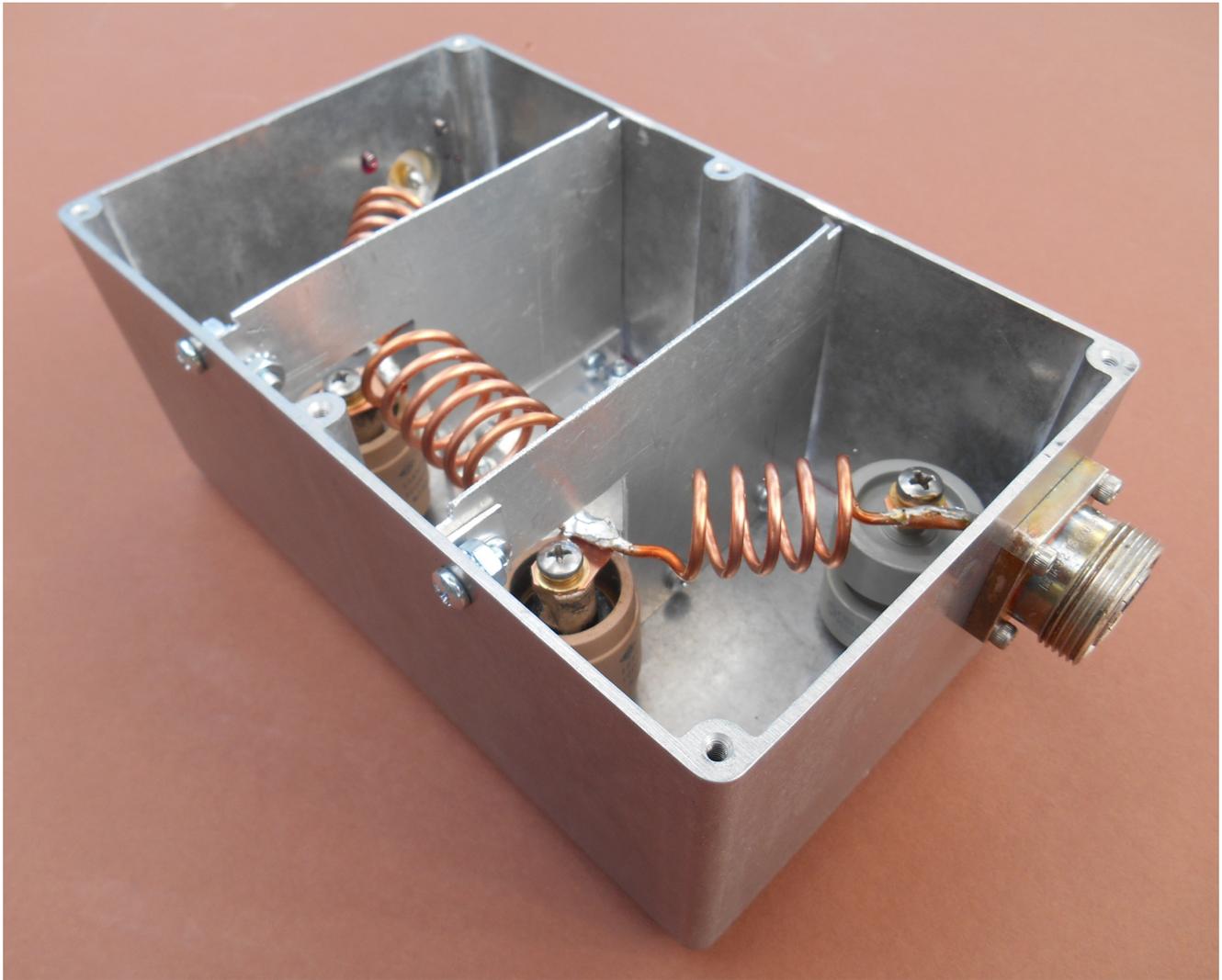


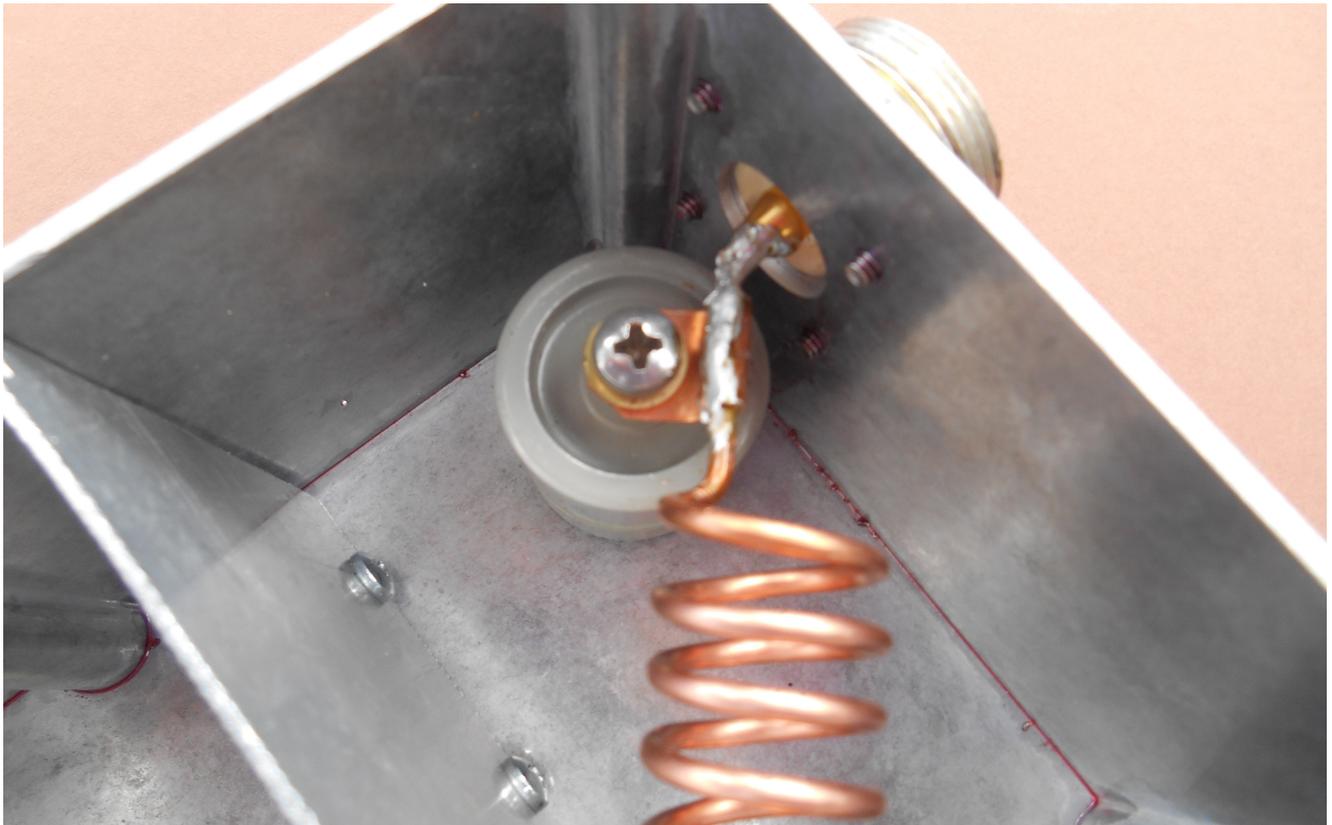
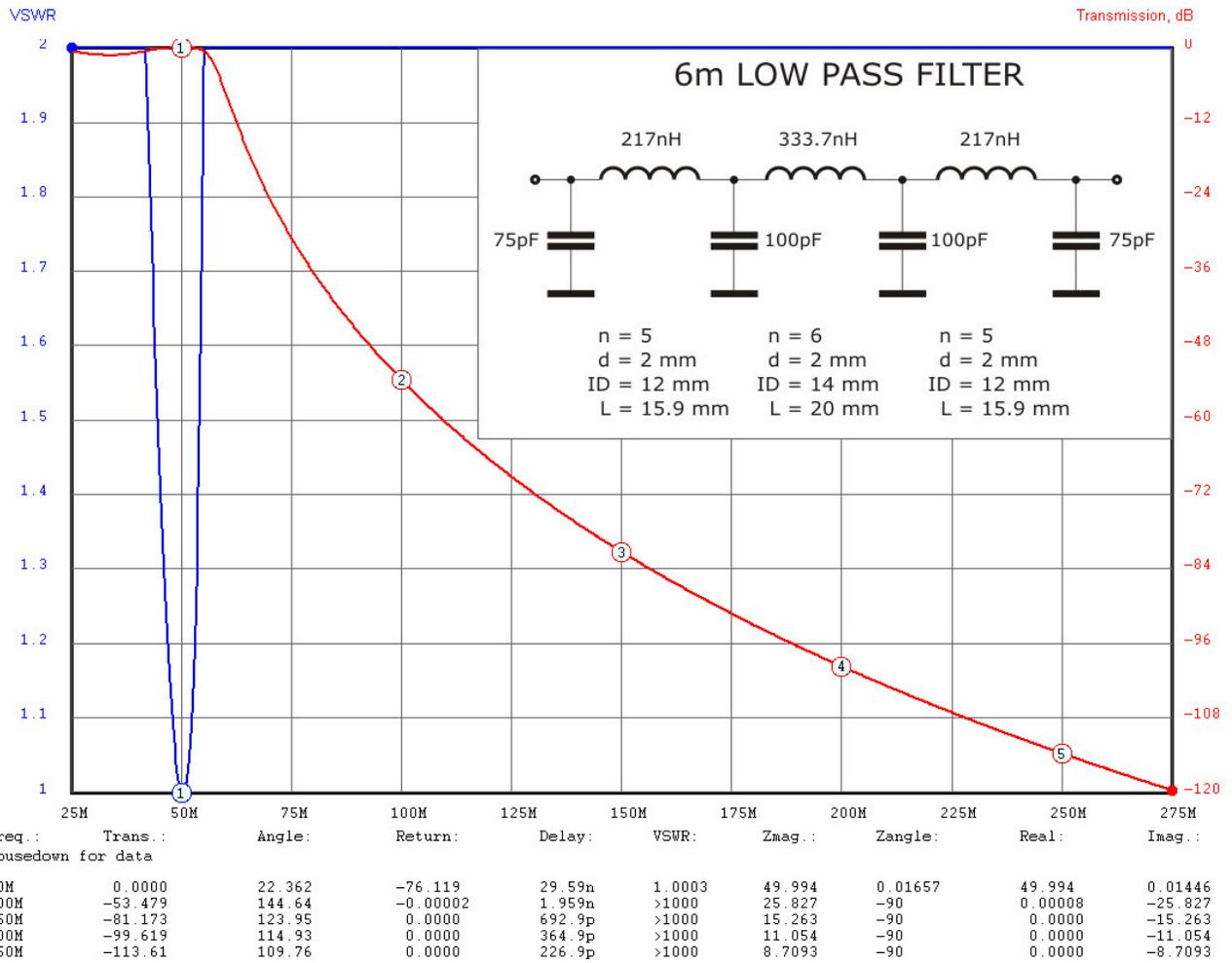
W7GJ QRO 50 MHZ LOW PASS FILTER



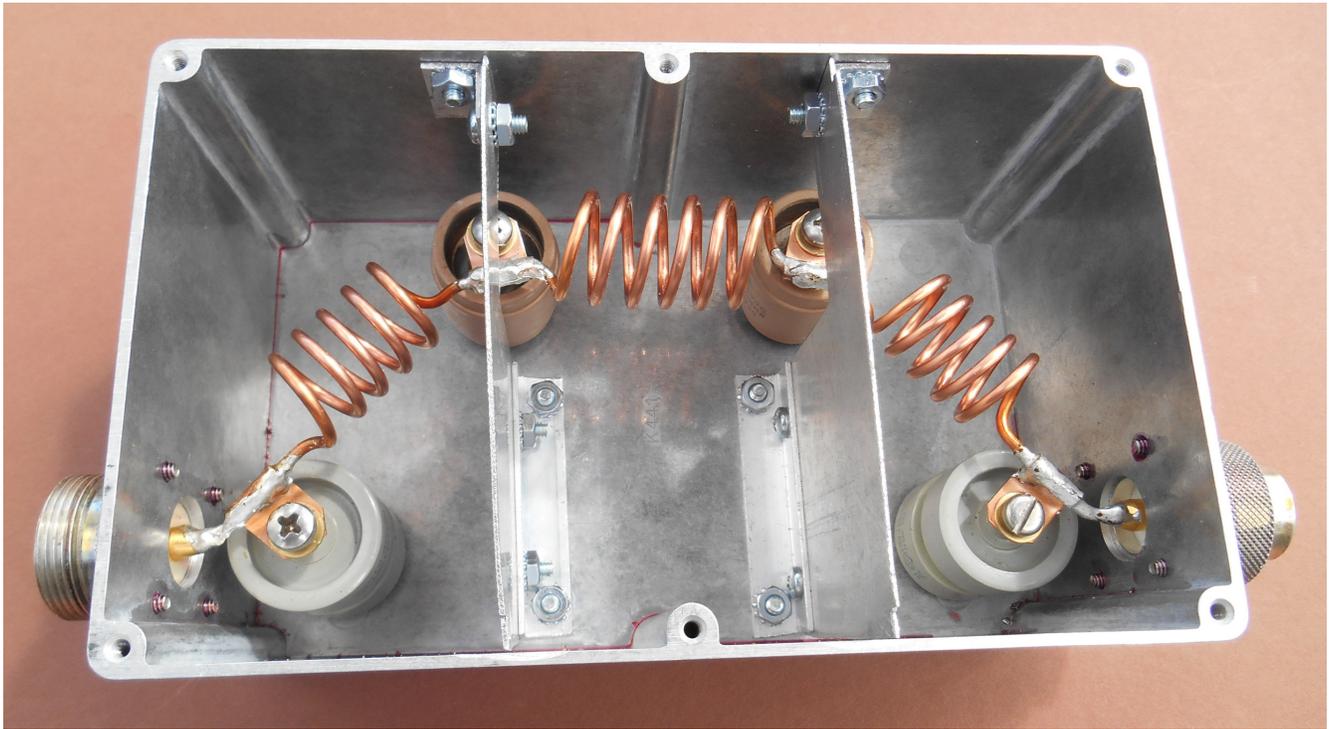
YU7EF designed an effective 7 pole low pass filter for 6m using metric wire and coil sizes, as shown on the next page. ZL1RS built a kW version using readily available type 850 /HEC HT50 “doorknob” RF transmitting capacitors and N type chassis connectors. I was impressed with the performance of this design, and wanted to fabricate a QRO version of this same design using larger components.

In my version, 7/16 DIN connectors were mounted with screws through holes drilled and tapped in a die-cast aluminum enclosure with overall dimensions of 7.88” long, 4.73” wide and 3.33” high (Hammond Manufacturing 1590EE). I used type 857, 15 kv doorknobs for the two 100 pF capacitors. I was unable to find any 75 pF versions that size, but obtained four Russian military surplus 150 pF 6 kV units (7kVAR doorknob K15Y-1 type), so I put two of them in series. I joined the two 150 pF units to each other by using a metric Allen set screw between them, and twisted them until they were fitted tightly together to form 75 pF 12 kV capacitors. The overall dimensions of the final 75 pF assemblies were essentially the same height at the 857 type capacitors, as you can see in the above photo.

The coils were all wound from AWG #10 (2.588 mm diameter) copper wire, and soldered to .5” wide copper straps that were partially wrapped around the wires and screwed to the capacitors. The 1.5” long input and output coils were made by winding 5 turns on a .625” OD form. The center coil was 6 turns on a .75” OD form, 2” long. The coils were slightly squeezed or expanded for 1:1 SWR.



As in the smaller version constructed by ZL1RS, I fabricated baffles to shield each section of the filter. In my filter, I cut out pieces of sheet aluminum and mounted them inside the enclosure using small sections of angle aluminum and #8 screws.



As you can see below in the measurements made by AJ7LL, the insertion loss was under 0.1 dB and all harmonics were attenuated in excess of 60 dB, the limit of his measuring equipment. The noise spikes shown were made in his spectrum analyzer. In conclusion, this design provides a very effective single low pass filter for attenuating harmonics from 50 MHz amplifiers, and is capable of handling high power at high duty cycles, such as those encountered when running JT65A mode during EME skeds.

