CONCEPT

Build the SDRX shield

Last time

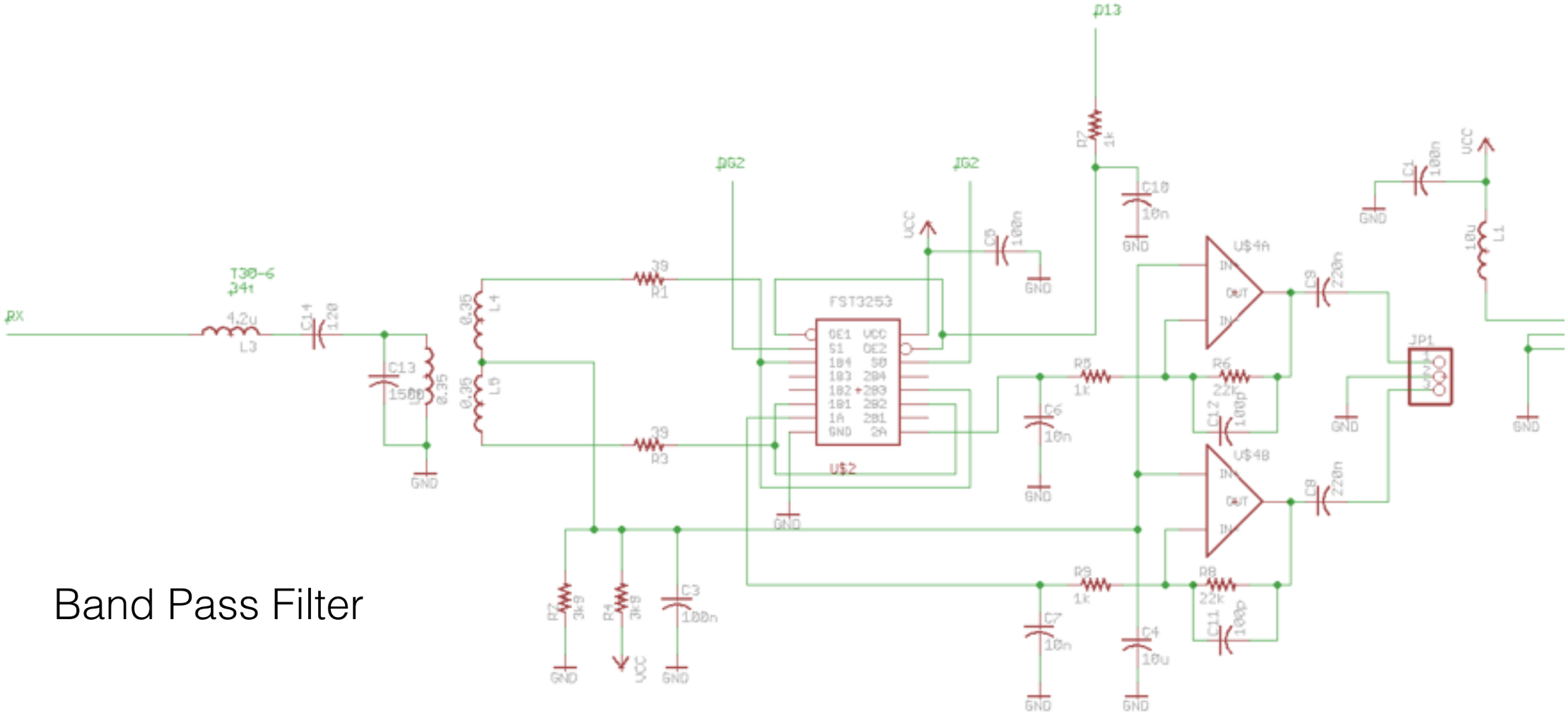
- We learned about the Bandpass SDR design
- We studied the actual 40m SDRX design
- Now we build it - Kit 4

Kit 4

PCB							x
2 x 100pF							x
1 x 120pF							x
1 x 1500pF							x
3 x 10nF							x
3 x 100nF							x
2 x 220nF							x
1 x 10uF							x
2 x 100pF							x
1 x 10uH							x
2 x T30-6 Toroids							x
Wire 28swg 50 & 60 cm							x
2 x 39R							x
3 x 1k							x
2 x 3k9							x
2 x 22k							x
Right Angle header 3 pin							x
2x6 & 3x8 pin header kit							x
FST3253							x
TLV2462							x

The BIG kit!!!

Schematic



Band Pass Filter

Baseband filter

Audio amplifiers

BARS

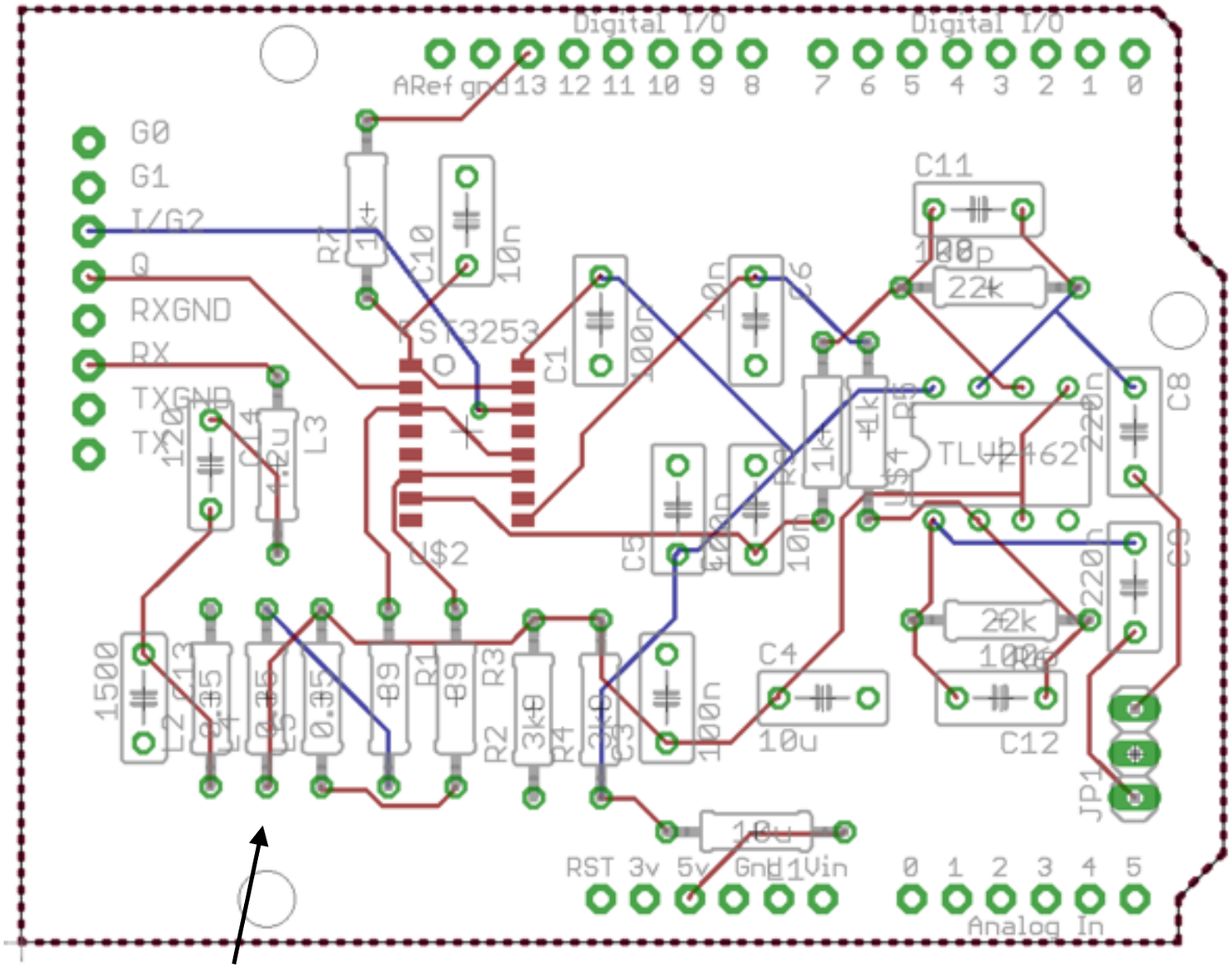
Warning

- The FST3552 is a CMOS device
- You MUST take care to handle this and protect against static electricity

The PCB

VFO IQ

Antenna



Audio out

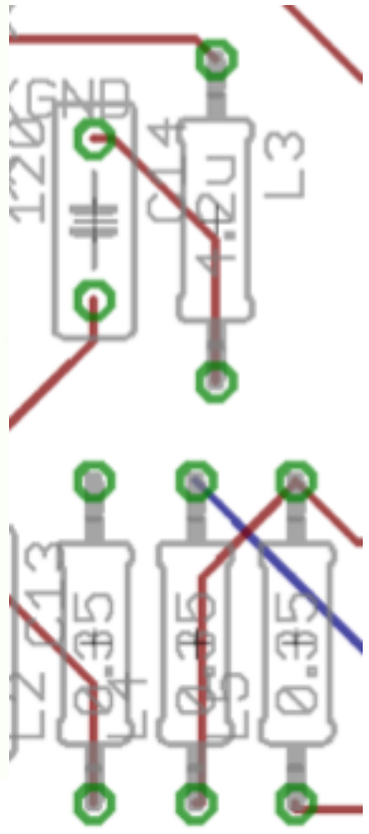
Band Pass Filter

Wind the coils

- T30-6 cores (0.3” Yellow)
- 4.2uH = 34 turns
  - 50cm of 28 swg wire
- 0.35uH trifiler = 3 x 10t
  - 60cm of 28swg (0.3mm) wire
  - cut into 3 and twist together
- See web site toroids.info

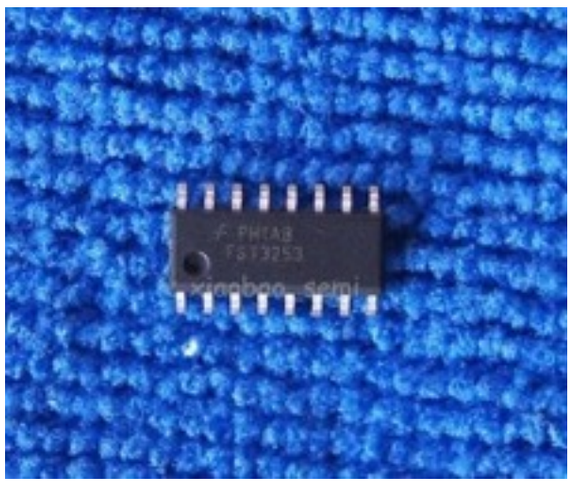
L3
4.2uH

L2, 4, 5
3 x 0.35uH



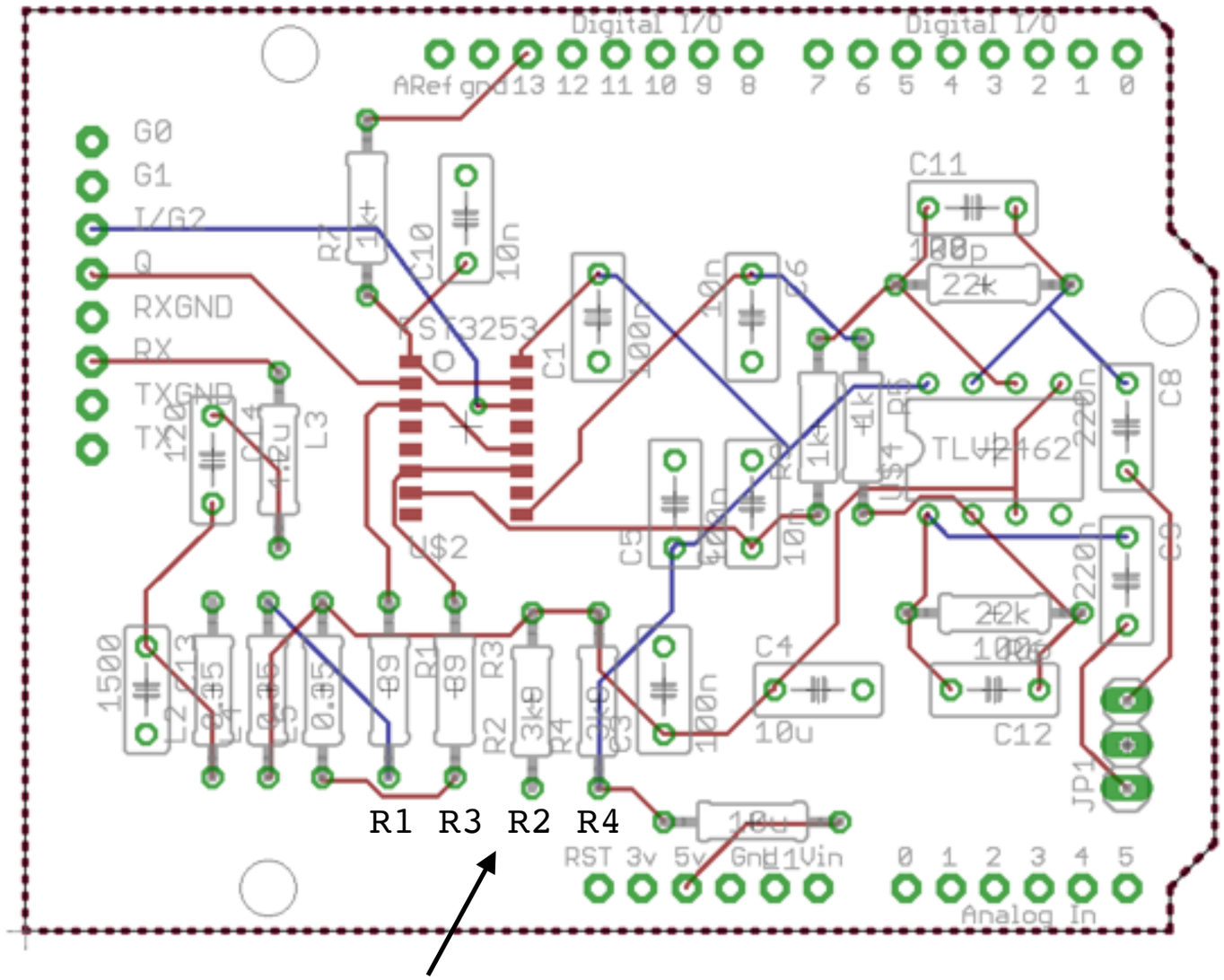
SMD part

- FST3253
- Ink the pads with flux
- Position the part, very carefully
- Pins 1 & 16 at the top
- Tack one lead, to hold in position
- Solder the other leads
- Comeback and solder the tacked lead



Mount resistors

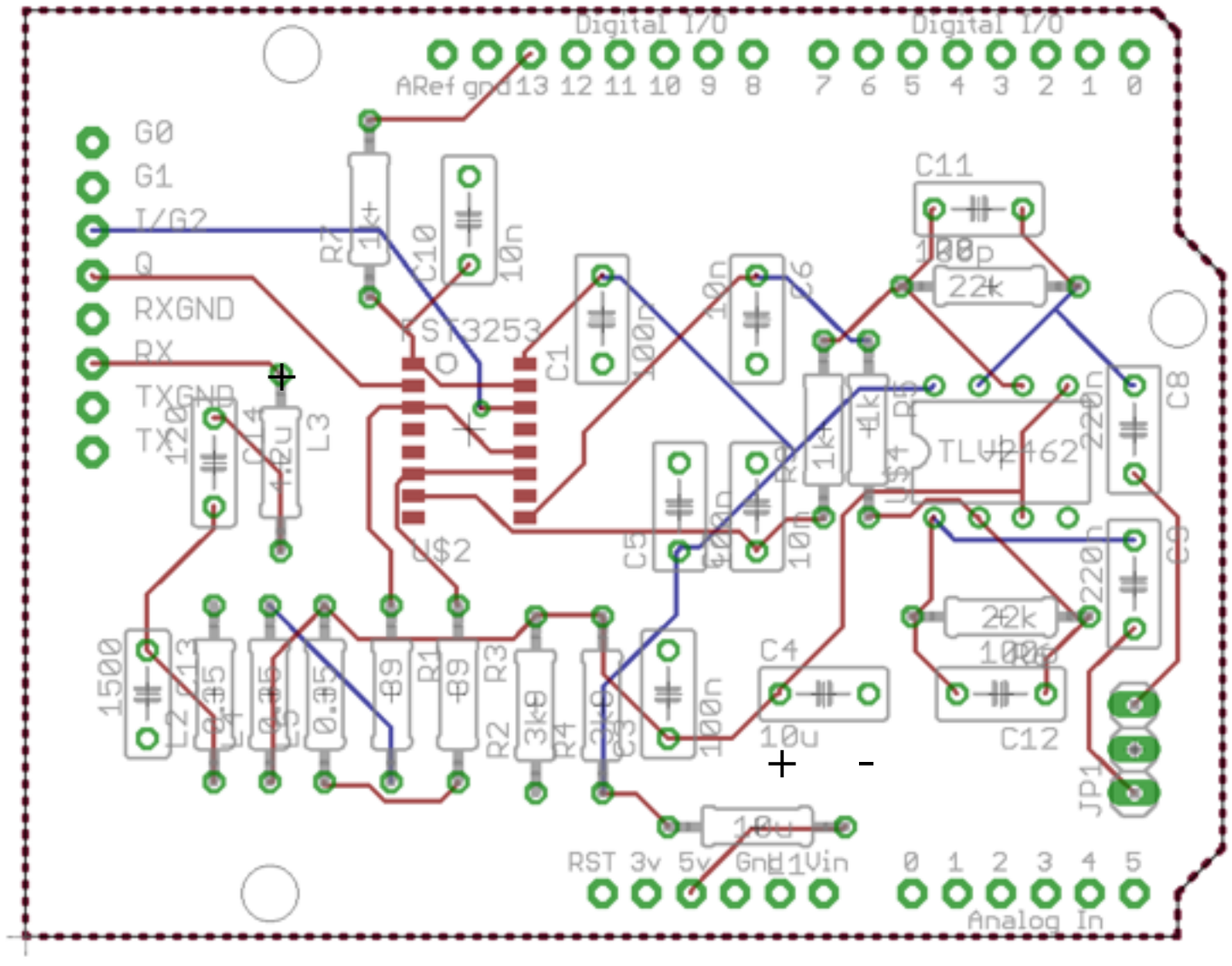
Name	Value
R1	39
R3	39
R2	3k9
R4	3k9
R9	1k
R5	1k
R7	1k
R6	22k
R8	22k



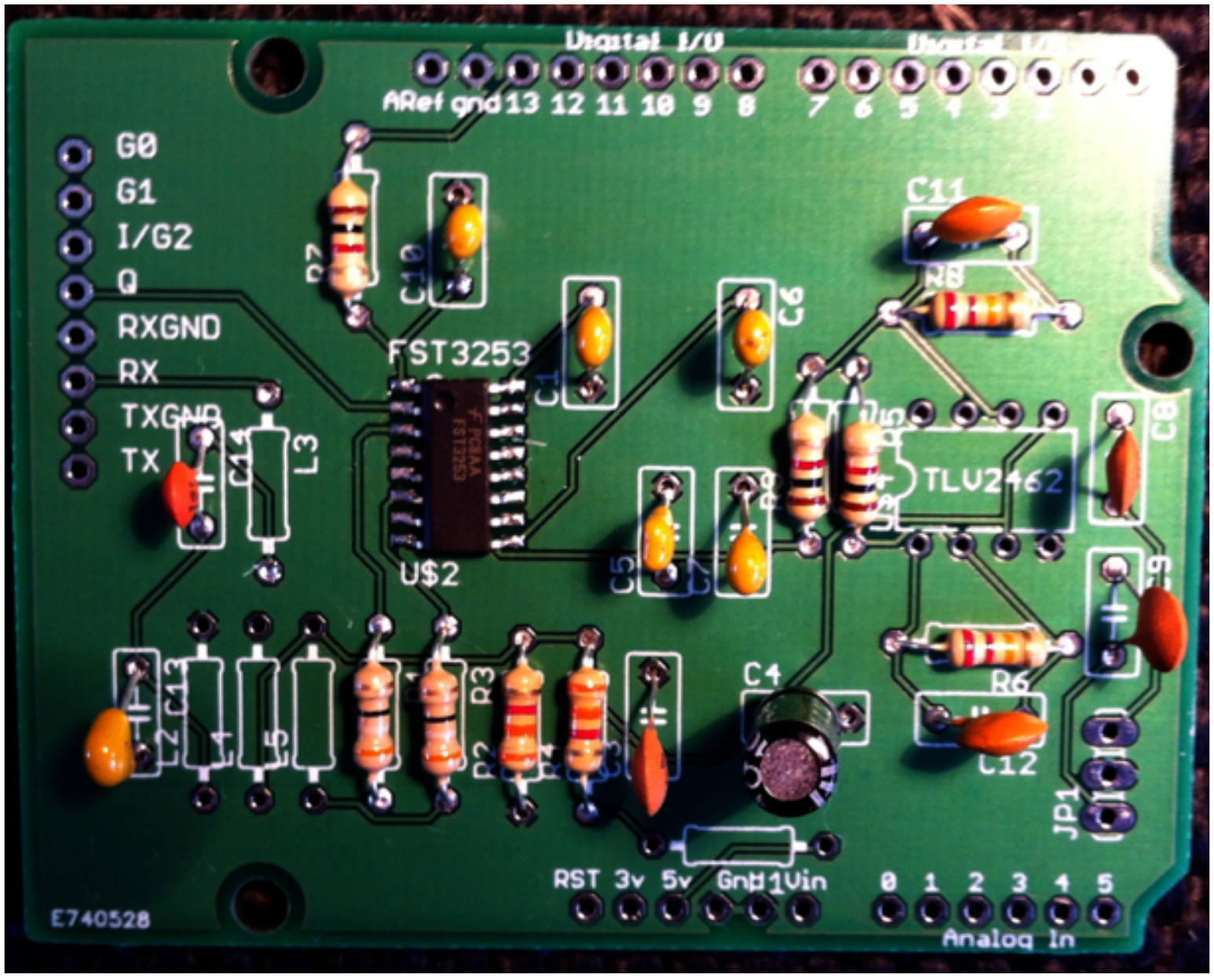
Note

Mount capacitors

Name	Value	
C13	1500p	152
C14	120p	121
C10	10n	103
C1	100n	104
C5	100n	104
C3	100n	104
C7	10n	103
C6	10n	103
C4	10u	+left
C11	100p	101
C12	100p	101
C8	220n	224
C9	220n	224



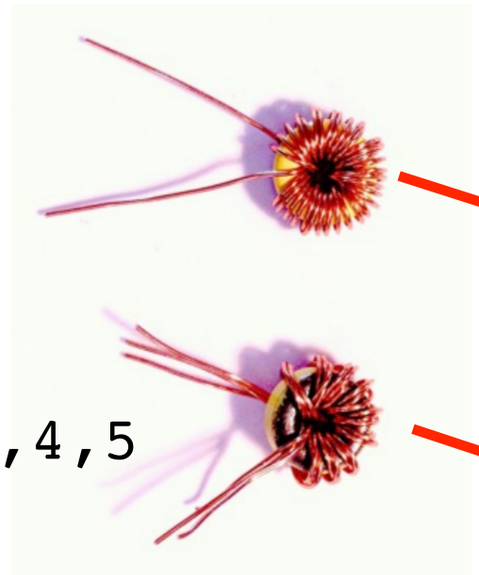
So far, so good?



Mount coils & TLV2462

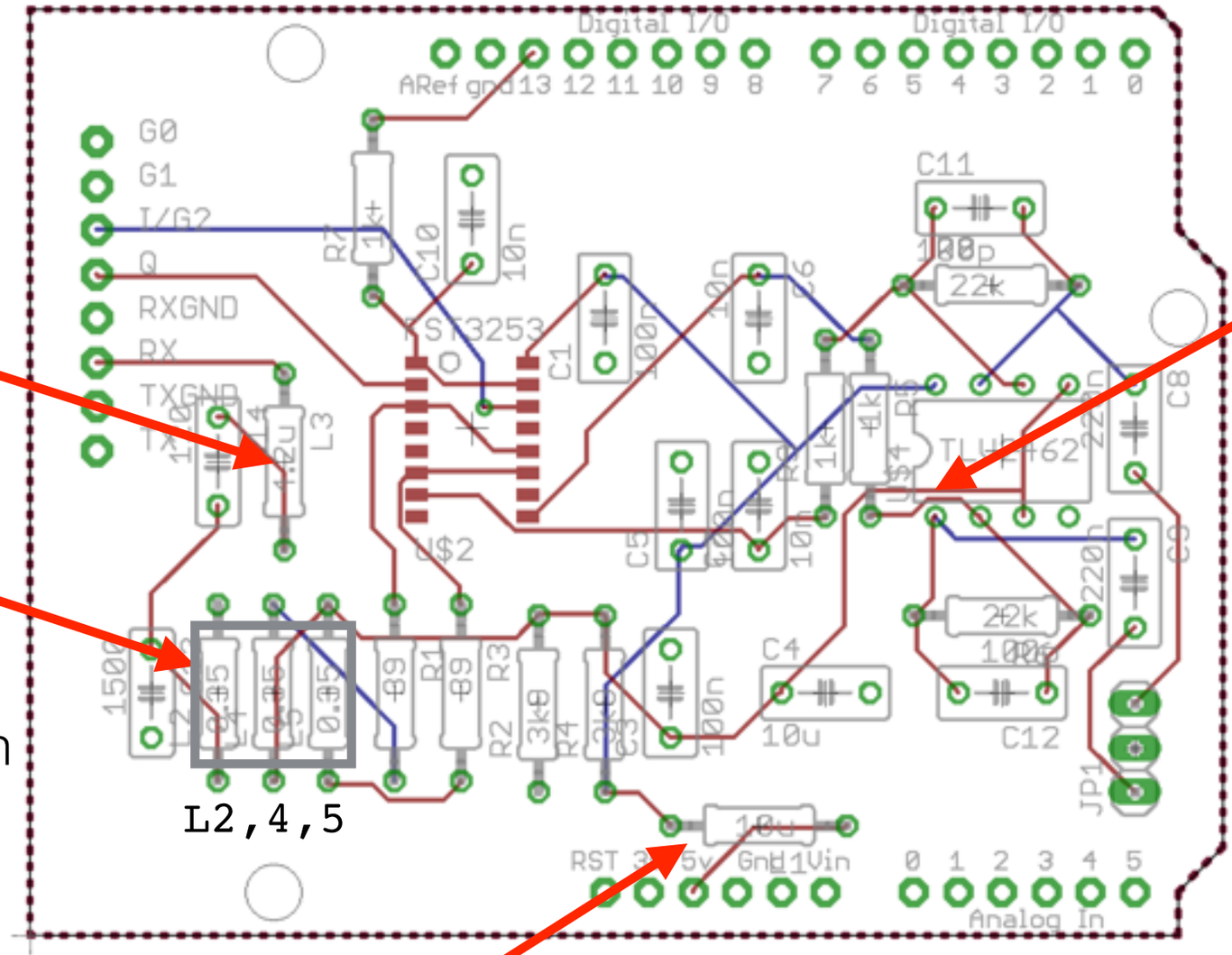
Tin the leads

L3



L2,4,5

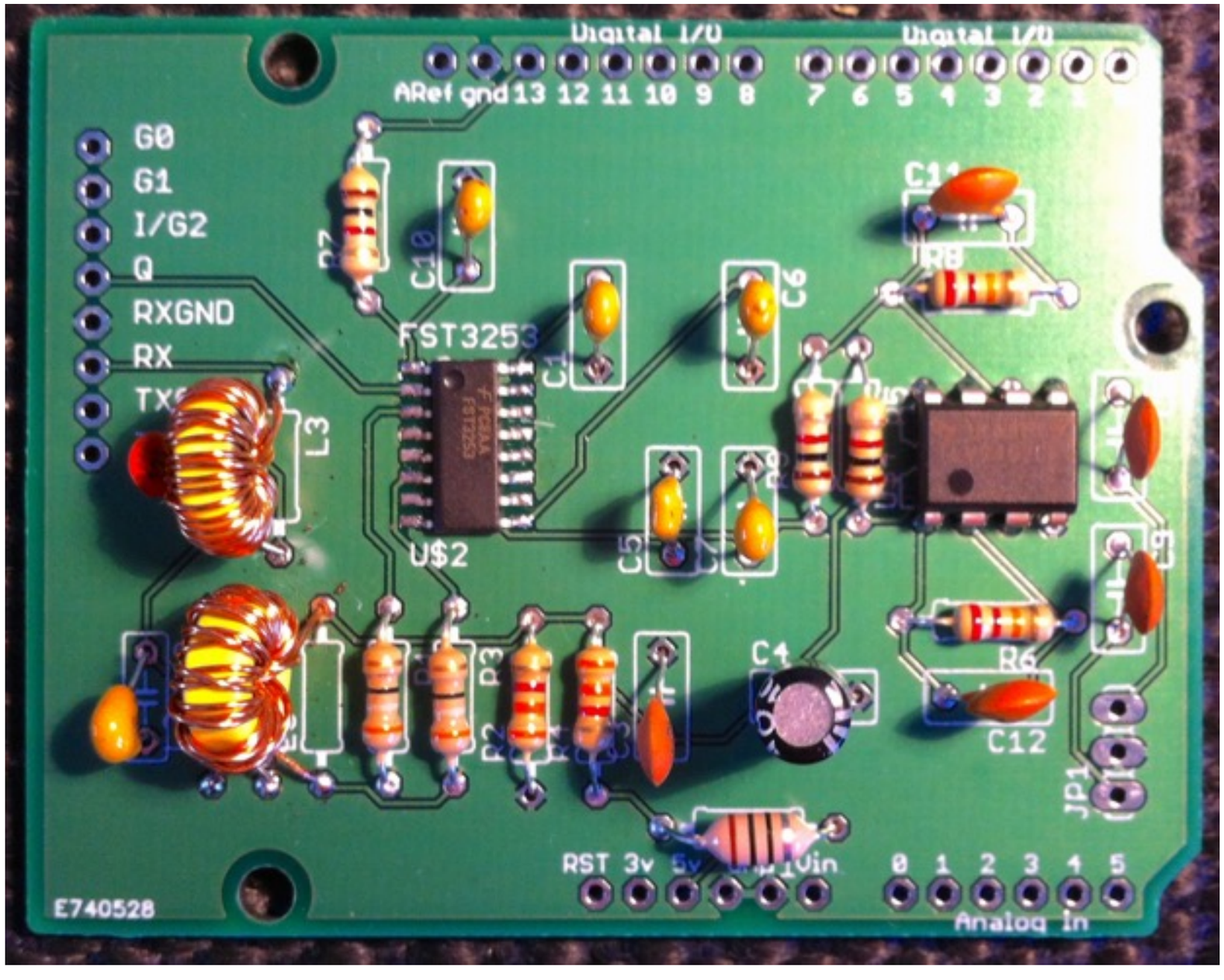
Check windings L2,4,5 with continuity tester/meter



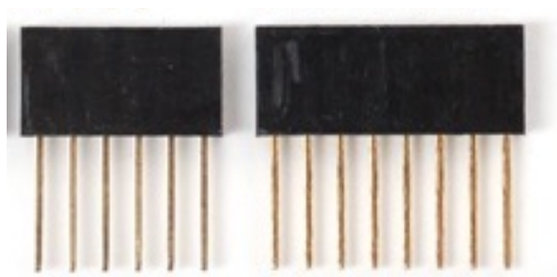
Pin 1

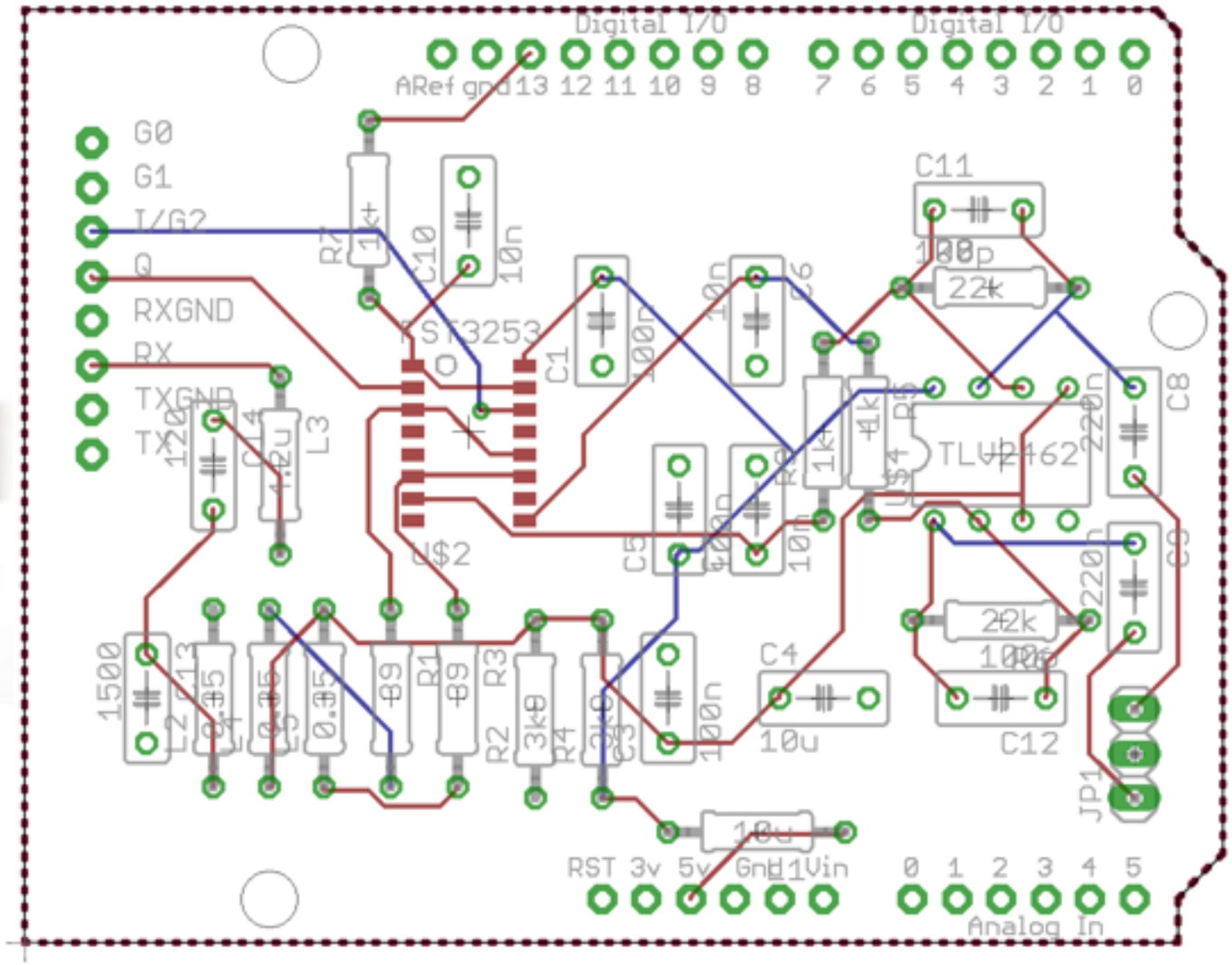
Name	Value
L1	10uH

All most finished



Mount headers

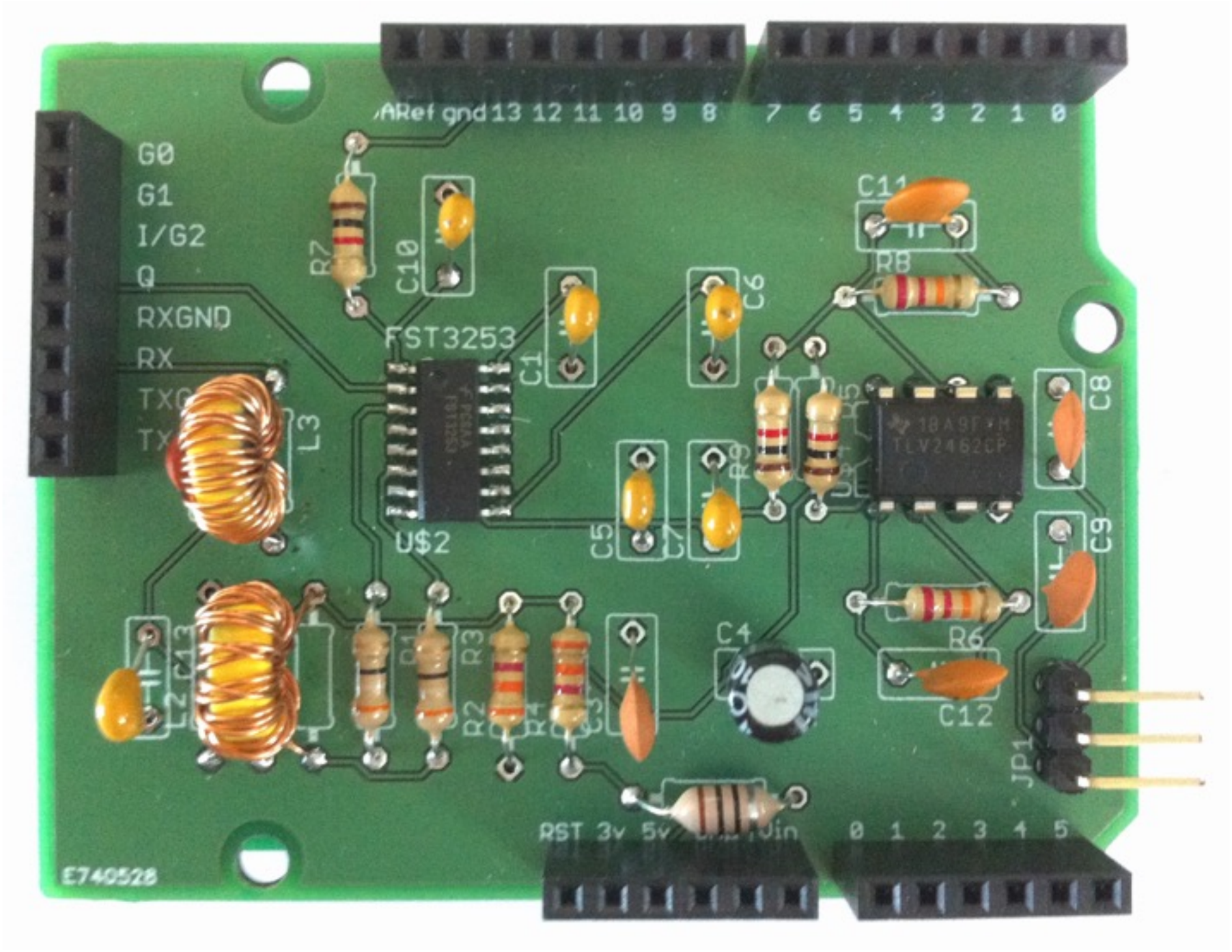




Cut off 3

To get them vertical, plug in a board above

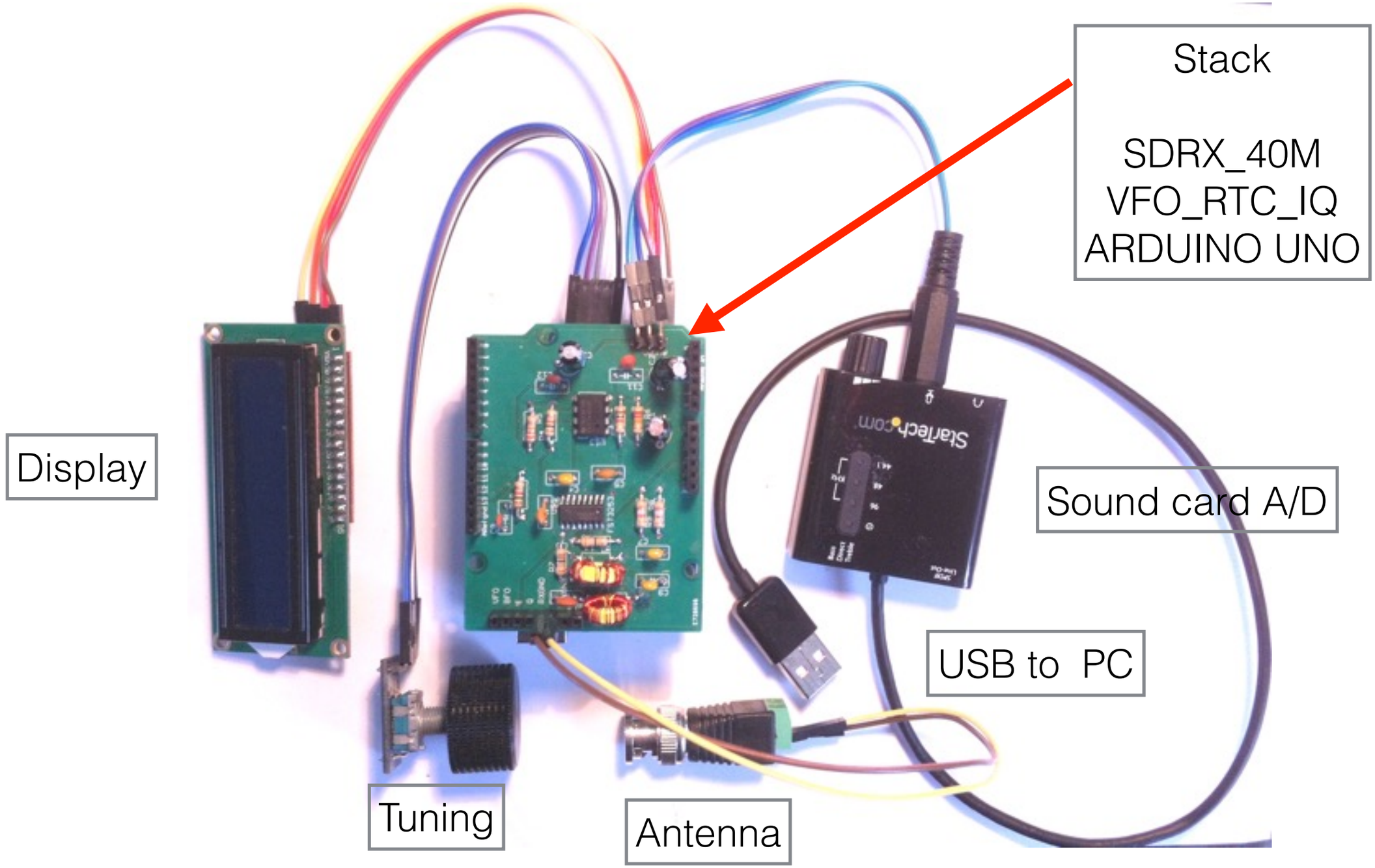
Final shield



Carefully check ALL soldered joints
under a magnifier

Testing & operation

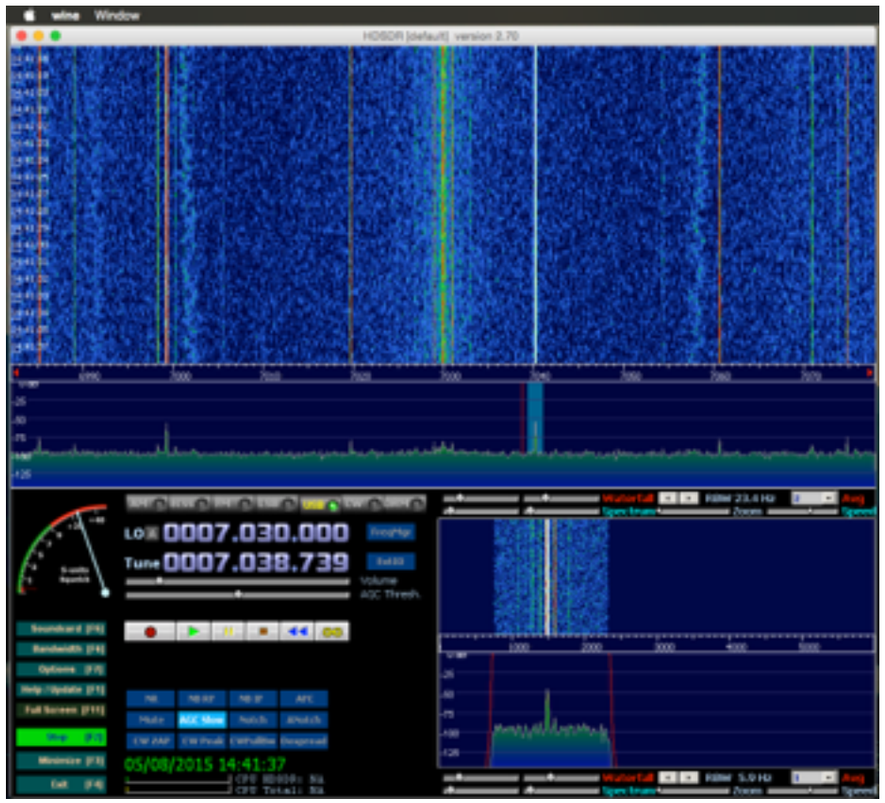
Connect it up



SDR software

HDSDR
hdsdr.de

DSP Radio
dl2sdr.homepage.t-online.de



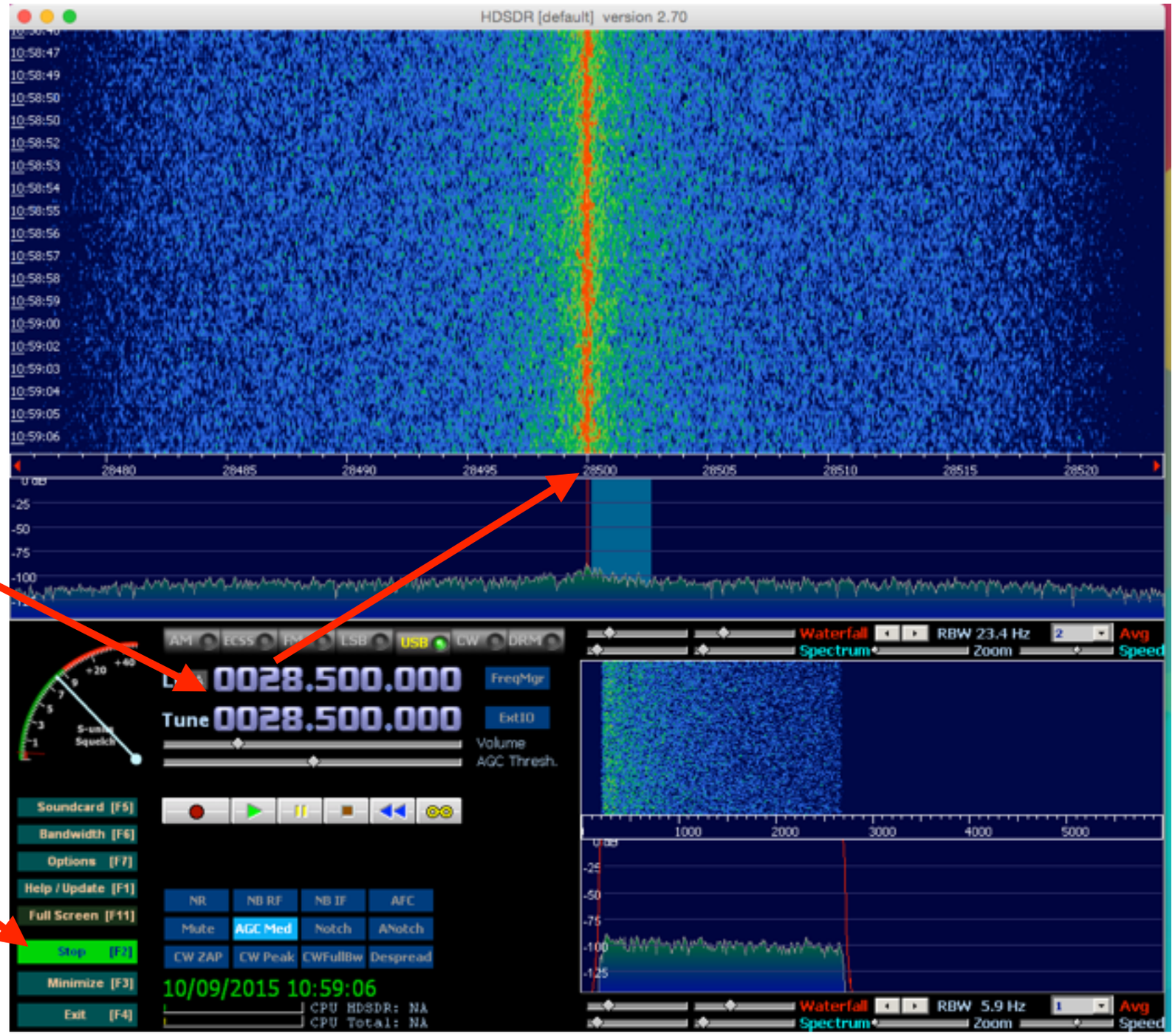
Windows

Mac

HDSDR

Set centre frequency on scale = SDR freq

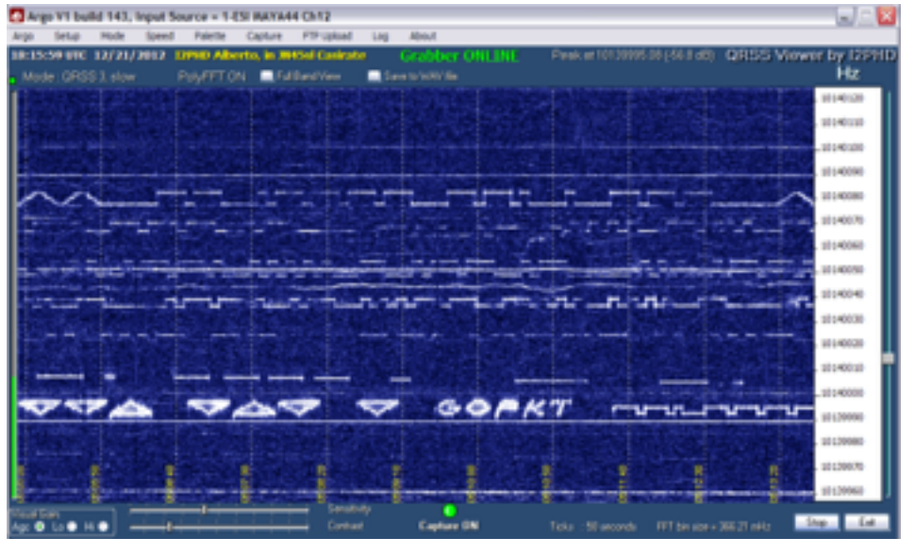
Start the SDR



Other software

DFCW & QRSS

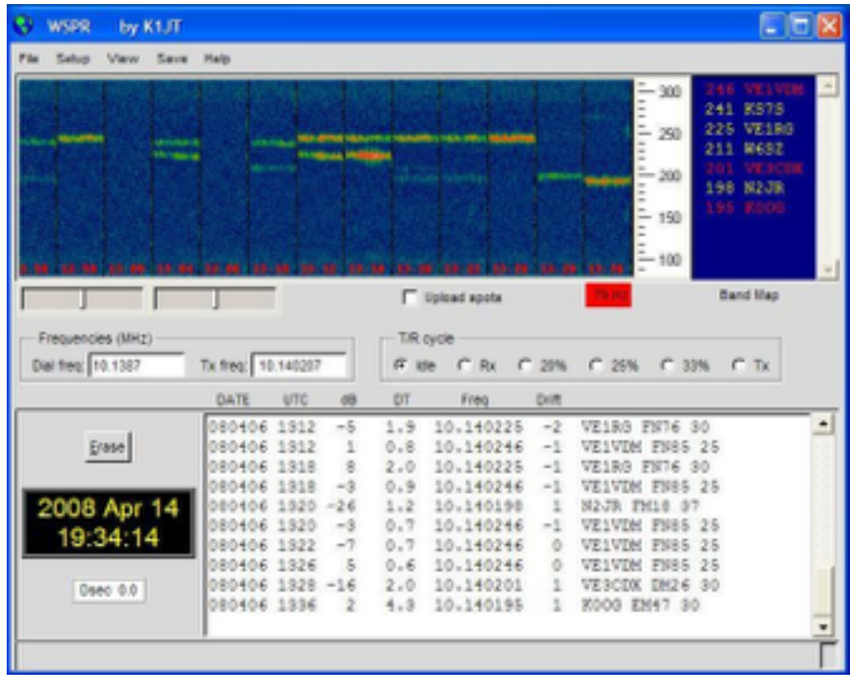
ARGO
www.weaksignals.com



Windows

WSPR

physics.princeton.edu/
pulsar/K1JT/wspr.html



Windows/Mac

The Future?

- Hardware
  - DCRX beginners direct conversion RX
  - Low Pass Filter(s) and antenna TX/RX switching
  - SDR based TX
  - Low power PA
  - Antenna analyser
  - GPS for Location display, time calibration

The End.

Have fun

Do we want a last session next week to debug our stuff?