Antenna UA6AGW in Experimenters by RU1OZ

Nikolay Chabanov, RU10Z

Credit Line: CQ- QRP # 42. Spring- 2013. Pp.: 15-17.

In my native city Archangelsk my house is located very close to the Power Transmission Line. High noise from the line forced me to use Magnetic Loop Antennas. The antennas could work very effective and may eliminate the electrical noise. I can make QSOs with EU and JA (at 10-18- MHz) using only 4-watts with the Magnetic Loop Antenna. But… Magnetic Loop Antenna has some disadvantage for me. It is a narrow pass-band (I need tune the Loop across the amateur band). My variable capacitor at the Loop is sparked at power close to 5-watts (that is way I used to only 4-watts with the Magnetic Loop).

In one of the lucky day I have read article about the UA6AGW Antenna. The antenna straight away attractive my attention because:

1. Antenna takes small room. So I may place it instead my Magnetic Loop Antenna
2. Pass Band of the antenna is 150… 200- kHz. So, I do not need retune the antenna inside the working Band.
3. The horizontal wires are lowered the RF-Voltage across the variable capacitor. That should be no sparking at the variable capacitor.

The three above mentioned factors were main point to make the antenna. For making the antenna I used a length of a 75-Ohm coaxial cable in diameter 13- mm. To turn the antenna in rigid design the length of coaxial cable was hid inside a plastic Hula- Hoop that had diameter 80-cm. **Figure 1** shows the schematic of the antenna for the 10 and 14- MHz.

Picture 1 Antenna UA6AGW for 14 and 18- MHz Installed at my Room

I used usual variable capacitor (12- 495- pF) from an old radio as C2. Usual variable capacitor 10- 70-pF was used as C1. Horizontal wires were made from a multicore copper wire in diameter 3- mm. Antenna for testing purpose was installed inside of my room. **Picture 1** shows the antenna in my room. Antenna was tested at 18 and 14- MHz Bands. The length of the horizontal wires for the bands was 2.5- meter.

Straight away I noticed that in comparison with old Magnetic Loop (made from the same coaxial cable) the antenna UA6AGW worked better on to reception. And it is no sparking at the variable capacitor at 5-watts RF-power. I used to an old surplus military radio R-143 that fed by 12- Volts. At the voltage the radio gives no more the 5-watt output power.

Антенна UA6AGW — рамочно-лучевая (v.30/20. 00)

Николай Чабанов RU1OZ

Heading of the Article

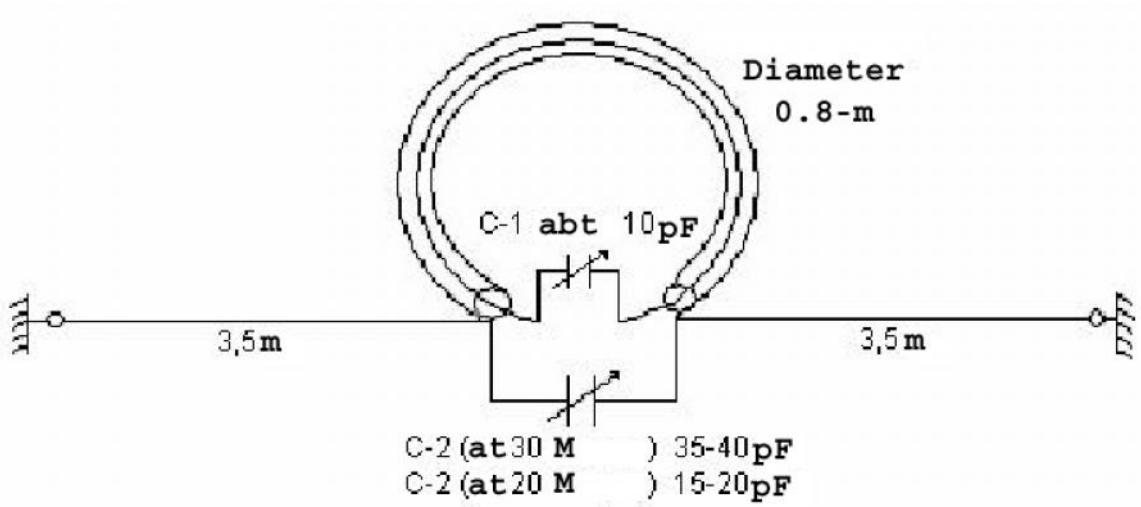

Figure 1 Antenna UA6AGW

Antenna worked well at the 18 and 14- MHz Bands. SWR was 1.2: 1.0 at the Bands. Pass Band was (at SWR 2.0: 1.0) 150- kHz at both bands. I made several CW and PSK- 31 QSOs with EU, Russia and Ukraine. As usual reports were 599 at the both ends.

Then I installed the antenna at my attic. The antenna was intended for 14 and 10-MHz. Horizontal wires were 3.5- meters in length in this case. Pass Band at 14- MHz Band was 230- kHz at SWR 2.0:1.0. **Picture 2** shows the antenna in my attic. Coupling loop for the antenna was made from copper wire in diameter 4- mm. Length of the wire was equal to the diameter of the antenna UA6AGW (80- cm in my case). Coaxial cable RG-58 (length 18- meter) was going from the antenna to my radio. Antenna was tuned to needed band manually by C2.

Antenna in attic had height near 8- 9- meter above the ground. Antenna worked well at all- seasons- at dry summer, at wet autumn and in the winter when snow blanket in 30- 50- cm thick was placed on the roof above the antenna.

Later a LW-Antenna in 41- meter length and at 7- meter height above the ground was installed at my location. The antenna was fed from the end by Fuchs method (see **Reference 1**). The LW was compared with Antenna UA6AGW. Program WSPR (that showed levels of the receiving stations on the computer screen) objectively proved the antenna UA6AGW advantage with the 41- meter length of wire antenna.

Picture 2 Antenna UA6AGW in the Attic

Reference 1
Josef Fuchs (OE1JF) Antenna: Patent Description
http://www.antentop.org/016/oe1jf_016.htm

Ex- Soviet Military Radio R-143