

Balcony Dipole Antenna for 20, 15 and 10- meter Bands

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The three band balcony antenna consists of L- Bracket, mounting plate and kit of two easily replaceable shortened vibrators.

Figure 1 shows design of the antenna.

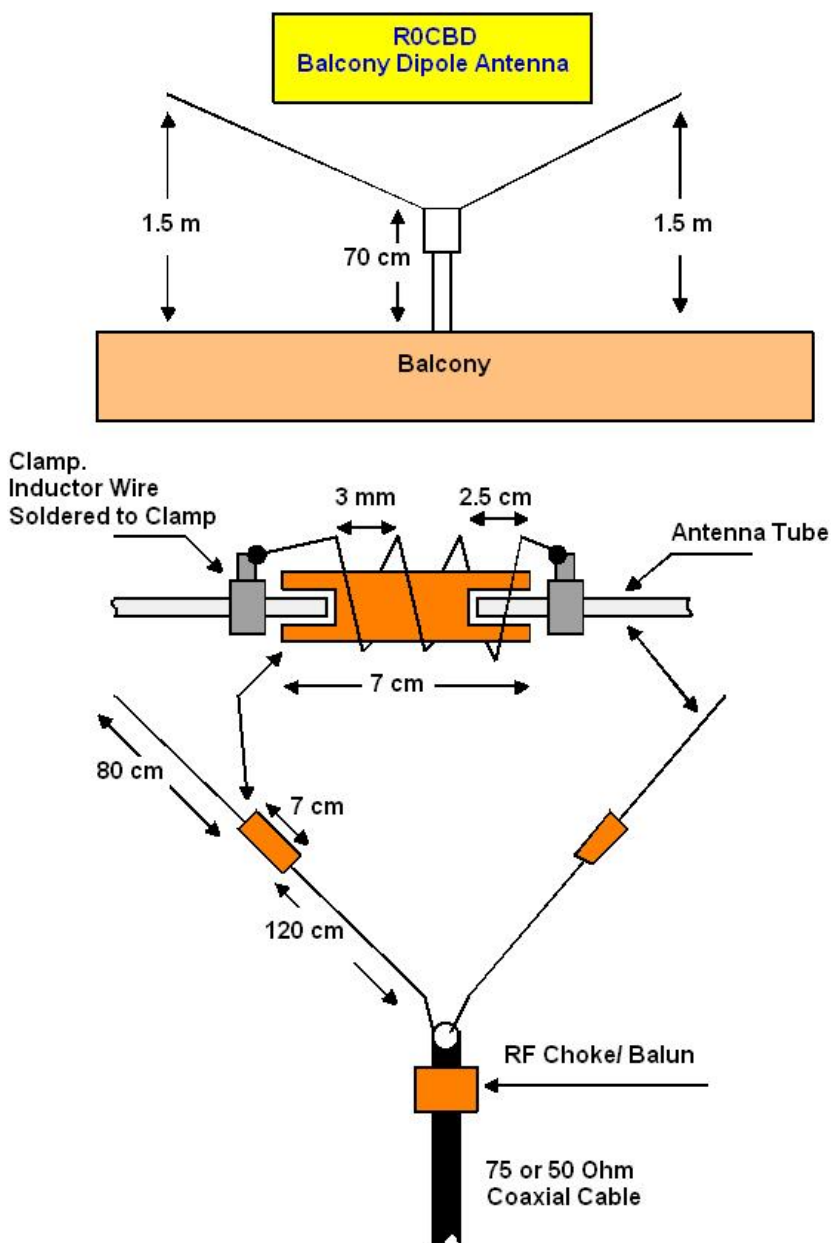


Figure 1 Design of the Balcony Dipole Antenna for 20, 15 and 10- meter Bands

Vibrator of the shortened dipole antenna made from aluminum tube in diameter of 8 mm. Lengthening coil is installed at distance of 120 cm from the feeding terminals. Coil form made of a textolite rod in 70 mm length and 15 mm diameter.

The form has holes from both sides where the aluminum tubes are inserted. Clamps installed at the ends of tubes. Inductor wire is soldered to the clamp. Coil for 20-m band wound with 1- mm (18- AWG) copper wire and has 37 turns. Coil for 15- m band wound with 1- mm (18- AWG) copper wire and has 16 turns.

Kit for the 10 meter band does not made because shortened antenna for 20 meter band as well as shortened antenna for 15- meter band may be easily tuned to the 10- meter with the help of automatic antenna tuner of the transceiver. **Figure 2** shows design of the lengthening coils.

Antenna installed outside of the balcony on L-Bracket. The bracket made of a corner bead. Textolite plate in 6- mm width (it is used insulation plate from an electrical box) is fixed on the end of the L- Bracket. Vibrators of the dipole antenna is fastened to the insulation plate with help of metal plates with sizes 50 x 50- mm.

Gaskets with a thickness of 8 mm (just the thickness of the aluminum tubes) are placed between the plates. The plates fastened together with help of screw in diameter of 4- mm.

Figure 3 shows the structure. Pen serves like a part of the dipole antenna on the figure. Such design allows fast to change one dipole antenna for another. **Figure 4** shows dipole antenna with choke/balun on the textolite plate. **Figure 5** shows dipole antenna on the L-Bracket. **Figure 6** shows dipole antenna on the balcony.

Input impedance of the antenna, measured by antenna analyzer MFJ- 259B, was 28 Ohm on 20- meter band and 28 Ohm on 15 meter band. Bandwidth was 40 kHz on 20 meter band and near 100 kHz on 15 meter band. Antenna for 20 meter band was fed through a coaxial cable with length $\lambda/2$ for the band. In this case was good matching inside of the 20 meter band and automatic antenna tuner of the transceiver could tune the antenna on the 15 and 10- meter bands.



Figure 2 Design of the Lengthening Coils



Figure 3

Structure of the Fixing Antenna's Vibrators on the Textolite Plate

Antenna was tested in the Air with good result for such small antenna. At the tuning of the antenna was made CW QSO on 14023 with BG1WNU. Not bad!

73! R0CBD

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Figure 4

Dipole Antenna with Choke/Balun on the Textolite Plate



Figure 5 Dipole Antenna on the L-Bracket



Figure 6 Dipole Antenna on the Balcony