KA0SOC POTA Setup

Equipment & Control System Overview

About Me

- KA0SOC
- Licensed June 2025
- General August 2025
- Amateur Extra August 2026
- 40+ years in technology and electronics
- Digital Modes, SDRs, Hardware Modification
- Active on 20m and 40m
- FT8 Enthusiast

New to amateur radio, not new to technology.

Why This setup?

- HOA antenna restrictions
- Outdoor antennas outperform attic antennas
- Portable operating is flexible
- Great excuse to get outdoors

HOA restrictions led me to discover portable operating.

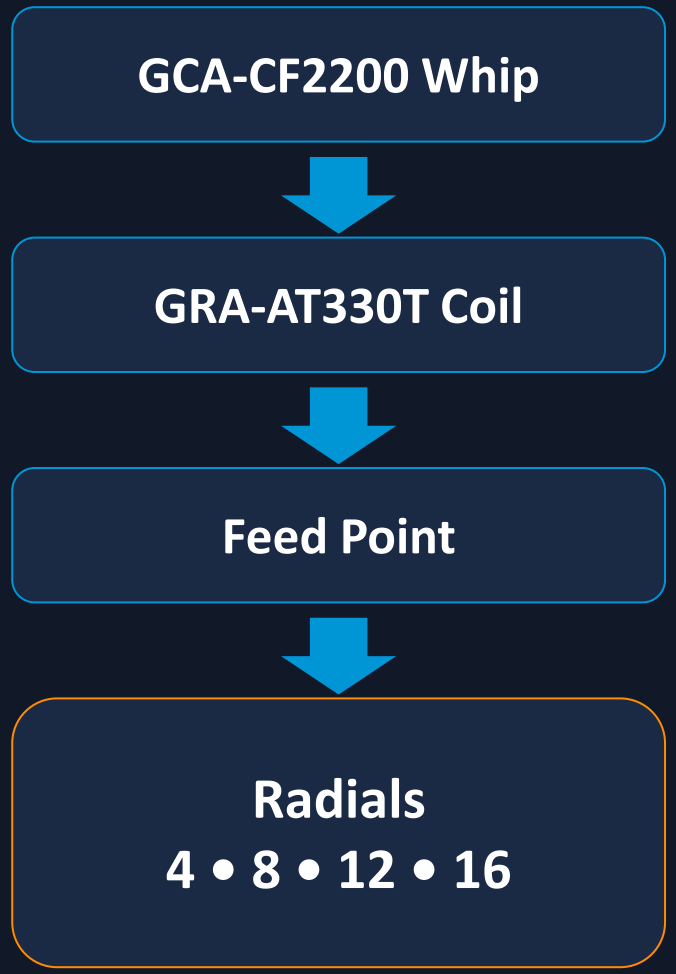
Antenna System Overview

- GRA-AT330T Motorized Coil
- GCA-CF2200 Carbon Fiber Whip
- Homebrew Modular Radials
- Multi-Band Vertical Design



One antenna system covering multiple HF bands.

Antenna Architecture Diagram



Modular, scalable, and fast to deploy.

GRA-AT330T Motorized Coil

- 3.5-50 MHz
- 12V Motorized Tuning
- 10 Memory Positions
- IP68 Rated
- Portable, Mobile & POTA



One antenna. Multiple bands. No manual retuning.

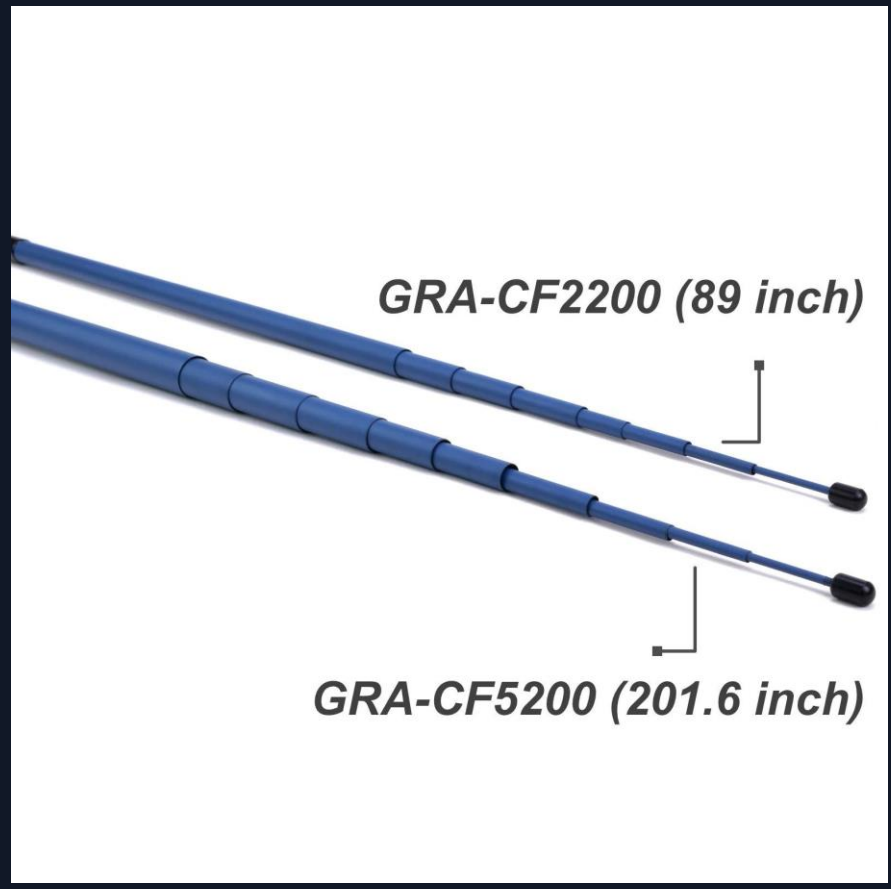
Gabil Carbon Fiber Whip Antennas

GRA-CF2200

- 89" Extended
- 15.7" Collapsed
- 2.75 oz
- 8-Section CF
- Includes 3/8-24 Adapter

GRA-CF5200

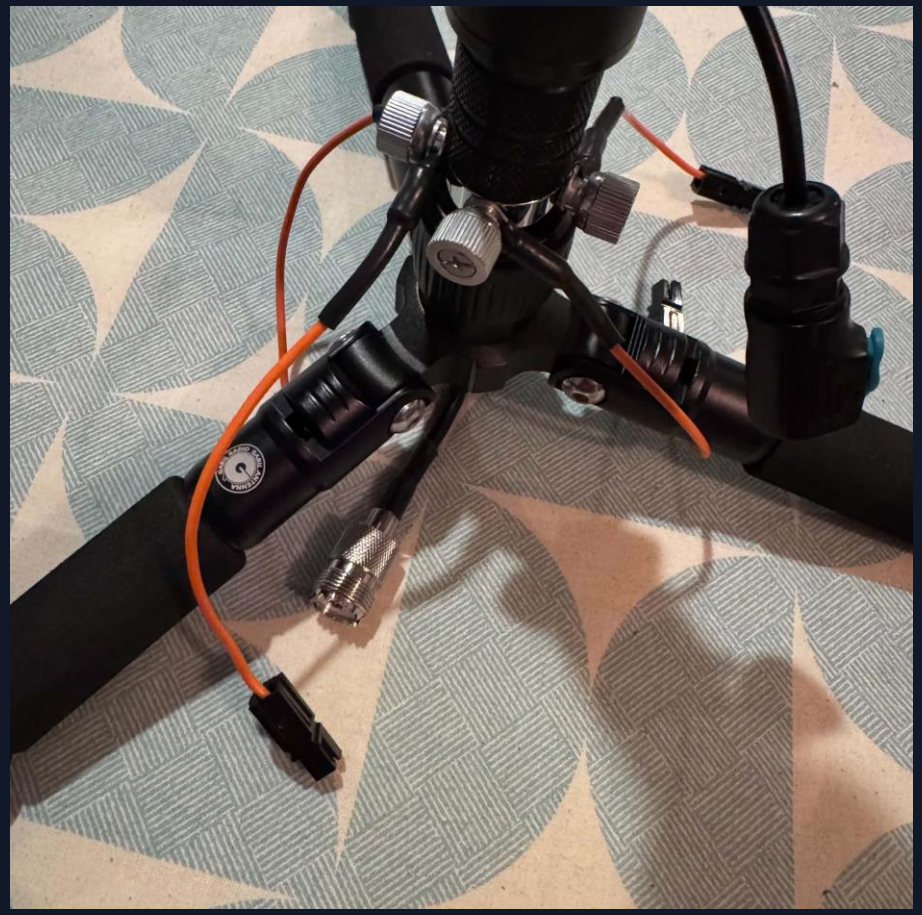
- " Extended
- 201.6"" Collapsed
- 3.63 oz
- 10-Section CF
- Includes 3/8-24 Adapter



89 inches on the air. 15.7 inches in the bag.

Homebrew Radial System

- 17 ft Orange Silicone Wire
- Anderson Powerpole Harnesses
- Ring Terminal Feed Point
- Deploy 4, 8, 12, or 16 Radials



Deploy only the radials the site requires.

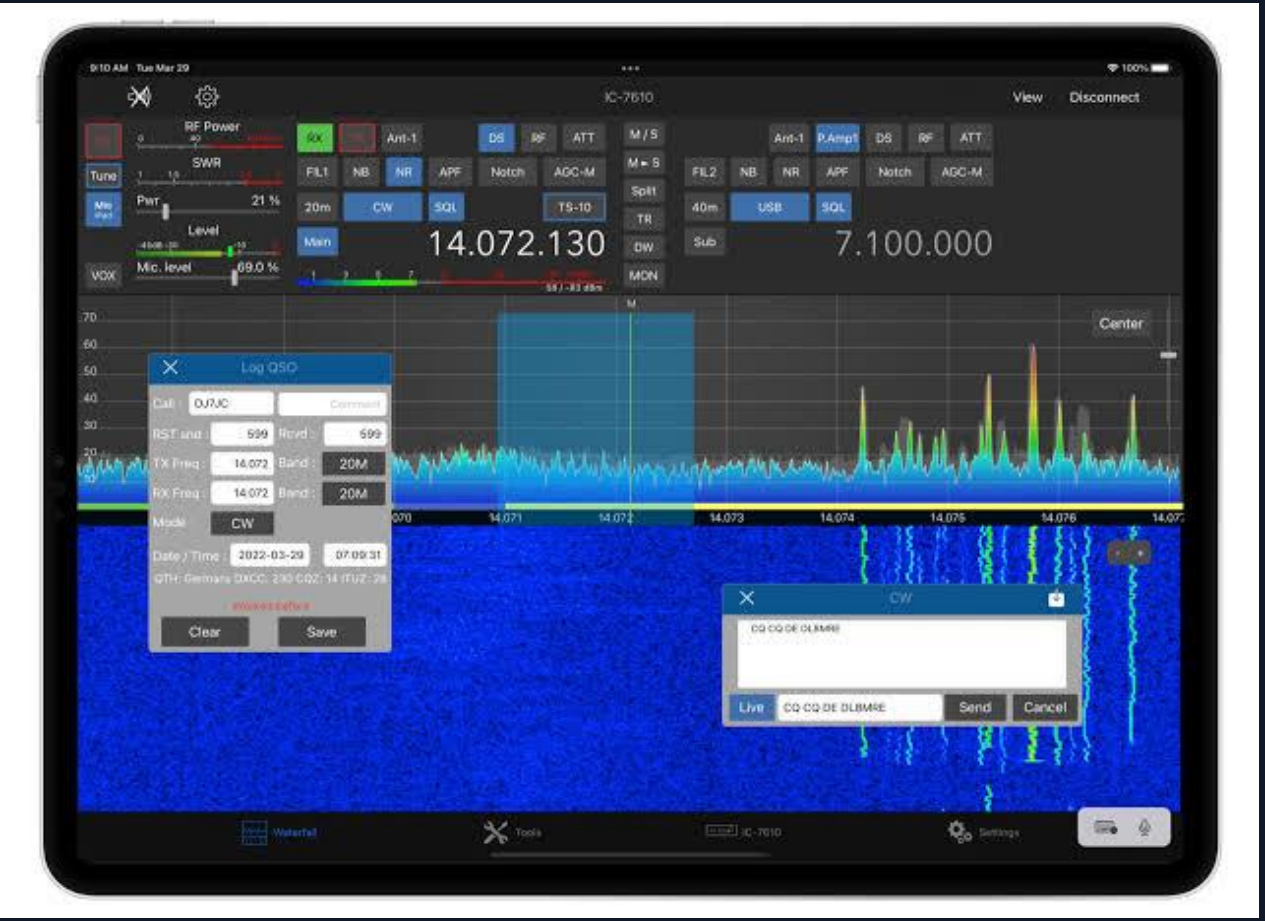
Scenario 1

Rapid Deployment

INSERT: FULL-SLIDE IPAD STATION PHOTO

Rapid Deployment

- 13" iPad
- SDR-Control
- Integrated Logging
- Minimal Hardware
- Remote Radio Control
  - **Icom IC-705** (via built-in Wi-Fi)
  - **Icom IC-7300 MK2 (via Ethernet cable)**
  - **Icom IC-7610 (via Ethernet cable)**
  - **Icom IC-7760 (via Ethernet cable)**
  - **Icom IC-9700 (via Ethernet cable)**
  - **Icom IC-R8600 (via Ethernet cable; receive-only)**



Less setup. More operating.

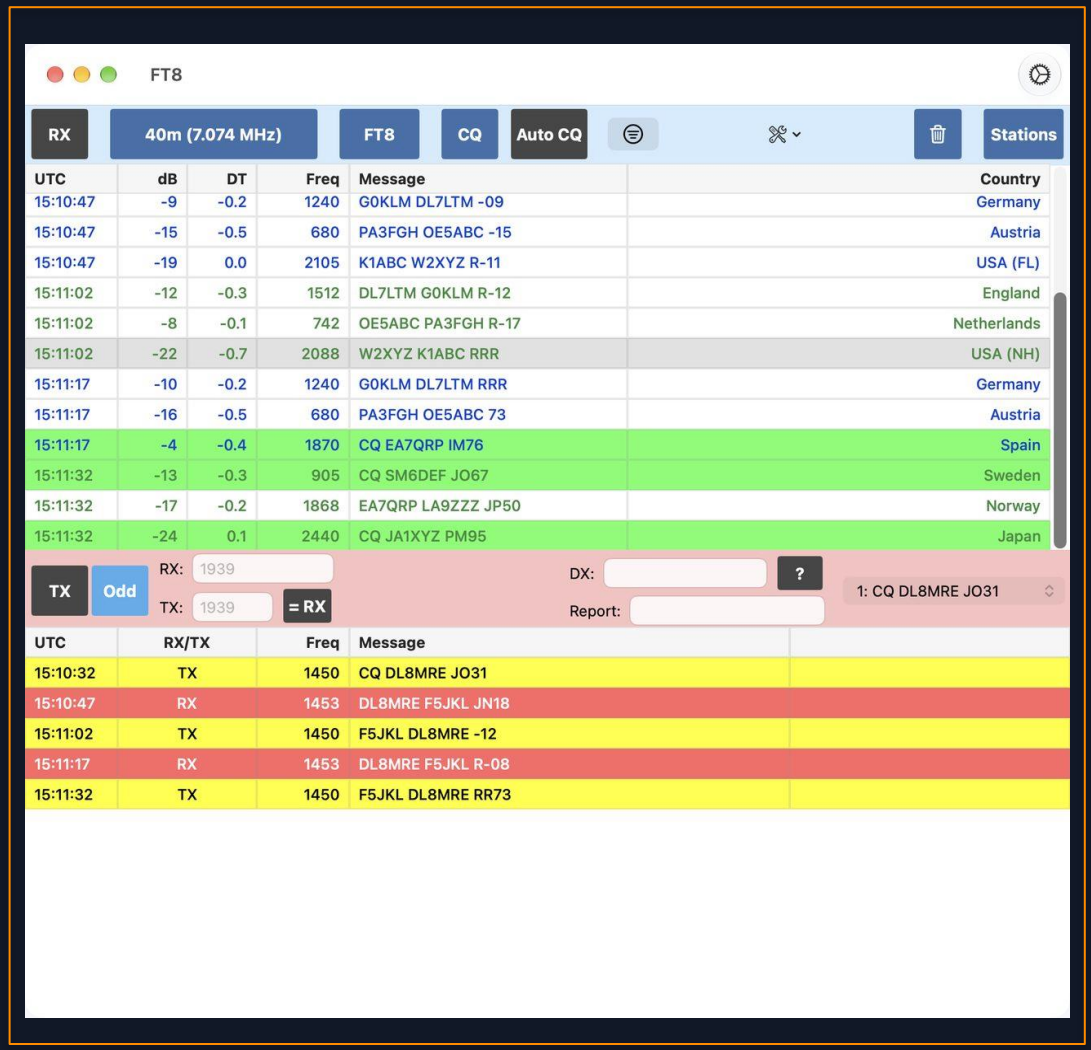
Rapid Deployment: Pros & Cons

Pros

- ✓ Lightweight
- ✓ Fast Setup
- ✓ Minimal Hardware
- ✓ Compact Footprint

Cons

- ⚠ Wi-Fi Dependency
- ⚠ Fewer Digital Options
- ⚠ Not Ideal for Rough Conditions
- ⚠ Limited Expandability

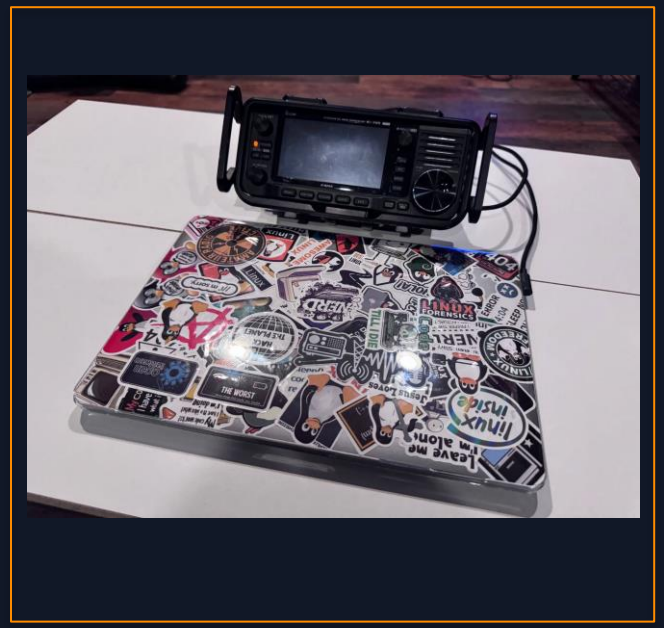


Scenario 2

Full Deployment

Full Deployment

- 2017 MacBook Pro
- Linux Mint
- USB-C Charging
- USB-C to IC-705
- Full Digital Mode Support





$200 Used Laptop

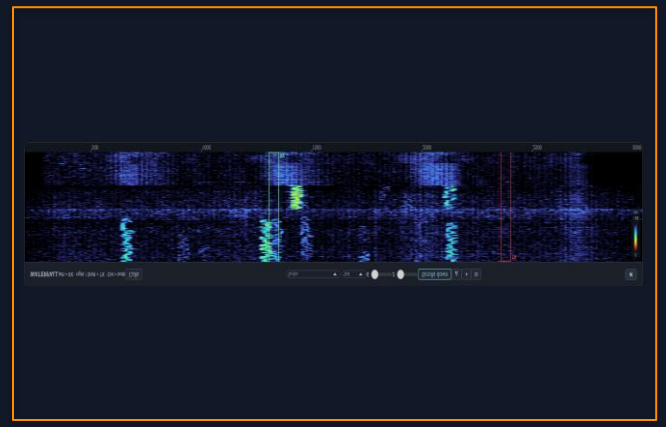
Single USB-C Connection

Maximum capability and flexibility.

Ham Radio Tools: Nexus

- FT8 / FT4
- WSPR
- RTTY
- SSTV
- PSK31
- APRS
- CAT Control
- Integrated Logging







One application instead of multiple tools.

Nexus https://hamradiotools.io



One application instead of multiple tools.

Lessons Learned & Key Takeaways

- ✅ HOA restrictions drive innovation
- ✅ Portable antennas can outperform compromise antennas
- ✅ Repurposed equipment works (Devices are rarely end of life.
- ✅ Experiment often
- ✅ Just get outside and have some fun!

Think outside the box and get on the air.

Thank You

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Questions & Discussion