MARCH 2023 Volume 12 Issue 3

VE3ERC-LUB

President: Ted VE3TRQ
Vice-President: Frank VA3FJM
Secretary: Kirk VA3KXS
Treasurer: Paul VA3PDC
Trustee: Wes VE3ML
QSL Manager: Kirk VA3KXS
Repeater Trustee: Wes VE3ML
Website Admin: Ted VE3TRQ
Lighthouse:
Maple Syrup Display:
Newsletter: Bob VE3IXX
ERC Website: https://ve3erc.ca

ERC REPEATERS

UHF 444.700 + TONE: 131.8
UHF 444.700 + TONE: 123.0
VHF 147.390 + TONE: 123.0
VHF 147.255 + TONE: 131.8
EMERGENCY SIMPLEX: 146.550
UHF–IRLP node 2404,ECHOLINK VE3ERC-L
VHF– IRLP node 2403,ECHOLINK VE3ERC-R

In an emergency, tune Into our repeaters,
UHF 444.700 or
VHF 147.390 or
HF 3.755 LSB or
Simplex 146.550
For coordination and assignments.

Oooh Nice.

Every Ham's dream. Highway patrol in the outback [Australia]. Nice HF antenna!

73, Tony VE3DWI

THE PREZ SEZ!

This club is Radio-ACTIVE

President's Update for March 2023

It is a fact that we as amateur operators are getting collectively older. We said goodbye to two SKs last month, Johan VA3JBO and Doug VE3CXU, plus Al VA3TET last year. This really points up the importance of attracting younger Hams to the hobby. How do we go about that? Perhaps we should try to rejuvenate Jamboree on the Air to get youth in the Scouting movement involved in amateur radio. Are there any ways for us to involve schools? I do recall a few years ago that many of the grade 7 and 8 students at an emergency response event were fascinated by Morse code. Maybe that, and digital modes on radio, can divert them somewhat from their cellphones hi hi. The future of the hobby depends on it.

On another note, still related to getting hams more involved, we had a conversation and demonstration of "Go Kits" at this month's meeting. If we as amateur operators want to represent ourselves to local governments as being available for communication in emergencies, we need to be prepared. And what better way than to have a ready-to-go kit with everything needed to operate with no help from normal infrastructure - batteries, solar panels, and stand-alone radios and computers. And to integrate with what society today expects, it is entirely possible to send and receive e-mail from a portable or remote location using Winlink. Try that with a cellphone when the local towers are gone or not powered! And of course that same kit works wonderfully for POTA and any other portable operation

Presenting

THE HAM CLASS OF 2023

After a gruelling 24 weeks of weekly ham classes often lasting two and a half hours per session and going over endless tests (probably covering every question in the 1000 question bank three times over) this intrepid crew wrote the basic test on March 18. The results were nothing short of astounding. One of the young students, John, scored 100 percent. Quite a number scored in the nineties and the majority of candidates qualified for Basic with Honours. In all, fourteen new hams received their licence.

Special thanks go out to the examiner Rob VE3PCP who is shown on the far left of the photo, and to Tony VE3DWI and Rod VA3MZD who both guest lectured. Also a special thanks to Brendan VA3BVB, his wife Carole and his family for opening up their home to host the classes.

A few of the students and a few who scored in the seventies (below the Honors endorsement) have shown an interest in learning CW. For those who achieved between 70 to 79 percent, passing a test of five words per minute morse code will give them full qualifications.

CONGRATULATIONS to a hard working group of students.

WELCOME NEW HAMS!

CONTRIBUTIONS TO VE3ERC-CLUB NEWSLETTER

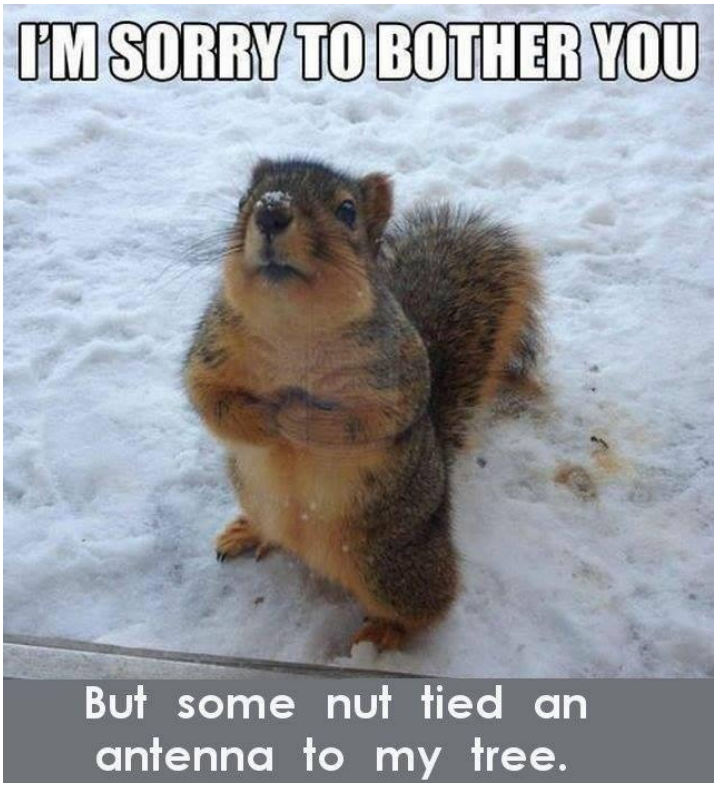
Do you have an article you'd like to submit? Or photos? Do you have any comments you'd like to make?

Perhaps you'd like to share a photo of your shack, a special project you are working on or a special interest!

SEND THEM TO:

Bob bobve3ixx@gmail.com

(519-787-2279)



WEDNESDAY NITE NET CONTROLLERS

FEBRUARY 15 - BRIAN VA3DXK

FEBRUARY 22 - M E E T I N G

MARCH 1 - BOB VE3IXX

MARCH 8 - TED VE3TRQ

MARCH 15 - BILL VA3QB

MARCH 22 - M E E T I N G

MARCH 29 - KIRK VA3KXS

APRIL 5 - REG VE3RVH

APRIL 12 - FRANK VA3FJM

APRIL 19 - TOM VE3DXQ

APRIL 26 - M E E T I N G

MAY 3 - TONY VE3DWI

The Great Québec Blackout

MARCH 12, 2021 / DR.TONY PHILLIPS

March 13, 2021: They call it "the day the sun brought darkness." On March 13, 1989, a powerful coronal mass ejection (CME) hit Earth's magnetic field. Ninety seconds later, the Hydro-Québec power grid failed. During the 9 hour blackout that followed, millions of Quebecois found themselves with no light or heat, wondering what was going on?

Above: Sunspot 5395, source of the March 1989 solar storm. From "A 21st Century View of the March 1989 Magnetic Storm" by D. Boteler.

"It was the biggest geomagnetic storm of the Space Age," says Dr. David Boteler, head of the Space Weather Group at Natural Resources Canada. "March 1989 has become the archetypal disturbance for understanding how solar activity can cause blackouts."

It seems hard to believe now, but in 1989 few people realized solar storms could bring down power grids. The warning bells had been ringing for more than a century, though. In Sept. 1859, a similar CME hit Earth's magnetic field–the infamous "Carrington Event"–sparking a storm twice as strong as March 1989. Electrical currents surged through Victorian-era telegraph wires, in some cases causing sparks and setting telegraph offices on fire. These were the same kind of currents that would bring down Hydro-Québec.

Above: Grey areas indicate regions of igneous rock where power grids are most vulnerable to geomagnetic storms.

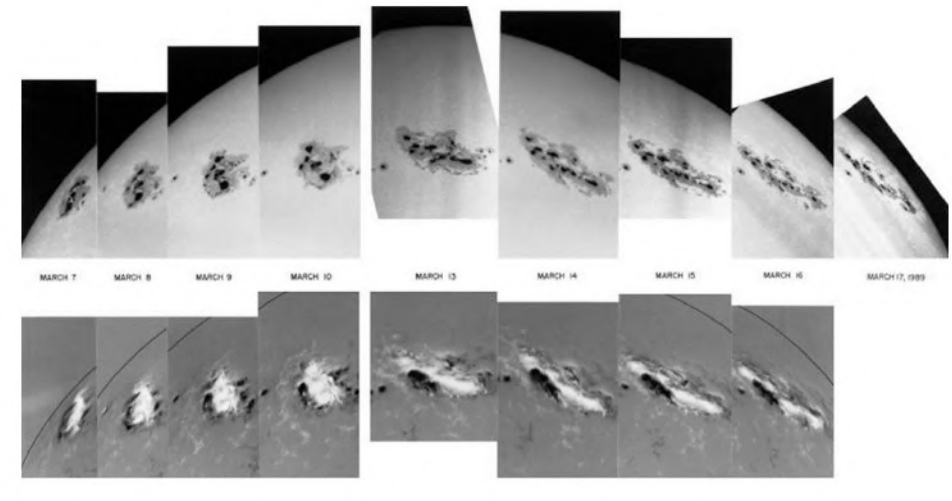
"The March 1989 blackout was a wake-up call for our industry," says Dr. Emanuel Bernabeu of PJM, a regional utility that coordinates the flow of electricity in 13 US states. "Now we take geomagnetically induced currents (GICs) very seriously."

What are GICs? Freshman physics 101: When a magnetic field swings back and forth, electricity flows through conductors in the area. It's called "magnetic induction." Geomagnetic storms do this to Earth itself. The rock and soil of our planet can conduct electricity. So when a CME rattles Earth's magnetic field, currents flow through the soil beneath our feet.

Québec is especially vulnerable. The province sits on an expanse of Precambrian igneous rock that does a poor job conducting electricity. When the March 13th CME arrived, storm currents found a more attractive path in the high-voltage transmission lines of Hydro-Québec. Unusual frequencies (harmonics) began to flow through the lines, transformers overheated and circuit breakers tripped. After darkness engulfed Quebec, bright auroras spread as far south as Florida, Texas, and Cuba.

Reportedly, some onlookers thought they were witnessing a nuclear exchange. Others thought it had something to do with the space shuttle (STS-29), which remarkably launched on the same day. The astronauts were okay, although the shuttle did experience a mysterious problem with a fuel cell sensor that threatened to cut the mission short. NASA has never officially linked the sensor anomaly to the solar storm.

Much is still unknown about the March 1989 event. It occurred long before modern satellites were monitoring the sun 24/7. To piece together what happened, Boteler has sifted through old records of radio emissions, magnetograms, and other 80s-era data sources. He recently published a paper in the research journal Space Weather summarizing his findings — including a surprise:
"There were not one, but two CMEs," he says.



The sunspot that hurled the CMEs toward Earth, region 5395, was one of the most active sunspot groups ever observed. In the days around the Quebec blackout it produced more than a dozen M- and X-class solar flares. Two of the explosions (an X4.5 on March 10th and an M7.3 on March 12th) targeted Earth with CMEs. "The first CME cleared a path for the second CME, allowing it to strike with unusual force," says Boteler. "The lights in Québec went out just minutes after it arrived."

The March 1989 event kicked off a flurry of conferences and engineering studies designed to fortify grids. Emanuel Bernabeu's job at PJM is largely a result of that "Québec epiphany." He works to protect power grids from space weather — and he has some good news.
"We have made lots of progress," he says. "In fact, if the 1989 storm happened again today, I believe Québec would not lose power. The modern grid is designed to withstand an extreme 1-in-100 year geomagnetic event. To put that in perspective, March 1989 was only a 1-in-40 or 50 year event–well within our design specs."

Some of the improvements have come about by hardening equipment. For instance, Bernabeu says, "Utilities have upgraded their protection and control devices making them immune to type of harmonics that brought down Hydro-Québec. Some utilities have also installed series capacitor compensation, which blocks the flow of GICs."

Other improvements involve operational awareness. "We receive NOAA's space weather forecast in our control room, so we know when a storm is coming," he says. "For severe storms, we declare 'conservative operations.' In a nutshell, this is a way for us to posture the system to better handle the effects of geomagnetic activity. For instance, operators can limit large power transfers across critical corridors, cancel outages of critical equipment and so on."

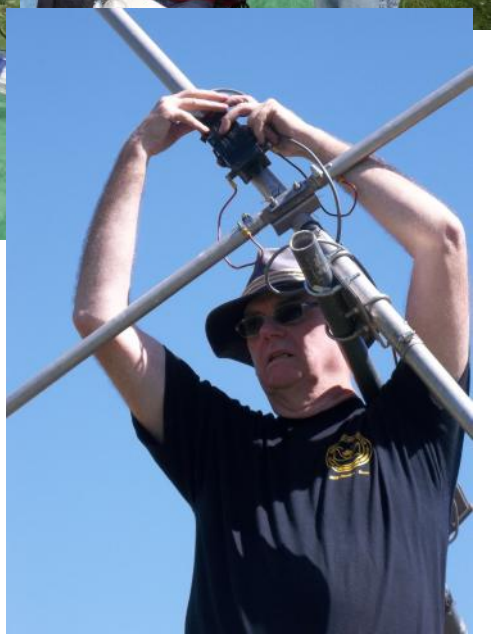
The next Québec-level storm is just a matter of time. In fact, we could be overdue. But, if Bernabeu is correct, the sun won't bring darkness, only light.

Thanks to Tony VE3DWI for sending this article.

In Memoriam

July 27, 1942 - February 27, 2023

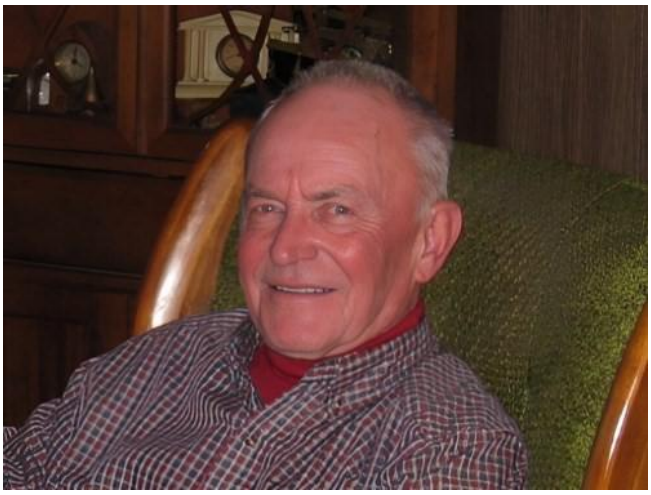
Field Day 2011



Field Day 2012

Johann Bouwer
VA3JBO-SK

1937—March 5, 2023



Doug Kuhn
VE3CXU-SK

Doug with his wife Annette
At ERC Christmas Party

From the PAST

A Scout's "OWN" S. W. SET

(The Pelham)

L. M. Cockaday

SCOUT ROBERT CROCKETT of Troup Three, Siwanoy Council, Pelham, New York, is an ardent short-wave enthusiast. He has recently built a single-tube set to be described forthwith and with it he has been able to bring in most of the long distance short-wave broadcast stations as well as amateur transmitters. He keeps his own radio notebook and log-book. It contains copies of the many hundreds of variations of single-tube short-wave circuits and data on coil winding, amplifiers, etc., that he has cut from radio magazines and newspapers during the past two years. He chose the circuit shown in Figure 1 because of its simplicity and because of the many reports

SCOUT CROCKETT AND HIS SHORT-WAVE SET

Fine little one-tube set installed in Scout Crockett's radio corner. Note buzzer code test set and interchangeable coils. Does it pull in DX? We'll say it does!

control on the panel, adjusts the filament current which should be kept as low as possible consistent with good results. The switch SW is the lower center

choke coil, RFC, and a condenser, C5, which act as a filter to a keep radio-frequency currents out of the 'phone circuit so that the set will not have

https://worldradiohistory.com/Archive-Radio-News/30s/Radio-News-1934-09-R.pdf

All Keyed Up by

Dan Romanchik, KB6NU

Is this ground wave?

In the past week, I've had a couple of contacts whose propagation mode I can't quite figure out. The first was with W8KIX on 30 meters. According to QRZ.Com, he is 48.3 miles away from me as the crow flies. He was really strong—S9+.

It's hard to believe that we were working ground wave, but he suggested that we try 40 meters and then 80 meters to see if we could copy one another. On both 40 meters and 80 meters, we were both S9. So, does that mean we were really working ground wave? I would have thought there'd be some difference in signal strength had we been working sky wave.

Just last night, I worked VE3CWP on 40 meters. According to QRZ.Com, he's only 35.4 miles away from me. He was actually S9 + 20 dB here. He gave me a similar report. As a result of this contact, I'm thinking that we really are working ground wave somehow.

As an aside, I was amused to read his QRZ.Com page. He writes, "Licensed since May 29, 1958, my 16th birthday." My first ticket was dated July 16, 1971, my 16th birthday.

Cave Man CW

”Before the flying doctor”

by Dick van de Pol

[Obtained with permission from “Morsum Magnificat” magazine, Autumn 1986. All issues can be freely downloaded at http://www.n7cfo.com/tgph/Dwnlds/mm/mm.htm]

Deep in the outback of Australia, one evening in 1917, Jimmy Darcy fell from his horse, trying, with others, to control a cattle stampede.

Like so many others, fighting for existence in the outback in those days, Darcy was a spartan character. He suffered from neglected malaria, and chronic appendicitis, staying in the saddle as long as the fever and pain allowed, but his fall put an end to this.
When he regained consciousness, it was clear that he needed medical attention, or he would die. But there were a few problems. The nearest doctors were at Wyndham and Derby, one 250 and the other 500 miles away.

There was no telephone, there were no automobiles, streetcars, or aeroplanes, and the only road was a sun baked mud trail. His friends decided to take him to Halls Creek, a settlement 60 miles away, where the postmaster had some first-aid knowledge, and could contact the outside world by telegraph.

Darcy was carried on a small cart with iron wheels for 12 hours, and when the cattlemen woke the postmaster at midnight, he quickly ascertained that treatment was far beyond his capabilities. After telegraphing for some time, he discovered that the doctors at Wyndham and Derby were not available. The only solution was to telegraph a doctor at Perth, some 2500 miles away. The telegraph system of 1917 was not able to carry a message directly over such a distance, and it was relayed from one station to another by hand until, at last, it reached Perth. From this message, Dr Holland, in Perth, diagnosed a torn bladder, requiring an emergency operation. Postmaster Tuckett objected by telegraph that he could not undertake the operation, not only through lack of knowledge, but also through lack of medical equipment. The doctor was insistent, if Tuckett did not operate immediately, the patient would die. Around dawn, Darcy was tied to a table ready for an operation by the postmaster, who used a pocket-knife in accordance with telegraphic instructions from the doctor a few thousand miles away. The Operation took 7 hours, and a day later Tuckett asked for new instructions as he saw no progress. The doctor told him a further operation was inevitable. Again the telegrapher used his knife, but there was still no improvement in Darcy's condition.

Dr Holland decided to travel to Halls Creek, a Journey involving 1500 miles by sea to Derby, and a further 500 miles along the mud road. When he finally arrived, Jimmy Darcy had died the day previously.

The autopsy showed the cause of death to be neglected malaria. The doctor declared that the surgery had been carried out perfectly, and the bladder showed no sign of infection whatsoever. Had there been normal medical care available, Darcy would have survived.

Exceptional as this story may sound, it is not unusual even today, in the immense deserted wilderness of the Australian outback, for such crises to occur.

If the Royal Flying Doctor Service did not exist, the outcome could be the same too.

CTCSS encoder with Arduino

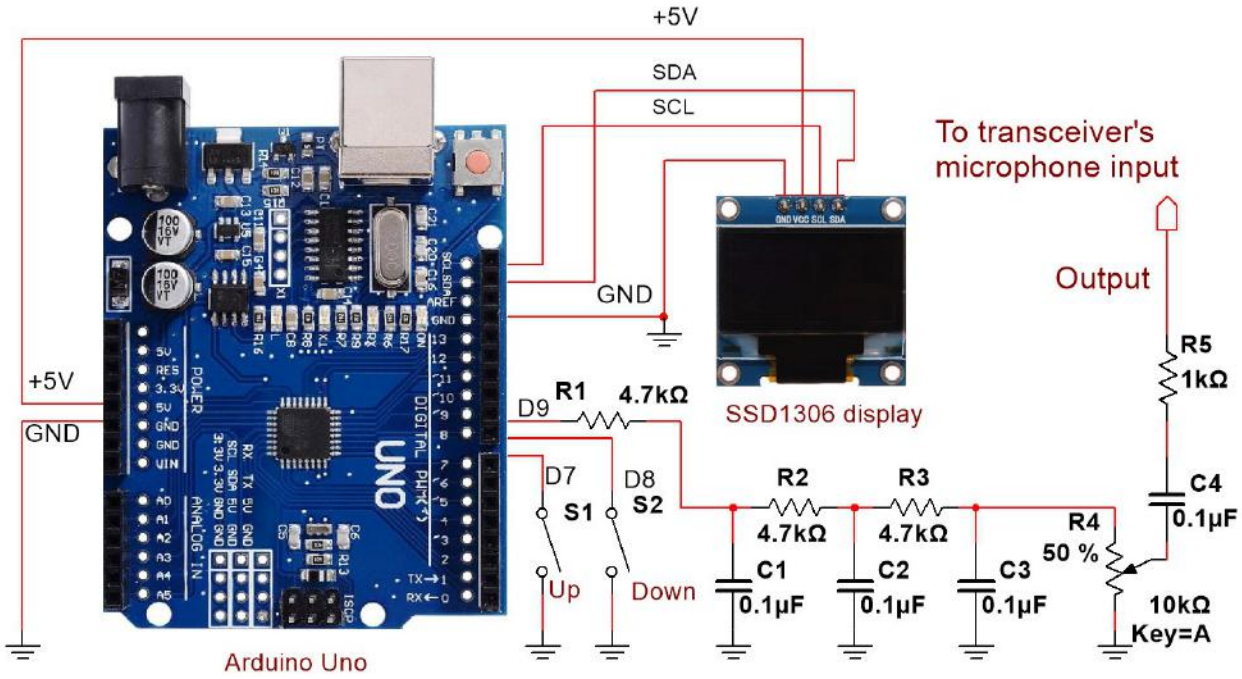
by Daniel Romila VE7LCG

I wanted a simple and quick project by copying an Arduino CTCSS generator for older transceivers which had no built in tones. I searched on youtube.com and I was surprised to see several projects, which obviously were exactly what I wanted, but which did not offer all the information I needed (code, schematic, the used libraries for the Arduino program). They showed the product I was interested in, but either with a code generating only one frequency, or one using a computer for displaying the frequency but with no schematic and so on.

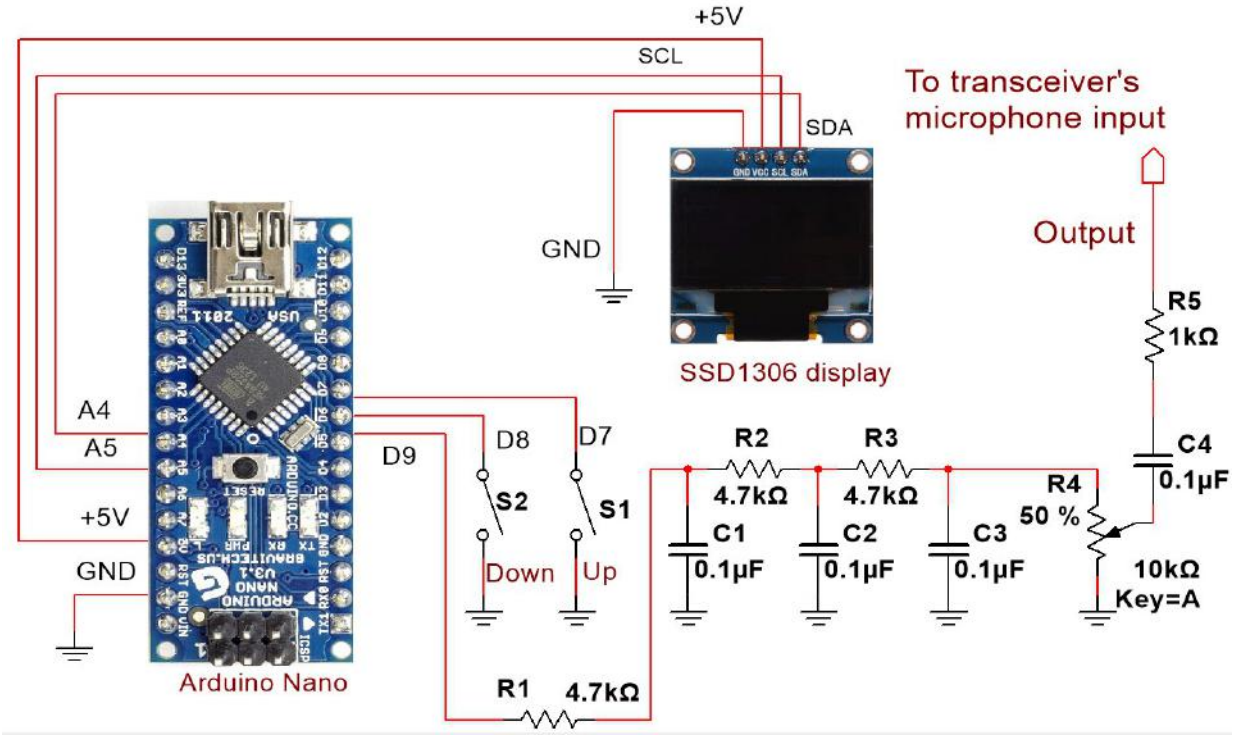
I felt that I was left to my own devices, but this did not discourage me. I tried code that was already made by others, even if the LCD display was not there, the UP and DOWN buttons were not there. I gave credit to the initial coder(s) on the program I used, which is available from my

github:danielromila/CTCSS-encoder: test (github.com)

I wanted something simple, and I used Arduino Uno for the test, but Arduino Nano also works (as well as other Arduino boards). I used a 128 X 64 SSD1306 LCD display, which requires I2C connection to the Arduino board. For UP and DOWN (to select the CTCSS frequency, from predefined 50) I used buttons, not a rotary encoder, for simplicity and price. The S1 and S2 are connected to the D7 and D8 outputs of Arduino Nano.



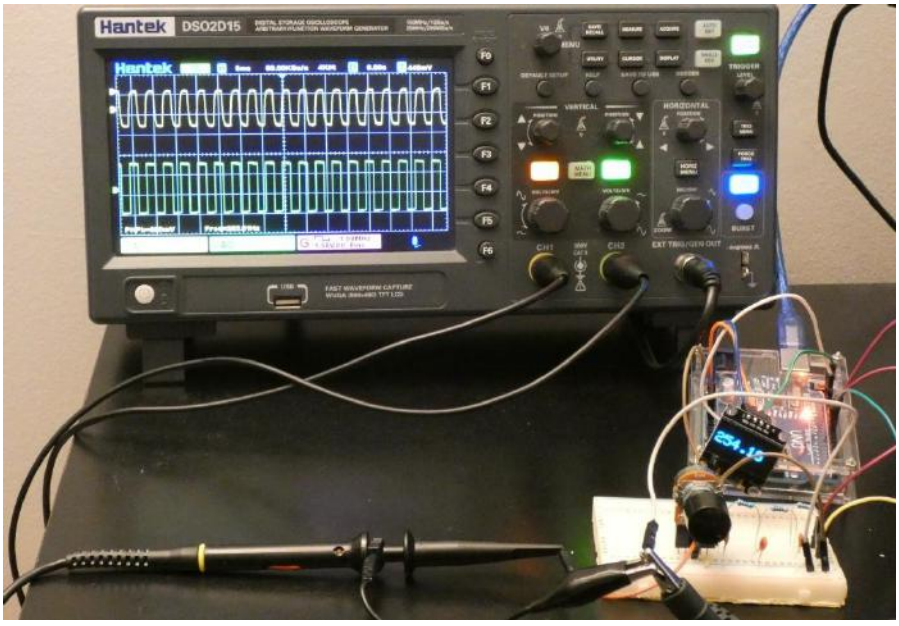
The output is collected from D9 through R1. Arduino generates a square signal, which would create a harsh voice in transmission. The R1, R2, R3 and the capacitors C1, C2 and C3 round the signal and make it look more like a sine wave.



The schematic with Arduino Nano :

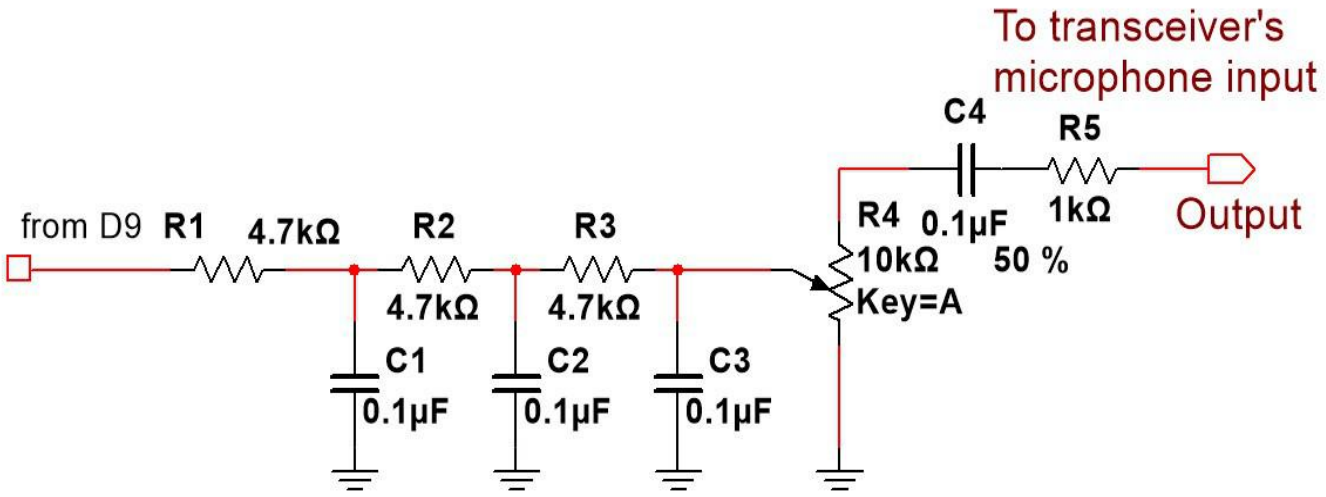
At 67 Hz the maximum output level which can be obtained from the CTCSS generator is 3V peak to peak (1.25V RMS). At 254.1 Hz the output is 2.52V peak to peak, that meaning 1.08V RMS. It is more than enough for inputting this signal in parallel with the microphone of the transceiver. The before mentioned values were measured on the oscilloscope which has a high impedance output, and the values will be lower when connecting the microphone in parallel. Some 50mV to 350mV should be more than enough, and this lower value can be obtained by adjusting the potentiometer at the output of the generator.

S1 and S2 are active in the LOW state. I used the PULLUP option of Arduino, so usually D7 and D8 inputs (where S1 and S2 are connected) stay HIGH. No need for resistors, no need for debouncing. Pressing the either S1 or S2 once makes the Arduino to pass to the next standard CTCSS frequency. When getting at the maximum or at the minimum frequency it knows to stay there and not to try to move further. Keeping pressed either S1 or S2 will make the going through the standard CTCSS frequencies faster.



A version for the audio CTCSS has less effect on the tone of the transceiver's microphone input, by adjusting the potentiometer differently.

I tried to give others what I was looking for, a tested project which can be replicated immediately, by copying the schematic, the code and adding the same libraries that worked for me.



CORRESPONDENCE

Rod VA3MZD sent the following:

Aurora north of Fergus

I drove a few minutes north of town last night to see if the Aurora was visible, based on the solar reports today and a tip from a FB friend who had posted a photo. My Aurora App said that we'd have a 7% chance of seeing them. It was wrong.

ERC Elmira Radio Club Inc. - Meeting Minutes

March 22, 2023

Attendance - Members	**Attendance - Officers**
Andy Vanesch VE3CDF	Ted Rypma VE3TRQ – President
Bob Koechl VE3IXX	Frank Monteith VA3JFM – Vice President
Brian McNally VE3YBM	Paul Curtin VA3PDC – Treasurer
David Bell VE3CSB	Kirk Sinclair VA3KXS – Secretary
Gary Kornstein VE3JGK	
Graham Bauman VE3BYP	**Guests**:
Jim Heidmiller VE3JMU	None
John Linnerth VE3OVO/VE3PT	
Judd Hodge N4WXU/VE3WXU	
Ken Buehler VE3KCY	
Linda Willis VE3CZ	
Mike Willis VE3FE	
Reg Horney VE3RVH	
Rene Paquin VA3RRP	
Rich Clausi VE3DCC	
Rod Murray VA3MZD	
Roger Sanderson VE3RKS	
Ron Webb VE3WBE	
Tom Mahony VE3DXQ	

Meeting Location: Elmira Firehall & Zoom

Meeting Minutes

1. **Call to Order:**
    a. Meeting was called to order by President, Ted Rypma VE3TRQ at 7:29 pm and he welcomed everyone present.
2. **Roll Call:**
    a. A roll call established those present and it was noted quorum had been attained.
4. **Approval of Agenda:**
    a. Ted displayed the agenda onscreen for those in the room and on Zoom.

b. *MOTION to approve the agenda as circulated.*

Motion By: Bob VE3IXX

Carried

5. Presentation

a. Member Show & Tell - Go Boxes.

6. Secretary Report: Presented by Kirk Sinclair VA3KXS.

a. Correspondence Received:

i. None

b. Minutes of the February 22, 2023 meeting were emailed to members on the same day.

i. No corrections to the minutes have been requested.

ii. The email message also included additional details of the RAC Insurance program, as requested by Bill VA3QB.

c. *MOTION to approve the minutes of the February 22, 2023 meeting.*

Motion By: Kirk VA3KXS

Carried

6. Treasurers Report: Presented by Ted VE3TRQ

a. Details of transactions for the month of January were displayed on the screen.

b. Kirk VA3KXS also reminded the members that Dues are payable in March.

c. Reg VE3RVH personally donated $30 in memory of Doug Kuhn VE3CXU (SK) to St. Mary's Hospital in name of the Elmira Radio Club.

d. Reg VE3RVH presented another cheque for $500 to the Club from sale of equipment from the estate of Al MacDonald VA3TET (SK).

e. Paul VA3PDC thanked Reg VE3RVH, Frank VA3FJM & Ted VE3TRQ for all of the work they have done to remove, inventory, process & sell equipment from Al's estate.

f. Ted VE3TRQ has been asked if the Club will help manage sale of equipment for the estate of Doug VE3CXU (SK) and has agreed to do so.

g. *MOTION to approve the financial statements for February 2023.*

Motion By: Paul Curtin VA3PDC

Carried

7. Presidents Report:

a. Ted VE3TRQ took a moment to remember Johan Bouwer VA3JBO (SK) & Doug Kuhn VE3CXU (SK) who both became Silent Keys in the past month.

b. Ted noted he is excited to see Spring starting to arrive, which of course makes it much easier to lug go-kits through fields for some outdoor portable operations.

8. Committee Reports:

a. Repeater Technical Committee - Bill Reid VA3QB / Tony Lelieveld VE3DWI

i. Ted VE3TRQ provided the update this month.

ii. Intention is to get up to Alma once weather gets better to decide how to re-install the repeater, whether the antenna needs work and how to run an Internet connection.

iii. Once complete, we will have Wires-X available from Alma.

iv. Ted believes he can provide a YSF connection from his QTH, which would allow folks to get into our repeater system from a hotspot.

b. Club Equipment Review Committee – Frank VA3FJM / Tony VE3DWI / Kirk VA3KXS

i. No update this month.

ii. Committee will present the inventory to the Club at the next meeting, and seek direction regarding what to do with it.

iii. Kirk VA3KXS asked any members with Club equipment in their possession, to please email Kirk or the club email address (VE3ERC@gmail.com) with details so it can be compared against the current inventory or added.

c. Nomination Committee - Rich VE3DCC / Tom VE3DXQ

i. Rich VE3DCC indicated the committee is having problems finding candidates for President and Secretary.

ii. Please contact Rich VE3DCC or Tom VE3DXQ if you are interested in either position.

iii. The committee does have the following nominees for other positions:

1. Vice-President - Frank VA3FJM

2. Treasurer - Ted VE3TRQ

3. Trustee - Wes VE3ML

9. Unfinished Business

a. Community Outreach Opportunities - Elmira Scouts - Rich VE3DDC

i. Rich provided a quick update on his discussions with Elmira Scouts.

10. New Business

a. Central Ontario Hamfest - June 4, 2023 - Ted VE3TRQ

i. The Club was notified that the Central Ontario Hamfest is planned for June 4, 2023 and we have been invited to participate.

ii. Reg VE3RVH is planning to take 3 tables and try to unload as much equipment as possible.

iii. Frank VA3FJM is going to coordinate setting up a station to run ONTARS.

11. Announcements

a. The next meeting will be held Wednesday, April 26, 2023.

12. Adjournment

a. MOTION to adjourn at 8:e6 pm

Motion By: Judd N4WXU

Carried

CORRESPONDENCE

Hi Everyone,... Some great links !
Have a great day !
73 Mike VE3MKX

The **Sable Island DX-pedition** is March 20 - 23rd
check out their website.
https://t-rexsoftware.com/cy0s/index.htm

POTA
https://wb3gck.com/tag/pota/
https://qrper.com/category/pota/

CW
https://www.youtube.com/watch?v=1taa-quTHJI

Antenna info
https://www.k0bg.com/myths.html
http://www.rfcec.com/RFCEC/Section-3%20-%20Fundamentals%20of%20RF%20Communication-Electronics/07%20-%20ANTENNA/Antenna%20-%20Antennas%20and%20Feedlines%20(By%20Alfred%20Lorona,%20W6WQC).pdf

https://www.k3emd.com/downloads/Reflect.pdf
http://www.antentop.org/w4rnl.001/radio.html

SWR info
http://www.antentop.org/w4rnl.001/ant17.html

Great info !
https://www.letarc.org/tech-talk/