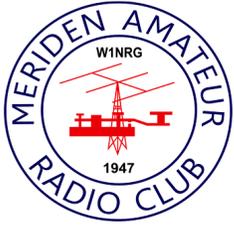
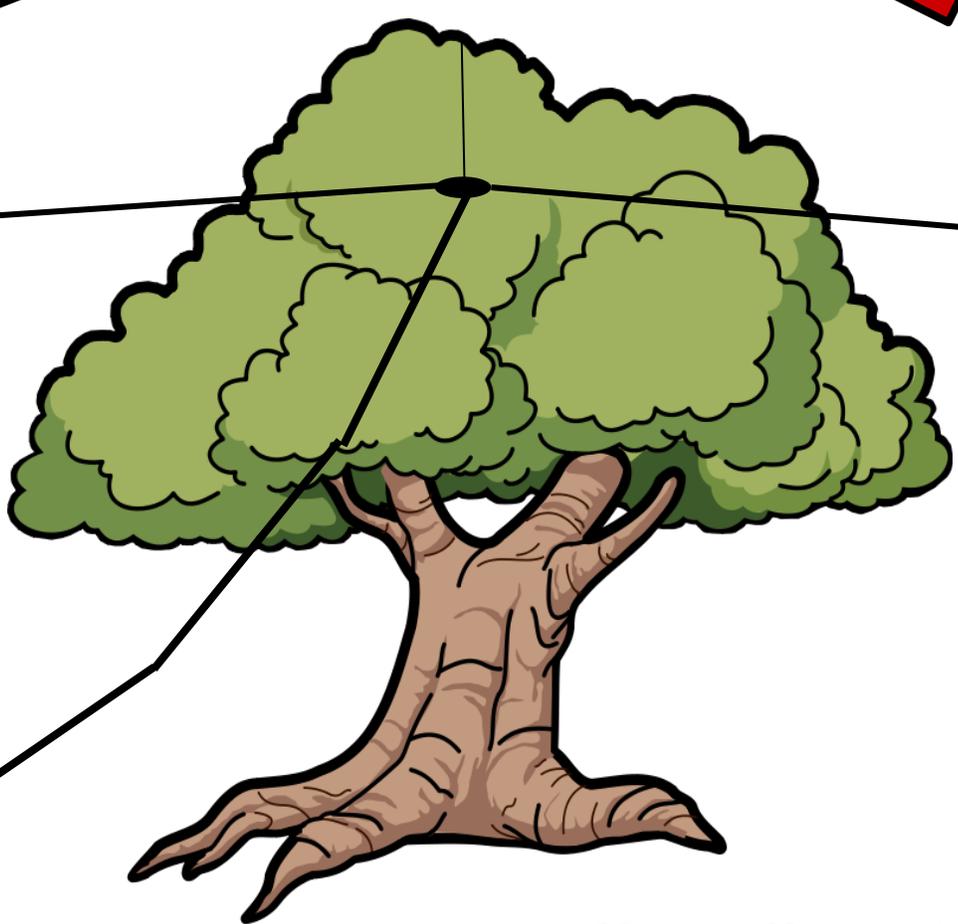


# MERIDEN AMATEUR RADIO CLUB

1947 -- 2019



# KEY KLIX



# JULY 2019

KEY KLIX EDITOR DAVE SWEDOCK K1WJL DSWEDOCK@GMAIL.COM 203 235-8582



## **FIELD DAY – NOT JUST ANOTHER CONTEST**

Field Day can be described, as a national contest where amateur radio operators try to contact as many other stations as possible in a 24-hour period and learn to operate radio gear under less than optimal conditions; it's also about having fun. To us at MARC it means much more. It is a chance for the club to come together as a group and work together towards a common goal. Clubs need to be bound by common goals. During the year we do come together for meetings but amateur radio events such as Field Day are unique. No, ours was not held in a field and yes, there wasn't a tent in sight at the Firehouse. We were indoors, and we had two rest-rooms and a kitchen, but we still put on a great show of amateur radio expertise and camaraderie. Bottom line – regardless of points – it was FUN.

We have many, many club members to thank. First, I would like to thank Ed N1YLN - the FD Event Captain. He spent multiple hours organizing and overseeing the entire program. Rob K1RCT, our Station Manager was involved in planning the W1NRG Station working with and supporting Ed's efforts. Additional members who played major roles were: Eric KB1JL, John K1LYP, Steve KC1SA, and Jeff N1AKN, each added to the event in multiple ways technically, as "Ambassadors" to walk-ins and visitors and administratively. We thank our operating CW Captains, Bill W1KKF and John K1VDF, and our SSB Captain, Ed N1YLN. We also thank many other club members who transmitted, scribed, helped in various other ways, or just stood by and supported the Club-- Eric KB1EHE, Elsie KB1FZ, Matt KC1IIL, Mike K1LHO, Jim N1ZN, James AB1DQ, Ann K1STM, Bob WB1GYZ, Dave NZ1J, John W1DQ, John N1GNV, Todd K1TDO, Clare KB1TMC, Kristin KC1ISI, Stan W1XK, Douglas WA1SFH, Steve WV2LKM. Of course, there were many more attendees, so please forgive me if I left your name out. Better yet, write or tell me (nicely) and I will give you a shout-out in next month's column. The sheer number of active club members who participated speaks to the sense of camaraderie, participation and friendship that was alive and well at 143 Hope Hill Rd.

Of course, FD food is a big concern and once again John N1GNV was at the infrared station overseeing the grill and supplying all the "RK" we could eat. This year an addition to the food station corps was John KB1MFU, who ran the Breakfast Griddle in the kitchen for breakfast on Sat and Sun. He whipped up omelets, pancakes, sausages and his now famous "Egg McMARC" (egg, cheese and ham) sandwiches (soon to be in stores!). We owe a big thank you to both Johns for their efforts which kept us fueled and ready to go.

We had visitors too. The ARRL was represented by Paul Bourque N1SFE (ARRL Program Manager) and Bart Jahnke W9JJ (ARRL Radiosport and Field Services Manager). They viewed W1NRG Station activities and toured the antenna farm, for an hour or two. We hosted two walk-ins who look to become new hams. One was an 8<sup>th</sup> grader from Dag who came with his Mom, and the other was a young man from Wallingford. Steve KD1XH, a friend of N1YLN, was a "special guest operator" from Waterbury who worked the 3-5 am shift. We also had a visit from Lenny. Also, a frequent Saturday Morning session attendee, Natalie, was seen talking up a storm at the GOTA station – (no surprise there).

There were the mandatory bumps in the spectrum-the Dunestar Filter died at the start of the event. Apparently, we inadvertently fried a bunch of components during an ill-fated tune-up. But K1RCT, KB1JL, KB1EHE and N1YLN figured it out and got us back on the air within an hour or two. As Field Day ended, multiple clean-up crews returned the OEM to Spic-and-Span Status. See elsewhere in this issue, for a photo of KC1SA vacuuming the rug! After it was all over about a dozen of us just sat around and talked for an hour. We left feeling good about our achievements, MARC and our fellow club members. For myself, I was filled with pride knowing that I am the President of such an active, savvy, collegial and vibrant club. (BTW, I made contacts on 80M and 20M phone, helped clean up the kitchen and helped rearrange folding chairs). If you didn't participate in FD this year, please consider doing so next year, at the next or another W1NRG activation, at the Fishbein road race, or better yet, come to YOUR Meriden Amateur Radio Club any Saturday morning.

We'll leave the grill on for you.

Ed, W1YSM  
President W1NRG



## **Secretary Report & Minutes of the Meriden Amateur Radio Club**

### **Dave Tipping NZ1J , Secretary**

## **BUSINESS MEETING, JUNE 13, 2019**

Meeting was called to order at 19:30 EDT by President W1YSM

**Introductions / Members Present:** Introductions were made by 28 members and guests in attendance.

**Scholarship Presentation:** The W1FD Scholarship was presented to Peter Leppones Jr., a student who has excelled in High School and plans to study Electrical Engineering at UConn.

#### **Announcements:**

W1YSM has a column on Strategic Planning for MARC in Key Klix. These meetings are planned to run 75 minutes. We're planning a discussion of the idea of having a December Business Meeting. The visit by the Salem club was well received by the club. Wallingford does not need our support for the upcoming fireworks display.

#### **Secretary's Report:**

The May Business Meeting minutes were published in the June Key Klix and were accepted.

Two new members, Chuck Ayers, (a returning member), N1KGY, and Ron Rogers, no call, were voted in.

#### **Treasurer's Report:**

K1WJL couldn't make the meeting. W1YSM read the Treasurer's Report, which was accepted.

#### **Station Manager's Report:**

Field Day preparations are just about complete. The Panadapter has been temporarily disabled to resolve a port conflict. The Polyphaser outside the building has been tested and is working well.

The Town has some funds available for us. We'll be getting a headset adapter and components to complete a Satellite Communication Antenna system. We're getting quotes for 65" and 70" televisions.

#### **Activity Committee:**

The June Activity Meeting will be presented by KB1JL and WB1GYZ. Lufbery Park is an alternate location for Lark in the Park, in case it's needed.

**Saturday Mornings:** About 18 people visit the club on Saturday mornings.

The Radio Repair Bench now has a sign to identify it.

**Station Activations:** We'll operate HF, VHF, GOTA, and Satellite on Field Day. We'll be creating an Instagram account to help get the word out about our Field Day activity.

**Nets:** K1VDF's 10 meter net, N1ZN's 6 meter net, and K1TDO's 2 meter net continue to get between 4 and 14 check-ins each week. The Nutmeg Net is currently on the 147.36 repeater four nights per week.

**Castle Craig:** The summer QSO Party will be the first weekend in August.

**Scholarship:** The W1FD Scholarship was awarded at the start of the meeting.

**Membership:** We have 73 members paid through the end of 2019. N1OKR and NZ1J have begun an effort to reach out to prospective new members.

**Interference and Technical:** There have been some 10M and 6M openings.

**VE and Instruction:** Exam sessions are scheduled for July 13 and September 14.

**Nutfest:** The Nutmeg Hamfest is planned for October 13 at the Sheraton Four Points.

We're looking for an additional speaker.

**Key Klix:** The May Key Klix has been distributed. Articles and photos for upcoming issues are always welcome.

**EMCOM / AUXCOM:** The October 6 Fishbein Race will need ten volunteers. The Town has ordered vests to support our Auxcom efforts. There are plans for WARG to become part of the Town's Everbridge notification system. Anyone interested in joining WARG should contact KB1JL or KC1SA.

**YL/XYL Committee:** No new activity.

**Candy Store:** The club website has details about Gold Medal Ideas and MARC clothing and badges.

**Christmas Party:** This year's party will cost \$23 per person.

**Old Business:** K1LYP is continuing to build a roster of Elmers who are willing and able to mentor new hams.

#### **New Business:**

A draft of our new flyer was presented to get feedback from members. We'd like to increase our visibility at Road Races and other events to help make people more aware of our club.

A motion was passed to spend \$225 to purchase dacron rope, PL-259 connectors, and RG-8 coaxial cable.

A motion was passed to place a \$100 refundable deposit for the Lark in the Park permit.

A motion was passed to extend the membership of our two newest members, voted in at this meeting, through the end of 2020. Lenny has asked us to provide water for the water cooler. We'll look into prices.

Meeting was adjourned at 20:48



# ACTIVITY NIGHTS & EVENTS,

*ED W1YSM (ACTING ACTIVITIES MANAGER)*

# 2019

JULY 13	VE SESSION AT THE EOC 9AM ON	WALKINS WELCOME
JULY 25	LARK IN THE PARK	TBD AT THE MEETING
AUG. 22	JEOPARDY FOR HAMS	JOHN K1LYP
SEPT. 26	DRONES – A PRIMER	STEVE KC1SA
OCT. 24	SUNSPOTS	MIKE KC1KRC
NOV 28	THANKSGIVING - NO ACTIVITIES MEETING	
DEC. 12	CHRISTMAS PARTY - NO ACTIVITIES MEETING	

### July Business meeting....July 11 7:30pm @ EOC

The June Business Meeting will commence at 2130Z (7:30pm EDT) at the EOC with Pres. Ed, W1YSM presiding. President Ed has initiated a plan to distribute the agenda a few days prior to the business meeting so you may have the opportunity to be well informed.

### VE Session Saturday July 12 at the EOC from 9am on.... Walk-ins welcome

### July Activity meeting.....July 27,

Our annual Lark in the Park will occur on Thursday July 27 at 6pm however the location is going to be a topic of discussion at this weeks business meeting...

### Save the Date... Sunday October 13, 2019 Nutmeg Hamfest at the Sheraton

The committee is looking for ideas on Speakers / Seminars, Activities etc, all constructive criticism will be greatly appreciated.. N1MM was originally scheduled but a shoulder surgery has been scheduled for a week prior to the Nutfest and he had to cancel.

### Club News

Bobcat Carruthers is in the Hospital again at St. Raphael's in New Haven, CT.

Rich Aubin WA1TRY is in St Francis Hospital with a serious blood infection....

We wish them both a very speedy recovery....

### 2019 W1FD SCHOLARSHIP

Was awarded to Peter Leppones Jr. At the business meeting on June 13 by President Ed W1YSM and Jim N1ZN Chair of the Scholarship Comm. Peter will be attending UCONN this fall majoring in Electrical Engineering. He was accompanied by his Electronic Instructor from Wilcox Tech, George Wruck N1YGN.. His mother is Joyce Wruck N1RMA a former member of the MARC...





## Castle Craig Chapter, 10/10 News Al N1API, Chapter Head

There will be a Castle Craig Chapter Net on Friday August 2nd 2019 on the club net frequency of 28.375. The purpose of this net is to kick off the 10-10 Summer QSO Party. I hope that all club members will join in. Even if you do not have a 10-10 number you are worth 1 point to the rest of us who do and are submitting logs. The QSO party runs from 0000 UTC August 3rd 2019 to 2359:59 August 4th 2019. If you are a paid up 10-10 member your support of the club, and our chapter would be appreciated. Please make as many contacts as you can, and submit your log for credit. Remember to mention that you would like to credit Castle Craig Chapter of 10-10 with your score.

Log submission must be made by 8/12/2019 and now go directly to the contest chairman KZ3T at [dbmorris315@gmail.com](mailto:dbmorris315@gmail.com). You can also mail your log to the contest coordinator Dan Morris KZ3T, 3162 Covington Way, Lenoir, NC 28645.

We will start taking checkins at 7:45 PM local time, (23:45UTC), and I will be the Net Control. I would like a station to help with relays if needed. The procedure is simple. At 8 PM local time, (0000 UTC August 3rd), we will start from the top of the list, (myself), and I will give my 10-10 information, that is Call, Name, QTH (state), and 10-10 number. The next station will be called and that person will give their information and then stand by. We will proceed to the bottom of the list.

The procedure is then repeated from the top to bottom of the list, except you will call all stations that you heard and QSL their information. If you need a repeat on any information this is the time to ask for it. Once the last station is called they should have no calls to make because everyone has called them. I expect that this net should last no more than about 20 minutes. Also, as you talk to local, (Connecticut), stations on 10 meters and also on the different bands please mention this QSO party and ask them to check 10 meters at times during the weekend to participate. Please remind them that if they are in the local ground wave area and members of 10-10, that The Castle Craig Chapter of 10-10 is their local chapter and we would appreciate their support for the QSO Parties. We've seen a few non MARC club members submitting their score for the chapter. We'd like to see more. Castle Craig usually finishes pretty well in the chapter standings. We'd like to do better.

If you have your collected 10-10 numbers sitting *now* is the time to send them in or go to the 10-10 web page at <http://www.ten-ten.org/memship.html> and either use the online shopping cart to join or fill out a paper application and mail it in. There is a special three year incentive plan for \$40.00 or you can join for the basic \$15.00 a year. 10-10 has a membership plan with electronic delivery of the 10-10 News and there are special rates for new and rejoining members of \$10.00 for one year and a three year incentive for \$25.00. It takes about three weeks to get your number back via mail but if you apply online your new number will come via email in just a few days. Remember you need to be a paid up member for your log to count for awards and also toward the club score. A good incentive for joining is that ALL 10-10 awards are FREE, and most if all do not require QSL cards and can be applied for via email.

You will receive award certificates by return mail, (or), for many, you can ask for a PDF certificate to put in your computer or post on your web pages. For those members who are an OM/YL team there is a family membership rate. It is a good way for both to join and get in on the fun. Even if you've decided that you are not interested in becoming a 10-10 member, you can still get on and give contacts out to those who are working the QSO Party. Your point will be welcomed. The 10-10 Officers and volunteers realize that 10 meters is in it's minimum sunspot cycle but they still encourage everyone to work the QSO parties, check 10 meters out and make as many contacts as they can. 10-10 was formed to keep 10 meter band active so that it is not lost to other services and that idea is still paramount in the organization's concepts. Also, you can submit a log as a checklog if you are not a paid up 10-10 member, (though I stress this would be good time to take advantage of the 3 year incentive offer). And if you still decide that 10-10 is not your cup of tea but do get on and pass your information to others, you can also submit a log as a check log. The purpose of 10-10 is to keep the band active and your log is a good way to demonstrate band activity.

Please plan to attend and get the Summer 10-10 QSO party off to a rousing start!

-73- Al N1API Castle Craig Chapter Head and Certificate Manager.



*THE WB1GYZ FILES*  
*Bob Biancur WB1GYZ*



# KR1U

## Bob

# Eslinger

Bob Eslinger KR1U (formerly WA1BZS) licensed since 1964, was born in New York City, and grew up on Long Island. He fondly recalls his introduction to radio by

experimenting with crystal sets at age 9, discovering shortwave radio broadcasts, followed by kit building. His early ham equipment consisted of a Hallicrafters S-38C and DX-60 bought with money earned from delivering newspapers.

Bob recently upgraded his station by replacing his mainstay Kenwood TS-940, which he thought could never be surpassed, with a Kenwood TS890-S. "Side by side comparisons make my beloved 940 appear as a crystal set." He also replaced his Wilson System One four elements on 10, 15, and 20 with a Mosley Pro 57-B at 70 feet which produces 8.5 db gain over a dipole with 25 db front to back on all bands. Dave K1WJL and John K1VDF helped erect the Rohn fold over tower and the heavy Mosley beam. For low bands Bob uses a 160/80 inverted-vee trapped doublet.

He is a graduate of Lyman Hall '66 and attended Bradley University at Peoria, IL, then transferred to Quinnipiac, graduating with a business degree in 1971. He worked as office manager for a steel mill, realized that foreign imports were eroding domestic production, so took a position with a company that specialized in exotic profile extrusion. He later joined a company that manufactured guidance control for dish antennas, but that company experienced difficulty with competition. Bob then found himself at crossroads within industries, and was at a loss to find stability. He wanted to find work that dovetailed with his love for electronics, especially older equipment. He taught himself to repair antique radios, then placed a small ad in a local paper and was immediately swamped with calls for service. His unique ability for restoration soon appeared as a feature story in the New York Times, which launched his new career. Business boomed to where he needed to hire help to meet demand and expand his workshop. He soon employed five techs and two refinishers, and with continuing growth turnaround time approached one year.

Bob enjoys operating grey-line and long path dx, and particularly likes chasing deep Asia, South Pacific, and making contacts over the Poles. He also likes double-hop contacts using his new six meter beam and Acom 1500 watt amp.

Outside ham radio Bob is also interested in playing online chess, and has done boogie boarding, whitewater canoeing, ice boating on Lake Webster, MA., and ocean scuba diving. When he mentioned his meteorite collection, I just had to have a look. Bob presented some amazing specimens, one in particular composed mostly of iron with an estimated age of 4.6 billion years and weighing 25 pounds; having fallen to earth in Argentina about five-thousand years ago.

When asked about the future of ham radio Bob said that he is concerned about the shift toward automated digital modes during the current period of low sunspot activity. He personally enjoys snappy CW QSO's with an occasional SSB chat for diversion. He and his wife Barbara live in a solar heated home equipped with many of his own innovations.

Bob WB1GYZ

**KR1U ANTIQUE RADIO RESTORATION BUSINESS, THIS ENTERPRISE MAY BE AVAILABLE FOR THE RIGHT PERSON CONTACT BOB IF INTERESTED....**



## UPDATES FROM KB1JL

On Wednesday June 19, club members and WARG committee members K1LYP and KB1JL attended a town government tabletop POD ( point of dispensing) exercise drill at the OEM/Hope Hill Rd firehouse. The drill was sponsored by the town health department and included representatives from Police and fire (chiefs and assistant chiefs), the town health dept, the state health dept, OEM and amateur radio, the head school nurse, and representatives from Gaylord Healthcare and Masonic Healthcare. The tabletop exercise involved a simulated nationwide pandemic which spreads into CT and into Wallingford, and strategies were discussed on the logistics of receiving and redistributing the appropriate medicine to key government and healthcare employees and people of high risk. The town health director Steve Civitelli and retired fire chief Pete Struble, adjunct faculty in the Fire science program at UNH, supervised the discussions. Also, The amateur radio responders have been assimilated into the town health dept/OEM Everbridge automated call out system.

Steve Civitelli, director of public health for the town, held a tabletop exercise at the firehouse recently. The facilitator was retired Fire chief Pete Struble, who teaches at UNH. It was attended by town DPH people, Police management, and Fire Management, a rep from State DPH, and reps from Gaylord and Masonic SNFs, and OEM which was Lenny, John K1LYP and Eric KB1JL. The exercise simulated a national pandemic, that spread over time to CT and how it affected Wallingford. Distribution of vaccines/ meds would come from the CDC to the State Health Dept and an amount would be allocated to Wallingford, The town would be responsible to accepting, storing and distributing the vaccines to key personnel (which they call Tier 1 and Tier 2) in each agency or nursing facility.

It was interesting and shows how the town agencies work together to problem solve and execute the plan. John and I got to pitch amateur radio, MARC and WARG. There was a representative there from West Haven Health dept and another from Gaylord who both expressed interest in pursuing a ham license. Both the asst Police chief and asst Fire chief were there as well, so they get to know us.

I invited the Fire Chief to Field day. He said he was out of town Saturday but would try to stop by on Sunday. Steve Civitelli will be in Williamsburg VA this weekend, and cant make it.

The new TV is in the pipeline, they are waiting for their last quote. The fire chief is enthusiastic about it. Paving of the lot will be done sometime this summer, he has no date yet. He said the mowing issue is a problem all over, its done by public works, and they are way behind due to weather. We have a new exhaust fan in the mens room.

**BEING IN CHARGE TAKES IT'S TOLL...  
NOT ONE YAWN LAST NIGHT  
BUT IT'S THE MORNING NOW**



**ERIC KB1EHE WITH MICHAEL GENZEL, PRESIDENT OF SEMINOLE WIRE AND CABLE /JSC /& CABLE-X-PERTS. HE CAME UP TO FD OBSERVE THE ZIG ZAG ANTENNA IN OPERATION.**



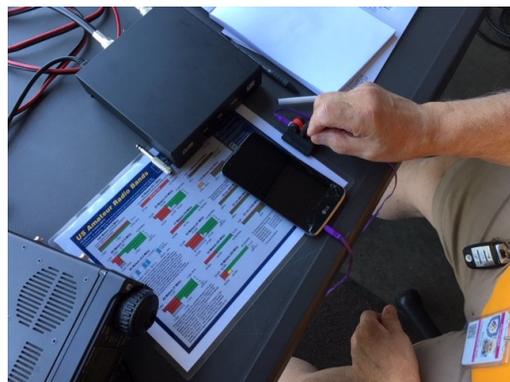
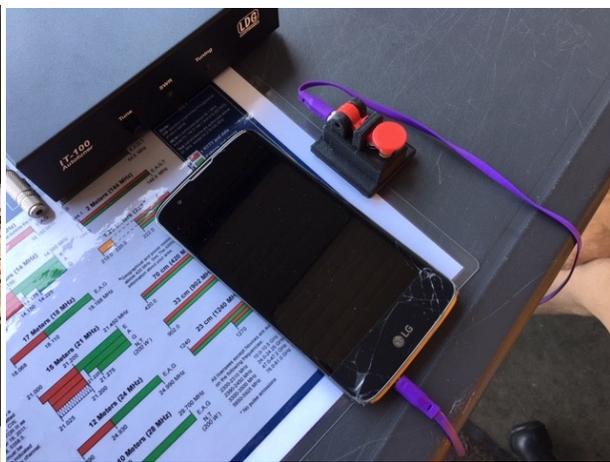
# Field Day Photo's

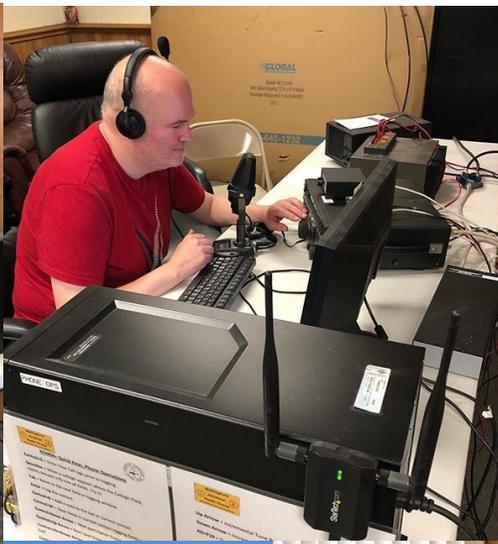


ARRL VISITORS PAUL BOURQUE N1FSE AND BART JAHNKE W9JJ SEEN HERE WITH PRES. ED W1YSM AND ERIC KB1EHE



**JOHN RAMADIE KB1MFU PUT ON A BREAKFAST THAT WOULD MAKE GUY FIERI PROUD...**





## A Homebrew VFO

Bob, WB1GYZ, Bob, KE1AU, and Dave, NZ1J, have gotten their vacuum tube, 80 meter QRP transmitters running and have a pretty long list of follow-on projects. One of those projects is this VFO.

The QRP transmitters are all crystal controlled and can be quite a bit more flexible with the addition of a VFO. Like the transmitters themselves, this VFO is a somewhat simple design. It covers a 30kHz section of the CW portion of the 80 meter band that includes the SKCC and QRP calling frequencies, a net that WB1GYZ frequents, and the 'color burst' frequency.

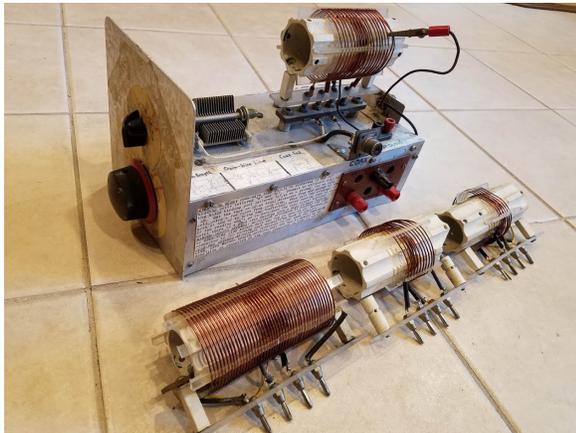
Having been restricted to only a few frequencies, based on available crystals, it's a nice change to be able to sweep across part of the band, as the waterfall image illustrates. Though we take features like this for granted now, there is some real satisfaction in getting on the air with a homebrew radio.

There are more projects, both big and small, on the horizon. For anyone interested, you'll find us planning, building, testing, and tweaking something just about any Saturday morning.



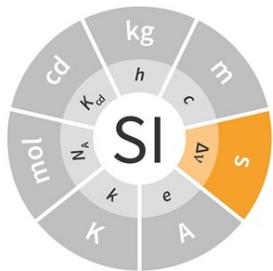
## **SHIELDING? WHO NEEDS STINKIN' SHIELDING?**

Eric KB1EHE recently dug out the very old (mid 70s) "transmatch" that he built as a teenager. He said he got the idea for the design from an ARRL publication. Eric said he didn't have access to roller inductors, so the individual coils are manually tapped (with the alligator clip) during tuning. There is an individual coil for each band. You can see coils for 80, 40, 20, and 10 Meters. The 40-meter coil is the one currently plugged in. If you look close or zoom in, you can see the schematics for Random Length, Open-Wire Line, and Coax-Fed methods of operation. Eric said the instructions on the side (which you can read if you zoom in) were typed by him on his Mom's manual typewriter.



# Club net schedules rely on quantum physics

Reported by W1DQ (based on information from BIPM and NIST)



What defines a second in time and a Hertz?  
 What is an "atomic clock"?  
 What is UTC (Coordinated Universal Time)?

The second, symbol  $s$ , is the SI unit of time. It is defined by taking the fixed numerical value of the cesium frequency  $\Delta \nu_{\text{Cs}}$ , the unperturbed ground-state hyperfine transition frequency of the cesium-133 atom, to be 9 192 631 770 when expressed in the unit Hz, which is equal to  $s^{-1}$ .

This definition implies the exact relation  $\Delta \nu_{\text{Cs}} = 9\,192\,631\,770\text{ Hz}$ . Inverting this relation gives an expression for the unit [second](#) in terms of the defining constant  $\Delta \nu_{\text{Cs}}$ . The effect of this definition is that the second is equal to the duration of 9 192 631 770 periods of the radiation corresponding to the transition between the two hyperfine levels of the unperturbed ground state of the  $^{133}\text{Cs}$  atom.

$$1 \text{ Hertz} = \Delta \nu_{\text{Cs}} / 9192631770 \quad 1 \text{ second} = 9192631770 / \Delta \nu_{\text{Cs}}$$

The Primary Time and Frequency Standard for the United States

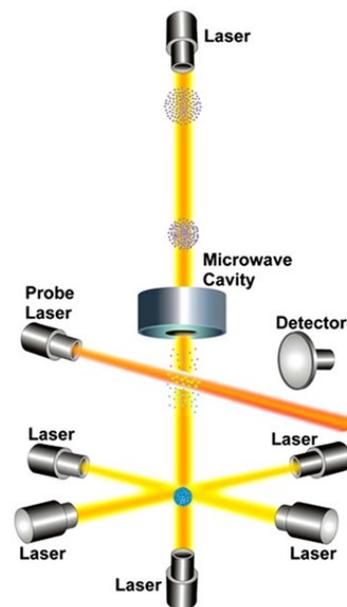
NIST-F1, the nation's primary time and frequency standard, is a cesium fountain atomic clock developed at the NIST laboratories in Boulder, Colorado. NIST-F1 contributes to the international group of atomic clocks that define Coordinated Universal Time (UTC), the official world time. Because NIST-F1 is among the most accurate clocks in the world, it makes UTC more accurate than ever before.

The uncertainty of NIST-F1 is continually improving. In 2000 the uncertainty was about  $1 \times 10^{-15}$ , but as of January 2013, the uncertainty has been reduced to about  $3 \times 10^{-16}$ , which means it would neither gain nor lose a second in more than 100 million years.

NIST-F1 is referred to as a fountain clock because it uses a fountain-like movement of atoms to measure frequency and time interval. First, a gas of cesium atoms is introduced into the clock's vacuum chamber. Six infrared laser beams then are directed at right angles to each other at the center of the chamber. The lasers gently push the cesium atoms together into a ball. In the process of creating this ball, the lasers slow down the movement of the atoms and cool them to temperatures near absolute zero.

Two vertical lasers are used to gently toss the ball upward (the "fountain" action), and then all of the lasers are turned off. This little push is just enough to loft the ball about a meter high through a microwave-filled cavity. Under the influence of gravity, the ball then falls back down through the microwave cavity. The round trip up and down through the microwave cavity lasts for about 1 second. During the trip, the atomic states of the atoms might or might not be altered as they interact with the microwave signal. When their trip is finished, another laser is pointed at the atoms. Those atoms whose atomic state were altered by the microwave signal emit light (a state known as fluorescence). The photons, or the tiny packets of light that they emit, are measured by a detector.

This process is repeated many times while the microwave signal in the cavity is tuned to different frequencies. Eventually, a microwave frequency is found that alters the states of most of the cesium atoms and maximizes their fluorescence. This frequency is the natural resonance frequency of the cesium atom (9,192,631,770 Hz), or the frequency used to define the second.



Coordinated Universal Time (UTC) and International Atomic Time (TAI)

International Atomic Time (TAI) is an international time scale that is computed by taking the weighted average of more than 300 atomic clocks. These clocks are located at more than 60 timing laboratories around the world. The most stable clocks receive the most weight in the calculation, but the maximum weight assigned to any clock is limited to  $A/N$ , where  $A = 2.5$  and  $N$  is the number of clocks. Thus, if  $N = 300$ , the maximum weight is 0.83 %. While the stability of TAI is achieved by this weighted average, the accuracy of TAI is derived from data from primary frequency standards, which are clocks built at several national metrology institutes. TAI is computed by the [International Bureau of Weights and Measures](#) (BIPM) located near Paris, France.

Coordinated Universal Time (UTC) is based on TAI, but it is adjusted by leap seconds to account for the difference between the definition of the second and the rotation of Earth. This correction keeps UTC in conjunction with the apparent position of the Sun and the stars, and it is the standard used for all general timekeeping applications.

References: BIPM (International Bureau of Weights and Measures) <https://www.bipm.org/en/measurement-units/base-units.html>  
 NIST (National Institute of Standards and Technology) <https://www.nist.gov/pml/time-and-frequency-division/primary-standard-nist-fl>

# INFORMATION PAGE

# MERIDEN AMATEUR RADIO CLUB

PRESIDENT.....W1YSM ED SNYDER  
 VICE PRES.....KB1JL ERIC OLSSON  
 SECT.....NZ1J DAVE TIPPING  
 TRES.....K1WJL DAVE SWEDOCK  
 STATION A.M...K1RCT ROB CICHON

MEETINGS: NORMALLY  
 7:30PM ON THE 2ND & 4TH THURSDAYS OF THE MONTH,  
 UNLESS OTHERWISE POSTED,  
 AT THE HOPE HILL ROAD FIREHOUSE / EOC  
 143 HOPE HILL ROAD, WALLINGFORD

KEY KLIX EDITOR DAVE SWEDOCK K1WJL  
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**CLUB NETS**

**6 MTR NET** MONDAYS 8PM  
 50.175MHZ N1ZN JIM

**2 METER NET** TUESDAYS 7:30PM  
 147.36 /RPT K1TDO TODD

**10 METER NET** TUESDAYS 8PM  
 28.375MHZ K1VDF JOHN

**10/10 CASTLE CRAIG CHAPTER**  
 CONCURRENTLY WITH CLUB NET  
 28.375MHZ TUESDAYS 8PM N1API AL

**CLUB DUES STRUCTURE (JAN-DEC)**

UP TO 64 YRS OF AGE--\$20/YR

SENIOR DISCOUNT 65 & UP--\$15

**WEBSITE:** (USE LOWERCASE)  
[www.w1nrg.com](http://www.w1nrg.com)

**FORUM/BBS:**  
[www.w1nrg.com/forum/](http://www.w1nrg.com/forum/)  
 or go to website and follow links

**CASTLE CRAIG 10-10 WEBSITE:**  
 go to [www.w1nrg.com](http://www.w1nrg.com)  
 and follow the links

**CLUB REPEATER W1KKF/R**  
 147.36MHZ +600 OFFSET  
 NO PL TONE (OPEN REPEATER)



AB1DQ	James Surprenant	19	KC1IHK	Scott Mowerson	19	W1NHS	Fred Ring	19
AB1HB	Charlie Dudac	19	KC1IIL	Matt Mowerson	19	W1NNZ	William Kosche III	19
AF1HS	Art Fregeau	19	KC1ISI	Kristin Olsson	19	W1POP	Fred Liedke	21
K1IIG	Steve Tripp	19	KC1KQH	John Kasinskas	19	W1UFO	Mike Cei	19
K1JCF	Joe Farrell	19	KC1NS	Nancy Tipping	19	W1VCU	Nelson Denison	L
K1LHO	Mike Ash	19	KC1SA	Stephen Allen	19	W1XK	Stan Kugler	19
K1LYP	John Yusza	19	KE1AU	Robert Kaczor	19	W1YSM	Ed Snyder	19
K1MMK	Mike MacKennedy	20	KE1AY	Donald Mitchell	19	WA1FFT	Ray Irwin	19
K1MVM	Mike Macri	19	KE4EYA	Ralph Ring	19	WA1JKR	John Rogus	20
K1PU	Mark Mokoski	19	KR1U	Bob Eslinger	19	WA1SFH	Douglas Sharafanowich	19
K1RCT	Rob Cichon	19	N1API	Al Kaiser	19	WA1TRY	Rich Aubin	L
K1STM	Anne West	19	N1AKN	Jeff Dwyer	19	WA1ZVY	Jim Martin	19
K1TDO	Todd Olsen	19	N1BF	Patrick Dionne	19	WB1GGP	Jerry Shepard	19
K1THP	Dave Karpiej	19	N1BRL	Bart Toftness	19	WB1GYZ	Bob Biancur	19
K1VDF	John Blevins	19	N1GNV	John Bartscherer	19	WB8IMY	Steve Ford	20
K1WJL	Dave Swedock	19	N1GY	Geoff Haines	21	WV2LKM	Steve Waldmann	19
K1XJ	Kevin Buchanan	19	N1HCA	Susan South	19		Ron Rogers	20
KB1EHE	Eric Knight	19	N1KGY	Chuck Ayers	20			
KB1HCC	Jonathan Winslow	20	N1LGH	Barbara Stone	19			
KB1IFZ	Elsie Mathews	19	N1MOB	Dan David	19			
KB1JL	Eric Olsson	19	N1NAN	Helen Spokes	19			
KB1MFU	John Ramadei	19	N1OKF	Bob Parisi	19			
KB1ORB	Mark Noble	19	N1OKR	Frank Ciccone	19			
KB1TMC	Clare O'Lena	19	N1POP	Greg Ploski	19			
KB1YFJ	Glen Couture	19	N1YLN	Edward O'Lena	19			
KC1DOY	Ted Renzoni	19	N1ZN	James Savage	19			
KC1FJJ	Richard Nagy Jr.	19	NZ1J	Dave Tipping	19			
KC1HDB	Jeff Martin	18	W1DJB	Dylan Barrett	19			
KC1HFO	John Stoidis	19	W1DQ	John Elengo	19			
			W1KKF	Bill Wawrzeniak	L			