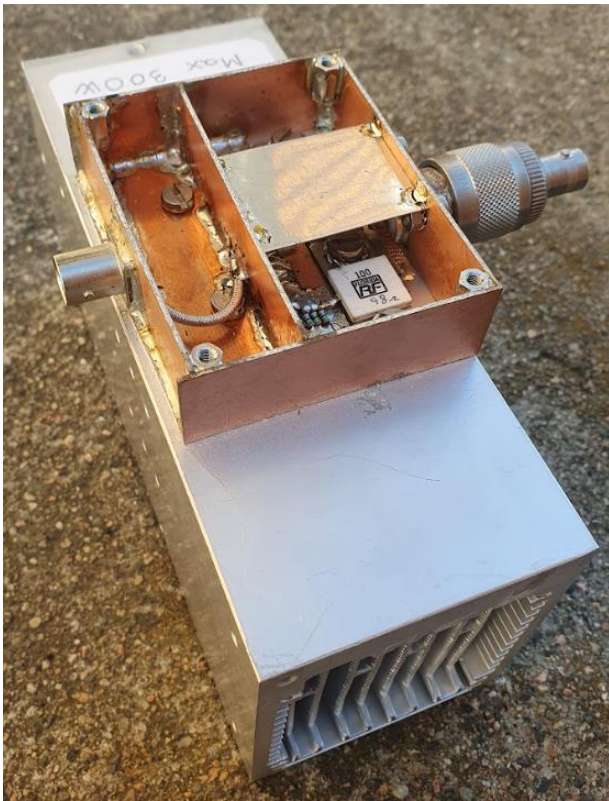


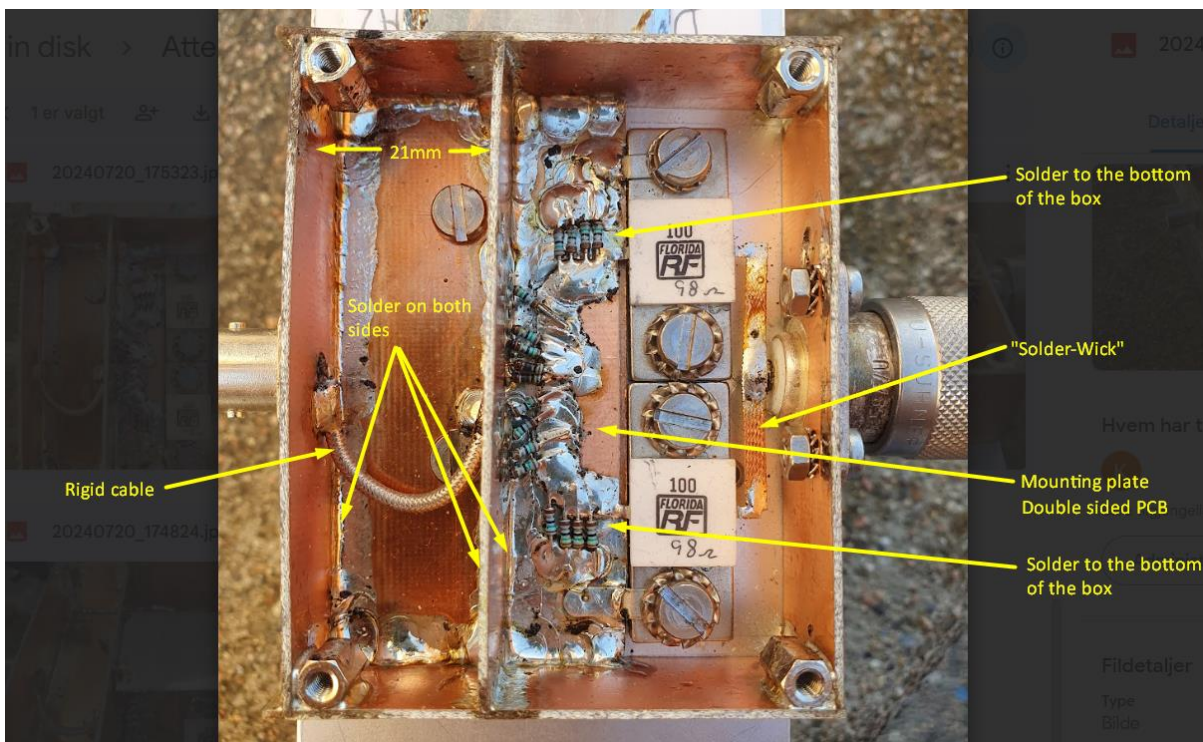
How to build a 40dB attenuator.

The attenuator is built inside a small box made of 1mm, double sided FR4 PCB. Copper on both sides is 17.5um thick. The box measures about 60x72x20mm and is mounted direct on a heatsink.



Two 100 Ohms power resistors in parallel makes the dummy load, capable of dissipating about 300W. The box is splitted in two parts, and the «attenuator» is in the biggest one and just a 30mm rigid cable in the other part – this to get more isolation.

Have a closer look here:

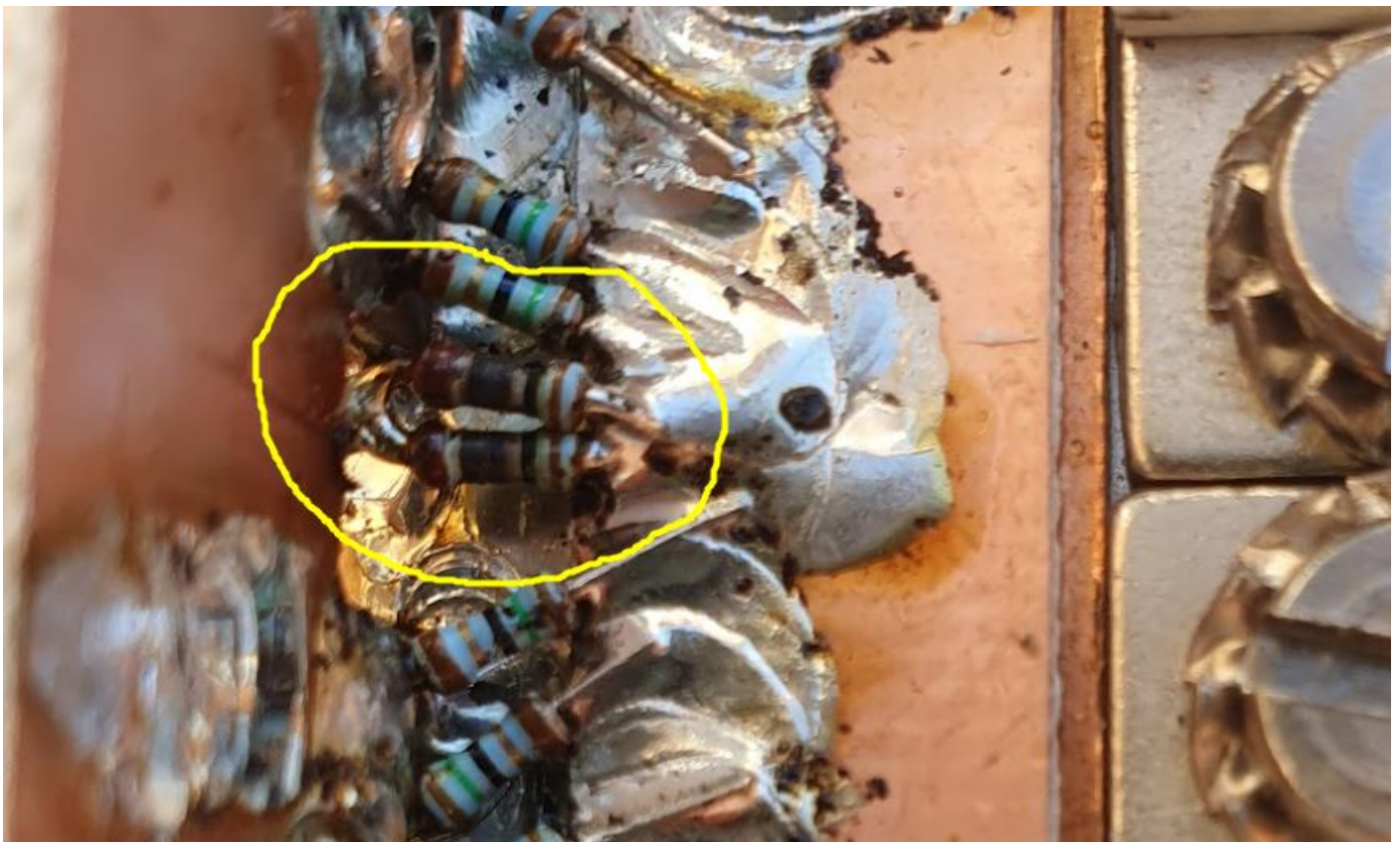


The size of the mounting plate is about 10x33mm double sided PCB, and the sharp corners are rounded. The plate is soldered to the bottom of the box at the short sides. The plate is the common junctionpoint for all the resistors, including the two, acting as the dummy load.

The 15x 15ohms resistors are all soldered to the mounting plate and the other end to the ground/box.

You must solder the BNC-side of the box on both sides to the bottom and sides for the box to have good ground connections on both sides. The BNC is soldered direct to the side wall of the box. The short rigid cable must have very short ends outside the cable screen. Rigid coax will give a much better isolation than «normal» coax. Double screened coax can be used, but these are thicker and not so easy to handle as rigid cable.

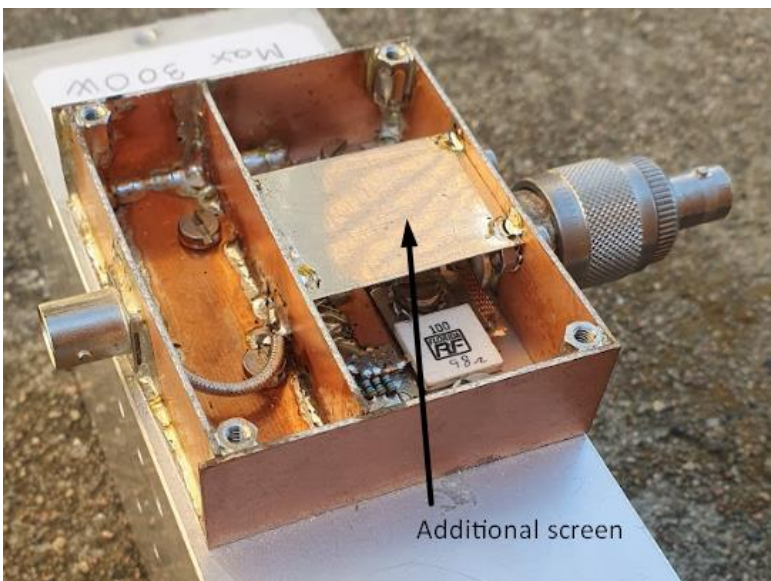
The last two resistors in parallell are soldered direct on the center conductor of the rigid coax. This is done in a small hole in the splitting wall. The hole is about 5x5mm and the arrangement can be seen here:



Seen from the other side:



An additional screen plate is mounted before putting the top cover on the box.



I hope this is enough information to a copy of mine. I mostly use it on HF and sometimes on 2m, and it works for me. The small resistors on output and as the shunt are of MRS 16000 S type. They are 0.4W professional thin film resistors. 15x15ohms and 2x100ohms in addition to the power resistors.

73's gl de Karl – LA3FY