

Experiments with Loop Antennas

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Directional loop antennas are popular in the radio amateurs. The antennas were investigated by the radio amateurs and they developed lots of different variants of the loop antenna. Authors of the articles stay on the same page and tried investigate and improved design and performance of the loop antenna.

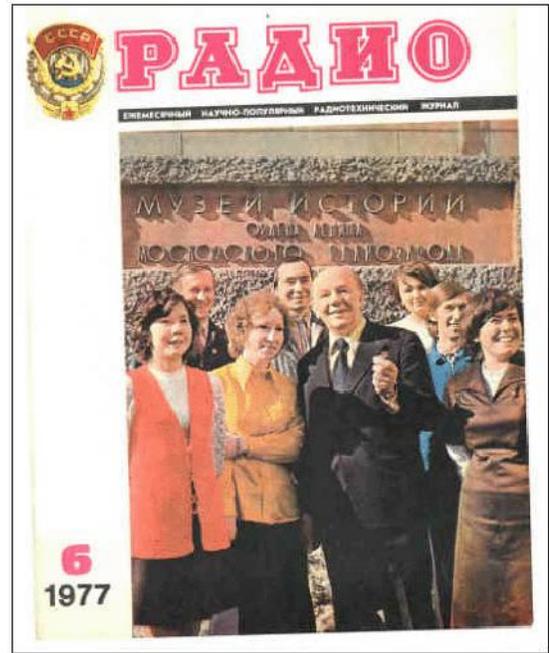
It is known that adding a second section to the loop antenna could increase the antenna performance. Classical variant of the loop antenna with phase feeding is shown in **Figure 1A**. However, this antenna may be transferred to antenna shown in **Figure 1B**, and then to antenna shown in **Figure 1C**.

Antenna shown in **Figure 1C** has lots advantages. The antenna has closed loop that may be assembled like a whole design from metal tubes that has good mechanical strength and electrical safe for atmospheric electricity. Triangle design allows to minimized cost of the stuff for the antenna. On the triangle design (**Figure 1C**) it was made experimental directional two and three elements antenna for the 20- meter Band that is shown in the **Figure 2**.

The dimensions of the elements of the antennas are shown in the **Figure 2**. The two-element antenna has input impedance close to 40 Ohms. The three-element antenna has input impedance close to 30 Ohms. Gamma match was used to match these antennas with a 50 (also possible with 75- Ohm) Ohm coaxial cable.

The article does not provide data for the gamma match. It is assumed that an experienced radio amateur can make it based on his experience.

73! de UA9OS, UA9PP



Cover of Radio # 6, 1977

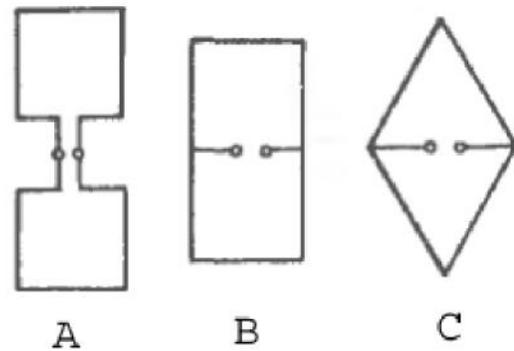
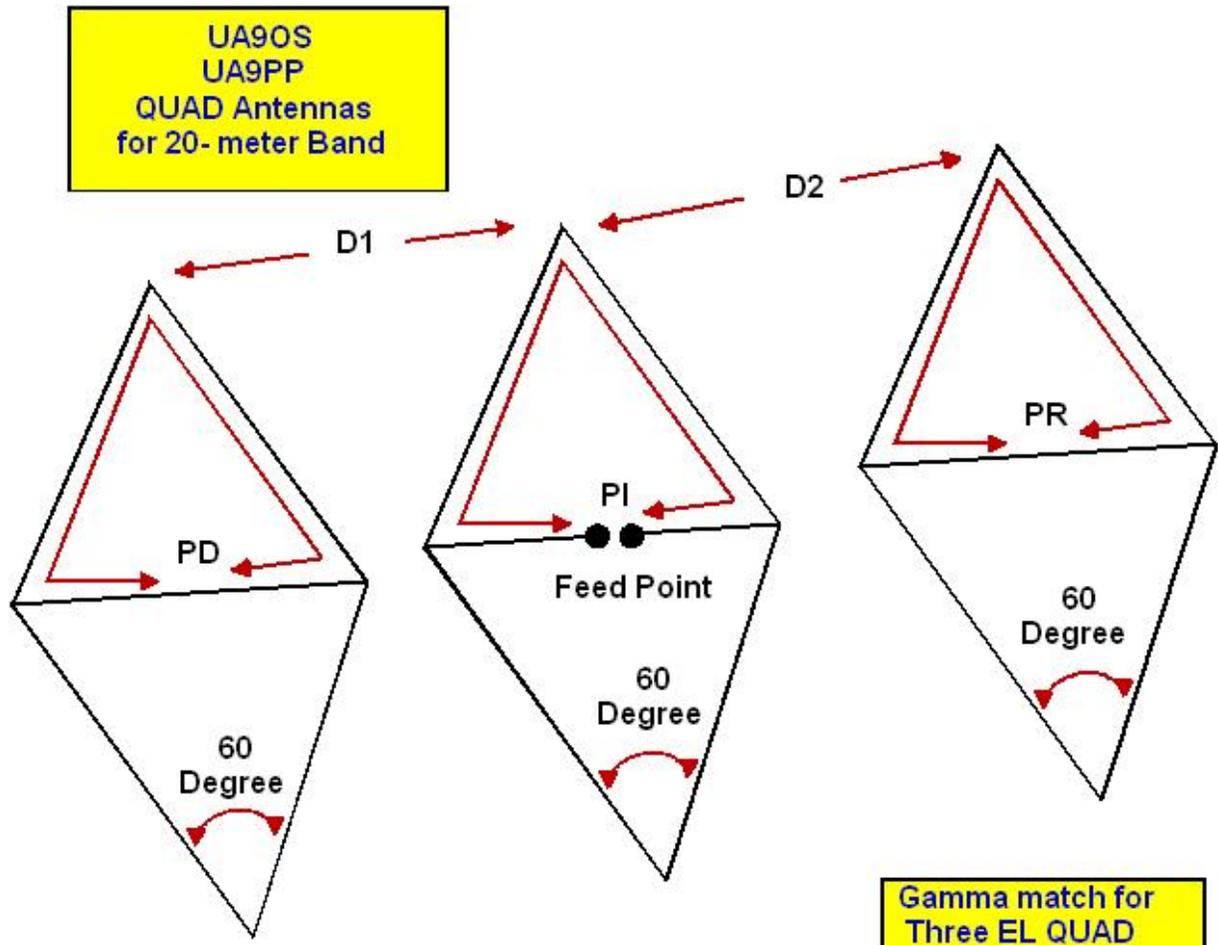


Figure 1 Designs of the Two Section Loop Antenna



Header of the Article



Gamma match for Three EL QUAD

Two EL QUAD: 40 Ohm Impedance		
PI	PR	D2
21.8 m	22.8 m	3.1m

Thre EL QUAD: 30 Ohm Impedance				
PD	PI	PR	D1	D2
20.3m	21.4 m	22.6 m	4.2 m	3.9 m

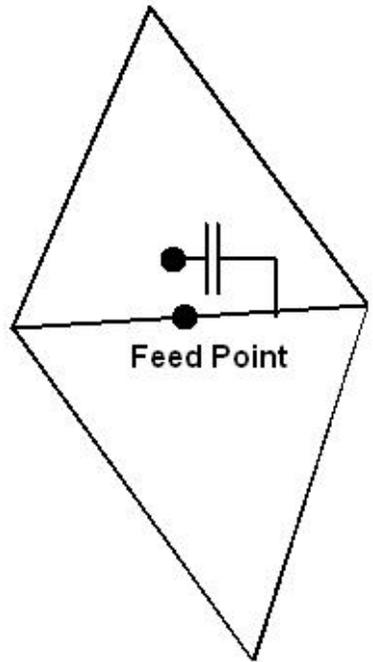


Figure 2 Two and Three Elements Triangle Loop Antenna