center

**Date:** Apr 12 2018

**Time:** 6:30 PM (Walk-ins allowed)

**Contact:** KEVIN W. CELLINI

(203) 209-6495

**Email:** [kevin.cellini@gmail.com](mailto:kevin.cellini@gmail.com)

**VEC:** [W5YI VEC](#)

**Location:** <http://441700.org/CRTC/crtc.htm>

49 Sunrise Ave

VE's Residence

Trumbull CT 06611-1944

### Washington Depot CT 06794-1201

04/14/2018

**Sponsor:** Northville ARA

**Date:** Apr 14 2018

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

**Contact:** Gary Michael. Walters

(860) 938-2030

**Email:** [w8zy@outlook.com](mailto:w8zy@outlook.com)

**VEC:** [ARRL/VEC](#)

**Location:** Washington Volunteer Fire Station

109 Bee Brook Rd

Washington Depot CT 06794-1201



CARA will be using N1MM+ Contest Logger during the ARRL 2018 Field Day.

For a free download, visit:

<https://n1mm.hamdocs.com/tiki-index.php>



## NEWS, PRESS RELEASES, AND GENERAL INTEREST

During the ARRL International DX Contest, CW & SSB, some Puerto Rico Amateurs were sending zero, usually using the cut-number 'T', as their power. Why? To raise overall awareness that significant portions of the island are still without commercial electrical power even now, and that recovery operations are still continuing in the aftermath of September's Hurricane Irma and Hurricane Maria.

For a limited time, the CQ WW Contest Committee [has made available a new tool for examining logs](#) in the CQ WW Contest. With this Tableau-based tool, different metrics of various logs can be examined and compared. This is **not** a 'GO/NO-GO' type of tool. It is a visualization and data exploration tool that can assist in analyses of various aspects of logs to identify areas for further investigation.

## OPERATING TIP

**Always include a Space at the end of your RTTY messages**

It's accepted practice to put a space at the beginning of RTTY messages to separate valid characters from any spurious decodes preceding them, and to take advantage of the **Unshift on Space (USOS)** feature of many modern RTTY decoders. It's also wise to put a space **AFTER** each message, so that any subsequent spurious decodes are separated from the messages. This improves readability and makes copying message text by mouse movement or clicking easier for the receiving operator. **Bonus:** Don't use too many **LINEFEEDs** which can cause the other



operator to chase the text around the screen. (Inspired by Dave, K2YG, and others via the [RTTY email reflector](#))

Dave, NK7Z, has added a second chapter on finding and identifying RFI sources using SDRs to his website: "[RFI Site Survey - Part II, Interpretation](#)." Dave discusses his setup, and provides real-world examples of certain types of signals that can be found, including over-the-horizon RADAR, switching power supplies, etc. (Jim, K9YC, via RFI mailing list)

## CONTESTS

An expanded, downloadable version of QST's [Contest Corral in PDF format](#) is available. Check the sponsor's Web site for information on operating time restrictions and other instructions.

N1MM Logger+ and other logging programs have a voice macro feature which allows the use of audio (WAV) files to transact a contact just by playing pre-recorded message files. Usually a human operator records CQ, Exchange, and Thank You messages, as well as numbers and phonetics for each letter of the alphabet. The logging program sends the appropriate WAV file at the press of a key. N1MM has the additional capability to look for WAV files for arbitrary full call signs, which sounds much more fluid. Gerry, W1VE, has taken clever advantage of that feature and has combined it with today's cloud computing resources to make a [Synthesized Digital Voice Keyer \(DVK\)](#) that uses entirely computer-generated speech. [Joe, WB9SBD, took advantage of this feature in the Wisconsin QSO Party recently to make 400+ QSOs entirely by this method](#). I asked Gerry what his motivation was for writing this program, and where he wanted to go with it in the future:

'I'm mostly a CW op. Phone is OK, but I don't like to talk for 24-48 hours in a contest. Of course, it can help you if you are sick, have an accent that makes you hard to understand, or otherwise are impeded from speaking. Why not make phone contesting as easy as CW? I've worked with speech synthesis in my career. A bunch of years ago, I experimented with another speech synthesizer for contesting. It used a different technology, and was a "live" DVK, synthesizing the audio directly from the text at the time the call sign was entered. It was OK, but the "free" voices sounded pretty robotic.

[Amazon's cloud-based Polly offering](#) is essentially free for our needs: You can have an account for a year with 5,000,000 characters synthesized per month! It offers 24 languages and 47 voices, all exposed via my application. Rather than a "live" DVK, it is designed to create WAV files that can be used by the N1MM Logger+. Since we have a continuously updated [Super Check Partial \(SCP\) database online](#), my application can use the SCP database to generate full call sign WAV files for **all** the active contest calls. This is very important, as the intonation is perfect when you are playing a full call sign file: e.g. Whiskey-One-Victor-Echo.wav vs Whiskey.wav One.wav, Victor.wav, Echo.wav. When letters files are used to build the call, the intonation sounds robotic. Of course, my application creates files for both types of files. N1MM Logger+ will automatically use the full call sign files if they are found in the directory. The full US/Canada/Territory SCP file generates about 2 GB of audio files.

Currently, my software generates files formatted to work in the appropriate directories for N1MM Logger+. Some Writelog users have asked for a version that fits that application. My application has only been around a few months. I'll see what people think. If there is enough interest, I'll

generate other versions for the other loggers.  
It can be downloaded, free of charge, at <http://files.w1ve.com/W1VE-SYNDVK.zip>

## OPERATING TIP

### Adapt Messages During a Contest

When running, higher rates can be obtained by changing your messages in response to a deepening pileup. In phone contests, you can just change what you say. For CW and RTTY contests, by setting up your messages appropriately in your logging program or you can shorten them on the fly by pressing the "stop sending" key in your logging program. This is usually the ESCape key. For example, here's a sample contact, starting with the CQ.

My CQ message: CQ N9ADG

I hear: W0XXX ...(weaker) Y

This indicates to me that there's likely at least one other station is calling. I don't have the full call of the second caller, just one letter.

I send my exchange message: W0XXX 5NN WA

The other station sends: 5NN MO

My thank you message is "TU N9ADG CQ." Because I know there's another caller waiting, I log the contact with W0XXX and start sending the "thank you" message, but I hit ESC just after I hear "TU" sent in my headphones. I don't need to send my call, because the other person calling likely copied my call, and doesn't need it again. Even better, I could send "Y ?" after the TU, so that ideally only that one station would respond. Furthermore, if I thought conditions were excellent and callers were well behaved, I might risk sending "Y ? 5NN WA," trusting that the other operator would send his/her call, realizing I didn't have it.

But that is risking the chance that I would need a fill if they don't send their call. Fills are rate killers, and can scare off any other callers that are waiting.

You could avoid having to time ESC keypresses by setting up additional macros to address multiple situations.

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*The following information is included as a courtesy to the ARRL, and for CARA member information.*



### Why ARRL is Recommending Enhanced HF Privileges for Technicians

*ARRL has asked the FCC to expand HF privileges for the entry-level Technician license to include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, and 15 meters, where Technicians already have CW privileges. ARRL believes the additional digital privileges will attract younger people to Amateur Radio.*

*The proposed additional HF phone privileges are 3.900 to 4.000 MHz, 7.225 to 7.300 MHz, and 21.350 to 21.450 MHz.*

*Technicians already have HF privileges on parts of 10 meters.*

*Some in the Amateur Radio community have questioned the need for expanded Technician privileges or to express other perspectives. ARRL has responded to point out some of the key advantages of its [petition](#), which recognizes the tremendous technological advances and changes in Amateur Radio. Some key points:*



- *A thorough review of operating privileges available to the entry-level license has not taken place since the late 1970s, when the Novice-class license -- the entry-level license at that time, and no longer issued -- was modified to allow Novices access to a limited portion of 10 meters. This included the first HF phone privileges for Novices.*
- *The 2-year process that led to the development of ARRL's petition includes significant input from the Amateur Radio community. The two surveys that the ARRL board's Entry-Level License (ELL) Committee conducted on this issue drew more than 8,000 responses from ARRL members.*
- *The 378,000 Technician licensees comprise more than half of the US Amateur Radio population, yet the Technician-class license no longer serves its original purpose from 18 years ago. Many Technicians do not participate actively, pursue on-air and public service opportunities, renew their licenses, or upgrade. An uncomfortably large attrition rate exists among Technician licensees. Technician licenses are not upgrading, because they don't find their operating privileges interesting enough to keep them in the hobby.*
- *The proposed addition of 275 kilohertz of HF phone privileges, spread across 80, 40, and 15 meters, would allow Technicians the opportunity to develop and expand their understanding of HF propagation. In addition, this proposed change would allow Technician licensees to participate in public service-oriented, emergency, and Section traffic nets on 75 meters, from 3900 to 4000 kHz, where*

*primary state/Section-wide public service activities often take place.*

- *Additional operating privileges for Technicians will not limit their incentive to upgrade. ARRL points out that Technicians now have access to 850 kilohertz of spectrum in four HF bands. ARRL proposes an additional 275 kilohertz on three of those bands, so the total under this proposal is 1,125 kilohertz on four bands -- 80, 40, 15, and 10 meters.*

*Compare that to current General-class HF privileges: 3150 kilohertz across nine HF bands -- 160, 80, 40, 30, 20, 17, 15, 12, and 10 meters. In addition, Generals have access to the five 60-meter channels and to the two newest bands, 2200 and 630 meters.*

*The incentive to upgrade from Technician to General is a tripling of the available HF spectrum; upgrading to General allows access to eight additional bands, including the prime daytime bands of 20 and 17 meters.*

*Also, Technicians upgrading to General or higher are permitted the maximum amateur power level of 1500 W PEP. Read [more](#).*

### **2018 ARRL International Grid Chase Update**

*Our second month of the 2018 ARRL International Grid Chase ([IGC](#)) is now in the books. Big numbers continue on the bands, with overall reporting up by more than 5% from January. While WARC and VHF+ band activity dipped a bit, activity was up on the other HF bands. As evidenced by how many amateurs participated in February, per the [leader board](#), the month saw 22,121 participants (logbook accounts = station locations). March is off and running with more than 14,600 logbook accounts --*

through March 12 at 1200 UTC. Months start out strong because the leaderboard resets, allowing repeat contacts.

Last month, we reported that low sunspots and low winter E-skip and F2 motivated lower band participation. As spring takes



hold, E-skip will bring up the MUF for upper HF (and VHF) bands, and tropospheric openings will fuel VHF-to-microwave openings as well.

Activity in late February and early March also benefitted from the ARRL International DX Contest CW and phone weekends. ARRL's social media feeds have been humming with lots of IGC chatter. A couple group activities that caught our attention included posts by Bob Lindsay, W8MRL, who is tracking the [IGC activities of Ohio hams](#), and by Paul Gacek, W6PNG, and the TI/WJ1B team who mounted a [DXpedition to Costa Rica \(EK70\)](#) for the couple of weeks around the time of the ARRL DX Phone weekend. In addition to Gacek, the team included Buddipole CEO/Owner Chris Drummond, W6HFP; ARRL Dakota Division Director Matt Holden, K0BBC, and retired ARRL COO Harold Kramer, WJ1B. Complete Grid Chase [information](#) is always available on the ARRL website. Also visit the [IGC 2018 Facebook page](#). ARRL [2018 International Grid Chase gear](#) now is available from the ARRL Store. You can buy IGC t-shirts, coffee mugs, pins, and stickers, as well as an IGC North America map, grid square map, and grid square atlas.

-- Thanks to ARRL Contest Branch Manager Bart Jahnke, W9JJ

The following is **not** a paid advertisement nor endorsement. CARA is an ARRL Affiliated Club, and an ARRL Special Service Club, and we encourage you to consider joining the ARRL to support the programs that the organization sponsors – Editor.



## ARRL -- Your One-Stop Resource for Amateur Radio News and Information

- [Join or Renew Today!](#) ARRL membership includes [QST](#), Amateur Radio's most popular and informative journal, delivered to your mailbox each month.
  - Listen to [ARRL Audio News](#), available every Friday.
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- [NCJ -- National Contest Journal](#). Published bimonthly, features articles by top contesters, letters, hints, statistics, scores, NA Sprint, and QSO Parties.
  - [QEX -- A Forum for Communications Experimenters](#). Published bimonthly, features technical articles, construction projects, columns, and other items of interest to radio amateurs and communications professionals.
- Free of charge to ARRL members...
- [Subscribe](#) to the *ARES E-Letter* (monthly public service and emergency communications news), the *ARRL Contest Update* (bi-weekly contest newsletter), Division and Section news alerts -- and much more!
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ARRL offers a wide array of [products](#) to enhance your enjoyment of Amateur Radio. Visit the site often for new publications, specials and sales.

[Donate](#) to the fund of your choice -- *support programs not funded by member dues!*

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**CW Ops CW Academy:  
Interested in learning CW or improving  
your skills?**

Check out [www.cwops.org](http://www.cwops.org)

CW Ops “CWT” Every Wednesday Regular Tests:

Full Speed Start: 13Z, 19Z, 03Z (+1), 1-hour each session Exchange: name/number (members) name/SPC (non-members) Avoid DX pileups!

CW Ops CW Practice Sessions:

For: On-air practice at 13+ wpm for CWA students, graduates, others wishing to have real-time CW practice with others similarly afflicted with a love of CW and a need to improve proficiency, with a goal of 25+ wpm.

Purpose: To improve CW through on-air practice at a time and place when others are likely available.

Time and place: 7035-7045 kHz every Tuesday, Friday and Sunday around 6-8 pm local time.

Conditions at this stage of the sunspot cycle make a comparable plan on 20m and higher for international contacts a risky proposal so for now we will limit this to 40m local evenings. 73 Jerry, AC4BT, CW Academy Manager

[CWops Mini-CWT Test](#), Apr 11, 1300z to Apr 11, 1400z, Apr 11, 1900z to Apr 11, 2000z, Apr 12, 0300z to Apr 12, 0400z; CW; Bands: 160, 80, 40, 20, 15, 10 meters; Member: Name + Member No., non-Member: Name + (state/province/country); Logs due: April 14.

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From the CWOps Reflector:

On Mon, 2 Apr 2018 13:54:36 -0600  
"Summer Hartzfeld" wrote:

I got a little mention in this local article  
73, Summer- VE5SDH

<http://leaderpost.com/life/qc/ham-city-reginas-amateur-radio-operators-look-to-the-future>

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**For Something Different Ham  
City: Regina’s amateur radio  
operators look to the future.**

About 200 ham-radio enthusiasts in Regina and its environs are sending signals around the world and training the next generation

From his basement in White City, Stan Ewert dreams of contacting North Korea.

“That’s the rarest contact you can ever make,” he said.

Using his 200-watt radio transceiver, Ewert has spoken with ham radio operators from 285 “countries”, a category that includes dependencies and isolated territories like Alaska. But he hasn’t reached North Korea, the holy grail of the hobby. It’s a place only a handful of hams have ever heard from.

Ewert is one of an estimated 200 amateur radio enthusiasts in the Regina area. They call themselves hams, a term with obscure origins. They relish the thrill of tinkering with old equipment, helping out in disasters or, like Ewert, socializing with fellow hobbyists in faraway lands.

Many are retired. Ewert has been a ham for about 70 years. It runs in the family.

“My father was a ham,” he said. “My son is a ham as well. He carried on the family tradition.”

But Ewert finds that his grandchildren don’t have the same interest. “Our membership is definitely on the older side,” he said. But he thinks that would change if there were more people like Daniel Dion, a local science teacher who’s trying to rekindle passion for the hobby.

“It’s going to come back,” Dion said. “The future is wireless.”

This year, Dion started an amateur radio club at Ecole Monseigneur de Laval, a French-language high school in north Regina. His goal is to get kids licensed so they can become radio operators. He figures he has two or three who are genuinely interested.

“I’m not going to interest all the students,” he admits. “It’s not for everyone. It’s for those kids that are interested in science.”

Zachary Morin-Barich is one of his keenest budding hams. For now, he has less ambitious

dreams than Ewert. He wants to contact Germany, mostly because he likes the food.

“I like the fact that you get to talk to people from different places around the world,” the Grade 10 student said.

### SUNSPOT BLUES

The ham radio world is at a low point right now. But it’s not the aging of his fellow operators that’s bothering Ewert it’s the sun.

“We’re at the bottom of the sunspot cycle, which means that propagation isn’t as good as other times,” he said. “We can contact Canada and U.S. stations without any problem, but other countries ... it’s pretty seldom that they come through.”

Long-distance communication depends on bouncing signals off the ionosphere, he explains. But charged particles from the sun can interfere. Conditions change according to a regular rhythm, correlated with sunspots, over a period of 11 years.

“As the propagation changes, my thoughts about what I’m going to do change,” he said. “If, for instance, we were at the top of the sunspot cycle, and there’s stations from all over the world pouring in, I would get there immediately and see who I could talk to.”

But Ewert has other options. Faraway countries are only accessible over the high-frequency bands. Close to home, Ewert can use very-high or ultra-high-frequency communication to reach nearby operators, particularly the local hams who’re members of the Regina Amateur Radio Association.

They’ve contrived ways to enhance their power. The association has placed a repeater on the roof of Regina City Hall. They bounce their signals off the device to reach beyond their line of sight.

Dion's school club used that repeater to make their very first contact this January. They reached Summer Hartzfeld, a blind operator who specializes in Morse code.

"That's her passion," said Dion.

The new club lacks the high-technology equipment housed in Ewert's basement, or the multi-story antenna that towers over his home. They've placed a ramshackle antenna on the school's roof. Dion brought in a "hodgepodge" of equipment from home. He estimates that the whole setup would be worth about \$1,000 if it were new, and it isn't.

But his students have fought through the sunspots doldrums to reach stations in the US, and a few in England. For Dion, it's only the beginning.

"We'll put up a better set-up, a bigger radio, a bigger antenna," he said, "a permanent antenna that can reach pretty much everywhere in the world."

### **RADIO FREE RUSSIA**

For Dion, the radio club fits into the school's mandate to promote the French language. His students have used radio to reach amateurs in Quebec and broadcast pleasantries en Francis.

"If we can open up the world to other francophone nations, that's one way to differentiate ourselves," he said.

Ham radio can unite cultures, even across the starkest political divides. That's something Ewert found out in the midst of the Cold War.

"All through the Cold War and everything, there was no problem contacting amateurs behind the Iron Curtain," he said. "I've had some very good contacts with some of the fellas there."

But there are rules to follow. Hams like to exchange mementos, known as QSL cards, to prove they've made a contact. In the Soviet Union, though, all the cards had to go through a single government bureau. The cards Ewert received often displayed propaganda messages glorifying the scientific wonders of communism.

Talking politics was also frowned upon. It still is, along with business and religion. The guideline is observed by most Canadians, says Ewert, but broken by some "right-wing hams" in the United States. There were always exceptions, even under communism, as Ewert found out during the 1968 Prague Spring revolution in Czechoslovakia.

"I was tuning across the bands one night and I heard this station calling in Morse code," he said. "I perked up, because it wasn't just a normal contact. He was sending out a plea for help, because this was the day that the Russians invaded Czechoslovakia, and he was asking the world to help."

"He was using a false call sign, of course, but I recorded the transmissions he made. I never did find out what happened to him in the end."

Ewert's translation of the Morse code message: "He calls CQ (general call to all stations) and states that Czechoslovakia is being invaded by the USSR and asks the world for help to fight for the observance of peace in his country. He says he cannot use his own callsign (for obvious reasons) and that OK (Czech) stations cannot transmit. Please relay this message. He was using the pseudo callsign of OK1CSSR."

That wasn't the only historic event Ewert witnessed through his radio set. He once got a call from the Rose Bowl parade in California. In 1993, he listened into a station broadcasting from President Bill Clinton's inauguration.

He can also eavesdrop on disasters. Hams are eager to pitch in when more complicated infrastructure goes down in a storm or earthquake. In Regina, they're even part of the city's emergency management plan.

"We have a communications truck completely equipped with its own little repeater," Ewert said, before describing the last time their services were required: a storm that hit Pilot Butte a few years ago.

"It also took down the antenna for their fire department," he explained. "The hams stepped in and did any communications that were needed.

"Plus they fixed the antenna and got it operational, so the fire department was back in business again."

Dion is almost certain that his club is now the only one of its kind in Regina. But it's the second one to open up in the Laval high school building, which hosted a public school until the late 2000's.

"When this school was Robert Usher, back in the day, there was a school club," he said. "Back in the '50s and '60s and '70s it was very common to have school clubs, radio clubs in school, and it seems to have died out."

That doesn't mean it won't come back. There are already a large number of school clubs in the United States, as his students found out earlier this year. He said that one of the most popular pursuits for young hams is contesting. The Laval kids recently took part in an international challenge to contact as many school clubs as possible.

Their weak signal strength kept them from reaching many stations, but they helped other clubs rack up points ? including one from all the way down in Texas.

When asked why his students are getting into ham radio, he says the answer is simple: they like to play.

"For the kids right now, it's just the opportunity to explore," he said. "It's just another subject that can spark their imagination."

Radio, he said, is easier to tinker with than newer technologies. The hobby is amateur by definition, giving beginners an easy way to contribute. That's what draws Morin-Barich to the hobby.

"Right now, I'm kind of interested in learning the steps of how it works," he said. He's now working on Morse code, and has gotten as far as the letter "E." Ewert doesn't find that surprising. He calls Morse "the original digital mode."

"That's all it is: dots and dashes," the veteran ham pointed out.

"What attracts young people first is the computers," he went on. "But a lot of them, once they get past computers, have found that they're interested in communication and how radio waves work and this sort of thing. So they go into it a little deeper."

Morin-Barich said that he feels like more kids his age would be interested in ham radio if they got to know what it's all about.

Dion agrees. His radio setup isn't reserved for the two or three kids, like Morin-Barich, who're likely candidates for a license. He uses it as a teaching tool in his science class. He hopes it will change his students' view of technology.

"A lot of our technology we take for granted, and it's important for the kids to realize that it's part of our lives and it doesn't have to be a mystery," he said.



“It’s not something that’s reserved for geeks who live in California and make our technology every day.”

*Editor:*

*I’ve had the pleasure of contacting Summer Hartzfeld – VE5SDH, during many CWOps CWT events over the past few years. She’s a visually-impaired ham, who’s working through chemotherapy with an inspiring attitude. I always send her an 88 after our brief contacts – primarily on 15M or 20M. There’s a familiar “swing” to the CW letters of her call – and I always enjoy contacting her. She often refers to her “ditty callsign” in CWOps Reflector postings.*

*VE5SDH is CWOps Life Member # 1413*

**For Sale:**

### **Alpha 99 High Performance Amplifier**

Alpha 99 high performance HF amplifier. 10-160 Meters including WARC bands. Manual tuning. Wired for 240 VAC. Uses two 4CX800 tubes. Full power (1500 watts) output with 55 watts input. This amp is clean both inside and out. The amp was purchased from Alpha in 2002. SN 9902240255. There are no scratches, no rubbed-off lettering, or dents in the case. This is a one-owner amplifier. Non-smoking environment. There are no mods. Included with the amp is a factory operating manual. Includes two new spare matched Svetlana 4CX800 tubes in unopened boxes with receipt. Extra spare parts also included. This amplifier will NOT be shipped - however, original cartons are included. Inspection, demonstration, and local pickup in South Salem, NY. No trades. Being sold by the XYL of WA2EVH (sk). Call to make an appointment to check out this awesome amplifier. Pictures available to email. Serious potential buyers please. Asking \$3200. (914) 548-2040.



### **ICOM IC-756 Pro III**

I’m selling my Icom 756 Pro III. Very Good Condition. I have the original Box. Harlan recently used this radio and can vouch on its condition. This is the same model radio that CARA uses (from the Danbury EOC) for Field Day. We are in the middle of contest season. I will also include the Heil HC 5 headset/with mike. Just updated: the package to include a second Heil desk mike. Asking price is \$1050. John - W1JMA w1jma@aol.com 203-610-5335.

If interested let me know.  
73, John - W1JMA



## **Breaking News:**

N1NRP along with KC1IBR, and KC1EHW operated the North American SSB Sprint contest on April 7 from N1NRP's station.



*Editor – There are many opportunities to operate in HF contests; either in the single operator, or the multi-operator category.*

*Check the contest calendar at this website:*

<http://www.hornucopia.com/contestcal/contestcal.html>

## **Member and Station News:**

*Your news or story could go here in the next Issue of CARA Capers. Contact W1QK, Capers editor*

### **Visit us on the Web at**

<http://www.CaraRadioClub.org>

#### **Executive Board:**

President – Marcus Swearingen, AB1WV  
ab1wv@silverswear.net

Vice President – Jay Albano, N1NRP jjalbano@aol.com

Secretary – Gary Adams, N1GSA  
mrclipper69@yahoo.com

Treasurer – Tom Coury – WX1T couryt1@gmail.com

#### **Directors:**

Harlan Ford, W1QH hford01@snet.net

Roger Mitchell, NG1R roger.mitchell@snet.net

Dan Fegley, W1QK w1qk@snet.net

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*CAPERS is the monthly newsletter of the  
Candlewood Amateur Radio Association  
Editor: Dan Fegley, W1QK*  
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## **NOTICE TO CAPERS READERS**

**CAPERS is an important aspect of our club.**  
It's time for **more participation** with this publication.

**CAPERS** is looking for ANY and ALL input.

Don't be shy, just send a few words, a picture, link, or short message to Dan Fegley, your Editor. If possible, text should be submitted in Microsoft Word format, and images in .jpg format. Please use picture files that are sized for publication.

**w1qk@snet.net**

**CAPERS** deadline for input:

LAST Friday of the Month preceding the meeting.

**CAPERS** will be released:

Monday before the scheduled Friday monthly meeting – or earlier if possible.

73- Dan, W1QK

## ***CARA 2018 Calendar – Updated at March 23 Planning meeting:***

### February

9 - K1MHM presentation on ARRL Puerto Rico Emergency Response Team 2017

### March

9 - DIY Show and Tell

### April

13 - FT8 Presentation – John, W1JGM

27 – April Planning Meeting

29 – CARA Spring Fox Hunt

### May

6 – NEQP at W1AW (CARA member - only event, reservations required)

11 - Nominations open for Elections of officers & directors

Presentation by FLYRC, RC Flight

Field Day Planning

25 – May Planning Meeting

### June

8 – Annual Elections

Field Day Preparations

23-24 – Field Day at Tarrywile Park, Danbury

### July

13 – Skype presentation from DX Engineering, Teri Grizer

19 – New Fairfield Car Show – Special Event station: W1QI

25 – US/VE Islands QSO Party – Candlewood Isle, New Fairfield - W1QI

27 – July Planning Meeting

### August

10 – Hamfest Prep, open

24 – August Planning Meeting

26 – CARA WCT Hamfest – Edmond Town Hall, Newtown

### September

14 – EMCOMM - ARES event

16 – New Fairfield Days – Special Event station: N1F

21 – September Planning Meeting

### October

12 – YCCC/CARA Joint meeting?

### November

9 – YCCC/CARA Joint meeting?

### **CARA Program & Activities Committee:**

Marcus – AB1WV, Jay – N1NRP, Dan – W1QK, Bud – W1NSK.

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Copyright 2001 - 2017 by Joe Taylor, K1JT.

Release: WSJT-X Version 1.8.0

October 27, 2017

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This is the full General Availability release of WSJT-X Version 1.8.0.

Changes from WSJT-X Version 1.8.0-rc3 are very minor:

- Right-click on the Wide Graph now pops up a Context Menu. Select the item \*Set Rx & Tx Offset\* to complete a one-handed setting of both red and green frequency markers.
- Several clarifications and additions to Tool Tips and the User Guide.

We recommend that all users should upgrade to WSJT-X Version 1.8.0.

If you upgrade from v1.8.0-rc1 it may be necessary to do a one-time reset of the default list of suggested operating frequencies. Go to \*File->Settings->Frequencies\*, right click on the table and select \*Reset\*.

**Release: WSJT-X Version 1.8.0-rc3  
October 16, 2017**

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Most (but not all) changes since Version 1.8.0-rc2 involve user control of the increasingly popular FT8 mode. The "RC3" release also includes minor bug fixes and updates to the WSJT-X User Guide.

The following list includes all of the more important changes:

- New optimization of GUI for simplex and split behavior in FT8 mode.
  1. Checkbox "Lock Tx Freq" on main window is relabeled "Hold Tx Freq".
  2. Double-clicking on decoded messages that do not contain your own call moves both Rx and Tx frequencies. If the first callsign is your own call, only Rx freq moves.
  3. Double-clicking on decoded messages moves the Rx frequency. If "Hold Tx Freq" is checked, Tx frequency is moved only if CTRL was held down.
  4. Clicking on the waterfall moves Rx and Tx frequencies as before: Rx only on a simple click, Tx only on SHIFT-click, and both on CTRL-click. This happens even if "Hold Tx Freq" is checked.
- Add a semi-automated "FreqCal" procedure: see \*Solve for calibration parameters\* on the Tools menu.
- Improved auto-sequencing behavior: stop and on-frequency transmission if a called station comes back to someone else.
- Improve S/N estimation in some situations involving QRM.
- Fix an initialization issue with user-modified application fonts.
- Fix an issue with Tx5 message generation with Type 2 compound calls.
- Enhance and improve the ADIF parser of logbook records. Update the band limits as per ADIF 3.0.6 specification.
- Increase the FT8 DT range to +/- 2.5 s.

- Do not allow window manager events to close the astronomical data window.
- Add an "Erase" item to the context (right-click) menu for decoded text.
- Extend UDP messages with an "off air" boolean field indicating that the decode was derived from a .WAV file playback rather than an on air reception.
- Extend reference applications to use the new off air decode message field.
- Improve performance of FT8 decoder, especially for overlapping signals.
- Allow specialized use of "x2 Tone Spacing" in FT8 and slow JT9 modes.
- Move "NA VHF Contest Mode" checkbox to main screen. Query the operator if d > 10000 km.
- Adjust UI to improve portability with font size changes and between platforms.
- Extend UDP Reply message to support keyboard modifiers. This allows UDP servers to emulate keyboard modified double-clicks on decoded messages, e.g. ALT+double-click for replying to a CQ or QRZ call without changing ones Tx frequency offset.
- Update the cty.dat file (21st Sept 2017).
- Ensure that Fast Graph is properly initialized.
- Better handling of worked before and country name display. Appended text is added at a fixed column unless the message overlaps in which case the appended information floats to the right.
- Restore printing of MSK144 decode quality information.
- Display Echo Graph automatically when Echo mode is started.
- Fix a bug that prevented double-click on a JT65 EME-style "OOO"

message from populating the Tx message boxes.

- Fixed behavior with double-click on 'CQ <AA-ZZ> <call> <grid>.'
- Update the "blank line" divider with band ID at  $4*TRperiod/5$ .
- Fix cty.dat lookups that were not honouring exact match flags
- Add some further Copyright protections.
- Fix a bug involving "firstcall contains mycall" but not equal to mycall.
- Fix an issue with editing IARU regions in the working frequencies table.

Release: WSJT-X Version 1.8.0-rc2  
September 2, 2017

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Implementation of FT8 and its auto-sequencing feature is now more capable and more polished. The decoder is faster and better: it now includes signal subtraction, multi-pass decoding, and the use of accumulated "a priori" information as a QSO progresses. Sensitivity extends downward as far as -24 dB in some circumstances. Overlapping signals 2 and 3 deep are frequently decoded at essentially the same frequency. On a crowded band we sometimes see more than 30 decodes in a single 15-second interval, over a 2 kHz window. The North American VHF Contesting Mode has been extended to include both FT8 and MSK144 modes.

The "RC2" release also includes many minor bug fixes and an extensively updated WSJT-X User Guide.

Depending on what code revision you upgrade from, it may be necessary to do a one-time reset of the default list of suggested operating frequencies. Go to \*File->Settings->Frequencies\*, right click on the table and select \*Reset\*.

## Release: WSJT-X Version 1.8.0

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### NEW FEATURES IN WSJT-X Version 1.8.0

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1. New mode called FT8: sensitivity down to -20 dB on the AWGN channel; QSOs 4 times faster than JT65 or JT9; auto-sequencing includes an option to respond automatically to first decoded reply to your CQ.
2. New mode for accurate Frequency Calibration of your radio.
3. Improved performance of decoders for JT65, QRA64, and MSK144. MSK144 includes facilities for amplitude and phase equalization and an "SWL" mode for short-format messages.
4. Options to minimize screen space used by Main and Wide Graph windows.
5. Enhanced management scheme for table of operating frequencies, and a new set of default frequencies specific to the three IARU Regions.
6. Improved CAT control for many rigs, including those controlled through Commander or OmniRig.
7. New keyboard shortcuts to set "Tx even/1st" ON or OFF.
8. A number of (mostly minor) bug fixes and tweaks to the user interface. For example: new behavior for the audio level slider; correctly logged QSO start times in certain situations; correct control of FT-891/991 and some other radios via rigctld.

At the time of the v1.8.0-rc1 release the following tasks are yet to be completed:

1. Updates to WSJT-X User Guide.
  2. Sample files for FT8.
  3. Enhanced decoding using AP ("a priori") information.
  4. Signal subtraction and multi-pass decoding.
  5. Option to Auto-respond to the weakest responder to your CQ.
- Installation packages for Windows, Linux, OS X, and Raspbian can be



downloaded from the WSJT web site:  
<http://physics.princeton.edu/pulsar/K1JT/wsjt.html>

Please send bug reports to either [wsjtgroup@yahoogroups.com](mailto:wsjtgroup@yahoogroups.com) or [wsjt-devel@lists.sourceforge.net](mailto:wsjt-devel@lists.sourceforge.net). Such reports should include a full prescription of steps to reproduce the undesired behavior. You must be a subscriber to post to either of these lists.

### Brief Description of the FT8 Protocol

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WSJT-X Version 1.8.0 includes a new mode called FT8, developed by K9AN and K1JT. The mode name "FT8" stands for "Franke and Taylor, 8-FSK modulation". FT8 uses 15-second T/R sequences and provides 50% or better decoding probability down to -20 dB on an AWGN channel. An auto-sequencing facility includes an option to respond automatically to the first decoded reply to your CQ. FT8 QSOs are 4 times faster than those made with JT65 or JT9. FT8 is an excellent mode for HF DXing and for situations like multi-hop E\_s on 6 meters, where deep QSB may make fast and reliable completion of QSOs desirable.

Some important characteristics of FT8:

- T/R sequence length: 15 s
- Message length: 75 bits + 12-bit CRC
- FEC code: LDPC(174,87)
- Modulation: 8-FSK, tone spacing 6.25 Hz
- Constant-envelope waveform
- Occupied bandwidth: 50 Hz
- Synchronization: 7x7 Costas arrays at start, middle, and end
- Transmission duration:  $79 \times 1920 / 12000 = 12.64$  s
- Decoding threshold: -20 dB; several dB lower with AP decoding
- Multi-decoder finds and decodes all FT8 signals in passband
- Optional auto-sequencing and auto-reply to a CQ response
- Operational behavior similar to JT9, JT65

We plan to implement signal subtraction, two-pass decoding, and use of a priori (AP) information in the decoder. These features are not yet activated in v1.8.0.

We haven't yet finalized what the three extra bits in the message payload will be used for. Suggestions are welcome!

-- Joe, K1JT, for the WSJT Development Team