Simple Weekend Antenna for 145-MHz

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Yes, I need an antenna for 144-MHz. Not just antenna, but antenna that can work in different conditions, from my home, from a car, from my mountain trip. Have been tried different design I suddenly stopped to those one. It is two element YAGI that is very simple to design but has good characteristics.

Photos below show the antenna installed on my balcony. The antenna is very sustainable to weather. Rain, wind and snow are no matter for this one.

Before the antenna I had used another ones (among them A-100 and A-200), but my design could sustain in the sever mountain conditions… I had compared the antenna with A-1000 (5-meters long), at distance 50 kms I got the same reports, as for A-1000 as for my YAGI. Two phased YAGI are defeated A-1000 for sure, you may prove in it.

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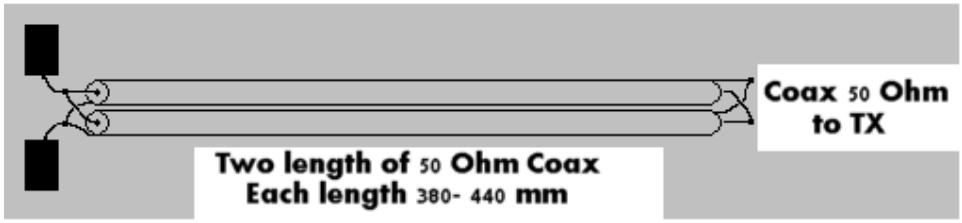
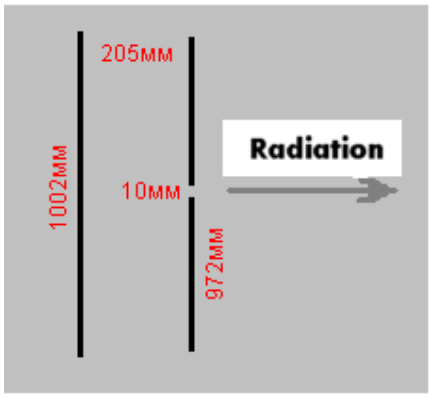
Design of the antenna is very simple. Personally I have made the antenna in 40 minutes. Antenna consists from reflector (length 1002-millimeters) and vibrator (length 972- millimeters, gap for coaxial cable- 10-millimeters). Distance between reflector and vibrator is approximately 204 – 210- millimeters.

Antennas parts are made from insulated wire in diameter 4 millimeters. Place of vibrator, where a coax was installed, was protected with a raw compound. You may use another protector… SWR for the antenna (measured by SWR-121) was (1.0-1.1):1.





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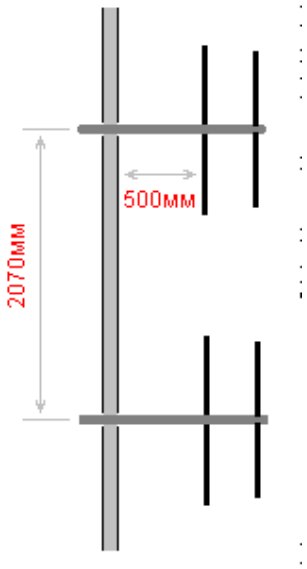
Input resistance of the antenna is 12,5 –Ohm, for matching with 50-Ohm Coaxial I have used a transformer made with two bridged length of 50-Ohms coaxial cable. The coax must have the similar length near 370- 440- millimeters (should be find at adjusting). Both pieces must be tied at all length one to another.

Another Big Gun

I was asked how is it possible to improve gain but save wide DD? To do this it is impossible to add another director, but it is possible to use two phase antennas. Picture below shows this way. Good chose to phase 2 or 4 antennas. We get good DD, good gain and the system can receive mobile stations in very good way compare to collinear antennas in 5- 7 meter long.

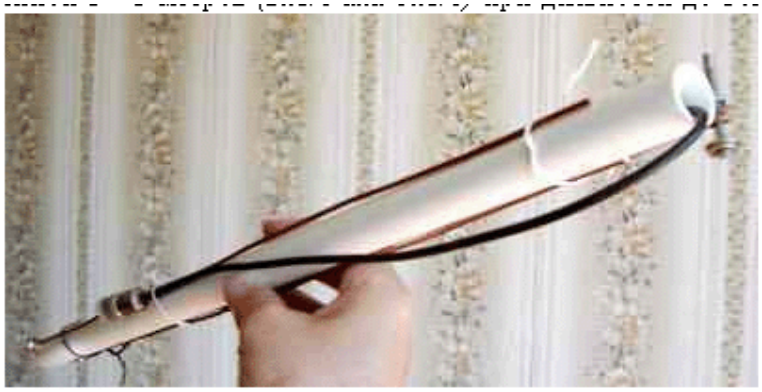


Credit Line:
http://www.hamradio.cmw.ru/antenna/145-2el.htm

Trip Variant of the Antenna

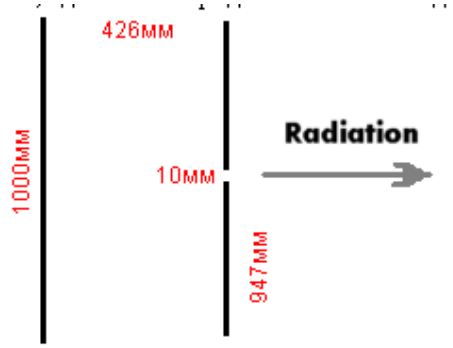
A bit later, I made a kit of the antenna suitable for my mountain trip. Testing of the antenna in the mountains shows, that my YAGI is compared to collinear in 3- 5 meters long on distance up to 50 kms and beats the antennas up to 90 kms and more.

Photos below shows kit of my trip YAGI. Only 30 seconds are needed to install the antenna. Boom for the YAGI was made from a plastic water pipe in 510- millimeters length and 21- millimeters in diameters. Transformer 12.5-Ohms/50-Ohms is placed inside the plastic tube. The antenna is good fit to rucksack and may be easy repaired in the trip.



50-Ohms YAGI

For those who do not want cut length oh matching transformer was calculated antenna having 50- Ohms input impedance. So coaxial cable may be directly to connected to antenna terminals. View of the antenna is almost the same, however, simple RF-Choke near antenna terminal (0ne- three turns around a ferrite ring is recommended for the design. Distance between reflector and director should be chosen (415- 440 – millimeters) for minimum SWR. The antenna has gain near 4,3 dbd.



New Year Pictures from UA6HJQ