

# W9JOZ

Volume 8, Issue 8

August 2018

## Next Meeting is August 16, 2018

Weekly 2 meter Net

Once again we are having the Saturday Night Net at 8:00 pm on the 145.410 repeater.

We have been only having about 5 or 6 checking in to the net.

Hope you can check in and join us for some good conversation.

Foxhunt is August 19th.

Thanks  
John W3ML



Meetings are at the Henry F. Schricker Library on the third Thursday of each month, with the exception of December.

The library is located on west Culver Road, two blocks west of Highway 35.



Are you on the air?

Richard, K9QA is an official ARRL DXCC Card Checker. Contact him at [k9qa@arrl.net](mailto:k9qa@arrl.net) to have your cards checked.

DX Century Club

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## August Events

### Birthdays

11th - K9ILU Richard

**Starke County Amateur Radio Club Weekly 2 Meter Net will be on each Saturday at 8:00 p.m. Central time.**

DAY OF WEEK: Saturday 8:00 p.m. Central time

HOST: KN9OX Repeater

FREQUENCY: 145.410 - 600

PL TONE: 131.8

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## Fox Hunts

**Next Fox Hunt is scheduled for August 19th**

**Foxhunts are the third Sunday of each month.**

**Miles and a two-hour time limit**

**Meet at 1:00 CST at the Sandy Acres Park on the south end of Knox.**

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### News Items Listed

**See all the For Sale Items at**

**[www.w9joz.org/forsale.htm](http://www.w9joz.org/forsale.htm)**

**There are a lot of them there.**

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# Get your free copy of *A Field Guide to Simple HF Dipoles*

by Dan Romanchik, KB6NU

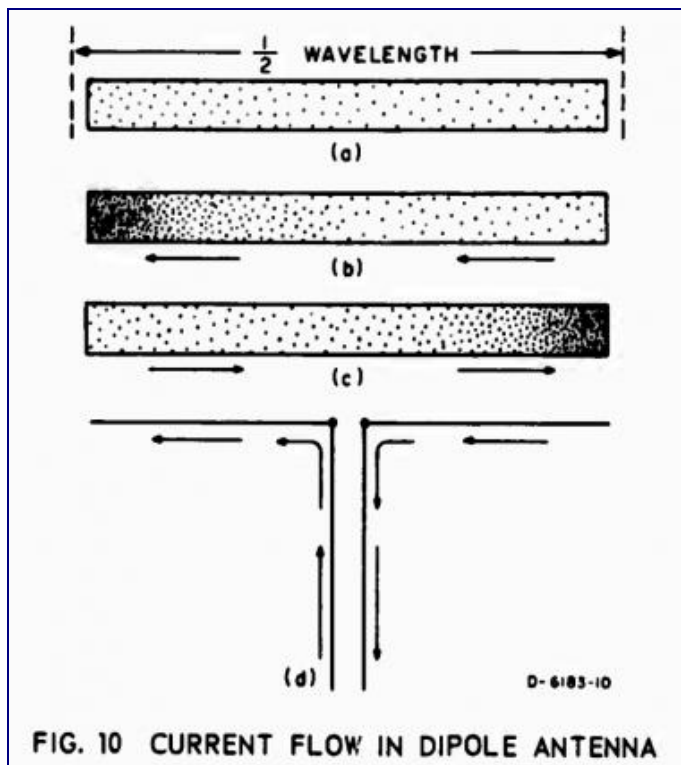
A link to *A Field Guide to Simple HF Dipoles* (<http://www.dtic.mil/dtic/tr/fulltext/u2/684938.pdf>) was posted to reddit recently, and I liked this document so much that I thought I would share it with you. It was originally written for the military, but is now available for free from the Defense Technical Information Center.

The preface to this document reads:

“Under project Agile, Stanford Research Institute has supplied several teams to assist operating personnel in improving the performance of field radio networks. In this work, it has been observed that U.S. military and civilian antenna manuals often contain misleading information regarding the operation of field antennas and tend to be overly complex. Consequently, this guide has been prepared to assist in training personnel concerned with the construction of simple HF antennas in the field.”

I must say that *A Field Guide to Simple HF Dipoles* does this very well. It not only explains how dipole antennas work, it also does a very good job of describing the basics of radio waves and propagation. And it does this without getting overly technical.

For example, below is Figure 10. It's used to describe current flow in a dipole antenna.



The *Field Guide* reads:

“Electric current in a conductor consists of the flow of small particles called electrons. Figure 10(a) represents a dipole with electrons in it. When the transmitter is turned off, the electrons distribute themselves evenly throughout the dipole, as shown. All electrons repel each other and try to get as far from each other as possible; that is how they achieve the uniform distribution shown in Figure 10(a). When the transmitter is turned on, the electrons flow back and forth from end to end as shown in Figures 10(b) and 10(c). First the electrons flow to the left and crowded

at one end as shown in Figure 10(b). Second, since the electrons repel each other, they push off to the right and get crowded together at the other end, as in Figure 10(c).”

It then uses this description to talk about voltage and current distribution along a dipole antenna:

“The difference between voltage (volts) and current (amperes) in a dipole is also illustrated by Figs. 10(b) and 10(c). You can see that the maximum flow of current is going to be in the middle of the dipole. An observer at the center of the dipole would see the electrons rush past, first one way and then the other. The center is the maximum current point. Very little current flows near the end of the dipole; in fact, at the extreme ends there is no current at all for there is no place for it to go. However, at the ends of the dipole, there is a great change of voltage; when the electrons are densely packed, this represents a negative voltage, and when there is a scarcity of electrons, it represents a positive voltage. Thus you can see that the voltage at each end swings alternately positive and negative. An end of the dipole is a maximum voltage point.”

A Field Guide to Simple HF Dipoles is packed with all kinds of goodies like this. Download it <http://www.dtic.mil/dtic/tr/fulltext/u2/684938.pdf> right now.

When he's not building dipoles or teaching ham radio classes, Dan blogs about amateur radio, writes exam study guides ([www.kb6nu.com/study-guides](http://www.kb6nu.com/study-guides)), and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him about your experiences with simple HF dipoles at [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).

**NOTE: You may have to copy and paste the link for the pdf Field Guide to open.**

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## Need More Amps? Let's Talk about it.

By Steve Mollman- KD9HL

Recently on the Elecraft Reflector a member wrote that he had just purchased a new rig, automatic tuner, etc. Apparently he had just made a massive upgrade to his station. His questions to the reflector membership concerned the adequacy of the residence's wiring for the new equipment. “*Will 15A house line supply enough juice?*” and “*If not can I get away with replacing the breaker with a 20A breaker? 30A?*” That second question is a scary one!

The short answer is Yes, No, and Maybe!

**“Will 15A house line supply enough juice?”**

A **Yes** answer because in this case a review of the sum of the power requirements of the equipment he listed revealed that less than 15 amps was needed. No upgrade to a 20 amp or 30 amp circuit was required. (The entire setup would draw less than 10 amps at full power. Look at the manufacturer's specs for each piece of equipment for this information.)

**“If not, can I get away with replacing the breaker with a 20A breaker? 30A?”**

A **No** answer is because most often 15 amp circuits are #14 wire. This is the minimum size wire for this capacity circuit. To increase the breaker to a 20 amp or 30 amp is courting a potential fire.

A **Maybe** answer is because **if ALL the wiring** from the breaker to the receptacle is #12 wire or larger it is acceptable to use a 20 amp breaker. **If ALL of the wiring** is #10 or larger it is acceptable to use a 30 amp breaker. **These scenarios are unlikely.**

The breaker is there for safety and to protect the circuit and is sized according to the wire. Do not increase the size of the breaker without verifying what the wire gauge is. Quite likely if the breaker is now 15 amp the wire is probably #14. This is common in residential situations. Increasing the breaker will create a fire hazard. Another factor in determining whether that circuit is sufficient, depends on the length of the run as well as the size of the wire. Smaller wire and longer runs will have more voltage drop which is not good.

The National Electrical Code (NEC) maximum conductor voltage drop allowed for both feeder and branch circuits combined is 5 % of the voltage source. Typically, 3% or less is the recommended level for efficient operation of equipment. An on-line calculator of voltage drop can be found at:

<http://www.calculator.net/voltage-drop-calculator.html?material=copper&wiresize=8.286&voltage=120&phase=ac&noofconductor=1&distance=100&distanceunit=feet&amperes=15&x=87&y=26>

If there's an electrical fire and it is discovered a 20 amp breaker was installed with 14 Gauge wire, your fire insurance may become "non-applicableus". That's slang Latin for "You're screwed".



For more information on what is safe and acceptable see the National Electrical Code (NEC) issued by the National Fire Protection Association. It is available in many libraries and on line at:

<https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=70>

There is probably more information on proper and safe wiring practices in the NEC than you want to know, but the NEC way is the best way.



9V1YC has produced a video on the KH1/KH7Z Baker Island operation. N6TV describes it as "short and stunning... professional." It is 2-1/2 minutes long. <https://vimeo.com/281933500>. A longer video will not be forthcoming. This is it.

## FT8 for DX. The possibilities.

Looking at the glass as half full, I would encourage use of FT8 mode for those looking for DX entities or DXCC, not only on HF, but also on VHF Six Meters (6m). Having chased the rare ones for over 50 years, the few that got away have resurfaced in recent months as FT8 signals. Three recent cases in point:

1.. The rare VK0AI, on Maquarie Island, a DXCC entity with currently one on-island operator. The station operates almost exclusively FT8 these past weeks.

2.. The rare KH1 Baker Island DXCC entity, mentioned previously on this thread, and whose expedition FT8 contacts last month numbered over 16,000. This FT8 mode and its special DX'pedition adaptations allows a multitude of QSOs over a very short period of time. DX'peditions in future years will be relying on it. For the KH1 numbers, please see <https://clublog.org/charts/?c=KH1/KH7Z#r>

3. Six Meters. If you're looking for DXCC on a new band, don't give up on 6m using FT8. Two local club members hopped on 6m FT8 last year, and their DXCC rosters are both above 50 stations confirmed. So far. The openings to Europe from North America are particularly busy over the weekends. Making a three element Yagi beam and mounting it on the roof, or on an aluminum pole, up six meters off the ground, is not that problematic, at least in some (certainly not all) cases. Put a tilt pole next to it, and it'll swing down at night if you have to please the neighborhood. Some current estimates suggest that 90 percent of the contacts being made on 6m are with FT8 mode. Here's a fun PSKreporter FT8 reception report link to underline the point :

<https://pskreporter.info/pskmap.html?preset&callsign=w2or&txrx=tx&mode=FT8&band=31000000-55000000&timerange=3600&hideunrec=1&hidepink=1&hidelight=1&hidelines=1#>

Enjoy the hobby, good hunting, and 73, de Mark w2or

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### FCC Proposes \$18,000 Fine in Louisiana Amateur Radio Interference Case

July 25, 2018

The FCC has issued a *Notice of Apparent Liability (NAL)* proposing to fine Jerry W. Materne, KC5CSG, of Lake Charles, Louisiana, \$18,000 “for apparently causing intentional interference and for apparently failing to provide station identification on amateur radio frequencies,” the FCC said.

“Mr. Materne was previously warned regarding this behavior in writing by the Enforcement Bureau and, given his history as a repeat offender, these apparent violations warrant a significant penalty,” the FCC said in the *NAL*, released on July 25.

In 2017, the FCC received numerous complaints alleging that Materne was causing interference to the W5BII repeater, preventing other amateur licensees from using it. In March 2017, the repeater trustee banned Materne from using the repeater.

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Responding to some of the complaints, the Enforcement Bureau issued a *Letter of Inquiry (LOI)*, advising Materne of the allegations and directing him to address them. Materne denied causing interference but admitted to operating simplex on the repeater's output frequency. In June 2017, the FCC received an additional complaint alleging that Materne had repeatedly interfered with an attempted emergency net that was called up as Tropical Storm Cindy was about to make landfall. The complaint maintained that Materne "repeatedly transmitted on the repeater's input frequency, hindering the local emergency net's ability to coordinate weather warnings and alerts on behalf of the National Weather Service," the FCC said in the *NAL*.

Local amateurs were able to track the interfering signal to Materne's residence and confirmed their findings to the FCC, prompting a *Warning Letter* advising Materne of the complaint and pointing out that his behavior "as described in the complaint would be a violation of Section 97.101(d) of the Commission's rules." Materne responded to the *Warning Letter* to argue that it was legal to transmit on the repeater's output frequency, further stating that "he was tired of this trash harassing me," the FCC said.

In the wake of further complaints, FCC agents visited Lake Charles, tracked transmissions on 146.130 MHz to Materne's residence, and monitored them for up to 7 hours. The agent reported hearing Materne "playing music on 146.130 MHz and warning other amateur operators that the local Amateur Radio club would not be able to conduct their net later that day."

That evening, the agent watched as Materne drove to a location near the W5BII repeater, where, the agent said, Materne "began transmitting an amateur digital radio signal from a hand-held radio in his vehicle," disrupting the net and failing to identify. Subsequently, the agent, accompanied by a deputy from the Calcasieu Parish Sheriff's Office, approached Materne's vehicle and confirmed that he possessed a radio capable of operating on 146.130 MHz. "Audio recordings captured by the agent demonstrate that the intentional interference ceased as the agent and the Sheriff's deputy approached Mr. Materne's vehicle," the FCC said in the *NAL*.

The FCC said that based on the evidence before it, Materne "apparently willfully violated Section 333 of the Act and Section 97.101(d) of the Commission's rules by intentionally interfering with other licensed amateur communications," and that he "apparently willfully violated Section 97.119(a) of the Commission's rules by failing to transmit his assigned call sign."

"[W]e find that Mr. Materne's apparent repeated, intentional, and egregious apparent violations of Section 333 of the Act and Section 97.101(d) of the Commission's rules warrant an upward adjustment of \$10,000 to the proposed forfeiture," the FCC said. "In applying the applicable statutory factors, we also consider whether there is any basis for a downward adjustment of the proposed forfeiture. Here, we find none."

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# Handy Hint

## De-Magnetize Tools

By Steve Mollman-KD9HL

Somehow a screwdriver or other small tool has become magnetized. This is usually not a good thing as the magnetized tool can damage sensitive electronic parts such as semi-conductors and even wipe the memory from a computer disk or thumb drive.

A simple way to de-magnetize a small tool is to use your soldering gun. Turn on the gun, then pass the tool slowly between the two legs of the tip. Within seconds the tool is de-magnetized!



**A Philips Head Screwdriver being de-magnetized with a Soldering Gun**

The process that occurs is called “degaussing”, which is named after the gauss, a unit of magnetism, which in turn was named after Carl Friedrich Gauss (1777-1855), a German mathematician and physicist who made significant contributions to many disciplines, including magnetic fields.

The most common use of degaussing is in CRT-based TV sets and computer monitors. Strong external fields produce discoloration and distortion on the display by imparting an undesired deflection to the electron beam. Degaussing minimizes the magnetic field caused imperfections. The technology is also used to remove magnetic fields from navy ships rendering them less vulnerable to magnetic mines. Of course, these applications don't use a soldering gun!

◀73's and good DX▶



If you have something for the newsletter, please send it to me before the 20th of the month.

See you at a meeting.

73

*John*, W3ML

