

Utilizing Effective SO2R Techniques for 6 Meter Contesting

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First Some Rules About Rules

- We're not going to discuss or debate contest rules. They are what they are....follow them or change them
- We're not going to debate FT8 as a mode compared to CW, SSB, AM or Spark
 - We will discuss how to implement it into an effective contest strategy
- FT8 is simply a "Disruptive Technology"!

Disruptive Technology

- Technology that is new and constantly innovating that initially appeals to only a small group
- It disrupts by creating new users and challenging existing technology
- Examples
 - Email & social media transformed the way we communicate
 - Cell phones disrupted the telecom industry
 - Notebook computers & tablets created a mobile workforce
 - FT8 has transformed amateur digital communications

Single Operator 2 Radio

- Used for several years in HF contesting
- Used at some VHF contest multi-ops
- Only a few Single Ops utilize it for VHF contesting on one band
 - Obviously a VHF operator must use more than one radio
- Basic principle is very simple:
 - Use one radio as a “run” radio to call CQ
 - Use a second radio to search for multipliers
- Not applicable to 144 MHz and up
- 50 MHz presents a golden opportunity for this technique

Single Operator 2 Radio

- Remember during VHF contests we can utilize any mode
 - Exception – FM Only category
- On 50 MHz we must now monitor a wide frequency range
 - CW starting at 50.080 MHz
 - SSB at 50.110 (50.125) MHz and up to above 50.200 MHz
 - And now FT8 at 50.313 MHz

First Some Basics

- "2 Radio is just that, 2 radios
 - Don't have to be the same make/model, just need to cover 6 meters
- You will need a separate antenna
 - Or a way to feed your antenna system to two radios with proper interlocks
- Antennas is a topic within itself however some review is warranted

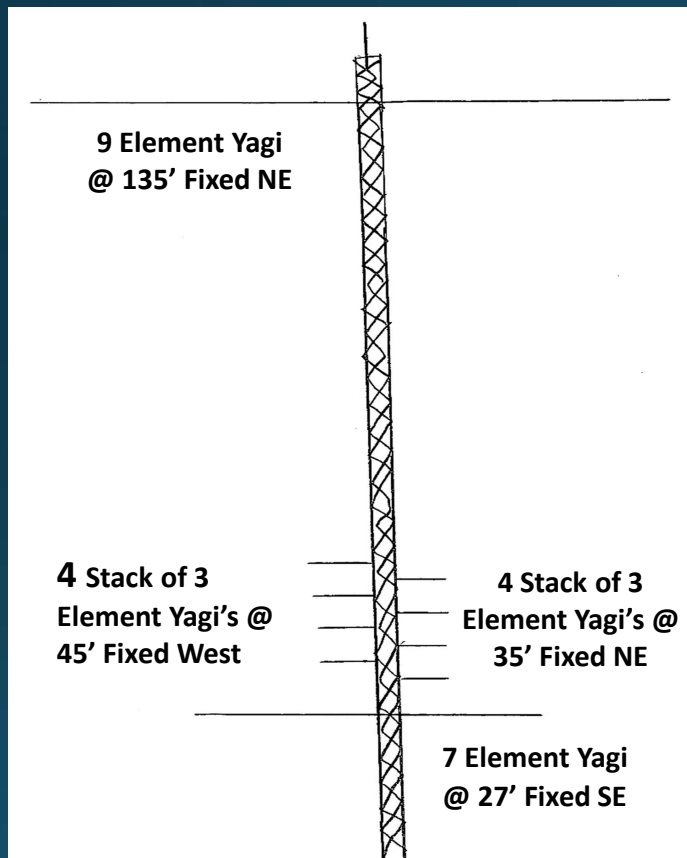
6 Meter Antenna Basics

- Become familiar with the various propagation modes you will experience in a VHF contest
 - We'll focus on Sporadic E here
- The old amateur wives tale "BIGGER and HIGHER is BETTER!!"
 - How do you know???
- An effective 6 meter antenna for Sporadic E only needs to be around 25 to 40 feet high, with 35 feet optimum for single hop E out to around 1,000 miles or so.
- 35 feet places the antenna around 1.5λ above the ground

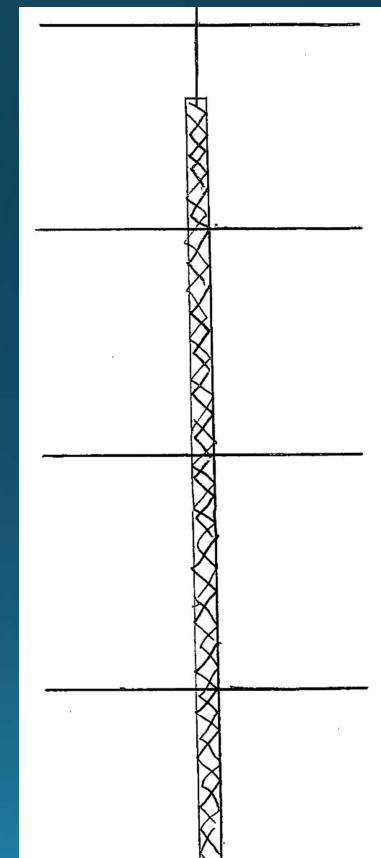
6 Meter Antenna Basics

- You do NOT need a monster with a 50 foot boom.
 - While you will have more gain you will have a very narrow beamwidth
- You will achieve outstanding results with a small Yagi at low height
- Better, use four 3 element antennas spaced around 10-12 feet and stacked vertically centered around 35 feet fixed toward a high QSO direction

W5ZN 50 MHz Antennas



200 ft



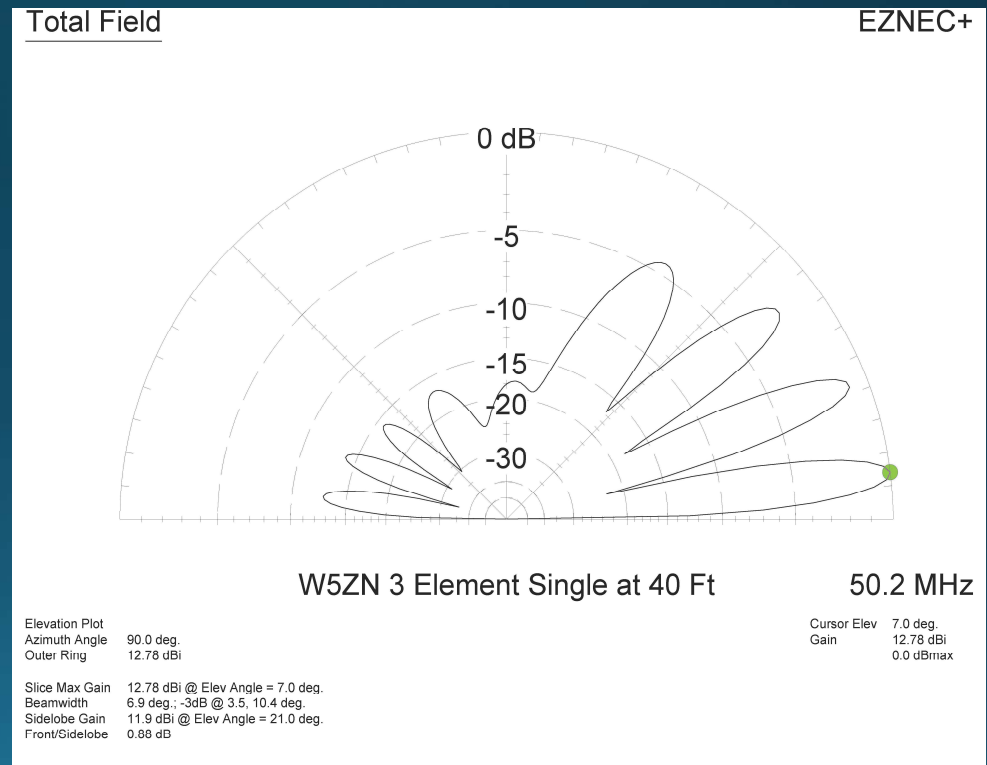
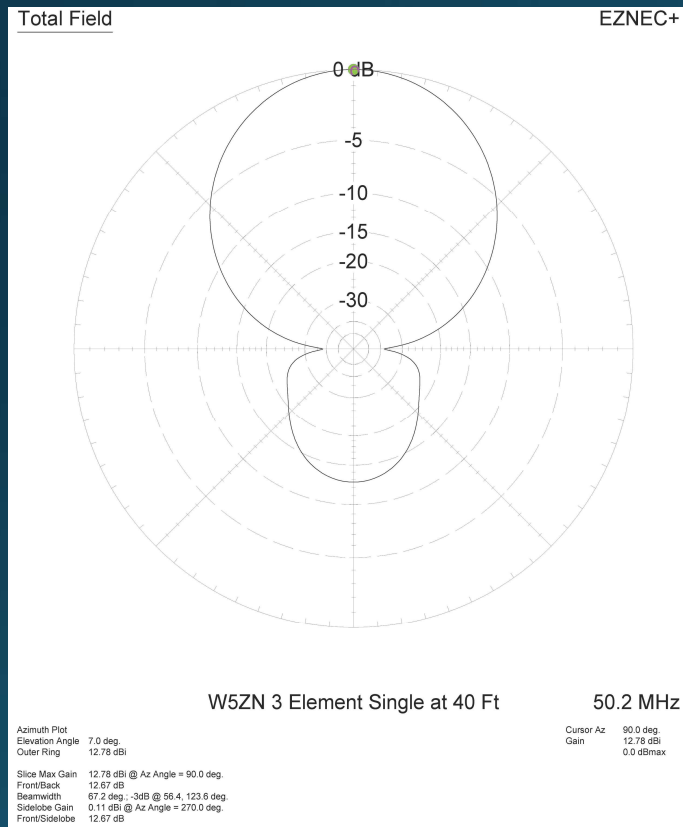
7 Element Yagi
@ 102' Rotatable

7 Element Yagi
@ 77' Rotatable

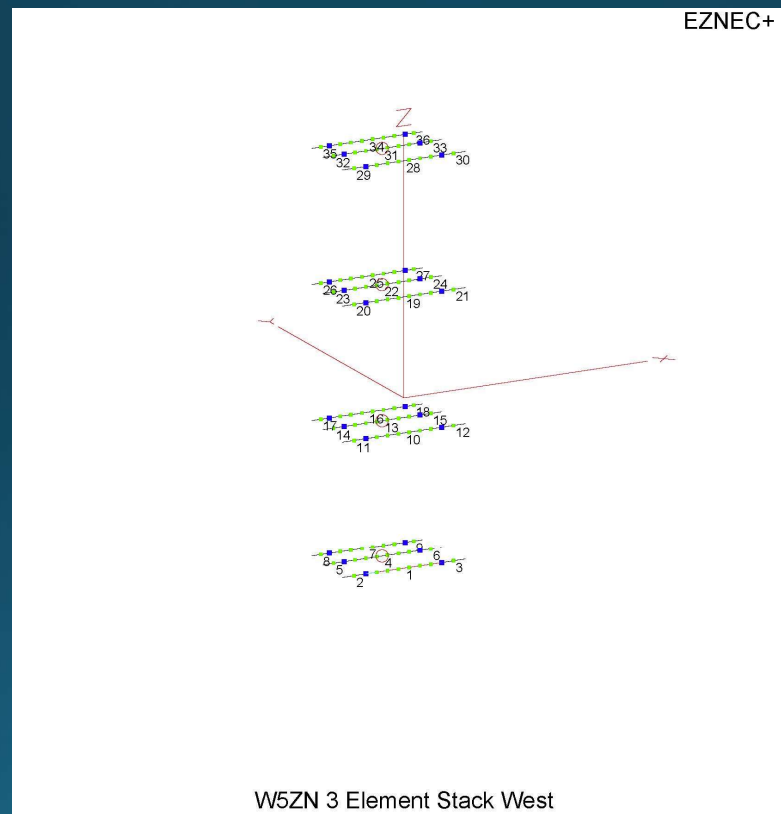
7 Element Yagi
@ 52' Rotatable

7 Element Yagi
@ 27' Fixed NE

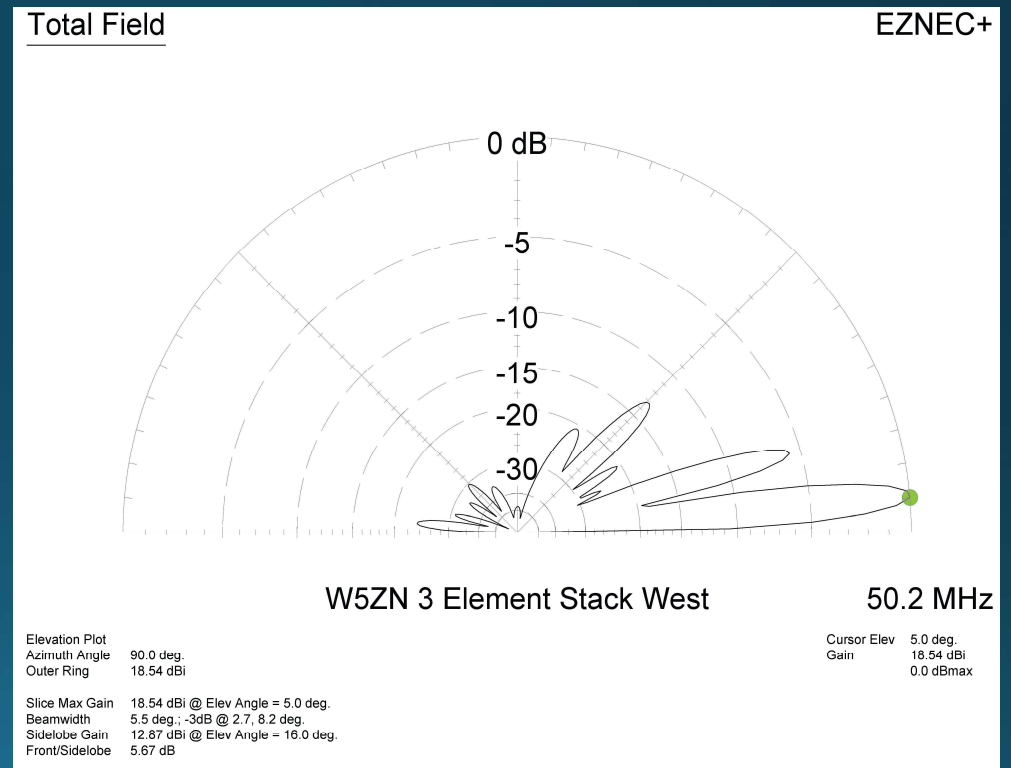
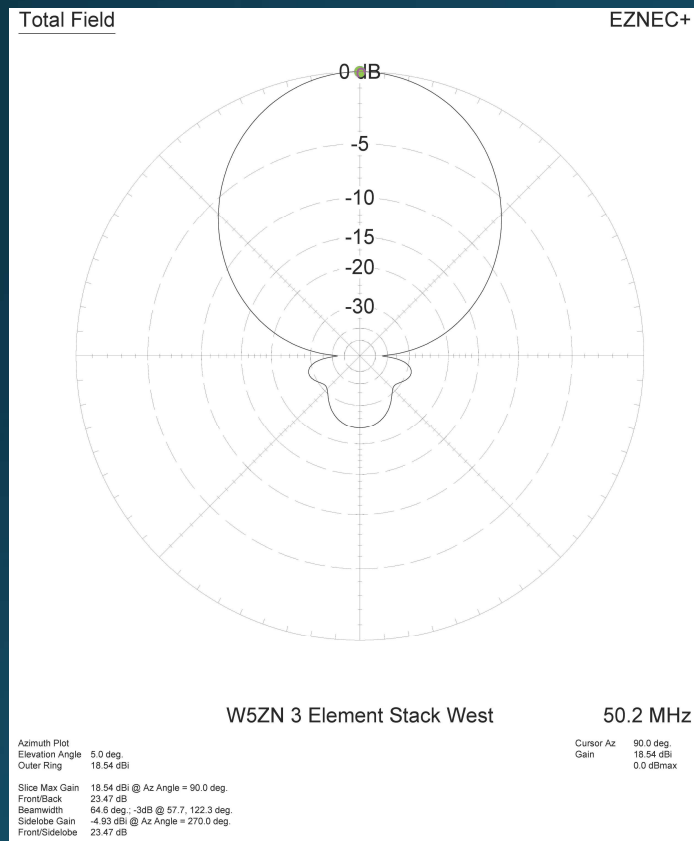
Single 3 element Yagi



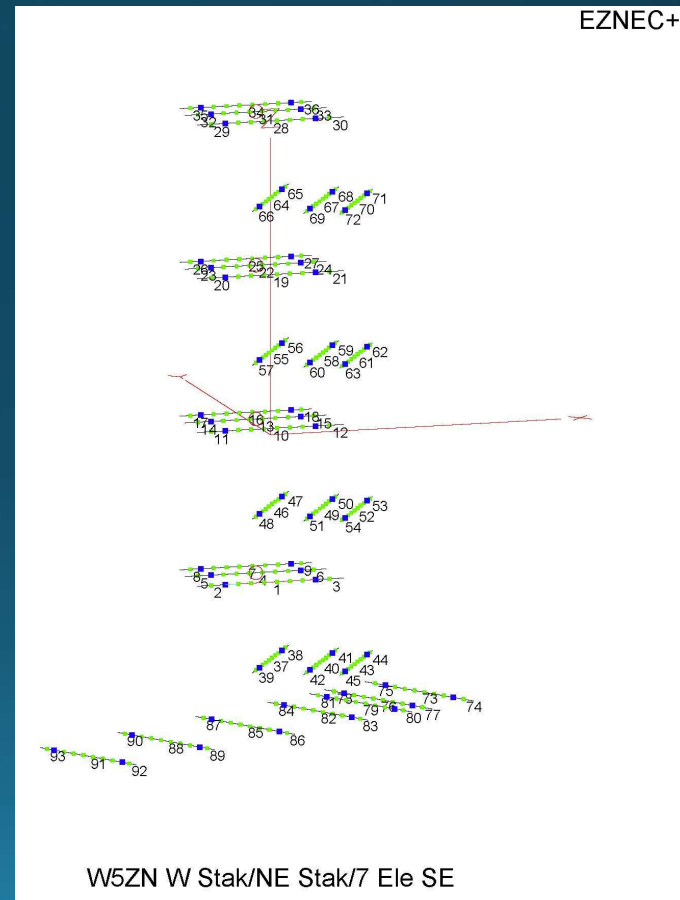
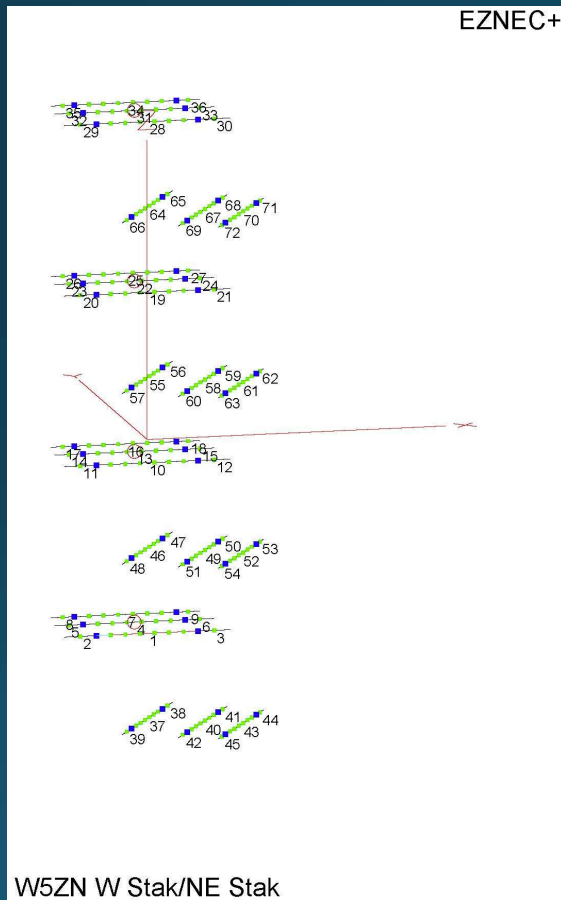
Stack of Four 3 element Yagis



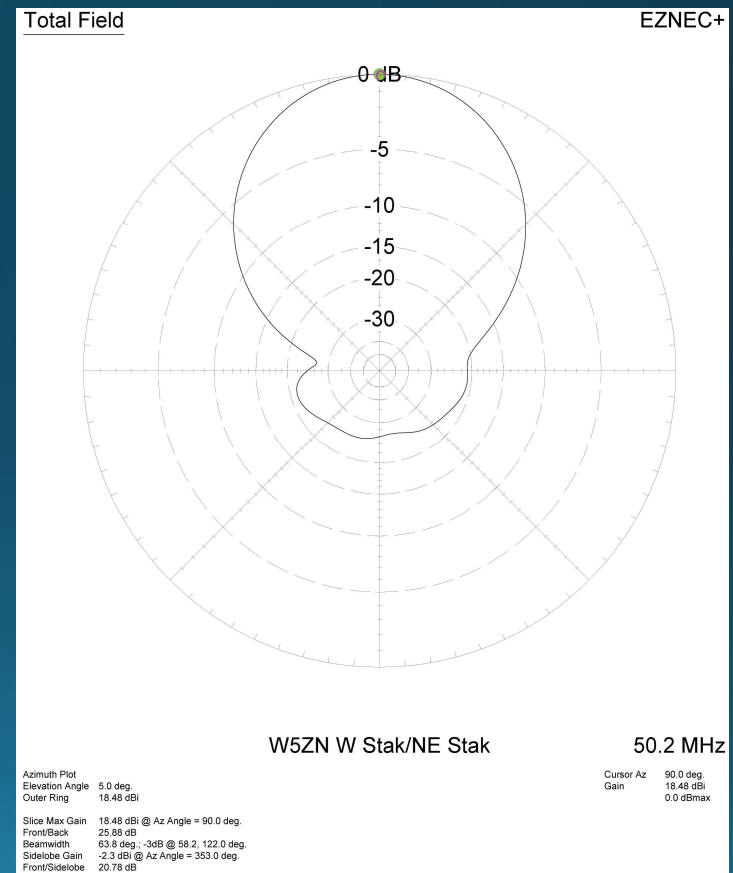
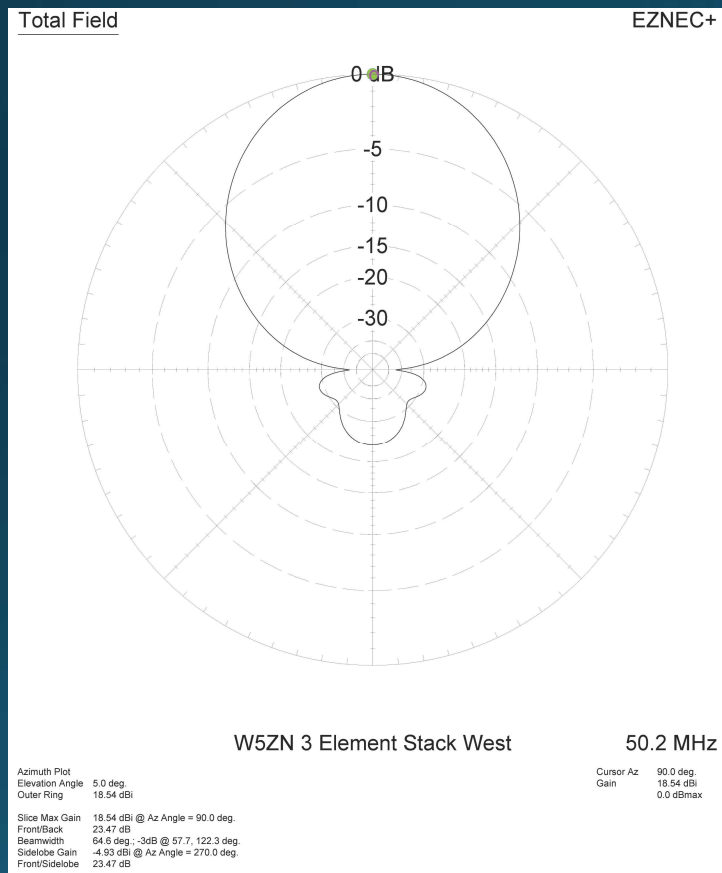
Stack of Four 3 element Yagi's



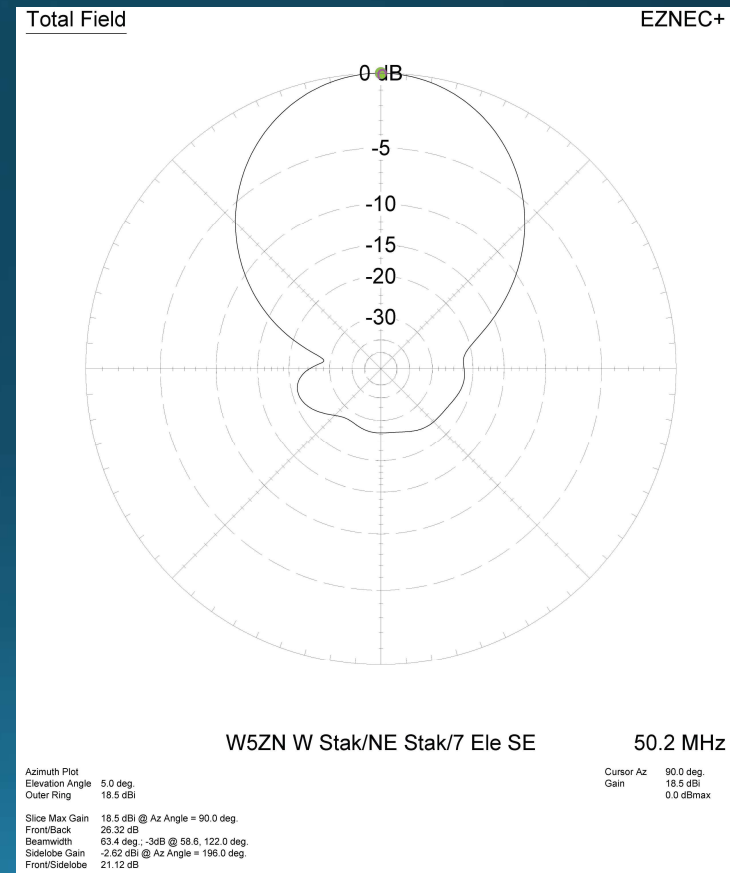
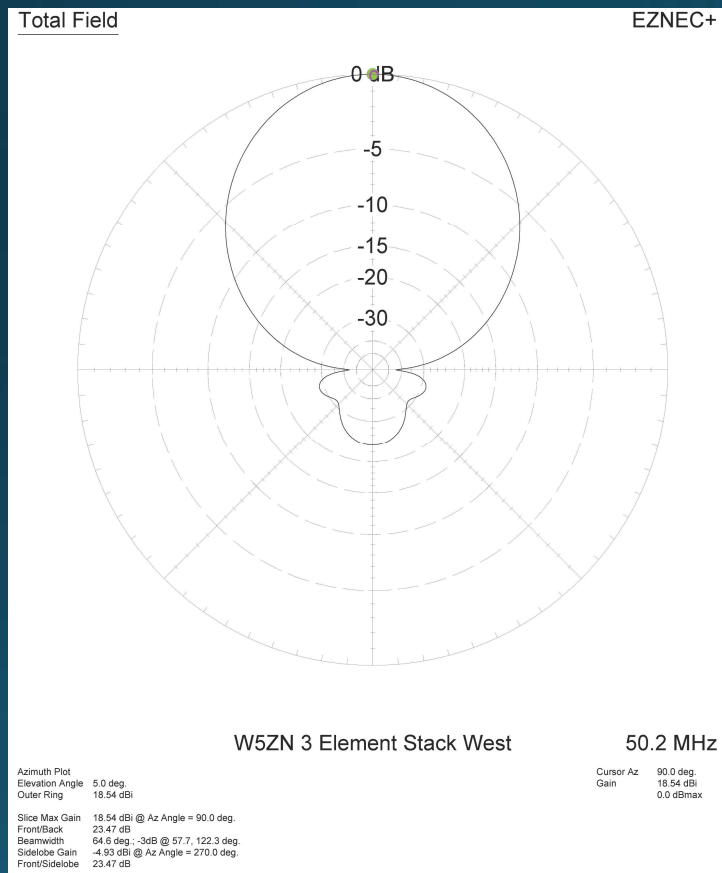
Stack of Four 3 element Yagi's



Stack of Four 3 element Yagi's



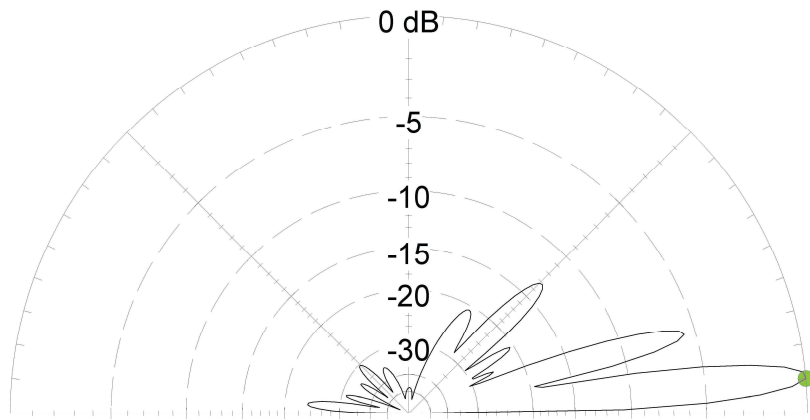
Stack of Four 3 element Yagi's



Stack of Four 3 element Yagi's

Total Field

EZNEC+



W5ZN 3 Element Stack West

50.2 MHz

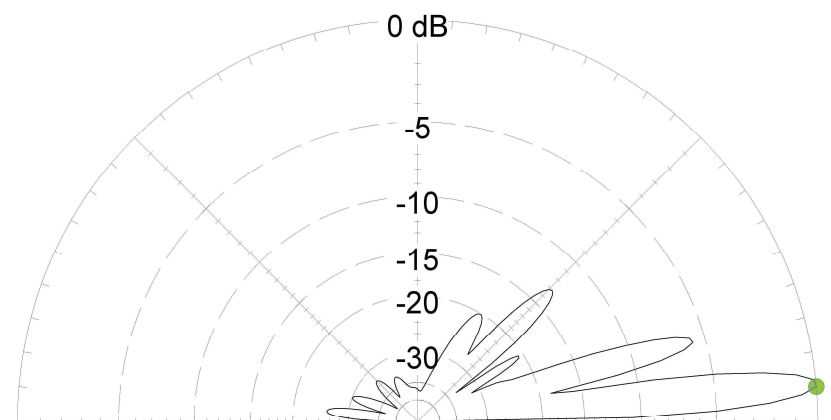
Elevation Plot
Azimuth Angle 90.0 deg.
Outer Ring 18.54 dBi

Cursor Elev 5.0 deg.
Gain 18.54 dBi
0.0 dBmax

Slice Max Gain 18.54 dBi @ Elev Angle = 5.0 deg.
Beamwidth 5.5 deg.; -3dB @ 2.7, 8.2 deg.
Sidelobe Gain 12.87 dBi @ Elev Angle = 16.0 deg.
Front/Sidelobe 5.67 dB

Total Field

EZNEC+



W5ZN W Stak/NE Stak

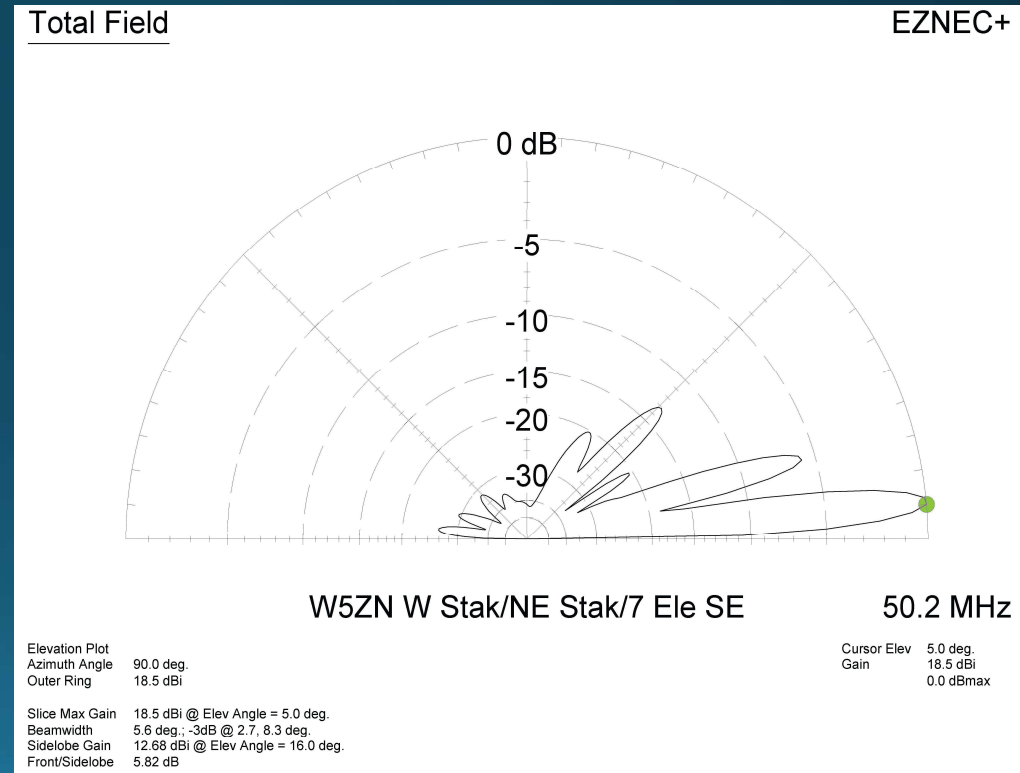
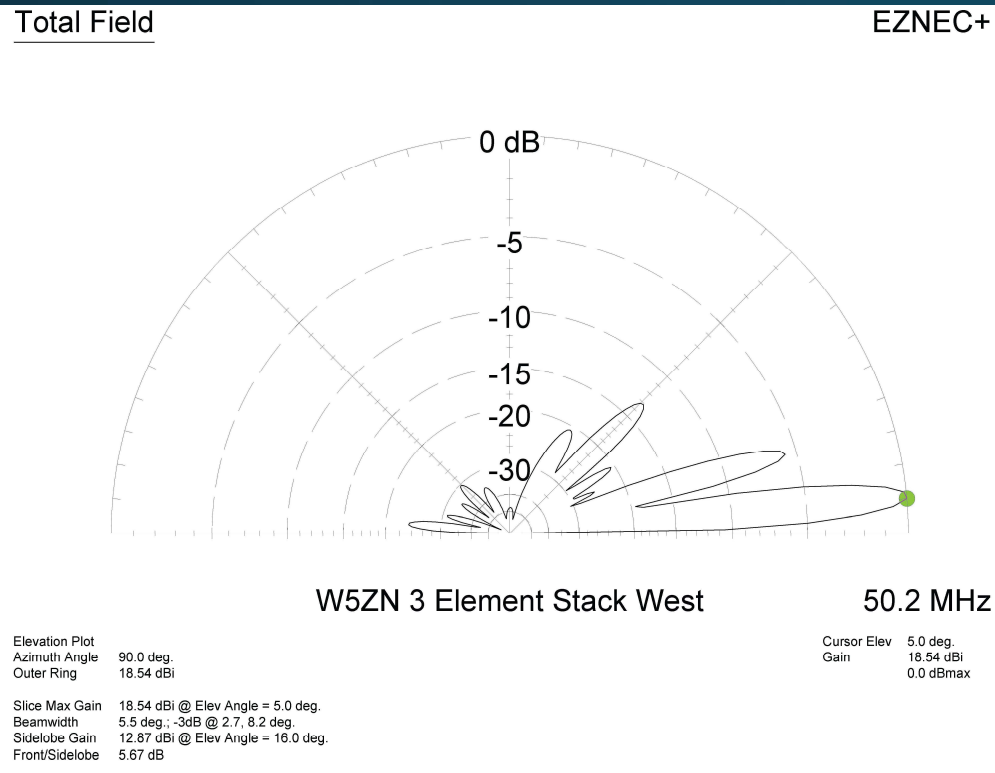
50.2 MHz

Elevation Plot
Azimuth Angle 90.0 deg.
Outer Ring 18.48 dBi

Cursor Elev 5.0 deg.
Gain 18.48 dBi
0.0 dBmax

Slice Max Gain 18.48 dBi @ Elev Angle = 5.0 deg.
Beamwidth 5.6 deg.; -3dB @ 2.7, 8.3 deg.
Sidelobe Gain 12.74 dBi @ Elev Angle = 16.0 deg.
Front/Sidelobe 5.74 dB

Stack of Four 3 element Yagi's



The SO2R Technique for 6 Meters

- Dedicate one radio as your main run radio in the CW and SSB portion of the band
 - Utilize this radio effectively and continually during your time on 6 meters and make as many Q's as possible
- Use the second radio to monitor 50.313 MHz (or 50.323 for EU).
 - During times when you decode a CQ from a station you have not worked stop CQ'ing on the "run" radio and work the station on the second radio
- **WARNING CAUTION STOP IT!!!!**
 - Do not, repeat NOT leave a good strong run on SSB or CW
 - You will simply miss many more QSO opportunities on SSB & CW

The SO2R Technique for 6 Meters

- If there is no FT8 activity on 50.313 then use the second radio to scan the SSB/CW portion for new multipliers
- Sometime during the night Sporadic E and other modes will die
- Stations will move to meteor scatter on 50.260 MHz.
 - Move your run radio here while maintaining the second on 50.313

2018 June VHF Contest

W5ZN worked the following on 6 meters:

<u>Mode</u>	<u>QSO's</u>	<u>Grids</u>
SSB	662	106
CW	5	5
FT8	67	48









