

THE YCARS TRANSMITTER



Ham Radio News, Events and Information

YCARS Club House - 2051 Squire Rd. Rock Hill, SC 29732 – Mailing Address YCARS PO Box 4141 C.R.S., Rock Hill, SC 29732

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July 2021 Club Activities

- Every Wednesday 18:00 local – Club open House
- Thursday, July 1st- Radio Room Operating Night 18:00-20:00
- Thursday, July 8th – Business Meeting – Clubhouse/Teams 19:30
- Friday, July 9th – Monthly Simplex Net – 21:00
- Saturday, July 10th – Club participation day
- Thursday July 22nd – 19:30 Presentation Night
- Sat, July 31 – YCARS Club Picnic – Fox Hunt and POTA Activation

2021 YCARS Officers

- PRESIDENT – W3SPC
STEVE CZAIKOWSKI
- VICE PRESIDENT –
KM4WLS PHILIP
CHANDLER
- TREASURER – K4DQP
DARCY PACH
- SECRETARY – KN4KCD
RON PRYOR
- CUSTODIAN – KD4RNP
WAYNE REEVES
- TRUSTEE – NJ4Z
JOHN GENDRON

YCARS Net Schedule

- 2 Meter Morning Net
Weekdays Mon-Fri
11:00 K4YTZ Repeater
147.030MHz (-) pl 88.5
- 2 Meter Evening Net
Weekdays Mon-Sun
20:30 K4YTZ Repeater
147.030MHz (-) pl 88.5
- ARES 2 Meter Weekly
Net Mondays 19:30
K4YTZ Repeater
147.030MHz (-) pl 88.5
- Monthly Simplex Net –
2nd Friday of the month
21:15

Welcome to the YCARS TRANSMITTER

Vol.1 No.7 July 2021

Hello everyone,

Welcome to the latest edition of the York County Amateur Radio Society's Newsletter – The YCARS TRANSMITTER.

June has come and gone and we are half way through 2021... amazing, isn't it?

This month, we have NJ4Z's take on the best two weeks of Amateur Radio. Darcy K4DQP, is helping new Hams track down RFI issues in the shack and house.

Our resident octogenarian Joe W8DKR relates Trigonometry to modern SDR's in his observations this month. David, KX4UV brings us tales from the field with the YCARS "In Action" team's communications support of the Mike Doty 809 Foundations Memorial Run.

In the "Ask and Elmer" article this month, NJ4Z goes over why we use offsets for repeaters and what listening in reverse means. Larry, W4LJS puts an antenna switch project on the workbench this month.

We also welcome new Hams and congratulate upgrades from the June VE Testing session. We welcome 3 new members of the YCARS family

We have our Boneyard and our club news and updates, so we hope you enjoy this month's addition of the transmitter.

Please consider writing an article for the newsletter, as the saying goes, "Many Hands Make Light Work,"

We would also like to thank those who contributed this month to the Transmitter.

Until next month

73

The Transmitter Staff

JULY 2021 Contest Calendar

7/1-7/7 – 13 Colonies
Event

7/1 – Canada Day
Contest 00:00UTC

7/3 – Marconi
Memorial 14:00 UTC

7/10 IARU
Championships 12:00
UTC

7/17 – CQ WW VHF
18:00 UTC

7/17 – NAQP – RTTY –
18:00 UTC



From NJ4Z's Hamshack

Musings from the Editor

Amateur Radio's best two weeks of the year, at least in my opinion. We have Field Day weekend followed within a week with the week-long 13 Colonies Event. We also have my favorite Holiday Independence Day sandwiched in those same two weeks. So much Radio and so little time This year is the 13th year for the 13 Colonies. I have participated each year since I have been a general. I have four clean sweeps on my wall. I also managed to work all the of bonus stations in 2018, 2019, and 2020. This year there will be 3 bonus stations, GB13COL, TM13COL and WM3PEN. GB13COL is a station in England and WM3PEN is in Philadelphia. This is the first year for the TM13COL station in France, commemorating the France's role in helping the US gain independence from Britain. You need only work the 13 colony stations K2A through K2M in the 13 original colonies for a clean sweep. I encourage all of you who have not worked 13 Colonies to do so. It is quite a bit of fun, and will help you learn to break a pile-up. It will also teach you how not to operate. Over the years I have observed some pretty poor operating. Learn from these LIDS, learn how to operate in a courteous manner and respect the stations that are giving up their valuable time during a holiday to activate this special event. We owe these operators that much. I hope one day to be one of the special event operators, maybe next year, it is like holding a pile up for as long as you would like.

Switching gears to the YCARS Field Day 2021, it was an awesome event. I want to thank all of you who came out to set-up, socialize, participate and tear-down. The attendance this year was amazing, even without a club picnic to draw members. We had more than 40% of the club come out to visit or participate. We performed at a high level and scored well during field day. I could not be prouder of the club or to be part of this club. Our YCARS family is motivated, focused and passionate about amateur radio. I believe this is why we are growing at such a rate and attracting the attention of so many other clubs in the area. They want to know what the secret sauce is? It is our members and our passion for the club and for radio.

I also want to take a minute to give a special thank you to club leadership: Steve W3SPC, Philip KM4WLS, Darcy K4DQP and Ron KN4KCD for all of their efforts to make the event such a great success. Steve did an amazing job organizing the event. Andre W3PAL also deserves a special thank you for his efforts in preparing the club operators and his level of commitment to the event.

Let's not forget we have the club picnic at the end of the month (July 31), and we also have the Support Your Parks Weekend, July 17-18, Team K4YTZ will have a team operating from Oconee State Park for the 48 hours, our goal is to bring home the club championship plaque. Be looking for us and help us build out contact totals.

So, until next month, stay passionate about Amateur Radio... 73 - NJ4Z out

John Gendron, NJ4Z - Editor, YCARS Transmitter

“Getting on the Air”

Helping New Hams Advance

You’ve Earned Your Ticket, Now What?!

“Hunting Down RFI Interference”

K4DQP Hunts Down RFI Interference in The Shack

Since becoming a licensed operator, I’ve been fortunate not to have had any RFI issues in the shack...that was until last week.

It started while immersing myself into really learning about my Yaesu FT-950. I started noticing some serious noise on the 40M band. No matter where I tuned, an overwhelming level of noise could be heard. The noise was both pulsing and a constant level of hiss and crackling. I engaged a couple of other operators for their thoughts and decided to try a popular method for diagnosing RFI in the shack.

The Hunt Begins

The first thing I did was remove my rig from commercial power and connected it to my 12v SLA battery. Since the signal did not immediately disappear, I suspected that the interference was not coming through the main power at my residence.

Next, I set the radio “wide open” by removing any filters or signal attenuation, thus letting all signals, including noise, into the rig as much as possible.

I then turned off all the lights in my shack (they are T5 LEDs, which have been known to cause some problems) and started unplugging everything in my shack. There was still no relief from the interference.

To the Breaker Box

Since I was home alone, I figured to get serious and headed for the main breaker box of the house. From the breaker box, I can hear the radio, so I started flipping breakers, one at a time, while keeping the main breaker on. After flipping 20 or so breakers, there was still no relief. The only breaker left was the one feeding the garage, so I believed that the interference had to be coming from the garage. When I tripped the final breaker, “bingo”, the noise immediately disappeared. I now knew the signal was coming from the garage.

Killing the RFI

The culprit was determined to be the electric dog fence power supply that was feeding the control unit. When unplugged, no noise, when plugged in, it made my radio practically unusable. I decided to try what is often recommended for such issues and installed a simple ferrite on each end of the power supply. Wrapping the cable a few times inside of the ferrite effectively killed the RFI that was being generated by, what I believe is a power supply that is either going bad, or is bad. Eventually, I will replace the power supply, but for now, I can hear again and my noise level has dropped from a constant S5 to S1.

If you have, or suspect RFI, stray noises, interference or sounds and signals that you suspect don't belong inside of your radio, you may want to consider a few of the steps I took to eliminate my RFI.

Electricity is dangerous and a licensed electrician should be consulted if you need assistance with your breaker box.

Happy Hunting!

De K4DQP

Octogenarian Observations with Joe W8DKR

There are members of YCARS that never took trigonometry in HS or college so they missed out in an important mathematical equation used in present radios as well as SDRs. I studied trigonometry in 1956 and understood the math, but did not see the use in radios. This mathematical equation is called an identity and states that if two sinusoidal (sine or cos) signals are multiplied together then that is identical to the sum and difference of the two signals (ignore slight constant). The electronic device in your radio that performs this multiplication is called a "mixer". It has one input internal from the radio called the "local oscillator" (LO) and the other called the RF signal (the station you want to hear). The output of the mixer is the sum and different frequencies as well as other unwanted frequencies. Suppose the RF signal was at 1100Khz and the LO was 1555 Khz then the output of the mixer would be 2655 Khz (1100 + 1555) and 455 Khz (1555 -1100). The higher frequency (2655Khz) is filter out and the lower one 455 Khz is the desired one and its called the intermediate frequency "IF". The IF signal has all the information in the original RF. The advantage of converting one frequency to another is so that standard filters can be used to processor or separate the signal from other ones. The 455Khz filter is standard for AM and 10.7 Mhz for FM. When you tune your radio, you are actually changing the frequency of the LO. However, the labeling on the dial has the frequency of the RF and not the LO. See problems in July www.onechipsystems.com.

YCARS IN ACTION

YORK COUNTY AMATEUR RADIO SOCIETY

“Comms Support for a Great Cause”

by: David McLaren, KX4UV



**DETECTIVE
MIKE DOTY
MEMORIAL RUN**

The YCARS “In Action’ Team completed a very successful support event in Fort Mill on May 15, 2021. The race benefactor’s Keystone Substance Abuse of Rock Hill were very pleased with our performance and comms support during the event. Keystone is looking forward to our continued support for future events.

An early start to the day, as the sun was coming up, the team set up the canopies for the control station and public relations station. The teams then turned their attention to antenna set-up and radio equipment. The team leaders worked to get volunteer operators signed in and outfitted with vests and credentials. The team then did last minute radio check-outs, as the race volunteers and participants were beginning to arrive. By 7:30 the team members were at their assigned tactical positions and net check-ins were complete. The race began at 8:00am, with our team members assisting the starters to help keep timing accurate for the serious competitors. Throughout the morning we cheered and encouraged the participants to the finish.

Early and intensive planning started in February for for the event. The team performed a course walkthrough and radio coverage survey for repeater and simplex coverage in April. The test session proved fruitful as problematic coverage areas were discovered and plans to meet the challenging conditions were implemented.



YCARS VP Philip, KM4WLS and Vicki W4NQX greet folks visiting the YCARS booth

All did not go according to plan, but that is exactly why we plan with contingencies in mind. Adaptation is the key to overcoming challenges in the field. The team did have some equipment and coverage issues that were problematic, Emergency Coordinator Daniel Boyer, WD2DW and Net Control Operators Hillary, AD1CD and Tim, K6FNV were able to adjust the operating communications plan to accommodate seamless communications from all tactical positions to race command.

The team also adapted to help coordinate with the Race Timing Officials, to track of the participants and identify runners completing the course. The information relayed for the participants as they completed the course helped ensure all participants had safely completed the course. The team also worked closely with the Fort Mill Police department again to ensure the safety of the runners.

To say I'm proud of YCARS and the YCARS Volunteers that helped is not enough. You were energetic, flexible and overall a great team to have out on a wonderful Saturday morning in May. Thank you and know we are working on more events for this year so you can shine again!

"Ask an Elmer"

Ham Radio Advice and Answers

This column will be a forum to ask questions and seek knowledge of amateur radio... we are looking for someone to help answer these questions for members, if you would like to volunteer to help answer or have a question, please email NJ4Z@ycars.com –

Our Question this month comes from a Club Member.

"What is "positive or negative offset" for 2m / 440 and what is listening on "reverse"?"

The offset of frequencies when using repeaters allows for full duplex communications. A repeater using full duplex has a receiver and a transmitter paired together. The receiver listens for signals on one frequency and retransmits those signals instantaneously on another frequency. The offset for the transmit and receive frequencies and the use of a duplexer is required to allow for the receiving and sending of frequencies on the same antenna.

The frequency listed for a repeater is always the frequency repeater is transmitting on, and the frequency your transceiver is set for to receive the transmissions from the repeater. The offset frequency is where your radio will transmit the signal to the repeater.

The offset for the 70CM band here in the US is always a positive 5Mhz. Example if the repeater is listed as 441.525 MHz as the Rock Hill WR4SC repeater, your radio would listen on 441.525 and transmit on 446.525 where the repeater is listening.

It is a bit more confusing on the 2-meter band here in the US, but as a general rule the offset is 600KHz or .6 MHz. The current standard, but not always adhered to is, if the repeater listed frequency is in the 145 MHz range the offset should be a negative 600 kilohertz, if it is in the 146 MHz range it can be either a positive or a negative 600 kilohertz, and if it is in the 147 MHz range it should be a positive 600

kilohertz. Again, this standard is not always followed and so Repeaterbook.com and Radio Reference .com become your best friends for the offset information.

Listening in reverse – well most modern radios have a REV button or reverse button. When you engage the REV or Reverse you radio will listen to the frequency that you would normally transmit on to use the repeater. This allows you to hear stations that might be within your receiving range that are transmitting. It can also help determine if there is an issue with a repeater or a person's radio. If you can hear someone on reverse but not on the repeater it could indicate the tone squelch on that person's radio is wrong, or it could indicate there is a problem with the repeater. It is a valuable troubleshooting tool.

All the best until next month...

John Gendron, NJ4Z

New Hams and Upgrades

Congratulations to all those who successfully passed examinations during our test session on June 19, 2021

Welcome to Amateur Radio

David Bauer – KO4RLX

Scott Jeffers – KO4RLY

Congratulations on the Upgrade

KO4PQU/AE - Steve Hackett

KO4PQT/AE – Brian Ferguson

KN4MKQ/AG – Daniel T. Boone, III



Jeff Blythe – KA4WYC's
Wild Yella' Chicken Coup

... I Just Wish I Could Copy CW as Good As You...!

An Old CW Op and a New CW Op were out in a fishing boat one day. The New CW Op said "I wish I could operate CW as well as you." Not saying a thing, The Old CW Op scratched his chin, set down his fishing pole and grabbed the New CW Op by the back of his head and pushed his face underwater outside the fishing boat, and held him there fighting for a long time. After a while he released the New CW Op. "Why'd you do that?" the New CW Op wailed, gasping for air. The Old CW Op just leaned back and said, "When you want to learn CW as much as you wanted to breathe; then you will learn CW."

THE WORKBENCH

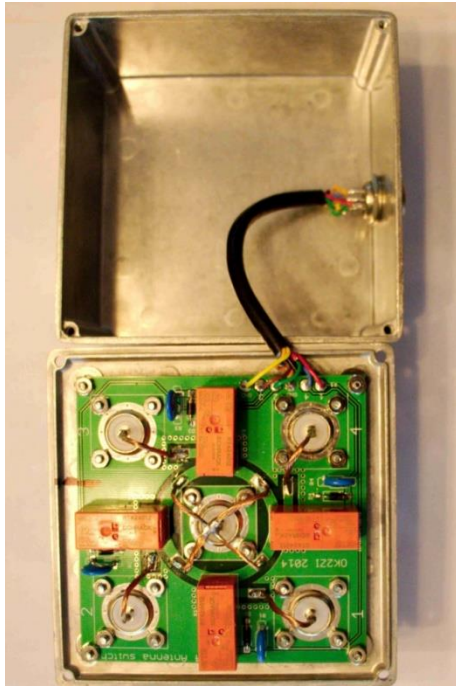
Ham Radio Projects, Tricks and Tips

Build Your Own Antenna Switch

A remote, local, or rig controlled switch

By: W4LJS Larry Schropp

Here's an easy build for a useful shack accessory that can be built by just about anyone, even if you are very new to ham radio. It does require some soldering work but with easy full size components. In fact, if you're new to soldering, this might be just right to learn with.



The circuit board or a kit of parts (not including case or controller) can be purchased on Ebay from the seller "karezo" in his Ebay store. (Use advanced search and include items from seller karezo.) If you go to Ebay and search for him you will find listings of circuit boards and kits of parts for antenna switches that are 2 ports, 4 ports, or 6 ports. Your choice! Karezo claims these switches will handle full legal limit power; I have used mine at 1 kW with no problem. Loss in the switch is -0.05 dB. Isolation is said to be -69dB or better for HF bands. These are good sounding specs! Also unused ports are grounded. If you power the switch from your station supply or an accessory power output on your rig when you turn off the power your antennas are automatically grounded. This is a nice feature.

Building the switch was easy. In my case, I purchased the bare circuit board from Karezo, relays, etc. from Digikey, and connectors from W5SWL.com. Links for photos of constructed switches, drilling guide, and parts list are right there in the description for the auction. I also purchased a diecast aluminum box to mount the switch as well as a connector for the control unit. One thing to watch for when you build the switch is that the interior of the box must be flat in a large enough area to allow for mounting the circuit board. Any protrusions for mounting screws, etc.



on the interior surface of the box can make things difficult if they would be under the circuit card.

The controller for the switch is up to you to make. It's very simple to control the switch. Just apply 12 volts or so to the relay for the desired antenna port and that port is switched to the common. Probably the easiest way to do this is a rotary switch with enough positions to select the desired antenna port. Other options are to make the switch a remote antenna switch, or add a band decoder for your rig and switch antennas automatically when you change

bands. I'm sure you can probably come up with other ways to use the switch as well. Keep in mind the parts and design for the controller are up to the builder and are not included with the switch.

The switch circuit boards or parts kits come from the Czech Republic. The hardest part of all is waiting for your circuit card. Shipping from the Czech Republic is slow.

I hope you if you haven't tried your hand at building a ham accessory, you'll give this a try. Heat up your soldering iron!

THE YCARS BONEYARD

A place to sell, trade or find Ham related Equipment

WN4DVJ – Bill Wells is listing a TYT-MD9600 DMR Mobile unit for \$200.00 and a TYT-MD380 ~~DMRRM~~ Handheld for \$60.00 Contact Bill for details at Bwells@comporium.net or 803-417-7117

KN4KCD – Ron – FT-70DR/DE HT from Yaesu. It is NIB, never fired up, asking \$140.00. KC4KCD@YCARS.ORG

KM4KGH – “the Bear” is offering a Wouxun KG-UV899 Dual Band HT for \$60.00, Radioddity GD-77 DMR Dual Band Hand Held for \$60.00 and TYT- TH-9800 Quad Band 70cm/2m/6m/10m FM mobile for \$185.00 Call 803-372-8487

W3PAL – Andre – FTDX3000d for sale. I want to offer this for club members first, before I advertise it elsewhere. The radio is in excellent condition. Non-smoking shack. Everything works as it should. The radio has an optional 300 Hz roofing filter (\$200 value) and a Voice Recorder board (\$70 value). Original box, manuals are included. Asking \$1,250 Andre, W3PAL (704) 231-4095 aeivanov@comporium.net

K4Ytz – the club has several items for sale – please see [YCARS Boneyard – Page 1 – K4Ytz – YCARS](#) for details.

YCARS News and Updates

Be YCARS Aware



Up for some Adventure? Saturday, July 31, 2021 YCARS Club Picnic and POTA activation.

YCARS will hold the 2021 club picnic at Andrew Jackson State Park, Pavilion #2 on July 31st in conjunction with a club foxhunt and Parks on the Air activation. So, come out, bring the family and join the club for some fun and the adventure that is Amateur Radio. The club will be providing the meat for the meal and drinks. Club members will have the opportunity to sign up to bring side dishes and desserts for the picnic. More details to follow at the July Business meeting.

NEW YCARS MEMBERS
WELCOME TO THE
FAMILY

New members for JUNE
2021

Steve Flowers – KO4ICI

James Warren – KY4GJ

Jay Moss – W4AWT

YTD new members for 2021 -31

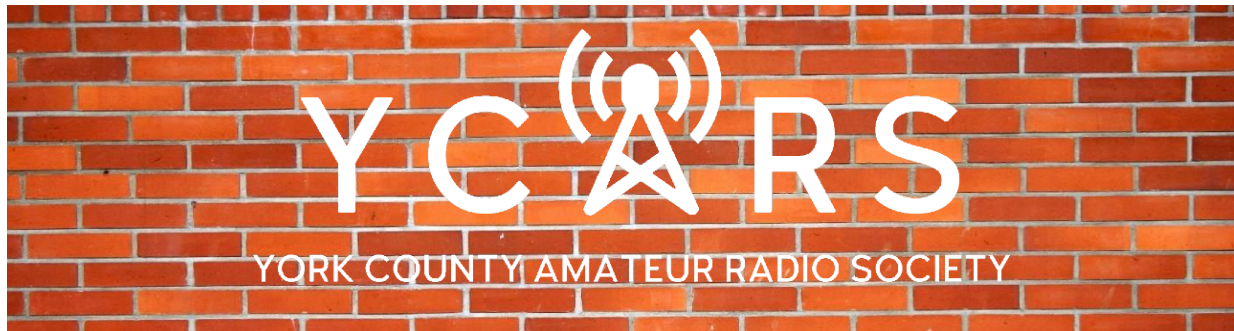
Club Participation Day, July 10th 2021

The Club will be holding another Club Participation Day on Saturday July 10th to finish off the grounding project, building the new antennas, also some work with wire management in the clubhouse. Start time will be 9am.

Local Hamfest Updates:

The Shelby Amateur Radio Club will hold the Shelby Hamfest, September 3rd through the 5th, 2021 – Cleveland County Fairgrounds.

The Carolina Amateur Radio Emergency Services Club is holding the Gaffney (SC) Hamfest on Saturday, Oct. 23, 2021 at the South Side Baptist Church, 204 W. O'Neal St. Gaffney, SC. 08:00-15:00



WALL OF ARROGANCE

YCARS is proud to recognize the achievements and awards earned by club members this month.

If you have earned a Ham Radio Award you wish to share with the YCARS family please let us know.

Darcy Pach, K4DQP – Parks on the Air — Georgia Aster Award - Contacts to 800 unique POTA entities

The York County Amateur Radio Society

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