



# USB Rig Interface

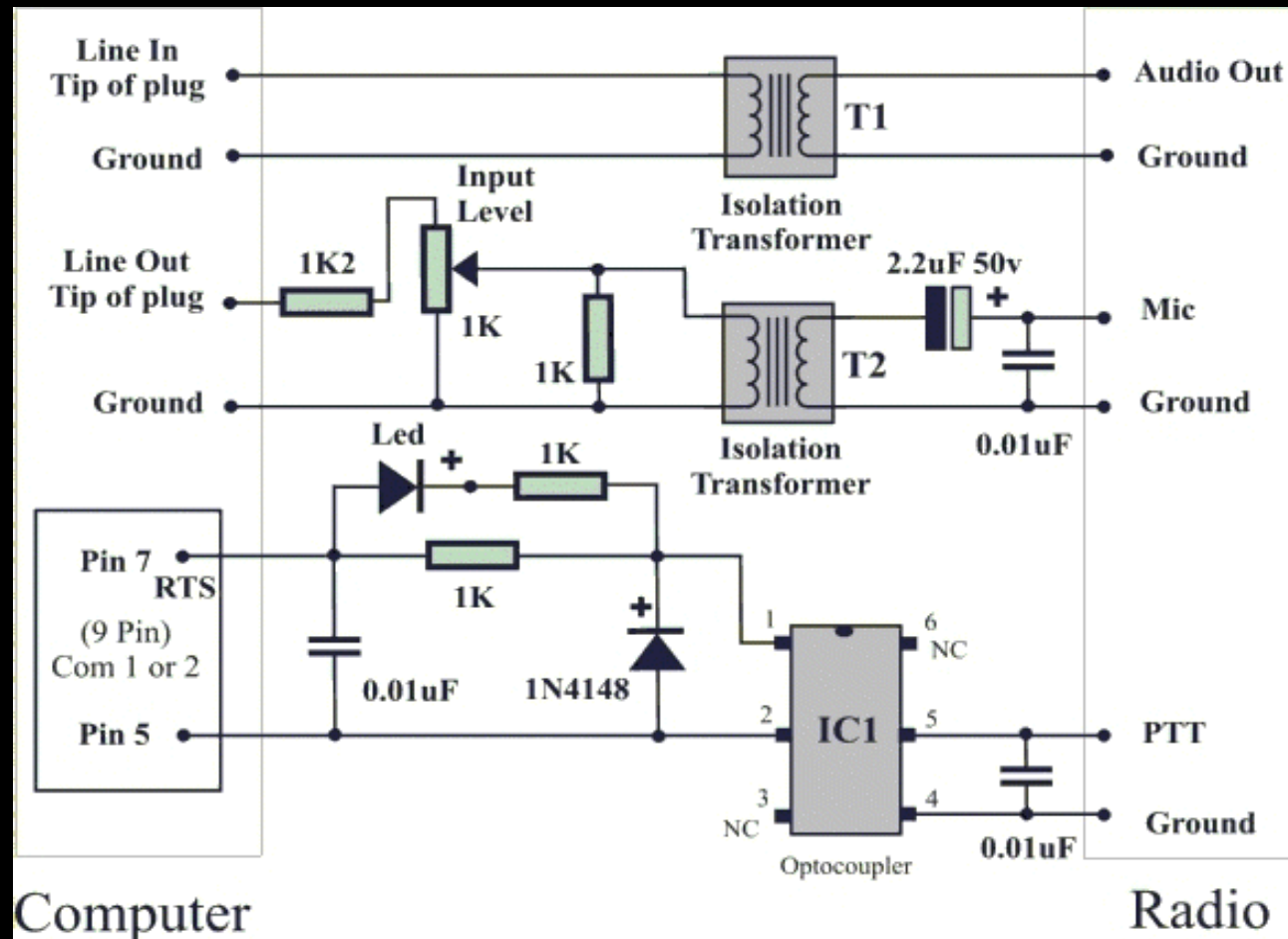
David Smith  
VK3HZ

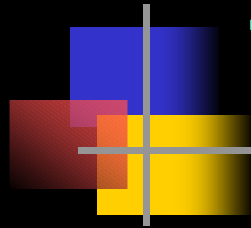


I/F



# Typical Rig Interface





# The Background ...

---

- Needed another Rig Interface for portable WSJT operations
- No serial ports on modern laptops
- Use a USB to Serial adaptor
- Lots of cables – build adaptor into new interface?
- What about USB Audio too ...

# What Commercial Products?

- RigBlaster



- Only does PTT via USB
- Audio still via cables

# What Commercial Products?

- Signalink USB



- Very tempting – Audio via USB
- PTT via VOX-like circuit

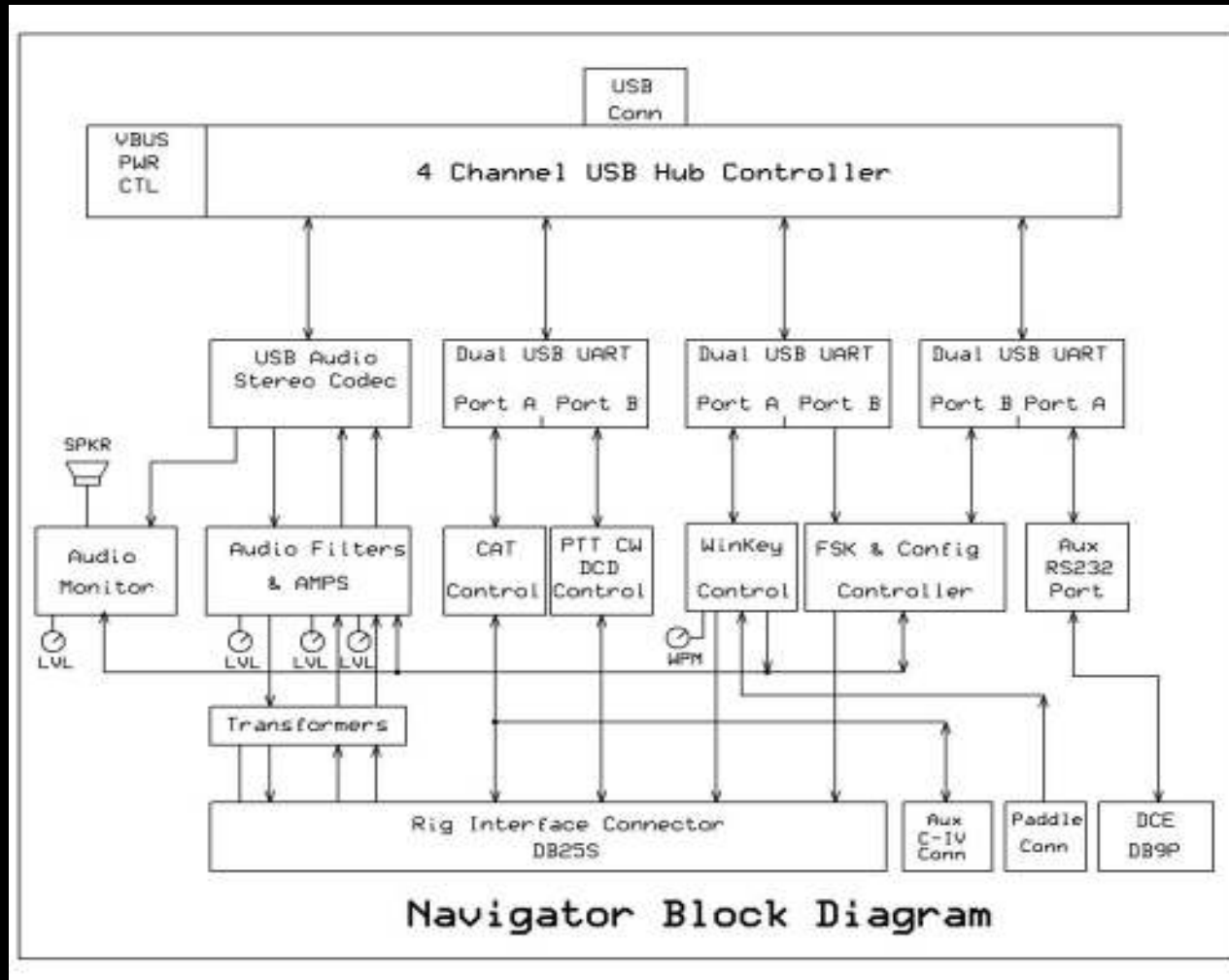
# What Commercial Products?

- US Interface Navigator



- Complete USB Rig Interface (and more)
- \$US 440 (cough!)

# What about DIY?





# DIY Components



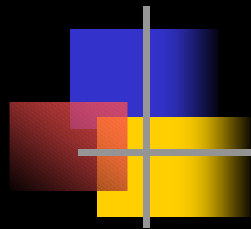




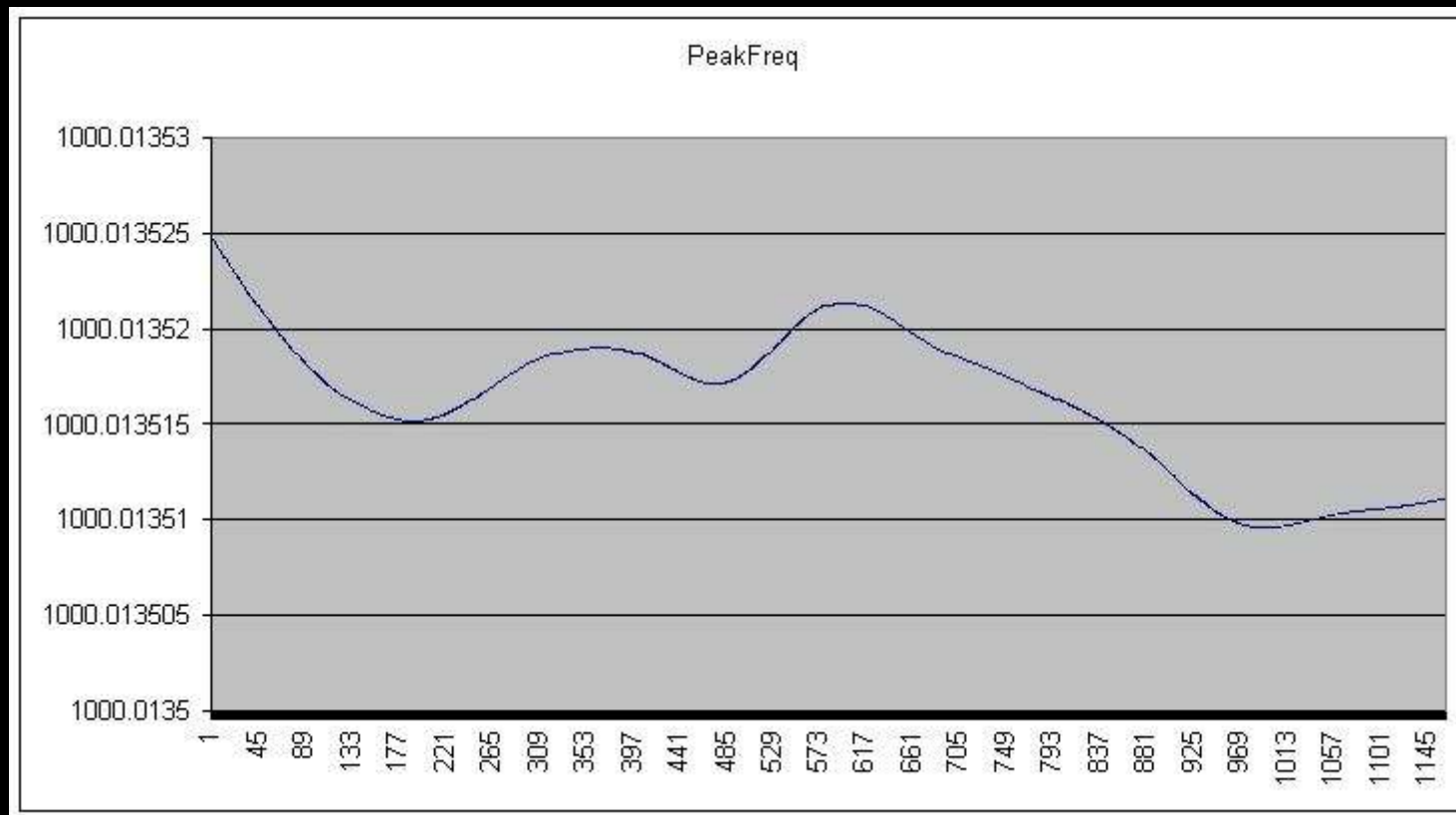
# USB Sound

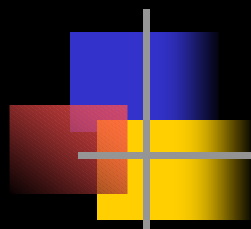
---

- Lots of options at various price points
- Decided to try “3D” Sound Dongle
- 3D refers only to optional driver
- Subjective listening and recording tests sounded good
- Microphone input only mono (SDR)
- Frequency accuracy was good



# Sound "Dongle" Frequency



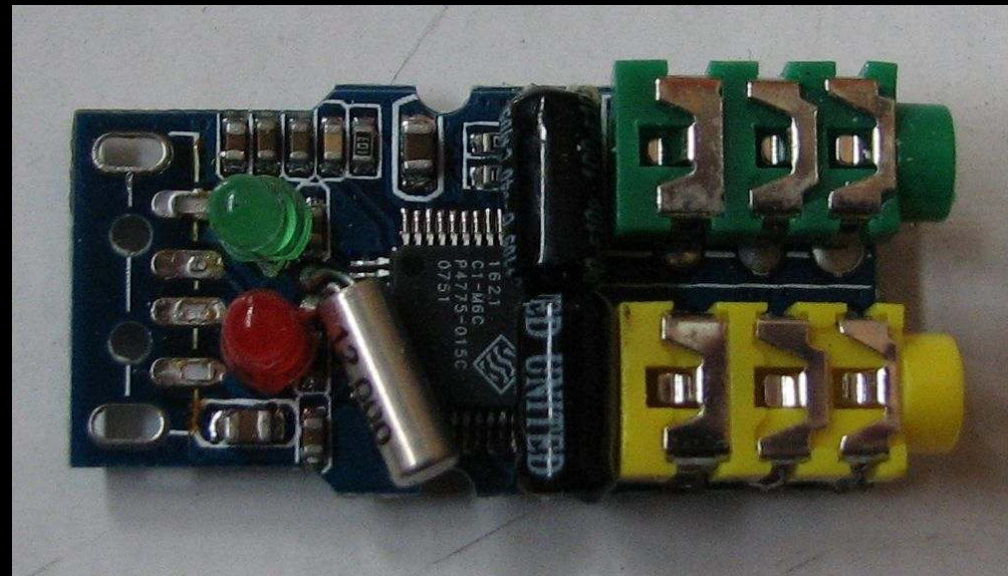


# Digression on Frequency

---

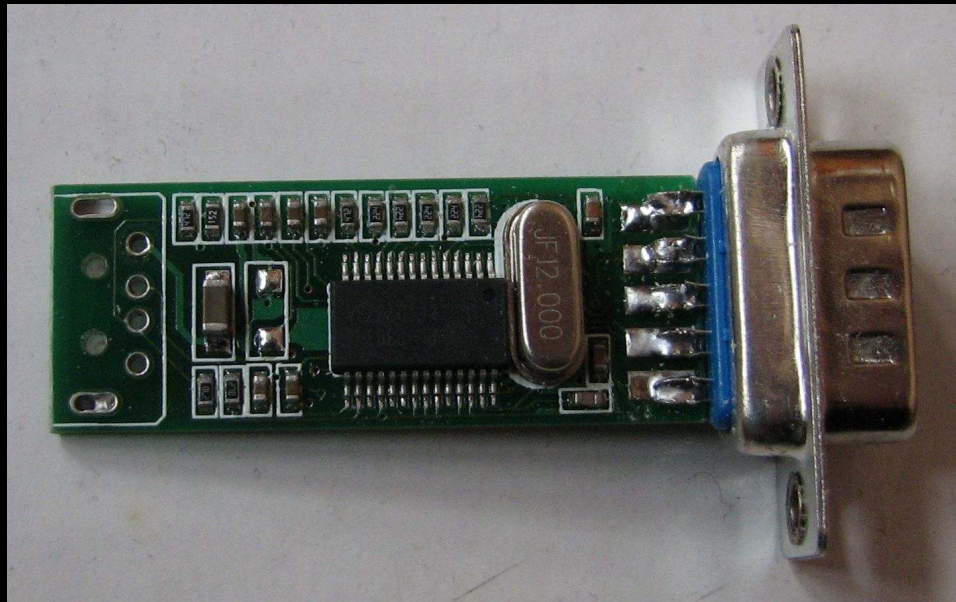
- Sound cards can have large frequency error
- Modern soundcard input at fixed sample rate – often 48 kHz (sometimes 44.1 kHz)
- Downsampling (decimation) to give requested rate (e.g. WSJT 11.025 kHz)
- If not integer division (e.g. 48 -> 11.025), often do a bad job of it
- Dongle 6.67 Hz out at 1000 Hz sometimes ...
- Only when using Win XP - Vista OK ...

# Sound "Dongle" Internals

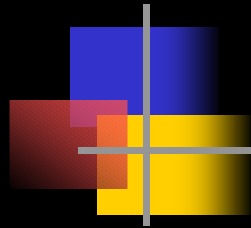


# Serial Adaptor

- Prolific chipset
- Circuitry at DB9 connector end
- “Clip together” type plastic case





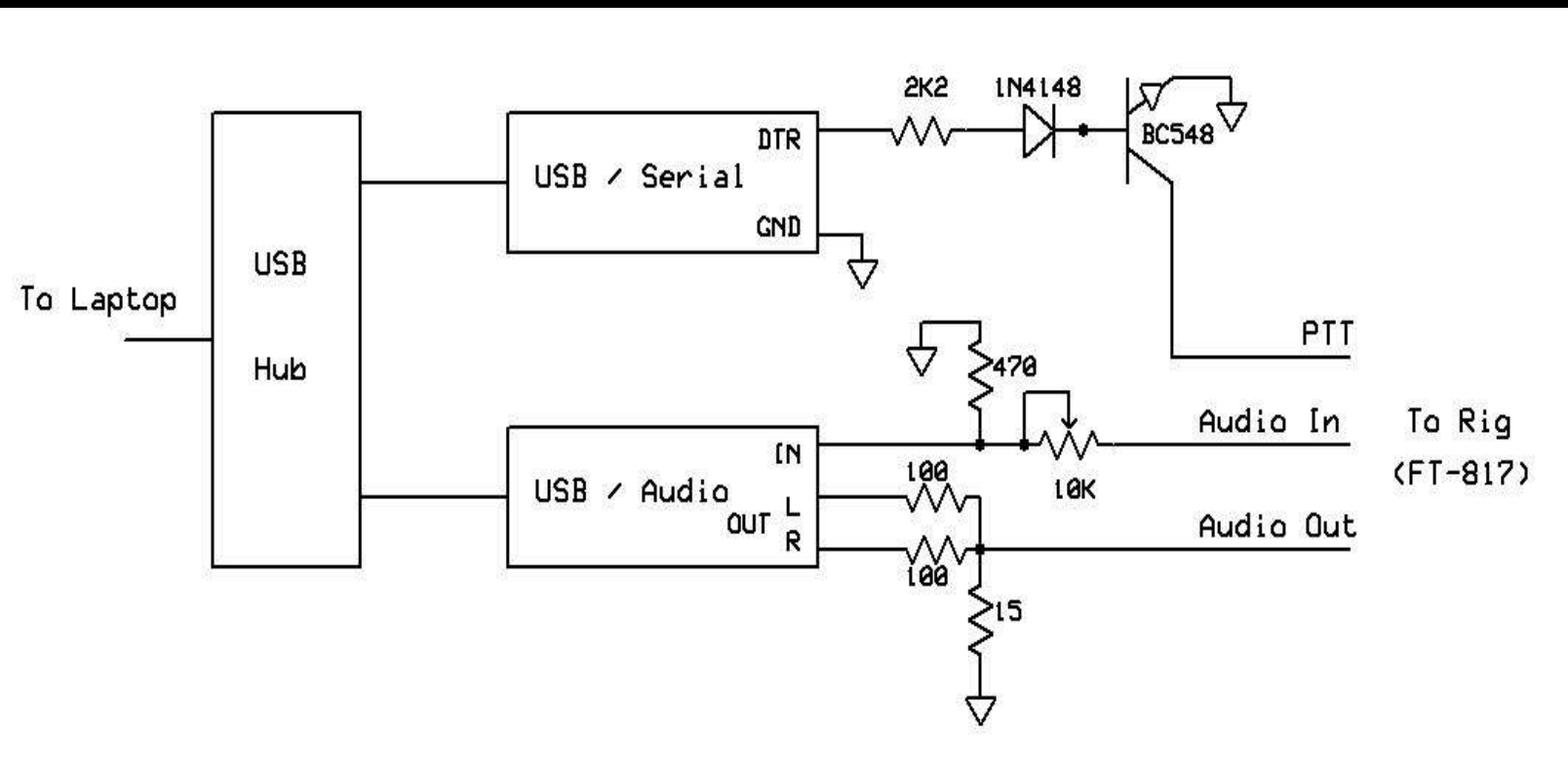


# Construction

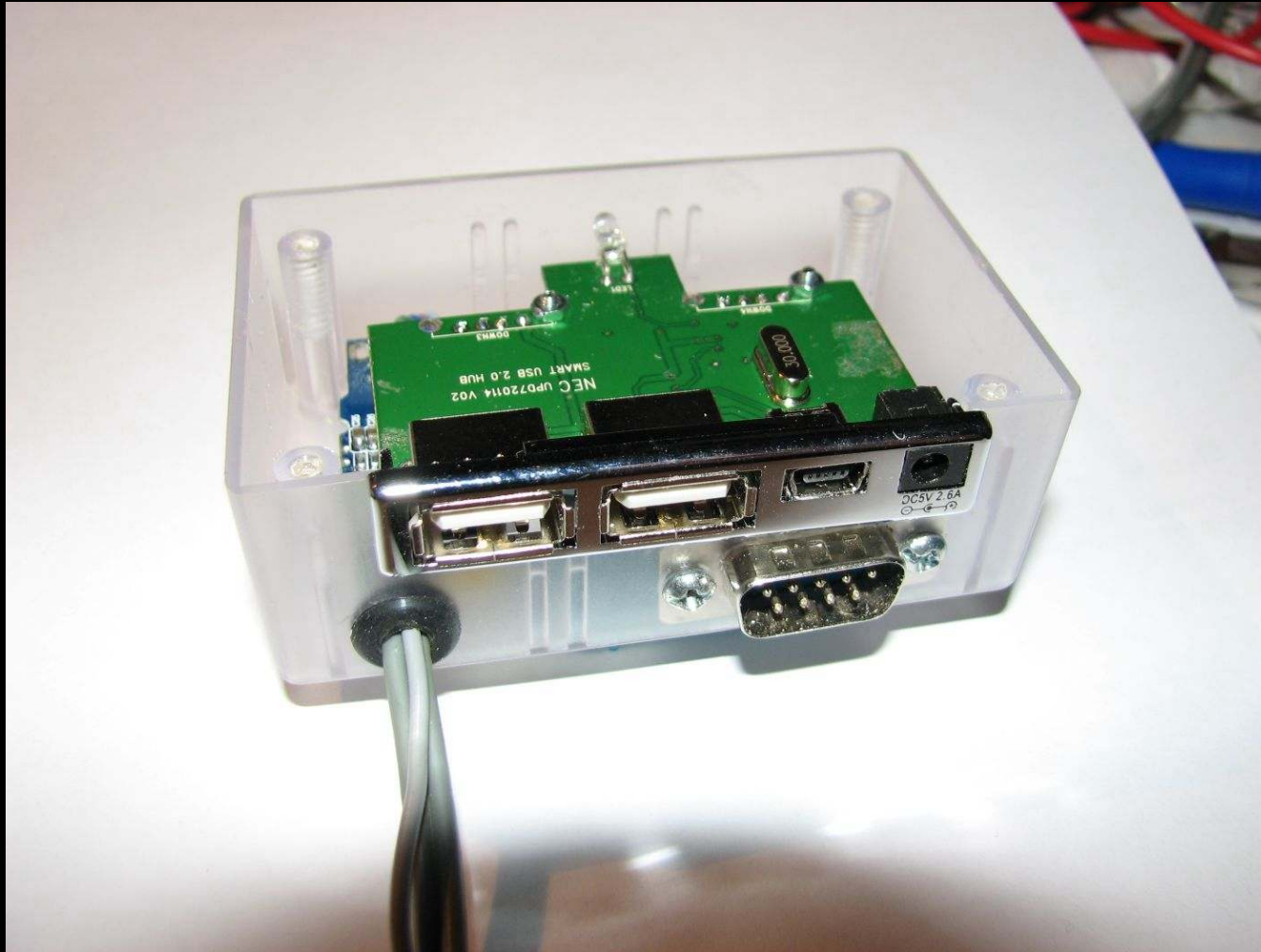
---

- Just plugging them together too crude
- Additional interfacing circuitry required for PTT and Audio attenuation
- Isolation? Have always needed to link earth across. Try without.
- All in one box. USB in one side, rig connection out the other
- Powered from USB

# Block Diagram



# Construction

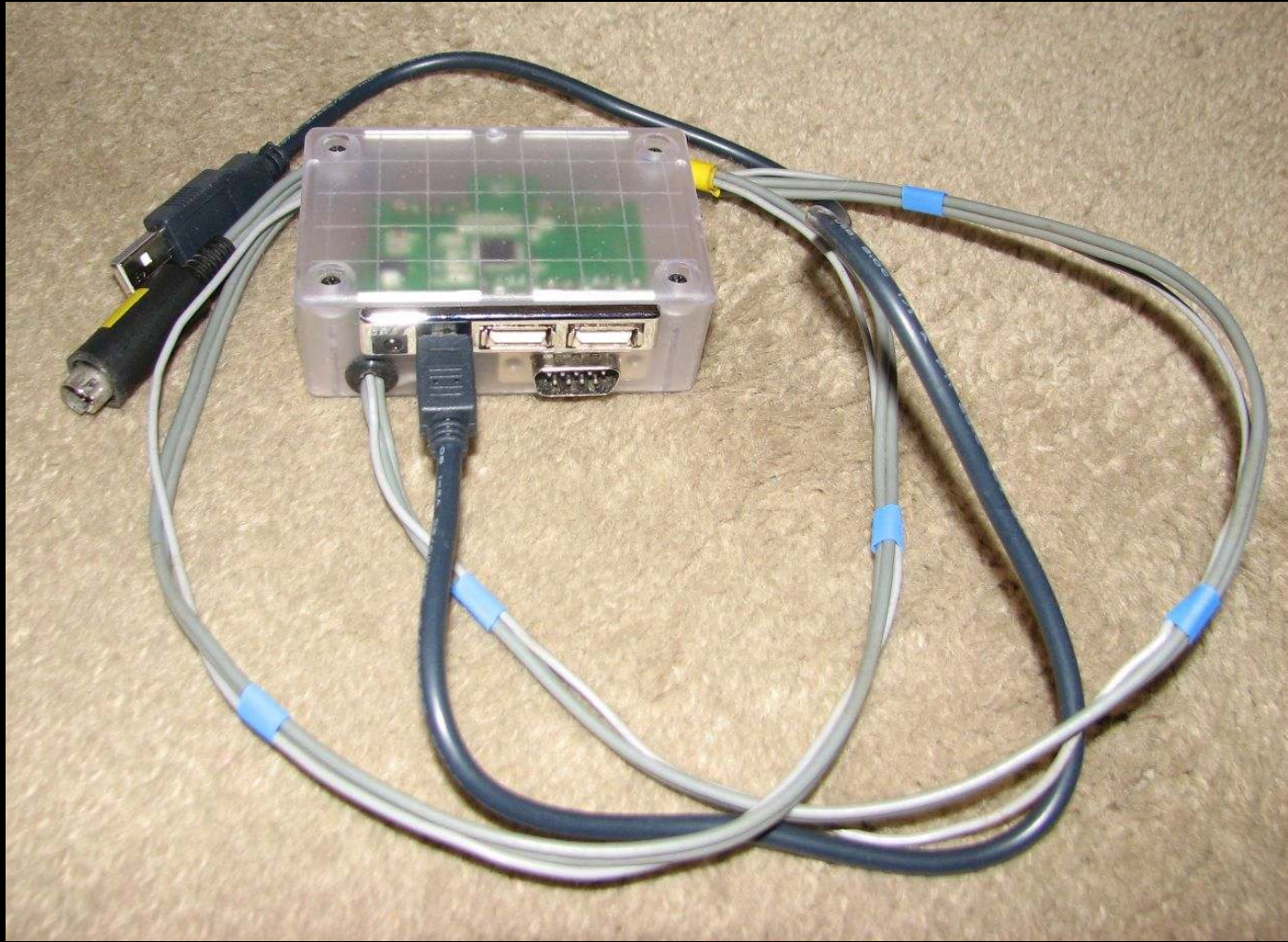


# Construction

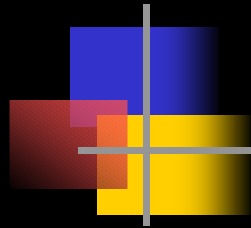




# Construction



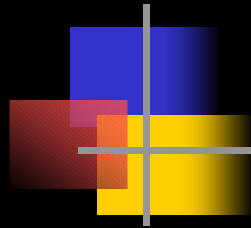




# Computer Side

---

- Sound Dongle is recognised by XP & Vista as "SSS USB Headphone Set"
- Serial Adaptor needs driver installed on XP (before you plug it in!)
- Use same laptop USB port each time
- Sound settings are saved independently of any other sound card



# Budget

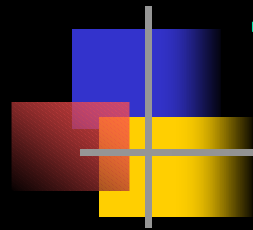
---

- Sound Dongle - \$8
- Serial Adaptor - \$17
- USB Hub - \$7
- Jaycar box - \$3
- Misc bits, cable & connector - \$5
- My time - \$priceless
- TOTAL PARTS - \$40

# First Test

- 23/6/2009
- VK3HZ/P3 (Mt Fatigue) to VK7MO/P7 (Mt Barrow)
- 10,368.1 MHz using JT65a (New Digital record)





# The End

---

- Thanks for listening
- Any questions ?