

Small Sized Helical Antennas

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Small-Sized Helical Antenna – it is wire helix coiled on a dielectric rod. UA0RW used a wood rod boiled in the paraffin. **Figure 1** shows the design of the Vertical Small Sized Helical Antenna. Antenna for the 20- meters has rod in OD 2- cm, length of winding is 30 cm, antenna is coiled turn to turn) by enamel wire in 1- mm OD (18- AWG).



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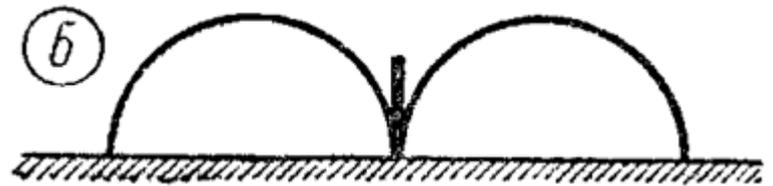
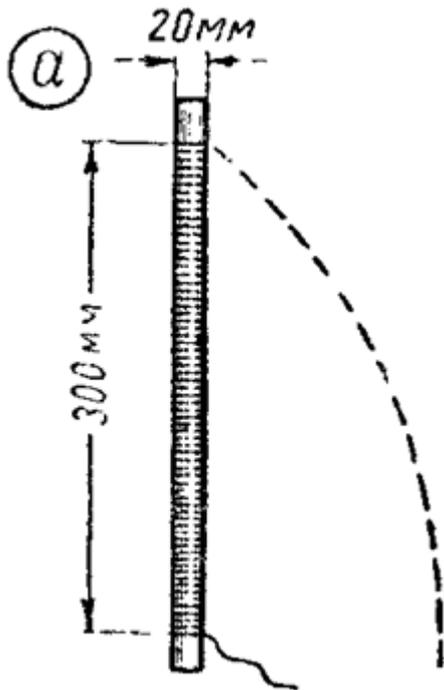


Figure 1

B. DD of the Vertical Small Sized Helical Antenna

Figure 2 shows the design of the Dipole Small Sized Helical Antenna. Antenna for the 20- meters has rod in OD 2- cm, each parts of the dipole has 220 coils of the enamel wire in 1- mm OD (18- AWG). Overall length of the two parts of the antenna is 60- cm.

Figure 1

A. Design of the Vertical Small Sized Helical Antenna

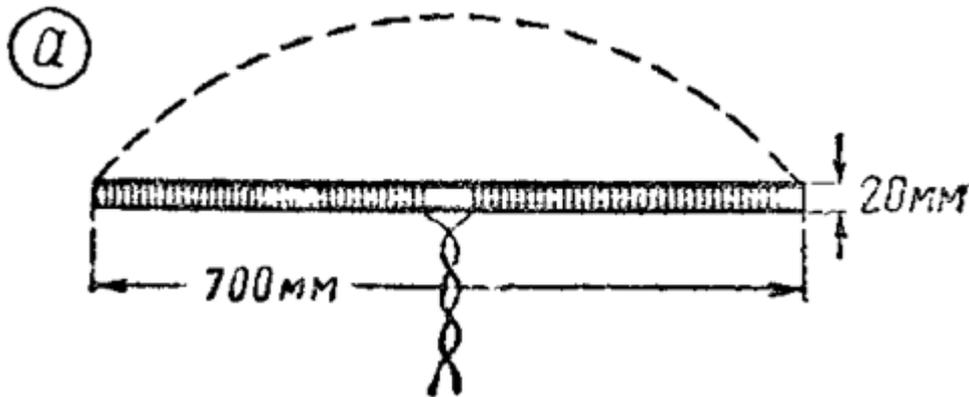


Figure 2

A. Dipole Small Sized Helical Antenna.

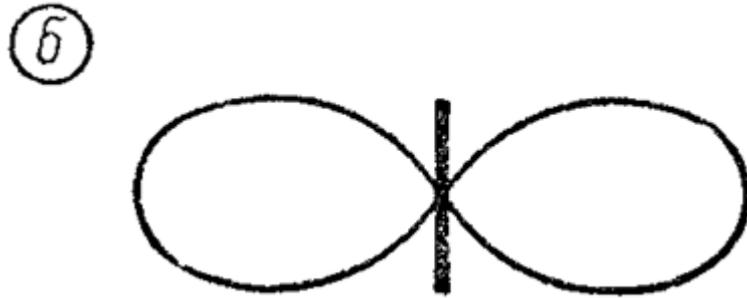


Figure 2
B. DD of the Dipole Small Sized Helical Antenna

At the test the Dipole Small Sized Helical Antenna was installed on the top of a 5-meters mast. The antenna was fed by usual two-wire main cord. It was discovered, that the antenna has strong radiation directivity. Signals from receiving station almost disappeared when the antenna was turned around. The helical antenna loses 1- point at RS compare to Traveling-Wave Antenna pointed to correspondent.

Note I.G.: At the article there is not explained what the Traveling-Wave Antenna is.

Figure 3 shows the design of the Vertical Small Sized Helical Antenna coiled by copper cord. The cord had 2.5- mm OD. Like a dielectric form for the antenna it was used a rod in length of 1.5- meters. The rod had the square- cross- section with side 3- cm. Antenna had 200 coils. Distance between coils was 7.5- mm.

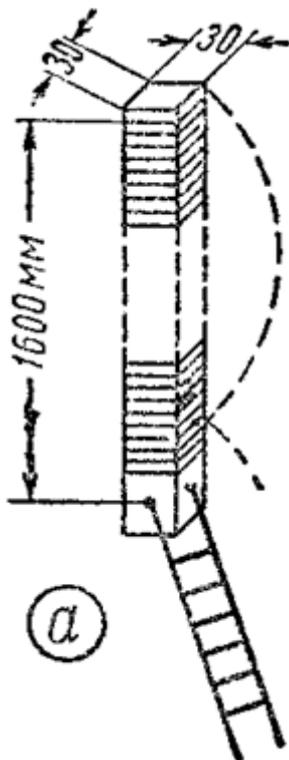


Figure 3
A. Design of the Vertical Small Sized Helical Antenna on a square rod

At the test the antenna (**Fig.3**) was installed at 4.0- meters mast. Antenna was fed by 500- Ohm two-wire symmetrical line. At the antenna terminal one wire of the line was connected to the helical antenna, second wire was lived free. At the transmitter terminal one wire was connected to "Antenna" second one to the "Ground." Antenna was tested at 20- meters with success.

Practice shows that it is wise to use a square rod for a helical antenna because coils sitting well at the form. Diameter/side of the square should be 1/50- 1/200 from the length of the Helical Antenna. Wires should be protected from atmospheric by strong paint. Wire for winding a helical should be have large diameter as possible but coils of helical should not short to each other.

Current distribution on the antenna may be found with the help of neon bulb. After that the tuning of the antenna was made by the current (checked by antenna milli- ampere- meter) going to the antenna.

Table 1 shows data for the Helical antenna for 20-40-80-160 meters. The antennas were made on a square rod with size 3- cm by wire in 2.5- mm OD. Gap between turns was 7.5- mm.

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Table 2 shows data at testing the Helical Antenna compare to a Traveling-Wave Antenna.

Note I.G.: At the article there is not explained what the Traveling-Wave Antenna is. At the article there is not explained what a Helical Antenna and at which band was tested.

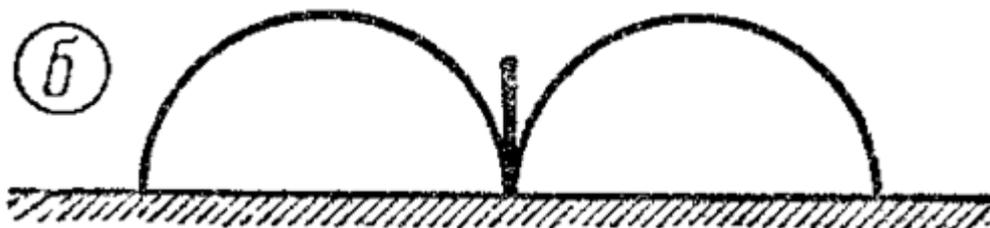


Figure 3

B. DD of the Vertical Small Sized Helical Antenna on a square rod

Table 1

	Numbers of turns for band:			
	20- meters	40- meters	80- meters	160- meters
Antenna from Fig. 1	90	180	360	720
Antenna from Fig. 2	90	180	360	720
Antenna from Fig. 3	200	400	800	1600

Note: For antenna Fig.2 the Data given for one part of the dipole

Table 2

Date	Time, msk	City, Callsign	RST Of the correspondent	RST for UA0RW when is used:	
				Traveling-Wave Antenna	Helical Antenna
22-V-1957	16-45	Sarapul, UA4WA	579	579	579
25-V-1957	16-00	Khabarovsk, UA0CJ	589	579	599
25-V-1957	18-30	Leningrad, UA1KAS	579	579	589
25-V-1957	21-15	Kaliningrad, UA2KAA	579	579	579
26-V-1957	14-00	Irkutsk, UA0SL	5(6/7)9	579	5(8/9)9
26-V-1957	14-45	Stalinabad, UJ8KAA	559	449	559
26-V-1957	16-00	579 Penza, UA4FC	579	569	579