

Receiving Field HF Loop Antenna

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I need an antenna for my receiver DEGEN- 1103. The antenna should provide a good reception on to HF bands. I would like to take the receiver to a field or hotel room. So, the antenna should be small in sizes and easy to install. Through some my experimenters I stopped on a Loop Antenna.

Figure 1 shows the design of the HF Loop Antenna. It is very simple antenna and cheap in the used parts. The antenna works fine from 7.0 to 30.0- MHz. Loop of the antenna made of 1- meter length of a TV-Coaxial Cable (75- Ohm). For the Loop of the antenna it is used the braid of the coaxial cable. The length of the cable has RF-Connectors from the both sides.

Then I found in junk – box of my wife a plastic box (it was a plastic box from old cosmetic). Inside of the plastic box there were installed two RF – Connectors for the TV-Cable, a variable capacitor 2x 250- pF and a toggle switch. At the band 9.0- 30.0- MHz it is used one section of the variable capacitor. At the band 7.0- 15.0- MHz there are used both section of the variable capacitor. The toggle switch turns on the sections to the Loop antenna.



Figure 1 Design of the HF Loop Antenna



Figure 2 Reception with Whip Antenna



Figure 3 Reception with Loop Antenna

The coupling loop of the antenna has diameter 1/5 from the diameter of the main Loop. It made of a copper wire in diameter near 1.5- mm (15- AWG). Coupling loop through a small length of a thin coaxial cable is turn on the DEGEN- 1103. Plastic box from a Chupa- Chups is protected the soldering of the coaxial cable to the coupling loop.

Antenna was tested with the DEGEN- 1103. The antenna works perfect compare to the small sizes. Loop Antenna works much better the whip of the receiver. Reception of the Ham- bands and broadcasting stations was much better compare to the receiver's whip antenna. **Figure 2** shows S- meter of the receiver with the whip antenna. **Figure 3** shows the S- meter of the receiver with the Loop antenna. For the test it was used a broadcasting station working on the 15.300- kHz. However, the loop antenna loses 1... 2 balls to an internal wire antenna.

Figure 4 shows the Loop Antenna and the DEGEN- 1103.

Then the Loop Antenna and the DEGEN- 1103 were prepared for a field test. **Figure 5** shows the kit. Antenna was tested with the DEGEN- 1103 in a field. **Figure 6** shows the Loop Antenna and the DEGEN- 1103 in a field. Antenna worked fine. I was very satisfied of the work. On my opinion it is optimal antenna when you want to use receiver in the field conditions or at hotel room. The antenna as well is good for the city conditions because it allows eliminate the industrial interferences.

72/73! Pavel, UU9JAN



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Figure 4 Loop Antenna and Receiver



Figure 5 Kit for field operation



Figure 6 Receiver and Antenna in the Field