Three Band Compact Low Pass Filter Kit

The **Three Band Compact Low Pass Filter** provides a simple way to build up three selectable low pass filters on a single PCB. Low pass filters have many applications including allowing your WSPRlite to meet regulatory requirements for spurious emissions.

The **Three Band Compact Low Pass Filter** is as an easy-to-make kit. It can either be used unboxed or mounted in your own enclosure.

Building the **Three Band Compact Low Pass Filter** is easy and fun. It will take an evening to build including building the filters and is suitable for a beginner.

The board kit is available without filter components, allowing you to use your own components or to use the pre-designed filters using our **filter band kits**.

Revison History

24 Jan 2018   First issued Rev A.

WSPRlite Low Pass Filter Packing List

It's a good idea to check that you have all the parts before you get started:

Item	Number
PCB V1.2 Nov 17	1
SMA socket	1
SMA plug tail	1
Jumper (on headers)	2
Headers 2 x 3	2
Cable tie	1

If anything is missing, just get in touch for help.

Richard@sotabeams.co.uk

Errata
None

WSPRLITE LOW PASS FILTER Instructions

The WSPRLITE LOW PASS FILTER kit is easy to make. It will be a great addition to your WSPRlite, giving you access to three additional bands.

Step by step instructions together with lots of photographs will make it easy to build your WSPRLITE LOW PASS FILTER. It will take around 2 hours work.

Spotted a mistake or need help?

Please let me know!

Email Richard@sotabeams.co.uk, telephone +44 (0) 1625 501643

Step by step instructions

1. Solder the gold SMA connector onto the PCB (position marked Output). Make sure that it it tight against the ends of the PCB and that the connectors pins are aligned centrally on the pads. Solde the three pins on the top surface of the PCB and the two pins on the underside of the PCB.
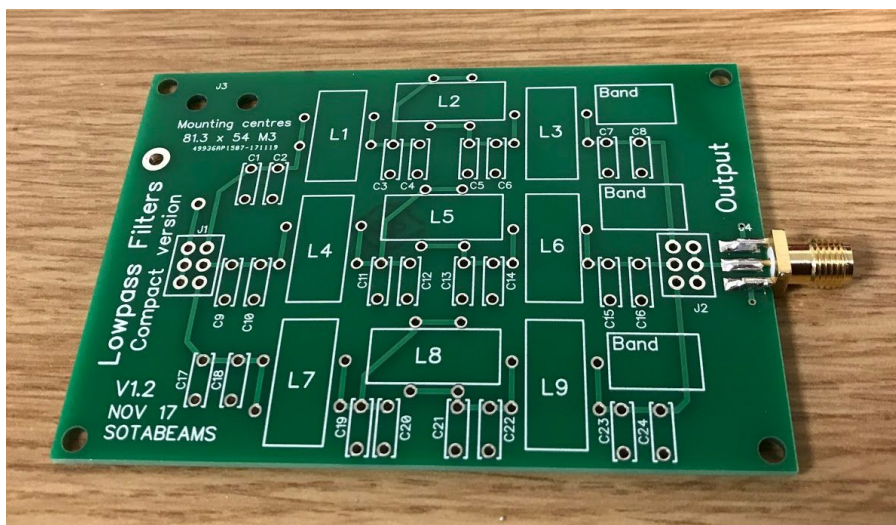
2. J1 and J2 are 3 x 2 header pins. We have supplied them with the jumpers installed so that the jumpers don't get lost. Remove the jumpers are put them <u>carefully</u> to one side. They are very easy to drop…

SOTABEAMS logo — AMATEUR RADIO FOR THE GREAT OUTDOORS

3. Install the header pins on the top surface of the board so that the longer pins face upwards (shorter pins through the board). Solder on the underside of the board.
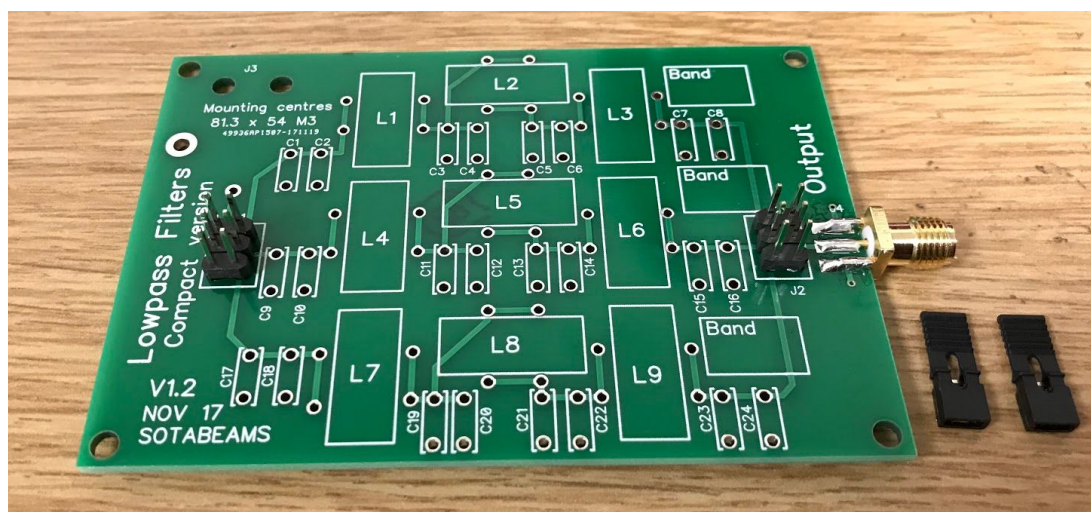
4. Put the jumpers back on the pins.
5. The co-ax tail is the next item to install. Before installing it, look carefully at the SMA connector and note that it has a centre pin.
6. If you have printed our 3d printed enclosure don't do stages 7, 8 and 9 but instead feed the tail through the hole in the enclose to install.
7. Remove the black sheath 15 mm from the open end. Tease off the braid and twist. Remove 5 mm from the centre insulation. **NOTE: do not pull the centre insulation when stripping it. If you do so, you will pull the centre pin of the SMA plug out, it sometimes helps to tie a knot losely in the cable as shown.**

8. Check the SMA connector again - if the centre pin is no longer visible, you have pulled it into the connector when stripping the cable (bad).

9. Install the tail as shown in the photograph below. Use the cable tie as strain relief as shown.
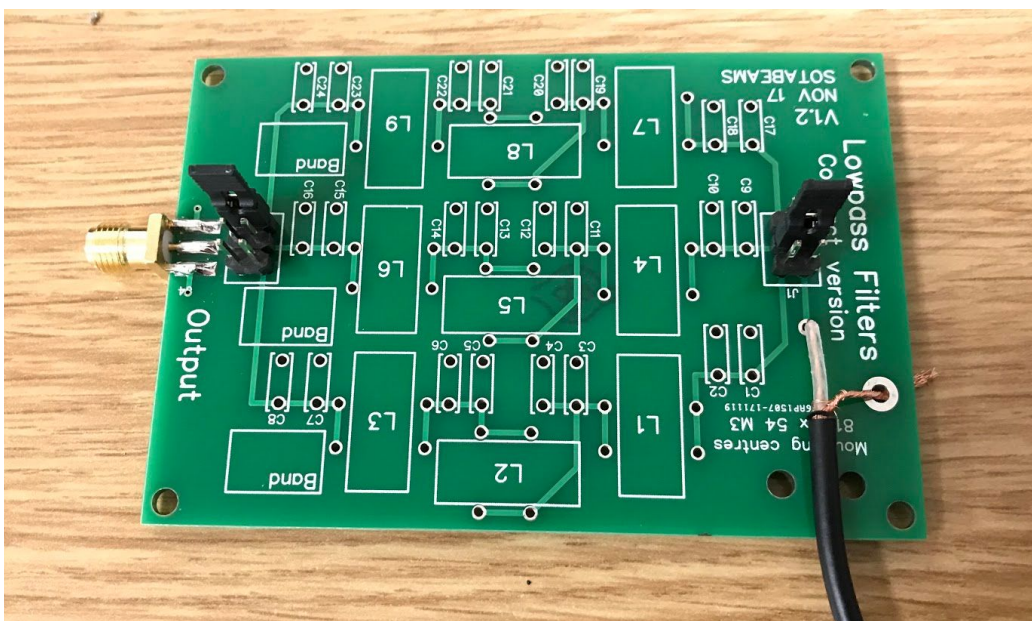
Filters

The board has space for three low pass filters (see schematic below). You do not need to install all three if you do not want to. Filter kits with the frequency dependent components are available from us or you can use your own components to implement our designs.

The filters are selected by using the jumpers. They need to be set at both ends of the PCB. The jumpers can be replaced by two switches if you wish.

The board includes space by the output to label the bands using a fine tipped permanent marker pen.
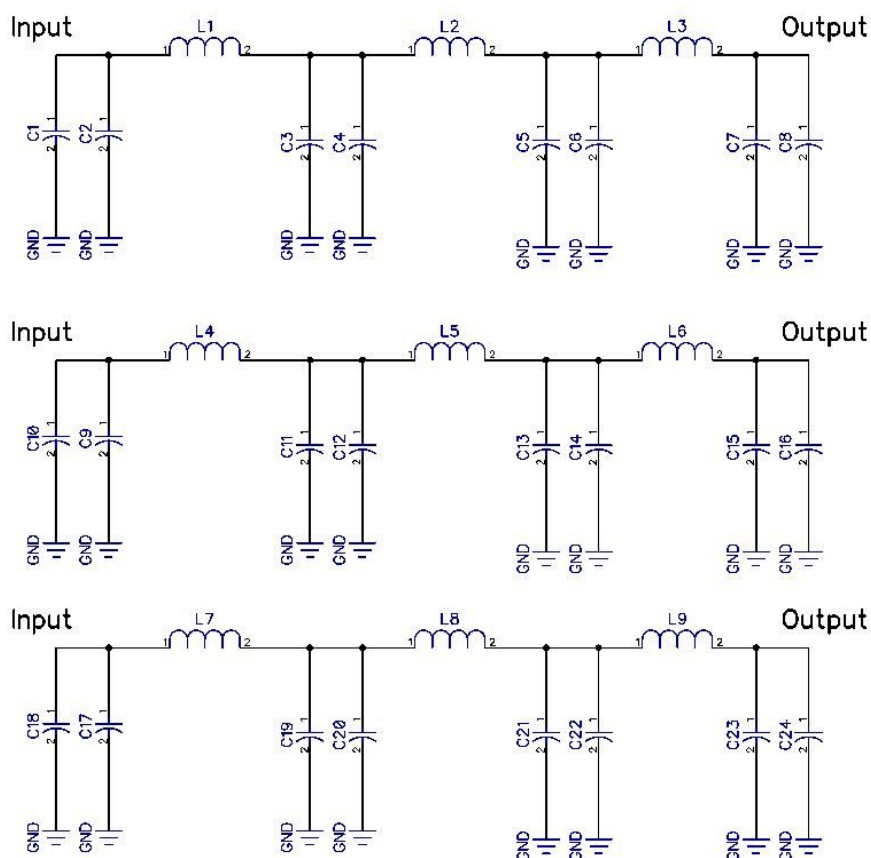
Enclosures

We have had a 3D design produced. This can be printed on your own printer (or maybe a friend's printer!). We used PLA as the print material. While we cannot supply the printed case, various online service will print it for you. Google should bring up something local to you. The 3D files are available at [Thingiverse](#).
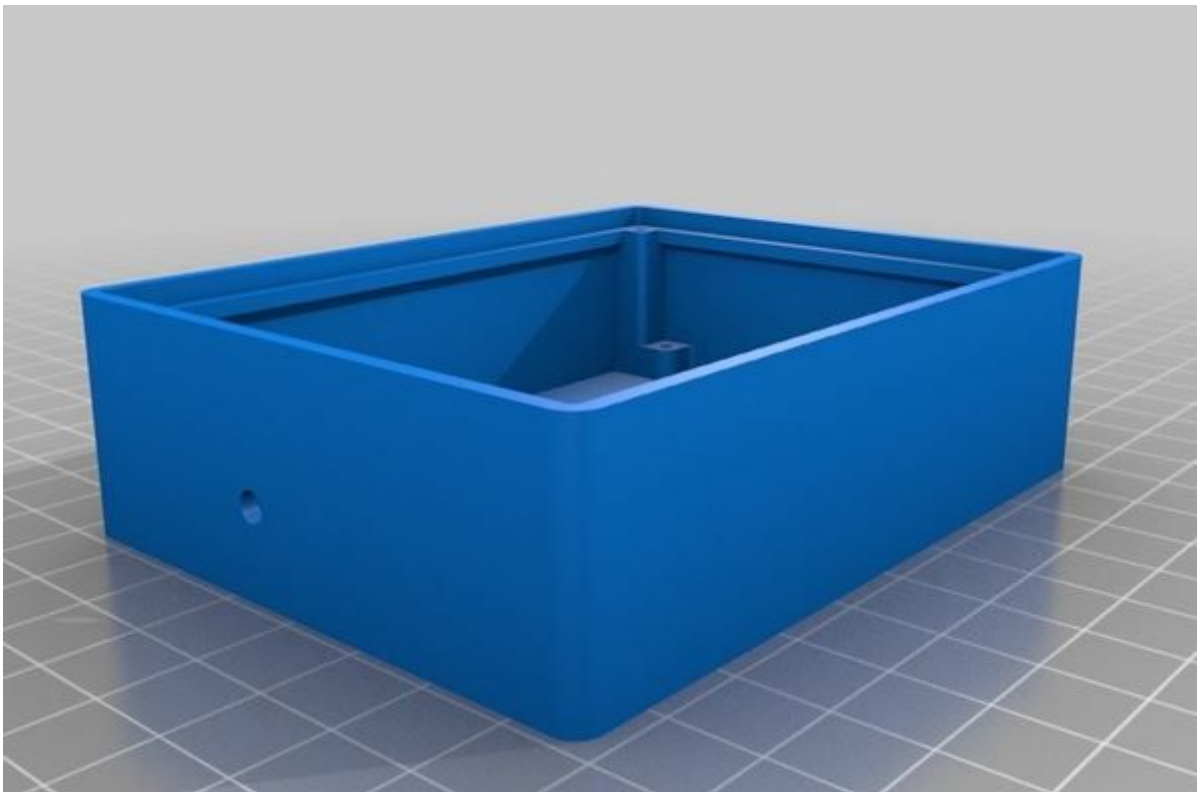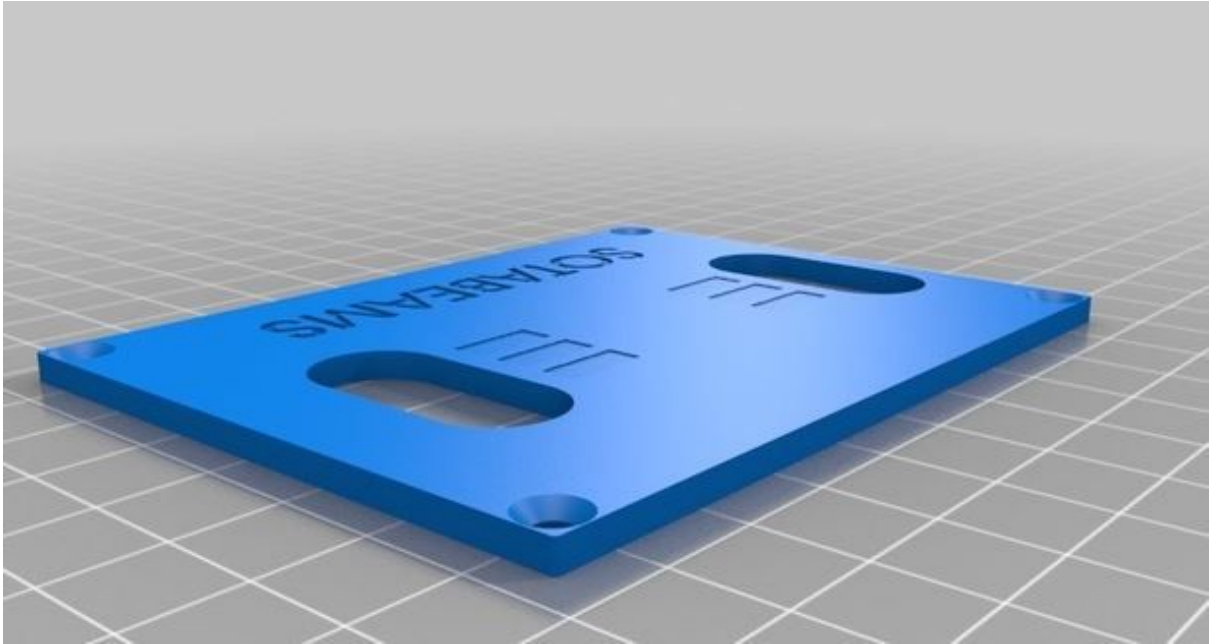
Alternatively you could mount the board in an enclosure. The mounting holes are described on the PCB. The widely-available Hammond 1591SSBK is suitable.

Most people manage without an enclosure however!