

Pa0nhc improved version of Pa0rdt "Miniwhip" active wide band receiving antenna. PCB 20180316-23

Assemblage. v. 20200213

WARNINGS:

BEFORE soldering, carefully check the type and the value of EVERY part.

Prevent hard to correct faults. Before mounting, *measure resistors first with an ohm meter.*

Use ONLY the stated 7.2x5mm version for the 2.2uF foil capacitors. Versions thicker than 5mm possibly will not fit onto the PCBs.

Capacitors with wire spaces (RM) 2.5mm or 5mm will both fit. The PCB is designed with 3 holes for every capacitor. Two from the three holes are interconnected.

***** When placing an RM2.5 capacitor, use the two NOT interconnected holes.**

Splitter unit (top surface).

While screwing the **splitter/combiner PCB** into a metal box, use at each screw through "h1" and "h2" two extra nuts on top of each other, acting as spacers between the PCB and the box.

For stable grounding contact, use tooth locking rings :

- a. under the M3 PCB top nuts.
- b. under the outside flanges of both BNC bushes.

Antenna PCB unit top surface.

- Solder C12,14,15,16; D1,D2,ZD1.
- Solder all horizontally placed resistors.
- Solder all film capacitors.
- Solder all vertically placed resistors.
- Solder both elcos, L2 and L2LF.

L5.

Common mode choke L5 is very important against cable noises.

It consist of 12m to 13 turns RG316 thin PTFE coax, on a **29/19/12.5 mm Fair-Rite #31 core (2631801202)**

or

Ferroxcube T36-13-15-4S3 core.



IMPORTANT : this **#31 type ferrite** is especially developed for use in common mode chokes, and will give the best wide band results.

Wind carefully.

Every turn must lay beside its neighbor. No turn may cross another. PTFE coax is slippery, it tries to unwind.

- Fix the first turn to the core in place :
- After winding the last turn, fix it to the former. See photo.

This common mode choke can be fixed onto the PCB by means of one PTFE binder, running through two 3.5mm holes in the PCB.

- Cut the coils coax ends to final length. Leave enough length for a coax stripper.
- Remove 2cm outer insulation.
- Remove 1 cm inner insulation.
- Mind correct polarity.
- Solder the coax connections at the bottom side of the PCB.
OUT1 => OUT2 (positive)
SCR1 => SCR2. (negative).

Antenna PCB bottom surface.

General :

- SMD semi conductors should be installed as LAST, with their legs facing *towards* the PCB surface.
- On this PCB, the pads for SMD components are made a little wider for easier heating.
- It is handy, first to put a LITTLE solder onto the first to be soldered PCB pad (a grounded pin). This makes correct positioning of the semi conductor easier.
- Prevent over heating while soldering semi conductors. Advised **max. iron temp. 260 C.**
- **Solder fast and let cool down completely after every single solder operation.**
- CHECK solder quality using a magnifying glass, and a *digital* ohm meter (NOT in diode-check position, but set at 200 Ohms range !)

Now take anti- static measures.

- Connect the soldering iron to the pcb's mass surface.
- Connect yourself to the pcb's mass surface.

MOSfet T1 (BF998).

- First ore-tin all PCB pads a little to enhance solder flow. Remove to thick tin.
- Position T1 its legs correctly. Mind the one broader pin.
- Solder that broad pin first (SOURCE) :
Just heath this **pin shortly**, to allow the extra solder on the PCB pad just to flow.
- Check and correct the position of the transistor.
- Then solder the pins on the other side of the transistor.
- Then solder both pins on the first side of the transistor.
- Remove excess solder using a solder wick.

SHF transistor T2 (BFU590G) :

- First ore-tin all PCB pads a little to enhance solder flow. Remove to thick tin.
- First solder one outer of the three small pins (emitter).
- Check and correct the transistor's position.
- Use a thick solder tip and solder the broad cooling fin (collector).
- Solder the three small pins.
- Remove excess solder using a solder wick.


