



Issue 5

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Letter from the Editor



Hello fellow QRP'ers! I hope everyone had as much fun as I did operating during our first ever on the air Sprint event. Conditions here in Central Indiana were not the best during the first hour but they really improved in the second hour. I had a smile on my face every time I heard "CQ FF" coming through my speakers. You all are awesome! Thank you for making the Sprint so much fun!

I also had a blast at Donuts in the Park this past month. Donuts in the park was our first ever QRP in the Park event 3 years ago and every year there is a new surprise in-store for us. This year my favorite moment was when Kim KD9LNV, Firefly #86 made her first ever QRP QSO! To see the excitement she had when she was done and the smiles on everyone's faces around her it reminded me why I got into QRP to begin with.

Our membership has more than doubled in the month of June. We now have 157 members in 40 states and 11 countries. I am blown away by the interest you all have in QRP!

If there is anything I can do to help, please feel free to reach out to me anytime.

72 de Mike NR9R

Fireflies QRP Club Events

QRPizza Monthly Gathering



Our QRP club does not have formal meetings. Instead we choose to meet on the first Wednesday night of each month at a local restaurant to swap stories about recent QRP adventures, show off our latest creations, and plan future events. Early on, these gatherings often happened at local pizzerias and the name "QRPizza" was created.

Our next QRPizza Monthly Gathering will be:

Wednesday August 7, 2019 at 5:55pm.

The location is: **The Knuckle Sandwich at 9500 IN-144, Martinsville, Indiana 46151**

QRP "In the Park"

Why wait until Field Day to have fun operating outdoors? We do it every month here and we invite everyone to come out and join us.

Plans for our next "QRP in the Park" event did not work out for July so at this time we do not have an event planned.

If you have an idea for a "QRP in the Park" event please let us know!



Kim KD9LNV Firefly #86 celebrating her first QSO at Donuts in the Park

Fireflies QRP 72 Sprint

Our first club sponsored Sprint event was a success!

Earlier this week we held our first “on the air” event as a club, called the “Fireflies QRP 72 Sprint”. This was our way of celebrating July 2nd or 7/2 which our club recognizes as “QRP Day”.

If you are not familiar with the term “72”, it was started several years ago as a way for “QRPer”s to say “73” or “Best Regards” at the end of a QSO using a “little less”. This was not done to disrespect anyone, it was just another way to have a little fun and share some QRP pride in doing the same thing everyone else was with less.

Thank you to everyone who participated, we’ve had several logs and summaries turned in already. If you have not turned you log in yet, please remember to get it turned in by July 10, 2019. This can be done by simply emailing it to firefliesqrp@gmail.com

Results for the Fireflies QRP 72 Sprint will be shared after July 10, 2019. Thank you to everyone who participated!

We are now looking at other opportunities to host Sprint events throughout the year. One of the ideas I has was a Sprint in December called “Homebrew for the Holidays” which would be a sprint event where participants would use homebrew or kit-built equipment during the event. Do you have any ideas? Please share them with us.

Some of our other favorite photos from the Sprint can be found below...



Our favorite photo from the sprint was submitted by **KC9SQW Firefly #38** who caught an actual firefly while operating!

KC9SQW Firefly #38 invites the whole family out to hunt for Fireflies!



KD9GZJ "Godzilla Juice" Firefly #6 KC5BG Firefly #136 hunts fireflies while on vacation.

Review of the “SlinkTenna” helical dipole

Written by Mike Andrus NR9R, Firefly #2

The made in the USA, SlinkTenna by Quirky QRP is a new “twist” on a classic antenna, and yes... this slinky is fun for a girl or a boy! 😊



All kidding aside, the SlinkTenna is a portable and lightweight helical dipole antenna system complete with a 9:1 UnUn matching unit built inside. The SlinkTenna weighs in at 16 ounces and is only 6 inches long when packed away. This makes it perfect for backpacking and portable operations like SOTA and POTA.

Recently Ivin Firefly #1 and Gary Firefly #3 joined me for an evening in the park to try out the SlinkTenna for ourselves.



The SlinkTenna was quick and easy for us to deploy into the trees at Hummel Park. We had the antenna setup and ready to go in just a few minutes.

It is highly recommended that you purchase or build your own guide rope to assist with tension control and sway relief. You can make one yourself with paracord and plastic clips.



When extending the SlinkTenna use caution and do not deploy either end more than 6 feet (2 meters) out as this could damage the SlinkTenna. A fully deployed the SlinkTenna should only stretch out 12 feet (4 meters) in length. Measuring your guide rope to 12 feet long will also help you in not over extending the SlinkTenna.

I spotted two trees close by that we could use to deploy our SlinkTenna. They worked out great and we got the antenna up about 25 feet off the ground.

Ivin brought his MFG analyzer that we have used in the past when making several homemade wire antennas to analyze our SlinkTenna.



The analyzer showed that the SlinkTenna was tunable on all amateur radio bands 6m – 80m thanks to the 9:1 UnUn matching unit built inside.

Actually, on 6m it required very little to no tuning at all.

Once we had that down it was time to get on the air and have some fun operating.

We connected my mCHF QRP SDR radio to the SlinkTenna and Ivin started calling CQ.

We quickly made our first contact on CW and before we knew it we made several more. Our signal reports from the Reverse Beacon Network were good and we were filling up our logbook pushing just 5 watts into the SlinkTenna.

After making several CW contacts we also tried the SlinkTenna out on SSB and it performed just as well on 40m. We were completing QSOs with stations to the East, West, North and South of us and having a blast.

There was a breeze while operating and the SlinkTenna handled it just fine with the help of our support rope.

Our Thoughts about this Antenna

The SlinkTenna will make a perfect companion any QRP adventure you might be going on. It's so small and lightweight you wouldn't even notice that its there.

The deployment of this antenna is quick an easy. After getting familiar with the way it deploys you will be on the air in just a few minutes.

The 9:1 UnUn matching unit is the trick to this antenna and makes it tunable for everything 6m-80m. A tuner is required, however most internal tuners will handle tuning this antenna with little to no difficulty.

In addition to using this antenna as a portable QRP antenna, you could also use this in a neighborhood that has antenna restrictions. It's even been tested and used inside attics or hanging on privacy fences. Keep in mind, this antenna is rated for 100w max on SSB and 25w max on Digital modes.

The SlinkTenna is made by hand in the USA by James Hannibal KH2SR, a fellow QRPer!

But wait, there is more...

Calling all Fireflies, this antenna is available for you to use as well. Don't just take our word on it, try it out for yourself. If you are wanting to borrow our SlinkTenna and try it out for yourself just reach out to NR9R Firefly #2. You can even write up a story yourself about your experience and we will share it here in our newsletter.

To learn more about products made by Quirky QRP including the SlinkTenna, visit James' online store at <https://www.etsy.com/shop/QuirkyQRPHamRadios> or by reaching out to James Hannibal KH2SR himself via email.

Until next time, 72 de Mike NR9R, Firefly #2



Ivin W9ILF, Firefly #1 is all smiles when operating using the Quirky QRP SlinkTenna!

Homebrew Memory Keyer

Written by **Gene Warren N5GW, Firefly #140**

I built the K1EL memory keyer using a metal electrical outlet box.



The faceplate was made from single or double sided pc board material cut out using a coping saw or hacksaw. Solder was spread over the faceplate using a back-and-forth movement of the iron, producing a textured look which matches the box.



The second picture shows the backside and bottom, including stick-on rubber feet. Four pre-drilled holes are the right size for the connecting jacks. Keyer instructions are taped to the bottom.

I drilled two holes for screws to mount the pc board; however if I had attached the board to the inside of the faceplate, no holes would have been needed to be drilled through the steel box.

The final picture reveals the innards.

I often use this memory keyer for the Flying Pigs monthly Sprint. Buttons are pushed using my left thumb - after operating it a while, I can find the correct button without even looking at the keyer.

It's a bit heavy, but that prevents it from sliding around on my smooth tabletop.

72, Gene Warren N5GW, Firefly #140

Editors Note:

More information about K1EL kits, visit their website at: <https://www.hamcrafters2.com/>



The Inverted V Linked Dipole Antenna for Portable Low Power High Frequency Operations

Written by Richard B. Hockett K9RBH, Firefly #20

INTRODUCTION

Half-wavelength wire dipole antennas are effective for amateur radio operations. The use of a linked-dipole facilitates multiple-band operations when the antenna can be manually adjusted, which is often the case in portable operations. An inverted-V linked-dipole antenna designed to operate on 80 through 10 meters serves as an effective Near Vertical Incident Skywave (NVIS) antenna, a good mid-range antenna, and a good DX antenna; when propagation conditions permit. When designed for low-power (QRP) operations using a lightweight balun and small-gauge wire, it can be readily supported by a telescoping fiberglass pole commonly available as a “kite pole”. The support pole can be mounted in a folding tripod or a trailer hitch sun-umbrella mount.

CONSTRUCTION

A review of linked-dipole projects on the internet provides a range of ideas for construction. This antenna is constructed using 26-gauge stranded wire with orange Teflon® (PTFE) insulation. 26-gauge wire is more than adequate for any reasonable QRP power level, and the orange insulation makes the antenna easy to see when deployed. 26-gauge wire with PVC insulation is also acceptable and is about one-third the cost. A 250 ft spool of PTFE wire costs about \$50 and is enough wire to build two 80-10 meter antennas. The primary advantage of the 26-gauge wire is its light weight, which in turn allows the use of a lightweight center support pole. The weight of antenna components (wire, links, and balun) is minimized to reduce the occurrence of “pole collapse” due to the pole telescoping in on itself from a heavy load. Hose clamps can be used to prevent pole collapse, but tend to slow the antenna deployment/redeployment.

The support pole used for this project is a 31 ft Jackite pole, available for about \$90. The antenna can also be supported by a 21 ft Shakespeare Wonderpole, which is light enough to use as a hiking staff, or it can be supported from a tree limb using paracord. The Jackite pole is convenient to use when operations are conducted from a vehicle. A simple 3 ft tripod (\$35) intended to roof-mount a TV antenna can be anchored using 12 inch steel stakes, with the Jackite pole attached via an intermediate mounting pole (1.5” Schedule 40 PVC pipe) attached using chain link fence brackets (Figure 1). The brackets are modified to include thumbscrews to facilitate rapid deployment, as is the tripod. Alternatively, an extended trailer-hitch mount (\$45) intended to support tailgating sun umbrellas can be used, which is somewhat simpler and quicker to deploy/redeploy.



Figure 1. Tripod mount using offset tube.

A 1:1 current (Guanella) balun is used at the feed point (Figure 1). This can be purchased commercially or built as part of the project. A 1:1 balun is undoubtedly the simplest balun to build, and plans are plentiful on the internet. The balun utilized for this project used 10 turns of RG316 coax wound on a FT114-43 ferrite core, which is attached to a custom bracket fabricated to work seamlessly with the Jackite pole. The balun bracket was fabricated from an HDPE cutting board (\$1) that was cut to size, heated to bend to shape, and then drilled for the connectors and Jackite pole mount.

The unbalanced side of the balun uses a BNC connector, and the balanced side uses a paired binding post connector that accepts 4mm right angle banana plugs. When used in this manner, the top two sections of the Jackite pole are removed, reducing the center height to about 28 ft when mounted on the tripod.



Figure 2. Current balun mounted on Jackite pole.

To reduce feedline weight on the pole, a 25 ft piece of RG174 coax is used from the balun to the ground level, where it is connected to RG8X coax of suitable length to reach the operating position, using BNC to PL-259 adapters as needed. Of course, slightly lower coax losses can be achieved by using LMR100 and LMR195 for the coax, at greater expense. The author has also used a single 50 ft length of LMR100 for the vertical and horizontal runs, when the antenna was carried in a backpack.

The dipole is constructed in sections, which are separated or connected as needed using links made with 2mm mini-banana plugs that are sold for use in radio controlled model car power supplies.

Small zip-ties are used for the insulators between sections, and a small crimp-on ring connector is used to attach the insulator to adjacent sections of the wire. The ring connectors are crimped directly to the wire without removing the insulation, and heat shrink tubing is used to cover all exposed metallic surfaces that can be covered without impacting function (Figure 4). When not in use, the antenna is wound on the spool on which the wire was supplied (Figure 4). The spool is fitted with a handle constructed of $\frac{1}{2}$ " PVC plumbing fittings which serves as a reel to aid deployment/redeployment.



Figure 3. Link constructed from 2mm banana plugs.

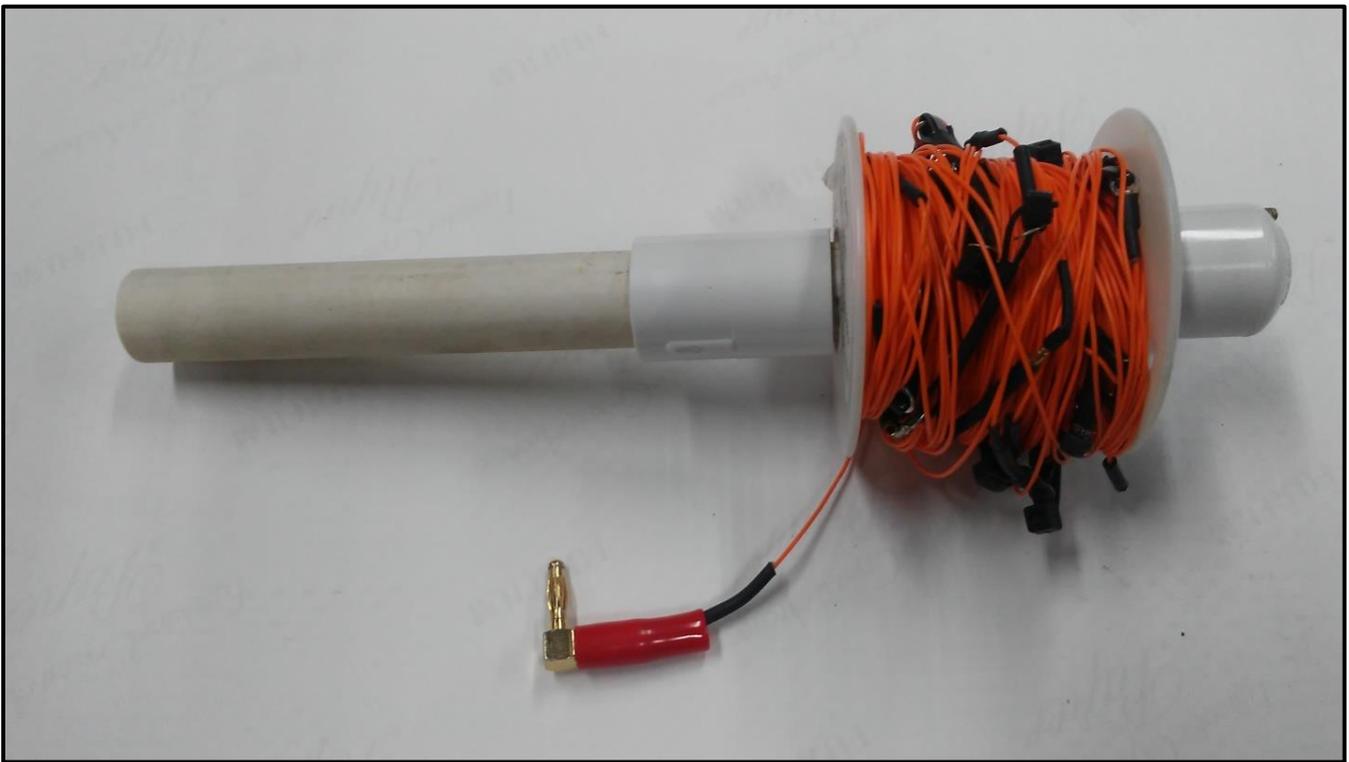


Figure 4. Antenna stored on plastic wire spool that operates as a reel.

The far ends of the dipole are supported by 3 ft plastic electric fence posts (\$2 each). These are sturdy enough to support the antenna without guys, and are quickly deployed in areas with reasonable soil cover. If desired, a few feet of 3/32-inch paracord anchored to tent stakes can be used at the ends of the antenna in lieu of the posts to reduce weight and bulk.

The linked-dipole section lengths can be determined by using the standard half-wave formula:

$$\text{Length in feet} = 468/\text{frequency in MHz}$$

The length obtained from that calculation is divided by two to obtain the length of each side of the dipole. Experience indicates it is prudent to cut the sections a bit longer (1 ft) and then trim them to reach the desired resonant frequency on each band. An antenna analyzer is extremely useful in this process. An online tool that estimates the necessary dipole section lengths is available at www.sotamaps.org/extras. Using this calculator speeds the design process.

Bandwidth is generally acceptable on 10, 15, 20, and 40 meters with a single link per band. Complete coverage of 75/80 meters requires the inclusion of three links, which results in coverage of 3.5 to 4.0 MHz with SWR well under 1: 1.8. The lengths of each wire section are shown in Table 1.

Table 1. Wire length per side of dipole.

| Band | Length per Side, ft |
|--------------|---------------------|
| 80 meters | 63.82 |
| 75 meters #3 | 62.14 |
| 75 meters #2 | 60.32 |
| 75 meters #1 | 58.21 |
| 40 meters | 32.36 |
| 20 meters | 16.58 |
| 15 meters | 11.05 |
| 10 meters | 8.18 |

The antenna can be designed and built for any desired combination of bands, including WARC bands if desired. And, the wire lengths can be tuned specifically for certain portions of the bands in accordance with the users preferences. The process requires only an antenna analyzer, time, and patience (the role of patience cannot be overstated).

SWR, RADIATION PATTERNS, AND GAIN

SWR plots of the various bands show that the inverted-V linked-dipole antenna delivers acceptable SWR for operation without using a tuner, thereby maximizing the antenna efficiency (Figure 5).

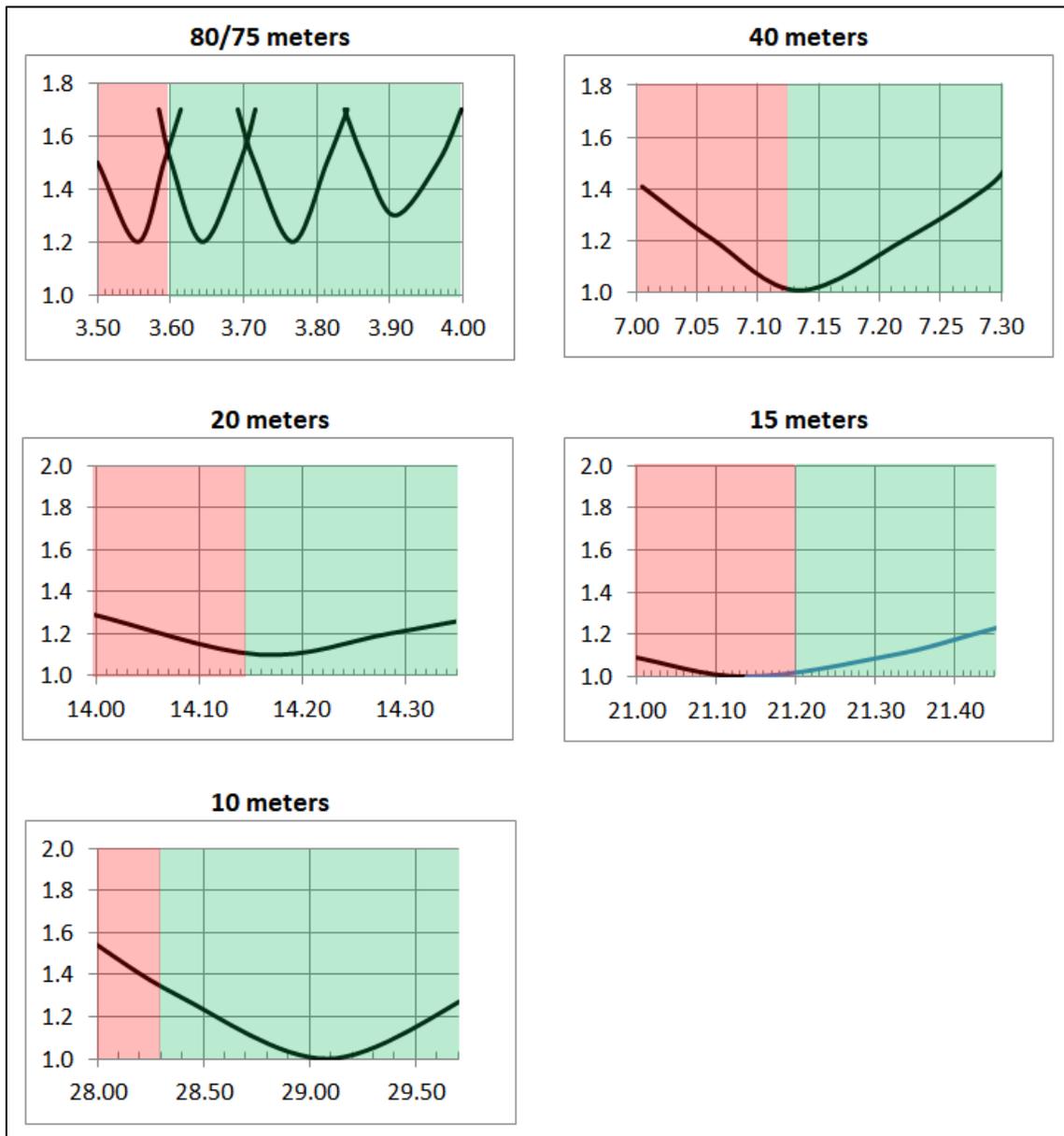


Figure 5. SWR vs. frequency in MHz for the inverted-V linked-dipole.

EZNEC models (<https://www.eznec.com/>) show that as the frequency increases from 80 to 10 meters, the radiation pattern changes dramatically (Figure 6). The 80 and 40 meter sections serve as Near Vertical Incident Skywave (NVIS) antennas, while the 20 meter antenna favors a low take-off angle and is generally the best option for DX under the current propagation conditions. The 15 and 10 meter antennas saw service during Field day 2019 and performed well as DX antennas.

The model suggests that the 10 meter antenna may also perform as a NVIS antenna of sorts, but this is currently untested. Until propagation conditions improve, this is not a very practical application.

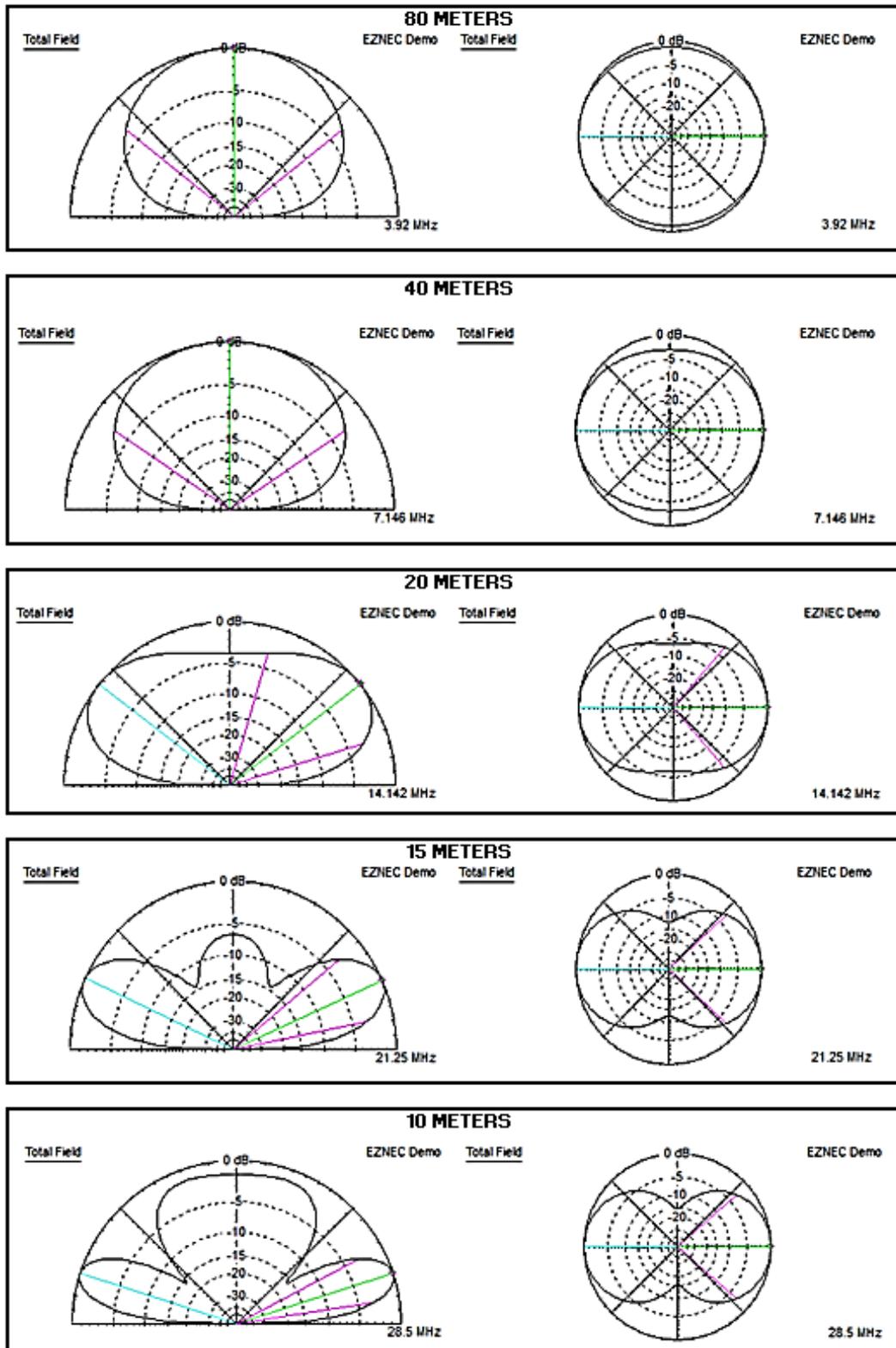


Figure 6. Elevation and azimuth plots of 80, 40, 20, 15, and 10 meter inverted-V antennas.

The maximum gain and associated take-off angle calculated by the model, as well as the beam width, are provided in the following table.

Antenna Characteristics by Band

| Band | Gain, dBi | Take-off Angle, degrees | Beam Width, degrees |
|------|-----------|-------------------------|---------------------|
| 80 | 6.7 | 90 | 103 |
| 40 | 5.7 | 90 | 113. |
| 20 | 6.0 | 38 | 57 |
| 15 | 7.7 | 24 | 28 |
| 10 | 7.0 | 18 | 19 |

Modeling shows that the take-off angle decreases as frequency increases, while gain is not significantly affected by frequency.

PERFORMANCE

The antenna has been used on several Parks On The Air (POTA) activations and during the ARRL 2019 Field Day (FD) event with good results. Operational conditions have varied during these events, most notable the power used. Figure 7 shows plots of grid squares worked on various bands during POTA and FD events using either 10 watts (POTA) or 5 watts (FD) of power from an Elecraft KX2 (the antenna has also been used on POTA activations with a small 40-watt amplifier; those QSOs are not included in this analysis). The 95 contacts plotted in Figure 7 were made with the antenna oriented east to west. A few grid squares represent more than one QSO.

There is a strong correlation between the antenna performance predicted by the EZNEC models and the field-tested QSOs. 80 meter contacts are limited to a few hundred miles, but are possible over very short distances also – the antenna has been used several times to communicate over a distance of a dozen miles. Contacts on the higher bands are generally at greater distance, as is expected with the lower take-off angles on those bands.



A. 80 meters



B. 40 meters



C. 20 meters



D. 15 meters



E. 10 meters

Figure 7. Grid squares worked from Orange and Crawford Counties, Indiana, by band.

CONCLUSIONS

The inverted-V linked-dipole antenna performs well as a multi-purpose antenna. When propagation conditions allow, it can be used on low bands as an NVIS antenna, and on higher bands as a DX antenna. When erected using a 28 ft mast mounted on a simple tripod and staked to the ground, it is quick and easy to deploy and redeploy. The lightweight materials used to build the antenna reduce its bulk and weight and make it viable for not only vehicle-based portable operations, but also hiking and backpacking use. The antenna is relatively inexpensive to construct, but does require care and attention to detail during tuning. One should set aside a day to complete the project. Once built, it is a superbly-performing QRP multi-band portable antenna.



LOOKING AHEAD

The author is planning the construction of another inverted-V linked-dipole antenna with similar characteristics, but utilizing single-pole single-throw micro switches for the links.

Richard B. Hockett K9RBH, Firefly #20

Review of the LD-5 HF Transceiver

Written by James Hannibal KH2SR, Firefly #76

The LD-5 made in USA, by LNR Precision Inc. is an amazing little QRP 5 band SSB/CW Amateur Radio Transceiver that's small and light enough to fit in just about any backpack, thus making this one of the most portable SSB multi-band HF rigs currently on the market. Not only is the LD-5 small in size at 4.724"L X 3.937"W x 1.957"H, it is also very lightweight, weighing in at only 1.19 pounds (without microphone, antenna, or battery).



The LD-5 covers the following HF ham radio bands: 40m, 30m, 20m, 17m, & 15m. One of the features of the LD-5 I have really enjoyed is how each of the 5 bands has its own independent dual VFO. This really comes in handy when switching back and forth between bands/frequencies and really sped up operations for me compared to other QRP rigs I have used. I found the receiver to be exceptionally sensitive and able to pick up the weakest of signals.



There are a few features that you typically wouldn't find on most QRP HF rigs that the LD-5 has, such as CW/SSB VOX, noise blanker, notch filter, noise reduction, PRF/ATT (Pre Amp/Attenuator) and even speech compression. Based on my testing, I found all of these features extremely effective at improving my ability to hear and be heard by other hams. I am convinced that several of the contacts I made would have been impossible if I didn't utilize the various filtering, noise reduction, and speech compression capabilities that are built into this amazing little radio. As far as I know, the LD-5 is the only 5 band QRP SSB HF ham radio with all these features that is sold new for under \$600.

The LD-5 is capable of much more than just SSB and CW. It is also capable of various digital modes such as PSK, RTTY, SSTV, and even HF APRS when used with the proper TNC/modem and computer with sound card. The menu system contains nearly two dozen settings that allow you to custom tailor the LD-5 to suite your specific needs and preferences. Luckily, there are also 13 buttons and 2 knobs on the LD-5 that allow you to manipulate many features without diving into the menu system. The tuning knob also has a really good sturdy feel and smooth movement while tuning. I especially enjoyed the bright and high contrast display with its power saving auto off feature for the backlight.

You might not realize it when looking at it but the LD-5 is actually an SDR (Software Defined Radio) with a software platform that was created exclusively for the LD-5. It uses only one Kenwood driver for CAT system fast connectivity. In the slideshow of this article, I have include a diagram that LNR shared with me which illustrates how this system works. When I asked LNR for more details on this being an SDR, they quickly gave me the following very detailed response:



“It combines a powerful low internal noise schematic of a DSP and a special differential algorithm is applied for IQ processing of the channels with phase suppression of the unwanted side-band channel. Balancing ADC and DAC gives additional noise floor reduction and the receiver can handle interfering signals that are 100 dB stronger than the desired signal at a frequency separation of 10 kHz, and is about 130 dB stronger at 50 kHz separation. As the receiver and transmitter are using the same DSP channel, there is no gap between the receiver performance and the transmitter performance. So, there is a clean neighborhood on the bands. At the development stage, our intentions were motivated by the TX sideband noise of existing SDR manufacturers, so our aim was, to fully equalize our transmitter to have noise performance that is compatible with the best modern receivers, or even better. After an arduous year of development , we think we achieved it.”



A nice assortment of input and output ports allow you to widely customize the way you use the LD-5. These include jacks for: line in/out, phone out (headphones/speaker), mic in, key (CW straight key or iambic paddles), PTT out, BNC antenna connector, 12 volt DC power input, and even a USB/CAT port. The built-in USB port is another stand out feature on the LD-5. Not only will the USB port allow you to update the radios firmware, it will also allow you to interface the LD-5 radio with your computer, which allows you to use Mac/PC ham radio software programs such as N1MM, MiXW, Fldigi, and more.





During my field testing of the LD-5, I brought it along on a road trip up and down the California, Oregon, & Washington coastline. When stopped long enough, I would set up the EFT-MTR 40m/30m/20m 65' QRP End Fed antenna made by LNR. On one occasion, I was fortunate enough to stay on the second floor of a bed and breakfast situated on a hill. This allowed me to drape the 65' EFT-MTR End Fed antenna out the window and down the roofline in somewhat of a sloper configuration, which worked quite well with the LD-5.

During shorter stops at various beaches and state parks along the coast, I set up the LD-5 with my "Wonder Wand" and "Miracle Whip" antennas, which sets up in seconds, packs up small enough for most backpacks, and doesn't require any masts, ropes, tripods, clamps or long wire. Both are all band 52" vertical telescopic whip antennas with a built-in dial for tuning to each band. These antennas work fairly good with the LD-5 and I have been able to make contact with hams that were within a couple hundred miles away while using them.



During another trip, I used the same 65' End Fed EFT-MTR from LNR in a sloper configuration with a 22' collapsible fiberglass mast while camping on a beach near Santa Cruz, CA. With that particular setup, I made SSB contacts on 20m & 40m at 573 miles into Oregon, 676 miles into Washington State, 202 miles into Nevada, 657 miles into Idaho, and 860 miles into Montana. With each of these contacts, I was only using 4 Watts of RF power output.

A couple of my longer distance SSB contacts using the LD-5 included several different contacts that were 1,352 miles away in Kansas on 20 meters while using only 5 watts. My longest distance contact with the LD-5 so far was a 2,349 mile contact on the 15 meter band made to New York, again with only 5 watts of output power. The antenna I utilized to make these contacts is my Carolina Windom 40 off center fed dipole, which is up around 30 something feet off the ground in an inverted V configuration.

The LD-5 is known for being able to make much long range contacts than I have made with it so far. For example, my contact at LNR Precision Inc. informed me that while conducting a demo of the LD-5 at the Huntsville, AL Hamfest this year, a customer made contact with a fellow ham operator located on Rodrigues Island in the Indian Ocean while using a simple 20 meter end fed antenna oriented vertically which is made by LNR. That's an impressive 10,330 miles! Not too shabby for a 5 watt radio the can fit inside a kid's lunch box.

As far as the performance of the included microphone is concerned, I think it works great. It produces clean and clear audio without any noticeable over modulation, even when talking quite loud into it. A small speaker is built into the right side panel of the radio. The speaker produces decently clean audio but is a little on the weak side when it comes to audio volume output, especially when there are background noises such as road noise, wind, or waves breaking on a nearby beach. If you are in a nice quiet spot, the speaker works great, but if there is any background noise, I recommend using headphones or an external amplified speaker.

Even though the included mic works great, in my opinion, it's not the best fit for this radio. Considering this radio is designed to be compact for portable use such as backpacking, I find it odd to include a microphone that takes up nearly the same amount of space as the radio itself when packed. Luckily, the included mic can be unplugged and replaced with whatever kind of mic you prefer to use. I plan on modifying a MFJ-285 mini HT speaker microphone to work with the LD-5. These little inexpensive HT mic's are roughly 1/4 the size of the included mic and might be better suited for QRP backpackers with limited room in their packs.

A power plug and cable with bare ends is also included for you to connect to the battery or power supply of your choice. The LD-5 is designed to be powered from 10.5 volts to 15 volts DC. I happened to have 2 fairly compact 12 volt batteries on hand. One is a SLA (Sealed Lead Acid), the other is a LiPo (Lithium Polymer). The LD-5 worked flawlessly with both types of batteries. If you plan on carrying this radio around in a backpack, I highly recommend going with a small 12v lithium battery since they weigh around 1/3 the weight when compared to an SLA battery of comparable power capacity. You might also want to consider a small lightweight folding solar panel so you can keep your battery topped off when operating from the great outdoors.

I was fortunate enough to have a spare small waterproof foam padded hard case that is not much bigger than the LD-5. There was just enough room in the case to also cram in a lithium battery, power cable, mini straight key, headphones, counterpoise, small logbook, mini pencil, and a printout of the ARRL band plan for good measure. This allowed me to pack the LD-5 into a backpack and hit the trail without worrying about it getting banged up against my other gear. Protective cases such as this are in my opinion a necessity and can be easily found in a wide variety of local and online stores.



One of the really nice finishing touches on the LD-5 isn't high tech at all. It's the little fold out legs that allow you to conveniently prop up the radio at a much more comfortable viewing angle. So many QRP radios and kits out there just don't come with a stand/foot and it can really impede your ability to use the radio. To me, this simple feature is the icing on the cake for this radio, making it a real pleasure to use.

I have used several different portable HF QRP rigs now and even built a few myself. Out of all of them, the LD-5 from LNR is by far my favorite. I found its ability to filter noise and pick out those weak signals very impressive. It has tons of great features, quick to setup, easy to operate, reliable, and just plain fun. Its compact size and lightweight construction make it an ideal radio for portable operations such as camping or backpacking. I can tell that LNR takes great pride in their work based on the build quality of their products as well as their staffs willingness to happily help you out with any questions or problems you might possibly encounter.

I highly recommend this radio for anyone who is interested in operating portable QRP in the great outdoors without breaking the bank.

Made in USA

Price: \$575

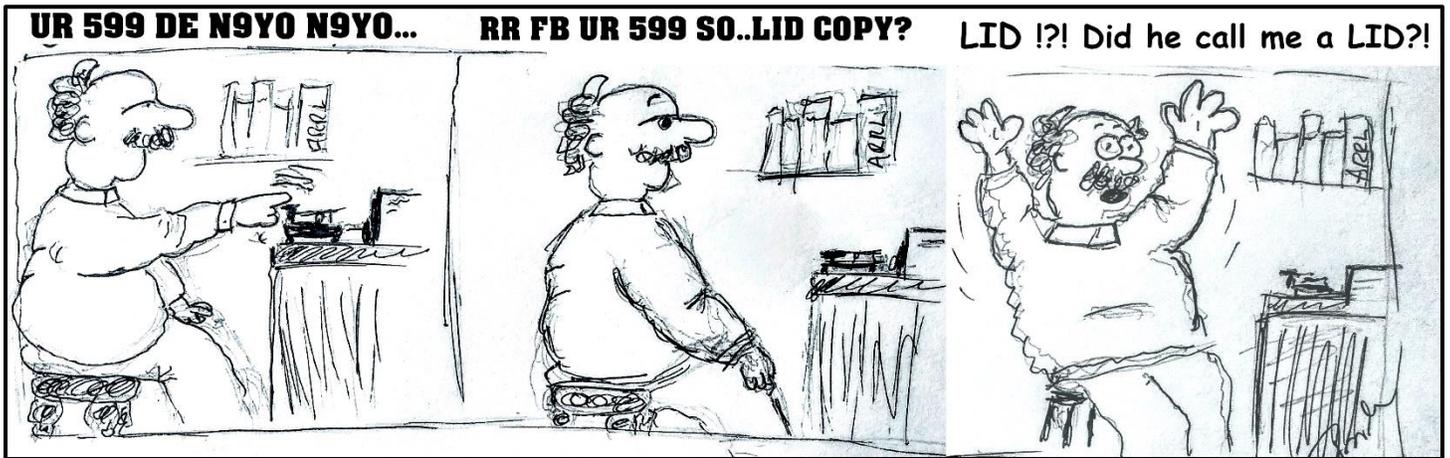
For more info, please visit the following website:
www.lnrprecision.com

James Hannibal KH2SR,
Firefly # 76



QRP Funnies

Hamtoons by Tom Newcomb N9YO, Firefly #150



You can find N9YO on YouTube at Ham Radio CQ and also on Twitter @HamRadioCQ

Do you have something funny to share in our newsletter? Send it to firefliesqrp@gmail.com

QRP Sprints and Contest

4 State QRP Club Second Sunday Sprint

This QRP sprint occurs monthly on the second Sunday of each month

For more information visit www.4sgrp.com

NAQCC Monthly QRP Sprint

This QRP sprint occurs monthly on the third Wednesday during the months of Jan, Mar, May, Jul, Sep & Nov and the second Tuesday during the months of Feb, Apr, Jun, Aug, Oct & Dec

For more information visit www.naqcc.info

Flying Pigs QRP Run for the Bacon

This QRP sprint occurs monthly on the third Sunday of each month

For more information visit www.fpgrp.org

If you have a contest or sprint you would like to add to our list, please email the information to us at firefliesgrp@gmail.com

Thank you for reading!

Email Reflector/Group

We have an email reflector/group setup with groups.io ... simply do a search for "FirefliesQRP" or email us at firefliesqrp@gmail.com for an invitation to join.

Follow us on Twitter

Are you a tweeter? ☺ Follow us on Twitter @firefliesQRP

Weekly QRP Net

Please join us every Sunday night at 7:55pm as we host the Fireflies QRP and Roundtable net. We hold the net on the KO9F 147.165 +600 kHz repeater, no PL tone needed.

Share your adventure

Do you have a QRP related story to share in our newsletter? Please send all stories to firefliesqrp@gmail.com and don't forget to include lots of photos.

Subscribe/Unsubscribe

If you would like to subscribe or unsubscribe to this monthly email newsletter simply email us at firefliesqrp@gmail.com and include the word subscribe or unsubscribe in the body of your email.

Until next month, 72 de Mike NR9R Firefly #2

