The News of the

SWAMP FOX CONTEST GROUP

Tales From the Swamp

Editor: Scott Brown, N2OG

JULY 2022

Presidents Corner

What: Eyeball QSO Party (SFCG get-together for members and families).

When: Sunday July 31st starting at 2pm.

Where: K3DNE QTH (25 Dutchman Ct. Cross Hill SC).

Ed and XYL (Kathrin) will provide food (BBQ and a couple of sides/salads, Bottled Water, Iced Tea, Lemonade and Dessert). Feel free to bring anything else you may want to eat or drink for yourself/family or to share.

We live on Lake Greenwood – feel free to bring a swimsuit and water shoes (very rocky bottom). For children, please have them wear a personal flotation device (PFD) while swimming, on our dock or near the lake. We have lots of PFD's but none that are children sized. We have a set of cornhole boards and an indoor billiards table. We also have an Australian Shepherd puppy (Yogi) who is full of energy and in a nipping/jumping stage now – we will keep her in her crate or on a leash during the get-together.

Ed, Kathrin and Derek (2nd harmonic) are Covid vaccinated (Ed and Kathrin x3, Derek x2). Wx permitting most of the get-together will be outside on our covered patio, porch, backyard and in our air-conditioned basement.

What to bring: Callsign/Name tag, any food/beverages in addition to what is provided, swimsuit/towel, PFD, freshwater fishing gear/bait, any ham radio associated show-and-tell you may wish to share and lawn chair(s) – we only have outdoor seating for about 15.

Dave NJ4F has a “box of traps/baluns” he is willing to either raffle off or to use as door prizes to those who are interested. More info to follow on these.

Please RSVP to K3DNE via the reflector or direct email (k3dne73@gmail.com).

Choosing a HF antenna by
Kevan Nason N4XL

Here are four key slides from a presentation I made to our local radio club about choosing an HF antenna. Many of us know these lessons, but it's good to be reminded now and then. The slide about dipole resonance was really interesting to me. I had been asking people for 40 years WHY an antenna should be resonant if all energy sent to it was consumed by the antenna and you could use a tuner to match the antenna so all the transmitter energy went into the antenna. Believe or not, not a single person I asked ever explained why it needed to be resonant. Most of us just accept the wisdom it should be without understanding and on the air performance justified our common tribal knowledge. I may be wrong in my interpretation, but that chart explained to me that at resonance the radiation resistance is highest -- meaning the most energy actually left the antenna as signal instead of being consumed as heat in the reactive parts of the antenna or ground losses.

Antenna tuners add loss while matching SWR

Table 4-1

Examination of High-Pass T-Network Tuner Efficiency as a Function of Tuning: Load 25.6 Ω Resistive in Series with 100 Ω Capacitive at 3.7 MHz.

Capacitor Output (pF)	*Intput (pF)*	*Inductor (µH)*	*Loss (dB)*	*Loss (%)*
5	9.2	130.6	8.5	85.9
10	12.5	82.1	5.4	71.3
30	25.7	34.4	2.4	41.7
50	37.5	22.5	1.6	29.9
100	63.2	12.8	0.9	18.4
200	102.6	7.8	0.5	11.5
500	171.2	4.7	0.3	6.8
1000	223.2	3.7	0.23	5.2
2000	264	3.2	0.19	4.4
5000	297	2.6	0.17	3.9

Note: This is for T-network, L-network losses are lower

- Loss is much higher when adding inductance than by adding capacitance.
- If you can't make antennas resonant make them as long as possible.

The ARRL Guide to Antenna Tuners, Joel R. Hallas, W1ZR

Dipole

All about Half-Wave Dipole Antennas, https://medium.com/@glenthapa/all-about-half-wave-dipole-antennas-483d240f8f10

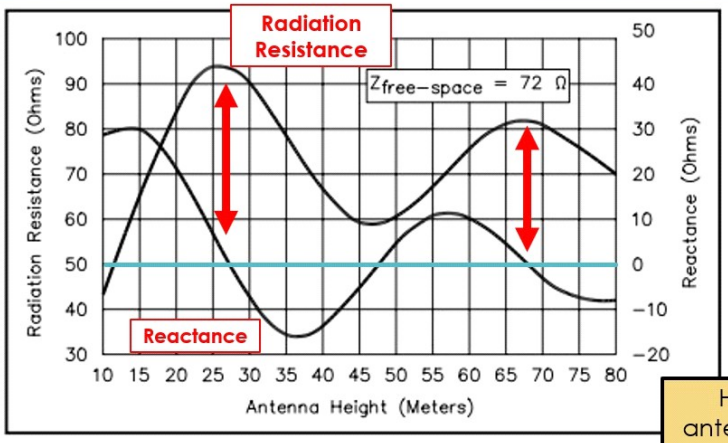
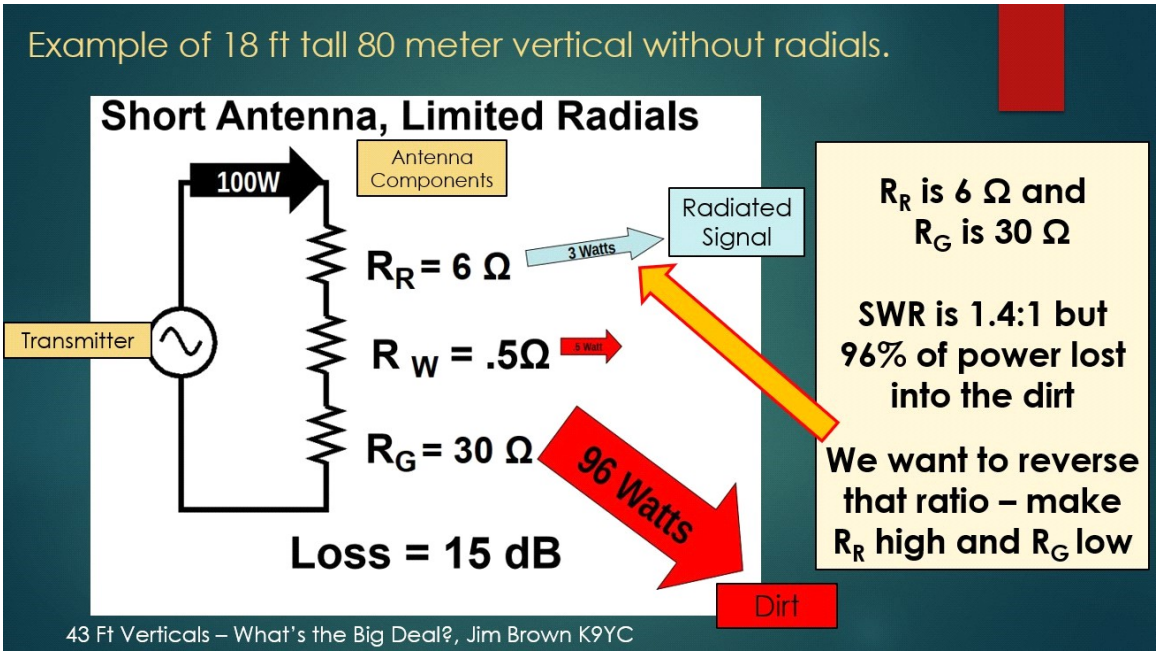
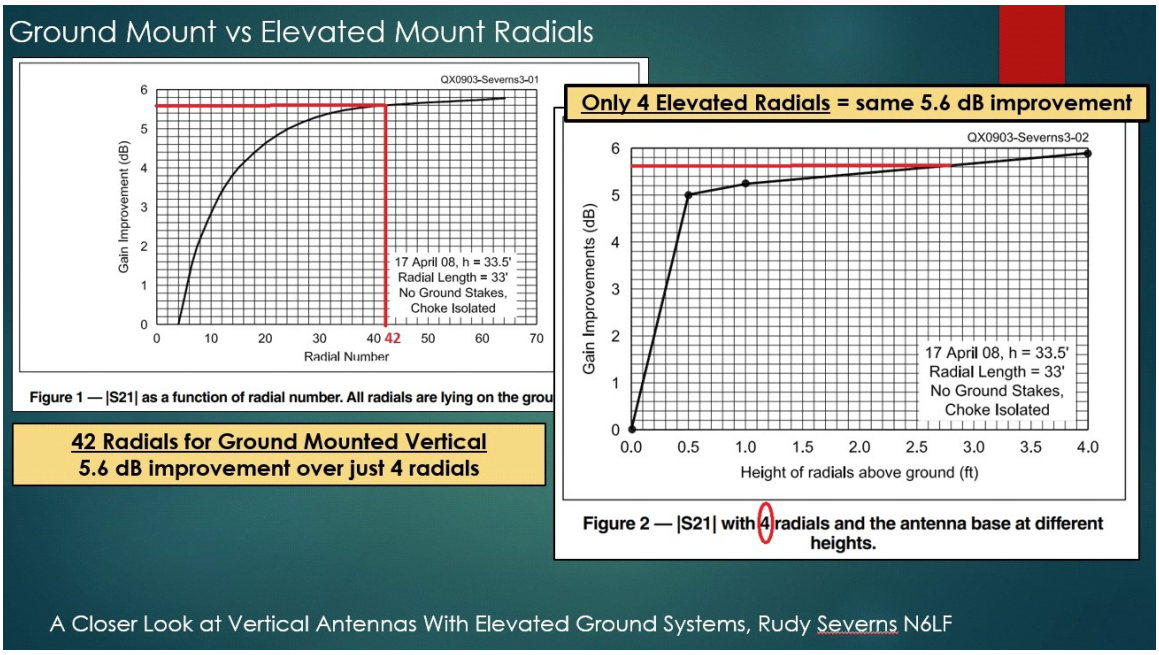


Fig 8-7 — Radiation resistance and feed-point reactance of a half-wave dipole at various heights. Calculations were done at 3.65 MHz using a 2 mm OD conductor (AWG #12 wire) over good ground.

Highest R_r is at antenna resonance (Z=0)





Kevan N4XL

Thank Kevan!

We are coming into the best Radio propagation in years. Let's review some subjects that may help us get those rare contacts.

Long path propagation or short path propagation on HF?

Posted on December 15, 2012 by Jean-Paul Suijs - PA9X

Past months propagation improved, resulting in relative good propagation on HF. Those who have DX ears must have noticed that 10m long distance propagation acted in a more or less remarkable way. Fellow DX'ers on different forums reported signals with multiple echoes that are certainly not from a CB echo mike. Some say it must be a signal that travels all around the globe that causes the echo. Well, it's all got to do with short path, long path and chordal hop propagation. I will try to explain.

Significant signal loss on normal multihop paths
Let's pretend we have two stations making a QSO on 10m: PA9X near Rotterdam in The Netherlands and imaginary station VK5ZQZ down in Adelaide in Australia. The solar flux is high enough (140) and K-index low enough (<5) to allow propagation between the two stations. We are making a nice QSO, I have got my antenna directed at 70° bearing and the Australian has got his antenna directed at 340°. The signal follows the shortest path with a distance of about 16,500km from The Netherlands across north east Europe, Asiatic Russia, China, south east Asia to Adelaide. It hops between the F2 layer, which floats between roughly 250-400km altitude and the Earth's surface. Using F2-layer propagation one single hop can do a distance between 1800km and 3500km on 10m. So for the complete path to Australia, the signal makes about 5 to 6 hops. With each hop, bouncing off the Earth's surface, there is significant signal loss, especially bouncing of land. But there is another path, the long path.

Long path propagation signals can be stronger than short path
The long path runs the other way around the globe. Starting from The Netherlands, along the Azores, Atlantic Ocean northern Brazil, Peru, Pacific Ocean, across New Zealand's Southern Island into Sydney, a distance of roughly 23,500km. The long path to Australia would be 7 to 8 hops, in theory. But but why are long path signals sometimes

remarkably stronger than short path signals when they make more hops? Could be because the long path runs mainly over salt water with less attenuation, but this only counts for this specific path. But there is more going on, a propagation mode that is believed to be responsible for long path propagation with strong signals is called chordal hop propagation.

Signal that bounces along the ionosphere

Chordal hop propagation is a propagation mode involving the daylight F2 layer and night time F layer. At daytime there are two upper layers in the ionosphere, the F1-layer at approximately 150-200km and the F2 layer at 250-400km. Shortly after sunset these two layers merge into the F layer and split up again into F1 and F2 layer at sunrise. During night time the F layer loses it's ionization density, and it's ability to reflect signals back to Earth. But sometimes the F-layer is just dense enough to reflect the signal back, but with a less steep angle, causing the signal to be directed to another part of the ionosphere thousands of km's ahead, not touching the ground. Here is a picture I have drawn to visualize.

Chordal hop propagation

The purple line represents the ionosphere, the orange line the short path and the green line the long path. A part of the green line is chordal hop propagation, there where the signal does not touch Earth's surface but reflects of the F-layer.

Less attenuation with chordal hop

With chordal hop propagation you have much less attenuation due to the fact the signals does not reflect against Earth's surface. In this occasion the signal that uses long path propagation arrives at the other station with much less attenuation, thus with a stronger signal than the short path. One remarkable thing is that a station at night time, like imaginary station PY4FTL in Rio de Janeiro in Brazil, has signals traveling far above through the ionosphere, but he cannot receive them.

More theories

There are also scientists that believe that chordal hop could be the result of signals that travel between the F2 or F layer and a sporadic-E layer. One more theory is that a signals travels within the F2 or F layer in a kind duct with a length thousand of km's.

Signal with many different components
The multiple echoes and hollow modulation you hear, are the result of multiple signals at different phases that arrive at the receiver end and mix together. One single signal can consist of many different components, for example:

Long path propagation signal.
Short path propagation signal.
Short path propagation signals that also travelled along the long path (went all around the globe).
Long path propagation signals that also travelled along the short path (went all around the globe).
Signals that went multiple times around the globe in both directions.
Backscatter.
Backscatter that travelled the short path while beaming short path.
These many "components" can all add up into a spectacular combination of echoes and phase shifting. In one rare occasions I received an S9 signal. It had so many echoes that it was barely readable, an R2/S9 report! In another occasion I received a station from Moscow via the long path (37,800km) while the short path signal (2,200km) did not appear to be present at all!

Take advantage
Long path and chordal hop propagation are beautiful phenomenon that not many operators on 10m band know how to take advantage of. Hope this post will help you.

Lets Refresh our ability to keep our antennas in the air and the connections dry during our crazy summer weather by reading the following.

Wind, Rain, Flooding
By VE6ARG

We got hit by a severe weather system in Alberta this past week that saw emergency services and utilities working overtime to repair the damage. Calgary and High River (appropriately named) were especially hard hit with a State of Emergency declared there because of flooding. Montana was hit very hard by the same storm and many people lost their homes to the damage caused by rising river levels. The winds around here reached over 100 km/h from the north west and lots of branches were broken but fortunately no real damage to anything else. The wind drove the heavy rain under my garage door, but once again no real damage to speak of. Preparing for weather incidents, no matter what they are is the job of every ham. Identifying things that could become a hazard beforehand is crucial to protect you and your property from damage. It is your responsibility to make sure you and the people around you are safe. At this time of year, in the area where I live, weather events are common. High winds and rainfall contribute to enormous damage from flooding. It is often the case that we could receive up to 100 mm of rain over a 24 hr period and high winds to drive those flooded areas and river banks to overflowing. Added to that is the annual snow melt in the rockies that swells rivers with high volumes of runoff. If the temperatures are warm in the mountains, the snow melts much faster and that's added to the rainfall and over the banks the rivers flow. So how do you prepare for things like that? In terms of water, the application of waterproofing to you antenna connections and enclosures is crucial. Rubber tape on the connectors that you can get at any hardware store is an excellent way to keep your transmission lines dry. I use Magic Wrap on all my coax connections. I've mentioned this many times before. It's available at Home Depot. I can't stress enough how important this is to protect those connections. There are many other types of waterproof coverings that you can use including conformal coatings such as Coax Seal that you can buy on eBay. My son, Tom VE6TJB is an electrician and he uses 3M Temflex 2155 tape that can be purchased from Amazon for very reasonable prices. I should mention that both of

these tapes can dry out pretty quickly if left out in the air. I use a little Tupperware container to store it in after opening and that will keep it pliable. After opening, without protecting it, it is virtually impossible to strip the protection off it as you try to apply it to a connector.

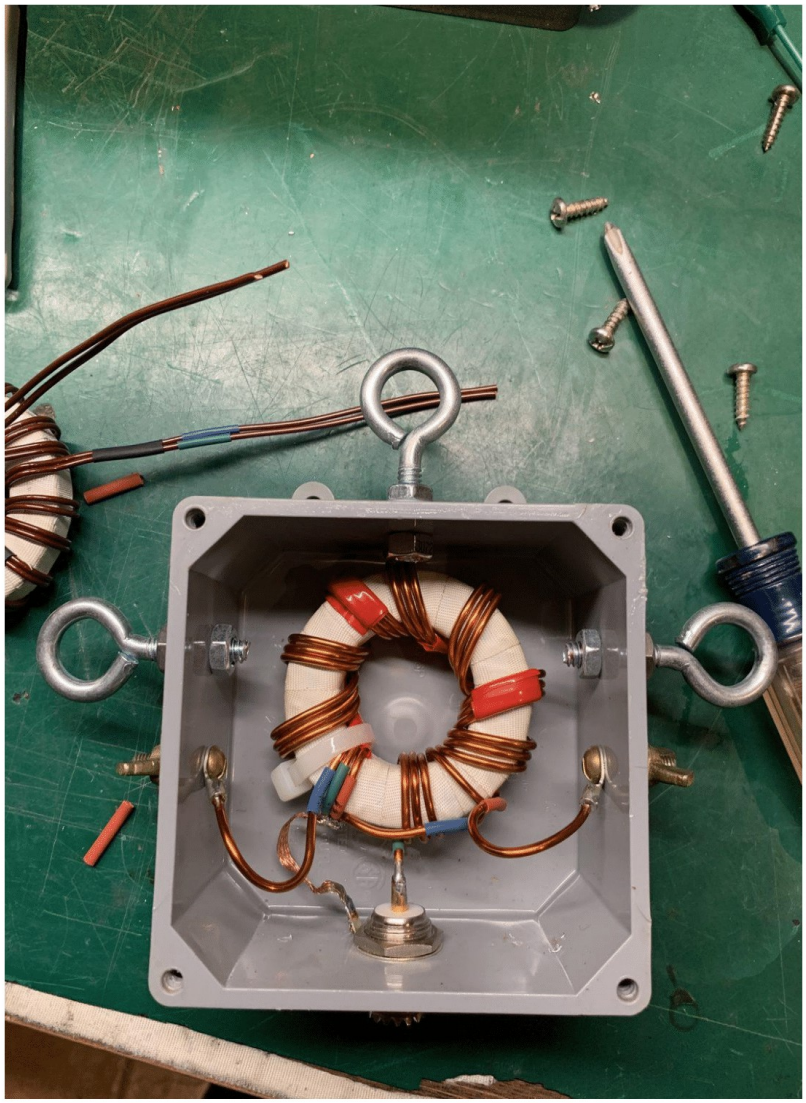
Let's talk about wind protection for a minute. Wind is the one main thing that will pull your antenna down faster than anything. And even without asking you first. How rude is that?
So, you're on the air during a wind storm and the next thing you know your power output drops to almost nothing and you wonder why. It is likely that the wind has parted one side of your dipole because of constant flexing. This is nearly always caused by improper protection against flexing. Putting sufficient strain relief in your antenna can be a challenging, but necessary protection, especially in windy locations and often is the case when using trees as antenna supports. Trees move in the wind to protect themselves from breaking. You have to be able to accommodate that motion by using some form of strain relief. I use a pulley and a weight at the apex of my inverted V antenna to take the strain off the elements. The tree is a spruce and it is about 55 feet high and I have a strap with a carabiner connected to a pulley at about 50 feet. I can pull the antenna I am currently using up easily with this and on the down lead of the polyester double braided rope I use is a 20# weight. This allows the antenna to remain stable in the wind and only the weight moves up and down during wind storms.

The other thing to remember is the wire you use for your antennas. I use #13AWG Black polyethylene jacket, solid 19 strand Copperweld for

the elements. This incredibly strong wire will easily handle the extreme tension placed on the elements. I reduce that tension significantly by using the above mentioned pulley and weight system I devised. You can obtain this type of wire from many suppliers such as Maple Leaf Communications and in the States, Amateur Radio Supplies. The prices are higher than others but the wire is worth it.

I should mention that using the easily obtained standard house #14 AWG wire will work for a short time until it doesn't, so I don't recommend it. That soft copper wire is great for testing but not for permanent installations. Also I only use polyethylene coated wire because it reduces the natural deterioration of the copper wire over time and stays pliable longer. I never recommend solid house wire because it will stretch and your frequency will lower as it get drawn out to the point of breaking. Once again it's great for testing an an tenna but not for permanent installations.

Let's talk about enclosures. When you have to put something outside in the elements it is important to choose the right enclosure. I'm talking about remote antenna tuners, baluns, remote switches etc. I like the waterproof PVC enclosures that the electrical people use. You can get them in various sizes and they work perfectly. They are subject to UV deterioration over time but are inexpensive and easy to use for projects such as baluns etc.



You may recognize this image from some of my previous projects. The enclosure in this case is completely waterproof and even after years in the hot Alberta sun it is still serviceable. There is a soft butyl rubber seal on the top

You may recognize this image from some of my previous projects. The enclosure in this case is completely waterproof and even after years in the hot Alberta sun it is still serviceable. There is a soft butyl rubber seal on the top that protects against water getting into the enclosure, however I always drill a couple of small drain holes in the bottom of

the case where the coax connector is so that it can drain any water that might get into the box and gives it some ability to breath a bit. These enclosures are available at any good hardware store in the electrical department where PVC conduit fittings are located.

It is always wise to make sure your connections coming into your shack are sealed as well. Many hams put a 2” PVC pipe through the plate where the house sits on the foundation and run the cables through that. It’s important to remember that you need to put a right angle fitting on the outside of the wall and leave a drip loop before you lead the cable into the shack to prevent water from coming in.

In my case I only use that arrangement for my rotator cables and where it comes into the shack I seal off the outside air with an old sock stuffed into the pipe in the shack. It works perfectly and it gives the cat something to retrieve and claim another victim on her hunting trips. I sometimes find the sock in the middle of my shack floor after being cast off after the carnage.

So that’s it for now. I hope you don’t lose any antennas in the wind or find the floor of your shack inches deep in water. Protecting those things with some easily created prevention will serve you well and I look forward to other suggestions that I might credit you with on this blurb. Just send a note to me at ve6arg@shaw.ca and I will be glad to share your ideas

From the Reflector

Hey All, I received this in my email for my first attempt at learning Morse Code. I wonder how many of these I could collect before I have Morse Code completely in my head?

To prevent a backwards slide I have become a member of LICW club. I am continuing on as fast as I can. Guys this is still a fun endevor and I am having fun and learning.

CW Academy Certificate of Completion

Scott Brown, N2OG

has successfully completed

Beginners

an 8-week/16-session training program
in Morse Code sending and receiving

Roger Bradley **Mi0WWB**
John Griffin, M0CDL
CW Academy advisor

CW ops

May-June 2022

Kate Hutton
Kate Hutton, K6HTN
Joe Fischer, AA8TA
CW Academy managers

From Kevan

AD3I is the new call for Vicki, ex-W4NQX. What a great CW call sign. She is working on learning CW now.

Kevan N4XL

Hey Vicki I hope your CW journey is fantastic. Send me a email when you are ready to get on the air. We can propably hear each other.
N2OG Scott

Ed Kucharski K3DNE via groups.io

Time to put these on our calendars!

73 Ed

---------- Forwarded message ---------

From: K6UFO Mark Aaker <k6ufo@arrl.net>

Date: Sat, Jul 2, 2022 at 5:18 PM

Subject: [CQ-Contest] The summer NAQP contests are arriving July 16, Aug 6 and Aug 20, 2022!

To: CQ-Contest Reflector <cq-contest@contesting.com>

The summer North American QSO Party contests are here!
The triple-play is:

NAQP RTTY on July 16
NAQP CW on August 6
NAQP SSB on August 20

Get them on your calendar, and start talking with your friends if you want to do a Multi-op, or assemble a Team of Single-ops.

The North American QSO Party contests are fun, friendly and fast. Exchange is name and state (or province or DXCC). Party time is Saturday afternoon and evening, starting at 1800Z for 12 hours. Single-ops operate up to 10 of the 12 hours, so you have 2 hours off for meals, family, chores... Plan your time off to maximize your fun.

New this year is the Assisted category for Single-ops, and lots of new State and Province Records are yet to be claimed! Assisted also helps when chasing Multipliers across the bands.

Rules, results and records are all at the National Contest Journal:
ncjweb.com/naqp/ <ncjweb.com/naqp/>

You have a chance to get your picture and story in the contest results by sending them to the contest manager listed in the contest rules.

See you in the NAQP contests, starting July 16, 2022!

Mark K6UFO
NAQP RTTY Contest Manger

CONGRATULATION DAVE!!
Hi Guys 7/3/2022

Today starts my 47th year as an amateur radio operator!

I'm thankful for my Elmers, KJ4X and WA4KXZ who helped me learn CW to obtain my license at 12 years of age. I am also thankful to many ops that have helped me keep rolling through the years and now in 2022.

73 Dave AFP

[swampfoxcontestgroup] RTTY RU Results Posted
From the reflector

Ed Kucharski K3DNE via groups.io

Tue, Jul 12, 10:20 PM (3 days ago)

to swampfoxcontestgroup

See the write-up below. Searchable results on the ARRL site. Club finished in the middle of the pack (22nd of 42) in our category with 243K points!

73,

Ed K3DNE

Tomorrow is NAQP RTTY, we have a team and looking for more teamates. Propagation is great and we are looking forward to the contest!

73 and Enjoy your newsletter

N2OG Scott