RW3DKB Loop Balcony Antenna

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I have not access to the roof on my new QTH, so I decided install antenna on my balcony. It was a loop antenna. **Figure 1** shows design of the antenna.

It is a loop antenna with perimeter of 9.72 meter. Antenna made from electrical strand copper wire in plastic insulation.

Diameter of the wire (measured on insulation) is 2.5- mm (10- AWG). The antenna fed through substitute matching line that is a twisted wire (made from the same wire from the antenna) in length of 1.5 meter, two twists on the length of 80- mm. **Picture 1** shows the matching line.

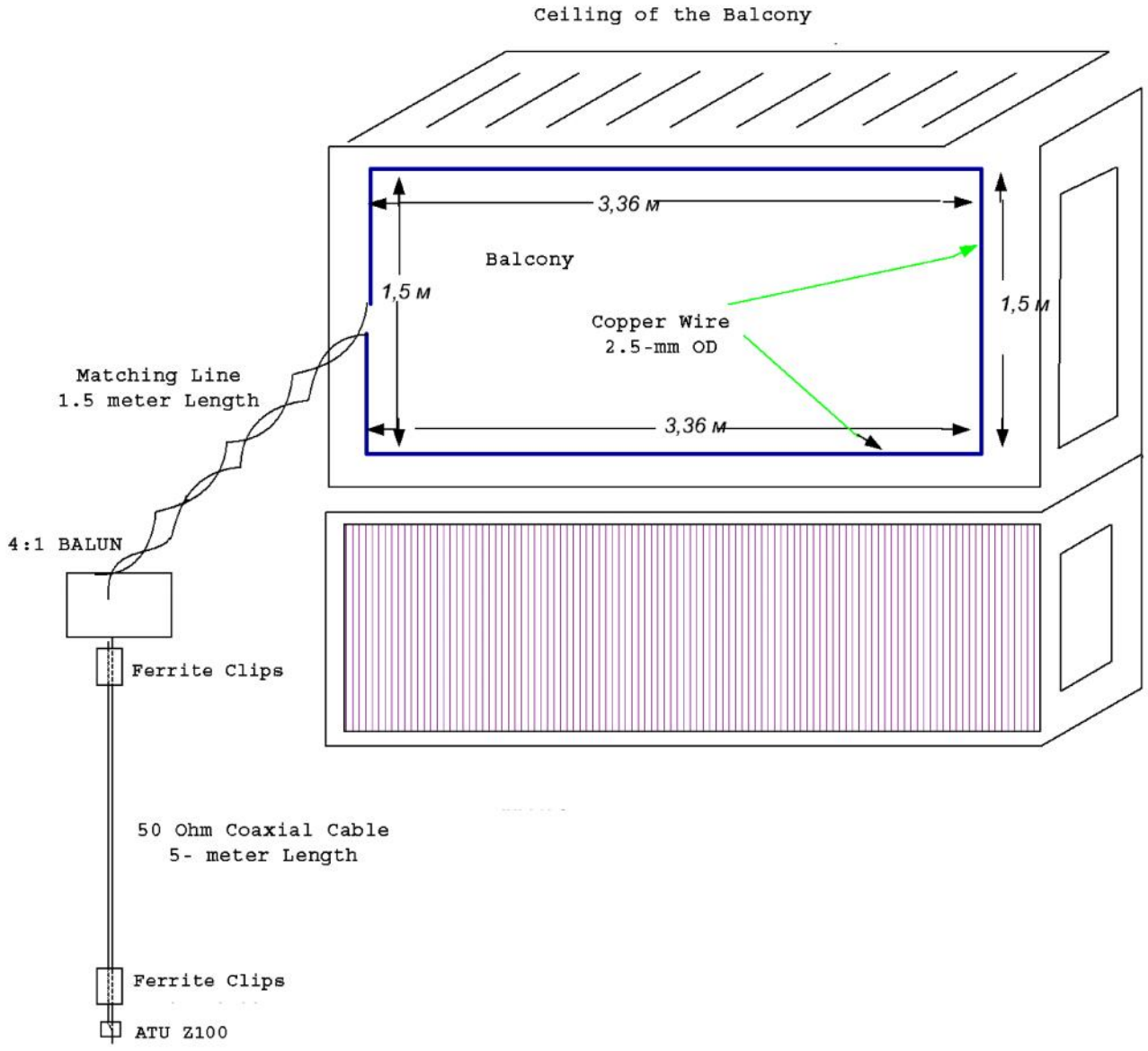

Figure 1 Design of the RW3DKB Loop Balcony Antenna

Picture 1
Substitute Matching Line

Picture 2
Nails for Fixing the Loop Antenna

Antenna is fixed inside of nails having shape of the letter J. Upper end is hammered to the wood. **Picture 2** shows the nails. In this case you may slide the antenna on to the nails and change the polarisation of the antenna. If the antenna is fed in the center of the side the antenna has vertical polarisation. If the antenna is fed in the center of the lower side the antenna has horizontal polarisation. It gives some possibility for experiments with different polarisation.

The length of the matching line is lambda/8 for the 10 meter band, the main antenna's band. The matching line connected to the 4:1 BalUn. It was used commercial made RBA 4:1 Balun from LDG Electronics. **Picture 3** shows balun at the antenna. Coaxial cable from the balun is connected to Z100 automatic antenna tuner. It was used 50- Ohm coaxial cable in 5 meter length (by the way the length may be any what is ever you want). It was installed ferrite clips on the both sides of the coaxial cable. This tuner could match the antenna on all amateurs HF bands from 10 to 80- meters with SWR no more 1.5:1.0.

It is possible use a home brew balun. Home- made balun contains 10- 12 turns on the ferrite ring with permeability 100- 1000 and OD 30- 60- mm. The balun is wound by twisted pair and wire is connected to the matching line and coaxial cable as it is shown on the **Figure 2**.

Picture 3

4:1 Balun from LDG Electronics at the Antenna

However if you need just one band- 10- meter, you may use simplified ATU that is shown on the **Figure 3**. The ATU is installed at the feeding point of the matching line.

I tested the antenna in the Air and have got very satisfied results. Antenna works good on receiving on all of the bands, on transmitting I made QSOs with Europe and Asiatic parts of the Russia. It is not bad for such small balcony antenna.

73! RW3DKB

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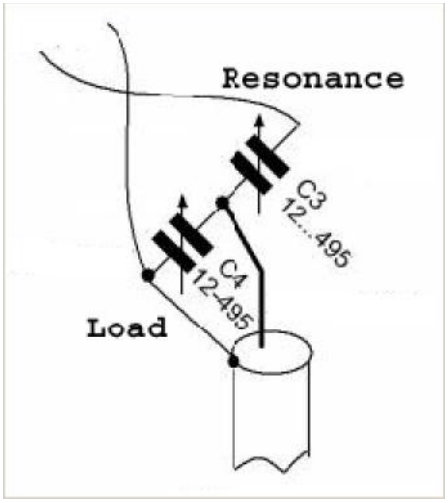

Figure 3
Connection of the Balun to the Matching Line and Coaxial Cable

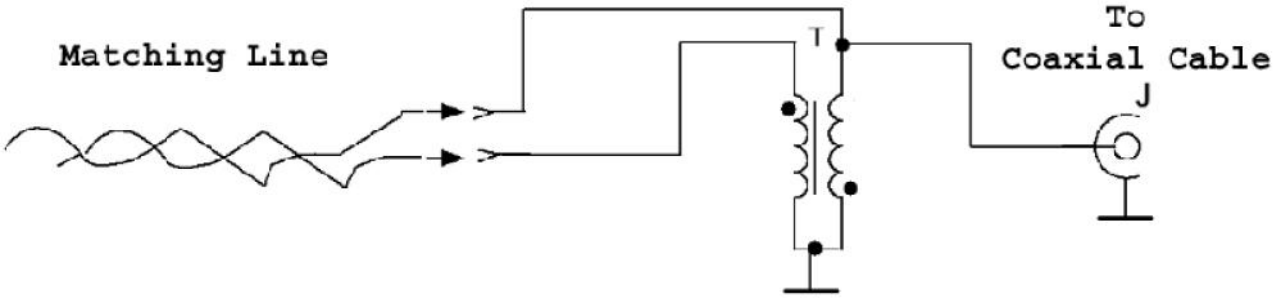

Figure 2 Matching the Antenna on the 10-meter Band with ATU

RA3AAE (Left) and RW3DKB (Right)