

No Compromise Remote Contesting



Dayton Contest University 2019
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No Compromise vs Regular Remote

- Should not feel like you are remote
- Score should be the same as being on site
- Stations calling should not be able to tell you are remote
- Operator should be the only limiting factor



Internet Connection: The most important piece of the puzzle

- Pure speed is not the only metric to consider
- Latency is the bigger issue, especially on CW
- Consistent connection is the key
- Cable modems very susceptible to the “Netflix effect”
- Fiber or DSL has been the best
- Consider upload speeds especially for SO2R and remote end
- RF the last mile can be OK also
- IQ Router or similar helps
- Use ethernet, not WiFi

Remote Access to Every Peripheral

- PC's and routers
- Power supplies, battery backups, surge protectors
- Amplifiers
- Antenna switching
- Adds another level of complexity and maintenance
- The devil is in the details!

So what are guys using to win?

- Remoterig RRC-1258MkIIIs
 - Private setups - NK7U, K7ZS, N2QV
 - K3/0-Mini or similar most popular, but other rigs also used
 - Commercial - RemoteHamRadio.com (RHR)
- App based systems, no RRC required - RHR
- Lots of other options available, but as far as I can tell every USA remote win has been done using one of these setups



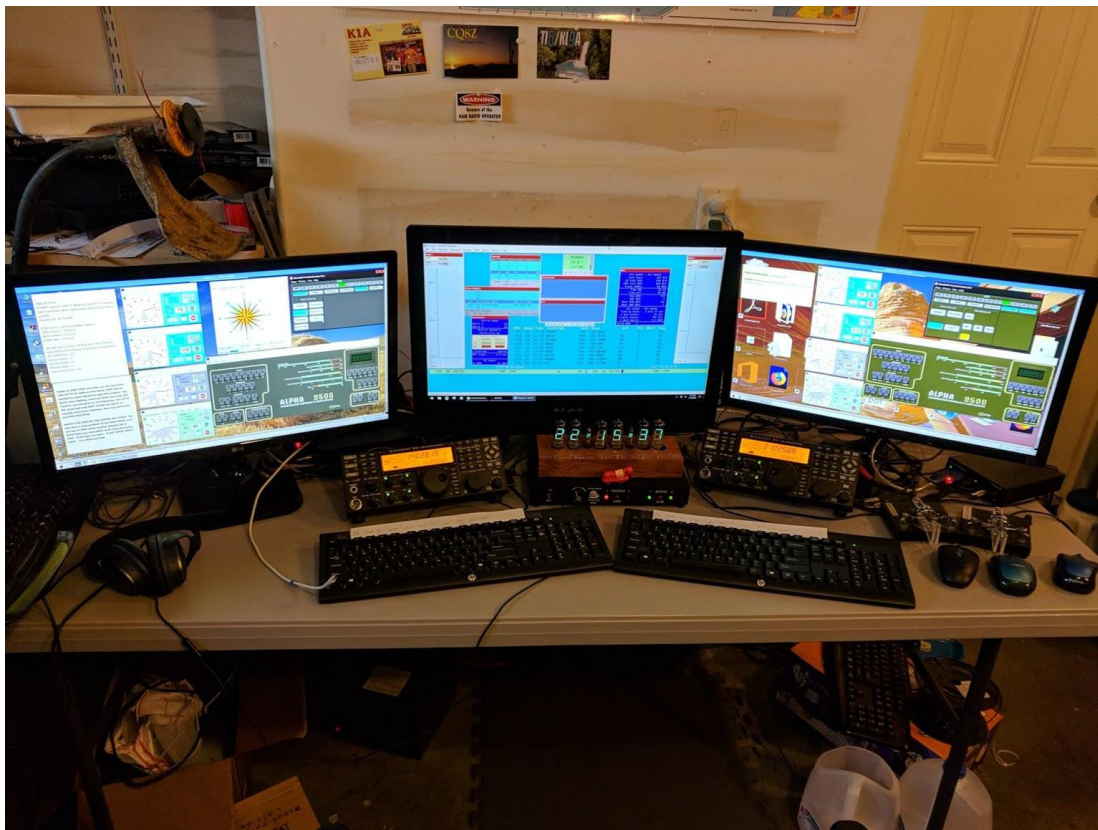
Why is the Remote Rig box so popular?

Pros

- Long history, proven to work
- Can use any radio, but K3 integration is elegant
- Best CW sending so far (controversial - more later)
- Economical
- Allows a true “Big Knob” experience

Cons

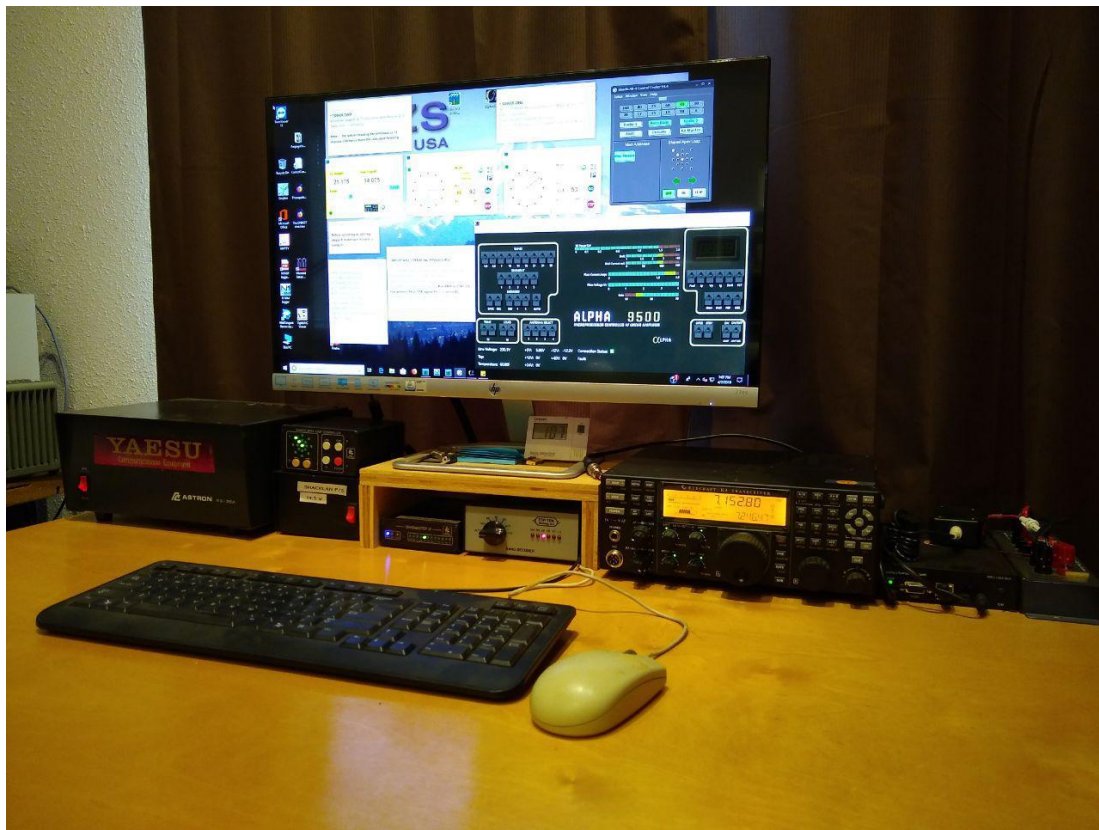
- Setup can be cumbersome
- Virtual COM Ports are no fun
- Old technology, things are evolving quickly



SO2R into NK7U Super Station

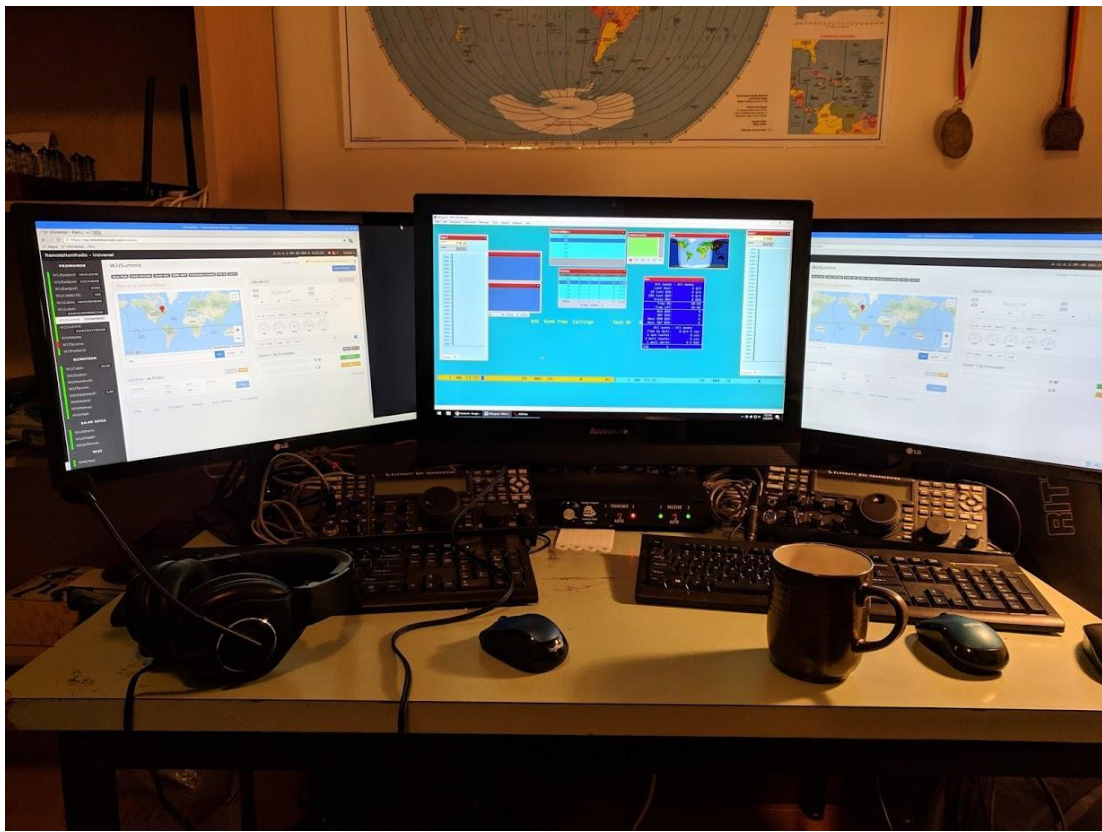
Not winning the USA from Oregon, but absolutely “No Compromise”

- K3/O-Mini's
- RRC's
- YCCC SO2R Controller
- Each radio has independent controls for antennas and amps, just like being on site
- VNC using two Raspberry Pi 3's
- Lots of mice!
- Special VPN setup for fully networked Multi-Ops using N1MM+



- The remote side is usually very clean looking
- This is one side of a growing M/2 or SO2R setup at K7ZS

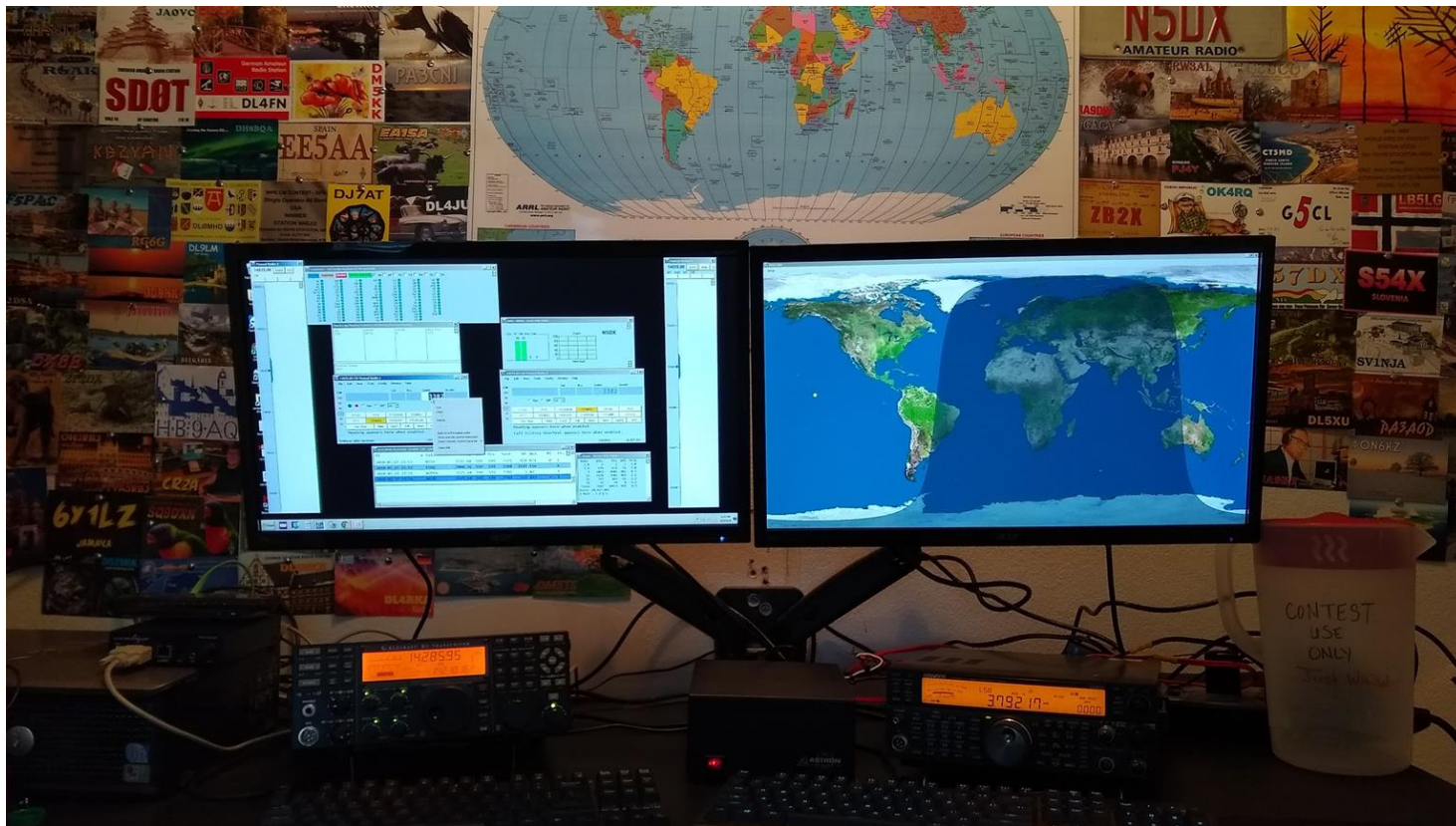
K7ZS (NK7U remote version 2.0)



Same as the previous setup, except logging into the RHR site for all station controls.

- RHR has lots of fail safes and is more forgiving and less complex than a private system typically

SO2R into RHR Network

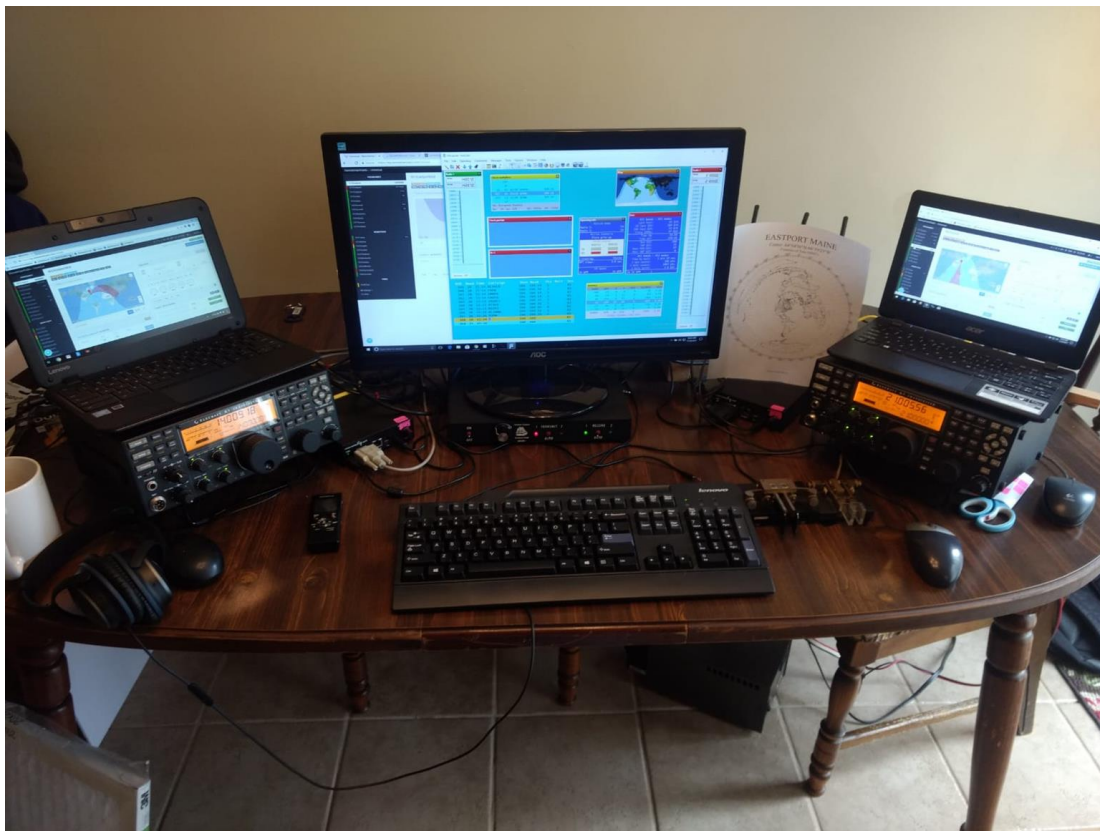


- One PC
- Impressive software to work with N1MM+
- K3 + TS590
- RRC's

N5DX into N2QV



N2QV side - N5DX



- Similar to KL9A setup
- Separate PC's for each radio eliminates logging program focus issues - very important for quick antenna changes or adjustments

N4YDU into RHR



- A great reason to use RRC's is you can continue to use your logging program of choice and preferred SO2R controller or other peripherals

W2RE into RHR



- Notes for multi-op network setup
- Notes for general station use
- Hamation switching interface
- Alpha 9500 control

K7ZS Interface

W1/EastportMult

7.0-7.2 TX ONLY

Maine Grid: FN65 150' ASL ARRL ME Washington County ITU 8 CQZ 5

GXP 3 Element Yagi @ 120' (40m)

59° 40m



Go Anywhere

GO

STOP

LP

AF

EU

JA

PAC

SA

General as KL9A

CW 7,030.9 RUN BETA

CALLSIGN

SENT

RCVD

NOTES

599

599

Save

Daylight 10:07 to 22:56 UTC \$0.99/min REMOTERIG STATION IN USE BY KL9A 24s

Power With K3

Elecraft K3

VOX RX

RX TX 7.030.917 40m CW RX TX 7.130.500 40m CW

← → ±1 kHz ← → ±1 kHz

S7

A → B A → B SPLIT AGC-F NOTCH NB NR

Real-time CW (ESC to cancel) Edit Macros

KL9A/w1 R 5nn tu — — —

20 CMP 6 PWR 25 WPM 400 BW 20 MON

PTT (CTRL) PRE ATT SUB

Expert 1.3K-FA Amplifier

40m 66° F

0 W OPERATE

1.0 MID

RHR Interface



- Flex Radios
- Very clean desk
- Start of the next evolution of serious remote contesting

W9SN Multi Op Setup

Other Remote Contesting Options

- **Remote login to a PC on site for everything, including logging**
 - Not No Compromise, but the CW is 100% solid
 - A reasonable option for multi-ops
- **Software only interface, no real radio interface to use**
 - Not No Compromise, but could be made to work with external knob and button interfaces
 - Expect to see some impressive software in this category in the future
- **Detachable head radios - TS480HX etc.**
 - Typically not “contest grade”
- **Flex Radios**
 - The future of remote?
 - No external boxes required
 - Integrated waterfalls are cool
 - Choice of “Big Knob” or software only user interface
 - Not proven yet, still being tested

Why is CW so tricky to get right?

- Timing and latency is critical and any instability is noticeable on the air - we have all heard it!
- Computer keying via the RRC's is better than paddle sending thanks to the special way Remote Rig handles CW
- Sending CW from the remote side solves this issue
 - Logging into the remote PC via VNC, TeamViewer etc.
 - Unfortunately this is not “No Compromise” remote contesting right now
- Luckily SSB is easy on all systems
 - Use the DVK built into the rig if possible
 - No special hardware required
- This presentation does not address digital contesting

Operating

- Latency and jitter will increase your error rate
- Poor CW or audio will reduce callers, reducing your score
- Grayline map very important if you are far away
 - Montana to Maine is a mindset change, for example
- Strategy research ahead of time is always a good idea, but extra important if you are unfamiliar with conditions where you will be operating from

USA Remote Wins (as best I can tell)

- **N5DX**

- 2016 WPX CW - USA
- 2017 IARU Mixed - USA
- 2018 CQ 160 CW - USA

- **W2RE**

- 2017 ARRL DX SSB - USA
- 2017 WPX SSB M/S - USA
- 2018 WPX SSB - SO(A) USA
- 2018 CQWW SSB - USA
- 2019 ARRL DX SSB - Claimed USA

- **KL9A**

- 2017 Stew Perry 160 - USA
- 2018 ARRL DX CW - W/VE
- 2018 WPX CW - USA

- **N4YDU**

- 2017 WPX CW - USA
- 2017 WAE CW - USA
- 2018 IOTA - SO(A) World
- 2018 Stew Perry - USA
- 2019 RDXC - Claimed USA

16 remote wins in 3 years!

Thanks!

- The future of remote contesting is bright - exciting stuff is ahead!
- HOA restricted testers are no longer stuck not being competitive in the game they love
- The investment is not much more than building an “on site” station
- “Guest op” stations available for rent are popping up in desirable locations - pick your service!
- Pictures courtesy of W2RE, N6MJ, N4YDU, N5DX, K7ZS

