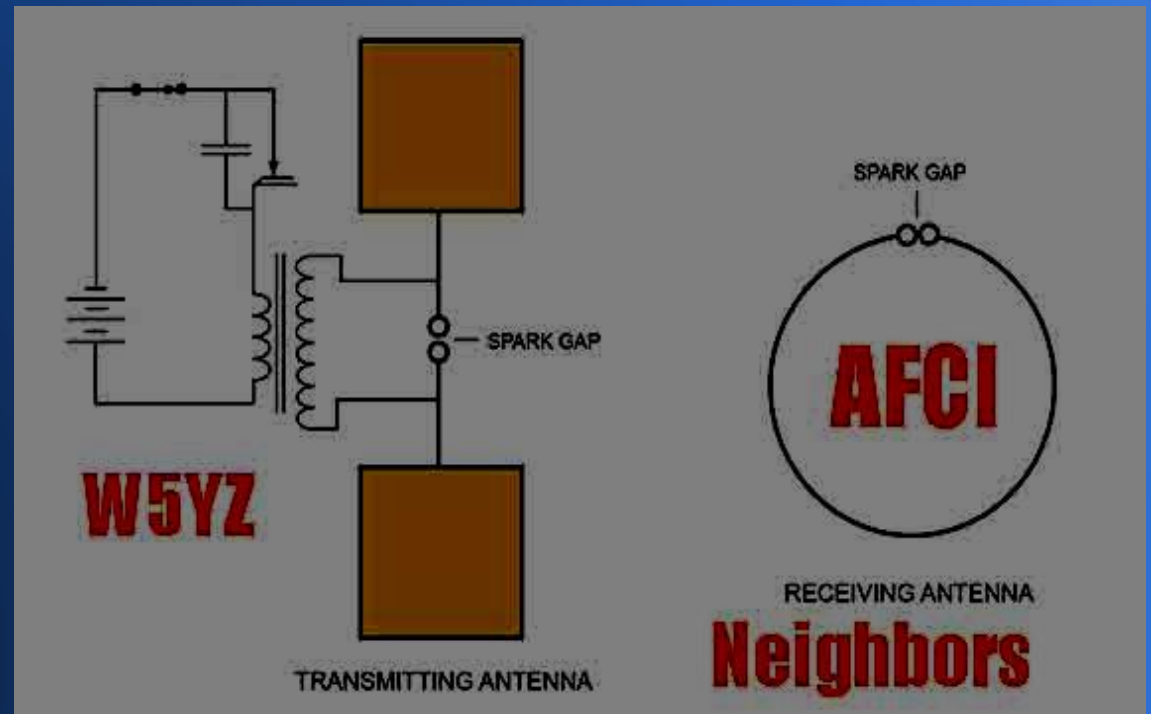
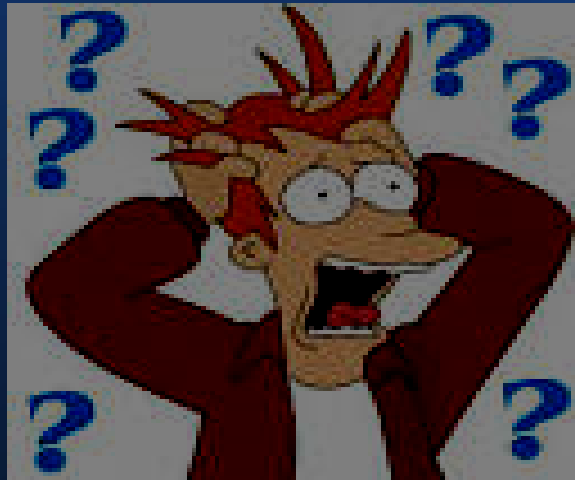


George Key, W5YZ



Murphy's Law

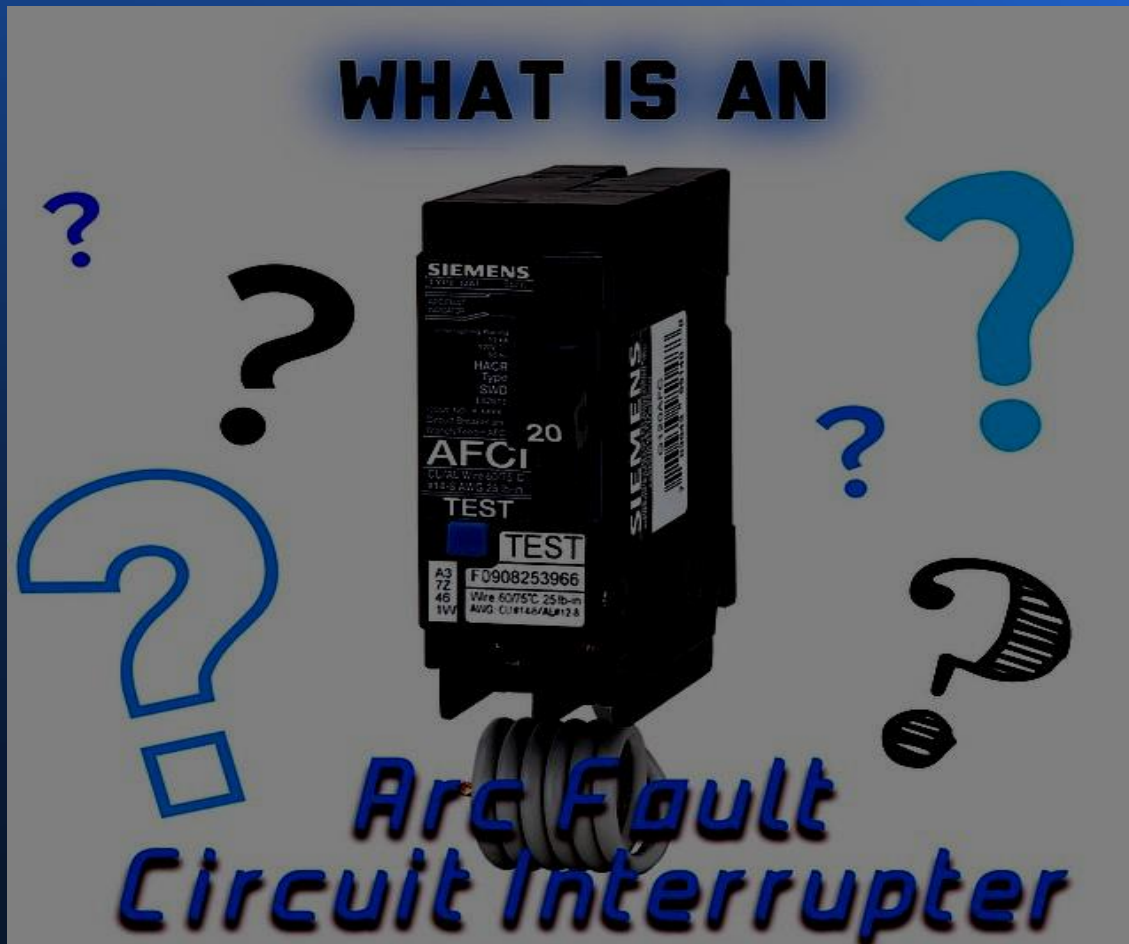
- Every solution creates another set of problems



AFCIs and Ham Radio, What you need to know

- Why do I care?
- Arc Fault Circuit Interrupts (AFCI)
- What are they?
- What do they do?
- Who makes them?
- Who are the “bad actors?”
- Who you gonna call??

AFCIs



What are they??

- They are not GFCIs
- Add protection for Arcing
- Two types of protection
 - Arcing between the “Hot” and Neutral (Parallel)
 - Arcing at connections (Series)
- “Bad Actors” have both (Combination type)
- Mandated by the code

Who makes them?

- Eaton Corporation (Cutler-Hammer)
- Square D
- Siemens
- Several others
- We are only concerned with the Eaton AFCIs
- Others don't seem to malfunction

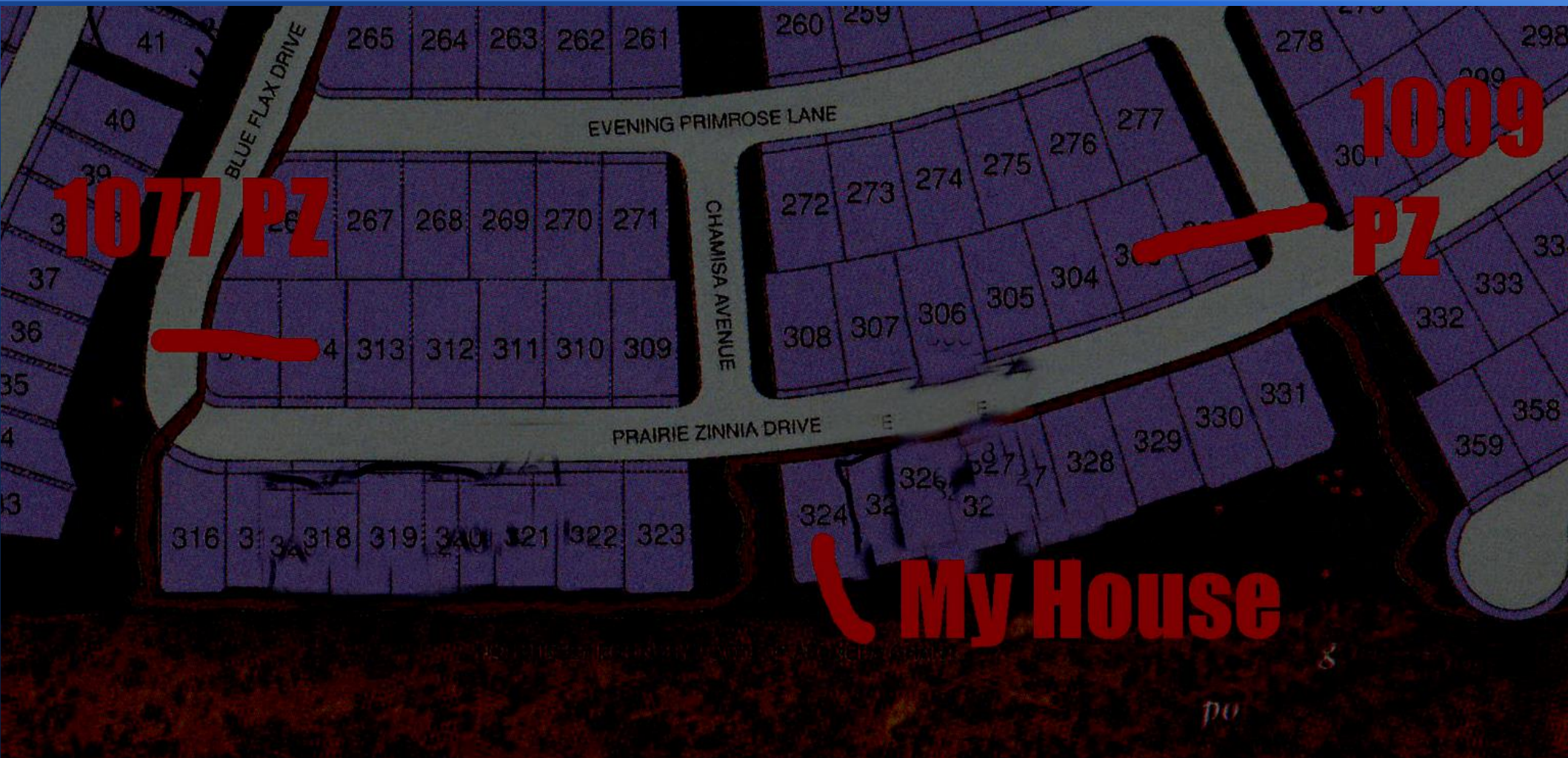
Where are they NOT required?

As of the 2014 version of the NEC, combination type AFCI circuit breakers are required on all branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, or similar rooms or areas. They are also required in dormitory units.

Wht should I care?

- If you move into a house built after 2007, you and your neighbors probably have the bad AFCIs.
- When you get on HF, you will probably trip your and your neighbors breakers.
- If you move into a house built before 2007, you may or may not trip those breakers.

My location



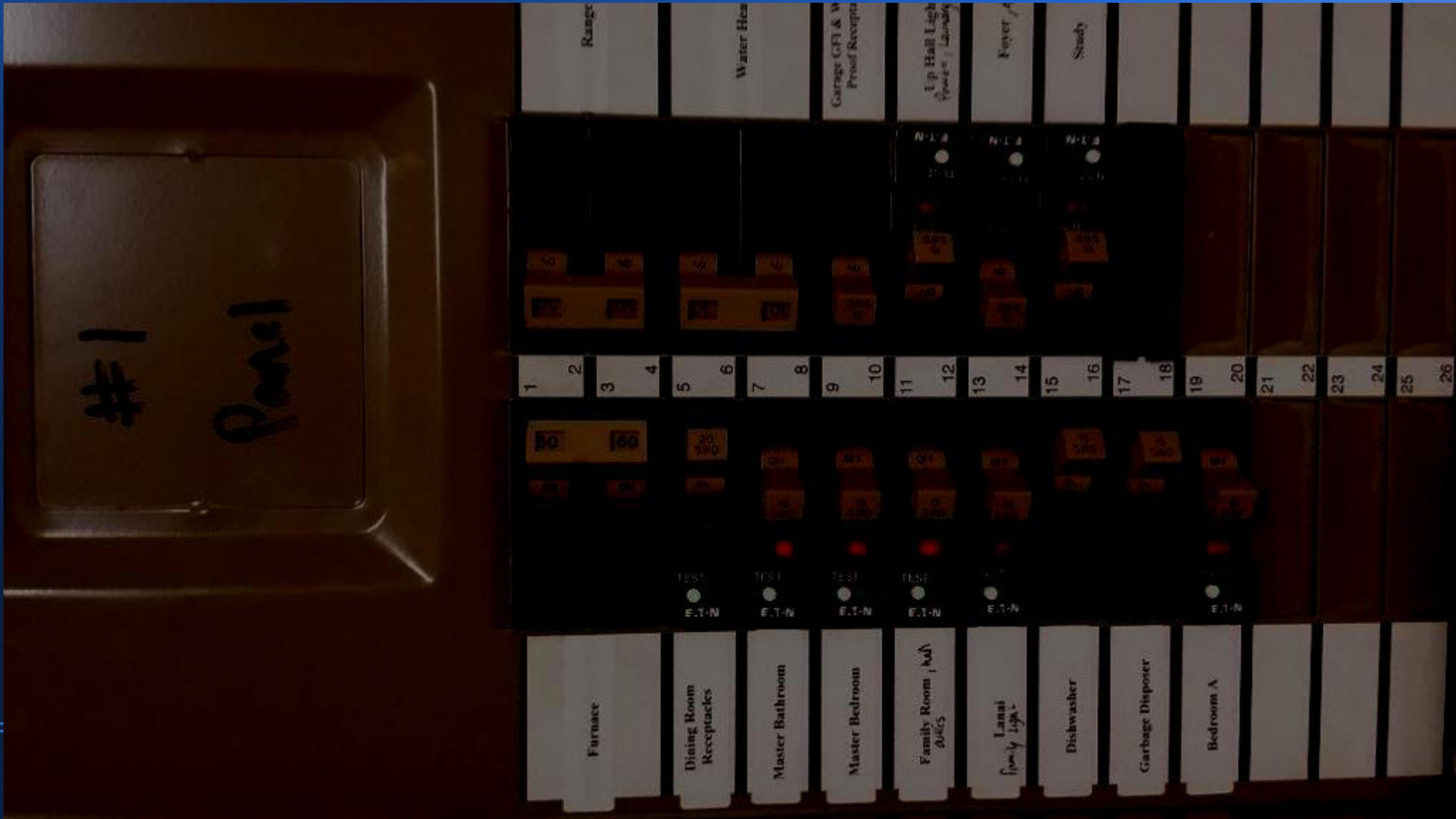
My powerful station



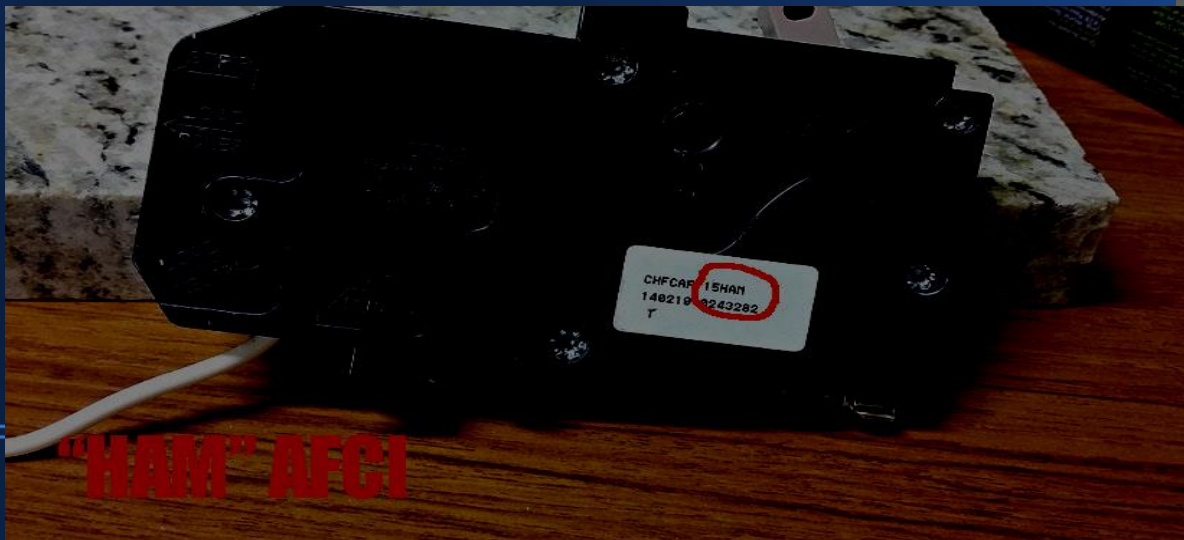
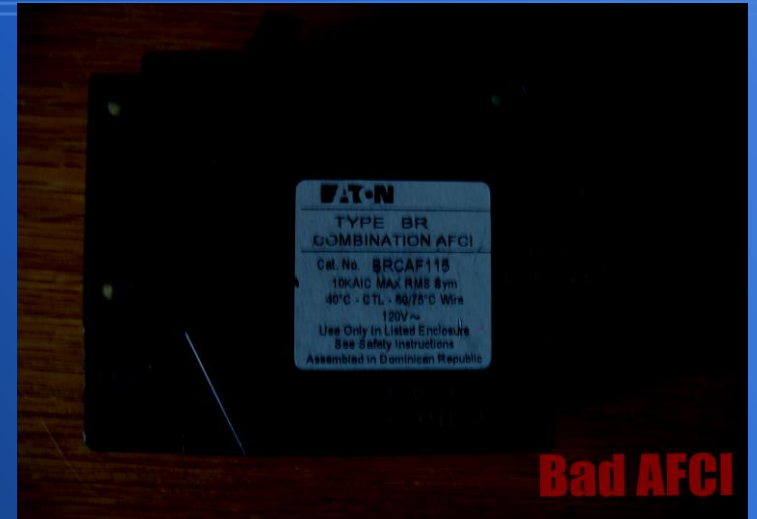
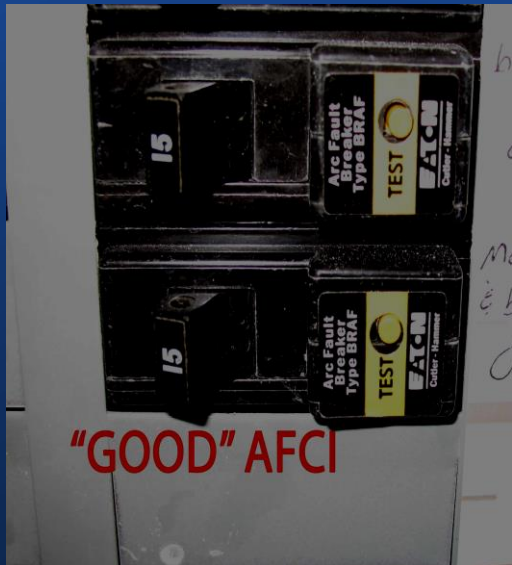
How widespread is the problem?



What do they look like?



What do they look like?



How did I get there?

- My house was built in 2007
- The ARRL decided to celebrate DXCC's 75th anniversary in 2012
- I started using bands I never used before
- When the construction foreman started running around, I got worried!

My approach

Dear neighbor,

As you may know, I've been working to resolve a problem of defective Arc Fault Circuit Interrupts (AFCIs) that were installed in your power box when your house was built. These AFCIs are vulnerable to Radio Frequency Interference (RFI) from various sources including my amateur radio transmissions. Eaton Corporation, AFCI manufacturer, has agreed to replace these at no charge to you. These new breakers should also reduce the incidence of nuisance tripping that is also associated with vacuum cleaners, treadmills and other appliances.

Eaton has tasked XXXX Electric to replace the ones in your box. They will come by at your convenience. You will need to contact them to schedule the replacement. Their phone number is 555-555-5555.

If possible, please let me know when they complete the installation. The AFCIs should have the word "HAM" on the side.

This changeout will take about 45 minutes and you will be without power for that time.

AFCI on the web

- <http://www.eham.net/ehamforum/smf/index.php/topic,96949.630.html>
- Or Google AFCI vs Ham Radio
- If you want to see the video: go to
<https://www.youtube.com/watch?v=JsILD0Fce1s>

Who ya gonna call?

- “AFCI busters”
- Joe Felo of Eaton 412-893-3745
- Your local Eaton Rep (Eaton will supply #)
- ARRL, Mike Gruber (860) 594-0392
- Your Division Director and SCM
- Me?

Blog participants

W4TL GA, I may have to QRT **W5YZ NM**, Took me two years to get it fixed. 14 houses affected.

NM5LS NM, 28 houses affected **W5IV NM**, 4 houses affected

N0UK NC, Apartment 5 watts 17M **W6GX CO** AK2L AZ, New house **W0VTT MN**, New house

KA7KDX UT, Apartment "I never in a million years considered breakers shutting me down".

WA9PIE TX, "This is a bad deal and puts a black eye on ham radio" (Owns Ham Radio Deluxe)

K6NRT CA **KC3RN PA** IA, New House

W3CAT MD **K6NRT CA**, New House WB2MSC NJ, 62 apartments affected. Gave up HF.

W5UV TX, Tripped with mobile rig in his driveway. **WA0VLC IA**, New House

W4LDE GA, Tripped breakers up to 1500 feet away.

VE6CWG ALB, New house **KG7KWG AZ**, New general.

K4WFM FL, Neighbor put in Eaton AFCIs **KD4ES GA**, Tripped his own and neighbors 100 yards away.

N1ADM GA, New general class, tripped on first use. **VA3KBC ONT** AA3SI PA **NR2Z NC**

NP2B FL "20+Hams affected, over 6000 AFCIs replaced. " **WH6FCZ HI**

My Email to ARRL CEO

There are several things the ARRL could do to help:

- 1 Publish the problem again in QST
2. Inform your Division Directors and SCMs to disseminate the information on a regular basis. Disseminate the same information at ARRL conventions.
3. Put together a package that can be informative to the ham and his neighbors when this problem is encountered. This could be online in the form of a brochure. Supply help to those who have landlord problems.
4. Be prepared to provide legal assistance to hams who WILL be sued as a result of tripping someone's refrigerator while they are on vacation or worse still, tripping an AFCI that supplies power to some life support system.
5. Insure that there will ALWAYS be someone at Eaton who will handle this problem at no expense to the ham and affected homeowners. This is a long term problem not something that will go away unless hams stop moving or get a license and discover they have a problem.

Whence the ARRL?

“ I think all of your suggestions are sound. Now we must determine how to implement them.”

(Tom Gallagher – NY2RF Chief Executive Officer)

- “Encouraged but waiting”**