

# Treasure Coast Ham News

DECEMBER 2022

VOLUME 3, ISSUE 10

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Click a listing to go to the page.

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## Happy Holidays



Treasure Coast Ham News is retooling the newsletter.  
Please bear with us in 2023 as changes are made.

## From the Publishers

We hope your November went well. Did you participate in a Veteran’s Day celebration? Our military men and women are owed a debt of gratitude for their service. Thanksgiving Day has come and gone. We hope your day with family and friends went well.

As this column is being written we have just experienced a late season hurricane. November tropical storms and hurricanes are not unheard of. Our Treasure Coast name comes from a hurricane that struck the treasure laden Spanish ships sailing from Havana, Cuba, in November, 1715 and drove them ashore between Jupiter and Sebastian.

If you don’t know the history of the 1715 hurricane and wrecks, Kip Wagner’s book, “*Pieces of Eight*” is an excellent read. A visit to the McLarty Treasure Museum on north AIA just south of the Sebastian Inlet is also interesting.

\* \* \* \*

Hurricane Nicole followed a similar path to 2020’s Dorian. That storm decimated Marsh Harbour on Grand Bahama Island. Dorian, which turned north after exiting the Bahamas, just gave us a brush,

Nicole made a bee line for the Treasure Coast, making land fall in the Ft. Pierce/Vero Beach area. While damage was far less than expected for our area, it

should serve as a wake up call to new (and old) residents that Mother Nature can surprise us at anytime. We drew a lucky card this year. Florida’s southwest coast was not so fortunate. Remember always be weather prepared in Florida. Full stop!

\* \* \* \*

We continue with our newsletter retooling effort. Some of the changes will be transparent to our readers, but time saving for us. Other changes will be significant, such as moving some content to our website (treasurecoasthams.com) in the near future.

As we have said many times, we need more input from our local Treasure Coast Clubs. After we published the November newsletters, we received emails about net frequencies, times and days needing changes. Thanks for letting us know. Keeping track of the nets is an arduous task. Is anyone willing to help?

We also received an email from the Treasure Coast Hamfest about information we published. Most of the info was correct, but some changed after we pulled it from their website. For the latest hamfest info go to [Treasure Coast Hamfest](#).

We wish everyone Happy Holidays.

73, [TC Ham News Publishers](#)



## TREASURE COAST HAM NEWS

The editors like to reserve the last few pages of *Treasure Coast Ham News* for you, the readers. With your help these pages will include:

**For Sale Section** – Have something to sell or trade? Send us a description and/or picture to have it listed in this section. Looking to buy something? Provide a description and we will print it.

**QSL Card Section** – Many hams enjoy viewing QSL cards, especially those with colorful pictures. Send us scans of your favorite QSL cards. Maybe the first card you ever received. Or perhaps your favorite card, or your personal card. We will include some in each issue as space permits.

The last few newsletter pages are yours. Help make them a success by submitting your photos, For Sale listings and QSL cards to [tchamnews@gmail.com](mailto:tchamnews@gmail.com).

**Want to be published?** Treasure Coast Ham News invites you to write about your ham radio activities, kit building, DX operations, or any other amateur radio subject. You don’t need to be a polished writer, or a writer at all for that matter. We will help you edit your work. While we can’t pay for articles, you will receive a full byline. Please contact us at: [tchamnews@gmail.com](mailto:tchamnews@gmail.com).

## Volunteer Examiner Updates



### Local License Exam Contacts

**Vero Beach ARC**

Bud L. Holman  
(772) 559-3342  
[budholman@earthlink.net](mailto:budholman@earthlink.net)

**Ft. Pierce ARC**

Jess Porter  
[w4dns@arrl.net](mailto:w4dns@arrl.net)

**Port St. Lucie ARA**

Robert Brown  
(772) 201-5485  
[brownpsl@comcast.net](mailto:brownpsl@comcast.net)

Send VE news to  
[tchamnews@gmail.com](mailto:tchamnews@gmail.com)

*If your club is testing, please let us know the location, date and examination results*

### Port Saint Lucie ARA VE Session Results

The PSLARA VE team held an exam session on November 5, 2022 at the Veterans Center of Excellence on the campus of Indian River State College in Saint Lucie West.

It was a successful session with two candidates taking and passing exams.

The PSL VE team congratulates Michael Alvarez, KQ4EME, who passed the Technician exam and earned his amateur ticket. Congratulations Michael, way to go!

The team also salutes Rob Cook, KQ4DXK. Rob took and passed the General exam and earned an upgrade to his license. Congratulations Rob on a job well done!

It's rumored that Rob is already studying to take the Amateur Extra class exam. Keep at it, Rob. Onward and upward!

### No Exam Results from Martin and Indian River Counties

We've heard that other clubs in the Treasure Coast area have offered exam sessions in the past month or two, but no results have been made available.

VE teams, please notify us of your exam session results so we can salute your candidates on these pages. Send your results to [tchamnews@gmail.com](mailto:tchamnews@gmail.com).

### \* \* \* \* \*

### 2023 VE Exam Plans

If your local VE team has a license exam

testing schedule planned for the 2023 calendar year, please share it with us so we can help publicize your sessions.

### \* \* \* \* \*

### Port Saint Lucie 2023 VE Exam Sessions

The Port Saint Lucie club is excited to announce that the Veterans Center of Excellence on the campus of Indian River State College in Saint Lucie West will be the club's home for VE exam sessions throughout 2023. Exam sessions are planned quarterly. The first session of the year will be in February, followed by sessions in May, August and November.

Additional sessions will be added should there be sufficient demand.

Directions - From St. Lucie West Blvd, head north on NW California Blvd about 1-mile. The college will be on your left. Turn left into the campus using the second (north) entrance. Then make an immediate right into the parking lot. The Veterans Center will be directly in front of you. A map is available [here](#).

### \* \* \* \* \*

### License Exam Trivia Question

Try your hand on this question frequently answered incorrectly on Technician license exams.

Which of the following frequency ranges are available for phone operation by Technician licensees?

- A. 28.050 MHz to 28.150 MHz
- B. 28.100 MHz to 28.300 MHz
- C. 28.300 MHz to 28.500 MHz
- D. 28.500 MHz to 28.600 MHz

*(The answer will be revealed next month.)*

# Ham Radio History: The Relay's the Thing *by Chris Codella, W2PA*



[Editor's note: The author, Chris Codella, W2PA, maintains a web site full of interesting stories about the development and evolution of radio communication. This is the twelfth in a series of articles about the earliest days of radio history. The stories are reprinted here with permission of the author. Be sure to visit [Ham Radio History](http://Ham Radio History) for some fascinating reading.]

Whether for public service or as a challenge worth attacking, transmitting information across ever greater distances is what drove members of the Relay League to organize. The thrill of wireless communication was reinforced with each additional mile covered, even as signals became weaker. Relaying was an obvious way to extend range beyond the capability of one pair of stations in direct contact, and it required more than just knowing who was located where.

Urged by the first district Radio Inspector, the League directors produced a blueprint for relaying messages. Fittingly, it was published as the lead article of the inaugural issue of QST,<sup>1</sup> and consisted of five actions hams should take:

First, to make two-way contacts a little less random, hams should maintain regular hours for listening and make their presence known by transmitting a simple QST with their location and QRU (indicating readiness to receive messages).

Second, everyone should purchase a copy of the **List of Stations** (for 50¢), which contained information about each station. Besides the usual information about the operator and location, the book also contained:

“... his transmitting power, what kind of a spark gap he has, how far he can send, the number of words per minute he can receive, his usual listening time, what kind of a license he holds from the Government, and whether or not he has a telephone near at hand for delivering or receiving local messages.”

Additions to the List were regularly published as addenda in QST.<sup>2</sup>

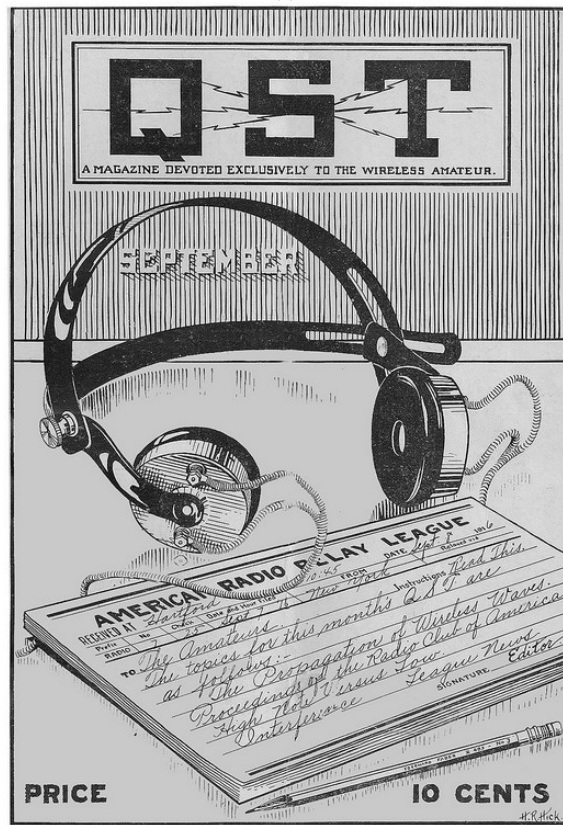
Third, hams should get an **Official League License**. Issued only to League members, it could be had for

just 50¢. They did not really explain why it was essential to effective message relaying, but did state that it was similar to the one the US Government issued and that “... you ought to order it at once so as to have it framed and hanging up in your operating room when the time comes that you want your station to look well.” As a package, for only one dollar, you could get the List of Stations, the Official League License, and a pad of message forms. What a deal! (An ad on page 24 in the same issue offered the same package for only 50¢ if one responded by 6 December.)

Fourth on the blueprint list was to join the League, which was free. One only needed to fill in an application form and attest to having a working station capable of receiving “a message” (no mention of transmitting).

Once again, applicants were “asked” to obtain the **List of Stations** and the **License Certificate**. After name and address, the next most important piece of information on the two-page application form was the length and height of your aerial and the number of wires it had.

(continued on page 5)



## Ham Radio History: The Relay's the Thing

(continued from page 4)

Then came a section on “sending equipment” characteristics, in which it asked, “What tone has your spark?” with a single blank next to the question. It was well understood that this referred to the dominant tone of your signal, normally determined by the frequency with which sparks were made. You were then asked to name the five most distant stations you had communicated with and their distances. On the second page of the form was a space for listing your receiving equipment, with six lines devoted to a free form description followed by various other questions about your station and your own personal capabilities. Finally, just before the signature, the form asked you to affirm that, **“I HEREBY OFFER TO RELAY OR DELIVER ANY AMATEUR RADIO MESSAGES THAT ARE SENT TO ME”**.

The fifth and final item in the blueprint was to obtain a **Special License** from the government so you could operate on 425 meters. These were available to operators who held a first grade commercial license and who were also recommended by the League. You could get a recommendation if you were located sufficiently far from the seacoast so as to not interfere with commercial and naval stations, and could successfully argue why you needed to use 425 meters to relay messages. Typical reasons had to do with the longer wavelength being capable of greater distances than on 200 meters, and having a need for the increased range because of the remoteness of your station.

You would apply to the League, which would recommend you to the District Radio Inspector who then would send it to Washington where the Bureau of Navigation would take action. The ARRL had already established a close relationship with the government, which considered the League credible enough to provide this vetting process for special licenses implied in the 1912 law, but not prescribed in detail.

The blueprint was meant to increase “reliability and celerity” — celerity meaning swiftness or speed — of the relay process.<sup>3</sup> QST pointedly referred to amateur stations as **relay stations** to emphasize their

special nature and participation in organized activity. The items of equipment in such stations were called **instruments**.

□ = □ = □

de W2PA

Footnotes:

1. “Reliability and Celerity, December Radio Relay Bulletin,” QST, December 1915, 5.

2. One particularly interesting name and callsign combination appeared in the January 1916 listing: Frank M. Ham of Cornwall-on-Hudson, NY, with the callsign 2CW.

3. *ibid*

(Next issue: **Trunk Lines**)

(Are you enjoying this series? Please let us know. Send your comments to [tchamnews@gmail.com](mailto:tchamnews@gmail.com).)



### Got My License, Now What? Resources for New Hams

There was a time when a person expressing interest in being a ham radio operator would be taken under the wing of an experienced ham called an Elmer. The Elmer would guide them along the learning path, explaining the theory, helping them learn Morse Code and getting them ready for the amateur radio testing hurdle.

After passing the exam and receiving their call sign, the Elmer would still be there to help the newly licensed ham get their station up and running. This usually included deciding what radio to buy, the type of antenna to put up and teaching them how to operate. The Elmer would stick with the new ham until sufficient knowledge and skill were developed.

Today, hams can be left wondering after getting their license. Many of us think everything can be learned from the Internet. YouTube, QST, CQ, RadCom and others can also help. Some even feel the need for an Elmer has passed. It's all online, or in magazines and books. If only that was true.

A few tips for the new ham: Read everything you can find. Seek out help at club meetings. Realize you will receive different opinions based on personal experience. I always recommend learn by doing. Take the plunge. That is where the fun begins.



### HF & DX Group Notes

The group met over breakfast on November 11, 2022. A pleasant surprise was the return of Don - WY5I after a long absence. Welcome back, Don! We're glad you were able to join us.

We also welcomed a first-timer to our meeting, Rob - KQ4DXK. Rob was recently licensed and quickly earned his General class ticket. Welcome Rob!

Four other hams also participated. All enjoyed a hearty breakfast while sharing stories about HF and DX activities. Logs were shared and favorite QSL cards were passed around for the group to admire. Upcoming DXpeditions and other HF opportunities were also discussed.

So what are you waiting for? Whether new to HF or a seasoned DX operator - it doesn't matter. All are welcome. This is a casual group with no dues and no formal agenda. All you need do is show up.

### December Meeting

If you have an interest in learning more about DXing and HF radio consider joining us. The group meets over breakfast on the second Friday of the month.

**The next breakfast meeting will be held on Friday, December 9, 2022 at 9:00 AM at the Bob Evans restaurant, 1830 SW Fountainview Blvd, St. Lucie West.**

Meetings are informal. Come enjoy a good meal and discuss topics of interest, such as on-air activities, logs, upcoming DXpeditions and just about anything else of interest to HF operators and DXers.

Bring along your questions. Bring your logs. Bring your favorite QSL cards. And bring a friend.

*(Note: You will be responsible for purchasing your own breakfast.)*

## Short Takes

**The Fed Files Blog**  
<https://mt-fedfiles.blogspot.com/>

**North Georgia QRP Club**  
<http://nogaqrp.org/>

**Free Ham Radio Publications**  
<https://n5dux.com/ham/pubs/>

**HFDL (High Frequency Digital Link Monitoring)**  
<http://www.kloth.net/>

[radio/hfdl-monitoring.php](http://radio/hfdl-monitoring.php)

**Ham Radio Magazine 1968-90**  
[https://archive.org/details/hamradioversion/HR\\_1968/](https://archive.org/details/hamradioversion/HR_1968/)

**Ham Radio HF Nets**  
<https://www.qsl.net/w5rin/FILES/HamRadioHFNets.pdf>

**Utility DXers Forum**  
<http://www.udxf.nl/>

**Nokia Bell Labs**

<https://www.bell-labs.com/about/history/>

**Use RTL-SDR to read values from wireless electric, gas & water meters**  
<https://www.youtube.com/watch?v=IkEfkDTQIQ>

**Miklor VHF/UHF Radio info & programming support**  
[https://www.youtube.com/watch?v=\\_xBkvKLzess](https://www.youtube.com/watch?v=_xBkvKLzess)

### Email & Chat Groups

(Note: some groups may require registration.)

Yaesu FT-DX5000 Group  
[FTdx-5000@groups.io](mailto:FTdx-5000@groups.io)

For Railroad Radio Fans  
[RailScan@groups.io](mailto:RailScan@groups.io)

Ham Radio Swap Shop  
[SwapShop@groups.io](mailto:SwapShop@groups.io)

See an interesting web site or group? Tell us about it. Send link to [tchamnews@gmail.com](mailto:tchamnews@gmail.com)

## The Frugal Ham Radio Operator

We've all been there, well maybe some of us have.

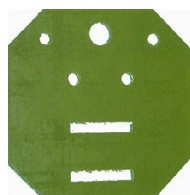
It's a weekend. You are itching to build that HF multi-band wire antenna from QST, CQ, 73, Ham Radio, RadCom, etc. The antenna looks to be an answer to all those rare DX entities never returning calls.

The first thing you do is make a list of materials to build the antenna.



12 gauge stranded wire? *Check!* That 500 foot roll keeps on giving.

450 ohm ladder feed line? *Check!*



What about a center insulator / feed line connector? *Let's see. Had one from an old MFJ G5RV. Not the greatest. I will look for something better once I know the antenna works.*

How about dog bone antenna end insulators? *Ok, where did I put them bones?* I make a note to look for them.



Do I need ladder line standoffs? *Well, maybe.* I had used PVC tees and wood dowels in the past. A lot of effort. I wonder if something better is available? *What could I use?*



I look around my shack. *Nope, no dog bones or standoffs in sight.* I search through my parts bins and net a big fat zero. *Crap! I will have to make do or perhaps jury rig what I need. PVC or wood, again! Oh joy.*

A while later I hear a knock on my shack door. The XYL says we need some pet supplies and asks if I want to come with her. Off we go. Along the way I suggest a stop at Tractor Supply. I look around TS.

The XYL heads over to the pet section to check out their pet supplies. Tractor Supply can be a fun place to explore.

Wandering the aisles, I visit the electric fence section. I had been thinking about an electric fence on our property in North Carolina to keep the deer from eating the flowers. I am amazed with all the electric fence supplies. *Do you really need all this stuff for a simple electric fence?*



Looking look down, something catches my eye in one of the bins near the floor. *Holy cow, are these dog bone insulators?*

In another bin I spy a different type wire insulator. I have seen these at Hamfests for a buck a piece. This bag has 25 and is \$10. *Sold!*

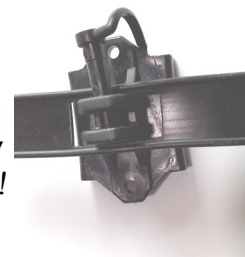


Things were looking up. *Now, if I can find ladder line standoffs, my day would be made?*



Looking through other bins I spot a plastic bag. The bag is labeled Pin-Lock and T-Post insulators. *Interesting...*

I wonder if the ladder line's open insulator rectangle would fit over the post? I had stuffed a small section of ladder line in my pocket. You never know. *Bingo! It fits!*



Many of us miss the days when you could go to your local ham radio or electronics store and buy the parts you need. Every Radio Shack stocked some radio and wire antenna parts. Today, it seems to be all about the Internet or does it?

73, [The Frugal Ham](#)

## Upcoming Hamfests

### FLORIDA

12/03/2022

#### Treasure Coast Hamfest

Vero Beach Radio Club  
 Indian River Fair Grounds  
 7955 58th Ave, Vero Beach, FL  
[www.treasurecoasthamfest.com](http://www.treasurecoasthamfest.com)

12/03/2022

#### Silver Springs Hamfest

Silver Springs Radio Club  
 First Christian Church  
 1908 E. Fort King St  
 Ocala, FL  
<http://k4gso.us>

12/09/2022 - 12/10/2022

#### Tampa Bay Hamfest

ARRL W. Central Convention  
 Florida Gulf Coast Amateur Radio  
 Council  
 Plant City, FL  
<https://fgcarc.org/>

Hamfests offer exhibits, forums and flea markets for Amateur Radio operators or "hams."

### ORLANDO HAMCATION - February 10-12, 2023

**Location:** Central Florida Fairgrounds & Expo Park, 4603 West Colonial Dr. Orlando, Florida 32808. [GET DIRECTIONS](#)

**Dates/Times:** February 10 - 11, 2023, 9AM to 5PM. February 12, 2022, 9AM to 1PM.

**Ticket Info:** Purchase tickets online or via mail. Parking at HamCation is FREE! Tickets are available online, via mail, or at the event on the days of the event.

#### GET TICKETS

**Talk-In:** Talk-in 146.760 (-600/ PL 103.5) KB4UT repeater. The repeater is a mix mode System Fusion repeater in downtown Orlando. It has good coverage throughout the central Florida region. Backup talk-in will be on the 443.050 (+5.00 PL 103.5) repeater. DSTAR: K1XC 146.820 - .600

#### On The Air: Making Contacts During The Event

Every year we operate from HamCation as special event station KIAA during show hours: Friday 9:00 a.m. - 5:00 p.m. EDT, Saturday 9:00 a.m. - 5:00 p.m. EDT and Sunday 9:00 a.m. - 1:00 p.m. EDT. We welcome you to operate with us. Please be sure to have a copy of your license available. If you do not have a copy and still wish to operate the special event station, contact the station operator and we'll try to do our best to accommodate you.

<https://www.hamcation.com>



### Amateur Radio Emergency Service® (ARES)

ARES members are licensed amateurs who volunteer with local emergency management for communications duty when disaster strikes. All licensed amateurs are eligible for membership in ARES.

#### From the ARRL:

The FEMA Emergency Management Institute (EMI) has released a new online study course and exam on [Preparing the Nation for Space Weather Events](#).

The course identifier is IS-66. ARRL Director of Emergency Management (DEM) Josh Johnston, KE5MHV, took the course and passed the exam. John-

ston said: "This course provides some interesting insight to the Federal Government's role and response to space weather events. It also explains the levels of response the government uses in regard to space weather events." Johnston concluded: "This course would be a good training course for any ham to gain a better understanding of how space weather affects communications here on Earth." "This is a useful course and only takes about 2 hours to complete online," Johnston said. A FEMA student ID is required and is free from the Emergency Management Institute online.

[Winter Field Day](#) is coming on January 28-29, 2023.

Alert us to your ARES events:  
[tchamnews@gmail.com](mailto:tchamnews@gmail.com)

### ARES Emergency Coordinators (EC)

Indian River County  
[Bud Holman, WA4ASJ](#)

Martin County  
[Brian H. Gibson, KN4YWW](#)

St Lucie County  
[Paul Horner, W4ISZ](#)

Okeechobee County  
[Jack Schwartz, KM4CRA](#)

**Get involved. Volunteer to be a part of your county ARES team.**



# Welcome to the Treasure Coast Ham News Monthly Meetings, Nets, and Events Calendar

If you know of an event, net, or meeting that would be of interest to our Treasure Coast Hams, please let us know. As with anything new, you can help us make the calendar better. Send your event announcements and any changes to [tchamnews@gmail.com](mailto:tchamnews@gmail.com).

## December 2022

November							January							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	
			1	2	3	4	5					1	2	3
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
20	21	22	23	24	25	26	27	28	29	30		18	19	20
												22	23	24
												25	26	27
												28	29	30
												31		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	1	2	3
				Slow CW Net-6:30pm (on hiatus, need a Net Op) PSLARA R/T Net-7:30pm 146.995(-) (107.2)		TREASURE COAST HAMFEST INDIAN RIVER FAIRGROUNDS
4	5	6	7	8	9	10
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)	Slow CW Net-6:30pm (on hiatus, need a Net Op) IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 145.150(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	IRC ARES Net-7:30pm 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B OARC ARES Net-8pm 147.195(-) (100.0)	SLC ARES WinLink Wednesday's	Slow CW Net-6:30pm (on hiatus, need a Net Op) PSLARA R/T Net-7:30pm 146.995(-) (107.2) VBARC Mtg-7:30pm Indian River Emer. Svs 4225 43rd Av, Vero Bch		PSLARA Holiday Party IRSC- Vet. Resource Center MCARA Holiday Party The Twisted Tuna
11	12	13	14	15	16	17
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)	PSLARA Board Mtg (via Zoom) IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 145.150(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	IRC ARES Net-7:30pm 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B	FPARC Mtg-7:30pm Indian Rive State College Bldg R, Rm 124 3209 Virginia Av, Ft Pierce	Slow CW Net-6:30pm (on hiatus, need a Net Op) PSLARA R/T Net-7:30pm 146.995(-) (107.2) MCARA Mtg-7pm 802 SE Monterey, Stuart		
18	19	20	21	22	23	24
TC R/T Net-8pm 146.775(-) (107.2) SKYWARN Net-9pm 146.775(-) (107.2)	Slow CW Net-6:30pm (on hiatus, need a Net Op) IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 145.150(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	IRC ARES Meeting 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B	SLC ARES WinLink Wednesday's	Slow CW Net-6:30pm (on hiatus, need a Net Op) Indian River Co. ARES 4227 43rd Av Vero Bch PSLARA R/T Net-7:30pm 146.995(-) (107.2)		CHRISTMAS EVE
25	26	27	28	29	30	31
CHRISTMAS DAY	Slow CW Net-6:30pm (on hiatus, need a Net Op) IRC Emer. Net-8pm 146.640(-) (107.2) MCARA R/T Net-8pm 147.060(-) (107.2) OARC Club Net-8pm 147.195(-) (100.0)	IRC ARES Net-7:30pm 145.130(-) (107.2) FPARC R/T Net-8pm 147.345(+)(107.2) D-Star Net-8:30pm 444.500(+5) Port B	SLC ARES WinLink Wednesday's			NEW YEAR'S EVE
1	2	TC: Treasure Coast IRC: Indian River County SLC: St. Lucie County PSLARA: Port St. Lucie Amateur Radio Association ( <a href="http://www.pslara.org">www.pslara.org</a> ) FPARC: Ft. Pierce Amateur Radio Club ( <a href="https://fparc.org/">https://fparc.org/</a> ) MCARA: Martin County Amateur Radio Association ( <a href="https://mcaraweb.com/">https://mcaraweb.com/</a> ) OARC: Okeechobee County Amateur Radio Club VBARC: Vero Beach Amateur Radio Club ( <a href="http://www.w4ot.com/">http://www.w4ot.com/</a> )			R/T: Ragchew/Traders Emer.: Emergency	

## Treasure Coast Ham Doctors



### Poor Operating Practices

Lately, there have been a number of postings on amateur radio reflectors concerning poor operating practices.

Comments always seem to circle back to lack of skills on the part of the operator, which are perceived to be a result of weaknesses in the study

materials and the “dumbing down” of the Technician license exam.

So this month let’s forego our regular question and answer format and instead talk a bit about a subject dear to this doctor’s heart - education.

We’ll take a look at two extremely different techniques used to prepare a candidate for the Technician Class license exam.

### Method #1 - Teaching to the Test

A quick way to provide a license candidate with a reasonable chance of passing the Technical exam is to “Teach to the Test.” Some consider this an “express” route toward earning a license.

Whether the trainee self-studies from a book or the web, or participates in a classroom environment, the objective is the same. Prepare the candidate to pass the exam in the shortest amount of time.

This training method is often offered as a two-day

course over a weekend. Usually a PowerPoint presentation displays one question at a time from the question pool with the correct answer highlighted, along with a single sentence or paragraph of explanatory text. A license exam is given at the end of day #2. Total study time is about 12 to 14 hours.

### Method #2 - Immersive Teaching

Immersive Teaching utilizes PowerPoints and other video materials, plus components and parts that candidates can touch and feel, and actual hands-on demonstrations of radio operation.

Immersive Teaching requires considerable time to present the entire program. The last two programs taught by our team required about 30 hours to complete, plus additional time for the exam.

A positive to the Immersive Teaching method is that the new licensee will have a stronger foundation on which to begin his amateur career, and hopefully will be a better operator because of his training.

### In Conclusion

Many, including this doctor, disagree that the technician exam has been “dumbed down.” Good operating practice must be considered a vital topic, and should always be stressed in all training programs.

Sadly, with Teaching to the Test quickly becoming the norm in today’s fast moving world, be prepared to experience more poor operating practices.

What do you think? Tell us. 73, [The Doctors](#)

## QSO TODAY VIRTUAL HAM EXPO—MARCH 25-26, 2023

If you have never attended a [QSO Today Virtual Ham Expo](#), you are missing some of the best presentations found anywhere.

Add to that the opportunity to virtually talk with vendors and interact with other hams. How much you might ask? \$10.

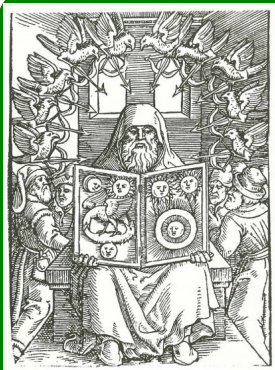
The next expo will be March 25-26, 2023. It promises to be one of the best attended ham radio events of the year.



The QSO Today Virtual Ham Expo is back on YouTube. They putting up all 370 presentations beginning with last September's Expo. Because of the number, they are only putting up a few each day. Please subscribe to their YouTube page to allow them to notify when they are posted. Link to the YouTube Channel:

<https://youtube.com/@qstodayvirtualhamexpo>

Want to view past [Expo Presentations](#), they are now available.



## Wire Antenna Resources

[Your First Dipole Antenna](#)

[HF Loop Calculator](#)

[EFHW Antenna](#)

[Ham Radio Magazine 1968-90](#)

[73 Magazine Archive 1960-2003](#)

[Joe Carr's Practical Antenna Handbook](#)

[K7MEM Antennas](#)

[HOA Stealth Antennas](#)

[HF Multi-band Antennas](#)

[G5RV Antenna](#)

[HF Multi-Band Fan Dipole Antenna](#)

[ARRL Handbook](#)

[ARRL Antenna Book](#)

## Ramblings of an Antenna Alchemist

*In the late 60s I received a Novice license. In those days a Novice had HF CW privileges on 80, 40, & 15 meters. This was a time when you had 12 months to upgrade. You had no time to waste getting on the air, if you expected to stay a ham.*

*While waiting for my license to arrive, my Elmer suggested a simple 40-meters half-wave dipole antenna fed with coax. He gave me the antenna basics. He also suggested I read about antennas in the ARRL Handbook. I read the antenna chapters, but it would be some time before the theory sunk in. Eventually, I came to learn a particular antenna may operate better in certain situations, time of day, season of the year, parts of 11 year sun spot cycles, bands, modes and locations.*

\* \* \* \* \*

### What type of HF wire antenna is best for me and my location?

New hams can face antenna obstacles especially for HF. Whereas VHF/UHF operating may be as simple as using a handheld, HF is altogether different. Today more than ever many new hams live in urban settings controlled by HOAs. HOAs are not always a ham radio death sentence. Sometimes sitting down with the HOA Board and explaining the value of ham radio for the community will loosen strict rules. Some HOAs may be more permissive and not immediately say no to a ham's reasonable request for an outside antenna. In either case taking a non-confrontational approach is best. If you can get some dialog going, who knows where it may lead. A few hams take the clandestine approach and use a flagpole or an invisible wire antenna run along the roof fascia or soffit. If the HOA denies any type of outside HF antennas, an attic is your best bet. For many HOA hams this is the answer to operating HF or not.

Hams living in an antenna friendly community can fare much better. If the community is an older neighborhood, you may have tall trees that can be used for antenna support. If you don't have trees or a tall support available, look for other options. I have used a 35-foot push up aluminum flagpole with success. But be aware while these flagpoles are made to take the load of a flag. They will not generally support a heavy balun, connector and RG-8 type coax feedline.

Although we are talking about wire antennas, ground mounted verticals such as GAP, Hygain, Butternut and MFJ can make good outside choices. However, a recent check of post COVID commercial vertical antenna prices may give one pause. If your budget is limited, consider a Hamstick style mobile vertical as a start. My publishing partner has well over a hundred FT8 countries confirmed using a Hamstick antenna and a magnetic mount on the roof of his car in his driveway.

There are many types of wire antennas for you to build or buy. A half-wave dipole is a starting point, provided you have a center support of at least  $\frac{1}{4}$  (preferably  $\frac{1}{2}$ ) wave length above ground. A variation of the dipole is the inverted V. It is considered a single band antenna. Dipoles can be made to play multiband using 450Ω ladder line. A tuner is necessary. Remember you are not tuning the antenna, only the feedline. For years I have used 12-gauge stranded Teflon covered house wire for antennas. I always cut the antenna wire a bit long and then prune using the transceiver's built in SWR/PO meter, an antenna analyzer or even a NanoVNA. On 40- or 80-meters it can have a rather narrow bandwidth.

*(continued on page 12)*



## Ramblings of an Antenna Alchemist

(continued from page 11)

A ham buddy W4PHL (SK) only used resonant dipoles at his QTH in Oklahoma. He consistently outperformed my exotic multiband wire antennas hands down. A lesson learned.

Over the years there has been a lot of discussion about the G5RV antenna designed by Louis Varney in 1946. It is said to be a multiband antenna. I had a full size version for a couple of years. No matter how hard I tried to make it perform multi-banded, I found its best band was 20 meters. (Varney confirmed this in his original write-up.) After a wind storm broke one of elements, it never went up again. The ZS6BKW is a variation. Some report better results with it.

The horizontal or vertical loop is another type wire antenna. I built a 40-meter horizontal loop years ago. They can be fed through a 4:1 current balun with 450 ohm ladder line. Loops are one wave length long so know your space availability. You also need to consider support for the four corners. Trees are good if you have them. A variation is a horizontal or vertical Delta loop. I like the vertical Delta as it only needs one center support. I use a fiberglass push-up pole.

Many attic hams use single band dipole antennas in a fan configuration mounted on standoffs attached to roof trusses and rafters. Each side of the dipole does not need to be perfectly straight, but try keep the bends to a minimum. **(Remember NO QRO in attics!)** Depending on the dipole's orientation there may be some mutual coupling between the wires. Tuning each dipole to resonance can be challenging. Typically, all the dipoles will use a single feed point with one coax run down to the shack. Attic antennas are not suit-

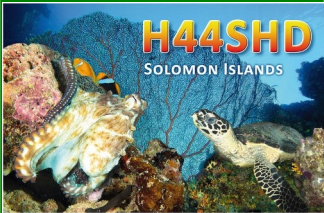
able to use under a metal roof. I use a 17-meter Hamstick vertical with my shack's metal roof as a ground plane. If I can hear a station, I can usually work it with 100 watts or less.

One of the most popular wire antennas is a multi-band end fed half-wave (EFHW). The EFHW can be mounted horizontally, inverted V, sloper, etc. For the higher HF bands I have seen EFHWs mounted as a vertical. At the feedpoint is a 1:49 balun. The feed line is used as a counterpoise. EFHWs are high impedance half-wave antennas and will typically match your transceiver's 50 ohm output without the need of a separate tuner. They are used both outside and in attics with reasonably good results. They do not provide much gain, but give you that multi-band capability without the need of a feedline tuner.

Whether you have the ability to use outside antennas or you are attic bound, you do yourself a great injustice not reviewing each type of antenna to see which are best for your location. There is no shortage of information in magazines like QST (73 and Ham Radio are available free on the web), books and the Internet. Ask fellow club members their opinions on antenna types. However, make sure you understand their antenna environment and intended purpose. They may be different than yours. I use the free EZNEC antenna modeling application to compare potential antennas. EZNEC is not an easy application to learn, but it's worth the effort. Then try building rather than buying an antenna.

Just remember, modeling applications, while good, can't always give you the full picture of what your antenna is doing.

73, [The Antenna Alchemist](#)



From the weekly **ARRL DX Bulletin** and other sources.  
(DX bulletin archives)

## DX OPPORTUNITIES

**ROTUMA, 3D2.** Tony, 3D2AG plans to be active as 3D2AG/P until December 20. Activity is on 160 to 6 meters, with a focus on 15, 12, and 10 meters, using CW, SSB, RTTY, and FT8. QSL via operator's instructions.

**MADAGASCAR, 5R.** Operators PA3EWP, DL2AWG, DK2AMM, PG5M, and PA5X are QRV as 5R8WP, 5R8WG, 5R8MM, 5R8CG, and 5R8PA, respectively, from Nosy Be Island, IOTA AF-057, until December 3. Activity is on 160 to 6 meters using CW, SSB, RTTY, and FT8 with two stations active. QSL via DL2AWG.

**PHILIPPINES, DU.** Irek, SP3SUX is QRV as DV8/KH7EA until December 3. He will be active as DX8H in the CQ World Wide DX CW contest. QSL both calls via SP3SUX.

**GUINEA BISSAU, J5.** Carlos, CT2GQA is QRV as J5JUA until December 15 while on work assignment. Activity is in his spare time. QSL to home call.

**AMERICAN SAMOA, KH8.** Bob, W7YAQ and Al, K7AR are QRV as K8H from Pago Pago, IOTA OC-045, until December 1. Activity is on 160 to 6 meters using CW and SSB. This includes being a Multi/Single entry in the CQ World Wide DX CW contest. QSL via W7YAQ.

**PALAU, T8.** Tony, JH1FFW will be QRV as T88RC from November 30 to December 5. Activity will be on 40 to 10 meters using SSB and FT8. QSL via LoTW.

**BRUNEI DARUSSALAM, V8.** Didier, F5NPV is now QRV as V85NPV from the capital city Bandar Seri Begawan. Will be here for a few years. QSL via LoTW.

**THAILAND, HS.** Lars, SM6NT is QRV as HS0ZME from Hua Hin and is here until April 2, 2023. Activity is on 40 to 10 meters using mainly CW. QSL to home call.

**SOLOMON ISLANDS, H44.** Remo, HB9SHD plans to be QRV as H44SHD from Uepi Island from December 6 until December 19 using SSB and FT8.

## DX SPECIAL EVENT STATIONS

**POLAND, SP.** Special event call signs 3Z95PRK, HF95PRK, SN95PRK, SO95PRK, SP95PRK, and SQ95PRK will be QRV from November 26 to December 11 to celebrate the 95th anniversary of Poland's largest regional radio broadcasting station, Polskie Radio Katowice. QSL via bureau.

**WEST MALAYSIA, 9M2.** Special event station 9MI00SK is QRV until December 31 in celebration of the 100th anniversary of Kedah Scouts. Activity is on 80 to 10 meters using SSB, CW, and various digital modes. QSL direct to 9W2TXL.

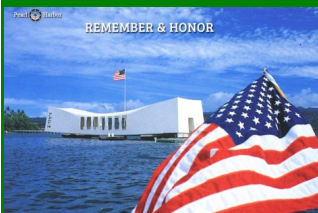
**BRAZIL, PY.** Special event station PV22CUP will be QRV from November 19 to December 18 during the 22nd FIFA World Championship being held in Qatar. QSL via LoTW.

**INDIA, VU.** Operators VU2DSI, VU2EVU, and VU2XPN will be QRV as AU2JCB, AU3JCB, and AU5JCB, respectively, from November 25 to December 13 to commemorate the birthday of Jagadish Chandra Bose. Activity will be on 80 to 6 meters using SSB and FM. QSL direct to home calls.

**BELGIUM, ON.** Special call sign OT5IDPD is QRV until December 3 for the International Day of Persons with Disabilities. In 1992 the UN General Assembly designated December 3 as this annual day of observance. QSL via ON6WL.

**QATAR, A7.** Special event stations A722FWC, A71FIFA, A72FIFA, A73FIFA, A74FIFA, A75FIFA, A76FIFA, A77FIFA, and A78FIFA are QRV until December 18 during the FIFA Football World Championship.

(Know of an upcoming DX station or Special Event? Send info to: [tchamnews@gmail.com](mailto:tchamnews@gmail.com))



### Pearl Harbor Day Commemoration

**Dec 2-Dec 12 1300Z-2200Z, W2W** 7.041, 7.241, 14.041, 14.241. Certificate/QSL: K3NY, 108 Brent, Arnold, MD 21012. National Electronics Museum ARC will operate W2W in commemoration of the anniversary of Pearl Harbor & the role of electronics in WWII, Dec 2-Dec 7. Additional operation possible Dec 8-Dec 12 as operator availability permits. Operation on 80M (3.541, 3.841) & digital modes possible. Frequencies +/- as to QRM. QSL/Certificate available via SASE. Details at [ww-2.us](http://ww-2.us)

**Dec 3, 1400Z-2000Z, NEIPL, USNR.** 20 & 40 meters. QSL: Rick Emord, 135 Wareham st, Middleboro, MA 02344. Phone/digital on 20m, 40m & other bands as operators / equipment allow. [www.neipl.org](http://www.neipl.org)

(From ARRL, other sources & the internet)

**81st Anniversary Civil Air Patrol**  
**Dec 2-Dec 4, 1500Z-2300Z, W9CAP**  
Illinois Wing Civil Air Patrol. 7.255, 14.250, 18.125, 28.450. QSL: Attn: LtCol Robert Becker, PO Box 4027, Saint Charles, IL 60174. [www.qrz.com/db/w9cap](http://www.qrz.com/db/w9cap)

**QCWA 75th Anniversary**  
**Dec 3-Dec 10, 0000Z-2359Z, W2MM**  
Quarter Century Wireless Association (QCWA). SSB: 28.325, 21.365, 14.262, 7.244, 3.810. CW: 28.050, 21.050, 14.040, 7.035, 3.540. Certificate: Larry Gabriel, K7LG, 1972 Martina St., Apopka, FL 32703. [www.qcwa.org](http://www.qcwa.org)

**US Constitution 21st Amendment**  
**Dec 3-Dec 6, 1200Z-0500Z, W8A** Breweries On The Air. 7.24, 14.24, 50.175. Certificate: Thomas R Sly, WB8LCD, 1480 Lake Martin Dr, Kent, OH 44240. [www.breweriesontheair.com](http://www.breweriesontheair.com)

**Christmas in Bethlehem**  
**Dec 3, 1200Z-2300Z, W9WWI** Clark County Amateur Radio Club. 28.400. QSL: Clark Co. ARC, P.O. Box 201, Sellersburg, IN 47172. [n9dprh@gmail.com](mailto:n9dprh@gmail.com) or <https://facebook.com/w9wwi>

**75/75 Contest 75th Anniversary**  
**Dec 5-Feb 18, 0000Z-2359Z, member call,** Various towns/locations. Quarter Century Wireless Association (QCWA). Phone/CW on 6, 10, 15, 20, 40, 80, & 160 meters. Certificate: request at website. QCWA members contact 75 QCWA members in 75 days. Call "CQ QCWA". This is an operating event. [www.qcwa.org/I-worked-75-75-members-contest.htm](http://www.qcwa.org/I-worked-75-75-members-contest.htm)

**Final Moon Landing of Apollo 17**  
**Dec 8-Dec 11, 1500Z-2359Z, K5A** Razorback Contest Club. 7.040, 7.190, 14.040, 14.260. QSL: Razorback Contest Club, 3407 Diana St., Springdale, AR 72764. Commemorating Apollo 17 final moon landing. [rccw5yo@cox.net](mailto:rccw5yo@cox.net)

**WX3MAS**  
**Dec 8-Dec 11, 1400Z-2200Z, WX3MAS**  
Christmas City ARC & Delaware-Lehigh ARC. 3.850, 7.270, 14.265. QSL: WX3MAS,

Greystone Building, 14 Gracedale Avenue, Nazareth, PA 18064. CW, SSB, & Digital Thursday through Sunday, 1400 to 2200 UTC. May be extended if conditions permit. <https://dlarc.club>

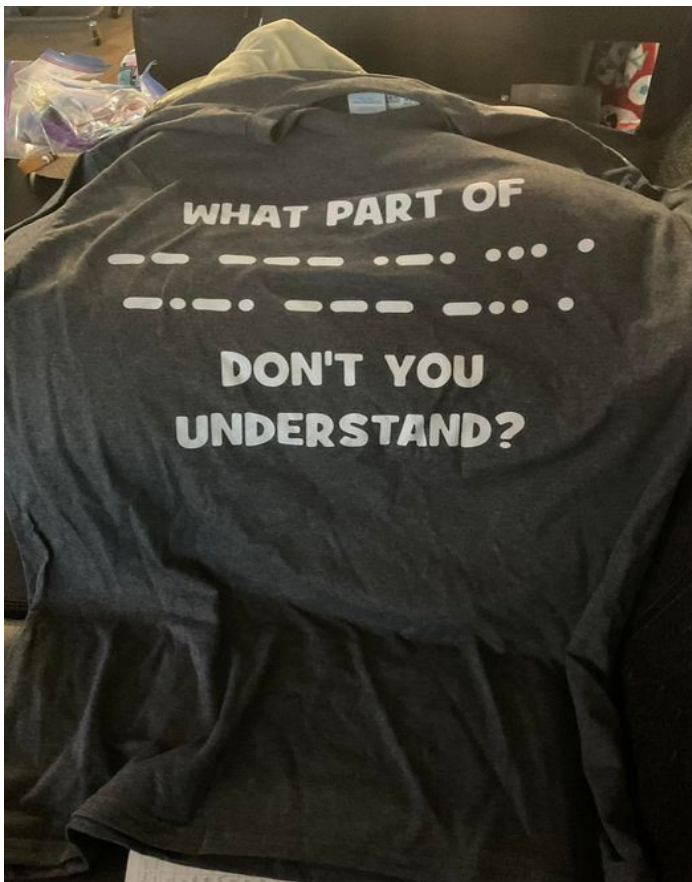
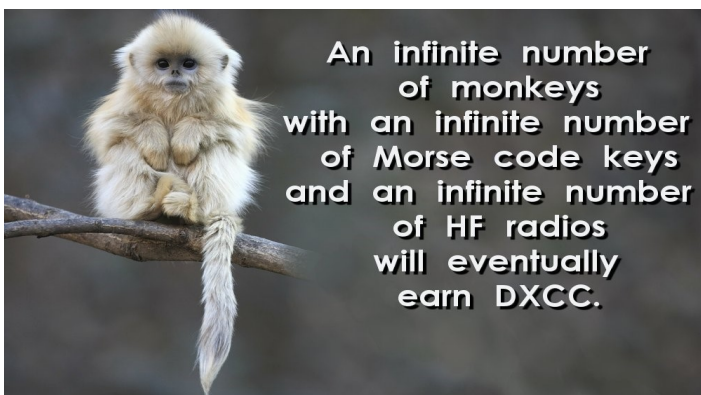
**150th Anniversary: Lighting of Bodie Island Lighthouse**  
**Dec 10, 1300Z-1900Z, W4PCN** Outer Banks Repeater Association. 7.265, 14.265. Certificate & QSL: OBRA SE Station Carl Hacker WC5WM, P.O. 1085, Nags Head, NC 27959. OBRA website under reconstruction. Contact WC5WM for questions. [wc5wm@arri.com](mailto:wc5wm@arri.com)

**Battle of Fredericksburg 160th Anniversary**  
**Dec 10, 1400Z-2000Z, W4F** Stafford Amateur Radio Association. 7.250, 14.250; 40-10 meters, CW, Phone & FT8. For certificate email Jay Chamberlain, NS4J, at [ns4j@arri.net](mailto:ns4j@arri.net). Commemorating the 160th anniversary of the Civil War Battle of Fredericksburg, VA, Dec. 11-15, 1862. PDF certificate. No paper QSL or certificates. <https://www.ws4va.org/index.html>

**Edwin Howard Armstrong Commemoration**  
**Dec 17-Dec 19, 0000Z-2359Z, W4A** 3.540, 7.040, 14.040, 21.040. QSL: Brad Ambro, 1118 Walnut Grove Road, Bluff City, TN 37618. USA stations QSL direct with SASE; foreign stations QSL via buro or direct. [n9en@live.com](mailto:n9en@live.com)

**W8MRM Motor City Radio Club 90th Anniversary**  
**Dec 24, 1400Z-1800Z, W8MRM** Motor City Radio Club. 7.190, 14.290. Certificate: Motor City Radio Club, P.O. BOX 1337, Southgate, MI 48195. [www.w8mrm.net](http://www.w8mrm.net)

**American Revolution Battle of Trenton**  
**Dec 26-Dec 31, 0000Z-2359Z, W2T** Delaware Valley Radio Association. 14.250. Certificate & QSL: DVRA, PO Box 7024, West Trenton, NJ 08628-0024. Certificate of Commission in the Continental Army Signal Corps available. [www.w2zq.com](http://www.w2zq.com)



**You're asking, "Where are the cartoons by Dick Sylvan, W9CBT?"** Well don't fret. They will be back in future issues of the newsletter. It's just that we've run out of Dick's color sketches and are waiting to receive more. Meanwhile, if you enjoy Dick's "amateurish" sense of humor, you can order his book, "**Hi Hi - A Collection of Ham Radio Cartoons**" from Lulu.com. [Click here for a link to Dick's book.](#)

### About TCHN - Who / What We Are (and are not)

Treasure Coast Ham News (TCHN) and the future Treasure Coast Hams website (TCHW) are published for the enjoyment of amateur radio operators and those interested in amateur radio. The publishers do not receive any pecuniary interests from TCHN and TCHW. TCHN and TCHW include original publisher, subscriber and author content, plus information obtained from publically available sources, including web pages. Content is attributed whenever possible or applicable. Content is believed to be accurate and timely, but the publishers assume no liability for any inaccuracies.

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[The Publishers](#)

## Area Club News

### [Martin County Amateur Radio Association](#)

MCARA serves the Martin County, FL amateur radio community and ARES. MCARA holds weekly Rag Chew nets, ARES nets and in-person / ZOOM meetings. Please click the ZOOM link on their [web site](#).

The association sponsors the annual Stuart Hamfest. Did you attend this year at the Martin Co. Fairgrounds? Check out the pictures in the April, 2022 newsletter archived at [pslara.org](http://pslara.org). Look in the "Pub Documents" section.

### [Fort Pierce Amateur Radio Club](#)

The club officers are: President - David, KG4ORQ, Vice-President - Kevin, W4KKW, Secretary - Pete, KD4SPW, and Treasurer - Kurt, W4KFH.

FPARC is a general purpose amateur radio club with a digital emphasis. The club meets on the 2nd Wednesday of the month on the Main Campus of Indian River State College in Fort Pierce. Watch for email announcements concerning upcoming meetings and events. Additional details are available on the club's [web site](#).

### [Port St. Lucie Amateur Radio Association](#)

The club officers are: President - Bob, AI4RB; Vice President - Scott, AI4TT; Secretary - Bruce, WA3RHW; Treasurer - Bob, W4RJP. Derek, KO4DAD, Greg, KB4VVE, and Steve, N4SGL were elected directors, recently.

The next PSLARA meeting is scheduled for December 10 at 1:00 PM. Meeting location is the IRSC Veterans Resource Center, 500 NW California Blvd. Watch for meeting information and updates on the [PSLARA](#) website as we get closer to the meeting date. Come out to the meetings and support the club. And bring a friend. Visitors are always welcome at PSLARA meetings.

Club elections for 2023 are underway, with the polls closing on December 6. All officer and director positions are up for election. Voting is electronic. If any member did not receive an invite to vote, please notify the club secretary by sending and email [info@pslara.com](mailto:info@pslara.com) as soon as possible.

All Thursday net control positions are now filled. Thanks to all the volunteers: Greg - KB4VVE, Craig - KK4CID, Steve - N4SGL, Derek, KO4DAD and Mina - KS4PB.

### [Vero Beach Amateur Radio Club](#)

VBARC was formed in November, 1961 with a small number of local hams. Today the club has over 100 members and encompasses all of Indian River County. Visit their

[web site](#) to learn more about the club. Join them on the Treasure Coast Net, 7.153Mhz every morning at 8:00am.

The Vero Beach club has a robust membership of hams. If you are into QRP, they have operating events. See the club web site for details.

The 2022 Treasure Coast Hamfest is scheduled for December 3rd at the Indian River County Fairgrounds. Click [here](#) for information.

### [Okeechobee Amateur Radio Club](#)

The club officers are: President/Treasurer - Mark, KF4EA; Vice President - Jack, KM4CRA; Secretary - Josh, K4JHI.

The Okeechobee Amateur Radio Club (OARC) is a general purpose amateur radio club. The club has been in existence over 30 years. For more information please contact [Jack, KM4CRA](#). Club website: [www.k4oke.com](http://www.k4oke.com)

OARC nets include: Club - Monday nights at 8.00pm on 147.195, pl.100.0. ARES - Second Tuesday of each month at 8.00pm on 147.195, pl 100.0.

### [Repeaters and Club Nets](#)

Our area has a multitude of repeaters. Many clubs hold weekly rag chew nets. All known net schedules can be found on the TCHM calendar in this newsletter. Please get on the air and participate!

*(Attention club officers: Please send an email announcing upcoming events and activities to: [tchamnews@gmail.com](mailto:tchamnews@gmail.com). Send by the 20th of the month to be included in the next issue.)*

## EQUIPMENT BUY / SELL

**FOR SALE** - contact Bruce at: [wa3rhw@yahoo.com](mailto:wa3rhw@yahoo.com)

Astron RS-20A 20 amp power supply. Very good to excellent condition. Very clean. \$65.00

Elecraft P3 Panadapter. Very good to excellent condition. Very clean. Manual and cables. \$600.00

\*\*\*\*\*

**LOOKING TO BUY** - Robert, KI6MXT is looking for a re-charging cradle for a Yaesu FT-60R. If you have one for sale, please contact Robert at 321-370-5417.

\*\*\*\*\*

**HELP NEEDED** - in installing a discrete screwdriver vertical in my backyard with underground coax at my residence.

Contact Gus, NU4L, 772-263-0430; email [gberges@me.com](mailto:gberges@me.com). Please advise if there is any cost and payment method. Thank you very much. Gus, NU4L.

\*\*\*\*\*

*Do you have something to sell or trade? Or perhaps you need help with an antenna or equipment problem?*

*Drop us a line and we will include it our next issue.*

Send your email to: [tchamnews@gmail.com](mailto:tchamnews@gmail.com)



TCHamNews enjoys showcasing QSL cards received by our local amateur radio community. If you have an interesting QSL card to share with your fellow hams, please send a scanned image (jpeg) to [TCHamNews@gmail.com](mailto:TCHamNews@gmail.com) and we will include it in an upcoming issue. (If you send us a paper card, we will scan it and send the original back to you.)



(above two cards courtesy of Bruce, WA3RHW)



If you are considering QSL cards or need to refresh your old card, please discuss with Fabrice at [QSL-Concept.com](http://QSL-Concept.com). Email: [info@qslconcept.com](mailto:info@qslconcept.com), or Fabrice directly at [fabertron@bftechnicarts.com](mailto:fabertron@bftechnicarts.com). Phone 604-729-6454.



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