

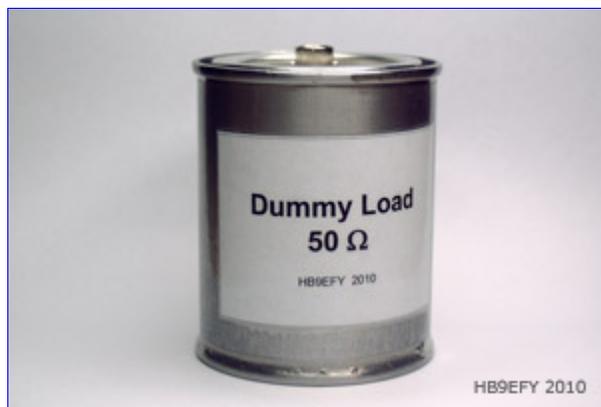
Dummy Load

50 Ohm RF load resistor

(by Matthias Franz, HB9EFY in May/2010)

[German original](#) available

Dummy Load



[01] 50Ohm Dummy Load

cool the resistors machine oil was filled into the can. A little 1 mm whole drilled into the top cover and covered by a little piece of tape acts as safety valve. Do not fill too much oil into the can as it quite expands when getting warm.

When building the first version of this dummy load I had to learn that the BNC connector itself isn't quite leak proof which led to oil coming out of the connector. I'm sure you can imagine the mass having oil in the connectors of your measurement cables. I thereafter disassembled the dummy load again and insulated the connector by using a few drops of epoxide resin. Now the only whole is the little safety valve (DO NOT FORGET IT).

When building a RF QRP amplifier I required a 50 R dummy load.

The load resistor was made of 20 1 kOhm metal film resistors with a power rating of 2 Watt each. All resistors were soldered together in parallel connection which leads to a total resistance of 50 Ohm. The resistors were arranged in a circle and soldered between two epoxy boards. An empty 100 ml paint can was used as RF-proof case. From the edge of the top cover and the can body the varnish was removed. This should ensure a good ground connection between the 2 parts of the can when closing the top cover.

The next step was to drill a whole into the top cover and to solder the female BNC connector. The circuit board with the resistors were soldered to the inner side of the top cover and to the BNC connector by using 2 mm silver (copper) wire. To



[02] load resistor and RF-proof metal can



[03] 20x 1k metal film resistor



[04] "safety valve"

The measured ohmic resistance is 50 R. As I do not have a reflection adaptor for my network tester I could not measure the reflection between 40 kHz and 150 Mhz yet. The wide-style assembly method I used for this load resistor is certainly not optimized for high frequencies. DIY projects from the internet usually using SMD resistors in this case.

Anyway, for home brewer shortwave projects it should be fine.

Have fun
Matthias, HB9EFY

Source:

Reichelt.de:
- 1k 2Watt metal film resistor
- BNC connector

DIY store:
- paint can
- machine oil

Usefull links:

Basics "dummy load":
Wikipedia: http://en.wikipedia.org/wiki/Dummy_load

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