

ham-radio-out-there

Remote and portable ops

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2021-09-14 07:57:20

Agenda

- Remote ops
- Portable ops

Remote ops

Remote ops: Whys and wherefores

- Fun
- Technical challenges
- Promoting the hobby
- Emergencies?

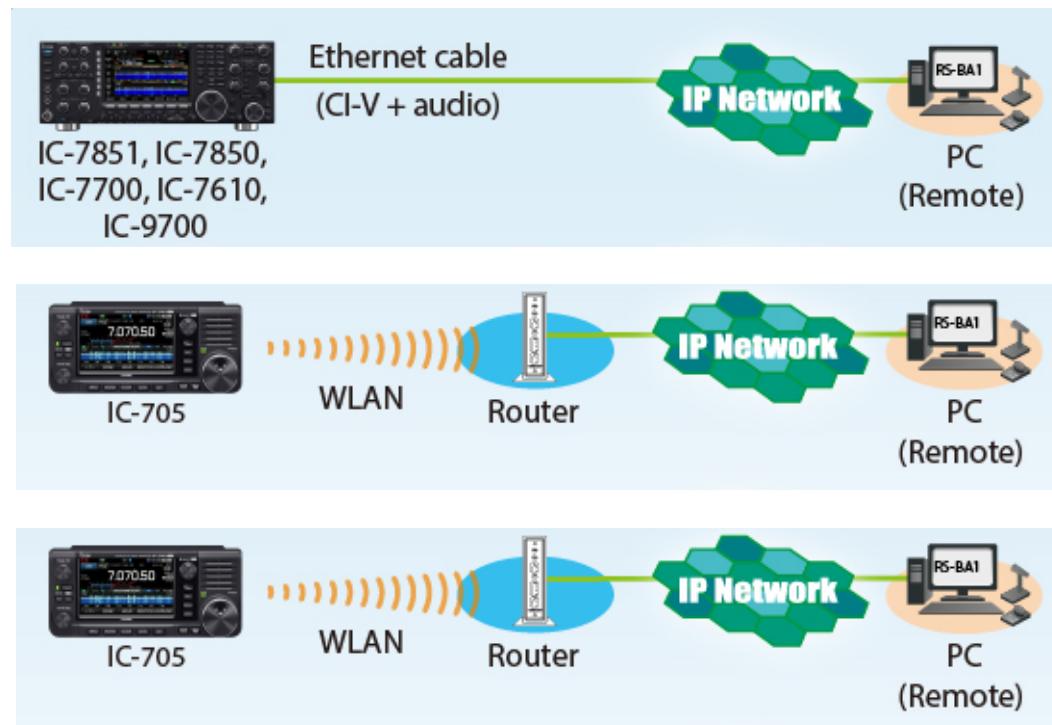
Background

- Gear here, you there
- Two paths
 - Your gear (+ interface device)
 - Someone else's gear

Technical challenges

- Rig control (band/frequency mode/filters/PTT)
- Audio in/out
- Latency
 - TCP/IP designed for “packet-ized” communication

Connecting to the radio



<https://www.icomamerica.com/en/products/amateur/hf/rsba1/default.aspx>

Subscription services

- Remote Ham Radio (RHR):
<https://www.remotehamradio.com/>
 - \$99/year (or \$20/mo) + airtime (\$/min)
- Runs in web browser
- [DEMO](#)

1 hr/wk for better equipped station

```
hrs_wk <- 1
fee_yr <- 99
dollars_hr <- 0.59*60
wks_yr <- 52
(rhr_yr <- fee_yr + wks_yr*hrs_wk*dollars_hr)
```

```
## [1] 1939.8
```

3 hrs/wk for a lesser-equipped station

```
hrs_wk <- 3
fee_yr <- 99
dollars_hr <- 0.09*60
wks_yr <- 52
(rhr_yr <- fee_yr + wks_yr*hrs_wk*dollars_hr)
```

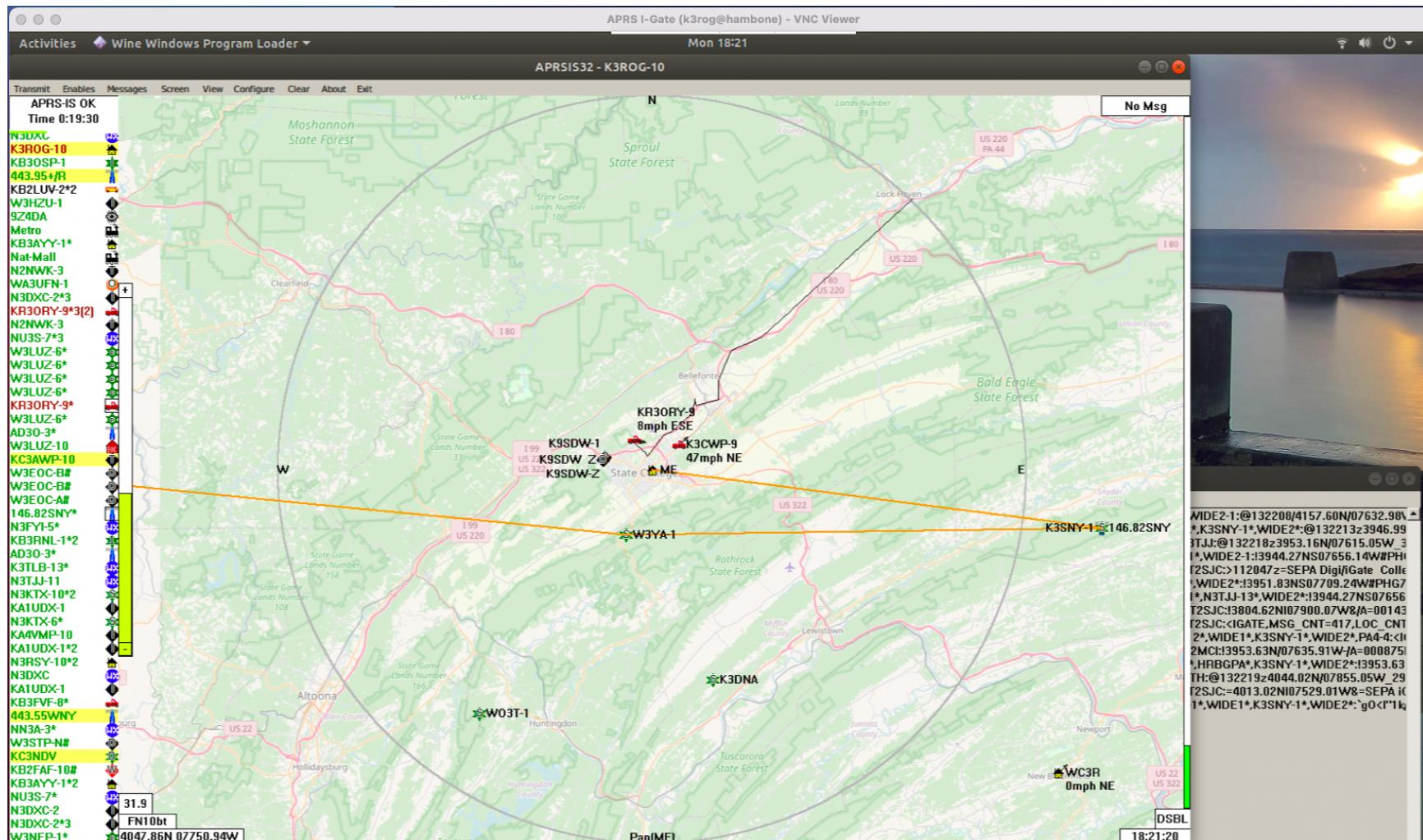
```
## [1] 941.4
```

WebSDR

- WebSDR <http://websdr.org/>
- Free!
- DEMO <http://websdr.k3fef.com:8901>

Your gear

- VNC-based
 - K3ROG-10 APRS iGate
 - Old Mac Mini running Ubuntu 19, APRSISCE32 under Wine (thanks N3ABF!)



Raspberry Pi-based

- RigPi: <http://rigpi.net/> station server
- Universal Ham Radio Remote:
https://github.com/F4HTB/Universal_HamRadio_Remote_

RemoteTx <https://remotetx.net>

- Hardware
 - Raspberry Pi
 - Elecraft K3, KX2, KX3
 - Yaesu 991
 - Icom IC-7100, 7200, 7300

RemoteTx <https://remotetx.net>

- Software
 - Custom RPi image
- Subscription service \$40 (6-mos) or \$70/year
- DEMO

Third party software

- ICOM RS-BA1:
<https://www.icomamerica.com/en/products/amateur/hf/rs-ba1>
 - Windows only

FlexRadio

- SmartSDR and Smartlink (for FlexRadio)
- Windows 10, Mac OS, iOS
- DEMO

- Full control of radio, waterfall
- Easy set-up (largely plug-n-play)
- Can run digital modes (e.g. FT8) within app itself
- Works over wifi or even cell networks
- Mac OS and iOS apps pricey

wfview <https://wfview.org>

- Free, open-source program for “modern ICOM radios”
- Windows, Mac, Linux
- View IC-705 waterfall via wifi
- Other rigs require USB connection

K3ROG take

- SmartSDR is **awesome**—but you must have a FlexRadio
- RemoteTx—but only if you have one of the supported radios
- RigPi—supports broader range of rigs
 - Selling my RigPi Station Server (Pi, case, + interface boards)

- Remote Ham Radio—let someone else have the headaches—get your feet wet
- wfview—but only for ICOM rigs

Portable ops

With help from

- Eric W3EDP
- Brett W3SWL
- Gene AM3AJ
- Dean K3IWI

Why portable?

- Fun
- (Sometimes) better operating conditions
- Technical/physical challenges
- Event support, emergency prep
- Jump on the [NPOTA](#), [SOTA](#), [POTA](#), [WMPLOTA](#), [RaDAR](#) bandwagon

Considerations

- Logistics & weather
- Bands, Frequencies, modes, & RF Power
- Rigs(s)
- Power
- Antennas
- Logging

Logistics & weather

- Driving to op site or hiking/biking?
- How long a stay?
- Shelter or none?

Bands, frequencies, modes, & RF Power

- Time of day
- CW, SSB, digital
- RF power
 - QRP, <= 5W
 - QRP+, <= 15-20W
 - QRO, 100W

Rigs

- VHF/UHF
 - HT or mobile
- HF
 - Elecraft KX2 or KX3 (QRP/QRP+), can add VHF to KX3
 - ICOM IC-705 (includes VHF/UHF; QRP/QRP+)
 - Yaesu FT-818 (QRP) or FT-891 (100W)

- HF
 - Xiegu 5105, G90
 - Lab599 Discovery TX-500
 - CW-only like QCX+ 40
 - KM3AJ's IC-7100 setup

Rig	List Price
<u>Elecraft KX2</u>	\$899.95
<u>Elecraft KX3</u>	\$1,249.95
<u>ICOM IC-705</u>	\$1,299.95
<u>Yaesu FT-818</u>	\$649.95
<u>Yaesu FT-891</u>	\$639.95
<u>Xiegu G90</u>	\$449.95
<u>Xiegu x5150</u>	\$599.00
<u>Lab599 Discovery TX-500</u>	\$899.95
<u>QCX+</u>	\$55.00

Power

- Rig internal battery
- External battery
 - *LiFePO₄* pricey, but lightweight & small
- Solar panel + charge controller
 - Roll/fold-up panels
- Generator

Antennas & masts

- Trees or no trees
- “Stake-able” ground or no (e.g. N3M)
- Multiband vs. monoband
- Resonant vs. non-resonant

W3SWL set-up

Logistics & weather

- “Pickup truck” portable



Bands, frequencies, modes & RF power

- Daytime ops (20m/40m, 80m sometimes)
- Digital (FT8, JS8Call, PSK31, Winlink)
- SSB
- 20-50W sweet spot

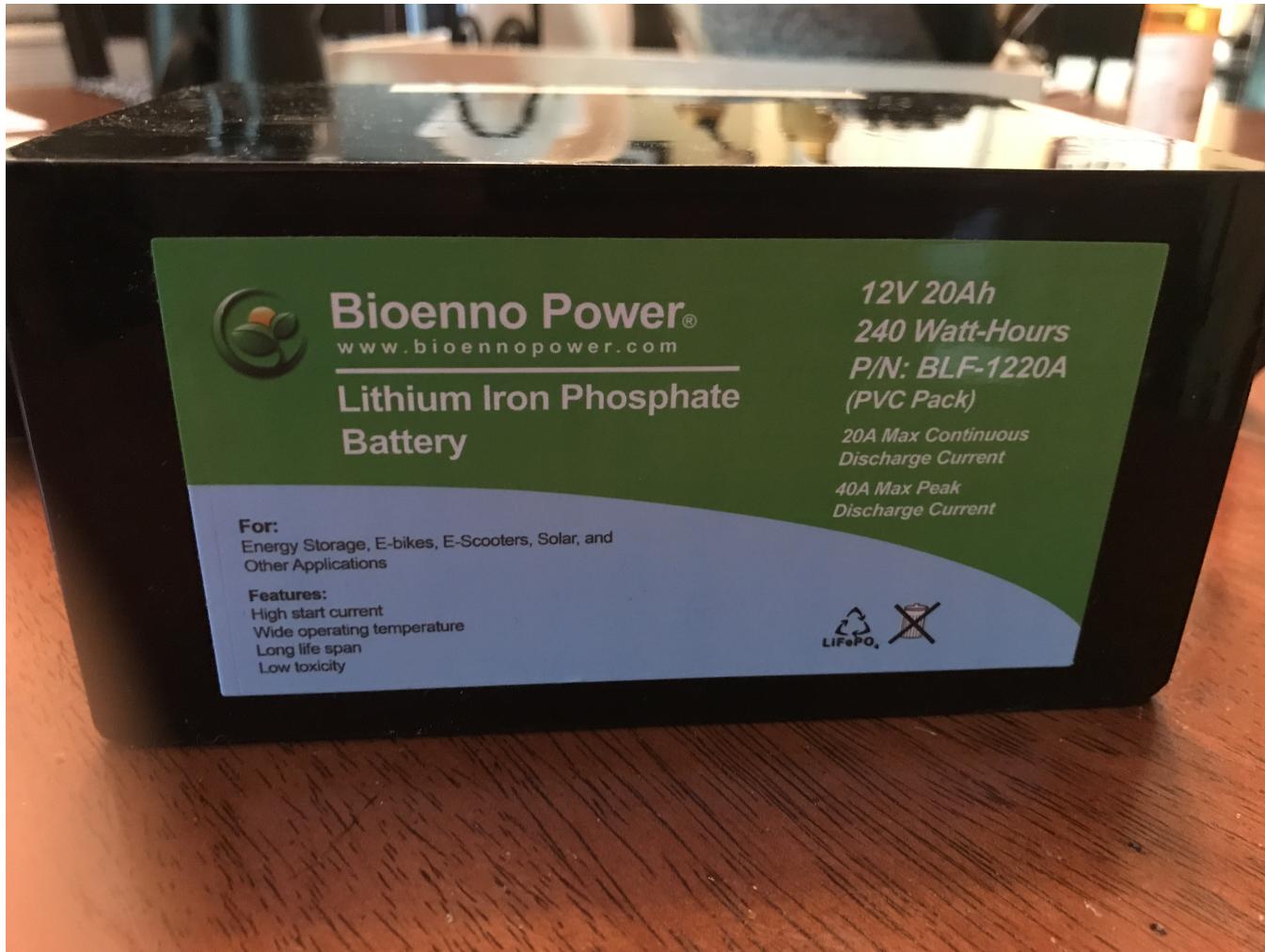
Rigs

- Xiegu G90
 - Price, waterfall, QRP+ (20W), built-in wide range (>3:1) ATU
- Icom IC-7300



Rig power

- 20 Ah $LiFePO_4$
- Honda Ridgeline has 110v 150-400 watt AC in-bed power outlet as backup





Antennas

- 20m home-brew vertical w/radials
 - 16' fiberglass fishing pole bungeed to a tie-down in the truck bed
- Wolf River Coils “Silver Bullet Mini” 40-6m vertical
 - radials on a tripod in the truck bed:
<https://www.wolfrivercoils.com/SBmini.html>



Computer for digital modes

- Old: Dell Inspiron
- New: Apple M1 Macbook Air (18hr battery life)
 - Runs fldigi, WSJT-X, JS8Call, Winlink via native apps

Operations

- POTA: Hyner View SP, Bald Eagle SP
- WFD 2019: Prince Gallitzin SP

Hyner View SP October 2020







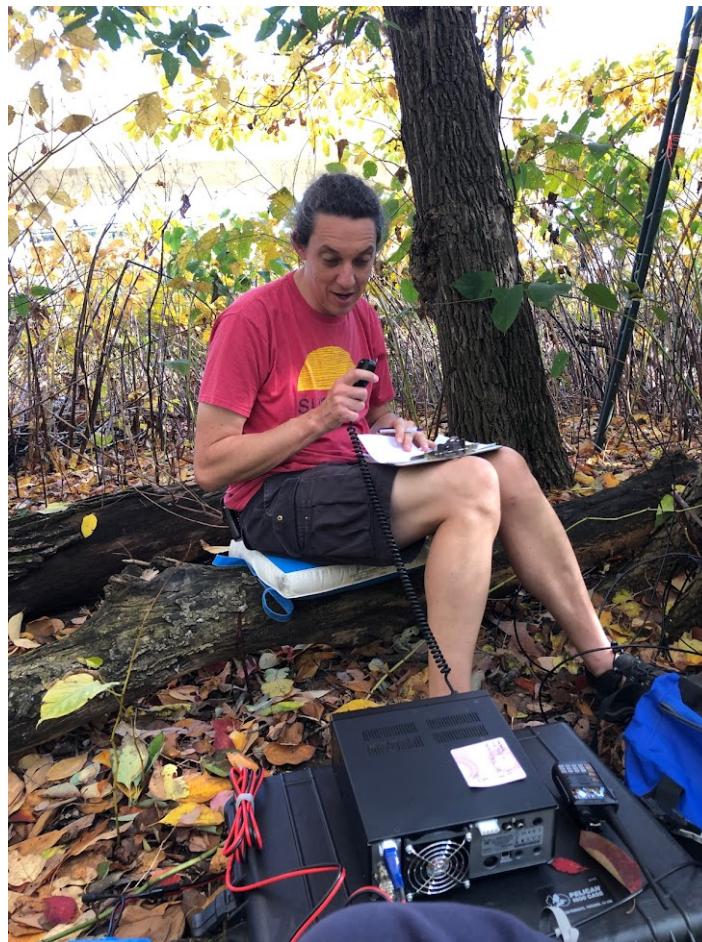


K3IWI

Gear

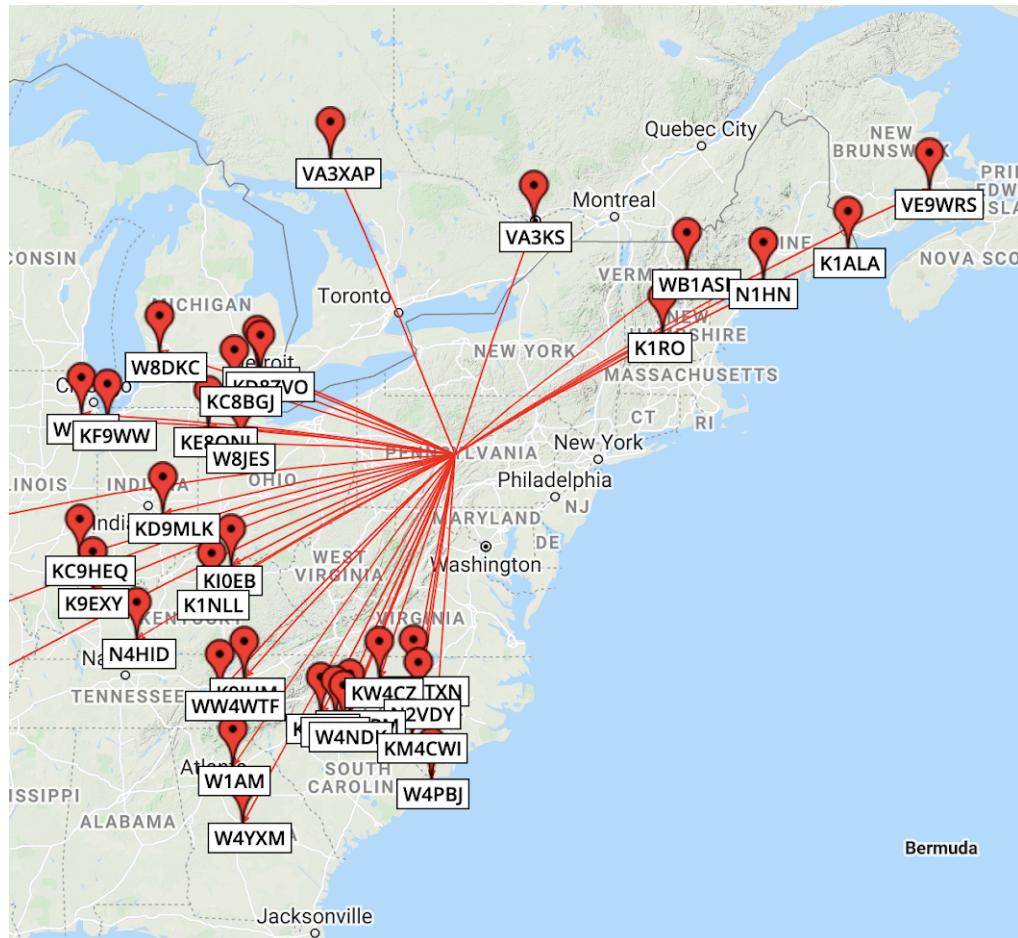


POTA activations











K3ROG

Rig(s)

- Old: IC-7100 (now KM3AJ's)
 - Kiddie bench w/ tuner, Raspberry Pi
- New: IC-705 + “booster bench”

Bands, frequencies, modes, & power

- 15m/17m/20m/40m/80m
- SSB, digital
- 5-10W; 50-100W

Military mast + tripod

- 40m/80m NVIS fan dipole
- No need to guy if < 20'
- Speaker tripods if can't stake (e.g., N3M)
- 6 for \$9.95 from [Coleman's](#)
- Mast hub for \$63.00 on [Ebay](#)
- SHOW & TELL

Chameleon **MPAS Lite**

- Multiband, but need tuner
- Base-loaded vertical or EFHW
- SHOW & TELL

- K3ROG owns & likes Elecraft T1 ATU



T1 and a 9 Volt Battery (not available at Elecraft)

<https://elecraft.com/products/t1-miniature-stand-alone-atu-and-accessories>

SOTABeams Band Hopper linked dipole

- SOTABeams mast in hitch mount
- Lightweight antenna, nicely built
- Resonant, but can't band-hop without adjusting links (alligator clips)
- SHOW & TELL

SOTABeams linked dipole

- Fishing pole mast on ground
- Ebay Example







K3ROG quick takes

- Pricey/good value/heavy-duty/easy to setup/moderately heavy: Chameleon MPAS Lite
- Mid-price/heavy/stable: Mil mast + tripod
- Cheap/lite: Fishing pole mast + dipole/EFHW

What's your jam?

- It's a hobby, gosh-darnit!

CW/Digital modes

- QRP rig (IC-705; KX2/3; Xiegu G90) or
- CW-only rig
- Laptop (digital only)

Phone

- QRP rig + amp or
- QRO rig

Resources

- [OH8STN blog](#) and YouTube channel
- [Ham Radio Crash Course](#) YouTube Channel
- [QRPer blog](#) blog
- [K6ARK Portable Radio](#) YouTube channel
- [K8MRD Radio Stuff](#) YouTube channel

Ideas

- How about a club-sponsored multi-POTA activation marathon?
 - Bald Eagle SP
 - Black Mo SP
 - Rothrock SF
 - Whipple Dam SP
 - Greenwood Furnace SP
 - Poe Valley SP
 - Poe Paddy SP

- Winter Field Day (Jan 29-30, 2022) at Black Mo SP
- “Middle of Nowhere” Special Event (PA geographic center: N3S/W3E)
- How about our own RaDAR activity?
- Field Day 2022 in the field

<https://nittany-amateur-radio-club.github.io/presentations/ham-radio-out-there.html>
