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Station Setup for Contesting

Paul Young, K1XM

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Contest Station Goals

1. Effective
2. Comfortable
3. Simple to Operate

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Contest Station Goals

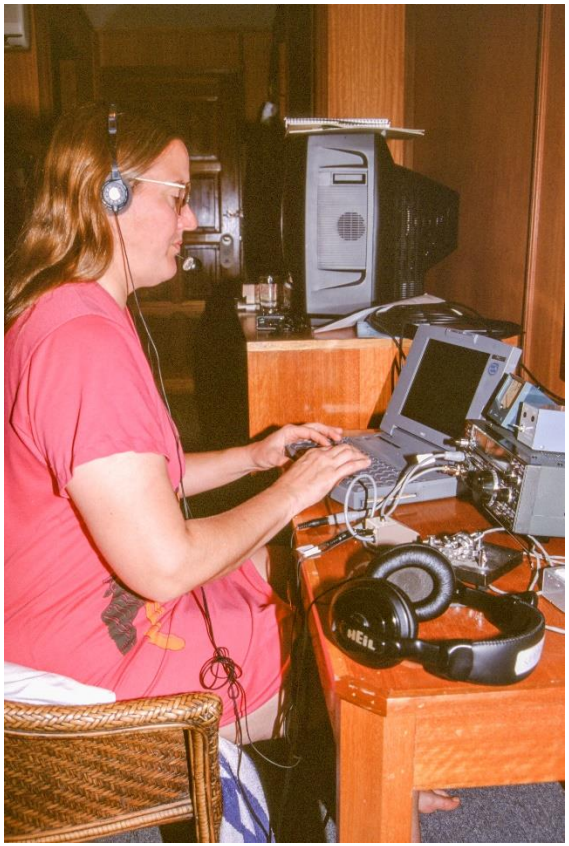
- All major contest modes
  - CW
  - SSB
  - RTTY
  - FT8 (and other digital modes)
- HF Contests

Effective

It is more fun to work people than to not work people.

You need to hear them and they need to hear you.

Comfortable



This isn't it

- Chair too low
- Desk too low
- Poor radio position
- No voice keyer

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Simple to Operate

Switching this station from 40 to 20 SSB requires setting 11 knobs

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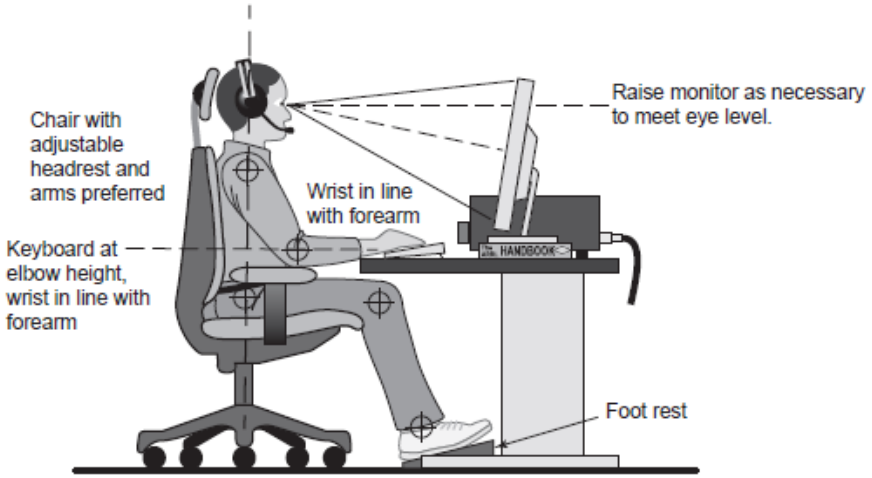
Station Ergonomics

Forward leaning – Bad

Backward leaning – Bad



Correct posture

Station Ergonomics

- Desk Height as a function of operator height

Operator Height Inches	Desktop Height Inches
61 – 63	25 – 26
64 – 66	26 – 27
67 – 72	27 – 28.5
73 – 77	28.5 - 32

Station Ergonomics

- Important stuff should be close

Station Ergonomics

- Monitor too High

Station Ergonomics

- Consider an articulating arm

Station Ergonomics

- Personal Preference

Station Ergonomics

- Sometimes it isn't possible

Radio

- Most modern radios are good contest radios
- 100 or 200 watts
- Computer interface
  - Get and set frequency and mode
- Ergonomics (personal choice)
- Features
- Price

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Radio

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Computer

- Important
  - Comfortable keyboard and mouse
  - Monitor or monitors
  - Ports
  - Runs the software you want to use
- Less Important
  - Computer power

Software

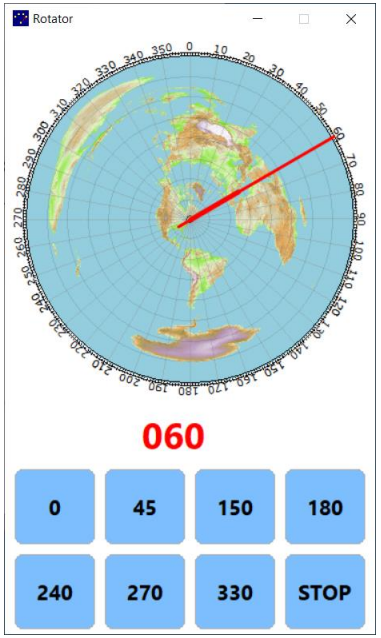
- Windows is most popular
- Dedicated contest logging programs
  - N1MM Logger+
  - DXLog.net
  - Win-Test
  - WriteLog
  - N3FJP Contest Log

Software

- Macintosh
  - SkookumLogger

Logging Program

- The logging program improves the radio
  - Frequency and mode changes
  - Voice, CW, RTTY, FT keying
- Antenna and rotator control



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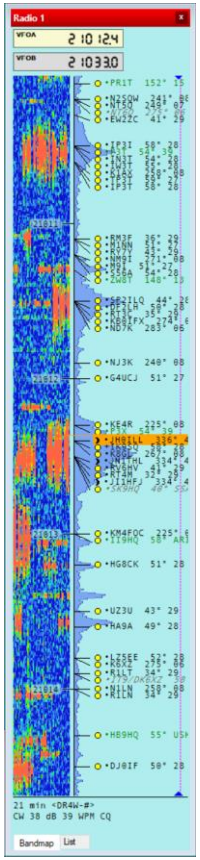
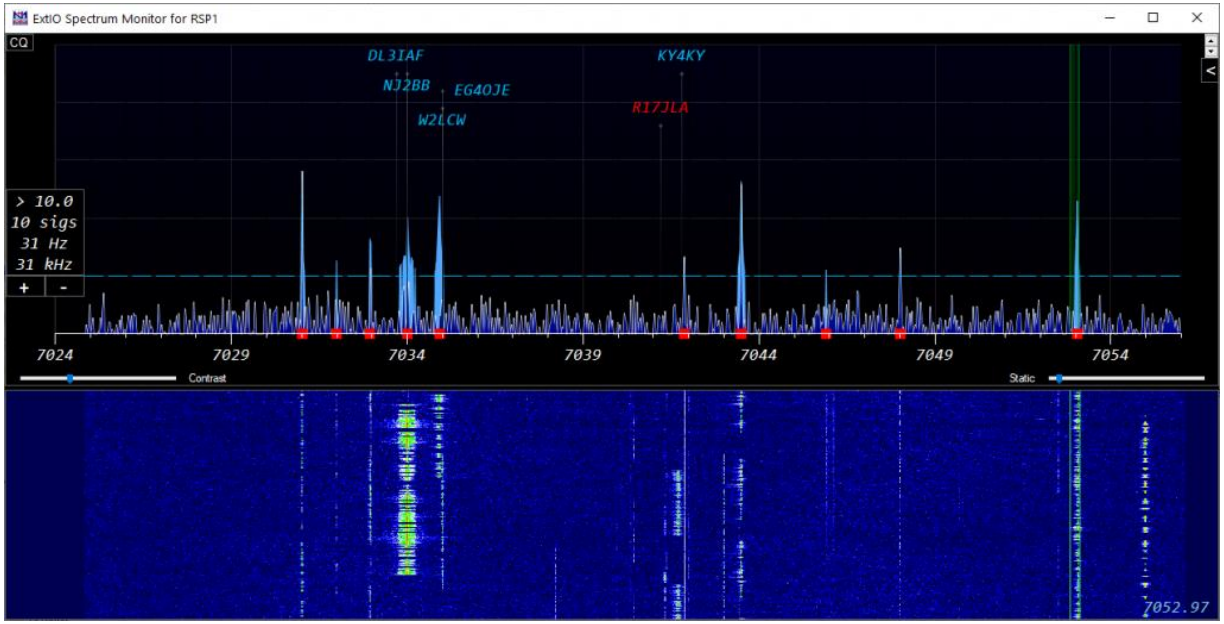
Spectrum Display



- Radio + Computer
- Radio + SDR + Computer



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Amplifier

- 1500 watts is approx. 12 dB above 100 watts
- A 6 element wide spaced Yagi is approx. 9 dB above a dipole.

Amplifier

- "Every amplifier sold competes with every amplifier ever sold."

Amplifier

- A few old amplifiers use a negative keying voltage.
- Some amplifiers should be avoided because parts such as tubes are very expensive or unavailable.
- Don’t pay collector prices for an amplifier.

Amplifier

- Sweep tube amplifiers are not contest amplifiers.

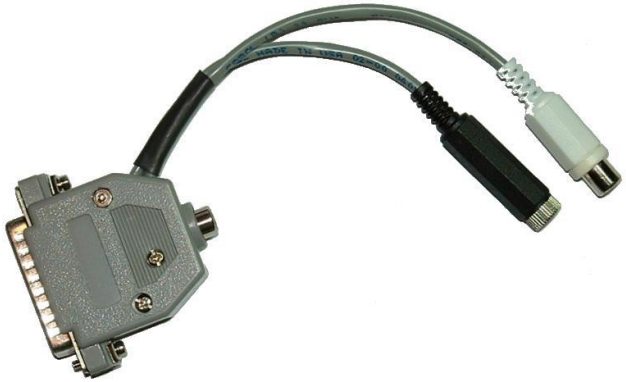
What Else

- CW Keyer
- Voice Keyer
- RTTY Keying and Demodulation
- Digital Mode Keying and Demodulation

CW Keyer

- Winkey compatible
  - Serial port
  - USB port

- Bit twiddle interface
  - Serial port
  - Parallel port (don't)



Voice Keyer

- Computer sound card
  - Built into computer
  - External USB device
  - Built into radio
- Digital Voice Keyer
  - Built into radio
  - External device

Sound Card Notes

- Sound card microphone input usually has DC voltage.
- Sound card output is line level. An attenuator may be needed.
- Some cards have latency. When you speak into the mic there is a delay before it goes to the radio.
- WSJT (Digital modes) require 48 KHz 16 bits.

RTTY Keying

- FSK (serial port or pin wiggle)
- AFSK (Computer sound card)

  Computer sound card is cleaner

  (*Thanks, W0YK)*

Digital Modes & RTTY

- Computer sound card
  - Demodulation on RTTY
  - Keying on RTTY
  - Demodulation and keying on other digital modes

Microphone or Headset

- Headset is more ergonomic
- Headphones hear better
- Microphone looks really cool

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Antenna Switching

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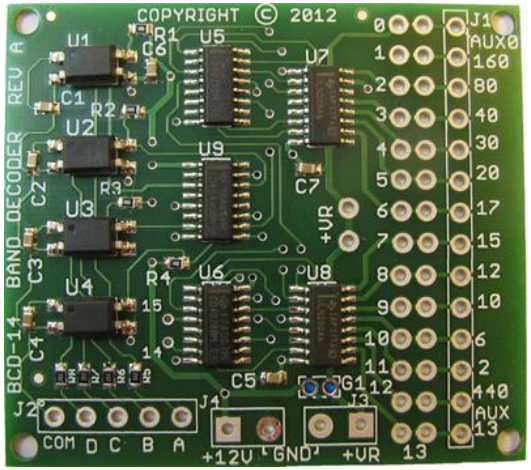
Band Decoder



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Antenna Controller

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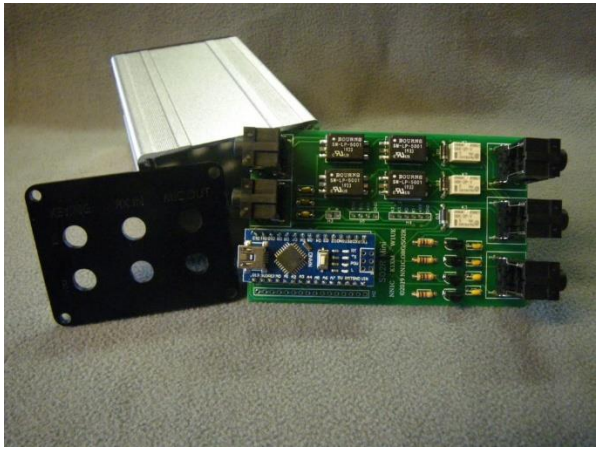
SO2R

- Quick checking of another band
- Work multipliers on another band
- Work QSOs on another band
- 2BSIQ

SO2R Device

- Switches headphones and microphone
- May contain a CW keyer



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SO2R Antenna Switch

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Bandpass Filters

- Commercially available 100W or KW

Triplexer

- Triplexers are magic

  1 Tribander + 1 Triplexer = 3 monobanders

Preparation

- Is everything working?
- Are all controls that require adjustment clearly marked and intuitive?
- Are there intermittent things you know you should fix?

(Hint: they will break during the contest)

The End

But stick around – the next presentation is better.