

SMALL LOOP ANTENNAS FOR MW BCB, LF AND VLF RECPTION - 2

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Coupled ferri-loop

A loop antenna that is a modification of one of Marris' designs (Marris 1992) is shown in Fig. 20. The circuit is shown in Fig. 20a and the actual antenna is in Fig. 20b. This antenna is made by embedding 7.5-inch (19-cm) ferrite rods in 10-inch (25.4-cm) lengths of PVC plumbing pipe. Each ferrite rod is wrapped with electrical or masking tape to support it when it is force-fit (~gently) into the pipe. I found that a 1-cm diameter rod, when inserted into a 2.5-cm o.d. pipe, required about 14 turns of 3-M brand black electrical tape to hold it firm when pressed into the pipe. The windings consist of whatever number of turns are required for operation at the desired frequency. In an antenna meant to work in the 2 to 5-MHz region, including 75/80-metres per Marris' design, I used ten turns of wire, and the ferrite rods were the $\mu=800$ type. Lower frequencies would require higher number of turns, and possibly the $\mu=1,200$ or $\mu=2,000$ ferrite rods. Three of the four sides of the ferri-loop are identical to each other, and are similar to Marris' design. The sides are held together with cemented 90-degree PVC pipe elbows. The fourth side, however, differs from the other three. It is fitted with a tee-connector. The winding on this side is split into two halves of five turns each. Like the other windings, these are exterior to the PVC pipe. The coupling winding (L5) consists of 5 turns of wire wound directly on the ferrite rod that forms L1a and L1b. The connections to L5 are connected to very thin

shielded wire or coaxial cable, and routed to the receiver or preamplifier.

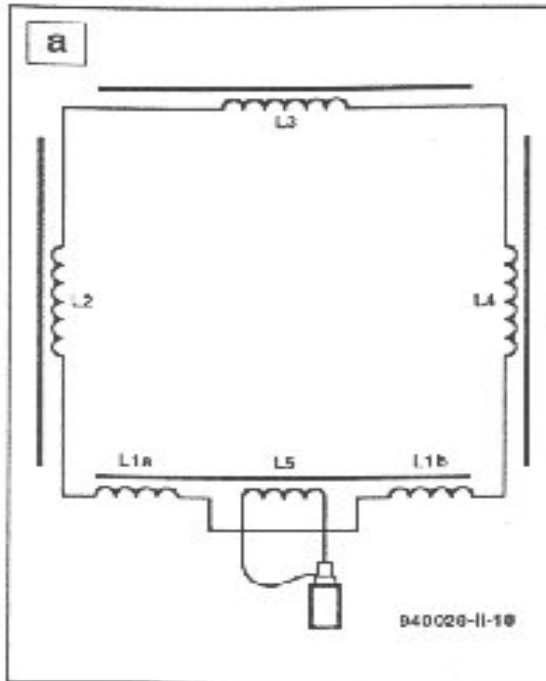


Fig. 20. Ferriform antenna: (a) schematic; (b) photo.