

RX3MS Helical Antennas

By: **TURKIN VLADIMIR, RX3MS**

Below there are described three Helical Antennas. All of the antennas were made and tested by RX3MS. The antennas later were repeated at several amateur's stations and the antennas showed good efficiency.

Antennas were tested at balcony placed at first floor of two store wooden house.

Antenna mast was installed on balcony railing that was placed at 5 meter above the ground.

From the antenna a 5-meter length coaxial cable was going to home brew ATU that provide additional matching of the helical antenna with transceiver. **Figure 1** shows RX3MS Helical antenna.

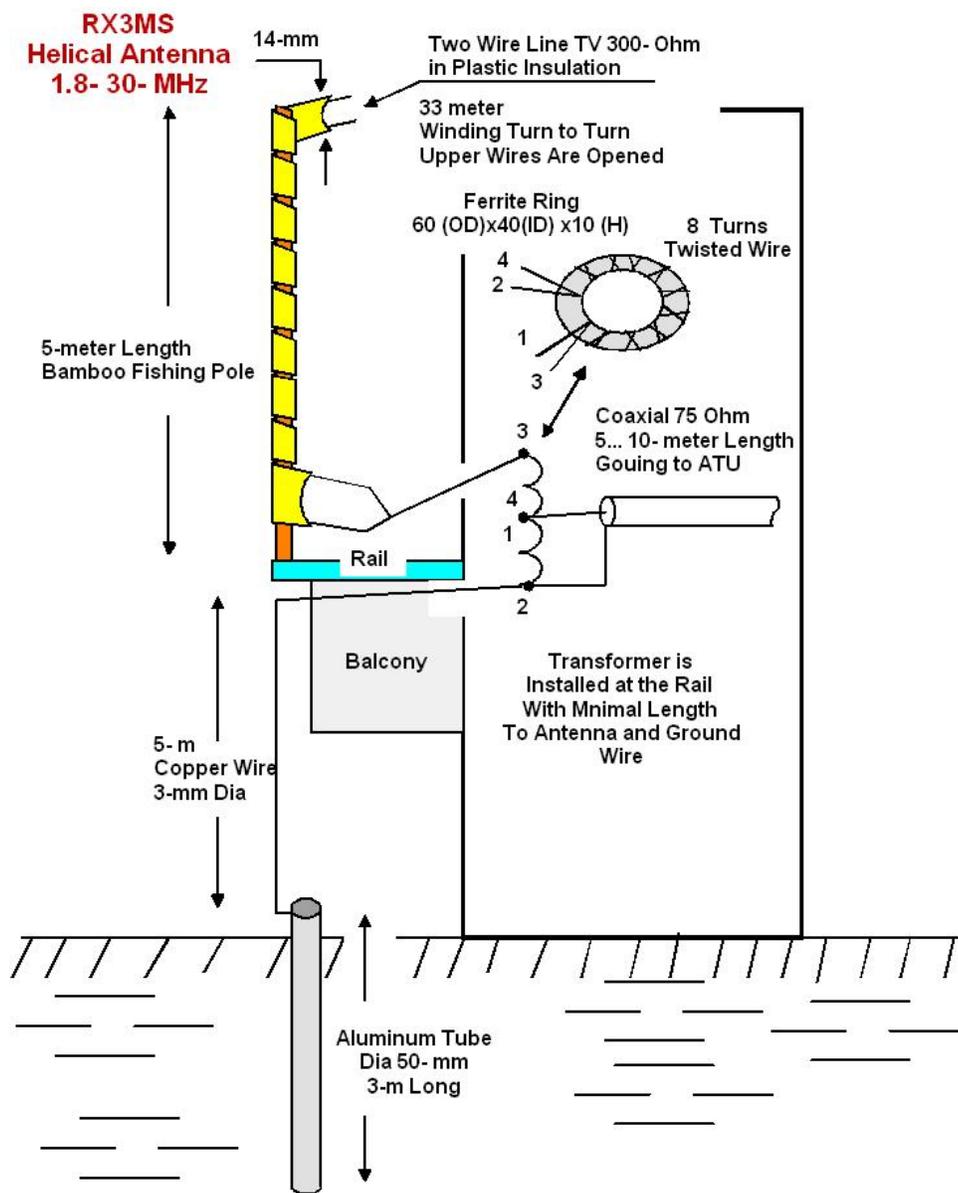


Figure 1 RX3MS Helical antenna

33 meters of twin wire 300- Ohm TV Cable was wound around a bamboo fishing pole in 5 meter length. Line on the antenna up end was opened. Line at the antenna down end was closed. A transformer was installed at the antenna. Transformer was made on to a ferrite ring in dimensions 60x40x10 (ODxIDxH). It were wound by a twisted wire 8 turns, schematics is shown in the **Figure 1**. Antenna had grounding. It was made by wire in dia 3- mm that was connected to aluminum tube in 3- meter length that was inserted to the ground. The antenna could be tuned from 1.8 to 30.0- MHz.

Figure 2 shows MAXI RX3MS Helical antenna. The antenna was made on the mast in 10- meter length. A dry Pine Tree Pole was used to make the mast. On top of the mast was installed a 7- meter long plastic fishing pole. 30 meters of twin wire line in plastic insulation was wound around the plastic fishing pole. Line on the antenna end was opened. The same line was downed to the balcony rail. A transformer was installed at the antenna. Transformer was made on to a ferrite ring in dimensions 60x40x10 (ODxIDxH). It were wound by a twisted wire 8 turns, schematics is shown in the **Figure 2**. Antenna had grounding. It was made by wire in dia 3- mm that was connected to aluminum tube in 3- meter length that was inserted to the ground. The antenna could be tuned from 1.8 to 30.0- MHz.

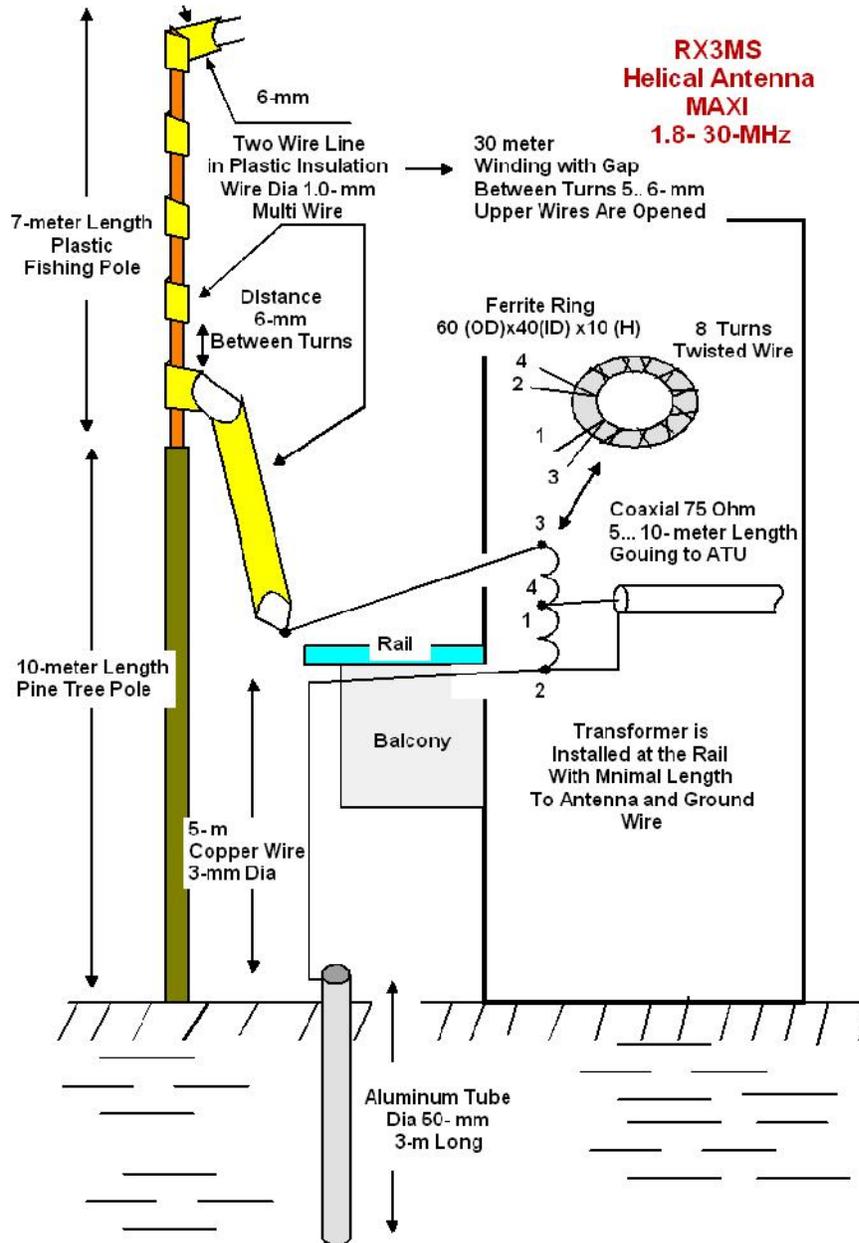


Figure 2 MAXI RX3MS Helical antenna

Figure 3 shows MINI RX3MS Helical antenna. The antenna was made on the mast in 5- meter length. A dry Pine Tree Pole was used to make the mast. On the mast was inserted a plastic water pipe tube in diameter 40- mm and 1.5- meter long. 33 meters of twin wire line in plastic insulation was wound around the plastic water pipe tube. Line on the antenna up end was opened. 3.5 meter length wire in 2- mm diameter is going to the transformer.

Transformer was made on to a ferrite ring in dimensions 60x40x10 (OD x ID x H). It were wound by a twisted wire 8 turns, schematics is shown in the Figure 3. Antenna had grounding. It was made by wire in dia 3- mm that was connected to aluminum tube in 3- meter length that was inserted to the ground. The antenna could be tuned from 1.8 to 30.0- MHz.

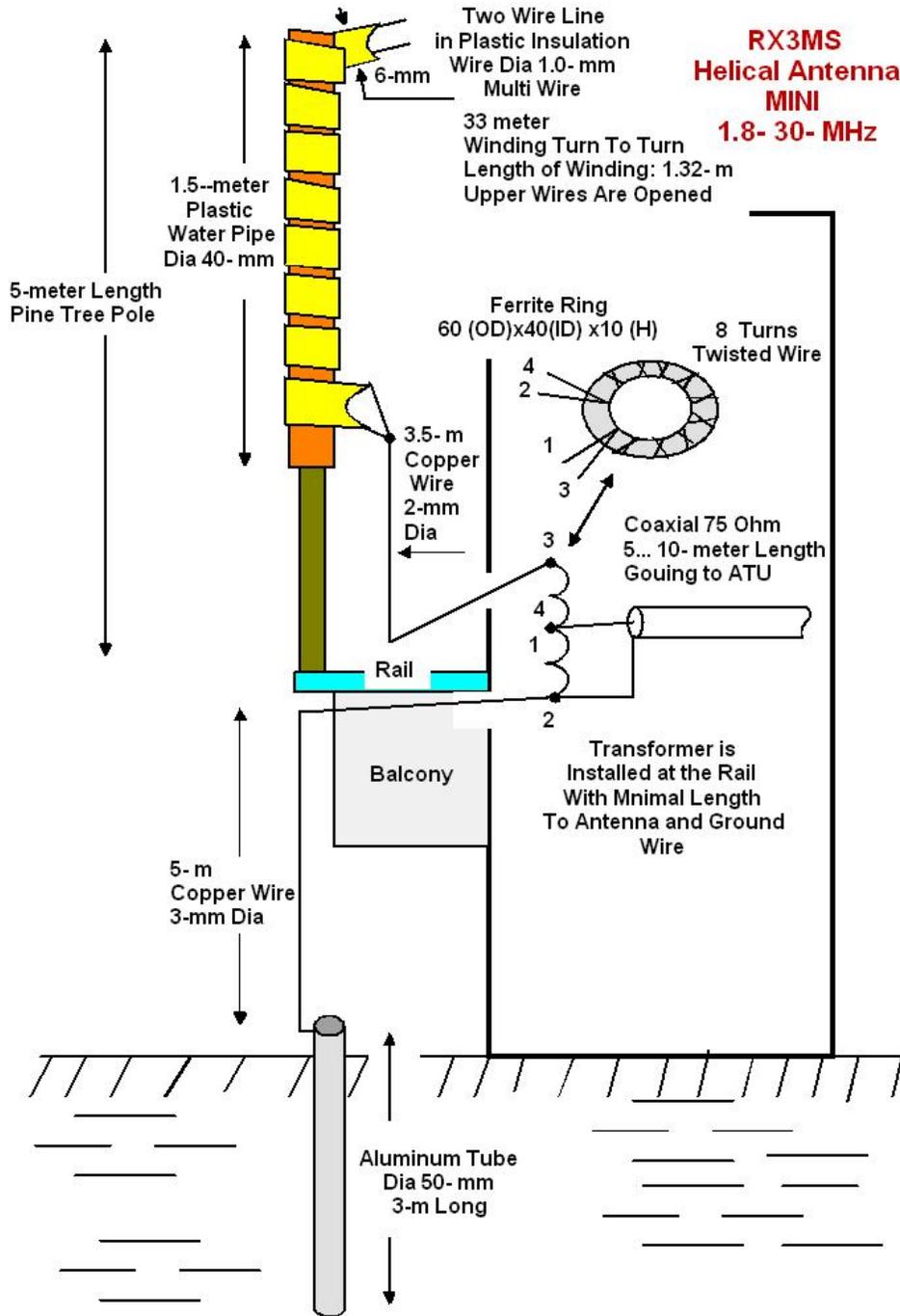


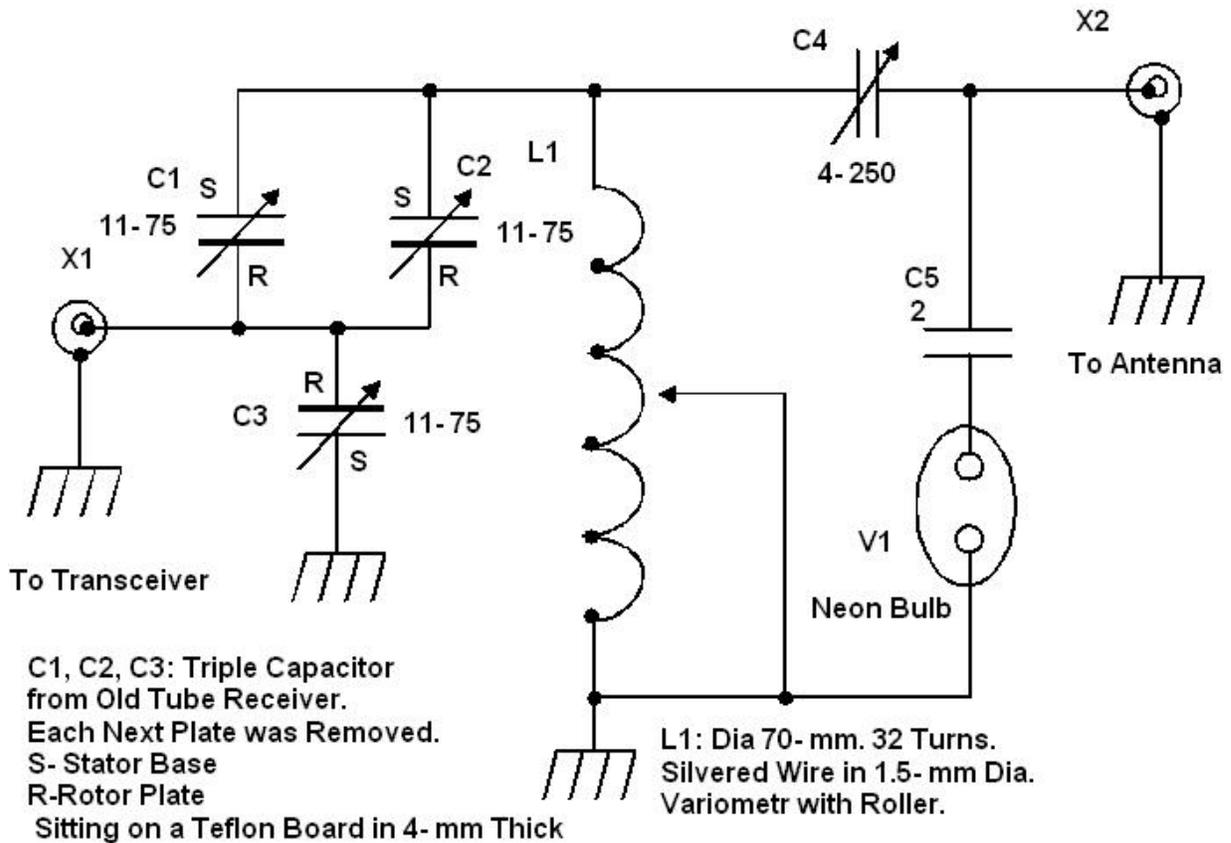
Figure 3 MINI RX3MS Helical antenna

Antenna was tuned with help of a tuner shown in **Figure 4**. The tuner could match all of three helical antennas with transceiver. Tuner matches with the transceiver with help of a triple variable capacitor 11-75- pF It is a usual variable capacitor from an old tube receiver. However each second plate at the capacitor is deleted. Second capacitor C2 is air-dielectric capacitor with gap between plates 2-mm. Such ATU could afford RF-Power going through in 100- watts.

For L1 inductor it was used an old variometer with roller from ex-Soviet military transmitter. The ATU could be tuned by internal SWR- Meter of the transceiver or by a neon bulb. You just need to install proper capacitor to view glowing of the bulb. It is possible to tune the antenna system by FSM installed at the transmitting site.

All of the three antennas was tested at QRP Power and showed good result.

73! DE RX3MS



C4 : Air Dielectric Capacitor. Gar Between Plates 2- mm. Sitting on Teflon Board in 4- mm Thick.

C5: Depends on Used Neon Bulb and Power. May Be 1- 5- pF.

Figure 4 Antenna Tuner by RX3MS for his Helical antennas



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