

# TAPR WSPR Troubleshooting

1. I'm assuming that you've connected your WSPR transmitter up to a Raspberry Pi with an *adequate* power supply (adequate is 5 volts and at least 2.5 amps) and it's not transmitting or at least nothing is showing up on [wspnnet.org](http://wspnnet.org).
2. Does the LED come on at some time during a 15 minute period? If so, this indicates that the software is probably operating correctly, so it's time to look at the hardware. If not, there might be a software issue and you could try downloading the software image and burning to an SD card again. If it still doesn't work send me an email ([bruce => nd8i@tapr.org](mailto:bruce => nd8i@tapr.org)).
3. Measure idle current with a VOM. This is the current across R4 (1 ohm resistor). Connect positive probe to the **Vcc** test point and the negative probe to the **Current** test point (see Figure 2 below)

This should be ~30 mV when not transmitting and ~100 mV when transmitting, corresponding to ~30 mA and ~100 mA.

4. Measure the built in detector output using a VOM between the **Current** and **GND** test points. This should be ~0 volts when not transmitting and ~1.5 volts when transmitting (this value can vary quite a bit, so don't be too concerned as long as it's above 1 volt).

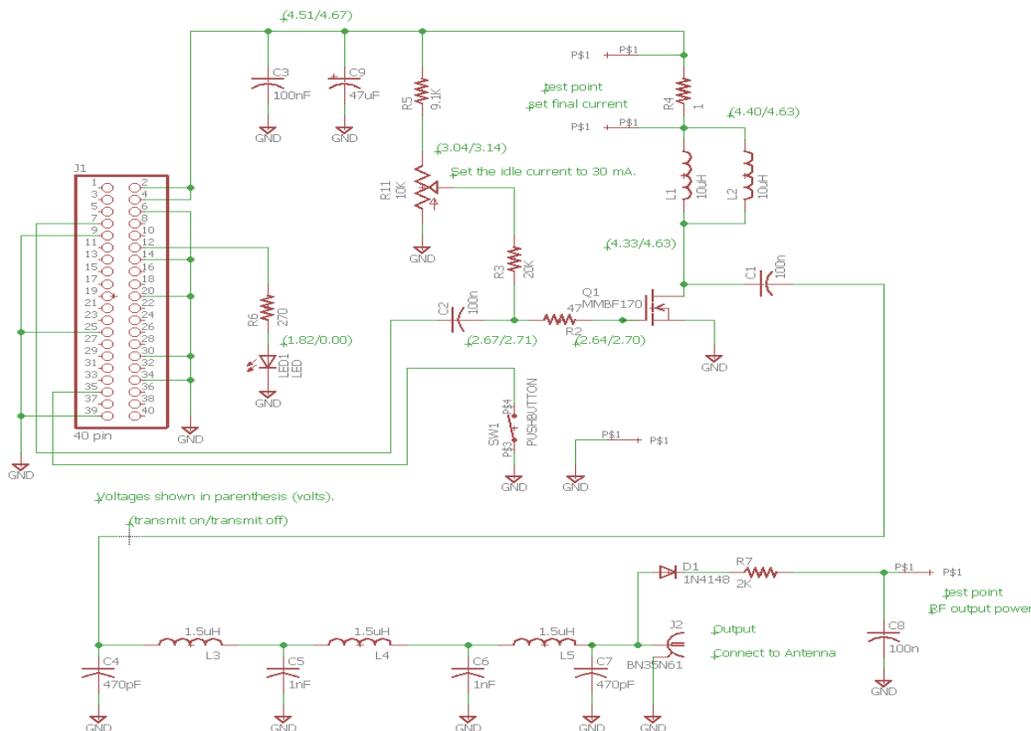


Figure 1: WSPR Transmitter Schematic

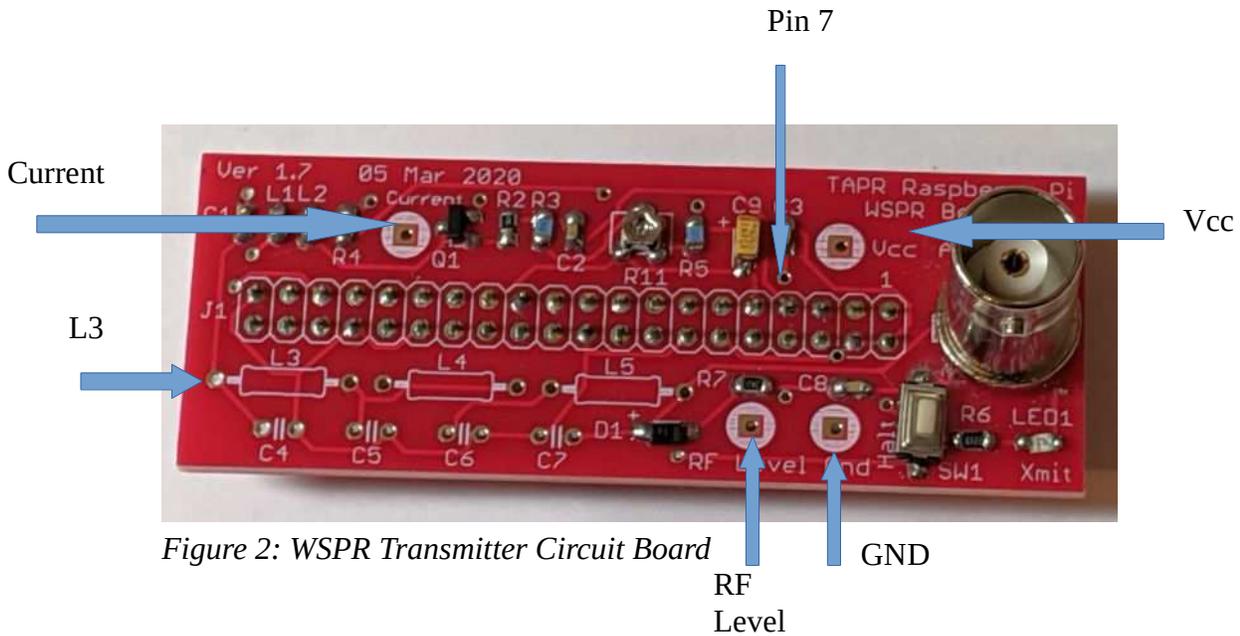


Figure 2: WSPR Transmitter Circuit Board

2. If you have an oscilloscope, there are some other measurements that can be made. I'm going to assume that you are somewhat comfortable using Linux and SSH.

I'm partial to KiTTY as an SSH terminal (<https://www.9bis.net/kitty/#!pages/download.md>). This runs on Windows. I'm assuming that you've found the IP address of your Raspberry Pi (there's some directions on how to do this in the back of the TAPR webpage <https://tapr.org/product/wspr-without-tears-30-or-40m/> **WSPR Without Tears Installation and Operation** download).

Log into your Pi (username: pi, password: wspr).

Edit the file **runwspr** by typing **nano runwspr**. Take the four 0's off the end of the second line using the arrow and backspace keys. Of course, use your own callsign and gridsquare.

```
sudo php -S 0.0.0.0:80 -t /home/pi &
sudo /home/pi/WsprryPi/wspr -r -o -s nd8i em60 23 30m &
```

Type **<ctrl>-x Y** to exit the editor. Then type **sudo reboot** to reboot the Pi. You've told the Pi to transmit on every transmit cycle, rather than every 5<sup>th</sup> cycle. This keeps the transmitter on almost continuously.

3. Using the scope, measure the voltage coming out of the Pi. This is between pin 7 and GND (see Figure 2). Of course, the probe goes to pin 7. When transmitting, you should see a square wave ~3.5 Vp-p.

4. If you've got a signal coming out of the Pi (pin 7 measurement), then then next thing to check is the output before the low pass filter (left side of L3, see Figure 2). This should be a square wave ~9 Vp-p.

If all else fails, send me an email (Bruce Raymond, [nd8i@tapr.org](mailto:nd8i@tapr.org)). I'm happy to help.