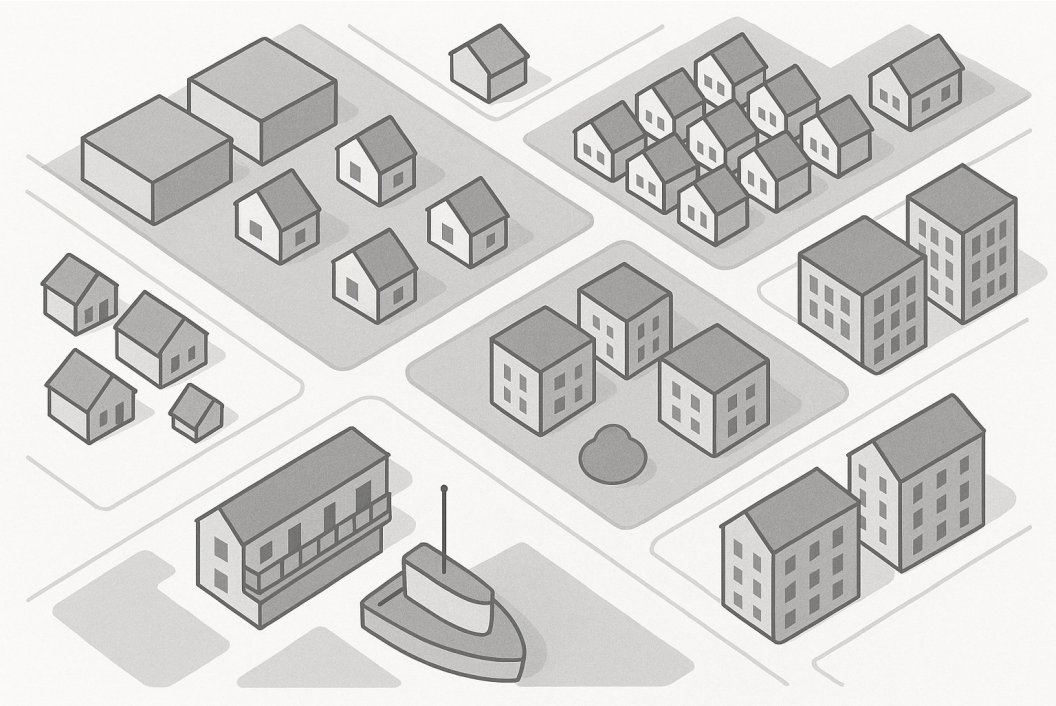
Antennas for Tight Spots

Eric Bramini
KC8OPY

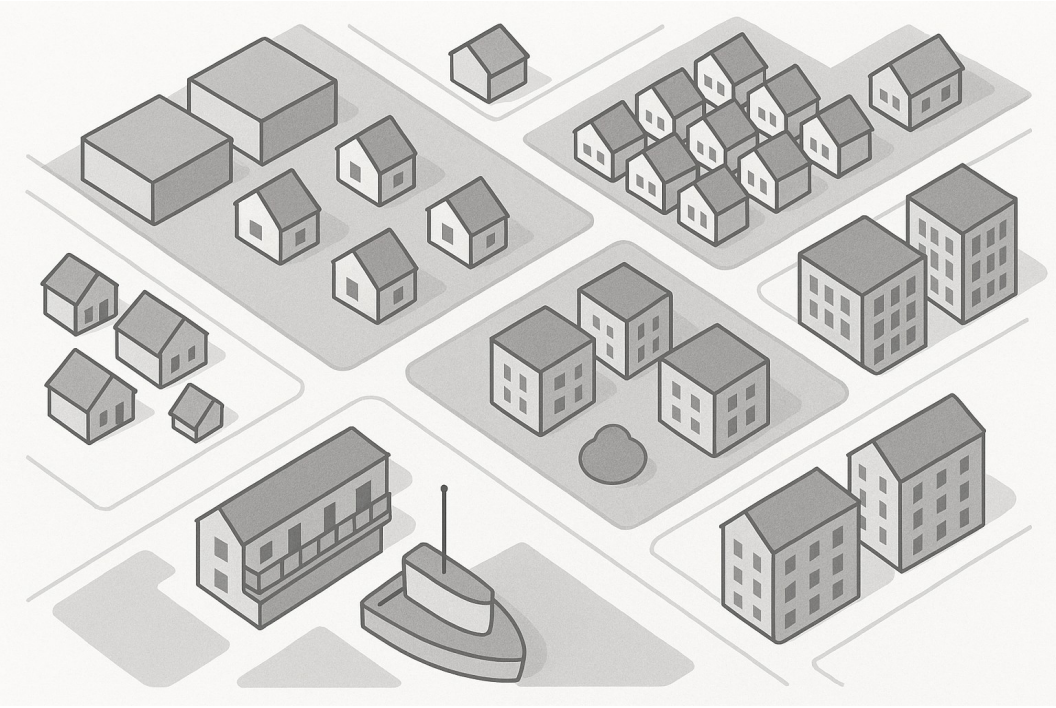
Why This Matters

- More hams live in apartments, condos, and HOAs
- Small yards and noise-heavy environments are common



Why This Matters

- Portable and stealth antennas are more relevant than ever
- You don’t need acreage to make contacts



Typical Constraints

- Limited horizontal room
- Height restrictions
- RF noise from neighbors and electronics
- HOA/landlord rules
- Need for low-visibility installations

Antennas for Tight Spaces

- End-Fed Half-Waves (EFHW)
- Magnetic loops
- Short verticals
- Attic antennas
- Stealth wires (gutters, fences, flagpoles)

End-Fed Half-Wave (EFHW)

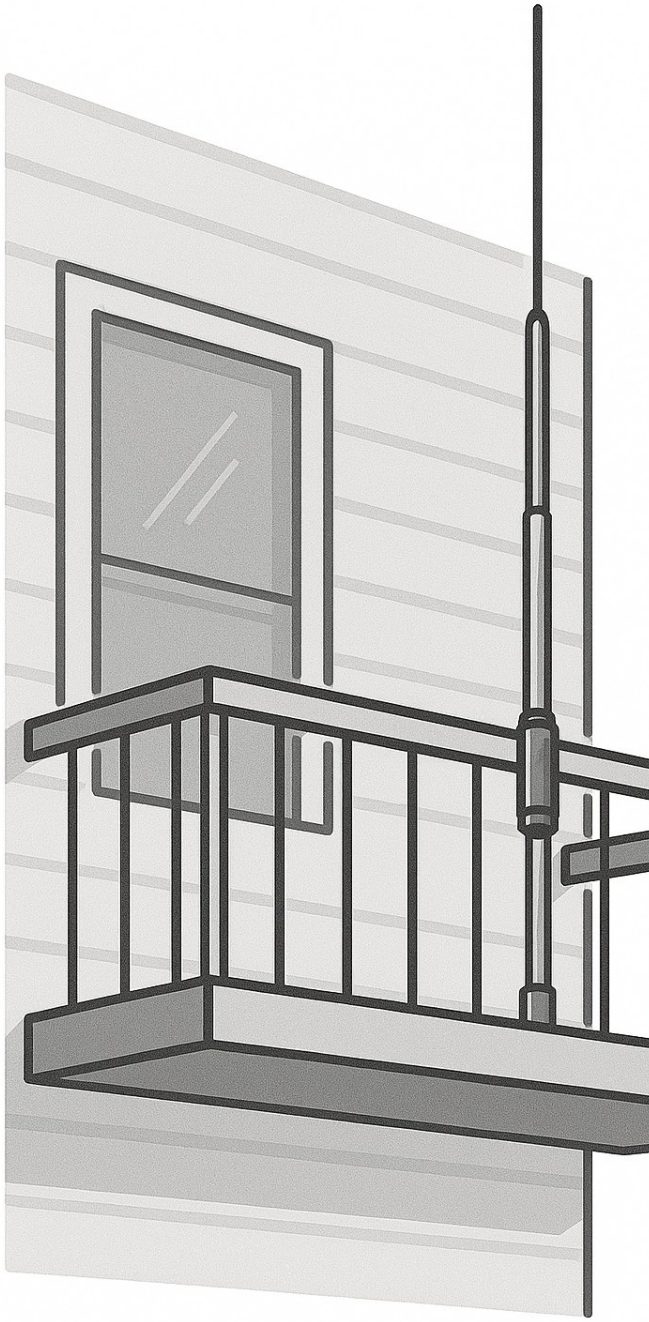
- Flexible layout: sloped, zig-zag, fence-line
- Multi-band capability
- Easy to hide under eaves or in trees
- Works well with tuners

Magnetic Loops

- Ideal for apartments and condos
- Indoor or balcony operation
- High efficiency for their size
- Narrow bandwidth
  - excellent noise rejection

Short Verticals

- Great for patios, balconies, and small yards
- Use elevated radials or railing as counterpoise
- Loading coils extend band coverage
- Portable options double as home antennas



Attic Antennas

- Dipoles, loops, EFHWs, even small Yagis
- Hidden from HOAs
- Watch for detuning from HVAC, wiring, and metal
- Good for 20–10m, workable on 40m with tuning

Stealth Wire Antennas

- Rain gutters as radiators
- Flagpole verticals
- Thin magnet wire in trees
- Fence-line loops

Creative Layouts

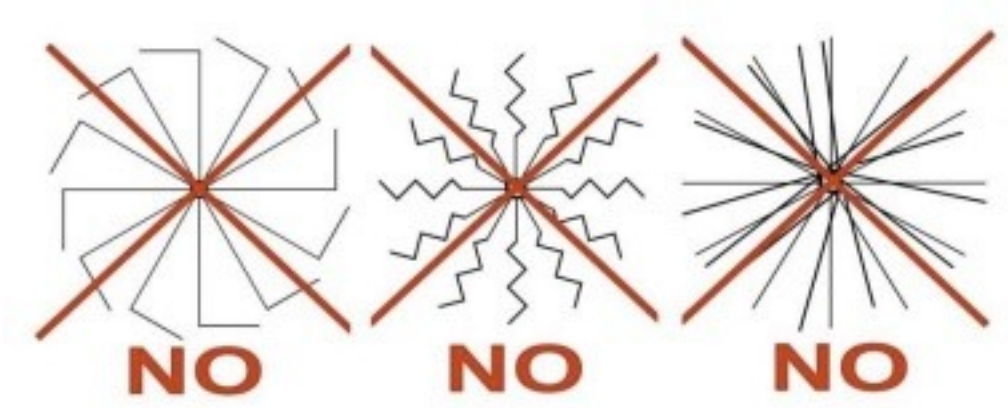
- Zig-zag dipole for small yards
- Perimeter loop around attic or yard
- Window-frame loop for apartments
- Balcony rail vertical with loading coil

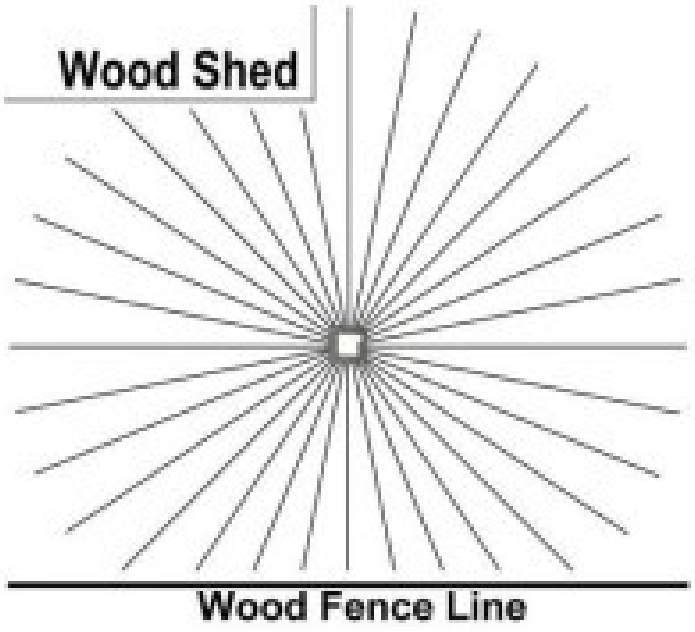
Performance Tips

- Prioritize height when possible
- Keep feedline losses low
- Use common-mode chokes to reduce noise
- Experiment with grounding and counterpoises
- A tuner is your best friend

Performance Tips

- Radials are important for verticals
- Don't get creative with them



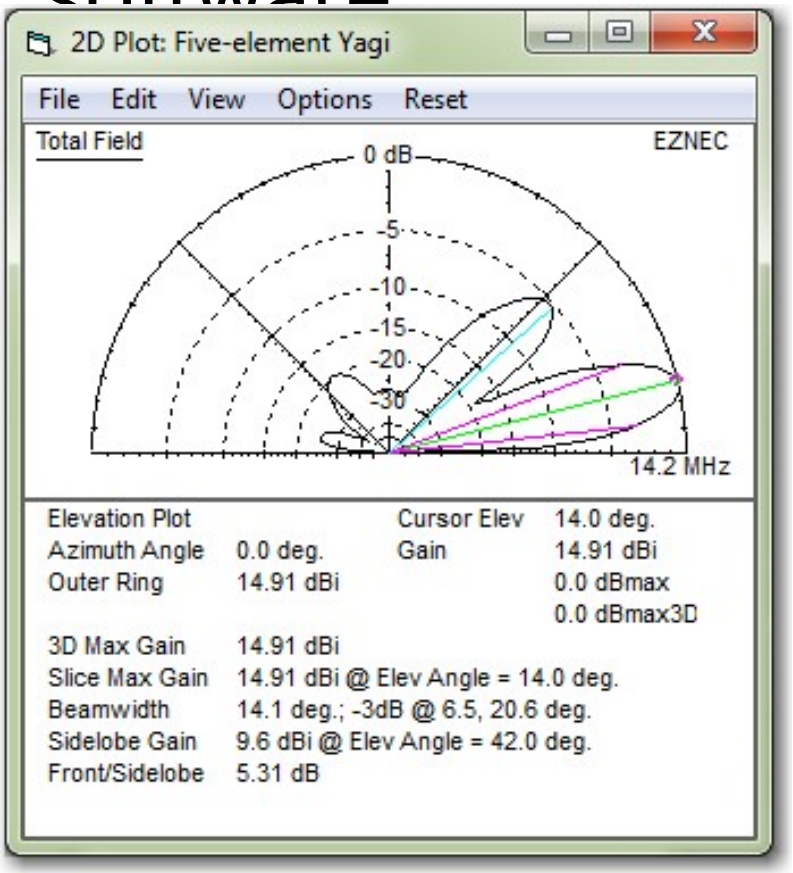


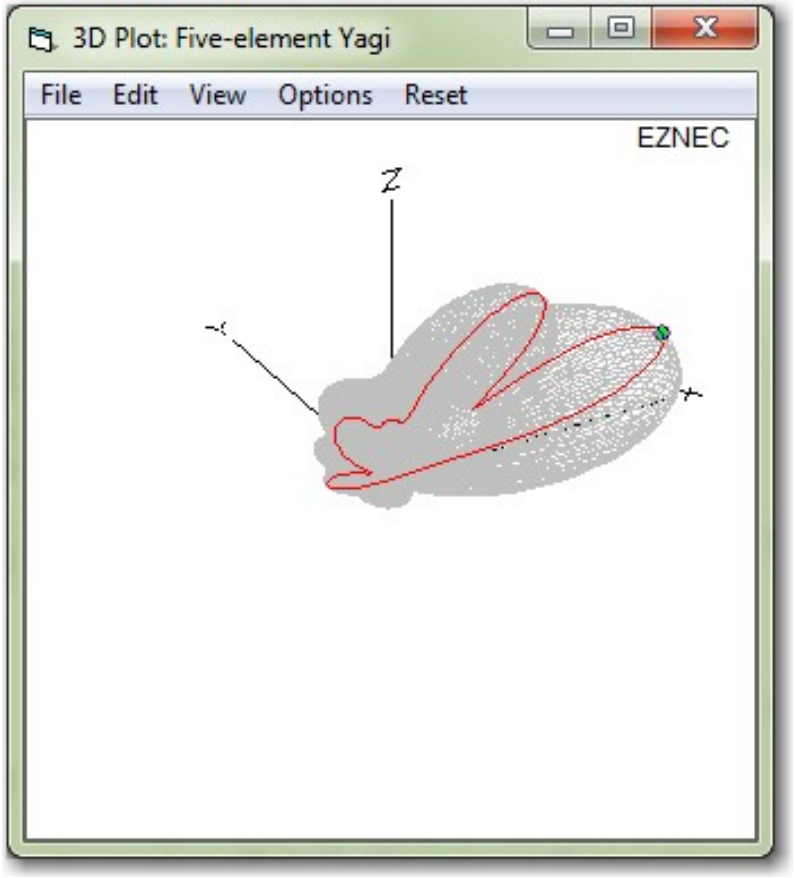
Tools That Help

- NanoVNA or antenna analyzer
- Portable masts (painter poles, Jackite poles)
- Lightweight wire (26–28 AWG)

Tools That Help

- Antenna modeling software





Real-World Examples

- Balcony mag-loop
- Attic EFHW
- Stealth wire in a tree
- Fence-line loop
- Patio vertical

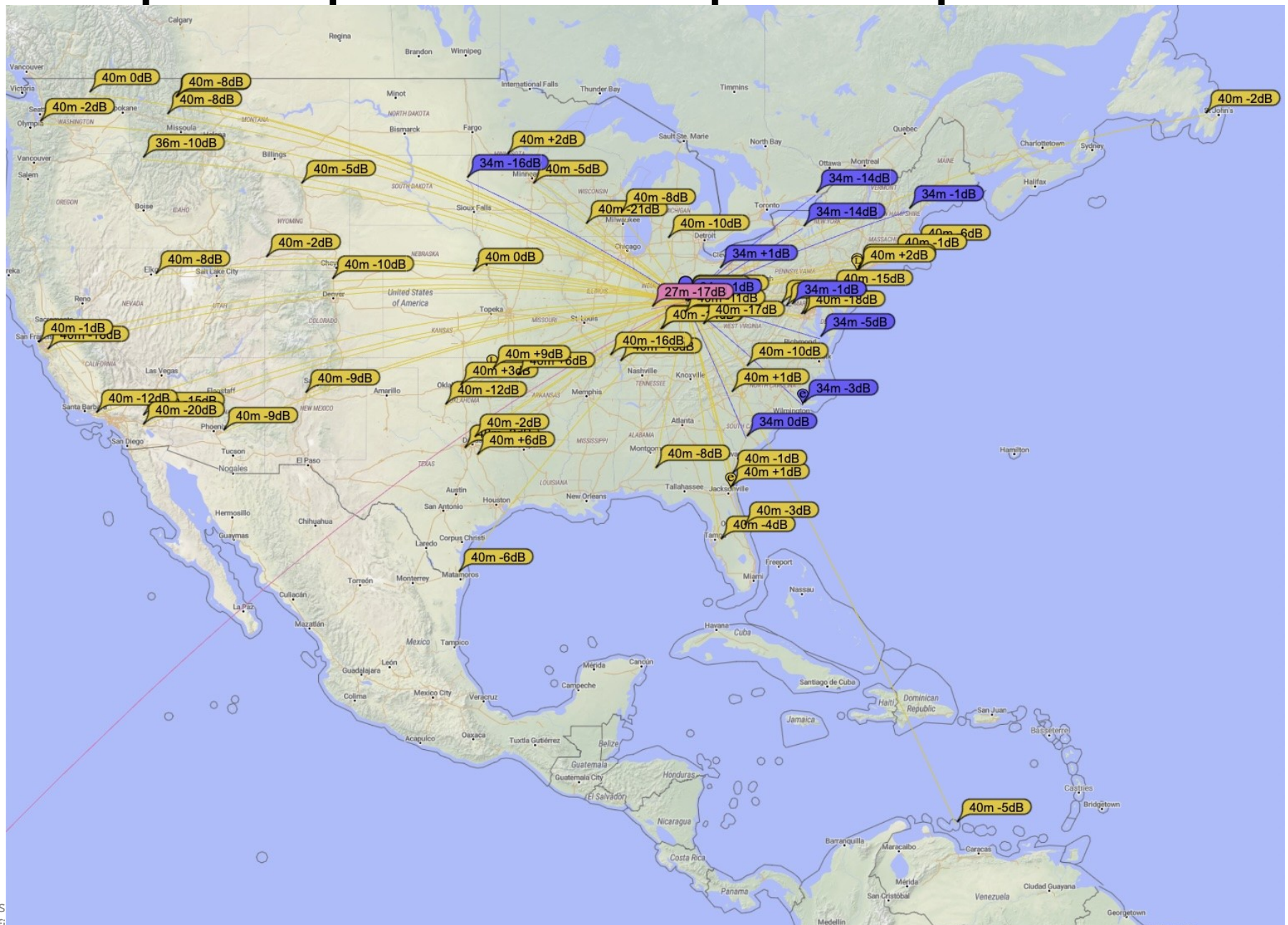
Operating Strategies

- Digital modes (FT8, JS8Call) excel with small antennas
- CW for weak-signal performance
- Choose bands that match your antenna’s strengths
- Use propagation windows to your advantage

Experimentation Encouraged

- Small-space antennas are iterative
- Try multiple layouts
- Compare performance -PSK Reporter is a good resource

pskreporter.info/pskmap.html



Summary

- Tight spaces don’t limit your ability to operate
- Many antenna types work well with creativity
- Tools and tuning matter
- Experimentation leads to success

Questions?

Comments?