

MORE ON A HIGH POWER RF SAMPLER (MAY 2011)

QST Technical Correspondence, July 2011

ARRL Lab Engineer Zach Lau, W1VT, pointed out an error in the May 2011 *QST* Technical Correspondence letter from Tom Thompson, WØIVJ. On page 53, in the text describing Figure 4, we incorrectly listed the wall thickness of the hobby brass tubing that Tom used to build his sampler as 0.14 inch. Of course that specification should have been 0.014 inch! I apologize for any confusion and inconvenience this may have caused our readers.

Zack and others also raised some questions about the resistor type Tom used, and also wondered how he formed the concave half-round end on the tubing to be soldered to the “top” of the T. Tom answered those questions and provided some additional construction information for those interested in duplicating his sampler. — 73, *Larry Wolfgang, WR1B, ARRL HQ; wr1b@arrl.org.*

Here are some further comments about my RF Sampler Technical Correspondence:

- 1) The tubing is actually 9/16 inch OD with a 0.014 inch wall thickness.
- 2) The 15 Ω , 2 W resistor I used is a metal oxide resistor that I obtained locally. It measures 15 Ω with 20 nH of series inductance. Digikey carries a resistor that should work: part no. P15W-2BK-ND. I don't have this resistor but I have some 100 Ω resistors from the same manufacturer that measure 100 Ω with 4 nH of series inductance. The lower inductance should improve the VHF performance of the sampler.
- 3) The 34.8 Ω , ¼ W resistor is a 1% metal film component, Digikey part no. CMF34.8QFCT-ND.

Construction Steps

Construct the BNC/toroid assembly as shown at the top of Figure 4, on page 53 of May 2011 *QST*. Cut the tube to length so that the flanges on the BNC connectors just fit inside the through tube, and drill a $\frac{1}{4}$ inch hole in the center of the tube as shown in the Figure 4 photo. Insert the toroid assembly into the through tube and snake the toroid wires through the $\frac{1}{4}$ inch hole.

Solder the BNC flanges to the tube, filling the slight gap between the tube and the flanges with solder. Solder a $\frac{1}{4}$ inch wide brass strip to the through tube just below the $\frac{1}{4}$ inch hole. Cut the strip so it is just slightly longer than the $15\ \Omega$, 2 W resistor. Cut the lead on one end of the $15\ \Omega$ resistor to about $\frac{1}{8}$ inch and fold the other end 180° so that it is parallel with the resistor body and solder it to the far end of the brass strip.

Next, solder the $34.8\ \Omega$ resistor, along with one of the toroid wires, to the $\frac{1}{8}$ inch stub of the $15\ \Omega$ resistor. Solder the other toroid wire to the near end of the brass strip. Connect the other end of the $34.8\ \Omega$ resistor to the BNC connector center pin.

File a notch into the T tube with a small round file, so that the curvature matches the curvature of the through tube, slip it over the resistor assembly and cut it to length so the BNC flange just reaches the end of the tubing.

Solder the tube to the BNC in the same manner as was done with the cross piece, and solder the curved part of the T tube to the through tube, filling in the gaps with solder. — 73, Tom Thompson, WØIVJ, 990 Toedtli Drive, Boulder, CO 80305; tlthompson@qwest.net.