

R3PIN Experimenters with UA6AGW Antenna

Aleksandr Grachev, UA6AGW

Credit Line: CQ-QRP # 48 (Autumn 2014), pp.: 19-22.

There are below described experimenters with UA6AGW Antenna made by Sergey Tetuyhin, R3PIN. Sergey would like create an UA6AGW Antenna for 2- meter Band. He did not have schematic of the antenna for 2- meter Band. He made two antennas that he believed would work at the 2- meter Band. However his attempt was not successful. But Sergey during the experimenters found some unusual sides at UA6AGW Antenna. Both antennas were made accordingly schematic shown at **Figure 1**.

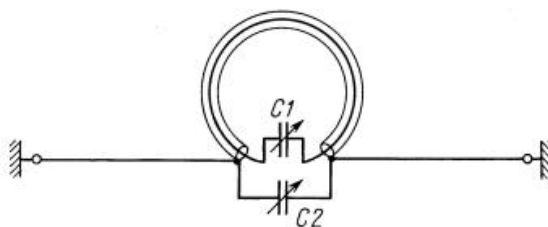


Figure 1 UA6AGW Antenna

Experiment # 1

Design of the Antenna

First antenna made by R3PIN is shown at **Figure 2**. The antenna was made as a table design. Height of the antenna was 45- cm. Loop of the antenna had diameter 13- cm. It was a copper tube in 8- mm OD. To make a “copper tube coaxial cable” inside of the tube was inserted plastic with central copper wire that was got from a piece of an old 50- Ohm coaxial cable. Plastic with central copper wire was in 2.5- mm diameter. Coupling loop was made from the same copper tube. Coaxial cable was soldered straight away to the coupling loop. Coupling loop had no electrical connection to the loop of the UA6AGW Antenna. **Figure 3** shows coupling loop at UA6AGW Antenna.

Antenna whiskers had telescopic design. The whiskers may be moved along the antenna loop by screw clamps. Capacitors C1 and C2 were Air – dielectric with capacitance 8- 140- pF. **Figure 4** shows the whiskers and capacitors.



Figure 2 First Experimental Antenna made by R3PIN



CQ-QRP

Издание Российского Клуба Радиооператоров Малой Мощности
48 Осень 2014



Figure 3 Coupling Loop at UA6AGW Antenna

Data for the Antenna

Dimension of the antenna were too big for the 2- meter band. Antenna with help of C1 and C2 may be tuned across 18... 56- MHz. Test of the antenna was made at 10- meter band at frequency 28.850- MHz. Antenna was tested at position showed at **Figure 1**. Antenna had SWR 1.0: 1.0. C2 had maximum capacitance. Antenna was tuned to the 28.850- MHz by C1.

Antenna had Diagram Directivity similar to classical UA6AGW Antenna, i.e. the DD was ellipse sitting along whiskers of the antenna. Side suppression of the antenna was near minus15- dB. It was possible to make local QSOs when the antenna was placed at a table or windowsill. Experimenters with the antenna was loaded to Youtube at: http://www.youtube.com/watch?v=-uNrIRNcLu4&feature=em-upload_owner

Experiment # 2

Design of the Antenna

Second antenna made by R3PIN is shown at **Figure 5**. The antenna was made as a table design. Dimensions of the antenna were decreased compare to antenna from first experiment. Loop of the antenna has diameter 5.5- cm. It was a copper tube in 4.7- mm OD. To make a "copper tube coaxial cable" inside of the tube was inserted Teflon insulated wire in 0.27- mm diameter. Whiskers of the antenna had length 10- cm.

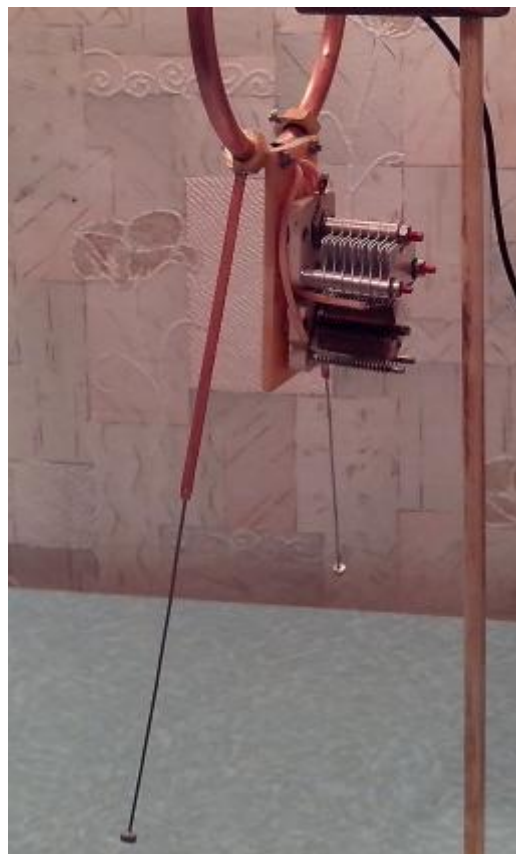


Figure 4 Whiskers and Capacitors

The whiskers made from strand tinned wire. Capacitors C1 and C2 were ceramic – dielectric with capacitance 6- 25- pF. Coupling loop was completely different from the counterpoint of antenna shown at **Figure 2**.

The coupling loop was placed athwart to radiation loop. Coupling loop had two turns of copper wire in 1.2- mm diameter (17-AWG). Gap between the turns was 5- mm. Coaxial cable was soldered directly to the coupling loop.

Two ferrite rings, one at the coupling loop another one at the connector side of the cable, were placed on to the coaxial cable. **Figure 6** shows the coupling loop. With help a fixture (similar to the clock hand) the loop could move along the radiation loop. **Figure 7** shows the fixture.

	<p>FREE e- magazine edited by hams for hams Devoted to Antennas and Amateur Radio www.antentop.org</p>
--	--



Figure 5 Small UA6AGW Antenna

Data for the Antenna

Dimension of the antenna were too big for the 2- meter band. However the antenna with help of C1 and C2 may be tuned across FM Band 88... 108- MHz. Test of the antenna was made at the band only at receiving mode.

Antenna had one lobe diagram of directivity. The lobe was 30... 40 degree. Suppression from back and sides was at least minus 20- dB. Moving the coupling loop across the loop in one direction was going to increasing of the level receiving stations.

Moving the coupling loop across the loop in the opposition direction was going to decreasing of the level receiving stations and almost stopping of the receiving. Changing the coaxial cable connection to the coupling loop (visa versa) changed the direction. Looks like the one direction diagram directivity of the antenna was obtained due to the coupling loop placed athwart to radiation loop. Experimenters with the antenna was loaded to Youtube at: <http://www.youtube.com/watch?v=gPBTSM-uFKI>



Figure 6 Coupling Loop



Figure 7 Fixture for Moving Coupling Loop



Sergey, R3P9N, talking about his experimenters with UA6AGW Antenna