Fully Remote SDR station

TIMO TÖRÖ, OH5KW

OHDXF Cruise 2017

My Motivation

- I have been a DX-marathon chaser and a contester from early on. Then there was long semi -QRT period until the remote control era started.

- Already on last century (1985..) I had a dream to remote control my station.

- I thought: Let's do that when I'm RETIRED. But after studying how many sunspot maximums there are left for me: I realized, that I'm definitely retired ALREADY. If I want to "work them all" - SBB and CW and Digi –it is time to start.

- Remote controlling was like a new start for my hobby!

History

- -First remote QSO 30.10.2006 in the same room.

- From 1/2007->Real remote controlling the whole station

- 2006 it was easy enough to start (Ham Radio Deluxe –software, Yaesu FT1000MP MK V and ADSL internet connection)

- Yaesu band data to home brew relay box. EA4TX antenna control system via remote desktop control (VNC, Timbuktu Pro or Teamweaver)

- Lightning -overvoltage damaged Yaesu power measurement diodes. Better protection needed!

- CW with 5 preprogrammed messages -> hundreds of new bandpoints worked!

- SSB with IPSound or Skype

- From 2010 -> Remoterig RRC-1258

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PowerSDR

Flex500A

- Next radio was Flex 5000 via remote desktop and Remoterig RRCs. SDR advantage already, even controlled via remote desktop. Lightning damaged the RX ant OUT port once. CMOS RX-ant relay is sensitive to overvoltage.

- Key to success was QoS in ADSL router. ->Privilege given to RemoteRig protocols instead of graphics on the screen

How to make your remote station to survive 24/7/365

- Ground based cabling

- Single point grounding! Reduces noise and RFI also.

- Bewerage ant –protection   -->

- *QST FEB 2017 Gas Discharge Tubes – Putting the Lid on Lightning

- <--Use Metal Oxide Varistors on all control lines

- DO REGULAR SERVICE TO YOUR MAST EVERY SUMMER!

- Use electrical heating for mast rotor.

- Limit switches for the mast rotor are must. Errors DO happen when you are remoting

Single ground point and cable conduit
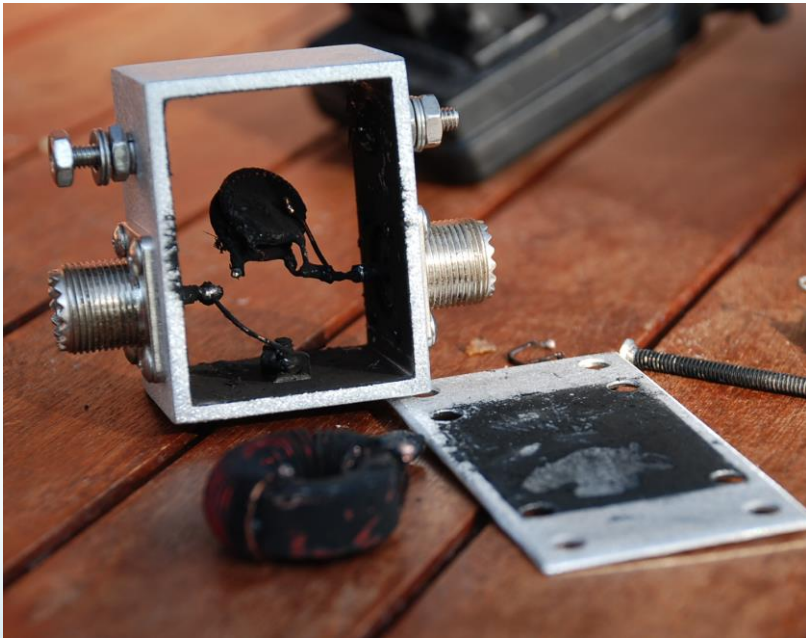OHDXF Cruise 2017   © OH5KW

Links and ideas

The Lightning Killer→

- http://www.arrl.org/lightning-protection

- Radioamatööriaseman maadoitus OH2ID, Radioamatööri 1/2017

- https://www.youtube.com/watch?v=aUPRy7Sskxg

- Damages occur between networks: Radio connected via USB to PC - connected via Ethernet to LAN etc. -Where ever best ground is found for lightning energy. Use single point grounding for ALL networks and all lines with overvoltage protectors.

- Build extensive ground network.

Cables grounded at mast base.

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It happens!

Damaged lightning arrestor

- https://www.arraysolutions.com/surge-and-rf-protection

- https://www.dxengineering.com

- Protect also the RX output port

- Use professional grade solutions, spend time and money.
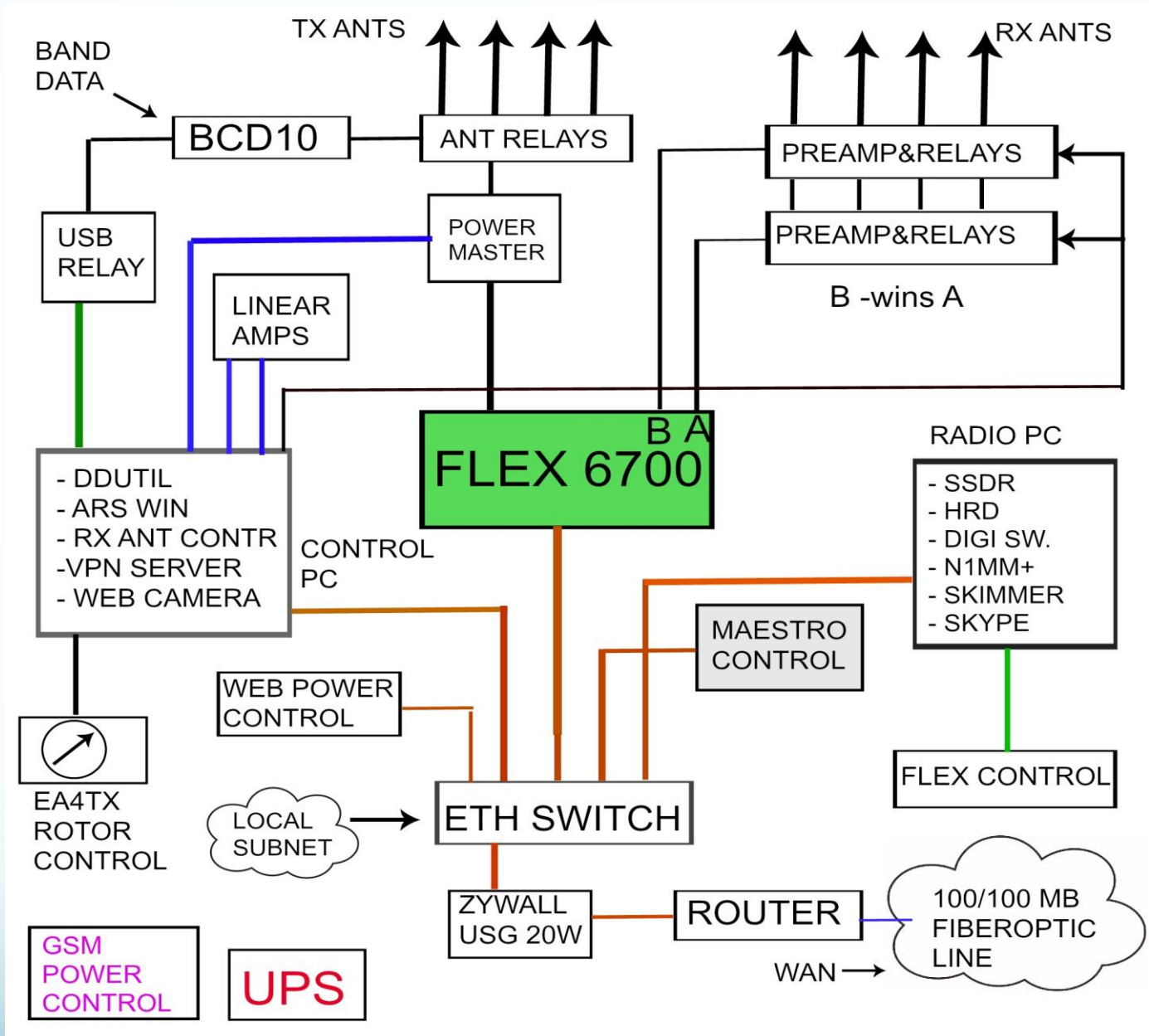
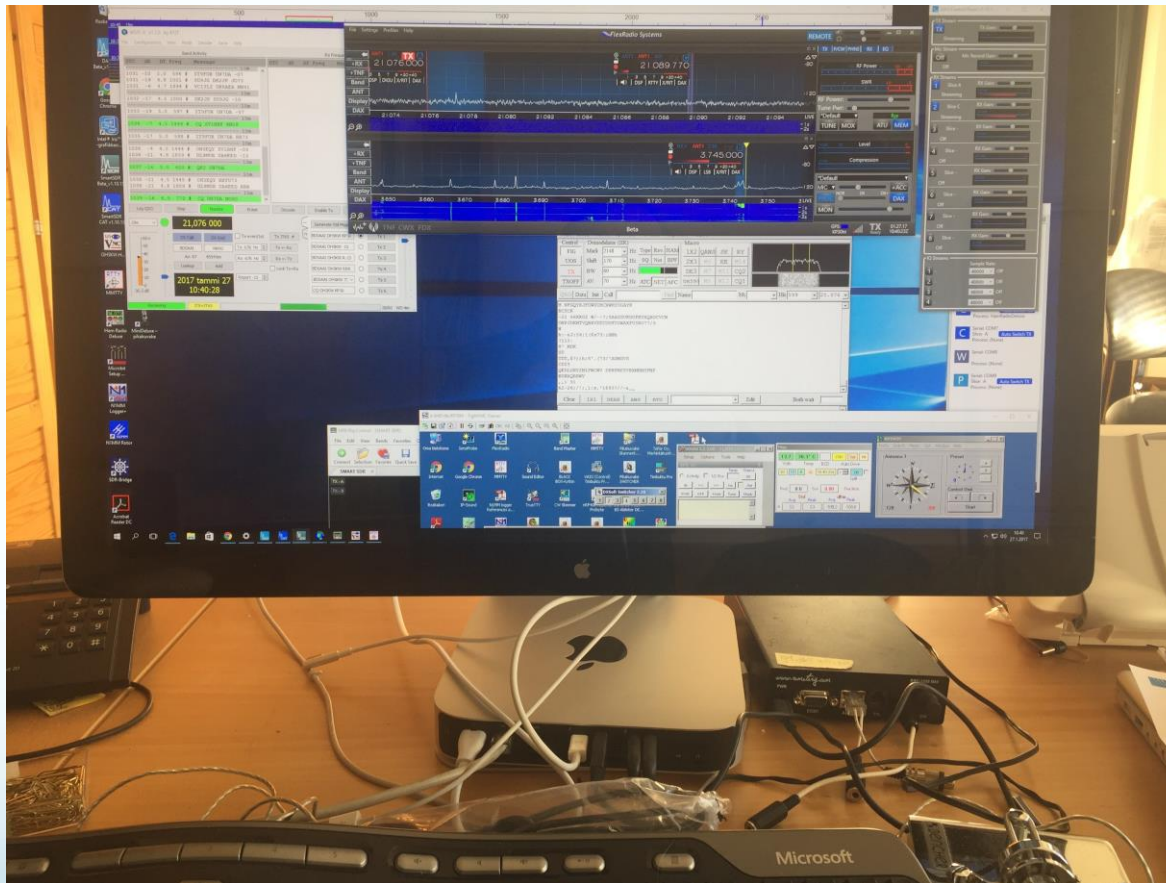- KY6LA: "How To Buil a Quiet Satation –v2"

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FLEX 6700 remote

o Well suited for remote control. Radio (server) is Ethernet controlled
o Can stream bandmap and audio to a remote device
o Supports multiple control clients
o Good receiver, diversity, full duplex
o 8 receivers on several bands at the same time
o Native WAN support coming –less bitts out, no VPN server setup
o New features are added to software many times a year
o Can be remote controlled with handheld devices too
o Macintosh software available

Super Simplified Flow Chart © OH5KW

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Remote controlling with PC

Two digimodes decoded and SSB listened on two bands at the same time.

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Remote controlling with iPad
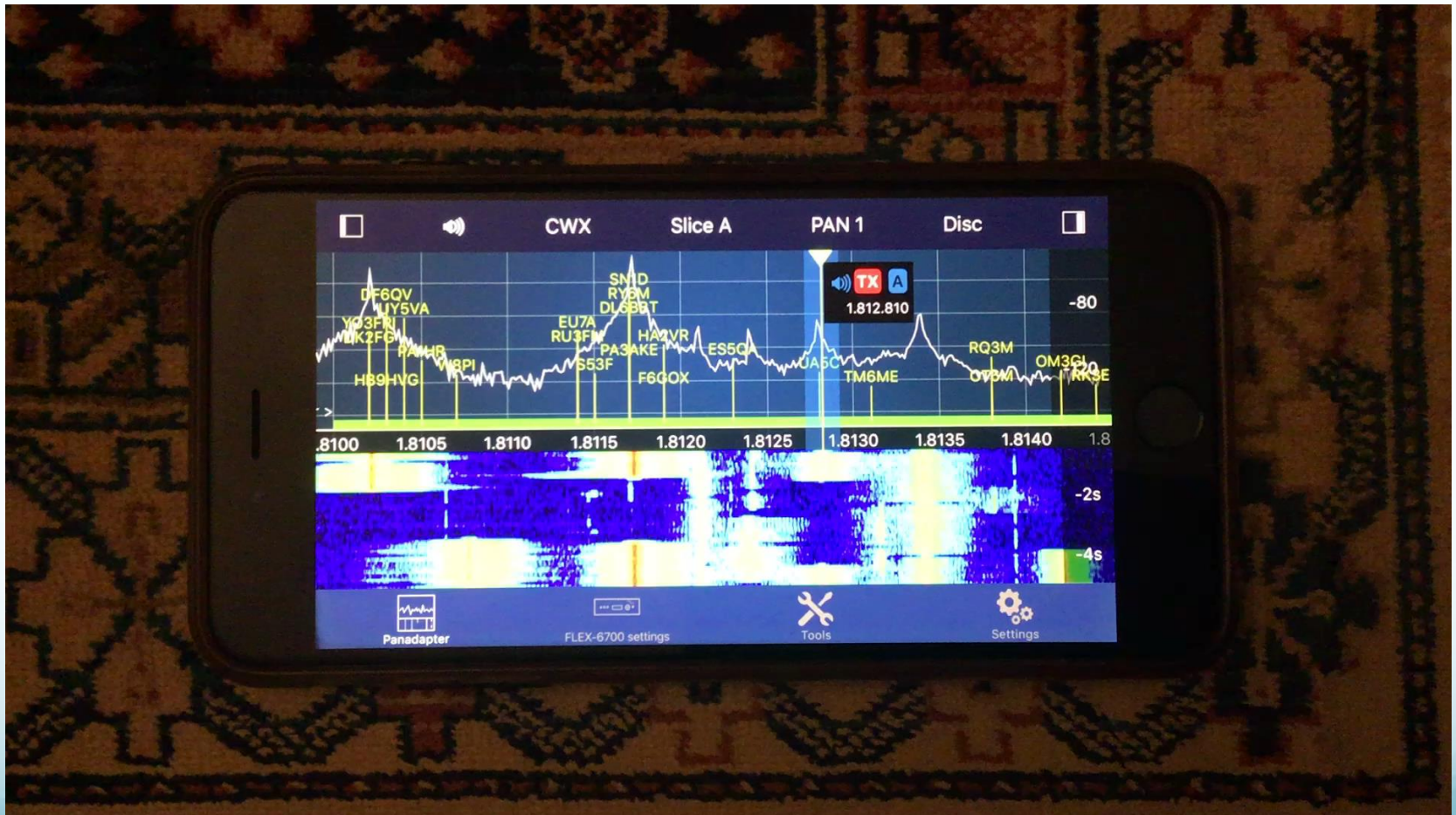

Waiting in my car...systems running; skimmer and HRD logbook.

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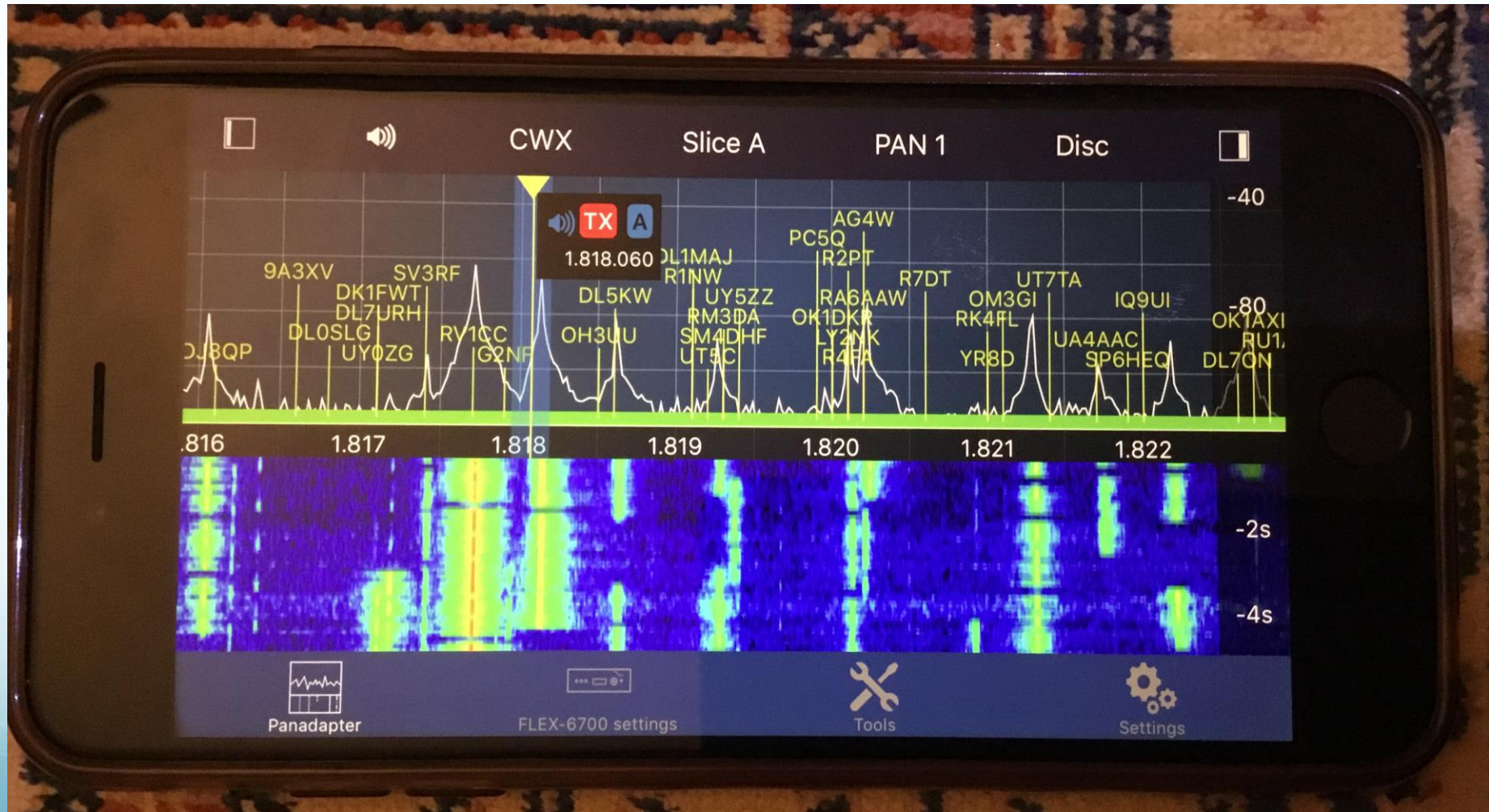
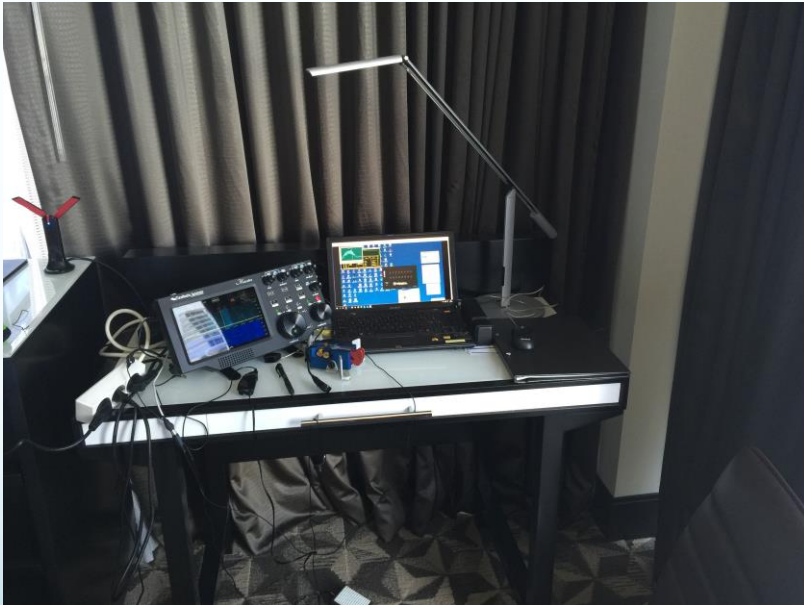# Remote controlling with iPhone

video

iPhone screen filled with local Skimmer-spots

On the road with a Maestro

Setup

CY9C BBS, a new modepoint, W4-remote

video

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Summa Summarum

- There is no easy way to do remote controlling, SDR or legacy

- If something is not working, as it often happens: Be like Kimi Räikkönen; Stay calm! -Every remote QSO is better than NO QSO at all!

- Do it like professionals; Double systems, do not go to cheap solutions, protect your investments against mother nature

- Flex6000 ecosystem is growing; bright future ahead. More HW support is coming. WAN remote support in software is soon here!

- Remote contesting is possible, SO2R with one radio doable

- Take the challenge now –next sunspot maximum is on it's way

Pse QRX, a demo will start soon…

- Thank you