Yankee Clipper Contest Club
Sixth Annual Holiday Lunch & Yankee Swap
December 6, 2015
12:30 to 4:30PM
Auburn Elk's Hall
Auburn, MA

Agenda

- Buffet Lunch
- Call to Order
- Secretary's Report - NJ1F
- Treasurer's Report -N8RA
- Announcements / Motions
- CQWW Scores - W2JU
- VP9I – WA1Z
- YCCC Scholarship – K1KP
- Break/Buy Raffle Tickets!
- New Members
- AFCI's – K1KP
- Headsets – K1VR
- MOAS – K1KP
- Yankee Swap - NJ1F
- Adjourn

Secretary's Report
December 2015

Brian Szewczyk, NJ1F, Secretary

Meeting Minutes

The October 2015 Meeting Minutes were published in the December Scuttlebutt

Did you in the past year

- Get a New Call?
- Move to a New QTH?
- Change Email address?
- Please send an email at Secretary@YCCC.org with updated information

Treasurer's Report
From : September 30, 2015
To : December 3, 2015

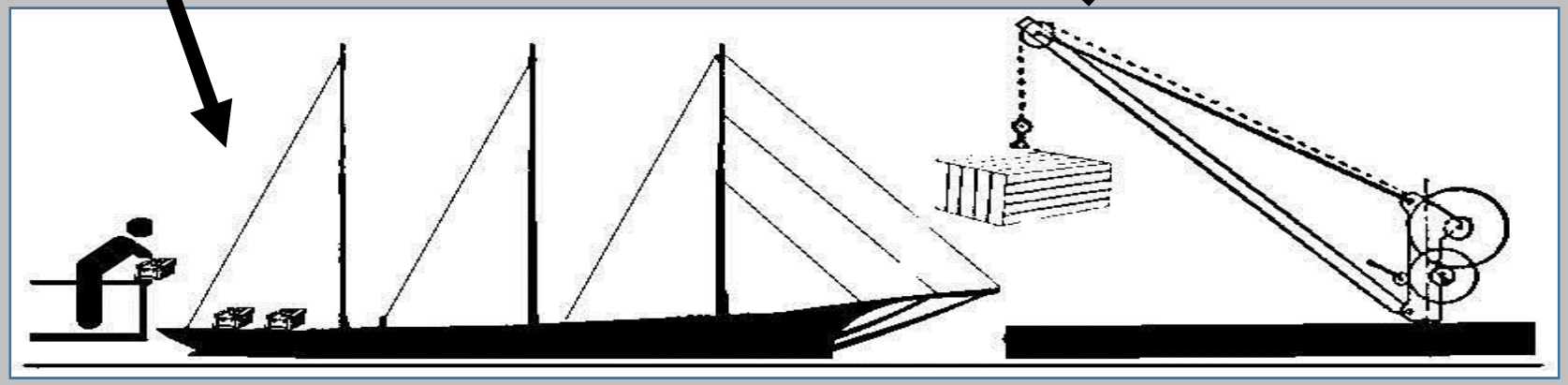
Chet Slabinski, N8RA, Treasurer

Treasury: Sept 30 thru Dec 1, 2015

$ 10,270 (Sept 29) → **Treasury balance** → **$10,549 (Dec 1)**

Dues paid $570
Badges $ 3
Other $ 10
TOTAL PUT ONBOARD $583

Oct meeting room $250
NE conv DX dinner prize $ 39
MA govt annual filing $ 15
TOTAL OFF-LIFTED $304



Next Scholarship Raffle

Tickets: again only $25 each!

K3s-100 kit

ARRL FOUNDATION SCHOLARSHIP

Vote to Approve Reports

Unfinished Business - None

New Business?

Motions:

- WWROF Donation - $1000
- WRTC2018 Donation - $1000 *Matching Gift*

WRTC2018 Donation - $1000 Matching Gift

- YCCC to set aside $1000 as matching gift to WRTC2018
- Matching to be coordinated with WWROF (all US donations go through WWROF anyway)
- YCCC funds to match donations 1:1 made by individuals via WWROF through February 28, 2016 unless extended at the February General Meeting

Announcements

Announcements

- Need ENH/NEMA Area Manager
- Local Meeting – Bloomfield, CT
- W1QSL update

Need Area Manager for ENH/NEMA

- Hold a few Local Meetings around contest season
- Support members' activities: tower raisings, ops & seats, etc.
- Liason between members in area and club

Local Meeting – Bloomfield, CT

- Friday, December 11th
- 12pm lunch
- Carbone's Kitchen in Bloomfield CT
- Topics including post action reports from ARRL Sweepstakes, CQWW-CW and upcoming ARRL 160M contests.

- Email Rich K1IXF at recady@att.net

Score Update
CQWW 2015

Alec W2JU, YCCC Scorekeeper

CLAIMED SCORES

	YCCC		FRC	
SSB	192,777,751	-15%	183,612,381	-14%
2014	225,858,992		212,430,841	
2013	229,697,399		206,985,557	

2015: YCCC ahead by 5%

1 point worse than 2014

6 points worse than 2013

CLAIMED SCORES

	YCCC		FRC	
CW	274,582,877	-20%	252,297,115	-11%
2014	345,018,691	5%	284,276,282	22%
2013	327,818,890		233,695,242	

2015: YCCC ahead by 9%

12 points worse than 2014

31 points worse than 2013

CLAIMED SCORES

	YCCC	FRC
SSB	192,777,751	183,612,381
CW	274,582,877	252,297,115
TOTAL	467,360,628	435,909,496

YCCC ahead by 7%

9 points worse than 2013

LOGS

	YCCC	FRC
SSB	141 (+5)	94 (-1)
CW	146 (+23)	107 (+17)

LOGS/OPERATORS

	YCCC	FRC
SSB	141/176 (=)	94/120 (-14)
CW	146/173 (+24)	107/128 (+9)

YCCC has won 10 of last 13 CQWW

Longest streak: 5

Current streak: 5

2015: 11 of 14 and 6 for 6?

	YCCC	FRC
SSB	192,777,751	183,612,381
CW	274,582,877	252,297,115
TOTAL	467,360,628	435,909,496

THANKS & KB!

VP9I – 2015 CQWW SSB

Multi-Single, Low Power

W6PH and WA1Z

Bob Raymond, WA1Z

VP9I

Low Band Dipoles

Cushcraft A4S

VP9I Multi-Single


VERT
MOSLEY
160
80
40
20
15
10

Contest

Low Bands

160 Meters: 187 QSOs, 7 Zones, 10 DX

- No Europe
- Worked five Zone 3 stations
- VP9/N3AD CQWW CW SOAB(A):
  - 365 QSOs, 16 Zones, 40 DX

80 Meters: 504 QSOs, 15 Zones, 61 DX

- Focused here 1st night
- 90 European QSOs
- Best DX: KH6J

40 Meters: 1,119 QSOs, 25 Zones, 93 DX

- Focused here 2nd night
- 48 Europeans 1st night, 180 Europeans 2nd night
- Best DX: VK6NC

Contest

High Bands

20 Meters: 1,192 QSOs, 32 Zones, 114 DX

- 449 European QSOs
- Best DX: VK6NC

15 Meters: 1,230 QSOs, 31 Zones, 105 DX

- Bad Saturday, Better Sunday
- 511 European QSOs
- Best DX: VK6NC

10 Meters: 539 QSOs, 25 Zones, 93 DX

- Better Saturday, Bad Sunday
- 407 European QSOs
- Best DX: VK6LW

35 Zones Worked – Missed 23, 26, 28, 34, 37

Contest

Better Rate Sunday Daytime

- 179 additional contacts from 1200-2359z on Sunday over Saturday
- We worked more EU on Sunday
- QSO total almost 50/50 both days

DX Cluster Spot Influence on Rate

YCCC Scholarship Raffle Kickoff

Tony Brock-Fisher, K1KP

2016 Scholarship Raffle

Tickets: again only $25 each!

K3s-100 kit

ARRL FOUNDATION

SCHOLARSHIP

YCCC Scholarship Raffle 2016

As an ARRL affiliated club, YCCC supports the ARRL Youth Scholarship program

YCCC raises funds for the program with a raffle – completely separate from YCCC budget, dues, etc.

Chet, N8RA will be selling tickets during the Breaks.

Recent Recipients

2010 - Robert Giuliani, K1RJG

2011 - Forrest Gasdia, AB1LG

2012 - Matthew Williams, W1MAT

2013 – Sam Lapides, KB1TZJ

2014 - Marian Deacutis, KB1YLJ

2015 – Matthew Williams, W1MAT

2016 - ?

Raffle Details

Prize: Elecraft K3s/100 Kit !

Street value $2650 !

Thanks Elecraft for your support!

Tickets are $25 per chance

Tickets ONLY sold at meetings

Drawing at April meeting (assuming enough tickets are sold)

How Cool would it be to Win?

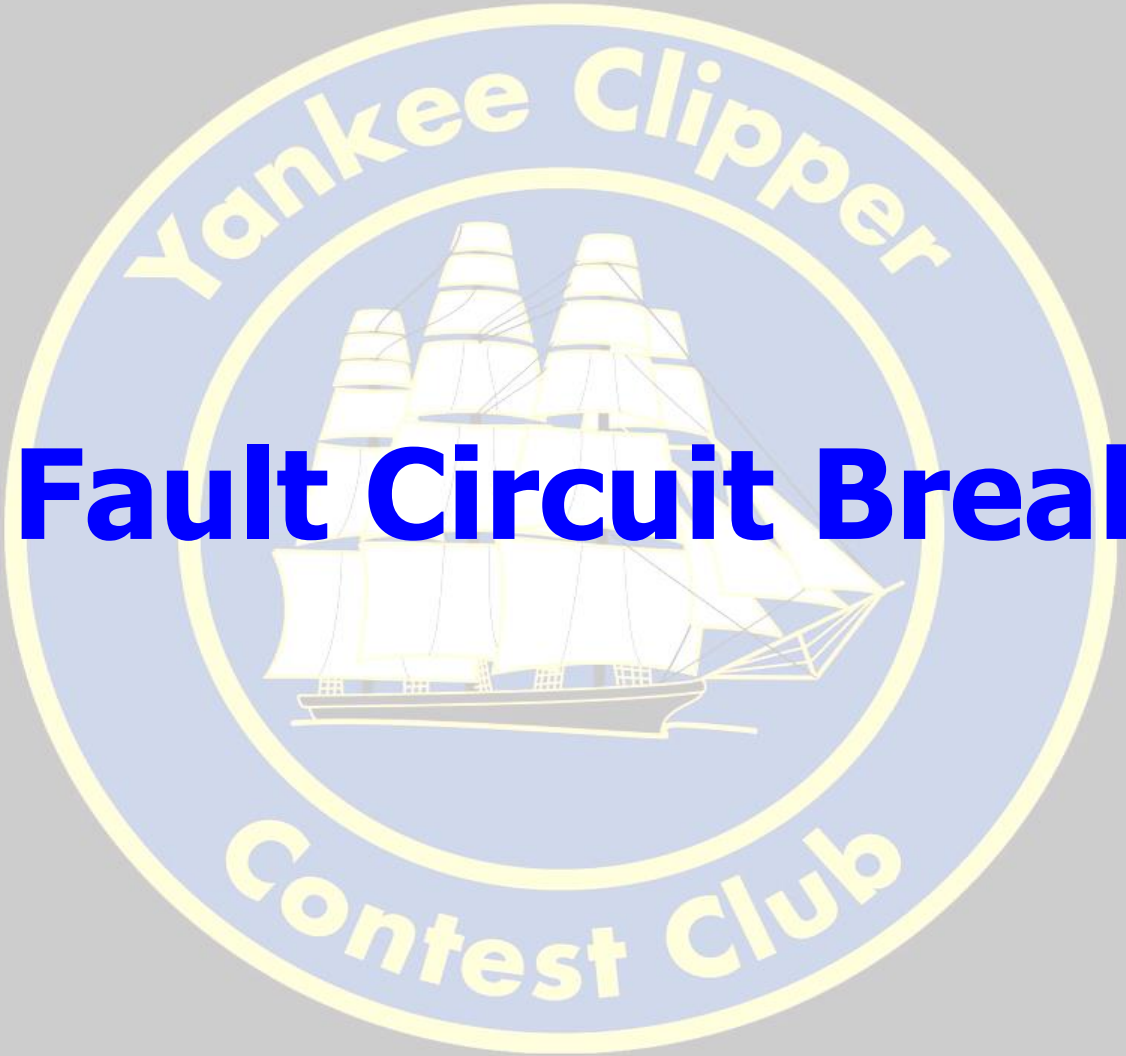
Break – Buy Your Raffle Tickets!!!

15 minutes

New Members

- **Application to Brian, NJ1F**
- **Dues to Chet, N8RA**
- **Introduce yourself**
  - **Interests, Contest activity, Rig, Antennas**

Motion to Accept these new members?



Arc Fault Circuit Breakers

Tony Brock-Fisher, K1KP

Arc Fault Circuit Breakers (AFCI's, Arc Fault Breakers)

- Disclaimer
- What Are They and Why are they trouble for Hams?
- Ways to reduce sensitivity to RF
- Ferrite Bead Choices
- Does this solution work to reduce false trips?
- Does this solution reduce safety by reducing AFCI sensitivity?

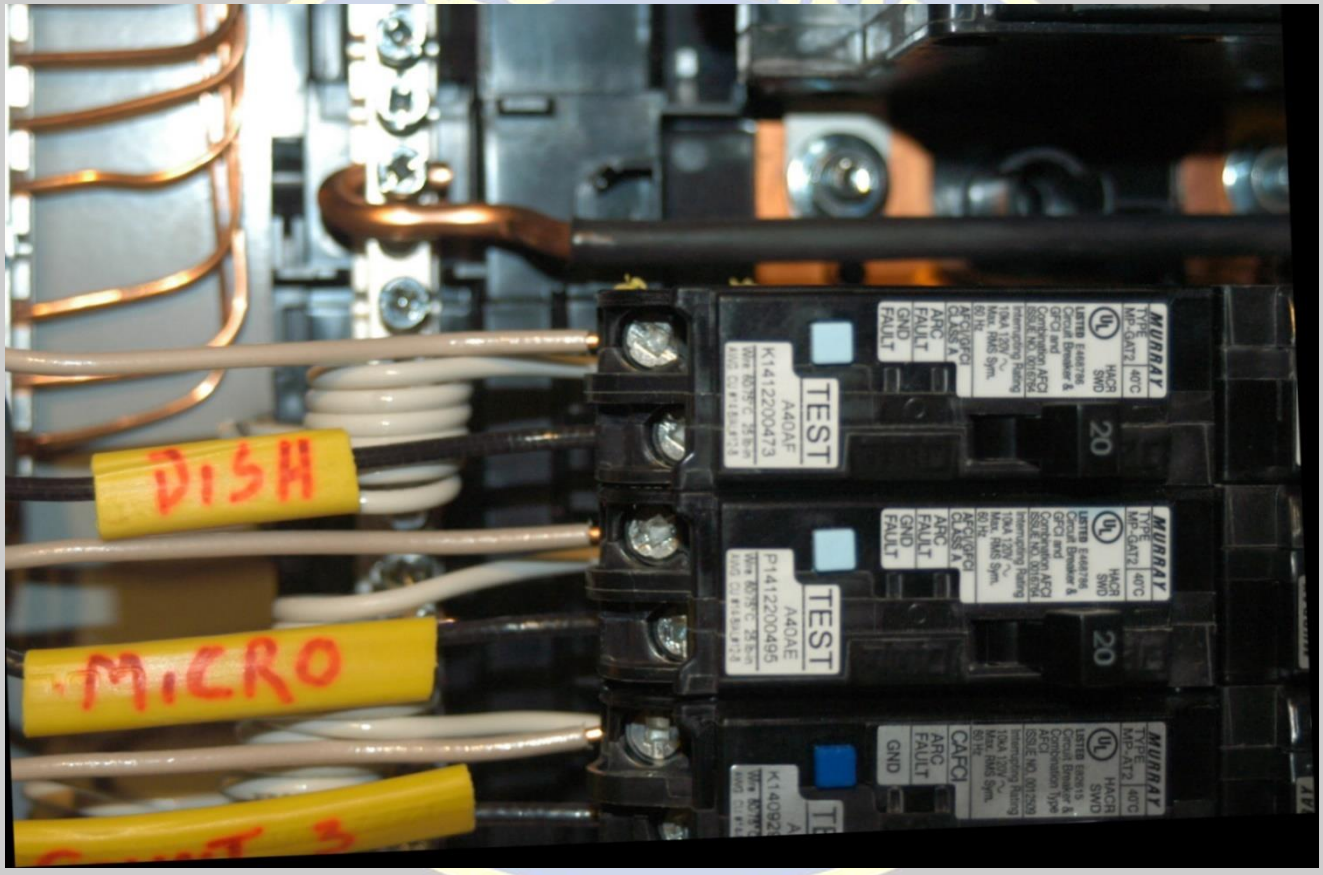
Disclaimer

- This presentation describes TEMPORARY EXPERIMENTS conducted on Arc Fault Circuit Interrupters. This information is provided for the private appreciation of viewers and is ***NOT INTENDED*** to be a recommendation for any specific course of action.
- The modifications to a home electrical system shown herein are specifically ***not*** warranted to conform with any National or Local Electrical Codes. Modifying a home electrical system in the manner described *may* violate National or Local Electrical Codes.
- The author and/or presenter of this information specifically disclaims any responsibility for the application of this information.

AFCIs – What Are They

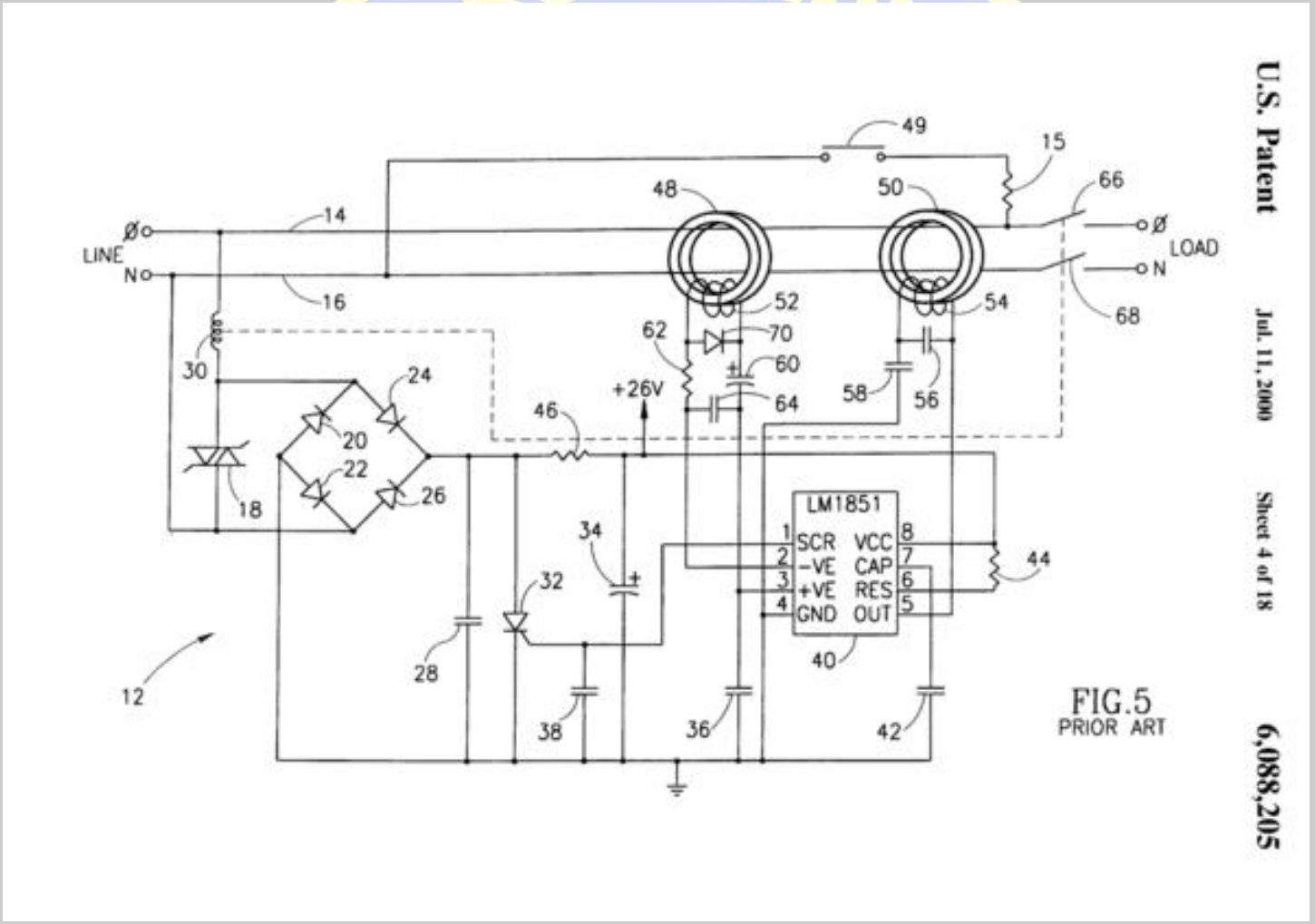
- New type of electrical circuit breaker designed to reduce/prevent home fires from faulty wiring
- Now required for many circuits in new construction
- Sense common types of arcing in mains wiring, including line-neutral and line-ground
- Work by detecting line frequency pulses and RF noise on branch circuit wiring
- Have already gained a negative reputation for false tripping
- False tripping can be caused by RF from transmitters, as well as normal household devices such as vacuum cleaners and televisions; yes, cell phones too!

AFCIs – What Are They



Four-terminal device, with Line Hot and Neutral, Load Hot and Neutral

AFCIs – What Are They



AFCI's – The Problem

- AFCI's sense line frequency and RF pulses on the branch circuit and trip (open) when an 'arc' is sensed.
- Some AFCI's can be tripped by RF from Ham transmitters
- ARRL has conducted extensive work with one manufacturer (Eaton) to reduce sensitivity to Ham frequencies (http://www.arrl.org/news/arrl-helps-manufacturer-to-resolve-arc-fault-circuit-interrupter-rfi-problems)
- ***39 pages*** of discussion on eHam (http://www.eham.net/ehamforum/smf/index.php/topic,96949.0.html)

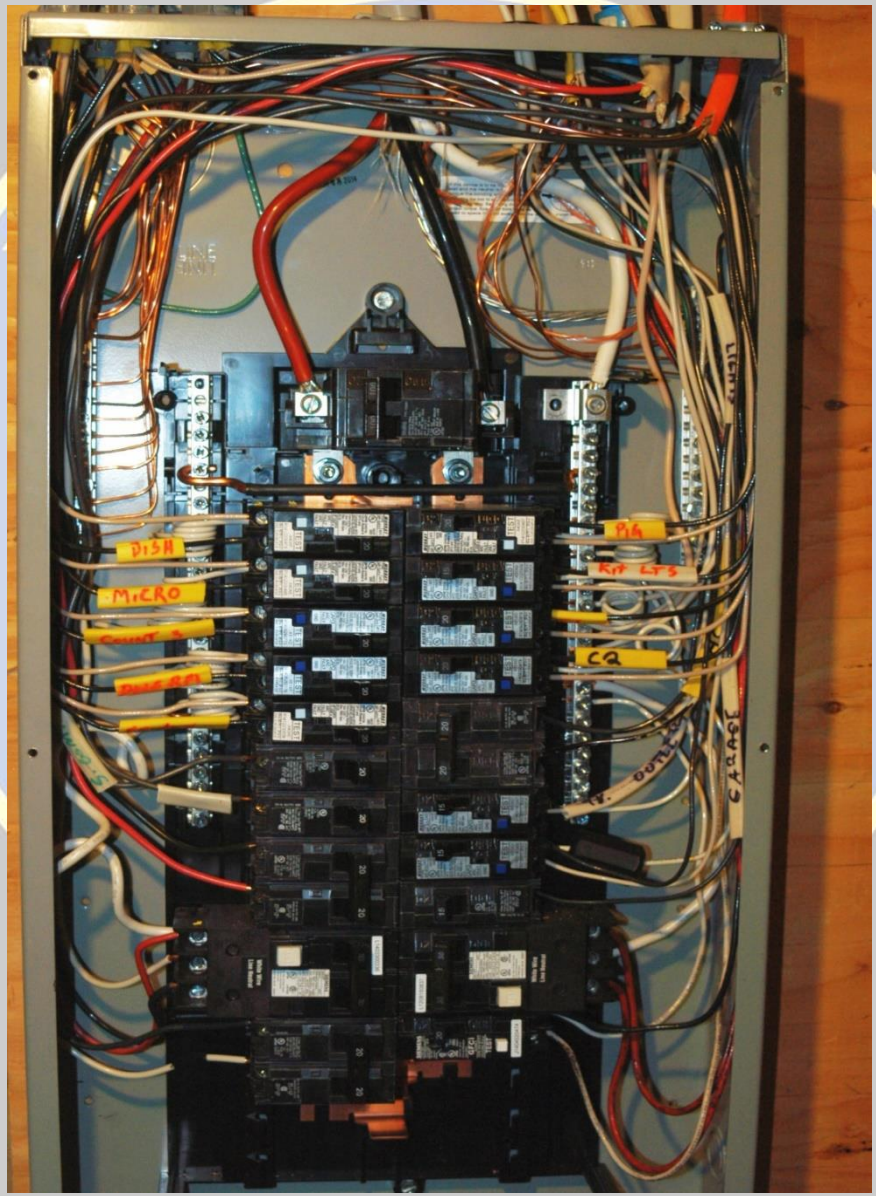
AFCI's – The Problem

- In many cases, AFCIs are affected in neighbors houses!
- Many electricians dislike AFCIs for the problems they cause
- Not unheard of for electricians to install AFCIs to pass inspection, then replace them with regular breakers afterwards
- Replacing AFCIs with non-AFCIs could void homeowner's insurance coverage for an electrical fire claim

AFCI's – The Problem at K1KP

- Remodeling in 2014-15 added garage, spa, and kitchen upgrade.
- Electrical service upgraded from single 100 amp panel to 200 amp service, one main and two sub-panels
- Many new breakers and branch circuits installed
- 13 new breakers were of AFCI or combined AFCI/GFCI type
- At K1KP, several AFCI breakers trip from 160 QRO; another trips from 25W on 2m FM
- Breakers at K1KP are manufactured by Murray, not Eaton
- Some circuits were load-dependent, i.e. more sensitive to false trips when supplying higher AC line currents

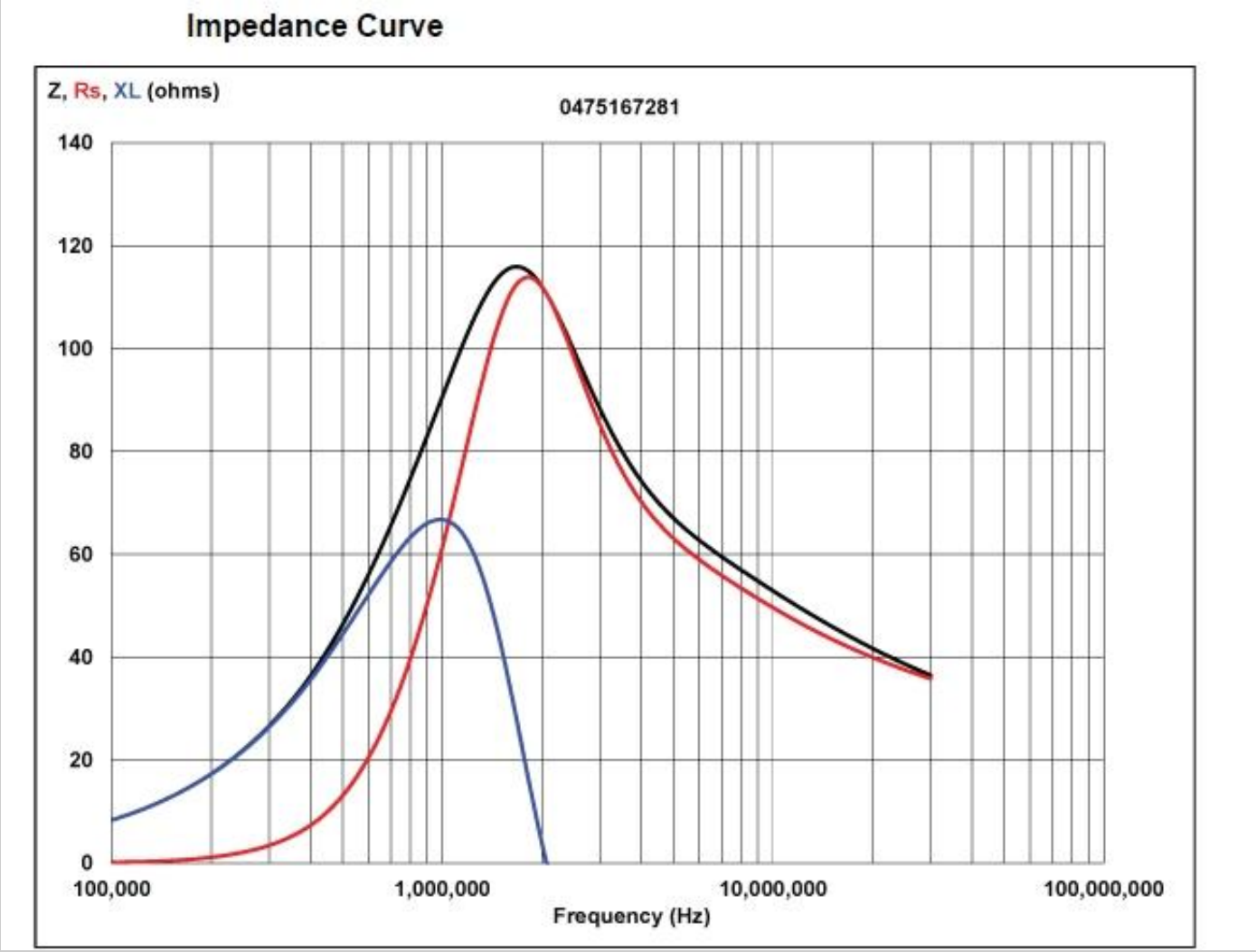
AFCI's – The Problem at K1KP



AFCI's – Ways to Reduce Sensitivity to RF

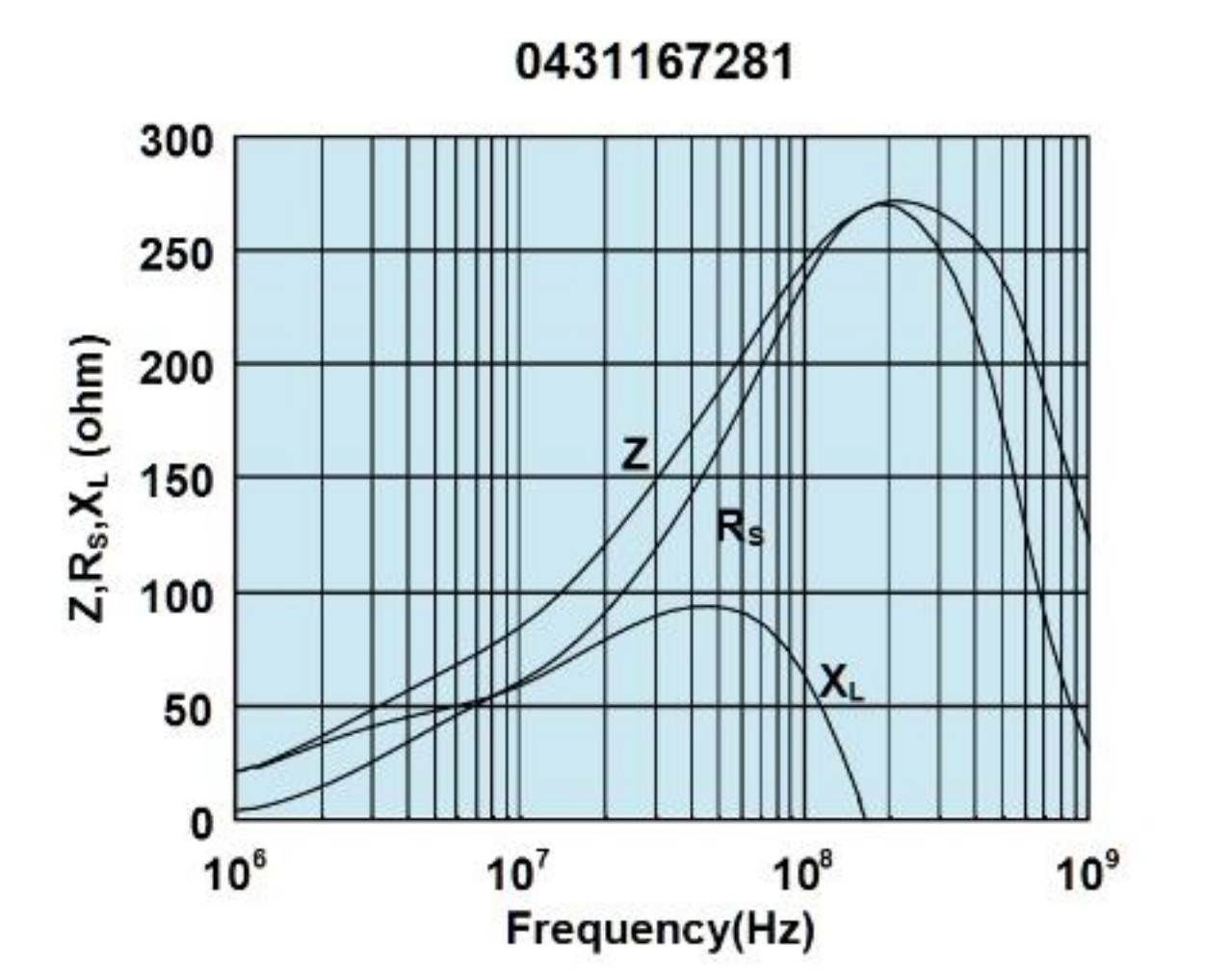
- AFCI works by sensing RF on its external connections
- Attempted to reduce Ham-induced RF by adding ferrite beads
- Two types of ferrite beads purchased:
- Fair-Rite 0475167281 (mix 75, peak impedance at 2 MHz)
- Fair-Rite 0431167281 (mix31, peak impedance at 200 MHz)
- Can fit on most Romex
- Split ('Snap-It') beads used to eliminate need for disconnecting wiring

Fair-Rite 0475167281



<u>PERFECT</u> if your problem is 160 meters!

Fair-Rite 0431167281



Good coverage for upper HF and VHF

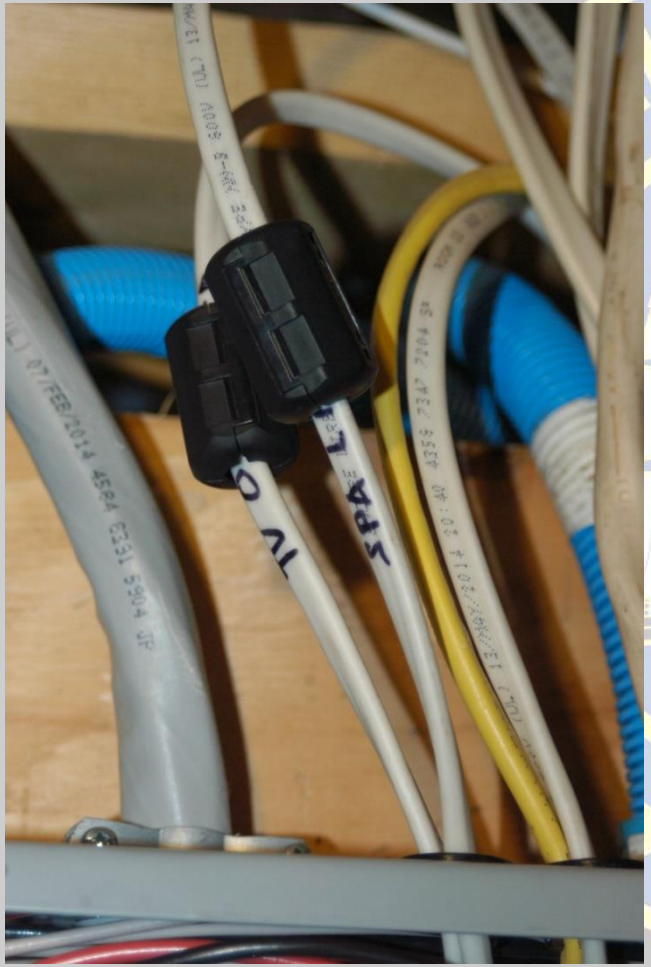
Experiments

- Tried adding tons of beads as simple common mode chokes on branch circuit Romex at breaker panel
- This was partially successful, in that some circuits were 'cured' and others became tolerant to higher power levels
- Tried adding beads on individual (hot and neutral) branch leads at breaker; this helped but did not raise tolerance to 1500W level
- Some circuits could not be cured no matter how many beads were added
- Discussed problem with YCCC resident consultant, got some good advice
- RF may be induced in affected branch circuit, OR could be induced on mains feed to panel

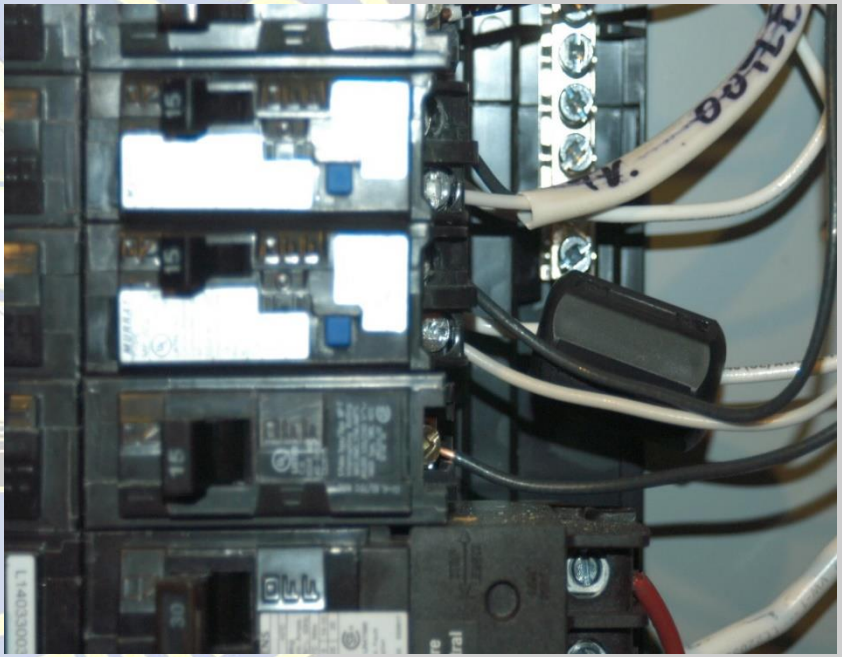
Current Most Effective Approach

- Add a single mix 75 bead on Romex to affected breaker as CM choke.
- Add single mix 75 bead on Neutral Pigtail from breaker.
- This approach was tested on all sensitive breakers during CQWW CW weekend.
- Only trip was on unmodified branch circuit (Kitchen refrigerator). Added CM chokes during contest; kept beer cold!

Current Most Effective Approach



Mix 75 bead CM choke
on Branch Circuit



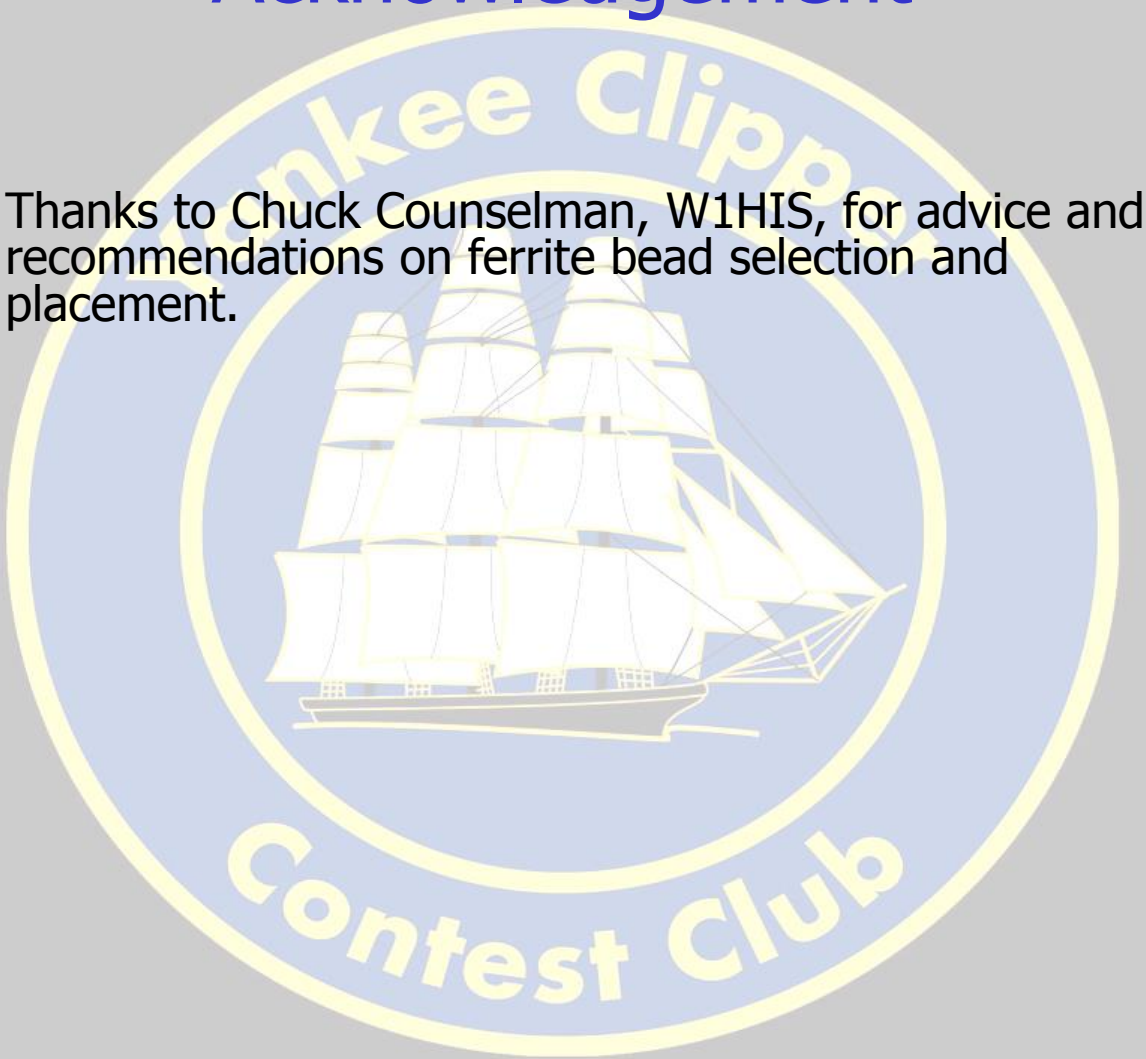
Mix 75 bead on Neutral Pigtail

CAVEATS

- Adding bead on a single, unbalanced AC conductor introduces RF impedance in that conductor, but is probably sensitive to saturation from AC line current
- This is a 'Works-In-Progress' – early results from experiments, not a completely thought-out solution
- If adding ferrite beads works to reduce false tripping by Ham RF, could it also reduce sensitivity to real arcs, thereby decreasing the intended safety margin of the AFCI's?

Acknowledgement

- Thanks to Chuck Counselman, W1HIS, for advice and recommendations on ferrite bead selection and placement.



Final Disclaimer

- *Kids – DON'T try this at home!!*

Questions?

The Perfect Traveler and Contest Headset

Fred Hopengarten, K1VR

Criteria: Travel + Contests

- **Tolerable on my head**
- **Noise canceling**

  (less fatigue on long plane rides)
- **Travel (6Y1V, 4X0W, KH7X, KM1W, K1LZ)**

  - folding + travel case a nice feature
- **Plug into computer (Skype)**
- **Plug into cell phone (business calls)**
- **Plug into transceiver in place (bias)**
- **Decent contest audio**
- **Won't break easily**
- **Affordable**

Heil ProSet

- **Very popular**
- **Little ANR**
- **No NC**
- **HC-4**
- **$155**

Definitions
ANR= Acoustic Noise Reduction or Noise Isolation , also passive noise reduction
NC = Noise Canceling or Active Noise Cancellation

Heil Pro-7

- **ANR (spec: 26 dB); not NC**
- **Phase reversal switch**
- **17 oz.**
- **Clamp on feeling?**
- **Awkward on plane**
- **HC-4**
- **$276**

Pilot USA PA-1200

- **ANR (spec 24 dB); not NC**
- **32 ohm speakers**
- **Clamp on feeling?**
- **Awkward on plane**
- **15.4 oz (437 grams)**
- **$140**

Other models: http://pilot-usa.com/headsets.html

Arlan Communications RS60CF + RS20

- **ANR (spec: 24 dB); not NC**
- **Comfy; great reviews**
- **Excellent for multi-op phone**
  if next to a screamer
- **"D/C knock-off"**
- **Options**
- **Awkward on planes**
- **Dynamic or electret**
- **$289**

http://www.arlancommunications.com/products/amateurRadio/radioSport/RS60CF.asp

W2ENY

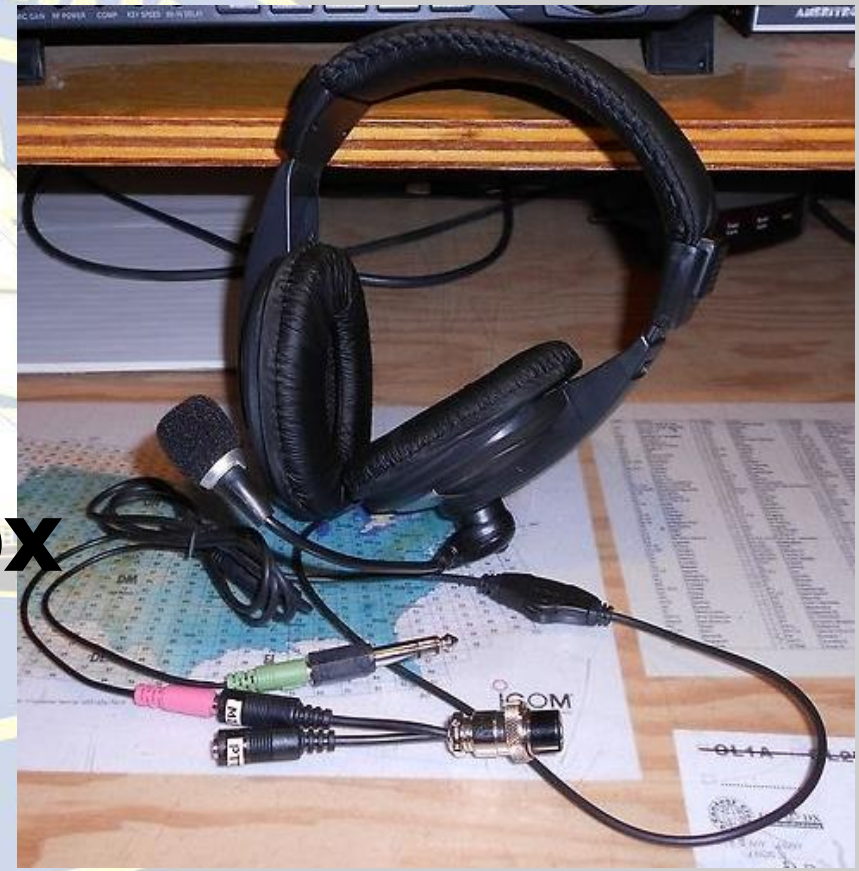
"Gamer" headset?

All plastic

Little ANR; No NC

Includes battery box

$60



http://w2eny.com/headset_premium/

Yamaha CM-500

- Some isolation
- No cancellation
- W/ battery box
- Widely used
- Many happy users
- Mike requires equalization; has a lot of bass
- Cloth earpiece covers for the Heil ProSet fit the CM-500 perfectly
- Does not fold; Awkward on a plane
- $50-60

Why Do I Like Noise Canceling?

- **Allows lower audio volume**
- **Eliminates potential hearing damage**
- **Reduces fatigue on plane, in contests**
- **Will not help next to Pier Luigi, W1NA** **(Solution: Separate room, or ANR 24-26 dB).**
- **Disadvantage: needs batteries**

Homebrew by K1DG

- **Bose QC2 – noise canceling**
- **Boom mike from Heil BM-10**
- **Buy several clips. They break.**

Homebrew by K1DG

- **Bose QC2 – noise canceling**
- **Boom mike from Heil BM-10**
- **Buy several clips. They break.**

Homebrew by K1EP

- **Bose QC2 or QC15 – noise canceling**
- **Boom mike from Heil ProSet**
- **N1EU: "So much mass is attached to so little plastic"**

More Homebrew

- **Passive acoustic isolation**
- **No NC**
- **Sale at Harbor Freight $10.99**
- **Needs somebody's mike (homebrew or ModMic)**
- **Add earbuds for**

  $5-20, or

  $1,000

  (rock star molded; K3NA solution)

Direct Sound Extreme Isolation EX-29 Earphones

- **Rave reviews from**

  K1CC + EI1Y crew

- **ANR (Spec: -29 DB); not NC**
- **Fold for travel**
- **Walmart or eBay**
- **$129.95 + $7 ship**
- **Needs somebody's mike (homebrew or ModMic)**

http://www.extremeheadphones.com/passive-noise-isolation-hearing-protection-headphones/studio-products/ex-29-headphones/

Pro: Dave Clark

- **Isolation, not cancellation**
- **Not travel friendly**
- **Don't fold**
- **Mike not removable**

- **K1WHS: H10-13S (Stereo)**
- **$175? Used on eBay**

Bose QC 15
No longer sold new – see QC 25

- **Noise canceling**
- **Soft cushions; comfy on plane**
- **Travel Bag**
- **$300 (+ $30 for cell phone adapter kit below, but kit no longer available new)**
- **No mike**

Bose QC 25

- **Noise canceling**
- **iPhone/iPad or Android controls + mike**
- **Bypass (if battery dead)**
- **Colors**
- **Soft cushions**
- **Travel Bag**
- **$300**

Bose QC 25

- Folds smaller for travel than QC-15s
- Case contains holder for spare battery
- Single AAA battery = 35 hours

Review at http://www.cnet.com/products/bose-quietcomfort-25/

UFlyMike
for Bose QC 15 or QC 25

- **KM3T: likes it**
- **W1FV: RFI problems, flat audio, prefers Heil HC4**
- **$224 (+300 for the QC 25)**

The ModMic

- **"Keep your headphones, add a ModMic"**
- **Mounts with removable sticky magnet**
- **Separates easily**
- **Travel Bag**
- **Needs bias box for direct use**
- **$43 (+ $5 shipping)**

In Ear + NC? Bose QC 20

- **Where mount mike?**
- **Android or Apple versions**
- **Rechargeable battery – 16 hours**
- **$300**

K1VR Solution for Hamming + Business Travel

•**Bose QC 25**	$300
•**ModMic**	48
•**Bias box, if necessary**	40
•**Bag of jumpers (for cell phones)**	30
•**Bag of batteries**	
(For long life, W1RM likes Panasonic Eneloop Pro. He says they will easily last a contest and more.)	10
Total	$428

Exception: For multi-op phone contests where another op shouts, Extreme Isolation EX-29 headphones ($137) with ModMic (using second sticky magnet, same ModMic on both headsets)

MOAS II
A User's Perspective

Tony Brock-Fisher, K1KP

Topics

- Why MOAS?
- MOAS II – What it is, What it does
- System Architecture – What it Looks Like
- Software
- Configurability & Setup
- Operator's Perspective
- Conclusions – Why YOU should use it!

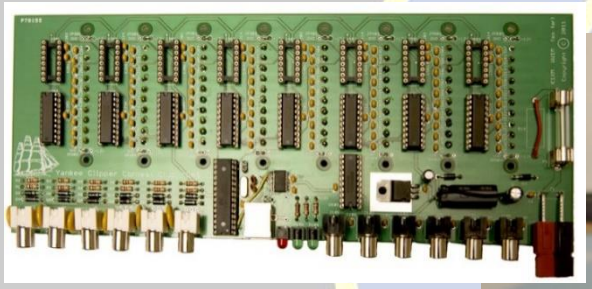
Why MOAS?

MOAS II – What it is, What it does

- MOAS II 'Mother of All Switches' – YCCC project
- Computer controlled Relay driver
- Up to 64 high-side or low-side drivers per unit
- Up to 99 units can be combined per system
- Software components to configure system for (almost?) any station antenna configuration
- Controls antenna selection based on frequency, user input, logging program input (N1MM, WinTest, WriteLog, OmnRig currently supported)
- PTT inputs, Inhibit outputs to eliminate hot switching
- Controls Rotators
- Controls electronically switched arrays (4-squares, phased loops, etc).
- Probably a bunch of other stuff I haven't tried yet!

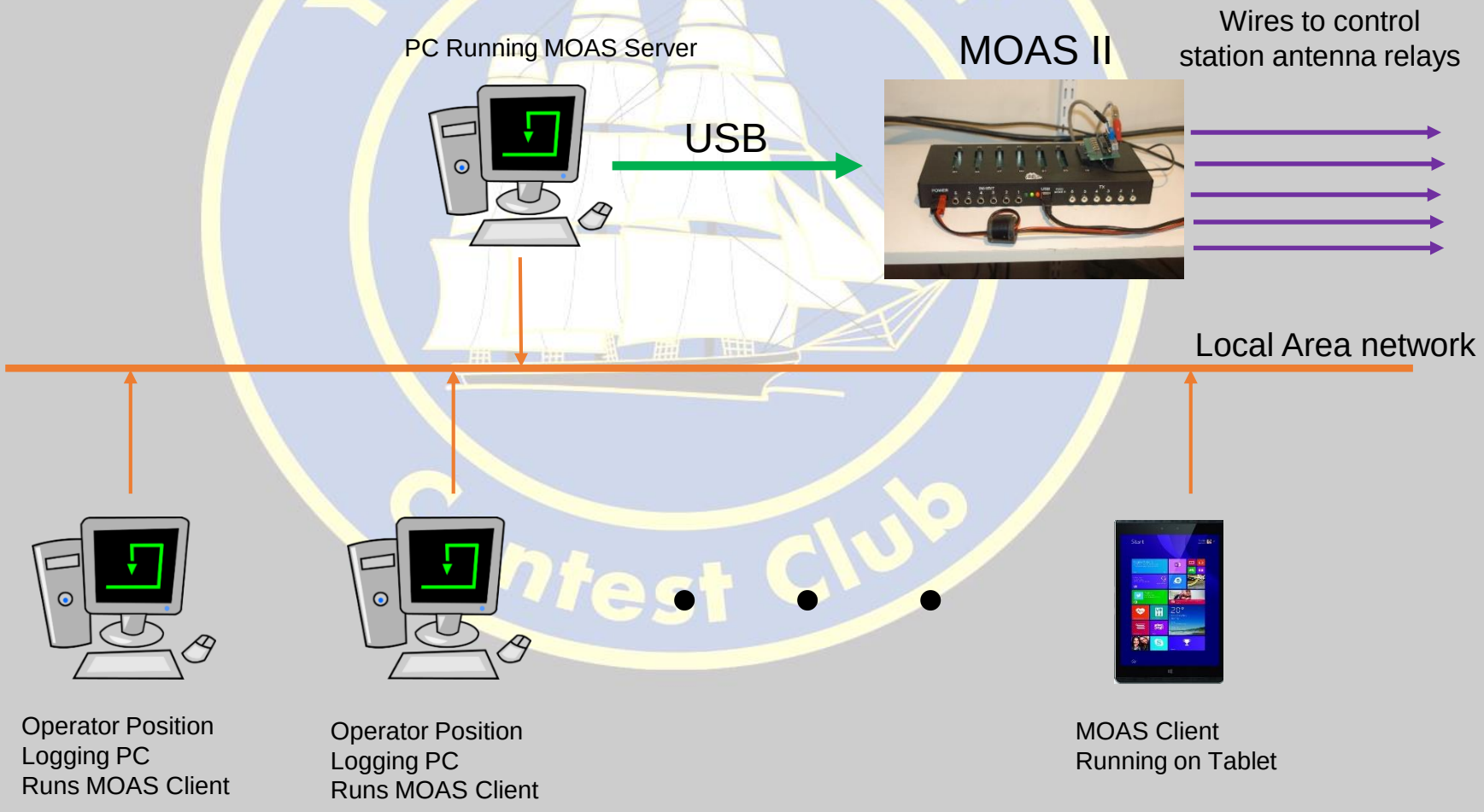
System Architecture – What it Looks Like

- Hardware



System Architecture – What it Looks Like

- Software



Software – Server

- Only one copy running somewhere
- Runs on PC connected via USB to MOAS hardware
- Could run on a logging PC
- Accepts input from clients at operating positions, sends actual commands to hardware
- Uses JSON configuration file to describe station hardware
- Very low computer resource usage

Software – Client(s)

- Client – One copy running per operating position
- Accepts frequency input from logging program
- Displays antenna options for given frequency to user
- Accepts antenna selection commands from logger (i.e. Alt-F9 from N1MM+) or
- Accepts direct entry of antenna selection from user via mouse
- Displays Rotator position for selected antenna
- Accepts rotator commands from logger (i.e. N1MM+ Alt-J)
- Accepts direct entry of rotator commands from user via mouse clicks, keyboard

Configurability & Setup

- Typical comprehensive K1XM design, based on large amount of survey data, intended to accommodate any station setup imaginable
- Different station hardware and configurations can be captured in configuration files which describe station configuration to the software
- Different versions of configuration files can be kept for different operating modes, like M/2, SO2R, etc

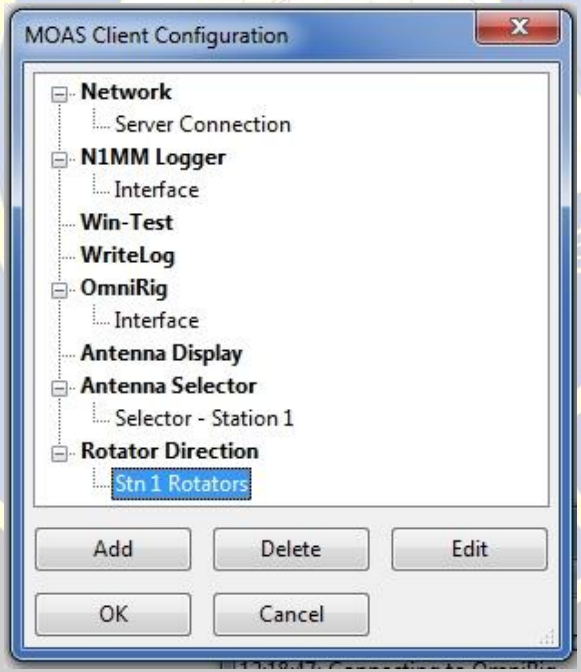
Server Configuration File

- Server configuration file written in JSON which is 'sort of like' HTML with tags, descriptors, etc.
- Once written, Server configuration file only needs to be changed when station hardware changes – but it's easier than crawling around changing coax jumpers!
- Can be intimidating but really not that bad once you 'get it'
- Future: tools to automate creation of this file

```
"Antennas" : [
{
   "ID" : 0,
   "Template" : "M2 KT36-XA",
   "ShortName" : "KT36",
   "LongName" : "Triband beam",
   "Rotator" : 0,
   "Offset" : 0,
   "Conflicts" : [0],
   "Fast" : [0, 1, 2, 3, 4, 5, 6],
   "Control" : [
      {
         "LowerFrequency" : 14000,
         "UpperFrequency" : 14350,
```

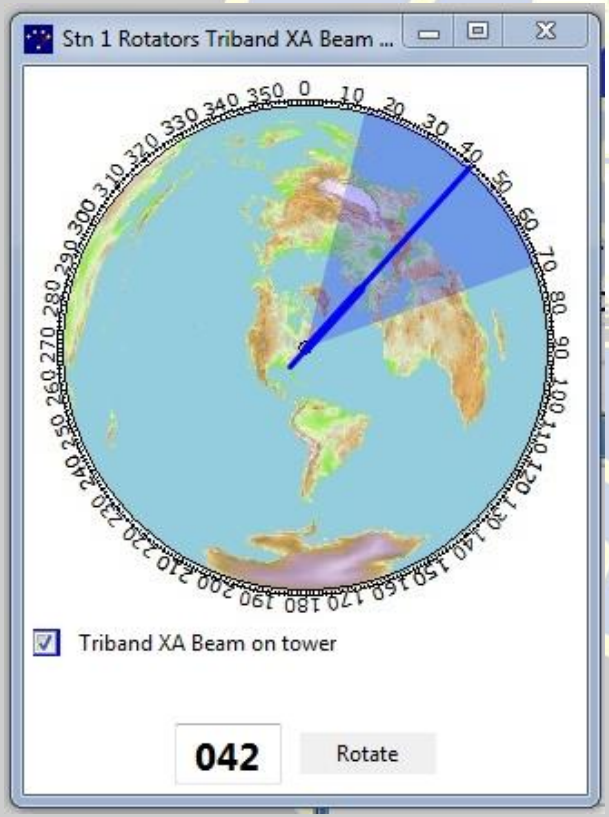
Client Configuration

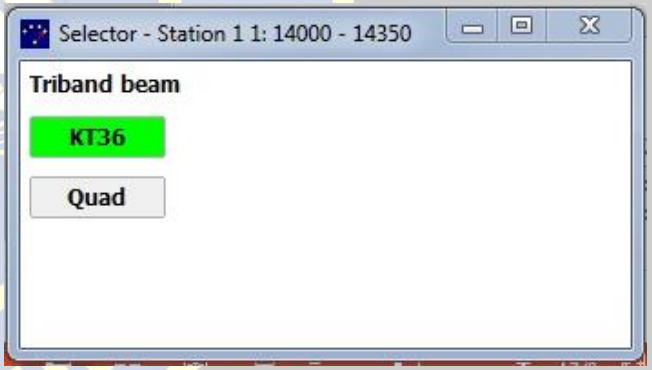
- Menu driven
- Can load and save to files for different setups
- Configures network connection to server, logging program, antenna display & selector, rotator display



Operator's Perspective

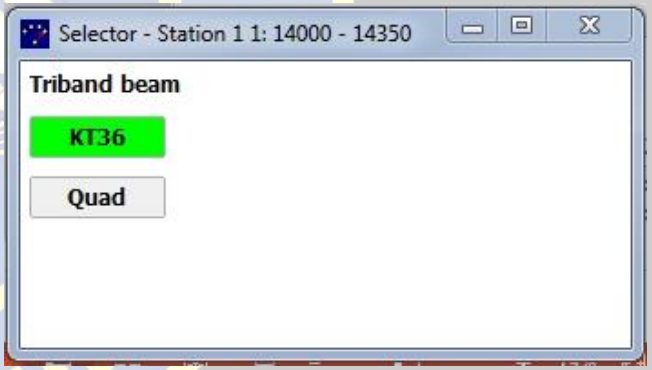
- Two new windows on screen, antenna selection and rotator control
- Both windows highly configurable for colors, fonts, etc





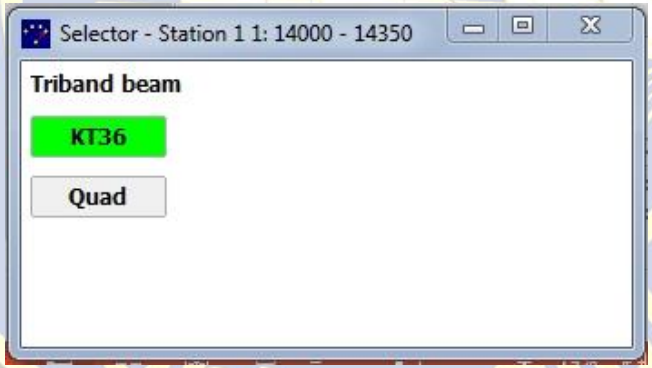
Operator's Perspective

- Background for rotator window is just a .png file
- I use Great Circle map from GCMWIN by SM3GSJ
- Also like the satellite view!



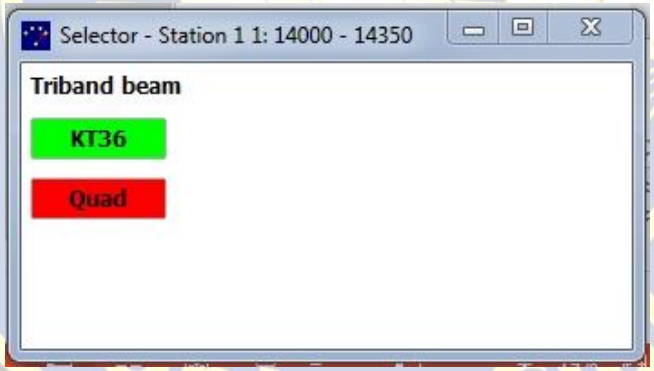
Operator's Perspective

- I chose simple colors – green is for the antenna in use
- White (uncolored) – Antenna is available



Operator's Perspective

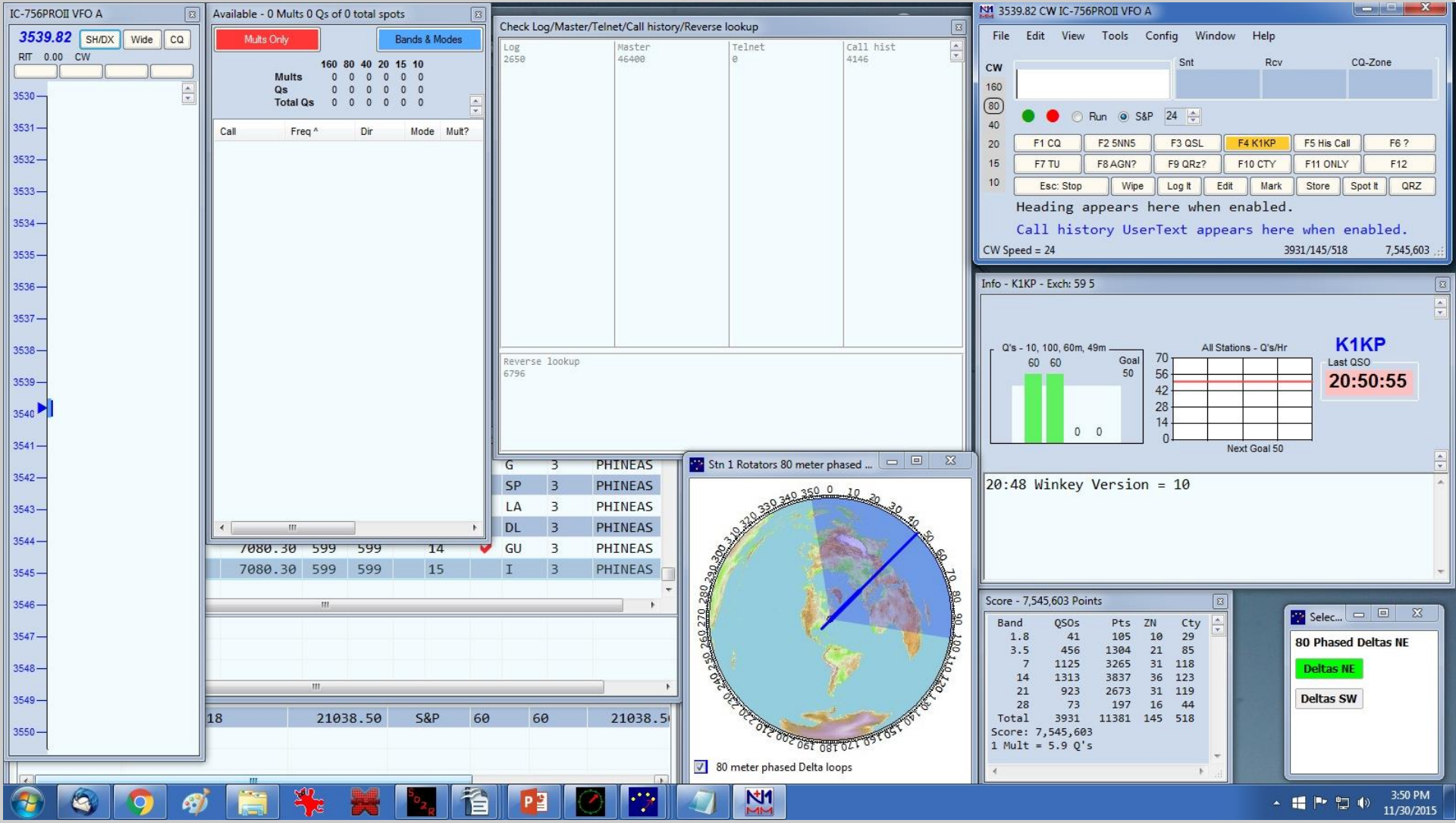
- Red means antenna is unavailable – in use by another station



Operator's Perspective

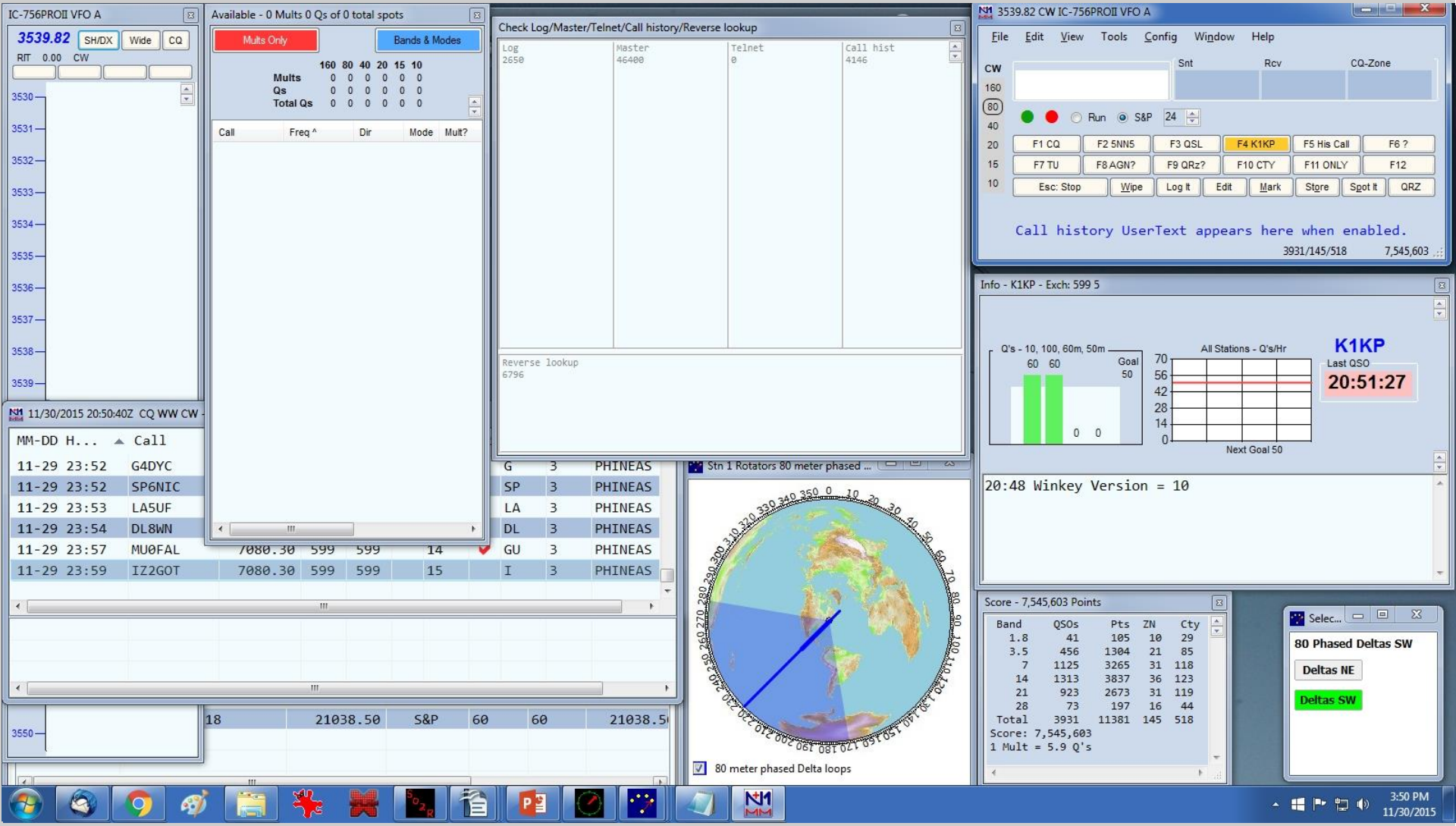
- MOAS software automatically prevents conflicts
- All antennas red – jumped onto same band as other station (No antenna connected, TX inhibited)

Operator's Perspective



Integrates well with N1MM+

Operator's Perspective



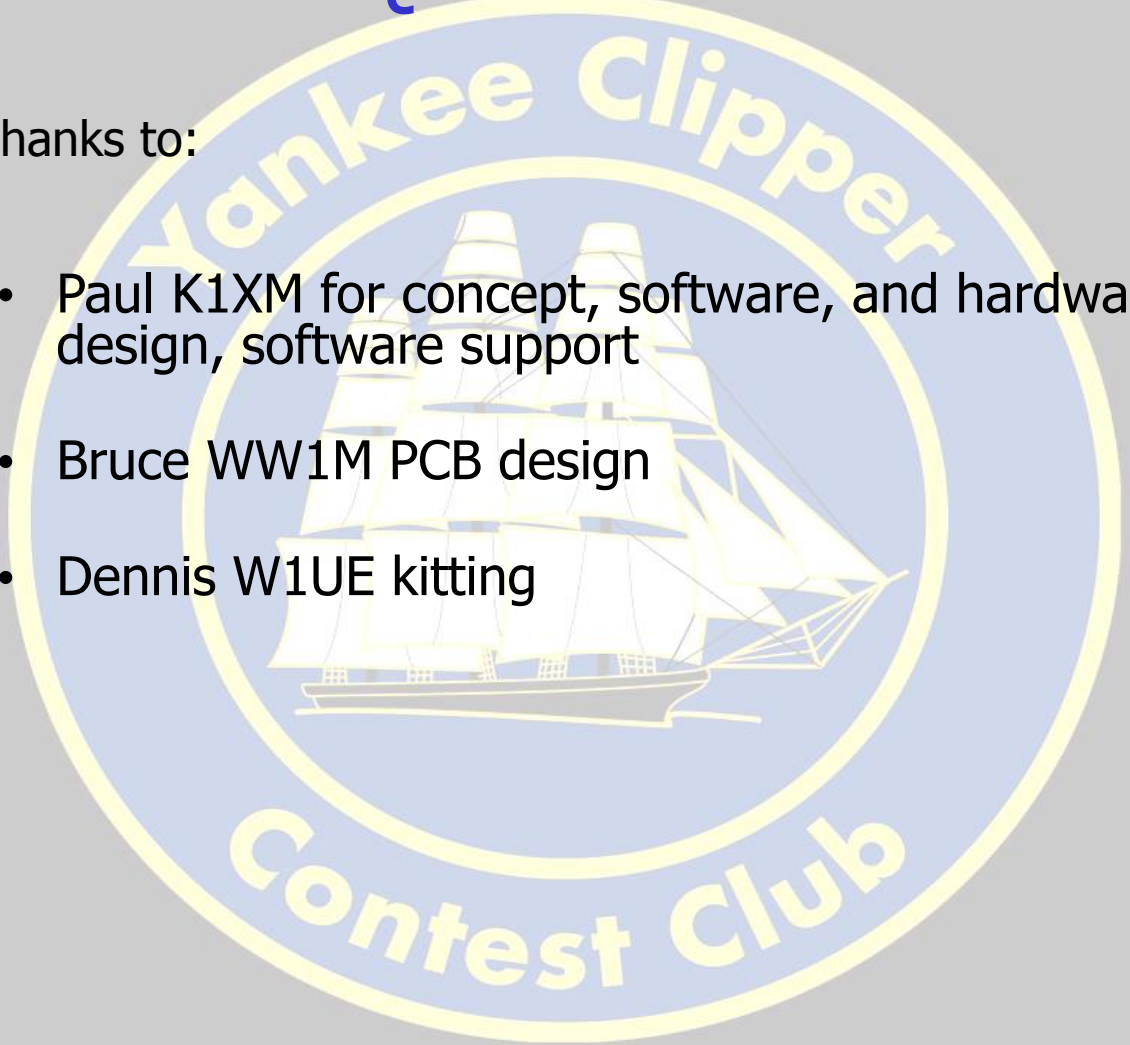
Simulates rotator functions for switched arrays

Conclusions

- Very flexible automated control of complex antenna functions
- Quickly reconfigure station setup (M/2, SO2R, etc) through data files
- Can also control stack matches, band pass filters, receive antennas, i.e. anything with a relay
- Rotor control via net –all rotator control boxes can be controlled from any PC on the net regardless of physical location
- Clients and server can be separated by WAN – enables complete control of station antennas and rotators from remote location (K2LE, VY1JA take note)
- Still under development – get your feature requests in now!
- Support has been terrific, very rapid bug fixes

Questions?

- Thanks to:
  - Paul K1XM for concept, software, and hardware design, software support
  - Bruce WW1M PCB design
  - Dennis W1UE kitting



Yankee Swap

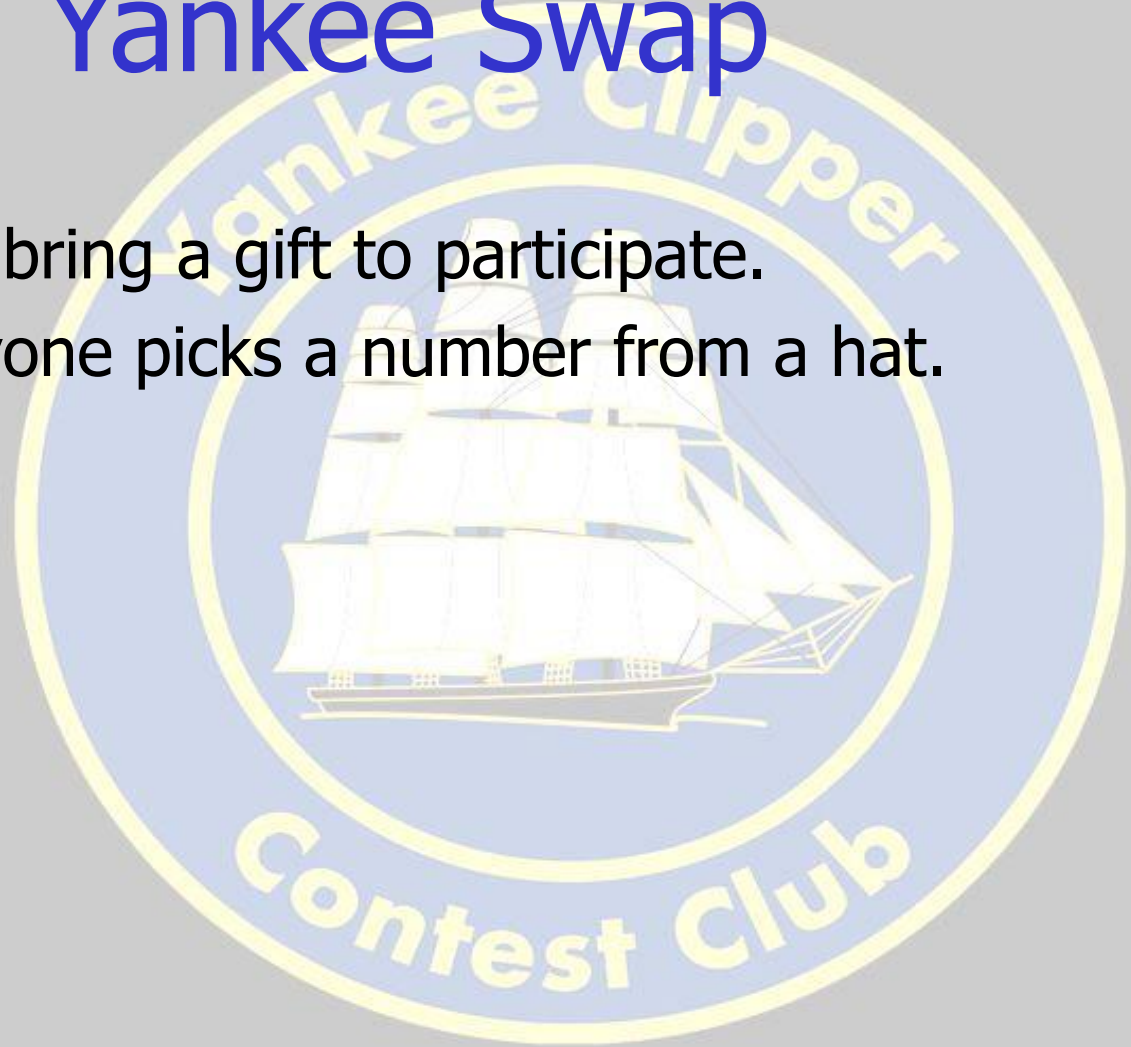
Brian Szewczyk

Yankee Swap

- Must bring a gift to participate.

Yankee Swap

- Must bring a gift to participate.
- Everyone picks a number from a hat.



Yankee Swap

- #1 chooses a wrapped gift & opens it.

Yankee Swap

- Next number can choose either a wrapped gift, or 'steal' a gift from one that is already opened.
- If they 'steal' a gift, the 'victim' gets to choose a wrapped gift & opens it.
- Continue taking turns until all gifts are opened.

Yankee Swap

- When all the gifts are opened, # 1 has a chance to 'steal' one last gift – trading their gift to the 'victim'.

Adjourn –
Happy Holidays & GUD DX!

See you at the February Meeting!!

February 2016

Enfield, CT.