

Rectangular UB5UG

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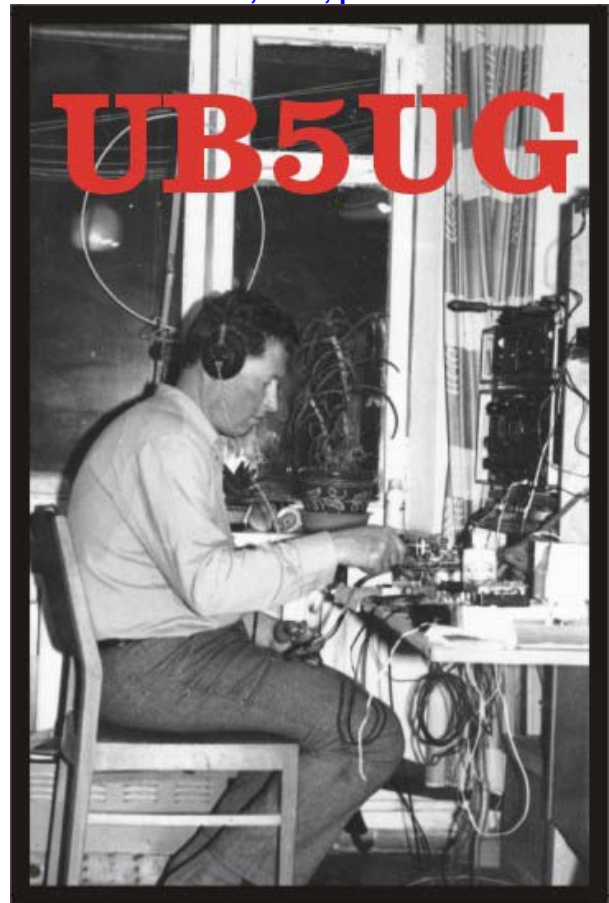
Credit Line: Radio #7, 1963, p.20

Rectangular shown at **Figure 1** has good parameters and not so sensitive to height (that is very important for low amateurs HF-ranges) compare with dipole. Upper horizon wire is broken by a nut insulator at it's center. Due to a small height the antenna is suitable for 80- and 40-meters Band. However, it should not be any high objects near the antenna (that do "shadow" to the antenna). Distance between low wire and roof or ground may be several tens centimeters.

Input impedance of the antenna may depend on installation conditions. Matching of the antenna with the feeder provides by choice of a feeding point at low horizon wire. At corner feeding the antenna has input impedance near 30-40-Ohms. The more far the feeding point from the corner is- the more input impedance (up to several thousands Ohms) would be. Feeder is going along antenna wires then from the middle of a vertical side the feeder is going aside (to any direction). For good symmetrical it is desirable to connect the braid of the coaxial with antenna.

Radiation parts at the antenna are the vertical sides. For increasing of the efficiency of the Rectangular the sides should be made from aluminum tubes in diameter 10- 20-mm. Horizon sides of the antenna provide very low radiation (because the currents distribution at the antenna), so, they could be made from antenna wire in diameter of 1-2 mm. **Figure 2** shows the currents distribution at the Rectangular (made by MMANA).

Rectangular antenna has gain near 2- 3 dBi, pass-band (at SWR 1.5:1.0) near 2% from the center frequency.



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Credit Line: <http://ham.kiev.ua/ub5ug/>

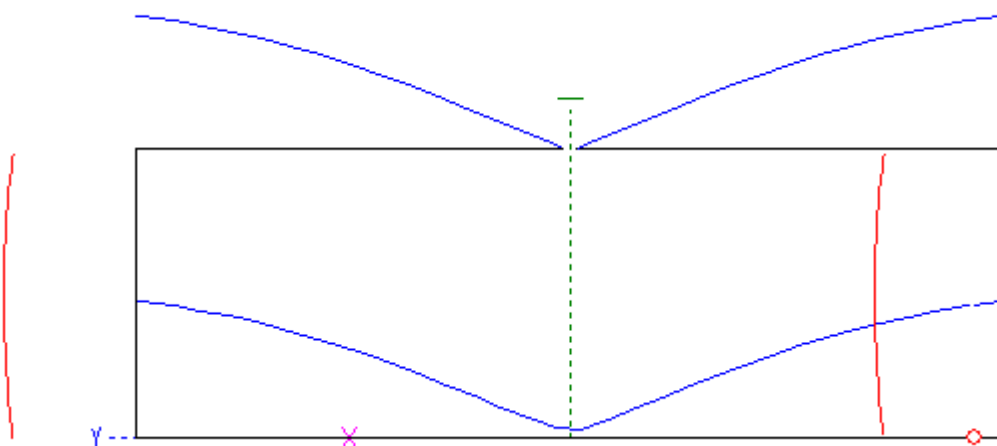
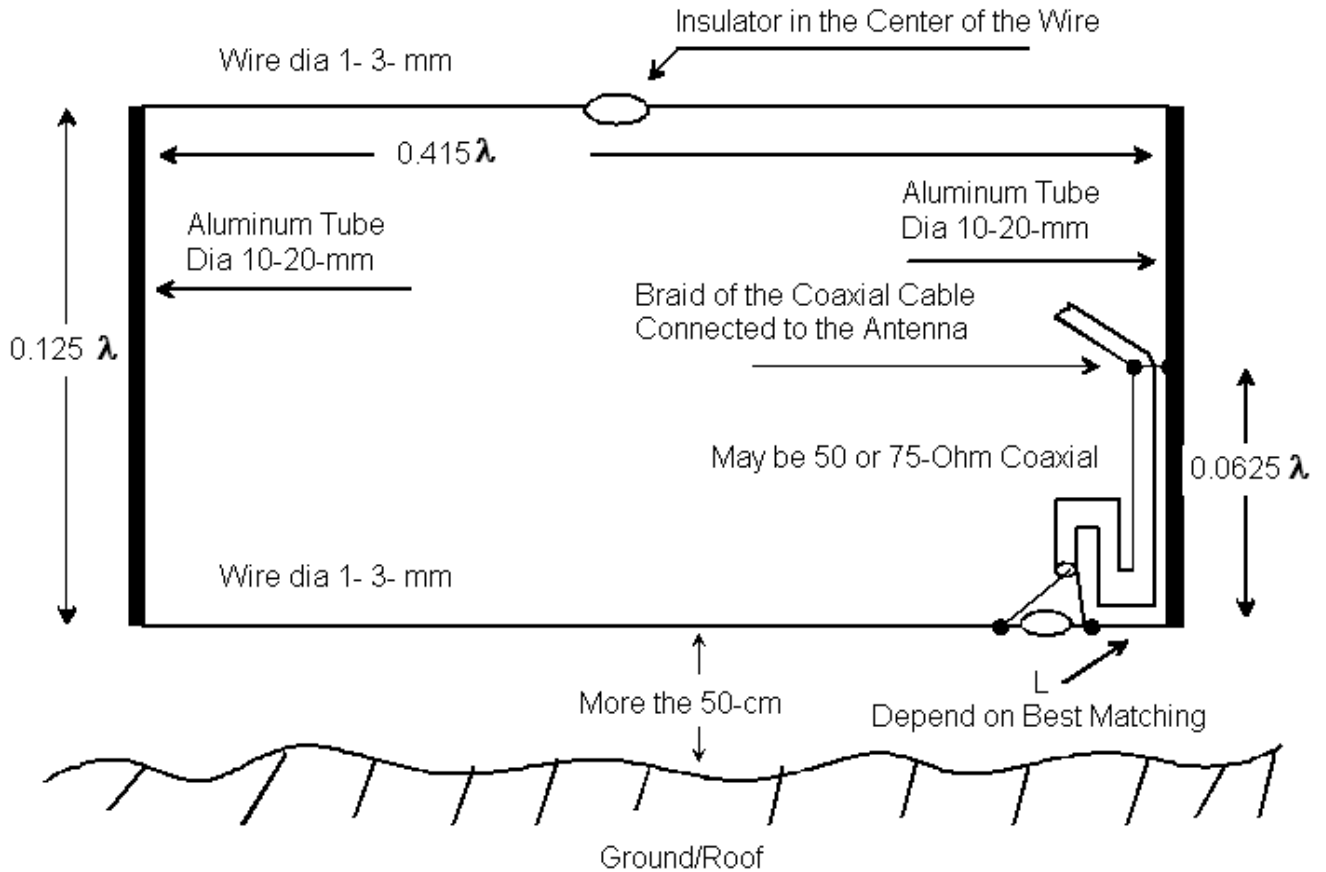


Figure 2 Currents distribution at the Rectangular.

Rectangular UB5UG



*See Text for More Details

Figure 1 Rectangular UB5UG

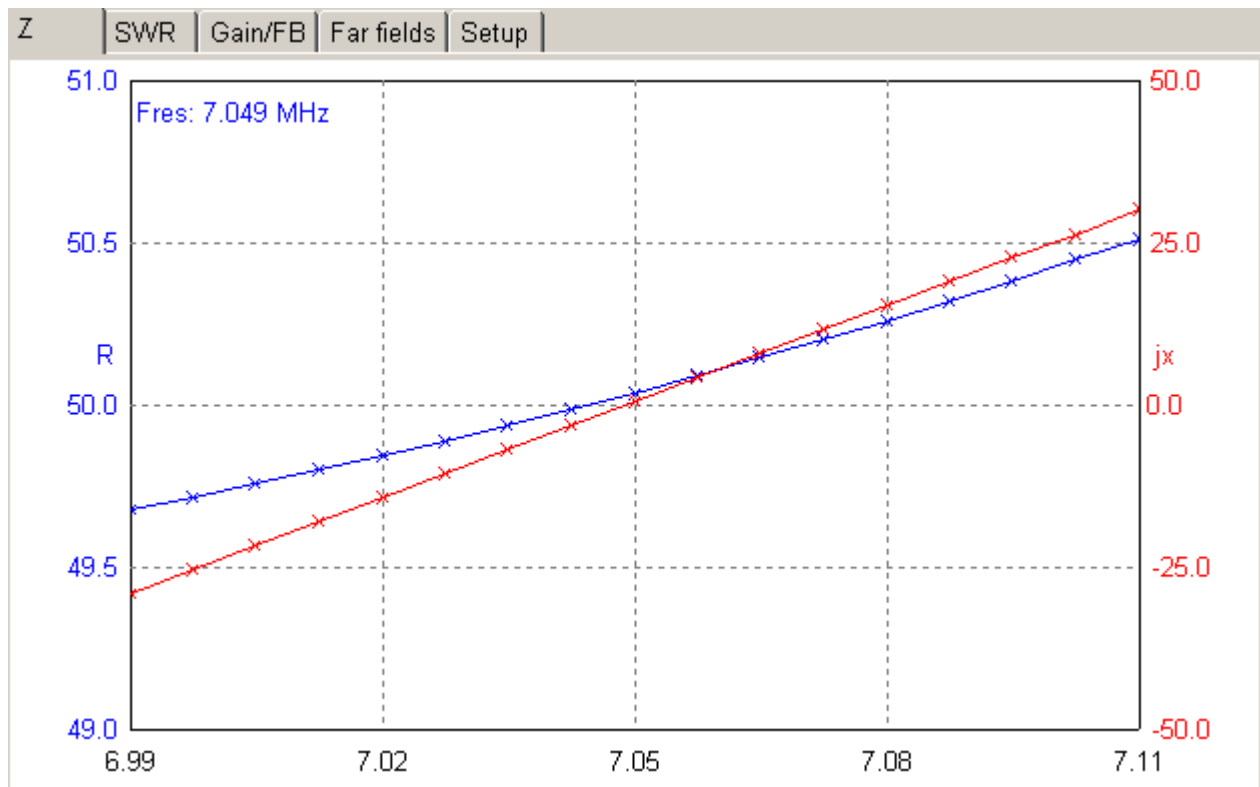


Figure 3 Input impedance for Rectangular for 40-meters

Figure 3 shows input impedance for rectangular for the 40-meters Band. Figure 4 shows SWR for rectangular for the 40-meters Band. Figure 5 shows vertical and horizon patterns for rectangular. All diagrams made by MMANA for the Rectangular designed for 7.050-MHz, placed at height of the 2 –meters above the real ground, vertical parts of the antenna –aluminum tube in diameter 10- mm (000-AWG), horizon wires–aluminum wire in diameter of 1-mm (18-AWG).

MMANA file for the antenna made by UR0GT.

It is possible to design directional antennas on the base of the Rectangular. Reflector and director may be designed on the base of the rectangular. Such directional antennas may be designed for all amateurs HF bands. Parameters of Three- Elements Antenna made on the base of the Rectangular elements are almost equal to parameters of a Four Elements Antenna made on the base of linear wires (YAGI).

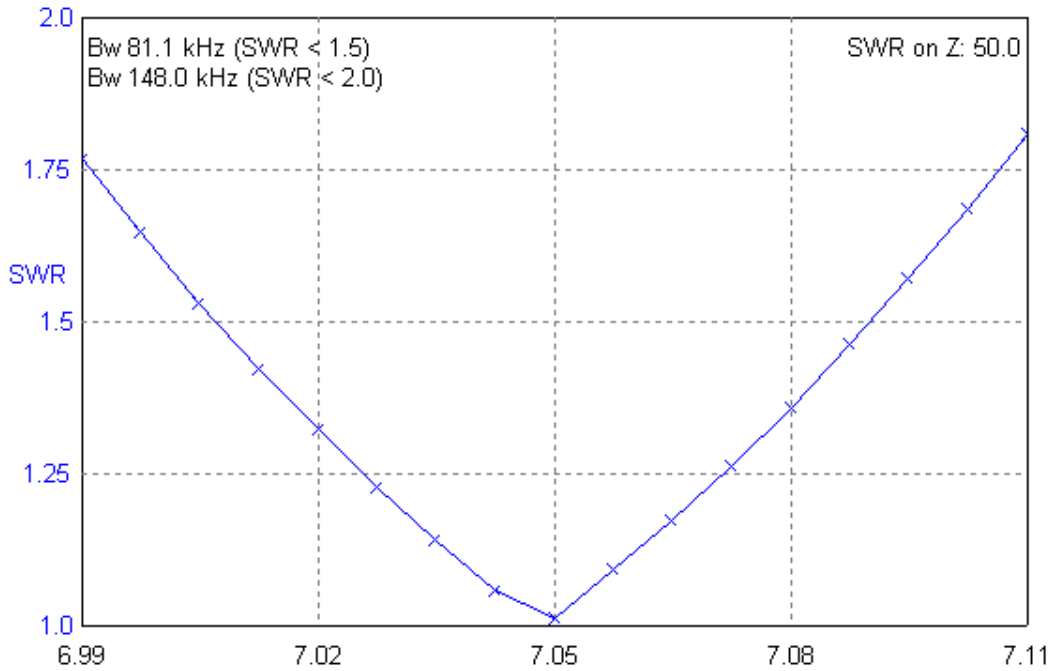


Figure 4 SWR for Rectangular for 40-meters

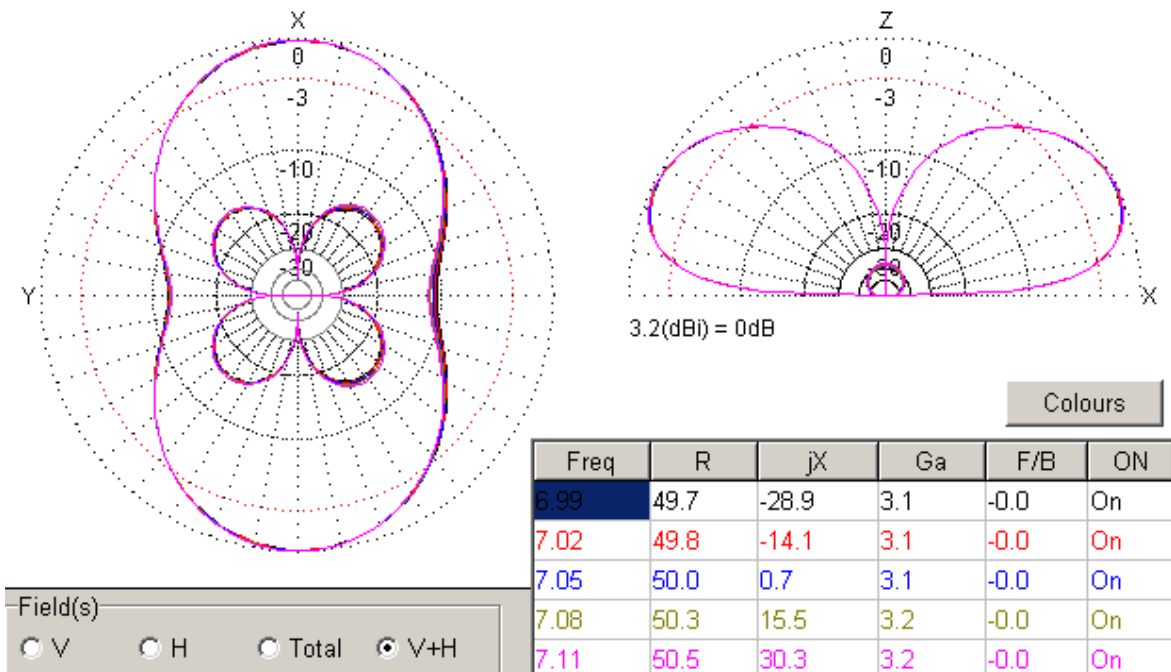


Figure 5 Vertical and horizon patterns for Rectangular for 40-meters