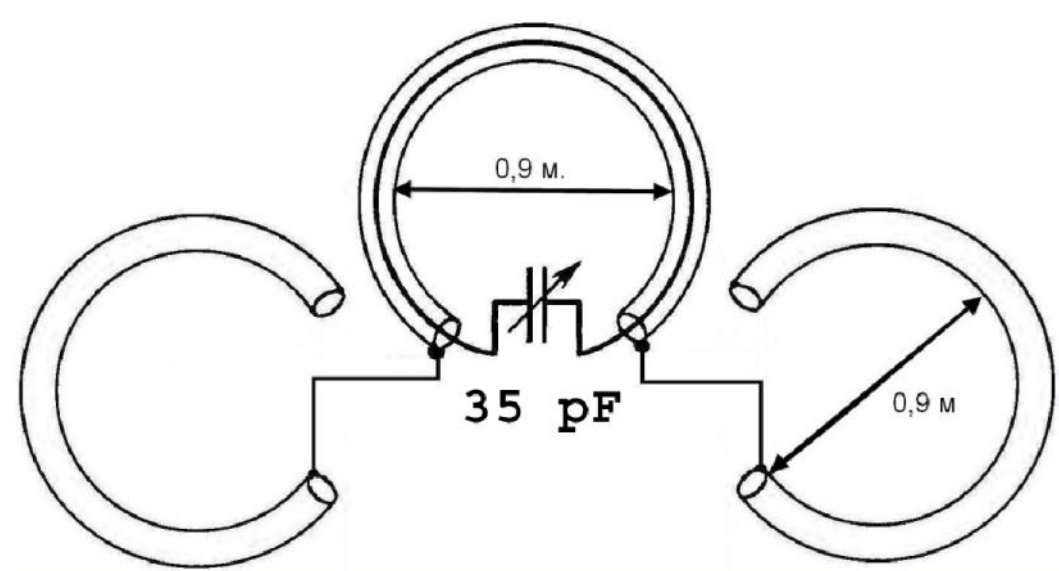


# UA6AGW Balcony Antenna for the 20 meter Band (Version 20.23.63)

*Aleksandr Grachev, UA6AGW*

The antenna, working Version 20.23.63, has sizes 1 x 2 meters and designed for installing at a limited space. The antenna made like an experimental one and showed good result at the Air test. **Figure 1** shows schematic of the antenna.

As it is shown from the **Figure 1** the schematic of the antenna is traditional as for all UA6AGW antennas and does not required additional comments. Design of the antenna is shown on the **Figure 2**.



**Figure 1**

Schematic of the UA6AGW Balcony Antenna for the 20 meter Band

### **Design of the UA6AGW Balcony Antenna:**

Main loop made of from a ½ inch coaxial cable used at sites of the cell communication. Two horizontal vibrators of the antenna made of aluminum Hula Hoop in diameter of 90- cm. The Hula Hoop is cutting at the place of the jointing. Then the ends of the rings are separated on the distance 3- 4 cm with help of a plastic insertion. The Hula Hoop is connected to the main loop with help of a tinned copper wire in diameter of 3- mm. The wire is soldered to the main loop and connected to the Hula Hoop with help of a clamp.

Tuning capacitor is placed inside a plastic electro-technical box. The capacitor should stand the power going to the antenna in common case (at 100- W transceiver) the capacitor should have gap between plates in 2- mm.



**Figure 2** Design of the UA6AGW Balcony Antenna

The antenna fed by a coupling loop. For simplicity of the design the coupling loop made from the feeding coaxial cable. Figure 3 shows the coupling loop before it is circulated to a loop.

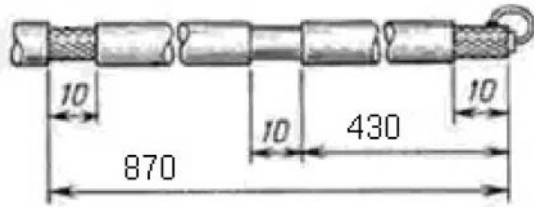


Figure 3

Preparation of the Coupling Loop for the UA6AGW Balcony Antenna

Length of the coaxial cable to be used for the coupling loop is 870- mm. Plastic from the length of the coaxial cable is removed on to 10 mm in the center and from two ends. Then braid of the coaxial cable is removed at the center. Inner conductor is soldered to the braid at the far (right) end of the length.

Then the cable is turned to a loop. Far end of the length is soldered to the first (left) side of the prepared cable. (In Russia the method of the making the coupling loop sometimes is named *method of the DF9IV*). The coupling loop is fastened to the upper part of the main loop with help of a Scotch and plastic ties. Figure 4 shows the coupling loop on the antenna

**Tuning of the Antenna:**

Tuning of the antenna is very simple and easy. First step is that the antenna is tuned to the resonance with help of variable capacitor. It may be done in receiving mode – to maxima receiving signals or in transmitting mode to maxima RF voltage at the end of any ring vibrators. Then with changing shape of the coupling loop (from circle to oval and vice versa) tune the antenna to minimum SWR.

**Conclusion:**

The antenna was tested in the Air and showed good results. However the passband of the antenna was only 170- kHz at SWR 2.0:1. So if the antenna should work at all 20- meter Band the tuning capacitor should be accessible to retune the antenna. At my opinion the Diagram Directivity of the antenna in horizontal plane is almost circular. The antenna has small sizes and is very suite to any limited place.

73!  
Aleks, UA6AGW



Figure 4

Coupling Loop on UA6AGW Balcony Antenna



WWI Military Direction Finder