VW WSPR README

Thank you for purchasing the TAPR WSPR Transmitter. Below are the steps to get it up and running. This page is intended as a starting point. The remainder of the instructions can be downloaded from the TAPR website -

https://files.tapr.org/product_docs/WSPR/TAPR%20-%20Versatile%20WSPR%20-%20v1.3.pdf

The download links are located at the bottom of the page.

In addition to the WSPR kit, you'll also need the following to have a complete WSPR transmitter -

1. ***Raspberry Pi 2, 3 or 4*** (*Pi*). We recommend getting a Pi 3 or 4. They have built in WiFi and faster processor (the Pi 2 does not…) Sources include Amazon, Adafruit (Adafruit Raspberry Pi), and others. We have no connection with any RPi reseller.

2. ***Soldering Iron, Solder, Wire Cutters***

3. ***2.5 amp+ power supply w/micro USB or USB-C connector, as appropriate for your RPi version.***. This plugs into the micro USB connector of the Pi. Adafruit is one source (https://www.adafruit.com/product/1995). A word of caution: don't cheap out on the power supply. A weak power supply will cause intermittent problems that are ***very*** hard to diagnose. Make sure the power supply will deliver at least 2 amps, and preferably more. This is cheap insurance.

4. ***Ethernet cable***. You need to connect the Pi to your network over Ethernet (wired connection) for initial setup. You can switch to WiFi after that.

5. ***WiFi USB dongle***. You only need this if you're using an Pi 2 and you want to use WiFi. Here is a WiFi dongle example: Adafruit WiFi USB Dongle.

6. ***SD card*** (4 GB min, grade 10)

7. ***SD card reader*** (micro SD card to USB)

8. ***Antenna*** (mate to BNC connector on VW)

9. Contact us at **contact@tapr.org** for help or troubleshooting.

We intentionally did not install the low pass filter (LPF) components so that we can use a common board for multiple bands and provide specific LPF components for each band. You should have received a packet of components (4 capacitors and 3 or 4 inductors) along with the board for your kit. The inductors should be installed into spaces marked L1, L3, L4 and L5 on the board. The capacitors go into spaces marked C4, C5, C6 and C7 (See Table 1 below for values).

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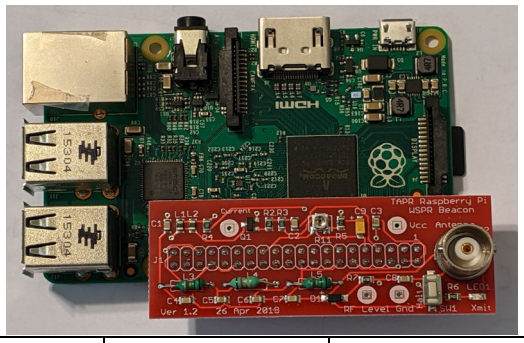

VW WSPR Band	C4, C7 marking/value	C5, C6 marking/value	L3, L4, L5 marking/value	L1* marking/value	Xmit Current Draw**
10m/12m	121 (120 pF)	221 (220 pF)	ora-wht-silver-silver (390 nH)	red-red-gold-silver (2.2 uH)	70 mV
15m/17m	151 (150 pF)	271 (270 pF)	yel-pur-silver-silver (470 nH)		80 mV
20m					
30m					
40m					
80m	102 (1 nF)	202 (2 nF)	red-red-gold-silver (2.2 uH)	brn-blk-blk-silver (10 uH)	85 mV
160m	152 (1.5 nF)	332 (3.3 nF)	grn-blu-gold-silver (5.6 uH)	brn-grn-blk-silver (15 uH)	75 mV

Table 1: Low Pass Filter Component Values

* L1 is installed for 10m/12m and 15m/17m transmitters only if you have an older, possibly blue, board. L1 has not been installed on 80m and 160m transmitters.

** Xmit Current Draw is measured as the voltage between the ***Vcc*** and ***Current*** testpoints. There is a 1 ohm resistor between the testpoints, so measuring 70 mV corresponds to a current of 70 mA. This current is set by adjusting pot R11 ***during*** transmit (CW increase, CCW decrease).

After assembling your WSPR transmitter it's necessary to set the bias. The bias adjustment pot is intentionally set to a low power position to help ensure that the transmitter won't accidently burn out when you first turn it on. The pot (R11) should be adjusted while transmitting to the value listed in Table 1 (measured as mV between the ***Vcc*** and ***Current*** test points).

Setting the transmit current is further described in:
https://files.tapr.org/product_docs/WSPR/VW%20WSPR%20Bias%20Adjustment.pdf

Happy WSPRing!
73, TAPR