Station Improvements to Improve Your Competitiveness in Contests

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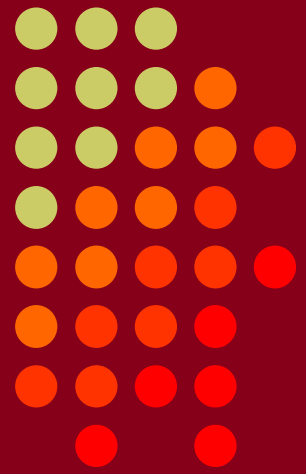

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Computer Monitor Height

You should not be constantly moving your neck up and down or left and right

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Antenna Switching Desktop Keypads

Immediately Adjacent to Logging Keyboards
No Slow, Awkward Fumbling with a Mouse
No Reaching for Antenna Switches

160 Meter Antenna Switching

4-Square, 8-Circle and Beverages
Desktop Antenna Control Keypads

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160 Meter 8-Circle Receiving Array

Desktop Direction Control Keypad

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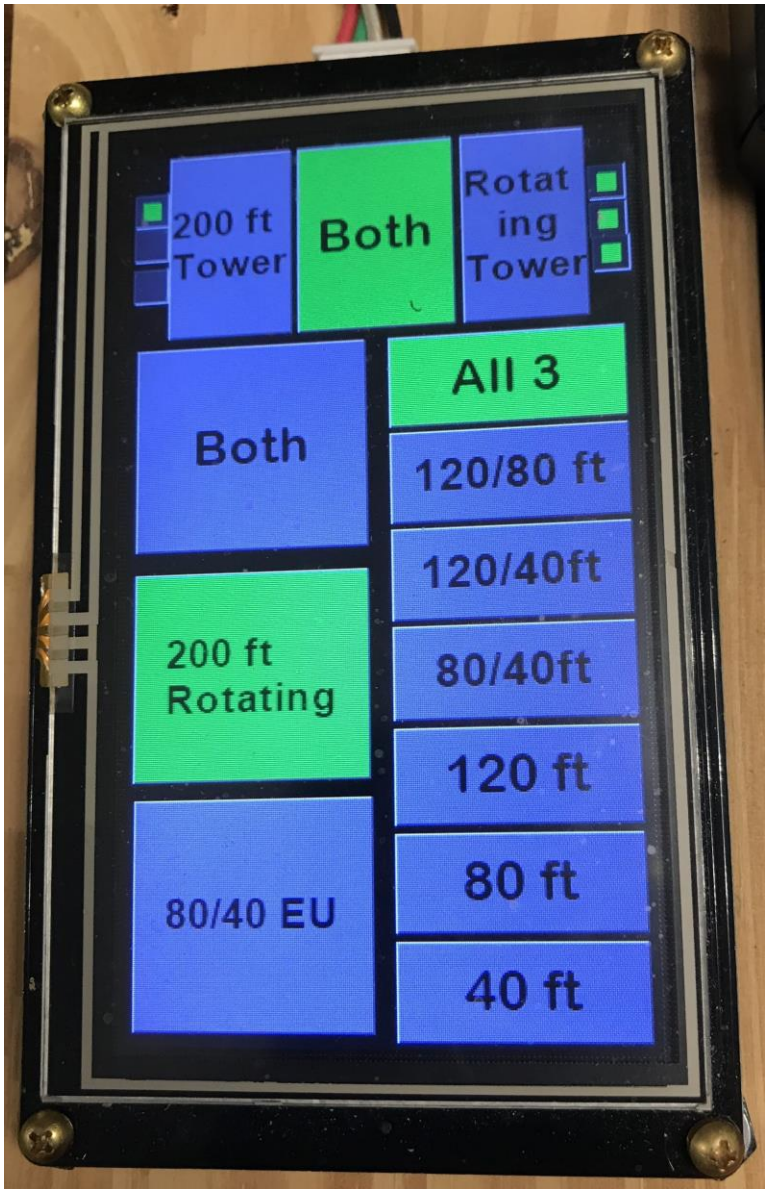
160 Meter 4-Square Transmit Antenna

Desktop Direction Control Keypad

Stacked Yagis on Two Towers

Desktop Stacked Yagi Control Keypad



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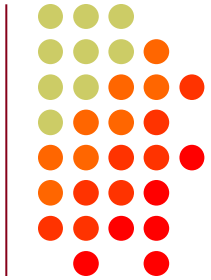
First Steps in Identifying Candidate Improvements to Your Station

- Identify realistic time phased personal contest goals for your selected contests, entry categories and competition region
  - first place regional, national or world winner, or
  - consistently placing in the top three, or
  - consistently placing in the top ten, or
  - successfully competing with your peer competitors
- Identify the realistic constraints that limit your station improvements
  - desired time frame for achieving your contest goals
  - amount of available time to implement station improvements
  - available physical space for more or improved station equipment
  - annual funds available to support improvements
- Achieve a balance between your goals and constraints

Well Before the Contest Evaluate Your Station's Strengths and Weaknesses Compared to Your Peer Competitors



- Identify your station's strengths and weaknesses and evaluate your peer competitor's strengths and weaknesses
  - all aspects of your station environment that limit operator performance
    - identify all ergonomic and operator comfort weaknesses
  - antenna switching flexibility, ergonomics and hot switching protection
  - transceiver performance -- focusing on receiver performance
  - amplifier reliability and digital monitoring of output power and VSWR
  - audio and CW keying quality. Eliminate undesired CW VOX delay
  - computers, software and their internal and external computer networks
  - internal and external RFI and inter-station RFI
  - all aspects of station equipment and interconnection reliability
- Identify opportunities to improve your station's weaknesses and reliability relative to your peer competitors
  - in every category above
  - then prioritize your total list of station improvement opportunities

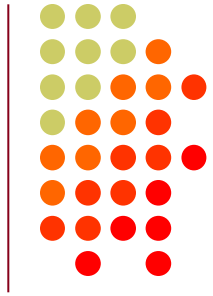
During and After Every Contest Prepare Notes Documenting Your Station's Strengths and Weaknesses Compared to Your Peer Competitors

- Identify every aspect of your station's performance that was strongly competitive with your peer competitors
- Identify every aspect your station's performance that was not competitive with your peer competitors
- Identify improvements that your peer competitors can't match
- Identify every opportunity to improve your station that could have improved your score in this contest, in priority order by:
  - estimated score improvement resulting from each improvement
  - degree of difficulty in achieving each station improvement
  - practicality of achieving each improvement
  - impediments to achieving each improvement
  - expense to achieve each improvement

Station Performance and Reliability Improvement Ideas

- Transceiver performance (sensitivity, dynamic range, filters)
- Amplifier output power and reliability
- Digital wattmeters to monitor power output and antenna VSWR
- Operator environment
  - noise, chair, ventilation, desk height, computer monitor
  - you should not be constantly looking up/down or left/right
  - equipment placement, keyboard placement, desktop space
- Keyers and paddles and transmitted CW quality **– no keyclicks!**
- Microphones and transmitted audio quality
- Dedicated computers, keyboards and larger monitors
- Antenna switching close to computer keyboard with no reaching
- DX spotting network displays and alarms
- Propagation map displays from the Reverse Beacon Network
- Wrench tighten all PL-259s, verify tightness at least annually
- Verify center pin mating force of all SO-239 mating connectors

Single Operator Station Improvement Ideas



- Antenna improvements are almost always more effective and less expensive than any other station improvement and they improve both transmitting and receiving performance
- Receiving antennas make a big improvement on 160 and 80 meters
- Identify and mitigate all internal and external RFI sources well before the contest
- Many modern transceivers have much improved receiver dynamic range and filter selectivity
  - know how to adjust your receiver for optimum dynamic range
  - verify your receiver's sensitivity every time you sit in front of it
- A digital wattmeter allows you to monitor transmitter power output and antenna VSWR during the contest

SO2R Station Improvement Ideas

- Receiving bandpass filters are almost always necessary to protect transceivers from cross-band interference and physical damage
- 100 watt bandpass filters may be needed on transceiver outputs if your transceiver radiates broadband phase noise (many do)
- Stubs may be necessary on amplifier outputs if multiple antennas are close to each other
- Triband antennas can cause problemativ cross-band interference
- Many SO2R operators find it more effective to use two networked computers and two keyboards
- Identify and correct internal/external RFI and cross-band RFI
- intermodulation caused by transmitted signals entering unprotected consumer electronic devices often re-radiate strong harmonics mixed with AC power or computer network signals creating strong broadband noise modulated sidebands on the transmitter harmonics

Execute Your Proof of Station Performance Checklist Before Every Competition

- Prove that everything in your station is in performing properly
  - improve and update your checklist regularly
  - record all antenna VSWR measurements
- Never enter a competition with unproven station equipment
- Prove that all indoor and outdoor equipment is working far enough in advance so you can make necessary repairs before the contest