

# Low Profile Antennas for the 435- MHz Band

*The publication is devoted to the memory UR0GT.*

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**Credit Line: Forum from:**

[www.cqham.ru](http://www.cqham.ru)

[www.radioscanner.ru](http://www.radioscanner.ru)

Antenna "Shaiba" (from Russian to English "Shaiba" is a hockey puck) what is made by <http://www.antennaxxi.ru> widely is used in Russia. The antenna is used to in the mobile communication, in the security and alarm system, and anywhere where there is need to quick installation of an antenna. Antenna "Shaiba" is low profile antenna with a magnet base. It allows a quick installation of the antenna to any iron (or magnet) surface.

Antenna "Shaiba" was used in mobile communication in the Moscow at the commemoration of the 60- years from the end of the ww2. Site <http://www.antennaxxi.ru> listed high enough parameters for the Antenna "Shaiba." However, is it a true? One ham is opened an old Antenna "Shaiba" for an investigation. **Figure 1** shows design of the antenna.



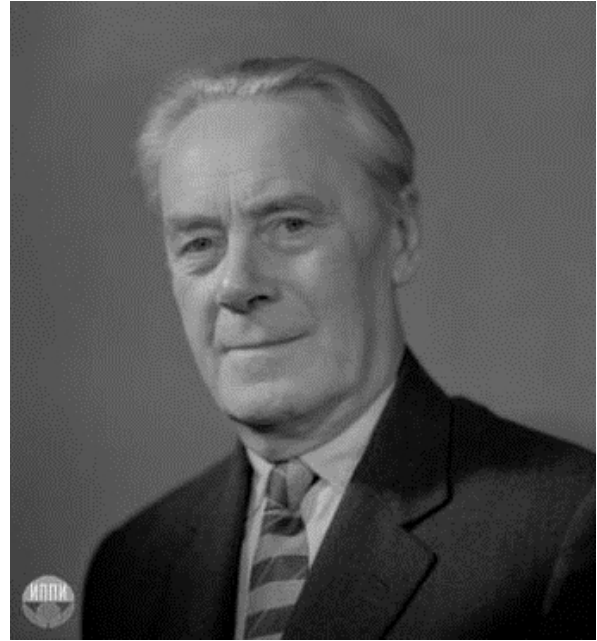
**Figure 1** Design of the antenna "Shaiba"

Credit Line: <http://www.radioscanner.ru/forum/topic21444.html>

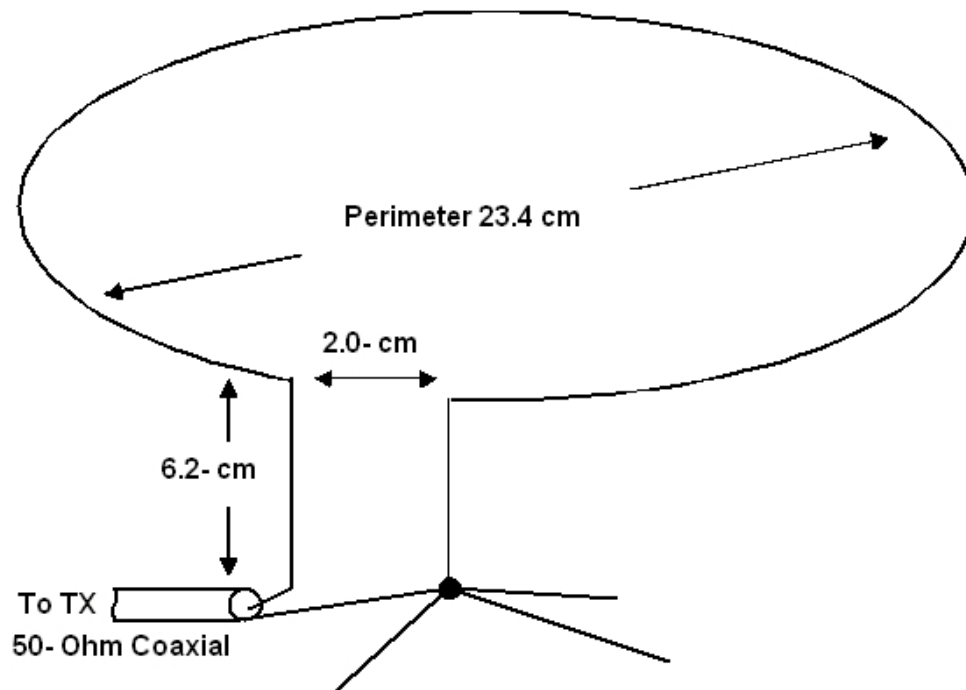
**Commentary by UR0GT:** The Antenna "Shaiba" is a modification of the well- known Stub Dipole Antenna invented by Aleksandr Pstolkors in 1936. The lambda /4 Stub Dipole Antenna has input impedance 150- Ohm. (**Note by I.G.:** For example, the antenna is described at: Constantine A. Balanis: *Antenna-Theory-Analysis-and-Design-Third Edition*).

Because of the form the Antenna "Shaiba" has input impedance of 50-Ohm. Gain of the Antenna "Shaiba" less compare to lambda/4 vertical antenna (or vertical lambda/4 Stub Dipole Antenna). File MMANA gives answer what the Antenna "Shaiba" is. File MMANA for the Antenna "Shaiba" (designed for the 435- MHz Band) may be downloaded from: [http://www.antentop.org/015/low\\_profile\\_antennas\\_015](http://www.antentop.org/015/low_profile_antennas_015)

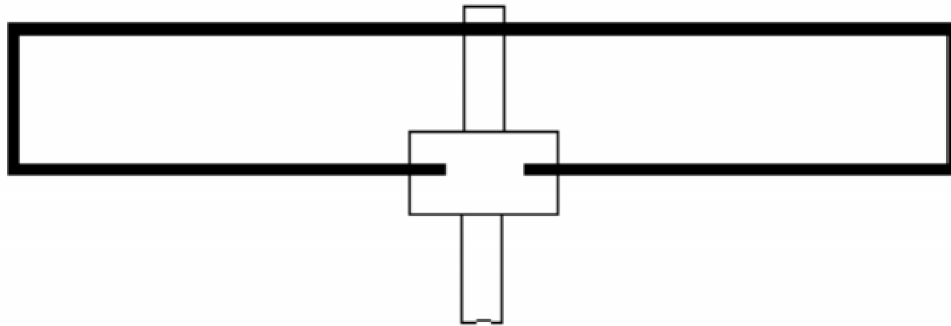
**Figure 2** shows design of the Antenna "Shaiba" for the 435- MHz Band accordingly to the MMANA file. **Figure 3** shows Z of the Antenna "Shaiba" for the 435- MHz Band. **Figure 4** shows SWR of the Antenna "Shaiba" for the 435- MHz Band. **Figure 5** shows DD of the Antenna "Shaiba" for the 435- MHz Band.



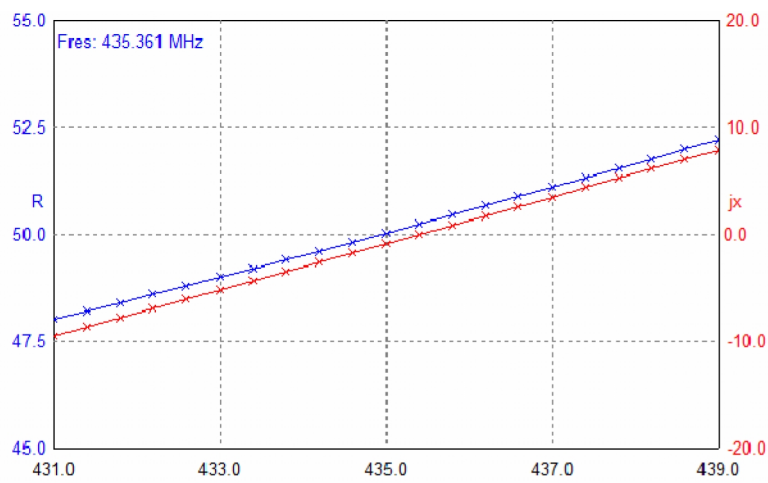
A.A. Pstolkors  
Russian Scientist in field of Radio and Antennas  
28 September 1896 - 23 March 1996



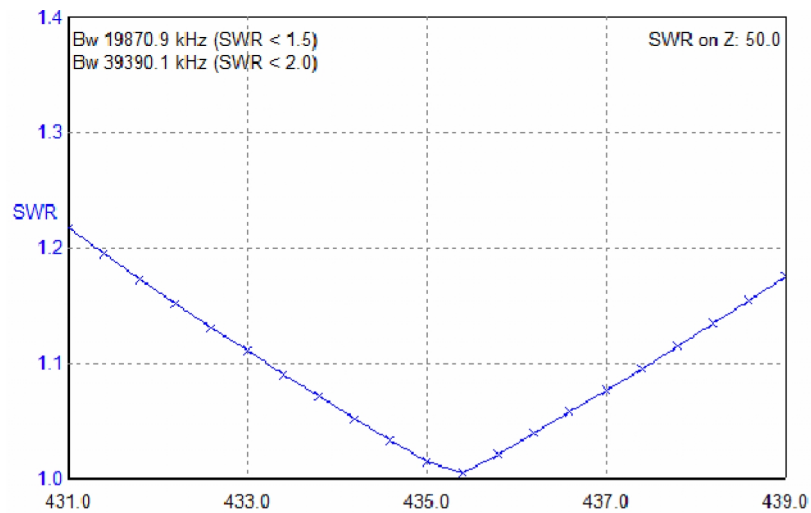
**Figure 2** Design of the Antenna "Shaiba"



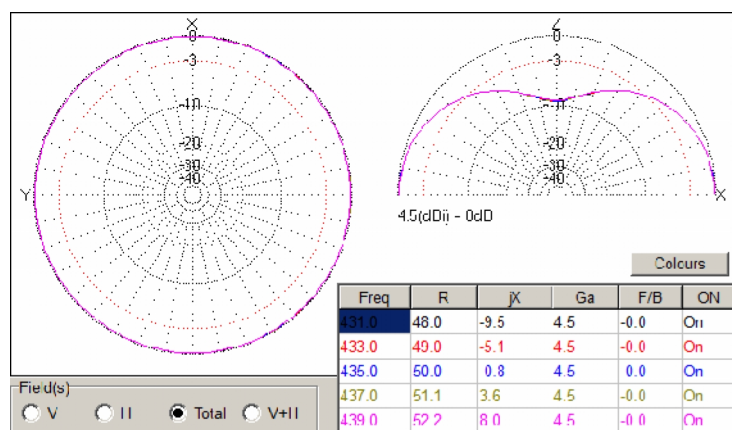
**Pistolcors Stub Antenna**



**Figure 3** Z of the Antenna “Shaiba” for the 435- MHz Band



**Figure 4** SWR of the Antenna “Shaiba” for the 435- MHz Band



**Figure 5** DD of the Antenna "Shaiba" for the 435- MHz Band

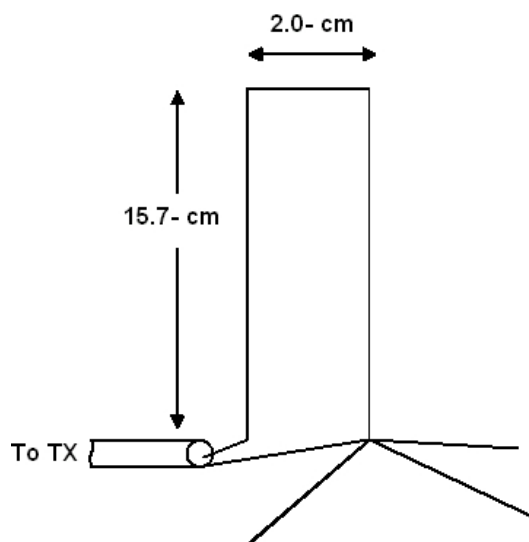
**Data and Stuff for the Antenna:** Antenna may be made from a copper wire in diameter 1.8- 2.2- mm (11- 14 AWG). Perimeter of the hat (it may be circular or polygon) is 234- mm. Vertical two wire line has length 62- mm, distance between the wires is 20-mm. One of the wire of the line is grounded another wire is connected to the central core of the 50-Ohm coaxial cable. Braid of the coaxial cable is grounded.

Like a ground it may be served a copper disk in diameter not less 320-mm or 3 counterpoises in length of 168- mm radially connected to a small disk (base of the antenna) in diameter of 30- 50- mm .

Sizes of the ground may be decreased if the gap between the ground and metal auto body is a small.

For example here is shown a prototype of the Antenna "Shaiba"- lambda/4 stub Antenna. **Figure 6** shows design of the antenna. **Figure 7** shows Z of the lambda/4 stub Antenna. **Figure 8** shows DD of the lambda/4 stub Antenna. . File MMANA for the lambda/4 stub Antenna (designed for the 435- MHz Band) may be downloaded from:

[http://www.antentop.org/015/low\\_profile\\_antennas\\_015](http://www.antentop.org/015/low_profile_antennas_015)



**Figure 6** Design of the prototype of the Antenna "Shaiba"- lambda/4 stub Antenna

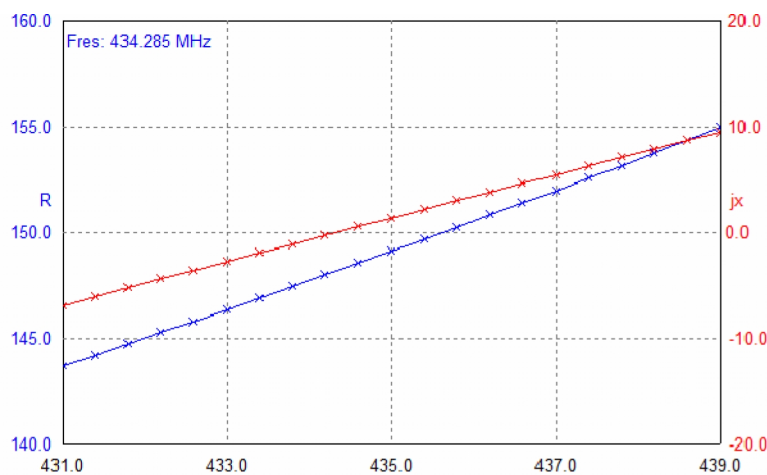


Figure 7 Z of the lambda/4 stub Antenna

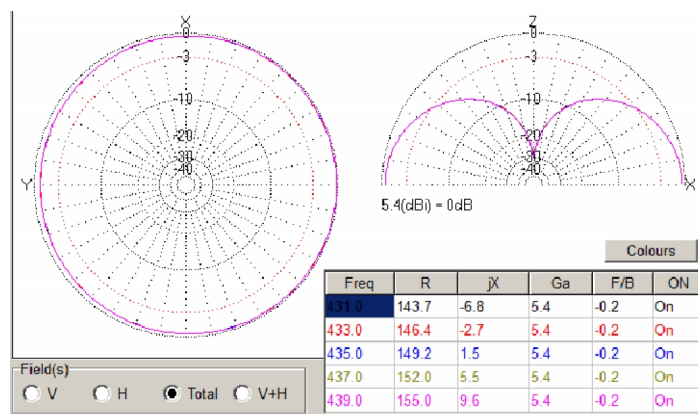


Figure 8 DD of the lambda/4 stub Antenna.

It is another low profile antenna for the 435- MHz Band. It is a half- loop antenna. The antenna has a gain more than the Antenna “Shaiba” has. DD of the antenna has ellipsoid shape. Sometimes such DD is preferred to the circular.

Figure 9 shows the design of the antenna. Figure 10 shows Z of the antenna. Figure 11 shows SWR of the antenna. Figure 12 shows DD of the antenna.

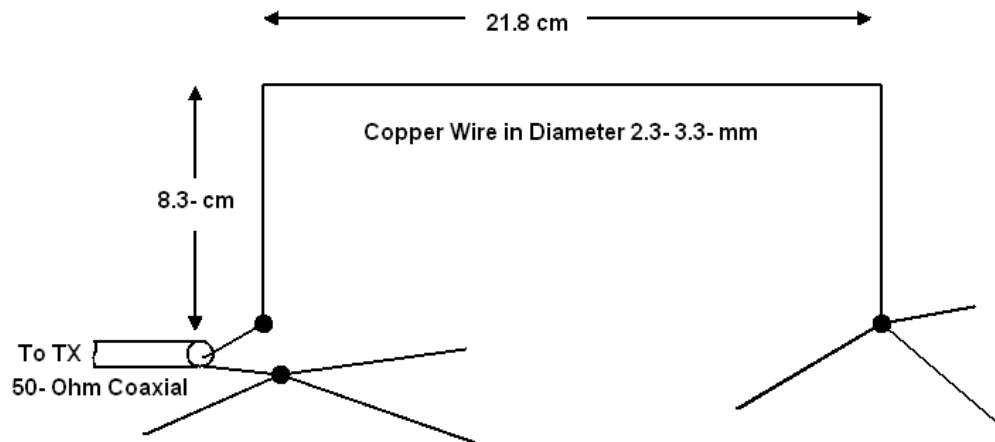
File MMANA for the low profile antenna for the 435- MHz Band may be downloaded from:

[http://www.antentop.org/015/low\\_profile\\_antennas\\_015](http://www.antentop.org/015/low_profile_antennas_015)

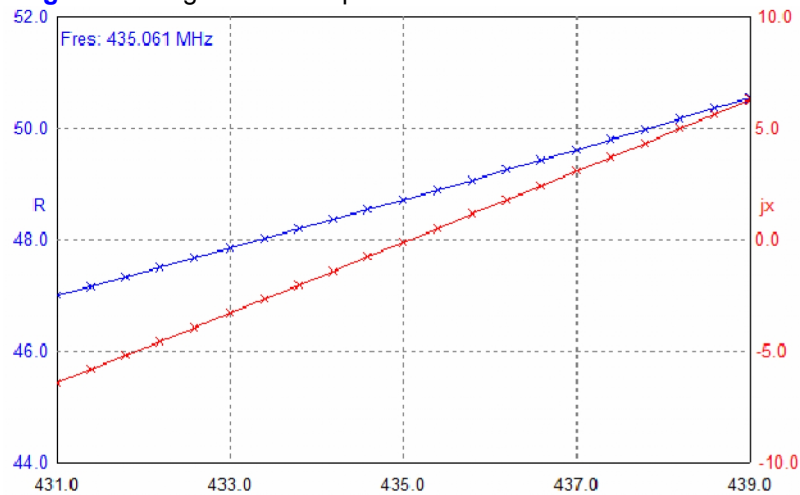
**Data and Stuff for the Antenna:** Antenna may be made from a copper wire in diameter 2.7- 3.3- mm (8- 10 AWG). Height of the antenna is 83- mm length of the antenna is 218- mm. Antenna should be grounded like the antenna “Shaiba.”

73! UR0GT

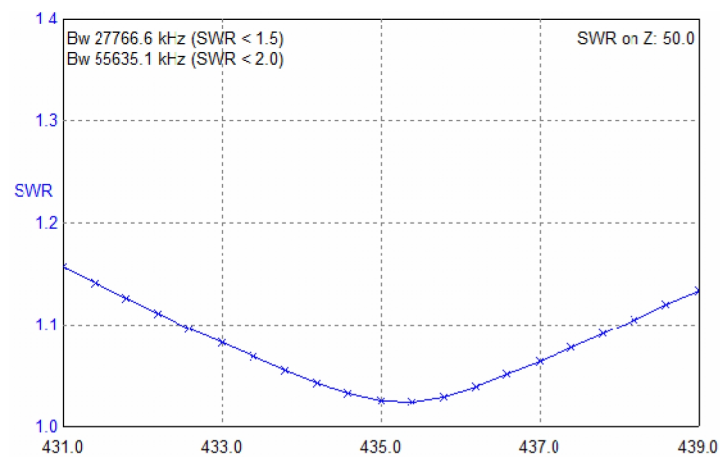




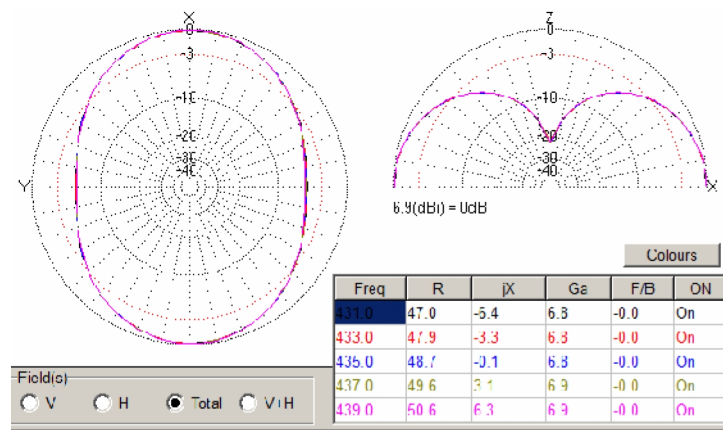
**Figure 9** Design of the low profile antenna for the 435- MHz Band



**Figure 10** Z of the low profile antenna for the 435- MHz Band



**Figure 11** SWR of the low profile antenna for the 435- MHz Band



**Figure 12** DD of the low profile antenna for the 435- MHz Band

Below there are photos for another one “Shaiba” Antenna.

It is a two band (?) antenna. Credit Line:

<http://www.cqham.ru/forum/>

