Remote HF Ham Ops

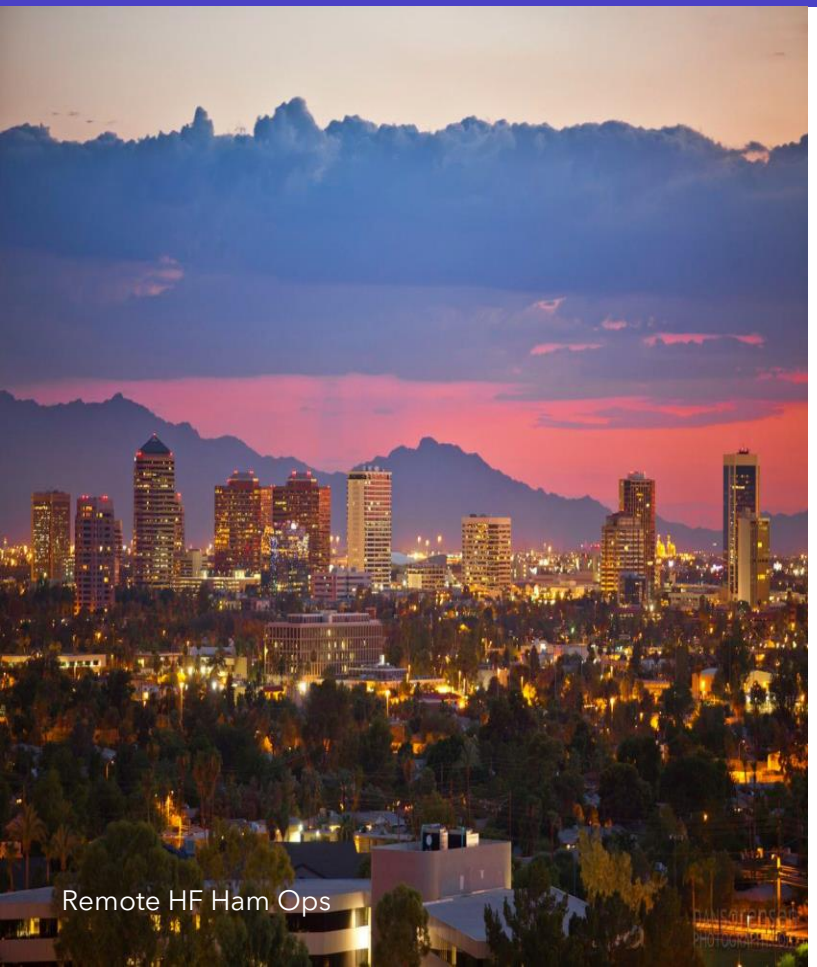
Bruce Brown WA9GVK

January 9, 2024

Agenda

- **Why operate remotely?**
- **Three Approaches w/ Diagrams & Video Demo**
  - Remote Rig App on remote computer; no computer at home QTH
    - **(1) ICOM RS-BA1 – Popular ICOM app but difficult to set up; voice & CW only**
    - **(2) SDR-Control – Easy-to-use app for select ICOM rigs; for voice, CW, data; Mac, iPad, iPhone**
  - Remote Desktop App on remote computer; uses computer at home QTH; universal rig application
    - **(3) Splashtop desktop app with dedicated Windows PC at home QTH**

Introduction

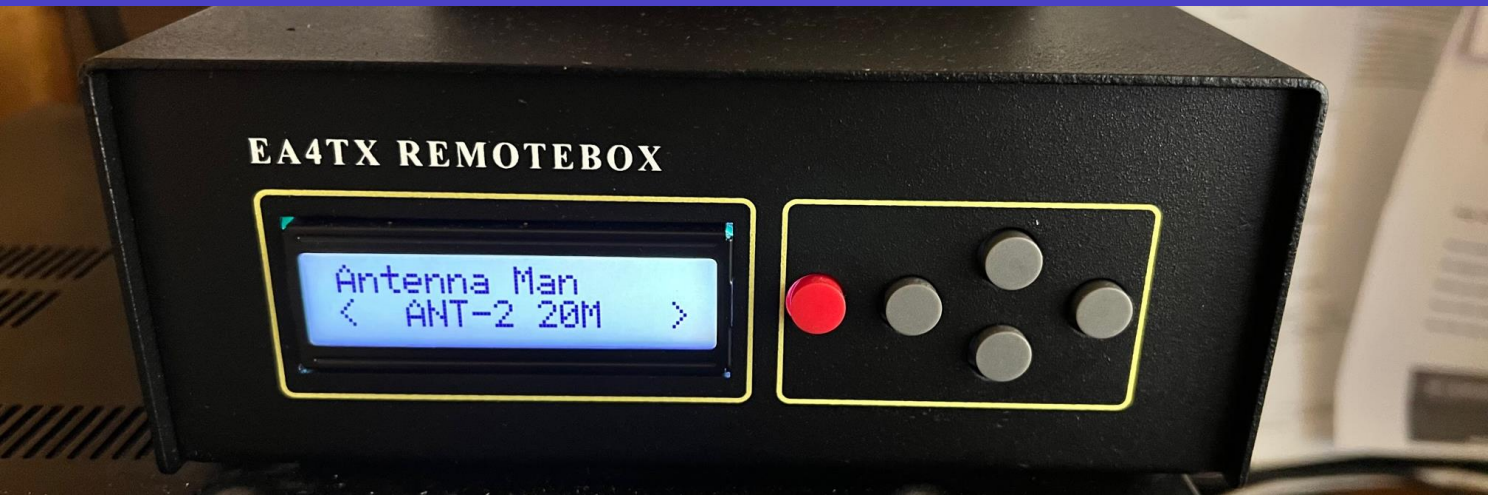


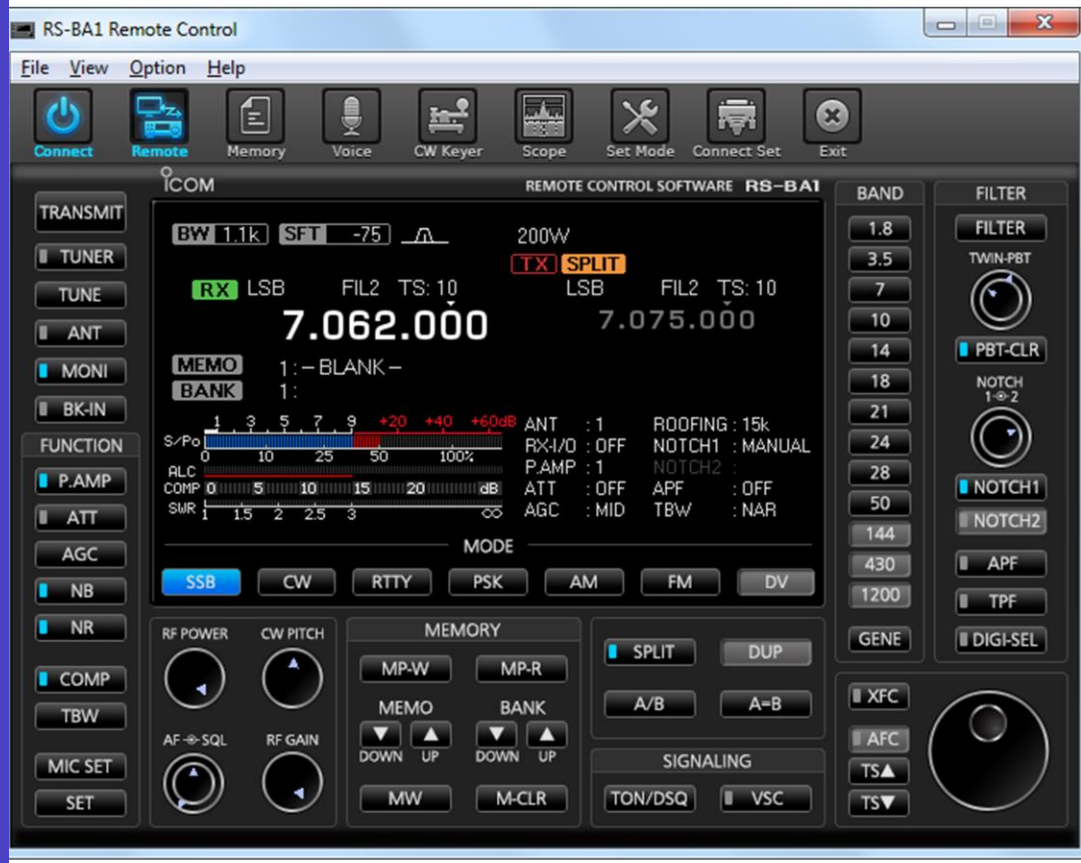
- **Why?**
  - Vacation
  - Desire to operate in different room in house
  - 2nd Home with HOA restrictions
  - Field operations and contesting
  - Demonstrations away from home QTH (e.g., schools, shopping malls, etc)
  - Mobile ops
- **Credits:** Some ideas extracted from "Remote Stations" by Paul Sobon NO0T and William Thomas WT0DX; Madison DX Club.

http://www.madisondxclub.org/Remote_Station_MDXC_%20v1-1.pdf[3]

(1) ICOM RS-BA1

1. Using rig's manufacturer remote desktop software for voice & CW ops;
2. Automatic method to switch antennas at home QTH;
3. Automatic reboot QTH home network.





(1) Remote Voice/CW Operations (using ICOM IC-7610 w/ RS-BA1 Software) – Basic Wiring

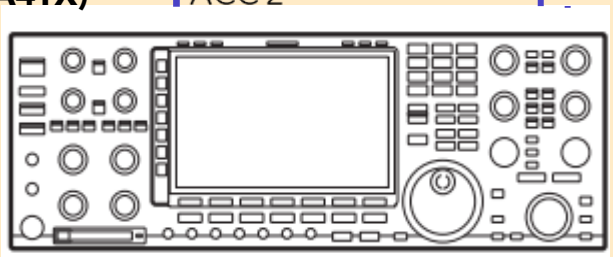
Your Home QTH

Antenna Switch (DX Engineering)

Band Control (EA4TX)

Pin 4, ACC 2

RF

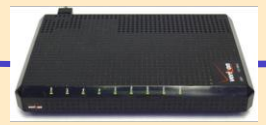


Rig w/ Network Function (ICOM IC-7610)

CAT5

Router
Ports need to be opened

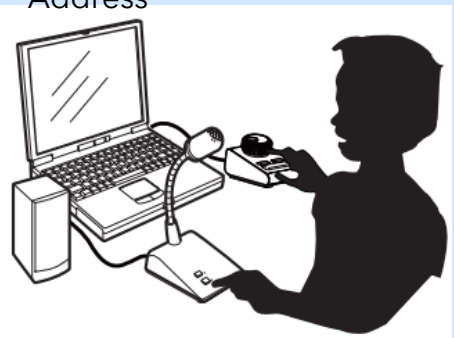
Modem



Internet

Your Remote Location

ICOM RS-BA1 Remote S/W Needs home QTH IP Address



Modem

Router
Ports need to be opened

Wired or WiFi

1. Windows computer application
2. RS-BA1 ($159) challenging to set up and use
3. Win4IcomSuite advertised as alternative
4. **Voice & CW only**; no rotor
5. Requires automatic antenna switching ($186)

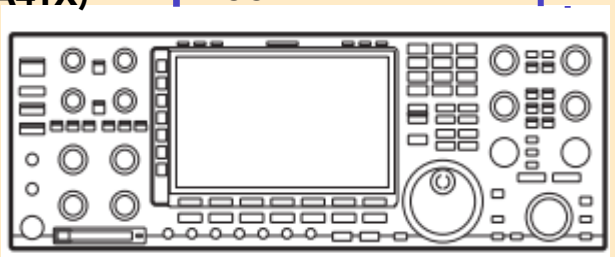
(1) Remote Voice/CW Operations (using ICOM IC-7610 w/ RS-BA1 Software)

Your Home QTH

Antenna Switch (DX Engineering)

Band Control (EA4TX) Pin 4, ACC 2

RF



Rig w/ Network Function (ICOM IC-7610)

CAT5

Router
Ports need to be opened

Modem

AC **AC**

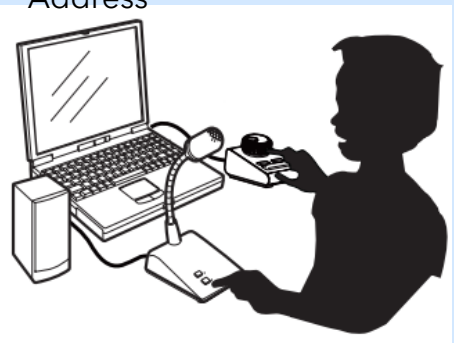
Internet Sensing

MSNSwitch Internet Enabled IP Remote Power Switch (UIS-622B) Reboots modem & router when internet drops

Internet

Your Remote Location

ICOM RS BA1 Remote S/W Needs home QTH IP Address



Modem

Router (Ports need to be opened)

Wired or WiFi

Notes:

1. Adds method to reboot network devices ($100)

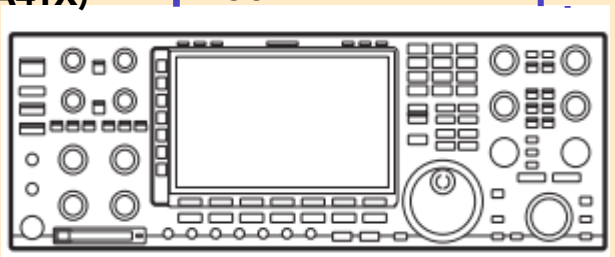
(1) Remote Voice Operations (using ICOM IC-7610 w/ RS-BA1 Software)

Your Home QTH

Antenna Switch (DX Engineering)

Band Control (EA4TX) Pin 4, ACC 2

RF



Rig w/ Network Function (ICOM IC-7610)

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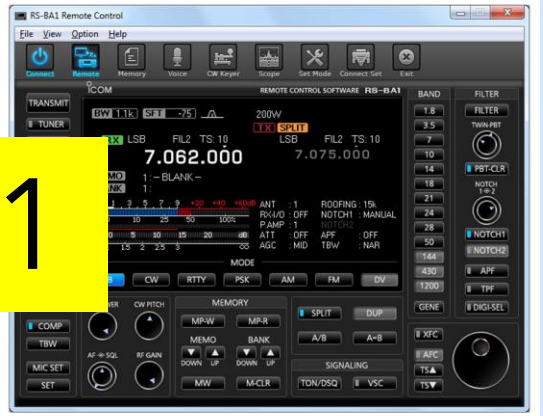
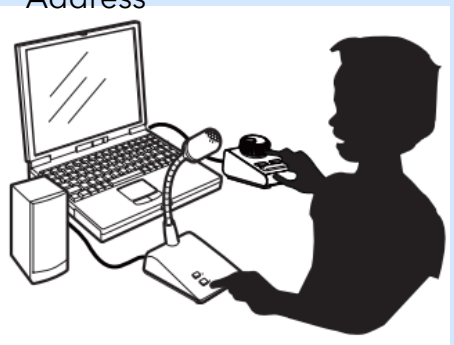
DEMO 1

Internet

Your Remote Location



ICOM RS BA1 Remote S/W Needs home QTH IP Address



Modem

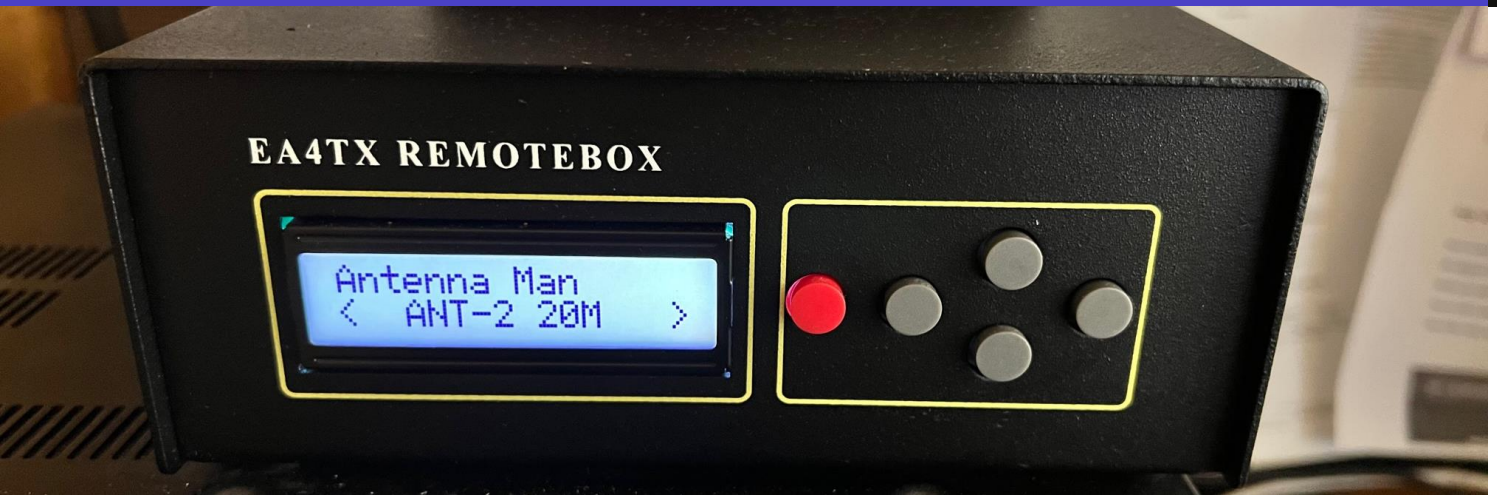
Router
(Ports need to be opened)

Wired or WiFi

Notes:
1. Adds method to reboot network devices ($100)

(2) SDR-Control App

- Easy-to-use app for Voice, CW and Data;
- For Mac OS and iOS Products
- Automatic method to switch antennas at home QTH;
- Automatic reboot QTH home network.



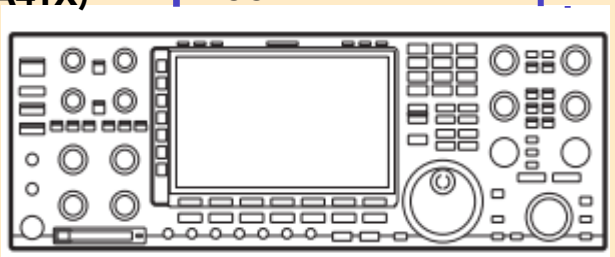
(2) Remote Operations (using SDR-Control)

Your Home QTH

Antenna Switch (DX Engineering)

Band Control (EA4TX) Pin 4, ACC 2

RF



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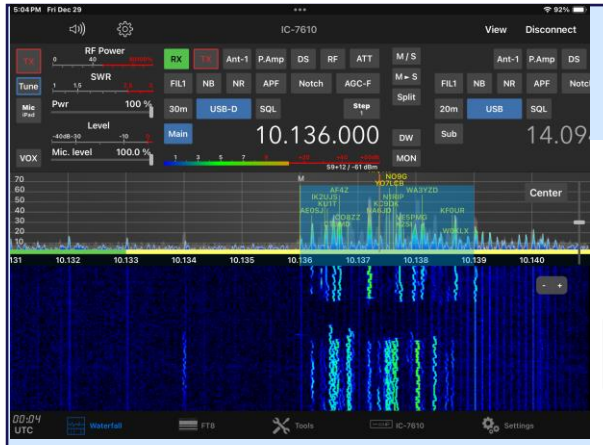


SDR-Control by Marcus Roskosch (Roskosch.de)

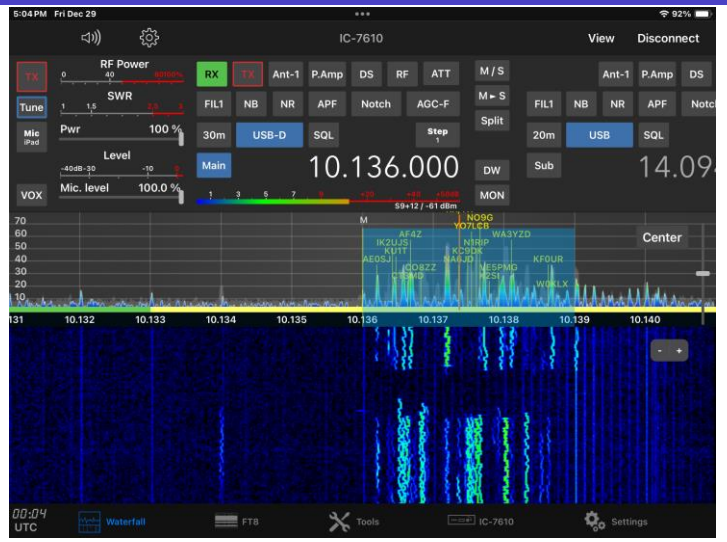
Modem

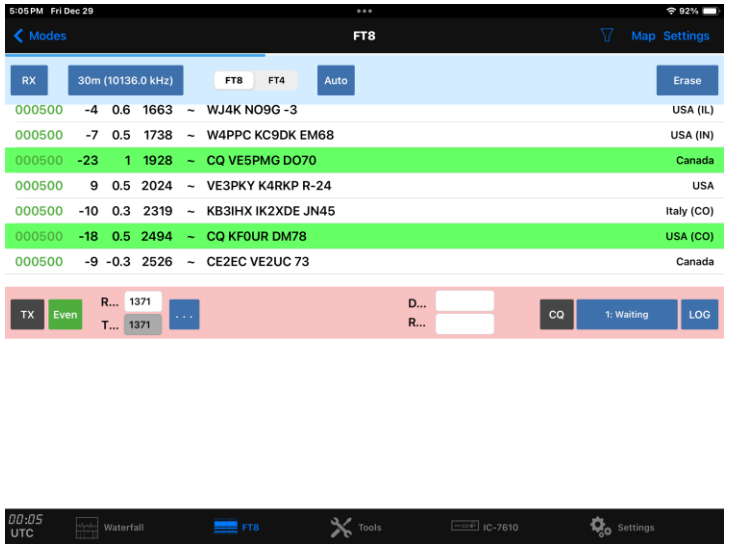
Router
(Ports need to be opened)

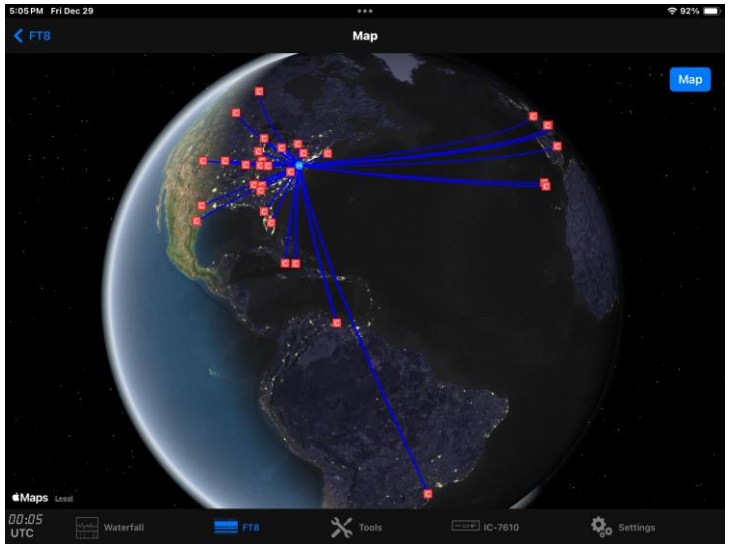
Wired or WiFi

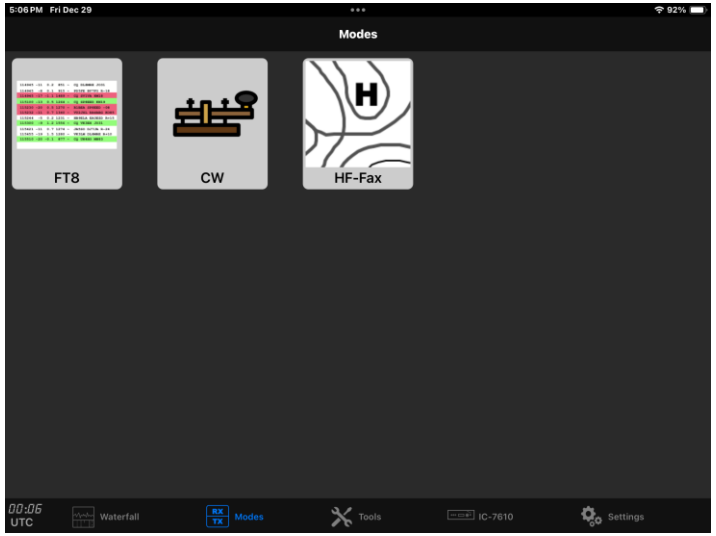
1. Mac based – iPad, iPhone, MacBook, iMac
2. For Voice, CW and Data
3. Flex Radio and ICOM IC-7610, IC-705, IC-9700, & IC-7300 for iMac or MacBook via USB cable
4. Lots of valuable ham S/W tools included
5. **Very easy to setup and use**
6. **Will even work on cellular (except for CW)**

(2) Sample SDR-Control Screens on iPad









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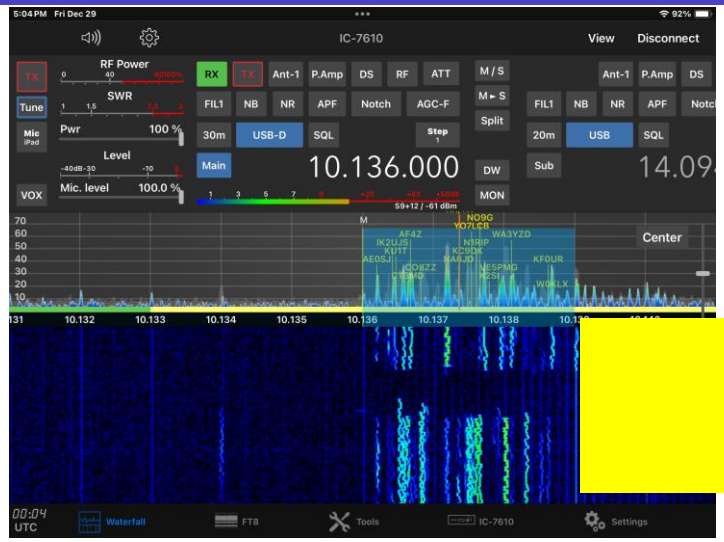
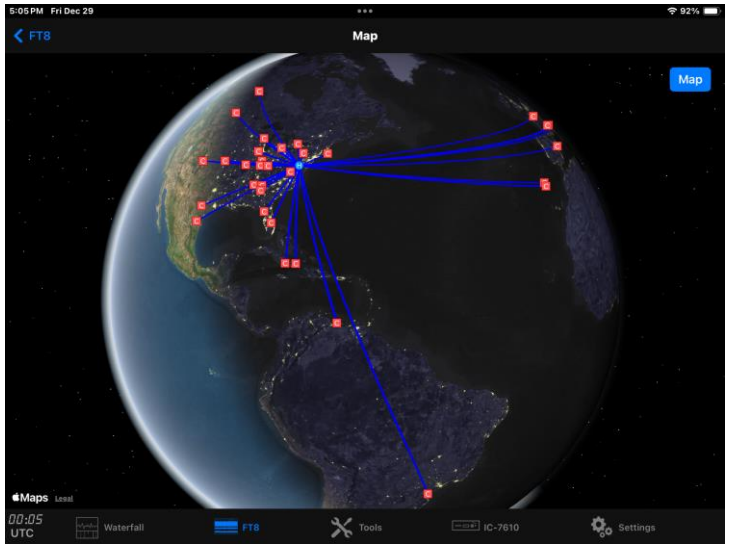
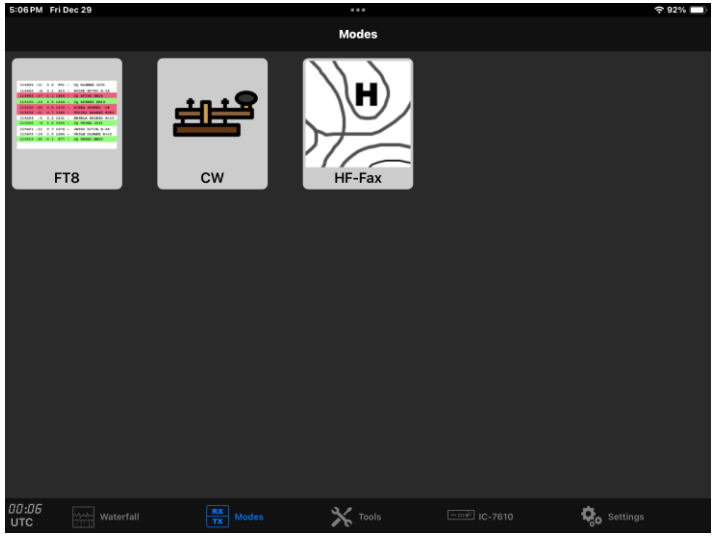


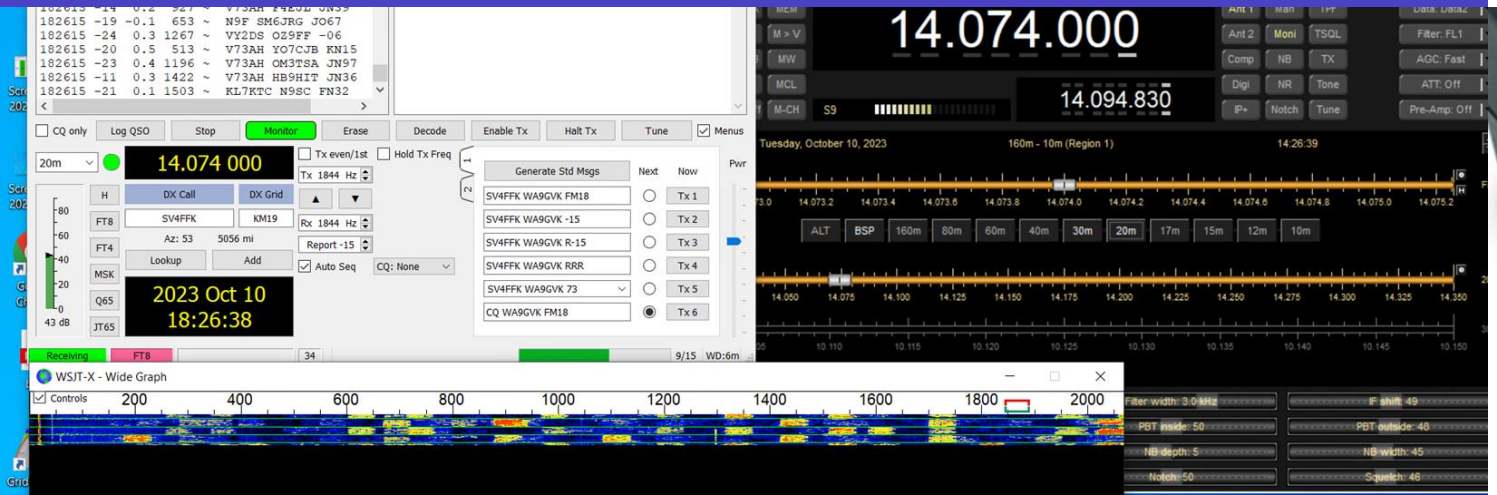
Demo 2





(3) Universal All-Mode Approach

1. Add dedicated Windows desktop computer with all ham apps installed at home QTH; Provides a level of security and ability to reboot.
2. Uses remote desktop sharing software to view and control QTH desktop computer from remote location.
3. Add method to remotely reboot desktop computer in the event of a software freeze
4. Set desktop computer BIOS to bypass front switch on application of AC power.



(3) Remote All-Mode Ops – Basic Wiring

Your Home QTH

Installed S/W:

- splashtop
- **Ham Radio Deluxe (HRD)**
- **WSJT-X (FT8)**
- **ICOM RS-BA1** (optional)

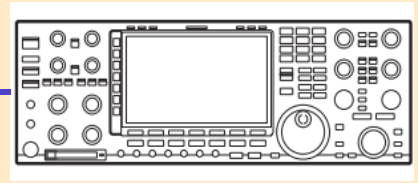
(EA4TX)

Antenna Switch (DX Engineering)

USB **Band Control**

RF

USB



ICOM IC-7610

Display Port/HDMI

Windows PC

CAT5

Router

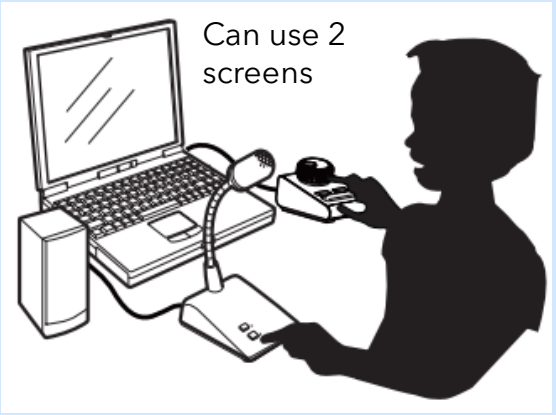
Modem

Internet

Your Remote Location

Installed S/W:

- splashtop
  - **Accesses Ham Radio Deluxe & WSJT-X**
  - **Muli-monitor ops**
- **ICOM RS-BA1** (optional)



Can use 2 screens

Router
(Ports need to be opened)

Wired or WiFi

Modem

Notes:

1. Windows solution; Remote location "sees" home QTH PC
2. Digital ops via Ham Radio Deluxe & WSJT-X
3. Voice ops via ICOM RS-BA1, HRD DM-780, or 3rd Party S/W
4. Desktop computer & monitors added to QTH

(3) Remote All-Mode Operations

Your Home QTH

Installed S/W:

- splashtop
- **Ham Radio Deluxe (HRD)**
- **WSJT-X**
- **ICOM RS-BA1** (optional)

(EA4TX)

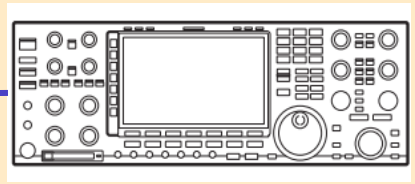
USB

Band Control

Antenna Switch (DX Engineering)

RF

USB



ICOM IC-7610

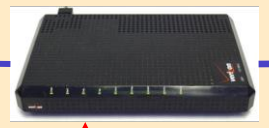
Display Port/HDMI

Windows PC

CAT5

Router

Modem



AC

AC

AC

WiFi Enabled Power Switch (ezOutlet5) Reboots computer by remote iPhone app

MSNSwitch Internet Enabled IP Remote Power Switch (UIS-622B) Reboots modem & router when internet drops

Internet

Your Remote Location

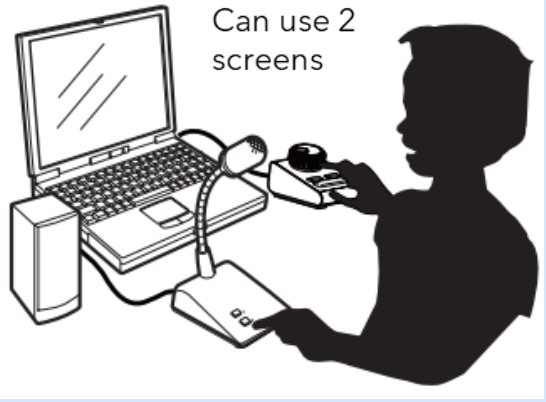
Installed S/W:

- splashtop

Accesses Ham Radio Deluxe & WSJT-X

Muli-monitor ops

- **ICOM RS-BA1**



Modem

Router (Ports need to be opened)

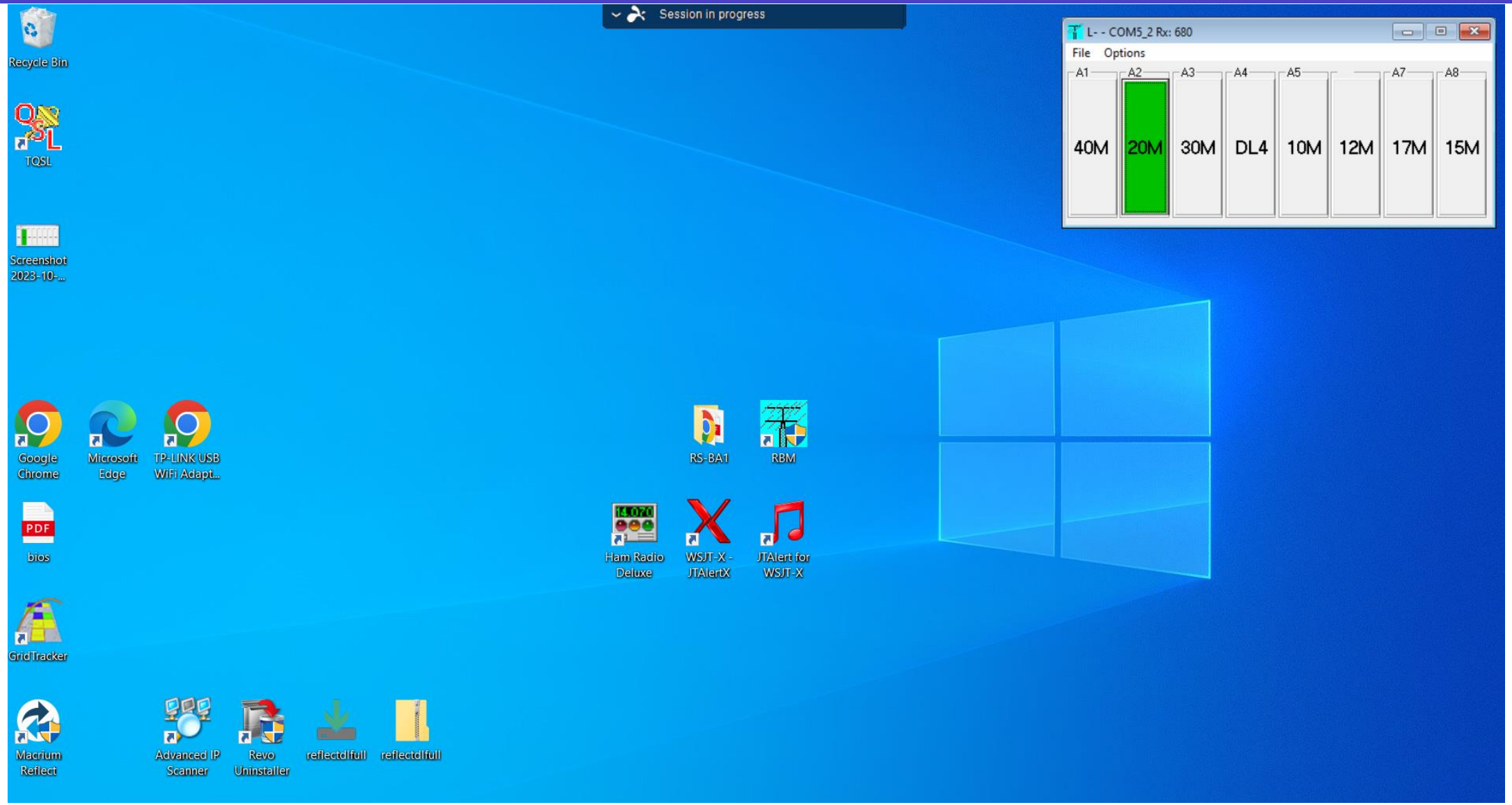
Wired or WiFi

Smartphone w/ ezDevice S/W to reboot QTH computer

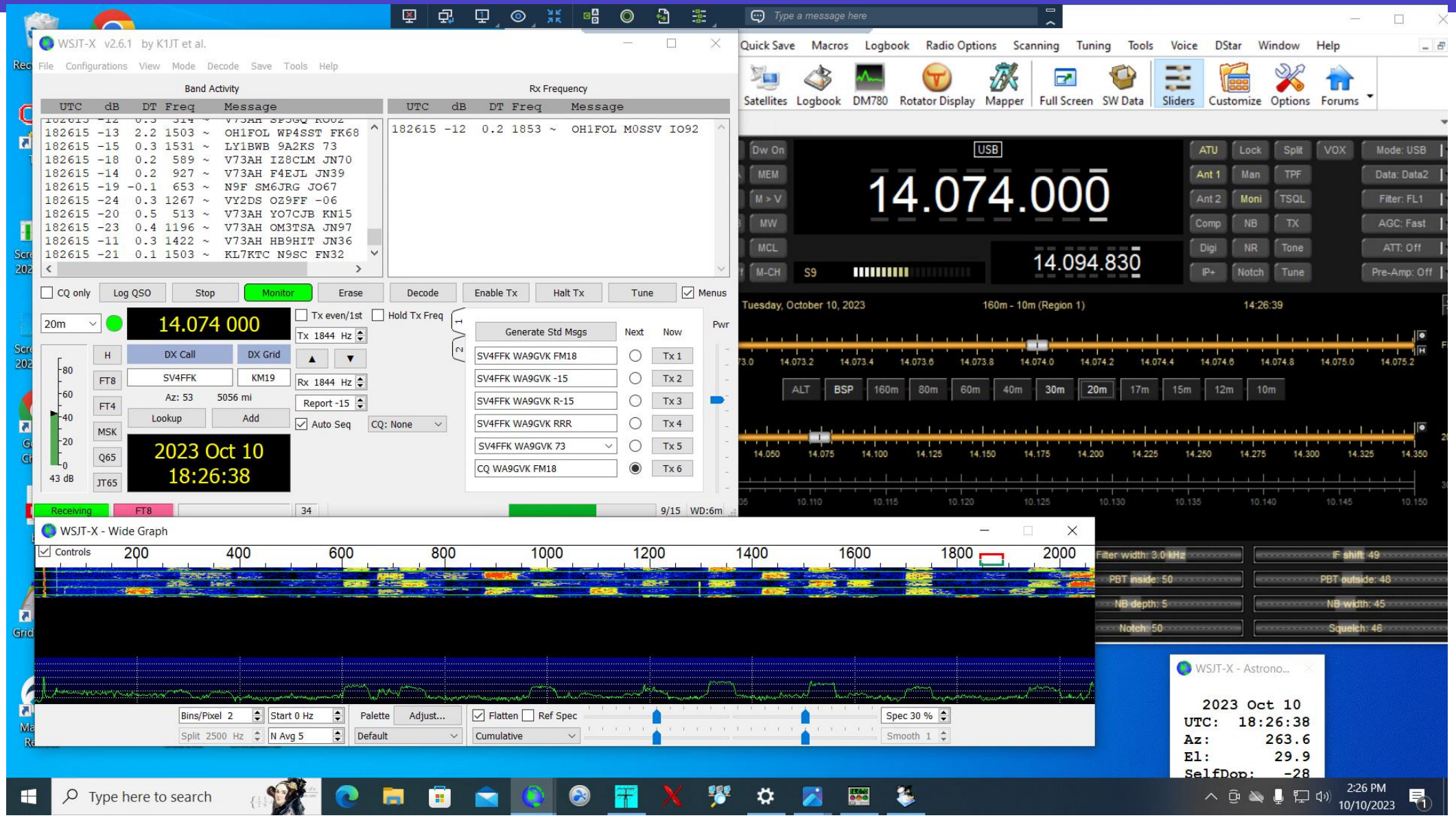
Notes:

1. Computer BIOS set to bypass front PC switch
2. Adds WiFi switch to reboot PC in a freeze
3. Automatic network reboot switch

Dedicated Windows PC Screen (at Remote)



Applications Turned On (seen by remote)



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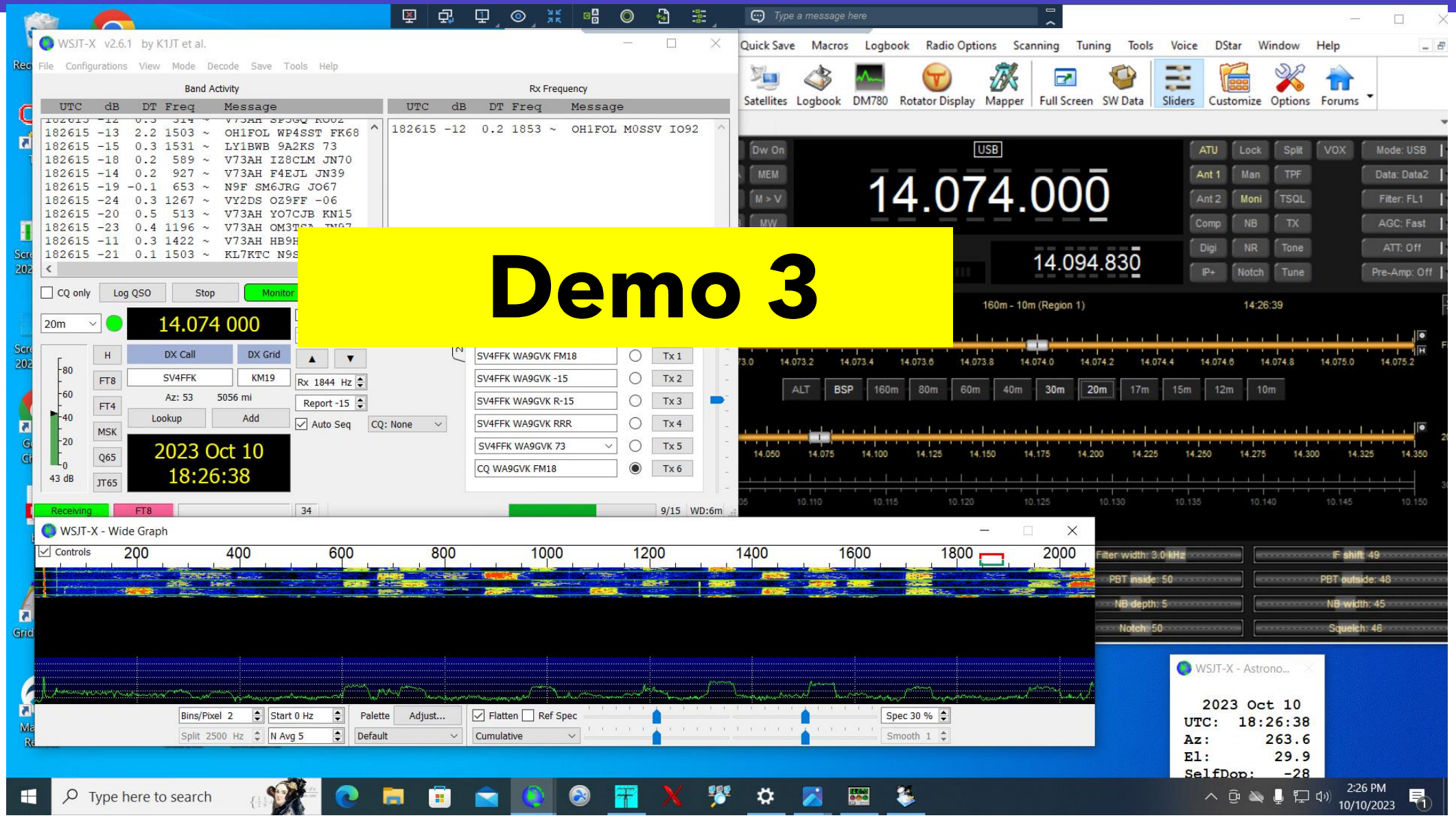
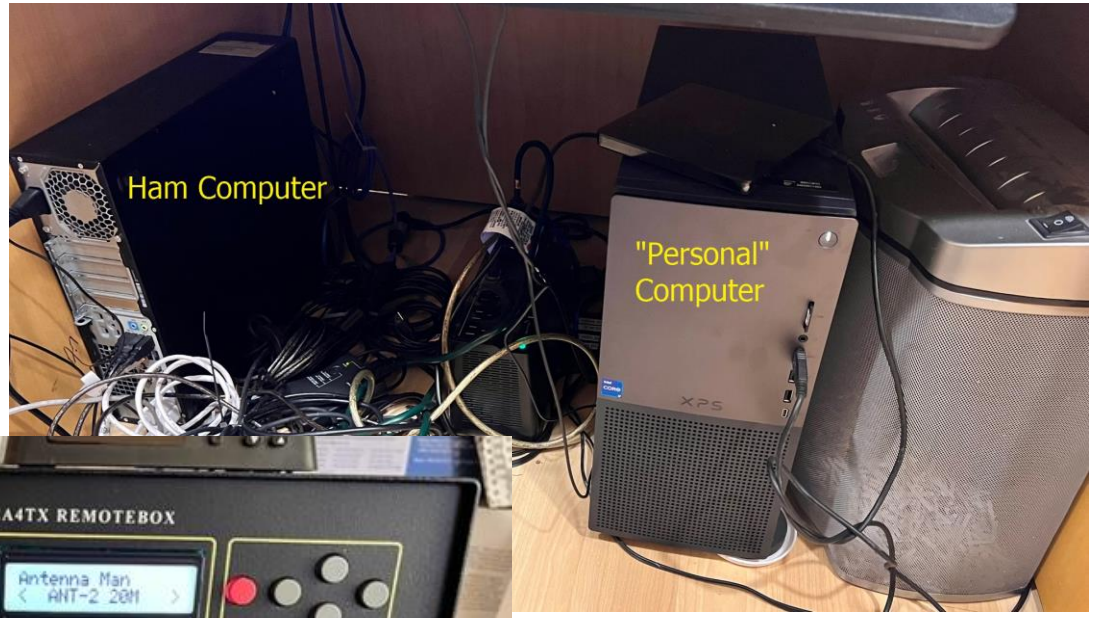


Virginia Home QTH

Desktop

Under the Desk



Rig

Arizona Remote Station

Desktop

Under the Desk

Hardware: QTH Windows Desktop PC

Why?

- Need computer that reboots easy in a software freeze; laptops don't because of battery.
- For security reasons, the PC will only have ham apps; not contain personal info.

Type & Cost

- Refurbished Window 10 Desktops cost about $200
- Available at Microcenter and Newegg

Required Modification

- Change BIOS to disable front power switch. Computer must turn on with application of AC power

My PC - $179

- Intel Core i5 6500 3.2GHz Processor
- **16GB** DDR4-2133 RAM
- 256GB **SSD**
- Intel HD Graphics 530
- Windows 10 Pro
- **2 DisplayPorts**
- HP ProDesk 600 G2 SFF Desktop

Hardware: EA4TX Remote Box

Why?

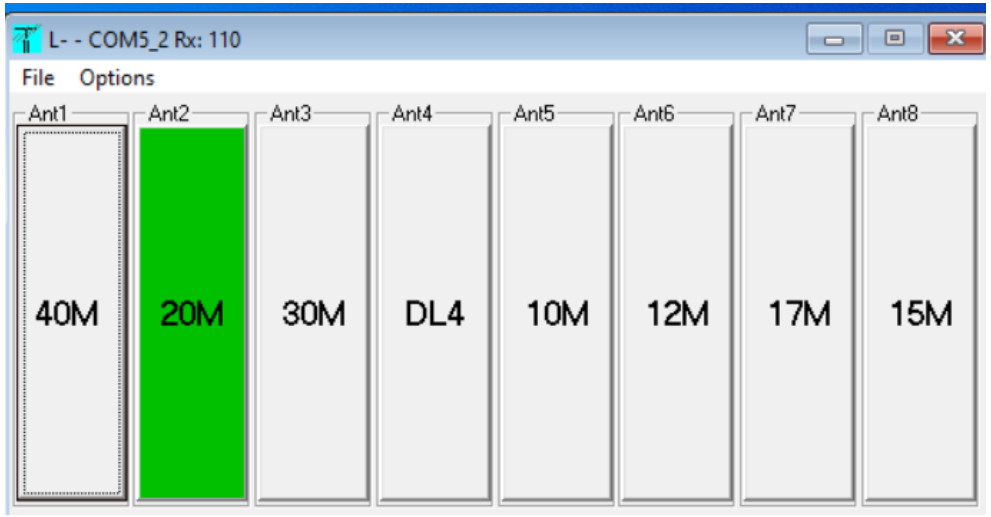
- Need control method to switch antennas to track rig frequency band either automatically or manually by remote control
- Compatible with DX Engineering RR8A-HP Remote Antenna Switch

Type & Cost

- EA4TX sold by DX Engineering
- Replaces CC-8 Manual Control Console
- $186

Compatibility

- Rigs: Ameritron, Yaesu, Elecraft, ICOM
- Software: Win-Test, N1MM, DXlog, Ham Radio Deluxe, SwissLog, OmniRig



Hardware: Automatic Network Rebooting

Why?

- Need automated method to restore internet in home QTH when modem and/or router disconnects or freezes

Solution

- Automated power switch that senses loss of internet and responds by turning off power to modem and router, and then sequentially restores power to modem and then to router
- MSNSwitch Internet Enabled IP Remote Power Switch with Reboot - (Model UIS-622b)
- $100

Hardware: PC Rebooting

Why?

- Need method to remotely restart frozen computer at home QTH

Solution

- Remote controlled WiFi power switch to turn off, then on, Windows computer at home QTH
- Controlled by app on a smartphone
- Change BIOS on Windows PC to allow it to start without pressing front button
- ezOutlet5 - Internet Enabled IP & WiFi Remote Model (EZ-72b)
- $80
- Many “smart plug” cheaper solutions available

Software: Desktop Sharing

Why?

- Critical software to allow screen sharing through activation and remote viewing of applications on home QTH PC.
- Many apps used to be free but those days are gone

Solution

- Splashtop Business Access Performance ($139/yr) –
  - Very easy to use
  - Doesn't require modification of home QTH Windows PC to bypass starting security PIN
  - Works even when home network IP address changes.
  - Works on Macs, Androids, iPhones and iPads.
- Cheaper solutions are available;
  - Splashtop Business Access Solo ($60) – no mic audio passthrough
  - RemotePC - $18.38/yr
  - RealVNC - $127/yr

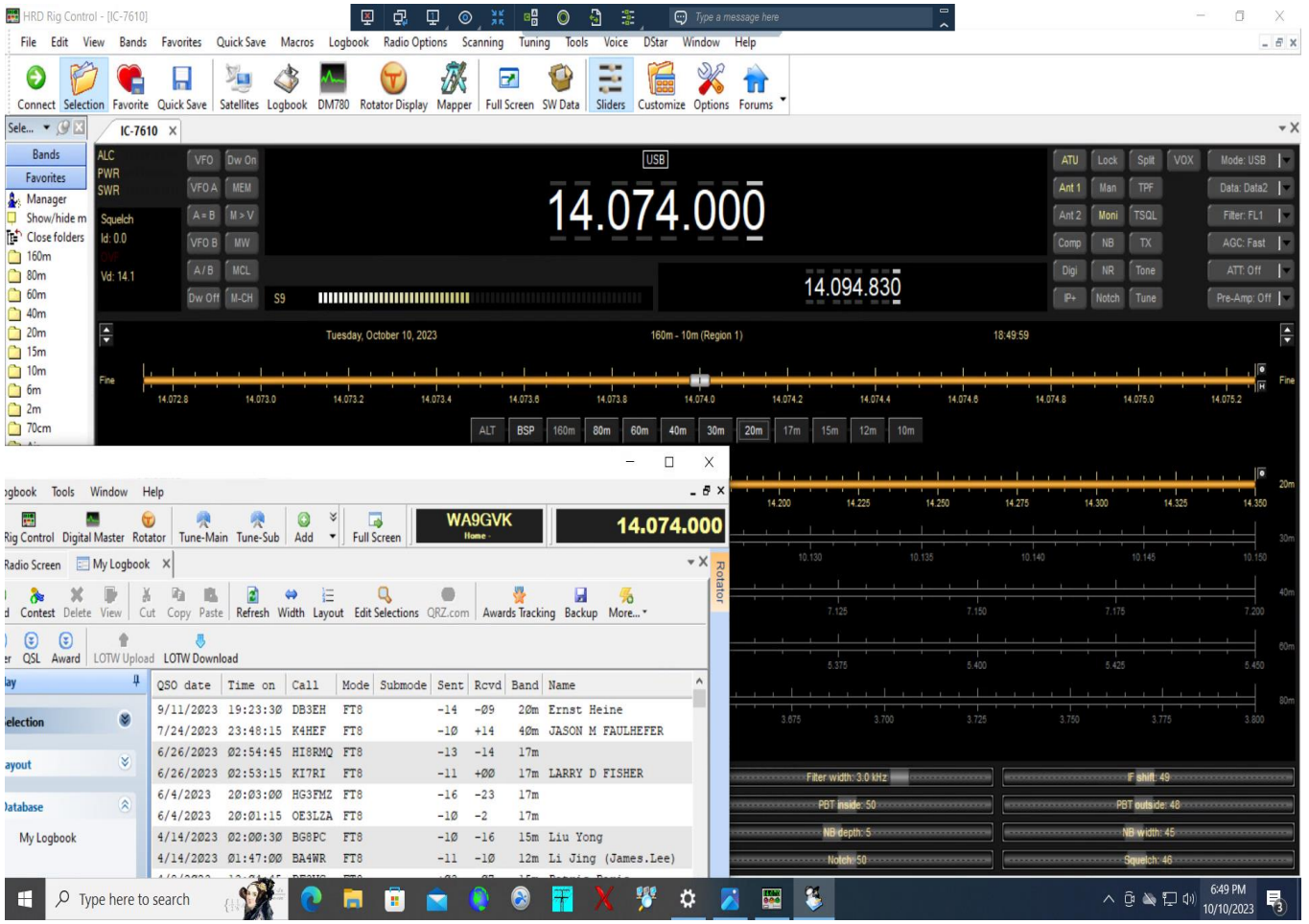
Software: Core Program for Home QTH PC

Why?

- Rig Control, Logging, and optional Rotator Control
- Can provide interface between WSJT-X (FT8) software and rig

Solution

- **Ham Radio Deluxe (HRD)** - $100 one-time purchase; $50/yr for upgrades & maintenance; many integrated applications; moderate learning curve
- Other solution combinations:
  - DXLab – Freeware
  - OmniRig - Freeware
  - Log4OM - Freeware
  - N1MM+ - Freeware
  - N3FJP - $40



Some Solutions for Things I'm Not Doing

Rotor Control

- Ham Radio Deluxe (HRD)
- PstRotator software
- Rotor-EZ for Hy-Gain rotators
- Yaesu RotorCard/Illuminator
- Vibroplex Easy-Rotor-Control (ERC)

Power Amplifier Control

- Requires amplifier capable of interface to rig, computer, LAN network or web.

Summary

- Remote operations not difficult to set up but expect to make a modest $$ investment for both hardware and software.
- There are many remote-control ham apps for most every rig discoverable by Google search
- Install automatic method for home QTH network reboot and remote method to reboot home QTH computer upon freeze…unless you have a friend living nearby who has your key!

Bruce Brown
WA9GVK

brucejbrown
@gmail.com

Thank you