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HamXposition

Antennas for Contesting

Mark Pride, K1RX

Over 50 years of contest experience,
antenna engineer, operated from
stations around the world, built nearly
every amateur antenna on the market

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Antennas for Contesting – a BIG Topic!

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- You could spend your entire ham life creating the best antenna farm
- Reality – Time, Finances, Physical Space, Goals
- And I could share 450 slides with you in this presentation and NOT fully cover the subject!



Start Simple - Learn

- Antennas create the most impact to your score
 - Almost always more effective and less expensive – and impacts both TX and RX capability
- Antenna Farms are an iterative process
 - Consider each season, a new or different crop
- Each Contest Experience – Brings new ideas
 - Opportunity to set a new goal – be louder on select bands, add flexibility



Reference Antenna

- How do you know you're making progress with your station?
 - Sure - on-air during contests, score growth year over year, etc.
 - Doesn't tell you the REAL story
- If you can't compare antennas quickly, how do you really know your new antenna is working?
- Too many variables to consider when NOT using a reference
 - Varying propagation, local noise, time of day are just a few
- Having an "always available" reference takes all the guess work out!
- A critical success element of your station
 - Reference antenna can be anything – your first antenna? Just don't take it down!
- And you'll love the convenience!



Tradeoffs can drive Motivation

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- Challenge of producing high scores with a minimum antenna farm
 - Minimum defined as low dollars, small space
- All Driven by your creativity
 - Many tried & true possible antennas to consider



All Types of Possible Choices

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- Dipoles, OCF, Verticals, Yagis, Quads, Phased Arrays and more
- Choose and Optimize your selection based on your available space and your contest goal
- Don't stop seeking the best solution



Entry Level Antennas

- Horizontal – High Dipoles, Multi-band, Wire Beams, Quads
- Vertical with an excellent radial field – Low Bands
- Receive Antennas – a critical success factor
 - “If you can’t hear them, you can’t work them”
 - Serves as a motivator for antenna farm growth



Antenna Farms

- All wires – Lots of us!
- Single Tower – K1RX
- Multiple Towers – Long time contest stations
i.e. K3LR, W3LPL, KC1XX, K9CT, K1LZ,
K5ZD



K1AR High Dipole @ 70 ft Ladder Line Feed

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A Single Tower Station – K1RX

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- Single tower, Phillystran guyed Rohn 45, 75 ft. high
- Monobanders on mast with rotor (20, 15 m)
- Separate 10 M monobander, swinging gate
- Fixed 40 M 3 element reversible yagi NE/SW
- Fixed 3 element SteppIR (20-10 M) E/W
- Fixed 3 element Tribander South
- Lots of wires, verticals for low bands in trees

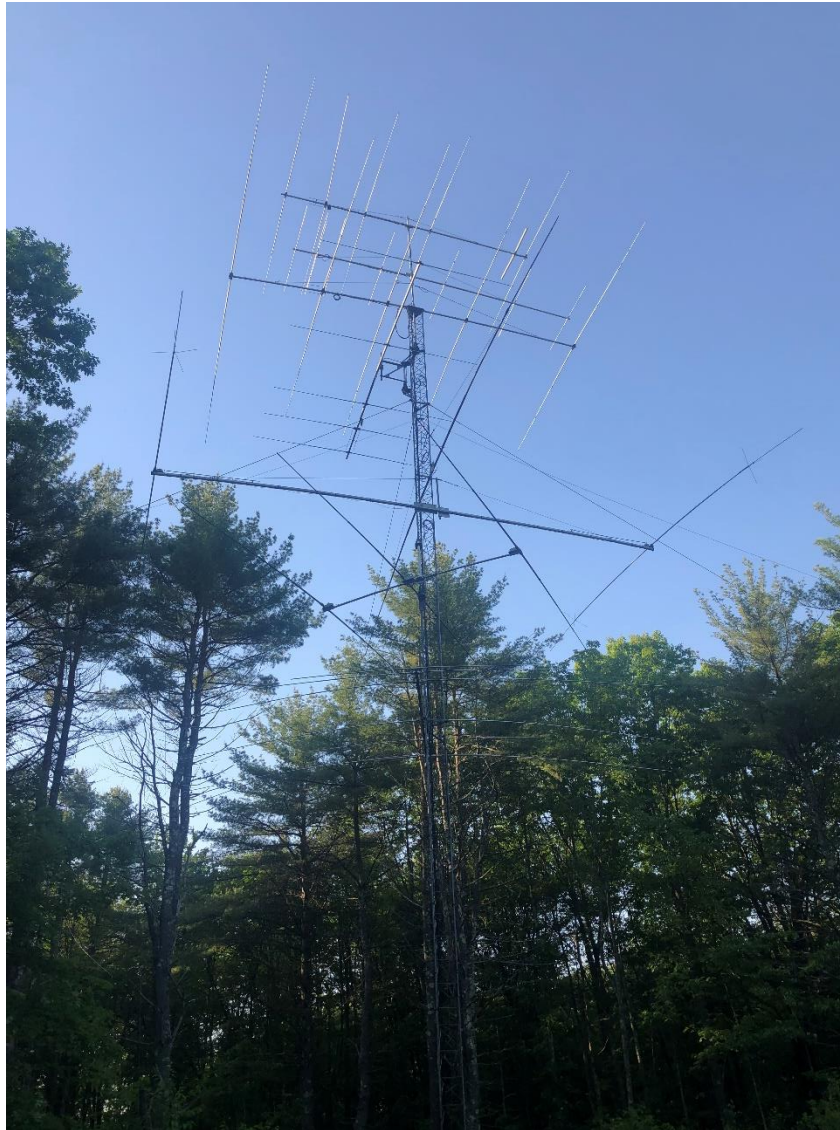


Shared Antenna Setup

- Compete in Multi-Multi Category ARRL CW DX – strategy have fun, no restrictions
- 3 operating positions sharing some antennas
 - 160/10 M
 - 80/20 M
 - 40/15 M
 - SteppIR, Tribander – shared as required
 - Night time/Day time operation with all 3 stations



K1RX Single Tower



5 el 15 @ 90 ft

7 el 6

5 el 20 @ 75 ft

5 el 10 @ 65 ft

3 el Rev. 40 @ 60 ft

3 el SteppIR @ 50 ft

Tribander S @ 35 ft

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Major Contest Stations

- Multiple Towers, Different heights
- Monoband Yagis
- Stacked Yagis
- Phased Arrays on Low Bands
- Receive Antennas – Beverages, Vertical arrays



A Big Antenna Farm

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- 160M: vertical beam, 130' tower fed at base, switched parasitic elements as reflectors or directors
- 80M: Two phased 4-squares; rotary dipole at 220'
- 40M: 4/4/4 OWA yagis at 250/180/120 ft; 2/2 W6NL Moxons at 180/120'
- 20M: 6/6/6/6 yagis at 210/160/110/60 ft; 6/6 at 140/90
- 15M: 7/7/7/7 at 160/120/80/40 ft; 8/8 at 80/40 ft
- 10M: 8/8/8/8 at 130/100/70/40 ft; 8/8/8/8 at 250/200/80/40
- Lots of low-band receiving antennas

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K3LR



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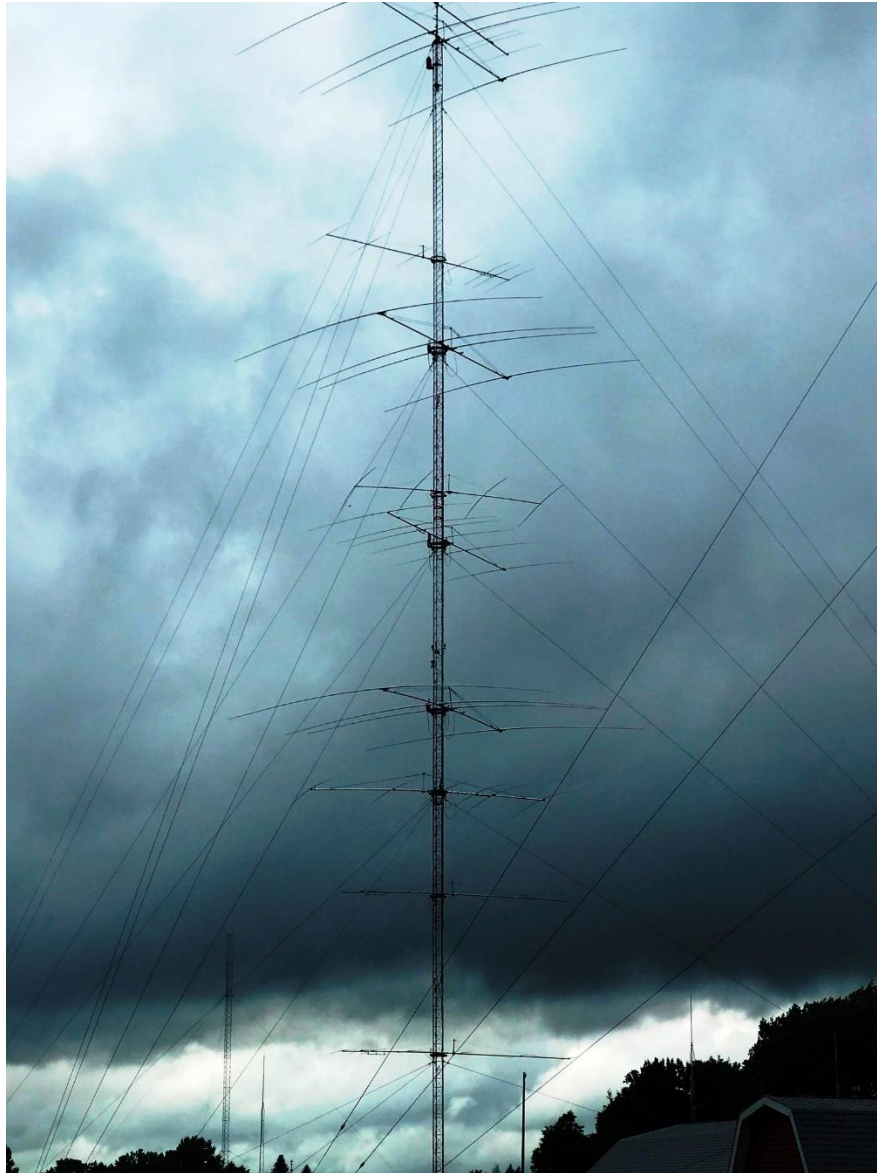
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Another view...40M tower

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Your Antenna is part of a “system”

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- Everything between radio and antenna is part of the system
 - Connectors
 - Use good quality, not cheapo “hamfest specials”
 - Bad idea to save \$1.00 in a multi-k\$ station
 - Weatherproof correctly!!!
 - Coax
 - Aim for <1dB of loss on band of interest
 - RG8X is 2dB/100 feet on 10M



Thank You!

- Don't stop growing the farm!
- Take notes, try new things, keep that reference antenna nearby



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Questions?

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