

FOLDING 3-EL YAGI FOR MOUNTAINS

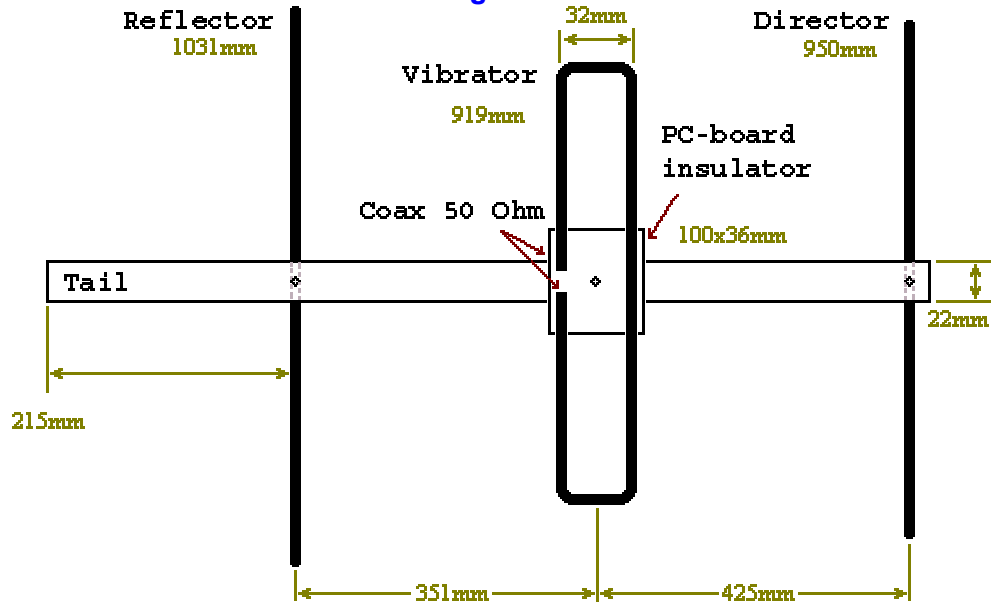
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This antenna was developed specially for mountains trip from my experience of radio communication in mountains. The antenna is optimized to the maxima forward gain. At work you can hold the antenna by the "tail" and direct the antenna to your correspondent using vertical or horizontal polarization.



Figure 1 shows the design of the antenna. Antenna boom is made of a plastic water pipe of 1000-mm of length and of 22-mm OD. Antenna reflector and vibrator both are made of aluminum wire of 5-mm of diameter. Antenna vibrator is made of bimetallic wire of 5-mm of diameter. The vibrator is soldered to PC –board that is the central insulator for the vibrator.

Figure 1



A 50-Ohms coaxial cable is used with the antenna without any symmetrical devices. The cable goes along the boom and get out from the tail. For antenna folding you can loose screws, turn antenna vibrator along the boom, and again strength the screws. Antenna director and reflector is removed from the boom and hide inside the boom.

Coaxial cable has the length of 1100-mm. The cable is laid inside the boom and get out from the tail. It is need to protect from weather the place where the coaxial cable is soldered to the vibrator. RF socket also must be protected from weather and dirty at transportation of the antenna. Antenna has weight of 0.4-KG. Practical measured (by device SWR-121) SWR is: at 144.7=1.3:1, 145.2=1:1, 145.7=1.6:1.

Antenna has gain compare to half-wave dipole 6-7 dB. In general to measure the real gain of an antenna in the amateur conditions is practically not easy matter. I use a comparative method that shows

advantage one antenna above other one. The essence of this method is simple. You take a dipole as the exemplary antenna and do compare the dipole with the experimental antenna.

Being on the southern slope of Elbrus- mountain at height of 4000 meters I use the method with help of Turkish ham station TA7T. The distance between me and TA7T was approximately 500-kms. I hardly heard TA7T by my exemplary dipole but I had 59 with the YAGI. It is near 10 dB in real gain!

