



# Spark Gap

Vol. 35, Issue 11, November 2018 *MARC - Serving Central Indiana Communities for thirty-five years*

## *On Our MARC:*

Thanks to the MARC members that took part in the annual Goblin Patrol. It was a cool rainy evening to be sitting there watching the bridges to keep our freeways safe from anyone tossing rocks or pumpkins off the bridges over I-65. I heard we had all but one bridge covered.

Thanks to all of you that helped on getting the repeater up and running on Sunday, Oct 28<sup>th</sup>. Seems the voter had been turned off. Ron called Chris to let him know that he couldn't get into the repeater. Chris was out of town, called me and I wasn't home yet but on my way home. I went by the fire station to make sure the antenna was still up from the wind we were having and it was. I called Chris back and he called Dave KB9LOT. Dave went down to the radio room at the firehouse along with Mike and found the voter had been turned off. Again, thanks to everyone for getting the repeater back up and working in time for net.

Just a reminder, if you find you can't get into the repeater, please call the Trustee, Chris Frederick, KQ9Y. If he is unavailable, he will get someone working on it ASAP.

Another thank you goes out to Chris, on getting the radio room up and running for JOTA and Ron and Rusty for being there to open the room. I'm guessing things went well but I have not really heard what worked and what didn't.

Please mark your calendar for December 15th. This is our annual holiday meeting. It will be a pitch in breakfast, we will have a short meeting and then on to the white elephant gift exchange.

Hope everyone has a Happy Thanksgiving. If you are going to brave shopping, please be careful out there!

Hope to see you Saturday. The coffee will be on.

Jacki KI6QOG  
President



## ***Birthdays for the month of November:***

***WS9H - Rhonda Curtis***  
***W9TEJ - Ron Koons***  
***WB9GCV - Jeff James***  
***K9ICP - Bruce Tisdale***  
***W9YD - John Wampner***  
***KD9GWC - Brent Sullivan***

## **New Beta Version of WSJT-X is Now Available, Mock FT8 Contest Set**

A new *WSJT-X* “release candidate,” version 2.0.0-rc4, now is available, and the version 2.0 *Quick Start Guide* has been revised and extended. The developers urge anyone upgrading to the new version to read the release notes thoroughly, since the upgrade requires users to change operator settings, so the software may not work “out of the box” when upgrading from previous versions.

The latest version of *WSJT-X* also removes compatibility with earlier versions of the software in certain circumstances. “Users of version 1.9.1 and earlier will be unable to decode transmissions from users of version 2.0.0-rc4, and vice-versa,” developer Joe Taylor, K1JT, said in announcing the new beta version. “To minimize this cross-protocol interference, we suggest initially using the -rc4 release at audio TX frequencies 2,000 Hz and higher. As more users upgrade their software to -rc4 or later, activity can gradually move downward in audio frequency. By December 10 or very soon afterward, everyone should upgrade to the full *WSJT-X* 2.0 general availability (GA) release.”

Some changes from the RC3 beta version include these: The Esc key aborts a QSO, clears a DX Call, and selects Tx6; Fox/Hound/Contest selection boxes and new facilities for Contest and Fox-mode logging have been updated; the program disables transmit after 5 minutes of no mouse movement, and it will not auto-log a contact with incomplete exchange info.

Coinciding with the release of *WSJT-X* version 2.0-rc4, the *WSJT-X* development team has scheduled an on-the-air FT8 protocol practice session to help operators become familiar with the software and to identify operational issues. The 1-hour FT8 mock contest will be held on November 20, 0200 – 0300

UTC (Monday evening, November 19, in North American time zones). Download links for -rc4 on *Windows*, *Linux*, and *macOS* are available on the *WSJT-X* page.

Those participating in *WSJT-X* beta tests are expected to report their experiences to the developers and upgrade to the general availability release when it becomes available. Visit the *WSJT-X* web page for more information.

..... *ARRL News, November 2018*

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## Nearly Cheap Homebrew QRP Vertical

By Rick Fineout, KB2NAT

Ideally, I wanted a portable antenna that was effective, didn't have an extremely narrow bandwidth, was easy to carry, small, set up quickly and did well on DX. There must be a solution that doesn't cost much...isn't there?

First, I must say that I do have a mag loop and it works very well. It does, however, require some fine tuning and is subject to reacting to its surroundings which can be iffy in both home and travel. In addition, they are not cheap, and mine doesn't remotely tune unless I want to add to the price and I don't have the remotest idea of why I should spend more on it.

A large, albeit efficient, mag loop is not easy to travel with, either by foot or air. I could get a smaller (less efficient) one, but I've found that many surroundings in hotels and even beaches, often preclude their effective use. They are great for the right circumstances, but I have a penchant for not being in them.

A great idea is to simply use a couple of wires with a BNC connector with my KX3. Elecraft suggests a basic pair of 25' wires and they are reasonably effective and my KX3 can tune them easily, as well as the other lengths I've tried. The KX3 can even tune the BNC connector...but, many times there aren't appropriate structures to hang a wire on. Barring levitation, kites or balloons would just add stuff that I don't need to add to my little go bag. I've used a bush, a low tree, or a signpost, as a support when nothing else was available, and the NVIS approach works well, but of course, not for DX. At least the price is very reasonable for 50' of wire, especially at a garage sale where \$2 can often buy a half roll of 500' wire, but it's inherently limited.

So I looked at a growing plethora of portable QRP antennas advertised out there and found that they were either costly (\$90 for a just a coil?), really small (read inefficient), or too toy-like. End-fed antennas work well, but there is still the support issue. At the beach lifeguards apparently don't want you to run a wire to the top of their beach stands.

I priced some verticals, and starting at the bottom, I looked at tripods for them. One was a slight variation of a camera tripod for \$125...it was just like the one I bought at a garage sale for a few bucks and gave to our son. Another is small, very packable, but \$90 was still a bit much. Then there's a complete "deployment" kit that comes with two real counterpoise wires (with fittings) that will, for about four C- notes, have you bursting with deltoids, standing on a snow-clad mountain talking into a

microphone with your head six inches from the radiator while QSO-ing with everyone who wants to communicate with a ham with deltoids on a mountain. I wondered about that one.

There's also a tripod available with a telescoping pole for \$160 and there's a little one that comes apart in three little metal sticks with a small center section that has been threaded for an antenna for only about \$80. There's also an antenna that looks like it was designed by a spider and would cost two boat payments, but is directional. I would end up trying to put it together in a poison ivy patch, or a wind tunnel. Am I the only one who's retired, makes car payments, yet wants to take his wife to dinner from time to time and keep things simple?

Some of the reasoning for buying showroom equipment I've heard is, "You bought an expensive transceiver, so you should spend lots of money for peripherals!" Part one precludes part two of that statement. It's a HOBBY, not the definition of my masculinity...so what to do?

Fortunately, I hit many garage sales. As a result, I no longer need mobile mounts, coax, cables, work benches, vices (?), or pliers. I've obtained so much of that stuff on the cheap that hams run from me. "Oh no, he wants to give us more antenna cables!" My emails offering free cables are unanswered! Seriously!

I started to watch more videos of what other hams do...one guy has a machine shop, drill press, lathe, welding gear and seven racks of oscilloscopes, Hammarlunds and every Zenith Transoceanic ever made. I wanted to send him a picture of my Tivdio V-115 SW receiver (\$19 on eBay). I have a condo. My tools are a hammer, some basic tools, a tall garbage can, a tiny desk vice, a soldering gun and a Dremel. I do have meters of various sorts that sit in a small drawer in my desk.

But I continued to persevere and several dozen videos later, I recognized that a lot of clever hams have had some great ideas and many of them are of the money-saving home-brew variety. And one day at a garage sale, I saw six pieces of one-foot aluminum tubing that screw together to form something that would look like a portable antenna that would cost \$175 if it were made in California. How well, I thought, would that work for portable hamming? A dollar and six feet of aluminum tubing later, I was hooked on making my own portable, inexpensive, DX-eating, (semi) wide-band antenna.

Of course, that meant a few other auxiliary parts, like a coil, tripod, pole mount, and a cheap, long, skinny bag to carry it in, cable and solder. I was already half-way there. The garage yielded some one-inch PVC pipe—thin, easy-to-trip-on-and-hard-to-see (but useable) wire; and, I had enough antenna parts to make my own coil.

One ham used corrugated plastic hose which he cut into strips and glued to a support on which to wind a coil. Clever! I had some of the same stuff which I had previously used to cover sundry antenna cables coming into our house years back, so I cut it into four narrow seven-inch strips and glued them on the sides of a one-inch diameter PVC pipe to hold the wire. I drilled holes into two round PVC caps, installed the 24x3/8's antenna hardware and bought a bolt to fit the odd six aluminum small pipes which would make up the radiating element. I used a wander lead with an alligator clip to connect to the coil to find points of resonance.

Part of a rotatable dipole bracket would work as a pole mount for the coil. Oh yes, the tripod—I had an old mic stand (garage sale; it came with six mike cables, two other mic stands and assorted audio cables: \$10!). The basic tripod, extension and base were perfect for this purpose.

I mounted the bracket on the stand, the coil on the bracket, the aluminum pole on the coil and connected the antenna cable to the antenna analyzer (MFJ-I bought it direct). But the antenna was lopsided and crooked! The round caps were just impossible to evenly mount an antenna on, no matter how clever the hams were whom I watched do this in the videos. However, I took some readings, anyway. I found that I actually could tune down to 14 MHz, even if the coil and rods looked funny.

Then I thought about my MFJ 1979T telescoping antenna (Christmas gift from the XYL). I replaced the hardware to fit the more conventional threads (24x3/8) and managed an SWR below 1.5:1 down to 6.5 MHz. I tried adding two one-foot extensions. However, it only dropped the lowest point of resonance down to 6.4 MHz. I guessed it would be easier to add more coil to reach 80 meters rather add than antenna length. Of course, if the antenna were straight it would look a bit more professional as well.

To increase inductance to get down to 80 meters, I made a coil that was 8" long and doubled the diameter to 2" with PVC pipe and some more slices of corrugated tubing as a wire guide. Instead of 12' of wire, I used 36'. Instead of round caps, I found a pair of flat ones with screw-in inserts in which to mount the antenna receiving hardware. I used the same wander lead and with the coil and added 17' telescoping antenna, I could now get down to 3.55 MHz with a usable SWR of 1.5:1 or better.

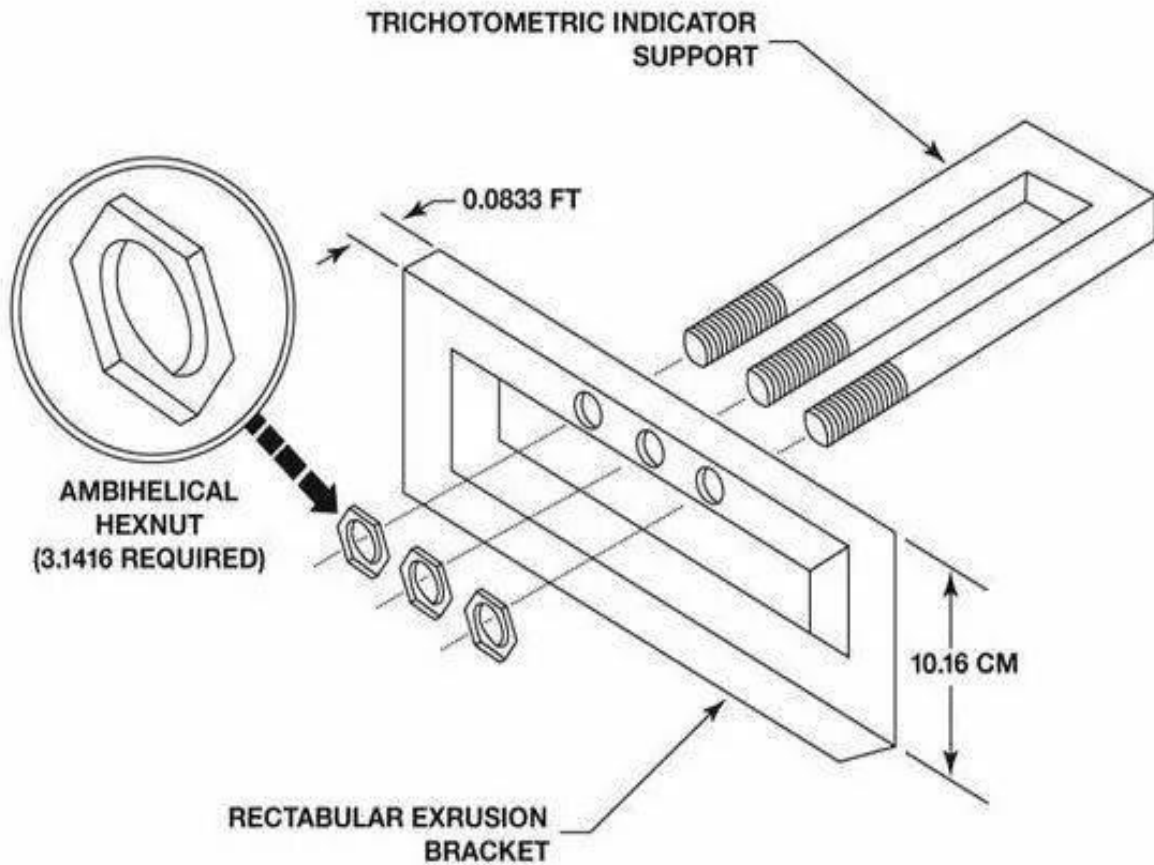
It measured well with the analyzer with the same three 25' radials I had used before, so off I went with the antenna, tripod, KX3 and associated gear to our local gazebo in a small field to see how it all worked in practice. I had no problem matching the performance to the measurements. My little six-foot antenna with coil had given way to something much larger, but still practical. The MFJ 1979T and all else packed up well with the mic stand being the longest piece of about 27". It all worked surprisingly effectively, even if I wasn't on a mountain top with a tight t-shirt over my big deltoids. But there are, however, some rather important afterthoughts.

The first was that it wasn't quite as cheap as originally planned. The hardware was already on hand, because I was cannibalizing previously used materials, but if I were starting from scratch, the cost would have risen easily by \$40-50. And if I hadn't had the \$60 telescoping antenna, I would have had to buy one or use a lot of coat hanger wire—very uncool. Another of those afterthoughts was to raise the antenna to its maximum height once it was on the tripod. It gives some vertical help to the radials and gives two less feet of wire for people (me) to trip over. This (and an 6 knot breeze) brought forth another afterthought: that was to carry three or four ground stakes (they don't have to be large) and cords with adjusters. The 17' antenna, fully extended, develops a surprising amount of wind loading. My cheap bag wore a hole in one end, dumping everything out. Time for a new bag... either a garage sale acquisition (over some time) or some material and some sewing machine time (the XYL volunteered here), so I don't yet have a bag that will work for toting the coil, antenna, and my converted mic stand. I can't see this being a big cost. I mention it because finding a weakness in the stitching or a hole in cheap material can leave parts invisibly in the woods forever.

So How does it compare to a good mag loop? It's cheaper, easier to transport, but is not quite as good in performance. The mag loop also demands some freedom from metal objects which could leave you stranded. The vertical is noisier, but more consistent in its performance and more useful in more places. It also requires a bit more time to put up, but not much more. The mag loop covers 60-6 meters; the vertical covers down to 80 meters and the KX3 ATU would tune it down to 160 meters, which would also see a big drop in efficiency. Both antennas lose efficiency as the frequency drops, of course. It wasn't as cheap as I'd hoped, if one considers the cost of buying what I had on hand (the MFJ telescoping antenna, the hardware, etc.) However, it is enjoyable to just spend an afternoon with something you built yourself—even if it's a wire thrown over a branch—helping to send those QRP watt(s) into the ether. And looking at the prices of many of the antennas out there, I guess I didn't spend that much after all.

## SPARK GAP FILE

If M.C. Escher designed an antenna mount accessory....



..... Thanks Chris, KQ9Y

## Es'hail-2 Geostationary Satellite Launch Said to be Imminent

According to AMSAT-Germany (AMSAT-DL), Es'hail-2, the world's first geostationary satellite carrying Amateur Radio transponders, will go into space from Cape Canaveral in a few days. Space news outlet *Spaceflight Now* says that the SpaceX Falcon 9 launcher is set to launch

on Thursday, November 15, between 2049 and 2229 UTC. Positioned at 25.5° E, the satellite will carry an Amateur Radio S-band and X-band payload capable of linking radio amateurs from Brazil to Thailand; it's unlikely that Es'hail-2 will be accessible from North America, at least not with conventional Amateur Radio satellite gear.

The recent subject of an AMSAT-UK Colloquium presentation, Es'hail-2 will carry two Phase 4 (P4-A) non-inverting Amateur Radio transponders operating in a 2.4 GHz up/10.45 GHz down configuration. This offers a 250 kHz bandwidth linear transponder intended for conventional analog

operations, plus an 8 MHz bandwidth transponder for experimental digital modulation schemes and DVB amateur television.

The Qatar Amateur Radio Society and Qatar Satellite Company are cooperating on the Amateur Radio project, and AMSAT-DL is providing technical support. Es'hail will carry commercial payloads.

Several orbital maneuvers are necessary before Es'hail-2 enters its commissioning phase, which may take several months. *Thanks to AMSAT News Service; AMSAT-DL*

..... *ARRL News, November 2018*



## UP – COMING ACTIVITIES AND HAMFESTS

**11/17/2018** – 0800 MARC Monthly meeting at the Johnson County REMC.

**Johnson County REMC 750 International Drive Franklin, IN 46131.**

**11/17/2018** – 0900 – 1600 46<sup>th</sup> Fort Wayne Hamfest, ARRL Central Division Convention

**Allen Co. War Memorial Coliseum 4000 Parnell Ave. Fort Wayne, IN**

**11/18/2018** -- 0900 -- 1400 46<sup>th</sup> Fort Wayne Hamfest, ARRL Central Division Convention  
Allen Co. War Memorial Coliseum 4000 Parnell Ave. Fort Wayne, IN

**12/15/2018** -- 0800 MARC Monthly & Christmas Holiday Pitch-in Breakfast  
Johnson County REMC 750 International Drive Franklin, IN 46131.

**01/19/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.

**02/16/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.

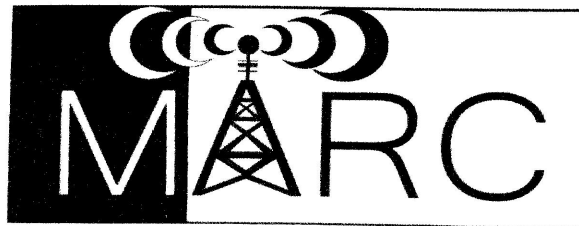
**03/16/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.

**04/20/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.

**05/18/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.

**05/17,18 ,19/2019** -- Dayton Hamvention, Greene County Fairgrounds and Expo Center in  
Xenia,OH

**06/15/2019** -- 0800 MARC Monthly meeting at the Johnson County REMC.  
Johnson County REMC 750 International Drive Franklin, IN 46131.



## **MID-STATE AMATEUR RADIO CLUB**

The Mid-State Amateur Radio Club meets the **THIRD SATURDAY** of each month  
at the Johnson County REMC 750 International Drive Franklin, IN 46131.



See our website, [www.midstatehams.org](http://www.midstatehams.org), for maps on how to get to our meeting.

Everyone is welcome; you do not have to be a *HAM* to attend our meetings or a member of the club.

**WA9RDF Repeater:**

146.835/  
146.235 MHz  
(151.4 Hz PL Tone)

**Club Officers:**

President: Jacki Frederick – KI6QOG  
Vice President: Bill Jackson – KM6CRL  
Secretary: Rhonda Curtis – WS9H  
Treasurer: Ron Scheutz – K9THR  
Repeater Trustee - Chris Frederick – KQ9Y

**WA9RDF Repeater:**

443.525/  
448.525 MHz  
(151.4 Hz PL Tone)

Weekly Net: Sunday evening 7:00 PM ARES/RACES members and ALL RADIO AMATEURS  
146.835/146.235 MHz (151.4 Hz PL Tone)

**The Official Newsletter of the Mid-State Amateur Radio Club**

P.O. Box 836  
Franklin, Indiana  
46131

Spark Gap Editor: Robert LaGrange N9SIU

*Please send your articles to my email: [n9siu@yahoo.com](mailto:n9siu@yahoo.com) no later than the 3rd of the month*



*Special thanks to Johnson County REMC for the use of their community room for meetings and testing.*